

Cognition, Language and Communication

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Cognition, Language and Communication

We live in a world where words have in fact taken over from the more physical or non-verbal forms of communication. It is with words that information about human interaction and other events is communicated and stored. Words have become the currency of an information culture that has increasingly become more incapable of dealing with non-verbal action. Indeed, humanity was on the way toward losing its reliance on non-verbal communication the moment it realized that words can capture more complex forms of reality and abstract these forms in a more economical manner. It is with words that we engage in social interaction and it is through a better understanding of words and their use that we can begin to appreciate communication as joint action. Much of our actions essentially involve communication and are produced by using language. It is therefore not unreasonable to expect that the study of language and its use will contribute to a more informative appreciation of not only the communicative processes that drive joint action or symbolic communication but also psychological processes (cognitive, motivational, emotional). The present chapter is intended as an attempt and a contribution to elucidate the interface between symbolic communication as mediated by language and cognition.

Social behavior and interaction are enabled by means of symbolic communication. This insight is certainly not a recent one and it is one of the main contributions of G. H. Mead (e.g., 1934). Within the Meadian tradition of social psychology, forms of language are treated not merely as mediators of social interaction but also of cognition, consciousness, and, inevitably, of the self (cf. Rock, 1979, p. 111 ff.) This broader perspective is also central to socio-cultural theory and semiotic mediation (cf. Wertsch, 1991, 1994, Wertsch & Rupert, 1993). Communication is seen as a joint activity that is mediated by the use of a variety of tools. The most significant of these tools is undoubtedly language. The idea that human action is mediated by tools is also one of the central themes of Vygotsky's work and of the socio-cultural approach which attempts to examine human action in terms of its cultural, institutional and historical embeddedness (cf. Wertsch, 1991). As Vygotsky (1978) noted, the introduction of culture through language impacts the nature of interpersonal functions. "It does this by determining the structure of a new instrumental act just as a technical tool alters the process of natural adaptation by determining

the form of labor operations" (Vygotsky, 1981, p. 137). Further, he points out that "As soon as speech and the use of signs are incorporated into any action, the action becomes transformed and organized along entirely new lines" (Vygotsky, 1978, p. 28). In the following, I shall first of all outline the theoretical framework that has informed my work on the language, cognition, and communication interface. This is in large part inspired by Vygotsky's socio-cultural approach, although by no means entirely, as will become apparent in the first section. Central to this framework is the analytic distinction between language and language use as tool and tool use respectively. The second section is designed to exemplify the feasibility of such a theoretical framework by furnishing an integrated series of empirical programs that have as their aim: (a) the investigation of 'tools' as the medium of communication, and (b) the investigation of how messages are conveyed by strategic 'tool use' in two situated communicative contexts. These analytically and empirically separable programs constitute part of a broader research strategy that is being developed to illustrate experimentally not only the relationship between the medium and a message in a communication but also the interfacing role of intra-psychological processes (e.g., cognition). The concluding section draws out the implications of this research strategy for issues such as the interface between language, culture, communication and cognition. Additionally, the methodological implications of the conceptual framework and the ensuing research strategies are drawn - these suggest the possibility of advancing practicable strategies that complement the methodological individualism that prevails in psychology.

Symbolic Communication as Strategic Tool Use: The Analytic Framework and Its Implications

The Tool and Tool Use Model: The idea or metaphor that language is a tool upon which knowledge is mapped is critical to the development of the perspective that I would like to advance here (Semin, 1995, 1996). I adopt the tool analogy expressly to invite thinking about linguistic devices such as verbs, adjectives and nouns very much in the way in which one would think about hammers, saws and pliers. These tools, which are feats of centuries of engineering, are not only the products of collective experience and knowledge², they also represent this knowledge. These special tools contain the distilled knowledge about the relationship between a task and the best fit between a task or goal and human propensities (in particular physical ones,

namely, movement, handling, vision, etc.). There is no doubt that I can split a piece of wood into two with a hammer, but a saw is a more sophisticated tool engineered for this purpose. Indeed, I can push a nail into wood with the end of a saw, but a hammer is a more appropriate tool to do so. Yet, one can do other things with hammers. They are also suitable for extracting nails, and so on. Similarly, words are tools of communication that are culturally engineered for specific ranges of purposes similar to the ranges of purposes that saws, hammers and pliers have been engineered for. Similar to the tools of the carpenter, words also contain distilled knowledge about the relationship between a particular communicative intent and its reception.

Tools have a number of properties that have been engineered to optimize their use in a variety of contexts or practical domains. For instance, in the case of hammers, we have a tool that has a shaft and a peen, a hard solid head at a right angle to the handle, and then depending upon the functions that a hammer is to serve, they can display other properties. One such property is a claw on the head for extracting nails, which one typically finds in the case of carpenters' hammers, etc. The properties that a tool has are distinct from its affordances, namely the variety of things that one can do with it, or its uses. Thus, while a hammer has a limited number of properties, the uses that it can be put are unlimited. With a hammer, one can smash a window, kill a person, beat a drum, and also drive a nail into wood, as well as extract it. The great variety of uses that one can put a hammer to are the affordances of a hammer - to use Gibsonian terminology (Gibson, 1977/66; 1979)³. Such affordances are possible only to the extent that there exist human beings who have the capacity to use it. Hence, 'usability as a hammer' as an 'affordance' is relational and manifested pragmatically only in the interface between tool and tool user. The relational conditions that are necessary for the manifestation of such tool affordances should not detract from the fact that it is possible to investigate the properties of such tools (or their affordances) analytically and in empirical contexts (e.g., experimentally). Thus, while affordances have a relational aspect, properties do not. Further, while the properties of a tool, as in the case of a hammer, or a linguistic tool are determinate and finite, as we shall argue in detail later, the affordances of a tool are indeterminate. Thus, while it is possible to list the properties of a hammer, the uses that it can be put to are indeterminate (such as extracting and inserting a nail, as well as smashing a window or killing somebody).

The indeterminacy of tool affordances have a number of important consequences. Tools, in the hands of one master, can create a chair, or a table or a chalet, but given a different cultural context or a different master the same tools will result in different 'functional' products like a pagoda, a Chinese bridal cabinet, etc. And even within the same culture, the same tools will yield different outcomes and different products as a function of the intentions, desires, wishes and goals of the person who is availing him- or herself of these tools. The point is that the very same tools can yield a great variety of unique and nonreiterative outcomes and so it is also with language as a tool and its strategic use. The same social event can be represented in a great variety of ways or by the use of a variety of different tools in a communicative act as a function of the intentions, desires and wishes of the person who is doing the reporting and, inevitably, as a function of the characteristics of the interlocutor to the communicative act (e.g., Higgins, 1981; McCann & Higgins, 1992). This is an issue to which Bakhtin drew attention to and the following passage dovetails well with the tool (type of tool and their properties or reiterative aspect of language) and tool use (the affordances of tools - nonreiterative aspects of language use) metaphor that is being used here and the relationship between the two. He suggests that

"Every text presupposes a system of signs understandable to everybody (that is, conventional, valid within the limits of a given collectivity), a 'language.' ... To this system belong all the elements of the text that are repeated and reproduced, reiterative and reproducible. ... At the same time, however, every text (by virtue of constituting an utterance) represents something individual, unique, nonreiterative, and therein lies all its meaning (its intention, the reasons why it has been created)... In relation to this aspect, all that is reiterative and reproducible turns out to be raw material and means [NB: tool properties in the context of this chapter]. To that extent, this second aspect, or pole goes beyond the boundaries of linguistics and philology. It is inherent to the text, but becomes manifest only in concrete situations and within sequences of texts (within verbal communication in a given realm). This pole is not tied to the (reiterative) elements of the system of language (that is, to signs), but to other (nonreiterative) texts by particular relations of a dialogical nature" (Bakhtin, 1979, p. 283-284).

To the extent that language is a condition for speech, discourse, text or communication, it is also reproduced in any speech event. As Giddens (1976) points out:

"Language exists as a 'structure', syntactical and semantic, only in so far as there are some kind of traceable consistencies in what people say, in the speech acts which they perform. From this aspect to refer to rules of syntax, for example, is to refer to the reproduction of 'like elements'; on the other hand, such rules generate the totality of speech acts which is the spoken language. It is this dual aspect of structure, as both inferred from observations of human doings, and yet as also operating as a medium whereby these doings are made possible, that has to be grasped through the notions of structuration and reproduction" (pp. 121-122, emphasis in the original).

Thus, any communicative act does two things at the same time: it not only enables the communication of the intentions, goals, desires and wishes of the participants, but it also reproduces 'language'. Thus, the very production of verbal communication always entails the reproduction of 'language'. If such were not the case, then every communicative act would be entirely contextualized and variable. Inevitably, such an entirely contextualized approach would not be able to deal with the fact that we communicate in the first place. Furthermore, it could not deal with the fact that intersubjectivity is an ontological precondition to subjectivity (e.g., Berger, 1966; Vygotsky, 1979, inter alia) and is a "fundamental limiting condition" (Semin & Manstead, 1983) to relativity.

These considerations lead to the conclusion suggested already by Ricoeur (1955, see also Semin & Fiedler, 1991, pp. 2-3) that language can be considered as a 'structure', a 'complex skill' and as a 'practical activity'. In the first instance (i.e. structure), language constitutes an abstract property of a linguistic community that can be conceived of as an abstract set of rules that are 'virtual and outside of time' (Ricoeur, 1955). This is what Giddens (1976) refers to as structure and is related to Bakhtin's notion of the reproduced or reiterative elements of the text. These are what I refer to here as the tools that are employed in communication. What is important to note in this context is that these tools and their properties are not intended. What this means is that

language as a structure or as an institution that is reproduced or reiterated is neither the intended product of any one subject nor oriented towards an other. Although it is produced by individuals as historically located agents they do not do so by their own choosing⁴. This is also why Riceour refers to it as 'virtual and outside of time'. This analytic perspective toward language corresponds to the one that I refer to here as the 'tool' with its attendant 'properties'.

If one views the production of a series of speech acts by speakers, then one is referring to a process comparable to a master carpenter producing, for instance, a Chinese bridal cabinet. In this context, language becomes a complex skill that belongs to those 'masters' who are members of a linguistic community. This is analogous to the mastery of what I can do with a saw, a hammer, a screwdriver, etc. In fact, in this analytic context it is probably better to speak about a toolbox that is available to a particular linguistic community rather than tools.

Finally, the third analytic incision introduced by Riceour (1955) invites us to regard language as a medium for practical activity, namely, speech. This refers to the situated doings of subjects with regard to their intended consequences. The comparable reference here is to Bakhtin's notion of the 'individual, unique, nonreiterative' noted above. In this final context, language is seen as the medium facilitating intended communication. Language facilitates communicative intention as well as being the intended medium. The distinctive features of speech are that it presupposes a subject, and is dialogical. Thus, the analysis of speech in the context of the approach advanced here becomes the systematic analysis of the types of tools that people use strategically in the pursuit of their intentions, goals, wishes and desires.

The Tool and Tool Use Research Agenda: The analytic distinction between tools and tool use suggests that we have to develop a more systematic idea of what the tools of communication are and what their properties as well as their "affordances" (Gibson, 1977/66) are. So, we have to come to terms with the following four questions:

- (a) What are the types of tools that mediate communication;
- (b) What are the particular jobs for which such tools have been tailored;
- (c) How are such tools put to use in specific communicative contexts; and, finally
- (d) What is the interface between cognition, tool and tool use in communicative contexts?

These questions address (at the expense of repeating it once too often) analytic or conceptual distinctions or aspects of a unitary process that simultaneously entails cognition, language and communication amongst others. These steps are not independent from each other. Nevertheless, it is possible to develop research strategies that allow one to maximize the investigative accentuation of one aspect over another and it is certainly the case that the current methodological commitment in psychology has maximized an accentuation of cognition and cognitive processes at the expense of the other aspects.

The first step invites a classification. This entails the identification of the types of tools. In the case of tools such as hammers, saws and pliers, we are able to identify tool types more readily because they have more discernible features. In this case, one the domain is that of 'manual tools' along with specific categories in this domain such as saws, hammers, etc. Domain specification and within domain classifications are more readily identifiable in this case, since the match between tool, task and movement is more discernible. In contrast, linguistic tools are not so transparent. This is specially because language, in most of its facets (apart from its surface semantics), constitutes what Polanyi (1967) termed 'tacit knowledge'. Its properties are implicit. Nevertheless, this is possible and constitutes the first part of the next section.

The second step, namely the jobs that the tools have been tailored for, is a research question that invites a focus upon the properties of these tools. The point is that such tools have not one but multiple properties (cf. Semin & Marsman, 1994). The more specific question then becomes an identification of the type of properties that are relevant and this is inevitably influenced by the type of classificatory cut that one introduces in the first step mentioned above, since any classification also sets the level of generality at which the properties of the respective categories have to be defined. This issue constitutes the second part of the section to follow.

The third step, namely tool use in specific communicative contexts, is the subject of the third part of the ensuing section. The research paradigms discussed here present the systematic use of different tools in a 'question-answer' and a 'stereotype-transmission' context. The aim here is not only to illustrate the broad range of applications that a systematic analysis of tools and their properties can be put to (namely their affordances), but also to answer the more central

fourth question posed above, namely: the interface between cognition, language and communication in these illustrative communicative contexts.

The broad research agenda that is described above is illustrated below with a specific application of the type of analytic framework inherent to a tool and tool use approach to the domain of interpersonal language and symbolic communication about interpersonal events.

A Model of the Tools of Interpersonal Language: The Linguistic Category Model

The example that I am going to use for a classification of the types of tools used in communication comes from the domain of interpersonal relations. This is a fairly central domain in the communication about persons, their relationships and their characteristics and spans a broad spectrum of research issues within social psychology ranging from attributional phenomena to social cognition in general as well as intergroup relations *inter alia*. In the following, I shall begin by providing an overview of a taxonomy of the linguistic tools that we use in the description of persons and their relationships as well as interpersonal events, namely the Linguistic Category Model (Semin & Greenslade, 1985; Semin & Fiedler, 1988, 1991). Subsequent to the classification, I shall present the properties of the tools in this domain, namely the features of social interaction and the properties of persons as these are systematically marked in such language. In presenting the tool classification and tool properties, I shall be brief for two reasons. The first is that there already exists extensive sources for the tool classification (e.g., Semin & Fiedler, 1991, 1992b) and tool properties (e.g., Semin & Marsman, 1994). In the second instance, one of the emphases I would like to bring out here is the methodological accentuation of empirically investigating tool properties, which as I shall argue in the concluding section involves a reversal of the common methodological commitment in psychology (cf. Semin, 1996).

The Classification and its criteria: The Linguistic Category Model (LCM) is a classificatory approach to the domain of interpersonal terms which consists of interpersonal (transitive) verbs that are tools used to describe actions (help, push, cheat, surprise) or psychological states (love, hate, abhor) and adjectives that are employed to describe characteristics of persons (e.g., extroverted, helpful, religious). The analytic cut at which the Linguistic Category Model is

offered is at a level that goes beyond particular semantic domains (such as presumed responsibility, Fillenbaum & Rapaport, 1971; Fillmore, 1971a, b) or the relationships between terms within specific semantic domains such as trait terms (adjectives, cf. Semin, 1989). There are a variety of classifications of interpersonal verbs in the literature with a certain degree of convergence between them (e.g., Abelson & Kanouse, 1966; Brown, 1986; Brown & Fish, 1983; Gilson & Abelson, 1965; McArthur, 1972; Semin & Greenslade, 1985). The classification furnished by the LCM does not necessarily contradict or conflict with previous classifications. It is nevertheless more differentiated on a certain level and less so on another level. In principle, it starts with a simple observation and criterion, that has been previously made within the literature (e.g. Gilson & Abelson, 1965), namely between interpersonal terms that refer to observable events (verbs of action) and those that refer to unobservable events (verbs of state). The distinction between observable versus unobservable events is the less differentiated level, albeit basically critical for distinguishing between the properties of interpersonal verbs. The subdivision of the former category into three subgroups and the addition of an adjective category introduces the more differentiated level. This more differentiated level is necessary to the extent that it marks distinct gradations of the 'inferential properties' of action verbs. The distinction between the four verb categories is obtained on the basis of a number of conventional grammatical tests and semantic contrasts (cf. Miller & Johnson-Laird, 1976).

The main reason to proceed with such criteria that are independent from the types of properties that these tools have is to avoid circularity in establishing a category system. One of the problems of classificatory approaches in psychology is that they often invite the problem of circularity. That is, the defining features of the categories also are often not independent of the properties that such categories are supposed to have. If the defining feature of the category is identical to the critical property of the category then we have a typical instance of circularity. One illustration of this is to be found in the prototype approaches to the classification of the trait domain (e.g., Hampson, Goldberg & John, 1987; Hampson, John & Goldberg, 1986; John, Hampson & Goldberg, 1991), whereby category breadth versus narrowness is defined by the range of behaviors that are encompassed by a trait. Thus, 'reliable' is regarded as a broad trait because it encompasses a broad range of behaviors whereas 'punctual' refers to a more specific

domain of behavior and so on. The critical defining feature of the category is precisely the variable on which the differences are also observed. This presents the conceptual problem.

In the case of the LCM, we began by identifying a number of convergent linguistic criteria by means of which it was possible to systematically differentiate between different types of interpersonal verbs and adjectives (cf. Bendix, 1966; Brown & Fish, 1983; Miller & Johnson-Laird, 1969, *inter alia*). In the classification we distinguish between four interpersonal verb categories, namely Descriptive Action Verbs (DAV), Interpretative Action Verbs (IAV), State Action Verbs (SAV), State Verbs (SV) and Adjectives (ADJ) (cf. Semin & Fiedler, 1991; 1992b - see Table 1 below). One can

 INSERT TABLE 1 APP. HERE

distinguish between SV's and the three action verbs on the basis of two separate criteria. It is difficult to use the imperative unrestrictively in the case of SV's (e.g., 'Please admire me!' or 'Need money!') Additionally, SVs resist taking the progressive form (e.g., 'John is liking Mary'). Whereas both SV's and SAV's refer to psychological states in contrast to IAVs and DAVs, it is possible to distinguish between SAVs and SVs by means of the 'but' test (cf. Bendix, 1966; Johnson-Laird & Oatley, 1989, p. 98 ff.). SAVs refer to states that are caused by the observable action of an agent and describe the 'emotional consequences' of this action upon a patient (surprise, bore, thrill). The latter, SVs, refer to unobservable states (love, hate, despise). Whereas one can say "I like Mary, but I do not know why", it is awkward to say "Mary entertained me, but I do not know why". The reason is mainly because SAVs "signify a feeling that has a cause known to the individual experiencing it" (Johnson-Laird & Oatley, 1989, p. 99). The distinction between DAVs and IAVs from SAVs and SVs is self-evident. The latter refer to psychological states, the former do not. Finally, DAVs are distinct from IAVs in that they refer to an invariant physical feature of action, as in the case of kick, kiss, *inter alia*. In contrast, IAVs serve as frames for a great variety of actions that can be described by the same verb. Thus, the verb 'to help' may refer to a great variety of distinct and different actions, ranging from mouth to mouth resuscitating, to aiding an old lady to cross the street.

The Properties of Interpersonal Language: The inferences that are mediated by interpersonal verbs constituted the main research agenda in this field, rather than the systematic classification of the interpersonal domain - however important such classifications may be. This was undoubtedly due to the fact that interpersonal verbs presented a number of systematic and fascinating phenomena that asked for explanations. Indeed, the unusual properties of interpersonal verbs have literally drawn people to them. For instance, the very first studies that reported the 'remarkable' properties of interpersonal verbs were originally designed to investigate 'inductive logic' (Gilson & Abelson, 1965). What these authors discovered "as a surprise" (Gilson & Abelson, 1965, p. 304) was the powerful and systematic influence that interpersonal verbs exert upon generalizations. This research program on the rules of generalization processes as a function of the types of interpersonal verbs flourished well into the early seventies, under the guidance of Abelson (e.g. Abelson & Kanouse, 1966; Kanouse, 1972; McArthur, 1972, inter alia- See Semin et al., 1996 for a detailed review). Independently, in linguistics there has been a brief interest in the causal properties of transitive verbs which complemented the work done in psychology (e.g., Caramazza et al., 1977; Garvey & Caramazza, 1974; Garvey, Caramazza & Yates, 1976). More recently, there has been a renewed interest in this subject since Brown and Fish (1983) revived the interest in the causality implicit in interpersonal verbs. Essentially, these authors were able to demonstrate a 'phenomenon', namely that verbs of action (e.g., help, cheat, kick) and verbs of state (e.g., like, adore, abhor) systematically mediate inferences about who initiates an event. Indeed, this is probably the most widely researched aspect of interpersonal verbs (e.g., Au, 1986, Brown & Fish, 1983; Fiedler & Semin, 1988; Semin & Marsman, 1994, inter alia). When asked to identify who initiated an event described in a simple Subject-verb-Object sentence which is constructed with an action verb (e.g., John helped David) participants predominantly identify the sentence subject (John). In contrast, for sentences with state verbs (John likes David), the same question leads to sentence object inferences (David). This particular inference pattern about event initiation is better known as "the causality implicit in interpersonal verbs" (cf. Brown and Fish, 1983) and research into the 'cognitive processes' mediating this phenomenon has been relatively prolific since there is no obvious linguistic explanation to this phenomenon (cf. Brown & Fish, 1983; Fiedler & Semin, 1988; Hoffman &

Tchir, 1990; Lee & Kasoff, 1992; Semin & Marsman, 1994). The so-called 'causality implicit in interpersonal verbs' is but one of the systematic inferences mediated by

 INSERT TABLE 2 APP. HERE

interpersonal verbs. As can be seen in Table 2 above, there exist numerous other inferences that are mediated systematically by these interpersonal verbs. For instance, Au (1986) and subsequently Fiedler and Semin (1988 - see also Franco & Arcuri, 1990) were able to demonstrate that participants, when asked to generate the event preceding or following a stimulus sentence (e.g. John helped David), displayed systematic inferences as a function of whether the stimulus sentence contained a verb of action (help) or state (like). Hence, the event preceding the stimulus sentence has a more frequent reference to the stimulus sentence subject (John) in the case of action verbs. In the case of state verbs, the antecedent sentence has stronger references to the stimulus sentence object (David). This pattern is reversed for the sentences that subjects generate about what happened after the stimulus sentence occurred (consequent events). In this case, sentences with action verbs elicit more frequent references to the stimulus object. In the case of sentences with state verbs, the more frequent consequent response is to the sentence subject. The data in support for this pattern of antecedent and consequent event inferences is reasonable but not entirely convincing, particularly for the consequences of action verbs and the antecedents of state verbs (cf. Semin & Fiedler, 1992b, p. 64).

Another proposed correlational property of verbs of action and state is volitional control. According to Gilovitch and Regan (1986) actions are under the volitional control of agents and experiences (states) under the control of stimuli. Alternatively, Kasoff and Lee (1993) show that the salience of sentence subject and object is mediated by interpersonal verbs. Thus, the sentence subject is more salient for sentences with verbs of action and sentence object for sentences with verbs of state. Semin and Fiedler (1988, 1992b) have shown that verbs of action and state lead to systematically different inferences for how verifiable a sentence is, how easy or difficult it is to imagine an event, the perceived duration of an event and the number of behaviors an event refers to, *inter alia* (see Table 2 above for detail). Further, it has been shown

that the likelihood of an event re-occurring is systematically affected by verb type (Maass, Salvi, Arcuri & Semin, 1989), as are dispositional inferences and event initiation inferences (Semin & Marsman (1994). Inevitably, there have been numerous attempts to explain these consistent and systematic effects, some of which have been shown to be stable across a great variety of linguistic communities such as English, German, Dutch, Greek, Spanish, Turkish, Chinese and Japanese (cf. Semin et al. 1996 for a review of this work). I shall not go into an overview of the different explanations that have been advanced to account for the observed phenomena aside from making some general remarks about the nature of these explanations and then focus on the specific types of shortcomings that these explanations display. These shortcomings become apparent in the context of the Tool and Tool Use Model advanced here. In the following I shall first of all identify the general features of the explanations advanced in this field and their characteristic shortcomings. Subsequently, I shall advance an explanatory framework that can be generated by using the 'Tool and Tool Use Model' (TATUM).

Verb Mediated Inference processes: A Reconceptualization from A Tool-Tool Use Model Framework

Features of the Explanatory Models for Verb Mediated Inferences and Their Shortcomings:

Since the influential contribution by Brown and his colleagues (Brown & Fish, 1983; Brown & Van Kleeck, 1989; Van Kleeck, Hilliger & Brown, 1988), the research on verb mediated inferences has taken the implicit causality inferences mediated by interpersonal verbs as the pivotal phenomenon that required explanation. This specific explanatory focus may appear to be surprising in a distanced assessment of the entire set of findings to date. It is possible to argue that the causal inferences are valued in everyday life in that explanations of events are of critical importance in general. Nevertheless, the particular inference pattern observed with causal inferences is only one of many and there are no particular a priori theoretical or empirical reasons to privilege this inference pattern over any of the others. There is of course a historical reason for why this may be the case. This is the prominence of attribution theory and the centrality that 'causality' has had within attribution theory. It was attribution theory that informed and influenced Brown and his colleagues' explanatory attempts. Thus, the mediating

cognitive schemata that they postulate in order to explain implicit causality inferences are coupled to the attribution-theoretical principles of consensus and distinctiveness (e.g., Kelley, 1973). Not surprisingly, there emerged a privileged focus on implicit causality which turns out to be conceptually and empirically problematic not only in this research (Semin & Marsman, 1994) but in general (cf. Hamilton, 1988, 1992; Hewstone, 1989, inter alia).

The diverse explanations of this 'implicit causality' vary from a dual schema model (Brown & Fish, 1983), to a linguistic relativity account (Hoffman & Tchir, 1990), to a sentence context model (Fiedler & Semin, 1988), to a salience framework (Kasoff & Lee, 1993). Nevertheless, they all share at least two substantial logical shortcomings. The first one has to do with the postulated relationship between the verb and the dimension of the so-called inference process (e.g., implicit quantifiers, Abelson & Kanouse, 1966; dual schema hypothesis, Brown & Fish, 1983; implicit salience theory, Kasoff & Lee, 1993; morphological hypothesis, Hoffman & Tchir, 1990, etc.). All these theoretical approaches to date rely on the assumption that the sentence verb evokes, elicits, activates or triggers a particular inference process or dimension in some manner or another. According to each of these explanations a specific cognitive process is elicited or activated by a particular type of interpersonal verb. Each of these approaches assumes a determinate relationship between verb type and a cognitive process⁵. All explanations of implicit causality postulate an inseparable link between 'verb' and 'cognitive process'. One can in principle refer to all the theoretical models in this field as single dimension or single feature activation models since all these models assume that an interpersonal verb activates an inference process. This observation leads to the first substantial logical incoherence that is inherent to the research in this field so far.

We know from the previous section that interpersonal verbs 'mediate' not one but a number of systematic inferences. It is not even the case that all these inference dimensions are correlated. Some of the inference dimensions have been shown to be orthogonal to each other (cf. Semin & Fiedler, 1992b; Semin & Marsman, 1994; Semin et al. 1996). The fact that systematic inferences are possible on multiple dimensions or features (some of which are orthogonal) with the 'same' set of verb types must mean that each and every account that resorts to a theoretical

explanation with a single inference dimension has, by definition, got to be incorrect. Consequently, all explanations using a single dimension or feature activation model can be regarded as logically inappropriate to deal with the data that have been obtained to date.

The second logical incoherence is also based on the observation that there are a variety of possible inference sets from interpersonal verbs. There are no particular a priori theoretical or empirical reasons to privilege, for instance, implicit causality over any of the other properties of interpersonal verbs (e.g., salience, event-recurrence, etc.). As I mentioned in the previous section, there is a potential historical explanation as to why this may have been the case, namely the prominence of attribution theory during the emergence of the notion of the 'causality implicit in interpersonal verbs'. However, given that there are a number of different inference sets (see Table 2 above) then the inevitable conclusion must be that interpersonal verbs in their own right do not elicit, or cue in or activate any particular inference process at all. By implication, one can argue that no particular inference pattern is privileged over another, or at least, not until it can be convincingly argued for the primacy of a specific inference pattern over other inference patterns. So far, no such argument has been advanced⁶.

If the above two conclusions are correct, then, by definition, all the explanations advanced to date have missed something about the phenomenon. This is not to suggest that we do not have a phenomenon or deny the empirical outcomes demonstrated so far. It is only to suggest that a proper explanation has been somewhat elusive. The obvious question then is: What is the phenomenon in the first place? It may be that the phenomenon has been incorrectly identified to begin with. By this I mean that it is incorrect to identify or locate the 'phenomenon' of verb mediated inferences as a cognitive process. It is to this argument that I turn to next.

The Tool and Tool Use Model and Verb Mediated Inferences: As it will be recalled, the distinctive flavor of the TATUM is that it makes an analytic distinction between the properties of linguistic tools (e.g., interpersonal verbs) that can be studied in the abstract and tool use (affordances of tools). As I shall argue below, if one takes this distinction seriously then one can arrive at strong conclusions about the relationship between language, cognition and communication.

One can regard interpersonal verbs from a TATUM perspective as a set of tools that have a variety of properties (Semin & Marsman, 1994). These different properties or can only be manifested in pragmatic contexts 'in the hands' of skilled or 'capable' tool users. One can therefore regard the range of empirical studies to date as constituting a series of investigations that have constructed systematic pragmatic-use contexts or controlled and situated contexts in order to investigate different affordances of interpersonal verbs by demonstrating them contextually. This is like providing a participant with a nail, a block of wood, a hammer and a saw and posing the experimental question, "Which of these three can you use together?" and repeatedly observing that the saw is excluded and observe the affordance of 'hammering-a-nail-into-a-block-of-wood'.

Let me illustrate what is meant with a contextual realization (affordance) of a property of interpersonal verbs by, first of all, using a simplified representation of an 'Experimental Condition - Dependent Variable' constellation as an instance of a controlled and situated context. The example that I am going to use is a simplified 'implicit causality' instance that can be derived from the instructions originally employed by Brown and Fish (1983):

(1a) Stimulus: David likes classical music concerts.

DV 1: To which extent is this due to something about David?

DV 2: To which extent is this due to something about classical music concerts?

DV 3: To which extent is this due to other factors?

(1b) Stimulus: David goes to classical music concerts. DV: Why?

DV 1: To which extent is this due to something about David?

DV 2: To which extent is this due to something about classical music concerts?

DV 3: To which extent is this due to other factors?

The critical variables are DV 1 and DV 2. The difference between these two gives an idea of the direction in which 'implicit causality' is ascribed. The general finding is that when DV 1 and DV 2 responses are compared, then in the case of (1a) $DV_1 < DV_2$ and in the case of (1b) it is the reverse, namely: $DV_1 > DV_2$. This experimental realization is regarded as a translation of what

occurs in the course of a normal conversational context in everyday life. Thus, (1a) and (1b) can respectively be translated into:

(2a) Why do you think that David likes classical music concerts?

(2b) Why do you think that David goes to classical music concerts?

The above questions (2a and 2b) formulated in a more conventional conversational form are inquiries about the (2a) reasons or causes of the appeal that concerts have for David or (2b) the reasons or causes behind David's concert going behavior. The inquirer's particular choice of verb in posing this question is a strategic one. The goals that are pursued by (2a) and (2b) are different. In the case of (2a), the inquirer is directing or focusing the answer upon the question object (classical music concerts). In the latter case, the inquirer expects the answer to focus upon the question subject (David). Thus, by judicious positioning of sentence subject, sentence object positions as well as verb type, the inquirer can use interpersonal verbs as tools that are deployed to give implicit instructions of how the respondent is expected to shape the answers.

This is a particular contextual realization (or one affordance) of one of the properties of interpersonal verbs. Obviously, similar examples can be furnished for the list of properties noted in Table 2 above. This example illustrates the argument that emerges from a TATUM driven reanalysis of the research on interpersonal verbs. This argument suggests that the research to date has incorrectly identified or located interpersonal verbs as being responsible in driving cognitive inference processes. Interpersonal verbs in their own right do not drive any cognitive processes at all. Interpersonal verbs on their own or in the form of simple sentences do not convey any information. It is only in communicative contexts or settings with the addition of intended conversational goals that they acquire specific or contextualized meanings.

The examples 1 and 2 above are two of the possible affordances of the property of implicit causality. Thus, the property of implicit causality may be used in a great variety of contexts to achieve a number of different things (e.g., Semin & Poot, 1997a; b). The range of possibilities in which interpersonal verbs can be used to direct the communicative intent or goal of who caused what is, in principle and practice, unlimited. The number of domains in which this tools can be used to communicate who caused what is practically infinite. Thus, this property of

interpersonal verbs can be used in a great variety of contexts to subtly or indirectly indicate who initiated an event. these contexts can be: a legal context (interrogations) an clinical interview context, a survey context, an opinion or attitudinal context amongst others. The point is, this property of interpersonal verbs facilitates a great variety of subtle affordances for competent language users.

Interpersonal verbs are thus used as tools in the service of constructing a message (or a speech act, Austin 1962; Searle, 1969) in a communicative context. In such a message construction process interpersonal verbs, as well as other devices, are employed as tools in the pursuit of realizing particular communicative goals or intentions. Thus, the goals that a person has are given expression in the form of an utterance or a symbolic communication. This symbolic communication consists in the strategic composition of each sentence by emphasizing specific affordances of the tools to come to the fore - amongst others, by the use of other distinct linguistic devices (tools), such as the 'why' question form that gives the situated context to the question. These specific constructions serve the purpose of directing the course of the symbolic communication. An instructive example of such strategic deployment of tool use is the following:

"... consider a situation where a vice squad officer is interviewing a rape victim. The officer wants to know the answer to how the evening prior to the critical event unfolded and wants to probe with an action verb. The officer has at least two options. The victim can be asked as to whether she danced with the perpetrator or alternatively whether the perpetrator danced with her. Given the fact that the two did dance at the party, the answer must be yes in both cases. However, if the victim is in the sentence subject position in the question then she is more likely to be perceived as the causal origin of the event. Yet, if the victim is in the sentence object position, then it is more likely that the officer will form the opinion that she is the victim." (Semin & De Poot, 1996, in press)

In fact, what we were able to show in some of this research is that when a person simulating such a vice squad officer in an experimental situation is confronted with a choice between a series of such questions that imply either victim or perpetrator causation of the event, then the prior expectations that they bring into the situation about the victim's trustworthiness, or lack thereof, guide their question choice in a very systematic and significant manner. In some of this research, we have been able to show that when participants enacting vice squad officers regard the victim as untrustworthy, they predominantly choose questions that imply victim causation and vice versa when they regard the perpetrator as responsible for the event. Thus, the choice of tools in such situations is driven by the particular goals that a person pursues and these goals in turn are driven by the expectations that they form about the subject of their symbolic communication.

Indeed, the further contribution of the TATUM is to be found in the informed entry into the psychological processes (cognitive or motivational) driving people's communications. This is precisely the mirror image of the argumentation advanced above. The argument above was that the goals that one pursues influences the tools one chooses to realize these goals. The mirror image of this argument is: If you know the properties of the tools that are used then you can uncover the goals that are being pursued by analysing the discourse. The principle is rather simple. Once you know the properties of tools and, therefore, their varied contextualized realizations, then you can select a great variety of communication contexts and analyze them with regard to the psychological processes that could have given rise to the specific communication objectives observed in the communicative act aside from the surface message. These communication objectives (or goals) are manifested in terms of the specific strategic composition of tools in the communicative act. Thus, by analysing the types of tools that a person utilizes in a communicative act, it is possible to infer the cognitive and motivational principles that drive such goals in communication contexts. Indeed, there are numerous research examples which have attempted to do precisely this. One of the more widely researched examples of this type of approach pertains to the analysis of the types of tools used in the transmission and communication of stereotypes. This work, initiated by Maass and her colleagues (e.g., Maass, Salvi, Arcuri and Semin, 1989; Maass, Milesi, Zabbini & Stahlberg, 1995;

inter alia), focuses on the analysis of different communicative messages. It does so by analysing the tools that are used in order to be able to infer which of a set of alternative theoretical models (cognitive or motivational) about the psychological processes behind stereotype transmission is in operation. The tool model they employ is the LCM described earlier in this chapter. Thus, it is possible to investigate psychological processes by the analysis of symbolic communication whereby communicative acts are treated as messages designed to carry the communicative goal. Further applications of this type of analysis can be found in legal contexts (e.g., Catellani, Pajardi, Galardi & Semin, 1996; Schmidt & Fiedler, 1996), and interview situations (e.g., Semin, Rubini & Fiedler, 1995) amongst others.

In the concluding section below I shall pull these considerations together by drawing out the implications of the TATUM for the relationship between language, cognition and communication as well as the type of methodological orientation that is inherent to this model.

Conclusions and Future Directions: Implications of the Tool and Tool Use Model

I should perhaps at this point summarize what TATUM entails and why it was conceived. In the first instance, it is based on the general assumption that one should treat language as a tool that has a set of properties. A systematically worked out example of this is to be found in the Linguistic Category Model which is a programmatic investigation of the language that is used in the interpersonal domain. Obviously, this is one of a number of possible tool domains.

In the second instance, TATUM suggests that once the properties of language are known one can then examine its situated use in a variety of constructed or naturally occurring communicative contexts. As such TATUM does not prescribe what these contexts are or for that matter what the psychological processes (cognitive or motivational) that drive these communicative acts entail. In that sense, TATUM does not provide a particular psychological explanation or process model. It simply states a set of paradigmatic assumptions that are important to consider in the investigation of the relationship between psychological processes, symbolic communication processes and the medium for symbolic communication.

TATUM provides a framework that makes an explicit distinction between the different types and levels of analyzes that are entailed in cognition, language and communication, by making an analytic separation between the psychological processes that are manifested by specific tool use strategies (realized affordances) from the tool and its properties. This distinction is also practically important. It draws attention to the methodological separation of different sources of variation in communication processes and the identification of these sources. Thus, what TATUM does is to suggest a clear distinction between: (a) Systematic properties of language as a tool which should not be confused with psychological processes as such, and (b) psychological processes which entail using specific tools with different properties in particular ways to maximize the realization of specific plans, intentions or goals (consciously or unconsciously). Thus, TATUM is not a model of psychological processes or for that matter the medium by which such processes are manifested. It consists merely a set of analytic assumptions about the relationship between language, cognition and communication. Nevertheless, it provides a framework that guides the development of psychological process models by separating the properties of the medium by which they are expressed from the way that the message is packaged or composed.

The link between cognition, language and communication: The approach advanced by the TATUM introduces a different way of looking at the relationship between language, cognition and communication. It does so primarily by analytically identifying and separating the type and level of analysis entailed by a focus upon the tools of communication from an analysis that focuses upon tool use. In other words, tool and tool use are constructs that analytically and contrastively distinguish between two aspects of a relation that is to be found in the medium - message interface. The medium is the carrier of the message. The medium is the intersubjective means by which the subjective message can be communicated from one subject to another. The medium is the intersubjective that enables the communicability of the idiosyncratic, or the subjective. The message is the subjective. As Vygotsky has pointed out: "In order to transmit some experience or content of consciousness to another person, there is no other path than to ascribe the content to a known class, to a known group of phenomena, and as we know this necessarily involves generalization. Thus, it turns out that social interaction necessarily

presupposes generalization and the development of word meaning, i.e. generalization becomes possible in the presence of the development of social interaction." Vygotsky, 1956, p. 51). This type of consideration about the relationship between the tool and tool use, the medium and the message, the subjective and the intersubjective gives rise to one of the possible entries about the relationship between cognition, language and communication. It is a point that emerges only if one considers the relationship between cognition and language in the context of symbolic communication. This is an issue that Vygotsky referred to, when he was referring to the relationship between subjectivity and intersubjectivity. In his view, "the social dimension of consciousness is primary in time and in fact. The individual dimension of consciousness is derivative and secondary" (Vygotsky, 1979, p. 30). Similar views are to be found, for instance in Berger's (1966) writings about the relationship between what he refers to as psychological realities and social structure, where he notes that intersubjectivity is the precondition for and precedes subjectivity.

Thus, tools exist as means for giving expression to particular goals. They do have properties and in that sense they have cognitive properties (Semin, 1995, 1996) which are only realized in communicative contexts. Psychological factors (cognitive or motivational) are the processes that drive the generation of communicative goals and find expression in symbolic communication. Thus, the two facets to psychological factors or better intra-psychological factors⁷ are the formation of particular communicative goals and the particular strategic use of tools in the composition of messages. This has been illustrated earlier with the type of question choice that a suspicious vice-squad officer manifests or the type of message a person displays when she or he wishes to perpetuate a stereotypic vision they have of an in- or out-group to another person. To the extent that the tools that are used in a communicative context also issue instructions to the listener to act in particular rather than other ways, they shape the type of communicative message that they have to produce. Thus, again, the instance I used in the earlier section was how a particular question constitutes an instruction to focus on the sentence subject argument (Why do you read the New York Times?) or the sentence object argument (Why do you like the New York Times?). It has been shown that such instructions systematically structure the answer that a respondent gives but does not influence the cognitions or cognitive

representation that they have over the event or object in question (cf. Semin & De Poot, 1996, for the further implications of this relationship).

This way of contextualizing the relationship between cognition, language and communication leads to the type of reconceptualization of specific domains of research as, for instance, in the case of work to date on the types of phenomena demonstrated with interpersonal verbs. As I have argued, the research in this field can be seen as a series of systematic investigations of the affordances of these verbs. In other words, the findings so far can be regarded as consisting of a series of contextualized specifications of the meta-semantic properties of interpersonal verbs, some of which have been listed in Table 2 above. Each semantic domain is defined by surface relationships such as in the case of verbs of change of possession (e.g., Croft, 1985; Fillmore, 1971b) or terms of presumed responsibility (Fillenbaum & Rapaport, 1971; Fillmore, 1971a) or verbs of judgement (Austin, 1962) amongst others (cf. Levin, 1993). The meta-semantic properties go beyond specific domains and describe distinct patterns of use with respect to specific dimensions such as causation, time, and relationship, across a broad range of interpersonal verbs. One can therefore define the 'phenomena' observed to date as a mapping or a taxonomy of the meta-semantic of interpersonal verbs, in other words, the affordances the tools that are available in the interpersonal domain.

There is some recent research (Semin & De Poot, 1996) which also demonstrates the operation of such meta-semantic properties. In general terms, it is assumed that a written message or narrative consists of words which in connection with larger contexts (linguistic or non-linguistic) establish relationships (e.g., referential, descriptive, denotative, extensional, factual, etc.) to extra-linguistic entities, events or states of affairs. The general assumption is, in a very simplified manner, that communication of meaning is highly sensitive to the content of what one has written down or said. Undoubtedly, this is true. This recent research, however, shows that meta-semantic features of narratives are independent of any particular content. In these studies, participants generated narratives by writing down a large number of events that were unique to them. It is highly unlikely that any two events were described with the same words. These descriptions were generated by a question with either an action verb or a state verb

in the formulation of the question (as for instance: Why do you read the New York Times? vs. Why do you like the New York Times?). As I argued, the type of question provides an instruction to focus upon either the question sentence object argument or question sentence subject argument in the answers as the focal 'event' that requires explanation. These verb choices structure the answers of respondents systematically and significantly. What is remarkable is that when third parties read these diverse descriptions about uniquely personal events they find that there are systematic and reliable differences as a function of the verb type that generated the narrative. Descriptions of events generated by questions with action verbs are seen as being shorter, and as being caused by the narrator, whereas descriptions of events generated by state verb questions lead to the inference that they last longer and have been caused by people or factors outside of the narrator, inter alia. It is not the surface semantics that has driven these systematic inferences. It is in fact properties of interpersonal language that go beyond the surface semantic level and have been identified by the Linguistic Category Model (Semin & Fiedler, 1988, 1991, 1992b; Semin & Marsman, 1994). These meta-semantic properties, which cut across narrative domains, have a strong and systematic influence on a number of central inferences that third parties draw, such as time, causation and qualities of the interpersonal relationship, such as its stability. Thus, one of the more general conclusions from such research is to be more attentive to the meta-semantic properties of communication. These meta-semantic properties not only play an important role in influencing answers when they are systematically used in question formulation, but the manner in which they systematically convey messages to third parties is of critical importance. What is significant in this context is that, as this research shows, although the structure of the message is influenced by the tool that I use in constructing an answer and is perceived to be so across a large number of unique descriptions, this instructional tool use does not influence the respondent's perception of the event as such. In that sense, the use of the tool established a convention for answering, but not a psychological reality for modifying the representing the event.

Shift in Methodological Commitment: One of the consequences of modelling the relationship between cognition, language, and communication within the TATUM is that it invites reconsidering this relationship in terms of a methodological angle that is different than the one

commonly adopted in psychological research. In mainstream psychological research, the primary methodological commitment is upon the processes or properties that are distinctive of individual agents. In other words, the methodological commitment in psychology is one that privileges processes and properties at the individual level (cf. Semin, 1996). The earlier critique of the research and theoretical modelling of 'the causality implicit in interpersonal verbs' illustrates both the potential and actual logical fallacy of a privileged analysis at the individual processes level and its shortcomings. Analysing language, or tools (linguistic devices) with a view to mapping their underlying cognitive properties at the individual level of functioning turns out to be a misnomer for a variety of reasons. Since language has multiple inference inviting properties (Semin & Marsman, 1994) and since any one (or more) of these properties is primarily reproduced in joint action entailing symbolic communication for the purposes of mediating a message, one cannot speak of cognitive properties or processes that a 'tool' elicits or activates. The analytic approach adopted here privileges a methodological commitment that introduces a focus on the analysis of the properties of tools and not only that of individuals. This means a shift to the properties of the tools by which communication is enabled. Obviously, a tool can display properties only by virtue of the fact that an individual has the capability to so use it (e.g., Noble, 1991). However, the possibility of focusing on, say, one of the meta-semantic properties of interpersonal terms, such as implicit causality, means that we are not focusing on an analysis of individual functioning any more but on the properties of the tool. That is, by experimentally bracketing out the context (affordance) as well as the subject or the participant what one is doing is simply making the properties of a tool the object of empirical investigation. Indeed, this is what has been done to date, except that it has never been regarded as such. The lack of a clear vision of what the methodological subject was can be held responsible for leading to potential confounds about the relationship between language and cognitive (or motivational) process.

By shifting the methodological commitment to the tool and by bracketing the subject it is possible to explain sources of variance that are due to tool properties in particular idealized contexts (e.g., implicit causality studies). The fact that tools have particular affordances means that it becomes possible to separate systematic effects in a communicative setting that are due to tool properties (e.g., instructional variations), as well as the variance that is due to intra-

psychological processes (e.g., cognitive or motivational) as well as situated demands (contexts). A more detailed example of this type of research is to be found in a recent report by Marsman and Semin (in press) where the contribution of linguistic factors to spontaneous trait inferences (cf. Uleman, 1987; Uleman, J., Newman, L. S., & Winter, L., 1992) are highlighted. That is, this research does not attempt to identify intra-psychological processes as such but the types of 'instructional demands' that are due to particular verb classes and their mnemonic implications.

The advantage of privileging a methodological commitment to the tool in simple practical terms means that a major source of variation that has hitherto either gone unnoticed in our investigations or been confused with other sources such as intra-psychological processes becomes identified and separated. Thus, the contribution of different interpersonal verbs to spontaneous trait inferences (cf. Uleman, 1987) identifies a source of variance in this research that has hitherto gone unnoticed since nobody considered the possibility that the composition of stimulus sentences and the verbs that are used in such sentences can exert an influence on trait inference processes (cf. Marsman & Semin, in press; Semin, 1995). Using a TATUM framework sensitizes one to the sources of variation that are due to psychological processes as well as the sources of variance that are due to tool properties. The privileging of a methodological commitment to the tool is not to be understood as a commitment away upon the processes and properties of individual agents but as increasing attention to the interfacing sources of variation and a clear identification of the different sources that contribute to observed regularities, or for that matter a reduction of what may have been simply gone unnoticed as error variance.

In conclusion, TATUM can be regarded as a general framework that attempts to redress the imbalance between an individual centred methodology and a methodology that is tool centred. The more systematic models about tool properties (e.g. LCM, Semin & Fiedler, 1991) and tool use (e.g., Maass et al., 1989, 1995; Semin, Rubini & Fiedler, 1995) are more detailed contextualized models of how specific tools are used at the service of specific psychological processes or goals. In that sense, TATUM constitutes a general orientation towards investigating the interface between language, cognition and communication.

Culture, Cognition, Language and Communication: The final implication of TATUM that I would like to draw out in conclusion pertains to the role that culture can play with regard to the interface between cognition, language and communication. Already, in the introductory section of this chapter I hinted that it is possible to realize different projects with the same tools. In other words, if one is exploring the possibilities of variation and generality across cultural communities it is possible to find both if one can identify that while the tools are identical and display generality, their differential and culturally contextualized use gives rise to variation. There is some evidence emerging from the domain of interpersonal verbs and their properties that would seem to support the contention of generality within variation.

There is evidence that the properties (in particular causal inferences) of interpersonal verbs are found to be identical across a wide range of diverging linguistic communities (cf. Semin et al., 1996). Independently, there is also substantial evidence that, there are variations in social cognitive processes of individualistic and collectivistic cultural communities. Whereas the former are more likely to use person-centred explanations for social events, the latter have been repeatedly shown to resort to situationalist explanations. This research is mostly done on the basis of content analyzes of narratives generated by the respective samples of respondents. Notably, such narratives use interpersonal verbs and adjectives which are also the mediators of the content analyzes conducted by the investigators. In a recent study, Zwier and Semin (in prep.), have first of all shown that two cultural communities that differ significantly in terms of their cultural orientation (collectivistic versus individualistic) are nevertheless found to have interpersonal verbs with the same tool properties. What these authors were also able to show is the way the very same tools are used in systematically different ways by respondents from two cultural communities. Whereas respondents from a collectivistic community are more likely to use interpersonal verbs such that they mark the significance of situational or external factors and away from the focal person in the social event, respondents from an individualistic community are more likely to use these verbs such that they focus the reasons of the event more upon the central figure in the narrative. The TATUM approach thus facilitates the separation of the sources that contribute to generality and variation by focusing attention to the diverse manners

in which social events can be represented with strategic use of, in this case, culturally driven strategic differences in the use of precisely the same tools.

Thus, what TATUM does is to provide an avenue to identify generality in variation. It does this by drawing out the path for mapping tool properties and separating this from its use as a manifestation not only of psychological sources of variation but also cultural ones. This is achieved by emphasizing tool properties and individual processes as both conceptually and methodologically critical distinctions that should be equally emphasized theoretically and practically.

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Table 1: The Classification of Linguistic Terms in the Interpersonal Domain and Their Classification Criteria: The Linguistic Category Model (cf. Semin & Fiedler, 1991;1992)

Category	Examples	Characteristic Features
Descriptive Action Verbs DAV	to call to meet to kick to 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	to cheat to imitate to help to 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 clear beginning and end; have positive or negative semantic valence.		
State Action Verbs SAV	to surprise to amaze to anger to excite	As IAV, however, no reference to concrete action frames but to states evoked in object of sentence by unspecified action
Classification Criteria: As with IAV, no reference to concrete action frames but to states evoked in object of sentence by unspecified action. "But-test" to distinguish from SVs (cf. Bendix, 1966)		
State Verbs SV	to admire to hate to abhor to like	Enduring states, abstracted from single events; reference to a 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 take the progressive form; 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

Table 2: Some of the Properties of Interpersonal Verbs:
Types of Systematic Inferences Mediated by Interpersonal Verbs

TYPE OF INFERENCE	VERBS OF ACTION (DAV/IAV/SAV)	VERBS OF STATE (SV)
Causal inference	Subject	Object
Antecedent context inference	Subject	Object
Consequent context inference	Object	Subject
Salience	Subject	Object
Statement verifiability	Easy	Difficult
Event imaginability	Easy	Difficult
Dispositional inference	Subject (strong)	Subject(weak)
Event initiation	Subject	Object
Repetition likelihood	Low	High
Event duration	Short	Long
Affect/state	Subject	Subject
N of behaviors referred to	Low	High

Based on: Fiedler & Semin, 1988; Maass, Salvi, Arcuri & Semin, 1989; Semin & Fiedler, 1988, 1991; Semin & Marsman, 1994; inter alia.

---- Footnotes ----

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². This knowledge is 'unauthored' but authorized .

³. The important difference between 'hammers, etc. as tools' and 'language as tools' is that whereas the former are designed for the purposes of human interaction with the object world with the sole purpose of transforming the object world, the latter (language) is designed for inter-human interaction. Thus, the type of 'dialogue' that the tools are intended for will inevitably influence their features, namely the type of knowledge that is mapped upon them.

⁴. The fact that language as an institution is the unintended product of individuals, who are historically located, has important implications for the unconscious manipulation of their linguistic behavior in the context of a variety of communicative contexts. The particular instance to which attention will be drawn here is the question answer paradigm - however, less subtle instances of such effects exist in the linguistic manipulation of presuppositions as is the case in eyewitness research introduced by Loftus and her colleagues (e.g. -Loftus, 1975; Loftus & Palmer, 1974, inter alia).

⁵. As it has been pointed out already in a recent paper (Semin & Marsman, 1994) each of these approaches adopts a type of linguistic relativism position when they postulate a one-to-one correspondence between the type of interpersonal verb and the activated inference process. Some do so explicitly (e.g., Hoffman & Tchir, 1990) and others maintain that they are doing exactly the opposite, namely that they are investigating a universal thought process (e.g., Brown, 1986), although they rely on the same one-to-one correspondence between verb and thought process that is triggered in some manner or another by the verb.

⁶. Nevertheless, it is possible to envisage the theoretical option of advancing such an argument by anchoring the primacy of particular inference dimensions over others in a cultural context. It may be the case that 'why' questions are asked more frequently in some naturally occurring situations within an individualistic community when compared to comparable situations occurring within collectivistic communities.

⁷ Intra-psychological, because joint action within which communication is manifested also has a psychological reality to which one can refer to as the inter-psychological reality in Vygotskian terms.