

SPEAKING AS COGNITIVE REGULATION: A VYGOTSKYAN PERSPECTIVE

Mohammed K. Ahmed
International University of Japan

INTRODUCTION

Vygotskyan psycholinguistic theory--propounded by the Russian psychologist, Lev Semenovitch Vygotsky (1896-1934), in the late 1920s and the early 1930s during the post-revolutionary period in the Soviet Union and developed by his colleagues and students--has gained considerable attention among Western researchers within the last two decades. The researchers have been deeply interested in the theory for its unified perspective on cognitive development that emphasizes the importance of societal context and interpersonal relations in individual cognition. The perspective has motivated a number of anthropological and psychological studies related to literacy and schooling (Goody 1977; Cole and Scribner 1974; Scribner 1977; Scribner and Cole 1981); investigations in the field of educational psychology (Brown and French 1979; Brown and Ferrara 1985; Campione et. al. 1984), as well as on such specific topic as the development of mathematical skills and reasoning (Ginsburg 1982; Ginsburg et. al. 1981; Ginsburg and Allardice 1984; Saxe and Posner). Many of the studies deal with the cognitive development of children in L1 settings.

An important development of the Western interest in this theory has been its application to L2 research over the past few years (Ahmed 1988; Appel 1986; Di Pietro 1987; Frawley and Lantolf 1984, 1985; Groff 1985; John-Steiner 1985; Lantolf and Ahmed 1989; Lantolf and Frawley 1984, 1985; and Lantolf et al. 1987; Washburn 1987). L2 researchers subscribing to this theory have been similarly motivated by the possibility of utilizing a unified theoretical perspective when such a perspective is found to be a major problem in the field (Lantolf and Ahmed 1989).

The purpose of this paper is to utilize some important concepts in the Vygotskyan theory for understanding a specific area of second language acquisition research, namely, dialogic communication or dyadic conversational interaction, which has emerged as an important variable in the acquisition process. The paper will focus on an analysis of some selected linguistic data in task-based dyadic conversations involving native and non-native speakers of English. The analysis is intended to provide a Vygotskyan interpretation of the activity of speaking in dialogic communication. Such an interpretation has important implications for L2 research in this specific area.

However, before presenting the analysis and interpretation of the data, it is important to explain briefly some Vygotskian views on what language is and what dialogic communication entails.

LANGUAGE AS FUNCTION

Vygotskian psycholinguistic theory upholds a view of language which is essentially functional. In other words, the focus is not on language as a structural system but as a means of activity. However, this functional view is to be understood in specific terms. In line with its Marxist orientation, language in the Vygotskian theory is compared to a "tool." Humans use tools to interact with their external environment. In this interaction, tools mediate between the subjects (humans) and the objects (material world). The tools aid humans in controlling and changing the external environment favorably. Thus, the tools function as mediational mechanisms in goal-directed activities. Similarly, language (a sign-system) is seen as a "psychological tool," the most sophisticated mediational mechanism in human history. While tools are used to control the external environment physically, signs serve to control psychologically the external environment, as well as and more importantly, inter-psychological (i.e., inter-personal) relations in society, and intra-psychological activity within one's own mind.

It is in these terms of control in Vygotskian theory that language serves as the most important means of human cognitive development. Such a development proceeds from inter-human social interaction to intra-human mental functioning, i.e., from the social to the individual, or the dialog to the monolog. Language, as the most advanced mediational mechanism, mediates the basic processes of perception, attention, memory, thinking, and eventually motivation, leading to higher mental functions in an individual. In short, cognitive development is linguistically constituted.

Underlying such cognitive development is the notion of regulation in terms of subordinating the natural or elementary mental functions to higher mental functions. In this process of subordination, by means of linguistically-constituted processes called "internalization" and "decontextualization," the locus of control shifts from the external context (both physical environment and social relations) to internal mind. Thus, a cognitively developed individual is one who has become independent of the external context in his mental functioning. The use of language is the driving force behind such independence.

A simple example would help understand the above explanations. As Wertsch (1985a:33) points out, Vygotsky in his account of quantitative operations, argues that the ability to see "two" as a combination of "one and one" is relatively a higher mental function in that it shows the individual cognizing the numbers as abstract categories. The numbers stand on their own without being tied to any external objects. On the other hand, as Vygotsky argues, the primitives were heavily dependent on concrete objects and settings while doing any kind of counting. They thus lacked the ability to use numbers in a decontextualized manner. They were at a level of

mental functioning in which counting was dependent on external stimuli in the physical environment. In this context, decontextualization is the result of the emergence of the number system in language. Such decontextualization shifts the locus of control from the external environment to the internal mind of the individual mind with the help of language.

REGULATORY FUNCTIONS OF LANGUAGE

Vygotsky's functional view of language, then, is in terms of regulation or control. In this context, as Frawley (1987:147-48) points out, the function of language is "the regulation of self, others, and objects in the social environment." In other words, language assumes three major regulatory functions: object-regulation, other-regulation, and self-regulation. It is convenient to quote the following description of these three regulatory functions (Frawley 1987:147-148):

Language serves to regulate, first, objects, where "objects" means anything in the environment which is non-human and has ontological status. Thus objects are such things as tables, chairs, dogs, and even facts. The object-regulation function is the most elemental operation of language: naming is a classic example of object-regulation through language. Second, language functions to regulate other people. This other-regulation function can be either other-regulating (when speech functions from the point of view of the speaker to control other people) or other-regulated (when speech is produced because other people control the situation in which the speaker utters the language). Typical examples of language with other-regulation function are speech acts, or methods by which individuals attempt to control verbally the behavior of other individuals. Third, language serves to regulate the self... self-regulation is, in fact, the highest and most critical function of speech (since it is how the individual ultimately controls himself and his mind...). All self-directed, monological utterances have this function.

Given this functional view of language, researchers subscribing to the Vygotskian theory adopt a functional analysis of linguistic data. In other words, it is a form-function analysis in which the linguistic forms are analyzed in their regulatory functions in any kind of speech activity.

THE ACTIVITY OF SPEAKING IN DIALOGIC COMMUNICATION

Given the above functional view of language, Vygotskian perspective on dialogic communication becomes important to understand. In such a communicative situation, involving two individuals interacting face-to-face within a given task-setting, the focus of investigation is on finding the locus of control. In other words, it becomes important to find out if the locus of control resides in one interlocutor, is distributed between the two, or lies in the external

context of the task itself. In other words, the research investigation focuses on finding out if the speech of the individual inter-locutors show evidence of object-regulation, other-regulation, or self-regulation. A careful analysis of task factors and the speech of the interlocutors provide insight into the specific regulatory functions of the individual interlocutor's speech.

The activity of speaking is then to be seen in terms of control behaviors on the part of an individual. Consequently, the relationship between the interlocutors in dialogic communication is often not one of equal exchange but "assymetric" (Rommetveit 1985). In assymetric patterns of dialogic communication, interlocutors experience variable power-relationships and their mutual behaviors are other-regulating or other-regulated in Vygotskian terms. Thus, focus is on the directionality of control between the two interlocutors.

TASK AND SUBJECTS

The data for analysis in this paper are based on the task-based conversations of two dyads: a NS(male)-NNS(female) dyad and a NS(male)-NS(female) dyad. However, the analysis focuses on the NS-NS dyad for important implications.

The dyads were given a visual puzzle (taken from Ur 1981:62). In addition, written instructions were provided for the task of solving the puzzle. In other words, the interlocutors were given two sheets of paper, one showing a series of pictures, and the other giving written instructions for doing the task. (See Appendices I & II). There were seven pictures, each in the form of a frame showing an event involving a goat, a cabbage, an wolf, and a man in a boat rowing across a river. Thus the seven frames formed a sequence of events for producing narrative discourse.

The interlocutors were instructed by means of the written instructions to discover through mutual discussion how the man in the given pictures is able to carry his goat, cabbage, and wolf across the river in the face of some given constraints. They were asked to rearrange the pictures in the proper sequence based on their understanding of the man's success in solving his problem.

The researcher, after providing the visual puzzle and the written instructions left the interlocutors to do the task. The conversation of each dyad was videotaped. Subsequently, the conversations were transcribed from the videotape. The transcription included verbal and some non-verbal data.

THE FOCUS OF DATA ANALYSIS

This paper analyzes a very specific linguistic feature in the conversations of these dyads: the tense/aspect feature. This specific feature provides important evidence of the regulatory functions of the interlocutors' speech.

It should be mentioned that this paper follows the Vygotskian principles of "micro-analysis and functional analysis" (Frawley and Lantolf 1985:24). In other words, the analysis focuses on individual instances of discourse and there is not any attempt to quantify statistically the instances. In addition, these instances are analyzed in terms of their regulatory functions. Such a focus of analysis is in keeping with Vygotskian emphasis on individual cognitive processes. Thus, there is a detailed analysis of the individual instances of the tense/aspect feature as they occur in the speech of the individual interlocutors in the dyadic conversations. More importantly, the analysis focuses on the instances of shift among the tense-aspects features.

THE REGULATORY FUNCTIONS OF TENSE-ASPECT IN NARRATIVE DISCOURSE

The discussion in this paper carries further the findings of an earlier study on the regulatory functions of tense-aspect in narrative discourse (Frawley and Lantolf 1985). That study dealt with the task of narrating a story. The subjects were presented a series of six drawings, and each of them was asked to construct a story from the drawings. The subjects involved four different groups: 21 ESL students (upper-intermediate level), six advanced-level ESL speakers, ten adult native-speaking students, and six native-speaking children.

The study, which investigated other linguistic data besides the tense-aspect feature, found that the historical present, the typical tense manifestation of verbs in narrative discourse implying atemporality, was less used by the non-native speakers and the native children compared to adult native speakers in order to narrate the story. The finding is analyzed in terms of the regulatory functions of the tense-aspect feature in this particular task.

In conclusion, Frawley and Lantolf (1985:34) present the following regulatory functions of tense-aspect in the narrative discourse:

Distance and Presence (self-regulation) ATEMPORAL PRESENT

PAST	PROGRESSIVE
Distanced: regulating by distancing	Present: regulated by immediacy
(distancing gives self-regulation)	(objects/events cause object-regulation)

Fig. 1: Tense-aspect functions in discourse

The above distinctions are deictic in that they are based on a sense of remoteness vs. proximity in the mind of an interlocutor. In other words, an ability to perceive a referent as remote is an ability to distance oneself cognitively from the specific stimulus and thereby gain some control over it. Frawley and Lantolf (1985) argue that in

the task of narrative discourse the use of the past indicates that an individual tries to gain self-regulation by means of distancing an event as object. Conversely, they argue that the use of the present progressive indicates that the individual, instead of being able to distance, is caught by the immediacy of the stimuli. Hence, his response is reactive. He is controlled by the object. In this context, maximal self-regulation is shown by means of the atemporal present which indicates that the narrator controls the task by being able to express a sense of both immediacy and distance simultaneously in response to task stimuli: "A self-regulated narrator can both control the events through distancing himself from them and relate the events as they actually are" (Frawley and Lantolf 1985:34). Thus, in the narrative discourse, the past shows the attempt to achieve self-regulation, the progressive reveals object-regulation (i.e., the regulation of the individual by the events as objects in the task), and the atemporal present indicates the achievement of self-regulation.

In this context, this paper also deals with a task related to narrative discourse. In other words, in order to meet the goal of arranging pictures in their proper order in the puzzle, the interlocutors need to describe a series of events taking place in a chronological sequence. The central problem-solving question posed in the puzzle is: How is the man in the pictures able to carry his goat, wolf, and cabbage across the river under certain constraints (as given in the written instructions accompanying the visual puzzle)? The pictures, arranged vertically on a single sheet of paper, actually show a sequence of events representing the man's step-by-step attempt.

In order to narrate the series of events in the proper sequence, the interlocutors need to gain a macro-level understanding of the arrangement of the pictures. In other words, they need to understand how the events in the pictures relate to one another given the constraints. In their verbal response to the visual stimuli, they need to transcend the arrangement of pictures in terms of events as they are in isolated frames and instead be able to visualize the connection among the pictures in terms of properly sequenced events in light of the constraints imposed by the researcher's instructions. A mere description of the events as they are in a single frame in isolation would be reaction to events as objects and, hence, show object-regulation. Control in this task, i.e., self-regulation, is thus expressed in the ability to narrate the sequence of events at this macro-level understanding of the properly sequenced events.

The following discussion provides important evidence of the regulatory functions of the tense-aspect in the task-based conversations.

DISCUSSION

In the NS-NNS conversation, the atemporal present occurs in the speech of the NS as shown in the following excerpt, in which he explains to his non-native speaking counterpart how the man in the pictures solves his problem:

- [1] A. NS(X): so he leaves those two on one side
 B. NNS(Y): side
 [In (A) & (C), X points out in the instruction sheet.]
 C. X: right/.../he takes the goat across first/
 and then..he comes back/
 and he gets the cabbage..uh..and he..uh
 [Very low tone in the following.]
 Is that right?
 [The following word is stressed.]
 yeah
 [Now his hand moves away from the instruction sheet. He waves it in the air while saying the following.]
 he gets the cabbage/
 and he takes it across/
 but then he picks..the goat..so he
 D. Y: Uh..um
 E. X: now he leaves the cabbage on one side

This NS formulates some macro-level understanding of the problem from his own perspective. His use of the atemporal indicates that he understands the solution to the puzzle and that his speaking is intended to relate this to his partner. It thus shows his control over the task of narrating the solution to the problem, i.e., the proper sequence of events.

On the other hand, in the speech of the interlocutors in the NS-NS dyad, there is a proliferation of the use of the progressive, along with diminished tendency to use the atemporal present. The cognitive significance of this lies in the shift among these three features. The following excerpts are extracted from the various parts of the conversation. The excerpts appear in a chronological sequence; therefore, they highlight the conversational trend.

- [2] A. NS(Y): What's he..he's bringing the goat..right?
 B. NS(X): uh...um
 C. Y: so..he's bringing the goat there/
 then..he brings the cabbage../
 that one's no good/
 because if he's bringing the goat..first..right?/
 if he brings the wolf..the wolf eats the goat..
 D. X: yeah
 E. Y: he brings the cabbage../
 you can cross that one/
 I think next one..I suppose/
 wouldn't you say?

The use of the progressive occurs at those points when the interlocutors respond to an event as it takes place at that moment in a picture. Thus, in (A), speaker Y begins by asking a question in the progressive, pauses, then shifts into a declarative statement in the progressive, and ends with a confirmation check. The utterance indicates his attempt to respond to the immediate context of the picture as object rather than as an episode in the story. In (C), he repeats his description of the event as it is. The repetition, however, contains clues to his attempt to gain some control over the event as it

is. In other words, so and there operate as distancing mechanisms--the first functioning as an orientation strategy and the second locating the event at some distance. Thus, in the next utterance he uses the atemporal present (he brings the cabbage), apparently having concluded in his mind that this step in the puzzle has been resolved. The use of the atemporal present thus shows the speaker's achievement of self-regulation by means of his ability to express both distance and immediacy simultaneously in the event.

However, there is an immediate return to the progressive in (C). Significantly, this follows some cognitive interruption for the speaker, as indicated in his evaluation (that one's no good). It is this sense of interruption that is significant in the shift from the atemporal present to the progressive. It indicates his realization that his previous solution was incorrect. He loses control once again. Thus, the speaker, deploys the present progressive, which is indicative of loss of cognitive control.

The following excerpt [3], on the other hand, shows the shift from the past to the progressive:

- [3] A. NS(Y): uh..um/..../so I don't see how that can work/
I don't understand this
[Looks at X. Smiles a little. X laughs.]
B. NS(X): he's the only one/that's the only one though
C. Y: OK..he brought the goat..right?/
OK..he brought the goat/
then he's bringing the cabbage/
that won't do
[Looks at a specific picture. Probably the bottom picture.]
D. X: no
E. Y: OK..so he's bringing
[Looks at another picture.]
F. X: [Interrupts] he already brought the cabbage
now..he's bringing the goat
[Looks at picture "a"]

As shown by Frawley and Lantolf (1985), the past tense appears to serve as a means for the speaker to gain control over task stimuli by distancing the event as object. However, in the above excerpt [3], the regulatory function of the past turns out to be complex. As the evidence show, the past is not consistently used for distancing; it may also reflect immediacy as shown by the visual stimuli in the specific picture referred to. In (C), speaker Y refers to a single picture which shows the goat on the right side. The man is shown rowing his boat towards the left side, away from the goat. The wolf and the cabbage are on the left side. (See Appendix I, picture "f.") In this context, the use of the past tense (he brought the goat) describes the event as it is. In his description, the speaker simply reacts to the visual stimuli of the picture as an isolated frame. Furthermore, the very next description (then he's bringing the cabbage) refers to another picture that immediately follows the previous one. The description serves the same regulatory function. (See Appendix I, picture "g.") Thus, both the past and the present progressive in this instance show object-regulation. They form part

of the same functional system, i.e., control by objects. It shows that the individual does not understand, i.e., has not resolved the problem.

Speaker Y's evaluation that won't do in the utterance (3.C) is significant. It shows awareness on his part that his proposal was incorrect, i.e., an understanding of the task in that he recognizes a constraint imposed by the instructions. He is thus engaged in some sort of problem solving activity. However, more importantly, he lacks control of the task in that there is no overall understanding of the problem. In fact, the next picture (picture "g" in the set) is the correct one to be chosen to form the proper sequence. In other words, speaker Y's visual perspective is tied to the two pictures only and does not take into account the other pictures in the set. Had he considered all the pictures and their connection, he would have evaluated his choice positively, because in fact it is the correct choice. Furthermore, the fact that he used the past and the progressive shows clearly that he had no control of the task, and in an important sense could not have selected the correct next frame other than by chance.

Speaker X's speech, too, shows object regulation (see 3.F). She, in fact, responds to two different stimuli in the same picture as an isolated frame. In the given set of pictures, only one shows the cabbage already located on the right side and the man carrying the goat towards the right side (see picture "a" in Appendix I). Thus, her utterance he already brought the cabbage focuses on the cabbage, while now..he's bringing the goat describes the activity of the man. Thus, the two utterances are focused on two different stimuli in the same picture. They are descriptions of events as they are depicted in the frame. Both are instances of object-regulation. In short, in these instances, both NSs show object-regulated behavior on their part.

The NS-NS conversation shows that the present progressive occurs in moments of some cognitive interruption, indicating the lack or loss of control on the part of the interlocutors. The cognitive interruption shows task difficulty felt by the interlocutors, caused by their inability to resolve the constraints imposed by the instructions.

However, when speaker X is able to recognize at one point the principle underlying the solution to the problem, i.e., the idea of replacing or switching, the use of the tense shifts to the atemporal present, as shown in the following excerpt:

- [4] A. NS(X): this is it..look ["look" stressed]
'cause then..he brings the../ he puts the
cabbage down../
and brings the wolf..the goat back/
and then..switches the goat
- B. NS(Y): Oh..I see..we've been
- C. X: and then brings..the..that back
- D. Y: all right
- E. X: all right? ..so
- F. Y: so
- G. X: so the first one
- H. Y: [interrupts] we've been making mistakes
- I. X: yeah

Following this point in the conversation, both interlocutors express a macro-level understanding of the problem. As expected, the use of the tense/aspect feature shifts to the atemporal present. Speaker Y also consistently uses the atemporal present, as shown in the following excerpt which concludes the conversation:

- [5] A. NS(X): and then.../so he switches the cabbage for the goat...which is four
 B. NS(Y): uh.um
 C. X: and then...he switches...the wolf...for the goat
 D. Y: what's left?
 E. X: what? [very low tone]
 F. Y: how many're left?
 G. X: all right...wait [very low tone]
 [The tone rises on the following.]
 that's the last one we have.../so H. Y: that's five
 I. X: he switches the wolf and the goat...so
 that is five.../ am I right about it?
 J. Y: yeah...that't it
 K. X: no..but...is that all?
 [She doesn't seem satisfied, but Y sounds like he
 wants to conclude.]
 L. Y: OK...let's see...he goes with the goat...all right?
 he leaves the goat there/
 goes back to the cabbage/
 brings the cabbage back..
 M. X: brings the cabbage back [low tone]
 N. Y: realizes it's no good/
 leaves the cabbage here/
 and takes the goat...all right?
 O. X: yeah
 P. Y: goes back to the wolf/
 brings the wolf back...and gets that/
 so I guess
 Q. X: that's it
 R. Y: so what's the sequence?/
 sequence...is D.../number two...F/
 D...F...G/D...F.../D...F...G...[very low tone]
 four...B/ five...A/ six...C/ seven is E
 S. X: uh [laughs]
 T. Y: let's get out of here
 U. X: yup

Some further evidence of the regulatory functions of the past in the speech of the NNS in the NS-NNS conversation provides is important, as shown in the following excerpt:

- [6] A. NNS(Y): this will be two...A..B/
 because he left.../
 first he took the go.goat/
 [points out a picture]
 B. NS(X): all right
 C. Y: put on one side/
 he left the goat
 and he is returning here
 D. X: right
 E. Y: it will be B

As the excerpt shows, speaker Y (the NNS) identifies what should be picture "B" in her referential perspective. In fact, the identification is correct. In her utterances (A) and (C) she explains the reason for her identification. Significantly, picture B turns out to be the same picture first referred to by the NS in the NS-NS conversation in (3.C). Thus, the NNS' utterance in (6.C), i.e., and he is returning here, describes the event as it is, showing that she is trying to find a solution through deployment of a strategy which simply labels the event depicted rather than integrate into a narrative (i.e., solution). However, while the NS in (3.C) focuses on the goat on the right side of the picture, the NNS in (6.C) focuses on the man rowing the boat towards the left side in the same picture. They thus respond to different stimuli in the same picture in which their use of the past and the present progressive serve the same function of describing the events as they are.

Similarly, the NNS' use of the past left in (6.A & C) serves the function of object regulation. It describes the event as it is in picture "B" (which is picture "f" in the given set; see Appendix I). However, when the other verbs in (6.A & C) are taken into account, this NNS' use of the past becomes more complex. After her identification of picture "B", when she begins to explain the reason for her selection, she first uses the verb left. At this point, her focus is evidently on the right side of picture "f," which shows the goat. As already mentioned, the man is shown rowing away from the goat in this picture. Thus, her explanation begins with a direct reaction to the stimuli in the picture, thus showing object-regulation on her part. However, her next expression first he took the goat indicates a potential shift in focus. She could now be looking at picture "d" in the given set, which happens to be picture "A" in the proper sequence for this dyad. That this picture could be within her visual range is evidenced by the fact that she mentions the picture as soon as she identifies picture "B" (i.e., this will be two/..A..B/) in (6.A). The first picture is included in her referential perspective. In this context, her use of the past is not directly influenced by the stimuli in the first picture. This picture shows the wolf and the cabbage on the left side. The man is shown carrying the goat in his boat towards the right side. An object-regulated utterance would thus be the man is taking the goat.

Given this context, it is plausible to say that when she says first he took the goat, she actually refers to the first event in the sequence of events, a sequence on which the proper arrangement of the pictures is based. At this point, she may be actually attempting to narrate the solution to the problem. However, her use of the past, instead of the atemporal form, shows that she does not achieve maximal self-regulation but only attempts to do so by distancing the event. The past in this context does not show object-regulation but an attempt towards self-regulation. Her subsequent use of put and left, it may be argued, ambiguous. It may be that both instances of the past continue the cognitive distancing mode initiated with took, or it may show her return to the mode of object-regulation in that both verbs refer to once again to the visual stimuli in picture "f" in the given set and describe events as they are. In short, the use of the past in this NNS' speech at least expresses a momentary attempt towards self-regulation by means of distancing.

The final use of the verb in the progressive is returning shows her return to the sense of immediacy in the stimuli. In this context, her use of this (6.A) and here (6.C) at the beginning and the end form a neat macrostructure, showing lack of spatial distance between the non-linguistic referents and the speaker. They reinforce the overall sense of object-regulation on the part of the speaker. Within this framework, took expresses a momentary attempt at distancing in order to gain self-regulation. Thus, the locative adverb "there" may be implied in first he took the goat.

In short, both NSs in the NS-NS conversation and the NNS in the NS-NNS conversation use the past and the present progressive. They thus show variable regulatory behavior in which object-regulated behavior is conspicuous.

ORIENTATION

A better understanding of why the atemporal, the present progressive, and the past occur in terms of their regulatory functions in the conversations of the two dyads can be gained with reference to how the interlocutors orient themselves towards the task in the first place. The occurrence of these linguistic features may be attributable to their orientation and towards the task.

In fact, the task-orientation of an individual is a crucial Vygotskian notion and needs some explanation. To put it briefly, the notion is derived from the theory of activity which is the most fundamental in Vygotskian psycholinguistics (Wertsch 1981). The theory of activity serves as the general explanatory principle, as well as, provides an analytical framework in which three distinct but inter-related levels of analysis are used: activity, action, and operations corresponding to motive, goal, and conditions (Leontiev 1981). Activity, as the first level of analysis and distinct from the use of the term as for general explanation, relates to the motive of an individual. The next level, i.e., action, is related to goal. Taken together, while a motive is the cause of a behavior, a goal is the end point towards which the behavior is directed. The third level, operations, refers to the specific conditions in which the goal is reached.

Any psychological phenomena at the level of operations are explicable in relation to the motivational sphere of an individual's sphere. Thus, in the data discussed in this paper, the tense-aspect linguistic feature is viewed to be at the level of operations and it gains significance in relation to the orientation of the individual.

An individual's orientation is located at the level of action in a task. It defined as the initial stage in the course of the action leading to a goal (Talyzina 1981:61). In other words, orientation refers to the initial state of an individual in approaching a given task, which shows how an individual approaches a task by considering what the goal of the task is and how and under what conditions the goal of the task is to be reached. Thus, the orientation component of an action affects significantly the course of the actions.

In this context, another notion becomes crucial. Wertsch (1984:8) introduces the notion of "situation definition" as follows:

A situation definition is the way in which a setting or context is represented--that is, defined--by those who are operating in that setting. I use the term definition because I want to emphasize that humans actively create a representation of a situation; they are not the passive recipients of this representation.

In other words, it is essential to keep in mind that two interlocutors entering a dialogic communication situation come with their own definitions of the situation and they may have different goals and perspectives although they are doing the same task in the same context. Thus, it becomes important in a research investigation to find out how the participants in a given task define the task.

Task-openings, i.e., how a task is begun by the task participants, provide important clues to individual orientation. The following excerpt shows the task-opening for the NS-NNS dyad:

- [7] [The researcher leaves the room. The interlocutors reading the instructions separately. The NS seems to have finished reading first. He takes the picture sheet and looks at it. The NNS continues to read. The NS begins the dialog. Reading time: one minute and 50 seconds when the first utterance is heard.]
- A. NS(X): this is..uh..do you understand the problem?
[shows the picture sheet to the NNS]
- B. NNS(Y): uh..um
[At this point, the NNS has, in fact, not seen the pictures. When the NNS says uh..um, she looks back at her instructions sheet. In fact, the NS holds the picture sheet throughout the conversation.]
- C. X: you can..uh..you've got three things
- D. Y: OK
- E. X: uh..the wolf..the goat..and the cabbage
[the NS points out the pictures of these on his instruction sheet.]
- F. Y: cabbage..uh..um
[when the NNS utters (D) and (F), she actually keeps looking at her instruction sheet]
- G. X: right/ and then the river
- H. Y: that's right/ and the man..
he has a boat..and he will carry
[points out in her instruction sheet]
- I. X: right
- J. Y: three/all of..these things..for the
- K. X: he wants all these on the other side
- L. Y: side
- M. X: starts with all three on one side
[looks at the picture sheet. The NNS does, too.]
- N. Y: uh..um

As is evident, at the beginning of the conversation, the two interlocutors exhibit variable non-verbal and verbal behaviors, which provide clues to their cognitive states of mind in this specific task. The NS, who has been able to read quickly the instructions and check the picture sheet, formulates an understanding of the problem and initiates the discussion. He initiates the conversation and seems to assume the responsibility for solving the problem. His opening statement indicates that he already has in mind some model for solving the problem. Non-verbally, by holding the picture sheet in his own hand, he establishes himself in a position of authority. Thus, from the very beginning he assumes control of the conversational activity.

This sense of control characterizes the NS' orientation towards the task, which proves to be a crucial factor in determining the course of the conversational interaction. In the rest of the conversation, he continues to control the conversation. Throughout, it is he who behaves as the problem-solver and the explainer of the solution. Non-verbally, he continues to hold the picture sheet and suggest how the pictures are to be sequenced.

On the other hand, the NNS, at the beginning of the conversation is still visually confined to her instruction sheet. Her first utterance uh..um is evidently not a response to the NS' question (7.A) in terms of understanding the problem the way he seems to have. In fact, when she makes her first utterance, she has not yet checked the picture sheet and her eye gaze is still focused on her instruction sheet. Throughout the conversation, she is regulated by the NS. In short, the two interlocutors show unequal power relationship in their variable orientation towards the task.

A more complex pattern of verbal and non-verbal behavior emerges from the task opening in the NS-NS conversation, as shown in the following task opening.

[8] [X and Y read the instructions separately. Y does not seem to have gone through the whole instruction sheet. Just after a few seconds, he looks at X momentarily. His eye gaze is not focused on the instruction sheet. He looks around. Looks restless. Meanwhile, X keeps reading. When the first utterance is heard, 40 seconds have elapsed.]

- A. NS(X): let's look at the pictures
[X smiles. Holds the picture sheet.]
- B. NS(Y): yeah
- C. X: oh..he's got to take them all across/
he needs the cabbage
- D. Y: you probably need to arrange the picture
in the proper order/
[Glances at the picture sheet. Goes back to the
instruction sheet now.]
the goat..the goat will eat the cabbage
given a chance
[Reads from the instruction sheet]
O..K..[very low tone]/

uh...what's the person have to do
going across../
OK...[pause]

E. X: the wolf

F. Y: the wolf will eat the goat../
the goat will eat the cabbage../ but
[Looks at the instruction sheet.]

G. X: the wolf won't eat the cabbage
[X stresses cabbage. Looks at the picture sheet.]

H. Y: right

I. X: let's bring the wolf first

J. Y: O.K.

K. X: then the cabbage/
then the goat/
then he's over there with all three
[Looks at Y]
the wolf and the cabbage will be left alone

L. Y: OK../ we have to arrange../
what is it../we have to arrange each of the pictures
in the sequence [rising tone]
[Looks at the picture sheet. Looks at the
instruction sheet.]

The non-verbal behavior at the very beginning shows that speaker Y does not pay attention to the instructions. On the other hand, X does read the instruction sheet. She begins the conversation. However, her very first utterance is crucial in revealing her strategy. When she says let's look at the pictures, she has not yet checked the picture sheet, in fact. Thus, when she begins the conversation, she actually draws the attention of the other interlocutor to the second object in the task, i.e., the picture sheet. When she begins the conversation, she has not developed an understanding of the macrostructural level of the pictures, not to speak of any possible solution to the problem. She adopts, what may be called, a strategy of first insight and follows it through.

X's utterance in (8.I), which appears as the first overt attempt to solve the problem, is significant. From the researcher's perspective, the ideal way to discuss the problem is for the interlocutors to focus on how the man in the pictures solves the problem. This perspective on the part of the interlocutors would indicate cognitive distancing from the task objects, i.e., pictures. In linguistic expression, this distancing would be expressed in something like the man brings the wolf first. However, X's utterance let's bring the wolf first betrays a perspective in which both the interlocutors are themselves involved in the situation. She says what she and her partner should do in the situation depicted. This perspective is an ad-hoc attempt and shows lack of cognitive distancing due to the inability to respond to the pictures at their macro-level arrangement. Hence, the attempt expressed in the utterance (8.I) shows lack of task control. Furthermore, X's solution, suggested in utterances (8.I) & (8.K), is a preliminary attempt to solve the problem. It is an instantaneous response to the immediate contexts of the pictures and does not take into account any macrostructure implied in the set of pictures in relation to the task instructions.

Speaker Y on the other hand, is still on a lower level of understanding the problem. He is not even sure what the goal of the task is. In utterance (8.D), he expresses his uncertainty by modifying his statement of the goal with probably. Still later, in (8.L), he is not sure if they are supposed to arrange the pictures in a sequence. Furthermore, as shown throughout the excerpt, he readily accepts every suggestion offered by X, and constantly keeps repeating phrases from the instruction sheet. His understanding, at least until the end of the excerpt, is limited to bits and pieces of information on the instruction sheet, showing object-regulation.

Thus at the very beginning, both the interlocutors react in varying degrees to certain micro- or local-features of the problem in the task. They take considerable time in understanding the nature of the problem. On the other hand, between the two interlocutors themselves, speaker X is relatively less object-regulated in that she attempts to engage in problem-solving activity, although in an ad hoc fashion. In short, their dyadic control relationship is again assymetric.

To summarize from the Vygotskian perspective, in both the NS-NS and NS-NNS dyadic conversations there are instances of linguistic features which show different kinds of regulatory behavior on the part of the individual interlocutors. These features at the level of operations are attributable to their orientation towards the task which reveals their cognitive states in terms of task control. In the Vygotskian theory, orientation is derived from an individual's "situation definition" which in itself is linked to the motivational sphere of the individual's behavior. It should be mentioned, however, that the discussion in this paper does not go into investigating the motives of the individual interlocutors due to lack of space. In simple terms, such an investigation would look at the setting in which the task was given and the interest level and involvement of the interlocutors in doing the task.

CONCLUDING REMARKS

Frawley and Lantolf (1985) show that in the specific task they presented to the subjects, the NNSs of English resemble the native-speaking children in their use of the progressive. Thus, the adult NNSs and the children form a behavioral continuum rather than an absolute distinction. Both showed object-regulation in their speech. This study extends the continuum to include adult native speakers as well. In other words, if a task proves to be difficult, whatever the source of difficulty may be, even a native speaker may become object-regulated and may resemble a NNS in the linguistic features of his speech. Thus, in terms of regulatory behavior, there is no absolute distinction between a NS and a NNS.

At the same time, this study shows that the same individual in the same task may show both object- and self-regulation behaviors. Hence task performance is dynamic. In other words, an individual in his performance across tasks or within a task may access different modes of regulatory behavior depending on how easy or difficult the task

performance is. A completely self-regulated individual is at best an ideal.

Similarly, the form-function relationship is dynamic. The discussion in this paper has shown that two different linguistic features (e.g., the present progressive and the past) can have the same cognitive function. On the other hand, the same linguistic feature in the speech of the same person can serve more than one function (e.g., the use of the past by the NNS in the NS-NNS). In this context, the schema for the regulatory functions of tense-aspect provided in Frawley and Lantolf (1985) is based on data drawn from a specific task-based activity. It is not meant to serve as an absolute model for all tasks, even within the mode of narrative discourse. The form-function relationship is dynamic. It arises as a result of the person/task environment interaction. However, in the final analysis, the functions of linguistic forms are regulatory.

Finally, from the Vygotskian perspective, any task is a problem solving activity for an individual, determined by his motive and goal, and any activity of speaking entails cognitive regulation on the part of the individual. This basic function of cognitive/linguistic activity cuts across any NS/NNS distinction. In other words, it is not significant to distinguish L1 and L2 behaviors on the basis of any a priori and formal criteria, since both types of behavior are the linguistic manifestation of cognitive regulation.

Long, whose original study (Long 1980) on modified interaction and negotiation motivated much empirical research during the last decade on the role of conversational interaction in the second language acquisition process, examines the theoretical state of SAL research and finds the field characterized with "some 15 to 20 so-called theories, models, metaphors, and perspectives," each inadequate in some ways (Long 1985:389). He finds that most SLA researchers adopt the "research-then-theory" strategy and suggests the need for "theory-then-research" strategy. In this context, the Vygotskian theory, as a global theory of cognitive development, could provide for such a strategy. Its interpretive approach is principled and grounded in the theoretical vocabulary of Vygotskian psycholinguistics, a vocabulary that has a specific philosophical and theoretical outlook and has developed painstakingly over decades of empirical research in the Soviet Union and, recently, the West. Vygotskian theory thus provides a well-developed and sufficiently general theory of cognitive development and processing into which second language acquisition research can be incorporated in order to fully understand the nature of L2 processes and to avoid segregating them from normal human psychological activity.

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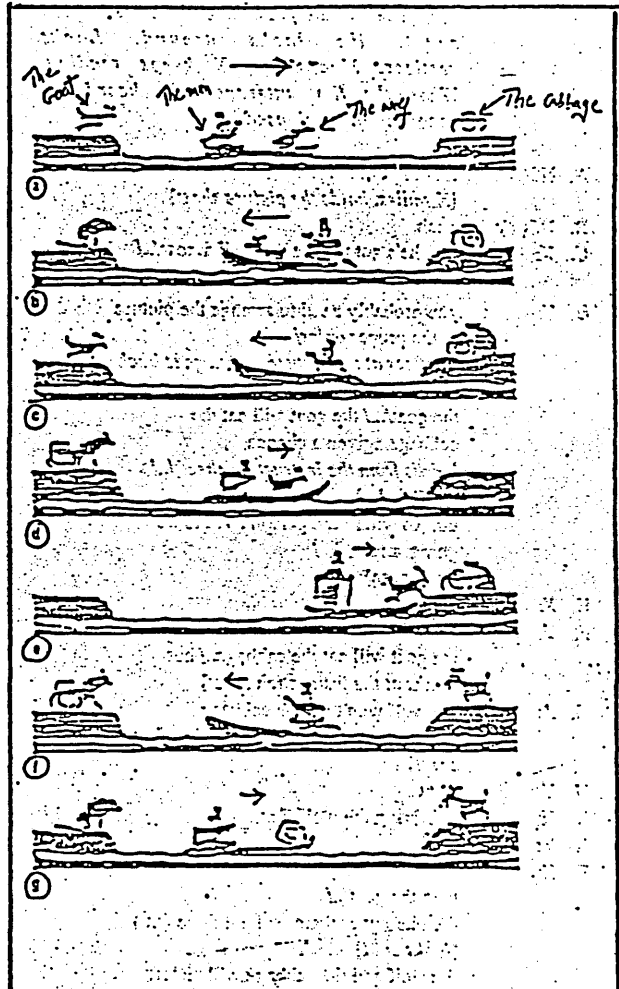
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APPENDIX I

Visual Stimuli

Note: The following pictures were given as the visual stimuli for the puzzle problem activity. The labels and the arrows have been added here since this photocopy is smaller and not clear enough compared to the one given to the subjects.

The following rearrangement is the correct solution:
d, f, g, b, a, c, e



APPENDIX II

Task instructions

Note: The following instructions were given to the subjects on a sheet of paper.

INSTRUCTIONS

You and you partner will see seven pictures. These pictures are on a single page in front of you. In each picture, you will see a goat, a wolf, a cabbage, and a man in a boat. The man is carrying the goat, the wolf, and the cabbage across a river. In the pictures, he is carrying them from the left to the right.

However, the man faces a serious problem. The problem is

the wolf will eat the goat, and the goat will eat the cabbage, if given the chance.

You and your partner look at the pictures carefully. Then both of you discuss and decide how the man is able to carry the wolf, the goat, and the cabbage across the river.

You and your partner need to rearrange the pictures in a proper order. Each picture has the letter a, b, c, d, e, f, or g. You both must agree on how to rearrange the picture.

You have ten minutes to rearrange the pictures. If you do not finish this task in ten minutes, I will come in and stop you.

Now, look at the pictures and talk to your partner.