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Distributed Cognition
and Participation in Second Language Discourse

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Abstract

Various approaches to the study of cognition are reviewed. These include models such as connectionism, experientialist approaches which emphasize embodiment, sociocultural approaches, and the significance of discourse for cognition. The argument is made that a comprehensive approach to cognitive issues should include consideration of all these approaches. As the acquisition of a second language is a fundamentally cognitive process these considerations are all relevant for Second Language Acquisition (SLA) theories. Because of the distributed nature of cognition, participation in second language discourse is particularly important, as it is a means for the language learner to situate herself in relation to the cognitive structures of the target language. This is of particular significance if we are to consider cognition not as a closed system of computational algorithms, but as a dynamic process of consciousness.

0. Introduction

In this paper I will deal with several issues concerned with both discourse and language acquisition, with special emphasis on second languages (L2) and the L2 learner. One matter to be addressed is how these two diverse fields are related. Traditionally the field of L2 acquisition has been primarily concerned with the instruction and learning of grammar, although there has certainly been a shift in recent years towards emphasis on communicative ability. In either case this represents a concern with how to do things in a second language, whether that be the construction of a relative clause or asking for stamps at the post office. An alternative approach is to consider that learning a second language is in effect learning the discourses which are part and parcel of the language and culture being studied. While at first blush this appears to be an attractive and engaging hypothesis, it opens up a large number of important issues that must be taken under consideration. Clearly it is not within the scope of this paper to answer all of them fully.
The first question that must be addressed is: what does it mean to say that learning a language is learning the discourse of that language? For the moment I will merely say that any attempt to answer this question requires first, that a theoretical framework about consciousness and the human mind be established.

The establishment of such a framework requires that we consider certain issues about cognition. Some of these issues concern the presence or absence of symbolic representation in models of cognition, and the notion of emergent forms. Connectionism is one attempt in the field of cognitive science that attempts to deal with precisely these issues. It should be obvious to even the casual observer, however, that connectionism, based as it is on knowledge of neural activity, and rooted in the traditions of cognitivism, at best speaks only indirectly to issues of discourse. By no means, however, should this be construed to mean that the two areas of study are unrelated.

In this paper I will argue for a multi-tiered model of cognition which is based on three intertwined aspects of mind. The first concerns the structure of cognition internal to the human being, as it takes place in the brain. The second concerns the essential fact that the mind is embodied, a fact too often ignored within the field of cognitive science, particularly among those practitioners who are obsessed with the notion of virtual machines. The third has to do with discourse, and the socially distributed nature of mind. If we are to take a holistic approach to the study of cognition all of these aspects must be taken into account and provided for. A failure to do so would be an instantiation of reductionism which could only serve to obscure our understanding of consciousness, and lead to unconstrained speculation within isolated domains.

1. Symbolic Representation

Given the central role that the notion of symbolic representation has come to have in modern linguistics, it may prove useful to briefly examine some of the developments in recent intellectual history that have contributed to its robust presence in current thought. Two of these developments would appear to have particular importance: the invention of computational machines and the vigorous rejection of behaviorism.

Since the very early days of computer science, the idea of developing a machine which could successfully engage in a wide variety of processing activities, such that it could perform much like a human mind, has intrigued theorists in the field. One of the very early notions was that of the Turing machine. The powerful notion behind this idea is that it is not the hardware per se which determines computational patterns, but rather the processes themselves. Thus, it doesn’t matter if the process is
performed through the channeling of electrons through silicon chips, or by the pecking of pigeons. This idea logically leads to the hope that human thought processes could be duplicated in a machine as long as an appropriate level of sophistication can be reached in its design. From here there is but a small step to the assumption that the mind is a computer. If the physical manifestation of the machine is unimportant, there is no reason to question the possibility of creating a machine similar to the human mind. Ergo, so the logic goes, what we learn about computational processing also instructs us about human processes. One of the fundamental features of computers is that they depend on what Clark (1989) refers to as semantically transparent symbols, or representations. Computers are particularly good at the sequential manipulation of these representations. If we are to take our metaphor seriously, the next logical assumption is that the human mind also functions by the manipulation of symbols. It is not surprising that the more or less contemporaneous birth of computer science and cognitive science gave rise to notions of artificial intelligence which came to be centrally situated in these related fields.

Shortly after the establishment of computers as a significant advancement of human technology there was another revolution, this one in the human sciences. Behaviorism, which had so dominated both psychology and linguistics, was rejected with a vengeance. The Chomskyan revolution in linguistics constituted a very real paradigm shift. Instead of being concerned with input to and output from an organism, the processes within the organism itself came to be seen as of primary interest. This mentalist approach, with its tendency to discredit the influence of anything external to the mind, led to a series of very strong assumptions. The notion of universal grammar is a direct descendant of the assumption that we have some kind of biologically determined language acquisition device. The notion of the modularity of cognitive systems is also consistent with this view. What was called for at this point, given the rejection of behaviorism, was some kind of coherent description of the internal operations which comprise linguistic competence. The technology at hand was, of course, the computer, with its dependence on symbolic representations. It should come as no surprise, then, that the manipulation of symbols which adhere to rules came to be the central metaphor in the dominant paradigm.

The notion of a rule governed manipulation of representations as comprising our underlying knowledge of language has a further repercussion that must be taken into consideration, namely, that this knowledge is unconscious and not directly accessible to consciousness. Again, within the context of modern intellectual thought this notion has a significant precedent. The Freudian conception of the unconscious as a psychological reality had by this time come to be well assimilated into
modern understanding of human beings. The validity of the Freudian model is a question which is well beyond the scope of this paper. I will mention, however, that the analogy does break down at some point, given that a central aspect of Freudian psychoanalysis involves the bringing to consciousness of that which is repressed in the unconscious. In linguistics, the search for indirect evidence for the rules and representations of our unconscious has become a significant academic industry.

The question that we must now ask is whether a model of the human mind based on the manipulation of representations has any validity given our knowledge of the way the mind functions. Putting aside for the moment issues of embodiment and discourse, we will look first of all at the internal operation of human cognition.

2. What is mind, anyway?

Searle (1992) begins his treatise, “The Rediscovery of the Mind”, by offering a simple solution to what he terms “the mind body problem”. Virtually everything else in this book is an elaboration of this central idea: “Mental phenomena are caused by neurophysiological processes in the brain and are themselves features of the brain” (1992: 1). He sees this as an alternative to two predominant schools of thought. The first considers consciousness to be irreducible, thus creating an insolvable dualism between body and mind. The second takes a more materialistic point of view, and hopes to be able to reduce mental phenomena: intentionality, beliefs, etc., to their purely physical components. It is this latter attitude which tends to dominate modern thought on the issue. This is not at all surprising, given the predominant myth in modern western society that objectively oriented science is uniquely capable of informing us about the inherent nature of things. The problem with this approach is how to come to terms with such basic features of the mind as consciousness and subjectivity.

Along these lines Searle looks at a question which is dear to proponents of artificial intelligence, concerning how unintelligent bits of matter can produce intelligent behavior, and reformulates it as one of how unconscious bits of matter can produce consciousness. The primary argument which justifies this shift is one of distinguishing between first and third person criteria. If we apply third person criteria then it is simply not the case that the biological matter of the brain is not intelligent, as its behavior is consistent with intelligent behavior, as is the behavior of pocket calculators and solar systems. In this sense the notion of intelligence becomes devoid of psychological interest. The answer to the question of consciousness being derived from unconscious matter is one
which sees consciousness as an emergent property of the neurobiological features of the brain. The result of this, however, is not something which is objectively observable, like behavior. This is because consciousness itself has an 'ineliminable subjective ontology.' Furthermore, there is no necessary causal link between consciousness and behavior.

When Searle refers to consciousness as subjective, he has in mind, for example, the experience of pain, which is always somebody's experience of pain. Eventually, 'every conscious state is always someone's conscious state.' It is an ontological category and not an epistemic mode. Consciousness is always a first person affair: it has a point of view, and it can only be experienced by the person who is in a particular conscious state at a given moment. Clearly this runs contrary to the view that there is an objective reality to all things and that the goal of science is to make discoveries about that objective reality. In a sense then, the earlier question of how bits of unconscious matter can produce conscious states also becomes one of how phenomena which are observable using objective third person criteria can produce a first person subjective ontology. One cannot observe someone else's consciousness (although one can observe someone else's conscious behavior), and as far as the observation of one's own consciousness goes, there is no distinction between the observer and the thing observed, or between the perceiver and the thing perceived.

In this way Searle comes to the following conclusions concerning consciousness (taken directly from Searle, 1992):

1) Consciousness is not "stuff", it is a feature or property of the brain in the sense, for example, that liquidity is a feature of water.
2) Consciousness is not known by introspection in a way analogous to the way objects in the world are known by perception.
3) There is no "link" between consciousness and the brain, any more than there is a link between the liquidity of water and H2O molecules.

Furthermore, consciousness cannot be analyzed in reductionist terms. To demonstrate this Searle distinguishes between various types of reductionism. Critical among these are ontological reductionism, whereby an object can be shown to consist of nothing but its component parts, and causal reductionism, whereby properties or causal powers of an entity can be shown to be derived from the causal properties of its component parts. Of course, a large part of the justification for reductionism is to gain access to real phenomena, without the constraints of subjective experience. Put another way, it is a stripping away of appearances to gain access to
underlying principles. In the case of consciousness, however, it is precisely subjective experiences which are central to an understanding of it. This is to say that to remove the surface features of consciousness through reductionism is to lose sight of consciousness. Thus, while consciousness can be seen to be an emergent property, it is neither ontologically nor causally reducible.

Having established this notion of consciousness as an emergent and irreducible property, Searle turns to the notion of the unconscious. Crucially, he flatly rejects the notion of an intermediate level between consciousness and the biological stuff from which it emerges. In brief, the unconscious is simply the neurological makeup of the brain which in turn is capable of generating consciousness in humans. In this way it is impossible to consider the contents of unconsciousness to be anything at all like the contents of consciousness. Following what he terms “the connection principle”, he argues that all conscious states are accessible to consciousness. This is not to say that all conscious states are present in consciousness at any given moment, but simply that they have the potential to be so. Furthermore, this does not mean that all unconscious processes are accessible to consciousness (there are purely neurophysiological processes which are not), but rather that all mental processes do have the property of accessibility. Between neurophysiological processes and consciousness there is simply no room for intermediate levels of representation.

In this way Searle points us in two directions for further exploration of the mind. On the one hand, he points to connectionism as a model of cognition which could account for how a system converts meaningful input to meaningful output without the baggage of intermediate levels of representation which are present in cognitivist accounts. On the other hand, he closes his book with a series of guidelines for a ‘rediscovery of the mind.’ The first three involve investigative methodology, while the fourth points us in the direction of discourse: “A fourth and final guideline is that we need to rediscover the social character of the mind” (Searle, 1992: 248). This is of primary importance if we are to understand consciousness as an emergent property of the brain, and as a property whose emergence is not simply a product of neurobiological activity. It is, rather, a product of the discursive situatedness of an embodied mind.

3. The social character of the mind

When Searle points us in the direction of the social character of mind there are precedents in terms of frameworks where these issues are explored. Primary among them is sociocultural theory in the tradition of Vygotsky and his followers.
When Vygotsky (1978) refers to the interiorization of higher psychological functions he is referring to those functions which are realized through the use of psychological tools. These tools are of a semiotic nature, and language is the primary means for the realization of this process. In this sense signs, like tools, serve a mediating function. Specific ways of achieving this mediation are conditioned by the historical and social development of a particular culture. Thus, language serves not only as a tool for the development of higher psychological functions, but also as a way of inculcating the members of a community, and inculcating the culture into the members of the community. As part of the process of the interiorization or appropriation of higher psychological functions, external processes begin to occur internally. One can think of each step in development occurring twice, first interpersonally, between members of the culture, and then intrapersonally, within each member of the culture. Ontogenetic development within the individual is in this way determined, or at least heavily influenced, by the socio-historical development of the culture of which s/he is a member. Therefore, we can begin to think of mind not as uniquely the property of the individual, but rather as something which is socially distributed.

This same sort of process can be observed if we look at the development of inner speech (Vygotsky, 1986). Vygotsky presents his own notions of inner speech in contraposition to those of Piaget. Whereas for Piaget the child begins with egocentric speech, and this eventually becomes social speech, for Vygotsky the process is reversed. It is social speech which appears first, and which later is internalized as egocentric speech. It eventually goes underground in the form of inner speech. The difference is far from trivial: for Piaget the process begins within the individual and it eventually becomes socialized; for Vygotsky the process begins socially and eventually becomes individual. Furthermore, in the Piagetian model, egocentric speech is merely accompaniment to the child’s activity and serves no further psychological function. For Vygotsky it serves not merely as an accompaniment to activity, but more importantly, as a means of planning and regulating activity. For Piaget, the child begins with autistic thought and is gradually socialized; thus, moving from egocentric to social speech. For Vygotsky, the movement from social to egocentric to inner speech is essential to the formation of the mind. As with the interiorization of higher psychological functions, we can see the social nature and origins of the mind.

This brings us to the notion of intersubjectivity as developed by Rommetveit (Wertsch, 1992). If interpsychological functioning precedes intrapsychological functioning, how could it even be possible for communication to exist, for example, between adults and small children. The situation is complicated if we consider that even the psychological
categorization of referents is likely to be different, given the adult’s already appropriated higher psychological functions, and the ability to engage in conceptual and not just syncretic or complex thought. The notion of intersubjectivity goes a long way towards resolving this problem. It entails a sharing of understanding as regards the situation at hand. This sharing need not be complete, but rather entails a negotiation of overlapping intrasubjectivities. This allows for a transcendence of private worlds to create a temporarily shared social reality. Instead of assuming an agreed upon and shared world, where words have fixed referential meaning, we are presented with the idea that meaning is constantly negotiated, and so it is only at the social level that meaning can be constructed (although it may eventually become interior to the individual.)

Harré and Gillet (1994) develop the notion of a psychology of mind which is highly consistent with the sociocultural tradition. Their thought is also highly consistent with that of Searle, in that they reject the notion of hidden, unconscious processes, which are considered to be crucial for determining behavior in the Freudian tradition, and which are crucial for the manipulation of representations in the Chomskyan tradition. Furthermore, their notion of consciousness is very similar to Searle’s assertion that it is essentially a first person ontology, to be understood from the subjective perspective of the individual.

Harré and Gillet’s thought goes beyond Searle’s in the analysis of the social nature of mind, which is precisely what Searle considers to be a guideline for further research. Their contribution builds upon sociocultural theory in their elaboration of a theory of mind which is based on discourse. According to Harre and Gillet, the study of mind is a way of understanding the phenomena that arise when different sociocultural discourses are integrated within an identifiable human individual, who is situated in relation to those discourses. The notion, then, is that mind is primarily the process of participation in discourses, and that these discourses are social constructions. However, mind is not merely the sum of these discourses. The individual is situated in a specific way with respect to each discourse in which she participates. This situatedness is central to understanding how a sense of self (agency) is attained, meaning is constructed, and the subjectivity of the individual is constituted. Conceptualization and the creation of meaning take place within the context of discourse; reconciling contradictions involving one’s situatedness in relation to one or more discourses involves an orientation, or reorientation, of one’s subjectivity. This is part of the task of being involved in, or inhabiting, a variety of discourses, each with its own ‘cluster of significations.’ In addition, discourse is not uniquely interpersonal, and when intrapersonal, it comes to constitute thought.
While Harré and Gillet do integrate rules and symbols into their understanding of discourse, these are not rules and symbols in the traditional cognitivist sense. Rules are seen as conventions of behavior (production in the generativist framework), and only come to be seen as rules when our behavior is interpreted. In this sense, the interaction of individuals in discourse is no more rule-based than is the connectionist model of cognition. In both cases there is activity which is constrained in certain ways, and the application of rules can be seen as descriptive of the functioning of those constraints, but not as causal. While the authors consider the use of symbols to be a significant part of cognition, this is clearly a different conceptualization than the notion of semantically transparent symbols in mentalist models (see below). Indeed, once more, their use of "symbols" is similar to models of activation in connectionism, whereby symbols are cues, and "meanings... are groupings and orderings of stimulus patterns and connections between stimulus patterns" (Harré and Gillet, 1994: 72). Unlike the symbols conceptualized by Smolensky in his version of connectionism (below), where symbols are semantically determined within the cognitive network, symbols in discourse psychology are intimately linked to their use as social tools, and are in this sense intersubjective. Symbols then, are present in our consciousness and allow for communication in so far as symbolic systems are shared. They do not form part of unconscious, intermediate representations.

4. Embodiment

Lakoff and Johnson (Lakoff, 1987; Johnson, 1987) point to an experientially based vision of cognition. It represents a rejection of the mentalist approach to cognition, although it does not go so far as to consider language itself as an organizing principle of cognition. A point of departure for understanding their orientation is to consider their treatment of metaphors as a means of organizing cognition. For example, metaphors of spatial orientation are directly related to our own physical presence in and experience of the world. We come to have metaphors like UP IS GOOD and DOWN IS BAD (as in "I’m feeling up", or "I’m feeling down") as a direct result of our experience as vertically oriented beings. Our most basic cognitive schemata, and the building blocks with which we create meaning, are a result of this kind of experience. Cognition is then seen not as a virtual machine which we carry around in our skulls, but as a process which depends crucially on our physically and perceptually mediated experience of the world. Searle discusses in great detail the historic implications of the creation of the Mind/Body dichotomy. From an experientialist perspective this split does not and cannot exist, as the embodiment of the mind is the first prerequisite for its existence. It goes
without saying of course, that for virtual machines we can speak only of
their being encased, but not embodied. From this perspective it becomes a
contradiction in terms to consider the possibility of consciousness being
artificially produced.

Varela et al. (1991) attempt to understand the history of cognitive
science in relation to Buddhism, and particularly to the meditational
principle of mindfulness. In doing so, they trace three stages of cognitive
science. The first, cognitivism, is based on a mentalist approach, and the
manipulation of symbols within a rule based system, as already described
in this paper. The second, emergence, is closely associated to models of
connectionism. The central idea is that properties can emerge from a
system that are not causally formed by the elements of the system itself.
Searle's notion of consciousness is an excellent example of an emergent
property. Finally, Varela et al refer to what they consider to be a middle
ground, the enactive approach. This approach denies that we inhabit a
world with particular objective properties, that these properties can be
represented internally, or even that there is a subjective agent which exists
apart from the individuals experience of the world.

Central to the enactive approach is the notion of embodiment.
Perception, for example, is conceived of not as merely input into a discrete
system, but rather as a creating of the world in which the perceiver herself
participates. To put it in very simple terms, their answer to the question
"If a tree falls in a forest and no one is there does it make a sound?" is
most definitely no. This is because without perception there is not even a
tree or forest. Sure, there is a world out there, but the only way it is
known is through the act of creating one's own world. Colors, for
example, do not have an objective ontology, but come to be meaningful
only when they are perceived as colors, which has as much to do with the
individual's embodiment and intentions as it does with inherent
properties. It might be illustrative to think of a step in human evolution
whereby our visual cortex is changed so that our vision is
monochromatic. We would be able to continue measuring light waves,
but colors would cease to exist, both psychologically and "objectively." It
is not that colors exist within the mind, any more than they have an
independent existence in the world. The case is, rather, that they are
created in the interaction between the individual and the world, the
perceiver and the perceived. Thus, there is nothing to be represented
internally, and in the same way, there is no subjective "I" in which to
house internal representations. It is the embodied experience of the world
which at the same time brings into being the perceiver and the perceived.
From this perspective knowledge is the result of an ongoing
interpretation that emerges from our understanding and capacities; it is
rooted in the structures of our biological embodiment, but lived and
experienced within a domain of consensual action and cultural history.

5. Connectionism

While there are several different flavors of connectionism, they all share certain common traits. First and foremost is the idea that connectionism is a means of modeling cognition that closely mirrors the organic composition of the brain. Loosely speaking, it implies that the brain is an elaborate network of neurons and synapses that serve as pathways for electrical impulses. Connectionism can be seen as a similar kind of network, which we can understand at a psychological rather than a physio-biological level. Obviously, it does not claim that meaningful observations can be made at the level of the individual neuron. Rather, what is under consideration, if it must be understood as neuronal activity, is a series of states within the system, where certain pathways are inhibited and others are activated.

There are two broad categories of connectionist models. Local connectionist models are much closer to traditional symbolic representations in that they consist of units with discrete on/off switches which then allow for schematic representations. Parallel Distributed Processing (PDP) models are, to begin with, more global in terms of the cognitive model, and not restricted to domains which are equivalent to symbolic representations. They are parallel in that the pattern of activation over a set of units is not sequential, but rather simultaneous (as opposed to symbolic architecture or even local connectionist models.) They are distributed in that the units that comprise patterns of activation are not uniquely (and very probably not necessarily) constituents of specific patterns, but can participate in any number of activation patterns. Recent interest in connectionism is concerned almost exclusively with PDP type models.

In regard to the issues of innateness (which are of inherent interest for the study of cognition with a linguistic orientation), PDP models are neutral to the extent that they can accommodate either a strong nativist position, or a strong empiricist position. Rumelhart and McClelland (1986) describe the “radical nativism hypothesis“ as consisting of the view that all interconnections are determined through genetic endowment. The “radical empiricist hypothesis“, on the other hand, “suggests that there are no a priori limits on how the network of interconnections could be constituted“ (1986: 140). As Rumelhart and McClelland point out, a PDP model can be seen as consistent with either hypothesis. They take a middle ground, positing that the “to the degree that there are modules, they are co-determined by the start state of the system (the genetic predisposition) and by the environment“ (1986: 141).
As for the appropriate level of analysis for cognition, Rumelhart and McClelland maintain that higher, macrostructural levels of analysis are approximations of lower level microstructural analysis, and that while higher level analyses may be useful, they remain approximations. Their logic, however, fails on two levels. First, this represents precisely the kind of reductionism which Searle agues so eloquently against. Second, it is an argument which is only valid if we are to consider the connectionist network as an autonomous system. As argued above, issues of embodiment and discourse are also central to cognition, and are in no way simply higher level approximations of microstructure.

Clark (1989) discusses a series of ways in which connectionism satisfies the kinds of constraints which are necessary for the elaboration of a computational system within a biological organism. While I do not agree with his understanding of the system as computational (rather, it may be a system out of which it is possible to make a computational model), his observations concerning the appropriateness of connectionism are worthy of mention.

1. It is a robust model of cognition, in the sense that even when there is damage due to physical trauma or degradation with age, it is able to continue functioning, even if not optimally.
2. It is very fast, as far as sensory processing systems go, due to the fact that it is neither unidirectional nor sequential (as is the case with computational systems based on symbolic representations.)
3. It is the kind of system that is capable of making sense of partial or inconsistent data (again unlike representational models, which tend to crash in these instances.)
4. It offers economy and flexibility of storage and retrieval. This is because the network of connections is not fixed, but offers configurations based on input.
5. It offers the possibility of generalization, and so the capacity to deal with new and unique situations.
6. It is a model with an inherent learning capacity.
7. It is a model which is consistent with evolutionary notions of gradual change, and the notion that a system develops based on its previous states.
8. It offers the possibility of adopting to ever changing contexts.
9. It is a model which does not require the elaboration of rules as a causal mechanism, while producing rule-describable behavior.

While this is a rather impressive list of the merits of connectionism, it is the last two items which are most relevant to the present discussion.
The flexibility and ability to adapt to situations and contexts is particularly significant if we are to follow the idea that consciousness is a process which is actualized at any given moment as a state. Bearing in mind Searle's idea that consciousness is essentially a first person ontology, this means that what is needed is a system which is capable of producing an enormous variety of configurations in interaction with the environment, which is dependent on experiential and social mediation. Systems based on symbolic representations are simply incapable of doing this, given that they are based on the manipulation of semantically transparent symbols, symbols whose meanings are strictly defined in relation to other symbols. In a connectionist model, however, the activation and inhibition of connections can occur "on line", thus, permitting for a notion of meaning which is context dependent. Semantics, in this case, is not system internally predetermined, but comes into being based on the system's interaction with the world. Simply put, the connectionist model allows for meaning to be negotiated.

As regards the conceptualization of rules-based systems, which is central to traditional cognitive models, we might again look at the Searleian notion that there is just the stuff the brain is composed of, and consciousness, with no intermediate level to program consciousness yet stay inaccessible to it. This is not to say that a system like connectionism cannot be described by rules. We might take a river as an example. While it is clearly ridiculous to think of a river as either conscious or as a computational system, it is possible, using sophisticated programs, to make computer models of river mechanics, although I am told that the system is so complex that it is still impossible to model in its entirety. Speaking naively, I imagine that doing so would entail incorporating aspects like soil erosion and rainfall patterns, eventually creating the need to incorporate a model of the global eco-system. In a sense, this makes for a wonderful analogy with cognitive models, which eventually need to incorporate the experiential and social situatedness of the individual.

While one of the most attractive attributes of connectionism is that it offers the possibility of a cognitive model without explicit rules or symbolic representations, these notions keep popping up, even within the connectionist model, with the persistence of credit card offers in the mail.

6. Connectionism and symbolic representation

In this section I will discuss two arguments in favor of some form of a combined connectionist/symbolic model. The first is from Clark (1989), and is based on the idea that both connectionism and traditional cognitivism, taken separately, are necessary to account for the gamut of cognitive activities in which human beings participate. The other is from
Smolensky (1994), and is based on the idea that a limited part of symbolic representation, as conceived of in traditional cognitivism, needs to be incorporated into the connectionist model. In both cases there is the clear intention of preserving at least parts of cognitivist models, and specifically those in the generativist tradition. Both share the underlying assumption that the mind is a kind of virtual machine; that computer models of cognition will therefore inform us about the mind.

Another notion, presented by Clark, that will prove useful throughout this paper, is that of semantically transparent systems. To capture the idea briefly, these are systems of symbolic representations which are defined internally in relation to the other representations of the system, both in terms of semantic content, and syntactic relations. In other words, the symbolic representation is both defined by and is isomorphic to its internal composition, and how this relates systematically to other representations. This is a useful notion for the implementation of computational, and even cognitivist models, as it allows for representations which can be manipulated in rule governed environments, as the rules can apply to structural definitions of the symbol. Essentially, questions of meaning come to have nothing to do with consciousness; they are only concerned with the symbol’s specifications, which in turn allow it to participate in the functioning of the computational system.

6.1. Clark’s “multiplicity of mind”

Clark (1989) points out that there are some tasks to which PDP connectionism is exceptionally well suited. These include pattern recognition, low-level vision, and motor control. He also indicates that there are some tasks for which PDP is not well suited, and for which traditional cognitivist accounts are. Among these tasks he includes “the serial based tasks of logical inference, the temporal-reasoning tasks of conscious planning, and perhaps the systematic-generative tasks of language production” (Clark, 1989: 127). In other words, PDP may be appropriate for modeling lower level cognitive processes, but higher cognitive processes still call for a mentalist approach. From both a psychological and linguistic perspective this is of tremendous importance, as one of the principal attractions of connectionism is its ability to do away with intermediate levels of representation.

Clark argues against what he calls the “uniformity assumption”, implying that not all cognitive processes are explicable with the use of a single cognitive architecture, and argues for what he calls “the multiplicity of mind”, where he assumes that different architectures are necessary for different tasks. One argument in defense of PDP is that it is a mistake to
say that it is unable to deal with sequential thought, as indeed there can be seriality, or a sequence of states in which the network will be activated. Clark argues, however, that while this can account for the stream of consciousness, PDP is unable to participate in the ordering of operations.

He is unwilling, however, to posit that there are internal symbolic representations, and so turns to the notion of external symbolic representations. (This idea requires further explanation, particularly as it comes tantalizingly close to sociocultural notions of control; first through objects, then through others, and then finally, internalized in the self.) The notion here is that of an embedded PDP system, where the basic PDP architecture would be able to manipulate external symbols. In effect this would then permit the preservation of conventional cognitivist models, only turned inside out; instead of being truly mentalist, it is the interaction with, and manipulation of, objects in the world which provides the symbolic substrate. Cultural transmission then allows for the construction of this external formalism. While Clark sees several problems in the deployment of this sort of model, he does find it to be consistent with his notion of the multiplicity of mind.

The question we must now ask is whether this is a stunning model of cognition which is compatible with notions of the mind as both embodied and culturally embedded, or just a sleight of hand to preserve the formalism of mentalist approaches while doing away with certain untenable assumptions about the structure of cognition. The answer is some of both. While this sort of model does bring us closer to a theory of mind as embodied and discursively structured, it also presents a simplistic version of relations between the external and the internal, and fails to recognize precisely those aspects of connectionism which make it so attractive to begin with.

Clark’s theory is a simplistic understanding of the external/internal connection because it assumes that the external symbols which are manipulated have a perceivable objective reality unto themselves. While this is certainly consistent with the mythology of science, it breaks down completely if we consider that consciousness is essentially a first person subjective ontology. What this notion fails to recognize is that our knowledge of the world is not a knowledge of symbols, but a knowledge of a world which we are actively constructing. In other words, this line of thought demonstrates a lack of application of the notions of distributedness and multidirectionality, notions that are central to connectionism, and to the relationship between things internal and things external.

The other problem with taking mentalist formalism and considering it to be external is that it loses track of the idea that we are dealing, with just stuff. If we consider that the mind doesn’t have internal representations,
but just neuro-physiological material and, eventually, an emergent consciousness, why would we want to consider that the world itself is anything more than just stuff? Going back to our river example, what this position is saying is that the river actually is a computational system, and that our unique ability as human beings is the internalization of that system.

6.2. Smolensky’s misunderstanding of the Chinese room experiment

While Clark attempts to show that the mind is made of various architectures, Smolensky (1994) proposes a unitary cognitive approach, formulated as Integrated Connectionist/Symbolic architecture (ICS). The difference between ICS and classical cognitivist theory are made explicit in the following list of principles (Smolensky, 1994):

Derived from PDP:
Reppdp: In all cognitive domains, representations are distributed patterns of activation.

Derived from classical symbolic approaches:
Repsym: In core parts of higher cognitive domains, representations are symbol structures.
Semsym: The semantic interpretations of these symbolic representation are compositionally derived from their syntactic structure.
Funsym: In core parts of higher cognitive domains, the input/output functions computed by cognitive processes are described by (recursive) symbolic functions.

Rejected from classical symbolic approaches:
Algsym: Higher cognitive processes are described by symbolic algorithms.

While these are not all the principles which Smolensky proposes in his brand of connectionism, they are the ones which are most relevant to the present discussion. What is of interest here is that while he rejects the notion of rule governed manipulations of symbolic representations (Algsym) in favor of PDP based notions of activation (AlgPdp), he does preserve the notion of symbolic representations (Repsym). Furthermore, the semantics of these representations, how they attain meaning, is also dependent on symbolic representation in the form of syntactic structure (Semsym), and even the functions involved are symbolic. (In this model,
grammars do not "compute" in the traditional rule-based fashion, but rather they "abstractly specify, for any input, its correct output/parse/structural description." This allows for a recursive manipulation of the representations (FunSym). What he is, in effect, describing are semantically transparent representations which are no different from those of computer representations or the symbolic representations of cognitivist grammars. These representations are then encoded in activation states, and are processed in terms of activation and inhibition of the symbols themselves within a connectionist framework. This allows Smolensky to maintain many of the generalizations of generativism that he finds useful for an account of cognition. This includes the notion of competence/performance, as for him the connectionist model functions as a computational algorithm, albeit in a manner that is different from the algorithms of the Chomskyan model.

All of this is predicated on what I see as a profound misinterpretation of Searle's Chinese Room Experiment (Searle, 1980; Smolensky, 1994 and personal communication). Briefly, the experiment looks like the following: imagine a person in a room with access to Chinese symbols, and precise instructions as to which symbols to display upon receipt of other symbols, but who has no personal understanding of the meaning of these symbols. The primary lesson to be gained is that the Chinese room appears to be processing meaning, although neither the Chinese room apparatus as a whole nor any part of it has the foggiest notion as to what meanings are being exchanged. This is not to say that there is no meaning for those outside the room who understand Chinese, only that the room itself is not processing meaning. Smolensky's interpretation, on the other hand, is that as long as the appropriate symbols are being manipulated, this in itself is proof of the fact that there is meaning within the Chinese room. Shocking though this position may at first seem, it is perfectly consistent with his ICS model, and is in fact a necessary conclusion given the assumptions of that model. This is because the composition of the symbols is determined system internally (SemSym and FunSym). A logical extension of this, and one that Smolensky sees as a viable possibility, is that an appropriately sophisticated and powerful computational system could attain consciousness.

7. Implications for L2 acquisition

One of the goals of this paper is to reflect on the process of L2 acquisition in light of the various models and notions under consideration. To reiterate, the specific properties of cognition which need to be taken into account include the following: some notion of the internal processes which are involved, the fact that cognition is embodied, and the notion
that it is mediated by the discourses in which the individual participates.

Schumann (1994) makes a strong argument for the importance of neurobiological processes for an understanding of cognition and SLA in a way that avoids eliminative reductionism. He argues that this does not preclude other levels of explanation, but rather that "... co-fertilization among the three levels (behavioral, psychological, and neural) is seen as a vehicle for producing the richest picture of the phenomena under investigation" (1994: 232). Further, he posits that affective and cognitive factors interact as part of the same system, and that it is a mistake to assume that one is subordinate to the other. Distinguishing between *canalized learning* (where there is little individual variation) and *sustained deep learning* (where there is a great deal of individual variation, and affect plays a significant role) he posits that SLA is primarily a process of the latter. Schumann's research represents a significant advance in efforts to integrate knowledge of neurobiology and cognition to SLA research. While he does not elaborate on experiential or discursive aspects of cognition, his is a model which is clearly inclusive enough to encompass these factors.

Various studies have looked at how discourse plays a role in second language acquisition from a sociocultural perspective. Frawley and Lantolf (1985) look at issues concerning object, other, and self regulation as learners move toward the ability to regulate strategic processes on their own. They found that there are strong parallels between the acquisition of native and second languages in regard to the movement toward self regulation. McCafferty (1992) found evidence that there are differences in the use of private speech among second language learners from different cultures, and, in particular, that use of metacognitive "tools" involved in self regulation may vary among members of distinct cultures. Brooks and Donato (1994) found that the discourse of second language learners is not merely the encoding and decoding of messages, but also serves as a means of regulating cognitive processes. They highlight the fact that learning an L2 "must be viewed as a cognitive activity and not merely the rehearsal and eventual acquisition of linguistic forms" (Brooks and Donato, 1994: 272). All of these studies have primarily been concerned with how discursive interaction facilitates learning from a Vygotskyan perspective, as second language learners move from object to other to self regulation. While these studies serve to illustrate the distributed nature of cognition and the significance of discourse for learning, they do not approach the issue of what it means to learn (or be situated in) a second language discourse. The nature of self regulation (and private speech) for L2 learners still remains an unsolved issue. The issue is one of whether there is development of an L2 private speech, or whether a sociocultural analysis should be mainly concerned with the influence of L1 private
speech on language acquisition.

Traditional techniques of language instruction, based largely on the explanation of grammar, are to a certain extent consistent with mentalist approaches to mind, in that they describe rule-based manipulations of symbols. Even given the validity of this sort of model of cognition, however, these techniques quickly break down, as they attempt to impart information concerning unconscious, intermediate levels of representation. At best what would need to be learned is the implementation of these algorithms, as opposed to information concerning their formal properties.

The adaptation of a PDP type model of connectionism, one which is consistent with the notion that cognition is neither rule-based nor symbolically represented, has other implications. At this point the idea of L2 acquisition based on notions of comprehensible input and/or forced output comes to have particular relevance. In effect, if we are interested in the establishment of patterns of activation, then comprehensible input would appear to be essential for language acquisition. This is especially true once we consider that this type of model is essentially concerned with production, and not with competence, as in other models. In this case the stimulation of production, whether it involves comprehension (input) or the creation of utterances (output), must be seen as central to the process.

This is still insufficient for an understanding of L2 acquisition, as it deals with cognition on a purely internal level, as encased but not as embodied. One need look no further than the lexicon to see that we are likely to come up with a system where individual lexemes will be mapped directly onto existing lexemes in the L1, metaphorical thought in the L1 will be preserved with simple relexification, and the phonetic form of each word will serve as a mere marker for already established meanings. In effect, by applying the notions of comprehensible input and forced output to a PDP system, it is predictable that the language learner will continue to "think" in the L1, following previously established patterns and sequences of activation, with an additional connection to the words and possibly forms of the L2. This in itself represents no small accomplishment, as it would allow the learner to engage in a variety of communicative tasks. The semantics of the learner's interlanguage would remain that of the L1, but where there is a reasonable amount of overlap, communication will be able to take place with a fair degree of success. This type of communication, however, would be the mere encoding and decoding of information.

If it is possible for the L2 to become an embodied means of cognizing the world, then a sufficient richness and intensity of experience need to be mediated by the L2. Only then will the rigidity of mapping onto the L1 begin to break down and the L2 cease to be an encased system embedded
in the L1. The result will be a restructuring of the L2 as a mediational tool. This is certainly not an inevitable development in L2 acquisition, since in a great variety of situations the learner can continue to function without this restructuring. In addition, there might be intermediate stages where there is only partial restructuring, and when presented with particularly difficult tasks, those beyond his zone of proximal development in the L2, the learner will then "revert" to a use of the L2 as mediated by the L1.

There is a further question: can students use the L2 as a mediational tool in a classroom setting? I am not optimistic, but if so, it would require a classroom that looks very different from what we are used to seeing, one where the students engage in a variety of difficult and meaningful activities, perhaps with the expert help of an instructor. In this case the classroom would need to approximate the richness and intensity of life.

This brings us to the aspects of a holistic cognitive model which concern the social character of mind, and the situatedness of participants in discourse. In fact, if the implementation of an L2 is to be embodied and not merely encased, this can only be done through the negotiation of meaning inherent in participating in discourses. Of further interest is the fact that since discourses are socioculturally based, one can expect that discourses will vary cross culturally, as well as cross linguistically. One might then ask if it is possible for students of an L2 to learn to inhabit "foreign" discourses. Certainly there is some precedent for this as students do learn to be participants in new discourses as they engage in new areas of study. The situation is complicated in the case of an L2, however, as it is the mediational system in its entirety which must be learned. In order to address this question it may be useful to first rephrase it; it is not a question of learning discourses, but of participating in them (a process which itself may then lead to learning.) True participation in a discourse requires not only negotiating meaning, but also situating oneself in relation to the other participants. We can then think of participation in discourse not as something that can be learned, but as something procedural; to be engaged in. Once the student is a participant in a meaningful way there is then no alternative but to situate her subjectivity in relation to the discourse. A further question would then be whether an L2 discourse can be internalized, so as to function intrapersonally. I can see no obstacle to this occurring; particularly if we assume a model of cognition based not on an architecture of rules and symbolic representations, but based on the notion of consciousness as an emergent property with no intermediate level of representation. This does not mean, of course, that the situatedness of L2 speakers will be the same as that of a prototypical native speaker, but simply that they can become active participants in, and even inhabit these discourses.
References


On the Notion of Conceptual Fluency in a Second Language

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Abstract

This paper focuses on the definitional and methodological problems associated with a newly introduced construct, namely the notion of conceptual fluency in a second language. It argues against the reduction of conceptual fluency to metaphorical competence (Danesi, 1992), as well as the reduction of metaphorical competence to the complexity or number of metaphor interpretations provided by SL learners (Johnson and Rosano, 1993). It also stresses the need for introducing solid psycholinguistic measures of conceptual fluency against which SL learners' performances can be reliably assessed and compared to those of native speakers. It voices the idea that metaphor theory may offer a fruitful basis for addressing important issues in SL research and pedagogy but also warns against the hasty assumption that the conceptual system of a foreign language can be learned and taught in a classroom environment.

0. Introduction

Over the years second language researchers have introduced different theoretical constructs in an attempt to achieve a better understanding of the processes underlying second language acquisition and consequently to make second language teaching a more effective enterprise. One such newly introduced construct is CONCEPTUAL FLUENCY. Recently coined by Danesi (1992), this notion certainly needs not only wide advertising but some clarification as well. It needs publicity because it turns the attention to a dimension which has been ignored and, therefore, is capable of opening new horizons in both SL research and methodology. It needs defining because, as for any new construct, its impact on the field and its longevity depend in the first place on its content. In this paper I will discuss the notion of conceptual fluency and address the question of the appropriateness of this construct for SL research, its viability and above all, the ways of approaching and studying it. In other words, what is conceptual fluency and what do we need to know about it?
1. What is conceptual fluency?

1.1 Conceptual fluency and communicative competence

Danesi (1992) distinguishes between two kinds of fluency in SL. On the one hand, there is verbal fluency which encompasses grammatical and communicative competence, and, on the other hand, there is conceptual fluency. The need for such a distinction is motivated by the discrepancy in student produced discourse texts (both oral and written) between the high degree of verbal fluency and the conceptual inappropriateness of their productions as compared to native speech. Such a distinction, however, offers a reductionist view of communicative competence. Indeed, if communication is understood as “how to do things with the language in specific interactional contexts” (Danesi, 1992: 490), i.e. how to act using the language, hardly can conceptual fluency be separated from this kind of competence. One might get around buying a pound of bananas without having much conceptual fluency in the SL, but as soon as one faces a more complicated interactional context, conceptual fluency seems to be an inalienable prerequisite for communicative competence. In other words, how does someone go about arguing successfully in English if one is not really familiar with the way speakers in this culture perceive, think and talk about arguments, namely in terms of war? If one does not have access to the conceptual metaphor ARGUMENT IS WAR, deeply entrenched in the Anglo way of thinking and speaking, one’s performance in such an interactional context would not be felicitous. Although in his conclusion Danesi recognizes that the notions of grammatical, communicative and metaphorical competence are not mutually exclusive, he does not really discuss the relationship between them and the ways of studying them separately.

1.2 Conceptual fluency and metaphorical competence

After this preliminary remark on the inalienability of conceptual fluency from communicative competence, one can turn to the question of its nature. According to Danesi, a speaker is conceptually fluent in a language when the speaker knows “how that language reflects and encodes its concepts on the basis of metaphorical structuring” (Danesi, 1992: 490). It has to be made clear from the start that Danesi focuses on a specific aspect of conceptual fluency. Indeed, not all concepts are metaphorically structured, as is now recognized in the cognitive linguistics framework (Lakoff, 1993). Some concepts are apprehended directly and not via metaphor. This form of understanding is somehow ignored in Danesi’s article. He basically seems to equate conceptual fluency with metaphorical competence, a term coined in analogy to grammatical and
communicative competence (Danesi, 1992: 500). Danesi does not actually offer a very detailed discussion of this notion in any of his work. The speaker and the hearer share, according to him, two main components of psycholinguistic knowledge: the so-called context-appropriateness and strategic instrumental criteria. The first one is "a knowledge of what the appropriate images of the target culture are in metaphorical concepts" (whatever this means), whereas the second "implies the ability to use such conceptual images for strategic or communicative purposes" (Danesi, 1988: 6). From his general discussion of metaphor theory, though, one could conclude that metaphorical competence corresponds to the knowledge of a speaker about the way a given culture structures the world conceptually via metaphor. For instance, to be familiar with the concept of ideas, being an English speaker, would mean to be aware of such metaphorical mappings as IDEAS ARE GEOMETRIC OBJECTS (I don't get the bottom line; I don't quite get how your idea is parallel to mine); or IDEAS ARE PLANTS (Your ideas are fruitful; This idea needs to be cultivated); or else IDEAS ARE BUILDINGS (Your ideas are well grounded; This idea has no foundation); or even IDEAS ARE POSSESSIONS (The idea was his; He gave me this idea). These are all conventional ways in which English speakers talk about ideas. However, this line of reasoning has to be extended further: as it is frequently illustrated in the cognitive linguistics literature, such mappings are far from being a mere matter of language. Our concept of ideas is itself structured in terms of geometrical objects, plants or buildings, and ultimately our way of thinking about ideas influences our actions with respect to ideas. Thus, if an idea is seen as a geometrical object, we can stick it in a paper or throw it out, or else adjust it to a given context by cutting tiny bits and pieces here and there. Because ideas are also apprehended as plants or more generally living beings, we can welcome them, cherish them or reject them; we can even dissect them and study them under a microscope. And finally, since ideas are understood in terms of buildings and possessions, if our ideas fail, we feel that our house has collapsed, and if someone takes our ideas, we feel deprived as if something has been stolen from us, a way of thinking largely reflected in the existing legislation on intellectual property and copyrights.

1.3 The importance of the constructs of conceptual fluency and metaphorical competence for SL research

In spite of possible definitional problems, the importance of introducing the constructs of conceptual fluency and metaphorical competence in SL research should be pointed out from the start. Grounding their definition in metaphor theory amounts to adopting a theory of meaning which offers a fresh alternative to both a long-standing
tradition of formal semantics such as developed in the generative framework, for instance, and the deconstructivist approaches. For cognitive semantics meaning is neither totally objective nor totally subjective; the world acquires meaning for us through our experience, be it physical, social or cultural. The view that metaphor is not a merely linguistic phenomenon but mainly a conceptual process allows us to transcend the level of language itself and make claims about the conceptual level in spite of the elusiveness of this construct. With the help of such an approach we can look for the commonalities and differences between languages on this “deeper” level. Such claims would still be relevant from a linguistic perspective because language and cognition are inextricably linked and it is believed that the study of each one can throw light on the other. Indeed, until now the establishment of universals and linguistic typology has been confined to the phonological, morphological, syntactic and semantic levels. This kind of enterprise enlarges the perspective because it can tell something about how people who speak a given language think and, therefore, experience, structure and act upon the world, questions which have always fascinated scholars from a variety of fields.

There is a second merit in introducing the notion of metaphorical competence in SL research. Indeed, in spite of the holistic and interdisciplinary flavor of the cognitive approach, there have been no other attempts, at least to my knowledge, to extend the implications of metaphor theory to the domain of applied linguistics. Such an extension seems crucial for understanding phenomena such as native and near-native fluency which are often seen as the ultimate goal of language teaching. Indeed, the constructs of metaphorical competence and conceptual fluency offer a plausible explanation for the difficulties that learners have to master a second language. Investigating the level of such fluency in speakers of a second language is certainly a fascinating domain of inquiry. It can be done with different target groups depending on the general setting in which the SL is acquired, mainly in a natural environment or in the classroom, keeping in mind that a number of other factors can affect the outcome of the studies as well.

1.4 Other aspects of conceptual fluency

There are two main aspects in investigating conceptual fluency. First, one should be well aware of the content of the constructs used and the range of phenomena covered by each. When defining conceptual fluency, one cannot reduce it to metaphorical competence. Indeed, as mentioned above, there are also many “literal” concepts, in the sense of being directly understood, independently of any metaphorical processes.
However, these are not to be easily discarded from the domain of conceptual fluency as uninteresting or undeserving attention compared to metaphorical competence. The knowledge SL speakers have of these literal concepts is as crucial as their knowledge of the metaphorical concepts in the second language, at least if the ultimate goal of language acquisition and use is communication, and the aim of learning a SL is to be able to use it in ways similar to those of native speakers. The fact that these concepts are literal in the above sense does not mean that they would not present a challenge for the SL learner very similar to the metaphorical concepts. Indeed, for the communication to be successful both speaker and hearer need to have the same conceptual reference point for fear of misunderstandings. If one, for instance, points at a refrigerator and asks a North American: “Is this a normal refrigerator?”, one is most likely to receive an affirmative answer in the case the refrigerator is one of the kind that does not need defrosting. However, in a lot of other cultures a normal refrigerator is one that needs defrosting. Thus, though there is nothing metaphorical about refrigerators, these two ways of understanding a refrigerator are different enough to create a communicatively infelicitous situation. Here comes very appropriately the idea of prototypicality and the findings of numerous studies on the nature of categories, namely that contrary to the classical view, categories are not discrete entities with clear boundaries whose membership is defined in terms of a number of properties shared by all their members. As research by E. Rosch and her colleagues has shown, some categories are graded with fuzzy boundaries and inherent degrees of membership and even the ones with clear boundaries display graded prototype effects such as one member being a better exemplar of the category than another one (for a detailed discussion see Lakoff, 1987). If one is going to investigate conceptual fluency in SL speakers, one should concentrate on, or at least be aware of, this aspect of the question as well.

Conceptual fluency plays a role in other kinds of situations as well and affects the outcome of the communication process. For instance, it takes some time to realize that the American “How are you?” is anything but a question expressing interest in the way the addressee feels or has spent the day. Until one becomes aware of the concept of greeting in the American culture, one would respond to such an utterance in an inappropriate way and wonder why the only effect on the interlocutor that he/she achieves is one of badly disguised, if disguised at all, annoyance. Similarly, until one really internalizes the concept of privacy as displayed in American English, one would always feel an unpleasant shivering of self-consciousness every time an American speaker backs up during a conversation, simply because the norm of personal and social distance is different in this culture. To take a further example, unless a SL
learner of English acquires the American concept of a discourse situation and the related subconcepts of the discursive roles of speaker and hearer, he/she would make communicative faux pas such as interruptions. Carroll (1988) has shown that while interruptions are interpreted as hostile by American speakers and, therefore, as lack of interest on the part of the hearer and an invitation to stop communication, French speakers, for instance, interpreted the lack of interruptions as a lack of interest and consequently felt offended and unwilling to continue communicating. This might be due to the fact that in some cultures such as the American one, discourse is seen as speaking whereas in others it is mainly perceived and experienced as speaking with. We experience communication such as practiced in our own environment very early in life and our way of responding is a very deeply entrenched reflex. This might be the reason why, in spite of an extensive experience of American culture, SL speakers still feel unable to learn the appropriate kind of behavior: if what the speaker says rings a bell in their heads, they feel an almost uncontrollable rush to react verbally for fear of missing the right point to intervene. Otherwise, something in the communication seems lost. One concentrates on what comes next and discards previous associations. In this case the speaker’s mind seems to work much more in the way computer dialogue boxes work: unless one answers the question on the screen, the following screen does not appear. On the contrary, the typical American conversation works more like an academic talk: the speaker speaks, the others listen and when discussion time comes, they can act. A speaker genuinely interested in the reactions of the audience, though, should hope that everyone has kept detailed notes. Personality also plays a role in this respect.

To summarize, in all of these cases there does not seem to be anything metaphorical; yet unless the SL speaker has internalized the “correct” concepts, s/he will remain relatively communicatively incompetent. Whether one subsumes the knowledge involved in the last three examples under the heading of discursive/conversational or conceptual fluency is another matter which will not be discussed here. The point is that when one defines conceptual fluency as a construct, one should make it explicitly clear that it does not reduce to metaphorical competence. The phenomena involved are difficult to tease apart but we should try to be as aware as possible of the exact range of phenomena covered under the different theoretical abstractions we use.

2. “Measures” of conceptual fluency

2.1 The ‘literalness’ of SL learners’ discourse

The second issue one is faced with when addressing the problem of
conceptual fluency is the way of uncovering or, more precisely, of measuring it. Indeed, if we are to make judgments about the naturalness or the unnaturalness of discourse in a SL, we should have something more than mere intuition to refer to and base our judgments on. It is indeed the "insufficiency" of the SL learners' discourse that prompted Danesi to coin the term of conceptual fluency (Danesi, 1992: 490).

While student-produced discourse texts (oral and written) often manifest a high degree of verbal fluency, they invariably seem to lack the conceptual appropriateness that characterizes the corresponding discourse texts of native speakers. To put it another way, students 'speak' with the formal structures of the target language, but they 'think' in terms of their native conceptual system: that is, students typically use target language words and structures as 'carriers' of their own native language concepts. When these coincide with the ways in which concepts are structured in the target language, then the student texts coincide serendipitously with culturally appropriate texts; when they do not, the student texts manifest an asymmetry between language form and conceptual content. What student discourse typically lacks, in other words, is CONCEPTUAL FLUENCY.

Further in his article Danesi stresses that student discourse is often unnatural because metaphorical competence "is almost completely lacking from the discourse programming abilities of SL learners" (Danesi, 1992: 491). The sensitive difference between native speakers' and SL learners' texts does not really come as a surprise. One should keep in mind that this discrepancy concerns in particular the acquisition of a SL in an unnatural setting, i.e. in the classroom. Indeed, if we accept the cognitive linguistics position that meaning is experientially constructed, SL learners in a classroom situation are at a clear disadvantage compared both to native speakers and bilinguals acquiring the language naturally. Though language itself can be seen as part of our physical, social and cultural experience and as such definitely determines the ways in which we conceptualize our world, it seems that the acquisition of the language structures on its own is not sufficient to turn us into near-native speakers of a second language.

2.2 Metaphor comprehension

a. M. Danesi (1992)

Danesi reports two pilot studies conducted at the University of Toronto to investigate the development of metaphorical competence in classroom environments. The first one focused on metaphorical comprehension and its aim was to study the extent to which typical classroom learners comprehend SL metaphors at various stages of
language learning. The basic conclusion from this study is that metaphorical competence “even at the level of comprehension is inadequate in typical classroom learners” because the students were not able “to convert common experiences into conceptually and linguistically appropriate models” (Danesi, 1992: 495). The blame for this situation is put on SL teaching methodology, namely the fact that the students are not exposed in a formal way to the conceptual system of the target language. This poor performance is seen in contrast to the students’ general ability to extend the grammatical and communicative abilities they have acquired to new situations and tasks. The problem with such an interpretation is the following: before we can make claims about the metaphorical competence of SL learners and judge their performance on a number of tasks, we need to be convinced that the tasks in question are good instruments for measuring metaphorical competence. Though the complete testing materials are not available, some problems emerge already in the description of the tasks. The first task consisted in guessing the meaning of ten metaphorical sentences, choosing from one literal interpretation, one false metaphorical interpretation and the correct metaphorical interpretation. Presumably, the non-native speakers of Italian performed much worse on this task than the control group of students who spoke Italian as a native language. It is still hard to believe that given the Italian sentence equivalent to ‘John is a fox’ and the three options, namely ‘John reacts like an animal’, ‘John likes chickens’ and ‘John is smart and astute’, there will be even beginning students of Italian who would prefer the literal interpretation to any of the two metaphorical ones. Moreover, these sentences are taken out of context which does not often occur in real discourse situations. The second task consisted of translating 10 metaphorical sentences, 5 from Italian to English and 5 from English to Italian. It is not clear how the second part of this task is a measure of comprehension rather than production. Besides, both non-native and native speakers performed almost equally poorly on it. Third, the students had to read and paraphrase in the SL a literal and a metaphorical text. Both groups produced appropriate paraphrases of the literal text but the results were equally unsatisfactory for the metaphorical one. Given this picture, it hard to claim that the metaphorical comprehension of SL learners was inadequate, at least in this particular case.

b. Johnson and Rosano (1993)

Moreover, these observations seem to contradict the results of a study by Johnson and Rosano (1993). After administering a number of different tasks to a control group of native English speakers and two groups of ESL
students at two different levels, they offer the following conclusion: though ESL students performed less well than native speakers on decontextualized measures of vocabulary and verbal analogies, they were as good as native speakers on a metaphor interpretation task. Students were given stimuli such as “My shirt was a butterfly” or “My shirt was a mirror” and they were asked for a possible meaning. The answers were scored for: a) metaphor fluency, i.e. the number of possible interpretations given, and b) for level of metaphor complexity, measured on the basis of a semantic mapping model of the metaphor comprehension process discussed in detail by the authors (Johnson and Rosano, 1993: 165-166). The suggested interpretation of the results for the complexity of metaphor interpretations is that “proficiency in English is not a barrier to metaphoric communication in second language students. Although cultural and linguistic factors may affect somewhat the content of metaphor interpretations, linguistic proficiency seems unrelated to level of complexity in metaphor comprehension” (Johnson and Rosano, 1993: 172). This might be explained by the importance of cognitive style for metaphor interpretation (Landry, 1981). It is in direct contradiction to Danesi’s observations. Indeed, Danesi stresses the fact that students at more advanced levels of language learning achieved better results than those at the lower levels. The noted contradiction raises a big issue, namely, does metaphor comprehension correlate with cognitive development alone or is it a function of language proficiency as well? Johnson and Rosano seem to suggest that both metaphor complexity and metaphor fluency are independent of linguistic proficiency. Indeed, on average both ESL students and native speakers gave a similar number of metaphor interpretations. Moreover, metaphor fluency correlated with ratings of communicative competence and did not correlate with teacher’s ratings of the students’ skill in English pronunciation, vocabulary, or syntax. In a previous study on bilingual children Johnson (1991) concludes that “language proficiency plays some role in metaphor comprehension, but that processing capacity and relevant knowledge are the major factors determining complexity level in children’s metaphor interpretation” (Johnson and Rosano, 1993: 162). Among the SL speakers field dependent learners performed better than the field independent ones, whereas among the native speakers the situation was reversed. The hypothesis is that in the first case the level of communicative orientation and competence of the individual played a role in determining whether one continues the communication beyond the required minimum; in the second case the number of interpretations was influenced by the individual’s ability to ignore previous meanings and restructure the semantic field. It seems that Johnson and Rosano distinguish between linguistic proficiency as knowledge of the formal structures of the
language, on the one hand, and, on the other, communicative competence as "estimated level of difficulty in conveying messages in different pragmatic context, skill in [...] comprehension, and general communicative competence" (Johnson and Rosano, 1993: 172). There is certainly a need for further research before we can make solid claims about the exact relationships between abilities such as metaphorical comprehension, communicative competence, cognitive style and linguistic proficiency. The major prerequisite for any successful endeavor in this direction is a clear definition of the psycholinguistic abilities each one of them subsumes and an acute awareness of the multiplicity of confounding factors when one attempts to study the above phenomena. This does not suggest that such a line of inquiry is to be abandoned; on the contrary, its complexity makes it even more fascinating but it also places an enormous responsibility on the researcher.

c. metaphoric communication

Although Johnson and Rosano's (1993) results might seem to contradict the above discussed implications of metaphor theory to SL research, actually they do not. Indeed, if SL learners produce as many and as complex metaphor interpretations as native speakers, why should we worry about their metaphorical competence and conceptual fluency? And why do people claim that their discourse is unnatural and inappropriate? In fact, the process of metaphor comprehension itself is not a monolithic block and it could be deconstructed, at least to some extent, into separate relatively autonomous parts whose functioning is based on different factors. Therefore, it is difficult to agree with Johnson and Rosano's claim that "proficiency in English is not a barrier to metaphorical communication" (1993: 172). Metaphoric communication is reducible neither to complexity nor to the number of metaphor interpretations as measured in this study. Successful metaphorical communication depends crucially not only on the number and the level of complexity of the interpretations but also, and even more so, on the content of these interpretations. Johnson and Rosano mention that this content may be somewhat affected by cultural and linguistic factors. Though they point out that "cross-cultural differences in the content of metaphor interpretations is a topic worthy of further study" (Johnson and Rosano, 1993: 170), they don't seem to think that this is very important for metaphorical communication in general. Thus, from the point of view of what they are investigating, it is a peripheral fact that the butterfly vehicle signified mostly softness and fragility for the English-speaking subjects, whereas for the Asian ESL subjects it signified primarily beauty, color, and activity. However, this kind of information is actually vital for felicitous metaphor
comprehension, in particular, and communication, in general. The cultural knowledge about the linguistic community which uses a given metaphor is not extraneous to language and unnecessary for interpretation. Such information is essential for two reasons. Basso (1976) discusses a relevant example, namely the metaphor WIDOWS ARE RAVENS in Western Apache. First, we need to know what the properties are with which ravens and widows are consistently associated in the given linguistic community, since there are no universal patterns governing associations and those vary according to the culture. Second, and Basso makes that clear, we need to know how people speaking a particular language most commonly decide which of the numerous features associated with both terms has to be chosen for a proper interpretation of the metaphor. In other words, we have to know what the role and the mechanism of that particular kind of metaphor is and how it is used in Western Apache. That is why the ethnographer’s immediate explanation of the expressions, “Ravens are widows because they wear black”, does not make sense for the local people or, as they say, does not mean anything because “you have to think about how they are the same in what they do - not what they look like” (Basso, 1976: 105). Hence, Basso’s basic conclusion about the mechanism of metaphor in Western Apache: “To be appropriate, an interpretation of a Western Apache metaphor must specify one or more behavioral attributes that are indicative of undesirable qualities possessed by the referents of the metaphor’s constituents” (Basso, 1976: 104). Given this principle, the interpretation provided by the native speakers (Basso, 1976: 100) does not seem so arbitrary as it might have been to a speaker of another language. Eventually, it is the mastery of the linguistic norms of metaphor use functioning in that particular culture that mark a person as a native speaker. Thus, such figures in one’s speech become patent signs for one’s cultural identity and membership in a particular social group. In conclusion, unless our interpretations are similar to those of native speakers not only in numbers and complexity but also in content and mechanism, communication is not likely to be successful. To illustrate this, if one did not have access to the exact content of the American metaphor widely accepted in some circles A PERSON IS A WORKING MACHINE (I haven’t been productive today; I need to recharge; If I don’t sleep enough, I can’t function) in the sense that a person is first a worker, one could hardly fully understand someone who says that he/she is trying to have a private life. In other cultures people usually have a private life and then try to work or at least this is how they are more likely to talk about their experience even if they spend 12 hours a day at work. This might be due, of course, to objective factors having to do with the specific conditions and patterns of work in different societies and economies. It would be interesting to investigate how abrupt changes in the economy
such as the recent transition to a market economy in Eastern Europe, for instance, affect people’s metaphors and, consequently, their conceptions of themselves and their behavior.

3. Metaphor production

Let’s now turn to the other side of metaphorical competence, namely the production level which is traditionally seen as a much bigger challenge than comprehension (Trosborg, 1985). Danesi’s (1992) second pilot study consists in measuring conceptual fluency in students in third and fourth year of Spanish at the University of Toronto. They were divided into two groups: native and non-native speakers. They were asked to write short essays in class on three different topics. The researchers computed an index of metaphorical density corresponding to the number of metaphorical sentences as a percentage of the total numbers of sentences. In spite of little information on the methodology used in the study, as well as some contradictions in the reporting of the numerical results themselves, the following two comments can be made. First of all, though the author points out that the size of the sample does not allow any inferential generalizations, he concludes that “basically [...] vis-à-vis native speakers, students have little access to the conceptual system of the language” and that “their compositions show a high degree of ‘literalness’” (Danesi, 1993: 497). If the control for such a comparison is the group of native speakers used in the study, accepting such a statement appears very problematic. Indeed, for the texts on the presence of Canadian soldiers in the Gulf, the average metaphorical density (AMD) for non-native speakers was almost 8 compared to 13 for natives. Is such a difference a solid enough basis for judgments of literalness and figurativeness of a given discourse? It is true that the difference is much bigger for the texts on the other two topics and it might be worth investigating the effect of the specific conceptual domain as more or less stimulating metaphorical extensions. Second, when the Spanish sentences considered metaphorical were closely studied, it was observed that they matched the existing English conceptual metaphors and it was concluded that “they [the students] learned virtually no ‘new ways’ of thinking conceptually after three or four years of study in a classroom” (Danesi, 1992: 497). Nothing, however, is mentioned about the kinds of metaphors exploited by the native speakers themselves. Nor do we know against what background the researchers’ judgments are made. Indeed, it is very possible that the conceptual metaphors for the particular domains do coincide in both cultures. Then the above observations would not constitute a basis for claiming a difference between the two groups. As Danesi mentions in his conclusion, an important question of SLA research
would be to investigate to what extent "the conceptual domains of the native and target cultures overlap and contrast" (Danesi 1993: 498).

4. The issue of methodology in the investigation of conceptual fluency

The relationship between language, thought and action fascinated people probably even before philosophy emerged as a discipline. Today, however, because of the dominating need for verification in any domain of intellectual inquiry, one has to be very careful when introducing and investigating a new construct. Some of the definitional problems regarding conceptual fluency have already been discussed. Another fundamental issue one has to solve is devising ways of studying conceptual fluency. This question is at least as crucial as the first one and the answer is far from being obvious because of the intangible nature of the investigated phenomena. One way of getting at conceptual metaphors is to study language since, as Lakoff and his colleagues have frequently demonstrated, the numerous linguistic expressions that we use in everyday life are far from arbitrary; they are motivated by underlying conceptual metaphors.

A second way of approaching the conceptual level of SL speakers would be the methodology used by Pavlenko (1995). She examines the ways SL learners, who acquired their L2 in different contexts, interpret visual narratives in the target language. These interpretations are subsequently compared to the ones provided by the monolingual speakers of languages in question. Indeed, if one has internalized the underlying conceptual system of a SL, one’s interpretation of narratives, whether verbal or not, should be affected.

A third way of arriving at the level of conceptual fluency in a SL is based on the idea that some of the linguistic expressions used to talk about a given domain belong very often to the category of the so-called imageable idioms, i.e. expressions associated with conventional images in the speakers’ minds (Valeva, 1994). Gibbs and O’Brien (1990) have studied the images native speakers associate with different expressions in an attempt to test some of the claims made in the cognitive linguistics literature. Extending this methodology to SL learners, one can analyze the images that they associate with expressions in the target language and compare them with those of native speakers. The assumption behind such a study is that if SL speakers are really conceptually fluent, they should be making the same kind of associations. This seemed a reliable way of investigating whether the learners have internalized the conceptual metaphors of the target culture and not just learned the denotative meaning of a given idiomatic expression. However, the lesson from the pilot study was one reflecting more on the place of psycholinguistic
research within the whole linguistic enterprise and on the importance of experimental design for obtaining significant and reliable results.

Two basic conclusions will be mentioned here. The first is that the application of quantitative methods might not be the best and most fruitful way of approaching metaphor, mostly because of the frequent inadequacy of reducing the subjects’ answers to the presence or absence of a given semantic information.

The second is that any psycholinguistic study on different aspects of the application of metaphor theory presupposes a solid descriptive and contrastive basis of the conceptual systems of the two languages. The availability of such in-depth analysis would facilitate the task of designing an experimental study and choosing the right stimuli by focusing on the points of similarity and the points of contrast on the conceptual level between the native and the target language and culture. This is not to say that any psycholinguistic investigation should be put off until we have a complete description of all conceptual systems nor that such description is even necessarily possible. The only claim here is that all psycholinguistic investigation and following conclusions should be based on a solid contrastive study of at least this part of the conceptual system that is targeted. The main goal of such contrastive analyses would be to focus on the differences between the two systems which will then constitute a starting point for studying the performance of subjects and making judgments about it, as well as for addressing such issues as conceptual or cultural transfer. My position is that such contrastive studies have to be grounded in natural empirical data which can range from anything like written journalistic discourse to oral interviews with representatives of various target groups.

It is only after building such a stable descriptive and contrastive foundation, as well as performing the necessary psycholinguistic experimentation, that one can try to devise implications for SL teaching. Danesi puts the blame for the literalness of SL speakers’ discourse on the inadequacy of the teaching process, namely the insufficient exposure to the target conceptual system and the lack of formal training in this respect. Hence his conclusion: “Since students are also exposed to so-called ‘authentic materials’ (readings and realia) which are, of course, imbued with metaphorically structured discourse, it follows that students do not develop MC [metaphorical competence] by osmosis. It would seem that metaphorical competence, like grammatical and communicative competence, must be extracted from the continuum of discourse and held up for students to study and practice in ways that are similar to how we teach them grammar and communication” (Danesi, 1993: 497). The underlying assumption here is that the conceptual system is as teachable as other aspects of the language. Danesi claims that the acquisition of new
concepts should not be different from the acquisition of new lexical material and that new concepts can be taught by reformatting the language teaching process and more precisely by recreating as closely as possible culturally appropriate situations in the classroom environment. Such statements, no matter how exciting and stimulating for SL researchers, are highly debatable, at least at present. It remains an open empirical issue whether a SL conceptual system is learnable in the first place. Not enough research has been done on the conceptual organization of bilinguals nor on the relative importance of such factors as direct experience of the culture and advanced language proficiency on conceptual structuring in bilinguals and SL learners. One has to investigate the issue of learnability before facing the question of teachability and the concrete ways of achieving the latter. It is still possible that pure classroom teaching, no matter how well formatted for the concrete purpose, might not be enough for achieving native or near-native conceptual fluency. And this is a very legitimate doubt: indeed, what percentage of students achieve even native-like grammatical proficiency after 3 or 4 years of classroom learning? This is by no means to say that, given the complexity of the task, SL teachers should not even attempt to sensitize the students to the target conceptual system.

Conclusion

To recapitulate, this paper put forward three main points. First, it stressed the importance of the definitional problem for the design and the outcome of linguistic research on various aspects of metaphor in general and of conceptual fluency in particular. Second, it underlined the continuity and the logical priority of different kinds of research associated with the construct of conceptual fluency. Third, it launched the hope that cognitive linguistics in general and metaphor theory in particular might offer a new and fruitful way of addressing important issues in SL research, as well as in other domains of applied linguistics.
References


Bilingualism and Cognition: Concepts in the Mental Lexicon

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Abstract

This study investigates the nature of concepts in the mental lexicon of Russian-English adult bilinguals and foreign language learners in comparison with the concepts of monolingual Russians and Americans. The subjects watched and recalled a 3 minute silent film; their narratives were tape recorded and analyzed. The data analysis demonstrated that there were significant differences in interpretation between the two monolingual groups as well as between the adult bilinguals (who patterned with the group of their L2) and the foreign language learners (who patterned with the group of their L1). No significant difference was found between the two modes of response (Russian and English) in the bilingual group.

0. Introduction

After more than three decades of heated debate on the structure and contents of bilingual memory, there seems to be an agreement reached in the current literature in terms of its neurolinguistic levels of organization. Contemporary approaches, based on the data from psycholinguistic experiments and research on bilingual aphasia, assume that the structure of the lexicon (i.e. mechanisms and processes as well as its neural substrates) remains the same for all uni- and multilinguals, while the contents (codes and registers) are subject to change over time (Paradis, 1995).

In order to discuss concept representation in the bilingual memory, I will, first of all, look at the current assumptions about concept representations in the mental lexicon in general (structure) and then look at the possibilities offered by the interaction between the two or more lexicons (contents). I will argue that while concepts are often labeled as

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'non-linguistic', they are nevertheless culture-specific in whatever modality they are represented. Subsequently, I will present a study in which I attempt to access such concepts indirectly from a nonverbal stimulus in two monolingual and two bilingual conditions. Finally, I will discuss the implications of this study for the modeling of the bilingual mental lexicon and for further research in the field.

1. Linguistic and Neurolinguistic Approaches to Concept Structure

1.1. Concepts in the Mind

To discuss a theoretical term such as a concept, first of all, one needs to offer a definition of the subject matter. Is there a plausible unit that can be defined as a concept and if so, what is it and how can it be described? It is widely agreed upon that comprehension of words requires that the visual or auditory word form be connected to a specific construct in order to allow for either complete or at least partial understanding to take place in communication. These constructs--either lexicalized or grammaticized--also allow for understanding, explanation and classification of objects, events or abstractions that they stand for. Moreover, identification, comprehension and categorization are usually conducted along the same lines by the members of a specific language and culture or subculture group.

Several theories of concepts have been put forward in philosophy, psychology and linguistics. The classical features view, which dates back to Aristotle, assumes that concepts have defining features which act as criteria for determining category membership. A category then is a set of instances sharing common properties identified by some similarity detection process. Empirical research conducted on people's knowledge about natural object categories such as bird, chair or furniture, demonstrated not only that people fail to come up with defining features for some concepts but also that they do not agree with each other on whether or not something is an example of a category (Bellezza, 1984).

Alternative probabilistic theories either assume that classification requires a comparison of features listed for the category and the relevant instance, or emphasize some continuous dimensions. The main weakness of these approaches lies in the lack of constraints on the necessary or sufficient features or dimensions. Neither the probabilistic nor the features approach could account for the typicality effects that kept popping up in the experimental data.

In order to account for typicality effects, similarity approaches to concept structure were developed. According to the prototype view, there may not be a single best instance of a category; however, there is a single summary representation or a prototype. Prototype effects have been
observed for concrete objects (Rosch, 1975), action-based concepts (Pulman, 1983), and emotion terms (Fehr, 1988). Yet another view of concept structure, called the exemplar view, denies that there is a single summary representation for a category, suggesting that concepts are best represented in terms of individual exemplars most typical for the category (Medin & Ross, 1992). While both exemplar and prototype views are generally popular and widely discussed, various empirical data exist that are problematic for each view. Exemplar models, while better at predicting various kinds of human categorization behavior, are inadequate developmentally, because they are unable to explain how concepts are constructed. On the other hand, prototype theories do not capture context effects on the task performance and people's awareness of correlational information in a domain.

Recently a number of researchers have put forth a view that the organization of concepts is knowledge-based rather than similarity-based and is driven by intuitive theories about the world (Carey, 1985; Keil, 1986, 1989; Lakoff, 1987; Murphy & Medin, 1985). This approach is a significant shift away from traditional theories that assume well-defined sets of concepts and categories. According to this view concepts are construed not as isolated entities, but as intrinsically relational things, and many of them as partial theories in themselves embodying explanations of the relations between their constituents, of their origins, and of their relations to other such clusters (Keil, 1989). The individual concepts cannot, therefore, be understood without some understanding of how they relate to other concepts. Differing from a general 'web of knowledge', lexicalized concepts bear nonarbitrary relations to feature frequencies and correlations, as well as provide explanations of those frequencies and correlations embodying systematic sets of beliefs (Keil, 1989). Within this knowledge-based framework, some concepts may be prototype or exemplar based, others dimensional, and still others composed of discrete features. However, as opposed to other 'concepts as separate entities' views, all of them also embody a cultural model, organizing the knowledge about the concept. An example of such a model could be the idealized cognitive model (ICM) suggested by Lakoff (1987), which relates many inferentially connected concepts into a single conceptual structure that is experientially meaningful as a whole. In relation to abstract concepts, this model is often metaphorically structured (Lakoff and Johnson, 1980; Lakoff and Kovecses, 1983; Kovecses, 1986; Lakoff, 1987; MacCormac, 1985). Moreover, in the 'knowledge-based concepts' framework, when a concept undergoes a shift, that shift may involve not only a certain reorganization of the structure of that particular concept, but also a reorganization of the whole conceptual domain, as demonstrated empirically by Keil (1989). The framework presented above
is also helpful in accounting for the variability in the empirical data, the significant diversity in subjects' opinions shown by many experiments on concept and category definitions. Barsalou (1991) and Gibbs (1994) suggested that because conceptual information in memory is so richly interconnected, not all of the information associated with a concept can be retrieved every time a concept is used, and the diverse results arise, therefore, not from 'unstable' knowledge but from differences in the retrieval of this knowledge from long-term memory. This new framework, as a shift of attention from concepts as 'entities' to concept development and change, is especially important to research in the field of education in general, and second language acquisition in particular, because it allows for and explains profound changes in learners' conceptual domains.

In the present paper I assume the approach to concepts as interrelated knowledge-based constructs which are potentially subject to change with learning. In the next section I will take a closer look at what kinds of information are likely to constitute a concept, based on the evidence from neurolinguistic and neuropsychological research.

1.2. Concepts in the Brain

It is currently believed that concepts are represented by a large set of neural structures, situated mainly in the anterior and middle regions of both temporal lobes and categorized along various lines such as modality, sequence, or emotional state. Concepts are mediated by the intermediary layer graded from back to front along the occipitotemporal axis to the smaller set of structures which forms words and sentences (Damasio & Damasio, 1993). These conclusions are derived from empirical research in neurolinguistics and neuropsychology, and, in particular, from research on modality-specific semantic deficits (Warrington & Shallice, 1984; Baddeley, 1990; Caplan, 1992) and on double dissociations that can be achieved between linguistic and non-linguistic parts of the concept (Baddeley, 1990; Caplan, 1992; Damasio & Damasio, 1993).

The double dissociations between concepts and words/morphemes/syntactic structures take place in the following way. On the one hand, global and paroxysmal aphasics exhibit a complete loss of language (lack of production and comprehension) in the presence of self-regulated and communicative behavior, based on a limited set of conceptual constructs as well as behavioral scripts and schemas (Lecours and Joanette, 1980). A subject with such an impairment is able to go shopping to buy a 'mug' as opposed to a 'cup', register in a hotel by indicating places in his passport where the information may be found, get a meal in a restaurant by pointing at random at the menu. To a lesser
degree the same pattern is exhibited in various anomias (naming deficits), when patients who are unable to name objects, can nevertheless categorize them properly and use them accordingly (Caplan, 1992).

On the other hand, patients with lesions in the anterior and middle regions of both temporal lobes have conceptual system impairments. They, for example, show the absence of specific categories of concepts accessed from verbal and non-verbal stimuli, impoverished representations of meaning and often generate incoherent descriptions or definitions of the objects, e.g. 'lemon' - 'used by people who study' (Baddeley, 1990). They are also unsure of the sensory characteristics of the objects and their practical usage, which often leads them to accept an incorrect but semantically related word as appropriate on the naming tasks, e.g. accepting the name 'lion' for a tiger (Baddeley, 1990; Caplan, 1992). At the last stage of conceptual loss, we can see patients with dementia who produce sentences that are perfectly constructed from the morphosyntactic point of view but devoid of any meaning whatsoever. At the same time these patients, not surprisingly, exhibit a partial or complete loss of various scripts, schemas and any other kind of self-regulated behavior.

Finally, some patients, such as those suffering from color anomias, have both systems intact--concept representations (as exhibited in matching and categorization tasks) and word-form implementation--with the problem residing in the mediation between the two. These patients match different hues properly and easily put the correct colored paint chip next to the object in a black-and-white photograph, but are unable to name colors properly, and likewise, given a name, will point to the wrong color (Damasio & Damasio, 1993).

In other words, each concept--either concrete or abstract--consists of the following parts:

- **lexical:** a word with its phonological and morphosyntactic properties which are usually stored in the language areas of the left cerebral hemisphere;

- **semantic:** explicitly available information which relates the word to other words, idioms and conventionalized expressions in the language as well as to the declarative and experiential world knowledge; this part is stored in the hippocampus and anatomically related structures in the medial temporal lobe and diencephalon (explicit or declarative memory);

- **multi-modal representation:** "non-linguistic" information, which includes scripts, visual, sensory and kinetic representations and is generally stored in various brain systems outside of the medial temporal lobe and diencephalon (implicit or nondeclarative memory).

Thus, lesions in the anterior and middle regions of both temporal lobes usually lead to impairments in conceptual systems per se (Damasio &
Damasio, 1993), while lesions in the other areas may lead to modality-specific anosias (Caplan, 1992).

It is also important to emphasize that there are no permanently held "pictorial" representations of the objects, events or people in the brain. Instead, the brain holds a record of neural activity that takes place in sensory and motor cortices during interaction with a given object or in a given situation. The records are patterns of synaptic connections that can recreate the separate sets of activity that define an object or event; each record when reactivated can also stimulate related ones, and, thus, simultaneously recreate the varied sensations and actions associated with a particular entity or a category of entities (Damasio and Damasio, 1993).

1.3. Concepts in the Culture

The fact that the neurolinguistic model of the mental lexicon has concepts separated from the lexicon and describes them as 'non-linguistic', does not imply, however, that the concepts are universal. Most of them, except for a few possibly innate universals, are linguistically and sensorily acquired and as such are language- and culture-specific. They remain as such even in the case of aphasia when the connected linguistic 'forms' are lost or become 'inaccessible', but the concepts underlying these forms and structures, behavioral scripts and schemas still remain intact guiding a person's behavior. Applied to the model discussed in the previous section, it means that not only the lexical-semantic part of a concept is constrained by a specific language, but also that a multi-modal mental representation is acquired from the cultural system embodied in a specific language and determined by it.

My argument is consistent with the theory of linguistic relativity, otherwise known as the Sapir-Whorf hypothesis (Sapir, 1949; Whorf, 1956), according to which languages construct different realities for their speakers. Widely acclaimed, later severely criticized and abandoned, and then resurrected again and expanded upon, this theory serves as one of the main theoretical underpinnings of current post-modernist and social constructionist thought. According to these approaches, a 'worldview' or 'reality' is constructed and interpreted within a specific discourse and not through the lenses of the other one, into which it is later 'translated'. The research methodology in social sciences also underwent a shift away from a Western world view as an 'objectivized' reality toward cultural and ethnopsychological approaches (Schweder, 1990).

The last twenty years have witnessed a significant amount of this 'new wave' interdisciplinary research on cross-cultural and cross-linguistic differences in 'reality' construction. Empirical studies embraced a variety of issues such as construction of the concept of color throughout cultures
(Lucy, to appear), differences in conceptualization of space and location in space (Brugman, 1981; Casad, 1982; Talmy, 1972, 1983), differences in application and conceptualization of number markings (Lucy, 1992). Recent studies in cultural anthropology demonstrated that even emotions, formerly believed to be universal, are, as Lutz (1988) put it, "anything but natural". As cultural phenomena, emotions are constructed and, therefore, 'experienced' differently in different cultures, with, for example, Ifaluk experiencing the emotion of Fago (compassion/love/sadness), or Rus (panic/fright/surprise) (Lutz, 1988), and the Japanese the love/dependence feeling of Amae. Finally, in a project often called the Pear Stories study (Chafe, 1980), the researchers showed a silent 3 minute long film (which portrayed a sequence of events chosen at random, some of which were more and some less codable) to subjects from different cultures. Collected narratives demonstrated that even seemingly 'same' events, facts and behaviors may be differently reconstructed by members of different cultures in terms of their respective languages and narrative traditions.

A novel theoretical approach toward research on language and culture was initiated by Lakoff and Johnson (1980) who suggested that languages as conceptual systems differ primarily in conceptual metaphors underlying the abstract concepts and providing explanations of experiences and behaviors. For example, an American English conceptual metaphor ARGUMENT IS WAR organizes and permits us to understand idiomatic expressions such as to win or lose an argument, to demolish an argument, to have an indefensible claim, to attack someone's weak points, and to create new expressions along the same lines. If in another language an underlying metaphor of 'argument' would be a 'dance', it would undoubtedly be capturing an entirely different set of beliefs and causal relationships, therefore, representing a different "folk" theory and constructing a different concept of 'argument'. This line of thought led to productive work on culture-specific models of anger, pride, love, marriage, mind and other concepts (Kovecses, 1986; Lakoff, 1987; Holland & Quinn, 1987).

The question that naturally comes to mind is the following: if members of different cultures and language groups differ in their conceptual systems, what do 'world views' of people with double language-culture membership look like? What, in particular, happens to those who come to live in a new language environment as adults? How do these bilinguals construct their 'reality', in terms of their first or second language, or some kind of idiosyncratic mix? Does it depend on what language is being used? In the next part of this paper, I will look at the research on bilingual memory and the answers to these questions provided to date.
2. Bilingual Memory

2.1. Organization of the Bilingual Lexicon

Organization of the bilingual lexicon has proved to be one of the most controversial topics ever debated in the field since it was first introduced by Weinreich (1953). Weinreich suggested that there are three basic types of bilingual memory:
- coordinate - assuming two conceptual systems associated with two lexicons, also referred to as the "separate storage" or "independence" model;
- compound - assuming a single underlying and undifferentiated conceptual system, often referred to as the "common storage", "shared storage" or "interdependence" model;
- subordinate (originally called ‘subordinative’) - assuming that words from the L2, which in this case will simply be a code, are linked to their conceptual representations through the corresponding L1 words.

Figure 1. Three types of the bilingual lexicon organization (from Weinreich, 1953).

Due to the contradictory data received from psycholinguists and clinical psychologists, arguments around the model of choice went on for several decades. Some assumed a compound (or interdependence) model with "language-free" concepts subserving two lexical entries. This model was supported by the data from experiments that used a free recall paradigm (e.g. Kolers & Gonzalez, 1980) and by cases of parallel recovery from bilingual aphasia, i.e. simultaneous recovery of both languages (Paradis, 1987). Others argued for a coordinate (or independence) model which proposed a distinct memory code for each language. This model was supported by the data from word-fragment identification and lexical
decision tasks (e.g. Chen & Ng, 1989), release from Proactive Interference (PI), as well as cases of differential recovery from bilingual aphasia (Paradis, 1987). A series of experiments conducted by Durgunoglu and Roediger (1987) and successfully replicated by Heredia and McLaughlin (1992) demonstrated that the differences in results are due to the differences in task requirements, and, therefore, the same bilinguals can be shown as having either an ‘independent’ or an ‘interdependent’ memory store, depending on what task they are performing. From the point of view of concepts as knowledge-based theories, these results serve as direct support to the previously mentioned suggestion by Barsalou (1991) and Gibbs (1994) that data from concept retrieval are incomplete at best and represent simply a temporary working memory construct influenced by context and task requirements. Durgunoglu and Roediger’s (1987) findings led to the rejection of overly simplistic approaches to bilingual memory and to the creation of more complicated models, acknowledging the complexity of the lexicon and its multiple layers.

On the other hand, while linguistic complexity is acknowledged in current approaches to the bilingual lexicon, the research on concept structure is often ignored and concepts are still seen as uniform ‘entities’ linking the words from L1 and L2 (see e.g. Chen, 1992; Kroll, 1993). Moreover, the experiments in this type of research most often consist of translating concrete words and naming object pictures, the access of meaning equated with translation and naming. The conclusions, based on the results of these experiments, are then extended to the whole lexicon.

Recently, some researchers have begun to address word type effects, admitting that not all words are the same and that the characteristics of the words themselves may play a very important role in how they are encoded. De Groot (1993), for example, argues for a mixed representational system which includes all three representational structures: compound, coordinate and subordinate. The representational format of ‘translation equivalents’ in this model depends on the particular characteristics of the word and the associated concept, such as concreteness and cognate status. This formalistic approach to representations as dependent on word and concept characteristics still seems rather unsatisfactory from the theoretical perspective assumed in this paper, since it objectifies the learner/speaker and, therefore, doesn’t acknowledge the role of individual learning and context in concept development, nor discusses the space occupied by the ‘untranslatable’ concepts.
Figure 2. Decompositional conceptual representations in bilingual lexicon (De Groot, 1993).

From the stand taken in this paper it seems much more plausible that the contents of the bilingual lexicon depend on the way in which the languages were acquired, as suggested long ago by Weinreich (1953) and recently again by Paradis (1994). In my discussion I will concentrate on one particular type of bilingualism - late or adult, when the learner acquires a new language post puberty with the conceptual system of a native language already firmly in place.

Second language acquisition in a natural environment assumes that speakers participate in dialogic discursive interactions with the members of the culture. Moreover, if these interactions are to be successful, a certain amount of 'shared meaning' must exist, which can be ensured only by the use of culture-specific concepts and metaphors. On the neurolinguistic level, the fact that learners' utterances have a dialogic orientation and intentionality, results in the involvement of implicit memory and subcortical structures, in particular, those parts of the limbic system responsible for emotions, drives, desires, and motivation (Paradis, 1994). Thus, the learners-participants in the second culture, develop multi-modal conceptual representations similar to those of the members of their L2 culture, often without being consciously aware of this change. The newly acquired knowledge may lead to the development of the new concepts as well as to general shifts in conceptual domains, as discussed in the first section of this paper.

Formal language learning, on the other hand, is often based on grammar-oriented methods, and lacks communicative orientation as well as intentionality and participatory involvement. As such it does not involve the limbic system, functioning, therefore, like the learning of any declarative knowledge. Without active participation, without exposure to

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1 It is necessary to point out that not all concepts may be available for acquisition to the adult speakers: for example, those belonging to the domain of childhood and teenage or school years may be learned only declaratively and not experientially.
a rich and meaningful variety of interactions with the members of a second culture, L2 learning in the classroom situation becomes the learning of an explicit code and leads to a subordinate organization of the two lexicons (Ushakova, 1994).

The model of bilingual memory that I am assuming in this paper is based on Paradis’ (1994) three-store model. It includes two separate lexicons with both lexical (phonological and morphosyntactic) and semantic information as well as encyclopedic knowledge. These two lexicons are linked to each other through a ‘non-linguistic’ multi-modal conceptual store. As already discussed previously, the label ‘non-linguistic’ refers to the multi-modal nature of this store and not to its universality. Auditory, visual, sensory and kinetic concept representations will remain ‘language-specific’ in terms of being united and learned under a specific lexical label or grammatic distinction and being associated with a specific culture, language, discourse or register. Accordingly, some L1/L2 ‘translation equivalents’ will refer to two different sets of representations acquired in different contexts, depending on the learning history; other ‘equivalents’ may both be linked to a concept acquired only in the first language, and, finally, some concepts may be available only in the second language. In other words, while it is possible that there are mixed representations within a lexicon, the structure of such representations may depend more on the learning history and culture assimilation of a particular speaker than on the word characteristics per se.

Research on the cultural aspects of concepts in bilingual memory is scarce at present. Some culture-specific differences in the nature of imagery aroused by the ‘translation equivalents’ as well as culture- and language-specific differences in connotations of the words were demonstrated by Lambert, Havelka and Crosby (1958), Winograd, Cohen and Barresi (1976), Bugelski (1977), Paivio and Desrochers (1980). Wierzbicka (1994) addressed emotion-related cultural scripts in two cultures - Australian and Polish; she also supplied some first-hand evidence of the interplay of such scripts in bicultural bilinguals (Wierzbicka, 1985). In the next section, I will discuss the few studies that deal explicitly with biculturalism and thought.

2.2. Bilingualism, Biculturalism and Thought

While there has been abundant research on the psycholinguistic aspects of concept representation in the bilingual mental lexicon with word-level tasks such as word association, cross-language priming, categorization and translation, up until now almost no one has looked empirically at what happens with conceptual and metaphorical thinking of bilinguals at the higher levels of utterance and discourse production and
comprehension.

The pioneering empirical research in this area was conducted by Susan Ervin-Tripp (1954, 1964, 1967) who decided that bilinguals and second language learners were the perfect subjects for testing the implications of the hypothesis that languages, cultures and ways of thinking are closely related. She developed a research design in which the same bilingual subjects were tested on the same sets of materials - Thematic Apperception Test (TAT) cards, semantic differentials, word associations, and sentence and story completion tasks; the sessions in the two languages in question took place six weeks apart.

In her first study, Ervin-Tripp (1954) tested a 27 year old Japanese-American who was born in the United States but educated in Japan between the ages of eight and fourteen. He had had virtually no translating experience, used only Japanese with his parents and with a few friends, and English with his siblings. The subject provided different and sometimes conflicting descriptions of the same TAT pictures depending on whether the descriptions were given in English or in Japanese. His responses in Japanese were more emotional, involving family issues, love, unfaithfulness, losses. In English his descriptions were termed to be more formal and people descriptions were defined by Ervin-Tripp as "abstract and cold". For example, in his interpretation of a picture of a figure sitting on the floor, faced away, with the head resting on a couch, in Japanese he suggested that it was a woman weeping over her lost fiancé and considering suicide, while in English he said that the picture depicted a girl finishing a project for a sewing class. The same differences surfaced in the sentence completion test, with the common theme of the Japanese stories being the child's debt to his parents, guilt or fear of disappointing them as well as a greater emphasis on achievement. Ervin-Tripp suggested that the appearance of a "double personality" could be accounted for by the markedly different nature of the relationships of her subject with others during the period when he used the two languages.

Next, Ervin-Tripp (1964) conducted the same type of experiment with sixty-four French-English late bilinguals who were raised in France and had lived in the US for more than four years. She found that these bilinguals also told different stories in each language when asked to relate what they saw on the TAT cards with an interval of six weeks between language sessions. For example, the picture which in French elicited a variety of themes of aggression and striving for autonomy, in English led the same subject to talk about family support and striving for achievement. The author offered several explanations of her results, attributing content changes with language to: different interpretation of instructions (i.e. as to tell a story appropriate for each language); effects of mass-media; differences in verbally expressed values; and role or attitude
shifts associated with contacts with the respective language communities. Ervin-Tripp (1964) concluded her paper by saying that the subjects may indeed have "two personalities" to the extent that personality involves verbal behavior and shifts as any other behavior with changes in social context.

The results of the previous studies were partially confirmed by a series of experiments with Japanese-American women in the USA (Ervin-Tripp, 1967). The subjects in the study were first-generation Japanese women (Issei), war brides married to Americans and mostly assimilated to American culture, and second-generation (Nisei) women, members of the Japanese American community who returned to Japan for education. The study also employed monolingual controls for both groups. The most clear-cut language effects were demonstrated on the word associations and sentence completion tasks. When speaking Japanese, both Issei and Nisei gave associations more typical of women in Japan (e.g. tea was associated with Japanese utensils for the tea ceremony). When speaking English, the Issei gave typically American associations (such as lemon and cookies associated with tea). In completing the sentence "When my wishes conflict with my family's..." most women responded with "...it is a time of great unhappiness" in Japanese. But when speaking English, they answered "...I do what I want." The overall effect was that content shifted with language for both groups. However, there were also subjects who showed preference for Japanese or American solutions irrespective of the language used. Ervin-Tripp (1967) suggested that these preferences correlated with the subjects' cultural self-identification: modern (American) values as opposed to traditional (Japanese) cultural beliefs.

These provocative and insightful studies suggest that some adult bilinguals may have two conceptual storages/world views corresponding to their two different lexicons, as would be suggested by the linguistic relativity hypothesis. While interesting and original, the research paradigm in the studies has not been used by other researchers. Moreover, for bilingualism the seventies marked a significant shift away from interpretive approaches oriented towards discourse and thought to more formal psycholinguistic approaches concentrated on word and sentence level tasks (including word association paradigm), which allowed for better control and manipulation of the stimuli. These studies, however, were not informative as to possible changes in cognition and verbal behavior of adult bilinguals. In the next section of this paper I will introduce a study which I conducted in order to look at the conceptual and metaphorical thinking of late Russian-English bilinguals.

The present study expands on approaches designed by Ervin-Tripp (1954, 1964, 1967) in the field of bilingualism and Chafe and Tannen in the cross-linguistic analysis of the narrative construction (1980, 1993). Instead of using random (such as the “Pear Story” film) or culture-biased (TAT cards) stimuli, which, in addition, do not aim at any specific concepts, I created a non-verbal stimulus, a film with no dialogue in it, designated to tap into specific, culturally constructed conceptual domains. The domains of private/personal in American culture and lichnoye/chastnoye (personal/private) in Russian culture were chosen for the study. A preliminary theoretical analysis of these domains in the two cultures allowed me to form specific hypotheses as to how four different groups of subjects would respond to the stimulus (for detailed analysis see Pavlenko, 1996).

3.1. Differences in conceptual domains of private and personal in American and Russian cultures

In order to outline possible linguistic contents of a private/personal domain in each language, I asked 2 groups of subjects (10 native speakers of each language, 5 males and 5 females in each group, ages 20 to 30) to provide free associations to the words ‘private’/’chastnoye’ and ‘personal’/’lichnoye’. The results were the following:

Russian: lichnoye (personal, private), chastnoye (private), letz’ v dushu (literally: to climb into someone’s soul, i.e. to bother someone with questions that are too personal), vmeshivat’sia v lichnye dela (to interfere in one’s personal affairs), vmeshivat’sia v lichnyu zhizn’ (to interfere in someone’s private life), nieprikosnovennost’ lichnosti (personal immunity, inviolability).

English: privacy, private, privy, personal, secrecy, intimacy, confidentiality, violation of privacy, invasion of privacy, personal space, private space, needing some space.

The crucial grammatical distinction between the lexical contents of the two domains in question lies in the fact that while the Russian one consists of adjectives and idiomatic expressions, all of which can be used to describe the corresponding properties of various objects, events and situations, the English one is dominated by a noun - privacy. This noun corresponds to a very specifically constructed ‘reality’ and serves as a binding centerpoint for the rest of the domain. As a result, in American English discourse—as opposed to Russian—one has an option, both in everyday conversations and in legal arguments, to refer to or to interpret
situations in terms of this ‘entity’, the linguistically and socially constructed ‘reality’ of privacy.

The most important semantic distinction between the two domains is the difference in the two oppositions constituting the domains. In American English discourse the main opposition is of private versus public, with the word ‘private’ being of higher frequency of use and of wider metaphoric scope than the word ‘personal’. In Russian, on the other hand, the opposing terms are lichnoye (personal) versus obshchestvennoye (societal), with ‘lichnoye’ having a higher frequency of use and a wider array of meanings than ‘chastnoye’ (private).

Russian ‘chastnoye’ and English ‘private’ overlap partially in designating the boundary between the private and public in the following areas:

- belonging to a particular person or group of persons; not open to, intended for, or controlled by the public, e.g. chastnaya sobstvennost’ (private property), chastnaya shkola (private school);
- not holding a public office, e.g. chastnaya litso (private citizen);
- belonging to an individual as opposed to public, e.g. chastnaya zhizn’ (private life).

In addition, in Russian ‘chastnoye’ can be used to refer to something particular or special, e.g. chastnyj sluchaj (particular case). The American English word has several important connotations which are not implied by its Russian ‘counterpart’, such as:

- secret, concealed, confidential, e.g. strictly private information, private parts;
- away from public view, secluded, e.g. in private, a private dining room.

Metaphorically Russian ‘chastnoye’ can be extended only to descriptions of one’s life and affairs, while the American English ‘private’ in addition can be extended to descriptions of time (private moments), space (private space) or people valuing privacy (a very private person).

Russian ‘lichnoye’ and English ‘personal’ also partially overlap in the following denotational meanings:

- belonging to a particular individual, either literally or metaphorically, e.g. lichnaya sobstvennost’ (personal property), lichnoye obayanie (personal charm);
- something done by an individual in person, e.g. lichnyj zvonok (personal call);
- grammatical person, e.g. lichnoye mestoimenie (personal pronoun).

On the other hand, the two adjectives differ in their metaphorical scope, with Russian ‘lichnoye’ not applicable to descriptions of space (e.g. English ‘personal space’), inquisitiveness (such as English ‘a personal remark’), bodily appearance (e.g. ‘personal beauty’) or expressions
describing something about or against persons (e.g. ‘personal abuse’).

The most important result of this sketchy analysis is that both Russian ‘lichnoye’ and ‘ chastnoye’ lack the positive connotation of the ‘rightfully protected personal secrecy’ which is the main feature of their English ‘counterparts’. Moreover, quite often the Russian words acquire a negative connotation, as illustrated by such slogans as “Obshchestvennoye dolzhno byt’ vyshe lichnogo” (Societal interests should be above personal).

In addition to the important differences in meanings and metaphorical extensions of the adjectives ‘private’ vs. ‘ chastnoye’ and ‘personal’ vs. ‘lichnoye’, no term is available in Russian to render the centerpoint of the American ‘private’ domain - the concept of privacy. The absence of the word, as well as the concept, has been continuously commented upon by Russian translators of Anglo literature, Western visitors of Russia, American and Russian authors comparing the two cultures (Gray, 1989; Kaiser, 1976; Ripp, 1990; Richmond, 1992; Shlapentokh, 1990; Smith, 1989; Vin’kovetskaya, 1993).

In its current form ‘privacy’ most often signifies:
- the state or condition of being withdrawn from the society of others, from public interest or view; seclusion; solitude; retirement; isolation; solitariness;
- the state or condition of being alone, undisturbed, or free from public attention, as a matter of choice or right; freedom from interference or intrusion; avoidance of publicity or display;
- a place of seclusion from company or observation; retreat;
- secrecy, concealment of what is said or done; confidentiality;
- one’s private life or personal affairs, a private or personal matter, circumstance or relation.

According to Wierzbicka (1991), ‘to have privacy’ means roughly ‘to be able to do certain things unobserved by other people, as everyone would want to and need to’. This definition emphasizes a positive connotation of the concept, or, as Wierzbicka suggests, the assumption that every individual would want, so to speak, to have a little wall around him/her at least part of the time, and that this is perfectly natural and very important. Most importantly, it emphasizes the idea of having the right to be in control of certain things - “the very basic right to personal liberty, autonomy, and one’s personhood or personality” (Scott, 1995:1). This assumption, underlying the concept of privacy, is culturally based and, according to Wierzbicka (1991) and Scott (1995), represents one of the central values of the Anglo-Saxon culture, associating it with principal American democratic values such as individual freedom and liberty.

A lack of the lexical equivalents of ‘privacy’ in Russian often prompts the translators of Anglo literature to delete expressions like ‘violation of privacy’ in texts (Pavlenko, 1996). In other cases the following words are
used in attempts to render ‘privacy’ or an ‘invasion of privacy’ into Russian.

Privacy:
1) uedinienie, uedinennost’ (seclusion);
2) tayna, sekretnost’ (secrecy);
3) intimnost’ (intimacy)

An invasion/violation of privacy:
1) narushenie pokoya (disturbance of one’s peace);
2) narushenie uyedineniya (disturbance of one’s seclusion);
3) vmeshatel’stvo/vtorzenie v lichnuyu zhizn’/dela (interference in one’s private life/personal affairs);
4) lezt’ v dushu (to pry; literally: to climb into someone’s soul).

Each of these key words - uedinienie (seclusion), sekretnost’ (secrecy) and intimnost’ (intimacy) - refers to a specific, singular aspect of privacy, but not to the notion itself, and, in particular, not to the implicit assumption of one’s right to privacy. Not even an approximation exists for the metaphoric extensions such as ‘private’ or ‘personal space’.

The metaphoric and semantic facets of ‘private’ and ‘personal’ in the two languages correspond to the specific behaviors, rules and traditions (or the absence of the above) in the two cultures and discourses. My theoretical analysis of the social construction of the ‘private’ and ‘lichnoye’ in the two cultures (Pavlenko, 1996), based on the the literature on the subject and the interviews with 20 monocultural speakers of each language, revealed several important dimensions of these constructs. Responses of the American subjects, as well as the literature data, demonstrated that ‘privacy’/‘private’ is a multifaceted construct which can be violated/invaded/intruded upon in various ways--physically, territorially, temporally--as well as in terms of the locus of control and information. An analysis of responses of the Russian subjects showed that Russian construct of ‘lichnoye’ is limited to a very narrow informational sphere (Pavlenko, 1996).

The spatial dimension of American ‘private’ includes physical, territorial and spatio-temporal aspects and has very specific cultural counterparts, such as the taboo on the physical contact with complete strangers, maintenance of the four feet interpersonal or social distance between conversation partners, or the fact that nowadays victims not only charge their attackers with battery or assault but also with an ‘invasion of privacy’ as a separate legal charge (Scott, 1995). Moreover, recent legislation protects Americans against physical invasion not only from strangers but from the government as well. In the 1980s, when a series of strip search cases hit the courts in Chicago, the policy of a strip search without a serious reason was proclaimed to be a violation of the Fourth Amendment, and police procedures were altered in several cities
(Alderman & Kennedy, 1995). Finally, one’s body and appearance are also protected from the appropriation, such as, for example, commercializing the looks or the personality of someone without their informed consent.

Since the spatial aspect is not part of the Russian domain of ‘private’, most of the traditions and behaviors related to this aspect are absent as well, including the taboo on physical contact with complete strangers or restrictions on spatial proximity between conversation partners (many of the features characteristic of American intimate distance are present in Russian social distance). A charge of an ‘invasion of privacy’ is unknown, and so is the charge of appropriation of one’s looks. In addition, strip search is still a common policy, often conducted without any warrant.

While the two cultures differ in their treatment of space, they partially overlap in the informational aspect of privacy. In American culture this aspect involves the control of an individual over informational aspects of his or her life, including decisions about one’s actions and informational access, i.e. a right and ability to regulate information about him or herself in interactions with others (Inness, 1992; Scott, 1995). In Russian culture the informational sphere marked ‘secret’ and ‘personal’ is much narrower, concentrating mainly on the intimate, sexual details of one’s life. Many Russian behaviors, therefore, can be described by Americans as violating the American notion of privacy. Among such behaviors are the tradition of public shaming of students by the teachers and professors in class and at parent-teacher conferences at school; public announcement and display of test and quizz grades, entrance exam results; personal remarks and comments addressed to strangers in public places.

3.2. Research Design and Methodology

Based on my theoretical analysis sketched above and explained in detail elsewhere (Pavlenko, 1996), I posited that some behaviors may be differently interpreted by the members of American and Russian cultures due to the differences in conceptualization of private/personal. In order to conduct a study which would investigate such differences, I created a stimulus illustrating a situation, possibly involving a spatial aspect of privacy. This stimulus was a 3 minute long film called “The Ithaca Story”, which had no dialogue in it. This film shows a girl who strolls around a crowded plaza where a band is getting ready to play, and people are dancing, having coffee, shopping or simply relaxing. The girl is greeted by two friends, and stops to chat with them for a minute (the band music on the soundtrack covers this conversation). She refuses their invitation to stay by pointing at her watch. The girl then proceeds to sit in a relatively empty area, stretches and looks around. Then she takes a piece of paper out of her purse and slowly starts writing on it, pensively looking around
from time to time. A man comes from behind and sits down about three
to four feet from her. She starts fidgeting without looking at him directly,
looks around again, and, finally, puts her paper in a bag and leaves.

The film was shown to the following three groups of subjects:

1) 16 monolingual monocultural Americans: 8 males and 8 females,
ages 19 - 25, white middle-class Cornell undergraduates and graduates -
interviewed in English;

2) 16 monolingual monocultural Russians: 8 males and 8 females,
closely matched in age, educational and sociocultural background to the
American group - selected among recent arrivals to Ithaca (one to three
weeks) with no previous knowledge of English - interviewed in Russian;

3) 16 proficient Russian learners of English who got the highest scores
on the New York State Proficiency Test or TOEFL (570 to 650); they were
matched to the previous two groups in age, gender, educational and
socio-cultural background; all of them learned English after the ages of 15
to 19 when the conceptual system of their first language was already well
in place.

In order to ensure control for such an important variable as cultural
exposure and participation, the last group was further split into two. Eight
of the learners in the last group ( 4 males and 4 females), who learned
their English in Russia were named foreign language learners (FL
learners). All of them were first-time visitors and recent arrivals to the
United States, having spent one to three weeks in Ithaca. The other eight
(also 4 males and 4 females) were named adult bilinguals or Second
Language Learners (SL learners); they learned their English in the United
States, having spent 4 to 6 years here. In order to control for the influence
of the language, i.e. the mode of response, 4 learners (2 males and 2
females) in each group were interviewed in English, and 4 in Russian; the
choice of language was made at random.

All of the subjects were shown the video; then they were given a
portable taperecorder and the following instructions for performing the
recall, which was framed as a memory task: “Please, tell what you just
saw in the video” / “Pozhaluysta, rasskajite chto vy videli v fil’me”. They
performed the recall alone in the room speaking directly into the recorder
so that no social interaction with the interviewer influenced their recall.
Subsequently, the narratives were transcribed and analyzed in the
language of the original ( in addition, the Russian ones were also
translated into English by an independent translator). The analysis focused
on the interpretations of the girl’s departure, usually preceded by a phrase
similar to “…and then the girl stood up and left because…”. These
interpretations were coded and grouped based on their similarity.

Two questions were of major concern to me in this study: first of all,
whether the two monolingual groups of subjects would differ in their
interpretations of a film based on the concepts of privacy and personal space; and if so, how would such a film be interpreted by the bilingual subjects. The following predictions were made:

- if privacy is a discursive, i.e. a language- and culture-specific concept, then the two monolingual groups should differ in their interpretations of the film with Americans emphasizing the ‘invasion of privacy’ or ‘personal space’ explanations, as opposed to Russians who would suggest alternative interpretations of the situation shown;

- as to the bilingual conditions, if the mode of response, i.e. language, is a crucial variable, then the group responding in English would pattern with Americans and the group responding in Russian with Russians;

- if, however, culture exposure/discourse participation is an important variable, then the foreign language learners would pattern with Russians and the second language learners with Americans;

- if both cultural exposure and the mode of response matter, then all foreign language learners would pattern with Russians, but the L2 learners would split according to the language.

3.3. Results and Discussion

In order to provide a detailed description of the results of the study, I would like to begin with the narratives that best exemplify the differences between the responses of the monolingual subjects. A typical American monolingual narrative below is told by a 23 year old male college student:

“All right, well, I saw... what appeared to be a... young woman walking down the street on the Commons, and she approached a couple of friends...and...she asked what time it was...one of the friends offered a drink, and she said “no, thank you”...she then proceeded to go and sit down in a quiet sp... place and ... she looks like she was waiting for someone...perhaps, what... reason why she asked what time it was, maybe an appointment or something...and then she took out a piece of scrap paper and a pen, and she started writing...I think maybe she was writing a note...then a male that came from behind her and sat down next to her...she began to feel very uncomfortable...in fact, she expressed through her body language that she felt almost invaded, like her privacy was being invaded...I think perhaps maybe she was afraid that the person was reading her note or...really that she just did not feel comfortable around that person, and she got up and left. That’s it.” (italics are mine - A.P.)

A typical Russian monolingual narrative below is given by a 25 year old college-educated female and translated into English by an independent translator:

“I saw ...Commons in the day time...people are resting freely, some are getting the instruments ready, some are simply resting, sitting, some
are walking...A woman, a young woman, who ...(long pause)...appears a young woman, she...it was difficult for me to define immediately who she is and what she wants...She meets...It is as if she is looking for someone...waiting for someone...but it is very vague...she meets some acquaintances, they invite her to join them, but she is not willing...she is sitting alone...at first, one thinks that she is waiting for someone, or would like to meet someone, or is interested in meeting someone new...A man appears, but he...he doesn’t attract her attention...it seems that she is afraid to make his acquaintance, so she decides to leave."

As a result of a comparative qualitative analysis of 16 American and 16 Russian narratives, four main features were selected as distinguishing an American narrative from a Russian one:

1) First of all, the two groups differed in the narratives’ length, with Russian narratives on the average being shorter than American (Russian had an average of 100 content words per narrative, American - 135 content words).

2) Secondly, the two sets of narratives also differed in content: one such difference being in the description of the girl’s actions, with typical American narratives being much more specific and detailed in describing the actions in the film. American narratives contained on the average 14 verbs depicting the girl’s actions, while the Russian had an average of 8.

The following action descriptions were provided by the American subjects: “then you see a girl in a dress walking”, “she walks around, she doesn’t make...make eye contact with people”, “she sees a lot of different people there”, “she approached a couple of friends”, “she only stops briefly”, “she greets both of them and kisses them”, “she hugs them and says hi, but lets them know she doesn’t have much time”, “one of the friends offered a drink, and she said “no, thank you...”, “[she] talked to them for thirty seconds or so”, “so, she said goodbye to them”, “then she kept walking”, “she gets to the place where she was heading”, “she walked to a bench and sat down on it”, “she...she stretched...and then took out a pencil and a paper from her pocket”, “she...she kinda wrote something down”, “and the guy came over and sat next to her...they looked at each other, he smiled, she smiled back”, “she began to feel very uncomfortable”, “she kind of edges away from him”, “she inches away from him”, “she turned her back on him”, “she moved further away”, “she uses her body to block”, “she looks around...and then almost so like she gives up on it”, “she put the list away, and got frustrated, stood up and walked away”.

Russian subjects named only the following actions: “she is walking”, “she met some friends”, “they exchanged greetings”, “she showed them her watch and said she is in a hurry to get somewhere”, “she...sat down...took out a note book...”, “she started writing something in her
notebook”, “she stayed there a little bit, moving away, then got up and left”.

Russian narratives, while not as detailed in enumerating actions, emphasized the motivations of each action; the subjects speculated on the goals and intentions of the people involved and stated overtly when a clear interpretation didn’t seem possible: “it was difficult for me to define immediately who she is and what she wants...it is as if she is...looking for and where she is going”, “she sat down, either to wait for someone, or...we don’t know what...”, “at first one thinks that she is waiting for someone, or would like to meet someone, or is interested in meeting someone new”, “maybe she was writing poetry, if she was waiting for, like, a boyfriend”. In American narratives the scope of such interpretation was much narrower, only a few remarks were made indicating that the girl “looks like she was waiting for someone”; there were no overt statements indicating that an interpretation is difficult.

3) Another important content difference between the two sets of narratives was in the detailed body language description usually provided in American narratives but not the Russian ones: “at that point he began to kind of aim his body at her a little...”, “she expressed through her body language that she felt almost invaded, like her privacy was being invaded...”, “she seems to signal that...that...that she is...doesn’t have the time...”, “she uses her body to block...almost so she can write...”, “she shifted, she...kind of her body language...she kind of pushed herself away from him”, “she moved away further with a look of disgust on her face”. While Russian doesn’t have a lexical equivalent of ‘body language’, it is possible to talk about dvizhenia (movements) or vyrazhenie litsa (facial expression). The Russian subjects, however, did not discuss either, only mentioning the following: “she stayed there a little bit, moving away, then got up...”, “she decided to sit further away from him”, “she tried to distance herself from him”.

4) Finally and most importantly, the narratives also differed in ‘departure interpretations’:

a) both groups of subjects offered three interpersonal interpretations which framed the situation in the film as a pick-up attempt and explained the girl’s departure in terms of her attitude toward the man: she wasn’t interested in a pick-up; she was interested in a pick-up, but she didn’t like him; she felt unsafe in his presence/was afraid of him;

b) in addition, female Russian subjects offered a personality-based explanation in which the situation was seen through the lenses of gender: the girl left because she became shy or timid in the presence of a man (whether he intended a pick-up or not);

c) finally, only American subjects offered three contextual explanations in which the situation was framed as a disturbance of comfort/ invasion
of privacy of some sort and the attention shifted from the man - whose intentions were not emphasized any more - to the girl:

- she left because she was uncomfortable in the presence of another person: “and she just started feeling uncomfortable...and left”;

- she left because the privacy of her writing (informational privacy) was intruded upon: “I think his presence sort of bothered her, maybe she felt that... as if he was just looking over her shoulder, and she is writing something private”, “she wanted complete privacy for whatever she was writing”, “she was trying to write down...some private thoughts”, “maybe she was afraid that the person was reading her note”;

- she left because her space (spatial privacy) was invaded: “it looked to me like the guy was kind of like invading her space, so to speak...it’s like he sat down a little too close for her comfort...”, “just kind of made her uncomfortable, it was a little bit too close, it seemed to me”, “she seemed to be agitated, he was...maybe too close”.

As we can see, an existence of the construct of ‘privacy’ allowed American subjects, in addition to providing all the explanations available to monolingual Russians, to reframe the situation completely and view it in terms of ‘privacy’, as opposed to gender. This shift is illustrated by the fact that many of the Americans downplayed the gender of the ‘intruder’ in their narratives, using instead such neutral expressions as ‘person’, ‘someone’, ‘somebody’: “and then someone just came”, “and somebody sat down next to her”, “maybe she was afraid that the person was reading her note”.

In addition, American subjects - coming from a culture in which one is always surrounded by one’s ‘personal space’ - consistently framed the whole narrative in spatial terms, often mentioning the terms ‘space’ and ‘place’, even estimating the distance within which the man was sitting: “in the beginning I saw the stage was kind of being set for the place that the woman was walking through”, “she then proceeded to ...sit down in a quiet sp...place” (the all-pervasive notion of space is evident in this slip of the tongue), “she finds a private place to sit down”, “a male that came from behind her ...sat down a few feet away”, “four feet away”, “too closely”, “the guy was kind of like invading her space”, “he kind of interrupted her space...”.

Russian subjects did not offer a similar spatial layout; no one commented on how close the man was sitting to the woman either. While Russian has no lexical counterpart of invasions of ‘privacy’ or ‘personal space’, the subjects had an option of using a literal description, such as ‘sidet’ slishkom blizko’ (to sit too close). They, however, did not invoke the distance between the two at all and did not mention the possibility of the girl leaving because the man was sitting too close.

The differences in ‘departure interpretations’ corresponded to the
motivations assigned to the girl’s actions in the beginning. The preoccupation with ‘space’ led some American subjects to suggest in the beginning of their narratives that the girl was searching for a quiet, private place. Russian subjects offered only interpersonal explanations of the girl’s behavior in the beginning of the film: “she is waiting for someone, or would like to meet someone, or is interested in meeting someone new”, “then a girl appeared who obviously was looking for someone”. When, in a later conversation with the researcher, the idea behind the film was explained to one of the Russian participants of the experiment, the subject remarked in English: “Why would this girl be looking for privacy in a public place?” This remark is consistent with the clear boundary dividing the private and public spheres in Russian culture, where ‘private things’ don’t take place ‘in public’ (Pavlenko, 1996).

Interestingly enough, in all American narratives, independent of final interpretation, there was an emphasis on or preoccupation with the notion of ‘comfort’: the girl was “starting to get comfortable” in this “private place” and then feeling “extremely uncomfortable” when the man arrived. Eight subjects pointed out that the man “made her uncomfortable”, some repeated the word “uncomfortable” up to four times in their narratives. I suggest that the metaphorically based notion of psychological and emotional comfort is connected to the equally metaphoric notion of ‘personal space’, and an invasion of the latter disturbs the former. This suggestion is based on the way the two notions were often linked in the American narratives: “it looked to me like the guy was kind of like invading her space, so to speak...it’s like he sat down a little too close for her comfort”. Russian narratives, on the other hand, did not involve the notion of comfort, possibly, because Russian concepts of ‘komfort’ (comfort) or ‘udobno’ (comfortable) mainly describe physical properties of specific objects (e.g. udobnoye kreslo/a comfortable armchair). The notion of ‘nieudobno’ (uncomfortable) refers to the lack of these physical properties. Sometimes, ‘nieudobno’ is also used to express an apology, the feeling of embarrassment, shame or guilt. For example, a Russian may say, when apologizing to a hostess when coming late: “Izvinite, mne tak nieudobno” (Forgive me, I am very sorry[uncomfortable]).

As can be seen in the Table 1, both monolingual Russians and Americans offered the interpersonal interpretations based on the ‘pick-up’ framing (1-3). In addition, monolingual Russians, but not Americans, offered a personality-based explanation of the girl being shy and getting embarrassed in the presence of a male (4). Most importantly, most monolingual Americans (11 out of 16) opted for one of the three contextual interpretations based on the concepts of privacy, comfort and personal space (5-7). The chi-square test for independence, used for testing
the relationship between the two non-parametric variables, demonstrated that the difference between the two monolingual groups is highly significant: \( \chi^2 (2, n=32) = 17.26, p < 0.005 \).

We can also see from this table that not only did members of different cultures significantly differ in interpretations, but also that males and females differed within the two groups. In the American sample males favored privacy explanations (5 males vs. 3 opted for them), as opposed to the females who favored interpersonal and 'comfort' ones (6 vs. 2). A possible explanation for this difference could be that American females are socialized into the culture differently from American males: they are encouraged to be more sociable and less self-centered; in other words, interpersonal aspects are more emphasized in female upbringing than the self/privacy ones. In the Russian sample, in addition to the interpersonal interpretations, females suggested a personality-based explanation, which could also be explained by differences in gender socialization practices: in some Russian subcultures females are brought up to be shy and modest in the presence of males. However, due to the small number of subjects, no extended conclusions can be made at this point about the gender differences and in order to achieve any significance the results need to be replicated in a larger study.

Table 1. Interpretations by monolingual Americans and Russians

<table>
<thead>
<tr>
<th>Interpretation</th>
<th>Americans</th>
<th></th>
<th>Russians</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>M</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>------</td>
<td>--------</td>
<td>-------</td>
<td>---</td>
</tr>
<tr>
<td>1. She wasn't interested in a pick-up</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2. She didn't like the man</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3. She felt unsafe/was afraid of the man</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4. She became shy in the presence of a man</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. She became uncomfortable</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>6. Her privacy was intruded upon</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>7. Her space was invaded</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
As to the bilingual sample, there were two variables to consider: language (mode of response) and cultural exposure. Table 2 illustrates the results by the mode of response.

**Table 2. Interpretations of the bilingual group in English and in Russian**

<table>
<thead>
<tr>
<th>Interpretation</th>
<th>English</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  F  T</td>
<td>M  F  T</td>
</tr>
<tr>
<td>1. She wasn't interested in a pick-up</td>
<td>2  1  3</td>
<td>2  1  3</td>
</tr>
<tr>
<td>2. She didn't like the man</td>
<td>0  1  1</td>
<td>1  1  2</td>
</tr>
<tr>
<td>3. She felt unsafe/was afraid of the man</td>
<td>1  0  1</td>
<td>0  0  0</td>
</tr>
<tr>
<td>4. She became shy in the presence of a man</td>
<td>0  0  0</td>
<td>0  1  1</td>
</tr>
<tr>
<td>5. She became uncomfortable</td>
<td>0  2  2</td>
<td>1  0  1</td>
</tr>
<tr>
<td>6. Her privacy was intruded upon</td>
<td>1  0  1</td>
<td>0  0  0</td>
</tr>
<tr>
<td>7. Her space was invaded</td>
<td>0  0  0</td>
<td>0  1  1</td>
</tr>
</tbody>
</table>

Table 2 reveals that the subjects did not differ significantly depending on the mode of response. The chi-square analysis demonstrated that the mode of response (i.e. language) per se wasn't a factor: \( X^2 (2, n=16) = 1.2, p > .05 \). Most importantly, contextual explanations, omitted by monolingual Russian subjects, were provided by Russian bilinguals both in English and in Russian.

The other variable in question--cultural exposure/discourse participation--turned out to influence the results to a significant extent: \( X^2 (2, n=16) = 7.6, p < 0.025 \). As we can see from the Table 3, foreign language learners significantly differed from the second language learners and patterned with the L1 group in their interpretations, independent of the mode of response. Their narratives were 'Russian-like' in terms of length, content and 'departure interpretation', irrespective of the language in
which they were constructed.

On the other hand, the second language learners patterned with the group of their L2 independent of the mode of response, in length, narrative content and departure interpretations. Both in English and in Russian their narratives had all the distinctive features of the American ones, including the presence of the spatial layouts and the emphasis on the body language descriptions.

**Table 3. Interpretations by foreign language learners and second language learners (bilinguals)**

<table>
<thead>
<tr>
<th>Interpretation</th>
<th>FL learners</th>
<th>L2 learners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>1. She wasn’t interested</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. She didn’t like him</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. She felt unsafe/was afraid</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4. She was shy</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. She was uncomfortable</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. Her privacy was intruded upon</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. Her space was invaded</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Attempts of the bilingual subjects to provide contextual interpretations when speaking Russian, a language with no concept of ‘privacy’, resulted in various types of self-regulation breakdowns: longer pauses, up to one minute (due to the lexical search for the absent translation equivalent, as later confirmed by the subjects), stumbling, stuttering, and, most importantly, conceptual code-switching. Conceptual code-switching here refers to the literal translations of concepts and metaphors, such as, for example, “her space was invaded”, from one language into another. This type of code-switching occurs mainly in conversational exchanges due to the pressures and constraints of on-line processing, when one’s time to search for an appropriate equivalent or to attempt a circumlocution is
severely limited. In the present case this type of transfer resulted in ungrammatical Russian utterances, which violated both morphosyntactic conventions and lexical-semantic constraints of the language. One example of such ungrammatical usage is the following substitution of an adjective by an adverb: "ona javno stanovitsia...stanovitsia kak-to nieudobno i nieujutno" ("...she obviously becomes...becomes sort of uncomfortably and not cozy"). Moreover, both 'nieudobno' (uncomfortably) and 'nieujutno' (not cozy) are incorrect lexical choices in the present context; these words are usually used to describe specific physical properties of the objects or the feeling of embarrassment/guilt. Another example of an incorrect lexical choice, prompted by the on-line translation, is the use of the adjective 'lichnoye' in the following context: "ona zanimalas' kakimi-to lichnymi ochen' veshchami" ("she was doing some very personal things"). Here 'lichnoye', just like its English counterpart 'personal', renders the girl's activities as 'intimate' and not 'private'.

What kind of preliminary and tentative conclusions can be reached, based on the results of this pilot study? First of all, the two monolingual groups differed significantly in their interpretations of the film. While invoking 'privacy'-based explanations from the American subjects, the film did not prompt any references to the notions of 'lichnoye' (personal) or 'chastnoye' (private) from the monolingual Russian subjects. This, in turn, empirically supports the suggestion that the domains of private/personal are differently constructed in the two cultures.

Secondly, for the bilingual condition the mode of response did not turn out to be a variable, neither for the whole group, nor for the second language learners alone. Cultural exposure, on the other hand, turned out to be a significant factor. In terms of concept structure, these results allow me to suggest that for a concept to be fully acquired and properly used, one needs to have not only its lexical-semantic counterpart and the associated declarative knowledge, but also the multi-modal mental representation and culturally-based behavioral scripts and schemas, acquired communicatively. The linguistic part of the notion, its lexical-semantic meaning, may be available to non-native speakers of the language simply from a dictionary. It will be connected, however, to the native language concepts and representations associated with them (as in previously discussed subordinate bilingualism). A new 'reality' behind the word, a novel multi-modal mental representation, only becomes available to the second language learners who participate in discursive interactions and acquire the culture embodied in the language together with the language per se.

The results of this study confirm the hypothesis that the active and appropriate use of a concept depends on its discursive acquisition as opposed to the declarative knowledge 'of it'. Future work needs to
explore in depth the notion of cultural exposure, first of all, by attempting to separate a passive cultural exposure from an active discourse participation. Passive or minimal cultural exposure is best exemplified by the L2 learners who by choice or due to the circumstances, such as old age, limit their daily interactions with English to the minimum, living and socializing almost exclusively within a same-language community, be it Brighton-Beach or Chinatown. Other newcomers chose to live, socialize, work and study with Americans, and to continuously improve their English, thus, becoming legitimate participants in the L2 discourse. Some of these adult bilinguals, such as Eva Hoffman, Andrei Codrescu, or Elsa Triolet, not satisfied with the marginalized role of a legitimate participant, become poets and novelists in their second language, deconstructing and recreating the discourse from within.

In order to control for the effects of these ‘life style choices’, one needs to separate the bilingual subjects living in the US into two groups - the, so-called, ‘active’ and ‘passive’ discourse participants, matched in terms of age and gender of the subjects, age of arrival and time spent in the US. The two dimensions - active and passive discourse participation - also need to be differentiated from such constructs as ‘motivation’ and ‘attitudes’. In their present form in the SLA literature, motivation and attitudes are mainly defined based on the learners’ responses to specific questions about their attitudes toward the L2 country and people (Gardner & Lambert, 1972). Taking these responses at face value and linking them directly to whatever measures of proficiency happen to be in vogue at the moment, researchers often omit the most important step - looking at what the learners do with and in the language in question. Active or passive discourse participation, on the other hand, is defined by what the learners do in their L2 discourse, thus, approaching language as both an activity and an identity rather than simply as prescriptive knowledge. The difficulty of this approach lies in the fact that participatory differences or ‘life choices’ may lead to significant differences in proficiency levels for people with comparable length of language exposure. In order to circumvent this problem, one may have to interview the two respective monolingual samples first, outlining possible differences in their reaction to the stimuli, and then establish the native language as the only mode of response for the bilingual sample, looking for instances of conceptual code-switching, self-regulation breakdowns and the overall conceptual similarity to one or the other set of responses. In addition, it may be interesting and important for the field of second language acquisition to look into the process of conceptual change per se, establishing how the knowledge is co-constructed by the non-native speakers interacting with the natives.

Finally, the fact that no differences existed in the bilingual sample as to
the language of recall, leads to the following conclusions. Since the study was limited to a single stimulus, a film situated in an American context, and the interviewing took place in an American university setting, this 'double grounding' may have led the second language learners (i.e. the bilingual subjects) to opt for 'American-like' narratives and interpretations. Further studies will employ films created in Russia as well as in the US, with the interviewing conducted in Russian and American universities, since stimuli situated in a Russian context may prompt a different response from the bilingual subjects, evoking the conceptualization characteristic of Russian culture.

For the present I tentatively suggest that bilingual cognition is not code-dependent but rather concept-dependent, with the language of origin of the bilingual's concepts related to the learner's history. This suggestion is compatible with the 'new wave' compound model, proposed by Paradis (1995) who postulates two (or more) lexicons storing word forms, phonological and morphosyntactic properties as well as lexical-semantic specifications and constraints, and a single separate store for multi-modal mental representations which are experientially acquired, and, therefore, discursively, i.e. linguistically and culturally, grounded. When exposed to non-verbal stimuli, such as a film used in the present study, these mental representations are the first to be activated, subsequently activating specific words connected with them in both lexicons. The case in which there are no concept-related words in the lexicon chosen for the communicative purposes, be it L1 or L2, may result in stumbling, stuttering or pausing. These self-regulation breakdowns and delays of response are due to an additional lexical search, this time for the 'translation equivalents' of the already activated 'other lexicon' words. Often the resulting 'equivalents' may not be appropriate for use in a specific context, as was seen in the present study, where lexical transfers and conceptual code-switches perfectly exemplified the process of the 'online thought'.

In conclusion, I would like to say that while in some situations a bilingual's verbal behavior is related to the language being used, suggesting an existence of a 'double personality', in others the content of the bilingual's speech may appear to be not only independent of the code in use, but actually more pertinent to another language. Thus, if I were to restate, in relation to bilingualism, the postmodernist ideas of linguistic, or rather discursive, relativity, I would suggest the following: in general, bilingual cognition is grounded in the language or languages which socialized - and continue socializing - a particular bilingual into culture or cultures; in particular, it is also influenced by the discursive context of a specific interaction, rather than the code that is being used in this interaction.
References


Word Association Methodology in A Cross-Linguistic Study of Lexicon

Howard Grabois
Cornell University

Abstract

The ways in which conceptual or semantic systems are structured show variation from one language to another. While this variation is consistent with sociocultural thought, given that conceptual organization is not absolute, but is based on cultural and historical conditions, questions remain concerning the psycholinguistic processes of compound bilinguals and second language learners with regard to knowledge of lexicon in more than one language. This study employs a word association methodology as a means of exploring the relationship between multilingualism and lexical organization. Results indicate that the choice of target language may influence compound bilinguals less than coordinate bilinguals, and that there is an effect for both native language and target language in the case of expert second language speakers.

0. Introduction

Questions concerning the nature of the bilingual or second language (L2) lexicon have motivated a wide variety of studies. These have proceeded from a variety of theoretical orientations and domains of interest, and have likewise employed a variety of methodological tools. Some of these studies have brought us closer to an understanding of the bilingual lexicon, while others present conflicting results which are often task or theory dependent. At the same time, recent developments in cognitive science and philosophy of language are also of significant importance, as they can provide alternative models as well as different contexts for the framing of questions.

In addition, advances in cognitive linguistics and research on concepts and categorization allow us to recast some of the old questions in a new light. We can ask not only how a lexicon is acquired and organized, but also how it is that concepts and meaning are related to the use of a given lexicon. In terms of L2 research, we can ask whether there is a "restructuring" (perhaps reorientation would be a better word) of lexical and conceptual understanding with the acquisition of a non-native language.
Word association experiments have been an object of interest since the inception of modern psychology, and were explored with particular enthusiasm by Jung. It should be noted, however, that in the psychoanalytic tradition this type of exercise represents a means of accessing unconscious processes which may not be immediately available to the subject or patient. In this sense it is seen as a technique which is similar to hypnosis, dream analysis, or Rorschach tests, in that the assumption is that some aspect of the individual's unconscious, which is not consciously accessible, will become apparent to the practitioner. While word association techniques are used in this study, the assumption is not that they provide access to the unconscious, but rather that they provide a means for mapping the conceptual organization of consciousness. This type of approach is consistent with theories of the mind which place particular emphasis on consciousness (Searle, 1992), and the discursive nature of the mind (Harré and Gillette, 1994). In addition, this type of approach may be seen as a kind of unfolding of inner speech (Vygotsky, 1978; Ushakova, 1994), providing insights into a more general understanding of cognition, as constructed within a particular cultural, historical, and institutional context.

1. Background

1.1 Meaning and Models of the Lexicon

Among early studies in the western linguistic tradition, which attempted to determine appropriate methodologies for evaluating lexical meaning, is Osgood (1952). While his discussion is overwhelmingly based on behaviorist assumptions, it is interesting to note that the underlying questions are essentially the same as those addressed by contemporary researchers. It is significant to note, for example, that De Groot (1993) and Kroll (1993) posit a conceptual level and a lexical level of representation, much as Osgood distinguishes between "the communicative product itself" and its "semantic parallel." It would seem that this notion of independent lexical and semantic levels is deeply rooted in the Saussurean notions of signifier and signified, and the perception is that there is a distinction as well as a relation between the two. In this instance Osgood makes reference to mentalistic approaches as a means of associating meaning ("mental events"), and semiotics ("physical events"). "At the core of the mentalistic views, therefore, we find an "idea" as the essence of meaning; it is this mental event which links or relates the two physical events, sign and object" (Osgood, 1952: 201). While Osgood speculates on the possibility of using association as a means of assessing meaning, it is important to remember that his objective is the measurement of meaning, and as regards association methods "the chief drawback, as a general
measure of meaning, is a lack of comparability” (1952: 221). He sees word associations as essentially idiosyncratic to the individual, and, therefore, not useful for a comparative analysis of groups. He eventually opts for what he terms “The Semantic Differential”, a way of scaling meaning on a constrained number of bipolar descriptive axes such that the semantic space of any concept can be specified. This is done in terms of an arithmetic scaling, which serves to objectify the data, and which lends itself to factor analysis. It is only associative in the sense that subjects rate meaning within the axes based on associative strength.

Weinreich (1953) presents one of the earliest models of how a bilingual lexicon might be organized. This includes three possible schematic relationships between concepts, and the L1 and L2 lexemes:

1) *subordinate*: knowledge of the semantic category is associated with an L1 lexeme, which in turn is associated with a lexeme in the L2, such that L2 knowledge is always *via* the L1.

2) *compound*: there is a single semantic category, which is associated to both the L1 lexeme and the L2 lexeme.

3) *coordinate*: there is a distinct semantic category for each lexeme, be it in the L1 or in the L2, such that there is no sharing of categories across languages.

It should be noted that of the 3 models, the first two imply the notion of shared storage of lexicon across languages, while the third is more in line with the separate storage hypothesis. The presentation of all 3 of these models is based, however, on the notion of distinct levels of memory and representation, one lexical and the other conceptual.

De Groot (1993), in her description of second language learning, argues for the notion of a mixed model, which is dependent on the particular word under consideration (referring to the similarity of mapping between the lexical and conceptual levels for the 2 languages), the task at hand, and the L2 proficiency of the person under consideration. This is consistent with Weinreich’s original model, which was not meant to represent three distinct and mutually exclusive possibilities, but rather possibilities of interaction in any given instance.

Kroll (1993) adopts a position which is quite similar to that of De Groot (1993), based on two models which are similar to Weinreich’s subordinative and compound models. According to her conceptualization, the semantic level of representation is given an added layer of complexity, whereby there are associations between images and concepts, with the latter then associated to the lexical level of representation. What she terms the *word association* model parallels the subordinative model in that the L2 is associated to the L1, which in turn is associated to the concept. What she
terms the concept mediation model parallels the compound model in that both the L1 and L2 are directly linked to the concept. She maintains that novice learners depend on the word association model, and that with increased expertise the concept mediation model becomes more dominant. Kroll further develops this idea by positing that lexical links are maintained between the L1 and L2 even as new associations are formed between the L2 and the conceptual level of representation. This revision of the model is intended, on the one hand, to account for developmental shifts as the L2 speaker becomes more proficient, and, on the other hand, is motivated by performance asymmetries in translation tasks (L2 to L1 as opposed to L1 to L2), which are not predicted by either of the previous models.

1.2 Meaning and Cognitive Semantics

Recent research in lexical semantics (Johnson, 1987; Lakoff, 1987; Taylor, 1989) may lead us to consider the distinction between psychological and linguistic meaning (as described by Szalay, see below) to be trivial at best. Contemporary research has acknowledged the limited usefulness of the classical category (determined by the presence of necessary and significant conditions) as a means of establishing meaning, and has chosen instead to explore the possibility of prototype categories, or other cognitive derivations of prototypes, as more relevant for most instances of human understanding and meaning. Following this line of reasoning, it is the prototype category which becomes of primary interest for the exploration of lexical semantics, and the distinction between psychological and linguistic meaning ceases to be of interest. In both cases the object of study comes to be how we know words, not how we define them.

While most research in cognitive semantics places greater emphasis on experiential rather than sociocultural influences for cognitive organization, this distinction seems to be of minor importance if we consider that it is primarily through the mediation of language that experience comes to have significance. Lakoff (1987), for example, implicitly recognizes the importance of social and cultural factors in his explicit acknowledgment of linguistic relativity.

Most significantly, cognitive semantics, with its emphasis on meaning, provides a framework for understanding concepts and cognition which is inclusive of figurative and metaphorical language and thought, and points the way to a semantics which is built upon general cognitive principles, as opposed to a conception of language which is modularized and autonomous from other areas of cognition. Furthermore, cognition is seen as a process which must be understood as embodied (Johnson, 1987;
Varela et al., 1992), and not simply as a mental process.

1.3 Sociocultural Approaches

There is a long tradition in sociocultural theory concerning conceptual knowledge, either making direct use of the word association tasks, or relevant to the use of these tasks. In the formative period of sociocultural theory, Luria (1978) showed a particular interest in the use of word associations as a means of showing the relationship between a child’s social environment and cognitive and linguistic development. His experiments were technically quite sophisticated for the period (allowing for the measurement of reaction time to the nearest hundredth of a second), and allowed for the comparison of rural, urban, and homeless children. He was able to draw some interesting results based on reaction times, diversity of responses, and the distribution of responses according to conceptual domains. These results illustrate that there are differences in conceptual organization based on cultural background even among speakers of the same language. Unfortunately, it would appear that he used a technique which elicits but a single response for each word in the study (an issue that will be discussed in more detail below).

Closely related to theories of lexical semantics is the sociocultural notion of complex thought (Vygotsky, 1978). While some human cognition is seen to be based on concept formation, the greatest part of our everyday cognition is based on the formation of complexes, composed of elements that bear some association to each other. Furthermore, we may wish to consider the proposition that language is not a means of representing reality, but, rather, a means of constituting it. This line of thinking might serve to obscure distinctions concerning various types of meaning (as based on more formal semantic theories whereby meaning is assumed to be present exclusively in words, as in the conduit metaphor (Reddy, 1978)) and also to reinforce the significance of word association methodology as a means of discovering how the individuals from diverse backgrounds organize meaning within the lexicon.

Another area where sociocultural theory is of particular interest for the study of the lexicon has to do with the notion of inner speech. Vygotsky (1986) describes inner speech as being formed in children as part of the same process as the progression of social speech to egocentric speech. Eventually the latter, instead of disappearing, “goes underground” and becomes inner speech. This is in direct contradiction to the Piagetian idea that egocentric speech precedes social speech. In examining inner speech in adults, Vygotsky points to three primary “semantic peculiarities” of inner speech. The first has to do with the
distinction between sense (smysl) and meaning (znachenie). Sense, a notion that Vygotsky borrowed from Poulhan, is "the sum of all the psychological events aroused in our consciousness by the word" (Vygotsky, 1986: 244) Sense is unstable and context dependent. Meaning, on the other hand, is only one part of sense, but is the most stable and least context-dependent part. The second peculiarity of inner speech is the way in which words are combined, or merge, a process that is analogous to agglutination. The third peculiarity Vygotsky points to is the unification of words in inner speech, a process that he calls the "influx of sense." "The senses of different words flow into one another—literally 'influence' one another—so that the earlier ones are contained in, and modify, the latter ones" (Vygotsky, 1986: 246).

This description of inner speech is particularly relevant to the study of lexicon, above all for a methodology which depends on word associations. The notion of sense as amorphous and psychologically dynamic would indicate that one way of accessing an individual's knowledge of words would be to unfold the sense of words in inner speech, a task for which word associations may be particularly appropriate. This is also true for the notion of unification of words in inner speech; again, word associations may prove extremely useful for discovering the way in which different words "flow into" and "are contained" in each other.

The use of word associations for accessing inner speech is also of interest for cross-cultural studies, as inner speech can be seen as closely related to conceptual organization. Given the origins of inner speech, and the idea that it is an internalization of social speech, we can reason that semantic organization is closely linked to the culture from which it is appropriated. In other words, we would expect both the inner speech and semantic organization of members of different speech communities to reflect, to a certain degree, cultural differences.

The question for L2 acquisition then becomes one of whether the lexicon of the second language maintains the semantic and conceptual organization of the L1, or if there is an organization or reorganization of inner speech which is mediated by the L2. The central issue is whether the inner speech of L2 speakers changes in accordance with the language which is being spoken. On the one hand, one could argue that the ontogeny of inner speech is so closely related to the ontogenetic development of mind that it has a high degree of stability, in which case we would expect L2 lexemes to be mapped onto the conceptual structure of L1 inner speech. On the other hand, one could argue that consciousness and cognition are dynamic processes which are inseparable from the activities which the individual is involved in; not simply abilities possessed by the individual, to be employed at her discretion. This line of thought would predict that the inner speech of L2 speakers could change through
exposure to another language and culture. This would occur when the L2 comes to serve as a linguistically mediated means of conceptual organization.

Ushakova (1994) addresses many of the issues of lexical organization for second language learners within the framework of sociocultural theory. In order to discover more about the effect of an L2 on inner speech, she performed a series of experiments where she taught native Russian speakers a series of nonce words, and assigned meaning to these words such that they were semantically equivalent to Russian words. She then measured their access to the meaning of the nonce words by means of a reaction time study. Her results show that the nonce words were categorized according to word type and semantic field. Specifically, reaction times to referential nouns were faster than those for verbs and adjectives, although the significance of the differences varied with the length of the training period. Errors were found only for those words which were closely related semantically (for example sugar and honey.) Ushakova takes these results to demonstrate the fact that L2 speakers maintain the conceptual organization of their L1 inner speech: "... we have come to the conclusion that the grouping of memorized words is subject to the semantic foundation realized in the system of the earlier acquired (first) language." (1994: 151) According to this analysis, L2 lexemes are simply plugged into the existing L1 conceptual structure.

There are several methodological problems in Ushakova's studies which prevent them from providing a definitive answer to questions surrounding inner speech and the L2. Primarily, the nonce words were part of an artificial language, and were taught as the exact equivalents of Russian words. The learning of the words really represents the memorization of phonological forms within the Russian conceptual system; at no time in the training process are the words of the artificial language used to negotiate meaning or mediate activities. The claim that "although the material was, in some sense, artificial, it conforms to the organization of natural language systems" (1994: 149) is true only in the sense that it conforms to Russian, which is, of course, a natural language. As far as making claims about L2 learners, however, one must seriously question the validity of her findings. Furthermore, even if we are to accept these assumptions, at no time does Ushakova provide a direct comparison of subjects' performance in the artificial language and in Russian, or between the Russian conceptual framework and an alternative one.

While Ushakova's research does suffer from flaws of methodology, the questions she asks are certainly appropriate for the study of L2 lexicon. Issues surrounding inner speech, and its relationship to both native and second languages, provide a rich framework for investigations
concerning the question of what it means to know a word.

1.4 Bourdieu: habitus and field

The work of Bourdieu (1979, 1991) and Harker et. al. (1990), in the field of social science, can provide an extremely useful framework for the understanding of differences of lexical organization for various native language groups, as well as for second language speakers. Bourdieu introduces the notion of habitus which can be understood as a series of culturally transmitted dispositions. These dispositions are manifested, and in a sense remembered, by the individual through the notion of hexus which can be thought of as the physical embodiment of habitus. Significantly, the notion of habitus is quite distinct from linguistic notions of competence as it is not a mentalistic storage of knowledge or a deterministic system of rules. Habitus is realized, rather, within a field, which can be thought of, albeit rather simplistically, as the physical, and, above all social environment within which the individual interacts.

As habitus is established in the family at a very young age, and then refined by the educational system, this would at first seem to indicate that there is a certain rigidity involved which would be resistant to change. Thus, while this might lead us to believe that there will be conceptual differences between cultures, manifested in diverse systems of lexical organization, L2 speakers could be expected to maintain the conceptual and lexical organization of their native language. I would argue, however, that this line of thought represents a misunderstanding of habitus, as something akin to linguistic competence. Crucially, the dispositions which comprise an individual’s (or cultural group’s) habitus are only realized in relation to a field. Thus, the same habitus will be manifested differently in relation to a different field.

In the case of L2 learners and speakers the difference in field (for foreign language learners largely linguistic, for second language learners both linguistic and cultural) can be seen to be of enormous significance if we consider that language is the primary means of social and conceptual interaction. Furthermore, the same field in which native speakers interact can actually be seen as a diversity of fields depending on the beliefs, desires, and expectations that different individuals bring to the same field. This would lead to the prediction that while the conceptual/lexical organization of the L2 speaker will never be equal to that of the native speaker (because of the difference of habitus), it will become progressively more native-like as the field in which it is manifest becomes more like that of the native speaker.

It is of particular interest to note that Bourdieu’s notion of habitus and the Vygotskian conception of inner speech are in many ways similar, and
can lead to similar kinds of analysis. Both are concerned with an aspect of the individual which is socially inculcated, and which in turn is crucial for cognitive development and social interaction. Both can lead to a productive understanding of the interaction between the native and target languages and culture.

1.5 Word Association Experiments and Lexical Semantics

Kolers (1963) was among the first to use word associations as a means of investigating lexical organization, and the issues he was concerned with are essentially the same as those of more contemporary investigations. He was particularly concerned with questions regarding the separate or shared lexical storage hypotheses in bilinguals. His methodology was one of discrete associations (one response per stimulus). His subjects were native speakers of German, Spanish, and Thai, and were presented with stimuli in 4 sets. These varied by language of stimuli (2 sets with the stimuli in English, and the other 2 with the stimuli in the subjects’ native language) and language of response (again, English or native language.) Kolers found little similarity based on either language of presentation or language of response, and surprisingly few interlingual translations. He took these results as evidence in support of the separate storage hypothesis. He also found that there was greater overlap for responses between sets for concrete stimulus words than for abstract ones, and hypothesized that “actions tied to concrete references... are likely to be more nearly alike than are actions and experiences tied to more conceptual ones” (Kolers, 1963: 298).

Taylor (1976) also employed word association methodology as a means of investigating the bilingual lexicon. Unlike Kolers, he used a continued association test (subjects provide as many responses as they can within a prescribed amount of time), a methodology which enhances the quantity and quality of the data. He looked at the effects of word similarity between 2 languages, in this case French and English. While his findings support Kolers’ hypothesis regarding concreteness and abstraction, he also found that there is greater overlap for words which are phonologically similar to each other as opposed to those which are dissimilar, for both concrete and abstract nouns. Unlike Kolers”, however, Taylor’s assumptions are more in line with the shared storage hypothesis, as bilinguals “presumably have the same images no matter in which language the concrete word is presented...” (Taylor, 1976: 91) He takes his findings to indicate that the lexicon is organized not solely on the basis of meaning, which is shared, but also on the basis of form, which then accounts for the effect of phonological similarity between languages.

In a more recent use of word association methodology, Opoku (1985)
presented a research question relating to the possibility that the question of shared or separate storage may in fact be an issue related to individual differences. He first gave an English word association test to native Yoruba speakers who had gone through the educational system in English, and as a post test had these same subjects translate their responses into Yoruba. Based on their ability to do so, he divided them into low and high separation groups (on the assumption that this was an indication of the degree of lexical separation between English and Yoruba). He then gave both groups a recall test based on a bilingual list of translated words, and found that the low separation group was able to recall more translated words. He took the results of this experiment to show that the low separation group has more of a shared representational system than the high separation group. The notion that the degree of sharedness or separateness of bilingual lexicons is dependent on individual differences and cognitive strategies is an intriguing one and certainly worthy of further research. Opoku’s results, however, must be regarded with caution due to serious flaws in his research methodology. On the original word association test subjects were instructed to provide three responses to each stimulus. Opoku then takes the fact that both groups were about equal in productivity of responses as an indication that they are about equal in proficiency. In fact, the reverse may be true, and those that were less proficient in English provided responses with lexemes whose form but not meaning was familiar, as a means of fulfilling the three token requirement of the task. If this were the case, the experiment would simply show that more proficient bilinguals are more adept at bilingual recall, a conclusion which is hardly surprising.

Perhaps the most significant research concerning word associations and the lexicon, both in terms of establishing a theoretical foundation and in terms of refining methodologies, has been done by Lorand Szalay (Szalay and Brent, 1967; Szalay and Maday, 1973; Szalay and Bryson, 1973; Szalay and Bryson, 1974; Szalay and Deese, 1978; Szalay and Maday, 1983; Szalay, 1984; Bovasso, Szalay, Biase, and Stanford, 1993). Using word associations to analyze what he considers to be culturally based subjective meaning, Szalay has done comparative studies based on a variety of factors, including national origin (Korean and Colombian compared to American), ethnicity (Black compared to White working class Americans), and even vital experience (pre and post treatment patients in a drug rehabilitation center.) He has also done some work with bilinguals, where he suggests “that the distribution of word associations primarily reflects cultural experiences” (1978: 88).

On the methodological level Szalay has been a strong advocate for the use of continued word association tests in written form as a means of gaining access to meaning in all of its fullness and complexity. He is also
cognizant, however, of the difference in significance of earlier mentions as compared to late mentions, and has developed a variety of means for determining weighting systems to account for this variable. As regards analysis, he presents four domains which he considers to "characterize the major coordinates or dimensions of subjective meaning." (1978: 39) These include: 1) dominance, which has to do with the importance of specific themes within a culture, 2) affinity, which has to do with the similarity between concepts, 3) similarity, which has to do with the consistency of associations either within or across groups, and 4) affectivity, a notion very similar to Osgood's Semantic differential. Szalay has developed a variety of analytic techniques, including an affinity index, which can be employed either intraculturally or cross-culturally. He has employed correlations as means of ascertaining cross-cultural comparisons, and recently has proposed the use of a statistical method, called network analysis, developed within the field of sociology. He has also developed what he terms a semantograph, which is essentially a grouping of responses by theme as a means of making cross-cultural comparisons. Szalay has also compared associative analysis with various other methodologies for determining similarity of meaning, including similarity scaling, substitution, grouping or classification, judgment of relationship, and semantic differential. He found a high level of agreement between the various methodologies, with the exception of the semantic differential, although it was found that this too could reach a high level of agreement through minor adjustments to its scales such that they are semantically adapted to the words under study.

On a theoretical level Szalay (1978) distinguishes between various types of meaning. Psychological meaning "describes a person's subjective perception and affective reactions to segments of language"(1978: 2). What he considers to be rational meaning "describes the abstract characteristics of the referent and its relation with other conceivable referents"(1978: 2). Lexical meaning describes "the dyadic relations between words and referents"(1978: 2). He is, furthermore, persistent in asserting that word association methodology is primarily concerned with the analysis of psychological meaning at the cultural level, a measure that he perceives of as being non-linguistic. He also relates his notion of subjective meaning to Whorf's (1956) notion of a "thought world". In this regard it is interesting that he assumes that subjective meaning is essentially non-linguistic. Whorf himself was careful to point out that there is no simple correlation between language and culture, largely as a means of distancing himself from the evolutionary anthropologists of his period (Lucy, 1992). Whorf (1956) did, however, state that "there are connections but not diagnostic correspondences between cultural norms and linguistic patterns" (1956: 159). Furthermore, it would appear that it is
above all at what Szalay considers to be the conceptual level that the relation between language and culture is most apparent, as evidenced in Whorf's (1956) discussion of the way in which Hopi and English speakers conceptualize notions like time and space.

2. Methodology

The present study was designed as a means of contributing to the body of knowledge related to the long-standing debate concerning the lexical organization of bilinguals, as well as a means of making determinations about the lexical organization of non-native speakers of a target language. While much of this debate has focused on the opposition of the shared and separate storage hypotheses, perhaps it would be useful to rephrase the question by asking to what degree each of the languages of bilinguals and non-native speakers contributes to the organization of their lexicon (or lexicons.) For the purposes of this study only those having grown up speaking both languages (compound bilinguals) will be labeled as bilinguals, while those who have acquired a second language as adults will be labeled non-native speakers (in literature they are often referred to as coordinate bilinguals). This distinction is of particular interest as regards possible distinctions between single or separate conceptual systems, and seems fully appropriate given the body of evidence concerning sensitive period effects (Long, 1990), and the fact that these are detectable over a wide range of linguistic domains. This study uses a word association methodology on the assumption that differences in response patterns between language groups will be an indication of differences in their understanding of lexical items.

2.1 Subjects

All of the subjects involved in the present study were tested in France and Spain and had at least some college education. Together they comprise eight groups, based on four native language categories and two target language categories. They represent a wide range of adult age groups. Non-native speakers were all highly proficient in the target language, which they acquired as adults. Most had 5 years or more of residence in the culture of the target language, with some having more than 20 years of residence. They all spoke the target language fluently, and displayed a high level of integration in the culture in which they are living. It should be noted that a large proportion of non-native speaking subjects were employed as teachers of their native language, given that this is a fairly common livelihood for non-nationals, and the institutions that employ them represent a ready source of proficient non-native speakers.
Four groups of subjects (native Spanish speakers, native French speakers, French/Spanish compound bilinguals, and native English speakers) were tested in each of the target languages (French and Spanish). Table 1 shows the number of subjects for each language group in the two target languages.

**Table 1: Number of subjects by language group and target language**

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 5</td>
<td>Group 6</td>
<td>Group 7</td>
<td>Group 8</td>
</tr>
<tr>
<td>N=14 native French speakers in French</td>
<td>N=7 French/Spanish bilinguals in French</td>
<td>N=11* Spanish speakers in French</td>
<td>N=9 US English speakers in French</td>
</tr>
</tbody>
</table>

*group 7 includes 7 speakers of peninsular Spanish and 4 speakers of South American Spanish.

**2.2 Experimental Design**

The test consisted of 22 lexical items as the primes to which the subjects responded. All of the primes were common nouns, and were translated into French and Spanish. Each prime was coded by number, printed in 36 point Palatino, and attached to an index card. The index cards were then randomized for each subject or set of subjects (the old fashioned way, by shuffling the cards), and visually presented to the subjects. They were then given 20 seconds for each prime, in which time they were instructed to produce, in writing, as many words as they could which they considered to be associated to the prime. They were told that they could use words from any grammatical category (nouns, verbs, etc.), as well as compound words, but that they should not use phrases. While most subjects were tested individually, some were tested in pairs or small groups. Table 2 is a list of the primes that were used.
Table 2: Experimental primes in English, French, and Spanish

<table>
<thead>
<tr>
<th></th>
<th>trash</th>
<th>basura</th>
<th>ordures</th>
<th>12</th>
<th>witch</th>
<th>bruja</th>
<th>sorciere</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>lighting</td>
<td>relám-pago</td>
<td>éclairage</td>
<td>13</td>
<td>pleasure</td>
<td>placer</td>
<td>plaisir</td>
</tr>
<tr>
<td>3</td>
<td>jack-knife</td>
<td>navaja</td>
<td>canif</td>
<td>14</td>
<td>fire</td>
<td>fuego</td>
<td>feu</td>
</tr>
<tr>
<td>4</td>
<td>glasses</td>
<td>gafas</td>
<td>lunettes</td>
<td>15</td>
<td>hammer</td>
<td>martillo</td>
<td>marteau</td>
</tr>
<tr>
<td>5</td>
<td>noise</td>
<td>ruido</td>
<td>bruit</td>
<td>16</td>
<td>kitchen</td>
<td>cocina</td>
<td>cuisine</td>
</tr>
<tr>
<td>6</td>
<td>butterfly</td>
<td>mariposa</td>
<td>papillon</td>
<td>17</td>
<td>doctor</td>
<td>médico</td>
<td>medecin</td>
</tr>
<tr>
<td>7</td>
<td>grandmother</td>
<td>abuela</td>
<td>grand-mère</td>
<td>18</td>
<td>father</td>
<td>padre</td>
<td>père</td>
</tr>
<tr>
<td>8</td>
<td>money</td>
<td>dinero</td>
<td>argent</td>
<td>19</td>
<td>friend</td>
<td>amigo</td>
<td>ami</td>
</tr>
<tr>
<td>9</td>
<td>fear</td>
<td>miedo</td>
<td>peur</td>
<td>20</td>
<td>sea</td>
<td>mar</td>
<td>mer</td>
</tr>
<tr>
<td>10</td>
<td>cow</td>
<td>vaca</td>
<td>vache</td>
<td>21</td>
<td>education</td>
<td>educación</td>
<td>education</td>
</tr>
<tr>
<td>11</td>
<td>street</td>
<td>calle</td>
<td>rue</td>
<td>22</td>
<td>communication</td>
<td>comunicación</td>
<td>communication</td>
</tr>
</tbody>
</table>

éclairage represents an error in translation, its true meaning being closer to English “lighting”

The issue of cognates is a difficult one, as a distinction can be made between those words which have a common etymology and those which are phonologically similar. It should be noted that of the 22 primes half (1 - 9, 11, 12) do not display phonological similarity between French and Spanish, and have different etymological sources. The other half have common etymological origins and can be considered to be cognates, although the degree of similarity between these words does vary to a certain extent. Although the creation of cognate pairs was not controlled for in the creation of the word list as regards English, only the Latinate abstract nouns in 21 and 22, as well as 13 are phonologically similar, while 14, 16, and 18 are of the same etymological origins, and 7 shares its etymological origins with French. The words were chosen to reflect a variety of semantic fields, and include kinship relationships, tools, animals, sensations, and natural kinds as well as artifacts. Non-native speakers had no problem recognizing any of the primes, with the exception of canif “jack knife” in French, which was unknown to 3 of the non-native subjects.
2.3 Analytic Methods

The responses given by the subjects were compiled and sorted by both language group and prime. Only those primes which provoked a certain degree of consistent responses within all of the language groups were submitted to further analysis. This was determined by specifying that an arbitrary number of total repeated tokens within each group, namely 10, be attested. This was done to assure a minimum amount of data across language groups. Using this criteria there were 8 primes which were included in further analysis; 4, 6, 10, 11, 15, 17, 20, and 22.

Further analysis of the responses to these primes was then carried out for those responses which appeared at least twice in any given group, such that responses that appear once within a group were included if they appeared twice in a different group. In this way responses which may be determined by individual psychological factors but which are not necessarily representative of the lexicon of the group were not included. This permitted for the compilation of a single, manageable list of responses to be taken into account for the analysis and comparison of the various groups. When there were various possible translations for a given response from one target language to another, the reasonable translation which occurred most frequently in the other language was chosen.

Response tokens were then weighted using a 6, 5, 4, 3, 3, 3, 3, 3, 2, 2, 1, 1,... system for ranking of order of mention. This weighting system was originally calculated by Szalay (Szalay, 1976; Szalay and Deese, 1978) who gave subjects a word association task twice with a one week interval. Percentages were calculated for recurrence within the protocols of single subjects, which provided stability coefficients based on place of mention. This weighting system is then able to take into account the notion that responses that appear earlier are more salient, and those that appear later are less salient. The weighted response scores were then summed according to response and language group, and once more weighted to account for the variance of number of subjects within each group. These weighted tables were then measured for correlations between groups, both by individual prime, and by grouping all of the primes under analysis together.

3. Analysis of the Results

3.1 Response Production

One of the more surprising results of this study concerns the total number of responses given to all primes. This includes responses which do not occur more than once in any group as well as responses to primes which do not provide consistent results, and so are not subject to further
analysis. As can be seen in table 2, the total number of associates given by groups in Spanish range from 98 to 105, with the mean ranging from 4.45 to 4.78. In French the range of total responses is 74 to 85, with the mean ranging from 3.36 to 3.84. Of all language groups, the French native speakers gave the smallest number of responses.

**Table 3:** average number of associates given by language group and target language for all 22 primes.

<table>
<thead>
<tr>
<th></th>
<th>s N=13</th>
<th>B&gt;s N=9</th>
<th>f&gt;s N=10</th>
<th>e&gt;s N=10</th>
<th>f N=14</th>
<th>B&gt;f N=7</th>
<th>s&gt;f N=7</th>
<th>sa&gt;f N=4</th>
<th>e&gt;f N=9</th>
</tr>
</thead>
<tbody>
<tr>
<td>token</td>
<td>102</td>
<td>103</td>
<td>105</td>
<td>98</td>
<td>74</td>
<td>85</td>
<td>76</td>
<td>83</td>
<td>76</td>
</tr>
<tr>
<td>mean</td>
<td>4.64</td>
<td>4.67</td>
<td>4.78</td>
<td>4.45</td>
<td>3.36</td>
<td>3.84</td>
<td>3.45</td>
<td>3.76</td>
<td>3.47</td>
</tr>
</tbody>
</table>

These results are provocative because they show a clustering effect according to target language, with non-native speakers behaving in a way which is similar to that of native speakers in terms of quantity of production. One might hypothesize that this is caused by the fact that the lexical network in Spanish is somehow richer than that of French, a notion that can be dismissed off-hand, as it would imply a respective difference in cognitive abilities. Another hypothesis for this difference is that it is a result of the words chosen for the task itself, such that the primes represent categories which are more significant for Spanish speakers than for French speakers. This hypothesis can also be dismissed as the words chosen as primes are common nouns from a wide variety of semantic domains, and were in fact chosen by a native English speaker.

A third hypothesis is that differences in quantity of production have to do with a difference in cultural attitudes, which is then manifested in the attitude subjects take toward the task itself. This hypothesis is also consistent with the researcher's experience of data collection. In Spain, potential subjects from all groups nearly always made themselves available for testing, and were both cooperative and curious about the experiment. In France it was generally more difficult to find appropriate subjects who were willing to participate, and those that did were often less curious about the experiment. While this hypothesis does require the support of further ethnographic studies, it appears to provide a viable explanation and some intriguing implications. This is due to the fact that, as non-native speakers tend to perform much like native speakers of the target language in this regard, the implication is that they are also internalizing, at least to some extent, the attitudes of the culture in which
they are living.

The production differences are also interesting if we compare them to the weighted scores of associations for specific primes. These include all associations which appear at least twice for any language group, as described above. We might speculate that less production would also lead to lower weighted scores, given that the lower number of total tokens would provide a smaller data base out of which to create the weighted scores. This is not borne out across the board, however. In Table 4 we can see that the mean and sum are virtually identical between the two groups of native speakers, with the French native speakers even enjoying a slight advantage. In the other groups, however, this prediction is borne out, with both French/Spanish coordinate bilinguals and native speakers of English showing a higher mean and sum in Spanish than in French. In addition, all of the non-native groups in Spanish show higher means and sums (as well as higher standard deviations) than native speakers. Comparisons regarding native and non-native speakers are less systematic in French.

Table 4: weighted scores of associations for eight primes by language group and target language.

<table>
<thead>
<tr>
<th></th>
<th>s&gt;s</th>
<th>B&gt;s</th>
<th>f&gt;s</th>
<th>e&gt;s</th>
<th>f&gt;f</th>
<th>B&gt;f</th>
<th>s&gt;f</th>
<th>e&gt;f</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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These results point to the conclusion that while native Spanish speakers are more prolific than native French speakers in sheer quantity, this is not reflected in the production of responses which are central to the lexical network. The difference is found, rather, in production at the periphery, with a greater quantity of responses which are individual and not shared. As regards non-native speakers, however, it does appear that greater general production does lead to the production of more responses which are also central to the lexical network. This would also seem to indicate that, if cultural attitudes are indeed responsible for differences in production, that this fact may have a greater effect on the quantity of responses given, rather than on the proportion relevant to the central part of the lexical network. This analysis is supported by the data in table 5, which gives the raw numbers and percentages of repeated tokens compared to total tokens within each group for the 8 primes that provided consistent across group responses. The native Spanish speakers have the lowest percentage at 42%, while the native French speakers have
the highest at 52%. All of the other groups are clustered between these extremes, ranging from 45% to 49%.

Table 5: proportion of repeated tokens to total number of tokens

<table>
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<th></th>
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<th>e&gt;s</th>
<th>f&gt;f</th>
<th>B&gt;f</th>
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<tr>
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<td>45%</td>
<td>46%</td>
</tr>
</tbody>
</table>

3.2 Overall Correlations

One way of determining the relationship of lexical networks in bilinguales and proficient L2 speakers to those of native speakers is to look at the overall correlations between those groups.\(^1\) It should be noted that the overall correlations were determined by comparing the tokens of 173 possible responses, which were motivated by 8 separate primes. As will be seen in the following section, there is a much higher degree of variability in the correlations of responses to individual primes than in the overall correlations. One effect of this is that particularly high or low correlations for specific domains are somewhat obscured through the combination of diverse domains. On the other hand, the combination of domains allows for a consistency of significance levels (p<.001) which were not attained for all of the individual domains, and permits a global overview of effects for native language and target language.

The fact that the two native language groups have different lexical organizations is indicated by the fact that the correlation of f>f: s>s\(^2\) is the lowest of any language group to Spanish, as can be seen in Figure 1 and 2. The strongest overall correlation to the s>s group is the B>s group, followed closely by the B>f group. This shows that bilinguals come closest to native speaker performance, regardless of target language, which is an indication that for compound bilinguals the target language may be of minimal importance. For L2 speakers, on the other hand, there is a clear effect for target language. This can be seen by the higher correlation for

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1 All correlations are computed on SPSS using Pearson Product Moment correlations and 2-tailed tests for significance

2 The experimental groups will be referred by the same coding system used in the tables; s=Spanish, f=French, B=French-Spanish bilinguals, e=American English, and > indicates the relationship between the native and target languages. The colon will be use to indicate a correlative relationship between two groups.
native French speakers when the target language is Spanish rather than French, and the relatively low correlation for native Spanish speakers when the target language is French. Surprisingly, however, the correlations for native English speakers are fairly close regardless of target language. This may indicate either that for these speakers the native language may be of primary importance, or that there are other variables involved (as will be discussed below).

**Figure 1.** Overall correlations to Spanish

![Correlation Graph](image)

The correlations of the various language groups to native French speakers in figure 2 show several similarities to the correlations in figure 1. Again, the lowest correlation is between the two native speaker groups, and there is a minimal effect for target language for the compound bilinguals. The effect for target language for native Spanish speakers is more marked than it is for native French speakers, as can be seen by the relatively strong correlation of s>f: f>f (.634, as compared to .541 for f>s: s>s).

There are, however, important differences between the correlations for the two target languages. Most noticeable is the fact that the highest correlation to f>f is e>f, indicating an effect for target language for native English speakers that was not apparent in the correlations for Spanish. This would seem to indicate that the native English speakers are far more successful at approximating the lexical organization of French than of Spanish, although it is not clear whether this is because the two languages have similar lexical organizations, or because the English speakers are more successful at adopting to the French lexicon.
3.3 Single prime correlations

While the overall correlations can provide us with a good idea of general tendencies regarding the organization of lexical networks, an analysis of the responses to, and correlations for individual primes can provide us with a better idea exactly how it is that certain groups either resemble each other or differ, within a variety of semantic domains. While these comparisons have the advantage of offering more detailed comparisons, they have the disadvantage of comparing a relatively reduced number of responses (15 to 25) and so provide less consistent levels of significance. Of the eight primes for which data were compiled only three had adequate levels of significance (p<.05) across all relevant language groups.

3.3.1 Butterfly

As can be seen in figures 3 and 4, the correlations for this prime are somewhat higher than for the overall correlations, particularly as regards the two native language groups. This is an indication that this is one of the primes with the fewest differences in lexical organization between language groups. As in the overall correlations, a far greater effect for target language is seen for native English speakers when compared to native French speakers than when compared to Spanish. The compound bilinguals display the highest correlations when the target language is Spanish, but not when the target language is French.
3.3.2 Cow

This prime shows particularly high correlations between language groups due to the fact that by far the strongest associate for all language groups was milk. For this prime the compound bilinguals came very close to native speakers of both language groups, with correlations around 90%.
Figure 5. Correlations to Spanish for cow

Figure 6. Correlations to French for cow

3.3.3 Hammer

This is another prime whose results are effected by the importance of a single associate, in this case nail. The correlations for this prime can be seen in figures 7 and 8. Some of the striking results include the fact that f>s: s>s was higher than B>s: s>s, and that s>f: f>f was higher than B>f: f>f, which may imply that the advantage that compound bilinguals enjoy in general is not applicable in every specific domain. Interestingly enough, for both French and Spanish, the bilinguals achieved higher correlations for their associations in the non-target language. Also, e>f: f>f was exceptionally high (.91), while the homologous e>s: s>s was exceptionally low (.473), and was in fact surpassed by the correlation e>f: s>s. This is another indication that there is a pattern of native English speakers adopting more easily to the lexical organization of French as compared to Spanish.
Figure 7. Correlation to Spanish for *hammer*

![Bar chart showing correlations for different pairs of languages.]

Figure 8. Correlation to French for *hammer*

![Bar chart showing correlations for different pairs of languages.]

The correlations for specific domains reinforce many of the results found in the overall correlations. These include the high correlations attained by compound bilinguals regardless of target language, low correlations between native speaker groups, and the tendency for native English speakers to more closely approximate the lexical network of French rather than Spanish. These correlations also indicate, however, that these tendencies are not equally important for all domains, and there can be a great deal of variability from one domain to another. This is hardly surprising, if we consider that there are areas of the lexicon where one language might be quite similar to another, and other areas where there may be important differences. While we may be able to point to tendencies across language groups, and while these tendencies may be indicative of the cognitive mechanisms involved in learning a second language, the degree to which a compound bilingual or second language speaker attains a native-like lexical organization is also sensitive to the specific content of each domain in the lexicon.
4. Summary and Further Research

Previous research based on word association exercises has often been ethnographic and based on comparative analysis of individual primes, comparing the variation of responses across cultural groups. The research presented in this paper is significant in that it demonstrates that very similar methodology can be used to attain a greater understanding of lexical acquisition and organization in second language speakers and coordinate bilinguals. The data concerning response production indicates that there may be systematic differences between languages, as well as predictable ways of adapting to these differences on the part of both proficient L2 speakers and coordinate bilinguals. The overall correlations are encouraging, given that consistently high levels of significance were found, and the fact that they indicate that both the native and target languages play important roles in L2 lexical organization.

The results for the individual primes show a variety of influences, but present the difficulty of not allowing for a complete and systematic analysis due to the fact that there is great variability of significance levels. We can, however, draw some conclusions from these results. First, it appears that the greatest range of correlations will be found within individual semantic domains, thus potentially providing the most robust evidence for ways in which cultural differences are manifested in the lexicon. Also, while there are measurable differences within each semantic domain, the patterns of variation between language groups appear to be specific to each domain, and may not be generalizable to other domains. It remains to be seen if there are systematic interactions which will permit the construction of a predictive model of lexical acquisition.

While these results are not definitive, they do indicate how further research might be carried out so as to gain further insights into lexical acquisition. As regards the inconsistency of the results for individual primes, the high level of significance for overall correlations indicates that this problem may be solvable through the collection of more detailed data. This can be accomplished in 2 ways, by increasing the number of subjects in each group, and/or by increasing the richness of the data given by each subject.

A more complex issue concerns the selection of the primes themselves. It would be of particular interest to compare correlations between those primes which have a high degree of semantic sharedness between target languages with those that have a low degree of sharedness. The level of sharedness, however, can only be determined post hoc, through the collection and analysis of a sufficiently large body of data concerning these primes. Furthermore, the primes used in this study were mostly referential nouns. It is possible that a study which uses more abstract and
emotionally charged words might be even more sensitive to cultural differences than arbitrarily selected referential nouns.

Another way in which further research could be more informative would be through a more refined selection of the language groups which are under consideration. A more detailed analysis of lexical organization should include not only expert L2 speakers, but L2 learners of various levels of proficiency as well. Another group that would be of interest to include in further research be highly proficient speakers of an L2 in their native language. The inclusion of the former would provide some indication of the process involved in acquiring an L2 lexicon, while inclusion of the latter could provide information concerning the influence of the L2 on the native language. Still another set of subjects that would be of interest would be native speakers of a non-European language who are proficient at one of the target languages under consideration.

Finally, further research may benefit from the development of a methodology which would permit not only the comparison of associates to a single prime, but a more detailed analysis of how lexical networks are organized as well. One possibility would be the use of associates given by the subjects as primes themselves, thus forming a network of associations. This would require the development or application of analytic methodologies which have not previously been used in studies of the lexicon.
Bibliography


The Use Of Nonverbal Forms Of Expression In Relation To L2 Private Speech

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Abstract

This study investigated the relationship between nonverbal forms of expression, particularly gestures, and L2 private speech (vocalized forms of speech for the self that function metacognitively to help the learner plan, guide, and monitor a course of activity) through the use of both a recall and picture narration task. Nonverbal elements were found to illuminate the psychologically salient aspect(s) of the private speech they accompanied. Moreover, they were found in and of themselves (without verbal accompaniment) to act in a self-regulatory capacity, suggesting a connection to inner speech. The study also included an examination of possible differences related to culture and proficiency. Culturally specific forms of nonverbal expression were in evidence and learners at lower levels of L2 proficiency tended to refer to task materials nonverbally in conjunction with specific forms of private speech.

0. Introduction

Only scant attention has been given to the role of gesture and other nonverbal forms of expression in the process of acquiring a second language (L2), although with a view of language as a functional system that is cognitively and affectively unified, it is clearly an area for further investigation. Most of the research in this area to date has been carried out in relation to native-speaker use, there having been almost no attempt to study gestures in relation to second language acquisition (Mohan & Helmer, 1988, being one more recent exception). Additionally, virtually all of the L2 work has concentrated on learners’ recognition of target-language gestures, and not on their production, the focus of the present study. However, as we learn more about the connection between speech and gesture, it is apparent that the two are closely joined at the level of production. Indeed, recently there has been a good deal of interest in determining the extent to which nonverbal forms, both in and of themselves and together with speech, serve to enhance, modify, or otherwise influence communication.

Although the work on this topic has resulted in compelling evidence
for the importance of gesture in interpersonal settings (see Gesture and Understanding, a special issue of Research on Language and Social Interaction, 1994), there is perhaps a tendency to overstate the position, that is, to confine gestures to an exclusively social role. On the other hand, other researchers, and notably David McNeill, argue for an intrapersonal, or psychological, function for these forms as well. This is the perspective adopted in this paper. The contention here is that gestures, like speech, start off being essentially social in nature, but over time take on an intrapersonal as well as interpersonal function. This position is based on a Vygotskian approach to the interrelationship of thought and language which accepts the notion that there is a cognitive function for speech which initially develops in children when they start using it for purposes of problem solving, that is to say, when it becomes an important mediational tool for the individual. This is when social speech becomes private speech. Eventually, at around the age of seven, private speech reaches a point where it moves ‘underground,’ becoming linguistically elliptical in form and of a subvocal nature (Vygotsky, 1986). However, in times of cognitive stress, inner speech, as it is now called, can again become vocalized as private speech. For example, virtually all of us have had the experience of ‘talking to ourselves’, producing utterances such as ‘Where is it?’ when looking for a missing object, or ‘Come on’ when urging ourselves to do better in the midst of some activity.

1. L2 Private speech

Research in the area of L2 private speech (see McCafferty, 1994b for a review of studies) demonstrates it to be an important means of facilitating problem solving which occurs not only in the native tongue but in the L2 as well. Researchers who have adopted this perspective have emphasized the notion that learners are essentially driven by a desire to become self-regulated, that is to be able ‘go about their business’ with the same degree of autonomy and sense of self as is available to them in their first language/culture. Therefore, developmentally, learning a second language is considered very much connected with the process of gaining self-regulation in childhood (the topic of Vygotsky’s original research on private speech).

Based on the work of Wertsch (1979) on the relationship between private speech and the development of self-regulation in childhood, Lantolf and Frawley (1984) formulated three categories for the classification of forms of private speech which they applied to L2 linguistic phenomena: object-, other-, and self-regulation. Although there are many linguistic realizations of object-regulation, this category essentially refers to an orientation by the learner that reflects his or her preoccupation with
gaining control through a focus on the structural features of the task, or the L2 itself. In their initial study, Lantolf and Frawley (1985) had subjects narrate of a set of pictures one at a time and in sequence. They found, for example, that some subjects imposed a fairy tale discourse genre on the task, initiating their narratives with *once upon a time* (keeping in mind that nothing in the first picture would validate this choice of opening), or in another form of object-regulation, participants labeled and/or counted the items depicted in a picture, apparently hoping in this way to ‘get a grip’ on the task, as in the following protocol: *What’s this? Let me just call John. John is standing on the road* (1985: 26).

The second category, other-regulation, refers to subjects asking either themselves or the researcher (who had not indicated that he would be a participant in the task) questions concerning some aspect of the task (as in the example above). The third category, self-regulation, demonstrates a sudden understanding of some element considered important by the learner, or mastery over some aspect of the task, as in the following example taken from a similar study: *Five monkeys are playing with a man—no—the man is angry* (McCafferty, 1994a), in which no represents a sudden change of direction in the participant’s interpretation.

As will be seen, these categories also apply to nonverbal forms of self-regulation. Before coming to that, however, it is necessary to provide a more complete characterization of the form and function of gestures.

### 2. Gesture and speech

Although there are differing perspectives on the relationship between speech and nonverbal forms of expression, as mentioned above, the work of McNeill, and particularly as found in his book, *Hand and Mind* (1992), receives special emphasis here. McNeill argues that speech production coexists with facial expressions, eye contact, body movements, and gestures in what is a unified functional system. He also holds that thought and language are interconnected, each contributing to the other, and that nonverbal elements, particularly gestures, have an important role in this process as well. From his point of view, gestures are an integral part of how we come to express ourselves, involved in the development of thought as well as in its expression—gesture providing imagery and speech the verbal or linguistic structure to thought (1992: 245).

Unlike language, which is structurally hierarchical in moving from the part to the whole, McNeill considers gestures to represent the whole of an idea. This global attribute corresponds to his idea that gestures are synthetic, as within the whole exists a compilation of meaning elements. Moreover, unlike language, the image that a gesture conveys may be of a highly idiosyncratic nature as there are no ‘standardized’ gestures that are
necessary to conform to, although there are of course conventional gestures that find common use within a particular community.

In exploring this aspect of gesture, Kendon (1988) proposes a continuum for the form gestures take in relation to verbal expression, starting from configurations where the presence of speech is obligatory in order to have any inkling of what a gesture may mean to emblems where the gesture is highly conventionalized, a formal linguistic sign in and of itself requiring no verbal representation to be understood (for example, when a young child is told to ‘wave bye bye’). McNeill (1992) believes that there are different qualities that accompany this continuum in relation to the microgenesis of an utterance, stating that at the beginning there is a ‘spontaneous’ use of gesture which is connected with the germination of a thought, while the use of conventionalized gestures corresponds to the final stages of the thought process. McNeill maintains that this contrast provides a valuable tool for accessing the evolution of an utterance.

McNeill (1992) also argues that because the images that gestures present are global and synthetic, they often reveal the speaker’s psychological predicate. He bases this analysis specifically on Vygotsky’s (1986) notion that the grammatical subject is not always the same as the psychological subject of an utterance, and that it is the ‘sense’ of what is said, not necessarily the meaning that is the central concern of the speaker, psychologically. Wertsch (1985) cites an example from Vygotsky (1934) to illustrate this point:

Suppose that several people are waiting for the ‘B’ tram at a tramway stop in order to go in a certain direction. Upon seeing the tram approaching, no one in such a situation would ever say in expanded form, “the ‘B’ tram for which we are waiting to go to a certain point is coming.” Rather, the expression would always be abbreviated to the predicate alone: “It’s coming,” or “The ‘B’”(1985: 123)

Gestures, because they are very idiosyncratic and are not typically bound to formal requirements in the same way that speech is married to linguistic elements, are capable of expressing this ‘sense’ in ways not always available in speech. In fact, sometimes, gestures must be used to bring out a missing property if it is key to the expression of the speaker’s intent, as in the case of a lexical deficiency. To illustrate this point, McNeill (1992) uses English verbs, few of which signify the shape of a moving object, for example, drip (since only liquids are considered to have this shape when in motion). But if proper semantic representation is not present, as in the case of fall in relation to an object, use of an iconic gesture -- for example, the forearm and hand of one arm brought down
and inward across the body from the elbow -- could signal a characteristic of the fall, namely, speed or distance. To help substantiate this claim, McNeill provides evidence from his own work on gesture, which shows that when gesture is explicitly prohibited in narrative settings where there is an interlocutor, speech becomes more complex. In contrast, there are also occasions when one channel contradicts the other, in which case it can be said that the speaker is 'of two minds' or uttering a falsehood (historically, gestures have been considered to betray lies).

Another aspect of McNeill's model concerns the motivation of the speaker, and here again, he draws on Vygotsky:

> Thought is not begotten by thought; it is engendered by motivation, i.e., by our desires and needs, our interests and emotions. Behind every thought there is an affective-volitional tendency which holds the answer to the last ‘why’ in the analysis of thinking. (Vygotsky 1986: 252, as quoted in McNeill, 1992: 233).

Therefore, McNeill considers the ultimate force behind the relationship between thought and language to be the personal motivational forces which 'make us tick' (and indeed which are often unknown to us at a conscious level). This supposition is of considerable importance in relation to the use of gestures with forms of private speech, as the underlying force behind self-regulation is certainly based on these same factors, although more specifically on the affective volitional need to be self-regulated.

Before examining how gestures interact with private speech, they first need to be defined in relation to form and meaning.

3. **Classification of gestures**

Based largely on the semiotic principles of the sign symbol relationships outlined extensively by Charles S. Pierce, McNeill (1992) constructs a classification scheme consisting of a number of different gesture types, five of which are relevant to the purposes of this study: *iconics, metaphorics, beats, deictics,* and *Butterworths.* Each of these is discussed below. In addition, as the present study concerns the use of gestures in narrative tasks, there are three levels of narrative discourse identified by McNeill which interrelate with the five gesture categories: *narrative,* *metanarrative,* and *paranarrative.* The narrative level refers to discourse associated with the actual story line of events; metanarrative discourse refers to any comments pertaining to the story, but which are not a part of the story line; and paranarrative discourse refers to the
speaker's own experience of relating the story and includes comments made by the speaker in other than the 'official' voice of narrator.

3.1. Iconics

These are concrete gestures that simulate or portray movement or objects, such as the upward motion of the upper half of the body in conjunction with the sentence the dresser just jumped up in the contexts of relating the effects of an earthquake. Also to be considered is the psychological predicate, or the orientation of the gesture to the utterance. For example, in the utterance above it would be possible to demonstrate this jump of the furniture in a number of ways corresponding to the sense, or shade of meaning that the speaker might wish to project as part of this image. For example, the dramatization could emphasize the sharpness of the movement, the height off the ground that the dresser 'jumped', etc.

Another aspect of how meaning can be conveyed through the use of gesture that applies to all gesture types involves the point of view that the speaker wishes to take. In the example above, the speaker could either describe the action of the furniture from an inside perspective, i.e. taking the part of the furniture itself--using the whole body to illustrate the movement, or from an outside perspective, i.e. as a witness to the action, in which case perhaps only the arms would be employed to illustrate the movement.

McNeill feels that iconic gestures are particularly revealing, since they show the sense of what the speaker is trying to convey by focusing on just that element that he or she wants to attend to: "They are the closest look at the ideas of another person that we, the observers can 'get" (1992: 133).

3.2. Metaphorics

Like iconic gestures, the metaphoric variety are also of a 'pictorial' nature, but in this case the image presents an abstract idea. For example, a highly productive metaphor in English (and other languages) is the notion that abstract qualities such as "love" and "knowledge" are bounded substances--metaphors like 'his heart is as cold as stone' and 'she drank from the cup of knowledge' are verbal illustrations. In conveying such metaphors gesturally, the speaker can readily create a bounded shape with the use of the hands. Also with this form of gesture space can be utilized to show contrast. For example, when comparing two contrasting ideas, the speaker will partition the immediate space in front of him or her, designating the left side for one idea and the right side for another. Unlike iconic, metaphoric gestures involving the body as a whole or
large parts of it are rare.

3.3. Beats

Like metaphoric gestures, beats represent abstract elements. McNeill explains the function of beats by comparing their use to highlighting words in a written text. In both cases there is an emphasis that makes the chosen word(s) stand apart from the rest of the text. Furthermore, he notes that beats can signal that the word they accompany is part of some other context than the one that it is immediately presented in. Very often the external context is the larger discourse. For example, he found that in narrative discourse there is often a beat when a new character is introduced to the listener, marking its first appearance; in a related phenomenon, beats tend to accumulate at episode boundaries (serving a metanarrative function in this case). Beats sometimes accompany other gesture types as well. In a further treatment of beats, McNeill et al. (1993) indicate that a beat can function metapragmatically as well, that it indexes the word or phrase it accompanies as being significant not purely for its semantic content, but also for its discourse-pragmatic content. Physically, beats characteristically involve sharp up-and-down movements of a finger and/or hand, or a stamping of the foot.

3.4. Deictics

One of the first signs to develop in childhood is pointing toward something, i.e. indicating a referent. However, a more abstract level of pointing eventually develops which has nothing to do with objects, but refers to ideas that are pictured in a metaphorical space. Also, because of the orientational function of pointing, McNeill believes that these gestures are important for the speaker in establishing the locus of things in conversation. For example, Ahmed (1988), in a study on the use of private speech, found that in interactive tasks L2 learners used gestures and facial expressions to shift the attention of an interlocutor back to a previous point in the discourse. In addition, McNeill et al. (1993) further elaborate on the use of abstract pointing in narration, noting that at a metanarrative level it identifies a space in which structural aspects of the story are being portrayed, while at the paranarrative level it operates as a 'primary signal' that a person has stepped out of his or her role as narrator, and additionally, can signal shared knowledge between a speaker and interlocutor.

3.5. Butterworths

In addition to the above, McNeill also includes gestures which
specifically pertain to instances of "speech failure". He calls them Butterworths, after the researcher Brian Butterworth who originated the category. One of the more frequent speech failures is the lexical search in which the individual is unable to find the word he or she is looking for. A typical Butterworth in this case would be a hand trying to grasp something out of the air.

4. The study

4.1. Purpose

The purpose of this study was to investigate nonverbal forms of expression accompanying private speech. Apart from a desire to understand the relationship of these two elements to each other, it was also hoped that the combination would shed further light on the interaction of thought and language for self-regulatory purposes. Beyond this, the study also addressed two specific concerns: whether there are differences in the gestures that accompany private speech cross-culturally and in relation to L2 proficiency.

Previous research (McCafferty, 1992) found that learners’ use of private speech varied cross-culturally with regard to forms of other-regulation. For example, Hispanics produced significantly more forms than Asians. This finding, together with the fact that there is ample historical evidence indicating that gestures vary across cultures, provided reason to believe that gestures accompanying private speech might be subject to such differences as well. With regard to the second issue, L2 proficiency, a number of L2 private speech studies have found greater use of forms of object-regulation for learners at lower levels of proficiency when compared to those at more advanced levels (Lantolf & Frawley, 1984; Frawley & Lantolf, 1985; McCafferty, 1994a). Given this, it was thought that there might be differences related to L2 proficiency in the use of gestures accompanying private speech as well.

4.2. Subjects

All eight of the participants in the study were students enrolled in the Intensive English Program (IEP) at Cornell University. Four of the subjects were Japanese, two at an advanced level of English proficiency and two at an intermediate level. The other four were from Venezuela and were matched with the Japanese subjects for level of English proficiency. The process of proficiency matching was based on the class structure of the IEP, which used TOEFL test scores in conjunction with interviews to place students in proficiency-grouped classes which started with the lowest level students and moved progressively to classes
containing students at more advanced levels of proficiency. The four intermediates were all from the same class and the four advanced subjects were from two classes adjacent to each other, but several classes removed from that of the intermediates.

The Venezuelan group consisted of two women and two men, and the Japanese subjects of three men and one woman. The three Japanese men were older than any of the Venezuelan subjects, although there is nothing to indicate that this would have been problematic with regard to either the production of private speech or the use of gesture. The time spent studying English in the native countries and the U.S.A. was relatively comparable across subjects (Table 1), keeping length of exposure to the L2 culture relatively similar.

Table 1. Subjects

<table>
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<th>Country</th>
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<td>4. Japan</td>
<td>adv</td>
<td>26</td>
<td>m</td>
<td>10</td>
<td>0.9</td>
</tr>
<tr>
<td>5. Japan</td>
<td>adv</td>
<td>46</td>
<td>m</td>
<td>7</td>
<td>0.6</td>
</tr>
<tr>
<td>6. Venezuela</td>
<td>adv</td>
<td>25</td>
<td>m</td>
<td>6</td>
<td>0.4</td>
</tr>
<tr>
<td>7. Venezuela</td>
<td>int</td>
<td>18</td>
<td>f</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>8. Venezuela</td>
<td>adv</td>
<td>23</td>
<td>f</td>
<td>11</td>
<td>0.10</td>
</tr>
</tbody>
</table>

NC = native country

4.3 Materials

Each of the eight subjects undertook two separate tasks: (1) narrative recall and (2) picture narration. For task 1, each subject individually watched a five minute silent videotaped reproduction of the Pear Story (Chafe, 1980), which portrays a narrative that evolves around a pear picker and a boy who steals one of his baskets of pears (a more detailed characterization is provided in Appendix A). Immediately after watching the tape, each subject was asked to retell the story while being videotaped. To help distinguish nonverbal forms of other-regulation, which often involve eye contact, the researcher stood behind the camera to its immediate left so that when subjects tried to make eye contact with him this would be clearly distinguished from attempts simply to look at the camera, as most participants seemed conscious that this was in fact their ‘real’ audience, especially as the researcher had not suggested any participatory role for himself in the procedure.

After completing the first task, each subject was asked to perform a
picture narration for task 2, which consisted of six sequential drawings depicting a story involving a hat seller and a small band of mischievous monkeys (outlined in Appendix B). Participants were told to turn to the next picture once they had finished with the one they were attending to and to ‘tell the story’. Again, the researcher stood to the left of the video camera as each participant was videotaped and gave no indication that he was to be relied upon in fulfilling the task.

The two tasks were chosen firstly due to the difference in presentation of the stimulus: one allowed physical interaction with task materials and the other did not. Also, both tasks presented difficult circumstances for the learners; such conditions are good for the elicitation of private speech. The difficulty in the first case came from the length and detail of the recall, and the second from the unusual presentation of the narrative—only one picture at a time. However, neither task was at a level of difficulty that would preclude participants at lower levels of proficiency from successful completion.

4.4. Data analysis

Each of the videotaped sessions was reviewed and coded for forms of private speech and the use of gesture and other nonverbal elements that accompanied them. Also, any nonverbal elements that performed a self-regulatory function but which did not occur with speech were coded. All forms were then analyzed according to the three developmental categories for private speech employed in previous studies—object-, other- and self-regulation—and the five categories of gesture. It should be emphasized that qualitative, as opposed to quantitative, methods of analysis were used due to the nature of the study. Task, cultural, and proficiency differences were characterized only through descriptive statistics.

5. Findings

5.1. Gestures accompanying private speech

At the level of the individual, the gestures that occurred with private speech were found to be but an extension of the overall use of gesture, and although participants were from two distinct cultural and linguistic backgrounds, it is the individual variation that proved most striking. One prominent example of this diversity appears in the overall frequency of gesture use: two of the participants used almost no forms on either task, three used a moderate amount on one of the two tasks but very little on the other, one used a moderate amount on both tasks, and two used a great deal of gesture on both tasks.
5.2. Distribution

In this one and sections to follow, subjects are coded using the order they were recorded in, their ethnic background, and their level of proficiency. Thus, subject 4JA was the fourth subject, Japanese, and at an advanced level of English proficiency (refer to Table 1 for further information regarding subject background).

**Table 2. Private Speech Gestures**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Task</th>
<th>Iconic</th>
<th>Meta</th>
<th>Beat</th>
<th>Deictic</th>
<th>BW</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>1J1</td>
<td>Recall</td>
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<td>11</td>
<td>27</td>
<td>1</td>
<td>4</td>
<td>46</td>
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<td></td>
<td>Picture Narration</td>
<td>1</td>
<td>1</td>
<td>33</td>
<td>1</td>
<td>3</td>
<td>39</td>
</tr>
<tr>
<td>2J1</td>
<td>Recall</td>
<td>1</td>
<td>11</td>
<td>0</td>
<td>0</td>
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<tr>
<td></td>
<td>Picture Narration</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>3VI</td>
<td>Recall</td>
<td>0</td>
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<td>4</td>
<td>1</td>
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<td>6</td>
</tr>
<tr>
<td></td>
<td>Picture Narration</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
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<td>4</td>
</tr>
<tr>
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<td>0</td>
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<td>51</td>
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<tr>
<td></td>
<td>Picture Narration</td>
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<td>4</td>
<td>14</td>
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<td>0</td>
<td>25</td>
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<tr>
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<td>0</td>
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<td>6</td>
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<tr>
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<td>24</td>
<td>3</td>
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<td>16</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Picture Narration</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

**Totals**

<table>
<thead>
<tr>
<th></th>
<th>Iconic</th>
<th>Meta</th>
<th>Beat</th>
<th>Deictic</th>
<th>BW</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recall</td>
<td>28</td>
<td>43</td>
<td>78</td>
<td>2</td>
<td>12</td>
<td>163</td>
</tr>
<tr>
<td>Picture Narration</td>
<td>7</td>
<td>18</td>
<td>81</td>
<td>28</td>
<td>12</td>
<td>146</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>35</td>
<td>61</td>
<td>159</td>
<td>30</td>
<td>24</td>
<td>309</td>
</tr>
</tbody>
</table>

**BW=Butterworth**

In relation to the distribution of gestures accompanying private speech, among the five gesture categories used in the study, the use of beats proved to be the most commonly used in relation to private speech (Table 2). It was also found by McNeill to be the most prolific at the extranarrative level of discourse (a category which included both metanarrative and paranarrative discourse). However, in addition to the function for these gestures outlined by McNeill, it may be that beats are
used by second language learners to highlight linguistic as well as discursive features such as syntax or lexical form. For example, subject 4JA, when trying to formulate what was apparently a difficult sentence for him, produced a beat with each word in the following utterance: *they might, they might have steal, stole, they might have steal, stole ...*

5.3 Object-regulation gestures

The first form of private speech to be included in this section is *quotation*, which represents a subject’s attempt to control the events in the narrative through ‘quoting’, i.e. providing dialogue where none in fact appears. Indeed, in both tasks used in the study the characters can be seen to speak, but the film is silent in task 1 and there is no written text in the second task. Although none of the subjects used this device in the first task, five did so in the second. In most cases gestures accompanied these efforts. As might be expected, virtually all of these gestures were from an inside point of view. For example, when saying, “*Please give me my hats, I need to ... have them,*” the speaker (8VA) extended her arm and waved her fingers back toward herself, taking the role of the hat seller. Both 3VI and 6VA used the same gesture -- forearms horizontally extended, palms up, fingers out that serves as an emblem for ‘I don’t know’ in American culture -- when taking the part of the character. Also, 4JA quoted a gesture depicted in the fifth picture, where the protagonist is portrayed with a quizzical look on his face and scratching his head in a conventional metaphoric gesture for thinking. The *stroke* of the gesture (its physical manifestation in time from beginning to end) occurred just as the subject said, “*He’s thinking about something like this,*” and the gesture continued with the subject’s next utterance, “*Oh how can I do?*” He used this gesture again when describing the action of the monkeys in the same picture that imitate the actions of the protagonist, saying, “*Also the monkeys do like him, Oh my gosh!*” initiating the stroke of the gesture at *Oh my gosh.*

It is also important to note that in most cases these expressions were accompanied by a smile on the face of the subject, and on several occasions eye contact was made with the researcher as if to include him in the fun. The use of gaze to acknowledge participation or involvement is well established (Goodwin & Goodwin, 1992), and as such tends to diminish the strength of the argument that it was performing strictly a self-regulatory function in this context. It is also possible that these subjects did not find this task particularly challenging and interesting and were simply attempting to embellish it (see Coughlin & Duff, 1994).

The next form of object-regulation to be considered is *counting*. This form, as mentioned above, represents an attempt to externalize various aspects of the task in hopes of mastering it through ‘knowing’ its
component parts. The first task required subjects to sit in a chair and recall the videotaped story they had just seen, and as such the task stimulus was no longer present during their narrations. However, in the second task the pictures were in front of each subject throughout. This had a strong influence on the form of object-regulation in relation to gestures. Four of the eight subjects either pointed toward the object(s) they were commenting on in a general, collective way, or pointed at each individual object, or, in some cases, touched the object on the page as they verbally counted it.

In addition to pointing, 1JI also used beats when counting, signaling each object with a sharp downward movement of either his fingers or hands--highlighting these elements for himself. Also, when counting, he used iconic gestures, holding out a finger for each item as he counted (one, two, three baskets, for example). In fact, he used one of these gestural forms with every number he produced on the second task. This subject was also the only one to use counting gestures on the first task; moreover, he used a different kind of gesture on this task than on the second one. For example, while saying, there is one orchard, he formed a container gesture by creating a box by connecting the thumb and forefinger of each hand. He used this same basic configuration five times in conjunction with the word one. According to McNeill (1992), this kind of container gesture signals that something is ‘known’ or ‘bounded’--certainly an interpretation that is compatible with the intent of object-regulation which essentially involves an effort on the part of the individual to ‘pin things down’.

Another form of object-regulation is the use of deictics. In addition to the pointing that occurred when subjects counted objects in the second task, 7VI, while saying, “one monkey in each basket play with the hat, the other two monkeys, they took their hats,” used her finger to trace lines back and forth between the monkeys and the hats in the baskets during the second mention of the monkeys; thus, creating a deictic cohesiveness between the two referents. Another variety of deictic pointing occurred with a form of other-regulation: 3VI, upon asking the researcher if indeed the animal he had seen in the Pear Story was a goat, pointed down with his index finger at the space immediately in front of him, taking the viewpoint of the character in the film, and asked, “It is a goat?,” the stroke of the gesture occurring with it. Also, as mentioned above, 8VA pointed with her fingers back toward herself when taking an inside view and quoting the hat seller, indicating the character as her referent. Two perspectival markers, i.e. temporal references to events in the story which are at a metanarrative level (right now and come back here), also occurred, and in these cases the subjects (1JI and 4JA, respectively) performed the same gesture mentioned above for 3VI, that is, they pointed at the space in front of
them. It is also important to note that, as with forms of counting, many of the subjects used beats in conjunction with their nonverbal deictic expressions.

Also to be considered in the treatment of forms of object-regulation are evidentials. In terms of their self-regulatory value, in private speech evidentials exemplify a subject’s uncertainty concerning his or her own assessment, and as such, operate at a paranarrative level. Many of the subjects in the study used maybe to qualify their remarks, although other evidentials were produced as well. 2JI used maybe six times, and each time she cocked her head to the left and directed her gaze upwards in a metaphoric gesture indicative of 'I am thinking'. 4JA also used maybe quite frequently, but in his case, he shook or nodded his head or shrugged his shoulders as he said the word, asserting his private assessment concerning the probability of his conjecture. In still another gestural variation with the use of this evidential, subject 8VA, with her forearms horizontal, opened up her hands with her palms up, fingers outstretched and shrugged her shoulders using a variation of the 'I don't know' gesture, as with 4JA, indicating her lack of conviction concerning the truth value of what she had said.

In addition to the categories discussed above, there are some other gestural forms of object-regulation that deserve attention: 1JI, engaged in the first task, said, "one child" twice, but used a different kind of gesture each time. With the first utterance of the phrase he formed the container gesture described previously, but with the second he used a metaphoric gesture of transition, circling his hands one just above the other. This second gesture indicated the transitional nature of the discourse and that the function of the repetition was simply to 'fill in' the void while formulating his thoughts (a Butterworth). Therefore, only the first instance of this phrase should be considered a form of object-regulation, the difference in gesture providing clear evidence for a functional or pragmatic difference between the two syntactically identical phrases.

Also, 5JA, in an elaborate comment in response to the fact that the monkeys seem unaffected by the hat seller’s protestations about having taken his hats, said in task 2 "The monkeys don't care because the monkeys a different society." At the point of different society he used a metaphoric gesture, moving his arms up and down out of sync with each other in front of him--one side representing human society and the other monkey society. 3VI, also in the middle of the second task, flipped the page only to see that things had progressed in a direction other than that which he had anticipated, at which point he said, "Wow!" (an affective form of object-regulation) and placed the fingers of one hand on his forehead in a conventional metaphoric gesture indicating recognition of having made a mistake.
5.4 Other-regulation gestures

Seven subjects used private speech forms of other-regulation, and all used gestures with these forms as well; however, eye contact proved to be the most distinctive nonverbal feature of this category. Subjects often made eye contact with the researcher when engaged in verbal forms of other-regulation, despite his unwillingness to be ‘pulled into’ the situation -- although there were also occasions when they did not turn their gaze to the researcher or the camera, apparently wishing to consult only themselves. There were also times when subjects would simply look in the direction of the researcher when they began to struggle, never actually asking any questions, but at the same time apparently ‘drawing’ on his presence. This was particularly true for 3VI, who kept his gaze fixed on the researcher throughout the entire first task. This subject also proved particularly insistent on getting a response to a question concerning the type of animal he had seen in the videotape, asking three times if indeed it had been a goat, and he seemed unwilling to accept the nonverbal confirmation to this question he received from the researcher (a nod of the head) until its third occurrence. Other subjects asked questions, but none showed this degree of persistence.

Use of the ‘I don’t know’ gesture mentioned above, especially when forming a question through rising intonation, was used by several of the subjects, and in some cases, was repeated several times in succession. There was also a good deal of shrugging of the shoulders to indicate ‘I don’t know’.

4JA used the phrase *How can I say?* seven times in English and once in Japanese. Four times this question was deployed in relation to lexical searches. In the first of these instances he said *“How can I say?”* at which point he held one arm out in front of him above his head with his palm up and fingers forming a cup--a container metaphor. He continued to hold this gesture and look at it as he said, *“not apple, what do you call--do you know?”* shifting from what was originally a question directed to the self to one directed to the researcher. In the second instance, he first produced an iconic gesture, moving his forearm from an upright position, his elbow resting on the table, to lie flat on the table, after which he made an attempt to conjugate the verb, *to lay*, saying, *“lie, lay, laid”* during which he continued to hold an ‘I don’t know’ gesture. In still another instance, the use of gesture seemed to jog his memory. Unable to find the correct word, 4JA said, *“How can I say?”* and at the same time made a throwing motion with one arm laterally across his chest (an iconic gesture). He did this several times, eventually producing the correct verb. This use of an iconic gesture during unfilled pauses was found on a few other occasions
as well—all in relation to lexical searches.

As with 4JA, two of the other participants had difficulties with identifying the type of fruit in the video. 2JI, for example, in describing the fruit picker’s activity looked at the researcher, and said, “picking?,” then brought her arm up, and performed a fruit-picking motion with her hand as she spoke. She then repeated the word picking and added, “many pears?” simultaneously creating a box with her fingers, as if ‘containing’ this proposition.

### 5.5 Self-regulation gestures

Only one verbal form of self-regulation was accompanied by gesture. 2JI deployed a gesture she also used with evidentials, as discussed above; namely, she tilted her head to one side, turned her gaze upwards and looked out of the corner of her eye while saying, “no cut--pick;” thus, indicating her own understanding of the fact that she had used the wrong verb. With most private speech forms in this category, there was in fact no use of gesture. In these instances subjects seemed to come to a realization after an unfilled pause, before they spoke. Therefore, subjects seemed to ‘look within themselves’ and not to externalize their thinking processes, a strong indication that they might have been engaged in inner speech. Moreover, most forms of self-regulation were gestural in nature, occurring without any verbal accompaniment, typical examples being a nod of the head or shrug of the shoulders after a pause.

### 5.6 Subject protocol

To better illustrate the use of nonverbal elements found in conjunction with forms of private speech, one subject’s use of these forms for the first task is provided below in chronological order. In the transcription, brackets indicate the stroke of the gesture. Utterances are subdivided by gesture, each subdivision centering around a single stroke.

**Task 1: subject 4JA:**

(1)

a. *[he pick-- how can I say?]*
iconic: hand moves from the lap to a level above the head as if to pick a fruit--hand grasps fruit and brings it down

b. *[not a apple--]*
iconic/beat: hand is still in the same position as above--a beat occurs with each syllable

c. *[what do you, what do you call?]*...
iconic: continues to hold fruit

d. *[do you know? (researcher answers with it's a pear)]*
iconic: turns fruit from side to side in hand while examining it with his eyes
(2)
a. [maybe he] ...
metaphoric: shakes head up and down vertically as if in agreement
b. [... maybe he] ... he wanted to steal ... rob pears
metaphoric: shrugs shoulders
(3)
a. so, [maybe he want to get money or not-- I don’t know]
metaphoric: shrugs shoulders and adds the motion of bringing his hand up from its resting position below the chair as well as a shake of his head from side to side
(4)
a. a girl, a girl also coming towards him, [how can I say? ... non te ittara iinokana] (Japanese for how can I say?)
iconic: hands move crosswise across chest, fingers stiff and pointed--
gesture occurs twice
b. [cross] ...
iconic: same gesture as above, but this time looks down at his hands
c. [anyway]
iconic: performs the same gesture a fourth time
d. he, ah, [what can I say?]
metaphoric: shoulder shrug
e. he [ ... ] lied ...
iconic: moves his arm from a perpendicular position away from his body
to a horizontal position (lay down)
f. [no-- he lie, lay, lie, lie]...
metaphoric: turns his head up towards the ceiling and to the side
g. [I don’t know, I’m not sure (laughs)]
metaphoric: hands come up spread apart with shoulder shrug
(5)
a. then, ah, he, the boy who stole a pears, [how can I say?]
metaphoric: shoulder shrug
b. was help, helped ... helpness? [ ... ] yeah
metaphoric: looks up and to the side
(6)
a. he found [one] big bag ...
metaphoric/iconic: holds up index finger
b. [of a big bag ... ummm], which was filled by a lot of pears
iconic: creates the shape of a big basket by spreading his arms as if around the sides of such an object--fingers splayed
(7)
a. [they might, they might have steal, stole, they might have steal, stole]--
beat: hand is out in front of him and there is a beat on each word
b. [huh?]--stolen
metaphoric (possibly Japanese)/beat: looks up and to the side and pushes head forward
(8)
a. [umm, maybe] (this is said in self-assessment with regard to his performance on the task)
beat: pushes hand out, palm up, from under his chin with each utterance
b. [that's story ... I (laughs)]
metaphoric: hands out, palms up ('I don't know' gesture)

5.7 Task differences

As indicated above, the difference in the presentation for the two tasks had a significant impact on the use of object-regulation gestures. The stimulus for the second task was treated by many of the subjects as a kind of 'container' of the narrative, an orientation which generated forms of object-regulation that did not appear with the first task.

In contrast to verbal forms of object-regulation, the relative frequency for both forms of other- and self-regulation remained at just about the same level for both tasks. Also, beyond the differences related to the immediacy of the task stimulus, the use of gestures--both those accompanying private speech and others--showed no remarkable between-task differences; in all cases the kinds of gestures that were found in the first task were also present in the second (outside those already specified as being produced only in connection with task 2).

5.8 Cross-cultural differences

Both the Japanese and the Venezuelan participants were found to use forms of other-regulation gesture, however, there were some notable differences. First of all, there were several variations of this sort of gesture, and although subjects from both backgrounds used many of the same forms, the Venezuelans tended to use a version in which the arms are pressed against the sides, the forearms are apart, the palms of the hands are up, and the fingers are outstretched. The Japanese subjects also used this version, but interestingly, not very often, and rarely with verbal equivalents of 'I don't know'. Instead, they used it with evidentials such as maybe (as illustrated by 4JA's protocol above). It is possible that this version is not a conventional Japanese gesture, although its form and meaning are known to the Japanese through films and other sources (Reiko McCafferty, personal communication).

Most of the Japanese 'I don't know' gestures were in the form of shrugs of the shoulders (this sometimes occurred with the Venezuelans as
well). However, subjects also used a form of this gesture that appears to be specific to Japanese culture (at least in relation to the Venezuelans)—two of the Japanese participants (4JA, 5JA) deploying it. For example, 4JA, having run into tense difficulties, said, *might have stole, steal--huh?--have stolen*. At *huh*? he squinted his eyes looking upwards (not turning the head, only the eyes) and thrust his head slightly forward in a beat.

Perhaps the most important connection with findings of an earlier cross-cultural study of private speech (McCafferty, 1992) is that by far the most other-regulated of all the subjects was 3VI, who kept gazing in the direction of the researcher almost the entire time he was engaged in the first task, and who asked the same question three times despite the unwillingness of the researcher to answer (see above). Also, 6VA for the first half of his narration of the first picture in task 2 (in which most of his private speech occurred), held his hands out with palms up in the conventional gesture described above.

No such cross-cultural differences were found either for forms of object- or for forms of self-regulation. Also, it must be added that outside of the gestures mentioned above for other-regulation, the differences between subjects of the same cultural background were just as apparent as differences between subjects from different cultural backgrounds, supporting McNeill’s description of the idiosyncratic use of gesture. However, it must also be said that overall, the Japanese participants were found to use more gestures with private speech in four of the five gesture categories, deictics being the exception (Table 3).

**Table 3. Total Distribution of Private Speech Gestures for Culture and Proficiency**

| Culture   | Task          | Intermediate |          |          |          |          | Proficiency |          |          |          |          |          |          |          |          |          |          |
|-----------|---------------|--------------|----------|----------|----------|----------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|          |
|           |               | M   B   D   I   BW |          | M   B   D   I   BW |          | M   B   D   I   BW |          |          |          |          |          |          |          |          |          |          |          |          |
| Japanese  | Recall        | 22 27 1 4 6 |          | 14 31 0 24 4 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|           | Picture Narr. | 1 37 9 1 3 |          | 8 15 2 5 1 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|           | Total         | 23 64 10 5 9 |          | 22 46 2 29 5 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| Venezuelan| Recall        | 4 9 1 0 1 |          | 3 11 0 0 1 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|           | Picture Narr. | 3 4 13 0 1 |          | 7 25 4 1 7 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|           | Total         | 7 13 14 0 2 |          | 10 36 4 1 8 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |

\(M = \text{metaphoric} \quad B = \text{beat} \quad D = \text{deictic} \quad I = \text{iconic} \quad BW = \text{Butterworth}\)

### 5.9 Proficiency differences

In conjunction with findings for task differences (above), the orientation toward object-regulation, prompted by the presentation of the stimulus in the second task, is clearly evident with regard to proficiency.
The three participants most affected by the presence of the stimulus were all intermediates (1JI, 2JI, and 7VI). The one remaining intermediate (3VI) was, as reported above, exceptionally other-regulated (also considered characteristic of learners at lower levels of proficiency). None of the advanced participants was bound to the physical presence of the pictures in producing their narratives; in fact, of these subjects only 8VA referred to them in any way at all through gesture.

In contrast, two of the three subjects, who took an inside point of view when quoting the hat seller, were from the advanced group. McNeill found that this perspective was almost exclusively characteristic of children, and, as such, it might be considered a bit odd that these subjects and not the intermediates, would be disposed toward using this form of object-regulation. However, as reported earlier, it is possible that these efforts were made in fun, rather than representing serious attempts to gain control of the task.

6. Discussion and conclusion

McNeill argues that gestures play an important role in generating the ideas that are expressed in language, and reveal the psychological predicate or sense of an utterance, or add some other dimension. This psycholinguistic role of gestures finds clear support in the analysis presented above. It is apparent that the gestures that accompany private speech are highly integrated into learners’ efforts to gain control over the task, the L2, and their overall performance as individuals.

As is suggested by the nature of this conclusion, there were many instances where the use of gesture contributed to an utterance in a generally complementary manner, essentially the two channels coming together to represent one meaning. However, at the level of self-regulation, forms were found that occurred only through the gestural channel with no verbal accompaniment: this is an important addition to the study of self-regulation as a whole, as this use of gesture is very possibly connected with the use of inner speech.

The fact that gestures were found to act ‘alone’ in a self-regulatory capacity is not particularly surprising, given their common appearance in connection with the expression of affective or emotional states—aspects of being, as Vygotsky informs us, that are not separate from cognitive functions. Recently this unity has received support in the second language acquisition literature. Schumann (1994), for example, argues that neurobiological research has shown that ‘affect and cognition are distinguishable but inseparable’, and that this view has not been given adequate attention in theories of second language learning.

It was also found that gestures distinguish the function of what
verbally appears to be identical private speech utterances, as in the case where the first utterance is a strategic attempt to gain control and the repetition operates only as a transitional device.

In relation to the categories of gesture examined here, this study points to the possibility that second language learners deploy beats when they are struggling with expression in the L2, in a sense highlighting for themselves areas of linguistic difficulty, a capacity that is consistent with McNeill’s definition for this category. Additionally, the category for gestures that occur during unfilled pauses (Butterworths) should be expanded to include those which indicate private assessment, as in the nodding or shaking of the head. Finally, it should be mentioned that there was one metaphoric gesture, an emblem, that proved to be culturally specific to the Japanese subjects.

Several other cross-cultural differences were of interest as well. First of all, the difference observed between the two cultural groups with regard to forms of other-regulation supports the findings for McCafferty (1992). Also, it is of interest that most uses of ‘I don’t know’ gestures were connected with evidentials for the Japanese, and with evidentials and other verbal expressions for the Venezuelan subjects. Moreover, there is a question as to whether the forearms-horizontal-palms-up form of this gesture is in fact an L1 gesture for the Japanese participants, there being reason to suspect that it might be a learned form. This possibility is strengthened by McNeill’s (1992) finding that metaphorical gestures showing the ‘containment’ of abstract elements are absent from non-Western cultures, while at the same time finding their use in Japanese L1 narratives. His argument is that this was the case only because these speakers had all been living in the United States for ‘a number of years’. The use of L2 metaphorical gestures is of particular significance because it may signal that a learner has, comparatively, a ‘richer’ level of understanding of the second language/culture. This is clearly an area in need of further investigation.

There is also a possible pedagogical application for the finding in the study that the lower proficiency participants relied heavily on the physical presence of the stimulus in the second task. Perhaps there is an added benefit, strategically, for learners who are object-regulated to be able to work with physical objects as part of their learning experience. Indeed, it may be that this added context helps generate strategies.

In conclusion, although this study is only a preliminary step in examining the production of nonverbal forms in relation to private speech, it points the way to many interesting areas for future research, and moreover, indicates the promise of taking an approach to the study of language that attempts to view the ‘whole picture’ instead of isolating the various component parts of what is in fact a unified system.
Appendix A: Characterization of The Pear Story

Five scenes:

1) A fruit picker is seen up on a ladder picking pears. On the ground are a few baskets, two of which are full.
2) A young boy comes by on his bicycle and loads one of the full baskets onto the front of his bicycle.
3) After riding only a short distance he encounters a little girl who is riding in the opposite direction. When he passes her, his hat gets knocked off his head, and, as he turns around to look at it, he runs into a large rock in the road and goes down, the pears spilling out on the road.
4) Three boys who are walking along the road in the opposite direction come to the aid of the fallen boy, helping him to upright his bicycle and put the pears back in the basket. Also, one of them returns his hat, at which point he gives them each a pear.
5) The fruit picker comes down from the tree and notices that one of the baskets is missing, just as he sees the three boys walking toward him munching on the pears that they had been given. The fruit picker watches them as they walk past him and continue on their way.

Appendix B: Picture narration task

Six frames:

1) A hat seller sits beneath a tree in which there are five playful monkeys.
2) As the hat seller sleeps, the monkeys each take a hat from one of two baskets next to the tree.
3) The hat seller awakens and is startled to see his hats on the heads of the monkeys--now back up in the tree.
4) The hat seller shakes his fist at the monkeys and they imitate him.
5) The hat seller holds his hat in his hand and scratches his head--the monkeys imitate him.
6) The hat seller smiles and throws his hat downward; the monkeys do the same.
References


The Pedagogical Value Of Simplified Written Input In L2 Acquisition

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Abstract

This study investigates the effect of pedagogical manipulations of L2 written texts on learners’ intake of linguistic items (cf. Leow, 1993). The target grammatical structure was the Spanish subjunctive and the subjects were 85 English speaking students enrolled in first and third semester L2 Spanish courses. The students were divided into three groups: simplified, non-simplified and control. The results do not show significant differences among experimental conditions. The findings of the present investigation indicate that no strong conclusions on the pedagogical value of simplified written input can be gathered from this study. More extended studies on the effects of simplified input on L2 intake with other morphosyntactic structures or testing instruments (other than multiple choice test formats) are needed.

0. Introduction

The simplification of the target language for pedagogical purposes is a well established phenomenon in the foreign language classroom (e.g. Carrell et al., 1988; Leow, 1993, 1995; Long, 1985; Spolsky, 1989). The purported benefits of simplified input are of two types: improved comprehension of the target language and enhanced development of the L2 grammar. Whereas improved comprehension of the target language appears to be documented by several studies (e.g. Chaudron, 1983; Kelch, 1985; Leow, 1993), the development of the L2 grammatical system due to the effects of simplified L2 input has not been empirically supported. Some researchers have made the argument for an indirect effect of

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comprehensible input on L2 intake (e.g. Long, 1985a): if learners comprehend more, extra attentional resources will be available for the processing of L2 form. However, it is not clear that learners will necessarily learn the L2 grammatical system when more cognitive resources are available. In fact, the opposite might be the case (e.g., Ellis, 1994; Schmidt, 1990). For example, Schmidt claims that adult learners might not pay attention to formal features of the L2 which do not carry information of sufficient communicative value (1990: 149). Leow (1993) has been one of the few experimental investigators who addressed the effects of simplifications on L2 reading texts for the purpose of increasing the degree of intake in the target language. Leow concludes that pedagogical manipulations (simplification) of L2 texts may not have beneficial effects on the degree of intake of the L2 grammar. Leow also generalizes his analysis to pedagogical conclusions arguing that his findings “appear to provide empirical support for proponents of unedited authentic written materials in the classroom,” and that “it can be strongly argued that the use of authentic texts provides a more practical alternative to simplified texts” (1993: 344).

The goal of this study is to investigate the potential pedagogical effect of a reduction of the cognitive processing demands of written texts on L2 learners’ intake by means of simplifications of the target language. The proposed effect can be measured according to the operationalization of the concept of intake as suggested by Leow (1993, 1995). The research design of the present study is similar to the one of Leow (1993) with the following differences: a control group has been added to the experimental conditions, the time allotted to complete the task has been reduced, randomization of subjects has been performed according to a complete randomized block design, and the number of cues accompanying the target grammatical item has been doubled in the test-retest procedure.

1. The role of simplifications in L2 development

Manipulations of L2 data constitute a common practice in the L2 classroom environment. For instance, textbooks normally present the target data hierarchically/paradigmatically according to yet-to-be-defined pedagogical syllabi. In spite of the apparent insufficiencies of current SLA theories most L2 teaching appears to follow an implicitly assumed “simple-to-complex progression” for the presentation of the target grammar. However, explicit theories of L2 acquisition have not come to an agreement on the potential benefits of the simplification of the target language for the development of the L2 (e.g. Pica, 1985). Will simplification of L2 texts bring about any change in the development of the L2?
In a review of the current pedagogical practices in the L2 reading class, Devine argues that since beginning readers tend to have difficulties understanding texts in the target language: "... there may be pedagogical techniques such as the use of grammatically simplified texts, that would allow second language readers to overcome their syntactic deficiencies" (1988: 270). In fact, Devine explicitly states that "... the common practice of simplifying (L2 reading materials) makes good pedagogical sense" (1987: 271, emphasis added). The analysis of the effects of simplified texts on intake constitutes a research topic that has both theoretical and pedagogical consequences for the field of SLA. Among the most important questions that need to be properly addressed by SLA research is the adequate characterization of simplification: how does simplification work as a pedagogical means to increase gains in L2 intake?, how do we measure intake?, what types of pedagogical manipulations are best fitted for specific learning environments (reading, oral comprehension, etc.)?, do learner-generated simplifications differ from teachers' manipulations of the L2 data?, etc. A number of theoretical positions on these issues are apparent.

A strong argument in favor of the use of simplifications in L2 input has been advanced by Hatch (1983). Hatch argues that simplified input has two important consequences for the L2 learning process: it promotes communication and it makes the learning process easier. Hatch points out that the potential pedagogical benefits of simplified input should not necessarily be associated with any learning prerequisites. In other words, simplification of the L2 data does not guarantee any degree of improvement/development of the target language. Hatch argues that SLA research should be "directed at discovering whether certain kinds of simplification in general promote learning, whether certain kinds of simplification are better than others in promoting learning, and whether all kinds of simplification promote learning in the same way" (1983: 84). Hatch presents a taxonomy of the characteristics of simplified input. Among some of the most important features of simplified texts, Hatch lists the role of repetition and restatement. Similarly, Leow emphasizes the role of the "frequency of the linguistic items in the input" as a potential candidate for a pedagogical role in the instructional process (1993: 343).

The pedagogical value of simplified input has been highlighted by various researchers (e.g. Krashen, 1985; Long, 1985a, 1985b). Krashen's input hypothesis claims that comprehensible input (as a result of simplifications) is necessary for acquisition to take place. Long (1985a, 1985b) agrees with Krashen on the value of comprehensible input, although he argues that simplified input occurs only as the result of interactional modifications (negotiation of meaning): "if it can be shown that linguistic and/or conversational adjustments promote
comprehensibility, and that comprehensibility promotes acquisition, it can be deduced that the adjustments promote acquisition" (1985b: 85). Recently, Yano et al. (1994) have argued that instead of simplifications, elaborative modifications of L2 discourse (rephrasing, repetition, etc.) may provide learners with the semantic detail needed to process difficult L2 texts: redundancy and explicitness compensate for unknown linguistic items. However, the most important factor brought about by both simplifications and elaborations (pedagogical manipulations in general) is the reduction of cognitive processing demands which gives the learner extra attentional resources to process the more demanding syntactic structures of the target language (see McLaughlin, 1987; McLaughlin, Rossman and Leod, 1983; VanPatten, 1990).

There are also cogent arguments which question the value of simplifications or elaborations of the target language for the purpose of building the L2. For example, Larsen-Freeman (1983) states that the learners themselves can simplify the input by paying selective attention to some features of the target language. However, learners will most likely pay attention to those grammatical items of the L2 which carry the most communicative value (e.g. Ellis, 1994; Robinson, 1995; Schmidt, 1990; Tarone and Parrish, 1988). For instance, Ellis argues that "(i)f learners can rely extensively on top-down processing they may pay little attention to the form of the input and may therefore not acquire anything new" (1994: 279). For instance, during face to face interaction paralinguistic and non-linguistic cues are highly significant in the comprehension of verbal language. The over reliance on contextual cues -- pragmatics in general -- is perhaps a crucial feature of the adult learner's system because adults already possess a fully developed language system. Assuming a functional perspective of language use, adults see the target language as an alternative linguistic means to communicate with others. In other words, adult L2 learners are necessarily more concerned with meaning than form. Therefore, Schmidt (1990) claims that the need for conscious attention on linguistic form is essential for developing the target language. More importantly, "incidental learning is certainly possible when task demands focus attention on relevant features of the input ... paying attention to language form is hypothesized to be facilitative in all cases, and may be necessary for adult acquisition of redundant grammatical

1 Learner-generated simplifications appear to be common in natural environments (DeKeyser, 1990). Such studies on semester abroad programs cast some doubts on the proposed qualitative differences in the cognitive processing of the L2 data in academic or natural environments. More research is certainly needed in this area.

2 In L2 reading, the L2 learner has access to thorough inspection of the text as many times as necessary.
features" (p. 149). In fact, many current pedagogical proposals in the field of SLA appear to follow the hypothesis defended by Schmidt: consciousness raising, input enhancement, the garden-path technique, etc.

On the other hand, White (1987) claims that learners develop their L2 when input is, in fact, in comprehensible. However, White acknowledges that in some cases, the manipulation of the data for pedagogical purposes might be necessary to help learners develop their L2 grammar. For instance, the learning of adverb placement in L2 French among English speakers might require the provision of negative feedback (White, 1991). Another potential drawback of using simplified input for pedagogical purposes is that learners may be exposed to data which is artificial or even ungrammatical. White has cautioned against the simplifications of the L2 because they distort the natural syntax that allows learners to build a grammatical system. In that respect, Issidorides and Hulstijn (1992) studied the potential advantages of providing simplified ungrammatical input to L2 Dutch learners by means of changing canonical word order in Dutch. The normal grammatical sequence in Dutch is AdvVSO, but the simplified sentences followed the word order rules of the native languages of the experimental subjects: AdvSVO (English) and AdvSOV (Turkish). As a consequence, the simplified Dutch sentences became ungrammatical. It was hypothesized that these adaptations -- although ungrammatical -- would increase overall comprehension in the L2. The analysis of the collected data does not show any increase in comprehension among the subjects exposed to the simplified, ungrammatical sentences in Dutch. The researchers concluded that "linguistically more complex input will not necessarily impede comprehension." Issidorides and Hulstijn argued that it is "the detection of the mismatch between what L2 learners can produce and what they can understand ... (what) provides the impetus for their development. In contrast to the view held by Krashen, 1985, the detection of this mismatch may require the learner to pay conscious attention to formal characteristics of the L2... " (1992: 167). A similar perspective has been advanced by Swain (1985) who makes an argument in favor of comprehensible output (or pushed output according to a more recent label). In other words, simplifications of input alone might not be sufficient for learners to effect a change in their interlanguage system.

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3 Issidorides and Hulstijn emphasize, however, that "this contention does not imply that, conversely, linguistically more simple input cannot facilitate comprehension" (1992: 167).
1.1 The notion of intake

Corder (1967) states that the input/intake distinction refers to the relationship between target language forms available to the learner (input) and the learner's acquisition of the forms available in the input (intake). Faerch and Kasper (1980) distinguish between two different concepts of intake: intake for communication and intake for learning. Similarly, Gass (1988) distinguishes apperceived input (a type of cognitive priming device) from intake proper (which leads to grammar formation). Schmidt defines intake as "that part of the input that the learner notices," and he affirms that subliminal learning is not possible for adult learners (1990: 139). Leow refers to intake as "the stored linguistic data that may be used for immediate recognition," but not necessarily for acquisition (1993: 334). In spite of the indeterminacy of the concept of intake, it appears that several authors agree on the possible role of a "storage system" which helps keep certain grammatical items in the focus of attention of the "learning system." Gass claims that "(i)n perception, an object (or in this case a linguistic form) is present in our senses, whereas apperception, being an internal cognitive act, defines that form as being related to some prior knowledge which has been stored in our experience. We can think of apperception as a priming device which tells us which parameters to attend to in analyzing second language data" (1988: 201-2). Hence, one can assume that the learner will notice certain particular features of the L2 grammar even if those features are not immediately relevant for the adequate processing of the target language. Several factors might make the input "apperceived" by the learner. Gass mentions that the frequency of a specific item, and the simplification of L2 texts (they create a context familiar to the learner) are two obvious candidates for making the L2 data more salient. Similarly, Schmidt (1990) argues that the following factors influence which formal features of the L2 learners will notice: frequency and perceptual saliency of the target item, expectations and skill level of the students and the overall task demands. Therefore, specific types of pedagogical manipulations of the L2 input data (such as simplifications and repetition) are likely candidates to help learners "intake" more target grammatical items.

1.2 The empirical analysis of simplifications on L2 intake

The study carried out by Leow (1993) is one of the few direct empirical investigations of the effect of pedagogical manipulations of L2 texts on learners' intake. Leow measured the influence of simplified and non-simplified texts on the degree of intake of two grammatical items in L2

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4 See Chaudron (1985) for a similar proposal.
Spanish (subjunctive and present perfect forms). The study was conducted with college-level first and fourth semester students. The dependent variable in Leow's study was the raw scores of a multiple-choice recognition assessment task (pre test/post test). Leow concluded that simplified L2 texts make input more comprehensible for communication, but that simplifications of authentic texts do not have a facilitating effect on learners' intake of the L2 grammar.

There are, however, theoretical and methodological problems in Leow's study. On the theoretical side, Leow's hypothesis number three states that "learners with more language experience will take in significantly more linguistic items in the input that learners with less language experience exposed to the same input" (1993: 336). This follows from the fact that advanced learners will have -- relatively speaking -- extra cognitive resources to process L2 form. In fact, the more advanced students have already been exposed to the explicit presentation of the target grammatical item, and they have also had extensive practice of the target structure in several instances. Hence, it is quite likely -- as shown by Leow -- that the pre test scores will be higher for the more experienced learners due to the increased amount of instruction (exposure) in the target language. Recognizing that factor does not necessarily imply that advanced students will be using a different cognitive system as argued by Leow. Leow claims that more experienced learners "may be regulated by different cognitive processes while internalizing input" (1995: 86). More specifically, Leow argues that the initial differences in scores between the two groups of students (first- and fourth-semester), represents adequate evidence to support his hypothesis. Fourth-semester students were clearly better (raw scores of 4.24 for the unsimplified condition, and 3.00 for the simplified condition), compared to first-semester students (raw scores of 1.69 for the unsimplified and 0.75 for the simplified condition (out of a 14-point scale). However, it is the analysis of the rate of change (different rates of intake) from pre to post test what should be considered a true measurement of the particular effects of the experimental treatment condition. In that case, if we gauge the degree of change from pre to post test we find no significant differences between first- and fourth-semester students. Upper level students show gains of 0.09 (unsimplified) and 0.45 (simplified), whereas lower level students show changes of -0.54 (unsimplified) and 0.83 (simplified) on a 14-point scale.\(^5\)

The most important methodological factor that appears to compromise Leow's findings is the absence of a control group in the

\(^5\) Given that Leow did not analyze the outcome of hypothesis number three according to the previously outlined perspective, the statistical analysis of these differences is not available.
experimental design. For the interpretation of the progression of the experimental groups, the control group provides the researcher with a bottom-line test-retest effect. Any improvement made by the controls (no access to target items) from test to retest determines the baseline that should be used to determine any real improvement made by the treatment groups. The importance of this feature of the design will be addressed in the discussion section. Second, the multiple-choice test instrument used by Leow presents more than one correct option per item, even though three of the four possible responses are supposed to be ungrammatical choices in Spanish. Leow reports that the requirement of a single final answer in the multiple-choice test should be considered a crucial factor of the assessment task. One of the distractors chosen to reflect English syntax, is indeed a valid option in both Spanish and English: para (for) + pronoun + infinitive. Leow presents the following example in footnote 5:

1. Es muy importante
   A. que el comprador compara el costo total.
   B. que el comprador compare el costo total.
   C. para el comprador comparar el costo total.
   D. el comprador comparar el costo total.

In this particular example both options (B) and (C) are possible responses according to speakers of various dialects of Spanish (both LatinAmerican and European dialects). However, in the scoring procedure only one response (option B) was considered correct. Finally, another factor claimed to be crucial to the assessment task -- limited amount of time to complete the task -- was not properly addressed: the students were given 15 minutes to complete a 16-item multiple choice test. An average of one minute per item seems to be plenty of time considering the nature of the task (see appendix D). In fact, Leow reports that some of the students finished the task in 8 minutes (average) or less. That average

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6 There was no adequate control of the potential impact of previous and current exposure to differing L2 learning environments among students assigned to each treatment. There is no information about the number of teachers who were involved in the study, nor whether some of the teachers were in charge of more than one section (especially important if the assignment of teachers coincided with the assignment of treatments). Moreover, the participating subjects of his study were not divided into two subgroups (simplified and non-simplified) at random: entire classes were used to assign the students to either one of the experimental conditions. Leow recognizes there is a problem of adequate randomization in his study, and warns about this type of deficiency of the research design "in future studies."
time clearly shows that the time limitation was not an appropriate control for the extensive use of explicit knowledge, particularly beneficial to advanced students who had received explicit grammatical instruction and practice of the target item.

2. The present study
2.1 Assumptions and hypotheses

The present investigation was intended to replicate the previous findings within a modified experimental set up (see below). There are two major assumptions guiding this study:

(1) Simplified written input reduces cognitive processing demands. As a consequence, the learner has “more time” to pay attention to the more demanding formal features of the L2 which would otherwise be ignored (e.g. Schmidt, 1990). This difference will show in the differences in scores between treatment and control groups (post test).

(2) Similarly, learners with more experience in the target language will be better able to profit from exposure to simplified texts. Advanced learners have a more extended vocabulary and more knowledge of the morphosyntactic features of the target language. Freed cognitive resources will allow advanced learners to have extra time for the processing of the more difficult grammatical structure which is the target item of this study.

According to those two assumptions there is a learning space continuum defined by the availability of cognitive resources at the disposal of the learner. At one end of the continuum we find the conditions of non-simplified text and less experience with the L2; at the other end we find the conditions of simplified input and extensive experience with the target language. However, there is a single underlying process that is expected to explain the combined outcome of assumptions (1) and (2).\footnote{It is important to point out that a reduction of the cognitive processing demands of the reading task by means of pedagogical manipulations of the L2 text does not necessarily imply an increased amount of comprehension of the reading text among the L2 learners.}

Based on these assumptions the following hypotheses have been operationalized:
H1: Learners who have access to the simplified text will take in more linguistic items contained in the input than the students who have access to the unsimplified or control texts.

H2: Learners with more knowledge of the L2 will have higher gain scores irrespective of treatment condition (differences between pre and post test).

The selected grammatical item was the subjunctive form in Spanish. The fact that the subjunctive is the less salient of the two structures used in the previous investigation makes it a good target for the measurement of possible effects brought about by simplified texts. The Spanish subjunctive presents the biggest challenge to English-speaking students because it has low perceptual saliency, no concrete referent, and it is semantically redundant (but see discussion section for potential drawbacks for the analysis of grammatical features which carry low semantic value). First of all, only a thematic vowel distinguishes indicative from subjunctive mood (with the exception of some few irregular cases). In fact, Slobin (1985) argues that the perceptual saliency of any grammatical item decreases if the morpheme is bound, contracted, syllabic, unstressed or varying in form. The fact that the Spanish subjunctive form is certainly bound and unstressed renders its discrimination very difficult. More important, the Spanish subjunctive carries little communicative value since it signals mood and has no concrete referent. According to Leow the "communicative value of linguistic forms is essential to any psycholinguistic study of learners' attention to form in the input" (1993: 345).

There are four major differences that distinguish the research design of this study and the one presented in Leow (1993). First, the simplified text developed for this study incorporates the repetition of the contextual cues that accompany the target grammatical item (use of overt subject pronouns, and use of one subjunctive form per sentence). Second, the present test/retest procedure incorporates 28 items instead of 16. Third, a time limit for the completion of the tests was established. The present study used a 28-item multiple choice test, and the participating subjects were given a maximum of 15 minutes to complete the task. Finally, the number of experimental conditions has been increased from two to three with the incorporation of a control group. These changes in the experimental design have been incorporated in accordance to the following criteria. First, the increased number of contextual cues of the simplified text creates a more categorical distinction between experimental treatments; thereby increasing the power of the test. Second, the increased number of items of the test (approximately 75% more than in Leow, 1993) provides a more detailed description of the theoretical
construct under study. Third, the time limitation for the completion of the tests provides a better control of the extensive use of explicit knowledge. Finally, the control group serves to provide a baseline to check for the validity of the assessment instrument.

2.2 Subjects

A total of 85 students taking courses in Spanish as a second language at SUNY Cortland participated in the study. The native language of all participating students was English, and both beginning and intermediate groups used the textbook “Claro que sí.” The students were enrolled in Spanish courses at two different levels: 3 beginning sections and 4 intermediate sections. Knowledge of Spanish (beginning or intermediate) was determined by the amount of instructional background received in college. The experiment was conducted after the students had completed the first half of the academic semester (Fall 1995). The students in the beginning sections had not seen the subjunctive in Spanish in their course (as stated by the instructor), whereas the intermediate sections were practicing the subjunctive in nominal clauses by the time the study took place. All subjects were informed of the experiment in advance and they were given the option of withdrawing at any time during the study: only one student decided not to participate. Some students were absent from class the day the post test was scheduled.8

2.3 Materials

The passage used in this study was written by the experimenter to obtain a text with a high frequency of the target item and enough variation of the contexts which are usually associated with the subjunctive form in Spanish (see Appendix A). The simplified version of the passage was prepared according to the criteria presented in Hatch (1983). The modifications included simpler vocabulary (high reliance on English-Spanish cognates, fewer pronoun forms, and fewer idioms) and simplified syntax (propositions shorter and simpler, avoidance of pro-drop phenomena and repetition of cues associated with target items). Appendices A and B present samples of both passages, and Appendix C represents a sample of the control text. Table 1 presents a summary of the

8 The data from the students who did not complete both pre and post tests was not analyzed: 22 students from the beginning sections, and 21 from the intermediate sections did not complete the study because they were absent from the second meeting. From a total number of 131 students who took the pre test, only 85 students completed the second part (22 from the beginning level and 63 from the intermediate level). Three other students did not complete the test even though they were present in both sessions.
characteristics of both texts including the number of repetitions of the target grammatical item in the simplified text. Both passages were reviewed by 3 native speakers. According to their suggestions, the simplified passage was modified to avoid too much repetition.9

Table 1. Comparison of simplified and non-simplified texts

<table>
<thead>
<tr>
<th></th>
<th>Unsimpif.</th>
<th>Simplified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of words in passage</td>
<td>314</td>
<td>348</td>
</tr>
<tr>
<td>Total number of sentences</td>
<td>19</td>
<td>36</td>
</tr>
<tr>
<td>Total No of subjunctive forms</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>No of sentences with subjunct.</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>No of null subject pronouns</td>
<td>37</td>
<td>16</td>
</tr>
</tbody>
</table>

It is important to note that the experimental passage used by Leow (1993) differs from the present text in various ways. First, Leow’s text uses examples of the subjunctive associated with what are called “impersonal expressions” only (i.e. subjunctive in noun, adjective or adverbial phrases are not used). Second, there are only 8 examples of the target grammatical form in the test. Finally, repetition of the contextual cues that accompany the target item does not constitute part of the manipulations of the text intended as simplifications. In contrast, the present study analyzes 16 instances of various grammatical structures associated with the subjunctive in Spanish (impersonal expressions, nominal clauses, etc.). Furthermore, repetition of the contextual cues of the target item constitutes the most salient feature of the simplified passage. Each subjunctive form from the original text is assigned to one sentence only to preserve as many cues as possible present in the available input. That is to say, there were 28 tokens of the subjunctive assigned to 28 sentences in the simplified passage (see Appendix B). Also, the number of instances of null subject pronouns was more than doubled in the unsimplified passage (see Appendix D). Finally, the ungrammatical choices included in the testing procedure reflect the use of various other morphological endings familiar to the student. The multiple choice format with diverse verbal endings was necessary to ensure that students were not basing their judgments on the stem of the verb only.

9 The original simplified version of the text did not have any occurrences of null subject pronouns, and it contained a high frequency of complete noun phrases. The final version of the simplified passage included null subject pronouns and noun phrases were substituted by subject pronouns. These modifications rendered a more natural text in Spanish.
2.4 Testing Procedure

Instructional variation among sections was controlled in two ways. First, participating sections from each level were taught by only one instructor. In this way it was possible to avoid any extraneous effects generated by different teaching styles. The subjects were tested during regular class time by the experimenter (the instructors remained in the classroom during the testing period). Second, the experimental design used in this study was a randomized block design. That is to say, each class section was defined as a block and all treatments were assigned at random within each block.\(^{10}\) A randomized block design seems to be a better research design for this type of study to control for a potential degree of homogeneity among members of a given group of students.\(^{11}\) The complete study was conducted in two stages. During the first session the students took the pre test and a short questionnaire about their previous knowledge of Spanish. A week after the first meeting the students were given the reading passage, a short comprehension test and the post test (see sample test items in Appendices D and E). The comprehension test was used to ensure that students would pay attention to the content of the passage (they were informed only of this task in the instructions). The pre and post tests contained the same items, although the order of presentation of these items was different in each test (the order was randomized in both pre and post tests).\(^{12}\) The tests consisted of a total of 28 sentences presented in a multiple choice format: 14 target items (Spanish subjunctive) and 14 distractors with various other

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\(^{10}\) Randomization of subjects tends to eliminate the influence of any extraneous factors which are not under the direct control of the experimenter. Furthermore, blocking randomization provides a better balance and more precise results by increasing the likelihood that all experimental conditions will be proportionally represented within each block.

\(^{11}\) For example, the students from any given section might share some special traits that lead them to choose the class where they have registered (morning versus afternoon, presence versus absence of previous classmates, etc.). In order to have a safeguard against this type of bias, it is important to have all experimental conditions assigned to each one of the class sections.

\(^{12}\) A lapse of one week between the administration of pre and post tests appears to be a reasonable safeguard against memorization effects. In fact, the majority of learners did not improve their scores from pre to post test to a great extent (roughly 1.5 points on a scale of 14). Furthermore, it is unlikely that students could have profited from any type of practice between the time when pre and post tests were administered: no correction or feedback was offered by the experimenter or the instructors between the administration of tests.
grammatical structures. Each target item was assigned a score of 1 making up a maximum possible score of 14 points. Raw scores were calculated for use in the statistical analysis.

3. Data analysis

The mean scores and standard deviations for each experimental cell on the pre and post tests, as well as the sample size for each cell are presented in Table 2. The variation in scores from pre to post test according to level of knowledge of Spanish is presented in graphic format in Figures 1 and 2. An Analysis of Variance (ANOVA) was used to investigate possible differences between experimental groups. No statistically significant differences were found: the randomization of subjects produced three experimental groups of equivalent abilities.

Table 2. Mean scores, standard errors (SE) and sample size (N) for each experimental cell.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Level 1</th>
<th></th>
<th>Level 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simplified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.375</td>
<td>1.750</td>
<td>3.087</td>
<td>4.696</td>
</tr>
<tr>
<td>SE</td>
<td>0.747</td>
<td>0.802</td>
<td>0.441</td>
<td>0.473</td>
</tr>
<tr>
<td>N</td>
<td>8</td>
<td>8</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Non-simplified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.571</td>
<td>2.429</td>
<td>4.450</td>
<td>6.000</td>
</tr>
<tr>
<td>SE</td>
<td>0.799</td>
<td>0.857</td>
<td>0.472</td>
<td>0.507</td>
</tr>
<tr>
<td>N</td>
<td>7</td>
<td>7</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.571</td>
<td>1.429</td>
<td>3.150</td>
<td>4.350</td>
</tr>
<tr>
<td>SE</td>
<td>0.799</td>
<td>0.857</td>
<td>0.472</td>
<td>0.507</td>
</tr>
<tr>
<td>N</td>
<td>7</td>
<td>7</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

In order to answer the two main research questions, the raw scores of the dependent variable (pre test/post test) were submitted to an Analysis of Variance (ANOVA). The experiment followed a 3 x 2 factorial design (3 experimental conditions x 2 levels of experience with Spanish). The three experimental conditions were determined by the type of text that the subjects had to read: simplified text, non-simplified text and control group (unrelated text with no examples of subjunctive constructions). The two levels of experience with Spanish were determined according to the level of the course that the participants were taking at the moment of the
experiment (first semester versus third semester of college Spanish). The dependent variable was represented by the scores obtained in both pre and post tests. All analyses were run using the statistical package SYSTAT 5.2. The analysis of the data presents two between-subject variables (level and treatment) and one within-subject variable (test) (table 3).

**Figure 1.** Pre and post test scores for level 1 by treatment.

**Figure 2.** Pre and post tests scores for level 2 by treatment.

For the between-subject factors, the results of the ANOVA with repeated measures did not reveal any significant main differences for
treatment (df = 2, F = 1.772, p = .177). However, there was a significant main effect for level (df = 1, F = 31.319, p = .000). There were no interaction effects. In summary, the results do not show any significant differences among experimental groups. Also, the students in the intermediate sections were significantly better than the ones in the beginning levels. For the within-subject factor, the results of the ANOVA reveal a significant main effect for test (df = 1, F = 10.339, p = .002), but no significant interaction effects. In short, the within-subject test reveals that students from both levels improved their scores from pre to post test. However, none of the three experimental conditions at any level generated any significant gain in the intake of the selected grammatical items from each individual student.

Table 3. Results of repeated measures ANOVA. Dependent variable: pre test/post test (N: 85)

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>24.778</td>
<td>2</td>
<td>12.431</td>
<td>1.772</td>
<td>0.177</td>
</tr>
<tr>
<td>Level</td>
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<td>219.777</td>
<td>31.319</td>
<td>0.000</td>
</tr>
<tr>
<td>TreatxLevel</td>
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<td>2</td>
<td>3.095</td>
<td>0.441</td>
<td>0.645</td>
</tr>
<tr>
<td>Error</td>
<td>554.369</td>
<td>79</td>
<td>7.017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test: pre/post</td>
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<td>1</td>
<td>26.778</td>
<td>10.339</td>
<td>0.002</td>
</tr>
<tr>
<td>TestxTreatm.</td>
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<td>2</td>
<td>1.241</td>
<td>0.479</td>
<td>0.621</td>
</tr>
<tr>
<td>TestxLevel</td>
<td>9.644</td>
<td>1</td>
<td>9.644</td>
<td>3.723</td>
<td>0.057</td>
</tr>
<tr>
<td>TestxTreatxLev.</td>
<td>0.636</td>
<td>2</td>
<td>0.318</td>
<td>0.123</td>
<td>0.885</td>
</tr>
<tr>
<td>Error</td>
<td>204.609</td>
<td>79</td>
<td>2.590</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Discussion

Hypothesis 1 was not confirmed by the data obtained in this study: the simplification of the L2 reading passage did not improve the level of intake of L2 grammatical items presented in the input (see treatment variable in the repeated measures ANOVA tables). This outcome corroborates the results of Leow (1993). However, due to the results of the control group, it is premature to make any strong conclusions regarding the lack of pedagogical benefits of simplified texts as argued by Leow (1993, 1995) (see below). Similarly, hypothesis 2 was not confirmed by the results of this study: there are no significant differences in gain
scores associated with the different degrees of experience with the target language: there are no effects on the cognitive processing of the selected grammatical items due to increased exposure to the L2 in the classroom environment (first versus third semester). The convergence of hypotheses 1 and 2 is not surprising due to the fact that they are both based on a single underlying assumption: freed cognitive resources allow the learner to pay attention to less obvious grammatical forms of the L2. Extra attentional resources were instantiated in two different ways: (i) simplification of the L2 text (hypothesis 1); and (ii) extended knowledge (experience) of the target language (hypothesis 2). In sum, the effect of the pedagogical manipulations exemplified in this study did not have any effect on the cognitive processing of the L2 grammar (as exemplified by individual gains), regardless of knowledge or expertise in the target language.

The comparison of the results of the control and experimental groups shows that the students who had access to exemplars of the subjunctive form (simplified and non-simplified groups) did not perform better than the students who were not exposed to any instance of the subjunctive (control group). Notice that the control group achieved scores similar to the ones obtained by the treatment groups, even though the control text does not present any example of the Spanish subjunctive. In other words, potential differences between experimental treatments cannot be categorically dismissed because exposure to the subjunctive (simplified and nonsimplified) generates as much change in scores as no exposure at all to the target grammatical item (control). The control group is supposed to show the bottom line effect that is associated with the test-retest effect. Consequently, these results do not allow us to gather any pedagogical conclusion on the use of simplified versus non-simplified texts for the development of the L2 grammar. Ultimately, this is an empirical question which needs to be addressed in future studies.

5. Further research

Future research studies should expand the previous analysis by considering the following constraints of the present study: (i) the limited exposure to the target grammatical items (one single instance), (ii) the use of a single type of testing procedure (multiple choice pre test/post test format), (iii) the task requirements (students were requested to process the text for general meaning: test on comprehension), and (iv) the specific features of the selected grammatical item (e.g. low semantic value of subjunctive). For example, in terms of the amount of exposure to the treatment conditions, notice that the operationalization of the construct of intake may be associated with implicit or explicit learning of the L2
(Paradis, 1994). Will learners focus their attention on the thematic vowel that signals subjunctive mood in Spanish, and hence acquire explicit knowledge about the formal characteristics of the L2 (attention to form)? Alternatively, will the students gain access to the formal feature of the subjunctive while processing the general meaning of the text (attention to form while maintaining attention to meaning)? Eventually, it can be argued that these two different processing modes will generate different learning paths (Krashen, 1985; Paradis, 1994; Schwartz, 1986). Implicit learning would necessarily require a considerable investment of time in practicing the target structure (supposedly without conscious processing of the target item). If simplified input helps to generate implicit knowledge of the target L2 structure, it is unlikely that such an effect would be noticeable after a single exposure to the target item (as is the case for the present assessment instrument). By definition, implicit knowledge implies exposure to several instances of the intended structure (Paradis, 1994). Therefore, a possible alternative instrument for measuring implicit knowledge should incorporate a series of exposures to simplified texts as part of the experimental treatment. On the other hand, if one assumes that the pedagogical manipulation of L2 texts may generate explicit knowledge, even a single exposure to simplified input may possibly trigger a differential effect on the amount of intake of the linguistic items presented in the input. Arguably, the subjects of this experiment would have performed differently were they placed in any one of the following two conditions: (a) explicit information about the nature of the following task (test on the subjunctive form) is given to the subjects, or (b) the demands of the reading task focus the students’ attention on the morpho-syntactic characteristics of the subjunctive in Spanish.\footnote{In fact, the participants in this experiment did not have the intention of learning either the morphological or the syntactic aspects of the subjunctive in Spanish, because they were specifically asked to process the general meaning of the reading passage in Spanish.}

Finally, the use of alternative procedures to measure intake may add to the validity of any pedagogical implications for the use of L2 simplified texts for L2 development. For instance, the use of think aloud protocols do not offer much information about cognitive processes which have been automatized. However, this potential drawback becomes an asset for the present analysis: first and third semester college students of L2 Spanish will hardly have automatized the processing of the subjunctive in Spanish. That is to say, students may be more concerned with the processing of the content of the text, and not necessarily with the detailed processing of verbal morphology. In this respect, notice that Terrell et al.
argue that the “subjunctive verb forms are clearly redundant and do not add significantly to message content in most cases” (1987: 28)..
Considering the low perceptual saliency of the subjunctive form, its low semantic content and the specific requirements of the task at hand (comprehension test of passage content), it is possible that students do not “invest” attentional resources in the processing of verbal morphology which does not affect the basic lexical/semantic value of the predicate (e.g. MacLaughlin, 1987; VanPatten, 1990). Finally, the analysis of other syntactic structures such as aspect, pro-drop subjects and subject-verb inversion (typical of normal Spanish discourse) could provide researchers with a more appropriate target grammatical structure for the analysis of the effect of pedagogical manipulations of written input on L2 intake. Implicit in that statement is the assumption that some L2 grammatical features may be better candidates for the processing of simplified written input for L2 development based on their implicit semantic value irrespective of perceptual saliency (e.g. aspect versus subjunctive verbal endings). These are issues to be addressed by future studies.

6. Conclusion

The results of the present study cast some doubts on any categorical conclusion on the pedagogical value of simplified versus non-simplified written input on the intake of L2 grammatical items. More extended research is needed to obtain an appropriate and extended empirical database for the development of strong pedagogical protocols regarding pedagogical manipulations of L2 reading texts. Particularly needed is research that employs multiple measurements of the cognitive process of grammar intake in various environments as mentioned in the previous section (e.g. think aloud protocols).
APPENDIX A: Non-simplified text

Diario de Pablo

4 de octubre: Me miran con condescendencia mis padres. Esperan que cambie mi actitud, y que, con sentido pragmático, abandone la práctica de mis actividades deportivas. Les ha sido muy difícil comprender que deseo saltar ceñido a una soga de goma desde una colina escarpada o de un puente. Deseo fervientemente que entiendan mi pasión por las emociones fuertes, que me comprendan, pero, quizás no tengan el mismo ardor juvenil y no entiendan el placer por los deportes.

Tal vez quieran realmente salvarme de un peligro posible, y quieran ofrecer sugerencias; pero, prefiero que no se metan en mi vida, y que no me den consejos paternalistas. De hecho, lamento mucho que sean tan dominantes, que no puedan darse cuenta de que solamente soy yo quien dirige mi vida.

5 de octubre: Ya he preparado mi equipo y ahora estoy pronto para probarlo. Es muy importante que la correa de seguridad y la soga que sujeta los tobillos estén fuertemente ajustadas. Es también necesario que inspeccione la condición general de la soga y que ajuste las poleas de amarre.

6 de octubre: Telefonearon mis padres. Hoy hace mucho viento y quieren que deje el salto y que vuelva con ellos a casa. No quieren que salte o que siquiera lo intente. Me contaron que ayer hubo un accidente funesto en el liceo donde trabajan. Es necesario que recapacite en lo que hago y que revea mi decisión.

Tal vez tengan razón y debo acabar esta actividad de una vez por todas. Quizás no tenga que demostrar mi arrojo saltando de un puente colgado de una soga de goma, y pueda, por el contrario, mostrar mi valor tomando una decisión que requiere agallas: escuchar a la voz de la experiencia. Sí, es cierto. Es importante que escuche a mis padres y que siga sus consejos. Finalmente he tomado mi decisión: "bungee-jumping" es muy peligroso.
APPENDIX B: Simplified text

Diario de Pablo

4 de octubre: Mis padres me miran con angustia. Ellos esperan que yo cambie mi actitud. Esperan que yo abandone la práctica de mis actividades deportivas.

Para ellos es muy difícil comprender que yo deseo saltar unido a una cuerda de goma de una montaña o de un puente. Yo deseo mucho que mis padres entiendan mi pasión por las emociones fuertes. Deseo que mis padres me comprendan. Pero, quizás ellos no tengan el mismo entusiasmo juvenil. Quizás no entiendan el placer por los deportes.

Tal vez mis padres quieran salvarme de un posible peligro. Tal vez ellos quieran ofrecer sugerencias. Pero, yo prefiero que mis padres no se metan en mi vida. Prefiero que ellos no me den sugerencias paternalistas. En realidad, yo lamento mucho que mis padres sean tan dominantes. Lamento mucho que ellos no puedan darse cuenta de que solamente yo soy quien decide mi vida.

5 de octubre: He preparado mi equipo y ahora estoy pronto para examinar todo. Es muy importante que la cuerda de seguridad esté fuertemente ajustada. Y es muy importante que el cable de los pies esté firme. Es necesario que inspee la condición general del cable. También es necesario que ajuste las cuerdas de unión.

6 de octubre: Mis padres me telefonearon. Hoy hace mucho viento y ellos quieren que yo abandone el salto. Ellos quieren que yo vuelva a casa. No quieren que yo salte. No quieren que intente el salto! Ellos me contaron que ayer ocurrió un accidente mortal en la escuela donde trabajan. Es necesario que yo piense en lo que hago. Es necesario que reconsidere mi decisión.

Tal vez ellos tengan razón. Tal vez yo deba finalmente terminar esta actividad. Quizás yo no tenga que demostrar mi coraje saltando de un puente unido a una cuerda de goma. Por el contrario, quizás pueda demostrar mi valor tomando una decisión que requiere valentía: escuchar las sugerencias de mis padres. Sí, es cierto. Es importante que yo escuche a mis padres. Es importante que siga sus sugerencias. Finalmente he tomado mi decisión: "bungee-jumping" es muy peligroso.
APPENDIX C: Control Text

La familia y la sociedad

Un gran número de acontecimientos sociales son de tipo familiar. Generalmente en los días de fiesta o los domingos, la familia recibe en su casa o visita a otros miembros de la familia. Estos acontecimientos se caracterizan por la presencia de los niños y los abuelos.

Lo que sorprende a los norteamericanos cuando visitan los países hispánicos es la presencia de los niños en casi todas las fiestas. Ellos están acostumbrados a participar con los adultos en las fiestas y en otros acontecimientos, como bodas y bautismos. Desde muy pequeños, tienden a participar con los adultos en la vida social de la familia. Así aprenden continuamente cómo comportarse en sociedad. Están acostumbrados a tratar con personas de diferentes edades - abuelos, padres y hermanos mayores-, desarrollando así una actitud de respeto que mantienen también cuando son adultos. En lugares públicos como el cine o los bailes, se ven grupos de personas de diferentes edades. Hay menos tendencia a agruparse según la edad, como en la sociedad norteamericana. Por eso, también es menos molesto llevar a la mamá o el hermano menor cuando dos jóvenes van al cine.

No es raro encontrar a los abuelos, los padres y los hijos juntos con algún tío o tal vez un primo viviendo en la misma casa. Los sociólogos han observado varias ventajas en esta situación. Una de ellas es que los niños tienen más personas que los cuiden, y por eso no necesitan tanta atención individual. También tienen más de un modelo y si, por desgracia, pierden a uno de los padres, hay otros adultos presentes. Con tantas personas en casa no es necesario pagar a alguien de afuera para cuidar a los niños - la palabra baby-sitter no tiene equivalente exacto en español.

Las tareas domésticas se comparten y son menos pesadas. Las desventajas de esta convivencia son, para los adultos, una falta completa de vida privada, y para los niños una falta de independencia que se advierte más tarde en su deseo de mudarse de la casa de la familia para poder obtener la tan añorada independencia.
APPENDIX D:

Test-retest (sample items)

1. Mis padres esperan …
   a. que yo cambiar mi actitud.
   b. que yo cambiando mi actitud.
   c. que yo cambie mi actitud.
   d. que yo cambio mi actitud.

3. Deseo …
   a. que entendiendo mi pasión por el deporte.
   b. que entender mi pasión por el deporte.
   c. que entiendo mi pasión por el deporte.
   d. que entiendan mi pasión por el deporte.

5. Mis padres quieren …
   a. que abandonan el salto.
   b. que abandonar el salto.
   c. que abandono el salto.
   d. que abandone el salto.

APPENDIX E:

Comprehension test (sample items)

2. Pablo's parents...
   a) want him to quit dangerous sports.
   b) want him to join the Air Force.
   c) want him to stop seeing them.
   d) want him to live with them.

5. Pablo …
   a) seems to enjoy bungee-jumping from a mountain or bridge.
   b) seems to hate any dangerous sport like bungee-jumping.
   c) has a difficult time comprehending that his parents enjoy bungee-jumping.
   d) is difficult to treat when his parents mention bungee-jumping.
References


