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Theoretical and Methodological Issues in the Investigation of Conceptual Transfer

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Abstract

This paper clarifies the meaning and scope of the Conceptual Transfer Hypothesis, explores its historical roots, and shows how it relates to but also differs from the Thinking for Speaking Hypothesis and the Linguistic Relativity Hypothesis. Most importantly, the present paper attempts to outline the theoretical underpinnings of the Conceptual Transfer Hypothesis and to delineate explicitly how this hypothesis needs to be tested. One of the most important theoretical issues it deals with is the distinction between concept transfer and conceptualization transfer, where the former refers to the effects of conceptual representations stored in long-term memory (which may differ crosslinguistically), and the latter refers to the effects of how that knowledge is processed in working memory (which processes may also show crosslinguistic differences). The present paper discusses the nature of both types of conceptual transfer and reviews the findings of several studies that have investigated them.

Key words: transfer, concepts, conceptualization, crosslinguistic influence, linguistic relativity

Resumen

Este artículo aclara el significado y alcance de la hipótesis de la transferencia conceptual, explora sus raíces históricas y muestra cómo se relaciona con pero al mismo tiempo difiere de la hipótesis de “thinking for speaking” y de la hipótesis de la relatividad lingüística. Además, el presente artículo intenta perfilar los apuntalamientos teóricos de la hipótesis de la transferencia conceptual y delinear de manera explícita cómo se necesita probar esta hipótesis. Uno de los aspectos teóricos más importantes que trata es la distinción entre transferencia de concepto y transferencia de conceptualización. La primera se refiere a los efectos de las representaciones conceptuales almacenadas en la memoria a largo plazo (que pueden diferir a través de las lenguas) y la última se refiere a los efectos de cómo ese conocimiento se procesa en la memoria a corto plazo (procesos que pueden mostrar también diferencias a través de las lenguas). El presente artículo trata la naturaleza de ambos tipos de transferencia conceptual y revisa los descubrimientos de varios estudios que los han investigado.

Palabras clave: transferencia, conceptos, conceptualización, influencia a través de las lenguas, relativismo lingüístico.

1. Introduction

Informally, the term *conceptual transfer* denotes the observation that second/foreign language learners and bilinguals from different language backgrounds often refer to the same objects and events in conceptually different ways and in ways that are specific to their language backgrounds. As an example, Bulgarian foreign-language learners of English have been observed to mark the conceptual distinction between witnessed and non-witnessed events in English similarly to what they do in their native language but differently from what native English speakers and learners from most other language backgrounds do. In an empirical investigation of this phenomenon, Dragiev (2004) found that eight of his 28 Bulgarian participants used only simple past when referring in English to witnessed events (e.g., *when I was a child, I used to play*) and only perfect constructions when referring to non-witnessed events (e.g., *when my grandpa had been in this age, he also had playing hide and seek, but I don't think that he had played football*). Given that the distinction between witnessed and non-witnessed events is a conceptual one requiring a person's evaluation of his or her relationship to real-world events, Dragiev's findings seem to be a good example of how learners from a particular language background express events in a way that is conceptually distinctive.

The term *conceptual transfer* appeared sporadically in its informal sense in studies published throughout the 1980s and 1990s (e.g., in chronological order, Vilke, 1983; Kroll and Potter, 1984; Ijaz, 1986; MacWhinney, 1992; Rocher, 1993), and perhaps even earlier, but it was not until 1998 that it became a technical term for referring to research on crosslinguistic influence that is grounded in theories and empirical findings on the nature of conceptual representations within the human mind and on how these are accessed and processed during language comprehension and production (Jarvis, 1998; Pavlenko, 1998). As a theoretical construct, *conceptual transfer* can be characterized as the hypothesis that certain instances of crosslinguistic influence in a person's use of one language originate from the conceptual knowledge and patterns of thought that the person has acquired as a speaker of another language. I will henceforth refer to this hypothesis as the CTH (Conceptual Transfer Hypothesis). The purpose of this article is to describe the theoretical developments and empirical findings that have led to the CTH, to delineate its theoretical scope, to review some of the existing empirical evidence that seems to confirm it, and to outline the types of

research methods that are needed to test the hypothesis more fully. Some of these issues have been addressed in recent reviews of the conceptual transfer research (e.g., Odlin, 2005, in press; Pavlenko, 2005, in press), but the present paper takes a unique perspective on these issues and is more explicit about the predictions and implications of the CTH and about the types of empirical evidence needed to verify it.

2. Roots of the CTH

Although Pavlenko (1998) —followed soon after by Jarvis (1998)— appears to have been the first to use the term *conceptual transfer* to refer to this hypothesis, the roots of the hypothesis go back much further than this. As Odlin (2005, in press) has noted, claims that are similar to the CTH can be found in work first published nearly two centuries ago by von Humboldt (1836/1960), who said, among other things, that “one always more or less carries over (*hinüberträgt*) one’s own world- indeed one’s own language-view (*Welt...Sprachansicht*)” when learning a new language (p. 75, as translated by Odlin, 2005, p. 7). Roughly a century later, Whorf (1940/1956) similarly asserted that “users of markedly different grammars are pointed by their grammars toward different types of observations and different evaluations of similar acts of observation” (p. 221). Like von Humboldt, Whorf believed that language-specific ways of conceptualizing experience would have an effect on a person’s acquisition of a second language, though Whorf was more optimistic about whether such effects could be overcome (see Odlin, 2005, p. 6-9).

In the two decades following the first publication of Whorf’s ideas about linguistic relativity, Weinreich (1953), Lado (1956), and Kaplan (1966) reiterated the importance of the relationship between thought, culture, and language as it pertains to SLA (second language acquisition) and bilingualism. Weinreich emphasized that in the study of transfer (which he called interference), “the problem of major interest is the interplay of structural and non-structural factors.... The non-structural factors are derived from the contact of the system with the outer world.... the organization of culture elements has been stressed time and again” (1953: 5). In this quotation, Weinreich seems to suggest that members of a culture develop a shared system for understanding and referring to the outer world, and that this system is reflected in their use of language. Lado expressed a similar idea when he said that “*meanings*, like forms, are culturally determined or modified. They represent an analysis of the universe as grasped in a culture” (1956: 113). Kaplan, for his part, also addressed the interplay of thought, culture, and language, but from the perspective of the conventions of

logic that members of a culture adhere to when organizing their thoughts into what they consider to be a coherent argument. Among other things, Kaplan pointed out that “each language and each culture has a paragraph order unique to itself, and...part of the learning of a particular language is the mastery of its logical system” (p. 14). Kaplan’s insights were, I believe, a precursor to current notions about how the L1 (native language) can affect the way a person structures and organizes information—both mentally and verbally—in an L2 (non-native language) (cf., e.g., Carroll, Murcia-Serra, Watorek, & Bendiscioli, 2000).

Throughout the 1970s and 1980s, the groundwork for the CTH became more firmly established by research in cognitive science (including both cognitive psychology and cognitive linguistics) that resulted in intriguing empirical findings and sophisticated theories about (a) the nature of mental conceptual representations and how they are acquired (e.g., Rosch, 1973; Smith & Medin, 1981; for a review of such research, see Murphy, 2002), (b) the separateness but interdependence of conceptual and linguistic representations (e.g., Lecours & Joannette, 1980; Potter, So, von Eckardt, & Feldman, 1984), and (c) the processes involved in constructing a mental message and converting this message into language (e.g., Levelt, 1989). The literature on concepts and conceptualization from this time period is quite extensive, but it seems to have been mainly Lakoff (1987), Levelt (1989), and von Stutterheim and Klein (1987) who succeeded in bringing it to the attention of researchers in the fields of SLA and bilingualism. Lakoff’s contribution was a voluminous synthesis of the research on the nature of conceptual representations and their interaction with language. As part of his treatise on the relationship between language and thought, Lakoff defended many of Whorf’s ideas about linguistic relativity and pointed out that “once it is realized that people can have many ways within a single conceptual system and a single language of conceptualizing a domain, then the idea that other people have other ways of conceptualizing experience does not seem so drastic” (p. 317).

The theories and findings that Lakoff addressed reflect a largely monolingual perspective, but second language researchers have had no difficulty in recognizing their implications for SLA and bilingualism. In fact, very soon after Lakoff’s book was published—and perhaps without any knowledge of its existence—von Stutterheim and Klein (1987) advocated a concept-based approach to SLA research. This approach involves using concepts (such as perfectivity) instead of linguistic structures (such as present perfect morphology) as the point of departure for investigating learners’ language use. Regarding its relevance to the CTH, the main importance of the article by von Stutterheim and Klein is probably the researchers’ understanding of how transfer can originate at the conceptual level, and not just at the level of linguistic knowledge. Among other things, they

asserted that “the way in which the learner organizes his utterances is heavily influenced by the conceptual structure present and by the way in which this conceptual structure is encoded in the source language” (p. 196). It seems reasonable to consider this statement to be an early formulation of the CTH given the theoretical context in which it was made.

Only two years later, Levelt (1989) published his influential book-length model of how the process of speech production proceeds through three stages referred to as conceptualization, formulation, and articulation. Although his model gives little attention to the nature of mental concepts and how they are stored in the mind, he does provide an empirically based framework for understanding the nature of conceptualization—i.e., the formation of a preverbal message in working memory— and for understanding how the conceptual structures in the preverbal message guide a person’s selection of language structures for verbal expression.

The 1990s saw a number of additional theoretical and empirical developments, and these made the context ripe for the explicit formulation of the CTH. First, during the 1990s, Whorf’s ideas about linguistic relativity—which had previously been or were concurrently being discounted by a number of prominent linguists (e.g., Malotki, 1983; Pinker, 1994; Pullum, 1991)— received new life in the work of Levinson (1997), Lucy (1992), Pedersen et al. (1998), and others who found substantial and compelling empirical support for the notion that the language a person speaks can affect how the person thinks, as evidenced particularly through their performance on nonverbal tasks, such as sorting pictures, categorizing objects, and remembering the configuration of objects in an array. Another important development was the adoption of Levelt’s model by researchers who drew out its implications for speakers who know more than one language (e.g., De Bot, 1992; Poulisse, 1997). A third important development was Slobin’s (1991, 1993, 1996) work on the *thinking for speaking* hypothesis (TFSH), which, along with the previously mentioned hypothesis by von Stutterheim and Klein (1987), predates and is directly relevant to the CTH. In one of its earliest forms, the TFSH was characterized by Slobin (1991) as referring to “a special kind of thinking [that] is called into play, *on-line*, in the process of speaking in a particular language” (p. 7, emphasis in the original). Later in the same article, Slobin said that “the activity of thinking takes on a particular quality when it is employed in the activity of speaking” and that while “constructing utterances in discourse one fits one’s thoughts into available linguistic frames” (p. 12).

Although there is a certain relativistic flavor to these claims, Slobin was careful to distance himself from the work of von Humbolt and Whorf, explaining that the TFSH does not relate to a person’s worldview or to thinking in gen-

eral. In his 1991 paper, he suggested that speakers of all languages have essentially the same full mental images of the things they experience, but that their L1s cause them to sample differently from those mental images when rendering their thoughts into language (p. 8). In other words, according to the TFSH, a person's L1 does not affect the mental images that the person forms about the world, but it can affect which elements of those mental images are selected for verbalization, the way those elements are organized, and the particular details of those elements that are expressed. Slobin also claimed that many of the distinctions that are expressed through language, such as whether an event is perfective/imperfective or witnessed/non-witnessed, are not part of the person's mental image of an event, but instead come into play only during the specialized form of thought that accompanies speaking (pp. 10-11). In a subsequent paper, Slobin (1993) extended the TFSH to L2 acquisition by claiming that "each native language has trained its speakers to pay different kinds of attention to events and experiences when talking about them. This training is carried out in childhood and is exceptionally resistant to restructuring in ALA [adult L2 acquisition]" (p. 245). The TFSH has been very influential in recent work on SLA and bilingualism, and in the following section I will discuss how it overlaps with but also differs from the CTH.

As the TFSH was first beginning to exert its influence on transfer research (e.g., Kellerman, 1995), dissertations by Jarvis (1997) and Pavlenko (1997) took a different approach—an approach that was grounded in models of the nature of mental conceptual representations and in research on possible differences in the conceptual inventories of speakers of different languages. Although Jarvis acknowledged the TFSH, he found the neo-relativistic, cognitive linguistic framework espoused by Lakoff (1987) to be a more useful foundation for investigating whether the L1-specific patterns found in learners' L2 word choices may reflect differences in some of their mental concepts. This is because Lakoff's framework deals with the structure of mental concepts stored in long-term memory—and therefore also with the categorization and naming of objects and events vis-à-vis those mental categories—whereas the TFSH deals more with the processing of conceptual knowledge in working memory for the purpose of preparing that information for verbalization. The types of word choices Jarvis was interested in involve references to objects and events in the real world, whereas the TFSH applies mainly to learners' use of grammaticized categories that "*have no direct reflection in one's perceptual, sensori-motor, and practical dealings with the world*" (Slobin, 1993, p. 247, italics in the original).

The title of Jarvis' dissertation is "The role of L1 based concepts in L2 lexical reference," and even though the dissertation does not use the term *conceptu-*

al transfer, it can certainly be seen as one of the first investigations of the CTH carried out within the framework of a theory of the nature of mental concepts—though certainly not one of the first investigations of the phenomenon of conceptual transfer at a more abstract level, which research goes back at least to von Humbolt (1836/1960). Jarvis found that Finnish-speaking and Swedish-speaking learners of English often use different words to refer to the same objects and events in a silent film, and that their word choices in some cases appear to be affected by differing conceptual representations of those objects and events. For example, he found that Finns tend to use the same verb (e.g., *crash*) to refer to both human-human and object-object collisions, whereas Swedes tend to use two different verbs for the two types of collisions (e.g., **run on* and *crash*), as if they conceptually categorize them as being different types of actions.

Just two months after the completion of Jarvis' dissertation, Pavlenko (1997) completed her own dissertation, titled "Bilingualism and cognition", which likewise investigates the CTH even though it also does not use the term *conceptual transfer*. Pavlenko's dissertation goes into a great deal of depth concerning the foundations of linguistic relativity and its implications for bilingualism, and like Jarvis' dissertation, Pavlenko's study is firmly grounded in theories and empirical research related to the nature of mental conceptual representations. Although Jarvis and Pavlenko were unaware of each other until 1998, both dissertations use film-elicited narrative data, and both investigate the effects of language-specific conceptual representations on the ways that learners and bilinguals refer to events. However, whereas the scope of Jarvis' study was limited to the effects of L1-based concepts on L2 performance, Pavlenko's investigation extended also to the effects of L2-based concepts on L1 performance, especially with respect to Russian speakers' references to the notions of privacy and personal space— notions that are either lacking in Russian or are at least very different for monolingual Russian speakers than they are for monolingual English speakers. Pavlenko found that after living in the U.S. and being integrated into American discourse for only a few years, Russian speakers were able to acquire the English-based concepts of privacy and personal space, and made use of these concepts in their narrative film descriptions—both in English and in Russian, even when it resulted in ungrammatical constructions in their native Russian.

A few months after completing their dissertations, Pavlenko (1998) and then Jarvis (1998) both began referring to this type of crosslinguistic influence as conceptual transfer (see also, e.g., Jarvis, 2000a; Jarvis & Pavlenko, 2007; Pavlenko, 1999, 2000, 2005; Pavlenko & Jarvis, 2001). Since then, a number of other researchers have also used this term in its new, technical sense. These include Alonso (2002) and Odlin (2003, 2005, in press), as well as a number of

other researchers who have addressed the CTH in theses, dissertations, conference papers, and so forth (e.g., Davey, 2001; Meriläinen, 2006; Nakahama, 2004; Sanchez, 2007). There have also been a good number of studies that have investigated phenomena that fall within the scope of conceptual transfer even though they have not used this term. Most prominently, these include studies on crosslinguistic influence in learners' patterns of referring to motion events in speech (Carroll et al., 2000; von Stutterheim, 2003; von Stutterheim & Nüse, 2003) and in gesture (Gullberg, in press; Kellerman & van Hoof, 2003; Negueruela, Lantolf, Rehn Jordan, & Gelabert, 2004; Stam, 2006), and they also extend to eye-tracking studies that investigate what learners look at while describing motion events (Schmiedtová, Carroll, & von Stutterheim, 2007). Many of these studies interpret their findings in relation to the TFSH instead of the CTH. In the following section, I will discuss the relationship between these two hypotheses, the relationship between the CTH and linguistic relativity, and the distinction between concepts and conceptualization as they pertain to the CTH.

3. Theoretical Issues

Goldstein (2007) explains that the perceptual process involves the following eight steps:

1. the presence of an environmental stimulus,
2. a person's attention to the environmental stimulus,
3. the reception of energy (e.g., light) from the stimulus by the person's neural receptors,
4. the transduction of that energy into electrical signals within the person's nervous system,
5. the neural processing of those signals by organized and interconnected neural pathways,
6. the person's conscious perception of the stimulus,
7. the person's recognition (mental categorization) of the stimulus,
8. the person's physiological "action" response to his or her recognition of the stimulus.

Of these eight steps, it is the seventh that is of primary concern to the present paper. However, it is also important to understand that crosslinguistic differences may occur as early as steps 5 and 6. These steps are affected by a person's knowledge and past experiences (Goldstein, p. 8), and in fact a number of empirical studies have found that members of different cultures (who happen to be speakers of different languages) often perceive the same visual stimuli in differ-

ent ways, such as by differing in their perception of what a spear is being aimed at in a line-drawn picture of a hunter and various types of prey (see Galotti, 2004, pp. 544-549). This evidence, which is quite considerable, suggests “that culture affects the way people...create meaningful interpretations of what they see” (Galotti, p. 549), and this seems to run counter to Slobin’s (1991) view that speakers of all languages share “a universal form of mental representation” of the things they experience (p. 8). Although the cognitive science literature does not suggest that language itself is a prominent cause of differences in perception, it does show that speakers of different languages (who belong to different discourse communities) often do differ measurably in what they perceive. Thus, Slobin’s TFSH may be overly cautious in its assumptions about how deep the cognitive differences between speakers of different languages may run.

As far as recognition (i.e., the seventh step in the perceptual process) is concerned, this entails a person’s ability to place an object, event, relationship, and so forth into a conceptual category. Recognition is similar to perception in many respects, but research on agnosia (a pathological inability to recognize objects) has shown that people with this condition are often able to perceive all of the parts and properties of an object (e.g., a glove) correctly without being able to recognize what that object is or what it is used for (see Galotti, 2004, pp. 79-82; Goldstein, 2007, pp. 7-8). Recognition, again, is a matter of conceptual categorization, and the way a person categorizes an object, event, and so forth, depends on the structure and makeup of the person’s inventory of mental concepts.

So, what is a mental concept? According to Murphy (2002), a concept is “a mental representation of a class of things that are recognized as being fundamentally the same or sufficiently similar as to be given the same label” (p. 481). Galotti (2004) adds that a concept is “a mental representation of some object, event, or pattern that has stored in it much of the knowledge typically thought relevant to that object, event, or pattern” (p. 246). There are a number of current theories about the nature of mental concepts, and most or all of them may be correct about certain properties of the concepts stored in a person’s conceptual inventory. Gleaning from the most widely accepted theories of concepts, it appears that a typical mental concept is made up of a cluster of images (visual, olfactory, schematic, etc.) structured in a hierarchical fashion, and having a knowledge component that allows the person to make judgments about borderline members of the category and to identify category members that have not previously been encountered (e.g., a chair that does not really look like a chair but is recognized as serving the function of a chair). More specifically, a given mental concept is thought to have many or all of the following characteristics: (a) a nucleus that serves as the prototypical or most representative image or

schema for the concept, (b) typical images and schemas that resemble the nucleus, (c) peripheral images and schemas that resemble (relatively more) central images or schemas, (d) knowledge components that are used to determine which images and schemas can and cannot be categorized as members of the concept, and (e) links to other concepts, especially to those with which the concept in question shares a hierarchical relationship (e.g., ANGUS < COW < ANIMAL (for detailed discussions about the nature of concepts, see Galotti, 2004; Murphy, 2002).

If monolingual speakers of one language lack a concept that speakers of another language have (or vice versa), or if the speakers of both languages have corresponding concepts that nevertheless differ with respect to any of the five characteristics of concepts just described, then what we have is a difference in the conceptual inventories of the speakers of the two languages. Although universalists tend to doubt that such differences exist (e.g., Pinker, 1994, pp. 44-73), a good deal of compelling evidence has recently come to light in the work of Bowerman (1996), Levinson (1997), Lucy (1992, 1997), Pedersen et al. (1998), and many others (see, e.g., the volumes edited by Gentner & Goldin-Meadow, 2003; Niemeier & Dirven, 2000). Most of the relevant research has focused on (monolingual) speakers' use of their L1s, but crosslinguistic differences in conceptual inventories also have clear implications for bilingualism and SLA, and these have been in the spotlight of most of the research that has so far been conducted under the banner of conceptual transfer, especially in the work of Jarvis and Pavlenko (e.g., Jarvis, 1997, 1998; Jarvis & Pavlenko, 2007; Pavlenko, 1997, 1998, 1999, 2000, 2005; Pavlenko & Jarvis, 2001). The primary concern of this line of inquiry is how L2 users make use of lexicalized and grammaticized concepts acquired through one language while performing in another language, as evidenced through the ways they categorize, label, frame, recall, and refer to objects, events, qualities, patterns, relationships, emotions, and so forth in the other language.

The word *conceptual* refers not just to concepts, however, but also to conceptualization, and indeed the CTH covers both types of conceptual transfer. To avoid confusion, I will refer to conceptual transfer related to a person's conceptual inventory as *concept transfer*, and will refer to conceptual transfer stemming from a person's patterns of conceptualization as *conceptualization transfer* (see Table 1). Concept transfer results from the nature of a person's stored conceptual inventory, whereas conceptualization transfer occurs during the processing of that knowledge. I acknowledge that in some cases it may be difficult to distinguish between the two. For example, if a learner fails to make a particular conceptual distinction, such as between witnessed and non-witnessed, does that

mean that the learner lacks that conceptual distinction in his or her conceptual inventory, or that he or she simply either didn't invoke that distinction in the given context, or did invoke it mentally but did not deem it relevant to express verbally?

Table 1: Two types of conceptual transfer

Concept Transfer	Transfer arising from crosslinguistic differences in the conceptual categories stored in L2 users' long-term memory.
Conceptualization Transfer	Transfer arising from crosslinguistic differences in the ways L2 users process conceptual knowledge and form temporary representations in their working memory.

Methodological challenges aside, the distinction between concept transfer and conceptualization transfer is of great theoretical importance. Allow me to relate a brief analogy that I think illustrates this point quite clearly. Imagine two kitchens in two faraway countries. I will use the U.S. and Finland since these are the two countries I am most familiar with. In both kitchens you will find ingredients for making various types of food. Many of the ingredients will be the same, such as salt, pepper, sugar, flour, cinnamon, rice, noodles, ketchup, and so forth. Other ingredients will be similar but not the same in the two kitchens. In the U.S. kitchen, you will find shortening, but in the Finnish kitchen, its counterpart will be baking margarine. In the U.S. kitchen, you will find liquid vanilla, and in the Finnish kitchen the counterpart will be vanilla sugar. The list goes on. The most striking differences are where you find an ingredient in one kitchen that tends not to have a counterpart in the other, such as peanut butter and taco seasoning in the U.S. kitchen, and cardamom and rye flour in the Finnish kitchen. These are inventory-related differences, and the foods made in the U.S. kitchen and Finnish kitchen can differ because of the differences in their inventories. However, even with the same ingredients in their inventories, American and Finnish cooks still create substantially different foods by selecting different ingredients from their inventories or using the same ingredients but in different proportions, and by combining them in different orders, mixing them differently, and so forth. Thus, even with the same inventories, processing differences can lead to substantially different outcomes. These observations apply similarly to conceptual transfer: Conceptual transfer can occur either because of differences in L2 users' conceptual inventories or because of differences in how they process their conceptual knowledge; it can also involve both of these at the same time.

The primary difference between concept transfer and conceptualization transfer, again, is that the former results from the makeup of the inventory of concepts in a person's long-term memory, whereas the latter involves the process of selecting specific concepts from long-term memory, calling them up into working memory, and combining them dynamically in various orders, structures, and configurations in order to construct temporary representations of various types of phenomena (e.g., smells, sounds, tastes, feelings, relationships, and dynamic visual images of objects, events, scenes, situations, episodes), whether real or imagined. I have already addressed the types of questions that are relevant to the investigation of concept transfer, and I will now turn to questions that are of primary relevance for conceptualization transfer.

Table 2: Three levels of conceptualization.

A. General Cognition
B. Macroplanning for Speaking
C. Microplanning for Speaking

One of the main questions is whether there are different levels of conceptualization and, if so, whether these different levels of conceptualization differ in their susceptibility to crosslinguistic differences, as Levelt (1989) and Slobin (1991) have suggested. If the answer to both questions is affirmative, then this will have important implications for where we should look for conceptual transfer and for what we should expect to find. Although there is a great deal that we do not yet know about conceptualization, a consensus seems to be emerging that there are at least three levels of conceptualization: (a) general, nonlinguistic thought and cognition, (b) preverbal thought that has been macro-planned in relation to the conceptual material that will be communicated, and (c) preverbal thought that has been micro-planned in terms of how that conceptual material will be packaged for verbalization (see, e.g., Levelt, 1989, 1996; Levinson, 1997; von Stutterheim & Nüse, 2003). These levels are represented in Table 2. In Levelt's (1989) model, levels B and C are contained within what he calls the Conceptualizer (pp. 5-11). Levelt (1996) argues that language specificity does not occur until the final stage of conceptualization—level C—and this claim seems compatible with Slobin's (1991) early formulation of the TFSH. However, von Stutterheim and Nüse (2003) explain that the TFSH also applies to level B, and that their empirical evidence of how speakers segment event sequences, select event components, and structure information shows that crosslinguistic differences do indeed occur as early as level B. They acknowledge that their evi-

dence is also compatible with crosslinguistic differences at the level of A, but they consider this to be an overly indulgent interpretation of their results. Other researchers, including Slobin (1991, 1993, 1996, 2003), seem to reject the possibility of crosslinguistic differences and crosslinguistic influence occurring at the level of A.

The areas of overlap between the CTH and the TFSH, as just implied, are in conceptualization at the levels of B and C. Because of the overlap, however, these are the areas where the CTH is superfluous in relation to the TFSH unless it can be shown that the CTH accounts for a wider range of phenomena than the TFSH, and that the CTH does not over-predict the types of crosslinguistic influence that can and do occur in L2 users' language use. This naturally brings the focus of CTH research to conceptualization transfer at the level of A, as well as to concept transfer as previously described. In the following section, I will discuss the types of empirical evidence that are needed to investigate both types of conceptual transfer, but in the meantime, three additional theoretical issues need to be addressed.

The first issue is whether there really is a clear distinction between conceptualization at the levels of A and B. Several researchers have pointed out that a substantial amount of the thinking we do involves inner speech—i.e., thought that is accompanied by mental verbalizations even outside of communicative contexts, as well as thought that is performed through language (for an in-depth discussion of inner speech in L2, see de Guerrero, 2005). If inner speech occurs at any or all of the three levels of conceptualization just described, then can these levels really be considered to be preverbal? If not, then the whole notion of thinking for speaking loses its relevance. Inner speech also causes problems for the investigation of linguistic relativity. Linguistic relativity is usually investigated through nonverbal tasks that are designed to reveal differences in how speakers of different languages think at a general level (e.g., Lucy, 1992; Pedersen et al., 1998) —i.e., not how they think for speaking. However, if the people who participate in those studies happen to be relying on inner speech while performing those nonverbal tasks, then their behavior is probably not purely nonverbal (cf. Boroditsky, 2001, p. 3). A related issue is the matter of verbalization versus vocalization. Just because a person does not say (or write or sign) something does not necessarily mean that the person has not mentally formulated the linguistic means to do so. To consider one example, work by von Stutterheim (2003; von Stutterheim & Nüse, 2003) shows that German speakers are more likely to mention the endpoint of an event in both their L1 and L2 than are English speakers, but this does not necessarily show that English speakers are less likely to conceptualize endpoints or to verbalize them mentally. To be sure, a common feature of

human experience is the frequent choice not to utter some of the things that we mentally verbalize, for a multitude of reasons. The third and final theoretical issue is the relationship between the CTH and linguistic relativity. Although past work on conceptual transfer by Jarvis, Pavlenko, and Odlin (e.g., Jarvis, 1998; Jarvis & Pavlenko, 2007; Odlin, 2005, in press; Pavlenko, 1997, 2005, in press) has emphasized its relationship to linguistic relativity, it is important to recognize these as two separate hypotheses that are related but not at all equivalent. Linguistic relativity fundamentally concerns the effects of language on thought (see Figure 1). We can, of course, extrapolate from the Linguistic Relativity Hypothesis the prediction that, if Language A affects a person's cognition, then that cognition may in turn affect the person's use of Language B. However, this extrapolation is not self-contained within the Linguistic Relativity Hypothesis.

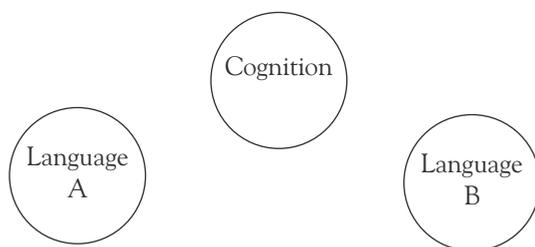


Figure 1: Linguistic Relativity

It is the CTH that deals with the effects of cognition on language use (see Figure 2). More specifically, the CTH predicts that the concepts and patterns of conceptualization that a person has acquired as a speaker of one language will have an effect on how the person uses all of the languages that he or she knows. This is not merely an extension of the Linguistic Relativity Hypothesis because there are cases where speakers of different languages differ in their patterns of cognition even when these differences are not caused by language differences, as work on perception has shown (see Galotti, 2004). Pragmatic transfer may be a useful point of comparison here. When we find instances of pragmatic transfer, such as crosslinguistic influence in how a person apologizes for causing a mishap, we do not assume that this type of transfer is caused by the structure of the source language; instead, we assume that it is caused by the L2 user's understanding of the social conventions that govern the proper use of the source language. In like manner, the CTH does not assume that instances of conceptual transfer are necessarily caused by the structure (or grammar) of the source language. The conceptual structures and patterns of conceptualization that lead to

conceptual transfer can reflect the notions that are habitually referred to and the distinctions that are habitually made within a discourse community, independently of the linguistic structures that exist in the grammar of that community's language. Lucy (1996, 2000) refers to crosslinguistic conceptual differences of these types as representing discursive relativity rather than structural (grammatical) relativity. If linguistic relativity means structural relativity, then it is clear that linguistic relativity is not the only cause of conceptual transfer. If, on the other hand, linguistic relativity is understood more generally to mean both structural and discursive (including cultural, educational, occupational, and social-network-based) relativity, then it may be true that linguistic relativity is the only cause of conceptual transfer, as Odlin (2005, p. 5) has suggested.

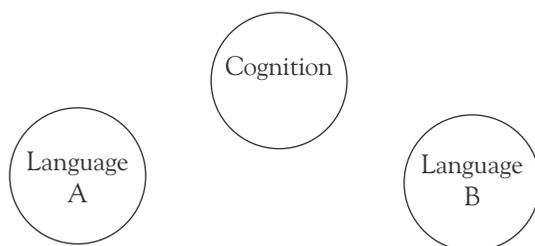


Figure 2: Conceptual Transfer

There may be a certain tautology between discursive relativity and structural relativity in the sense that the things that are habitually referred to by a discourse community often become incorporated into the grammar of their language, and the obligatory categories of their grammar compel them to refer to those categories on a habitual basis. An interesting case of the former that relates to the example of Bulgarian speakers in the introduction of this paper, is that the obligatory grammatical distinction between witnessed and non-witnessed in Bulgarian was historically borrowed from Turkish and does not exist in most other Slavic languages (Johanson & Utas, 2000). Presumably, the distinction became a habitual part of the discourse of Bulgarian speakers (especially Bulgarian-Turkish bilinguals) before it became an obligatory feature of their grammar. For the purposes of the present paper, the main point is that the CTH does rest on the assumption that speakers of different languages differ in their conceptual inventories and patterns of conceptualization, but it does not make any predictions about the origins of those differences. Such differences may be the result of structural relativity, discursive relativity, cultural beliefs and practices, forms of education, or other types of shared experience that are distinctive of that particular speech community.

4. Methodological Issues

The CTH assumes, again, that a person's patterns of language use in one language can reflect the concepts and patterns of conceptualization that the person has acquired as a speaker of another language. The two general types of evidence that are needed to confirm such instances of conceptual transfer are (a) evidence that a particular instance of language use constitutes crosslinguistic influence, and (b) evidence that the crosslinguistic influence in question has originated at the conceptual level. Methodological issues related to the first of these—i.e., the verification of crosslinguistic influence—are dealt with at length by Jarvis (2000b) and Jarvis and Pavlenko (2007), so I will not discuss them here. Instead, I will focus on the second issue, particularly as it pertains to the collection and examination of evidence for crosslinguistic conceptual differences that affect language performance. I will first discuss methodological issues related to the investigation of concept transfer, and will then turn to a discussion of methodology pertaining to conceptualization transfer.

Earlier, I pointed out that mental concepts have the following characteristics: (a) a nucleus that serves as the prototype or central member of the concept, (b) typical images and schemas, (c) peripheral images and schemas, (d) knowledge components that are used to determine what can and cannot be categorized as a member of the concept, and (e) membership in a hierarchy of concepts. Crosslinguistic differences and concept transfer can be investigated in relation to each of these characteristics. The most radical crosslinguistic difference pertaining to concepts would be a case where speakers of Language A have a concept that speakers of Language B completely lack. Most concept-related differences, however, presumably involve cases where speakers of different languages do have corresponding concepts, but where these concepts differ from each other in relation to their internal content (i.e., the specific images and schemas that are and are not included in the corresponding concepts), or their internal structure (i.e., the specific images and/or schemas that serve as the nuclei for both concepts, and the specific images and/or schemas that are considered to be typical versus peripheral members of each concept), or the concepts' position within a hierarchy of concepts (e.g., the specific superordinate categories they belong to and how representative they are of those categories). These prerequisites for concept transfer are shown in Table 3.

Studies that investigate crosslinguistic conceptual differences and concept transfer generally use nonverbal categorization and sorting tasks, as well as verbal naming and narrative reference tasks, in order to determine whether speakers of different languages show the types of concept-related differences just described (see Pavlenko, *in press*, for a summary of such studies). Nonverbal

tasks are usually preferred because they more compellingly show patterns of thought without being confounded by patterns of language use (e.g., Levinson, 1997; but see Boroditsky, 2001, p. 3 and my earlier discussion in this paper of the possible confound of inner speech). However, verbal naming and narrative reference tasks can also produce compelling evidence for concept-related differences when they clearly show that speakers of different languages have perceived and/or conceptually categorized the same objects, events, relationships, and so forth in different ways. Consider, for example, the finding that English speakers and Spanish speakers show differences in what they call shoes (Sp. *zapatos*) versus boots (Sp. *botas*). Speakers of both languages have both concepts, but they differ with respect to which specific objects they conceptually categorize as cases of one versus the other (see, e.g., Graham & Belnap, 1986). Nonverbal tasks that involve categorizing or sorting pictures of shoes and boots might provide even more compelling evidence of these differences, but even where nonverbal tasks are needed to establish crosslinguistic conceptual differences, verbal tasks are still needed to establish concept transfer. Concept transfer, again, refers to the effects of conceptual knowledge acquired as a speaker of one language on the person's use of another language; the effects of conceptual knowledge on language use cannot be measured without verbal tasks (often in combination with nonverbal tasks).

Table 3: Crosslinguistic conceptual prerequisites for concept transfer

1. Parity	A concept in Language A does not have a <u>counterpart</u> in Language B (or vice versa), or
2. Internal Content	A concept in Language A does not have the same <u>internal content</u> as the corresponding concept in Language B, or
3. Internal Structure	A concept in Language A does not have the same <u>internal structure</u> as the corresponding concept in Language B, or
4. External Membership	A concept in Language A does not belong to the same <u>superordinate categories</u> as the corresponding concept in Language B, or it does not have the same <u>status</u> within those categories.

However, while using verbal tasks to investigate concept transfer, it is absolutely essential to avoid confusing concept transfer with semantic transfer. Semantic transfer involves crosslinguistic influence related to the links between words and concepts, but not the makeup of concepts themselves. For example, when a Finnish speaker uses the word *language* instead of *tongue* in the sentence *He bit himself in the language* (Ringbom, 2001, p. 64), the cause of the transfer is the learner's carryover of the polysemous links between the Finnish word *kieli* ('tongue'; 'language') and two very different concepts: one for the physiological organ in a person's or animal's mouth, and one for a system of communication. The English word *tongue* also has polysemous links to both concepts, but the English word *language* does not. The Finnish-speaking learner's problem in this case is not a conceptual inability to distinguish between the two concepts; it is his understanding of which (and how many) concepts the word *language* can refer to. This is a clear case of semantic but not conceptual transfer.

Returning to the four prerequisites for concept transfer shown in Table 3, it seems fair to say with respect to the first prerequisite that the jury is still out on whether there really exist concepts in some languages that have absolutely no counterparts at all in other languages. This notion is often ridiculed by universalists (e.g., Malotki, 1983; Pinker, 1994; Pullum, 1991; see Levinson, 2003 for a discussion), but there is some evidence for it, and this evidence does not seem so surprising when we consider that even speakers of the same language—such as farmers, mechanics, physicians, economists—often differ in terms of which particular concepts they have and have not acquired (cf. Lakoff, 1987, p. 317). Conceptual differences within speech communities do, of course, muddy the water for the investigation of conceptual differences across languages because they mean that, even if most speakers of a particular language lack a particular concept, it is very unlikely that all of them do. It is therefore statistical tendencies rather than categorical patterns that we are primarily concerned with as we test the CTH. Another factor that muddies the water for investigating crosslinguistic conceptual differences is that many of the differences are not necessarily due to the languages themselves, else how could mechanics and economists who are speakers of the same language have differing concepts? The differences probably are *language-related*, however, in the sense that specialists in certain areas often have their own specialized terminologies, genres, and discourse patterns that include shared, habitual references to certain concepts and distinctions that may be completely lacking in the language use (and in the minds) of other discourse communities, even when those different discourse communities are speakers of the same language.

Individuals tend to be members of multiple discourse communities, however, and there are naturally many concepts that are discursively prominent across dis-

course communities within a language, but which are less prone to crossing language boundaries. The concept of privacy appears to be one of these concepts. English speakers across discourse communities frequently invoke this concept in their conversations and in their daily behavior. Russian speakers, by contrast, do not frequently refer to privacy, and in fact Russian does not really have a good translation equivalent for it. It is difficult to prove that Russian speakers do not have the concept of privacy, but Pavlenko (2003) has shown that they do not refer to this concept in either English or Russian when witnessing what English speakers consider to be clear violations of privacy—except in cases where the Russian speakers have been immersed in English-speaking discourse communities for at least a few years, in which case they refer to privacy in both English and Russian, even when it causes them to produce ungrammatical constructions in Russian. Again, it is difficult to prove that speakers of one language have a concept that speakers of another language lack, but the most relevant types of evidence for concept transfer related to the lack of conceptual parity are (a) evidence that L2 users fail to invoke certain concepts while speaking one language that are lacking in another language they know, and (b) evidence that L2 users who belong to discourse communities associated with one language attempt to express concepts from that language that are unfamiliar to monolingual speakers of another language they know. Pavlenko's (2003) Russian speakers show both types of evidence, depending on where and how they learned their English.

The other types of conceptual prerequisites for concept transfer shown in Table 3 are easier to find evidence for. Concept transfer related to the internal content of concepts can be verified through studies involving the types of naming, reference, categorization, and sorting tasks described earlier, and this is the main phenomenon that concept transfer research has focused on. In some cases, the empirical evidence shows that a concept in one language is simply broader than a corresponding concept in another language, such as the concept of falling in English, which corresponds to at least four narrower concepts in Finnish (Jarvis, 2003). In other cases, corresponding concepts across languages seem equally broad, but they still differ in relation to which particular objects (or events, etc.) are included in the concept, such as whether a particular object is deemed to be a shoe or a boot (e.g., Graham & Belnap, 1986) or a cup or a glass (e.g., Ameel, Storms, Malt, & Sloman, 2005; Pavlenko, in press). In still other cases, corresponding concepts across languages seem to include the same range of objects, but nevertheless differ in how they represent those objects, such as whether they represent weather, rice, and cereal as singular or plural, countable or noncountable entities (e.g., Jarvis, 1996), and what types of attributes (e.g., masculinity, femininity) are part of the concept (Boroditsky, Winawer, &

Witthoft, 2006). These studies and several others have found substantial and compelling evidence for crosslinguistic differences in the internal content of corresponding concepts and for concept transfer. The evidence for concept transfer related to the internal content of concepts is largely centered around how L2 users categorize objects and actions in Language A, whether they categorize them the same way in Language A as they do in Language B, and whether speakers of other languages (e.g., Language C) show differences in how they categorize those same objects and events in all of the languages they know (cf. Jarvis, 2000b).

Few studies have investigated concept transfer related to the internal structure and external membership of concepts, but research on transfer in learners' judgments about category prototypes can be found in the work of Kellerman (1978), and research on transfer involving differences in prototypical and peripheral meanings of words can be found in the work of Ijaz (1986). However, it is not clear whether the findings of these studies truly relate to conceptual as opposed to semantic effects. What is needed are studies that more directly address the internal structure of concepts, such as by giving speakers a series of related images and asking them to judge them according to how representative they are of a particular concept. To verify crosslinguistic differences, it would be necessary to show that their judgments differ from the judgments of speakers of other languages. To verify concept transfer, it would be necessary to show that L2 users' typicality judgments are congruent in both of their languages, and that their language behavior in one language is affected by the concept-internal structures (reflected in their typicality judgments) they have acquired as speakers of another language. Evidence for concept transfer related to external membership would be similar, but would involve a superordinate conceptual category, such as the superordinate category of furniture (e.g., Aitchison, 1992), as opposed to the basic-level concept of chair.

Turning now to conceptualization transfer, the reader will recall that three levels of conceptualization have been distinguished in the literature (see Table 2): (a) general, nonlinguistic cognition, (b) macroplanning for speaking, and (c) microplanning for speaking. Levels B and C together are the essence of Slobin's (1991, 1996) notion of thinking for speaking, and an explicit and coherent framework for investigating this phenomenon has begun to emerge in the work of von Stutterheim and colleagues. Von Stutterheim and Nüse (2003) have broken thinking for speaking not just into macroplanning and microplanning, but into four more specific stages: (1) the mental *segmentation* of a situation into its component states, properties, events, and processes; (2) the *selection* of a subset of those conceptual components for verbalization; (3) the perspective-driven

structuring of the selected components in relation to argument roles, spatial and temporal frames of reference, and so forth; and (4) the *linearization* of the selected and structured components so that they can be converted into language in a straightforward manner. The types of empirical evidence that are needed to show language-specific patterns of conceptualization at each of these four stages are dealt with at length by von Stutterheim and Nüse. These researchers themselves provide evidence of how English speakers and German speakers differ in their descriptions of animated film clips in terms of how many and which events they refer to (segmentation), whether they refer to the endpoints of those events (selection), and whether they anchor those events to the observer or to other events (structuring). Von Stutterheim (2003) has found that these types of language-specific patterns of conceptualization do indeed transfer to learners' use of their L2s, and additional evidence of conceptualization transfer related to segmentation, selection, and structuring can be found in studies on L2 users' use of gestures (e.g., Gullberg, in press; Kellerman & van Hoof, 2003; Negueruela et al., 2004; Stam, 2006) and even eye gaze (Schmiedtová et al., 2007). Additionally, researchers have found that these types of crosslinguistic influence can also work in the opposite direction, from L2 to L1, especially in cases of advanced bilingualism (e.g., Bylund & Jarvis, 2007; Hohenstein, Eisenberg, & Naigles, 2006).

Although conceptualization transfer subsumes thinking for speaking, the real utility of the CTH is in areas that do not overlap with the TFSH. Thus, as far as the CTH is concerned, it is absolutely essential to consider crosslinguistic differences and crosslinguistic influence in areas of cognition that are not believed to involve thinking for speaking. The types of conceptualization that are relevant for this purpose are (a) the way a person perceives an object, event, relationship, etc. that he/she is currently encountering, (b) the way a person recalls an event that he/she has previously encountered, (c) the way a person predicts and imagines things that go beyond what has been encountered, and (d) the way a person reasons and goes about making decisions and solving problems. These types of conceptualization are drawn from the literature on cognitive psychology (e.g., Galotti, 2004) and from Odlin's (2005, p. 16) and Pavlenko's (2005, p. 435) observations concerning the existing evidence for conceptual transfer.

One potential challenge in the investigation of these types of conceptualization transfer is how to tease them apart from concept transfer. Concept transfer, again, stems from the nature of stored concepts in long-term memory, whereas conceptualization transfer involves language-specific ways of processing conceptual representations in working memory. As mentioned earlier, conceptualization transfer can occur independently of crosslinguistic differences in learners' conceptual inventories, and this is probably particularly true of the types of concep-

tualization transfer that constitute thinking for speaking. In more general, non-linguistic forms of thinking, it may be more difficult to find cases of conceptualization transfer that do not simultaneously involve concept transfer. However, I can offer one hypothetical example that relates to von Stutterheim's (2003) work on conceptual transfer related to the selection and verbalization of event endpoints. One of the film clips von Stutterheim used showed a boy digging in the sand. Most of the English speakers who described this film clip expressed precisely that—i.e., that the boy was digging in the sand. They did this both in L1 English and in L2 German. Most of the German speakers, on the other hand, included an endpoint in their description of the event, by saying something along the lines of “He builds a sandcastle” (p. 192), both in L1 German and L2 English. The simple fact that the German speakers chose to refer to an endpoint at all may very well be a thinking-for-speaking effect, as von Stutterheim has observed. However, the fact that they imagine a very specific endpoint that they have not seen may well go beyond thinking for speaking. Von Stutterheim does not say how many of the Germans specifically imagined a sandcastle, but if this is a substantial tendency of German speakers, and if speakers of some other language can be found to have a substantial tendency to imagine a different endpoint (such as looking for clams) to the same scene, then this would be rather compelling evidence of conceptualization transfer at a deeper level. This would also be a good example of conceptualization transfer that is not an outcome of structural relativity, and which also does not necessarily involve concept transfer. It would almost certainly be an outcome of habits of discourse related to specific types of events (i.e., discursive relativity).

Boroditsky (2001) is one of the few studies that so far have investigated conceptualization transfer at this deeper level of cognition. Boroditsky compared English speakers and Chinese Mandarin speakers in relation to the speed with which they were able to make judgments about temporal relationships (e.g., “March comes earlier than April”) after being shown a prime involving either a vertical array of objects or a horizontal array of objects. English tends to portray time (such as days of the week and months of the year) as if they were ordered along a horizontal plane, whereas Mandarin often portrays time along a vertical plane. Boroditsky tested both groups using English prompts, and she found that English speakers were significantly faster at making time-related judgments after being shown a horizontal array, whereas Mandarin speakers were significantly faster at making such judgments after being shown a vertical array. Mandarin-English bilinguals were also tested (in English), and were found to pattern according to whichever language they knew better. The results of this study may entail concept transfer to a certain degree, but I believe that the specific effects

the researcher was looking at are more directly a matter of conceptualization because they presumably occur in working memory. That is, the task in this case required each participant to form temporary mental representations of (a) an object array and (b) a time relationship, and to juxtapose these representations in working memory. The speed with which they were able to judge whether the time relationship was accurate appears to have depended at least partially on how congruent their temporary conceptual representations of the object array and the time relationship were. To the extent that this is true, this study provides compelling evidence of conceptualization transfer that goes beyond thinking for speaking. So far, very few other studies have provided such clear evidence, and in fact few studies have even tried. Given that work on linguistic relativity has begun to unearth more and more evidence for crosslinguistic differences in how people perceive, recall, predict, and reason in both monolingual and bilingual settings (e.g., Athanasopoulos, 2006; Lucy, 1992; Pederson et al., 1998), I am inclined to believe that evidence for conceptualization transfer in all of these areas will soon be emerging.

5. Conclusion

In this paper, I have attempted to clarify the meaning and scope of conceptual transfer and its relationship to thinking for speaking and linguistic relativity. I have made a distinction between two types of conceptual transfer—concept transfer and conceptualization transfer—and have shown that thinking for speaking overlaps partially with the latter. I have also argued that linguistic relativity is not the only cause of conceptual transfer unless linguistic relativity is understood to include both structural relativity (i.e., the effects of the grammar of a language on the way a person thinks) and discursive relativity (i.e., the effects of membership in a particular discourse community on the way a person thinks). The theoretical and methodological issues I have discussed in this paper are, as I see them, a necessary foundation for an eventual full framework for understanding and investigating conceptual transfer. More theoretical and methodological work is certainly needed in this area, as is more empirical evidence.

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Blakemore, D. 1987. *Semantic Constraints on Relevance*. Oxford: Blackwell.
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