



Discussing the Language and Thought of Motion in Second Language Speakers

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These concluding reflections seek to put the articles of this special issue in a broader context. The article begins by looking at the ideas of cognitive linguistics and linguistic relativity that are invoked. It then considers the questions that arise about the relationship between two or more languages in the same mind, the differences between the thinking of monolinguals and bilinguals, and whether cognitive changes in bilingualism are language-specific or universal and how they might contribute to language teaching. The aim is both to help the reader appreciate the nature of these contributions and to raise some, probably unanswerable, questions about this research domain. The intention is to bring out some of what this particular approach to second language (L2) research is, and is not, saying. The approach to second language acquisition (SLA) to which the contributions belong treats the second language (L2) user as a many-sided whole, in whom the languages interact with other mental systems, rather than as only the possessor of a grammar, concentrating on the complex relationship between language and cognition. The articles form part of a thriving SLA research movement, described in books such as Pavlenko (2011, 2014), De Groot (2011), and Cook & Bassetti (2011) that has started to explore how L2 users think—bilingual cognition—primarily through psycholinguistic experiments and techniques. They draw on the wing of cognitive linguistics that Evans (2011) calls “cognitive approaches to grammar” rather than on the “cognitive lexical semantics” wing, by focussing on how motion is expressed in speech, particularly on two key approaches to the relationship of motion and language, namely those by Talmy (1985) and Slobin (1996), who are referred to in all but two of the articles. The contributions to this special issue ask questions about L2 acquisition that would have been unthinkable 10 years ago and that allow SLA research for the first time to approach major issues about language in the human mind.

BACKGROUND IDEAS

Talmy's Lexical Typology of Verb-Framed and Satellite-Framed Languages

The starting point for Leonard Talmy is the way that people visualise a scene in terms of two main

elements, a *Figure*, such as a board, and a *Ground*, such as a road, expressed, say, as *The board lay across the road* (Talmy, 2005). The relationships between the elements of the scene are expressed in terms of physical motion, the manner in which it takes place, and the path it follows, say, in *I walked along the road* or *I ran around the track*. How these are expressed through lexis and syntax varies between languages. Spanish, for example, uses the verb to express both motion and path, *Entra caminando* ‘he enters walking,’ while English expresses path through a preposition or particle, *He walked in*. English and Spanish thus belong to

two distinct groups, verb-framed languages like Spanish and satellite-framed languages like English.

This two-way lexical typology of the world's languages proposed in Talmy (1985) turned out to be over-simplistic, with more complex situations arising both across languages and within a single language (Croft et al., 2010; Talmy, 2005); some languages are now regarded as balanced between the two types, called equipollent (Slobin, 2006). The typology is concerned only with visual aspects of the scene, ignoring other aspects of cognition, such as hearing: Thinking is based on seeing. Compared with other accounts of English grammar, Talmy's distinctive contribution is the emphasis on the motion in the scene. By comparison, taking two massive contemporary grammars, motion is not numbered among the nine semantic domains for verbs in *The Longman Grammar of Spoken and Written English* (Biber et al., 1999) nor does it form a meaning system in Halliday's functional grammar (Halliday & Matthiessen, 2013).

Slobin and Thinking for Speaking

Dan Slobin (1996) in a sense amplified Talmy's theory by taking in large amounts of speech data, often derived from the task of describing a picture story about a boy climbing a tree. He interprets Talmy's relationship between concept and language as an activity of thinking leading to an activity of speaking, that is, as a process in which the speaker expresses a concept through the means available in a particular language: What people can say is constrained by the forms of their language, not by their thinking itself. "Thinking for speaking' involves picking those characteristics of objects and events that (a) fit some conceptualisation of the event, and (b) are readily encodable in the language" (Slobin, 1996, p. 76). The speaker of a satellite-framed language like English expresses manner through verbs like *throw*, *carry*, or *run*, and path through adjuncts like *up*, *over*, or *in*. Because speakers of a verb-framed language like Spanish cannot combine manner and path in the same way, they have to find other ways to express change of location. Slobin (1996, p. 85, emphasis in the original), insists "I am talking about thinking for speaking **only**," that is to say, the dynamic process of performing speech rather than the static underlying competence. 'Thinking for speaking' describes how concepts are expressed in particular ways in a given language.

In a way, the architecture is curiously similar to Chomsky's Minimalist Program, which starts by

selecting lexical arrays from the lexicon into a Numeration from which their syntactic features can be built by means of the human computational system for language (C_{HL}) into a form that can be Spelled Out at different phases into Phonological and Logical Forms (cf. Cook & Newson, 2007, pp. 252–253). Both models see the chain between thinking and speech as starting with the choice of lexical forms, which then dictate structures. Both assume that cognition is universal, in contrast to linguistic relativity, which assumes that cognition (or at least some parts of it) is language-specific. The main differences are, perhaps, that Talmy and Slobin start with concepts, a step further back from Chomsky's lexicon, and that Chomsky asserts the universality of the computational system.

For both Talmy and Slobin, the function of language is the representation and communication of concepts, what Carruthers (2002, p. 657) calls "the (purely) communicative conception of language, according to which language is but an input-output system for central cognition." To Talmy (2003), the language system provides the basis for representing different levels of concepts, "establishing a subset of individual concepts as the basic schematic concepts that, in combinations, represent conceptual structure" (p. 193). Slobin (1996) regards thinking for speaking as "a special form of thought that is mobilized for communication" (p. 76). Talmy and Slobin are thus concerned primarily with the ideational metafunction of language (Halliday & Matthiessen, 2013) in which information is conveyed from one mind to another, not with the interpersonal metafunction of language in social life in which people have conversations with each other—why people want to talk about boards on a road or to retell stories and to whom they would tell them. In this respect these views of language and cognition are as abstract as any other formal linguistic theory, such as generative grammar: Communication amounts to transfer of descriptions of scenes from one mind to another.

Linguistic Relativity and the Separation of Language and Cognition

The idea of linguistic relativity put forward by Benjamin Lee Whorf often comes up in discussions of bilingual cognition, though he himself is actually cited in only two of the articles here. Whorf's definition of linguistic relativity is that "users of markedly different grammars are pointed by their grammars toward different types of observations and different evaluations

of externally similar acts of observation” (Whorf, 1940/1956, p. 221): Particular languages lead to particular ways of thinking. After the early research in the 1950s, surveyed in Ervin–Tripp (2011), linguistic relativity was dismissed out of hand for many decades, but was reborn in another shape in the 1990s thanks to Lucy (1996), Levinson (1996), and Roberson, Davies, and Davidoff (2000), as detailed in the introductory article and in the contribution by Athanasopoulos et al. (2015).

To take linguistic relativity on board means taking sides in the perpetual argument over the independence of language and cognition. On the one hand are cognitive linguists who have “a commitment to describing the nature and principles that constitute linguistic knowledge as an outcome of general cognitive abilities” (Evans, 2011, p. 71). On the other hand are those who see language as “an independent object of serious study” (Chomsky, 2013, p. 33). The opening debate is then whether language and cognition are distinct or essentially one and the same. Linguistic relativity presupposes they are two distinct entities and the issue becomes meaningless if they are not: It is hardly surprising that language-related concepts are related to language. We would expect to find differences between languages in expressing motion if it is related to language, but these would demonstrate change in the expression of cognition, not change in cognition itself. Linguistic relativity requires nonlinguistic evidence (Lucy, 1996).

Partly this hinges on whether there is a dividing line between linguistic and nonlinguistic concepts. In the view reflected in, say, Levelt, Roelofs, and Meyer (1999) and in Slobin (1996), lexical concepts underlie speech production; to Levelt, speech involves connecting lexicalised concepts to the mental lexicon, to Slobin selecting concepts that can be expressed in a particular language. The relevant concepts are thus closely tied to production of speech. But nonlexicalised concepts are not considered, say the concept of gravity known by infants around the age of 7 months (Kim & Spelke, 1992) or conservation of volume acquired by children around 9 or 10 years of age (Piaget, 1952).

The articles included in this issue divide between (a) those that look at how concepts are expressed in language, such as the processing of fictive motion through descriptions (Tomczak and Ewert, 2015), (b) those that tackle nonlinguistic concepts through nonlinguistic tasks or measures, such as endpoint orientation seen through triad matching of pictures (Athanasopoulos

et al., 2015; Bylund & Athanasopoulos, 2015) or through eye-tracking of moving entities (Flecken et al., 2015), and (c) those that combine lexicalised motion in speech with nonlexicalised gesture (Brown, 2015; Stam, 2015). Testing linguistic relativity implies looking for links between language and nonlexicalised concepts, in other words the domain-centred strategy toward linguistic relativity (Lucy, 2011), which takes a domain of experience, such as motion, and sees how it is reflected in different languages: Linguistic relativity is about thinking *not* for language. Further discussion of the relationship between linguistic relativity and thinking for speaking can be found in Treffers–Daller (2012), Lucy (1996), and Athanasopoulos and Bylund (2013).

The distinctive contribution of bilingual cognition to these topics is to test linguistic relativity and thinking for language from a different angle. It can isolate the effects of language learning on cognition from other developmental factors involved in first language acquisition, whether physical, social, or cognitive. If people’s thinking is changed by learning another language, bilingual cognition provides stronger evidence for linguistic relativity than something inextricably linked to the child’s whole development rather than to language alone. And the results substantially add to our knowledge of the unique nature of the L2 user’s mind in all its aspects.

GENERAL ISSUES ADDRESSED IN THE CONTRIBUTIONS

The background areas just described generate several broad questions for the contributions to this issue, to which I now turn.

What is the relationship between the two or more languages and sets of concepts in the same mind?

An overriding theme of the articles is how the languages in the bilingual mind are related. Both early SLA theories of Contrastive Analysis and popular beliefs suggested that L2 acquisition depends on transferring aspects of the first language (L1) to the second, the subject of a thousand Ph.D. dissertations: It is now obvious that the L1 affects the L2 in virtually all areas of language. The term *transfer* gave way to *cross-linguistic influence*, thanks to Kellerman & Sharwood–Smith (1986), shedding its behaviourist connotations. But why should the influence go in only one direction? The next phase of research concerned the influence of the L2 on the

L1–reverse transfer (Cook, 2003). Jarvis and Pavlenko (2008) went on to describe other relationships between the two languages, such as reciprocal transfer, in which the two languages affect each other. And why should it involve only two languages? The growth in multilingualism research from a linguistic relativity perspective (Bylund & Athanasopoulos, 2014) means we need to consider questions such as whether the L2 or the L1 most affects the L3/Ln (Cabrelli Amaro, Flynn, & Rothman, 2012).

A crucial issue for the assembled contributions is how the influence flows between the languages and concepts in the mind: Do the concepts in language A impose themselves on language B in the L2 user's mind? Pavlenko and Volynsky (2015) show some effects of L1 English concepts of motion on L2 users' processing and learning of Russian; Brown (2015) shows universal features of manner manifesting themselves in L2 English in speech but L1 influence from Mandarin and Japanese appears in gesture. Flecken et al. (2015) find French L1 speakers carrying across their L1 motion description to L2 German but not path; Stam (2015) highlights differences in both L1 and L2 handling of motion events in L2 English by a Spanish-speaking L2 user; Bylund and Athanasopoulos (2015) uncover an effect on L1 Swedish of L2 English for motion correlating with amount of television watched.

These findings demonstrate the influence of L1 on L2 concepts for these languages and some influence of L2 on L1. However, bilingual cognition may not be confined by the thinking in L1 and L2, called convergence by Brown: L2 users may evolve a way of thinking that does not just mix the two monolingual ways but is something unique, just as combining hydrogen and oxygen creates a new substance, water. In other words the metaphor of Language A carrying over something to Language B may be inadequate, whether thought of as transfer or influence. L2 users can construct a way of thinking that is their own, not predictable from a combination of the two.

An undercurrent throughout the guest-edited issue is how L2 users relate to monolinguals. The methodology mostly involves comparing L1 speakers of both languages with L2 users, say L1 native French and German with L2 German in Flecken et al. (2015), or L1 Swedish and English with L2 English in the contribution by Bylund and Athanasopoulos (2015). The studies overwhelmingly demonstrate that L2 users do not express exactly the same concepts of motion as the monolingual native speakers of the target lan-

guage. For instance, Athanasopoulos et al. (2015) discover a gradual restructuring of expression of concepts in the L2, a finding supported by Hendriks and Hickmann (2015) who show a gradual assimilation. Some studies also report an effect on the L2 users' thinking in the first language: Brown (2015), for example, claims that the L2 users had a unique pattern of gestures in both their first and second languages. Once again, the conclusion would seem to be this: An L2 user may not be describable as a compromise between L1 and L2 conceptual systems but needs something extra.

A notable feature that sets this approach apart from classical mainstream SLA research is its attitude to the native speaker. Conventional SLA research has seen the L2 user as a failed monolingual native speaker. For example, the prize-winning research by Abrahamsson and Hyltenstam (2009) entitled "Age of onset and nativelikeness in a second language" poses the question "Can L2 learners ever attain nativelike proficiency?" and concludes that "none of the late learners performed within the native-speaker range" (p. 249, original emphasis; this critique is developed further in Birdsong & Gertken, 2013): The test of successful L2 acquisition is whether you speak like a native speaker. In the contributions here, however, the thinking of L2 users is not interpreted as failure to achieve a native speaker target but as a valid form of thinking in its own right: The interest is in the reasons why L2 users create novel ways of thinking rather than in their putative deficiency compared to monolingual native speakers. The goal of research is to describe the uniqueness of L2 users, not to see them as defective projections of native speakers. Confining the L2 user within a double-L1 user framework cuts out the unique aspects of the L2 user that the L1 monolingual native speaker can never possess.

Which cognitive changes are related to bilingualism itself, which to the specific interactions between particular languages?

A general issue that arises with research into bilingual cognition is whether the changes in L2 users' thinking are the product of L2 learning itself or come from the specific pairing of languages involved. At the macro level, to use the term from Bassetti and Cook (2011), the knowledge and use of any two languages affects cognition. This includes such claims as bilinguals having higher general and mathematical creativity (Leikin, 2012) and being better at suppressing

interference and at task switching (Green, 2011). The macro level affects all L2 users, regardless of the languages involved: L2 learning changes your thinking. At the micro level, the combination of specific languages involved causes the change in thinking, as in the perception of colours in one language being affected by the colour divisions in another (Athanasopoulos, 2009) or the assignment of gender to objects being affected by whether the languages involved have natural or grammatical gender (Kurinski & Sera, 2011).

One important step in making bilingual cognition research more generalizable is the choice of L2. Over-reliance on a single L2 may be misleading as effects revealed in particular tasks may be due to a peculiarity of that particular language. English is the L2 five times in these articles, French and German twice, and Russian once; English is the L1 four times, German twice, and French, German, Mandarin, Japanese, Polish, Russian, Spanish, and Swedish occur once each. How representative are these languages? Set against the 136 language families in the world (Lewis, Simons, & Fennig, 2013), all the L2 groups speak an Indo-European language, eleven of the L1 groups speak an Indo-European language, one Sino-Tibetan and one Japonic. The languages are skewed toward English, the only hypercentral language (De Swaan, 2003), which may not be a representative language for many reasons, though necessarily a favourite with researchers due to the ease of access to its native speakers and the large number of its L2 users. The articles here do not separate languages on the grounds of history or linguistic universals as such but mostly reflect Talmy's division into satellite-framed and verb-framed languages, that is, a single difference between languages rather than a major overall typological difference such as word order—SVO, VSO, etc.

To answer questions about the macro level of cognitive change means comparing speakers of two pairs of languages differing in some relevant property, as seen in Figure 1.

The ideal four-language research design seen in Figure 1 includes four relationships, varying

FIGURE 1
Four-Language Research Design.

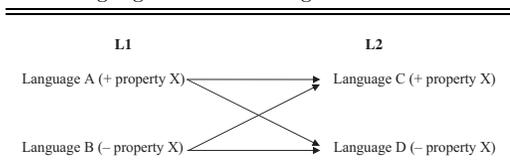
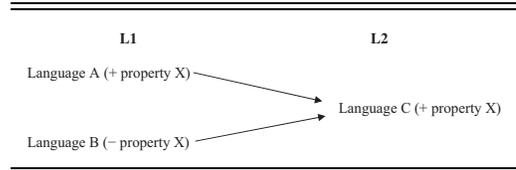


FIGURE 2
Three-Language Research Design.

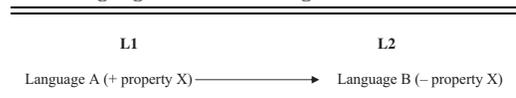


both the L1 and the L2 and the property $\pm X$, and tests eight groups—four monolingual and four bilingual. A consistent change in all four bilingual groups for the same task would show a macro-level effect, separate from specific language effects: Say, all L2 users made similar gender assignments that differed from monolinguals. Experience with other aspects of L2 learning, however, suggests that there may be differences in markedness; it is easier to go from the default unmarked setting for a human language to a marked setting than the reverse, as was found for the pro-drop parameter (Cook & Newson, 2007). That is to say, the influence of languages is not necessarily reciprocal between language A as L1 on Language C as L2 and Language C as L1 on Language A as L2.

The three-language design in Figure 2 involves one second language with a given property and two first languages, one with the same property (+ X), the other without it (- X), that is, two bilingual groups, let's say speakers of an L1 with grammatical gender and speakers of an L1 with natural gender, both learning an L2 with grammatical gender. If both bilingual groups handle gender the same way when assigning gender to objects, this suggests a macro effect, which could be supported by conducting the reverse test with a different L2 with different properties and with two bilingual groups with different L1s. The only example of the three-language design in the issue is Brown (2015), who looks at Manner of Motion in L2s Mandarin (equipollently framed) and Japanese (verb framed) and L1 English (satellite framed).

So the bulk of the articles presented here exemplify the two-language research design seen in Figure 3, which concerns one L1 and one L2

FIGURE 3
Two-Language Research Design.



with a different property, that is, it inherently tests two monolingual groups and one bilingual group. This can show micro effects from a particular pair of languages but not a macro effect. Their starting point is cross-linguistic differences between languages rather than general cognitive properties and so they are answering micro-level questions about specific pairs or triads of languages rather than macro-level questions.

What can the study of bilingual cognition contribute to language teaching?

A subtheme in several contributions is how the type of cognitive approach to SLA research they present can be related to language teaching. Athanasopoulos et al. (2015) favour the use of contextualised learning, the reconceptualisation of grammar as meaning exchange and explanation of information structure; Brown (2015) argues more specifically for making “manner an explicit part of the language curriculum” (p. 78) and for visualisation strategies; Flecken et al. (2015) conclude that long-term experience in language use is crucial to mastering the L2 at all levels; Pavlenko and Volynsky (2015) support different treatments for motion depending on whether the direction is from Russian to English or vice versa. Stam (2015) suggests that application to teaching depends upon further research into the explicit instruction of thinking for speaking patterns. Bylund and Athanasopoulos (2015) advocate multi-modal experiences and materials that illustrate different construals of motion.

An initial methodological point is that the participants studied in these articles are mostly instructed students of an L2, for instance Tomczak and Ewert’s (2015) Polish university students of English, rather than so-called natural L2 learners with little contact with language teaching, such as the early Russian/English bilinguals in Pavlenko and Volynsky’s (2015) study. The conclusions to be drawn may then be different for these two groups. The L2 learning of the instructed students has been shaped largely by what teachers chose to provide them with and how they chose to provide it. Instructed language students at university level may not fully represent all L2 users, not only because they have been selected by the universities for their ability to profit from university-style language teaching, but also because, in many countries, universities are the last refuge of the grammar/translation method, unlike the worldwide preference for

versions of communicative language teaching at the secondary school level. One might suggest an addition to Grosjean’s extensive requirements for bilingual participants (Grosjean, 1998), namely that the methods through which they have been taught are specified so that any artefacts of teaching method can be discounted; a person taught by an audiolingual method, say, may have been trained to think in quite different ways from someone taught through task-based learning: It is not necessarily *whether* they have been taught the language that is at stake, but *how*. Athanasopoulos et al. (2015) feel communicative language teaching lends itself well to cognitive linguistics, while Tyler (2012) sees it as a precursor to teaching based on cognitive linguistics. Because this may be the teaching method that most instructed participants have already encountered, their behavior may in some respects be the product of this method. The question remains whether general applications to teaching can be based on one particular type of L2 user group or need to be restricted to people equivalent to the original participants in, say, age and ability.

The relationship between SLA research and language teaching has been debated for half a century, going from Lado (1964) through Wilkins (1972) to Whong, Gil, & Marsden (2013). It is daunting to see how little impact SLA research has actually had over the years on what happens in L2 classrooms compared to the revolutionary assumptions about the importance of speech and the avoidance of the L1 put forward in the late nineteenth century that still govern most language teaching to this day (Cook, 2010). In practice, SLA research ideas have often been used post hoc to justify the dominant existing teaching method such as communicative language teaching rather than to suggest new teaching methods. One classic mode of application is to make information about SLA available for teachers and students in some form so that they themselves can decide how to use it, as in the suggestion that “L2 researchers and teachers need to have as complete an understanding of grammar and lexis, and the motivated ways in which they are used within communication as possible” (Tyler, 2012, p. 17). The emphasis in this mode is, then, on making ideas available to those who can make use of them, rather than making specific recommendations, one of the motives behind special issues such as this.

An alternative mode is to apply particular SLA theories or descriptions directly to some aspect of language teaching: How can we apply research in bilingual cognition to specific aspects of

contemporary language teaching, such as goals, syllabuses, and teaching techniques?

The Overall Goals of Language Teaching. Educational ministries and other authorities lay down goals that students should meet; individuals have their own reasons for learning second languages: Any discussion of language teaching needs to start from its purpose, very different for, say, Chinese children learning English in school in Shanghai, English football fans learning Portuguese to go to the World Cup in Rio, Puerto Ricans returning from the United States to Puerto Rico learning Spanish as a heritage language (Clachar, 1997), or any of the innumerable other reasons that human beings have for learning a new language in a classroom: Gallagher–Brett (2005) collected 700 from undergraduate students. These can be divided into external goals that relate to the learners' eventual use of language in the world outside the classroom, say tourism or business, and internal goals that relate to their social and cognitive development as individuals, such as intercultural understanding and increased cognitive flexibility (Cook, 2007).

Since the communicative language teaching boom of the 1970s, it is hard to find language teachers anywhere who would not claim to be communicative. Language teaching has been dominated by the external goal of communicative interaction with other people, not necessarily native speakers, through the second language, in other words an instrumental use of language for interpersonal social interaction. The traditional internal goals for foreign language teaching, such as cognitive improvement, have been barely mentioned by methodologists, apart perhaps from the rarely encountered Community Language Learning method (Curran, 1976). The articles presented here necessarily have little to say about the interactional elements of language teaching embodied in communicative teaching, as we have seen; communication in cognitive linguistics is an abstract formal process, not ordering a beer in a bar or negotiating a contract. Application to general teaching methods such as communicative language teaching is now more debatable when many believe teaching is in a post-method era, with the very concept of teaching method being denied (Kumaravadivelu, 2006).

The studies demonstrate changes in thinking consequent on L2 acquisition and so show the feasibility of using language teaching to change people's thinking, a way of leading to cognitive flexibility with potential additive

effects, as in the delaying effect of bilingualism on the onset of Alzheimer's disease (Bialystok et al., 2004). The UK National Curriculum (Department for Education, 2013, p. 1) for instance claims Key Stage 3 "should foster pupils' curiosity and deepen their understanding of the world." Bilingual cognition provides a concrete instantiation of some cognitive internal goals, complementing the external communicative goals. It reminds teachers that language is something going on invisibly in the mind as well as being visible through interactions among people.

The Design of Language Teaching Syllabuses and Curricula. The content of teaching has to be specified and organised in one way or another, meaning that someone has to choose which aspects of language to put into national syllabuses or coursebooks to suit particular goals of language teaching. While most syllabuses continue to specify the grammar and vocabulary of the target language that need to be learnt, David Wilkins's (1980) pioneering work with the communicative syllabus set out the teaching content in terms of the communicative functions that the students need to carry out and the semantic notions that they need to express. He claimed:

Languages often have different realisations for concepts involving location in space and those involving movement in space. At the same time there is often overlap between the two. Expressions of movement (as in directions) are at least as valuable at the T-level [Threshold Level] as expressions of location (pp. 134–135).

The *Common European Framework of Reference for Languages* (CEFR) (2001, p. 53), which built on Wilkins's ideas, talks inter alia of "specific notions relating to locations, institutions/organisations, persons, objects, events and operations." As the CEFR points out:

A problem arises when a particular conceptual field is differently organised in L1 and L2, as is frequently the case, so that correspondence of word-meanings is partial or inexact. (Council of Europe, 2001, p. 132)

Basing the syllabus on concepts as suggested by Athanasopoulos et al. (2015) fits well within the main tradition of communicative syllabus design.

Hence, guiding the specific selection of what should be taught in terms of concepts seems a useful application of bilingual cognition research. Pavlenko and Volynsky (2015) suggest that

“Russian requires L1 English speakers to pay simultaneous attention to a variety of aspects of motion and to make new obligatory distinctions, be it more generally, in terms of aspect and directionality, or more specifically, in terms of individual motion events, such as falling down” (p. 46). These proposals amount to suggestions for the content of syllabuses, affecting what is taught rather than how to teach. Actual syllabuses will need to spell out the relevant concepts for a given L1/L2 pair in terms of lexis and grammar, as Pavlenko and Volynsky do. Littlemore (2009, p. 53) goes beyond this to suggest a sequencing for the content of the “grammar syllabus that starts with the prototypical representations and gradually moves towards real-world language,” but warns that this would be highly artificial.

Teaching Techniques. What do the articles suggest for what actually goes on in the classroom in terms of specific teaching techniques? If speaking starts by perceiving a scene, the obvious conclusion to be drawn for language teaching is to present languages as scenes through, say, the “visualization strategies” supported by Brown (2015). Pavlenko and Volynsky (2015) call for clips and videos to replace static textbook pictures. Tyler (2012, p. 136) provides for “visuals meant to provide memorable, meaningful representations for the L2 learners.”

Visual involvement is irrelevant to the main bases of audiolingual, communicative, or task-based learning approaches. Historically it was important to the audiovisual method based on structuro-globalism (Guberina, 1964), which was influential across Europe in the 1970s. This relied on presenting spoken sentences and dialogues to the students through slides or pictures of scenes, which established the meaning for the students. Many audiovisual courses included a teaching technique called visual grammar, which conveyed grammatical meaning through diagrams. For example, a sentence such as *Ta femme aussi travaille chez Jal* ‘Your wife also works at Jal’ is accompanied by an image of a woman circled with an arrow pointing to a building in which she is wielding a hammer, representing ‘work’ (Byram & Hu, 2013, p. 69). There is a long tradition of presenting the meaning of grammar through visual diagrams, for instance the concepts of ‘Passage’ *by/over/around* and of ‘Direction’ *across/up/over* through little drawings of objects and arrows of motion in *A Communicative Grammar of English* (Leech & Svartvik, 1975, pp. 88–89). Further arguments for visualisation strategies in

classroom teaching can be found in Tomlinson (2011).

Recent teaching methods have not relied on verbal or visual exegesis of grammar to students as their main technique, though there has been some revival in the task-based learning use of focus-on-form as a consequence of the lesson rather than as the main activity (Willis & Willis, 2007); most popular coursebooks for English as a Foreign Language have nevertheless continued to explain grammar. Any grammatical explanation involves the two questions of how it works psychologically, that is, what is the relationship of explicit discussion of language to implicit ability to use language?—and how it should be done, ranging from essentially lectures on grammar to visual analogues such as Lego block constructions—how do students best absorb language explanation? Indeed the extensive research by Nisbett (2003) suggests that learners from different L1s may pay more or less attention to the foregrounds and backgrounds of pictures and so visual explanations may need to be culture-specific. The suggestion that teaching should reintroduce visual elements to the classroom to demonstrate and teach cognitive meaning is then unexpected and potentially useful.

CONCLUSIONS

One general lesson to be learnt from these stimulating articles is the continuing flexibility of cognitive structures and of the first language in L2 users. The relationships between language and thinking are not set once and for all but can change under the influence of learning a second language. Another lesson is the clearly demonstrated links between language and thinking. Without supporting what Chomsky (2013) calls the nonexistence of language, it cannot be seen in isolation from the other aspects of the human mind. SLA research in particular needs to take account of other things than language structure and vocabulary.

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