Special Issue: Language Effects on Cognition in Bilinguals

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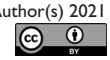

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Researching language and cognition in bilinguals

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Abstract

Aims: This article reviews recent research on the relationship between language and thinking in bilinguals.

Approach: The paper reviews aspects of previous research, and links it to the articles in this special issue.

Conclusions: Research on language and cognition in bilinguals requires both depth (in-depth investigations of one area in order to test approaches and methods) and breadth (investigations of a wide range of research areas). It should cover all levels of language and all aspects of cognition, in line with the latest theoretical and methodological developments in relevant disciplines (e.g. using linguistic and non-linguistic tasks, collecting quantitative and qualitative data).

Originality and significance: This introduction discusses important theoretical and methodological aspects of recent developments in the field.

Keywords

Linguistic relativity, language and thought, bilingualism, second language acquisition, cognition

Introduction

Whorf, often considered the founder of linguistic relativity research, was possibly the first to point out that, if language affects thought, then those most likely to free themselves from the shackles of their native language are those who learn other languages (Whorf, [1940] 1956). The important question of the relationship between language and thought, and whether language may influence thought, has been discussed for centuries, and researched for decades (see Lucy, 1992b, for an overview), but bilinguals have only recently started being included in this agenda.

Psychological research on the relationship between language and thought started by comparing monolingual speakers of different languages, and used to draw conclusions about language

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processing and language representation based exclusively on monolingual data. This area of research set off from the consideration that languages represent the world differently, and that such linguistic differences can lead to differences among speakers of different languages in different domains of cognition. One of the main goals in this research context was to discover whether monolingual speakers of different languages perform differently not only in linguistic tasks, but also in non-linguistic ones. A division emerged between those who reported language-specific effects on thought, including the so-called 'Neo-Whorfian' view (e.g. Boroditsky et al., 2003; Gumperz & Levinson, 1996; Levinson, 2003; Lucy, 1992a; Lucy & Gaskins, 2003), and those who denied their existence (e.g. Papafragou et al., 2002), or allowed for their occurrence only under specific circumstances, such as when language is used as a strategy in task performance (Malt et al., 2003) or, as Slobin (1997, 2000, 2003) influentially put it, when we are *thinking for speaking* (as well as thinking for other language-mediated purposes, such as writing, translating and also remembering). Research on bilinguals was not initially contemplated in this context, apart from rare exceptions, such as Ervin (1961). However, if speakers of different languages think differently, it follows that those who know more than one language should be affected by the linguistic representations of all their languages, and think differently from monolinguals.

The need for research on the relationship between bilingualism and thought was clearly and explicitly invoked in calls (Cook, 2002; Pavlenko, 1999), and subsequently began in earnest, as showcased in the first edited collections of research papers on the topic that appeared a decade ago (Cook & Bassetti, 2011; Pavlenko, 2011). It then became established, with special issues of journals devoted to the topic in general (Bylund & Athanasopoulos, 2014) or to specific aspects (e.g. grammatical gender, Bassetti & Nicoladis, 2016; motion, Bylund & Athanasopoulos, 2015). While earlier overviews lamented the limited amount of evidence (Pavlenko, 2005), nowadays there is much evidence that language affects thought in bilinguals, and it is generally agreed that at least some aspects of language affect at least some aspects of cognition, not only in monolinguals but also in bilinguals. The central questions for bilingualism researchers then become (a) how the two (or more) languages affect bilingual/multilingual cognition and (b) how best to discover and explain such effects. This special issue brings together a variety of different yet interrelated research projects on bilingualism and cognition, which showcase the current concerns, theories and methods in this thriving area. They also provide clear pointers for future research in order to get a full picture of a complex phenomenon such as bilingualism and its relationship to cognition.

The two research directions: depth and breadth

In light of all the evidence that has accumulated so far, there is no further need to test *whether* language affects bilingual cognition, but research needs instead to establish when, where and why language affects – or does not affect – which aspects of bilingual cognition and under which circumstances (see Casasanto, 2016, for similar points regarding language and thought in monolinguals). To achieve this, the field needs to develop in terms of both depth and breadth. Depth means investigating a small research area in depth, with a variety of approaches and methods, in order to contribute to theory and methodology, both within and beyond the field of bilingual cognition. Breadth means investigating a wide range of research areas, in order to apply and extend previous findings to as many aspects of language and cognition as possible. This special issue showcases examples of both depth and breadth, as discussed below.

One of the best examples of depth in research on language and cognition so far is research on motion events. Although motion event lexicalisation is a small aspect of lexical semantics, how monolinguals and bilinguals talk and think about motion has been studied extensively (for a recent comprehensive review, see Filipović & Ibarretxe-Antuñano, 2015). Motion events have inspired so

many research projects because motion is a universal experiential domain, but different languages use different linguistic means to talk about it. Talmy (1985, 2000) demonstrated that there is a typological contrast – of whether the verb expresses the path or the manner of motion – that can be easily manipulated in experiments and applied as a system of classification in different types of datasets, such as electronic corpora and literary and non-literary texts (Matsumoto et al., 2012). This linguistic typological difference was then studied from a variety of approaches including cognitive linguistics, cognitive psychology, corpus linguistics, language typology, metaphor studies, psycholinguistics and translation studies. Researchers investigated many languages and different cognitive domains using various methods, produced a substantial knowledge base, and established that differences in the expression of motion affect what kind of information speakers habitually provide and how often, which in turn affects different aspects of cognition, such as attention, memory and categorisation. Motion is therefore a fertile ground for research on cognition and language use in bilinguals, because understanding how bilinguals handle this typological contrast when using one or both linguistic systems can help us better understand language and cognitive processing. Topics like motion are then ideal testbeds for different theoretical and empirical approaches to research on language and cognition, including linguistic relativity research. This special issue then includes two papers about motion that illustrate this point: Filipović, and Nicoladis and Gao.

As well as depth, the field also needs breadth, meaning that it should investigate a wide range of topics. This is because looking at a variety of topics allows researchers to establish which areas of language may affect which areas of cognition. On the one hand, some areas of language could affect cognition more than others; for instance, grammatical and lexical features that are obligatory in one of the bilinguals' languages are likely to affect cognition, whereas for instance the different ordering of information (such as whether adjectives precede or follow noun phrases) is less likely to impact the information content (although it may affect type of processing; see Levy & Keller, 2013). On the other hand, some aspects of cognition may be more affected by language – for instance, perception may be less influenced than categorisation. Indeed, language and cognition seem to be in a close but not isomorphic relationship (Myachykov et al., 2013), meaning that not all aspects of language impact all aspects of cognition, or not to the same degree. Lists of topics that have been studied, are being studied, or should be studied can be found in recent overviews (e.g. Bassetti & Cook, 2011; Filipović, 2019; Pavlenko, 2014), and include for instance the link between the colour lexicon and colour perception, between grammatical gender and concepts of entities, between verbal aspect and conceptualisation of events. This special issue then demonstrates the rich array of research themes, including conceptualisation of linguistic sounds (Vaid, Chen and Rao) and events (Nicoladis & Gao), memory for words (Kazanas, Wilck and Altarriba) and events (Filipović), counterfactual reasoning (Bassetti) and belief and judgement (Hayakawa, Pan and Marian).

The object of investigation

In order to provide a full picture of the relationship between language and cognition in bilinguals, research should investigate all levels of language, as well as all cognitive domains and functions and the cognition–emotion interaction. The present special issue addresses this need as follows.

With regard to language, papers in this special issue examine various levels, from phonology to pragmatics, including various units of analysis. Vaid et al. look at orthography and phonology (crucially investigating the sound systems of languages as they exist in the minds of their L1 and L2 users, not in formalised systems). Kazanas et al. and Nicoladis and Gao look at the level of the lexicon, investigating, respectively, the emotional and semantic content of words in bilingual processing and use. Filipović looks at the construction level, where lexical semantics and syntax interact, and

affect the information content (i.e. what gets mentioned more often and in what kind of detail) as well as memory for events. Bassetti takes text as a unit, and shows how counterfactual reasoning is affected by the linguistic tools available to express it. Finally, the study by Hayakawa et al. contextualises the use of two different languages by bilinguals in two different accompanying cultural contexts and detects the ensuing differences in bilingual beliefs, judgements and decisions.

A related issue is the importance of describing appropriately the language phenomena under analysis. Cook (2011) and Bassetti and Cook (2011) pointed out the need to adopt the Linguistic Commitment, that is to say, 'to employ views of language consonant with theories and descriptions from the language-related disciplines' (Cook, 2011, p. 10), and to add the empirical, usage-based dimension, that is to say, describing the real use of language rather than an idealised version, and including how frequent phenomena really are. This commitment should apply to all research on language and cognition, regardless of the disciplinary background of the researchers, because effect of language on (bilingual) cognition cannot be studied without the basis of a solid linguistic description, which includes details of both lexicons and grammars and attested usage by a variety of speakers (see Filipović, 2019). It is crucial for linguistic theory to be based on both grammar and usage, and not solely on grammar as has been the case in much of past linguistic theories, and similarly to incorporate bilingual usage and not solely the monolingual one. Papers in this special issue all strived for a linguistically sound description of the language phenomena under analysis.

Looking then at cognition, researchers can investigate various aspects of cognition, as well as the interaction between cognition and emotion. Indeed, papers in this issue cover attention, categorisation, memory, judgement and reasoning – with some covering more than one, and one investigating cognition and emotion. The paper by Nicoladis and Gao reveals that monolinguals and bilinguals pay attention to different features when describing throwing events. Filipović investigates the effect of a second language on memory for motion events in linguistic tasks. She shows that linguistic attention directed to different components of motion events is affected by systemic language differences, which leads to memory differences. With regard to categorisation, the paper by Vaid and colleagues investigates explicit categorisation – what speakers consider a language unit, as reflected in how they segment words into sounds – and Nicoladis and Gao investigate the mapping of verbs onto event types and subtypes. Bassetti looks at reasoning, investigating how the availability of overt counterfactual markers affects counterfactual reasoning in bilinguals, as reflected in the inferences they make and the cues they use to make inferences. Kazanas and colleagues show that a first language, which is more emotional than the second one, leads to better memory performance in survival-relevant context, in a paper that is positioned at the intersection of language, memory and emotion research. Hayakawa and colleagues detect a connection between the language used by a bilingual and judgement in medical contexts, whereby using a second language results in responses that are less emotional than those in the first-language beliefs, and interaction patterns differ depending on whether the first or the second language and related culture norms are dominant on a specific occasion.

Bilingualism and linguistic relativity

Research on language and thought in bilinguals should always be informed by the latest developments in all relevant disciplines, whether this means drawing from and contributing to current debates (for instance, the one about the 'bilingual advantage'), or making methodological decisions that reflect current thinking in the field (for instance, by addressing variables that are thought to modulate language effects on cognition). Papers in the present issue address this need as follows.

There has been a debate for quite some time about the cognitive consequences of bilingualism, ranging between the extreme views that there is a bilingual disadvantage – as in most research

before Peal and Lambert (1962) – or a bilingual advantage in executive function – exemplified by the seminal research of Bialystok et al. (e.g. Bialystok, 1999, 2007; Bialystok et al., 2006; Bialystok & Martin, 2004) and challenged by some later research (see Papp et al., 2015). Papers in this issue contribute to this wider debate by showing – at a time when bilingualism is mostly considered positive – that there may arguably be some negative consequences, in certain domains and on certain occasions. Two papers in this special issue report arguably negative effects of bilingualism. Bassetti shows that L2 English may reduce the number of clues and alternatives considered in drawing implications from a counterfactual story. Filipović demonstrates that favourable L1 resources for memory may be less available when using an L2 that prevents certain event features from being verbalised. Therefore, there seems to be evidence for the full set of possibilities related to the cognitive effects of bilingualism, namely advantage, no advantage, conditional advantage (depending on various factors) and disadvantage.

Current research clearly and consistently shows that a number of variables can modulate the relationship between language and thought in bilinguals. This suggests the need for two things. First, research papers need to provide information about variables that have been shown to be relevant. Second, researchers should investigate a wide variety of bilinguals and under a variety of communicative settings.

In this special issue, researchers report a number of relevant variables, which depending on the requirements of their study include some of the following: age of onset of acquisition, proficiency, amount of use (for each language, for each skill), language dominance, knowledge of languages other than the ones under investigation, linguistic and cultural context (for adult L2 learners), type of exposure (naturalistic, instructed, both), language of schooling (for early bilinguals), length of residence (for immigrants). Measures vary; for instance, proficiency can be objective (IELTS (International English Language Testing System) or other comparable exam scores; see Filipović), or self-reported (Kazanas et al.; Bassetti). Some variables are only relevant to some studies, such as languages of literacy and age of onset of literacy in the paper by Vaid et al., and educational background in the paper by Bassetti. If all relevant variables are measured and reported, it is easier to compare results across studies and to explain failures to replicate (for instance, bilinguals who are not bicultural may not show the same effects as bicultural bilinguals).

An important variable in linguistic relativity research in the context of bilingualism is the language combination of participants. First, research on bilinguals with different language combinations is important because novel contrasts may be discovered, and because some language combinations may result in stronger effects on cognition, depending for instance on their typological distance (for instance Italian-Chinese may have stronger effects than Italian-Spanish bilingualism), following Whorf's ([1940] 1956) suggestion that reducing language bias requires knowledge of 'widely different. . . linguistic systems' (p. 214). Second, bilinguals with languages beyond the most widely studied languages should be investigated more, including both spoken and signed languages. The most widely studied language currently is English, plus some European languages and a couple of East Asian languages, with a massive relatively recent increase in research on Chinese. Researchers have addressed this issue, but English is still over-represented, understandably due to practicalities such as access to participants and to research funds, and the fact that over a billion people have English as an L1 or L2 and English is the most widely studied language in schools around the world. All papers in this special issue indeed include English as an L1 or an L2, in line with both trends in the field and the spread of English in the world. Third, there is a growing interest in research on trilinguals and multilinguals, reflecting the current trends in many communities and among language learners around the world, particularly as English is taught as a second language around the world. Multilingualism may have different effects from bilingualism, as each language added will modify the competence of its speaker, so that not only a Chinese-English

bilingual may differ from a Chinese-Japanese bilingual, but both would differ from a Chinese-English-Japanese trilingual. Indeed, Whorf ([1940] 1956) talked about the importance of knowing many languages ('very many. . . linguistic systems', p. 214).

Finally, the language(s) of testing, and other testing conditions, can also affect research outcomes, for instance single versus dual language condition (Green & Abutalebi, 2013). This means investigating the same types of bilinguals under different conditions, and different types of bilinguals under the same conditions. Filipović (2019) proposed that this can be achieved by including different bilingual populations under the same communicative situation as well as testing one population in different interactional circumstances (e.g. using one or both their languages in a single communicative situation, speaking to other monolinguals or to other bilinguals). Importantly, the frequency and circumstances of habitual use for each of the two languages or the social or communicative purpose for which bilinguals use one versus both their languages have the power to affect the content of verbal accounts, memory and judgement (see Filipović, 2019, for examples and an overview).

Methodological approaches, methods and tasks

When investigating a complex issue such as the relationship between language and thought in bilinguals, a variety of approaches, methods and tasks are needed. At this time of unprecedented methodological development in all disciplines, the best approach is probably to use the whole gamut at our disposal, and the selection of papers in this special issue illustrates this point. In particular, below we discuss the importance of using both linguistic and non-linguistic tasks, and both quantitative and qualitative approaches.

In the study of language and cognition, an important question is whether language should be included only as the cause or also as the evidence. There has been a debate about whether linguistic relativity would be best tested by eliminating language from the task, so that the effects of language on thought can be considered 'pure', resulting in the rejection of linguistic tasks in favour of non-linguistic ones in some camps. A linguistic (or verbal) task is one that is performed with the active involvement and explicit use of language, such as sorting words, labelling or describing objects or events, or narrating the content of a video. A non-linguistic task is one that is performed without using language, such as sorting images or choosing an image video in an odd-one-out task. However, both linguistic and non-linguistic tasks contribute to our understanding of the relationship between language and thought in bilinguals, reflecting the fact that we spend our lives partly overtly using language – speaking, reading, even dreaming – and partly with no overt use of language, as when we listen to our own thoughts. The papers in this special issue cover various possibilities.

Linguistic tasks are then legitimate sources of evidence, as they provide windows on cognition. For instance, a metalinguistic awareness task can provide insights into how someone categorises the sounds of a language (Vaid et al., this issue), or a reading comprehension task can illustrate how people reason counterfactually about events (Bassetti, this issue). However, linguistic tasks by themselves may lead to overestimation of the effects of language on cognition. For instance, grammatical gender may affect performance in sorting tasks where language is explicitly involved, such as with labelled pictures, but not with unlabelled ones (see Bassetti & Nicoladis, 2016, for a review). And this is quite expected: language is an excellent categorisation system, which we start learning from birth and apply throughout our lives, so it is only natural to use it when we are asked to label or group different things, and we engage in this activity all the time. Non-linguistic tasks are then crucial sources of evidence for how we perform tasks without active language use. In non-linguistic tasks, language may still be involved, as participants may rely on inner speech. This is normal behaviour, and as such non-linguistic tasks tell us how people perform tasks in normal circumstances, where they may or may not use language. However, some researchers believe that

a truly non-linguistic task is a task where not only language is not used, but access to language is blocked. For instance, participants may be under verbal interference, such as listening to nonce syllables that interfere with language processing while performing a task, or similar (e.g. Athanasopoulos et al., 2015; Trueswell & Papafragou, 2010). Blocking language while participants perform a task is helpful: it can test what form of thought is possible without language, it can help identify the role of language in the performance of a specific task, and eliminating language as a potential confounding variable is crucial to experimental studies that aim at demonstrating that a task is normally performed without language, or at establishing how that task is performed in the absence of language, or ultimately at determining the role of language in performing the task. However, blocking language is not the best way to understand behaviour in normal circumstances where language is not blocked. We know that there is thought without language. People can express themselves through art forms such as painting or music, and those with language impairments caused by accidents or disease can perform various tasks without language. However, language pervades our daily activities, and language and thought interact and influence each other all the time. Therefore, while artificially eliminating language has its purpose in experimental research, blocking language is not necessary the only or the best option when setting up a non-linguistic task. Artificially manipulating the presence of language is essential for hypothesis-testing, but often does not reflect the most common human experience.

Another important issue is what type of data should be used to study language effects in bilingualism, with particular reference to quantitative and qualitative data. Quantitative, and particularly experimental, research is crucial to establishing differences, similarities and relationships, as well as strength of different effects. However, currently the quantitative strand seems to be overshadowing the qualitative, but quantitative data by itself cannot tell us the full story. Indeed, researchers working on bilingual linguistic relativity research should follow the current trend in the social sciences to use mixed methods or to rely on both quantitative and qualitative data. This is important not only so that researchers can take advantage of methodological developments in related disciplines, but crucially because linguistic relativity researchers aim at understanding how people think, and this sometimes may be more easily achieved by asking people directly. For instance, Bassetti (2007) demonstrated that grammatical gender affects thought in Italian-German bilinguals using experimental approaches first, as had been done by other researchers before, and then using open-ended questions she found that Italians, and to a less extent Italians who know L2 German, consider grammatical gender to be semantically (not grammatically) motivated (that is to say they believe that there are reasons why a noun is grammatically masculine or feminine; Bassetti, 2014). In this special issue, Bassetti argues that bilinguals who do not differ from monolinguals in the product of their thinking – the actual answer they give – may still differ in the thinking process that leads to that answer. Indeed, the researcher found that qualitative data revealed differences in the type and number of cues used when choosing an answer between Chinese and English speakers, and between Chinese speakers tested in Chinese versus English. Therefore, in this special issue we emphasise the importance of providing a range of quantitative, qualitative and mixed-methods studies.

Conclusion

Research on language and thought in bilinguals deserves to be centre stage in the study of language and thought. Part of the reason why it has not happened yet is that research needs unification of different disciplines and subdisciplines and of different methodologies. Papers in the present special issue address various aspects that are crucial for future research in bilingualism and cognition, from the integration of insights from different disciplines and approaches to the integration of quantitative and qualitative data, to the integration of evidence that is currently scattered across

various papers that focus on a single aspect of language or cognition. The phenomenon of bilingual cognition is complex, and the way forward is to integrate findings in a coherent whole.

Bilingualism research can then contribute to, or indeed take a leading role in, interdisciplinary research on language and cognition. For instance, the CASP Model for Bilingualism (Filipović & Hawkins, 2013, 2019) started out as an efficiency-based, performance-driven theory of language processing (Hawkins, 2004, 2014), backed up by cross-linguistic, monolingual empirical data. Filipović and Hawkins (2013, 2019) then looked at further empirical evidence, bilingual this time, and this generated updates for the theory by extending it to bilingualism.

In conclusion, the search for effects of bilingualism and language learning on cognition is worth pursuing, because it has the potential to shed light on many other questions of crucial importance for scholars of language and of cognition. Practical implications of this line of research are equally significant since the study of language and thought in bilinguals can lead to new discoveries about beneficial consequences, both psychological and social, that would encourage people of all ages to engage in learning languages and therefore enrich their lives. It is then crucial that research continues, on the basis of over a decade of empirical findings, using the power of theoretical and methodological developments in all contributing disciplines, with the aim of creating a holistic picture of bilingualism.

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References

Athanasopoulos, P., Bylund, E., Montero-Melis, G., Damjanovic, L., Schartner, A., Kibbe, A., Riches, N., & Thierry, G. (2015). Two languages, two minds: Flexible cognitive processing driven by language of operation. *Psychological Science*, *26*(4), 518–526. https://doi.org/10.1177/0956797614567509

Bassetti, B. (2007). Bilingualism and thought: Grammatical gender and concepts of objects in Italian-German bilingual children. *International Journal of Bilingualism*, *11*(3), 251–273. https://doi.org/10.1177/13670069070110030101

Bassetti, B. (2014). Is grammatical gender considered arbitrary or semantically motivated? Evidence from monolinguals, second language learners and early bilinguals. *British Journal of Psychology*, *105*, 273–294. https://doi.org/10.1111/bjop.12037

Bassetti, B., & Cook, V. J. (2011). Language and cognition: The second language user. In V. J. Cook, & B. Bassetti (Eds.), *Language and bilingual cognition* (pp. 143–190). Psychology Press.

Bassetti, B., & Nicoladis, E. (2016). Research on grammatical gender and thought in early and emergent bilinguals [Special issue]. *International Journal of Bilingualism*, *20*(1), 3–16. https://doi.org/10.1177/1367006915576824

Bialystok, E. (1999). Cognitive complexity and attentional control in the bilingual mind. *Child Development*, *3*(3), 636–644. https://doi.org/10.1111/1467-8624.00046

Bialystok, E. (2007). Cognitive effects of bilingualism: How linguistic experience leads to cognitive change. *International Journal of Bilingual Education and Bilingualism*, *10*(3), 210–223. https://doi.org/10.2167/beb441.0

Bialystok, E., Craik, F. I., & Ruocco, A. C. (2006). Dual-modality monitoring in a classification task: The effects of bilingualism and ageing. *Quarterly Journal of Experimental Psychology*, *59*(11), 1969–1983. https://doi.org/10.1080/17470210500482955

Bialystok, E., & Martin, M. M. (2004). Attention and inhibition in bilingual children: Evidence from the dimensional change card sort task. *Developmental Science*, *7*, 325–339. https://doi.org/10.1111/j.1467-7687.2004.00351.x

Boroditsky, L., Schmidt, L. A., & Phillips, W. (2003). Sex, syntax and semantics. In D. Gentner, & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 61–78). The MIT Press.

Bylund, E., & Athanasopoulos, P. (2014). Linguistic relativity in SLA: Toward a new research program. *Language Learning*, *64*(4), 952–985. https://doi.org/10.1111/lang.12080

Bylund, E., & Athanasopoulos, P. (2015). The language and thought of motion in second language speakers [Special issue]. *The Modern Language Journal*, *99*(S1), 154–164.

Casasanto, D. (2016). Linguistic relativity. In N. Riemer (Ed.), *Routledge handbook of semantics* (pp. 158–174). Routledge.

Cook, V. J. (2002). Background to the L2 user. In V. Cook (Ed.), *Portraits of the L2 user* (pp. 1–28). Multilingual Matters.

Cook, V. J. (2011). Relating language and cognition: The speaker of one language. In V. J. Cook, & B. Bassetti (Eds.), *Language and bilingual cognition* (pp. 3–22). Psychology Press.

Cook, V. J., & Bassetti, B. (Eds.). (2011). *Language and bilingual cognition*. Psychology Press.

Ervin, S. M. (1961). Semantic shift in bilingualism. *American Journal of Psychology*, *74*, 233–241. https://doi.org/10.2307/1419408

Filipović, L. (2019). *Bilingualism in action: Theory and practice*. Cambridge University Press. https://doi.org/10.1017/9781108602235

Filipović, L., & Hawkins, J. A. (2013). Multiple factors in second language acquisition: The CASP model. *Linguistics*, *51*, 145–176. https://doi.org/10.1515/ling-2013-0005

Filipović, L., & Hawkins, J. A. (2019). The complex adaptive system principles model for bilingualism: Language interactions within and across bilingual minds. *International Journal of Bilingualism*, *23*(6), 1223–1248. https://doi.org/10.1177/1367006918781076

Filipović, L., & Ibarretxe-Antuñano, I. (2015). Motion. In E. Dąbrowska, & D. Dagmar (Eds.), *Handbook of cognitive linguistics*. Mouton de Gruyter.

Green, D. W., & Abutalebi, J. (2013). Language control in bilinguals: The adaptive control hypothesis. *Journal of Cognitive Psychology*, *25*(5), 515–530. https://doi.org/10.1080/20445911.2013.796377

Gumperz, J. J., & Levinson, S. C. (Eds.). (1996). *Rethinking linguistic relativity*. Cambridge University Press.

Hawkins, J. A. (2004). *Efficiency and complexity in grammars*. Oxford University Press.

Hawkins, J. A. (2014). *Cross-linguistic variation and efficiency*. Oxford University Press.

Levinson, S. C. (2003). Language and mind: Let's get the issues straight! In D. Gentner, & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 25–46). The MIT Press.

Levy, R. P., & Keller, F. (2013). Expectation and locality effects in German verb-final structures. *Journal of Memory and Language*, *68*(2), 199–222. https://doi.org/110.1016/j.jml.2012.02.005

Lucy, J. A. (1992a). *Grammatical categories and thought*. Cambridge University Press.

Lucy, J. A. (1992b). *Language diversity and thought: A reformulation of the linguistic relativity hypothesis*. Cambridge University Press.

Lucy, J. A., & Gaskins, S. (2003). Interaction of language type and referent type in the development of nonverbal classification preferences. In D. Gentner, & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 465–492). The MIT Press.

Malt, B., Sloman, S. A., & Gennari, S. P. (2003). Speaking versus thinking about objects and actions. In D. Gentner, & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 81–111). The MIT Press.

Matsumoto, Y., & Slobin, D. I. (2012). *A bibliography of linguistic expressions for motion events, Version 3.0*. http://www.lit.kobe-u.ac.jp/~yomatsum/motionbiblio.html

Myachykov, A., Scheepers, C., & Shtyrov, Y. Y. (2013). Interfaces between language and cognition. *Frontiers in Psychology*, *4*, 258. Advance online publication. https://doi.org/10.3389/fpsyg.2013.00258

Papafragou, A., Massey, C., & Gleitman, L. (2002). Shake, rattle, 'n' roll: The representation of motion in language and cognition. *Cognition*, *84*(2), 189–219. https://doi.org/10.1016/S0010-0277(02)00046-X

Papp, K., Johnson, H. A., & Sawi, O. (2015). Bilingual advantages in executive functioning either do not exist or are restricted to very specific and undetermined circumstances. *Cortex*, *69*, 265–278. https://doi.org/10.1016/j.cortex.2015.04.014

Pavlenko, A. (1999). New approaches to concepts in bilingual memory. *Bilingualism: Language and Cognition*, *2*(3), 209–230. https://doi.org/10.1017/S1366728999000322

Pavlenko, A. (2005). Bilingualism and thought. In A. M. B. de Groot, & J. F. Kroll (Eds.), *Handbook of bilingualism: Psycholinguistics perspectives* (pp. 433–452). Oxford University Press.

Pavlenko, A. (2011). *Thinking and speaking in two languages*. Multilingual Matters.

Pavlenko, A. (2014). *The bilingual mind: And what it tells us about language and thought*. Cambridge University Press.

Peal, E., & Lambert, W. E. (1962). The relation of bilingualism to intelligence. *Psychological Monographs: General and Applied*, *76*(27), 1–23. https://doi.org/10.1037/h0093840

Slobin, D. I. (1997). Mind, code, and text. In J. Bybee, J. Haiman, & S. A. Thompson (Eds.), *Essays on language function and language type* (pp. 437–467). John Benjamins.

Slobin, D. I. (2000). Verbalized events: A dynamic approach to linguistic relativity and determinism. In S. Niemeier, & R. Dirven (Eds.), *Evidence for linguistic relativity* (pp. 107–137). John Benjamins.

Slobin, D. I. (2003). Language and thought online: Cognitive consequences of linguistic relativity. In D. Gentner, & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 157–191). The MIT Press.

Talmy, L. (1985). Lexicalisation patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), *Language typology and syntactic description* (pp. 57–149). Cambridge University Press.

Talmy, L. (2000). *Toward a cognitive semantics*. MIT Press.

Trueswell, J. C., & Papafragou, A. (2010). Perceiving and remembering events cross-linguistically: Evidence from dual-task paradigms. *Journal of Memory and Language*, *63*(1), 64–82. https://doi.org/10.1016/j.jml.2010.02.006

Whorf, B. L. ([1940] 1956). Science and linguistics. In J. B. Carroll (Ed.), *Language, thought and reality: Selected writings of Benjamin Lee Whorf* (pp. 207–219). The MIT Press.

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