

---

## **Chapter 9. Summary and conclusions**

This dissertation has investigated the multimodality of basic constructions, by examining to what extent forms of construal afforded by grammatical constructions can be reflected in the use of accompanying gestures, and how often the gestures are co-expressive with the constructions. Specifically, the following basic and frequently used constructions/constructional alternations were considered: high-transitive, intransitive, low-transitive, and copular constructions; transitivity alternations; and the dative alternation. Broad motivations for investigating these constructions include a) that these are basic and frequently used constructions in the language system; and b) that they involve different kinds of event construal and/or different types of semantic frames, so that relations between event construal and semantic frames and gesture use can be identified. In this final chapter, I summarize the findings of the thesis, discuss their implications, and consider some directions for future research.

### **9.1 Summary of the findings**

Chapter 2 discussed theoretical motivations for considering multimodal constructions, drawing upon basic tenets in construction grammars. It demonstrated that a usage-based approach to constructions requires an examination of all recurrent aspects in the use of language, including co-speech gestural use. In addition, many properties of constructions seem to be compatible with those of gestures, such as the dynamicity of constructions and gestures, the holistic nature and multifunctionality of constructions and of gestures, and the non-compositionality/unpredictability in constructions and gestures, as well as dimensions of event construal afforded by both grammatical constructions and gestural expressions. These shared characteristics indicate that constructions in spoken language and gestures are not as different as previously supposed and therefore it is indeed possible to consider the multimodality of grammatical constructions in construction grammars. The general conclusion is that an adequate construction grammar needs to include gesture as part of its scope of consideration, which provides a theoretical basis for empirical studies in this thesis.

Chapter 3 reviewed previous studies on multimodal constructions. On the basis of these studies, constructions were identified, and research questions to be investigated in this thesis were formulated. Chapter 4 then provided an introduction to the forms and meanings of these constructions. Specifically, the kinds of event construal afforded by, and the conceptual content (events or semantic frames)

evoked by, these constructions were discussed in this chapter.

Chapter 5 investigated the use of gesture — the frequencies of various types of gestures produced, the Modes of Representation of representational gestures and the movement qualities of discourse-related gestures with respect to the most basic and frequently used constructions in conversation: high-transitive, intransitive, low-transitive, and copular constructions. Overall, it was found that it is only representational gestures rather than deictic or discourse-related gestures that seem to relate to ways of construing events afforded by the four constructions. More specifics are summarized below.

- a) The frequencies of deictic and discourse-related gestures and the forms of discourse-related gestures (in terms of the movement tension and size) were not found to differ with respect to these four types of constructions. These results suggest that the different means of construal afforded by these constructions seem not to be reflected in the frequency or forms of deictic or discourse-related gestures used.
- b) As for the frequency of representational gestures used, significantly more representational gestures were produced together with high-transitive and intransitive constructions than with low-transitive and copular constructions, but no significant distinctions were found between high-transitive and intransitive constructions, or between low-transitive and copular constructions. These gestural differences, or lack of differences, indicate that the production likelihood of representational gestures seems to be sensitive to the construal of dynamicity (one dimension of event construal distinguishing high-transitive/intransitive from low-transitive/copular constructions), but not to “+/- external causality” (one dimension of event construal distinguishing high-transitive constructions from intransitive constructions) or to “+/- mental contact” (a dimension of construal differentiating low-transitive constructions from copular constructions).
- c) Although speakers were more likely to make representational gestures together with high-transitive and intransitive constructions than with low-transitive and copular constructions, they were more likely to use the latter two types of constructions in speech than the former two types of constructions. In this light, a certain mismatch between gesture use and the use of speech in interaction along the dimension of transitivity was revealed: “higher transitivity in representational gestures” (that is, representational gestures preferably accompanied speech with higher transitivity) went along with “lower transitivity in speech” (that is, the preference for speech with lower transitivity). This suggests that an adequate usage-based approach to the multimodality of grammar in the future needs to take this into consideration, by considering

higher and (in particular) lower gestural rates of constructions in the modeling of a multimodal grammar (see the variable multimodality proposed in Cienki 2015).

- d) The preferred gestural Modes of Representation varied with respect to the use of these constructions. Acting-with-object gestures were found to significantly correlate with high-transitive clauses; Tracing and Acting-only gestures with intransitive clauses; Molding gestures (and Embodying ones) with both low-transitive and copular clauses. These differences in gestures preferred seem to relate to different ways of construing afforded by the four constructions as follows: +/- external causation and +/- dynamic.

After obtaining a general sense of how gesture uses relate to the means of construal afforded by the four constructions, Chapter 6 zoomed in on representational gestures and high-transitive and intransitive constructions. It aimed to examine whether the differences found in Chapter 5 in terms of representational gestures occurring with high-transitive and intransitive clauses were correlated with transitivity or simply with properties of the events involved, since previous studies suggest that certain properties of events may play an exclusive role in gesture, regardless of transitivity. To this end, this chapter considered gestural use (the frequency of representational gestures produced and their Modes of Representation) with respect to high-transitive and intransitive constructions with the same types of events – events with external causation and changes of location in the Figure and the Agent. Specifically, these events were not only considered in general in relation to the accompanying gestures, but also in terms of a subset of the events – motion events with/without trajectory paths of the Figure or the Agent. Results revealed that a similar number of representational gestures were produced with respect to both transitive and intransitive constructions expressing these events in general and also that significantly more representational gestures were made for events with the path of the Agent or the implicit/explicit path of the Figure than for events without such paths. In addition, the gestural modes of representation were found to correlate with the Agent's trajectory property in events; that is, if constructions involved displacement of the Agent, the production likelihood of Tracing gestures increased, as opposed to the situation with constructions lacking such displacement of the Agent. Note that no such pattern was found with respect to events with trajectories of the Figure. These results indicate that the frequency of gestures produced and the slight preference for Tracing gestures seem to be sensitive to the trajectory properties of motion events, including +/- the Agent's path (and +/- the explicit/implicit Figure's path). Notwithstanding this, Acting-with-object gestures were found to preferably accompany transitive constructions, whereas Tracing gestures were found to preferably occur with the alternate intransitive constructions.

These differences in preferred gestural modes seem to be associated with the different means of event construal afforded by high-transitive and intransitive constructions: +/- profile of external causation.

Chapter 7 examined whether the gestural differences found in Chapter 5 in terms of gestures in relation to high-transitive and intransitive constructions on the one hand, and to low-transitive and copular constructions on the other, were sensitive to transitivity or properties of the referents involved, since in previous work the action affordance of referents was found to play a role in gestural representation. To this end, it investigated whether gestures accompanying the above two groups of constructions differed in terms of their frequency, representational modes, and/or the morphological forms when the semantic frame with a high degree of object affordance (that is, the tool frame) was considered. These groups of constructions with the tools are referred to as the noun (including low-transitive and copular clauses) and verb (including high-transitive and intransitive clauses) alternation. Results showed that a similar number of representational gestures were produced with respect to nominal and verbal uses of tools and also that Acting gestures were frequently used with both nouns and verbs. These findings indicate that gestural use (the frequency of gesture and the dominant gestural mode in this case) is indeed closely linked with this semantic frame. However, the results also revealed that (a) Molding gestures preferably accompanied nominal uses of tools, whereas Tracing gestures preferably accompanied verbal uses of tools, and that (b) Acting gestures accompanying these nouns tended to be more static (no movements during strokes), whereas those accompanying these verbs tended to be more dynamic (with repeated movements during strokes). These differences in gestural representation (that is, the use of a less dominant gestural mode – the Molding/Tracing mode – and dynamics of Acting gestures) seem to relate to the different kinds of event construal afforded by the two constructions: profiling a dynamic process of tool uses (afforded by verbs) or a static situation with tools (afforded by nouns).

Extending studies in the above chapters a step further, Chapter 8 examined a different group of constructions – the double object construction and its prepositional paraphrases (referred to as the dative alternation) – in relation to gestural use. It set out to ascertain whether (and if so, in which ways) a different type of event construal afforded by the two constructions (profiling different participants in a segment of an action chain rather than different segments of an action chain afforded by the above transitivity alternations) can be reflected in the accompanying gestures. Results showed that a similar number of representational gestures were produced with respect to both constructions, and that Acting gestures, in particular those with transfer movements, were dominant with respect to both

constructions. These results suggest that gestural use in terms of the frequency of gestures produced, the dominant gestural Mode, and dynamics of this mode tend to be largely dependent on the event structure of transfer events. However, the results also indicated that Molding gestures and Acting gestures without transfer movement, when they occurred, preferably accompanied the double object construction, whereas Tracing and Acting gestures, in particular those with transfer movements, preferably accompanied the prepositional object construction. These differences in gestural representation seem to relate to the different means of construal associated with two syntactic encodings of transfer events: profiling a transfer process (afforded by the prepositional construction) or a transfer result/possessive relation (afforded by the double object construction).

## **9.2 Implications of the research**

### **9.2.1 Representational, deictic, and discourse-related gestures in relation to grammatical constructions**

The present thesis has been able to provide further insight into the cognitive origins of various types of gestures. As presented above, only the rates and forms of representational gestures were found to correlate with the type of grammatical construction; the rates and forms of deictic and discourse-related gestures did not show such a correlation with constructions in speech (see Chapter 5). This result does not support the so-called ‘general activation’ hypothesis, which predicts that representational, deictic, and discourse-related gestures may derive from the same cognitive origin. Instead, it suggests that the three types of gestures may entertain different semantic relations with grammatical constructions and thus that they may involve different cognitive origins (see also Masson-Carro et al. 2016). This in turn could have further implications for the modeling of various types of gesture and speech production in future research. In addition, it suggests that studies on grammatical phenomena in relation to gestures or on multimodal constructions might need to consider the three types of gestures separately, rather than collapsing them and treating them as one homogeneous group.

This is one of the few preliminary empirical studies which attempt to shed light on this issue, following Masson-Carro et al. (2016). This thesis extends the latter study in the sense that not only the frequency of discourse-related gestures but also their movement forms (such as gesture tension and gesture size) are considered.

### **9.2.2 Representational gestures in relation to semantic frames (or events) evoked by grammatical constructions and implication for the mental simulation of events**

This thesis provides a more nuanced understanding of the relations between semantic frames and representational gestures. First, the thesis indicates how the dynamicity and spatiality of events influence the number of representational gestures produced. For instance, the thesis found that more representational gestures tend to accompany high-transitive and intransitive constructions than low-transitive and copular constructions (see Chapter 5); more representational gestures were found to be produced together with more dynamic events (such as events of change of state or location, tool use events, transfer events, see the gestural rates in Chapters 6, 7 and 8) than less dynamic events (such as verbal communication events, see the gestural rates of high-transitive constructions in Chapter 5), more with motion events with (explicit) path of the Figure or the Agent than with motion events with no such path (see Chapter 6).

Second, the thesis establishes the ways of interaction between gestural representation and certain properties of events, an analysis which has further implications for our understanding of how speakers mentally simulate such events. For instance, as presented above, Chapter 6 found that when constructions involved displacement of the Agent (such as prototypical events of rolling up a carpet) than no displacement (such as prototypical events of rolling down a window), the production likelihood of Tracing gestures increased; no such pattern was found in gestures together with transitive events with the explicit or implicit path of the Figure (e.g., *he dropped the ring* vs. *he dropped the ring off the boat*). This result suggests that transitive events with such displacement of the Agent are more likely to evoke visual imagery (the mental simulation of the trajectory path) than transitive events without such displacement are, but transitive events with the explicit and implicit path of the Figure may be equally likely to evoke simulations of action. This complements the hypothesis that events with a trajectory should involve simulation of visual imagery (Parrill 2010), in that this hypothesis might be more applicable to transitive motion events with the trajectory of the Agent than transitive motion events with the trajectory of the Figure.

### **9.2.3 Representational gestures in relation to event construal afforded by grammatical constructions and implication for gesture production models**

Another important contribution of this thesis is that it identified exclusive relations between kinds of construal afforded by syntactic encodings in speech and gestures. Existing studies on syntactic encodings (means of construal) and gestures (a) have mainly focused on the cross-linguistic encodings of motion events (Chui 2012; Furman 2012; Kita & Özyürek 2003; Özyürek & Kita 1999), placement events (Gullberg 2011) or aspectual categories (Duncan 2002; Parrill et al. 2013; Wang 2017),

and/or (b) do not control the types of events involved (Duncan 2002), or (c) deal with obviously different syntactic encodings of the same events, such as the use of one or two clauses (Kita et al. 2007). The first group of studies conflates the role of habitual conceptualization of events with that of the online dynamic conceptualization of events in gestural representation, as pointed out in Kita et al. (2007); the second group of studies confuses the role of events with that of syntactic encodings in gestural representation; and the third group of studies is characterized by considering two rather diverse syntactic forms. The present thesis overcame these disadvantages by considering different syntactic encodings (the double object construction and the prepositional paraphrase; with the same syntactic transitivity and in one single clause) of the transfer events (that is, the type of events was controlled) within one language, American English. Accordingly, the results in this thesis, in terms of the correlation found between gestures and different syntactic encodings of transfer events, provide more direct evidence for the interaction between gestures and syntactic encodings (means of event construal), thereby taking matters a step further. Hence, this research provides further support for the Interface Hypothesis (Kita & Özyürek 2003) and the Growth Point Hypothesis (McNeill & Duncan 2000), which predict that gestures are produced in interaction with speech production and thus are influenced by the online linguistic encodings or construal of an event. However, it is at odds with the Free Imagery Hypothesis, which predicts that gestures are produced before language production and that they are only influenced by the properties of events, rather than by the linguistic encodings or speakers' construal of events (de Ruiter 2000; Krauss et al. 1996).

Furthermore, this thesis provides a deeper understanding of the ways in which gestures relate to different kinds of event construal afforded by different constructions. Results in terms of gestures in relation to transitivity alternations showed that event construal mostly influences either the dominant gestural modes (such as the Acting or Tracing gestural modes with respect to transitive or intransitive motion events in Chapter 6) or dominant fine-grained gestural forms (such as the more or less dynamic Acting gestures with respect to verbal or nominal uses of tools in Chapter 7), although it also influences the less dominant gestural modes (such as the use of Molding mode regarding the nominal use of tools in Chapter 7). Results regarding gestures in relation to the dative alternation showed that means of construal mainly influence the less dominant gestural modes (such as the use of Molding mode regarding the double object encoding of transfer events in Chapter 8) or the less dominant gestural forms (Acting gestures with or without transfer movements in Chapter 8). In this way, it seems that gestures accompanying the two syntactic encodings of transfer events have fewer degrees of variance in general than

those with the transitivity alternations do. This difference in gesture seems to relate to the degree of difference in different kinds of event construal afforded by the transitivity alternations and the dative alternation: profiling different segments of an action chain (such as with or without an external causation profiled) versus profiling different participants of a segment of an action chain (such as profiling a process of transfer events or an end result of transfer events). That is to say, the difference between gestural representations seems to be consistent with the “distance” between ways of construing events. In such a vein, the following prediction can be formulated: the more different the kinds of event construal, the more different the forms of gestural representation. For instance, gestures occurring with two or more constructions which profile different segments of an action chain (such as in terms of transitivity alternations) might be more different than those with two or more constructions which profile different parts of the same segment in an action chain (such as in terms of alternations with the same transitivity). Gestures occurring with the latter constructions might be more different than those occurring with two or more constructions which profile different figures in the same part of the same segment in an action chain (such as in terms of the trajectory/landmark alignment reflected in the active or passive expressions, or in expressions like *the book is on the table* vs. *the table is under the book*, as will also be mentioned below).

#### **9.2.4 Multimodal constructions (transitivity and the dative alternation) in construction grammars: “Code manifestation” & multimodality and “variable multimodality”**

The above sections indicated close correlations between gestures and means of construal afforded by constructions with the four types of transitivity and by double object constructions and prepositional object constructions belonging to the dative alternation. These correlations meet one of the two pre-conditions for proving the multimodality of grammar in Fricke (2013): “code manifestation”,<sup>52</sup> whereby a grammar can be seen as multimodal if gestures could follow up the structural and/or functional principles that work in spoken language. Accordingly, constructions with various types of transitivity and the dative alternation can be seen as multimodal constructions.

In addition, as mentioned in Chapter 3, Cienki (2015, 2017b) proposes the concept of “variably multimodal”, whereby the multimodality of constructions should be discussed in terms of being more or less multimodal rather than of being multimodal or not multimodal. As discussed in Chapters 2 and 3, in usage-based

---

<sup>52</sup> The other one is “code integration”. See Chapter 3 in this thesis or Fricke (2013) for an introduction to this.

construction grammars, frequency is usually taken as a criterion for determining the degree of conventionality of a construction. Similarly, frequency of gestures occurring with a certain construction in speech can be seen as a criterion for the degree of conventionality of a multimodal construction or of multimodality of constructions. This dissertation contributes to the concept of “variable multimodality”, by presenting frequencies of gestures occurring with basic and frequently used constructions in spoken language, ranging from around 8% (the lowest; copular construction) to 83% (the highest; transitive motion constructions with agent’s displacement). The variable degrees of multimodality of these basic constructions are thus explicitly indicated. It is important to note that the degree of multimodality of constructions is related to both the properties of events (such as the dynamicity, the path properties) evoked by these constructions (see the relation between gestural frequencies and the eventual properties in Chapters 6 and 8, for example) and the syntactic encoding (see the choice of oblique phrases to express the Figure’s path in Chapter 6, for example).

Whereas previous studies on multimodal constructions have largely not looked at basic constructions in language, this study fills this gap to some extent by providing an initial sense of the multimodality of transitivity, which is a fundamental grammatical category in a language system, and of the dative alternation, which consists of two frequent argument structure constructions. Establishing the multimodality of these constructions provides more empirical support for the multimodal stance that gestures should be seen as part of language (McNeill 2005). This challenges “traditional” construction grammars and cognitive linguistics in general, which mostly focus on written text or verbal speech. Instead, it calls for a multimodal approach to language and communication in construction grammars and in cognitive linguistics in general (see also Cienki 2010, 2013a, 2015, 2016; Steen & Turner 2013; Turner 2017).

### **9.2.5 A multimodal approach to conceptual semantics of constructions in construction grammars**

This thesis provides a new perspective to verify proposals concerning the conceptual semantics of constructions in construction grammars. Construction grammars hold that syntactic encodings reflect how we construe events in reality; every syntactic expression evokes some conceptual content (that is, a semantic frame), which is then construed in some way (Langacker 2008a: 43). This thesis provides empirical, gestural evidence for these hypothesized, abstract means of event construal and properties of semantic frames, in that gestural representation seems to reflect the means of construal afforded by grammatical constructions and properties of semantic frames

evoked by these linguistic expressions. For instance, as for the dative alternation, as hypothesized in Langacker (1990), the double object construction affords a more dynamic construal of transfer events (that is, profiling a transferred result), whereas the prepositional object construction affords a more static construal of transfer events (that is, profiling a transfer process). Similarly, gestures accompanying the former constructions were found to be more dynamic than those accompanying the latter, as presented above. This seems to suggest that the conceptual difference, which is associated with the two syntactic encodings of the same, transfer events, could be manifested in the accompanying gestures. That is, the assumed conceptual semantics of the two constructions is verified via investigation of gesture use. Following from this line of research, gesture studies can be seen as a new tool in addressing disputes about the conceptual semantics of constructional alternations in constructional approaches, such as in terms of whether and how constructional alternations differ semantically.

### **9.3 Future research directions**

This thesis has thrown up a number of points that could be examined in future research. First of all, whereas this thesis has dealt with the semantics (i.e. means of construal) of grammatical constructions in relation to gestural use, it would be of interest for future studies to investigate how gestures relate to pragmatic functions of these constructions. Since each construction is situated in a discourse context, the semantics of constructions could be intertwined with their pragmatics in discourse. In addition, construction grammars hold that a grammatical construction is a holistic unit, which may include both the semantics and the pragmatics as two ends of one continuum of meaning as conceptualization. Hence, including the relation of gestures to the pragmatics of constructions would help to establish a more comprehensive picture of the multimodality of constructions, although the pragmatics alone does not necessarily explain gestural behaviors with a construction (see Chapter 8).

Second, this thesis has focused on whether and how a particular dimension of construal – profiling – can be reflected in the accompanying gestures, but it leaves the question open as to whether and how some other dimensions of construal afforded by a certain grammatical construction (e.g., the alignment of trajectors and landmarks) can be reflected in the accompanying gestures. For instance, when speakers use different linguistic expressions (affording different arrangements of trajectors and landmarks) to encode the same situations, such as *the book is on the table vs. the table is under the book, he threw the ball out of the room vs. the ball has been thrown out of the room*, does the gesture use differ depending on the choice of syntactic encoding, and if so, in which ways? To our knowledge, no empirical studies

have as yet been carried out to explore this question.

Next, this thesis has been largely restricted to gestural use in relation to literal, basic uses of constructions, in particular in terms of constructional alternations. As suggested in previous chapters, it would be worth examining the various extensions of these constructions, such as the metaphorical uses and connections between basic uses and their extensions. By doing so, a more comprehensive network of constructions in relation to gestures could be revealed.

In addition, the present results may also have practical applications. The development of a social robot, which interacts and communicates with humans or other robots, has received increasing interest, for example in the areas of healthcare, “edutainment”, and problem-solving. Bremner and Leonards (2016) found that if robots used iconic gestures together with speech, humans interacting with them could understand them more easily. That is to say, multimodal communication of robots could be made more effective in this way. However, the development of social robots which can adequately engage in multimodal communication in a range of contexts is still in its infancy. One challenge in this respect is that we lack sufficient knowledge of gesture and other non-verbal behaviors in communication to generate these behaviors of social robots (Kopp 2014). The present study could provide insights for generating their gestural behavior in terms of the frequencies and forms of gestures occurring with the basic clausal constructions in communication.

In summary, this thesis supports a variably multimodal view of constructions, by demonstrating how the properties of gestures are compatible with specific features of constructions, and by identifying how gestures are, in different ways, related to different kinds of event construal afforded by grammatical constructions (including the basic, frequently used constructions in spoken language and groups of constructional alternations), and how the gestures are, to various degrees, co-expressive with the constructions. This multimodal view of constructions contributes to a more thorough understanding and appreciation of language and cognition. However, a comprehensive knowledge of multimodality of constructions together with practical applications of multimodal constructions still needs much further research.



---

## Bibliography

- Alahverdzhieva, K. (2013). Alignment of speech and co-speech gesture in a constraint-based grammar. Unpublished doctoral dissertation, University of Edinburgh, Edinburgh.
- Alahverdzhieva, K., & Lascarides, A. (2010). Analysing speech and co-speech gesture in constraint-based grammars. *Proceedings of the HPSG10 Conference*, 6–26.
- Andrén, M. (2010). Children's gestures from 18 to 30 months. Unpublished doctoral dissertation, Lund University, Lund, Sweden.
- Andrén, M. (2014). Multimodal constructions in children: Is the headshake part of language. *Gesture*, 14(2), 141–170.
- Aoun, J., & Li, Y. A. (1989). Scope and constituency. *Linguistic Inquiry*, 20(2), 141–172.
- Barlow, M., & Kemmer, S. (2000). *Usage-based models of Language*. Stanford, CA: Center for the Study of Language and Information.
- Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, 22(4), 577–660.
- Bavelas, J., Gerwing, J., Sutton, C., & Prevost, D. (2008). Gesturing on the telephone: Independent effects of dialogue and visibility. *Journal of Memory and Language*, 58(2), 495–520.
- Becker, R., Cienki, A., Bennett, A., Cudina, C., Debras, C., Fleischer, Z., Haaheim, M., Müller, T., Stec, K., & Zarcone, A. (2011). Aktionsarten, speech and gesture. In C. Kirchhof (Ed.), *Proceedings of GESPIN2011: Gesture and Speech in Interaction* [[http://gespin.amu.edu.pl/?page\\_id=46](http://gespin.amu.edu.pl/?page_id=46)].
- Bedny, M., Caramazza, A., Grossman, E., Pascual-Leone, A., & Saxe, R. (2008). Concepts are more than percepts: The case of action verbs. *Journal of Neuroscience*, 28(44), 11347–11353.
- Beilock, S. L., & Goldin-Meadow, S. (2010). Gesture changes thought by grounding it in action. *Psychological Science*, 21(11), 1605–1610.
- Bergen, B. K., & Chang, N. (2005). Embodied Construction Grammar in simulation-based language understanding. In J.-O. Östman & M. Fried (Eds.), *Construction grammars: Cognitive grounding and theoretical extensions* (pp. 147–190). Amsterdam: John Benjamins.
- Bod, R. (2009). Constructions at work or at rest? *Cognitive Linguistics*, 20(1), 129–134.
- Boutet, D., Morgenstern, A., & Cienki, A. (2016). Grammatical aspect and gesture in French: A kinesiological approach. *Russian Journal of Linguistics*, 20(3), 132–151.
- Bremner, P., & Leonards, U. (2016). Iconic gestures for robot avatars, recognition and integration with speech. *Frontiers in Psychology*, 7, 1–14. DOI: 10.3389/fpsyg.2016.00183.

- Bressemer, J. (2013). A linguistic perspective on the notation of form features in gestures. In C. Müller, A. Cienki, E. Fricke, S. H. Ladewig, D. McNeill & S. Teßendorf (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 1* (pp. 1079–1097). Berlin and Boston: De Gruyter Mouton.
- Bressemer, J., & Müller, C. (2014). A repertoire of German recurrent gestures with pragmatic functions. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill & J. Bressemer (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 2* (pp. 1575–1591). Berlin and Boston: De Gruyter Mouton.
- Bressemer, J., & Müller, C. (2017). The “Negative-Assessment-Construction” – A multimodal pattern based on a recurrent gesture? *Linguistics Vanguard*, 3(s1).
- Bub, D. N., Masson, M. E., & Cree, G. S. (2008). Evocation of functional and volumetric gestural knowledge by objects and words. *Cognition*, 106(1), 27–58.
- Butt, M., Dalrymple, M., and Frank, A. (1997). An architecture for linking theory in LFG. In M. Butt & R. H. King (Eds.), *Proceedings of the LFG 97 Conference* (pp. 1–16). Stanford, CA: CSLI Publications.
- Bybee, J. (2006). From usage to grammar: The mind's response to repetition. *Language* 82(4), 711–733. doi: 10.1353/lan.2006.0186
- Bybee, J., & Hopper, P. (Eds.). (2001). *Frequency and the emergence of language structure*. Amsterdam: John Benjamins.
- Calbris, G. (1990). *The semiotics of French gestures*. Bloomington and Indianapolis: Indiana University Press.
- Calbris, G. (2008). From left to right: Coverbal gestures and their symbolic use of space. In A. Cienki & C. Müller (Eds.), *Metaphor and gesture* (pp. 27–53). Amsterdam: John Benjamins.
- Calbris, G. (2011). *Elements of meaning in gesture*. Amsterdam: John Benjamins.
- Cánovas, C. P., & Valenzuela, J. (2017). Timelines and multimodal constructions: Facing new challenges. *Linguistics Vanguard*, 3(s1).
- Carter, R., & McCarthy, M. (2015). Spoken grammar: Where are we and where are we going?. *Applied Linguistics*, 38(1), 1–21. doi:10.1093/applin/amu080
- Chao, L. L., & Martin, A. (2000). Representation of manipulable man-made objects in the dorsal stream. *NeuroImage*, 12(4), 478–484.
- Chui, K. (2011). Conceptual metaphors in gesture. *Cognitive Linguistics*, 22(3), 437–458.
- Chui, K. (2012). Cross-linguistic comparison of representations of motion in language and gesture. *Gesture*, 12(1), 40–61.
- Chui, K. (2017). Entity metaphor, object gesture, and context of use. *Metaphor and Symbol*, 32(1), 30–51.

- Cienki, A. (1998). Metaphoric gestures and some of their relations to verbal metaphoric expressions. In J. P. Koenig (Ed.), *Discourse and cognition: Bridging the gap* (pp. 189–204). Stanford: CSLI Publications.
- Cienki, A. (2005). Image schemas and gesture. In B. Hampe & J. E. Grady (Eds.), *From perception to meaning: Image schemas in cognitive linguistics* (pp. 421–441). Berlin: Mouton de Gruyter.
- Cienki, A. (2007). Frames, idealized cognitive models, and domains. In D. Geeraerts & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (pp. 170–187). Oxford: Oxford University Press.
- Cienki, A. (2009). Mental space builders in speech and in co-speech gesture. In E. Jarmodowicz-Nowikow, K. Juszczyk, Z. Malisz & M. Szczyszek (Eds.), *GESPIN: Gesture and speech in interaction* [CD-ROM and <http://issuu.com/cognitarian/docs/cienki/I/>].
- Cienki, A. (2010). Gesture and (cognitive) linguistic theory. In R. Caballero Rodriguez & M. J. Pinar Sanz (Eds.), *Ways and modes of human communication* (pp. 45–56). Cuenca: Ediciones de la Universidad de Castilla-La Mancha.
- Cienki, A. (2013a). Cognitive linguistics: Spoken language and gesture as expressions of conceptualization. In C. Müller, A. Cienki, S. Ladewig, D. McNeill & S. Teßendorf (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 1* (pp. 182–201). Berlin and Boston: De Gruyter Mouton.
- Cienki, A. (2013b). Conceptual metaphor theory in light of research on gesture with speech. *Cognitive Semiotics* 5(1–2), 349–366.
- Cienki, A. (2013c). Image schemas and mimetic schemas in cognitive linguistics and gesture studies. *Review of Cognitive Linguistics*, 11(2), 417–432.
- Cienki, A. (2015). Spoken language usage events. *Language and Cognition*, 7(4), 499–514.
- Cienki, A. (2016). Cognitive linguistics, gesture studies, and multimodal communication. *Cognitive Linguistics*, 27(4), 603–618.
- Cienki, A. (2017a). Analysing metaphor in gesture: a set of metaphor identification guidelines for gesture (MIG-G). In E. Semino & Z. Demjen (Eds.), *The Routledge handbook of metaphor and language* (pp. 131–147). London: Routledge.
- Cienki, A. (2017b). Utterance Construction Grammar (UCxG) and the variable multimodality of constructions. *Linguistics Vanguard*, 3(s1).
- Cienki, A., & Iriskhanova, O. (in press). *Aspectuality across languages: Event construal in speech and gesture*. Amsterdam: John Benjamins.
- Cienki, A., & Müller, C. (Eds.). (2008). *Metaphor and gesture*. Amsterdam: John Benjamins.
- Cook, S. W., & Tanenhaus, M. K. (2009). Embodied communication: Speakers' gestures affect listeners' actions. *Cognition*, 113(1), 98–104.

- Croft, W. A. (1991). *Syntactic categories and grammatical relations: The cognitive organization of information*. Chicago: University of Chicago Press.
- Croft, W. A. (2001). *Radical Construction Grammar: Syntactic theory in typological perspective*. Oxford: Oxford University Press.
- Croft, W. A. (2012). *Verbs: Aspect and causal structure*. Oxford: Oxford University Press.
- Croft, W., and Cruse, D. A. (2004). *Cognitive linguistics*. Cambridge: Cambridge University Press.
- Debreslioska, S., Özyürek, A., Gullberg, M., & Perniss, P. (2013). Gestural viewpoint signals referent accessibility. *Discourse processes*, 50(7), 431–456.
- Delancey, S. (1987). Transitivity in grammar and cognition. In R. Tomlin (Ed.), *Discourse relations and cognitive units* (pp. 53–68). Amsterdam/Philadelphia: John Benjamins.
- de Ruiter, J.-P. (2000). The production of gesture and speech. In D. McNeill (Ed.), *Language and gesture* (pp. 248–311). Cambridge: Cambridge University Press.
- Dixon, R. M. W. (1979). Ergativity. *Language*, 55(1), 59–138.
- Du Bois, J. W. (1987). The discourse basis of ergativity. *Language* 63(4), 805–855.
- Du Bois, J. W. (2003). Discourse and grammar. In M. Tomasello (Ed.), *The new psychology of language: Cognitive and functional approaches to language structure, Vol. 2* (pp. 47–87). Mahwah, NJ: Erlbaum.
- Du Bois, J. W., Kumpf, L. E., & Ashby, W. J. (Eds.). (2003). *Preferred argument structure: Grammar as architecture for function*. Amsterdam: John Benjamins.
- Duncan, S. D. (2001). Co-expressivity of speech and gesture: Manner of motion in Spanish, English, and Chinese. In C. Chang, M. J. Houser, Y. Kim, D. Mortensen, M. Park-Doob & M. Toosarvandani (Eds.), *Proceedings of the 27th Annual Meeting of the Berkeley Linguistics Society* (pp. 353–370). Berkeley, CA: Berkeley University Press.
- Duncan, S. D. (2002). Gesture, verb aspect, and the nature of iconic imagery in natural discourse. *Gesture*, 2(2), 183–206. doi: 10.1075/gest.2.2.04dun
- Eisenberg, P. (1999). *Grundriß der Deutschen Grammatik: Der Satz*. Weimar: Metzler.
- Enfield, N. J. (2004). On linear segmentation and combinatorics in co-speech gesture: A symmetry-dominance construction in Lao fish trap descriptions. *Semiotica*, 149, 57–123. doi: 10.1515/semi.2004.038
- Enfield, N. J., Kita, S., & De Ruiter, J. -P. (2007). Primary and secondary pragmatic functions of pointing gestures. *Journal of Pragmatics*, 39(10), 1722–1741.
- Engberg-Pedersen, E. (2011). Cognitive foundations of topic-comment and foreground-background structures: Evidence from sign languages, co-speech gesture and homesign. *Cognitive Linguistics*, 22(4), 691–718.
- Everett, D. L. (in preparation). Sculpting language: A review of the David McNeill gesture trilogy. Retrieved from <http://ling.auf.net/lingbuzz/002084> (last accessed December, 2017)

- Fillmore, C. J. (1968). The case for case. In E. Bach & R. T. Harms (Eds.), *Universals in linguistic theory* (pp. 1–88). New York: Holt, Rinehart, and Winston.
- Fillmore, C. J. (1982). Frame semantics. In The Linguistic Society of Korea (Ed.), *Linguistics in the Morning Calm* (pp. 111–137). Seoul: Hanshin Publishing.
- Fillmore, C. J., Kay, P., & O'connor, M. C. (1988). Regularity and idiomaticity in grammatical constructions: The case of *let alone*. *Language*, 64(3), 501–538.
- Fricke, E. (2013). Towards a unified grammar of gesture and speech: A multimodal approach. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeil & S. Tebendorf (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 1* ( pp. 733–754). Berlin and Boston: De Gruyter Mouton.
- Fried, M., & Östman, J. O. (2004). A thumbnail sketch of construction grammar. In M. Fried & J.-O. Östman (Eds.), *Construction grammar in a cross-language perspective* (pp. 11–86). Amsterdam: John Benjamins.
- Fried, M., & Östman, J. O. (2005). Construction Grammar and spoken language: The case of pragmatic particles. *Journal of Pragmatics*, 37(11 SPEC. ISS.), 1752–1778. doi: 10.1016/j.pragma.2005.03.013
- Furman, R. (2012). Caused motion events in Turkish: Verbal and gestural representation in adults and children. PhD dissertation, Radboud Universiteit, Nijmegen, Netherlands. Utrecht: LOT.
- García-Miguel, J. M. (2007). Clause structure and transitivity. In D. Geeraerts & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (pp. 753–781). Oxford: Oxford University Press.
- Gibson, J. J. (1978). The ecological approach to the visual perception of pictures. *Leonardo*, 11(3), 227–235.
- Gibson, J. J. (2014). *The ecological approach to visual perception (classic edition)*. New York and London: Psychology Press.
- Giorgolo, G., Asudeh, A., Butt, M., & King, T. H. (2011). Multimodal communication in LFG: Gestures and the correspondence architecture. In M. Butt & T. H. King (Eds.), *Proceedings of the LFG11 Conference* (pp. 257–277). Stanford, CA: CSLI Publications.
- Givón, T. (1985). Ergative morphology and transitivity gradients in Newari. In F. Plank (Ed.), *Relational typology* (pp. 89–107). Berlin: Mouton de Gruyter.
- Glenberg, A. M., & Kaschak, M. P. (2002). Grounding language in action. *Psychonomic Bulletin & Review*, 9(3), 558–565.
- Goldberg, A. (1995). *A Construction Grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, A. (2002). Surface generalizations: An alternative to alternations. *Cognitive Linguistics*, 13(4), 327–356.

- Goldberg, A. (2003). Constructions: A new theoretical approach to language. *Trends in Cognitive Sciences*, 7(5), 219–224. doi: 10.1016/S1364-6613(03)00080-9
- Goldberg, A. (2004). Pragmatics and argument structure. In L. R. Horn & G. Ward (Eds.), *The handbook of pragmatics* (pp. 427–441). Oxford: Blackwell Publishing.
- Goldberg, A. (2006). *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.
- Goldin-Meadow, S., & Butcher, C. (2003). Pointing toward two-word speech in young children. In S. Kita (Ed.), *Pointing: Where language, culture, and cognition meet* (pp. 85–107). London: Lawrence Erlbaum Associates.
- Goldin-Meadow, S., Nusbaum, H., Kelly, S. D., & Wagner, S. (2001). Explaining math: Gesturing lightens the load. *Psychological Science*, 12(6), 516–522.
- Goldin-Meadow, S. (1999). The role of gesture in communication and thinking. *Trends in Cognitive Sciences*, 11(3), 419–429.
- Goldin-Meadow, S., & Singer, M. A. (2003). From children's hands to adults' ears: Gesture's role in the learning process. *Developmental Psychology*, 39(3), 509–520.
- Gullberg, M. (2008). Gestures and second language acquisition. In P. Robinson & N. C. Ellis (Eds.), *Handbook of Cognitive Linguistics and Second Language Acquisition* (pp. 276–305). London: Routledge.
- Gullberg, M. (2011). Language-specific encoding of placement events in gestures. In J. Bohemeyer & E. Pederson (Eds.), *Event representation in language and cognition* (pp. 166–188). Cambridge: Cambridge University Press.
- Gullberg, M. (2013). Bilingualism and gesture. In T. K. Bhatia & W. C. Ritchie (Eds.), *The handbook of bilingualism and multilingualism* (2nd Edition, pp. 417–437). Malden & Oxford: Wiley-Blackwell.
- Günthner, S. (2011). N-be-that-constructions in everyday German conversation. In R. Laury & R. Suzuki (Eds.), *Subordination in conversation: A cross-linguistic perspective* (pp. 11–36). Amsterdam: John Benjamins.
- Hadar, U., & Krauss, R. K. (1999). Iconic gestures: The grammatical categories of lexical affiliates. *Journal of Neurolinguistics*, 12(1), 1–12.
- Hale, K., & Keyser, J. (1986). Some transitivity alternations in English. *Lexicon Project Working Papers* (pp. 605–638). Cambridge, MA: MIT Press.
- Hardie, A. (2012). CQPweb – combining power, flexibility and usability in a corpus analysis tool. *International Journal of Corpus Linguistics*, 17(3), 380–409.
- Harley, H. (1997). If you Have, you can Give. In B. Agbayani & S. Tang (Eds.), *Proceedings of WCCFL XV* (pp. 193–207). Stanford, CA: CSLI.
- Harley, H. (2000). Possession and the double object construction. *Yearly Book of Linguistic Variation*, 2(1), 31–70.

- Harrison, S. (2008). The expression of negation through grammar and gesture. In J. Zlatev, M. Andrén, M. J. Falck & C. Lundmark (Eds.), *Studies in language and cognition* (pp. 405–419). Cambridge: Cambridge Scholars Press.
- Harrison, S. (2010). Evidence for node and scope of negation in coverbal gesture. *Gesture*, 10(1), 29–51.
- Hawkins, J. (1994). *A performance theory of order and constituency*. Cambridge: Cambridge University Press.
- Hilpert, M. (2014). *Construction grammar and its application to English*. Edinburgh: Edinburgh University Press.
- Hinnell, J. (2014). Multimodal aspectual constructions in North American English: A corpus analysis of aspect in co-speech gesture using little Red Hen. Oral presentation at the 6th Conference of the International Society for Gesture Studies. San Diego, U.S. Retrieved from doi:<https://www.researchgate.net/publication/292964356> (last accessed December, 2017).
- Hoffmann, T. (2017). Multimodal constructs – multimodal constructions? The role of constructions in the working memory. *Linguistics Vanguard*, 3(s1).
- Hoffmann, T., & Trousdale, G. (Eds.). (2013). *The Oxford handbook of construction grammar*. Oxford: Oxford University Press.
- Holler, J., & Beattie, G. (2003). Pragmatic aspects of representational gestures: Do speakers use them to clarify verbal ambiguity for the listener? *Gesture*, 3(2), 127–154.
- Holler, J., & Wilkin, K. (2009). Communicating common ground: How mutually shared knowledge influences speech and gesture in a narrative task. *Language and Cognitive Processes*, 24(2), 267–289.
- Holler, J., & Wilkin, K. (2011). Co-speech gesture mimicry in the process of collaborative referring during face-to-face dialogue. *Journal of Nonverbal Behavior*, 35(2), 133–153.
- Hollmann, W. B. (2013). Nouns and verbs in cognitive grammar: Where is the ‘sound’ evidence?. *Cognitive Linguistics*, 24(2), 275–308.
- Hopper, P. J., & Thompson, S. A. (1980). Transitivity in grammar and discourse. *Language*, 56(2), 251–299.
- Hostetter, A. B. (2014). Action attenuates the effect of visibility on gesture rates. *Cognitive Science*, 38(7), 1468–1481.
- Hostetter, A. B., & Alibali, M. W. (2008). Visible embodiment: Gestures as simulated action. *Psychonomic Bulletin & Review*, 15(3), 495–514. doi: 10.3758/PBR.15.3.495.
- Hostetter, A. B., & Alibali, M. W. (2010). Language, gesture, action: A test of the Gesture as Simulated Action Framework. *Journal of Memory & Language*, 63(2), 245–257.
- Hunger, B. (2006). Noun/verb pairs in Austrian Sign Language (ÖGS). *Sign Language & Linguistics*, 9(1-2), 71–94.

- Hunsicker, D., & Goldin-Meadow, S. (2013). How handshape type can distinguish between nouns and verbs in homesign. *Gesture*, 13(3), 354–376.
- Ilie, C. (2001). Semi-institutional discourse: The case of talk shows. *Journal of Pragmatics*, 33(2), 209–254.
- Iverson, J. M., & Goldin-Meadow, S. (1998). Why people gesture when they speak. *Nature*, 396(6708), 228.
- Jackendoff, R. (1990). *Semantic structures*. Cambridge, MA: MIT Press.
- Jehoul, A., Brône, G., & Feyaerts, K. (2017). The shrug as marker of obviousness. *Linguistics Vanguard*, 3(s1).
- Johnson, M. (1987). *The body in the mind: The bodily basis of meaning, imagination, and reason*. Chicago: University of Chicago Press.
- Johnston, T. (2001). Nouns and verbs in Australian Sign Language: An open and shut case?. *Journal of Deaf Studies & Deaf Education*, 6(4), 235–257.
- Kay, P., & Fillmore, C. J. (1999). Grammatical constructions and linguistic generalizations: The *What's X doing Y?* construction. *Language*, 75(1), 1–33.
- Kelly, M. H. (1992). Using sound to solve syntactic problems: The role of phonology in grammatical category assignments. *Psychological Review*, 99(2), 349–364.
- Kemmerer, D., Rudrauf, D., Manzel, K., & Tranel, D. (2012). Behavioral patterns and lesion sites associated with impaired processing of lexical and conceptual knowledge of actions. *Cortex*, 48(7), 826–848.
- Kendon, A. (1980). Gesticulation and speech: Two aspects of the process of utterance. In M. R. Key (Ed.), *The relationship of verbal and nonverbal communication* (pp. 207–227). The Hague: Mouton de Gruyter.
- Kendon, A. (1995). Gestures as illocutionary and discourse structure markers in southern Italian conversation. *Journal of Pragmatics*, 23(3), 247–279.
- Kendon, A. (1996). An agenda for gesture studies. *Semiotic Review of Books*, 7(3), 7–12.
- Kendon, A. (2004). *Gesture: Visible action as utterance*. Cambridge: Cambridge University Press.
- Kimbara, I. (2006). On gestural mimicry. *Gesture*, 6(1), 39–61.
- Kimmelmann, V. (2009). Parts of speech in Russian Sign Language: The role of iconicity and economy. *Sign Language & Linguistics*, 12(2), 161–186.
- Kita, S. (2000). How representational gestures help speaking. In D. McNeill (Ed.), *Language and gesture* (pp. 162–185). Cambridge: Cambridge University Press.
- Kita, S., & Özyürek, A. (2003). What does cross-linguistic variation in semantic coordination of speech and gesture reveal? Evidence for an interface representation of spatial thinking and speaking. *Journal of Memory and Language*, 48(1), 16–32.

- Kita, S., Özyürek, A., Allen, S., Brown, A., Furman, R., & Ishizuka, T. (2007). Relations between syntactic encoding and co-speech gestures: Implications for a model of speech and gesture production. *Language & Cognitive Processes*, 22(8), 1212–1236.
- Kok, K. I. (2017a). Functional and temporal relations between spoken and gestured components of language. *International Journal of Corpus Linguistics*, 22(1), 1–26.
- Kok, K. I. (2017b). *The status of gesture in cognitive-functional models of grammar*. PhD dissertation, Vrije Universiteit Amsterdam, Netherlands. Utrecht: LOT.
- Kok, K. I., & Cienki, A. (2016). Cognitive Grammar and gesture: Points of convergence, advances and challenges. *Cognitive Linguistics*, 27(1), 67–100.
- Kok, K. I., Bergmann, K., Cienki, A., & Kopp, S. (2016). Mapping out the multifunctionality of speakers' gestures. *Gesture*, 15(1), 37–59.
- Kopp, S. (2014). Gestures, postures, gaze and movements in computer science: Embodied agents. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill & J. Bressemer (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 2* (pp. 1948–1955). Berlin and Boston: De Gruyter Mouton.
- Krauss, R. M., Chen, Y., & Chawla, P. (1996). Nonverbal behavior and nonverbal communication: What do conversational hand gestures tell us? In M. P. Zanna (Ed.), *Advances in experimental social psychology, Vol. 28* (pp. 389–450). San Diego: Academic Press.
- Krifka, M. (2004). Semantic and pragmatic conditions for the dative alternation. *Korean Journal of English Language and Linguistics*, 4(1), 1–31.
- Ladewig, S. H. (2011). Putting the cyclic gesture on a cognitive basis. *CogniTextes*, 6. Retrieved from <http://cognitextes.revues.org/406> (last accessed December 2017).
- Ladewig, S. H. (2012). Syntactic and semantic integration of gestures into speech: Structural, cognitive, and conceptual aspects. Unpublished doctoral dissertation, European University Viadrina, Frankfurt (Oder), Germany.
- Ladewig, S. H. (2014). The cyclic gesture. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill & J. Bressemer (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 2* (pp. 1605–1618). Berlin: De Gruyter Mouton.
- Lakoff, G. (1977). Linguistic gestalts. Papers from the Thirteenth Regional Meeting, Chicago Linguistic Society (pp. 236–287). Chicago: Linguistic Society.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago/London: University of Chicago Press.
- Langacker, R. W. (1987). *The foundations of cognitive grammar, Volume I: Theoretical prerequisites*. Stanford: Stanford University Press.
- Langacker, R. W. (1990). *Concept, image, and symbol: The cognitive basis of grammar*. Berlin: Mouton de Gruyter.

- Langacker, R. W. (1991). *Foundations of cognitive grammar, Volume II: Descriptive application*. Stanford: Stanford University Press.
- Langacker, R. W. (2001). Discourse in cognitive grammar. *Cognitive Linguistics*, 12(2), 143–188. doi: 10.1515/cogl.12.2.143
- Langacker, R. W. (2005). Construction grammars: Cognitive, radical and less so. In F. J. R. Mendoza Ibanez & M. S. Pena Cervel (Eds.), *Cognitive linguistics: Internal dynamics and interdisciplinary interaction* (pp. 101–159). Berlin: Mouton de Gruyter.
- Langacker, R. W. (2008a). *Cognitive Grammar: A basic introduction*. Oxford: Oxford University Press.
- Langacker, R. W. (2008b). Metaphoric gesture and cognitive linguistics. In A. Cienki & C. Müller (Eds.), *Metaphor and gesture* (pp. 249–251). Amsterdam: John Benjamins.
- Lanwer, J. P. (2017). Apposition: A multimodal construction? The multimodality of linguistic constructions in the light of usage-based theory. *Linguistics Vanguard*, 3(s1).
- Lapaire, J. R. (2011). Grammar, gesture and cognition: Insights from multimodal utterances and applications for gesture analysis. *Visnyk of Lviv University Series Philology*, 52, 87–107.
- Larson, R. K. (1988). On the double object construction. *Linguistic Inquiry* 19(3), 335–391.
- Levin, B. (1993). *English verb classes and alternations: A preliminary investigation*. Chicago: University of Chicago Press.
- Levy, E. T., & McNeill, D. (1992). Speech, gesture, and discourse. *Discourse Processes*, 15(3), 277–301.
- Liddell, S. K. (2009). Grounded blends, gestures, and conceptual shifts: Cognitive linguistics (includes cognitive linguistic bibliography). *Cognitive Linguistics*, 9(3), 283–314.
- Linell, P. (2009). Grammatical constructions in dialogue. In A. Bergs & G. Diewald (Eds.), *Contexts and constructions* (pp. 97–110). Amsterdam: John Benjamins.
- Lis, M. & Navarretta, C. (2013). Classifying the form of iconic hand gestures from the linguistic categorization of co-occurring verbs. In P. Paggio & B. Wessel-Tolvig (Eds.), *Proceedings of the 1st European Symposium on Multimodal Communication* (pp. 41–50). Valletta, Malta.
- Marghetis, T., & Bergen, B. (2014). Embodied meaning, inside and out: The coupling of gesture and mental simulation. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill & J. Bressemer (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 2* (pp. 2000–2008). Berlin and Boston: De Gruyter Mouton.
- Martinec, R. (2000). Types of process in action. *Semiotica*, 130(3), 243–268.
- Martinec, R. (2004). Gestures that co occur with speech as a systematic resource: The realization of experiential meanings in indexes. *Social Semiotics*, 14(2), 193–213.

- Masson-Carro, I., Goudbeek, M., & Krahmer, E. (2016). Can you handle this? the impact of object affordances on how co-speech gestures are produced. *Language Cognition & Neuroscience*, 31(3), 430–440.
- McNeill, D. (1985). So you think gestures are nonverbal?. *Psychological Review*, 92(3), 350–371.
- McNeill, D. (1992). *Hand and mind: What gestures reveal about thought*. Chicago: University of Chicago Press.
- McNeill, D. (1997). Imagery in motion event descriptions: Gestures as part of thinking-for-speaking in three languages. In A. C. Bailey, K. E. Moore & J. L. Moxley (Eds.), *Proceedings of the Twenty-Third Annual Meeting of the Berkeley Linguistics Society* (pp. 255–267). Berkeley, CA: Berkeley Linguistics Society.
- McNeill, D. (2000a). Catchments and contexts: Non-modular factors in speech and gesture production. In D. McNeill (Ed.), *Language and gesture* (pp. 312–328). Cambridge: Cambridge University Press.
- McNeill, D. (Ed.). (2000b). *Language and gesture*. Cambridge: Cambridge University Press.
- McNeill, D. (2003). Aspects of aspect. *Gesture*, 3(1), 1–17. doi: 10.1075/gest.3.1.02mcn
- McNeill, D. (2005). *Gesture and thought*. Chicago: University of Chicago Press.
- McNeill, D., & Duncan, S. D. (2000). Growth points in thinking-for-speaking. In D. McNeill (Ed.), *Language and gesture* (pp. 141–161). Cambridge: Cambridge University Press.
- McNeill, D., & Levy, E. T. (1993). Cohesion and gesture. *Discourse processes*, 16(4), 363–386. doi: 10.1080/01638539309544845
- Mittelberg, I. (2006). Metaphor and metonymy in language and gesture: Discourse evidence for multimodal models of grammar. Unpublished doctoral dissertation, Cornell University, New York.
- Mittelberg, I. (2017). Multimodal existential constructions in German: Manual actions of giving as experiential substrate for grammatical and gestural patterns. *Linguistics Vanguard*, 3(s1).
- Mittelberg, I., & Waugh, L. R. (2009). Metonymy first, metaphor second: A cognitive-semiotic approach to multimodal figures of thought in co-speech gesture. *Industrial & Engineering Chemistry Product Research & Development*, 23(2), 203–205.
- Morrel-Samuels, P., & Krauss, R. M. (1992). Word familiarity predicts temporal asynchrony of hand gestures and speech. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 18(3), 615–622.
- Müller, C. (1998). Iconicity and gesture. In S. Santi, I. Guañtella, C. Cavé & G. Konopczynski (Eds.), *Oralité et gestualité: Communication Multimodale, Interaction* (pp. 321–328). Paris: L' Harmattan.

- Müller, C. (2004). Forms and uses of the Palm Up Open Hand: A case of a gesture family. In C. Müller & R. Posner (Eds.), *The semantics and pragmatics of everyday gestures* (pp. 234–256). Berlin: Weidler.
- Müller, C. (2014). Gestural modes of representation as techniques of depiction. In C. Müller, A. Cienki, E. Fricke, S. Ladewig, D. McNeill & J. Bressemer (Eds.), *Body – language – communication: An international handbook on multimodality in human interaction, Vol. 2* (pp. 1687–1702). Berlin and Boston: De Gruyter Mouton.
- Muntigl, P. (2004). Modelling multiple semiotic systems: the case of gesture and speech. In E. Ventola, C. Charles & M. Kaltenbacher (Eds.) *Perspectives on multimodality* (pp. 31–49). Amsterdam: John Benjamins.
- Newman, J. (1996). *Give: A cognitive linguistic study*. Berlin/New York: Mouton de Gruyter.
- Newman, J., & Rice, S. (2006). Transitivity schemas of English EAT and DRINK in the BNC. In S. Th.Gries & A. Stefanowitsch (Eds.), *Corpora in Cognitive Linguistics: Corpus-based approaches to syntax and lexis* (pp. 225–260). Berlin: Mouton de Gruyter.
- Oben, B., & Brône, G. (2016). Explaining interactive alignment: A multimodal and multifactorial account. *Journal of Pragmatics*, 104, 32–51.
- Özyürek, A., & Kita, S. (1999). Expressing manner and path in English Turkish: Differences in speech, gesture, and conceptualization. In M. Hahn & S. C. Stonnes (Eds.), *Proceedings of the Twenty-first Annual Meeting of the Cognitive Science Society* (pp. 507–512). Hillsdale, NJ: Erlbaum.
- Özyürek, A., Kita, S., Allen, S. E. M., Furman, R., & Brown, A. (2005). How does linguistic framing of events influence co-speech gestures?: Insights from crosslinguistic variations and similarities. *Gesture*, 5(1), 219–240.
- Padden, C. A., Meir, I., Hwang, S. O., Lepic, R., Seegers, S., & Sampson, T. (2013). Patterned iconicity in sign language lexicons. *Gesture*, 13(3), 287–308.
- Parrill, F. (2010). Viewpoint in speech–gesture integration: Linguistic structure, discourse structure, and event structure. *Language and Cognitive Processes*, 25(5), 650–668. doi: 10.1080/01690960903424248
- Parrill, F., Bergen, B. K., & Lichtenstein, P. V. (2013). Grammatical aspect, gesture, and conceptualization: Using co-speech gesture to reveal event representations. *Cognitive Linguistics*, 24(1), 135–158.
- Parrill, F., & Sweetser, E. (2004). What we mean by meaning: Conceptual integration in gesture analysis and transcription. *Gesture*, 4(2), 197–219. doi: 10.1075/gest.4.2.05par
- Pereira, G. M. (2013). Creating and maintaining perspectives and identities in narratives with gesture space and gestural handedness. *Saarland Working Papers in Linguistics*, 4, 41–56.

- Perniss, P., Özyürek, A., & Morgan, G. (2015). The influence of the visual modality on language structure and conventionalization: Insights from sign language and gesture. *Topics in Cognitive Science*, 7(1), 2–11.
- Perniss, P., Thompson, R. L., & Vigliocco, G. (2010). Iconicity as a general property of language: Evidence from spoken and signed languages. *Frontiers in Psychology*, 1(6), 1–15. doi: 10.3389/fpsyg.2010.00227
- Pinker, S. (1989). *Learnability and cognition: The acquisition of argument structure*. Cambridge, MA: MIT Press.
- Poggi, I. (2008). Iconicity in different types of gestures. *Gesture*, 8(1), 45–61.
- Pulvermüller, F. (1999). Words in the brain's language. *Behavioral and Brain Sciences*, 22(2), 280–336.
- Pulvermüller, F., Lutzenberger, W., & Preissl, H. (1999). Nouns and verbs in the intact brain: Evidence from event-related potentials and high-frequency cortical responses. *Cereb Cortex* 9(5), 497–506.
- Quek, F., McNeill, D., Bryll, R., Duncan, S., Ma, X. F., Kirbas, C., ... Ansari, R. (2002). Multimodal human discourse: Gesture and speech. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 9(3), 171–193.
- Sally, R. (1987). *Towards a cognitive model of transitivity*. Unpublished doctoral Dissertation, University of California, San Diego.
- Schiffrin, D. (1988). *Discourse markers*. Cambridge: Cambridge University Press.
- Schoonjans, S. (2014). *Modalpartikeln als multimodale Konstruktionen. Eine korpusbasierte Kookkurrenzanalyse von Modalpartikeln und Gestik im Deutschen [Modal particles as multimodal constructions. A corpus-based co-occurrence analysis of modal particles and gesture in German]*. Unpublished doctoral dissertation, University of Leuven, Leuven, Belgium.
- Schoonjans, S. (2017). Multimodal Construction Grammar issues are Construction Grammar issues. *Linguistics Vanguard*, 3(s1).
- Sekine, K., & Kita, S. (2015). The parallel development of the form and meaning of two-handed gestures and linguistic information packaging within a clause in narrative. *Open Linguistics*, 1(1), 490–502.
- Slobin, D. (1987). Thinking for speaking. *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics Society* (pp. 435–445). Berkeley: Berkeley Linguistics Society.
- Slobin, D. I. (1996). From “thought and language” to “thinking for speaking”. In J. Gumperz & S. Levinson (Eds.), *Rethinking linguistic relativity* (pp. 70–96). Cambridge: Cambridge University Press.
- Snyder, K. (2003). *The relationship between form and function in ditransitive constructions*. Unpublished doctoral dissertation, University of Pennsylvania, Philadelphia.

- Stam, G. (2008). What gestures reveal about second language acquisition. In S. G. McCafferty & G. Stam (Eds.), *Gesture: Second language acquisition and classroom research* (pp. 231–255). New York: Routledge.
- Stam, G. (2010). Can a L2 speaker's patterns of thinking for speaking change? In Z. Han & T. Cadierno (Eds.), *Linguistic relativity in SLA: Thinking for speaking* (pp. 59–83). Clevedon: Multilingual Matters.
- Stam, G. (2015). Changes in thinking for speaking: A longitudinal case study. *The Modern Language Journal*, 99(1), 83–99.
- Stanfield, R. A., & Zwaan, R. A. (2001). The effect of implied orientation derived from verbal context on picture recognition. *Psychological Science*, 12(2), 153–156.
- Stassen, L. (1997). *Intransitive predication*. (Oxford studies in typology and linguistic theory). Oxford: Clarendon Press.
- Stec, K., Huiskes, M., & Redeker, G. (2015). Multimodal analysis of quotation in oral narratives. *Open Linguistics*, 1(1), 531–554.
- Steen, F., & Turner, M. (2013). Multimodal Construction Grammar. In M. Borkent, B. Dancygier & J. A. J. Hinnell (Eds.), *Language and the creative mind* (pp. 255–274). Stanford, CA: CSLI Publications.
- Stefanowitsch, A., & Gries, S. T. (2003). Collocations: Investigating the interaction of words and constructions. *International Journal of Corpus Linguistics*, 8(2), 209–243.
- Stokoe, W. C. (1960/2005). Sign language structure: An outline of the visual communication systems of the American deaf. *Journal of Deaf Studies and Deaf Education*, 10(1), 3–37.
- Streeck, J. (2008). Depicting by gesture. *Gesture*, 8(3), 285–301.
- Streeck, J. (2009a). Forward-gesturing. *Discourse processes*, 46(2), 161–179.
- Streeck, J. (2009b). *Gesturecraft: The manufacture of meaning*. Amsterdam: John Benjamins.
- Streeck, J., & Hartge, U. (1992). Previews: Gestures at the transition place. In P. Auer & A. D. Luzio (Eds.), *The contextualization of language* (pp. 135–157). Amsterdam: John Benjamins.
- Sweetser, E. (1998). *Regular metaphoricity in gesture: Bodily-based models of speech interaction*. Actes du 16e Congrès International des Linguistes (CD-ROM), Elsevier.
- Sweetser, E. (2006). Looking at space to study mental spaces: Co-speech gesture as a crucial data source in cognitive linguistics. In M. Gonzalez-Marquez, I. Mittelberg, S. Coulson & M. Spivey (Eds.), *Methods in Cognitive Linguistics* (pp. 201–224). Amsterdam/New York: John Benjamins.
- Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), *Language typology and syntactic description, Vol. 3* (pp. 36–149). Cambridge: Cambridge University Press.

- Talmy, L. (1988). Force dynamics in language and cognition. *Cognitive Science*, 12(1), 49–100.
- Talmy, L. (1996). The windowing of attention in language. In M. Shibatani & S. A. Thompson (Eds.), *Grammatical constructions: Their form and meaning* (pp. 235–287). Oxford: Clarendon Press.
- Talmy, L. (2000). *Towards a cognitive semantics, Vol. 2: Typology and process in concept structuring*. Cambridge, MA: The MIT Press.
- Thompson, S. A., & Hopper, P. J. (2001). Transitivity, clause structure, and argument structure: Evidence from conversation. In J. L. Bybee & P. J. Hopper (Eds.), *Frequency and the emergence of linguistic structure* (pp. 27–60). Amsterdam: John Benjamins.
- Thompson, C. K., Lange, K. L., Schneider, S. L., & Shapiro, L. P. (1997). Agrammatic and non-brain-damaged subjects' verb and verb argument structure production. *Aphasiology*, 11(4-5), 473–490.
- Tkachman, O., & Sandler, W. (2013). The noun-verb distinction in two young sign languages. *Gesture*, 13(3), 253–286.
- Tucker, M., & Ellis, R. (1998). On the relations between seen objects and components of potential actions. *Journal of Experimental Psychology: Human Perception and Performance*, 24(3), 830–846.
- Turner, M. (2017). Multimodal form-meaning pairs for blended classic joint attention. *Linguistics Vanguard*, 3(s1).
- Tutton, M. (2011). How speakers gesture when encoding location with English *on*, and French *sur*. *Journal of Pragmatics*, 43(14), 3431–3454.
- Vannuscorps, G., Andres, M., & Pillon, A. (2014). Is motor knowledge part and parcel of the concepts of manipulable artifacts? Clues from a case of upper limb apraxia. *Brain and Cognition*, 84(1), 132–140.
- Verhagen, A. (2007). Construal and perspectivization. In D. Geeraerts & H. Cuyckens (Eds.), *The Oxford handbook of cognitive linguistics* (pp. 48–81). Oxford: Oxford University Press.
- Vigliocco, G., Kousta, S.-T., Della Rosa, P. A., Vinson, D. P., Tettamanti, M., Devlin, J. T., & Cappa, S. F. (2014). The neural representation of abstract words: The role of emotion. *Cerebral Cortex*, 24(7), 1767–1777.
- Vinson, D. P., & Vigliocco, G. (2002). A semantic analysis of grammatical class impairments: Semantic representations of object nouns, action nouns and action verbs. *Journal of Neurolinguistics*, 15(3), 317–351.
- Wang, R. (2017). Thinking, speaking and gesturing: Grammatical aspect in spoken Chinese and English from the perspective of multimodal communication. Unpublished doctoral dissertation, Vrije Universiteit Amsterdam, Netherlands.

- Webb, R. A. (1996). Linguistic features of metaphoric gestures. Unpublished doctoral dissertation, University of Rochester, New York.
- Wilcox, S. (2004). Cognitive iconicity: Conceptual spaces, meaning, and gesture in signed language. *Cognitive Linguistics*, 15(2), 119–148.
- Wilcox, S., & Xavier, A. N. (2013). A framework for unifying spoken language, signed language, and gesture. *Todas as Letras-Revista de Língua e Literatura*, 15(1), 88–110.
- Wilkin, K., & Holler, J. (2011). Speakers' use of 'action' and 'entity' gestures with definite and indefinite references. In G. Stam & M. Ishino (Eds.), *Integrating gestures: The interdisciplinary nature of gesture* (pp. 293–308). Amsterdam: John Benjamins.
- Wu, S., & Cienki, A. (in prep.). Transitivity, clause structure and the Argument Structure Construction in interview discourse: Towards a Construction Grammar of spoken language.
- Wu, Y.C., & Coulson, S. (2007). How iconic gestures enhance communication: An ERP study. *Brain & Language*, 101(3), 234–245.
- Yasui, E. (2013). Collaborative idea construction: Repetition of gestures and talk in joint brainstorming. *Journal of Pragmatics*, 46(1), 157–172. doi: 10.1016/j.pragma.2012.10.002.
- Ziem, A. (2017). Do we really need a Multimodal Construction Grammar. *Linguistics Vanguard*, 3(s1).
- Zima, E. (2014). English multimodal motion constructions: A construction grammar perspective. *Linguistic Society of Belgium*, 8. Retrieved from <http://uahost.uantwerpen.be/linguist/SBKL/sbkl2013/Zim2013.pdf> (last accessed December 2017).
- Zima, E. (2017). On the multimodality of [all the way from X PREP Y]. *Linguistics Vanguard*, 3(s1).
- Zima, E., & Bergs, A. (2017). Multimodality and construction grammar. *Linguistics Vanguard*, 3(s1).
- Zlatev, J. (2005). What's in a schema? Bodily mimesis and the grounding of language. In B. Hampe (Ed.), *From perception to meaning: Image schemas in cognitive linguistics* (pp. 313–342). Berlin: Mouton de Gruyter.
- Zwaan, R. A., Stanfield, R. A., & Yaxley, R. H. (2002). Language comprehenders mentally represent the shape of objects. *Psychological Science*, 13(2), 168–171.