Summary of the dissertation

This dissertation addresses the multimodality of the most basic and frequently used constructions and groups of constructional alternations in English, taking the perspective of construction grammars (e.g. Goldberg 1995, 2006; Langacker 1990, 2008).

Chapter 2 discusses the need and the possibility for research on the multimodality of constructions, drawing upon the basic tenets of construction grammars, i.e. a usage-based approach to constructions, constructions as symbolic form-meaning pairings, lexicon and syntax forming a continuum, and various constructions forming a network via four types of inheritance links.

Chapter 3 reviews the previous studies on the multimodality of constructions. Three main research routes here include identifying frequent gestural and verbal form-meaning pairings, investigating whether and how dimensions of event construal are reflected in verbal construction and gestures, and establishing how gesture complements verbal constructions formally and semantically. Importantly, a number of issues have not been considered in previous research. First, the possible multimodal nature of the most basic and frequently used constructions in speech, such as transitive, intransitive and copular constructions, remains unclear. Second, it remains a puzzle as to whether representational, deictic and discourse-related gestures all relate to the means of event construal afforded by constructions. Third, the relation between gesture use, types of events and dimensions of event construal associated with various constructions remains elusive. To address these issues, empirical chapters in the dissertation consider representational, deictic, and discourse-related gestures accompanying the most basic and frequently-used constructions and groups of constructional alternations, which encode the same events via different syntactic encodings. Introductions to the properties of events and the means of event construal afforded by these constructions are provided in Chapter 4.

Specifically, this dissertation addresses how often gestures are co-expressive with specific constructions in spoken language and to what extent the gestures correlate with the means of event construal and the relevant properties of events associated with these constructions. All the empirical studies are based on the talk show programs in the UCLA Library Broadcast NewsScape database, accessed via tools from the so-called Distributed Little Red Hen consortium.

Employing the interview material from a popular American talk show program in the database, Chapter 5 explores the frequencies and forms of representational,

deictic, and discourse-related gestures in relation to four basic and frequently used constructions in speech, that is, high-transitive, low-transitive, intransitive and copular constructions. The results show that the frequencies and forms of representational gestures relate to the type of construction used in speech, but those of deictic and discourse-related gestures do not. The results suggest that only representational gestures are associated with the means of event construal afforded by these constructions, thereby indicating that the three types of gestures possibly do not derive from the same cognitive origin. Another important result is that the frequencies and forms (that is, Modes of Representation) of representational gestures relate to the four types of constructions in speech, which are associated with different means of event construal. Specifically, many more representational gestures accompanied high-transitive and intransitive than low-transitive and copular constructions, but their frequencies did not differ between high-transitive and intransitive construction or between low-transitive and copular constructions. These results suggest that the frequency of representational gestures used relates to the dynamicity involved in the event construal of these constructions. Concerning the Modes of Representation of representational gestures, Acting-with-object gestures preferably accompanied high-transitive constructions, Acting-only and Tracing gestures preferably accompanied intransitive constructions, and Molding (and Embodying) gestures preferably accompanied low-transitive and copular constructions. These results suggest that the gestural mode preferred seems to be linked with the external causation and the dynamicity in speaker's construing these constructions. The last finding is that the gestural rate of the four constructions in the data was not very high, ranging from 8% to 25%. This comes out of another result, namely that speakers tend to utter clauses with lower transitivity (i.e. low-transitive and intransitive construction) without representational gestures whereas they tend to produce presentational gestures accompanying clauses with higher transitivity (i.e. high-transitive and intransitive constructions) in the data.

Using the data from a number of talk show programs, Chapter 6 zooms in on the frequency and the Modes of Representation of representational gestures in relation to the causative-inchoative alternation, that is, transitive and intransitive constructions encoding events with externally caused change of state or location. The results indicate that the frequencies of representational gestures produced differed with respect to the path properties of events but not with respect to transitivity; that is to say, a lot more representational gestures were made with events with the Agent's path and/or the Figure's path than with those without such a path. As for the gestural modes of representation, they are found to relate to both properties of events – that is, the Agent's path — and transitivity. Specifically, as

transitive constructions involved displacement of the Agent (e.g., *he moved the sofa out of the room*) versus not (e.g., *he moved his toupee up*), the production likelihood of Tracing gestures increased significantly; nevertheless, it is worthy of note that Acting-with-object gestures preferably accompanied transitive constructions, whereas Tracing gestures preferably occurred with intransitive constructions. These results suggest that although gestures do interact with dynamic and spatial properties of events expressed, they also closely correlated with the choice of syntactic transitivity encoding these events. One feasible explanation for this is that transitive and intransitive constructions afford different ways in which speakers conceptualize the events: +/- the profiling of external causation, which are also reflected in gestural representation.

Chapter 7 investigates the frequency and the Modes of Representation of representational gestures accompanying low-transitive & copular and high-transitive & intransitive constructions related to tools, i.e. nominal and verbal uses of tools, which I refer to as the tool noun and tool verb alternation. This analysis reveals that a similar number of representational gestures were produced to accompany both nouns and verbs, and that the same dominant gestural Mode of Representation – the Acting-with-object mode – was used with respect to both constructions. In this case, this chapter continues to examine whether the fine-grained forms (handedness, hand shape, gesture space and movement iteration) of Acting-with-object gestures differ or not depending on the choice of construction in speech. The results indicate that Acting-with-object gestures accompanying the nouns tend to involve more static movement patterns, whereas Acting-with-object gestures accompanying the verbs tend to involve more dynamic movement patterns. These results suggest that the gestural rate and the dominant gestural mode are largely linked with the tool frame, whereas the fine-grained gestural forms relate to the use of nouns or verbs in speech, which afford different means of construal of the tool frame: profiling the static situations of tool objects versus the dynamic process of the related tool activities.

Extending the above studies a step further, Chapter 8 considers the frequency and the Modes of Representation of representational gestures as well as the dynamics in the dominant type of gesture occurring with another type of constructional alternation – the dative alternation (that is, the double object construction and the prepositional construction encoding transfer events), which involves the same type of syntactic transitivity and the same events. The results show that the two constructions tend to be accompanied by gestures with the similar frequency, with the same dominant Mode of Representation (that is, the Acting-with-object mode), and the same dominant dynamics in this dominant gestural mode (that is, Acting-with-object gestures with transfer movement).

However, differences still emerge from gestures accompanying the two constructions. Specifically, Molding gestures preferably accompanied the double object construction, whereas Acting-with-object and Tracing gestures preferably accompanied the prepositional object construction. Acting-with-object gestures occurring with the prepositional object construction were more likely to involve transfer movements than those with the double object construction were. The results suggest that the gestural frequency and the dominant gestural mode, as well as the frequent form (i.e. involving dynamic, transfer movements) of this dominant gestural mode, are largely linked with transfer events, whereas the less dominant gestural modes and the less frequent form (i.e. not involving dynamic, transfer movements) of the dominant gestures (Acting-with-object gestures) relate to the syntactic encodings of transfer events, which are associated with different construals of these events: profiling a possessive relation or a dynamic process of the transfer events.

The findings above advance our understanding of the complex story between gestures, properties of events, and kinds (means) of event construal afforded by syntactic encodings. It was found that gestures are related in different ways to different kinds of event construal and various properties of events associated with various grammatical constructions (including the basic, frequently used constructions in spoken language and groups of constructional alternations), and that the gestures are co-expressive with the constructions to varying degrees. The findings provide empirical evidence for the kinds of event construal that have been claimed to exist in constructions, thereby offering a new tool to explore the semantics of constructions beyond linguistic tests or other approaches used before. The findings also lend further support to the relation between gesture and speech production in the Interface Hypothesis (Kita & Özyürek 2003) and the Growth Point Hypothesis (McNeill & Duncan 2000), whereby gesture is determined by both pre-linguistic events and syntactic encodings, rather than simply being motivated by pre-linguistic events. These views are consistent with the multimodal stance towards grammar and language. In addition, the thesis contributes to the concept of 'variable multimodality', proposed by Cienki (2015, 2017b), by demonstrating the various forms and degrees of the conventionality of the most basic, frequently used constructions and constructional alternations. In the final chapter, the findings of the dissertation are summarized. The implications and potential future research directions are also discussed.