Flexible Processing and the Frame-Based Design of Grammar

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There is by now little doubt that human language processing is incremental, probabilistic, and highly flexible – capable of rapidly integrating contextual and nonlinguistic information of many kinds to resolve interpretation. Yet many linguists have regarded these fundamental aspects of language as irrelevant to grammatical theory, which they conceive of, following Chomsky, as an `abstract characterization of linguistic knowledge' whose operations (e.g. Merge and Move) bear no direct relation to the operations of real-time language processing.

In this talk, I embrace a stronger version of the Competence Hypothesis, one that seeks a form of grammar whose constructs can be directly embedded within models of comprehension and production. In particular, I explore the consequences of letting the incremental and integrative nature of language processing inform the design of competence grammar. What emerges is a view of grammar as a system of local constraints that provide a direct characterization of the signs (the form-meaning correspondences) of a given language. This `Sign-Based Construction Grammar', developed together with Charles Fillmore, Paul Kay and Laura Michaelis, synthesizes key insights from Berkeley Construction Grammar and from HPSG, which has supported three decades of computational research developing large-scale grammar implementations. SBCG has provided precise solutions to the key problems long thought to motivate movement-based analyses and is now beginning to play a role in computational psycholinguistics work exploring models that employ underspecification and the incremental computation of partial meanings.