Performance models for surface structure parsing John Hale Cornell University

A classic view supposes that grammar is somehow embedded in a processing mechanism. The talk presents a family of performance models consistent with this view. We consider some example models guided by a notion of "shortest derivation" that is adapted to the problem of incremental parsing. In striving to find short derivations, the models end up doing comparatively more work in states where they are "less sure" about the syntactic structure intended by the speaker. This lack of certainty can itself be formalized in cases where formalized grammars are available. We compare the proposed family of models to existing work such as the Derivational Theory of Complexity, Garden Path Theory and the Entropy Reduction Hypothesis, demonstrating the proposal's promise for clarifying the relation between grammar & processor.