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Accounting for Pause Patterns in Writing: Integrating Strategies and Processing Requirements in a Cognitive Architecture

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Abstract: Research suggests that writing is a complex multilevel activity involving the temporal coordination of many different processes (e.g. syntactic, semantic, phonological, spelling, graphomotor, visual and spatial) but computational models that adequately integrate these levels appear to be absent in the research literature. The presentation outlines research in progress on modelling writing within the ACT-R framework. Several classes of empirical phenomena are specified and used to constrain an instantiation of the underlying knowledge, processing operations and architectural requirements for modelling writing. Models are reported of a study in which pauses between concurrent letters depended on whether they shared the same grapheme, word or phrase (e.g. Cheng & Rojas-Anaya 2006). The models explain these effects through a combination of processing requirements and control strategies and highlight the importance of control strategies in cognitive accounts of writing. Limitations of the models, questions raised and the theoretical utility of the approach are also presented.