INCREMENTAL SPEECH AND LANGUAGE PROCESSING

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Spoken language unfolds in time, and is understood and generated in a continuous process: when we take part in a dialogue, we don't plan full sentences which we then merely `read out', and we don't have to wait for our interlocutors to finish their utterance before we can start to think about and react to it.

This may seem obvious, but both in many branches of linguistics and in practical implementations, these these continuous processes are abstracted away and focus is placed on the sentence or turn as the basic unit of analysis. In this talk, I will briefly review the evidence for incremental processing and the potential advantages it can have for practical systems. I will then describe a conceptual model of such processing that we have developed (Schlangen & Skantze, EACL 2009 / Dialogue & Discourse 2011), a realisation of this model in an open-source toolkit for building incremental systems (the "InproTK", Baumann & Schlangen, ESSV 2010), two implementations of the model in example dialogue systems (Skantze & Schlangen, EACL 2009; Buß, Baumann & Schlangen, SIGdial 2010), current directions of our work (Baumann & Schlangen, ACL Demo & Interspeech 2012), and discuss what we have learned from these implementations.

(See http://www.inpro.tk for an overview of our work relevant to this talk.)