

## EVENT ABSTRACT

# Objective automated analysis of natural language: The Fluency Profiling System as a measure of the efficiency of dynamic language networks.

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Recent advances in neuro-imaging have provided biological confirmation of the presence of large-scale networks underpinning language processing (Thompson & den Ouden, 2008). Fluent effortless speech production is thought to reflect optimum network function. Hird and Kirsner (2010) demonstrated in three diverse aphasic speakers that the Fluency Profiling System (Little, Oehmen, Dunn, Hird & Kirsner (2012) provides a powerful, objective and sensitive profile of fluency in natural speech samples.

Discourse samples from the Cinderella story were selected from the AphasiaBank repository (McWhinney et al., 2011) if they met an empirically defined Signal: Noise ratio. To date a total of 28 cases have been analysed: 18 with a diagnosis of Broca's aphasia and 10 controls. Dependent measures of long pauses, short pauses and speech segment durations (ln) for each aphasic were converted to z scores by comparison with the control group. All of the Broca's aphasics showed shorter mean speech segment durations than the control group. Nine cases produced significantly longer mean short pause durations.

The results demonstrate that the FPS is a sensitive tool for characterisation of cognitive and motor processes associated with the impact of brain impairment on spontaneous speaking. It provides inferential statistics that quantify function across cognitive and motor domains beyond those provided by traditional categorical or model based diagnostic tools.

## References

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