
An information-theoretic account on the diachronic development of discourse connectors in scientific writing

Mittwoch
08.03.2017
15:15 – 15:45
B3 2, 0.03

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We investigate the diachronic development of discourse connectors (DC) in scientific writing, considering their linguistic encoding and looking at whether there is a change with respect to shorter vs. longer encodings over time driven by information-theoretic effects.

Our theoretical framework is based on register theory (cf. Quirk et al. 1985): a register being characterized by distributions of lexico-grammatical features according to *field* (discourse topic), *tenor* (relation between participants) and *mode* of discourse (text-forming function). As DCs create cohesive ties between units in a discourse, they contribute to mode. Given psycholinguistic evidence on the correlation between variation in linguistic encoding and information density (cf. Aylett and Turk 2004), we assume that in scientific writing, features related to mode are more likely to be realized in less dense encodings than field features (assumed to be realized in denser encodings (cf. Halliday 1988)) to balance information density in the discourse. Thus, we expect DCs with a short linguistic encoding (e.g. *but*) to decrease over time, while those with longer encodings will increase (e.g. *on the other hand*).

We analyze diachronic tendencies of DCs in scientific and general language corpora from 1650 to present. Preliminary results indicate a decrease of short DCs in scientific writing, while longer ones increase.

References: • Aylett, Matthew and Alice Turk (2004). The Smooth Signal Redundancy Hypothesis: A Functional Explanation for Relationships between Redundancy, Prosodic Prominence and Duration in Spontaneous Speech. *Language and Speech* 47 (1): 31-56. • Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik (1985). *A Comprehensive Grammar of the English Language*. London: Longman. • Halliday, M. A. K. (1988). On the Language of Physical Science. In *Registers of Written English: Situational Factors and Linguistic Features*, edited by Ghadessy, Mohsen, 162-177. London: Pinter.

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