

Résumé public

Projet :RAPP

Individual and cross-linguistic differences in sentences planning.

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While it is widely agreed upon that language production is incremental, the issues of how far ahead speakers plan the upcoming sentence is far from settled. These discrepancies have led some researchers (including ourselves) to suggest that the scope of planning is not architecturally incremental but under strategic control (Ferreira & Swets, 2002, Swets et al., 2007; Wagner et al. 2010; Fuchs et al., 2013; Petrone et al., 2011).

In this project, we investigate the flexibility of speech planning by examining cognitive factors that influence the scope of language production in French. The data will be compared with German and American English data.

By examining variance in planning scope as a function of both cross-linguistic differences and individual differences (due to, e.g., working memory capacity or processing speed factors), we will be able to address important theoretical issues regarding the cognitive vs. linguistic factors that underlie the scope of speech planning. In particular, we will address three different types of research questions:

- 1) Which levels of sentence planning specifically are subject to such variation due to individual differences?
- 2) Are some languages more “incremental” than others? If so, at which levels of representation does variation occur?
- 3) Does variation in planning scope among individual speakers of the same language exceed variation across different languages?

Although some previous research (Janssen, Alario & Caramazza, 2008; Brown-Schmidt & Konopka, 2008, Christiansen & Ferreira, 2005; see Jaeger & Norcliffe, 2009, for a review) has investigated differences in incremental planning between languages, and our collaboration team has investigated individual differences, no previous research on the flexibility of planning scope has ever simultaneously compared planning scope differences among various languages to planning scope differences among individuals of the same language community. For this purpose, we will examine speech planning tendencies at multiple levels of representation among speakers of different languages as they describe equivalent stimuli. From these spoken descriptions, we will measure speakers’ scope of planning using a wide

range of tools that are complementarily distributed across our research team, such as eye-tracking data (Swets et al., 2013, in press) , acoustic parameters of planning (Fuchs et al., 2013; Petrone et al., 2011) and score for individuals' cognitive skills. All variables will be correlated.

The corpus for American English has been already collected and partial results are reported in Swets (2013). We are currently running the same experiment in Berlin and Aix. The experiment includes two tasks: a production task, in which the eyes' movements of participants are monitored while describing a series of three objects appearing on the computer screen. Participants are asked to describe those pictures to a partner. The pictures depict three objects that were "moving" in relation to each other. In a control condition, the three objects are all different types, so that a target description for the partner could quite reasonably be something like "The box moves below the chair and the wheel moves above the chair." In the experimental condition, there are two objects of the same type that would ideally be distinguished from each other early during the speaker's description. For example, if there were two boxes, with one of them featuring a radioactive symbol, an ideal description for the partner might be something like "The ordinary box moves below the chair and the radioactive box moves above the chair." Such a sentence shows evidence of better planning than a sentence that begins by simply calling the first box "The box". We expect that speakers with more working memory capacity and/or speed of processing will be more likely to look ahead to the final object in the picture, as measured by eye movements. Second, we expect them to use that visually collected information and integrate it early on in their utterance plans. Prosodically, this will result in higher speech rate, less prosodic breaks and dysfluencies. We will also measure individual speakers' working memory and processing speed using materials that are translated closely across the multiple languages (Daneman & Carpenter, 1980; Swets et al., 2007). If speaker-specific differences are larger than cross-linguistic ones, we should expect that planning strategies will be the same in speakers with similar WM capacity/speed of processing, regardless of whether their native language has an independent effect.