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## Introduction

- Recent research on heritage language (HL) acquisition has tremendously improved our understanding about how heritage speakers (HSs) acquire ethnolinguistically minority languages.
- An increasing body of studies investigated the effects of onset age of acquisition, quality of input and attrition on the outcomes of HL acquisition (e.g. Kupisch et al. 2014; Montrul 2008; Polinsky 2011; Rothman 2007).
- However, relatively few studies have looked into how the processing of HL morphosyntax might resemble or differ from the processing of monolingual and attrited first language (L1) morphosyntax, or second language (L2) morphosyntax.
- This poster presents the following:
  - How research on HL processing could contribute to understanding important issues in language processing;
  - The findings and limitations of selected studies on HL processing;
  - An ongoing study on the on-line processing of HL Mandarin Chinese.

## Issues in HL processing

As HSs acquire the HLs as an L1, and they are usually exposed to another L1 or an L2 extensively since early childhood, investigations into HL processing could help us to gain more understanding about the following issues:

- Continuity of HL/L1 processing:** previous research suggests that L1 processing mechanisms may not need to develop and do not change overtime. Does this claim apply to HSs who experienced early bilingualism and HL attrition?
- L2 influence on HL/L1 processing:** several studies suggest that extensive exposure to an L2 could affect how an L1 is processed among late L2 speakers. However, is HL processing more susceptible to L2 influence, or is it less so?
- Variables affecting HL processing:** studies on L2 processing suggest that variables like cognitive abilities (e.g. working memory) and proficiency may explain some observed L1/L2 processing differences, but what variables could explain the possible similarities/differences between HL processing and L1/L2 processing?

## A selected review

- Montrul (2006)** used a grammaticality judgement task and an on-line visual probe recognition task, and observed that Spanish HSs in the US demonstrated monolingual-like knowledge and processing patterns for Spanish and English unergative/unaccusative verbs. However, in comparison to the monolinguals, the HSs were slower in reaction times (RTs).
- Foote (2010)** used a speeded production task, and found that, resembling Spanish monolinguals, Spanish HSs produced more errors when the grammatical number and the conceptual number were mismatched.
- Jegerski et al. (2014)** reported that, like monolingual Spanish speakers, Spanish HSs who were dominant in English showed NP2 attachment preference for relative clause attachment; meanwhile, English monolinguals showed NP1 attachment preference for relative clause attachment.
- Keating et al. (2016)** studied Spanish HSs' on-line resolution of null and overt pronouns using a self-paced reading task. They found that, while both the HSs and the monolinguals processed the sentences with null pronouns faster when the context was biased to the subject antecedent, only the monolinguals processed the sentences with overt pronouns faster when the context was biased to the object antecedent.

## Limitations

- Limited languages have been studied – all the above studies are concerned with HL Spanish;
- The above findings suggest that the processing of early acquired HL grammatical structures are more monolingual-like while the processing of later acquired structures are less so, but as limited morphosyntactic structures have been studied, it is not clear to what extent these findings could be generalized;
- No systematic comparison between HSs, L1 attriters, monolingual L1 speakers and L2 speakers;
- No systematic research on how different variables (e.g. proficiency) explain the similarities/differences between HL and L1/L2 processing;
- Techniques which provide highly precise data, such as eye-tracking, have not yet been widely used in this line of research.

## A new study

In order to overcome some of the limitations in previous research, a new study on the processing of HL Mandarin Chinese has been conducted. It aims to do so by:

- Studying HSs of another HL, i.e. HSs Mandarin speakers in the UK;
- Investigating the processing of another pair of early vs later acquired morphosyntactic structures:
  - Early acquired structure: the long-distance binding property of *ziji*;
  - Later acquired structures: perfective and durative aspect marking, i.e. *le* and *zhe*;
- Comparing Mandarin HSs with monolinguals, L1 attriters and L2 speakers of Mandarin;
- Using refined research methods:
  - Eye-tracking and RT-measured sentence-picture matching task to assess processing;
  - Back-digits recall task to assess working memory;
  - Abridged HSK-3 test to assess general language proficiency;
  - Off-line acceptability judgement task, interpretation task and cloze task to assess linguistic knowledge;
- Attempting to examine how the following variables contribute to explain the possible differences in HL/monolingual L1/attrited L1/L2 processing:
  - Onset age of acquiring English and Mandarin;
  - General language proficiency;
  - Individual differences in working memory;
  - Linguistic knowledge of the target morphosyntactic structures.

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