Introduction

Lifetime Effects: Past tense for the dead, present tense for the living
- Albert Einstein was/is a physicist.
- Stephen Hawking was/is a physicist.

Individual-level predicate (ILP) denotes a property that holds over the lifetime of its subject
- In an out-of-the-blue context, ILP in past or present tense triggers lifetime inferences:
  - John Doe was a physician. → John Doe is dead.
  - John Doe is a physician. → John Doe is alive.

Conjoined subjects with contradictory lifetime inferences are "ineffable" (Mittwoch, 2008)
- Due to obligatory tense marking in English
- Albert Einstein and Stephen Hawking ?are?? were physicists.

Research Questions

- Establishing the issue of lifetime effects from linguistic literature in a quantifiable manner
- Are English speakers able to detect lifetime effects during online processing?
- Are lifetime inferences from past tense and present tense on a par?

Experimental Design

3x2 Factorial Design:
- Match: Living + Present, Dead + Past
- *Mismatch: Dead + Present, Living + Past
- ?Conjoin: Conjoin + Present, Conjoin + Past

Norming Study: Questionnaire

- Participants (N=60) were asked to answer multiple-choice questions with single or conjoined subjects. For example:
  Albert Einstein and Stephen Hawking _____ physicists.
  (a). are (b). were (c). Neither

- This study is to ensure:
  - that the items were appropriate for assessing lifetime effects: speakers do have access to world knowledge about these particular individuals
  - that English speakers are indeed much more likely to respond “Neither” to Conjoin Condition (A total of 1200 observations for each condition; \( \chi^2(1) = 188.03, p < .001, \text{ odds ratio} = 238.96 \)

Experiment 1: Acceptability Judgment

- 24 participants were recruited on Amazon MTurk.
  They were asked to rate the sentences and rate them on a scale of 1-7 (with 1 as ‘bad’ and 7 as ‘good’)
  - At the end of the task, they answered a questionnaire about the life/death of the subjects. For example:
    Albert Einstein _____ a physicist.
    (a). is (b). was

Experiment 2: Self-Paced Reading

- 33 participants were recruited on Amazon MTurk.
  They were asked to read the sentences, one phrase at a time, at their own pace.
  Each sentence was accompanied by a multiple-choice comprehension question

Hypotheses and Predictions

Contradictory lifetime inferences arise in the Conjoin Condition:
- In principle, neither tense is appropriate. Lifetime inferences from past tense and present tense are both presuppositions (Kratzer, 1995; Mittwoch, 2008) or scalar implicatures (Magri, 2009; Musan, 1997)
- However, lifetime inferences from past tense are more defeasible
  - Contextual dependency of the English past tense (Mittwoch, 2008): “John said Albert Einstein and Stephen Hawking were?? were physicists.”
  - ILPs in past tense can be coerced into stage-level (Jäger, 2001; Kratzer, 1995; Magri, 2009): “He was a physicist. Years ago, he left the academy.”

In Acceptability Judgment:
- Both Conjoin condition and Mismatch condition should receive lower ratings than Match condition

In Self-Paced Reading:
- Both Conjoin condition and Mismatch condition should elicit longer RTs than Match condition
  - Given the out-of-the-blue context, effects are likely to be immediate and may arise at ILP region

Results

Experiment 1: Acceptability Judgment

- No outliers
- Trials whose RTs were shorter than 1000 ms or more than 2.5 standard deviations above the mean value were removed
- Conjoin condition patterns with Mismatch condition:
  - Significant difference from Match condition
  - Main effect of tense

Experiment 2: Self-Paced Reading

- 2 participants were removed due to excessive RTs
- Trials that didn’t match up with assigned lifetime information in the questionnaire were filtered out
- Data analysis was carried out by using lmer() in R
- Preliminary analysis shows that lifetime inferences patterns with Mismatch condition only in present tense; no effect of subject type was found in past tense

Discussion

Findings:
- Lifetime inferences from past tense and present tense are on a par in the sense that speakers are sensitive to both when asked explicitly
- However, results from online processing show that lifetime inferences from past tense are indeed more defeasible than those from present tense

Limitations:
- Dependent on the participants’ world knowledge
  - Conjoin Condition might have been more salient

Follow-up studies:
- Discourse approach: construct a context for living and dead information
- What about “tenseless” languages like Mandarin Chinese (Lin 2006, 2010)?
  - “Forward lifetime effect”: future vs. non-future contrast (Arche, 2006)

Selected References
