

Rejecting false alternatives in Chinese and English: language-specific weightings of prosody, syntax and grammatical role

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In a discourse, listeners must keep track of information which is presupposed, and that which is new in the common ground [1]. Focus-marking helps listeners identify new information, and reject false alternatives to it; while presupposed information is not usually falsified. For example, it is easier to say “no” to “Did the sailor put on the raincoat?” after “The **captain** put on the raincoat” than after “The captain put on the **raincoat**” [2] (bold = contrastive accent).

It is not yet clear, however, what cues listeners use to identify the focus, beyond prosodic prominence. In this study, we look at English and Mandarin Chinese, where prosodic prominence plays an important role in focus marking [1, 3]. We compare prosodic prominence with syntactic clefting (*it*-clefts in English and 是...的 *COP...DE* clefts in Chinese). In both languages, the clefted element is focused, however, the cleft carries added implicatures [1, 3]. Further, we look at grammatical role, subject versus object. Final objects have been previously found to have a default focus bias, even if they are not overtly focused marked [4]. We report near parallel experiments in English and Chinese which used a speeded yes/no verification task to probe how focus-marking and grammatical role affect encoding of referents in discourse.

The experiments looked at the effect of syntactic and/or prosodic marking, and grammatical role, on the speed of rejections of false alternatives in a question (e.g., d in Table 1). Participants first saw a context (e.g., a) with two alternative sets (*captain-sailor*; *raincoat-jacket*). Then they heard a connecting question (e.g., b), then an answer sentence (e.g., c) with prosodic and/or syntactic focus on the subject or object. Finally, they saw a question where the previous subject or object was replaced by a false alternative, and had to answer “no” as fast as possible. There were 48 critical items in each experiment, plus fillers. There were 60 monolingual speakers in the English experiment, and 36 near-monolingual speakers in the Chinese experiment.

Linear mixed effects models were run with response time as the dependent variable in each language. For Chinese, there was a significant three-way interaction of syntax (canon, Scleft, Ocleft), stress (S, O) and question (SQ, OQ) ($p < 0.05$). For English, there were significant two-way interactions between each of these. Planned comparisons were conducted of sentence type by question. As predicted, the results from both experiments suggested an asymmetry between subjects and objects (see Tables 2 and 3). For subject questions, prosodic and syntactic cues to focus affected the rejection speed, although the weighting of these was different in the two languages. For both languages, responses were fastest when the cues were unambiguously on the subject (ScleftS and canonS). However, when the cues conflicted (ScleftO and OcleftS), prosodic cues were more effective in Chinese and syntactic in English, with a larger difference between these conditions in English. For object questions, sentence position played a much greater role. In general, responses were fastest when the object was sentence final, regardless of whether it was focus marked (noting clefting does not change word order in Chinese). The exception was OcleftS, which was the slowest in both languages, despite the object being final in Chinese; possibly due to the unusualness of this structure to mark object focus in Chinese. Mismatching syntax (ScleftS and ScleftO) slowed responses in Chinese but not English.

This research establishes for the first time cross-linguistic similarities and differences in the role of prosodic and syntactic focus marking and grammatical role in encoding discourse information in English and Chinese. We show that while listeners in both languages use prosodic focus cues to encode discourse information, in English syntactic cues facilitate this, while in Chinese they appear to only inhibit. In both languages, we show a clear interaction with grammatical role and sentence position, which can override overt focus marking. This suggests a discourse processing model with language-specific weighting of these cues.

Table 1: Example experiment stimuli in Chinese and English (bold shows the contrastive prominence). Stimuli were spoken by two native speakers in each language, Speaker B had training to produce the intended prominence.

a. Context (on screen)	天气渐渐变冷，船长和水手穿上了他们的雨衣和夹克。 The weather got colder. The captain and the sailor put on their raincoat and jacket.
b. Connecting Question (Speaker A)	可以再多告诉我一些信息吗？ Can you tell me more?
c. Answer Sentence (Speaker B)	<p>canonO: 船长穿上了[雨衣]_F (S V [O]_F) The captain put on the [raincoat]_F.</p> <p>canonS: [船长]_F穿上了雨衣 ([S]_F V O) The [captain]_F put on the raincoat.</p> <p>OcleftO: 船长是穿上的[雨衣]_F (S COP V DE [O]_F) It was the [raincoat]_F that the captain put on.</p> <p>OcleftS: [船长]_F是穿上的[雨衣]_F ([S]_F COP V DE [O]_F) It was the [raincoat]_F that the [captain]_F put on.</p> <p>ScleftO: 是[船长]_F穿上的[雨衣]_F (COP [S]_F V DE [O]_F) It was the [captain]_F who put on the [raincoat]_F.</p> <p>ScleftS: 是[船长]_F穿上的雨衣 (COP [S]_F V DE O) It was the [captain]_F who put on the raincoat.</p>
d. False Alternative Question (on screen)	<p>SQ: 水手穿上了雨衣吗？ Did the sailor put on the raincoat?</p> <p>OQ: 船长穿上了夹克吗？ Did the captain put on the jacket?</p>

Table 2: Response times by question type in Chinese

<p>SQ: ScleftS = canonS ≤ OcleftS ≤ ScleftO = canonO < OcleftO</p> <p>OQ: OcleftO = canonO = canonS ≤ ScleftO = ScleftS ≤ OcleftS</p>
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Table 3: Response times by question type in English

<p>SQ: ScleftS = canonS ≤ ScleftO ≤ canonO < OcleftS = OcleftO</p> <p>OQ: ScleftS ≤ canonO = canonS = ScleftO ≤ OcleftO < OcleftS</p>

References

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