On the L2 Acquisition of embedded Tense in Before-Clause: A bi-directional study of truth conditional mismatch

The Data: According to Sharvit and Tieu (2011), Ogihara and Sharvit (2012) and Sharvit (2014), the semantics of tenses is parameterized in English and Japanese: while English has pronominal tenses, tense in Japanese is quantificational. The pronominal/ quantificational tense parameter is argued to be relevant to a puzzle associated with tense embedding in before-clause constructions in those two types of languages. As exemplified in (1.a and 2), a before-clause in which the past tense is embedded under a matrix clause past tense is grammatical in English and ungrammatical in Japanese. As shown in (1.b and 2), a present-under-past in before clause is ungrammatical in English and grammatical in Japanese.

  (1) a. John left the meeting before [Mary arrived].
     b. *John left the meeting before [Mary arrives].
  (2)   Taroo-wa [Hanakoni (*au)(at-ta) maeni]denwao si-ta
       Taro [Hanako meet (*past)(present)] before he phoned
      'Taro phoned before (he) met Hanako.'

  Sharvit (2014) accounted for this parametric contrast by postulating that the a-symmetrical behavior of the past tense in before-clause embedding is the consequence of variation in the lexical semantics of the past tense. In English, the past tense is a pronoun. The Japanese past tense, on the other hand, is an existential quantifier relating predicates of times. Sharvit (2014) proposed that the embedding of a quantificational past by an adjunct before-operator results in a presupposition failure. On the assumption that the before- operator is a definite description that denotes the unique leftmost time of the set of times denoted by the complement of before-clause and the existential quantifier of the past presupposes the existence of a time that precedes this unique time, there will be always a time t which precedes this unique leftmost time and follows the reference time of before-complement, meaning that there will be no unique leftmost time given time density. This is why past-under-past in Japanese is ungrammatical so that Japanese instead chooses to under-specify the embedded tense in before clause with the matrix past. This behavior triggers a p-shiftability property in which the embedded tense is ambiguous between the past and the non-past. When it comes to English, this problem does not arise. The past tense is interpreted pronominally, not quantificationally. As a result, English doesn't p-shift the embedded tense by underspecification and its embedded tense has the unambiguous interpretation of the past.

The Predictions for Second Language Acquisition: The L2 acquisition of this type of syntax-semantics mismatch has direct theoretical implications for two learnability conditions with conflicting predictions: the subset principle (Berwick 1985; Manzini & Wexler 1987, Slabakova 2006) and the Shallow Structure Hypothesis (Clahsen and Felser 2006). As predicted by the subset principle, learners begin with the maximally inclusive subset grammar so that expanding grammar by learning additional interpretations based on positive evidence is easier than contracting grammar by de-learning existing interpretations (most likely by negative experience). In our situation, it will be more difficult for L1 Japanese- L2 English to acquire pronominal past tense in past-under-past before-clause because they will have to acquire the unavailability of the non-past interpretation of 'before clause' in English. Therefore, it will be easier for L1 English - L2 Japanese to acquire quantificational past tense in present-under-past before clauses since they will have to acquire the availability of the non-past interpretation of the embedded before clause based on positive evidence. That is, the acquisition of the p-shiftability property in L2 Japanese requires incorporating other unavailable interpretations (i.e., the non-past). It is then an indication of successful learning of quantificational past. The de-learning of the p-shiftability property requires excluding existing interpretations (i.e., non-past reading) and it indicates successful learning of pronominal past. The Shallow Structure Hypothesis, on the other hand, claims the opposite. A before-clause with pronominal past represents a shallower syntactic representation than a before-clause with quantificational past. The latter incorporates more structural operations

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(e.g., Quantifier Raising/ abstraction) to satisfy additional requirements on the truth-definition of the structure. The former proceeds in a one-to-one mapping with the syntactic structure in direct function application with no additional requirements on the truth conditions (= no QR or abstraction). The hypothesis predicts that acquiring pronominal tense in English is easier than acquiring quantificational tense in Japanese. As a consequence, learners are expected to be more accurate in the context of the embedded unambiguous past (i.e., with no p-shiftability) than those contexts in which the embedded tense is ambiguous between the past and non-past (with p-shiftability). To test these predictions, we conducted felicity judgment tests that measure the participants' knowledge of embedded tense in the before clause (= methodology is to be explained).

<u>Discussion</u>: Our tentative results seem to support the subset principle and to falsify the shallow processing hypothesis in the domain of the L2 acquisition of embedded tense. For the L1 Japanese L2 English learners, our results showed that unlike native speakers of English, the advanced and non-advanced L2 learners do not seem to acquire the pronominal past tense in the before embedded clause. They are not sensitive to the plus and minus p-shiftability distinction. Despite the fact that the embedded verb is inflected for overt past tense, learners chose to p-shift the tense of the embedded clause in such a way that they interpret the embedded past as an underspecified value with an embedded eventuality that is not only interpreted in the past tense, but also in the non-past tense. The Japanese natives showed no sensitivity to the distinction between the past and non-past readings of the embedded before-clause. The results showed that the Japanese native group rated the past and non-past readings of the embedded clause in before clauses equally high. Similarly, L1 English L2 Japanese learners (both advanced and non-advanced learners) are indifferent to the past and non-past readings of embedded past. This indicates an early acquisition of quantificational past. It appears to be the case that it is easier for learners to expand the grammar that involves quantificational past by including the non-past reading than contracting the grammar that involves the pronominal past by de-learning the non-past reading. The results didn't support the shallow processing hypothesis since learners appear not to begin acquisition with the non-quantificational parsing mechanism which represents a shallower and more basic structure than that of the quantificational parsing mechanism.

<u>Tentative Results:</u>

L2 acquisition of past-under-past in English
Native English: minus past (M= 3.533, SD= 1.8902) / plus past (M= 4.933, SD= 0.2523), t (44) = - 5.040, p = 0.000. Non-advanced: - past (M= 2.967, SD= 1.8659) / + past (M= 3.467, SD= 1.8705), t (29) = - 0.926 , p = 0.362 Advanced:- past (M= 3.164, SD= 1.7823) / + past (M= 3.764 , SD= 1.6097), t (54) = - 1.675 , p = 0.100. Significant interaction between proficiency and property: $F_{1, 2}= 6.812$, p = 0.002. The native group is significantly different from both advanced and non-advanced group as indicated in a post hoc test.

L2 acquisition of present-under-past in Japanese
Native Japanese: minus past (M= 3.9; SD= 1.7878)/ plus past (M= 4.8666, SD= 0.7302) t (29) = - 2.636, p = 0.013. Non-advanced: minus past (M= 3.400, SD= 1.9794)/ plus past (M= 3.720, SD= 1.8848), t (49) = - 0. 850, p = 0.399. Advanced: minus past (M= 3.133, SD= 2.0297)/ plus past(M= 3.933, SD= 1.7991, t (29) = - 1.439 , p = 0.161.

 Significant interaction between proficiency and property: $F_{1, 2} =7.759$, p = 0.001. The native group is significantly different from both advanced and non-advanced group as indicated in a post hoc test.

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