Determinants of relative clause processing in Japanese as a second language
Barış Kahraman
Çanakkale Onsekiz Mart University
contact: kahraman@comu.edu.tr

Subject relative clauses (SRs) are easier to process than object relative clauses (ORs) in many languages. In order to explain this fact, previous studies have mostly examined the effects of universal factors such as structural distance (SDH: O’Grady, 1997), linear distance (LDH: Gibson, 1998), frequency (Reali & Christiansen, 2007). In Japanese, regarding the processing asymmetry between SRs and ORs, Sato et al. (2009) argued that language-specific factors should also be taken into consideration, and proposed ‘case driven expectation hypothesis’ (CDEH). According to CDEH, Japanese relative clauses (RCs) are processed more easily if there is an early expectation for another NP before the verb is encountered. In Japanese, since nominative-NP misses in its canonical position, sentence initial accusative-NP in SRs elicits an early expectation for another NP, whereas sentence initial nominative-NP in ORs does not. Therefore SRs are easier to process than ORs (Sato et al., 2009). In the case of second language (L2), it is still unknown to what extent the language-specific factors may affect the sentence processing. In the present study, in order to explore the possible effects of universal and language-specific factors in Japanese as an L2, we conducted two self-paced reading experiments with 26 higher-intermediate Turkish speaking learners. Turkish is an SOV language, and word order of RCs is identical to Japanese. Moreover, NPs bear overt case markers within RCs as in Japanese. In order to make sure that participants can use case marker information, we conducted experiments with Turkish learners.

In Experiment 1, we examined whether there is a processing asymmetry between SRs and ORs (see (1)). The results showed that the head-noun of SRs was read faster than that of ORs, \[ F_1 (1,25) = 7.74, p < .01; F_2 (1,23) = 3.88, p = .06 \]. This result is consistent with previous studies in Japanese (e.g., L1: Ishizuka, 2005; L2: Kanno, 2001), indicating that LDH cannot explain the processing asymmetry. However, SDH, frequency and CDEH may still explain the results of Experiment 1. In order to distinguish among these possibilities, we utilized the nominative-genitive conversion to RCs in Experiment 2.

In Japanese, the subject noun of ORs can bear both nominative (NOM-RCs) and genitive case (GEN-RCs) (see (2)), but the use of genitive case is very limited (Kim, 2009). If frequency is the decisive factor, NOM-RCs should be read faster than GEN-RCs. However, structural distance is equal in NOM-RCs and GEN-RCs. Therefore, there should not be any difference between two conditions. In the case of CDEH, a genitive-NP elicits early expectation for another NP compared to nominative-NP. Therefore, GEN-RCs should be read faster than NOM-RCs. The results of Experiment 2 showed that the head-noun of GEN-RCs was read faster than NOM-RCs \[ F_1 (1,25) = 5.41, p < .05; F_2 (1,23) = 2.98, p = .10 \] This indicates that CDEH can explain the results of Experiment 2, whereas other factors cannot.

Overall our study suggested that CDEH can capture entire results, whereas LDH, SDH and frequency failed to explain processing difficulty of Japanese RCs. This indicates that higher-intermediate Turkish speaking learners facilitated information from case markers to process Japanese RCs, and ‘case driven expectation’ is one of the most important factors in Japanese as an L2. Therefore, in addition to universal factors, we also need to take language-specific factors and learners’ first language into consideration in L2 sentence processing as well.
Experimental Materials and reading times

Experiment 1
(1a) SR condition
Depato-de ryoushin-o sagashite-itakodomo-wa kyuuni nakidashita
dep.store-LOC parents-ACC seek-PROG child-TOP suddenly cried
‘The child who was looking for the parents at department store suddenly cried.’
(1b) OR condition
Depato-de ryoushin-ga sagashite-itakodomo-wa kyuuni nakidashita
dep.store-LOC parents-NOM seek-PROG child-TOP suddenly cried
‘The child who the parents was looking for at department store suddenly cried.’

![Fig. 1 Reading times of SRs and ORs](image1)

Experiment 2
(2a) NOM-RC condition
Sengetsu gakusei-ga kaita sakubun-wa sugoku omoshirokattasen/month student-NOM wrote composition-TOP very interesting
‘The composition that the student wrote last month was very interesting.’
(2b) GEN-RC condition
Sengetsu gakusei-no kaita sakubun-wa sugoku omoshirokattasen/month student-GEN wrote composition-TOP very interesting
‘The composition that the student wrote last month was very interesting.’

![Fig. 2 Reading times of GEN-RC and NOM-RC](image2)

References