

# Acquisition process of L2 Japanese intonation by Swedish learners -interlanguage or prosodic transfer?-

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## ABSTRACT

This study examines the acquisition process of L2 Japanese intonation by Swedish learners at intermediate and advanced levels. Regarding the realization of L2 intonation as ‘interlanguage’, it focuses on the acquisition process of various parameters and their phonetic realizations that are relevant in determining Japanese intonation. The parameters can be phonological, syntactic, and discourse related. Which parameter is acquired first and which comes last? The results show the unique interlanguage structure at different stages of acquisition and little evidence was found for a direct prosodic transfer from L1. The persistent difficulties even at the advanced level were the exact phonetic realization of the two types of lexical pitch accents as well as that of information structure in Japanese.

**Keywords:** intonation, second-language acquisition, interlanguage, L2 Japanese, L1 Swedish,

## 1. INTRODUCTION

Although studies on second-language (L2) acquisition are many, those on intonation are not many. As for Japanese as L2, the acquisition studies on intonation have hitherto been limited to a sentence final rise and fall for interrogatives. However, there has been a growing achievement in the study of acquisition of L2 intonation in recent years, and hopefully the present study will also be a contribution to this trend. This study examines the acquisition process of L2 Japanese intonation by L1 Swedish learners at intermediate and advanced levels. Since the intonation structure in Japanese and Swedish are fairly well studied previously, it allows us to proceed further to study such an area as acquisition of L2 intonation.

## 2. THEORY AND FRAMEWORK

Most studies on L2 acquisition today adopt the concept of interlanguage postulated by Selinker as the basic principle of discipline [1]. Interlanguage is a dynamic linguistic system that has been developed by a L2 learner, and it continuously changes during the course of acquisition. The structure of interlanguage is thought to be formed by L1 transfer,

strategies of L2 learning, and overgeneralization of the target language among others. However, to my knowledge, there have not been enough studies to reveal how these general concepts of interlanguage can be applied to the field of intonation. As for the more specific theory and methodology, the present study adapts the AM theory as conceptual background and method of intonation analysis [2]. Some phonological, syntactic, and discourse-related parameters as well as their phonetic realizations are studied in the present study to reveal the intonation structure at different levels of acquisition. Some of these parameters are also mentioned in recently proposed Intonation Learning Theory (LILt) [3].

## 3. METHOD, ANALYSIS, AND RESULTS

### 3.1. Method and analysis parameters

Fifteen Swedish university students learning L2 Japanese have submitted a recorded speech in which the speaker introduces a chosen topic. The recorded speech was monitored on the PRAAT screen and examined if a given analysis parameter regularly appears or not – if it does, it receives ‘+’. The analysis parameters and their phonetic realization are summarized in Table 1. Note, the classification criteria for AP and IP are modified in the present study in order to be more suitable for the acquisition study (2a and 3a in Table 1). If the student has acquired all the 11 points, his intonation pattern is considered to be very close to that of the native’s. Note the original number of intonation units proposed in the P & B model is reduced by merging the intermediate phrase and Utterance to Intonation Phrase (IP) as proposed by Venditti [4].

**Table 1:** Summary of the relevant parameters

Linguistic parameters	Phonetic realization
(1a) Pitch accent (accented vs. unaccented)	(1b) Presence of a sharp F0 fall, (1c) Timing of F0 peak and fall
(2a) Phrasing AP (underlying lexical accent)	(2b) Initial F0 rise
(3a) Phrasing IP (syntactic unit such as phrase and clause)	(3b) Initial F0 rise with or without pitch reset (downstep)

(4a) right- vs. left-branching	(4b) F0 boost [5]
(5a) Information structure (topic, comment, focus)	(5b) F0 expansion vs. compression

### 3.2. Results

The results are presented in Table 2. Each number represents how many students out of 14 have regularly acquired the above parameters and their phonetic realization. The most easily acquired parameter is the intonation unit IP while the most difficult parameters to acquire were the phonetic realizations of Japanese pitch accent and focus.

**Table 2:** Summary of the scores for each parameter

1a	1b	1c	2a	2b	3a	3b	4a	4b	5a	5b
8	8	0	5	5	12	5	8	6	7	0

### 3.3. Acquisition process

Based on the results presented above, the acquisition process of L2 Japanese intonation by Swedish learners can be outlined as follows.

- a reset phase
- a larger intonation unit IP that covers a phrase or clause/sentence appears
- lexically unaccented pitch accent appears at the left edge of IP
- lexically accented pitch accent appears at the left edge of IP
- pitch accent distinction becomes clearer in their phonetic realizations
- Smaller intonation unit AP starts to appear within IP
- Focus like manifestation appears
- Proper downstep appears within IP

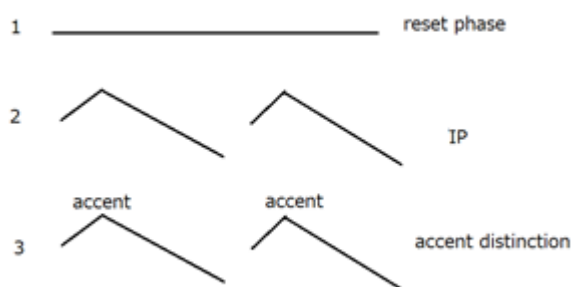
## 4. DISCUSSION

### 4.1. Reset phase

The most interesting finding here is the presence of a 'reset phase' in the acquisition of L2 intonation at the very initial stage of learning. This appears to be a significant difference from the acquisition of segments for which the speaker is likely to replace the segment in question with a similar segment from his L1 (L1 transfer). It then becomes closer and closer to that of L2. If we consider intonation similar to segments, we expect that the learner uses his L1 template for intonation by replacing the L2 text and

gradually, this intonation template closer to that in L2. However, this is not what happens. Instead, most students start with a flat intonation. From this reset phase, the next stage of acquisition is the occurrence of intonation unit which is tentatively called IP. This unit often covers a larger syntactic unit such as clause and it is marked by an initial F0 rise followed by a smooth declination. The lexical pitch accent distinction appears at the left edge of IP. This process is schematized below.

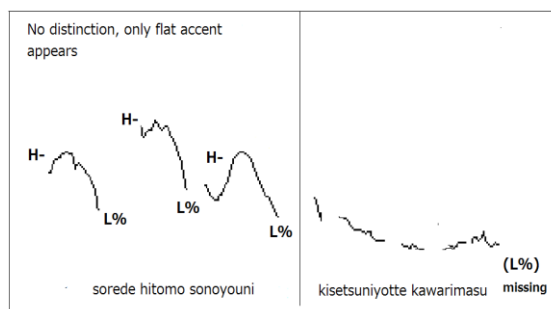
**Figure 1:** Schematic drawings of the early phase of acquisition



### 4.2. Pitch accent distinction

After the IP unit covering a larger syntactic unit appears, the lexical pitch accent distinction appears at the left edge of IP. For most students, the unaccented type of pitch accent appears before the accented pitch accent. However, the exact phonetic realization seems hard to be acquired.

**Figure 2:** A figure showing an early acquisition stage. Here the shapes are more like that of unaccented type which is marked as H-



However, pitch accent distinction appears relatively early stage of acquisition. This may be due to the fact that Swedish also has a lexical pitch accent distinction (accent 1 and 2) although the exact phonetic realizations are very different from those in Japanese. Figure 3 (above) shows the F0 of two types of pitch

accent in Japanese, the verb *noru* ‘to ride’ (unaccented) and *nomu* ‘to drink’ (accented). Figure 3 (below) shows the F0 of two types of pitch accent in Swedish, *anden* ‘the duck’ (accent 1) and *anden* ‘the spilit’ (accent 2). Swedish accents cannot be captured in the same way as those in Japanese where the distinction is made by the presence or absence of a pitch fall. Both accent types have a pitch rise and fall but they differ in the timing and duration of rises and falls.

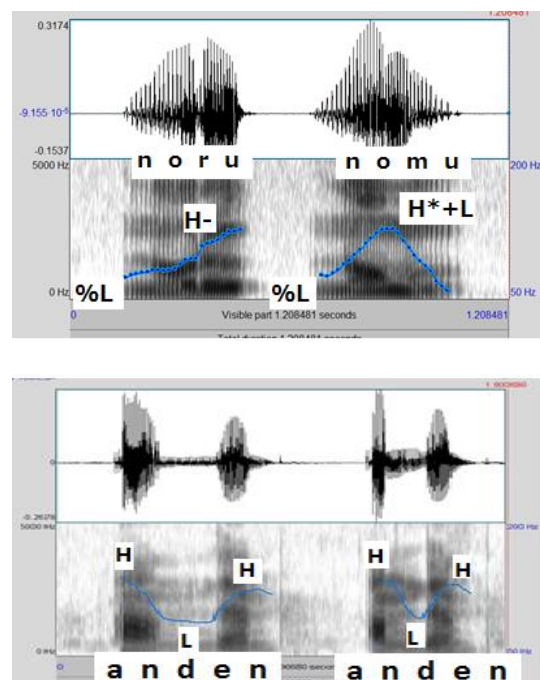
However, even though Swedish has a lexical pitch accent distinction, most Swedish students are not aware of this. Furthermore, pitch accent distinction in Japanese are not taught in most of the Japanese courses, which is a significant difference in teaching Chinese for which the inclusion of tone is inevitable from the beginning.

The most interesting finding is how the lexically accented word/phrase in Japanese is realized by the Swedish learners. The F0 characteristics of the pitch accents in Japanese and Swedish are significantly different as shown in Figure 3. However, no speaker has produced a realization close to his L1 pitch accent. Instead, a very uniform realization was produced for the lexically accented word in L2 Japanese intonation by L1 Swedish speakers. This F0 pattern is schematized in Figure 4.

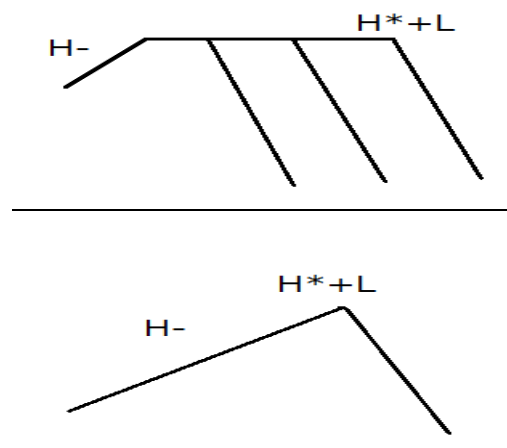
For the accented word produced by L1 Japanese speakers, the initial F0 reaches to the peak at around the second mora and F0 falls after the accented mora. Thus the fall can be on the second, third, or fourth mora. In contrast, the accented word produced by Swedish learners has continuous initial F0 rise all the way to the last syllable, and the pitch fall is fixed to the last syllable.

A question arises as to how this process can be related to the notion of prosodic transfer since it implies that the L1 feature is transferred directly in the production of L2 intonation. It is likely that the prosodic transfer occurs through a rather complicated process involving both production and perception. Much more elaboration is needed in accounting why L1 Swedish learners uniformly produce this F0 configuration which is neither Japanese nor Swedish. This phonetic realization of the lexically accented word gives a strong Swedish foreign accent in speaking Japanese.

**Figure 3:** The two types of lexical pitch accents in Japanese (above) and Swedish (below)



**Figure 4:** The schematic drawing of F0 manifestation of falling pitch accent native speaker (above) and Swedish L2 learners (below)

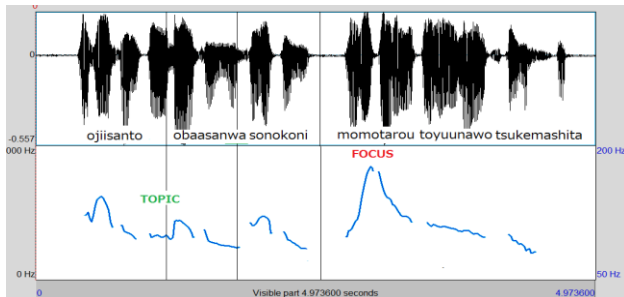


### 4.3. Focus

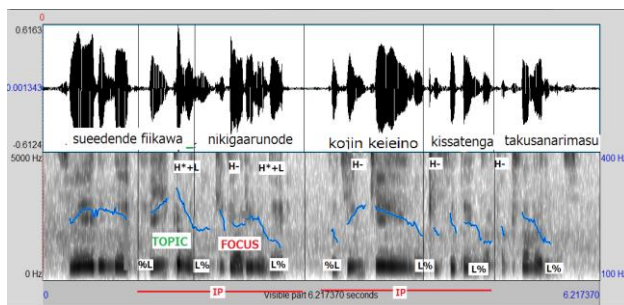
Another dimension in which Swedish learners had difficulty in acquiring Japanese intonation is the manifestation of information structure. Japanese is a topic-comment language where the topic is presented first with a topic particle *wa* followed by new information. Figure 4 shows how the topic and focus are realized in a sentence ‘the old man and woman gave the name MOMOTARO to the child’ produced by L1 Japanese speaker. The highest F0 peak is found for the word MOMOTARO whereas

the F0 preceding this word is compressed. In the Swedish learners' utterances, the F0 relation is usually opposite, i.e. the topic carries higher F0 than focus.

**Figure 4:** Phonetics realization of focus in Japanese (L1Japanese speaker)



**Figure 5:** Phonetics realization of focus in Japanese (L1 Swedish speaker)



## 5. CONCLUSION

The present study has shown how various parameters that are responsible in structuring intonation in Japanese are acquired by the Swedish learners. In general, phonetic realizations are more difficult to acquire than the linguistic parameters. In the study of the acquisition of L2 Korean by English learners, it has been suggested that phonological properties of intonation is acquired earlier than phonetic properties of intonation [6]. The results of the present study for the acquisition of L2 Japanese intonation by Swedish learners are in good agreement with this.

The present study has revealed how L2 learners produce the unique intonation pattern as interlanguage that cannot be accounted by prosodic transfer. Examples are the reset phase found by many learners' speech as well as the lexical pitch accent realization. However, the fact that such F0 characteristics were found as group characteristics among the Swedish learners implies that some form of prosodic transfer took place. Exactly how it happens needs much deeper study involving both the production and perception of intonation.

## 6. REFERENCES

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