

<論文>

The order of acquisition of L2 English intonation by Japanese learners¹

Hiroko Saito

Tokyo University of Foreign Studies

要旨: 日本人英語学習者による英語イントネーションの録音を分析した結果、英語のイントネーションの種類には習得の順番(難易度)があり、また、習得しやすいイントネーションや習得しにくいイントネーションの構成要素が存在し、それらが相互に作用すると、あるイントネーションパターンを実現しやすく、またあるものを難しくすることが分かった。本論文では、中・上級レベルの英語学習者が、イントネーションを習得していく過程を観察し、その結果イントネーションは教授可能であるという示唆を得た。特に核配置と音調は、発話の意味に関わることであり、正しく教授することが英語のコミュニケーションを正確なものにする。

Keywords: L2 English, order of acquisition, intonation, tonicity, tone

1. Introduction

In the context of teaching English as a lingua franca, where the pronunciation of segments is essential for making one's speech intelligible, prosody, particularly intonation, is often overlooked as something that need not be taught. This is either because it is believed that the learner's L1 should already have intonation that can be used for English, or because intonation is thought to be something that cannot be taught but must be acquired implicitly outside the classroom.

However, even Jenkins (2000), an advocate of English as a lingua franca and proponent of the Lingua Franca Core, considers tonicity (i.e., nuclear stress placement) necessary for intelligibility, and misplacement of nuclear stress can cause breakdowns in communication. Therefore, Saito (2006) examined certain patterns of deviation among Japanese learners of English from native speakers' norms of nuclear-stress placement in English intonation. To determine how students' knowledge of placement rules and production of tonicity changed over time, Ueda and Saito (2010, 2012) conducted studies and observed that explicit instruction, as well as pronunciation practice, were important for L2 acquisition of intonation.

Saito (2018) compared two groups of students: one who received explicit instruction on English intonation but remained in Japan, and another who spent one academic year abroad in an English-speaking environment. It was found that even after spending up to ten months in an English-speaking environment, the study-abroad students' intonation was far from native-speaker-like and had not made much progress regarding the placement of nuclear stress in a sentence. The level of acquisition of tonicity, at least, was not very different from that of their fellow students who remained in Japan.



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Researchers such as Jenkins (2000: 154) or Mennen (2015) emphasize the difficulties of acquiring L2 English intonation, and the present author attempted to find out whether there were differences in the level of difficulty among intonation types. As a result, Saito (2020) revealed interesting tendencies that pointed to the order in which Japanese learners of English acquired intonation features of certain types of sentences. There were clear differences in acquisition rates for different types of tone or tonicity. Some tones were acquired before or after explicit guidance on English intonation, while others seemed to be difficult to acquire at all.

The present paper looks more closely not only at the order of acquisition of intonation but also at the influence exerted by the constituents of intonation, namely tonicity and tone. What makes one type of English intonation easy to acquire, and another type seemingly impossible to teach?

2. Methodology: Participants and the Recording

As was the case with Saito (2018, 2020), sound data was recorded from students who were enrolled in one of the compulsory English courses for students majoring in English (but not necessarily in phonetics or linguistics) at Tokyo University of Foreign Studies. Their English skills ranged from intermediate to advanced, CEFR levels B1, B2 to C1. A total of 38 students, aged between 19 and 21, participated in the experiment. Nineteen students (10 females and 9 males) were enrolled in the author's English phonetics course in the Spring Term (April to July), and 19 students (13 females and 6 males) in the Fall Term (October to January) of 2021. The two classes were conducted online via Zoom due to the COVID-19 pandemic, and each consisted of one 90-minute lesson per week for 13 weeks, covering areas such as connected speech, rhythm, and intonation. During the class time, there would be explicit instructions on various aspects of pronunciation and students were asked to read words and example sentences from the exercises of the textbook or reading materials prepared by the author. They were usually given feedback on their performance, and sometimes had to repeat their pronunciation until they could pronounce correctly. The course syllabus was the same for both classes, except for short reading materials distributed in class. The six-month time lag between the start of the course for the two groups meant that the fall-term students could have been learning prosodic features of English from their instructors of other classes, so the two cohorts were kept separate.

The first recordings were collected in June 2021 for the Spring-term group and in November for the Fall-term group. Students were asked to download a voice-recording app onto their smartphones and were given a list of 11 sentences to read out for the recording. They were instructed to send their sound files in .wav format by uploading them to Google Classroom or sending them to the author as an email attachment. Previous recordings (i.e., for Saito 2018 or 2020) were made in person, with students being called in one by one to speak into a microphone attached to a laptop computer, whereas the recordings during the pandemic were made by the students themselves. However, there did not seem to be any problems arising from this recording method.

The first recordings were made and submitted just before the lecture moved on to English intonation, which covered explicit instruction on types of tone and tonicity, and on different sentence types. The students were told that the recording they would be making was in preparation for the end-of-term exam and would not be assessed. This first recording was made without prior explanation or training of English intonational features. Lectures which focused specifically on intonation began after the students made their first recordings, and they were stretched over a period of five weeks, with a within-class exam at the end of the course. The second recordings were collected just after the written exams were conducted online. Again, the students recorded their readings on their smartphones and submitted the sound files to the instructor via Google Classroom or email. This time, however, they were told that it would be part of their final exams,

and their pronunciation would be assessed. The sentences they read out and recorded were the same as those used for the first recording. For both recordings, it was explained that the students could practice and re-pronounce the sentences as much as they liked.

3. The Data: Sentences

Saito (2020) suggested that learners of English acquire intonation at different levels of ease or difficulty depending on tone type and tonicity. The present study, therefore, considered the results and introduced new sentences for the recording. Eleven sentences were given to the students to read for the two recordings, but three sentences with simple intonation types were excluded from this analysis, leaving the eight sentences shown below. Here, the sentences have been grouped according to the type of intonation they require, but the sentences on the list given to the students for the recording were in random order. The nuclear syllable is shown in bold letters, and tone type (fall, rise, fall-rise) with arrows. These signs have been added by the author for this paper, and the reading material distributed to the students did not contain any of this. The sentences newly added for the 2021 recordings were (1), (2), (4), (6), (7), and (8).

Contrastive focus (1) on part of a word and (2) on the last function word (as opposed to the last lexical item):

- (1) As the number of cars on the road ↘**increases**, the number of accidents ↘**decreases**.
- (2) (Nice meeting you, Ken.)—And it was nice meeting ↘**you**.

Implicature with an early nucleus:

- (3) (With a note in Japanese to the effect of: ‘Knowing him, I was certain that he would come to the party.’)
I ↘**knew** John would come to the party!
- (4) (With a note in Japanese: ‘Looking at the pouring rain’) I ↘**thought** it would rain!

Implicature with fall-rise on (5) an early nucleus and (6) a final nucleus:

- (5) (How was the new restaurant?)—Well, the ↘**waiters** were nice....
- (6) (That guy can’t play any musical instruments!)—Oh, but he can ↘**sing**....

Special sentence types: (7) Wh-question with a rising tone to express disbelief and (8) an event sentence:

- (7) (I had beefsteak for breakfast this morning.)—What?! ↗**What** did you say you had for breakfast?
- (8) (What’s the matter? Why do you look so upset?)—My new ↘**bike** is gone!

4. Results and Discussion

Tables 1 and 2 provide a detailed breakdown of the scores for each student based on their realization of intonation, including the placement of nuclear stress and tone choice, before and after receiving explicit instruction on English intonation. The students were assigned number scores ranging from “0” (indicating incorrect intonation) to “3” (indicating correct tonicity and tone), with “1” assigned to partially correct realizations. Note that Students 1, 4, 23, and 35 did not make any progress after the lessons and, in fact, their scores showed regression. However, this is consistent with findings by Ueda and Saito (2012). On the other hand, Students 6 and 13 scored almost perfectly from the beginning, likely because they had previously lived in an English-speaking country.

Figure 1 displays the number of students who acquired each intonation type before and after instruction. The paired t-test conducted on the results revealed a significant difference between the before and after sets, indicating that explicit

instruction on nuclear stress placement and tone types in a phonetics course positively impacted students' ability to realize English intonation. Additionally, certain sentence types showed greater progress than others, leading to their classification into three categories based on the rate of acquisition.

Category 1: Dramatic progress was observed for sentences (2), (6), and (8), with a small number of correct pronunciations at the beginning but more than half of the students acquiring the intonation by the end of instruction. In sentences (2) and (6), the nucleus is placed on the final syllable, whether it be on a function word (*you*) or a lexical word (*sing*). If the speaker knows that a sentence requires contrastive stress or a certain type of tone, it is easy for Japanese learners to place the nuclear stress or tone on the last item of a sentence, which in these cases coincides with the correct words.

Category 2: The total number of students is very low, even if improvement could be observed. This applies to sentences (1) and (7). Sentence (1) requires the speaker to place the nuclear stress on a part of the word that is usually not stressed at all: *decreases*. Likewise, for sentence (7), the nuclear syllable comes at the beginning of the sentence (*what*), which usually requires a falling tone. In fact, most mispronunciations were of the type where the nucleus was placed on the last lexical item, *breakfast*, and said with falling intonation.

Category 3: No drastic change caused by the instruction is observed. This applies to sentences (3) and (4), which are both implicatures with early nucleus, and one needs to know the usage of this type of sentence. For example, "*I knew John would come to the party!*" means that John has turned up at the party, and "*I thought it would rain.*" is uttered when it has started to rain. Compare this with "*I thought it would rain*" which might be followed by "so I brought my umbrella, but it's not raining at all!" These are special types of sentences which require knowledge of usage and / or experience of having heard examples before learners of English can use the correct intonation themselves.

Sentence (8) "*My new bike is gone!*" is an event sentence that also belongs to a special type of sentence. It falls under Category 1 with dramatic improvement observed, with 50% of the students being able to pronounce the sentence with correct tonicity and tone. This accounts for more than three times the number of students who could say it correctly compared to the first round. In fact, there was explicit guidance on "Event Sentences" by the instructor and sample sentences appeared in the textbook used in class. This is evidence that intonation can indeed be taught, and if so, it would be of great benefit to learners.

Table 1. Scores obtained for sentence types by each student in the spring term before and after explicit instruction. incorrect intonation: 0, only partially correct: 1, correct tone and tonicity: 3

Student	increases/ decreases.	And it was nice meeting you.	I knew John would come to the party!	I thought it would rain!	Well, the waiters were nice ...	Oh, but he can sing...	What!? What did you say you had for	My new bike is gone!	Total Score	
									Before	After
1	0	0	0	0	3	0	0	0	3	
	0	0	0	0	0	0	0	0	0	
2	0	0	3	3	1	0	0	0	7	
	0	0	0	3	1	3	0	3	10	
3	0	3	3	3	3	0	0	0	12	
	0	3	3	3	3	3	0	3	18	
4	0	3	3	0	3	3	3	0	15	
	0	3	0	0	1	3	3	3	13	
5	0	0	0	3	0	0	0	0	3	
	0	0	3	3	1	3	0	0	10	
6	3	3	3	3	3	3	3	3	24	
	3	3	0	3	3	3	3	3	21	
7	0	3	3	3	3	0	1	0	13	
	0	3	3	3	1	3	0	0	13	
8	0	0	0	0	0	0	0	0	0	
	0	0	0	0	1	0	3	0	4	
9	0	0	0	0	0	0	0	0	0	
	0	0	0	0	1	3	0	0	4	
10	0	0	0	3	3	0	0	0	6	
	0	0	0	3	3	1	1	0	8	
11	0	0	3	3	1	0	1	3	11	
	0	3	3	3	3	1	0	0	13	
12	0	3	0	0	0	0	0	0	3	
	0	0	0	0	3	0	0	0	3	
13	3	3	3	3	1	3	3	3	22	
	3	3	3	3	1	3	3	3	22	
14	0	0	0	3	0	0	0	0	3	
	3	0	0	0	3	1	0	3	10	
15	0	0	3	0	0	0	0	0	3	
	0	0	3	3	1	3	0	3	13	
16	0	3	0	0	3	0	0	0	6	
	3	3	0	0	1	3	3	0	13	
17	0	0	0	3	0	0	0	0	3	
	0	3	0	0	1	0	3	0	7	
18	0	3	3	3	3	0	0	0	12	
	0	3	3	3	1	3	0	3	16	
19	0	0	0	0	1	0	0	0	1	
	0	3	0	0	1	3	0	3	10	
Total score by sentence type	18	54	48	63	58	48	30	36		

Table 2. Scores obtained for sentence types by each student in the fall term before and after explicit instruction.
 incorrect intonation: 0, only partially correct: 1, correct tone and tonicity: 3

Student	increases/ decreases.	And it was nice meeting you.	I knew John would come to the party!	I thought it would rain!	Well, the waiters were nice ...	Oh, but he can sing...	What!? What did you say for breakfast?	My new bike is gone!	Total Score Before After
21	0	0	0	0	0	0	0	0	0
	0	3	3	3	3	1	3	3	19
22	0	3	0	0	3	0	0	0	6
	0	3	0	0	1	1	0	3	8
23	0	0	0	1	0	0	0	0	1
	0	0	0	0	0	0	0	0	0
24	0	3	0	0	3	1	0	0	7
	0	3	0	3	3	3	3	3	18
25	0	3	3	3	3	3	0	0	15
	0	3	3	3	3	3	0	3	18
26	0	0	0	0	3	0	0	0	3
	0	3	1	3	1	3	3	3	17
27	0	0	0	0	0	0	0	0	0
	0	0	3	0	0	3	0	0	6
28	0	0	3	3	3	3	0	0	12
	3	0	1	3	0	3	0	3	13
29	0	0	1	3	0	3	1	0	8
	0	0	0	0	3	3	0	3	9
30	0	0	0	0	3	0	0	0	3
	0	0	0	0	3	1	0	0	4
31	0	0	0	0	3	3	1	0	7
	0	3	0	1	1	3	1	0	9
32	3	3	0	0	0	0	0	0	6
	3	3	0	0	1	3	1	0	11
33	0	3	0	0	1	3	0	0	7
	0	3	0	0	3	0	1	3	10
34	0	0	0	3	3	0	0	3	9
	0	0	0	3	1	3	3	3	13
35	0	3	0	0	1	0	0	0	4
	0	0	0	0	1	0	0	0	1
36	0	3	1	3	3	3	0	0	13
	0	3	3	3	3	1	0	3	16
37	0	0	0	3	3	0	0	3	9
	0	0	0	3	1	3	0	3	10
38	0	0	0	0	3	0	0	0	3
	0	0	0	0	1	3	0	3	7
39	0	0	0	3	0	0	1	3	7
	0	3	0	3	3	3	1	3	16
Total score by sentence type	9	51	22	50	67	59	19	48	

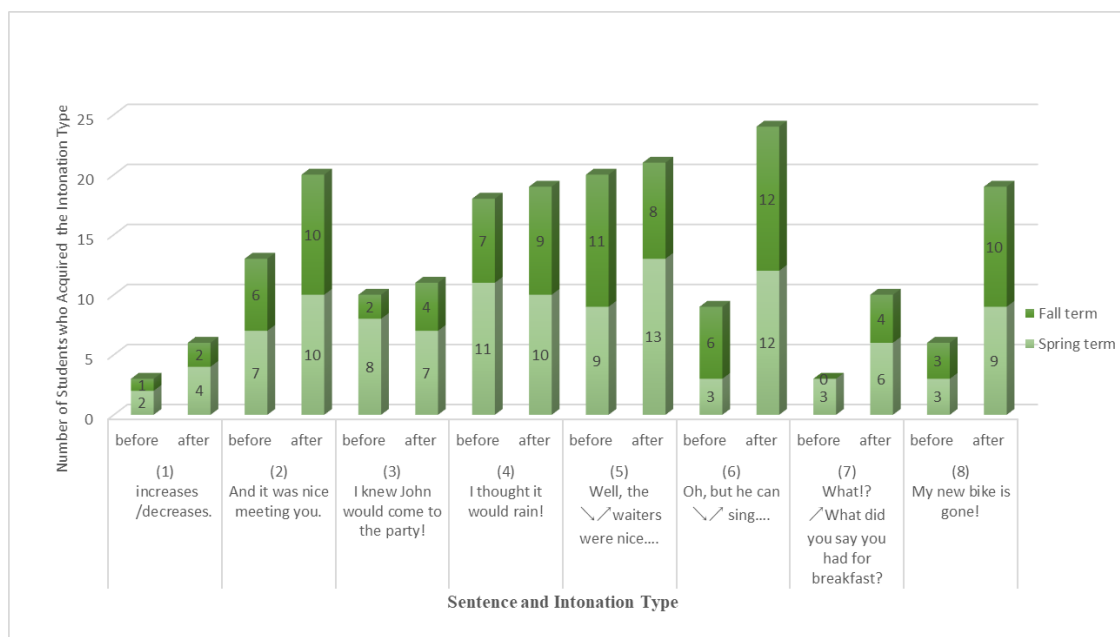


Figure 1. The number of students who acquired each intonation type, before and after lessons on intonation.

5. Conclusion

Based on our analysis of the recordings of different types of intonation produced by the students, we have observed the existence of an order of acquisition for English intonation types, as well as certain components of intonation that are easier or more difficult to acquire. These factors interact to make some intonation patterns easier and others more challenging to produce.

Default rules such as “the nuclear stress on the last lexical item” and “falling tone with a sentence beginning with an interrogative” are learned early and retained. New patterns, such as “nuclear stress on the noun for Event Sentences” or the innovative “fall-rise tone giving the meaning of implicature,” can also make a strong impression on motivated learners and eventually be acquired. However, sentences requiring an early nucleus or a specific type of tone, such as a rising tone for a wh-question, may conflict with earlier learned rules, demanding quick cognitive processing and confusing even intermediate and advanced learners.

It should be noted that “acquired” in this context refers to the ability of a student to read a sentence with appropriate tonicity and tone. Whether the same person can apply this knowledge to their spontaneous speech is a different matter.

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執筆者連絡先: saito.hiroko@tufs.ac.jp

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