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NON-NATIVE PERCEPTION AND PRODUCTION OF ENGLISH ATTITUDINAL INTONATION

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1. INTRODUCTION.* Researchers and educators have recently started to pay more attention to the contribution that nonsegmental factors, such as intonation, rhythm, loudness and stress, make to a foreign accent among second-language (L2) learners. For example, Van Els and De Bot (1987) demonstrated that listeners can use intonational cues in filtered speech to categorize types of foreign accent in non-native speakers of Dutch. Munro (1995) obtained foreign accent ratings by untrained native English listeners of the filtered speech of Mandarin-accented English versus native English. Results showed that untrained listeners can detect a foreign accent based on nonsegmental factors alone. Obviously, these non-native speakers are retaining prosodic, specifically intonational, aspects of their first language when they speak their second language.

However, a non-native speaker's encounter with the L2 intonational system does not end with adapting to the system for statements and questions. An equally important skill to master is how the L2 intonation is used to express emotions and attitudes in the L2. Intonation helps to convey and interpret a speaker's opinions about what he or she is saying, the speech act situation and even about the listener (Crystal 1969; Couper-Kuhlen 1986). Learners must learn to interpret these intonational cues to L2 attitudes correctly. They must also be made aware that using an incorrect intonational accent can make their utterances sound impolite, angry or impatient, for example, when this effect on the first or native language (L1) speakers is not intended. Jones and Evans (1995) reported on work with ESL students to point out and correct the voice quality (e.g., rhythm, stress, intonation, loudness) of various attitudes such as politeness, surprise, boredom. An empirical example of the emotional effect of incorrect intonation on L1 listeners was illustrated by Holden and Hogan

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(1993). Their study found that English listeners tended to interpret English spoken with Russian intonation patterns negatively, ascribing emotions such as anger and arrogance to the utterances.

Thus the potential for misunderstanding a speaker's intent and meaning is quite as possible for a nonsegmental, or prosodic accent, as for a phonological, segmental accent. However, more research needs to be done which systematically investigates non-native speaker production of attitudes in an L2 and the effect that inappropriate prosody and intonation may have on native speaker comprehension.

The present study addresses this issue by investigating the correct and incorrect expression and interpretation of English attitudes by adult Russian speakers of English as a second language. A perception and production study using native English and native Russian speakers and listeners was done to answer four specific experimental questions.

First, how do Russian learners of English compare to native speakers of English in their perception and production of English attitudes? Results to this question will indicate if mistakes in intonation cause attitudinal misunderstandings between native and non-native speakers of English and which mistakes these are.

Second, which of six attitudes (CONCERNED, CONFIDENT, ENTHUSIASTIC, IMPATIENT, POLITE, SKEPTICAL) are perceived best and which worst by both Russian and English speakers? If attitudinal intonation patterns were universal across languages, second language learners would presumably have no difficulty learning the patterns associated with their new language. But if they do experience difficulties expressing and perceiving these attitudes, then perhaps the patterns are language dependent and do not easily cross language boundaries. The answers to this question will suggest which of the six attitudes are language dependent and which are language universal.

Third, can the Russian speakers make the distinction between negatively and positively oriented English attitudes? If a finer discrimination among six specific attitudes is not possible for the non-native speakers to produce or perceive then perhaps a grosser binary distinction between positive attitudes (signalling nonthreatening, accepting attitudes) and negative ones (signalling warnings or threatlike behaviour) will be easier for the learners to make.

Finally, since intonation plays a large part in signalling the grammatical structure of an utterance, will this structure make a difference in how well English attitudinal messages are interpreted and conveyed by the Russian learners of English? It is expected that English statements will be most easily produced and perceived by Russian subjects as the intonation pattern is similar in both languages. Yes-No questions should provide some difficulty since the pitch rise in Russian and English questions is in a different part of the utterance. Wh-questions are the most dissimilar between the two languages and

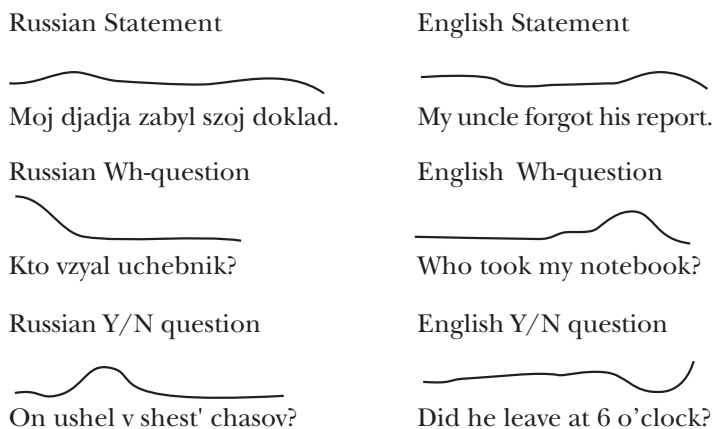


Figure 1. Russian versus English intonational contours (adapted from Gibson 1989)

should receive the lowest accuracy scores. Russian Wh-questions have a more abrupt falling contour than in English, with the main stress on the Wh-word. Examples of these contours are in Figure 1.

2. METHOD

2.1. STIMULUS PREPARATION. A perception and a production experiment were performed, both of which use the same stimuli and methodology.

Six semantically neutral sentences of English, each in STATEMENT, WH-QUESTION and Y/N QUESTION form, were first designed. Lexical neutrality was maintained so that the subjects could focus on how the utterance was being expressed, with the lexical content as secondary in importance. Twenty-three first-year linguistic students then verified the neutrality of the lexical content of these sentences. The target utterances were then altered as needed to ensure that none of the six sentences evoked a particular attitude. Contexts (3 to 4 sentences) in which the target utterances were contained were then designed to prime a particular attitude. This was done to elicit target utterances as natural-sounding as possible. The target attitudes were CONCERNED, CONFIDENT, ENTHUSIASTIC, IMPATIENT, POLITE, and SKEPTICAL. The six were chosen to represent both positively oriented (CONFIDENT, ENTHUSIASTIC, POLITE) and negatively oriented (CONCERNED, IMPATIENT, SKEPTICAL) attitudes. As well, some attitudes were more Active in terms of amount of pitch range and number of changes (ENTHUSIASTIC, IMPATIENT), while others were chosen to be more passive in this regard (POLITE, CONCERNED).

Polite:
 Linda meets an acquaintance in the hall at a hotel. They discover that they both know some of the people. They discuss someone they both know, a woman named Maya. Linda says to the acquaintance politely.
 'She has three cats now'.

Figure 2. Example of context plus target utterance.

Each target utterance was located at the end of the context, as a sentence spoken by the main character in the context. These contexts were vetted by another group of 25 native English-speaking linguistic students so that the majority agreed that each context would evoke one of the six attitudes being tested. The target utterance appeared in one of three syntactic forms: STATEMENT, WH-QUESTION, Y/N QUESTION. An example of the POLITE context with the target utterance in statement form is shown in Figure 2.

2.2. PROCEDURE. The first set of stimuli were produced by 10 native speakers of English (5 male, 5 female; mean age 28), mostly undergraduate students who knew no Russian. They read the six attitude contexts into a Sony ECM 5000 portable tape recorder with a Sony electret condenser microphone approximately 8-inches away from their mouths. Each context was contained on a 5 x 7" card labelled with the attitude. Subjects were told to read over each context to themselves and, when ready, to read it in as natural a manner as possible, such as when telling the story to a friend. Subjects first practised with a context designed to elicit a target utterance of SURPRISE.

The 60 stimuli were then prepared from these subjects by separating the target context from each context and digitizing the former onto computer using a SoundEdit 16 program. The sixty utterances were then randomized via computer and rerecorded onto a separate audio tape to serve as native speaker (NS) stimuli.

The next stage of the experiment involved eliciting stimuli as well as perception data from native Russian speakers of English as a second language, who were high intermediate to advanced in speaking level. These 10 Russian speakers (5 male, 5 female; mean age=31; mean number of years in Canada=4), mostly graduate students, read the same contexts in English into a tape recorder in exactly the same fashion. These 60 non-native speaker (NNS) stimuli were digitized and randomized exactly as the native speaker (NS) stimuli were, resulting in a NNS stimulus tape.

These same Russian subjects then served as participants in the perception part of the experiment by listening to the 60 NS utterances and deciding for

each utterance in a forced-choice task which one of the six attitudes they thought was being expressed by the speaker. The task also required subjects to decide whether they thought the overall 'mood' of the utterance was POSITIVE, NEGATIVE OR NEUTRAL. A distracter task was performed in between the production of stimuli and perception task. The first distracter was to describe a picture story into the microphone. The story consisted of 10 line drawings of a day in the life of a student, 'John'. This task, the 'John Test', was in fact an English as a Second Language Oral Placement task. Each subject was later ranked according to the test in terms of oral proficiency and fluency in English. A second distracter was the filling out of a language background questionnaire including personal information for statistical purposes, as well as a number of questions regarding attitudes towards learning English and opinions about their own performance in speaking English.

In the last stage of the experiment, another group of 10 native English speakers (5 male, 5 female; mean age 25) produced another set of 60 utterances (which were not used as stimuli) in order that each experimental group performed the same tasks and in the same order. The distracter task for these NS subjects consisted of the same 'John test' picture story and a shortened version of the language background questionnaire. These subjects then performed two perception tasks. First they listened to and classified the 60 NS, or English speaker stimuli, and then immediately after, the 60 NNS or Russian speaker stimuli, using the same forced choice task.

The resulting data were classifications of six English attitudes by three groups of speakers and listeners. The first was the control group of native English speaker production as perceived by native English listeners (NS-NS group). The second group was native Russian perception of native English speakers (NNS-NS group). The third group was Russian-speaker production as perceived by native English listeners (NS-NNS group).

3. RESULTS. A three factor ANOVA with repeated measures was performed on the data. The Between factor was Group, with three levels. Attitude (6 levels; CONCERNED, CONFIDENT, ENTHUSIASTIC, IMPATIENT, POLITE, SKEPTICAL) and Syntax (3 levels: STATEMENT, WH-QUESTION, Yes-No (Y/N) question) were the repeated factors.

Question 1: How do Russian speakers' perception and production of English attitudes compare to native English speakers?

Results show a significant main effect for Group ($F(2,27)=5.60$ $p<.01$) As expected, Russian listeners are significantly worse at perceiving all six of the native English attitudes than are English-speaking listeners (see Table 1). As well, the fact that English listeners are significantly worse at correctly

Group	Average % Correct
NNS-NS	42
NS-NNS	39
NS-NS	51

Table 1. Group factor results

perceiving Russian speakers than they are at perceiving English speakers suggests that Russian speakers are significantly worse at *producing* English attitudes.

Question 2: *Which attitudes are perceived best and worst?*

The other significant main effect was for the factor of Attitude ($F(5,135) = 4.26, p < .01$). SKEPTICAL was the easiest to perceive and CONCERNED the most difficult overall (see Table 2).

Interestingly, it is the Negative emotions, IMPATIENT and SKEPTICAL, which were best perceived by all three groups.

The interaction of the factors Attitude x Syntax was also highly significant ($F(10,270) = 24.75, p < .01$). This means that how well a particular attitude was perceived depended on its syntactic form. CONCERNED statements and CONFIDENT question types were least well perceived overall. Best perceived were IMPATIENT and CONFIDENT statements and CONCERNED and SKEPTICAL Y/N questions. These best and worst pairings make sense intuitively since speakers ask questions if they are concerned or skeptical about a situation, thereby requiring further information or confirmation from their interlocutor. Such circumstances would not tend to generate as many factual statements. It is also more plausible to make a statement about a situation rather than ask a question while expressing a confident attitude, explaining why statements are associated with the attitude of CONFIDENT in the results.

Attitude	Average % Correct
skeptical	53
impatient	48
concerned	47
polite	43
enthusiastic	40
confident	34

Table 2. Attitude factor results.

Syntactic Type	Average % correct		
	NS-NS	NS-NNS	NNS-NS
y/n question	55	40	47
statement	47	38	48
wh-question	51	40	30

Table 3. Syntax x Group results

Question 3: *How well are positive and negative attitudes distinguished?*

An F-test to compare the NS-NS group with the NNS-NS in categorizing a speaker's mood as positive was not significant ($F(1,18) = 2.3, p > .1$). In other words, Russian listeners are able to perceive the binary difference between positive and negative attitudes spoken by English speakers as well as native English listeners are.

Question 4: *Do syntactic intonation patterns influence attitude perception and production?*

Of the three syntactic types, Wh-questions are the least well perceived and y/n questions the best ($F(2,54) = 4.35, p < .05$).

The result for Wh-questions accurately reflects the quite different intonation pattern used for English versus Russian Wh-questions. On the other hand, y/n questions were surprisingly well perceived. Apparently, the Russian speakers are adapting better both in perceiving and producing the change in location of the pitch rise here.

The significant Syntax x Group interaction ($F(4,54) = 4.78, p < .01$) underlines this effect by showing that Russian listener scores on English Wh-questions are perceived correctly only 30% of the time. In general, the native English listeners are perceiving both Russian and English statements, Wh-questions and y/n questions with roughly the same degree of accuracy, as shown in Table 3.

The interaction of Attitude x Group was not significant. $F(10,135) = 1.02, p > .1$. In other words, all three groups had the same basic accuracy pattern. This was verified by a highly significant chi-square analysis which compared each group's observed and expected pattern of accuracy and errors (NS-NS: $\chi^2 = 621.87, p < .001$; NNS-NS $\chi^2 = 312.44, p < .001$; NS-NNS $\chi^2 = 367.1, p < .001$). All groups tended to confuse CONFIDENT as POLITE, and the NS-NS and NS-NNS groups misperceived it as IMPATIENT as well. Both the NNS-NS and NS-NNS groups perceived IMPATIENT as CONCERNED. Although the Russian speakers produced the highest number of confusions, all except those errors associated with CONFIDENT were only slightly above chance level. Whether a native or

non-native speaker is talking or listening makes a difference for the correct expression and perception of English attitudes. The experimental results indicate that interactions between English speakers and Russian speakers of English as a Second Language are vulnerable to attitudinal misunderstandings. Although the binary distinction between positive and negative attitudes is being perceived and produced by these non-native speakers, they have not yet mastered the expressions of individual attitudes within these two types.

The fact that the two experimental groups containing a non-native speaker or listener showed the same relative pattern of accuracy indicates that the intonational patterns of these attitudes are not language universal. In other words, the Russian speakers cannot depend on their L1 intonational patterns to express and perceive attitudes in the L2. However, this conclusion must be balanced against the fact that the native English speakers had difficulty with the same attitudes as the non-native learners. No one particular attitude stood out as one that the Russian subjects are consistently mistaking for another. In fact, the only consistent confusion was the interpretation and expression of the attitude CONFIDENT as POLITE. All three groups showed this trend. However, this error suggests not so much that the intonational expression of CONFIDENT is language dependent, as that CONFIDENT was a fairly ambiguous attitude in this experiment. Its prosodic characteristics were easily mistaken for those of other attitudes such as IMPATIENT, POLITE and CONCERNED.

As for the syntactic form of the utterance, it obviously makes a difference in how accurately an attitude is perceived or produced. Low WH-QUESTION scores clearly indicate that Russian speakers need to be especially aware of the intonational difficulties that this question-type poses. As well, the fact that Y/N QUESTION and STATEMENT scores vary widely along the six attitudes illustrates the natural associations and disassociations that certain attitudes have with particular syntactic forms. These pairings may prove helpful to the Russian speakers in conveying and interpreting those attitudes to native speakers, just as they do for native English speakers.

It is noteworthy how difficult the experimental task was for all of the subjects, native and non-native speakers alike. The overall average accuracy score for all attitudes was only 44 percent correct. This low score probably reflects the lack of social and lexical context which would normally help listeners interpret attitudes.

The main conclusion that can be drawn from the experiments is that Russian learners of English need more systematic practise of the English intonational system for expressing attitudes. At the very least, these learners, and perhaps all non-native speakers of English, need to be made aware of the danger of potential attitudinal confusions and misunderstandings which can interfere with and distort the attitudinal content of the messages they are trying to convey.

REFERENCES

- COUPER-KUHLEN, ELIZABETH. 1986. *An introduction to English prosody*. London: Edward Arnold.
- CRYSTAL, DAVID. 1969. *Prosodic systems and intonation in English*. Cambridge, UK: Cambridge University Press.
- GIBSON, MARTHA. 1989. English intonational 'accent' in Russian: An experimental study. Unpublished MA thesis, University of Alberta.
- HOLDEN, KYRIL, & JOHN HOGAN. 1993. The emotive impact of foreign intonation: An experiment in switching English and Russian intonation. *Language and speech* 36:67-88.
- JONES, RODNEY H., & STEPHEN EVANS. 1995. Teaching pronunciation through voice quality. *English language teaching journal* 49:244-251.
- MUNRO, MURRAY. 1995. Nonsegmental factors in foreign accent. *Studies in second language acquisition* 1:147-55.
- VAN ELS, THEO, & KEES DE BOT. 1987. The role of intonation in foreign accent. *Modern language journal* 71:147-55.

