

Some Remarks on the Phenomenon of Reverse Phonological Interference in Polish Speakers of Canadian English

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Introduction

In *The Norwegian Language in America* Haugen writes, "It would seem that one of the most wide-spread effects of bilingualism is the deposit it leaves on the languages involved".¹ When a speaker of one language (L1) finds himself in a situation in which only L2 is used for communication and that L2 is unknown to him he attempts, out of necessity, to learn the new language. It has been argued elsewhere² that whether the learning process is formal or whether it is via self-instruction, the linguistic habits of L1 interfere in the acquisition of L2. However, once the native speaker of L1 has mastered the ability to communicate in L2 the pattern of interference may become reversed, that is, the newly acquired language may start to project back onto L1, the first language. We would like to call this type of interference reverse interference (RI).

The purpose of this paper is to investigate the manner in which the Polish/English language contact situation in Canada (Calgary) alters the phonology of the Polish language of speakers who have come into permanent contact with the English language in adulthood. The present study considers the system of Polish consonants. Since the study included only a small number of subjects (13 in the Main Study Group) it can be viewed as an initial attempt at describing and classifying the phenomenon of reverse phonological interference of English into the sound system of Polish. The results also provide valid insights into the three main aspects of the investigation, namely the nature and degree of the RI and also its correspondence, if any, to the duration of the language contact.

The experiment can be viewed as both a synchronic and diachronic description of the phenomenon of RI as it occurs in Polish. It is synchronic in the sense that it investigates the particular linguistic behaviour of a group of bilingual speakers of Polish and English at one given point in time (in a structured situation). It is diachronic in the sense that the study includes speakers who have been in a permanent language contact situation for as short as seven years and as long as 56 years.

Comparison of the Phonological Systems of Polish and English

In order to establish the equivalence or non-equivalence of the two compared phonological systems it was assumed that for two phonemes to be equivalent they must share place of articulation features, manner of articulation features and have the same distribution of allophones.

The inventory of Polish and English consonantal phonemes is presented in Table I.

Table I

E=English P=Polish		Labial		Dental		Alveolar		Alveo-Palatal		Palatal		Velar		Glottal	
		E	P	E	P	E	P	E	P	E	P	E	P	F	P
O B S T R U E N T S	Stops	VL	p	p		t	t					k	k		
		VD	b	b		d	d					g	g		
	Affricates	VL				c		č		č	ć				
		VD				ʒ		ʒ̣		ʒ̣	ʒ̣				
	Sibilants	VL				s	s	š	š		ś				
		VD				z	z	ʒ	ʒ		ź				
Fricatives	VL	f	f	θ										h	
	VD	v	v	ð								x			
S O N O R A N T S	Nasals		m	m		n	n				ɲ	ŋ			
	L I Q U I D S	Lateral				l	l								
		Trill						r							
		Retroflex						r							
Glides		w	w							y	y				

According to the place of articulation features, the Polish and English oral stops /p b/ and the nasal /m/ can be considered to be identical. The labio-dental fricatives /f v/ are also identical. Real problem areas are the following:

- Although Polish /ʀ/ is articulated at the alveolar ridge, just as the English one is, there is a definite difference between these two phonemes. The apical closure is very narrow for the Polish /ʀ/ and much wider for the English /ʀ/.
- Both Polish and English /r/ are articulated at the alveolar ridge, but the Polish /r/ is a trill while the Canadian English one is a retroflex sound (i.e. /ɹ/).
- Polish sibilants have a more hissing quality than the English ones. As to their place of articulation feature, the Polish sibilants /s z/ are dental while the English /s z/ are alveolar. /š/ and /ž/ also occur in adjacent positions in the two languages. The Polish /š ž/ are articulated at the alveolar ridge as opposed to the English /š ž/ which have alveo-palatal articulation.
- The affricates exhibit the same problem of an alveolar phoneme having a counterpart in a palatal sound.
- In addition to the set of the near-equivalent affricate and sibilant phones, there are six phonemes in Polish which are not found in English, namely sibilants /ś ź/ and affricates /cz/ and /ćź/. Linguists sometimes distinguish between them by calling /cz/ and /s z/ hissing, /ć ź/ and /š ž/ are considered to be hushing and /ćź/ and /ś ź/ are whisper phonemes. (Whisper only in the sense that the noise component which accompanies their production is the least loud of all the three types.)
- Polish /ɣ/ differs from the English /h/: /ɣ/ is voiced, /h/ is voiceless; /ɣ/ is articulated at the velum, /h/ is glottal.
- There is one palatal nasal phoneme in Polish which has no equivalent in English, i.e. /ń/.

After the phonological systems of Polish and English had been compared, certain areas of potential RI were established.

The Subjects and the Aim of the Experiment

There were three study groups. The information about the subjects was gathered from the questionnaires prepared by the author for the purpose of the study. The amount of Polish and English used for daily communication was determined by the speakers themselves.

Group I included seven subjects, aged 23 to 81. All of them were born in Canada of Polish parents. They all had spoken Polish as their first language until school age. Five of them attended a Polish ethnic

school between the age of 5 and 13. All of the subjects speak Polish every day, though the amount of the language used daily varies from 50% to 10% (the rest of their communication being carried out in English).

Group II included 13 subjects, all born in Poland. All of them were introduced to English for the first time upon their arrival in Canada. At that time they were 20 or more years old. They all went through a period of formal ESL courses lasting from two months to 12 months. At the time of the experiment they had been in Canada between seven and 45 years. All of the tested subjects in this group work professionally and 80% of their daily verbal communication is carried out in English.

Group III included five subjects. They have been in Canada between 35 and 56 years. During that time they never had any formal instruction in ESL. They are all retired now and their command of English is good. Some of them speak only Polish at home, the contact with English being limited to newspapers, radio and television and casual social conversation. Others use English in about 50% of their daily oral communication.

Each of the three groups was tested for the following specific reasons. Group I, the Model Group, was tested in order to establish whether, because of the early age at which the speakers entered into contact with English, they managed to keep the two language systems apart. If RI could actually be found in their speech, the task was to establish which of the sounds of Polish were affected the most.

Group II, the Main Study Group, was tested in order to establish whether RI took place in the speech of those people whose contact with the English language had begun in adulthood and had been relatively short (for most of the speakers). The next step was to establish which of the sounds were the most affected by RI, to what degree and in what number of speakers. We have also attempted to observe whether there was any correlation between the degree of the RI and the length of time during which a person or a number of people have been in permanent contact with English.

Group III, the Control Group, was tested in order to establish the existence of RI, its degree and how it compared to the duration of the language contact situation.

The Experiment

The same experiment was administered to each of the groups. The experiment consisted of thirty reading tests, each including ten tokens containing the consonants being tested. Twenty-four tests were devised to check the pronunciation of particular Polish phonemes, and six tests were devised to check the retention or loss of contrast in phonetically similar minimal pairs. In addition to the reading tests, the subjects of Group II and III were also asked to speak spontaneously

on one of three topics: (1) a weekend (2) last summer holidays or (3) a car accident. Speakers of Group I were asked to describe orally a set of five pictures which included objects whose names contained sounds which could potentially be subjected to interference (cf. Table 1). The instances of RI found in spontaneous speech of the subjects were considered significant only in the sense that they confirmed the phenomenon of RI as such, but they were not analyzed or compared with the results of the reading tests. Only two or more instances of RI present in the reading tests were considered to be significant.

The Results

Nature of the Reverse Interference

In Group I, out of all the potential areas of RI only some of the Polish consonants materialized as actual results of the operation of RI. RI was found to have influenced the distribution of the following Polish consonants: /n h s ʂ ʐ ʧ ʤ t d r ʎ/.

In Group II, the Main Study Group, not all of the instances of RI in Group I were found. However, none of the speakers in Group II exhibited other instances of RI than the ones already found in Group I. Significant interference occurred in the place of articulation of five Polish phonemes, namely /t d ʂ ʎ r/. /t d/ acquired alveolar articulation, /ʂ/ acquired palatal articulation with the simultaneous loss of the hushing quality, but the contrast between the new /ʂ/ and Polish /ʃ/ was fully retained. /ʎ/ was produced with the wide apical closure and /r/ became a retroflex alveolar liquid in the following contexts:

$$/r/ \rightarrow [ɹ] / \begin{cases} \text{---}^c \\ \text{---}^v \\ \text{---} [+stress] \\ \text{---}^\# \end{cases}$$

In addition the phonetic feature of aspiration was added to two Polish voiceless stops /p t/ in stressed word initial and syllable initial positions only.

Subjects in Group III exhibited no instances of RI in their pronunciation of the Polish consonants.

Degree of the Reverse Interference

When the instances of a given type of RI were counted for each subject in Group II, /ʎ/ was found to be the most frequently altered Polish consonant. With as many as four speakers /ʎ/ acquired the new articulation in every instance it was used in their speech (cf. Table II). With two speakers the RI was insignificant. The next most

frequently altered Polish consonant was the voiced dental stop /d/ which became a voiced alveolar stop in 100% of occurrences with two speakers. On the other hand, five speakers exhibited no significant RI in the articulation of /d/ (cf. Table III).

The third greatest interference was found with the sound /r/ which resulted in a retroflex allophone in 100% of the instances with one speaker. With seven speakers the degree of interference varied between 60% and 20%. Five speakers exhibited no RI (cf. Table IV). /ʒ/ became a soft palatal /ʒ̟/ in 70% of occurrences with two speakers, and in 50% of occurrences with four speakers. Four speakers showed no significant RI (cf. Table V).

/t/ acquired a dento-alveolar or alveolar articulation in 60% of instances with one speaker. With seven speakers the degree of interference varied between 50% and 20%. Five speakers showed no significant interference (cf. Table VI).

The manner of articulation RI was very conspicuous especially for the bilabial voiceless stop /p/. The Polish unaspirated /p/ became fully aspirated in 80% of instances. Two speakers retained the unaspirated /p/ (cf. Table VII). The degree of aspiration of /t/ was more varied. Two speakers showed the RI in 100% of cases, two speakers showed no significant interference. With the remaining nine speakers it oscillated between 80% and 20% (cf. Table VIII).

Relation Between Duration of Language Contact and Degree of RI

Since the degree of RI varied considerably for individual speakers, we attempted to find out whether the length of stay in Canada could be correlated with the degree of RI. Two very important observations have been made here. First of all, none of the subjects in Group III exhibited any amount of RI whatsoever in their production of the Polish consonants. With each one of the speakers the Polish consonantal phonemes remained intact regardless of the duration of the language contact situation.

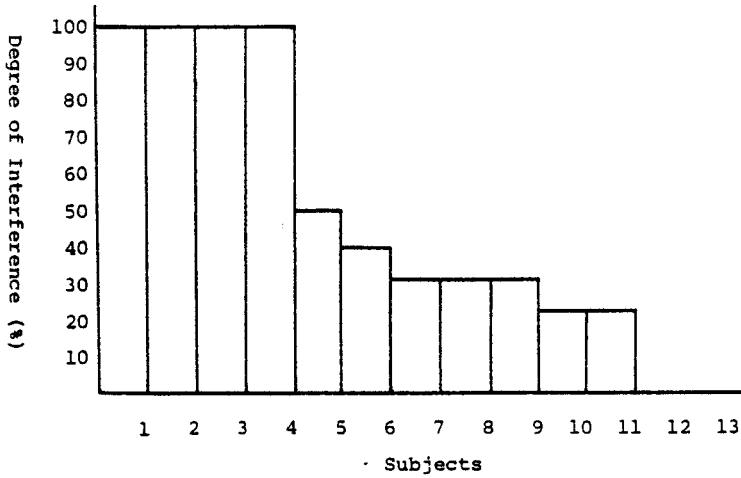
In order to try and determine whether there is a correlation between the degree of RI and duration of language contact, a complex statistical analysis using a larger sample of subjects would be required (regression analysis). It was tempting however to look at a graphic demonstration of degree of RI of the most frequently altered consonant, (/p/ → [p^h]), plotted graphically against the length of the language contact. It follows from the diagram, Table IX, that there seems to be no correlation between the degree of RI and the length of language contact.

Implications of the Study

The described phenomenon of RI is by no means restricted to the Polish/English language contact. Similar phenomena have been observed

and reported for other languages (e.g. Weinrich 1968, Giaurenzo 1972, Henzel 1981, Lance 1979). In many cases the authors have mainly limited themselves to the description and analysis of the data. Explanation of the phenomenon has been provided within the socio-linguistic framework. The collected evidence has implications for further research in the areas of sociolinguistics, psycholinguistics, studies of the nature of bilingualism, and the biological structure of language.

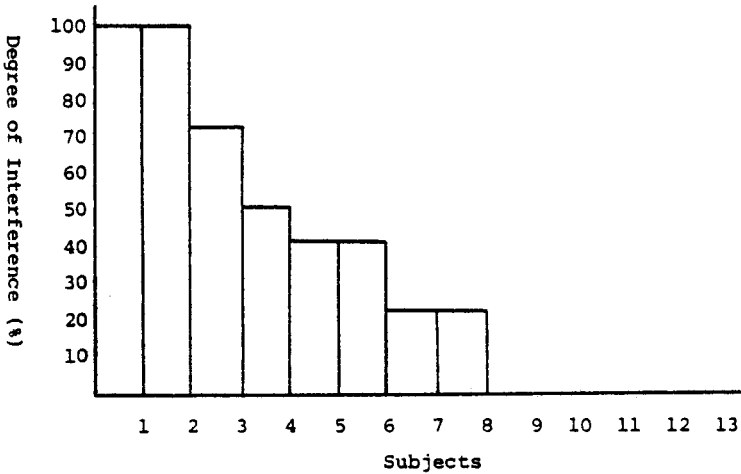
Table II



*Degree of Interference in the Articulation
of Polish High Alveolar /ɲ/*

Result - [ɲ]

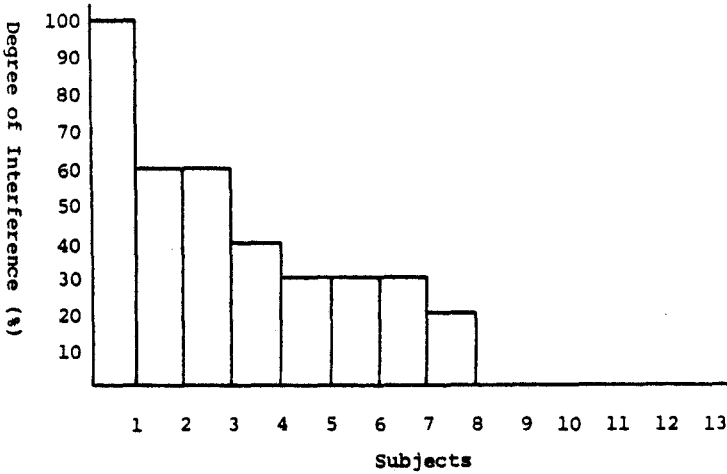
Table III



*Degree of Interference in the Articulation
of Polish Dental /d/*

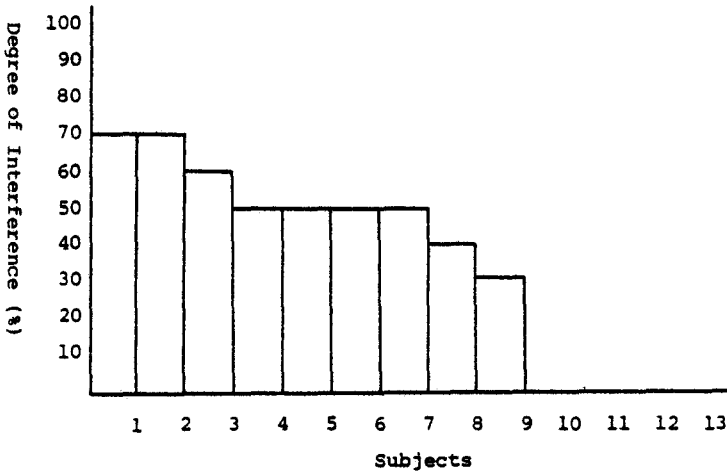
Result - Dento-Alveolar or Alveolar [d]

Table IV



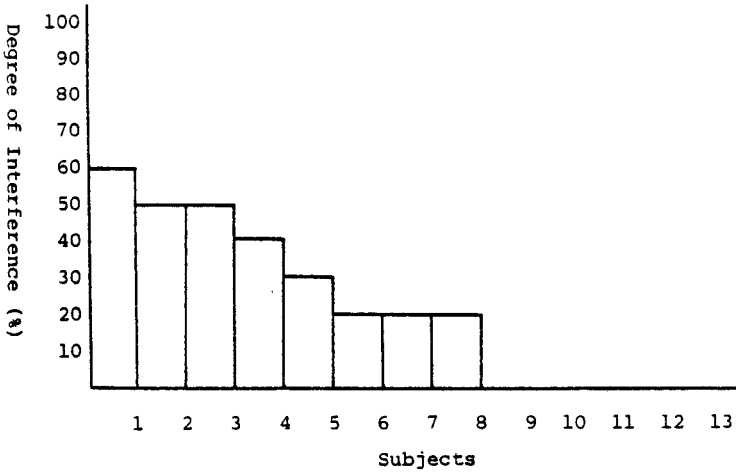
*Degree of Interference in the Articulation
of Polish Trill /r/
Result - Retroflex [ɹ]*

Table V



*Degree of Interference in the Articulation
of Polish Hard (Hushing) Alveolar /ʐ/
Result - (Soft) Palatal [ʃ]*

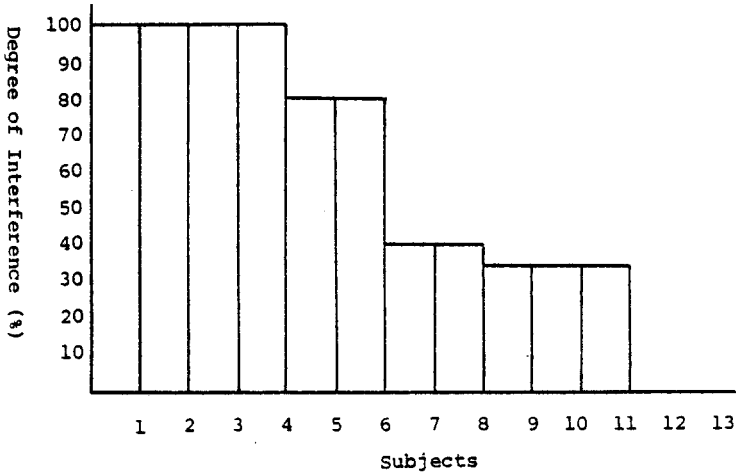
Table VI



*Degree of Interference in the Articulation
of Polish Dental /t/*

Result - Dento-Alveolar or Alveolar [t]

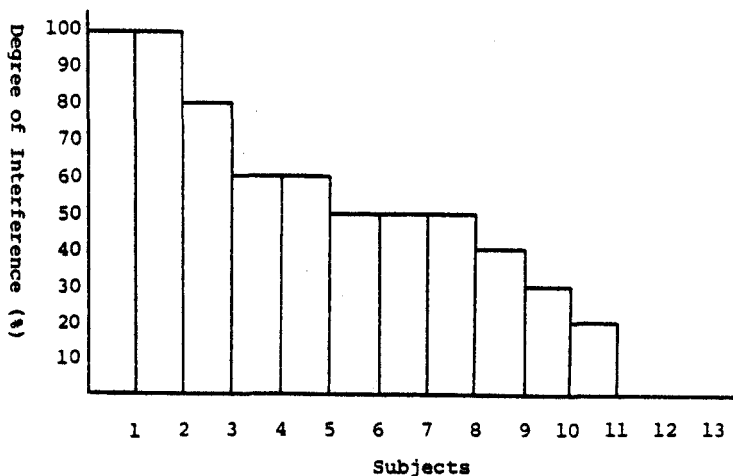
Table VII



*Degree of Interference in the Articulation
of Polish Unaspirated /p/*

*Result - In Stressed Word Initial and
Syllable Initial Position [p^h]*

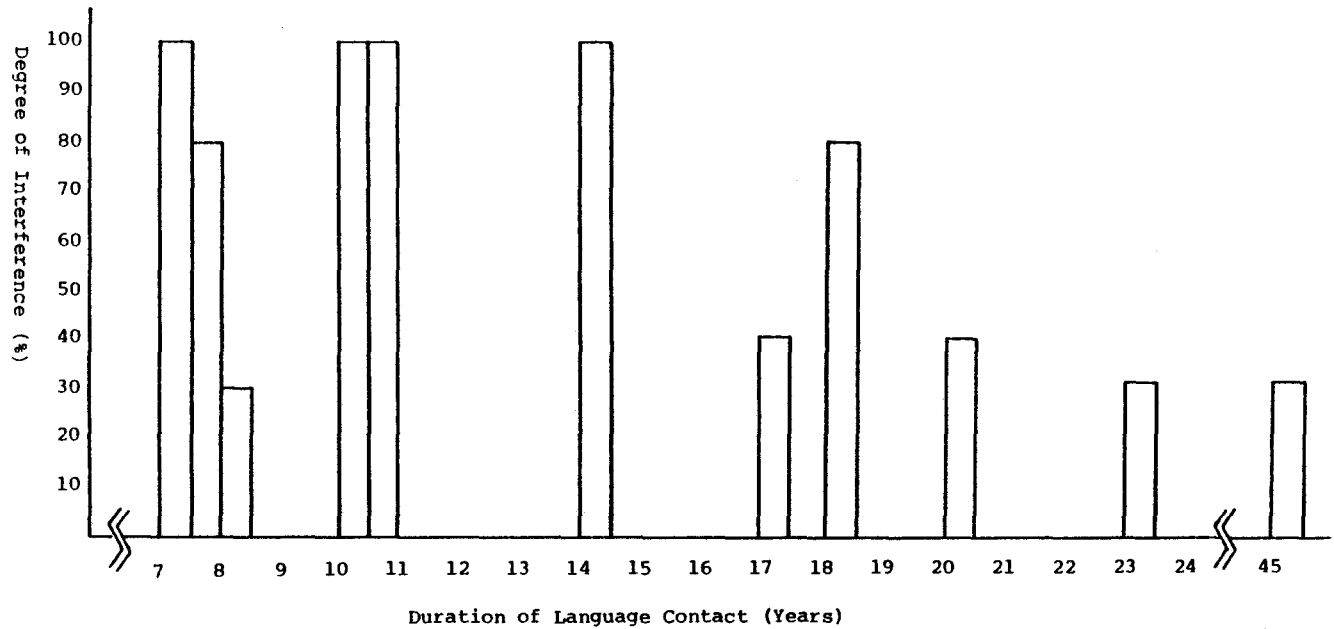
Table VIII



*Degree of Interference in the Articulation
of Polish Unaspirated /t/*

*Result - In Stressed Word Initial and
Syllable Initial Position [tʰ]*

Table IX



*Relation Between Duration of Language Contact and
Degree of Interference in Polish /p/ → [pʰ]*

FOOTNOTES

¹Haugen, E. p. 5.

²See DiPietro, Henzel, Kopczyński, Lance, Weinreich.

³Cf. Kopczyński, A.

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