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Introduction

This article, part of a larger study of the nature of linguistic variation in English as it is spoken by Japanese Canadians (JC), attempts to describe aspects of a language contact variety in its social context. "Canada is as rich in varieties of English as a second language (ESL) as in first-language varieties' (Chambers 1991:95). 'In the bilingual situations where immigrant languages and English come together, the research (...) is sparse, and most of it has been directed at the immigrant languages rather than English" (Chambers 1991:96).

To set out to remedy this gap, the present investigation examines the tape-recorded speech of nine second and third generation JC individuals for the simplification of word-final consonant clusters ending in /-t, d/. The paper's goals are to characterize the status of JC English in relation to other contact-induced varieties and to assess the changes it undergoes.

1 /-t, d/ Deletion in English

/-t, d/ deletion is a phonological process that results in the loss of a final apical stop (/-t/ or /-d/) when it is the last member of a consonant cluster. It has been extensively studied in a wide variety of English dialects (Bailey 1994, Bailey and Thomas 1998, Fasold 1972, Guy 1980, Holmes and Bell 1994, Kahn 1991, Labov 1972, Labov et al. 1968, Neu 1980, Patrick 1991, Santa Ana 1992, Schreier 2003, Torbert 2001, Wolfram 1969, 1974, Wolfram and Fasold 1974, Wolfram and Christian 1976, Wolfram, Christian and Hatfield 1986, Wolfram, Childs and Torbert 2000).

Thirty years of empirical research has established that the variable process in question is governed by the following linguistic internal constraints.

Rule application is favored:
a in **unstressed syllables.**
b if **a third consonant** precedes the consonant cluster.
c by the phonetic features of **the preceding consonant**, yielding the segmental order: /s/ > stops > nasals > other fricatives > liquids; relatively weak constraint.

d by **the grammatical status** of the final /-t/, with the order: part of *-n't* morpheme > part of stem > derivational suffix > past tense or past ptc suffix.
e by the phonetic features of **the following segment**, yielding the order: obstruents > liquids > glides > vowels > pause.
f by **agreement in voicing** of the segments preceding and following the /-t, d/ (homovoiced > heterovoiced).
(Labov 1989:90)

The results of earlier studies have repeatedly found that the effects of grammatical status and following environment are most salient among the above six constraints. With respect to the grammatical status of the final apical stop, the deletion is favored more when it is part of the stem, (M-word, e.g. past, cold) than when it is the regular past tense suffix (P-verb, e.g. passed, called). The final /-t, d/ of semi-weak verbs (S-verb, e.g. felt and told) normally falls between the above two groups in deletion rate. Finally, the /-t/ of *–n't* produced by negative contraction is most prone to the deletion. Let us now focus on the following phonetic environment. The deletion occurs more frequently when the final /-t, d/ is followed by a consonant (e.g. west side) than when it is followed by a vowel (e.g. west end).

2 Methods

2.1 Speakers

This report examines data recorded from eight second generation and one third generation JC English speakers, two in Vancouver, one in Kamloops and six in Toronto.

The nine speakers in the present study are all adults (five males and four females). Table 1 summarizes their demographic characteristics. Speakers 1 and 2 and Speakers 6 and 7 are married couples. These speakers are located and recruited by means of the "friend of a friend" method (Milroy 1980).

Like many children of immigrants to Canada, the eight second generation JC individuals of the present study grew up as bilinguals, speaking Japanese with their parents at home and English with their siblings and classmates after starting school. Speaker 6 was somewhat exceptional because he was sent back to Japan at the age of one to live with his grandparents for twelve years. So was his wife (Speaker 7) although she was much older when she went to Japan. The first language that Speaker 6 acquired was Japanese whereas Speaker 7 spoke both Japanese and English in her childhood. Speaker 8 is a son of so-called new immigrants who settled in

Canada after World War II. Speaker 9, the only third generation speaker of the sample, has been speaking only English at home. He learned Japanese as a third language (after French) when he went to Japan to teach English for a few years. At present, all of them use English as their main home language. Speakers 1 to 7 were seriously affected by the uprooting and dispersal of the JC population during and after the Pacific War when the War Measures Act and the National Emergency Transitional Powers Act were in effect. These seven individuals were ordered to leave their Vancouver homes in 1942 and go outside of the protected zone of 100 miles form the Pacific coastline. Speakers 1, 2 and 3 went to voluntary self-supporting sites in British Columbia while Speakers 4 and 5 were sent to a detention camp in Slokan Valley, British Columbia. Speaker 6 was interned in Angler, Ontario. Speaker 7 moved to Toronto soon after the war broke out through her network with the Anglican Church. After the restrictions were lifted, Speaker 1 and Speaker 2 moved back to Vancouver as opportunities arose in 1949 and 1950 respectively while Speaker 3 has lived in various cities in British Columbia. Speakers 4, 5, 6 and 7 reestablished themselves in Toronto.

2.2 Data Collection

The data for the quantitative analyses were obtained from sociolinguistic interviews conducted in August 1991 in Vancouver, in July 1995 in Kamloops and in March 1998 and November 2002 in Toronto; all the interviews were carried out by the present author in English. Speakers 1 and 2 and Speakers 6 and 7 were interviewed together. The interviews with the other speakers were conducted individually. Each interview lasted for thirty minutes to two hours.

2.3 Data Reduction and Coding

All relevant tokens, i.e. those containing final /-t, d/ clusters, were extracted from the tape recording and coded as showing deletion or retention of the word-final apical stop (N=2,270). In order to examine if JC and other varieties of English are different qualitatively and/or quantitatively, all tokens were initially coded for the six factors listed in Labov (1989), i.e. whether the final /-t, d/ occurs in a stressed syllable or not, cluster length, the phonetic features of the preceding consonant, the grammatical status of the final /-t, d/, the phonetic features of the following segment, and agreement in voicing with the following modification. In contrast to the usual practice of excluding /r/ from the analysis, it was retained in the preceding segment fac-

tor group. The conjunction *and* and tokens followed by neutralizing apical or palatal stops or interdental fricatives were excluded.

Speaker	Gender	Birthplace	Places lived
1	M	Vancouver	1930- Vancouver
			1942- Minto
			1945- Revelstoke
			1949- Vancouver
2	F	Vancouver	1935- Vancouver
			1942- Bridge River
			1945- East Lillooeet
			1950- Vancouver
3	F	Vancouver	1935- Vancouver
			1942- Bridge River
			1945- Lillooeet
			1953- Vancouver
			1957- Kitimat
			1958- Kamloops
4	F	Prince Rupert	1926- Prince Rupert
			1940- Victoria
			1942- Slokan
			1944- Toronto
5	F	Duncan	1926- Duncan
			1941- Victoria
			1942- Slokan
			1945- St.Catharines
			1946- Toronto
6	M	Vancouver	1917- Vancouver
			1918- Fukuoka, Japan
			1930- Vancouver
			1942- Angler
			1943- Hamilton

			1946- Toronto
7	F	Vancouver	1919- Vancouver
			1930- Hiroshima, Japan
			1936- Vancouver
			1939- Hiroshima, Japan
			1941- Vancouver
			1942- Toronto
8	M	Toronto	1970- Toronto
			1977- Montreal
			1984- Toronto
9	M	Toronto	1970- Toronto
			1992- Tottori, Japan
			1995- Monterey, CA
			1997- Chiba, Japan
			2002- Toronto

Table 1: Demographic characteristics of JC speakers

Data entry and variable rule analysis were conducted using GOLDVARB 2001, a multivariate analysis application for Windows developed at York University.

3 Results and discussion

The variable rule analyses by individual subject indicate that the two of the six linguistic factor groups, i.e. the phonetic feature of the following segment and the grammatical status of the final /-t, d/ affect the variable process for all nine speakers. The remaining four factor groups did not reach the statistical significance level of $p<.05$, which means that they did not significantly affect /-t, d/ deletion; thus, they were eliminated from subsequent analyses. Results for individual speakers are summarized in Tables 2 through 10 in the Appendix.

As can be seen from the tables, every speaker fits the general pattern in reducing the final /-t/ most when it is part of negative *–n't*. However, the results indicate that the effect of the grammatical status of /-t, d/ demonstrates substantial interspeaker variation.

As has been mentioned in Section 2.1, Speaker 6's L1 was Japanese; he started to acquire English as second language after his return to Canada at

the age of thirteen. The fact that he deletes the regular tense marker more frequently than a monomorphemic stop suggests that his internal grammar of English may be qualitatively different from that of the other eight speakers.

Tables 2, 3, 4, 5, 6 and 8 show that the so-called old second generation JCs are divided into two groups. Unlike speakers of other varieties of English, Speakers 1, 2, 4 and 7 delete the regular tense marker and a final monomorphemic stop almost at the same rate. Speakers 3 and 5, on the other hand, do not diverge from the expected pattern of P-verb < M-word < part of *–n't* morpheme[1]. A brief demographic history of these six speakers is of particular importance to account for the sharp contrast between the two groups. The JC population was concentrated in close-knit communities in British Columbia before the Pacific War broke out in December 1941. Some families, however, lived outside of these communities. As a consequence, they interacted with non-JCs more frequently. This was the environment where Speakers 3 and 5 were born and brought up. Speaker 3, who was seven years old at the time of uprooting of the JC population from Vancouver, attended a local public school in the interior British Columbia as the only JC student[2]. Her interaction with non-JCs was maximal. Speaker 5, who was born about a decade earlier than Speaker 3, grew up in a community in which there was no JC family but hers. These two speakers who exhibit remarkable similarity to other native monolingual English speakers grew up in a non JC environment where they had ample opportunities to acquire the highly systematic variable system.

Speaker 8, the only new second generation speaker, and Speaker 9, the only third generation speaker, both follow the pan-English pattern. Due to a radical dispersal of the JC population after World War II, their network pattern has changed. As a consequence, the JC interact with other ethnic groups more in the second half of the twentieth century. Language shift from Japanese to English is almost complete among third generation speakers.

With respect to the effect of the following phonetic environment, the nine speakers approximate the general pattern: vowel < obstruent. The effect

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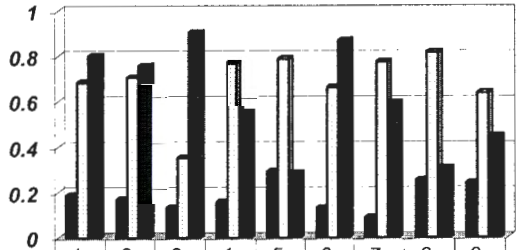
[1]There were too few tokens of S-verbs to support a detailed analysis of this factor.

[2]During and after WWII, most second generation JCs attended schools in the Japanese settlements or evacuation camps. These schools were severely limited in their resources. The elementary school evacuee children were taught by JC instructors; older students studied by correspondence course or attended high school classes organized by churches. When they lived in the interior, they were not allowed to interact with other non JC residents freely. Speaker 3's family was allowed to live in town with non JCs because her father was a medical doctor. He looked after JC evacuees as well as other local residents.

of a following pause differs from speaker to speaker. Figure 1 is a graphic representation of the effect of the following segment.



	1	2	3	4	5	6	7	8	9
■ vowel	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.2	0.2
□ obstruent	0.6	0.7	0.3	0.7	0.7	0.6	0.7	0.8	0.6
■ pause	0.8	0.7	0.9	0.5	0.2	0.8	0.5	0.3	0.4

Figure 1: /-t, d/ deletion for each speaker, arranged by following phonetic environment

All speakers retain the final /-t, d/ most often when it is followed by a vowel. Earlier research has repeatedly shown that prevocalic deletion is a characteristic feature of a contact-induced variety of which donor language does not permit syllable-coda consonant clusters (Fasold 1972, Kahn 1991, Labov 1972, Labov et al. 1968, Santa Ana 1996, Schreier 2003, Torbert 2001, Wolfram 1969, Wolfram 1974, Wolfram, Childs and Torbert 2000). Although JC English has also been heavily influenced by the substratum language without such clusters, its rate of prevocalic deletion is relatively low varying from 14% to 37% individually[3].

The rate of deletion in prepausal environment is of particular note. According to Guy (1980), Anglo English speakers have a tendency to retain the final apical stop when it is followed by a pause whereas African American Vernacular English speakers delete the /-t, d/ in that environment much more frequently. The nine JC speakers are again divided into two groups with respect to this factor. Speakers 1, 2, 6 and particularly 3 reduce the final /-t, d/ more often in prepausal environments than preconsonantal ones. Speakers 4,

[3]The percentage of deletion in prevocalic environment in Vietnamese English is 60% (P-verb) to 77% (M-word), in Indian English 15.6% (P-verb) to 30.1% (M-word), in Lumbee English 9.3% (P-verb) to 24.8% (M-word) and in Maori English 60% (P-word) to 75% (M-word).

5, 7, 8 and 9, on the other hand, demonstrate exactly the opposite pattern. The foregoing description of their profile suggests that the substratum influence from Japanese, the donor language is less significant for those in the second group who have had more contact with other ethnic groups.

4 Conclusions

The variable rule analyses of the tape-recorded speech of nine JC individuals have been investigated for the simplification of word-final consonant clusters that end in /-t, d/.

Earlier research has confirmed that the variable rule deleting the final /-t, d/ is qualitatively consistent across speakers. Individual speakers may differ quantitatively in their basic rate of deletion, i.e. in their input probability for the rule; however, the ordering of the constraint does not vary from speaker to speaker. The results of the present study indicate that JC English both follows and diverges from the general English pattern, with a large variety of individual patterns among old second generation speakers. Evidence that the effects of the grammatical and phonetic constraints are different individually suggests that these speakers possess different internal grammars that have been influenced by the substratum language in varying degrees. Among the seven old second generation speakers, Speaker 5 clearly has the grammar that approximates the general pattern most closely. A brief description of the unique demographic history of the old second generation speakers provide a better understanding of the current linguistic situation.

The present study also focuses on the generational difference. The new second and third generation speakers follow the pan-English pattern reflecting a rapid language shift in the community under investigation.

Appendix

/-t, d/ deletion probabilities by speaker

Factors	Prob.	%	N
Vowel	0.186	28	83
Glide	0.252	41	37
Liquid	0.762	92	13
Obstruent	0.682	85	99
Pause	0.799	85	53
P-verb	0.372	50	38
S-verb	0.113	14	7
M-word	0.323	52	157
-n't	0.86	94	83
Input(P0)	0.717	63	285

Table 2: Speaker 1

Factors	Prob.	%	N
Vowel	0.165	25	83
Glide	0.5	60	25
Liquid	-	-	-
Obstruent	0.704	85	113
Pause	0.754	79	33
P-verb	0.372	48	25
S-verb	0.509	67	6
M-word	0.328	49	145
-n't	0.817	91	78
Input(P0)	0.688	62	254

Table 3: Speaker 2

Factors	Prob.	%	N
Vowel	0.131	19	21
Glide	0.439	7	14
Liquid	0.695	75	8
Obstruent	0.351	56	41
Pause	0.901	89	28
P-verb	0.176	40	20
S-verb	0.312	33	6
M-word	0.407	56	55
-n't	0.86	87	31
Input(P0)	0.658	61	112

Table 4: Speaker 3

Factors	Prob.	%	N
Vowel	0.157	14	91
Glide	0.582	53	45
Liquid	0.639	75	8
Obstruent	0.771	77	228
Pause	0.551	47	97
P-verb	0.417	36	70
S-verb	0.322	33	6
M-word	0.419	42	206
-n't	0.776	79	77
Input(P0)	0.274	49	359

Table 5: Speaker 4

Factors	Prob.	%	N
Vowel	0.291	22	108
Glide	0.483	48	23
Liquid	-	-	-
Obstruent	0.786	78	140
Pause	0.282	27	90
P-verb	0.196	16	74
S-verb	0.256	27	26
M-word	0.539	46	182
-n't	0.787	82	79
Input(P0)	0.461	47	361

Table 6: Speaker 5

Factors	Prob.	%	N
Vowel	0.129	23	144
Glide	0.436	68	22
Liquid	0.586	80	15
Obstruent	0.66	78	117
Pause	0.865	88	107
P-verb	0.806	77	63
S-verb	0.047	7	13
M-word	0.337	51	256
-n't	0.843	90	73
Input(P0)	0.668	61	405

Table 7: Speaker 6

Factors	Prob.	%	N
Vowel	0.088	14	28
(Glide	0.55	60	9
Liquid	-	-	-
Obstruent	0.772	77	40
Pause	0.591	57	24
P-verb	0.681	45	20
S-verb	0.21	37	8
M-word	0.375	50	58
-n't	0.758	81	22
Input(P0)	0.549	54	108

Table 8: Speaker 7

Factors	Prob.	%	N
Vowel	0.252	37	56
Glide	0.325	46	13
Liquid	0.72	62	28
Obstruent	0.815	88	80
Pause	0.305	43	91
P-verb	0.315	41	34
S-verb	0.157	25	4
M-word	0.505	58	185
-n't	0.658	84	45
Input(P0)	0.645	60	268

Table 9: Speaker 8

Factors	Prob.	%	N
Vowel	0.239	36	25
Glide	0.763	85	7
Liquid	0.578	80	10
Obstruent	0.636	77	44
Pause	0.445	65	32
P-verb	0.183	30	13
S-verb	0.324	50	4
M-word	0.497	66	75
-n't	0.71	84	26
Input(P0)	0.686	66	118

Table 10: Speaker 9

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