

1. motivations for study of loanword adaptation

- test productivity of rules and constraints
- with shift to constraint-based grammar can better model conflict between faithfulness to the source language and conformity with the segmental inventory, phonotactics, and prosodic structures of the recipient language
- English *flight* [flajt] > Korean [p^hɦ.la.i.t̚ɪ]
- "static" languages like Thai and Chinese figure prominently
- learnability puzzles: how are adaptation strategies learned since they may be absent from the native grammar?

2. terminology

donor language	recipient language
L2	L1
source word	adapted word

import: novel sound or structure introduced via loans

3. adaptations

- typically sharp intuitions
- robust and productive (hundreds or thousands of loanwords in Japanese, Korean)
- conservative: if match is available then it is typically made
- grammatical calculation based on some underlying competence
- what formal properties?: input, output, internal states

4. major questions in recent literature

What is the input to adaptations process? Some answers offered

- acoustic signal of L2 output: extragrammatical speech perception module filters speech at the outset
- an accurate IPA like transcription of L2 output (some degree of bilingualism) which is then filtered by L1 grammar
- abstract phonological representation of loan: bilinguals draw on phonological hearing in both L1 and L2 and ignore the details of phonetic implementation
- relative contribution of oral vs. orthographic transmission

Does loanword adaptation implicate a special grammar distinct from L1 native grammar? Universal principles of sound perception and similarity?

- if grammar is just rewrite rules then answer must be yes since no evidence for epenthesis process in Cantonese native grammar where English *bus* is adapted as [pasi]
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12. Input to loanword adaptation process

- phonemic representation that abstracts away from predictable phonetic variants in donor language (Paradis & Lacharité 2005)
- based on phonological hearing by bilinguals
- alternative adaptation strategy based on phonetic salience (Kenstowicz 2003)

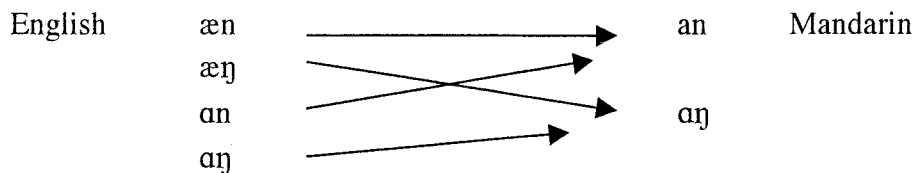
13. Mandarin case study (Hsieh, Kenstowicz, & Mou 2006)

- vowel phonemes

i	y	u
	ə	
	a	
 - coda: glides j and w and nasals n and ŋ
 - mid and low vowels have various realizations depending on coda (and onset)
- /ə/ back unround [ɤ] in open syllable: kə [k^hɤ] 4 'guest'
back round [o] adjacent to [w]: xəw [xow] 4 'thick'
front [ɛ] adjacent to [j]: kj [k^hɛj] 1 'scold'
central [ə] elsewhere: /ken/ [k^hən] 3 'willing'
- /a/ back [ɑ] before ŋ and w: kang [k^hɑŋ] 2 'carry on shoulder', kaw [k^hɑw] 3 'test'
front [ɛ] when preceded by [j] and followed by [n]: jian [tsjɛn] 4 'build'
elsewhere central-front [a]: da [ta] 4 'big'

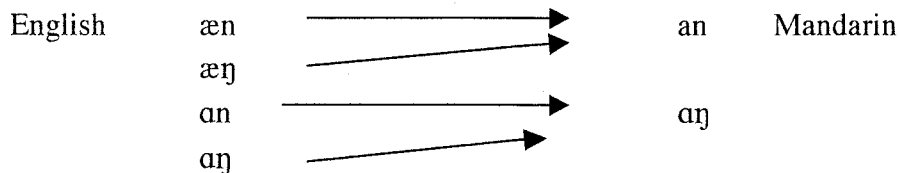
14. prediction: if loanword adaptation abstracts away from noncontrastive details then we expect the following mappings based on phonological vs. phonetic input models:

phonological mapping



in phonetic model either then vowel or the nasal could determine the adpatation; perhaps preference to the vowel as the more dominant perceptually

phonetic mapping



4. loans

- c. 600 VN loans from *Dictionary of Loanwords and Hybrid Words in Chinese*.
- place names from Chinese Ministry of Foreign Affairs website

5. data

i. dictionary

- [æŋ] -> [an] (26): an.chou 'anchovy' ; ke.lan 'clan'
- [æŋ] -> [an] (5): wang.da.'er 'vandel'
- [aŋ] -> [aŋ] (5): gang.guo 'Congo'
- [aŋ] -> [an] (2): an.ge 'encore'
- [an] -> [aŋ] (24) : a.nang 'anonymous', kang.tuo 'canto'
- [an] -> [an] (0)
- [æŋ] -> [an] (9): fulan 'Franklin'
- [æŋ] -> [aŋ] (4): jang.ji 'Yankee'

ii. place names

- [æŋ] -> [an] (21) **Manhattan** man.ha.dun
- [æŋ] -> [an] (0)
- [an] -> [aŋ] (15) **Oregon** e.le.gang
- [an] -> [an] (3) Tucson tu.sen
- [æŋ] -> [an] (6) **Anchorage** an.ke.lei.qi
- [æŋ] -> [aŋ] (1) **Doncaster** tang.ke.si.te

iii. personal names: Lin (2006)

Johnson qiáng.shēng [tʃhjaŋ.ʂəŋ] 2.1

6. conclusion

- adaptation is based on phonologically redundant but phonetically salient [±back] vowel difference that accompanies and enhances the coronal vs. velar coda contrast
- place contrasts among coda nasals are often difficult to hear

DIFFERENCES COME FROM:

5. case study of loans from English to Cantonese and Mandarin

- not as many as Japanese or Korean
- written vs. oral transmission

6. Cantonese (Silverman 1992, Yip 1993, 2006, Lai 2004)

p	t	t ^s	k	k ^w	
p ^h	t ^h	t ^{sh}	k ^h	k ^{wh}	
f	s				h
m	n		ŋ		
		y		w	

syllable: CVC

tones:	55	35
	33	24
	22	21

7. Matching segments correspond

fun	fAn 55
cut	kAt55
tie	tha:i 55

8. closest matching segment

- r > l : rum lAm 55

- $f > s$: show sou55
- $tf > ts$: check t^sek 55

8. novel syllables created (cf. Mandarin)

- accidental gaps in onset+rhyme: fit > fit55, win >> win
- new rhymes: band > pen, game > kem
- violate ban on labials: pump > pAm

9. final consonants

Stops:	sharp	[sap]
	cut	[k ^h At]
	Jack	[tsik]
Nasals:	jam	[tsem]
	gin	[tsin]
	bowling	[pouliŋ]
s:	lace	[leisi]
	office	[ɔfisi]
clusters:		
band	[pen]	shaft [sɛp] notes [nuksi]
friend	[fɛn]	post [p'ousi] tips [tipsi]
pump	[pɛm]	cast [k'asi] licence [laisɛn]
stamp	[sitam]	toast [tɔsi] inch [intsi]
sink	[siŋ]	waist [wɛisi]
		yeast [isi]
foul	[fAu]	fight [fAi]

10. initial cluster reduction

- disyllabic minimal word preference
- no complex onsets or codas
- sC clusters repaired by epenthesis while CR repaired by deletion of liquid--a contrast in contextual saliency
- but, liquid is retained if output would fall below two syllables (Silverman)
- data from Chan & Kwok '82 and other sources

<u>CR deleted</u>		<u>CR preserved</u>	
printer	p'en.t'a S '92	brake	pik.lik
broker	puk.k'a	cream	kei.lim
floorshow	fosow	fluke	fu.luk
freezer	fi.sa	clean	ki.lin S '92
place	p'ei.si	flea	fu.li S '92
professor	pou.fa.sa	blonde	pi.lan S '92
high-class	hai.k'a.si	pleat	p'i.lit S '92
blender	p'en.ta S '92	plum	pow.lamY '93
strawberry	sitawpeley Y '93	print	p'i.lin S '92

proton	pow.ton S 92
price	p'ay.si S 92

exceptions

friend	fɛn	dacron	dik.k'ek.loɛŋ
gross	lɔ	brandy	pɛt.lan.tei
		clutch	kik.lik.tsi

- contrast between fluke -> fuluk vs. place -> p'ei.si or blonde -> pi.lan vs. blender -> p'en.ta is striking. Why should deletion of [l] depend on whether or not the word ends in [s]? (cf. OT's "global comparison")
- assuming that simplification of CR clusters eliminates the minimally salient R, this process must be blocked until the disyllabic phonotactic from the Operative stage is imposed--inconsistent with Silverman's model.

11. Tone: Lai (2004)

- syllable with major stress in English assigned 55
- final unstressed varies between 21 and 35 (latter reflects a floating H suffix)
- pretonic has 22

examples

- monosyllables: 63 of 70 monosyllables take 55

card	kha:t 55
lift	lip 55
tie	tha:i 55

- SW disyllables

boxing	pɔk 55 siŋ 35
party	phat 55 ti 21
partner	pa:t 55 la: 35/21

- WS

cologne	kɔ 22 luŋ 55
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- epenthetic vowels

bus	pa: 55 si 35	stamp	si22 ta:m 55
cash	khe: 55 sy 21	store	si22 tɔ 55
cream	kei 22 lim 55	custard	kAt55si22ta35

Cantonese vowel system (Bauer 1997)

high	i:	y:	u:
closed	e	ø	o
open	ɛ:	œ:	ɔ:
central		ɐ	
		a:	
glide	j		w

- no long/short contrast independent of timbre; is basic contrast one of quality or quantity?
- long vowels outnumber short
- short vowels barred from open syllable: *CV (bimoraic)

Rhyme table (Bauer 1997)

Table 1:29 56 Cantonese rimes.

	-j (-y)	-w	-m	-n	-ŋ	-p	-t	-k
i	—	i:w [i:w]	i:m [i:m]	i:n [i:n]	—	i:p [i:p]	it [i:t]	—
y	—	—	—	y:n [y:n]	—	—	yt [y:t]	—
e	—	—	—	—	e:ŋ [e:ŋ]	—	—	ek [e:k]
e*	e:j [e:j]	—	—	—	—	—	—	—
ɛ	—	—	ɛ:m [ɛ:m]	ɛ:n [ɛ:n]	ɛ:ŋ [ɛ:ŋ]	ɛ:p [ɛ:p]	ɛ:t [ɛ:t]	ɛ:k [ɛ:k]
ɛ*	—	ɛ:w [ɛ:w]	—	—	—	—	—	—
œ	—	—	—	—	œ:ŋ [œ:ŋ]	—	—	œ:k [œ:k]
ø*	ø:y [ø:y]	—	—	ø:n [ø:n]	—	—	ø:t [ø:t]	—
ø*	ø:j [ø:j]	ø:w [ø:w]	ø:m [ø:m]	ø:n [ø:n]	ø:ŋ [ø:ŋ]	ø:p [ø:p]	ø:t [ø:t]	ø:k [ø:k]
a	a:j [a:j]	a:w [a:w]	a:m [a:m]	a:n [a:n]	a:ŋ [a:ŋ]	a:p [a:p]	a:t [a:t]	a:k [a:k]
u	u:j [u:j]	—	—	u:n [u:n]	—	—	u:t [u:t]	—
o*	o:w [o:w]	—	—	—	o:ŋ [o:ŋ]	—	—	ok [o:k]
o*	—	ow [ow]	—	—	—	—	—	—
ɔ	ɔ:j [ɔ:j]	—	—	ɔ:n [ɔ:n]	ɔ:ŋ [ɔ:ŋ]	—	ɔ:t [ɔ:t]	ɔ:k [ɔ:k]

*Asterisked vowels in the above table do not occur as independent rimes in open syllables.

Gaps in core vocabulary

- round vowels do not combine with labial consonants: *[-cons, +labial] [+cons, +labial]
- front mid vowels do not combine with labials or dentals: *[-high,-low,-back] [+cons, +anterior]
- high vowels do not combine with velars while closed mid vowels are only found before velars and so closed mid vowels are usually treated as allophones of high vowels
- constraints:
 - a). OK: * [-cons, +labial] [+cons, +labial]
 - b). *ET: *[-high,-low,-back] [+cons, +anterior]
 - c). *[+high] [+cons, +high] >> *[-high, -low, -back, +ATR]

Base-line vowel correspondences-1 Open syllable

<u>English</u>		<u>Cantonese</u>	
[i:]	CD	[i:]	sī:fi:
[u:]	boot	[u:]	pū:t
[e:]	ATM	[ēj]	ējthī:ē:m
	gay		kēj
[o:]	OK	[ōw]	ōwkhēj
[a:]	bar	[a:]	pā:
[aj]	IQ	[a:j]	ā:jkhī:w
	high		hā:j
	pie	[ej]	phēj
[aw]	foul	[əw]	fēw

Base-line vowel correspondences-2 Closed syllable

<u>English</u>		<u>Cantonese</u>	
[ɪ]	kid	[i:]	khī:t
	pin		phí:n
	lift		lī:p
[ɛ]	chemistry	[ɛ:]	khē:m (Kiu)
	sex		sē:ksi: 22/*
	to check		tshē:k
	set	[0]	sət
[ʌ]	fun	[e]	fēn

Matching vowel quality over length

/ch/ε/ck/	<u>Id-quality</u>	<u>Id-length</u>
> tshɛ:k		*
tshek	*	
tskɛk	*	

Phonotactic Constraint-1: *ET

a.	[ɛ]	cents	[i:]	sī:nsi:
		pence		pi:nsi: 22-22
		cassette	[e]	ka:sek
		cheque		tsek C&K
		offset		ɔ:sek
b.	[æ]	jam		tsi:m C&K
	[ɛ]	Benz	[ɛ:]	pē:nsí:
		to check		tse:k C&K
	[æ]	cancer	[ɛ:]	khē:nsá:
		jam		tsē:m
		band		pē:n

/p[ɛ]nce/	<u>*ET</u>	<u>OK</u>	<u>Id-[high]</u>	<u>Id-Coda</u>
> pi:nsi:			*	
pe:nsi:	*			
pensi:		*		
/ch[ɛ]que/				
> tshek			*	
tshi:k			**	
tshɛ:k	*			
/offs[ɛ]t/				
> sek			*	*
se:t	*			
si:t			**	

/B[ɛ]nz/	<u>Id-[high]</u>	<u>Id-Coda</u>	<u>*ET</u>
> pe:nsi:			*
pi:nsi:	*		
peŋsi:		*	

Phonotactic Constraint-2: Labial

- om

chloroform	kəlɔfɔŋ	K & S
zombie	sɔŋbej	
ohm	ɐwmow	

- deflect [ɒ] > [ɔ:]

[ɒ]	boxing	[ɔ:]	pɔ:kseŋ
	cocktail		kɔ:ktē:
	franc		fatlɔ:ŋ

[ɒ]	copy	[ɐ]	khēpphí:
	CompLit		khēmli:t
	composition		khēmphów
	ping-pong ball		pēŋpēm-pɔ:

- heterorganic NC

hamburger	hɔ:nbow
rumba	lɔe:nba:

- heterorganic coda filler

spring	sibitliŋ
cookie	khōkkhi:
Fascism	fetsaisi
gaberdine	gapba:din

romance	lɔŋma:nsi
sauna	sɔ:ŋna: (21)
mummy	mukna:i ji

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