

# Hypercorrection and Lexical Representation

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# Introduction

## English r-patterns in Massachusetts and RP

a.	[sɔ:]	‘soar’	[sɔ:ɹɪŋ]	‘soaring’
	[tʃu:nə]	‘tuner’	[tʃu:nəɹɪnoɪl]	‘tuner in oil’
	[kɑ:]	‘car’	[kɑ:ɹɔ:bɑɪk]	‘car or bike’
b.	[sɔ:]	‘saw’	[sɔ:ɹɪŋ]	‘sawing’
	[tʃu:nə]	‘tuna’	[tʃu:nəɹɪnoɪl]	‘tuna in oil’

# Introduction

Hyper-rhoticity in Massachusetts, New York ...

- a. [aɪdɪəɪ]                      ‘idea’
- b. [wɒɹʃɪŋtən]                ‘Washington’
- c. [klɒɹθ]                        ‘cloth’

This type of hyper-rhoticity is mostly found in accents which have been non-rhotic and return to rhoticity (under pressure from General American).

Southern US English underwent the same re-change, but didn't have intrusion and doesn't show hyper-rhoticity.

# Introduction

- There is no good phonological analysis of hyperrhhoticity.
- Why does hyperrhhoticity occur?
- How?
- What does this tell us about lexical representations?
- What does this tell us about the acquisition of lexical representations?

# Introduction

## Answers

- Hyperrhoticity is a subcase of overgeneralisation:
- After detecting regular phonological patterns learners overgeneralise application;
- Learners also (over)generalise ‘undoing’ of processes: Nonalternating morphemes take free rides on alternations in other morphemes.
- Hyperrhoticity emerges as a side effect of the acquisition of underlying forms.
- Learners of intrusion accents make an overgeneralisation which affects the whole lexicon.
- This overgeneralisation becomes only visible when these speakers switch to rhotic English later on.
- Underlying representations can be quite weird.

# Introduction

## Overview

- The problem with /r/s.
- Theoretical background
  - Taking a Free Ride
  - Acquiring an OT constraint ranking
- An analysis of r intrusion
- Emergent hyperrhhoticity
- Conclusions

# The problem with alternating r's

Wells' (1982) insertion rule:

$\emptyset \rightarrow r / V_{[-high]} \_$

OT has a problem: This is apparently unmotivated insertion.

Constraints exerting pressure to epenthesize:

Onset

Final-C

\*Coda

AlignR(stem,syllable)

\*Complex

...

...

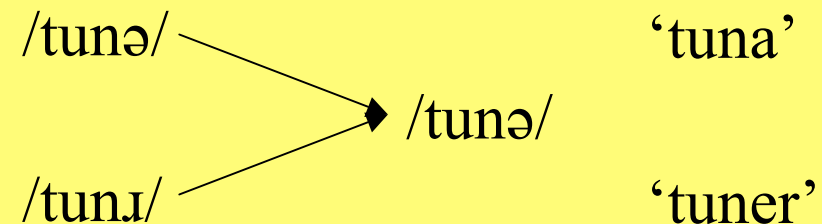
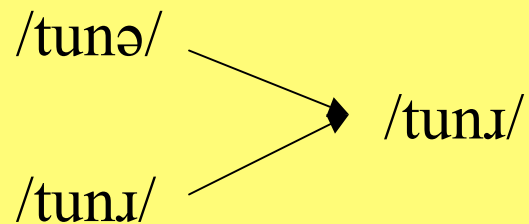
# The problem with alternating r's

A universal loser wins.

/kɫɔθ/	Max	*Coda	*Complex	Final-C	Dep
kɫɔθ		*			
? kɫɔɹθ		*	*		*

# The problem with alternating r's

Lexical distinction between r-less and r-containing forms cannot be maintained in intrusion dialects. (Gick 2004)



Learners of southern accents don't have this problem.

# The problem with alternating r's

McCarthy (1993): Speakers show knowledge of distinct URs in some cases.

[ældʒəbrə]    [ældʒəbrɛjɪk]    \*[ældʒəbræɪk]    ‘algebra/ic’

[hɔʊmə]    [hɔʊmɪjɪk]    ‘Homer/ic’

In such cases speakers use orthographic information to get to the output forms. (See as well Nevins & Vaux 2007)

## The problem with alternating r's

- It looks like speakers store all forms with alternating r as containing r lexically. But why?
- And why should anybody store a non-alternating morpheme with /r/? (kɪvɪθ)
- Combination of Free Ride and
- acquisition of a maximally restrictive grammar.

# The Sporadic Enchilata Syndrome: Taking a Free Ride

Zwicky 1970, McCarthy 2004

a. /A/ -> [B]/\_\_C

b. [BC] -> /AC/

On detecting a regular alternation all instances identical to the output of the process in the context where it applies are stored as the input of the process.

Example of a visible Free Ride: Hypercorrection of flapping by Americans (Nevins & Vaux 2007).

Result: enchila[t]a for enchila[r]a 'enchilada'

# Taking a Free Ride

McCarthy (2004): Free ride works only with complete neutralisation, not with positional neutralisation.

But...

German children take an illegal ride now and then.

	Adult	Child	
a.	lustig [ç] lustige [g]	lustig [ç] lustige [g]	'funny'
b.	schrecklich [ç] schreckliche [ç]	schrecklich [ç] schreckliche [g]	'horrible'

# Taking a Free Ride

Compare this with common overgeneralisation

		Adult	Child	
a.	Nuss	Nüsse	Nüsse	'nut/s'
	rot	Röte	Röte	'red/ness'
b.	Bus	Busse	Büsse	'bus/es'
	Brot	Brote	Bröte	'bread/s'
c.	Toast	Toasts	Töste	'toast/s'

Overgeneralisation = overapplication of a process

Free Ride = over-undoing of a process

# Some OT principles in acquisition

- Initial ranking  $H_0 = M \gg F$
- Learning a grammar = Constraint demotion  
Error-driven demotion of constraints fans out the two strata into a multi-stratal hierarchy
- Restructuring of inputs occurs when reranking options are exhausted.  
Reason 1: Detected optimal candidate cannot yet be determined as output  
Reason 2: check for potential r-measure increase

# Some OT principles in acquisition

- The r-measure  
The r-measure for a constraint hierarchy is determined by adding, for each faithfulness constraint in the hierarchy, the number of markedness constraints that dominate that faithfulness constraint. (Tesar & Prince 2004: 252)
- Faithfulness Delay  
On each pass, among those constraints suitable for membership in the next stratum, if possible place only *markedness constraints*. Only place faithfulness constraints if no markedness constraints are available to be placed in the hierarchy.

# An intrusive grammar

- Following Bermudez-Otero (2006), Krämer (2008):
  - r-dropping is vocalisation/coalescence (depending on the preceding vowel)
  - r-intrusion is breaking of lax non-high vowels
- Following Itô & Mester (2007), r-insertion is triggered by Onset (rather than Final-C, as proposed by McCarthy 1993)

# An intrusive grammar

## Constraints: Faithfulness

- Max: No deletion. (Ranks high, /r/ is never literally deleted.)
- Dep-C: No insertion. (Ranks high, low glide formation preferred over C insertion.) (We will also need Dep-V.)
- Uniformity ‘No coalescence.’  $*/\vartheta_1 r_2/ \rightarrow [\vartheta_{1,2}]$
- Integrity ‘No breaking.’  $*/\vartheta_1/ \rightarrow [\vartheta_1 r_1]$
- Ident(cor)
- IdentOnset(cor)

# An intrusive grammar

Constraints: Markedness

- Onset
- \*r

Intrusive ranking  $H_{\text{Final}}$ :

Onset, Dep-C  $\gg$  IdO, Max  $\gg$  \*r  $\gg$  Uniformity, Integrity,  
Ident, Dep-V

# An intrusive grammar

r-dropping as coalescence

	/tu:nə <sub>1</sub> /	Onset	Dep-C	IdO	Max	*r	Uniform	Integrity	Ident	Dep-V
a.	tu:nə <sub>1</sub> r <sub>1</sub>					*!				
b.	tu:nə <sub>1</sub> r <sub>2</sub>					*!				
☛ c.	tu:nə <sub>1,2</sub>						*		*	
d.	tu:nə <sub>1</sub>					*!				
e.	tu:nə <sub>1</sub> r <sub>2</sub> ə <sub>3</sub>					*!				
f.	tu:nə <sub>1</sub> r <sub>2</sub> ə <sub>2</sub>					*!		*		20

# An intrusive grammar

Intrusion as breaking

	/tu:nə in/	Onset	Dep-C	IdO	Max	*r	Uniform	Integrity	Ident	Dep-V
☛ a.	tu:nə <sub>1</sub> .ɹ <sub>1</sub> in			*		*		*	*	
b.	tu:nə <sub>1</sub> .ɹ <sub>2</sub> in		*!			*				
c.	tu:nə <sub>1</sub> ɹ <sub>2</sub> in		*!							
d.	tu:nə <sub>1</sub> in	*!								

# Acquiring an intrusive grammar

Initial ranking  $H_0$ :  $M \gg F$

Onset, \*r  $\gg$  Dep-C, IdO, Max, Uniformity, Integrity, Ident, Dep-V

Target ranking  $H_F$ :  $M \gg F \gg M \gg F \dots$

Onset, Dep-C  $\gg$  IdO, Max  $\gg$  \*r  $\gg$  Uniformity, Integrity, Ident, Dep-V

# Acquiring an intrusive grammar

Step 1: Encounter r in onsets

	$/r_1 a_2 \text{Id}/$	Onset	*r	IdO	Max	Dep-C	Uniform	Integrity	Ident	Dep-V
a.	$\text{Id} \text{Id} \succ a_{1,2} \text{Id}$	W	L	W			W		W	
b.	$\text{Id} \text{Id} \succ a_2 \text{Id}$	W	L		W					
c.	$\text{Id} \text{Id} \succ w_1 a_2 \text{Id}$		L	W					W	
d.	$\text{Id} \text{Id} \succ ? a_2 \text{Id}$		L		W	W				
e.	$\text{Id} \text{Id} \succ ?_1 a_2 \text{Id}$		L	W					W	

# Acquiring an intrusive grammar

Result of step 1:

	$/\mathbf{r}_1 a_2 \text{Id}/$	Onset	IdO	Max	*r	Dep-C	Uniform	Integrity	Ident	Dep-V
a.	$\mathbf{r} a \text{Id} \succ a_{1,2} \text{Id}$	W	W		L		W		W	
b.	$\mathbf{r} a \text{Id} \succ a_2 \text{Id}$	W		W	L					
c.	$\mathbf{r} a \text{Id} \succ w_1 a_2 \text{Id}$		W		L				W	
d.	$\mathbf{r} a \text{Id} \succ ? a_2 \text{Id}$			W	L	W				
e.	$\mathbf{r} a \text{Id} \succ ?_1 a_2 \text{Id}$		W		L				W	

# Acquiring an intrusive grammar

In the meantime:

Save surface forms as URs

(e.g., /t<sup>(j)</sup>u:nə/ for both 'tuner' and 'tuna').

Step 2: Learner encounters r alternation.

# Acquiring an intrusive grammar

Step 2: r alternation

	/tu:nə in/	Onset	IdO	Max	*r	Dep-C	Uniform	Integrity	Ident	Dep-V
☹ a.	tu:nə <sub>1</sub> r <sub>1</sub> in		*!		*			*	*	
b.	tu:nə <sub>1</sub> r <sub>2</sub> in				*!	*				
💣 c.	tu:nə <sub>1</sub> ? <sub>2</sub> in					*				
d.	tu:nə in	*!								

# Acquiring an intrusive grammar

Step 2: r alternation

	/tu:nə in/	Onset	IdO	Max	*r	Dep-C	Uniform	Integrity	Ident	Dep-V
a>b	tu:nə <sub>1</sub> r <sub>1</sub> in > tu:nə <sub>1</sub> r <sub>2</sub> in		L			W		L	L	
a>c	tu:nə <sub>1</sub> r <sub>1</sub> in > tu:nə <sub>1</sub> ? <sub>2</sub> in		L		L	W		L	L	
a>d	tu:nə <sub>1</sub> r <sub>1</sub> in > tu:nə in	W	L		L			L	L	

# Acquiring an intrusive grammar

Result of step 2: r intrusion learned successfully

	/tu:nə in/	Onset	Dep-C	IdO	Max	*r	Uniform	Integrity	Ident	Dep-V
a.	tu:nə <sub>1</sub> r <sub>1</sub> in			*		*		*	*	
b.	tu:nə <sub>1</sub> r <sub>2</sub> in		*!			*				
c.	tu:nə <sub>1</sub> ? <sub>2</sub> in		*!							
d.	tu:nə in	*!								

# Acquiring an intrusive grammar

At this point all data are exhausted. No rerankings are possible.

Unless the learner changes all URs on the basis of the detected alternation.

- |    |          |   |           |          |         |
|----|----------|---|-----------|----------|---------|
| a. | /tʃu:nə/ | → | /tʃu:nəɪ/ | [tʃu:nə] | ‘tuna/  |
| b. | /tʃu:nə/ | → | /tʃu:nəɪ/ | [tʃu:nə] | tuner’  |
| c. | /kɑ:/    | → | /kɑ:ɪ/    | [kɑ:]    | ‘car’   |
| d. | /kɫɒθ/   | → | /kɫɒɪθ/   | [kɫɒθ]   | ‘cloth’ |

# Acquiring an intrusive grammar

Learning continues. New URs set free new candidates

	/tu:nəɪ/	Onset	Dep-C	IdO	Max	*r	Uniform	Integrity	Ident	Dep-V
a.	tu:nə <sub>1</sub> ɹ <sub>2</sub>					*!				
b.	tu:nə <sub>1</sub>				*!					
☛ c.	tu:nə <sub>1,2</sub>						*		*	
d.	tu:nə <sub>1</sub> ɹ <sub>2</sub> ə <sub>3</sub>					*!				*
e.	tu:nə <sub>1</sub> ɹ <sub>2</sub> ə <sub>2</sub>					*!		*		

# Acquiring an intrusive grammar

Learning continues

	/tu:nəɪ/	Onset	Dep-C	IdO	Max	*r	Uniform	Integrity	Ident	Dep-V
a.	tu:nə <sub>1,2</sub> › tu:nə <sub>1</sub> ɹ <sub>2</sub>					W	⌋			
b.	tu:nə <sub>1,2</sub> › tu:nə <sub>1</sub>				W		⌋			
c.	tu:nə <sub>1,2</sub> › tu:nə <sub>1</sub> ɹ <sub>2</sub> ə <sub>3</sub>					W	⌋			W
d.	tu:nə <sub>1,2</sub> › tu:nə <sub>1</sub> ɹ <sub>2</sub> ə <sub>2</sub>					W	⌋	W		

# Acquiring an intrusive grammar

	/klɒɹθ/	Onset	Dep-C	IdO	Max	*r	Uniform	Integrity	Ident	Dep-V
a.	klɒɹθ					*!				
☛ b.	klɒ <sub>1,2</sub> θ						*		*	
c.	klɒ <sub>1</sub> θ				*!					
●* d.	klɒ <sub>1</sub> ə <sub>2</sub> θ								*	
e.	klɒ <sub>1</sub> ɹ <sub>2</sub> ə <sub>3</sub> θ					*!				*
f.	klɒ <sub>1</sub> ɹ <sub>2</sub> ə <sub>2</sub> θ					*!		*	*	

For non-New Yorkers an additional M constraint becomes relevant (\*Centring Diphthong).

# Acquiring an intrusive grammar

Learning continues

	/tu:nəɪ in/	Onset	Dep-C	IdO	Max	*r	Uniform	Integrity	Ident	Dep-V
☛ a.	tu:nə <sub>1</sub> ɹ <sub>2</sub> in					*				
b.	tu:nə <sub>1</sub> ɹ <sub>1</sub> in				*!	*		*		
c.	tu:nə <sub>1</sub> ʔ <sub>2</sub> in		*!							
d.	tu:nə <sub>1</sub> in	*!								

# Interim summary

- The learner didn't gain much by changing URs.
- S/he could have established further rankings between low ranked non-decisive constraints.
- Accessing new I-O maps s/he has tested her grammar for restrictiveness.

# Shifting to rhotic English

What happens if such a speaker wants to become rhotic?

Intrusion ranking  $H_I$ :

Onset  $\gg$  Dep-C  $\gg$  IdO, Max  $\gg$  \*r  $\gg$  Uniformity, Integrity, Ident, Dep-V

Target ranking  $H_T$ :

Onset  $\gg$  Dep-C  $\gg$  IdO, Max  $\gg$  Uniformity, Integrity, Ident, Dep-V  $\gg$  \*r

# Shifting to rhotic English



	/kɑɪ/	Onset	Dep-C	IdO	Max	*r	Ident	Integrity	Uniform	Dep-V
⊙ a.	kɑɪ					*!				
☛ b.	kɑ <sub>1,2</sub>						*		*	
c.	kɑ <sub>1</sub>				*!					
d.	kɑ <sub>1</sub> ɪ <sub>2</sub> ə <sub>3</sub>					*!		*		
e.	kɑ <sub>1</sub> ɪ <sub>2</sub> ə <sub>2</sub>					*!	*			*

# Shifting to rhotic English

	/kaɪ/	Onset	Dep-C	IdO	Max	*r	Ident	Integrity	Uniform	Dep-V
b.	kaɪ > ka <sub>1,2</sub>					L	W		W	
c.	kaɪ > ka <sub>1</sub>				W	L				
d.	kaɪ > ka <sub>1</sub> r <sub>2</sub> ə <sub>3</sub>									W
e.	kaɪ > ka <sub>1</sub> r <sub>2</sub> ə <sub>2</sub>						W	W		

# Shifting to rhotic English

	/kɑɪ/	Onset	Dep-C	IdO	Max	Ident	*r	Integrity	Uniform	Dep-V
☛ a.	kɑɪ						*			
☞ b.	kɑ <sub>1,2</sub>					*!			*	
c.	kɑ <sub>1</sub>				*!					
d.	kɑ <sub>1</sub> ɪ <sub>2</sub> ə <sub>3</sub>						*			*!
e.	kɑ <sub>1</sub> ɪ <sub>2</sub> ə <sub>2</sub>					*!	*	*		

# Shifting to rhotic English

	/kɫɒɹθ/	Onset	Dep-C	IdO	Max	Ident	*r	Uniform	Dep-V	Integrity
☛ a.	kɫɒɹθ						*			
b.	kɫɒ <sub>1,2</sub> θ					*!		*		
c.	kɫɒ <sub>1</sub> θ				*!					
d.	kɫɒ <sub>1</sub> ə <sub>2</sub> θ					*!		*		
e.	kɫɒ <sub>1</sub> ɹ <sub>2</sub> ə <sub>3</sub> θ						*		*!	
f.	kɫɒ <sub>1</sub> ɹ <sub>2</sub> ə <sub>2</sub> θ					*!	*			*

# Shifting to rhotic English

Rechanging some URs still leads to trouble.

	/tu:nə in/	Onset	Dep-C	IdO	Max	Ident	*r	Uniform	Dep-V	Integrity
a.	tu:nə in	*!								
b.	tu:nə <sub>1</sub> ? <sub>2</sub> in		*!							
☛ c.	tu:nə <sub>1</sub> ɹ <sub>1</sub> in					*	*			*

# Conclusion

- Hyperrhoticity is a side effect of UR restructuring during L1 acquisition and subsequent shift to L2
- Language learners use the Free Ride mechanism to change URs on encounter of regular alternations.
- McCarthy (2004): Free Ride serves to increase r-measure/restrictiveness of a grammar.

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