

Stylistic and phonological conditioning of rhoticity among Yunnan speakers of English

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OVERVIEW OF TALK

- ◎ Introduction
 - Definition of ‘rhoticity’
 - The significance of rhoticity in English
 - Aims of the study
- ◎ Part 1: Style variation
 - Examination of three types of speech material, in order to:
 - Broaden the kind of data used for studying Chinese English
 - Assess potential style variation, norms for rhoticity
- ◎ Part 2: Phonological context; vowel quality
 - Pilot study
 - Explore potential phonological conditioning of rhoticity, particularly concerning vowel quality

DEFINITION OF ‘RHOTICITY’

- ◉ Spoken varieties of English commonly classified as ‘rhotic’ or ‘non-rhotic’
- ◉ Depending on the set of phonological contexts in which an /r/-sound is heard/pronounced.
 - *Non-rhotic* accents: only pronounce an /r/ when it is followed by a vowel
 - *Rhotic* accents: in addition to pre-vocalic positions, also pronounce /r/ when it is followed by another consonant or occurs utterance-finally

	<i>carry</i>	<i>cart</i>	<i>car</i>	
Non-rhotic:	/r/	--	--	Contexts of interest for the present paper
Rhotic:	/r/	/r/	/r/	

- ◉ Thus, the distinction between rhotic and non-rhotic accents concerns a *phonotactic* difference.
- ◉ Of course, there is commonly additional variation regarding the *phonetic realization* of /r/, or the way the /r/ “sounds”.

SIGNIFICANCE OF RHOTICITY IN ENGLISH

- ◉ Salience: arguably one of the most salient pronunciation features across the English-speaking world
- ◉ Diachronic change: Diversity, especially among Inner Circle Englishes (ICE), in many cases related to historical sound changes
- ◉ Current change: undergoing change; for instance, sharp decline in non-rhoticity in the US South
- ◉ Commonly considered in traditional dialectology but understudied outside the Inner Circle
- ◉ The development of rhoticity in Expanding Circle Englishes (ECE) is an open question; probably affected by a number of factors, issues discussed within the World Englishes (WE) field

RHOTICITY IN INNER CIRCLE ENGLISHES

- Primarily non-rhotic:
 - Most of England (exceptions Southwest and parts of the Midlands), Wales; Southern hemisphere, such as Australia and New Zealand mostly non-rhotic; Certain areas of the southern and eastern USA (in decline).
- Primarily rhotic:
 - Inner Circle varieties elsewhere predominantly rhotic, including Scotland, Ireland, the USA and Canada.
- Reflect differences in historical developments, in particular the loss of rhoticity, a process which some claim may have begun sporadically as early as in the 15th century

RHOTICITY IN OUTER CIRCLE ENGLISHES

- Challenging to provide true, concise statements about rhoticity for Outer Circle Englishes (OCE). Often considerable variation within regional or nation-based varieties, along such dimensions as first language (L1), proficiency, and style; in many cases also a lack of empirical research.
- However, among varieties suggested to be mostly rhotic are:
 - Indian English (Gargesh 2004: 998–999; Wells 1982: 629)
 - Pakistani English (Mahboob & Ahmar 2004: 1010)
 - Philippine English (Wells 1982: 648; Mesthrie & Bhatt 2008: 128; Mesthrie 2004: 1107).
- Most others considered to be primarily non-rhotic, including:
 - Within Asia: Malaysia and Singapore (Deterding 2007: 21)
 - Within Africa: both West Africa (Nigeria (Gut 2004: 822), Ghana (Huber 2004: 860), Liberia (Singler 2004: 881–882; Wells 1982: 635)) and East Africa (Kenya, Uganda, Tanzania (Schmied 2006: 193)).

RHOTICITY IN EXPANDING CIRCLE ENGLISHES

- ⦿ Rhoticity among Expanding Circle Englishes under-studied; for many parts of the world, the facts, including the patterns of variation are not known.
- ⦿ As a consequence, statements in available reference sources (handbooks, overview chapters etc.) tend to be general and vague in this regard.
- ⦿ Need for more detailed specifications, examples, and empirical data.
- ⦿ Growing interest in rhoticity in the study of Expanding Circle Englishes:
 - In discussions concerning the influence, relevance, and normative role of British vs. American English.
 - In discourses concerning ‘Americanization’; rhoticity put forward as a sign of the increasing influence of not only American English but also American media and culture.

THE FUTURE OF RHOTICITY IN ECE:s

- How the various, possibly emerging Englishes in the Expanding Circle will develop with regard to rhoticity is still very much an open question, and a highly complex one too.
- Accounts of ECEs, to be meaningful, must specify, as closely as possible, the type of speaker concerned.
- General statements about nation-based varieties are often premature.
- For instance, concerning ‘Chinese English’, recent estimates point towards 400 million learners at present in Mainland China (Wei & Su 2012).
- It stands to reason, then, that no one is yet able to provide valid, empirically-supported generalizations for such an entity as a whole.

FUTURE OF RHOTICITY IN ECE:s: SOME SIGNIFICANT FACTORS

- Future development of rhoticity will be influenced by a complex set of factors, including potentially the following.
- External norms
 - Inner Circle norms and teaching models will probably continue to play a role for some time in many parts of the world.
 - Norms based on British and American English, as well as on-going changes in their perceived prestige, will remain a significant factor.
- Exposure, “consumption” of English
 - The exposure to English outside formal education may also have an impact on rhoticity; media, such as the internet, TV, film, games etc.

FUTURE OF RHOTICITY IN ECE:s: SOME SIGNIFICANT FACTORS

- ⦿ The speakers' linguistic background: L1(s), other languages spoken
- ⦿ Transference, substratum effects
 - Rhoticity likely subject to transference effects, phonotactic constraints etc. of L1s as well as other languages spoken.
 - For many countries, regions, the issue will be further complicated by multilingual and multidialectal diversity.

AIMS OF THE PRESENT STUDY

- ◉ Examine rhoticity in a sample of speakers from Yunnan Province (southwest China), as a possible exponent of ‘Chinese English’
- ◉ Examine speech tasks, and types of speech data, hitherto not commonly considered in studies on Chinese English pronunciation; studies have thus far relied heavily on reading material.
- ◉ Assess potential style variation for rhoticity (or rhoticization)
- ◉ Assess potential phonological conditioning of rhoticity



PART 1: STYLE VARIATION

SPEAKERS

- ◉ 7 women, 1 man
- ◉ Age: 20-22
- ◉ Students at Yunnan Normal University, majoring in Teaching Chinese as a Foreign Language
- ◉ Exchange students, recorded at Dalarna University, Sweden
- ◉ Only one had previously been outside Mainland China.
- ◉ Five of Han ethnicity; the remaining from the Bai, Hui and Zhang ethnic groups.
- ◉ All eight informants reported to speak only one particular dialect of Mandarin (Yunnan) and Putonghua, with no knowledge of potential heritage languages.
- ◉ As part of their degree program, all eight had studied Thai for approximately one year.

SPEECH MATERIAL

- Elicitation of speech data by means of three tasks:
 - An (informal) interview (20 minutes)
 - A dialectological-type questionnaire (containing indirect questions)
 - A reading passage ('The Boy who Cried Wolf')
- Task selected to represent three potentially different speech styles
- Administered in the order interview-questionnaire-reading for all informants.

RECORDING PROCEDURE

- ⦿ Recorded in a quiet office (Dalarna University, Sweden)
- ⦿ Field memory recorder (Fostex FR-2LE), external high-quality (condenser) microphone
- ⦿ 48 kHz, 24-bit
- ⦿ A digital, searchable speech corpus of ‘Yunnan English’ compiled, consisting of 15 hours of speech.
- ⦿ Speech corpus designed using Praat software (Boersma & Weenink 2010).
- ⦿ All material transcribed orthographically, including the interviews, the entire elicitation sessions for the questionnaire, and the readings of the ‘Wolf’ passage
- ⦿ Multiple tiers in Praat; separate tiers for orthographic transcription and phonetic transcription.

ANALYTICAL PROCEDURE

- ⦿ Relevant context: postvocalic /r/s followed by either a consonant or a pause.
- ⦿ In Part 1 of the study (on style variation), contexts in which a potential /r/ was preceded by a centring diphthong were excluded from analysis.
- ⦿ This was done to increase the reliability of the auditory analysis, as it is often particularly challenging to distinguish centring diphthongs from rhoticized vowels (see e.g. Salbrina & Deterding 2010 for similar arguments and decision)

ANALYTICAL PROCEDURE

- 412 relevant word tokens identified
- Assessed independently by two trained phoneticians as: (i) ‘rhotic’, (ii) ‘non-rhotic’, or (iii) ‘indeterminate as regards rhoticity’; by auditory analysis
- Tokens deemed (iii) ‘indeterminate as regards rhoticity’ by one or both analysts excluded from further analysis: 17 or 4.1% of all available tokens.
- Among the remaining 395 tokens, those that the two analysts disagreed on with respect to (i) ‘rhotic’ vs. (ii) ‘non-rhotic’ were also excluded from further analysis: This was the case for 12 tokens (3% of 395)
- This procedure yielded an inter-rater agreement level of 97%.
- The resulting set of tokens ($395 - 12 = 383$) is used to calculate numeric measures of rhoticity.
- **NOTE: All figures presented below are based on (a) the % of ‘rhotic’ tokens vs. (b) the % of ‘non-rhotic’ tokens, with (a) and (b) adding up to 100%.**

Total number of relevant tokens in the ‘Yunnan English’ corpus:	412
Total number of indeterminate tokens:	17 (4.1% of 412)
Total number of tokens–indeterminate tokens:	395 (412–17)
Inter-rater disagreement regarding (i) ‘rhotic’ vs. (ii) ‘non-rhotic’:	12 tokens; 3% of 395
Inter-rater agreement:	97% (383/395)
Total number of words used for the quantitative assessment of rhoticity in ‘Yunnan English’:	383

Table 1: Word tokens and analytical procedure

PHONETIC REFLEXES OF RHOTICITY

- The phonetic reflexes of rhoticity, in the phonological contexts under investigation, vary within the present data set.
- In the vast majority of cases it consists primarily of an ‘r-coloured’ (rhoticized) vowel, which may be seen acoustically as a lowered F3.
- The timing of rhoticization varies: it may be sustained throughout the entire vowel or apply sometime into the vocalic segment.
- In some instances rhoticity also involved a distinct /r/-segment after the vowel.
- Occasionally, it involved a combination of r-colouring and a distinct /r/-segment.
- Given these complexities, the decision was made not to attempt to distinguish among the phonetic variants. The presence of any of these features, or combination of them, which gave an auditory impression of rhoticity, yielded a classification of the token as ‘rhotic’.

RESULTS

RESULTS: OVERALL STYLE DIFFERENCES

Tasks	Mean	N	Std. Deviation	Std. Error Mean
Interview	.3846	8	.27101	.09582
Reading	.4506	8	.32129	.11359
Questionnaire	.6489	8	.38061	.13457

Table 2: Rhoticity in the 3 tasks

- General trend degree of rhoticity: interview (38.5%) < reading (45.1%) < questionnaire (64.9%)

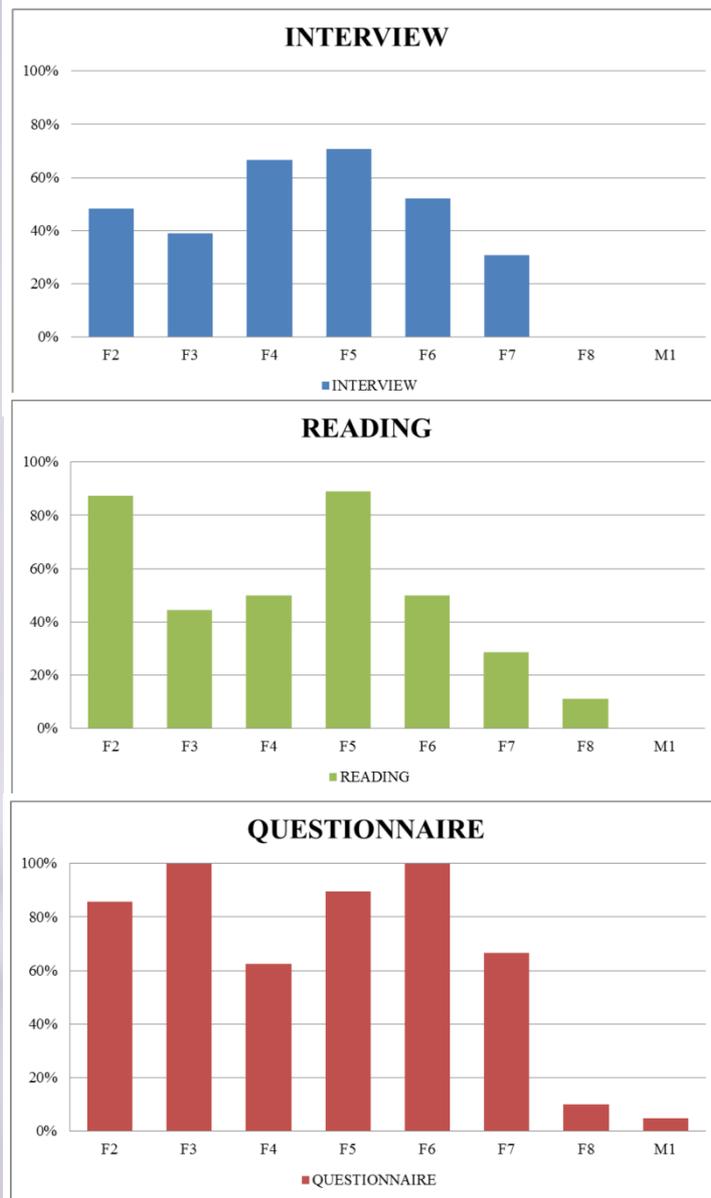
		Paired Samples Correlations			Paired Samples <i>t</i> -test	
		N	Correlation	Sig.	t	Sig. (2-tailed)
Pair 1	interview : reading	8	.854	.007	-1.118	.300
Pair 2	reading : questionnaire	8	.776	.024	-2.323	.053
Pair 3	interview : questionnaire	8	.809	.015	-3.297	.013

Table 3: Paired-samples correlations and *t*-test for the 8 speakers and 3 tasks

- Statistical significance:
 - Questionnaire significantly different from interview ($p=0.013$)
 - Questionnaire *nearly* significantly different from reading ($p=0.053$)
 - Reading not significantly different from interview ($p=0.300$)

RESULTS: INTER- AND INTRA SPEAKER VARIATION

Table 4: Degree of rhoticity for the 8 informants across the 3 tasks (rounded off to the nearest 5%)



	Interview	Reading	Questionnaire
F2	50%	85%	85%
F3	40%	45%	100%
F4	65%	50%	60%
F5	70%	90%	90%
F6	55%	50%	100%
F7	30%	30%	65%
F8	0%	10%	10%
M1	0%	0%	5%

- General trajectory of variation: increase in rhoticity from interview to questionnaire:
 - Interview (“starting point”): **4 informants 50% and above**; 4 informants below 50%
 - Questionnaire (“end point”): **all informants except 2 display a majority of rhoticity**

Figure 1: Degree of rhoticity for the 8 informants across the 3 tasks

RESULTS: INTER- AND INTRA SPEAKER VARIATION

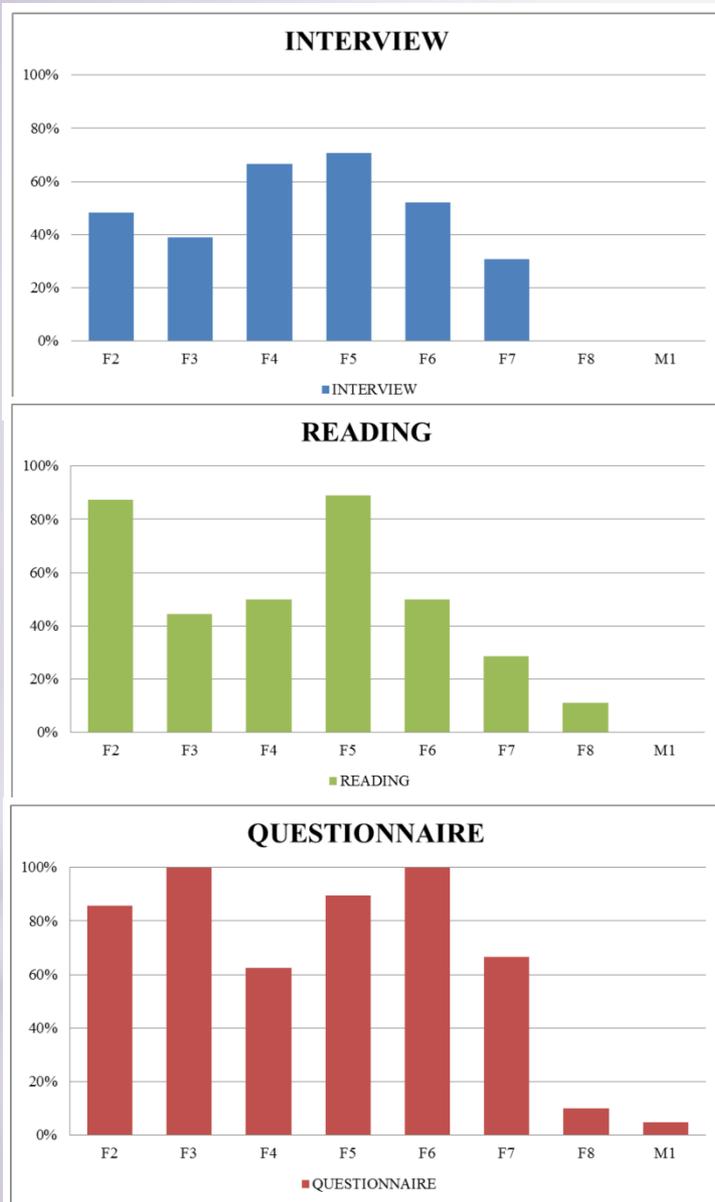


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F2	50%	85%	85%
F3	40%	45%	100%
F4	65%	50%	60%
F5	70%	90%	90%
F6	55%	50%	100%
F7	30%	30%	65%
F8	0%	10%	10%
M1	0%	0%	5%

◉ Stages of greatest increase along this trajectory:

- F2: Interview : Reading
- F3: Reading : Questionnaire
- F4: Fairly stable across tasks
- F5: Interview : Reading
- F6: Reading : Questionnaire
- F7 Reading : Questionnaire
- F8: Interview : Reading (small)
- M1: Reading : Questionnaire (very small)

Figure 1: Degree of rhoticity for the 8 informants across the 3 tasks

RESULTS: INTER- AND INTRA SPEAKER VARIATION

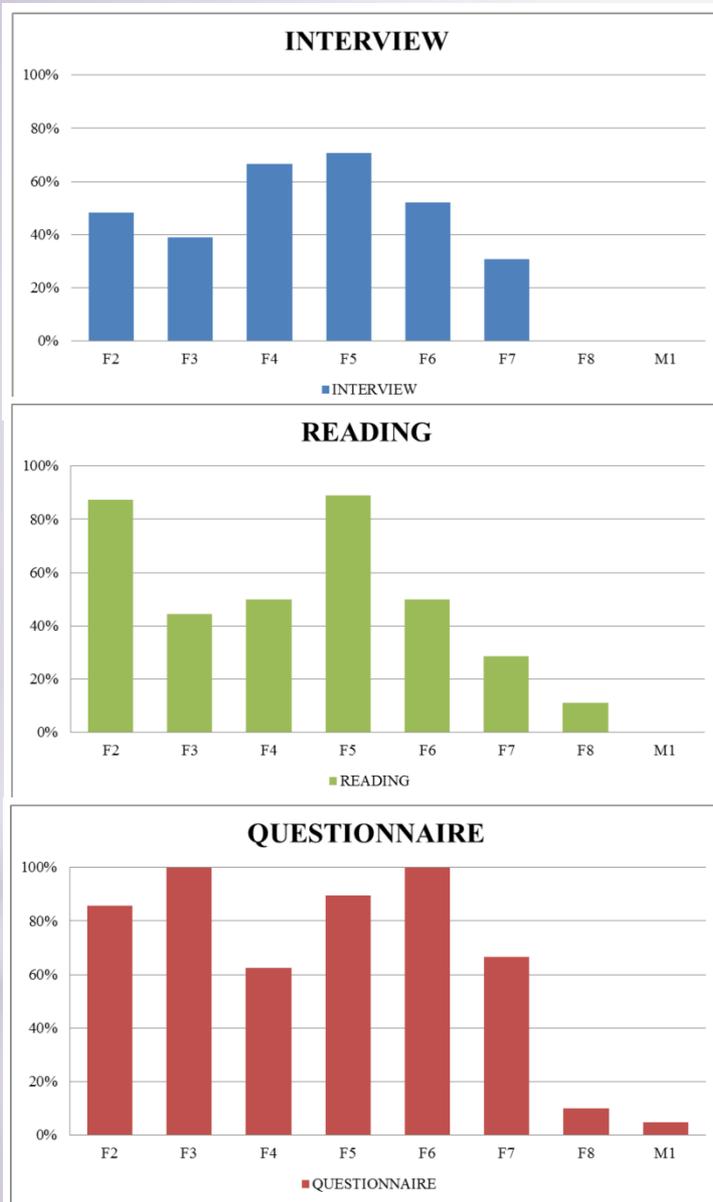


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F4	65%	50%	60%
F5	70%	90%	90%
F6	55%	50%	100%
F7	30%	30%	65%
F8	0%	10%	10%
M1	0%	0%	5%

- Broad sub-classification of the informants with regard to rhoticity:
 - 2 speakers firmly non-rhotic: F8, M1
 - 1 speaker principally rhotic: F5
 - 1 speaker 50/50 across all tasks: F4
 - 4 speakers (F2, F3, F6, F7) “start” at 30-55% rhoticity in the interview and reach 65-100% rhoticity in the questionnaire

Figure 1: Degree of rhoticity for the 8 informants across the 3 tasks

PART 2: CONTEXTUAL, PHONOLOGICAL VARIATION

AIMS OF PART 2

- ⦿ Exploratory study; pilot study
- ⦿ Examine potential phonological conditioning of rhoticity
- ⦿ Focus on the potential effect of the preceding vowel
 - Based on plausibility of transference effects (Mandarin rhoticized, retroflex vowel)
 - Based on informal observation, impressions by investigators

SPEAKERS

- ◎ Same *type* of speaker as for Part 1
- ◎ **BUT NOTE: These are two additional informants; they were not included in Part 1**
- ◎ 2 women
- ◎ Age: 20-22
- ◎ Students at Yunnan Normal University, majoring in Teaching Chinese as a Foreign Language
- ◎ Recorded at Dalarna University, Sweden; exchange students
- ◎ Han ethnicity
- ◎ As part of their degree program, they had studied Thai for approximately one year.

SPEECH MATERIAL

- Elicitation of speech data by means of four tasks:
 - An (informal) interview (20 minutes)
 - A dialectological-type questionnaire (indirect questions)
 - A reading passage ('The Boy who Cried Wolf')
 - **Sentence reading task (an addition to battery in Part 1)**
- The first three tasks are identical to those used in Part 1
- **However, the data from parts 1-3 have not yet been analyzed for the two additional speakers recruited for Part 2**
- **Thus Part 2 is based on data solely from the sentence reading task**

SPEECH MATERIAL

Potential vowel	Central vowel quality?	Lexical set (Wells 1982)	Pre-pausal	Pre-consonantal (Cs unlikely to be elided)
/ɪə/	Central	NEAR	ear, deer	beer, hear, fear
/eə/	Central	SQUARE	air, pear	bear, hair, pair
/ɜ:/	Central	NURSE	sir, fur	stir, occur, prefer
/ɑ:/		START	star, car	bar, far
/ɔ:/		NORTH, FORCE	floor, store	door, four, more
/ʊə/, /ɔ:/	(Central)	CURE	tour, cure	pure, secure
/aɪ(ə)/	(Central)	PRICE	fire, retire	hire, admire
/ɔɪ(ə)/	(Central)	CHOICE	lawyer, destroyer	employer
/aʊ(ə)/	(Central)	MOUTH	hour, power, shower	tower, flower, flour

Table 5: Target words and phonological contexts

- Target words selected, containing **pre-pausal** and **pre-consonantal** /r/ after all potential vowels and diphthongs
- Target words embedded in short sentences, e.g. “the king has a lot of power”
- Two contextual conditions:
 - Pre-pausal**: “the hunter shot a **deer**”
 - Pre-consonantal**: “I can **hear** two people in the room”; the following consonants are such that are less likely to be elided
- Filler sentences added; the set of target sentences and filler sentences mixed, randomized
- Dummy sentences added at the top and bottom of each column on the A4 paper
- Yielded a total of 84 sentences
- The sentence list read twice by each informant; sentences in two different randomized orders

ANALYTICAL PROCEDURE

- ◉ Same analytical protocol as for Part 1
- ◉ Informant F9:
 - 97 relevant tokens
 - 7 tokens indeterminate (97-7)
 - 6 tokens disagreement (the two judges have different opinion) (90-6)
 - 84 tokens for analysis
 - 93% inter-rater agreement on rhoticity
- ◉ Informant F10:
 - 89 relevant tokens
 - 3 tokens disagreement (89-3)
 - 86 tokens for analysis
 - 97% inter-rater agreement on rhoticity
- ◉ **Sneak-peek at results: F10 is in fact 100% rhotic! Therefore the following analysis is based only on F9**

RESULTS: RHOTICIZATION OF VOWELS BY F9

Table 6: Rhoticization of vowels, F9

Vowel:	Lexical example:	Note on pronunciation:	Total no of tokens:	% R-coloured:
/ə/	<i>letter</i>	[ə̃]	8	87.5%
/ɜ:/	<i>fir, fur, prefer</i>	[ɜ̃]	13	100%
/ɪə/	<i>fear</i>	[ɪə̃]	11	73%
/eə/	<i>fair</i>	[eə̃] > [ɛ:]	7	43%
/aɪ/	<i>fire</i>	[aɪ ~ aɪə̃]	6	83%
/ɔɪ/	<i>lawyer (Moir)</i>	[ɔɪ ~ ɔɪə̃]	4	100%
/aʊ/	<i>hour</i>	[aʊ ~ aʊə̃]	12	67%
/u:/	<i>tour</i>	[u:] ~ uə̃]	7	14%
/ɔ:/	<i>for, four</i>	[ɔ:] ~ ɔ:]	10	0%
/ɑ:/	<i>far</i>	[ɑ:] ~ ɑ:]	6	0%

○ General trend degree of rhoticity:

- **Central monophthongs: nearly categorically rhotic**
- **Centring diphthongs: majority rhotic**
- **Closing diphthongs: mostly triphthongal, or followed by a syllable break (.) and a schwa: mostly rhotic**
- **Back (and open) monophthongs: mostly non rhotic**

○ Speculation:

- **A central vowel quality at the end of the vocalic sequence increases the likelihood of an r-coloured vowel; transference from Mandarin?**
- **Any other vowel decreases the likelihood of a rhoticized vowel**

DISCUSSION, CONCLUSION (AND SPECULATION)

◎ Part 1: Style variation

◎ Inter-speaker variation:

- Rhoticity to a large extent a choice at the level of the individual
- This is consistent with previous results for Expanding Circle Englishes (e.g. Salbrina & Deterding 2010 for Brunei)

◎ Intra-speaker variation:

- Similarities in the pattern of intra-speaker variation
- Tendency to follow same direction of variation among informants: Interview < Reading < Questionnaire

◎ Possible explanations for similarities in intra-speaker variation:

- Attention to speech?
- Formality?
- Spelling?
- Move away from teaching material based on BrE?
- Signs of an emerging norm, or overt prestige, of rhoticity?

DISCUSSION, CONCLUSION (AND SPECULATION)

◎ Part 2: Phonological context

- ◎ Very small sample: 2 people
- ◎ Even within this small sample, significant inter-speaker variation:
 - F10 consistently rhotic; F9 variably rhotic
 - Further support for the suggestion that rhoticity is to a great extent a choice at the level of the individual
- ◎ Contextual pattern for F9:
 - Central vowel, or diphthong ending in a central vowel → Strong tendency to be rhoticized
 - Most plausibly transference from Mandarin, Putonghua
- ◎ What do the present results indicate more generally with regard to ‘Chinese English’?
 - China today: 1.355 billion people, with perhaps as many as 400 million learners of English (Wei & Su 2012)
 - Thus, great need for more empirical research on language production
 - And, a cautionary note: statements along the lines of “[**Chinese province X/Chinese city Y**] English is (non-) rhotic” seem premature