



2015 Conference

ABSTRACTS



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9-11 December 2015**

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Plenary Talks

Constraints, community, coherence: Do sociolects exist?

Gregory Guy (New York University, USA)

Contemporary sociolinguistic scholarship entertains two, somewhat contradictory, models of the social distribution of linguistic variants. The speech community model emphasizes coherence – shared norms imply that speakers vary together by style, status, etc., while the identity construction model emphasizes individual agency, and asserts that speakers do *bricolage*, assembling their social personae and social meanings out of the variables at hand, evoking distinctive indexicalities. The contrast between these two approaches raises several questions.

One issue is whether whether clusters of speakers who constitute a community coherently use a set of variants defining a sociolinguistic variety or sociolect, or alternatively, whether individuals use idiosyncratic sets of variants. For example, given that th-stopping, r-vocalization, and raised /oh/ are all socially stratified in New York City, do higher status individuals systematically use low rates of all three variants at once, or do they pick and choose among these variants?

Another issue is how internal constraints on variation are treated by individuals and communities. All linguistic variables have linguistic constraints on their places and rates of occurrence, and specific constraint patterns are often taken as defining characteristics of a dialect or sociolect: for example, the specific contexts for /æ/ tensing in New York and Philadelphia. Are these community-wide patterns adhered to by individuals who are selecting variants for a momentary social-semiotic effect? Alternatively, is the manipulation of variables for identity construction or stylistic performance limited to varying rates of use rather than contexts?

This paper presents data from several recent studies of English, Spanish, and Portuguese that address these issues by examining the covariation among multiple sociolinguistic variables – both syntactic and phonological – present in the respective communities, and the constraint effects that individuals and communities display.

Syntactic mixing across generations
Sabine Stoll (University of Zurich, Switzerland)

Understanding areal convergence presupposes understanding the specific situation of bilingualism involved. As already claimed by Gumperz & Wilson (1971) there is an "urgent need for direct investigation of actual mechanisms of linguistic change in their actual settings" (Gumperz & Wilson, 1971). So far, studies on contact-induced change have been restricted to small-scale language samples often based on elicitation or observation of individual utterances. To study language change in situ however, we need naturalistic and spontaneous conversational data in a wide variety of contexts.

In this presentation I propose that such an investigation is best conducted in a large-scale corpus of natural speech including language samples of a large number of different people of different generations in a variety of contexts. I show how collecting and analyzing big data in an endangered context is possible, taking as an example the development of a large annotated corpus of Chintang (Sino-Tibetan, Nepal) naturalistic speech including several hundred hours of speech with over 100 speakers at different ages, totaling over 1 million words (<http://www.clrp.uzh.ch>). All Chintang speakers are bilingual in Nepali, but Chintang is still the main language of daily communication. Changes in code-switching behavior across generations are presented and I propose a number of factors that contribute to these changes. Contradicting expectations from the literature we found that the syntactic integration of multi-word insertions of Nepali into Chintang is as likely as the integration of single-word insertions.

Interested in kindred research in language technology, document computing,
and music sciences?

On Wednesday 9 December ALS is co-locating with other conferences in a combined event called Confluence. ALS attendees are welcome to attend any of the plenaries or sessions of the other conferences at no charge.

Highlights:

Sonja Kotz (University of Manchester): On the importance of timing and rhythm in motor and non-motor behaviour (Australian Music Psychology Society - AMPS conference)

Joe Wolfe (University of New South Wales): Physics of the voice in speech and singing (Australian Music Psychology Society - AMPS conference)

Mark Johnson (Macquarie University): Computational Linguistics: The Previous and the Next Five Decades (Australasian Language Technology Workshop - ALTA)

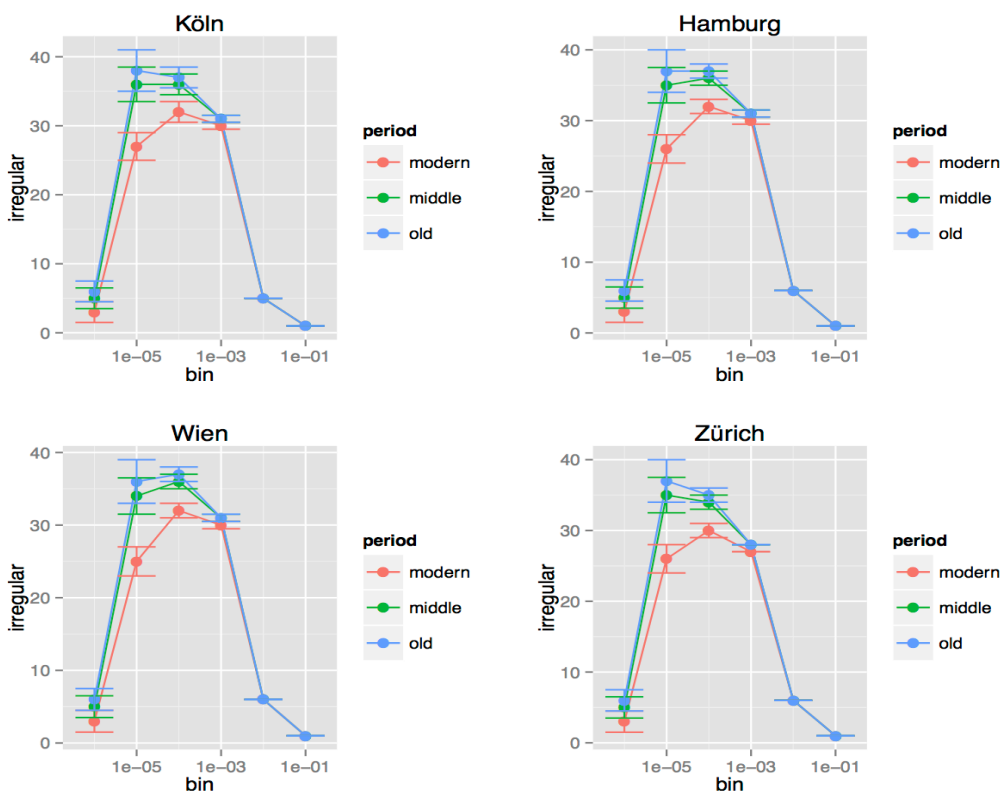
Microtypological Aspects of Frequency-driven Language Change

Phillip Alday and Oliver Schallert

Models of language change often focus on frequency as a driving force. Frequency is generally fairly simple to estimate, especially at the lexical level, and supposedly theory-agnostic. In particular, frequency has been demonstrated to be a driver of morphological and lexical change (Pagel, Atkinson, and Meade 2007; Pagel et al. 2013; Piantadosi, Tily, and Gibson 2011), especially (ir)regularisation (Nübling 2000; Lieberman et al. 2007). However, both regularity and frequency involve a number of subtleties such that even closely related languages with similar vocabularies and lexical frequency distributions can exhibit remarkable differences in their diachronic development, as evident in the comparison between English and German (cf. Alday 2010; Carroll, Scare, and Salmons 2012). Carroll, Scare, and Salmons (2012) showed that the different inflectional paradigms of German strong verbs (*Ablautreihen*) regularize at different rates, suggesting a sensitivity to factors beyond simple token frequency. As the German dialects show a remarkable diversity in verbal morphology, we sought an even more fine-grained microtypological comparison of regularisation by comparing German dialects.

Representing four major dialect groups of German, we examined data from Vienna (Austro-Bavarian), Zurich (Allemanic), Cologne (West Middle German) and Hamburg (Low German) using entries from dialect dictionaries to determine regularity. In spite of several morphological differences between the dialects (including an exclusive preference for different verbal tense forms between dialects), there was no meaningful difference between dialects at the overarching level of regularization rate as dependent on frequency. However, a closer examination reveals regional differences between different inflectional paradigms. For example, the Praeteritopraesentia (a small group of verbs which follow a past-tense like inflectional paradigm in the present) show clear subregularities between regions.

The German dialects provide a microtypological perspective on language change. The similarity in both token and type frequency across dialects leads to similar large-scale diachronic tendencies. However, in terms of fine-scale changes, the dialects differ greatly. The large-scale evolutionary pressures are broadly the same across languages, but the fine structure of language arises more dynamically and heterogeneously.



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Already Losing It: External Possession in Old English

Cynthia Allen

A striking syntactic change which took place in Middle English is the loss of the Dative External Possessor (DEP) found in Old English (OE) examples like *scearpa him þa scancan* (*Bald's Leechbook*) 'scarify his legs', literally, 'scarify him the legs'. In Early Middle English, the Internal Possessor (IP, used in the translation of this example) increasingly became dominant, and the External Possessor (EP) is limited to a few fixed expressions such as *look x in the eye* and *stare x in the face* in Modern English. In these fixed expressions, the possessum is always the object of a preposition, unlike in OE, where it could be the subject or object of the clause.

The Early Middle English (EME) period is the time when EPs become scarce in the texts, and so explanations for the loss of the EP as a productive construction have naturally focused on developments in this period which made the structural or sociolinguistic context of this period different from that of OE. Both language-internal and language-external factors have been proposed as the key to this development. The loss of case marking that is evident in EME was proposed by Ahlgren (1946) as the major cause of the loss of the 'sympathetic dative' (i.e. DEP), and this general approach is still widely held. More recently, explanations in terms of language contact have been proposed as more promising in accounting for the disappearance of the DEP. McWhorter (2002) argued that contact with Scandinavian precipitated this change, which must then be seen as an instance of simplification caused by language contact rather than transfer of a construction from one language to another. Others (e.g. Vennemann 2002, Filppula et al. 2008, Hickey 2012) point to the lack of EPs in the Brythonic languages as a similarity with English which is documented as unusual situation in Europe (Haspelmath 1999) and thus unlikely to be a coincidence. By this view, the fact that the DEP only disappeared from texts in the Middle English period is treated as stemming from a discrepancy between spoken language, where the IP is assumed to have been preponderant because of Celtic influence, and the written language, controlled by a Germanic elite.

In this paper, I will establish that if we are to understand the demise of the DEP in English, we must look much earlier than the EME period. A corpus-based study of earlier and later OE texts shows that the DEP and the IP were in variation even in the oldest texts, in contrast to the picture painted by Vennemann, who calls the DEP the 'inherited' construction, and Filppula, who refers to the IP as the 'innovative' type. As Havers (1911) demonstrated, both types were present in early Indo-European languages generally. A comparison of OE with Gothic indicates that already in the earliest English texts, the DEP had a more restricted range than what can be reconstructed for Common Germanic. A comparison of earlier and later OE texts reveals a statistically significant decline in the frequency of the DEP compared with the IP.

The early date of the initial decline of the DEP rules out both deflexion and Scandinavian as playing any larger role in the loss of the DEP than that of killing off a construction that was already seriously losing the competition with the IP. However, contact between English speakers is a plausible explanation, although one that cannot decisively be proven. The facts do not support the idea of a 'Brittonic' English which used only IPs but was suppressed until the Norman Invasion destroyed the 'West Saxon Standard'. However, it is plausible that Celtic

speakers learned the DEP in English but used it in a more restricted way. In contrast to the IP, in which the focus was on the body part, the DEP had always emphasised the effect on the whole person. It would be natural for Celtic speakers to reserve the DEP for situations in which the whole person was drastically affected. Whatever the role of Celtic language learners, however, what is clear is that the IP increasingly became the ‘default’ construction and the DEP became increasingly marked. No special event in EME is necessary to explain the disappearance of a construction that was highly marked by the late OE period.

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Code Switching as a Grammar-Teaching Strategy in Saudi Arabian Female EFL Classrooms

Amirah Almansour

Research in code switching (CS) has historically been focused on gaining insights into discourse connectives in bilingual conversation (Serra, 2005), understanding group identity of a particular community, and the characteristics of bilinguals and how they comprehend language in multilingual encounters. In recent years, there has been a growing interest among linguistic researchers in investigating the use of code switching in the teaching and learning of English as a foreign language (EFL) in the classroom (Arnett, 2013; Hobbs, Matsuo, & Payne, 2010). Subsequently, in many geographic and ethnic contexts, language researchers have found code switching to be a potentially effective way to improve language acquisition (Viakinnou-Brinson, Herron, Cole, & Haight, 2012). Some researchers have found code switching to be a useful metalanguage tool to enhance students' understanding of the target language in the EFL classroom (Hobbs, Matsuo & Payne, 2010). However, views of using code switching in EFL learning are polarised (Boztepe, 2005), and, in some cases, use of code switching in the language classroom is considered to be a stigmatised practice. Keith Gilyard contends that it is “enforced educational schizophrenia” (cited in Young, 2004), while Young (2007) considers that code switching “breeds linguistic confusion” (Young, 2007). Similarly, some language teachers find switching languages in the same sentence unacceptable and a demonstration of semilingualism in the classroom (Ramirez & Milk, 1986).

This paper presents preliminary findings of a study investigating whether code switching is an effective grammar teaching and learning strategy in the EFL classroom. As language teaching and learning strategies are difficult to make generalisations about and vary greatly from one ethnic and gender group to another (Cheng & Beigi, 2012; Otlowski, 2003) and research focusing on Saudi Arabian female EFL classroom are underrepresented in the academic literature (Hamdan, 2005; Khresheh, 2012), this research focused on Saudi Arabian female EFL classroom to verify whether teacher's code switching can help students learn grammar better. Two classrooms were selected for an experiment where, in one class, the teacher conducted more CS (more than 60% of teacher talk) and, in the other, the teacher conducted less CS (approx. 1% of teacher talk). Based on the results of pre- and post-tests in these two classrooms, it was found that using CS was not an effective grammar teaching strategy to help Saudi Arabian female EFL learners learn English grammar. Although from an attitude survey conducted among students, it was found that students prefer to code switch and they think they learn more when a teacher switches code; nevertheless, the results of the tests suggest otherwise. The findings from this

research can be useful for helping teachers to modify their teaching practices in Saudi Arabian EFL classrooms in order to enhance learning among students.

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Figure and example sentences

Figure

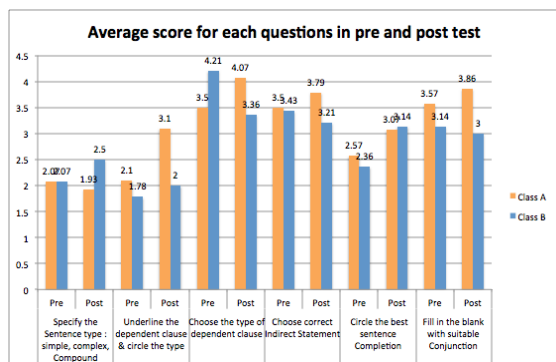


Figure: Distribution of scores in both classes in pre- and post-tests by question

Example Transcription of teacher talk:

A (Less CS)

T: When you have two actions happening both of them in the past, the first action that was completed first you'll have it in the past perfect but here with the reported speech you're going to have to do this.

T: "I have watched TV," he said that he had watched TV. "I went home", she told me that she had gone home. All right let's move on.

B (More CS)

T: Change the commands to reported speech " be at your desk by nine"

T: practice number three, how would you report "be at your desk?" Rana?

S: I must be at my desk by nine

T: I must be.. I should be hiya t'tamid 'ala (it depends on) ihsasik (what you feel).

T: mumtāz ḥlū āttaghyr (Excellent! The change is good.)

Aspectual Verbs in Modern Standard Arabic

Yasir Alotaibi.

The aim of this paper is to discuss the syntactic analysis of aspectual or phasal verbs in Modern Standard Arabic (MSA). Aspectual or phasal verbs refer to a class of verbs that require a verbal complement and denote the inception, duration, termination ...etc. of a state or event. This paper will discuss two groups of aspectual verbs in MSA. The first group includes verbs such as *ʔaʕala*, *tafiqa*, *ʔakhatha*, *ʔanshaʔa*, *sharaʕa* and *badaʔa* and these verbs are used to denote the inception of an event. The second group includes verbs such as *ʔawshaka*, *kaada* and *karaba* and the meaning of these verbs is equivalent to be near/almost (see Badawi and Gully (2004)). The following examples illustrate the use of the verb *badaʔa* 'begin' which is from the first group:

- 1) a. *saalim-un badaʔa yuthaakiru.*
Salem-NOM begin.PFV.3SGM study.IPFV.3SGM
'Salem began to study'
- b. **saalim-un badaʔa ʔan yuthaakiru.*
Salem-NOM begin.PFV.3SGM COMP study.IPFV.3SGM
'Salem began to study'

The example in (1a) is grammatical because the aspectual verb is used with a verbal complement that is not introduced by a complementizer. In contrast, example (1b) is not grammatical because the verbal complement is introduced by the complementizer *ʔan* 'that'.

In contrast, the following examples illustrate the use of the verb *kaada* 'be almost' which is from the second group. However, the two examples are grammatical and this means that the verbal complement of this verb can be without (as in example (2a)) or with (as in example (2b)) a complementizer.

- (2) a. *saalim-un kaada yuthaakiru.*

Salem-NOM be.almost.PFV.3SGM study.IPFV.3SGM

‘Salem was almost to study’

b. saalim-un kaada ?an yuthaakiru.

Salem-NOM be.almost.PFV.3SGM COMP study.IPFV.3SGM

‘Salem was almost to study’

The salient properties of this class of verbs are that they require a verbal complement, there is no a complementizer that can introduce the complement with the first group while it is possible with the second and the aspectual verb and the embedded verb share and agree with the same subject. To the best of knowledge, aspectual verbs in MSA are discussed in traditional grammar only and have not been studied in modern syntactic theories.

This paper will consider the analysis of aspectual verbs in MSA within the *Lexical Functional Grammar (LFG) framework*. It will use some evidence such as modifier or negation to find out whether these verbs have PRED values and head their f-structures or they form complex predicates with their complements. If aspectual verbs show the properties of heads, then the paper will explore what kind of heads they are. In particular, they should be raising

or control verbs¹. The paper will use some tests such as agreement, selectional restrictions...etc. to find out what kind of verbs they are (see Dalrymple (2001) Kroeger (2004) and Alotaibi et al. (2013)).

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¹Raising verbs are verbs such as *seem* in a sentence such as *Mary seems to yawn* where it is believed in transformational grammar that the subject is moved from the subordinate clause to the matrix clause (see Kiparsky and Kiparsky (1970) and Postal (1974)). In contrast, control verbs are like *try* in *John tries to cry*. Control verbs are different in that the subject in the matrix clause is selected by the matrix clause and this means that it cannot be assumed to be moved from the subordinate clause (see Dalrymple (2001)).

Analysing Complex Predicates in LFG with Distributive Attributes

Avery Andrews

Andrews and Manning (1999) presented an analysis of several kinds of ‘complex predicates’ that appear to involve ‘clause union’, such as (2) from Catalan, in a heavily modified version of LFG where extensive attribute-spreading in a single structure was used to produce similar effects to the standard LFG projections. This proved difficult to extend to further constructions, and created some unexpected complications. In this talk I will show that most of these analyses can be reimplemented in almost completely standard LFG by using the notions of ‘hybrid object’ (due to John Maxwell) and ‘distributive attribute’ introduced in Dalrymple and Kaplan (2000), for the analysis of coordinate. A hybrid object is an f-structure that has both certain attributes holding only for the full structure (the nondistributive ones), and also a ‘set’, which contains as members f-structures that share their distributive attributes with the full object according to principle (1), which says that for a distributive attribute, to be identical for all the members is the same as being an attribute of the whole structure.

Given this, if the set of a hybrid object is a singleton, a value ascribed to a distributive attribute of a member will be automatically ascribed to the whole structure (and vice-versa). If grammatical relations are distributive, but PRED and the verbal form features are not, we get the pattern of sharing as in structure (3), which captures the syntactic evidence for clause union for grammatical relations (for example by the appearance of the direct object of the semantically lower verb as clitic before the higher (light, causative) one), while leaving the PRED and verbal features each at their own structure level, to give a straightforward account of the overt forms. Such a structure can be produced by introducing the VP complement of a light verb as a set-member of the upper VP (ex. 4), and this can work recursively in order to capture the ‘respect for the tree’ effects discussed in Alsina (1997).

However, there are some attendant problems to solve, essentially the problem of ‘linking theory’: how are the semantic roles associated with the two predicates to be connected to the single array of grammatical relations associated with the construction, in particular with the lower verb’s Agent and higher verb’s ‘Causee Patient’, where this ‘fused’ semantic role is expressed as a PP? What I suggest here is to retain the proposal of Andrews and Manning to have a nondistributive TERMS attribute introduced by each predicate (omitted from the structure of (3)), with the light verb introducing a TERMS-list merger equation, which for causatives, would be (ex. 5) (the first member of a list is the HEAD, the remainder the TAIL). With the causative verb’s TERMS list specifying a first and second core argument and then an open remainder as in (6a), and the lower verb’s specifying two core-arguments (6b), the result of the equation is to produce (6c) as the terms list of the upper layer of the construction. Grammatical relations can then be assigned by principles such as that a highest core argument (item on the TERMS list) is linked to SUBJ, a lowest to OBJ, and an intermediate one to OBJ_{Rec}. This will link appropriate grammatical relations to causative+caused combinations. The slight difference from completely standard LFG that is needed is that it appears to be necessary to allow some

construction-specific stipulation of which attributes are distributive. So for complex predicates, verbal form features must not be distributive, but for coordinate structures, they need to be (e.g. Alsina 1987:222). I propose to manage this by allowing attributes to be stipulated as ‘undershared’ or ‘overshared’ in specific constructions (see also Nordlinger and Sadler 2008 for discussion of the sharing of attributes in set-based representations for noun phrases).

- (1) For hybrid object o , distributive attribute A and it
 $A(o) = V$ iff $\forall f \in o, A(f) = V$

- (2) La faig llegir al nen
 It.F I.make read to the boy
 ‘I make the boy read it (say, a map ([GND FEM]))
 Catalan, Alex Alsina (p.c.)

- (3)
- | | | | | |
|--------------------|---|--------------------|-------|----------|
| SUBJ | [| PRED | ‘Pro’ |] |
| | | PERS | I | |
| PRED | | ‘Fer’ | | |
| VFORM | | FIN | | |
| TENSE | | PAST | | |
| OBJ | | [| PRED | ‘Pro’ |
| | | | PERS | III |
| | | | GEND | FEM |
| OBJ _{Rec} | | [| PRED | ‘Nen’ |
| | | | | |
| | { | [| PRED | ‘Llegir’ |
| | | | VFORM | INF |
| | | SUBJ | [] | |
| | | OBJ | [] | |
| | | OBJ _{Rec} | [] | |
| | } | | | |
-

- (4) VP → V VP (PP)
 $\downarrow \in \uparrow$ $(\uparrow \text{OBL}/\text{OBJ}_\theta) = \downarrow$

- (5) $(\uparrow \text{TERMS TAIL}) = (\uparrow \in \text{TERMS})$

- (6) ‘Fer’ TERMS [X, Y, ...]
 ‘Lleger’ TERMS [W, Z]
 ‘Fer-Llegir’ TERMS [X, Y=W, Z]

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Mongolian women with false eyelashes and high heels: Sociolinguistic difference and gender stereotyping in Khorchin folk songs in Inner Mongolia

Gegentuul Baioud

This paper focuses on two popular folk songs (musical stories) in Inner Mongolia's Khorchin area as an important window into contemporary forms of language, gender ideology and social change in a periphery area in China. Based on Bakhtin's theory of speech genre and intentional artistic hybrid the study examines the parodies, social heteroglossia and inter-animation among Mongolian, Chinese and various Mongolian dialects in the folk songs. Second, the study analyzes the gender and language ideologies refracted by the folk songs by taking into consideration both the normative conceptions of gender and individual's agency in multilingual and highly flexible villages in Inner Mongolia. The findings suggest that the singer's code switching between Chinese and Mongolian (intentional dialogized hybrid) contextualizes and playfully exposes conflicting views of contemporary Mongolian young women in Inner Mongolia. The singer relies on indexical ties between linguistic difference and ideology, and at the same time reorganizes 'orders of indexicality' (Blommaert, 2007) in a specific context to create a humorous effect among audiences. The linguistic play and creativity in songs emphasizes, rather than blurs, clear linguistic and ethnic boundaries. The study also suggests that the hierarchical relation of gender is reproduced through these folk songs, in spite of resistance by some women in the rapidly changing Mongolian community in China. In sum, this paper will shed light on how ethnic locals are manipulating and appropriating shifting linguistic and cultural resources under the influence of state ideologies and globalization, and how their works are mirroring the wider social environment in minority regions in China.

Key words: code switching, language ideologies, gender stereotyping, Mongolian, China

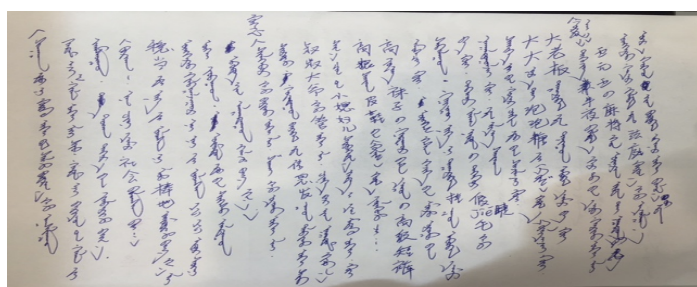


Figure 1. The part of the lyrics transcribed from folk song *The little wife in new society*

The translations of Chinese words in the lyrics are: *Text messages, stable or good, high-heel shoes, stockings, high-quality shorts, false eyelashes, DADA chewing gum, big boss, Mahjong, court, party, lonely, computer, QQ chatting, turn off, new society.*

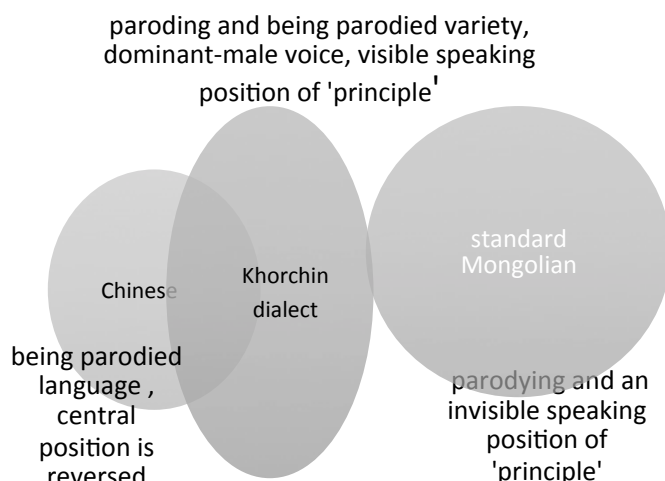


Figure 2. The reversed order of indexicality and the order of in/visibility

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Polysynthetic words are like sentences: evidence from pause placement and acceptability

[Brett Baker](#) and Rikke Bundgaard-Nielsen

Background. Pause location and pause duration provide important evidence for the psychological reality of linguistic structures in languages such as English and German (Goldman-Eisler 1972; Gee & Grosjean 1983). Indeed, studies of pause reconstruction (Martin & Strange, 1968) and detection (Boomer & Dittman, 1962; Butcher, 1981; Mattys & Clark, 2002) suggest that speakers' pauses are important for both speech planning (Gee & Grosjean, 1983) and the interpretation of utterances (McGregor et al., 2010). The location of actual pauses in speech is highly correlated with the location of 'psychological' pauses (Mattys & Clark, 2002), and pauses over 130ms are likely to reflect linguistic planning and utterance complexity on the level of syntax and semantics (Hieke et al., 1983). Polysynthetic languages have been claimed to be complex at the prosodic (as well as semantic and syntactic) level (e.g. Russell 1999; Baker 2008; Dyck 2009), suggesting that such languages may show evidence of word-*internal* pauses (not normally present in non-polysynthetic languages. Indeed, this has been shown for Dalabon where pause insertion is found between the initial argument prefix string and the following verb stem (Fletcher et al. 2004, Evans et al. 2008). Here, we present 2 preliminary studies of **(1)** pausing in fluent utterances and **(2)** preference judgements of utterances with natural and manipulated pause durations, in Wubuy, a highly polysynthetic Australian language. **Method.** In *Study 1*, we measured all silent periods in 3-6 fluent repetitions of 14 Wubuy utterances of varying complexity (N = 66) by a literate female speaker. We analysed the duration of silent periods between complex words (i.e. at word boundaries) (N = 24); and within words, between noun and verb stems (N = 37); between stem and non-stem morphemes of different kinds (N = 31); and within morphemes (i.e. stop constrictions) (N = 44). We predicted that pauses between complex words and between lexical stems within a word would be 'long' (i.e., exceed 150 ms, see Hieke et al., 1983; Mattys & Clark, 2002), while pauses between lexical stem and non-stem morphemes, and within morphemes (stop constrictions) would be 'short' (e.g., not exceed 100ms, see Hieke et al. 1983, again). *Study 2* elicited two alternate forced choice preference judgements of 34 pairs of fluent utterances (from Study 1) involving at least one complex (multi-stem) word (Tables 1, 2), by two Wubuy listeners. In each pair, one utterance had a 500ms pause inserted at one of a range of positions: (A) between an incorporated noun and a following verb stem; (B) between the two halves of a reduplicated verb-stem; (C) between a bound verb-root and its non-transparent finite root; or (D) between the null-morpheme '*ngu*' and the following verb-stem (Table 2). Here, we predicted that natural (between word) and legal (A) boundary utterances would be equally acceptable, and further that natural, fluent utterances and utterances with pause at a legal boundary would be preferred over utterances with pause at an illegal boundary (B, C, D). **Results.** The result of Study 1 (see Figure 1) is consistent with our predictions: Pause duration (1) between words and (2) between lexical stems within a word does indeed exceed 200ms, while pauses in other morphological positions and within morphemes (stop constrictions) are well below 100ms. A one-way ANOVA of the duration differences

between the four categories showed a main effect of pause type ($F(3, 119) = 23.142, p < .001$). Post-hoc Bonferroni-corrected comparisons show that this is due to a difference in duration between the two 'long' categories (inter-word and A) vs. the two 'short' categories ($p < .001$), but showed no significant difference within these categories ($p = 1.000$). The results of Study 2 (Figure 2) are similarly consistent with our predictions: Natural and legal pause-utterances are preferred over illegal pause-utterances, while the preferential pattern for legal vs. natural utterances differed for the two speakers: W1 preferred the natural utterances, while W2 preferred the legal utterances. **Discussion.** The results show that (1) pauses are highly frequent in Wubuy speech, and occur at word-boundaries and within words; (2) pauses within words are acceptable to native speakers, and judged just as acceptable as words lacking pause when the pause occurs at a 'legal' morpheme boundary. These studies, although preliminary, suggest that morphemes differ in terms of their level of 'attachment' to the surrounding word (Baker, 2008). Some morphemes are so tightly integrated with neighbouring material that pause insertion between these constituents is unacceptable. Other morphemes are much more loosely attached, constituting in effect 'word-internal words'. Like words in English, word-internal word-boundaries are licit positions for pause insertion.

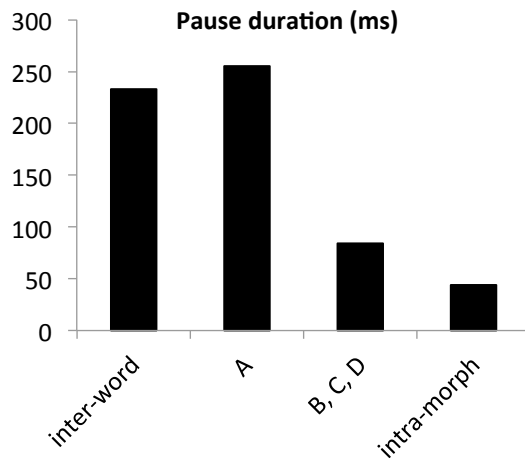


Figure 1. Duration of silent periods between words, and within words in a range of morphological positions

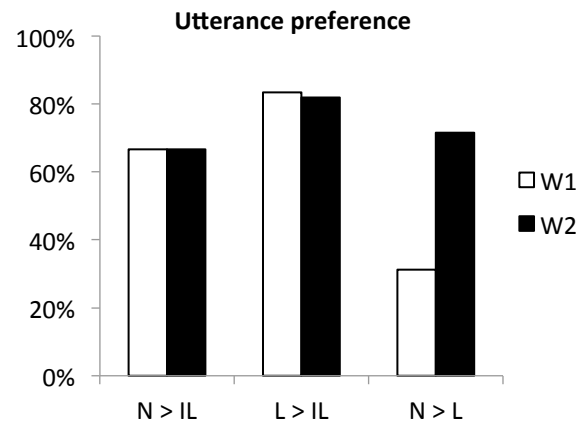


Figure 2. Utterance preferences by listeners (W1, W2) of natural (N) and manipulated (legal pauses: L; illegal pauses: IL) utterances.

Table 1. Examples sentences from Study 1.

(A) a-yina-ngu-jurang

1sg/2sg-head-Ø-push.nfut

'I'll push your head'

(B) nga-ruluj-guldhangi

1sg-shade-cut.through.pc

'I cut the bough shade'

(C) ari ngan-jina-galalij

maybe 1sgirr-head-wet

'maybe my head will get wet'

(D) ngani-yina-ngu-gujugujaani

1sg-3masc-head-Ø-tickle.pc

'I tickled him on the head'

Table 2. Pause locations in Study 2.

Natural speech

nga-ruluj-guldhangi

a-yinag-ngu-jurang

ari ngan-jina-galalij

ngani-yina-ngu-gujugujaani

Legal breaks

nga-ruluj#guldhangi

a-yinag#ngu-jurang

a-yinag-ngu#jurang

ari ngan-jinag#galalij

ari ngan#jina-galalij

ngani-yina#ngu-gujugujaani

ngani-yina-ngu#gujugujaani

ngani#yina-ngu-gujugujaani

Illegal breaks

nga-ruluj-gul#dhangi

ari ngan-ji#na-galalij

ngani-yina-ngu-guju#gujaani

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Careful and Casual Speech in Matukar Panau

Danielle Barth

Matukar Panau is an Oceanic language spoken on the North Coast of Papua New Guinea. It is a highly endangered language. All speakers of Matukar Panau are bilingual and older speakers are more proficient in the language than younger speakers. Some variation in adverb choice in the language is due to speech style, a continuum of careful to casual speech (Lindbloom, 1990). Adverbs in the present study include *manayami~mainami* ‘like this,’ *wagamami~gegemi~wagami* ‘before,’ *alohage~alo* ‘later,’ *dohage~doge* ‘after’ and *gaumomani~gaumani* ‘today.’ Examples of careful variants are shown in 1-3 and more casual variants in 4-6.

After controlling for clause position and word co-occurrence, mixed-effects logistic regression shows that careful variants are chosen more often earlier in the course of narratives, by women, older speakers and more proficient speakers. Proficiency for the purpose of this study is operationalized in two ways: the proportion of Tok Pisin (an English-based creole language used as a lingua franca in Papua New Guinea) mixing in a text and the proportion of use of the word *milok*, a marker of disfluency. As seen in examples 5 and 7, *milok* can be used to substitute for different parts of speech in cases of problems in lexical access. Speakers with lower proficiency use more casual adverb variants than speakers who have higher proficiency and this effect goes beyond age in accounting for variance in casual v. careful speech style. Tok Pisin mixing may be an additional component of style construction while simultaneously being a way to solve lexical access problems in the L1. Use of hyper-articulated (careful) or hypo-articulated (casual) styles can be used to signal affect and constructed social information about a speaker (Eckert, 2008; 2012; Pennebaker and Stone, 2003; Podesva, 2007; Zhang, 2008, *inter alia*). The use of careful speech variants by older and more proficient users of the language may show careful attention to form, especially in the context of recording the language for posterity. The use of casual variants by younger and less proficient users of the language may show language change in progress and signal less value placement on hypo-articulated, standard forms, but also may correspond with lower language proficiency. The paper will discuss the complex relationship between proficiency, style and identity in the context of an endangered language.

- (1) *ngahau neraurau manay-ami*

1SG.POSS story PROX-only

‘My story is like this’ – Boipain Sibon - Life Story and Singsing Segadon Ngau Nenmam ti 20130428, line 9

- (2) *Wagamami ngahamam ses, bagena, mariu ti.*

Before 1PL.POSS.EXCL grandparent grandchild betel nut NEG

‘Before our ancestors did not have betel nut.’ Bruce Kainor Kaluk - Niu do Mariu 20130422, line 4

- (3) *Alohage ngau ka malal ta=te-nen*

later 1SG elder.brother village one=LOC-P.POSS

palum-e urat tama-u nage-nge.
 come-PST work father-1SG work-PST

‘Later one of my brothers from another village came to do my father’s work.’ Barry Kuyau Barui - Haus Krai 20130406, line 13

(4) **Main-ami**, *ngahau neraurau takura-n main-ami.*
PROX-only 1SG.POSS story short-3SG **PROX-only**

‘This is all, my short story is like this.’ Pauline Griffin Mait - Life Story and Singing Urom 20130428, line 9

(5) **Wagami** *milo-k ager palum-e na di-palum-e.*
before something-UNPOSS war come-PST and 3PL-come-PST

‘They came before the whatsit, the war started,’ Margaret Lem Kaluk - Life Story 20130422, line 4

(6) *Ngam-hun-i-p, ti-do-p,*
 1PL.EXCL.S-hit-3SG.P-IRR:NFIN finish-CONJ-IRR:NFIN
alo *niu ngam-sisi-nggo.*
later coconut 1PL.EXCL.S-husk-IMP.FIN

‘We finish breaking them and later we husk the coconuts.’ Barry Kuyau Barui - Copra 20130406, line 16

(7) *Do bor ha-n ne-n ya*
 And pig CL-3SG leg-3SG FOC
mul-e, i te-ndo-p milo-k-aba.
 return-PST 3SG see-CONJ-P **something-UNPOSS-FUT**

‘And he looks at the pig’s tracks it left, and does whatsit.’ Paul Sarr Tagog - Pig: Trap, Net, Dog 20130422, line 15

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Infant-directed speech by fathers: Acoustic determinants of the moderate emotional message

Titia Benders and Floor Arts

As the traditional division between the mother as an infant's primary caregiver and the father as out-of-home provider is fading, understanding father-infant interaction becomes increasingly important. Fathers, like mothers, speak to infants with a high pitch and large pitch range, but they appear to change their speech to a more moderate degree (For cross-linguistic results: Fernald et al., 1989). The present study asks whether these objective acoustic differences between maternal and paternal speech extend to Dutch infant-directed speech (IDS), and whether they have implications for the strength of the emotional message that listeners perceive in maternal and paternal IDS.

Study 1: We collected 10-minute samples of IDS and adult-directed speech (ADS) from 13 Dutch fathers and 19 Dutch mothers. Both mothers and fathers were found to raise their pitch and expand their pitch range in IDS as compared to ADS, with no evidence that fathers adapted their speech to a larger or a smaller degree than mothers (Figure 1). The present results thus fail to replicate the moderate degree of IDS that fathers displayed cross-linguistically in 1989 (Fernald, 1989).

Study 2: A 30-second sample of each father's and each mother's IDS was then presented to 30 undergraduate listeners, who rated the emotional message of the speech on 9-point scales such as "the speaker expresses positive emotion" and "the speaker is soothing" (cf. Kitamura & Burnham, 2003). The listeners indicated that fathers used the same emotional messages as mothers, but judged the fathers to express these emotional messages to a lesser degree (Figure 2).

Dutch fathers' strong use of IDS in objective acoustic terms (Study 1) stands in contrast to the weak expression of emotions that adult listeners ascribe to Dutch fathers' IDS (Study 2). Ongoing analyses aim at reconciling this apparent discrepancy. These analyses will focus on the intonation contours that fathers and mothers use in their IDS (Fernald, 1989) as well as on the dynamics of change from high-energy to low-energy interaction episodes (Feldman, 2003) and test whether these provide objective correlates of the perceived differences in emotional strength

between paternal and maternal IDS.

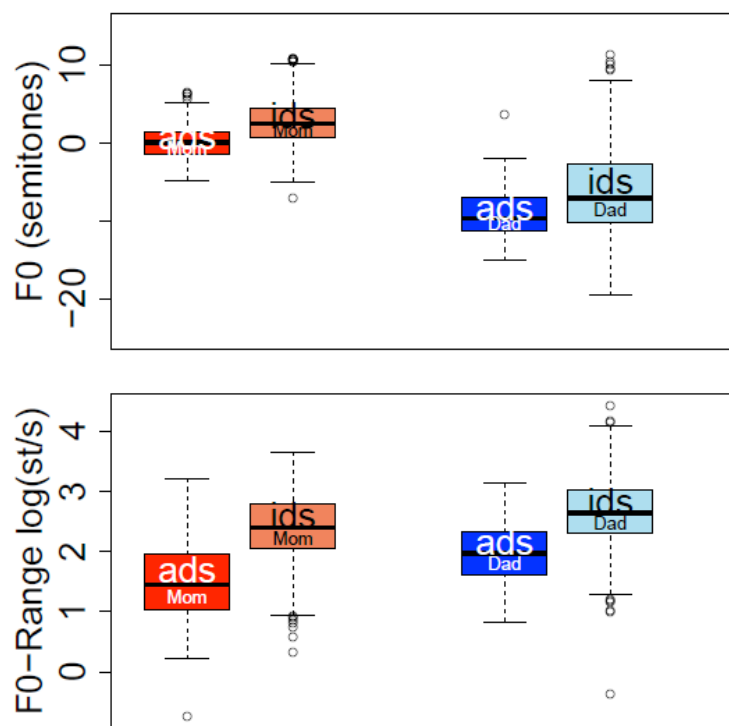


Figure 1:

F0 and F0 range by mothers (reddish, left) and fathers (blueish, right) in adult-directe speech (ads, darker hue) and infant-directed speech (ids, softer hue)

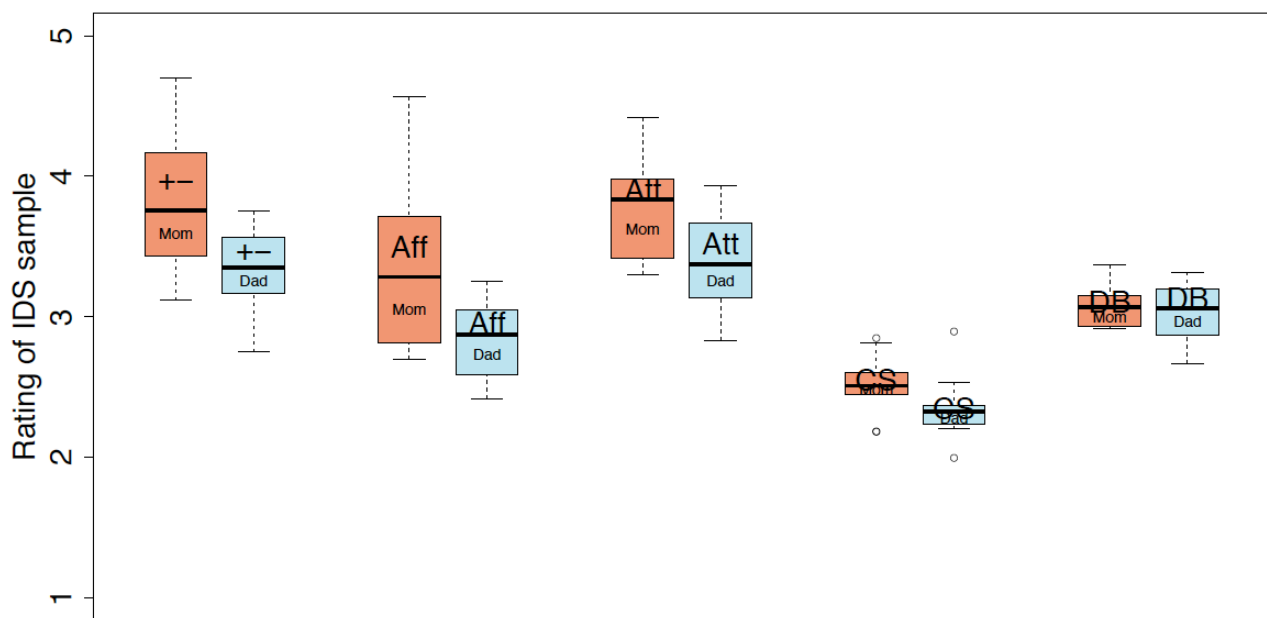


Figure 2:

Ratings on the IDS samples by undergraduate students on the five scales of emotional messages (coding in the figure).

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Depths of multilingualism in linguistic landscape of a Sydney suburb

Philip Benson

Linguistic landscape research has proved a valuable resource for exploring language diversity in the built environments of multilingual neighbourhoods (Bagni and Bagni, 2015). While the basic methodology of photographing multilingual texts in public places and analysing relationships among the different languages displayed is well established, the ‘unit of analysis’ remains an issue for debate. In some quantitative studies of multilingual signage, for example, only signboards that display the names of businesses are photographed in order to capture patterns of multilingualism in the signage of a district or city as a whole (e.g., Backhaus, 2006; Ben-Rafael and Ben-Rafael, 2015). Responding to calls for more qualitative studies in linguistic landscape research, other studies have looked at all of the texts displayed on shop fronts (Cenoz and Gorter, 2006) and in some cases on the shelves and products inside stores (e.g., Klerk and Wiley, 2010). Based on a study involving both quantitative and qualitative analysis of the linguistic landscape of a Sydney suburb, this paper attempts to resolve the distinction between these two approaches in terms of concepts of interpersonal distance and indexical, informational and transactional functions of text in the linguistic landscape.

Photographs were taken of the fronts of 401 shops and businesses in the multilingual suburb of Eastwood, in sufficient detail to show and read the language used on the signboards, and on the exterior and visible interior of the shops. A quantitative analysis of the languages displayed on signboards revealed three main patterns in the languages used – English, Chinese-English, and Korean-English. A similar quantitative analysis of all the texts displayed on exteriors and visible interiors showed that the linguistic landscape of the district was, in effect, ‘more multilingual’ than it appeared to be from the analysis of signboards alone. Few businesses displayed only English texts, and a significant number were trilingual, displaying English, Chinese and Korean. Qualitative analysis of selected businesses revealed more complex patterns of language variety, involving the use of Chinese and Korean characters and English transliterated equivalents, and simplified, traditional and Cantonese characters.

One of the main outcomes of the study was the observation that depth in the linguistic landscape of Eastwood corresponds to greater complexity in the patterns of multilingualism observed. I attempt to explain this in two ways. First I use Edward Hall’s four categories of distance in face-to-face communication (public, social, personal and intimate) (Scollon and Scollon 2003) to account for the ways in which displayed texts progressively engage customers in interaction with a business as, for example, they see the business from across the street, then approach and enter it. Second, I argue that a corresponding shift from the primarily indexical functions of texts viewed from a distance toward more informational and transactional functions of texts viewed at

close quarters accounts for the greater complexity in the patterns of multilingualism and language variety observed as we move deeper into the linguistic landscape.

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Absolute spatial cognition without absolute spatial language

Joe Blythe and Alice Gaby

Australian languages are famed for using highly inflected and/or high frequency ‘absolute’ (or ‘geocentric’) directional terms, calculated with respect to fixed axes bound to the landscape. Typically, these approximate the cardinal directions (e.g. *north*, *south*, *east*, *west*) although drainage and prevailing wind terminologies have also been attested (e.g., Schultze Berndt 2006; Hoffman 2013). A substantial body of research has demonstrated a correlation between the frame of reference most widely employed in speaking about space and the frame of reference employed in solving non-linguistic spatial reasoning tasks (see e.g., Levinson 1996, 2003, Levinson et al. 2002, Majid et al. 2004, Pedersen et al. *inter alia*). A speaker of a language with a dominant absolute frame of reference is hence claimed to conceptualize and track spatial relationships differently to a speaker of a language with a ‘relative’ frame of reference (employing viewer-centred terms like *left* and *right*).

Unlike the Australian languages that have been scrutinized in this body of research (most famously Guugu Yimithirr and Arrernte) (Levinson 1997; Haviland 1998, Wilkins 2006), Murrinhpatha does not furnish its speakers with any absolute frame of reference terms. Furthermore, in naturalistic speech, speakers do not utilise the relative frame of reference (aside from the sagittal directions, *ahead* and *behind*) for the transverse axis (i.e., *left* and *right*) (Blythe et al, forthcoming). This paper presents data from the *man-and-tree* task, and two rotation tasks, *chips recognition* and *animals-in-a-row*. These tasks have mostly been used to compare the problem-solving abilities of speakers of absolute dominant languages from relative dominant languages. Whilst in the rotation tasks a few Murrinhpatha speakers’ provided solutions consistent with a relative spatial conceptualization, most favoured solutions consistent with an absolute conceptualization. In other words, absolute spatial language is not prerequisite to absolute spatial cognition. These findings both complicate and elucidate the complex interrelationships between language, culture and cognition.

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Recruiting next speaker: A multimodal comparison of informal conversation in six Australian Aboriginal languages

[Joe Blythe](#), Anna Crane, Felicity Meakins, Ilana Mushin, Rod Gardner, Ruth Singer and Lesley Stirling.

Two major levels of organisation in talk are who speaks next (turn taking) and what next speaker does (sequences of actions). Next speaker selection is a crucial condition for the formation of sequences of actions. In multiparty conversation, explicit next-speaker selection occurs when recipient-directed gaze, names or other address terms are produced in conjunction with the first pair part of an adjacency pair (e.g., a question) (Sacks, Schegloff & Jefferson 1974; Lerner 2003). Next-selected speakers are obligated to speak and the failure to do so is potentially sanctionable (Schegloff & Sacks 1973). Yet recipient-directed gaze is only effective insofar as targeted recipients actually notice they are being addressed, and that non-targeted recipients notice they are *not* being targeted as the intended recipient (Lerner 2003). When distracted by extraneous activity, speaker selection can misfire. Extract 1 from Gija exemplifies.

Although A is seated next to B, her head is bowed down over something in her hands. By not meeting the gaze B directs towards her (lines 2 & 4), A fails to realize that the question at line 1 (and pursued at line 3) is actually being asked of her, as the next-selected speaker. Hence at line 6 A re-presents the question as a problem for the group to solve, rather than as one that she's obligated to answer. By not returning B's gaze, A's gaze-selection doesn't meet its target and the answer to the question she was selected to provide does not eventuate (until line 9, where it is ultimately answered by C).

Claims from cross-cultural communication (Eades 2000; 2007; Walsh 1997) that Aboriginal conversationalists aren't compelled to promptly answer questions receives qualified support in the extended transition spaces occurring in Garrwa talk, particularly between question and answer sequences (Gardner 2010; Mushin & Gardner 2009; Gardner & Mushin 2015) – which Gardner and Mushin suggest is an outcome of the non-focused, rather than focused, participation frame (Goffman 1963; Schegloff 2010; Couper-Kuhlen 2010). That Aboriginal conversationalists needn't face each other has also been remarked upon by Walsh (1997). Yet the consequences for next speaker selection of *not* maintaining a tight participation frame (an F-formation, Kendon 1990) have never been examined in detail in Aboriginal conversation. Furthermore, response mobilizing features of turn design and gaze behaviour have not been brought to bear on next-speaker selection in Aboriginal conversation, and seldom so for minority languages from non-industrialised societies (Stivers & Rossano 2010; Rossano 2013; Rossano, Brown & Levinson 2009).

In this paper we use video recordings of informal conversation conducted in six typologically diverse Australian Aboriginal languages: Murrinhpatha, Garrwa, Gija, Kimberley Kriol, Guridji Kriol and Mawng – to address the question of how next-speaker selection operates in these languages, and the extent to which the practices observed concur with those observed in

European languages. We examine gaze, gesture and other overt addressing techniques in the light of participants' spatial orientation. We also examine the lexical, prosodic and morphosyntactic features of initiating actions (especially questions) to see how effective, or necessary, these are in soliciting responses of the expected type.

Extract 1 (Gija language) (A, B and C are seated from left to right.).

1 B [Gabuwa jarrag yarrirnkili.]

What are we going to say/talk about?



2 [(B gazes at A, A looks at own hands)]

3 (1.4)

3 B [↑Gabuwa yarrirn:kili.]

What are we going to say/talk about?



4 [(B gazes at A, A looks at own hands)]

5 (0.8)

6 A [Aa gabuwa yarrirnkili.]

What are we going to say/talk about?



7 A [(gazes ahead)]

8 (1.5)

9 C Warnawarnarram ba- balngarri wanemandeyarri.

About what they used to te- tell us a long time ago.

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The cataphoric function of grammatical subjects: evidence from functional magnetic resonance imaging

Ina Bornkessel-Schlesewsky, Katerina Kandylaki and Matthias Schlesewsky

Psycholinguistic and neurolinguistic research has traditionally focused on different subdomains of linguistic representations (e.g. syntax vs. semantics), rather than on the functional implications of linguistic categories. For example, grammatical subjects and their characteristics have been studied primarily as a means of informing theories of (morpho-)syntactic language processing (e.g. processing of case marking and agreement). Thus, while the functional role of grammatical categories has been studied extensively in theoretical and typological research (e.g. Foley & Van Valin, 1984; Gildea, 2012; Givón, 1983), it remains largely underexplored from the perspective of how language is processed in the brain. Here, we present one of the first neuroimaging studies that explicitly adopted a functional perspective on the grammatical subject category and its cataphoric discourse properties.

As described in detail by Givón and colleagues on the basis of cross-linguistic text analyses (Givón, 1983, 1994), subject arguments are high in "topic persistence" (TP), a quantifiable operationalisation of how often a particular referent will be mentioned in the upcoming discourse. Grammatical subjects have a higher TP than other arguments; subjects of passive sentences, which involve promotion to subject of an argument that would more typically be expressed using another grammatical function, have a higher TP still (Gildea, 2012). In the present study, we thus examined the neural correlates of processing identical referents in natural stories, depending on the strength of their previous TP cueing (i.e. the referent had previously occurred as a subject of an active or of a passive sentence; cf. examples 1 and 2).

In the present fMRI study, 22 right-handed native speakers of German listened to 20 short stories (approximately 2 minutes in length) and answered two comprehension questions after each story. Within the stories, we embedded critical sentence pairs such that sentence A introduced a subject referent, while sentence B provided the next point of mention for that referent (see examples 1 and 2). Sentences A and B were always separated by an intervening sentence of approximately 5s in length. In the examples, sentences A and B are indicated by square brackets and subscripts. In the following, we refer to sentence A as the "context sentence" in the following and the first subsequent mention of the subject in that sentence (i.e. "the engineer" in sentence B) as the "referent". To examine the neural correlates of referent tracking in natural stories, we compared blood oxygenation level dependent (BOLD) responses to identical referents that had been cued for different levels of TP by their status as the subject of an active or passive context sentence. We hypothesised that, due to the lower TP for active versus passive subjects, we should observe increased activation for referents previously mentioned in an active as opposed to a passive sentence.

Results indeed showed increased activation for referents following active (1) versus passive (2) context sentences in a fronto-parietal network comprising bilateral inferior and middle frontal gyri, bilateral cingulate cortex and the right inferior parietal lobule. The lateral regions in this network form part of the dorsal auditory stream, one of two cortical processing streams for speech and language (e.g. Rauschecker & Scott, 2009). It has recently been proposed

that, in language processing, the dorsal stream's primary function is one of predictive sequence processing at a number of hierarchically nested levels (Bornkessel-Schlesewsky, Schlesewsky, Small, & Rauschecker, 2015). In accordance with observations of increasing temporal receptive windows along the dorsal stream from auditory cortex to prefrontal cortex (Lerner, Honey, Silbert, & Hasson, 2011), this account assumes that sequences of phonemes (words) are processed in closest anatomical proximity to auditory cortex (AC), with sequences of words (sentences) and of sentences (discourses) processed in successively more distant regions from AC. The current finding of parieto-frontal activation differences for referents with lower versus higher TP values as determined via the preceding discourse context provides converging support for this assumption. We interpret these activation differences as reflecting modulations of discourse-based sequencing predictions (i.e. higher or lower expectations for the reappearance of the referent following the context sentence).

Examples

- (1) Active context sentence (translation of German original); note that fMRI responses were measured at the position of the referent (subject of sentence B)

“... [*The engineer pushed the pharmacist quickly back into the car,*]_A because due to the traffic one could not stay for long in the narrow street. [*The engineer sped off immediately.*]_B ...”

- (2) Passive context sentence (translation of German original); note that fMRI responses were measured at the position of the referent (subject of sentence B)

“... [*then the engineer was pushed quickly into the car by the pharmacist,*]_A because due to the traffic one could not stay for long in the narrow street. [*The engineer sped off immediately.*]_B ...”

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Insights on pattern replication in Upper Mangdep (East Bodish, Bhutan)

Andre Bosch

Of the approximately 18 Tibeto-Burman languages spoken in Bhutan, only a handful have been closely studied. Although these represent a diverse range of subgroups, one, East Bodish, is almost completely unique to Bhutan. The national language, Dzongkha, along with a few other languages around the kingdom, is a representative of Tibetic, a widely spread Bodish subgroup whose members descend from Classical Tibetan. East Bodish is local to the central and eastern parts of the country, and is internally divided into a Dakpa-Dzala subgroup and a Bumthangic subgroup. Two other languages, Chali and Upper Mangdep (variously known as Mangdebikha, 'Nyenkha, Henke, and Phobjip in existing literature), have an unclear relative position (Hyslop 2013).

The common Bhutanese shibboleth 'where are you going?' is the first red flag that tells us that the conventional grouping of Upper Mangdep among the expected Bhutanese linguistic phyla is more complicated than the existing linguistic surveys imply, although indeed a plurality of lexemes have an East Bodish etymology. Comparing the sentence in the language with neighbouring Khengkha (East Bodish), and with the national language, Dzongkha (Tibetic), however, we will see that Upper Mangdep shares more structural similarities with Dzongkha than Khengkha (1).

In both Dzongkha and Upper Mangdep, the verb takes a non-past infinitive suffix combined with the suppletive interrogative copula. Conversely, the Khengkha verb is marked only with the irrealis nominaliser, typical in form and usage for Bumthangic as a marker of future tense.

This paper presents the Upper Mangdep verbal complex in a Bhutanese comparative context, demonstrating similarities and differences between verbal constructions in the language against those in Dzongkha and various East Bodish languages, notably Kurtöp, for which the most complete description exists (Hyslop 2011). I then give new support to the classification of Upper Mangdep as East Bodish (c.f. Hyslop 2013) but argue that the language has undergone extensive grammatical pattern replication, borrowing grammatical structures from Dzongkha.

The research also attempts to provide some preliminary analysis as to why such a contact-induced change has occurred with reference to historical contact between East Bodish speakers and the incoming Tibetic speakers who unified the Bhutanese nation-state. Additionally, the extensive and diverse but not universal set of convergent changes, not only within the verbal system but, for example, in phonology, lends itself to various structural explanations for why some constructions replicate Dzongkha while others do not.

Example 1

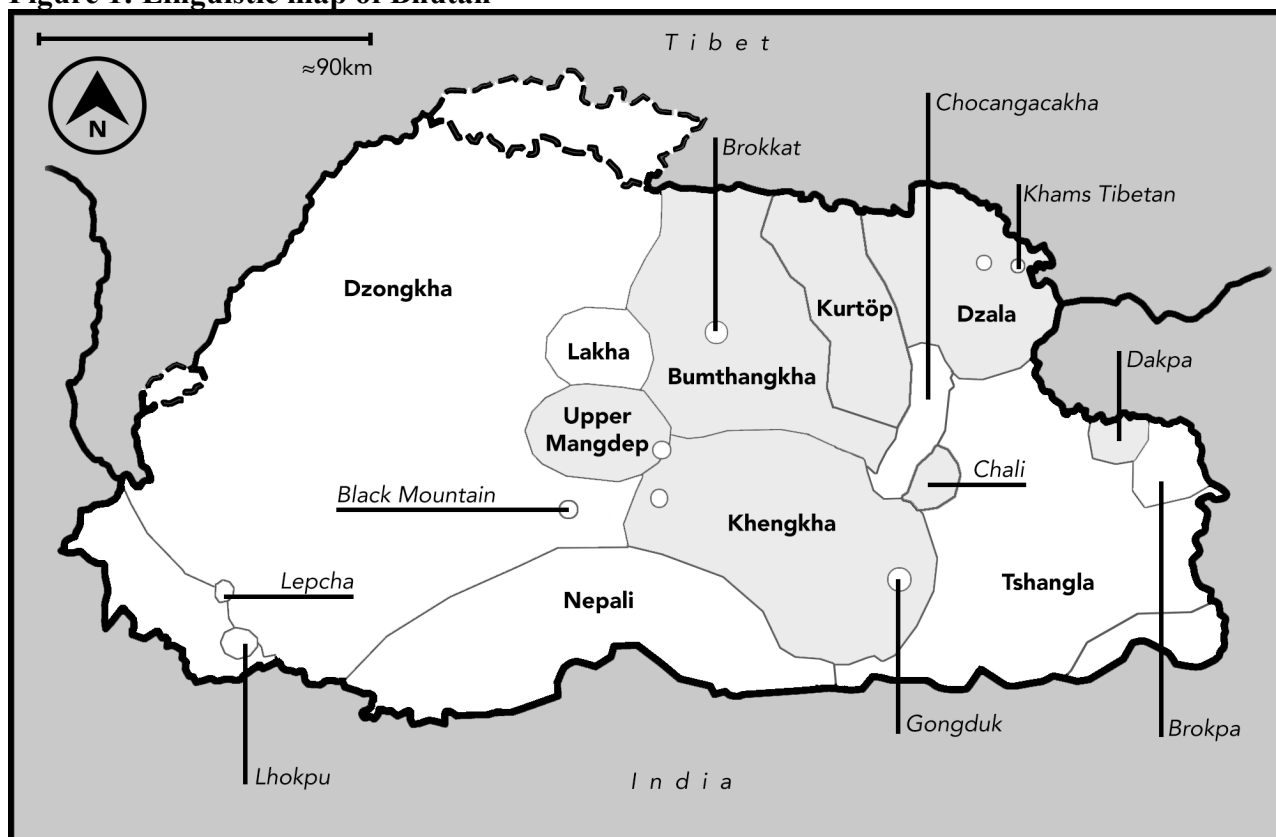
Dzongkha:	<i>g'ati jo-ni 'mo</i>
Upper Mangdep:	<i>'uda yi-ze lo</i>
	where go-NF.NPST COP.ROG
Khengkha:	<i>au gay-mala</i>
	where go-NMZ.IRR
English:	'Where are you going?'

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Figure 1: Linguistic map of Bhutan



Copyright issues relating to Indigenous language materials – the experience of the Living Archive of Aboriginal Languages.

Cathy Bow

Copyright and intellectual property issues can become contentious when working with Indigenous language materials. The need to respect Indigenous cultural and intellectual property while also adhering to Australian copyright law can sometimes create situations where conflicting demands need to be met. Linguists should consider these issues when dealing with archiving, access and approval in language documentation.

The Living Archive of Aboriginal Languages (www.cdu.edu.au/laal) provides a case study of some of the issues involved in this space. The creation of an open access website of thousands of legacy texts in Indigenous languages of the Northern Territory has involved considerable negotiation and navigation of the sometimes incompatible realms of Indigenous and non-Indigenous law.

According to Australian copyright law, copyright for materials produced by employees of an organisation belong to that organisation. Therefore the many resources produced in NT schools which had bilingual education programs are copyrighted by the NT government through the Department of Education. This however does not include the voices of the original storytellers, artists, translators, editors, etc who created these books. While their moral rights of attribution are protected within the law, the creators and/or their families could be seen to have no right to refuse to allow their books to be made public on a website such as the Living Archive. However, in order to respect their contribution and engage them in the creation of the Living Archive, the project team has sought individual permissions for these items from the creators named in the books. The task continues to be time-consuming and occasionally intrusive, yet no satisfactory alternative way has been identified. While making all items public without consultation with the Indigenous story owners would be completely legal within the current law, it would also be a further example of non-Indigenous researchers taking Indigenous knowledge and doing something with it that may not be within the desires of the community, and further silences those voices.

The texts contained in the Living Archive include both published and unpublished works, and copyright law applies differently in each case. However, even this distinction is blurred, if we question whether a one-off copy of a handwritten manuscript produced for use in a single classroom should be considered 'published.' The contents of the Living Archive also include materials published outside of NT Department of Education schools, and so arrangements must be made with the various copyright owners to license digitisation and uploading of these works. Some materials are based on commercial publications, but may never have been cleared by the publishers – a small risk for the nature of the distribution within small remote communities – but these cannot be made open access, thus creating a 'dark archive'. Decisions made now about how to handle such items must consider the long-term impacts and issues of sustainability.

Linguists working in language documentation may find themselves working with legacy materials from various sources, making it difficult for them to trace the history of who owns copyright or who should be consulted for decisions about access. Archivists regularly address such issues and there are a number of models available for restricting and allowing access under various terms. This paper will outline some of the issues that should be considered when engaging with such materials, as well as considerations for the preparation and distribution of new materials.

A marriage of necessity: Light Warlpiri obstruent perception

Rikke Bundgaard-Nielsen, Carmel O'Shannessy and Brett Baker.

Background. Light Warlpiri (O'Shannessy, 2005; 2012; 2013) is a mixed language spoken in Lajamanu in the Northern Territory (Australia). Light Warlpiri (LW) was born out of codified and expanded code-switching between Warlpiri and Kriol, or some form of English, in the 1980s. LW is the first language of ~350 people, most under the age of 40. Little is known about how the unusual origins of mixed languages shape their phonological systems (though see Jones & Meakins, 2013 for a discussion of obstruents in the similar language Gurindji Kriol). There has been no previous investigation of LW phonology as it is currently used and transmitted. While the early stages of LW formation are likely to have been characterised by substantial L2-accented code-switching of Kriol/English words into Warlpiri, subsequent codification - and the acquisition of LW as a first language - must have required reconciliation of the discrepant requirements of the phonological inventories of the parent languages. In the case of LW, phonological reconciliation and codification required significant reorganisation: Warlpiri has one series of obstruents and no fricatives or affricates (Hale, 1977; Laughren, 1984) while Kriol (Baker et al., 2014) and English have voiced and voiceless obstruents as well as fricatives and affricates. Kriol differs from English in also using duration to realise the stop contrast, and in having a limited set of voiceless fricatives (/s ʃ f/; /v/ is an allophone of /b/). **Aims.** We present a study of English and Kriol-like obstruent discrimination by speakers of LW. The study tests whether speakers of LW behave in accordance with a phonological inventory like that of **1)** Warlpiri, resulting in difficulties discriminating all stop and fricative voicing distinctions; **2)** Kriol, resulting in difficulties discriminating stop and fricative distinctions based on voicing, but improved discrimination of stop-distinctions based on voicing *and* duration, or; **3)** English, resulting in good voicing-based stop *and* fricative discrimination. **Method.** 15 Lajamanu-based LW listeners (age range 16-33) were presented with a series of XAB discrimination tasks over headphones (See Bundgaard-Nielsen & Baker, in press, for paradigm and stimuli details). To ensure task-familiarity, listeners completed a training task of English /p k/ discrimination: /p k/ is a phonemic contrast in English, Kriol and Warlpiri alike, and discrimination should be accurate. A minimum 60% /p k/ discrimination accuracy was a requirement for study inclusion; one participant was excluded. The mean discrimination accuracy of the remaining listeners was 88% (range 74-99% correct). The experimental tasks consisted of nine stop and fricative contrasts. We tested English /p b/ and /k g/ in medial and initial position, as well as medial Kriol-like /p: b/ and /k: g/ contrasts in which the constriction duration of English /p k/ had been extended by 50ms to bring it within voiceless Kriol stop range). We also tested the discrimination accuracy of initial /s ʃ/, /b v/ and /s z/, to further tease apart the likely relative contributions from Warlpiri, Kriol, and English, which differ in the phonemic status of /s ʃ v z/. **Results.** The discrimination accuracy of the listeners is presented in Figure 1 (stops), and Figure 2 (fricatives). One-sample *t*-tests for each contrast showed that the discrimination accuracy differed from chance (all contrasts $p < .001$, except /k g/ $p = .008$, and /s z/ $p = .014$). A one-way ANOVA of the discrimination accuracy of the six stop contrasts showed a main effect of contrast ($F(5, 74) =$

11.074), $p < .001$). Post-hoc Bonferroni comparisons (Table 1) showed that the Kriol-like medial contrasts /p: b/ and /k: g/ were better discriminated than the English-like equivalents /p b/ and /k g/. The Kriol-like medial stop contrasts were also better discriminated than VOT-only based initial /k g/ contrast, and in the case of /k: g/ also initial /p b/. There were no significant differences between the discriminability of medial /p b/ and /k g/ and the initial /p b/ and /k g/ contrasts. A one-way ANOVA of the discrimination accuracy of the fricative contrasts also showed a main effect of contrast ($F(2, 36) = 15.861, p < .001$). Post-hoc Bonferroni comparisons showed that this effect was due to /s z/ being less accurately discriminated than /s ʃ/ and /b v/ ($p < .001$ in both cases). **Discussion.** The results reported here are overwhelmingly consistent with a LW phonological inventory that has a voiced and voiceless obstruent series, realised through duration as well as VOT differences, as well as a series of fricatives, including /s ʃ v/. Such an inventory is consistent with substantial Kriol influence (not only seen in the improved discrimination of Kriol-like medial stop contrast, but also in the difficulty with /s z/ discrimination), though the successful discrimination of /b v/ suggests additional substantial influences from English.

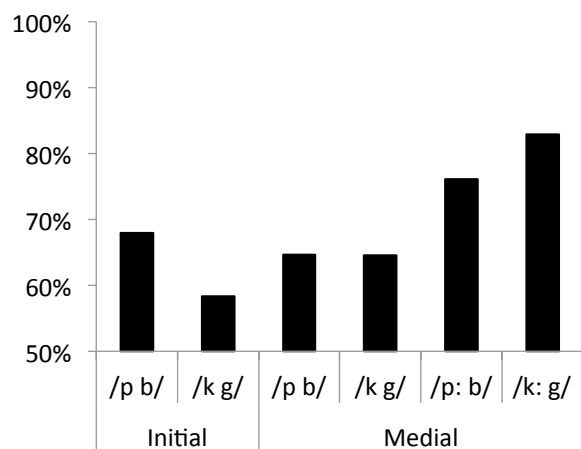


Figure 1. English and Kriol-like stop discrimination by native LW listeners. 50% correct discrimination reflects chance performance.

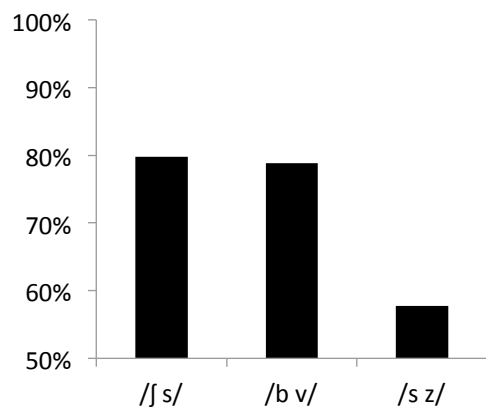


Figure 2. English fricative discrimination by native LW listeners. 50% correct discrimination reflects chance performance.

Table 1. Post hoc comparisons of the six stop contrasts.

Comparison		Diff.	S.E.	Sig.	95% Conf. Int.	
					Lower	Upper
Medial /p b/	Medial /p: b/	-0.114	0.037	.04	-0.23	0
	Initial /p b/	-0.033	0.038		-0.15	0.08
	Medial /k g/	0.002	0.038		-0.11	0.12
	Medial /k: g/	-0.184	0.038	< .001	-0.3	-0.07
	Initial /k g/	0.065	0.038		-0.05	0.18
Medial /p: b/	Initial /p b/	0.081	0.038		-0.03	0.2
	Medial /k g/	0.116	0.038	.05	0	0.23
	Medial /k: g/	-0.069	0.038		-0.18	0.05
	Initial /k g/	0.179	0.038	< .001	0.06	0.29
Initial /p b/	Medial /k g/	0.035	0.038		-0.08	0.15
	Medial /k: g/	-0.151	0.038	< .001	-0.27	-0.03
	Initial /k g/	0.098	0.038		-0.02	0.21
Medial /k g/	Medial /k: g/	-0.185	0.038	< .001	-0.3	-0.07
	Initial /k g/	0.063	0.038		-0.05	0.18
Medial /k: g/	Initial /k g/	0.248	0.038	< .001	0.13	0.37

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Stop production and perception by Kriol-speaking early primary school children

Rikke Bundgaard-Nielsen, Brett Baker and Elise Bell

Background. North Australian Kriol is an English-lexified creole spoken by ~20,000 people across Northern Australia (AIATSIS, 2005). Kriol developed during the last 100 years. Although little experimental work has been done, Kriol is often characterized as having extreme levels of variation in phonemic inventories (e.g., in the use of contrastive voicing) and the pronunciation of lexical items (Sandefur (1986) reports, e.g., *buludang*, *bludang*, *blutang* for ‘blue-tongue lizard’) within and between speakers. Such variation might inhibit learners’ identification of word targets, and require them to develop phonological contrasts—such as voicing—that can be turned off and on as they move between conflicting phonologies. This view is at odds with recent studies demonstrating that Kriol has a canonical lexicon and a stable phonological inventory (Baker et al., 2014; Bundgaard-Nielsen & Baker, in press, a, b). **Aims.** To investigate this claim of variability in word and phoneme realisations, we conducted 1) a production task, and 2) a mispronunciation detection task with Kriol-speaking children. In the production task, we elicited ~5 repetitions of 24 depictable nouns containing initial and medial /p b t d k g/, selected in consultation with two literate speakers of Roper Kriol. The Kriol prompt ‘*Wanem dijan?*’ (‘What is this?’) was played with each picture. In the mispronunciation detection task (Schwarz, 2007; Swingley, 2003), we presented the participants with the same 24 items as in the production task, paired with the target word recorded by a female Kriol speaker. Each item was presented with the correctly pronounced target as well as with 2-4 mispronounced forms, resulting in a total of 99 items. Each mispronunciation was a single phoneme mispronunciation in the form of a manner change (such as /targa/ ‘tiger’ to /sarga/); voicing (voiceless to voiced such as /daiga/); place of articulation (/karga/); manner+voice (/tarsa/), or vowel (/toiga/). **Method.** 13 (7 female; age 4;8-7;0; M=6;0) children participated. Recordings were done with a headset microphone, at Wugularr School (Beswick, NT). Targets were hand-segmented and Voice Onset Time (VOT) and Constriction Duration (CD) extracted. We extracted a total of 1400 VOT measurements and 449 CD measurements (see Table 1). For the mispronunciation task, we calculated overall % correct acceptance, overall % correct rejection, and % correctly rejected items with voicing mispronunciations. Two children (ages 5;4 and 6;3) did not complete this task. **Results.** The results suggest that neither Kriol lexical items, nor the children’s phonetic realisation of Kriol stops vary. The children as a group maintained VOT and CD distinctions consistent with adult values (Figures 1, 2 for VOT, and Figure 3 for CD), as demonstrated by two-tailed paired *t*-tests (each VOT contrast = $p < .001$; each CD contrast = $p < .001$). *t*-tests comparing initial vs. medial stop VOT within each phonemic category were non-significant except for initial vs. medial /k/ ($p < .001$). For each individual child, a *t*-test of voiced vs. voiceless VOT across place of articulation (POA) was significant, as were *t*-tests of the word-initial stops collapsed across POA (3 children [ages 5;4; 5;7; 6;3] did not provide enough tokens for individual analysis). Word-medially, 7 of the remaining 10 children maintained a CD contrast, while only 5 maintained a VOT contrast. The results from the mispronunciation detection task are consistent with these production findings: by the age of 5;7 children overwhelmingly reject mispronunciations of Kriol

lexical items involving a change in the voicing specification. This suggests (unsurprisingly) that Kriol-speaking children acquire a phonological system consistent with that of adult Kriol speakers, that they can perceive the distinctions they are producing, and importantly that they can make explicit judgements about the correctness of the canonical form of Kriol lexical items, on the level of fine phonetic detail of VOT timing. **Discussion.** The results lead us to reject the common assumption that Kriol lexemes are licensed with a range of voicing and constriction settings. Rather, both the production and mispronunciation detection tasks strongly suggest that Kriol-speaking children have a stable phonological inventory and canonical forms of lexemes, including voicing specifications. The mispronunciation detection task also shows that Kriol-speaking children react appropriately to changes in the lexical specifications of words in their L1. More broadly, our results show that Kriol-speaking children have implicit and explicit L1 phonemic awareness, and suggest that L1-based tasks such as these might be useful in the assessment of Kriol-speaking children in the early years of primary school.

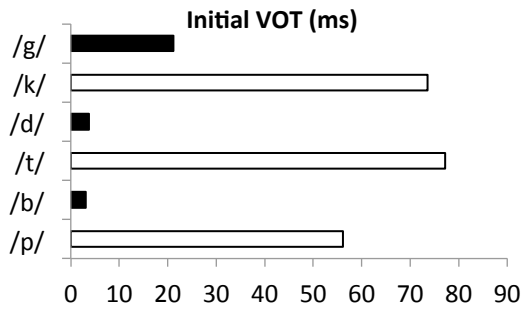


Figure 1. Initial VOT in milliseconds.

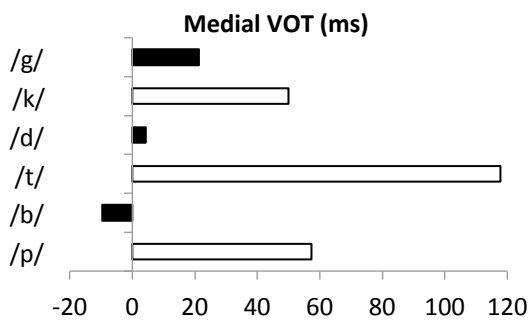


Figure 2. Medial VOT in milliseconds.

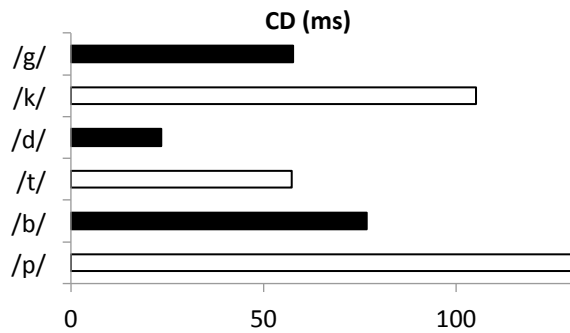


Figure 3. Constriction duration (CD) in milliseconds.

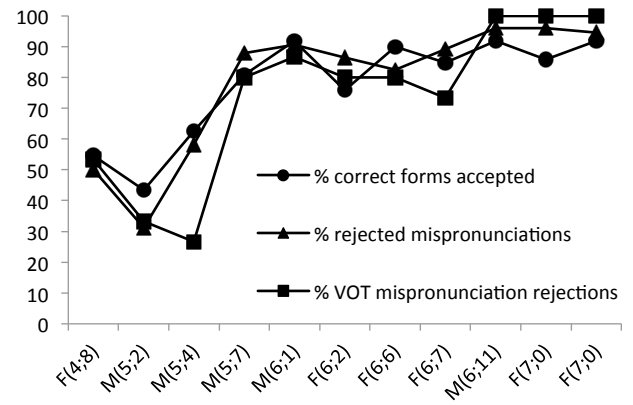


Figure 4. % correct responses, % correctly rejected mispronounced items, % correctly rejected VOT-based mispronunciations.

Table 1. Number of tokens, VOT/CD in milliseconds (ms), standard error (S.E.), standard deviations (S.D.), and variance for all Kriol stop productions.

Token	Initial VOT					Medial VOT				
	N	M(ms)	S.E.	S.D.	Var.	N	M(ms)	S.E.	S.D.	Var.
/p/	128	60	0.002	0.027	0.001	66	60	0.007	0.054	0.003
/b/	261	0	0.002	0.035	0.001	131	-10	0.005	0.054	0.003
/t/	283	80	0.002	0.035	0.001	57	120	0.067	0.508	0.258
/d/	63	0	0.005	0.042	0.002	6	0	0.013	0.031	0.001
/k/	150	70	0.002	0.029	0.001	110	50	0.005	0.051	0.003
/g/	66	20	0.004	0.036	0.001	79	20	0.006	0.055	0.003
CD										
/p/	66	130	0.005	0.041	0.002					
/b/	131	80	0.003	0.029	0.001					
/t/	57	60	0.006	0.046	0.002					
/d/	6	20	0.004	0.009	0					
/k/	110	110	0.003	0.029	0.001					
/g/	79	60	0.002	0.019	0					

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Wicked *which*: the linking relative in Australian English

Isabelle Burke

The linking relative has long been the black sheep among the relative clause family. With no true antecedent, the ‘relative pronoun’ *which* fulfils only the connective function of a relative clause, occupying a troublesome middle ground between subordination and coordination, as in examples like (1):

- (1) *I’m taking them to Kangaroo Ground, which hopefully they won’t have too much culture shock over there.*

While the standard relative clause has enjoyed extensive scholarship, the eccentricity and comparative rarity of the linking relative has all too frequently consigned it to the explanatory dustbin of ‘performance error’, with only a handful of scholars describing this construction (e.g. Miller, 1988; Kuha, 1994; Loock, 2007).

Given this struggle to be accepted as a legitimate part of conversational syntax, there has never before been an attempt to fully classify or sub-categorise this construction, although it clearly spans at least two distinct discourse functions (reiteration and focus) and indicates three different relationships with the linked clause (simple linkage, causality and concession).

This study presents data from three grammaticality judgement surveys, numbering over 170 participants in total, which indicate that Australian speakers strongly and consistently prefer reiterative *whiches* to more focus-oriented *whiches*. This preference could be explained by the alignment of the discourse function, namely reiteration, with the standard relative clause, in which there is an anaphoric relation between the relative clause and its antecedent. In effect, the discourse function, i.e. a resumptive topic marker, ‘mimics’ the traditional anaphoric relation a relative clause has with its antecedent.

These findings are complemented by early examples from the UWA Corpus of English in Australia and new data from the 2013 series of the reality television show *Big Brother Australia*, in which the reiterative sub-type has been found exclusively. Additionally, it appears that there is a strong relationship between ‘preposition chopping’, in which a preposition is omitted entirely from a relative clause, as in *the cat ran up and down the hall three times, [at] which we laughed our heads off*, and the linking relative. Indeed, it is possible that preposition chopping could be acting as a ‘bridging context’ for the linking relative.

It appears that this eccentric relative has a lot more of interest to tell us – perhaps it is time to invite it back to the table.

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Language change in a changing society: a real and apparent time study of the Chilean second-person singular pre and post Pinochet.

Matthew Callaghan

“As an innovation diffuses through the speech community, the social structure of that community conditions its path” (Sankoff and Blondeau, 2007: 560). Change is always preceded by variation, and stratification of variables by age can reflect either ‘historical change’ (change in the speech community over time) or ‘age-grading’ (change in individuals’ speech as they move through different phases of life) (Eckert, 1998: 151). This paper reports a real and apparent time variationist study of a change in progress in the second person singular (2sg) verbal and pronominal system in Chilean Spanish – an ideal site to test these claims as the proposed linguistic change is hypothesised to be linked to changes in Chilean society over the past decades (Torrejón, 1986, 1991) (changes which have only become even more pronounced since the fall of the brutal 17-year long Pinochet dictatorship).

While most varieties of Spanish spoken in Spain and Latin America make use of the 2sg familiar pronoun *tú* and corresponding *tuteo* verb forms as in (1), a number of varieties (e.g. Argentina, El Salvador, parts of Colombia) are characterised by the *voseo* – the use of the pronoun *vos* as a second person singular familiar form (with corresponding *voseo* verb forms as in (2)). In Chilean Spanish both *tú* and *vos* co-exist, and the two paradigms often mix, as seen in (3).

- | | |
|---|----------------------------------|
| (1) <i>No po si tú tienes razón.</i> | |
| No you- _{TÚ} are- _{TÚ} right. | (CSSS 150206-000; 868; Trinidad) |
| (2) <i>o sea vos no tenís ningún concierto</i> | |
| In other words you- _{VOS} have- _{VOS} no concert. | (CSSS 141217-000; 947; Matías) |
| (3) <i>... Pero tú tenís que trabajar po.</i> | |
| But you- _{TÚ} have- _{VOS} to work. | (CSSS 150211-003; 1245; Carmen) |

Although *vos* has been traditionally reported as stigmatised in Chile and restricted to lower socio-economic groups, since the 1960s a change in progress in the 2sg paradigm has been observed (Morales, 1972, Torrejón, 1986, Torrejón, 1991, Lipski, 1994, Bishop and Michnowicz, 2010) whereby *voseo* verb forms have expanded to the speech of all social classes. Indeed, Torrejón (1986: 682) hypothesised that the mixed *voseo* (as in (3)) might one day replace *tuteo* as the ‘standard universal form of address for educated Chileans in informal and family situations.’

This study tests this hypothesis based on an analysis of approximately 3000 tokens drawn from two stratified corpora of conversational Chilean Spanish from different time periods: the first from the early 1970s prior to the Pinochet dictatorship (*habla culta* (Rabanales and Contreras, 1979, 1990)), and the second recorded by the researcher in late 2014 and early 2015 (CSSS) in post-dictatorship democratic Chile.

The results show near absolute preference for the pronoun *tú* by speakers both before and after the dictatorship, even with *voseo* verb forms as hypothesised by Torrejón. However, in stark contrast to almost categorical use of *tuteo* verb forms by young educated speakers in the 1970s (with only 2 *voseo* verb forms out of 700 2sg tokens), by 2014/15 the predicted change is virtually complete among young speakers (with over 90% *voseo*). There is some variability amongst older speakers (approx.75% *voseo*), and a possible gender effect (males 97%, females 87% *voseo* respectively), as well as linguistic conditioning factors such as highly frequent constructions (Travis, 2006, Bybee, 2006, Bybee et al., 1994, Bybee and Hopper, 2001) such as *cachái* ('you know'; nearly 1/3 of the total data), which may shed light on how this very rapid change took place.

Results not only document a significant grammatical change over a relatively short period of time (40 years), but also contribute to research about potential (social) mechanisms of language change and the apparent time construct.

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Multivariate analysis of articulatory-acoustic relationship in Southern American English vowels

Christopher Carignan and Jeff Mielke

Traditional methods of analysing tongue configuration with ultrasound imaging involve tracing the tongue surface in individual ultrasound frames, quantifying the tongue shapes in some manner, and comparing the measures between categories [1,2]. However, advances in both computing resources and statistical methods used in the linguistic sciences permit researchers to perform analysis of ultrasound data on a large scale using alternative aggregate methods [3,4]. In the study discussed here, ultrasound data collected from seven Southern American English (SAE) speakers were submitted to Principal Component Analysis (PCA) models, and the first 20 PC scores – measured at the midpoint of the front vowels /a, æ, ε, eɪ, ɪ, i/ – were regressed with normalised F1 values measured at corresponding time points. The resulting regression scores are a representation of how tongue configuration correlates with the F1 dimension in a linear manner. These scores are used here to compare the articulatory-acoustic relationship for the front vowels of the SAE dialect.

Figure 1 displays reconstructed models of average tongue shapes from one speaker, with the tongue dorsum to the left and the tongue tip to the right. These reconstructions were created by summing the weighted products of the 20 PC scores and their respective dimension loadings. The white line that can be seen in each image is a reconstruction of the average tongue contour for the corresponding vowel category. These images reveal a lowered flattened tongue body for /a/, a raised and bunched tongue body for /æ/, a slightly higher tongue body for /ε/, a further raised tongue body for /ɪ/, and the highest tongue body configuration for /eɪ, i/. The other six speakers manifested similar tongue configurations to those observed here. Figure 2 displays the relation between the normalised F1 measures (Z1) and the regression scores of the articulatory PCs (art.Z1) for all of the speakers; both axes have been flipped in order to accord with the traditional, inverted F1 dimension. A linear regression model (blue line) and -1 slope at $y=0$ (black line) have been added to help visualise this relation. Data points which fall on the black line indicate a perfect correlation between the acoustics and articulation. Expectedly, because the art.Z1 values originated from correlation with the Z1 values, the linear fit of their relationship is strong (adjusted $R^2=0.79$, $p<0.001$). For the most part, the Z1 and art.Z1 values accord with what we expect to observe, given the respective tongue configurations for each vowel. However, /æ/ manifests higher Z1 and art.Z1 values than /a/, even though /a/ is produced with a lower, flatter tongue body than /æ/, which is predicted to lower F1 (Z1). Further articulatory research on these vowels is recommended in order to investigate whether pharyngeal aperture plays a role in this apparent articulatory/acoustic discrepancy.

By rotating this Z1/art.Z1 relation data 45° (Figure 3), such that the black line becomes the x-axis (x'), the resulting x' values can be used to test the articulatory/acoustic relationship differences between the vowels. The distributions are displayed with density curves in Figure 4. A Tukey post-hoc test of a linear mixed-effects (LME) model with vowel as a fixed effect and speaker as a random effect reveals that all category differences observable in the figure are significant ($p<0.001$). In other words, the vowel distributions along the black line in Figure 2 are all significantly different from each other. This measure reveals differences that art.Z1 alone, for example, fails to capture: the art.Z1 difference between /ɪ/ and /i/ was, in fact, found not to be

significant.

Figure 5 suggests that the $Z1/art.Z1$ dimension is centralised under the influence of nasalisation, which has been observed, e.g., in French [5,6]. Figure 6 displays density curves of the difference between $Z1$ and $art.Z1$ values for vowels preceding nasal codas. A positive value on this scale indicates that $Z1$ is greater than predicted by tongue configuration, and a negative value indicates that $Z1$ is lower than predicted by tongue configuration. Since the distribution for /a/ is centred on 0, we can use the distribution for /a/ as a more conservative base of comparison with the other vowels than the value 0, which has no distribution. An LME model and Tukey post-hoc test reveals that /æ, e/ are both greater than /a/ ($p < 0.001$), suggesting that nasalisation may be causing $F1$ to be higher than predicted by tongue configuration for these vowels. Similar effects were observed for vowels before /l/ codas. These results support the argument that acoustic events may often misinform our assumptions about the articulatory configurations which cause them.

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Figures

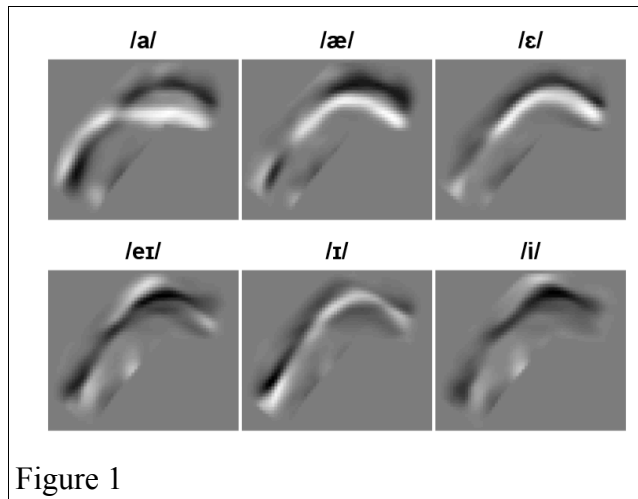


Figure 1

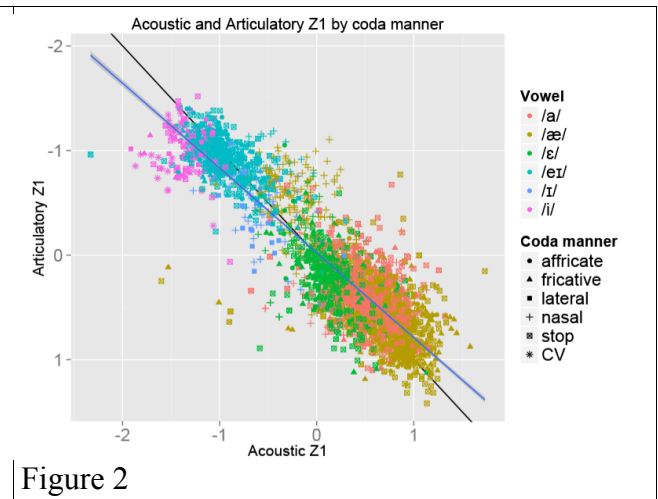


Figure 2

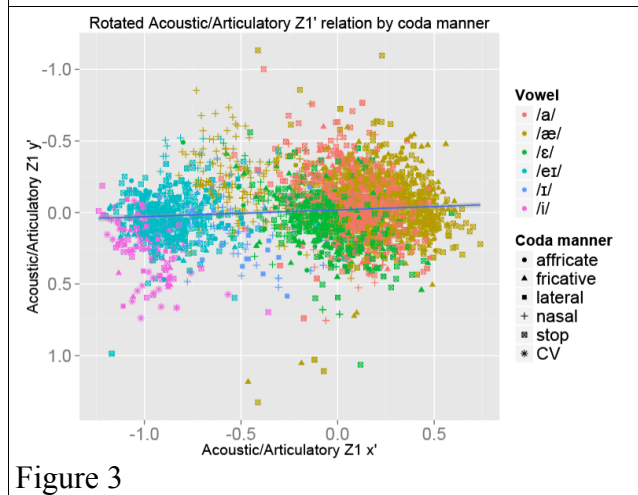


Figure 3

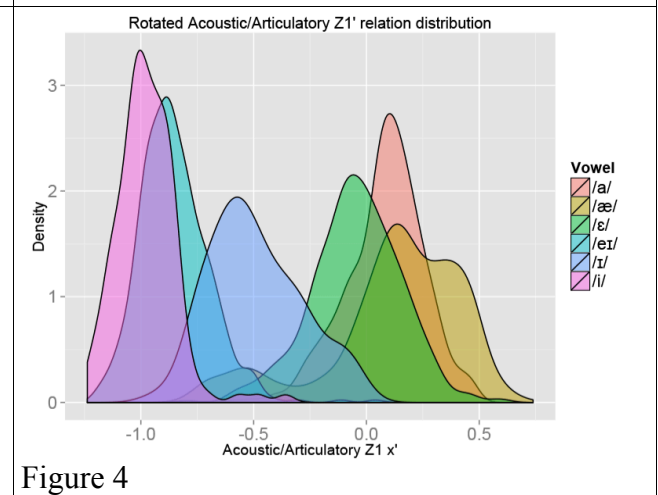


Figure 4

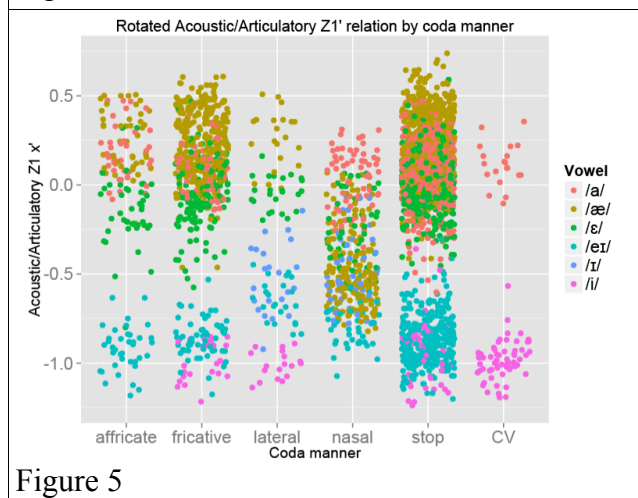


Figure 5

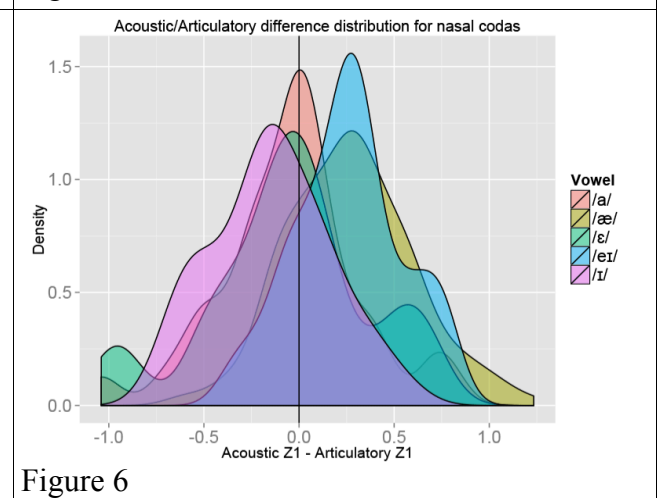


Figure 6

Effect of Early Dialectal Exposure on Adult Perception of Phonemic Vowel length

Hui Chen, Nan Xu Rattanasone, Felicity Cox and Katherine Demuth

English dialects differ greatly in the number and type of vowels in the phonemic inventory. Australian English (AusE), differs from many other English dialects by having a pure phonemic vowel length contrast for a subset of vowels - e:/e and ɛ:/ɛ (Bernard, 1967; Cox, 2006). For example, the word *heart* /ɛ:/ can be differentiated from the word *hut* /ɛ/ by vowel duration alone. Similarly, the contrast between *shared* /e:/ and *shed* /e/ is also based on vowel duration for many speakers. Given that attunement to native phonemic categories occurs in the first twelve months of life (Werker & Polka, 1993), it is unclear whether early exposure to dialects with no phonemic vowel length contrast could affect perceptual sensitivity to vowel length distinctions. In this study we investigate this question by comparing adult native AusE listeners with and without early exposure to other dialects of English.

Two groups of Australian-born AusE-speaking adults aged between 18-40 years old were included in the study. One group (N = 15, Male = 4, Female = 11) were monolingual AusE speakers who and whose parents were born in the Greater Sydney area and speak AusE only, and the other (N = 11, Male = 4, Female = 7) were also monolingual AusE speakers but at least one parent spoke another English dialect as the mother tongue (3 British, 2 New Zealander, 2 American, 1 Scottish, 1 Irish, 1 Maltase, 1 Singapore).

We used the Intermodal Preferential Looking (IPL) paradigm to test sensitivity to the mispronunciations of phonemic vowel length and vowel quality in the two groups of AusE-speaking adults with a Tobii Eye Tracker T300 at 120 Hz sampling rate. Vowels /e, æ, ɛ, ɜ:, ɛ:/ were tested in 20 CVC words with a voiceless coda. Participants were presented with two pictures of different objects side-by-side, one familiar and one novel, before they heard an auditory prompt “Look at the [Target]!”. The target word was either the correct label, a mispronunciation of the familiar word in vowel height, backness or vowel length (e.g. height: *tap* vs *tep*, backness: *duck* vs *dack*, length: *nut* vs *nart*.), or a label completely different from the familiar word. The proportions of looks to the familiar object after the onset of the target word were then calculated. When participants looked at the familiar object in the correct label condition the response was considered to be correct; for other conditions, looking at the familiar object was considered to be incorrect.

Repeated measures ANOVA was used to compare label conditions (correct, height mispronunciation, backness mispronunciation, length mispronunciation, novel word) and AusE groups. Results showed a significant main effect of label condition ($F(4,96)=84.950, p<.001$) and a significant interaction between label condition and AusE group ($F(4,96)=2.470, p=.050$), but no significant group effect was found. Planned contrasts for label conditions showed that the participants significantly looked less towards the familiar object in other label conditions compared to the correct label condition, regardless of which group they were in. Post-hoc comparisons showed that the interaction between label condition and AusE group was significant in the length mispronunciation compared to the correct label condition ($F(1,24)=7.855, p=.010$), and also in the novel label versus the correct label condition ($F(1,24), p=.025$).

These preliminary findings therefore show that, the two groups of AusE adult listeners did perceive vowel contrasts in height, backness, and length. However, the native AusE adult listeners who had early exposure to other dialects of English showed greater tolerance to mispronunciations in vowel length contrasts compared to the group without this early exposure. This suggests that learners with early exposure to other dialects of language will develop more flexible vowel categories.

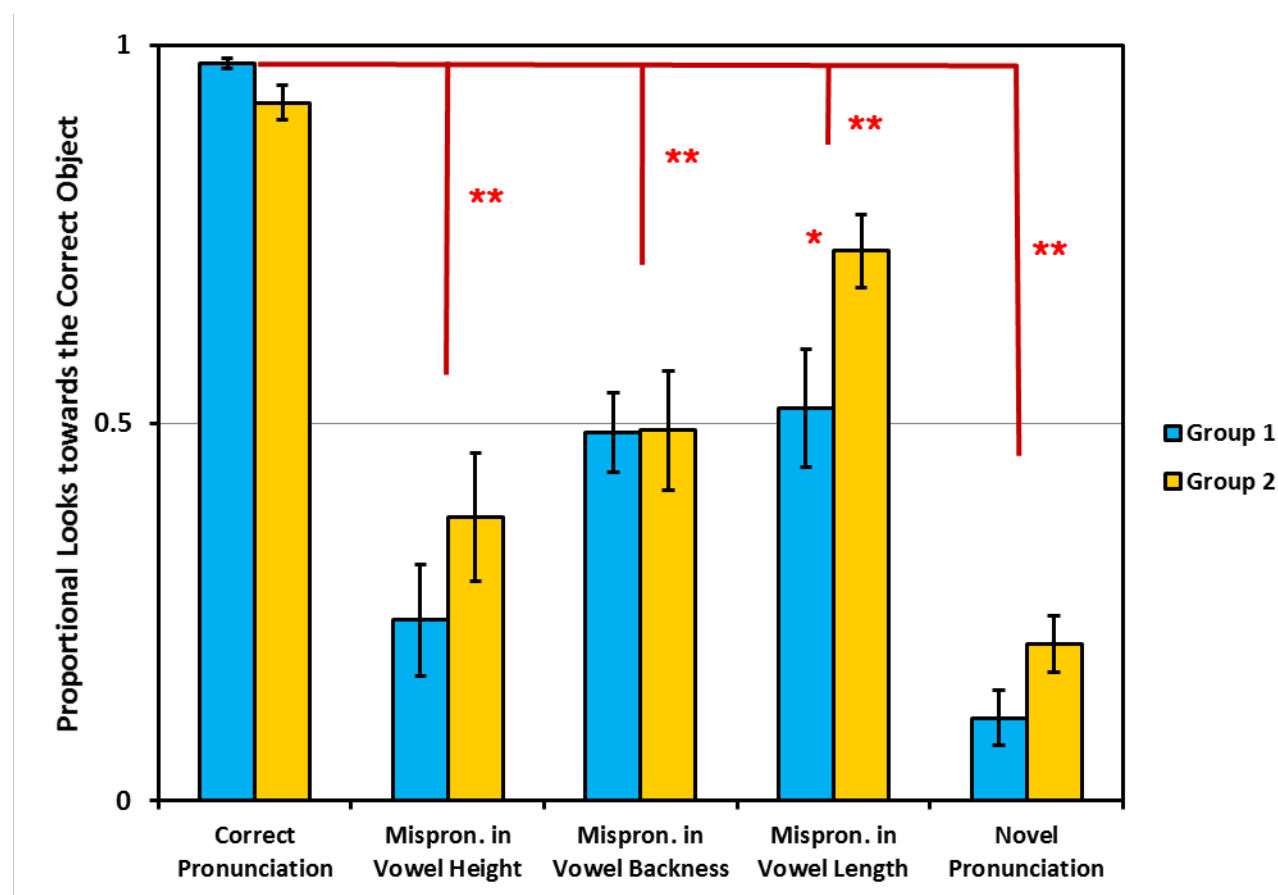


Figure 1 Proportional Looking to the Familiar Object in Different Label Conditions

Group 1 = Native AusE adults;

Group 2 = Native AusE adults with early other English dialect exposure

(Observed window: from Target word onset to 2 sec; Error bars = SE, * $p < .05$, ** $p < .001$)

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Australian English-learning 24-Month-Olds are Sensitive to Phonemic Vowel Length

Hui Chen, Nan Xu Rattanasone, Felicity Cox and Katherine Demuth

Vowel length serves important functions in the acquisition of phonological/prosodic systems in many languages. It is used to distinguish word meanings in some languages such as Australian English (AusE) (e.g. *heart* /e:/ vs. *hut* /ʌ/), and also contributes to syllable weight, thereby influencing the stress patterns of words (e.g. *garage* /'gærɪdʒ/ vs. /gə're:dʒ/).

It is suggested that phonemic vowel length is mastered later than vowel quality (Buder & Stoel-Gammon, 2002). For example, Japanese infants are reported to discriminate vowel quality spectral differences earlier than durational differences (Sato, Sogabe, & Mazuka 2010). However, there are few studies of children's early awareness of phonemic vowel length at the word learning stage. Previous study has shown that by 18 months, infants show awareness of phonemic vowel length in Japanese, which has a systematic long/short contrast throughout the vowel system (Chen, Yamane, Xu Rattanasone, Demuth, & Mazuka, 2015), but it remains unclear when infants become sensitive to phonemic vowel length in a language like AusE where vowel length contrasts are not systematic.

This study therefore addresses the question of when infants can distinguish phonemic vowel length distinctions in AusE. We selected AusE as the target language since it has only two contrastive vowel length pairs - e:/e and ʌ:/ʌ, which presumably makes the acquisition process even harder compared to the mastery of vowel length in Japanese.

We used the Intermodal Preferential Looking (IPL) paradigm to test sensitivity to the mispronunciations of phonemic vowel length and vowel quality in AusE-acquiring 24-month-olds with Tobii Eye Tracker X120. Vowels /e, æ, ʌ, ɜ:/ were tested in 20 CVC words with a voiceless coda. Infants were presented with two pictures of different objects side-by-side, one familiar and one novel, before they heard an auditory prompt "*Look at the [Target]!*", asking them to look at one of the objects. The target word was either the correct label, a mispronunciation of the familiar word in vowel height, backness or vowel length, or a label completely different from the familiar word. The proportions of looks to the target object before and after the onset of the target word were calculated. The proportion of looking difference between pre- and post-target word onset for different pronunciation conditions was then compared.

Repeated measures ANOVA analysis from seventeen infants (5 boys, 12 girls, mean age = 2;17) showed a significant main effect of pronunciation condition ($F(4,64) = 2.81, p = .03$), indicating that the infants performed differently across different pronunciation conditions (Figure 1). Tests of within-subject contrasts also showed a significant effect between vowel length mispronunciation and correct pronunciation conditions ($F(1,16) = 4.38, p = .05$), suggesting that looking shifts in response to mispronunciations of vowel length differed significantly compared to correct pronunciations. Furthermore, shifts of looks towards the familiar object were not significantly different from chance when either vowel height, vowel backness, or vowel length was mispronounced, while looking shifts in the correct pronunciation condition were significantly different from chance ($t(16) = 2.57, p = .03$).

These preliminary findings therefore show that, by 24 months, AusE-learning children are aware of the distinction in phonemic vowel length in a word recognition task, despite the fact that this contrast plays a limited role within the AusE vowel system.

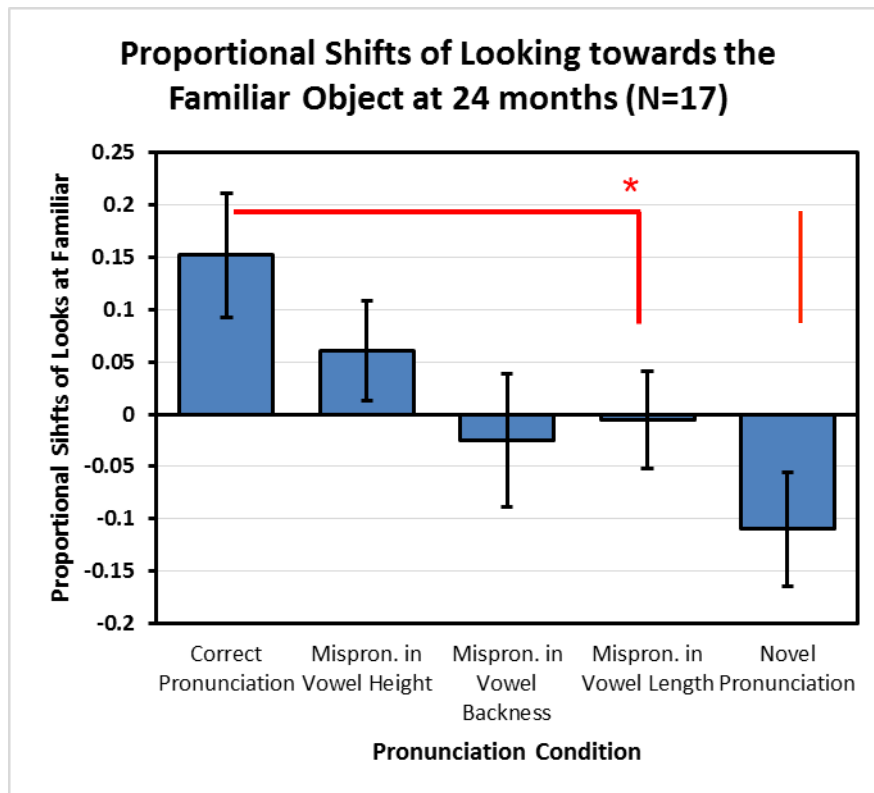


Figure 1 Looking Preference Shift to Familiar Object in Different Conditions
(Observation time windows: 4sec before vs. 4sec after the target word onset)
 (error bars SE, $*p < .05$)

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You “fear” or are just “worried”?
The licensing conditions for the fear verbs *geng*¹ and *paa*³ in Cantonese
Winnie Chor and Nikko Lai

‘Fear’ verbs, as a sub-category of psych-verbs, have received increasing attention in the past few decades. A majority of these studies have been devoted to the investigation of the syntax-semantics mapping of ‘fear’ verbs, particularly how different syntactic mechanisms are responsible to account for the semantic distinctions of ‘fear’ verbs (Belletti and Rizzi 1988; Grimshaw 1990; Pesetsky 1995; among others), as well as how ‘fear’ verbs are categorized according to their semantic features (Arad 1998; Putstejovsky 1991; Pylkkänen 2000; among others).

Our present study extends beyond previous works on ‘fear’ verbs, which have mostly been on English and other Indo-European languages, to examine how ‘fear’ verbs in Cantonese develop into epistemic mood markers. In particular, this paper illustrates how *paa*³ ‘fear’ in Cantonese has evolved to serve as a subjective epistemic and inferential marker equivalent to the English adverb *probably*. *Paa*³ ‘fear’ as a lexical verb is used to express the psychological state or emotion of ‘fear’. It has also come to express a weaker sense of ‘fear’, as in the meaning of ‘worry’ or even ‘I’m afraid’. In fact, this pathway ‘I fear’ > ‘I worry/I’m afraid’ is also attested in other languages, including English and Greek (Kitis 2009a, 2009b). What is interesting about the Cantonese *paa*³ ‘fear’ is that a subjective epistemic reading has emerged from the more general sense of ‘fear/worry/anxiety’, and served to indicate the high likelihood or probability that an event will occur, often an undesirable one. For instance, native speakers of Cantonese would interpret *Nei⁵paa³jau⁶ci⁴-dou³* (lit. you **fear** again late) as ‘You, **I’m afraid**, will be late’ > ‘You **probably** will be late’, but never as ‘You’re *afraid* you’ll be late’. The evaluative interpretation is essentially subjective. Our paper addresses in what context this subjective epistemic meaning ‘probably’ has emerged, and under what syntactic and semantic conditions that *paa*³ ‘fear’ is used to mean ‘I fear’, ‘I’m afraid’, or ‘probably’.

With reference to our corpora data, comprising transcriptions of 35 hours of films produced in the 1950s’ and 29 hours of spontaneous daily conversations recorded in the 2000s’, it is found that another ‘fear’ verb *geng*¹ has gradually come to replace *paa*³ to express the senses of ‘I fear’ and ‘I’m afraid’ in daily Cantonese interactions. Our paper also attempts to account for why such phenomenon emerges, and further explain the difference with regard to the licensing conditions for the two fear verbs in Cantonese.

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Effects of phonological density on the production of Taiwan Southern Min

Man-Ni Chu

Taiwan is known as taking Taiwan Mandarin (TM) as the official language, while many residents, especially older generation, speak their own native languages in other occasions. a series of experiments conducted by Muson et al. (2004, 2005) and Wright et al. (1997, 2004) have shown that phonological neighborhood density (PND) significantly affects the relative space of the F1/F2 among vowels being enlarged or reduced. Recently, Munson (2013) has examined the production of 12 Korean-English speakers and found the similar effect. Thus, this study aims at exploring the production of TSM, a low variety in Taiwan, focusing on the effects of PND and word frequency.

The TSM words were categorized according to their high/ low frequency and PND, where the calculation of the PND is under the criterion of (Luce & Pisoni 1998) to substitute, delete, or add a sound within a CVC structure. Each group has 12 words, yielding a total 48 words, read by 21 natives of TSM (4M, 17F). The F1/F2 dispersion was calculated the same way as in Bradlow, A. R., Torretta, G. M., & Pisoni, D. B. (1996). Linear mixed-effects model was performed and the results indicated that there was a significant difference between high/low PND words. The vowel space in high PND words expanded more than those in low PDN ones. This result consists with the previous studies (listener orientated compensatory, Wright 2004; exemplar model, Pierrehumbert 2002; speaker internal production hypothesis, Baese-Berk, M., & Goldrick, J. 2009) that speakers hyper-articulate sounds for the clarification of listeners. The contribution of this study is to report, a low variety in Taiwan, TSM, which reveals the effects of PND.

Keywords: Taiwan Southern Min, phonological density, vowel dispersion

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Colloquialisation in Contemporary Australian English

Peter Collins

Studies of recent grammatical change in varieties of English (Leech et al. 2009; Aarts et al. 2013; Collins 2015) commonly invoke such processes as colloquialisation and grammaticalisation as relevant influences. This paper seeks to advance our understanding of the discourse-pragmatic process of colloquialisation via a diachronic multivariate corpus-based study of changes in the frequencies of ‘colloquial features’ in Australian English (AusE), with comparisons drawn with two other varieties: AusE’s colonial ‘parent’ British English (BrE), and AusE’s currently ‘ever-present cousin’ American English (AmE). It investigates whether colloquialisation has played a role in promoting recent grammatical change in AusE, and seeks answers to the questions: Is there any evidence of exonormative influence from BrE in these changes? Has AmE taken over as an influence on developments? Is AusE following an endonormative path that is independent of the ‘supervarieties’?

The study is based on selected genre categories (press reportage, learned writing, and fiction) from the 1960s and 1990s members of the “Brown-family” of corpora (Brown/Frown for AmE, LOB/FLOB for BrE, and for AusE the recently-compiled “AusBrown60s” and “AusBrown90s” corpora). The two AusBrown corpora are designed as reduced-size (240,000 words: comprising 80,000 words of each of the three genres) counterparts to the Brown-family corpora, which comprise approximately one million words of printed AmE and BrE published in the early 1960s and the early 1990s. In addition to these corpora, three corpora were used for the purposes of the initial identification of the ‘colloquial variables’ whose frequencies would serve as the basis of comparison: ICE:GB (spoken), ICE-AUS (spoken), and the Santa Barbara Corpus.

A list was prepared of 77 (lexico-)grammatical features judged to be potentially relevant to the study (e.g. 1st and 2nd person pronouns, progressives, present tense, contractions), search routines developed, and normalised frequency counts conducted. ANOVA was then employed to determine whether differences in the frequency of each feature in the spoken and written subcorpora were significant. Features whose frequencies were significantly higher in the spoken subcorpora were classified as “colloquial”, and those whose frequencies were significantly higher in the written subcorpora were classified as “anti-colloquial”. A comparative analysis of the written data (across the three categories of press reportage, learned writing, and fiction) from the six AusE, BrE and AmE (sub)corpora was then conducted. The paper discusses the region-genre-, and change-relevant findings of the study.

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Ngandi aspectual expression in a changing context

Brighde Collins

Ngandi is a Gunwinyguan language spoken in south-eastern Arnhem Land, Northern Territory. The communication of past eventualities in Ngandi is carried out via an obligatory distinction on the verb between perfective and imperfective viewpoint aspect. This expression of grammatical aspect interacts with the aspectual qualities of the lexemes themselves, resulting in a nuanced aspectual system (see Example 1, where PCON with a SEMELFACTIVE results in an iterative reading). Ngandi itself is a language in a situation of severe endangerment, with very few 21st century speakers. This paper compares elicited utterances from a 21st century speaker (born 1940s) with utterances produced in 1974, beginning to explore how the complex system of Ngandi aspectual expression has changed over the last four decades. It is shown that slight tendencies in the 1974 dataset are now regularly utilised in 2013; indicating potential directions of change within the aspectual system that may have broad-reaching consequences for the study of other Gunwinyguan languages.

The 1974 dataset is taken from a review of narrative texts published in Heath (1978). The 2013 dataset is a result of a series of elicitation exercises involving both a questionnaire and video stimuli, aimed at prompting a speaker to produce utterances involving situation types (i.e. lexical aspect) produced in different viewpoint aspect contexts (i.e. perfective vs. imperfective). It is shown that in 2013, the expression of perfective viewpoint aspect is predominantly the domain of the PPUN inflection, as is similarly observed in the 1974 dataset. Additionally, PRS can be used to communicate perfective viewpoint on most dynamic verbs, while PCON is used only on dynamic, durative verbs. The use of PRS and PCON is observed in the 1974 data, but has expanded in 2013, becoming more widespread with respect to context and to some degree, situation type.

In the 2013 data, the expression of imperfective viewpoint aspect has systematically changed with respect to the situation type of the verb concerned. Punctual verbs occurring with the PCON morpheme result in the same readings as observed in 1974 (compare Examples 1 and 2). However, durative verbs can now take PPUN, PCON, PRS and FUT inflections, depending on the context and the required reading (see Examples 3 and 4 for two instances).

It is not surprising to find that in a moribund language such as Ngandi, the aspectual system is changing: it has been observed that TAM systems are some of the first to undergo significant change in language endangerment contexts (Sasse 1992). What is interesting is that this appears to be happening in a systematic manner, and that the durativity of the verb may have some impact on the direction of change. As well as providing an indication of potential trends within Gunwinyguan languages, this paper serves to highlight potential tendencies for aspectual development in a wider linguistic context, opening up a discussion on linguistic change within the expression of tense and aspect more generally, and providing insights into the adaptability of language over time.

Examples

Eg.1: Semelfactive with PCON: iterative reading: From 12.40 in Heath (1978, p. 265)

- A17 rnini-ja-gurrhwarr-dhu-**ngi**
 3.M.SG/3.M.SG-NOW-shoot-AUG-PCON
he (the owner) shot him... [context indicates that this occurred repeatedly]
- A18 rna-ki-h- rni-ga-rudhu-dhu-ngi-hguh
 yung
 there-ABS 3.M.SG-SUB-RDP-go-PCON-WHILE
...as he was walking along there

Eg.2: Semelfactive with PCON: iterative reading: 2013

- Elicitation context** Imperfective viewpoint
English (he was scratching himself and then) he was pounding (repeatedly)
Kriol (*imin grajimat mijel en burrum ja*) *imin warrwarrbat*
- Ngandi verb** rna-gurlh-gurlh-dhu-**ngi**
 3F.SG-RDP-pound-AUG-PCON

Eg.3: Imperfective elicitation context: ACTIVITY verb with FUT suffix; continuous reading: 2013

- Elicitation context** Imperfective viewpoint
English he was singing
Kriol *imin singsingbat*
- Ngandi verb** rna-birlhbirl-dhu-**ng**
 3F.SG.-sing- AUG-FUT

Eg. 4: Imperfective elicitation context: ACCOMPLISHMENT verb with PRS; habitual reading: 2013

- Elicitation context** Imperfective viewpoint
English who used to make (cook) this?
Kriol *hu bin oldei meikimbat (dijan)*
- Ngandi verb** marninyh-marninyh-thu-**ni**
 RDP-make-AUG-PRS

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Diphthong shift in Australian English

Felicity Cox, Sallyanne Palethorpe and Jonathan Harrington

Australian English (AusE) has a shared phonemic inventory with Standard Southern British English (henceforth SSBE) owing to the large proportion of speakers from the south east of England predominating in the early colony (Leitner 2004). AusE today remains closely associated with SSBE but there are several distinctive vowel differences between the two. In particular, AusE diphthongs have long been considered salient markers of the dialect, particularly the vowels /æɪ, i:, æe, əɪ, æɔ, ʊ:/ (BAIT, BEAT, BITE, BOAT, BOUT, BOOT) (Cox & Palethorpe 2012). The glides in the BOUT and BOAT vowels have different orientations in AusE relative to SSBE and the BAIT and BITE vowels have undergone a shift such that they are reminiscent of SSBE BITE and BOYD. This shift has been necessary because AusE BEAT is variably diphthongised giving it a similar quality to SSBE BAIT. Labov (1994) describes these shifts as part of a pattern of changes referred to as ‘Southern Shift’ attested in the southern United States, Australia and New Zealand as well as in the south-east of England mainly in London. The same vowel changes have been described by Wells (1982) as Diphthong Shift in which front rising diphthongs move in an anticlockwise direction around the vowel space. Trudgill (2004) argues that anticlockwise diphthong shift continued in New Zealand once the dialect has been established there. He suggests that the shift follows a progression in sequence from BOUT, BITE, BOAT, BAIT, BOOT, BEAT. In support of Trudgill (2004) and Wells (1982), Cox (1999) did observe anticlockwise rotation when comparing AusE data from the 1990s with 1960s particularly for /æɪ, æɔ, æe/ BAIT, BITE, BOUT. In an apparent time analysis of the ANDOSL corpus (Vonwiller et al. 1995), Cox and Palethorpe (2001) found further and more recent evidence of anticlockwise shifting for /æɪ/ BAIT (females and males) and /æɔ/ BOUT (males) but an unexpected clockwise shifting for /æe/ BITE in female data in an apparent reversal of the diphthong shift process. Diphthong shifting is an example of chain shift phenomena whereby changes to the position of any vowel has the potential to affect other vowels thereby ensuring the functional ecology of the system (Martinet 1955). Chain shifts are typically described for monophthongs by not so frequently for diphthongs. We are interested to find out whether the clockwise rotation observed for /æe/ BITE in female speech in Cox & Palethorpe (2001) could have represented the beginning of a reversal of the chain shift affecting diphthongs.

In this paper we examine the AusE monophthongs and diphthongs (particularly /æɪ, æe, i:/ BAIT, BITE, BEAT) in a trend analysis of speakers representing two different periods in recent history. If the clockwise /æe/ BITE change in female speech observed by Cox & Palethorpe (2001) had represented an incipient change process we may expect to see a further progression of this change in more recent data. We are also interested to examine the relationship between the monophthongs and diphthongs which have been shown to shift together in change (Cox, 1999).

In order to test these propositions, we extracted the 18 AusE stressed vowels in word list data from females under 35 years from the ANDOSL corpus (n=22) recorded in early 1990s and the Australian Voices corpus (n=30) recorded in early 2010s. Labelling was carried out using EMU (<http://emu.sourceforge.net/>) with reference to wideband spectrograms and aligned waveforms. F1 and F2 at the vowel targets were extracted and bark transformed (Zwicker 1961).

Results of individual ANOVAs for each formant of each vowel with dataset as the independent variable reveal significant effects for the diphthongs /æɪ/, /æe/ and /i:/ BAIT, BITE, BEAT suggestive of chain shift in a clockwise direction (see Figure 1 left panel for /æɪ/, /æe/). The results for the monophthongs instead reveal an anticlockwise direction of change (see Figure 1 right panel) and indicating a decoupling of the monophthongs and diphthongs through this change process.

These findings suggest that a reversal of the typically observed diphthong shift has occurred in the past 20 years in AusE and that the close relationship between the monophthongs and diphthongs established in previous literature may no longer hold. Fundamental questions remain about the mechanisms behind these changes, the socio-indexical nature of the changes, whether serial changes do indeed occur (as suggested by Trudgill, 2004), whether adaptations of this kind have a functional basis, and how listeners interpret vowels in the process of change.

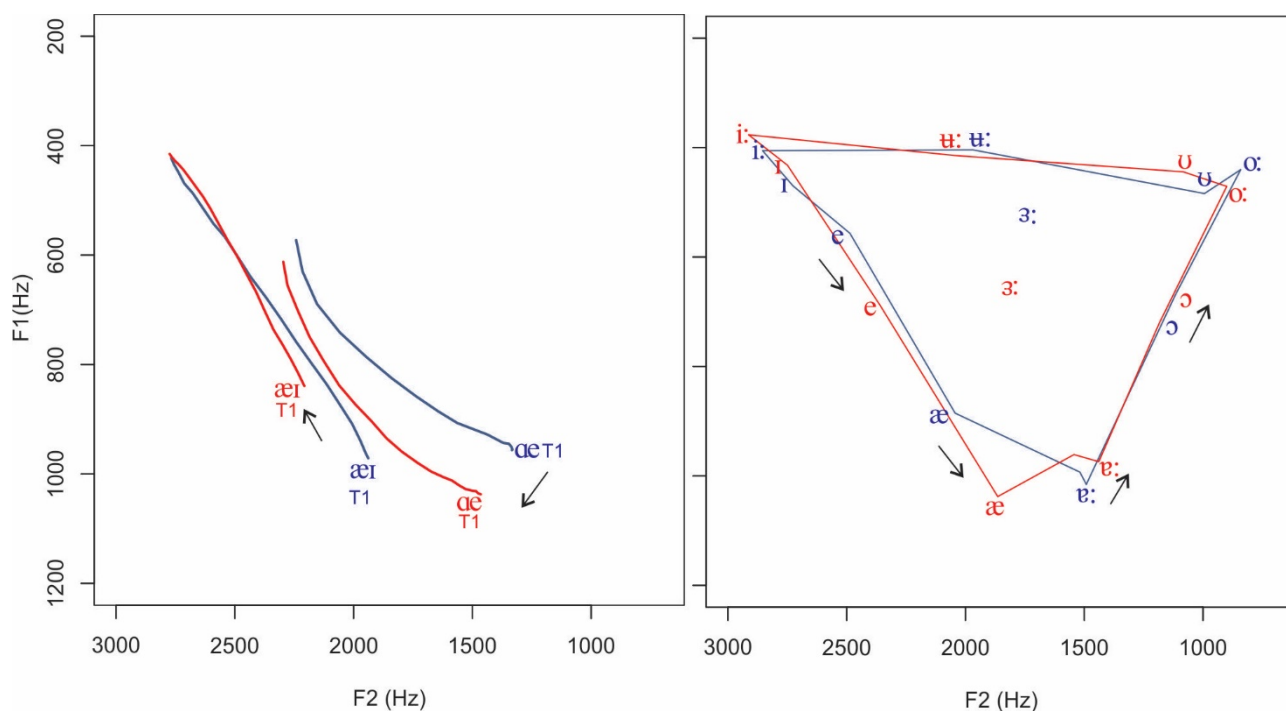


Figure 1: Left panel indicates the clockwise direction of change for the diphthongs /æɪ/ and /æ/. The right panel indicates an anticlockwise direction of change for the monophthongs. Red lines represent 2010 data, blue lines represent 1990 data.

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Explaining drift by reconstructing pragmatic variation

Don Daniels

The phenomenon of drift, whereby related languages undergo similar changes independently of one another, has been known to linguists since it was first discussed by Edward Sapir (1921). It has, however, largely avoided detailed investigation in the intervening years and therefore remained quite mysterious. But current work by historical linguists, in particular Brian Joseph (2006; 2013a; 2013b), is advocating the idea that drift can be explained as the result of variation in the proto-language. Joseph's discussion of variation, though, leaves unmentioned the possibility of pragmatic variation. Moreover, his examples come primarily from relatively well-studied Indo-European languages.

This paper supports the thesis that proto-language variation can account for patterns of drift that are observed in language families, and further elaborates the theory by arguing that the kind of variation involved can be pragmatic. Moreover, this paper demonstrates that this kind of pragmatic variation can be reconstructed with confidence to a proto-language. The data for this argument comes from the Sogeram language family, a group of ten Trans New Guinea languages spoken in Madang Province, Papua New Guinea.

The Sogeram languages have typical Papuan systems of clause chaining and switch reference. One set of Proto-Sogeram different-subject markers has been reanalyzed a number of times as markers of imperative mood, as can be seen below with the archaic Apali (1) and innovative Manat (2) reflexes of the Proto-Sogeram 1SG.DS suffix **-itiŋ*. This has happened four or five times in the history of the family (depending on how one analyzes a case of potential grammatical borrowing), thus constituting a clear case of drift: a pattern of change that manifests itself throughout a language family.

Apali

- (1) *Ve-hav-ici ig-iliŋ tane aga-di hav-ali.*
come-PL-3.DS see-1SG.DS pumpkin DEF-OBJ carry-3SG.FAR.PST
'They came and I saw (him) and he carried the pumpkin.' (Wade 1997:2)

Manat

- (2) *Ubram hiki tak miŋ-ir v-itiŋ=a ara-ma-g.*
arm road only get-2PL.DS go-1SG.IMP=INT say-PST-3SG.FAR
"Just take my hand and let's go," she said.'

This innovation, the conversion of different-subject morphology into imperative morphology, seems odd at first, especially given that Proto-Sogeram already had a separate paradigm of imperative suffixes. But it becomes more understandable given a more detailed understanding of the Proto-Sogeram morphosyntactic context. The paradigm to which **-itiŋ* belonged actually had two functions, both of which can be reconstructed on the basis of modern reflexes. The first was

to mark different-subject switch reference in irrealis clause chains; in this function it contrasted with a paradigm of realis different-subject suffixes. Its second function was to mark irrealis mood in final clauses, and in this function it could be used to mark polite imperatives, which contrasted with the direct imperatives marked with the imperative mood.

We thus reconstruct a Proto-Sogeram morphosyntactic system involving, for our purposes, three paradigms of verb suffixes: the different-subject realis, which marked different-subject switch reference in realis clause chains; the imperative, which marked imperative mood; and the irrealis paradigm with the two functions described above. The pattern of drift can thus be explained as the outcome of a system of pragmatic variation. When speakers wanted to make a directive statement, they had two options: the direct imperative, using the imperative suffixes; and the polite imperative, using the irrealis suffixes. In some daughter languages this pragmatic variation was simplified, and only the erstwhile polite imperative option now survives, albeit with normal imperative meaning. The drift can thus be explained by reconstructing variation among the pragmatic options available to speakers of Proto-Sogeram.

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Abbreviations

DEF	definite
DS	different subject
FAR	far tense
IMP	imperative
INT	intensifier
SG	singular
OBJ	object
PL	plural
PST	past tense

Stories and the social world

Lucinda Davidson

This study looks at the spontaneous narrative play between two young children acquiring the polysynthetic Australian language, Murrinhpatha. It examines a stretch of collaborative storytelling, in which they both play with various characters. I discuss the children's language use in terms of how they voice these personae and how they negotiate each other's embodiments of them. I argue that this narrative play reveals aspects of the children's understanding of social organisation of Wadeye and the identities that exist within it.

Narratives feature quite early in children's speech. Children as young as 2;6 produce conversational recounts of past experiences (Miller, Potts, Fung, Hoogstra, & Mintz, 1990; Miller & Sperry, 1988), albeit briefly. By four years they are able to produce complex stories, and storytelling amongst peers is a preferred context for imaginative play (Engel, 2005, p. 515). Narrative is believed to be a powerful tool that children use to explore identities (Kyratzis, 2004, p. 641) and social spheres (Engel, 2005, p. 517), in terms of themselves, and others. It is also used to accomplish various social tasks within the peer group (Goodwin, 1993), such as manage local social order (e.g. Ervin-Tripp & Kuntay, 1997), and establish or maintain particular identities (e.g. Kuntay & Şenay, 2003). Conversational narrative is believed to play a privileged role in a child's process of self-construction and self-expression, owing to its "unique three-way intersection of self, narrative, and face-to-face interaction" (Miller et al., 1990, p. 292). Many conversational narratives produced by young children are collaborative in nature, in that each speaker builds on or reacts against their interlocutor's previous utterance. Children's spontaneous, collaborative narratives demonstrate speakers' socio-cultural awareness and their capacity to make use of this in an interactional context.

In this paper I present three excerpts from the one extended stretch of spontaneous narrative play between two Murrinhpatha-speaking children aged (3;11) and (4;1). In this interaction the children collaborate in their storytelling, seen in example (1). They also take defined turns, with each child explicitly signalling the end of their own narrative and the start of the other's with the utterances in (2). In my discussion of this interaction I analyse the ways in which they voice certain characters in their narratives: *kunugunu*, an old woman spirit from local folklore, *kardu wakal*, 'child', *ku wathpala*, 'non-Aboriginal person', and, in response to the latter, *kardu thipmam*, 'Aboriginal person.'

The collaborative narrative play that these young children engage in reveals their interactional capacity to coordinate with another person, and the ways in which they do this through language. It also demonstrates their understanding of how Wadeye society is organised, the identities that

exist within it, and how they each fit within this social world. This is particularly evident in the children's voicing of Aboriginal and non-Aboriginal personae, which suggests that at around four years of age children start to treat social identities with a degree of gravity, rather than mere play.

Examples

(1)

Tabitha: *damkar- (0.5) damkardu (0.9) thungku LASer damngamut kaka ngay*
'You s- you see, my uncle gave me a LASer gun.'

Tabitha points long stick out in front of her.

Tabitha: *laser damngamut*
'He gave me a laser.'

Tabitha lowers the stick.

Casimira waves her hand in front of Tabitha's face,
and taps Tabitha on the leg.

Casimira: *ngayka kaka ngayka mamna (.) kaka laser karrim (0.6) thu thu nan*
nukun thu Tabitha nukun mam (.) mamnga ne
'My, my uncle, he told me. Uncle's laser is here. Its whatshername's
thing, Tabitha's thing, he said. He told me, didn't he.'

(2)

nhinhi warda, 'your turn' or *nhinhika*, 'you'

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Language maintenance and shift in Hakka families: A case study from Sabah, Malaysia

Chih-I Liao

Over the past century, the Chinese in Malaysia have experienced several periods: the Chinese immigration (beginning in the mid-nineteenth century), independence of Malaya in 1957 (excluding Singapore), shifting loyalties amongst overseas Chinese with the change of mainland China's authority, and the increasing media influence by Hong Kong entertainment industry since the 1970s. These massive changes have affected language use to differing degrees by all ethnic Chinese groups in Malaysia. Hakka is one of the Chinese ethnic groups in Malaysia, they are the majority group in Sabah State. In the 1950s, Hakka language was the lingua franca among different Chinese groups. Nowadays, in Sabah, each city has its own Hakka Association to organize Hakka events and celebrate traditional customs. The goal of all Hakka Associations is to maintain Hakka culture in its original form and pass down Hakka identity from generation to generation. Hakka people seem to be an orthodox and conservative group after a long history of diaspora and their efforts to maintain Hakka culture appears to be successful. However economic development in Malaysia now forces Sabah Hakka people to adopt to external pressures. In order to share in the international markets, language use by Hakka people in Sabah is entering a new phase. Middle-aged Hakka people are capable of speaking various languages such as Hakka, Cantonese, Malay, Mandarin, and English (in that order of prevalent). Younger people are predominantly users of Mandarin and English replacing older community languages.

This article provides a case study of language maintenance and shift in Sabah Hakka families. It looks at language use in different generations, specifically focusing on parents and children. The research questions are what is the role of a strong Hakka identity in a Hakka family and how do different generations choose their languages. In this ethnolinguistic case study five Hakka families were interviewed. The themes identified included the influence of schooling, parenting decisions and the imperatives of globalization. This analysis is framed by a discussion of social factors including government policies.

Keywords: language maintenance and language shift, Hakka, Sabah, ethnolinguistic

Three-year-olds' Understanding of the Syllabic Plural Allomorph /əz/

Benjamin Davies, Nan Xu Rattanasone and Katherine Demuth

The English plural comprises of three allomorphic variants: voiceless /s/ (e.g., *cats* /kæts/), voiced /z/ (e.g., *dogs* /dɒgz/) and the syllabic allomorph /əz/ (e.g., *buses* /bʌsəz/). While the English plural is acquired early (Brown, 1973; de Villiers & de Villiers, 1973; Mervis & Johnson, 1991), not all allomorphs are mastered at the same time, and children continue to variably omit /əz/ until well past the age of seven (Brown, 1973; Berko, 1959). Children's problem with /əz/ has been attributed its relative articulatory difficulty (Mealings, Cox & Demuth, 2013), and to the extra speech planning demands brought about by its additional syllable (particularly for children with Specific Language Impairment; see Tomas, Demuth, Smith-Lock & Petocz, 2015). However, while many studies have focused on children's production of /əz/, few have examined children's understanding of this morpheme.

It has been claimed children understand plural morphology on unfamiliar words at 36 months, however that study did not control for allomorphic variation, making it unclear whether children understand syllabic allomorph /əz/ (Kouider, Halberda, Wood & Carey, 2006). This is important as it has been shown that allomorphic variation plays a role in children's understanding of plural morphology, where 24-month-olds understand the plural in unfamiliar words inflected with voiceless plural allomorph /s/, but not words inflected with voiced plural allomorph /z/ (Davies, Xu Rattanasone & Demuth, 2015). We therefore carried out a study to determine whether 36-month-olds understand syllabic plural allomorph /əz/.

Participants were 18 monolingual English-speaking children (13 boys, 5 girls) aged 2;11.2–3;01.2 (M=3;0.3). Children were presented with two pictures on a computer monitor, one depicting a single unknown animal (singular target), the other depicting five identical instances of a different unknown animal (plural target). Audio stimuli told children to “Look at the X”. Nonce stimuli were comprised of six singular CVs/z words (e.g., *koss*), and six plural words inflected with the syllabic plural allomorph, CVCəz (e.g., *kosses*). The use of nonce words and unknown pictures was to ensure that only understanding of the plural allomorph /əz/ was tested, not any other lexical knowledge. Children's looking preference shift was recorded using a Tobii x120 eye-tracker. Planned *t*-tests showed that children shifted their looks significantly towards the plural target pictures ($t=3.18, p<.01$), however, they did not shift their looks significantly towards singular targets ($t=0.01, p=.99$) (Fig 1).

These results suggest that 36-month-olds do understand syllabic plural allomorph /əz/. Interestingly, however, there is no evidence that they understand that the absence of this allomorph indicates singular. While this result calls for further investigation, it may be explained by the relatively low frequency of English CVs/z words. This study sheds new light onto children's difficulty with /əz/. Children know the meaning of the syllabic plural allomorph /əz/ by three years of age, suggesting a lack of understanding is not responsible for its prolonged variable omission in speech; for this age group, at least, the issue lies in production. This raises further questions as to *when* children begin to acquire this understanding, an issue for future research.

(Words = 499)

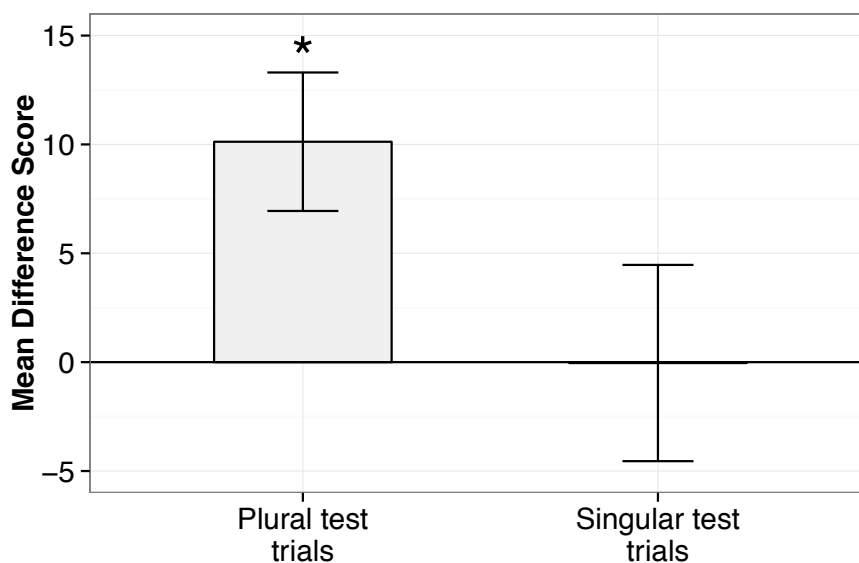


Figure 1: Looking preference shift to target by audio stimulus type
(error bars ± 1 SE)

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Changing Names, Changing Meanings: Taboo Practices in Makasae, Timor-Leste

[Prudencio Da Silva](#)

Taboo observance is a symbol of respect for ancestors in the Makasae [mkz] speech community of Timor-Leste. One kind of taboo observance involves sacred ritual objects in traditional rituals such as corn-eating and rice-eating rituals. The ritual objects are believed to symbolically represent the body of ancestors inside the sacred ancestral houses in this community. This presentation discusses naming practices in rituals and everyday life related to the objects used in ritual settings. In traditional rituals, names and functions of some materials objects change from the names and functions of these objects in everyday context. Objects not only have their names changed, but they also have their status and functions changed in rituals. Once the changes have occurred, mentioning their names during rituals and in ordinary situations is strictly forbidden. Changing the names of objects is a linguistic reflection of belief about the supernatural power embedded in ancestors.

Examples of naming practices in Makasae:

- (1) *Lode* ‘traditional bag’ becomes *na’a* in rituals.
- (2) *Tinani* ‘food’ becomes *seka* in rituals.
- (3) *Bu’u* ‘hill’ becomes *mu’a-bu’u* in rituals.

This paper is based on the current research on taboo in rituals in Makasae speech community of Timor-Leste. Makasae is a non-Austronesian language and has several distinct dialects spoken across two main districts of Baucau and Viqueque in the eastern part of Timor-Leste. It is a second largest language spoken in Timor-Leste (102,000 speakers) after Tetum, the national language of Timor-Leste.

Frequency, animacy and working memory impacts on implicit learning of agreement in a second language

Nadiia Denhovska

Previous research on implicit learning has focused mainly on receptive knowledge acquisition of a natural language already familiar to learners, and of artificial grammars. It has been demonstrated that some learning is possible under implicit learning conditions (Lee, 2002; Leung & Williams, 2011; Rebuschat & Williams, 2011). However, it still remains unclear to what extent adults can acquire receptive and productive knowledge of grammar in a natural language via implicit learning and, if so, what factors contribute to successful L2 grammar acquisition.

We exposed 60 adult native English speakers with no previous knowledge of a Slavic language or advanced knowledge of a language with grammatical gender to a noun-adjective agreement rule as a function of gender and case in Russian animate nouns (denoting animals-epicenes) and inanimate nouns (denoting objects) under an explicit learning condition and two incidental learning conditions. We manipulated token frequency in the incidental learning conditions: participants were exposed to the stimuli under a high token frequency and a low token frequency condition. Participants in the incidental learning conditions read for meaning Russian sentences containing agreement in masculine and feminine genders, four cases (nominative, genitive, instrumental, dative), and two animacy levels and viewed semantically corresponding pictures presented on a computer screen, whereas in the explicit learning condition they were explicitly told the rule. Response times and accuracy in comprehension and production post-tests were used to investigate the level of receptive and productive knowledge retention. We also measured participants' working memory capacity using Operation and Reading Span tasks (Unsworth et al., 2005).

The data were analyzed using Generalized Linear Mixed Models. There was no significant difference in comprehension accuracy between the incidental learning conditions, however in production

participants in the high token frequency condition performed significantly better than in the low token frequency condition. Participants in this condition also relied significantly on WM in comprehension ($r = .51$, $p = .02$) and production ($r = .47$, $p = .04$). But there was no significant effect of animacy either in production or in comprehension.

The results will be discussed in the light of how frequency, working memory and animacy may impact the acquisition of receptive and productive knowledge of a grammar rule through incidental exposure, and how correlation with working memory may provide insight into the activation of either explicit or implicit knowledge when performing a task.



Figure 1. Example of training slides presented to participants in incidental learning conditions

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Marra and Kriol: the loss and maintenance of knowledge across a language shift boundary

Greg Dickson

My recently completed doctoral research aims to contribute to our understanding of “what is entailed when a community loses its language” (Woodbury 1998: 235) by exploring language shift that Marra people of the Gulf Country in the Northern Territory have experienced, leading to Kriol (specifically, Roper Kriol) becoming the main language of communication of all generations.

The research is underpinned by a sociohistorical account of what Marra people have endured since contact with Munanga (Europeans), referring to changing language ecologies, ethnographic material and personal narratives. A survey of the lexicon of Kriol as spoken by Marra people today demonstrates the extent to which Marra lexical material has infiltrated the supplanting language, revealing a previously under-documented prevalence of Marra verbs in Kriol, belying popular notions that substrate lexical material in creoles most commonly occurs in nominal classes. An examination of the domains of kinship and person reference in Marra and Kriol shows a significant degree of continuity of kin categories across the language shift boundary. Loss is also evident, particularly in the number of kinterms used but there are also examples of innovation occurring among Kriol speakers in this domain. The pragmatics of the use of kinterms shows that Kriol and Marra speakers achieve person reference in very similar ways and use similar kinship-based politeness strategies. Lastly, ethnobiological knowledge is considered as an indicator of how traditional knowledge of Marra people is being maintained among Kriol speakers and what nomenclature they use.

Ultimately, my research reveals examples of loss, maintenance and some instances of innovation occurring across the language shift boundary. It also increases our understanding of contemporary features of Roper Kriol and its creolisation and adds to the documentation of the critically endangered Marra language. Given the social disruption and lifestyle changes that correspond with Marra not being acquired by children for decades, it is difficult to reach definitive conclusions about what language loss has meant for the ontology of Kriol-speaking Marra people. However, given the examples of maintenance and innovation among Kriol speakers, I argue that it is important to avoid deficit discourses when referring to the cultural knowledge of those who live on the other side of language shift boundaries.

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Alyawarr children's present temporal expression in two, closely-related speech varieties of Central Australia.

Sally Dixon

This paper investigates present temporal expression by Australian Aboriginal children who speak Alyawarr English (AlyE), a new Central Australian creole, as their first language, and are acquiring Standard Australian English (SAE) as a second language. The study of the acquisition of closely-related languages is somewhat of a final frontier for several strands of research: child language development, second language acquisition, and creole studies. However, the methodologies common in bilingual/second language acquisition fields are not easily transposed to the present scenario: for while the assumption of existing, separate codes may be operationally practical (even if theoretically contestable) in those studies, the presence of overlapping structures (i.e. morphemes that are used in both AlyE and SAE) in the present data set makes code separation on (surface) structural grounds problematic. For example, sentence (1) is grammatically sound from the perspective of both adult AlyE and SAE speech norms.

My paper focuses on variation between the three main verb forms found in present temporal reference clauses in a corpus of longitudinal, naturalistic video recordings of nine Alyawarr children aged five to seven: V (e.g. *Thei luk at the ose* 'They look at the horse'), V-bat (e.g. *Am lukbat for eplein* 'I'm looking for an airplane'), V-ing (e.g. *Jeni lukiing rait theya* 'Jenny is looking right there'). In an attempt to overcome the problems with sorting data on structural grounds, I compare usage in two contextually defined environments: Alyawarr English (home, Alyawarr interlocutor) and SAE (school, non-Ayawarr interlocutor). I apply the Comparative Variationist Method (Poplack & Tagliamonte 2001) to the data sets. Firstly, distributional analysis of 1600 tokens reveals that V-bat is not used in the SAE environment and V-ing is now used on transitive clauses (which it is not in the home environment), suggesting some conforming to SAE. Nevertheless, the participating children are not completely 'standardised' because they do show variability between V and V-ing. I explore the factors motivating choice between V and V-ing in these two contexts, taking into account subject person and number, lexical and sentential aspect, transitivity, adverbial expression, polarity, mood, and clause type. Multivariate analyses of the two data sets (conducted in Goldvarb Lion) reveal that the absence of V-bat in the school data prompts a reorganisation in the relationship between V and V-ing: factors favouring the use of V-bat in the home data (non-Statative, iterative aspect; 1st and 2nd Person), favour the use of V in the school data.

I discuss the findings with reference to two inter-related foci in second language acquisition research. Firstly, I examine the robustness of claims for a universal 'bare verb' stage (e.g. the 'basic variety' Klein & Perdue 1997; the 'Root Infinitive' Rice, Wexler et al 1998) wherein semantic contrasts that later receive morphological expression are realised as the base form in the initial stages of L2 acquisition (the bare stem 'V' in English). While this observation of early learner behaviour is well supported by studies where the L1 and L2 are quite distinct, it is untested in situations where the target L2 shares morphology with the L1. In my analysis, the finding that iterative aspect (expressed in the child AlyE as V-bat, and by native SAE speakers as V-ing) is expressed by V in the learner SAE data may exemplify such a stage. However, V-ing is present and carries the same functional load in both language contexts (reflected as shared

constraints non-Stativ, durative; 3rd person): in other words the children do not go through a stage of not using V-ing in their SAE expression. This has implications for a second significant focus in L2 research: the role of the L1 in shaping the acquisition of the L2. The findings of this paper add to the growing body of literature exploring the complexity of this interaction beyond a simple ‘help or hindrance’ dichotomy. In particular, this study demonstrates that even within the one function (present temporal reference) L1/L2 overlap may both facilitate early use of V-ing, while continue to mask some of the more nuanced contrasts that it expresses in the target variety. This study therefore breaks new ground in both methodological terms, with the application of the Variationist Comparative Method to an Australian creole context, and in advancing our understanding of the bi-varietal pathway travelled by children in the complex language ecologies of the region.

(1) [Am lukɪŋ fɔ wʌn taɪgʌ]

SAE analysis: I’m look-ing for one tiger
 1sgnom’m look-PROG for one tiger

AlyE analysis: Am luk-ing fɔ wʌn taɪgʌ
 1sgNOM.PROG look-INTRPROG for one tiger

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The realisation of vowels in conversations by speakers of West AusE

Gerry Docherty, Simon Gonzalea and Nathaniel Mitchell

While some of the early formative investigation of phonological variation in AusE was based on the analysis of a range of different speech styles (Mitchell and Dellbridge 1965), the vast majority of acoustic studies of the realisation of AusE vowels have focused exclusively on vowels produced in the /hVd/ paradigm originating from Peterson & Barney's (1952) seminal study of vowels in US English (e.g. Bernard, 1967; Billington 2011; Butcher, 2006, 2012; Cox, 1998, 2006; Harrington et al. 1997; Watson et al. 1998; Watson & Harrington, 1999). Information relating to the acoustic properties of AusE vowels in connected speech styles is scarce indeed (eg Lewis & Loakes' 2012 study of read sentences), as is any acoustic analysis of vowel realisation in conversational styles. In this paper, we present findings contrasting the realisations of AusE vowels across word list and conversational speech material as produced by young speakers of West Australian English from Perth.

We describe the acoustic properties of vowels produced by 20 speakers in a dyad conversational task as well as of those produced by 60 speakers in an isolated word-list style. We conducted acoustic analysis of a full set of monophthongs and diphthongs across both speech styles (word list and conversation). Our results unsurprisingly show differences in vowel realisation as a function of speech style, and our analysis sheds light on the nature of those differences, painting a somewhat different picture of the AusE vowel system than typically emerges from studies of /hVd/ tokens.

As well as filling a gap in our understanding of the properties of AusE (and West AusE in particular), the findings have implications for current models of variation and change (e.g. those influenced by exemplar-based models of representation and processing) which are predicated on listener sensitivity to phonetic detail but which critically depend on an understanding of the characteristics of that phonetic detail. We consider these implications and give pointers to further avenues of investigation which are indicated.

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Subject-verb agreement processing in Mandarin-English L2 adults: ERPs for type of violation and utterance position

Sithembinkosi Dube, Carmen Kung and Katherine Demuth

Second language learners of English often omit grammatical morphemes that mark subject-verb agreement (e.g., the 3rd person singular –s). In the case of Mandarin-English L2 learners, it has been suggested that prolonged morpheme omissions could be due to linguistic differences between Mandarin and English (Liu, Bates, & Li, 1992; Broselow, Chen, & Wang, 1998; Goad, White, & Steele, 2003). One of those differences is that Mandarin does not use grammatical morphemes to mark subject-verb agreement. Recent production and perceptual studies in native-English (L1) speakers also find that omission of grammatical morphemes is influenced by the phonological/prosodic context in which they occur (Dube, 2011; Song, Sundara, & Demuth, 2009; Sundara, Demuth, & Kuhl, 2011). That is, morphemes are more likely to be perceived when they occur utterance finally compared to utterance medially due to phrase-final lengthening. This has been corroborated by recent findings from an Event Related Potential (ERP) study investigating the effects of utterance position and type of violation (omission vs. commission) on subject-verb agreement (SV AGR) processing in L1 English-speaking adults (Dube, Peter, Kung, Brock, & Demuth, in preparation). However, it is not known if these factors influence how Mandarin-English L2 learners process SV AGR violation. The current study therefore used ERPs to determine if utterance position modulates Mandarin-English L2 learners' brain responses to SV AGR violations, as indicated by the P600 effect—which is an ERP effect associated with syntactic violations (e.g., Osterhout & Mobley, 1995).

Participants were 20 Mandarin-English L2 learners (mean age: 25 years; range 23-32 years) who had lived in Australia for 2-3 years. They heard 400 experimental sentences that were accompanied by appropriate pictures presented on the screen. The target verbs were manipulated for utterance position (medial vs. final), type of violation (errors omission (*the boy eat*) vs. commission (*the boys eats*)) (see **Table 1**). We performed cluster-based permutation tests to compare participants' responses between different conditions. Our hypothesis was that if Mandarin-English L2 learners were sensitive to agreement violations as a function of utterance position, they would elicit more robust P600 effects in utterance-final position. We also predicted that the effects would be more robust for the more perceptually salient errors of commission.

As predicted, Mandarin-English L2 learners were more sensitive to errors of commission compared with errors of omission. However, the results showed that the P600 effect was only significant for errors of commission in the *medial* condition (see **Figure 1**). This suggests that the *type* of agreement violation affected Mandarin-English L2 learners' sensitivity to SV AGR. However, contrary to our predictions, no P600 effect was observed in the utterance-final conditions. This suggests that these Mandarin-English L2 learners did not process morphosyntactic information in the utterance-final position, but used contextual information to process the sentence-final verbs instead. These results indicate that Mandarin-English L2 learners, with limited English experience, may not be auditorily processing subject verb

agreement as effectively as their monolingual peers. This, in turn, may help to explain the prolonged morpheme omissions previously reported for Mandarin-English L2 learners.

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Table 1: Stimuli

Utterance position	Type of violation	Grammatical	Ungrammatical
Medial	Omission	<i>The boy often hikes in the bush</i>	<i>The boy often hike in the bush</i>
	Commission	<i>The boys often hike in the bush</i>	<i>The boys often hikes in the bush</i>
Final	Omission	<i>The boy often hikes</i>	<i>The boy often hike</i>
	Commission	<i>The boys often hike</i>	<i>The boys often hikes</i>

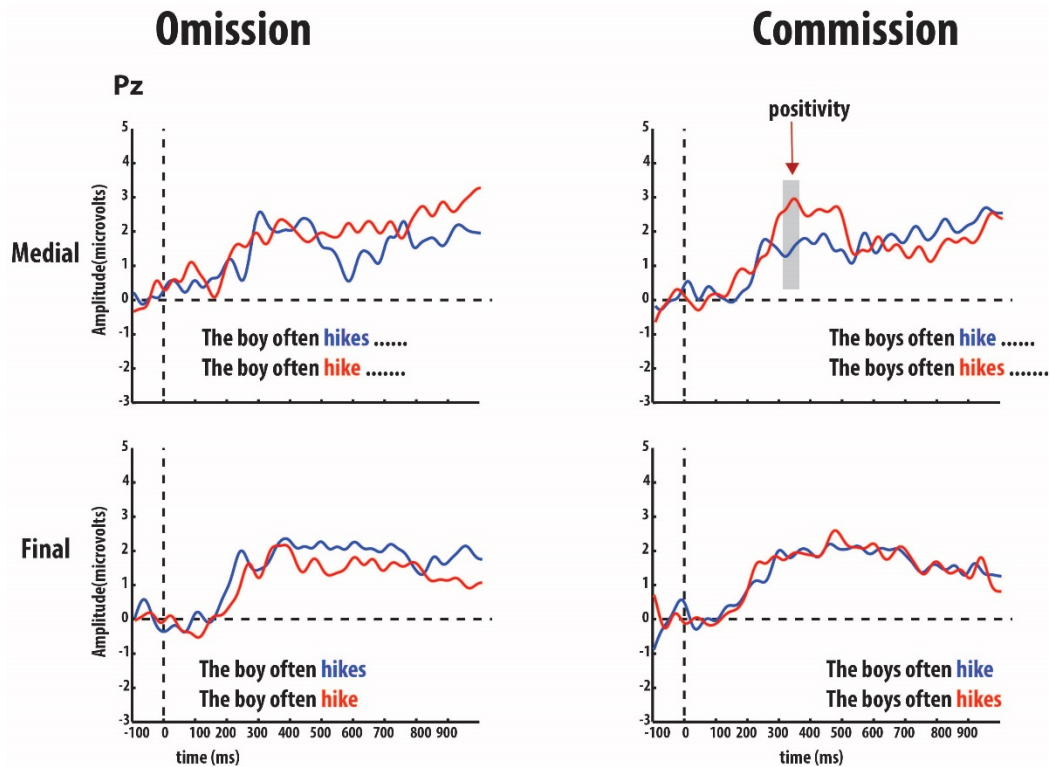


Figure 1. Grand average ERP waveforms for subject-verb agreement in Mandarin-English L2 learners plotted at the midline electrode Pz. Violation effects for type of violation (omission vs. commission) are plotted in column 1 and 2 respectively, and utterance position (medial vs. final) in row 1 and 2 respectively. Positivity is plotted upwards. All waveforms are time-locked to the offset of the verb stem. The time-window of the significant effect is highlighted with a grey box (306-354ms).

Does Grosjean's Language Mode require Variable Language Activation?

T. Mark Ellison and Luisa Miceli

Grosjean (1997, 2008) proposes that variation in the activation of a bilingual's languages – being sensitive to the situation – accounts for differences in observed levels of language mixing. He calls this variation *language mode*. De Groot (2011:293f) writes that the findings of Dewaele (2001) suggest an alternative account of differences in bilingual output, in which a bilingual's languages are equally active at all times and variation is explained by varying degrees of monitoring. She concludes that *it remains to be seen whether ... adaptability concerns fluctuations in the degree of activation of the bilingual's two language subsets or fluctuations in the attentiveness of a mental monitor that watches over the output of the language system* (p. 294). In this talk, we argue that output monitoring - well supported in the literature (see e.g. Levelt 1989, Hartsuiker & Kolk 2001, Severens et al. 2012) - is insufficient on its own to explain all the experimental evidence on bilingual control. We therefore suggest that, rather than being alternatives, differential activation and differential monitoring are both essential components of the spoken language production system.

First, we argue that use of L1 and L2 in bilinguals results in different lexical competitor sets, reflecting different levels of language activation. This argument is based on three event-related potential (ERP) studies. Botvinick et al. (2001, 2004) interpret the ERP factor known as error-related negativity (ERN), as marking the conflict in selecting between incompatible alternatives. Ganushchak & Schiller (2009) show that the ERN in bilinguals using their L2 in a phoneme-monitoring task is much greater than that found by participants using their L1 (Ganushchak & Schiller 2006). Participants in the latter study are referred to as monolinguals, but were most likely Dutch undergraduates who are typically proficient in English. That the L2 of the participants in the 'monolingual' task did not result in additional ERN suggests that lexical competitors from that language were not activated in their response, while in the 'bilingual' task L1 lexical competitors were strongly activated as well as L2 forms. This difference cannot be accounted for by monitoring itself, as the ERN marks conflict in the input to the monitoring process. The conclusion is that the level of activation of L2 relative to L1 varies according to whether speakers are responding in L1 or L2. This supports an activation account of language mode.

Further support comes from Bartolotti & Marian's (2012) eye-tracking study comparing the degree to which monolinguals and bilinguals are distracted by L1/L2 competitors to forms in a newly acquired artificial lexicon. Bilinguals were found to be less prone to distraction than monolinguals. Because this study is about interference in perception, rather than production, the difference in results cannot be accounted for by the action of a production monitor. We interpret this result as reflecting the bilinguals' ability to lower the levels of language activation in non-target languages, as in the activation account of Grosjean's monolingual mode.

These studies show that bilinguals' flexibility in managing lexical competition can only be the result of situation-sensitive shifts in language activation. Consequently, a complete model of language production must include both differential activation and monitoring.

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Perceiving sound and recognizing words in a non-native language: Brazilian Portuguese by Australian English vs. Iberian Spanish listeners

Jaydene Elvin and Paola Escudero.

Learning to perceive and recognise the words of a new language can be a difficult and often daunting task for L2 learners. Models of speech perception (e.g., PAM; Best, 1995, Best & Tyler, 2007; L2LP, Escudero, 2005, 2009, van Leussen & Escudero, 2015) posit that the listeners' L2 difficulties are often a result of the influence of the native vowel inventory on their perception of the L2 vowel inventory. The L2LP model further posits that difficulties in perception should also extend to other abilities, such as word recognition. In particular, Escudero et al. (2008) found that auditory confusable novel words (sound contrasts in words that are difficult to discriminate) can lead to confusion in word recognition.

The aim of the present study is to investigate the relationship between perception and word recognition for Australian English (AusE) and Iberian Spanish (IS) listeners' of Brazilian Portuguese (BP). In particular, we investigate whether the BP contrasts that are difficult to perceive are also confused in word recognition. We also aim to determine whether these difficulties are predictable through acoustic cross-linguistic analyses. In the present study, acoustic comparisons predict that both AusE and IS participants will have difficulties with between BP /i/-/e/ and /o/-/u/ as previously reported (Elvin et al., 2014).

We tested 11 monolingual Australian English listeners from Western Sydney and 11 Iberian Spanish (IS) listeners from Madrid between the ages of 18-30. Participants completed a word learning and recognition task followed by a categorical discrimination task presented in the XAB format. To allow for comparisons between the two tasks, we used the same target stimuli in both tasks, which consisted of naturally produced pseudo-words in the fVf context. All words were produced by the first five male and five female monolingual speakers from Sao Paulo selected from the Escudero et al. (2009) corpus.

A preliminary analysis of the XAB task show results that are in line with our acoustic predictions and the previously reported results in Elvin et al. (2014) whereby both AusE and IS found the BP contrasts /i/-/e/ and /o/-/u/ to be the most difficult to discriminate. This suggests that these contrasts are difficult to discriminate regardless of whether they are presented as an isolated vowel in a word context. However, results from the word recognition task indicate that the L2 difficulties found in perception are only partially mirrored in word recognition. That is, the BP contrasts /i/-/e/ and /o/-/u/ remain difficult contrasts for both AusE and IS, however, BP /o/-/ɔ/ became the most difficult for both AusE and IS listeners in word recognition. Interestingly, BP /a/-/ɛ/ which was the easiest to discriminate in the XAB task, had lower accuracy scores in word recognition, particularly for AusE listeners. Possible explanations for these findings will be discussed as well as the implications of the findings for future studies investigating the perception-word recognition relationship.

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Softening the task of lenition analysis: an automated tool for the analysis of stop lenition

Thomas Ennever, Erich Round and Felicity Meakins

Improvements in our understanding of synchronic linguistic variation will yield deeper insights into the social and historical dynamics of language, yet in practice the study of variation can require large amounts of data whose preparation is resource-intensive, and thus gains in efficiency are welcome. We report on the development of an automated method for the segmentation and analysis of intervocalic phonemic stops and their variants, and discuss the refinements it has enabled, in our analysis of extensive stop lenition in Gurindji, as first reported by Ennever (2014).

Background It could be said that the gold standard of phonetic data is controlled, laboratory speech. However, collecting lab speech data can require conditions and resources that raise significant barriers to the study of some language varieties and speech styles. In contrast, we now possess audio recordings of uncontrolled, spontaneous and naturalistic texts for many speech varieties. This disparity might be referred to as the ‘Data source mismatch problem’. Separate to this, the analysis of acoustic phonetic data typically demands many hours of careful, expert human inspection. Moreover, human annotations are subject to limitations and subjectivity in the audio-visual criteria employed (Kingston, 2008; Shockey & Gibbon, 1993); with respect to phonemic stops, segmental duration and categorisation of lenition types are measures that have been particularly problematic (Ashby & Przedlacka, 2011; Hualde et al., 2011). We might call these latter issues, the ‘Data preparation problem’. Ideally, both the Data source mismatch problem and the Data preparation problem could be addressed with automated methods that can analyse large amounts of naturalistic audio data in a highly reproducible manner.

Method Borrowing from statistical approaches used in the analysis of continuous spatial data generated by articulatory technologies such as EMA (Engwall, 2000; Stone, 1997), a method was developed to measure continuous changes in intensity over time and across various frequency bands. Following Ennever (2014) and Lavoie (2001), our hypothesis was that some frequency bands would mirror articulation more reliably than others. Moreover, we hypothesised that during closure formation, continuous intensity attenuation should mirror the continuous articulatory gestures which narrow the oral occlusion; in contrast, during release (at least for fully occluded stops) intensity should mirror articulation less well, and instead reflect the discontinuous geometric change from closed oral tract to open. To test this, we examined bands between 0-400Hz, 400-1200Hz and 1200-3200Hz. Following Kroos et al. (1997) we used a 20% threshold of maximum intensity-velocity (i.e. change in intensity over time) to define the edges of continuous events, namely ‘stops’, including those which phonetically speaking lacked a full oral occlusion (Ennever 2014). We then compared measures of duration, peak velocity, and intensity drop amplitude — since duration, peak velocity and amplitude are known to relate in a highly constrained manner during articulation (Munhall et al. 1985).

Results The band 400–1200Hz provided the most reliable information for inferring edges of segments, largely consistent with claims that F2 onset/offset is the most significant landmark in CV and VC

transitions (Lavoie 2001). Then, using landmarks based on that band, we were surprised at just how well our hypotheses were confirmed, regarding the extent to which, in the closure and not the release phase, intensity exhibits that same mathematical behaviour as articulation (**Fig 1. & 2.**). Given that there is no *acoustic* necessity for this, we interpret it as intensity mirroring *articulation* during closure, but not (or not as well) during release, giving us confidence in the method.

Implications For intervocalic stops, this new method provides a tool for streamlining the segmentation process across a wide range of unexamined datasets. The analyst needs only to mark a point anywhere during the constriction, and the boundaries of the target segment are inferred automatically. Most importantly, the technique is reproducible. It allows the comparison of apples with apples across many datasets by avoiding the significant subjectivity involved in manual segmentation.

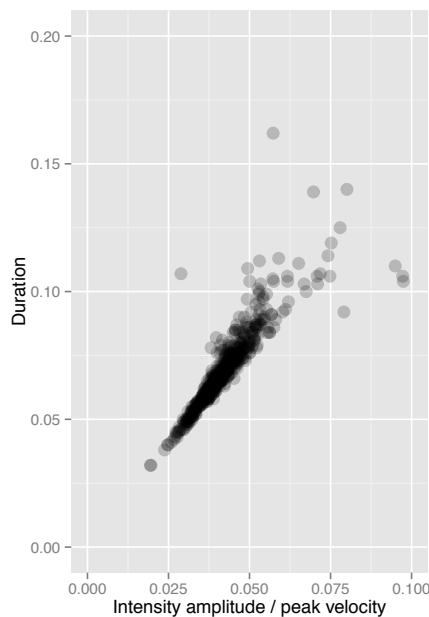


Figure1: stop closure – Highly constrained, mirroring the linear relationship known from articulation.

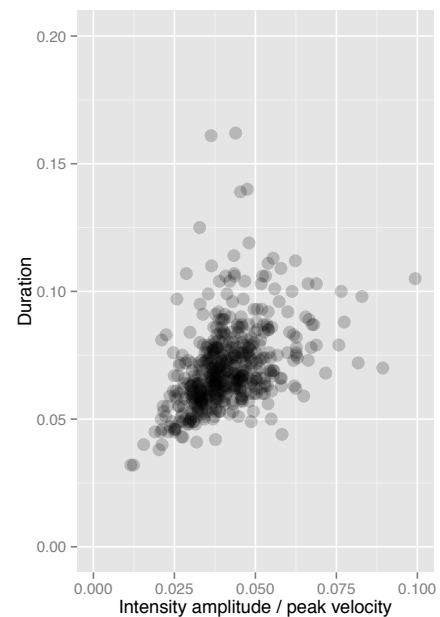


Figure 2: stop release — Significantly less constrained.

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Zi Terber Yngm: Multilingualism in the Morehead District

Nicholas Evans

The Morehead District of Southern New Guinea has a complex culture of traditional multilingualism (Evans 2012) that in many ways is reminiscent of that found in Northern Australia (e.g. speech communities ranging from a couple of hundred to a couple of thousand in size), and which is still actively maintained, and which exhibits a large proportion of linguistically exogamous marriages owing to the basing of marriage on direct sister exchange (Ayres 1983). In this talk I will outline the multilingual ecology of the area and its many interesting consequences, focussing on the village of Bimadbn (Nen speaking) and its immediate neighbours (predominantly speaking the related language Nmbo to the west and the unrelated Idi to the east). Material will draw on:

- (a) oral interviews with approx. 60 speakers, including locals and those who have married into the village, regarding their language portfolios and life histories. These interviews were conducted by local interviewers in one or more local languages, according to negotiated choice between interviewer and interviewee
- (b) actual parallel interviews/narratives (e.g. the interviewer asks the interviewee about coconut trees and their roles in the interviewees' lives), again carried out with language choice mutually negotiated between interviewer and speaker. Sometimes these are monolingual symmetric (e.g. both in Nen), sometimes they are bilingual asymmetric (e.g. interviewer in Idi, interviewee in Nen), sometimes symmetric interviews are repeated in two languages (e.g. first in Nambu, then in Nen). These interviews, running for around 10 minutes of naturalistic speech on average, allow a good assessment of actual as opposed to claimed linguistic competence
- (c) informal participant observation by myself and other other investigators in our team, and the gathering of spontaneously volunteered observations on the role of language choice and repertoire

Based on the above data, I will discuss a number of general issues of interest to theories of how multilingualism functions in small-scale societies. These will include the role of multilingualism in language diversification and convergence, the differential life-trajectories of language expertise according to marital history, life experience and individual differences in linguistic ability, attitudes and identification, the role of metalinguistic knowledge in maintaining and elaborating linguistic difference, the role of language difference in signalling clan and land-owning identities, and the phenomenon of language-mixed place names claimed to draw one part from one language and one part from another.

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Asia: Challenges for the 21st Century. Language Documentation and Conservation Special Publication No. 5: 109-149.

Indexing the local in the national: Person reference among Indonesian youth

Michael Ewing

This paper examines first and second person reference among young Indonesian speakers in the city of Bandung. The complex multilingual nature of Indonesian society means that the rapidly changing language of youth displays features of ‘hybridity’ (Blommaert and Rampton 2011; Heller, 2007; Jørgensen et al., 2011; Makoni and Pennycook, 2007) as a means of constructing intersubjective selves through the local deployment of diverse language resources (Djenar and Ewing, 2015; Manns, 2011; Smith-Hefner, 2007; Tamtomo, 2012). Bandung is a dynamic urban environment strongly influenced by the nearby national capital Jakarta, while at the same time maintaining a strong sense of independent identity grounded in the local indigenous Sundanese language and culture. Like many languages of Southeast Asia, Indonesian has an open system of self- and addressee-reference (Enfield, 2007; Thomason and Everett, 2001). And so, like Indonesian speakers across the country, young people in Bandung access a range of pronouns, kinship terms and names for referring to self and other (Djenar 2006; Ewing, 2005; Sneddon 2009). These include pronouns associated with formal and familiar registers of standard Indonesian, those associated with colloquial Jakarta Indonesian and Sundanese pronouns. Indeed speakers will routinely shift between different pronouns within the same interaction, as illustrated by the lines in example (1), extracted from one minute of interaction.

In order to better understand such dynamic use of different person reference terms, I first explore attitudes toward person reference expressed explicitly by speakers through informal interviews and focus groups. Young people articulate referential choice along somewhat essentialist dimensions of place, urban sophistication and gender identity. Yet at the same time, they have a keen awareness of the shifting roles speakers take vis-à-vis different interlocutors and their need to negotiate these relationships through choice of referential terms. Second, using these attitudes as a backdrop, I examine actual use of referring expressions in a corpus of spoken data comprising informal conversational interaction among young people. While the concerns explicitly described by young people do inform their choice of person reference, the data reveal that speakers’ usage is in fact subtler than this. Through shifting use of person reference, speakers regularly reorient themselves in terms of competing local and national spheres and this ongoing reorientation to wider social contexts is used in the service of moment-to-moment indexing of stance and intersubjectivity in interaction.

Example (1) Three lines from one minute of predominately Indonesian conversation, where the same speaker (Bayu) uses three different forms of familiar first person reference: *gue* (Jakartan), *urang* (Sundanese), *aku* (standard Indonesian) in quick succession.

Line 12 Bayu: **Gua** *ngebantuin* *Gamdes* *lho* *ni=h*.

1s.JKT N-help-APPL.JKT graphic design PART this

‘I’m helping with (your) Graphic Design [assignment] right.’

Line 27 Bayu: **Urang** .. *udah* *nggak* *jago* *gambar*.

1s.SUN already NEG champion draw

‘I’m not any good at drawing.’

Line 42 Bayu: **Aku** *mah* *emang* *udah*.

1s part.SUN indeed already

‘For me, that’s it.’

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Towards a typology of partial agreement

Sebastian Fedden

Languages are systems of rules. Normally rules apply whenever they have the opportunity to apply, but there are interesting cases where they do not, thus creating gaps in the language system. Partial agreement is a type of partial rule system: Two words belonging to the same word class in a language display different behaviour with respect to agreement. In the same syntactic context, one word shows agreement, whereas the other one does not.

A simple example comes from Italian. Most Italian colour adjectives agree in gender and number, such as *azzurro* ‘azure’ in *cielo azzurro* ‘azure sky’, where the adjective ends in *-o* expressing masculine and singular, and *cieli azzurri* ‘azure skies’, where the adjective ends in *-i* expressing masculine and plural. However, there are some colour adjectives, such as *blu* ‘blue’, which do not agree, hence *libro blu* ‘blue book’, where *libro* is masculine and singular like *cielo*, but there is nothing on *blu* which indicates this.

Partial agreement is attested in a wide range of different and unrelated languages and can target different word classes. In Mian, a Trans New Guinea language of Papua New Guinea, there are transitive verbs that agree with their object, as in (1), and transitive verbs that do not agree with their objects, as in (2). Although the verbs in (1) and (2) are semantically similar, *-nā* ‘hit, kill’ agrees with its object in person, number and gender, while *bou* ‘swat’ does not agree with the object.

While partial agreement in the verb is common in Trans New Guinea languages it is pervasive in the grammar of Nakh-Daghestanian languages, such as Archi (Kibrik 1977a, 1977b; Chumakina and Corbett 2008) and Chechen and Ingush (Bickel and Nichols 2007). In these languages, partial agreement plays a role in a wide range of word classes. In Archi, every major word class contains agreeing and non-agreeing items.

Partial agreement is a fascinating paradox: the speakers of the language know the system since they can apply it productively, and yet the system is incomplete. It would appear simpler to apply a rule always than to apply it only partially. We know that such gaps exist in the languages of the world but we do not know how widespread they are nor do we know about the extent to which they show systematic patterns across languages. While a full typology of partial agreement systems in the languages of the world is a desideratum it is out of reach at the moment. This paper lays the groundwork for the development of this typology.

Examples

- (1) máam=e a-nâ'-n-ebo=be
mosquito(M)=SG.M **3SG.M.OBJ**-hit-REALIS-2SG.SBJ=DECL
'You hit the mosquito.'
- (2) máam=e bou-n-ebo=be
mosquito(M)=SG.M swat-REALIS-2SG.SBJ=DECL
'You swatted the mosquito.'

Abbreviations: 2 - 2nd person, 3 - 3rd person, DECL - declarative, M - masculine, OBJ - object, SG - singular. Object agreement on -nâ' 'hit, kill' in boldface.

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The Acquisition of Contrastive Bipartite Stems in Murrinhpatha

William Forshaw

Studies in First Language Acquisition have largely focused on the acquisition of languages well known and accessible to researchers. However if we are to better understand how children acquire language we must consider the acquisition of a wide range of typologically diverse languages with a diverse range of grammatical systems (e.g. Bowerman, 2011). One grammatical system that has received little attention in the field is bipartite stem verb morphology such as that found in Murrinhpatha, a polysynthetic language of Northern Australia.

The majority of verbs in Murrinhpatha contain two distinct stems, a classifier stem and a lexical stem (e.g. Street, 1987). The combination of these two (potentially discontinuous) elements in the verb encodes the argument structure and verb semantics (Nordlinger & Caudal, 2012). These elements occur in a variety of combinations which encode different verbal meanings. Lexical stems are a large class of relatively fixed forms. Classifier stems are a closed class of approximately 38 paradigms which also encode subject person and number as well as Tense Aspect Mood. The alternation of classifier stems with particular lexical stem forms varies greatly in terms of semantic transparency. Some classifier stem alternations are semantically transparent as in (1a-d) with the lexical stem *-rtal* ‘chop’, whereas others can be quite opaque as in (2a-b) with the lexical stem *-wurl*.¹

This study examines the contrastive bipartite stem use of children acquiring Murrinhpatha as a first language through the analysis of semi-naturalistic longitudinal data of six children (1;9-6;1) recorded at semi-regular intervals over a two year period in Wadeye, NT. Specifically it considers instances where children use classifier stems to encode different verbs by examining the contrastive use of different classifier stems with particular lexical stems.

Findings show that when children first begin to use bipartite stem verbs there is little evidence suggesting that they use classifier stems contrastively. Instead children treat the lexical stem as the ‘true’ stem while the classifier stem is treated more like inflectional morphology, encoding only subject person and number and TAM. This is supported by the omission of classifier stems in some early verbs as shown in (3). The omission of inflectional morphology and prioritisation of stem morphology has been observed for some other morphologically complex languages such as Inuktitut (Crago & Allen, 1998), Navajo and Quechua (Courtney & Saville-Troike, 2002).

Around the age of 4 children begin to use classifier stems contrastively, using lexical stems with more than one classifier stem in appropriate contexts. This contrastive use is limited largely to verbs which are clearly semantically ‘related’. In these alternations the different classifier stem does not create a large

¹ The classifier stem elements appear in bold.

shift in meaning, as in (4) where both verbs containing the lexical stem *-wum* relate to something 'being on'. Before an alternation is acquired children may use similar related verbs in inappropriate contexts illustrating that they have not yet acquired the contrastive classifier stem alternation although they have recognised some relationship between these forms. This is seen in (5) where a reflexive classifier stem is used in place of the appropriate transitive classifier stem.

This study addresses both the learning process of this complex verbal system as well as the pattern of the system in the language overall. It finds that the acquisition of this bipartite stem verb system is not uniform. In some areas of the system children must learn that classifier stems can be alternated to modify the meaning of a single lexical stem where as in other areas they must learn that there are homophonous lexical stems which belong to different inflectional classes. These findings argue strongly for a model of acquisition that is sensitive to the range of structural complexities in the grammatical system being acquired.

Examples

- | | |
|---|--|
| <p>(1a) <i>bangarntal</i></p> <p>bangam-rtal</p> <p>3SGS.BASH(14).NFUT-CHOP</p> <p>‘He chopped it (with an axe).’</p> | <p>(1b) <i>pantal</i></p> <p>pan-rtal</p> <p>3SGS.SLASH(23).NFUT-CHOP</p> <p>‘He sliced it (with a knife).’</p> |
| <p>(1c) <i>mungarntal</i></p> <p>mungam-rtal</p> <p>3SGS.BREAK(11).NFUT-CHOP</p> <p>‘He broke it with his hands.’</p> | <p>(1d) <i>darntal</i></p> <p>dam-rtal</p> <p>3SGS.POKE(19).NFUT-CHOP</p> <p>‘He broke it off with his mouth.’</p> |

(Nordlinger & Caudal 2012:76)

- | | |
|---|--|
| <p>(2a) <i>thi-wurl</i></p> <p>2sgS.(25).fut-?wurl</p> <p>‘You get water!’</p> | <p>(2b) <i>thurdi-wurl</i></p> <p>2sgS.(30).fut-?wurl</p> <p>‘You come back!’</p> |
|---|--|
- (3) Justina 2;7
- | | |
|--|---|
| <p><i>i-pirt=nga</i></p> <p>‘I will take it off’</p> | <p>(ngungu-pirt-nu=nga)</p> <p>1sgS.(32).FUT-REMOVE-FUT=CTC</p> |
|--|---|

(LAMP_20130524_WF_01_V1 00:20:43)

- (4) Molly 5;1
- pirrimummatha*
- pirrim-wum-damatha**
- 3SGS.STAND(3).NFUT-GLOW-INTS**
- mama ngay mammum*
- mama ngay mam-wum*

Mo 1SG 3SGS.HANDS(8).NFUT-GLOW
 'it's on already, my mum turned it on'

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(5) Justina 3;6

ngay mentharl

(mantharl)

ngay mem-dharl

mam-dharl

1SG ?SGS.HANDS:RR(10).NFUT-OPEN
 'I opened it'

3SGS.HANDS(8).NFUT-OPEN FUT=CTC

(LAMP_20130524_WF_01_V1 00:20:43)

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The indexicality of conventional implicature

Alice Gaby

Conventional implicatures (hereafter, CIs) are unlike other kinds of implicature in that their meaning cannot be defeated. Example (1) illustrates the CI that arises from the use of the word *but* (namely, that there is something surprising about the fact that Bacon's fencing team is strong, given that they are small).

- (1) **Utterance** *Bacon's fencing team is small but strong*
 Proposition Bacon's fencing team is small and Bacon's fencing team is strong
 CI ≈ being small usually means not being strong

After a long lull since Grice (1975) first coined the term, research into CIs has seen something of a resurgence. But while this research has focussed upon the legitimacy of CIs as a category, as well as their relationship to assertions, presuppositions and conversational implicatures (see, e.g., Bach 1999, Francescotti 1995, Horn 1996, Levinson 1983, Mey 2001, Potts 2003, 2005), less progress has been made in characterizing their meanings. Indeed, their resistance to paraphrase has been emphasised by Blakemore (2001), Francescotti (1995) and Potts (2007), from whom I borrow the convention of using approximation signs when detailing the meanings of example sentences as above.

This paper proposes that the challenge to paraphrasing CIs stems from their indexicality. Just as *I* and *yea* in (2) cue the addressee to the speaker's identity and concomitant hand gesture, respectively, CIs cue the addressee to attend to aspects of the utterance context that flesh out the underspecified meaning of the CI itself.

- (2) *I was only yea high at the time*

In much the same way, this paper will argue that *thus* cues the addressee to find illustration in the adjacent discourse, or a co-speech gesture or enactment. The expression *managed to* carries a CI of 'against expectations', but cues the addressee to draw on context in order to infer what the prior expectations might have been and how they were subverted (cf. Potts 2007). Expressives such as *bloody* and *damn* carry a CI of 'heightened emotion' (Constant et al. 2008), but depend on context to determine whether the emotion has a positive or negative valence. This paper provides new analyses of both the nature of CIs and the semantics and pragmatics of a number of English expressions that have played a prominent role in CI research to date. Moreover, it argues that conventional implicature is key to understanding the meaning of forms in the respect vocabularies of some Australian Aboriginal languages. Departing from previous studies which emphasise the semantic nature of CIs, this paper concludes from a range of data that conventional implicatures lie squarely at the intersection of semantics and pragmatics, bearing semantic content that requires contextual enrichment.

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Language naming in Arnhem Land

Murray Garde, Ruth Singer and Jill Vaughan

Language names and borders as conceived of by linguists are sometimes incommensurable with the social reality of language groupings lived by speakers. The process of drawing such borders and assigning names is not neutral or trivial: it is driven and shaped by understandings of group identity, similarity and difference (Ionnaccaro & Dell'Aquila 2001, Leglise and Migge 2006). Typically a language gains wider public acknowledgement through 'artefactualisation' as a dictionary or grammar ("the 'birth certificates' of a language" (Blommaert 2008)). However, the linguist's conception of a discrete language, essentially a 'doculect' (Cysouw & Good 2013), may not reflect the ways in which speakers divide up their own local language ecology.

Australia is no exception, with linguists working on Australian languages usually classifying and naming language and codes in a community (or relying on someone else's classification), and then getting on with whatever else it is that they want to research. It is easy to forget, or fail to realise, however that the people who identify as speakers of Australian Indigenous languages often name and classify codes in very different ways to linguists. Understanding local perspectives on language naming offers insight into ideologies around social and linguistic differentiation. This kind of understanding is needed to investigate multilingualism in Arnhem Land, where language naming practices are quite diverse.

In Eastern Arnhem Land, people usually give a clan name as the label for the variety of Yolngu-matha they speak. Or they may use the word for 'this' in their language as the language name. These levels of classification are usually referred to as 'patrilect' and 'dialect' respectively by linguists, who use the name Yolngu-matha to cover the large set of related dialects, although speakers themselves do not use a superordinate term.

In Western Arnhem Land, the term Bininj Kunwok, was invented by linguists as a cover term for six related dialects: Kunwinjku, Kuninjku, Kundjeyhmi, Kundedjnjenghmi, Kune and Mayali. These dialect names are also often used by speakers of the languages but not consistently so across social groupings. Some speakers of the largest dialect, Kunwinjku, who are also the most powerful politically, do not recognise six distinct dialects. They identify the nearest dialect to theirs as different and call it Kundjeyhmi, like other groups. However they do not see all the other dialects as distinct, labelling them all Kunwinjku. This perspective contrasts with the view of people who speak the other dialects. They recognise 5-7 distinct varieties related to theirs. This erasure of difference, in the perspective of a politically more powerful group is something that Irvine and Gal discuss as a "process in which ideology, in simplifying the sociolinguistic field renders some persons or activities (or sociolinguistic phenomena) invisible" (2000:38).

Erasure is just one of a number of processes which linguistic anthropologists have identified as the means by which nation states use language to consolidate and naturalise their position of power, and socio-linguistic distinctiveness from other nations. Garde (2008) discusses how the process of *ausbau* 'intentional linguistic differentiation' is used to shore up political differences between clans who speak varieties of Bininj Kunwok. These processes of erasure and *ausbau* are not restricted to powerful nation-states but are also relevant to the linguistic anthropology of Arnhem Land. Between small social groups in Arnhem Land power relations are projected onto the realm of linguistic differentiation and this is largely independent of Indigenous engagement with the nation state.

This talk will look at local perspectives on language naming in three areas where the authors work: speakers of Burarra and Ndjébbana at Maningrida, Mawng speakers at Waruwu and speakers of Bininj Kunwok varieties at various locations throughout Western Arnhem Land. We emphasise the value of bringing front-and-centre speakers' conceptions of differentiation and divisions of the language ecology, and the importance of attending to the views of all relevant social actors in grasping locally salient sociolinguistic processes.

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Why birds don't sing: Arandic verbs of vocal production

Jennifer Green and Myfany Turpin

In many Australian Indigenous languages words meaning 'speak' or 'talk' can be used of animate or inanimate subjects, and can also extend to include noises made by vehicles, mobile phones or mechanical devices such as generators (Ellis 1985). Other words for types of vocal production (e.g. tell, hum, whistle, sing, cry out, whisper) also differ in respect to the animacy of their subjects. In this paper we examine semantic and syntactic parameters of Arandic verbs of vocal production using our newly-devised Acoustic Recognition Task (ART). We consider animacy constraints on the subjects of such verbs: why cattle talk, yet birds don't sing, and why a snake – but not the wind – whistles. We report on preliminary trials of our acoustic stimulus set, where a selection of sounds were played to Arandic language speakers in order to determine whether or not various sounds produced by animates and machines are systematically mapped onto lexical categories.

We commence with an analysis of two Arandic verbs of oral performance – 'sing' and 'hum, intone'. 'Singing' is music made by the human voice alone, and in this sense Arandic verbs for 'sing' accord with definitions of music as "humanly organised sound" (see Taylor 2008). In contrast to this, human, animate and inanimate beings all 'talk'. 'Singing' is typically a performance of strophic isorhythmic texts (the structure of the established Arandic song genres), although for many speakers 'sing' is not used to characterize Western musical genres. In contrast, 'hum' can pertain to any text or sound. There are also instances where this distinction is not so straightforward, and as Haviland (2007: 171) has noted, "Talk easily fades into singing, and singing into humming". The transitive Arandic verb for 'sing' applies to a sound that influences some other entity, typically the object of the transitive verb. Performance genres such as *awely* 'women's ceremonies' or *althart* 'public ceremonies' may also occupy the object position. Whilst people are the prototypical 'singers', certain beetles that are thought to use their sound to cause the proliferation of particular species are also said to 'sing'. To our knowledge no other beings or things do so (cf. a kettle in English).

Arandic verbs meaning 'hum, intone' are similarly complex and describe the production of a continuous sound on the one pitch. 'Hum' is used to describe spoken or sung improvised text, and distant singing where the lyrics are not discernable. 'Hum' also refers to the performance of the introductory section of a song (Green & Turpin 2013; Green 2014), which Knopoff (1992:141) also notes for varieties of Yolngu where a "lead singer establishes an appropriate clapstick pattern and quietly intones a low tonic". Ellis discusses Pitjantjatjara forms of 'intoned stories', which include a kind of humming that performers describe as "looking for a hint of a song" (Ellis 1985: 60-1, 72). 'Hum' verbs are also used for the sound made by certain insects, such as native bees or wasps. In some contexts 'humming' may have negative overtones. To be 'just humming' may reflect loss of knowledge of performance repertoires (Peterson 2008:114). ART aims to help elucidate how Arandic verbs carve up the semantic space of humanly produced vocal sound, and has been developed in the spirit of other tools designed to explore parameters of the language of sensory domains (cf. Majid 2007).

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Voice quality methodology: a review of voice quality analysis techniques

[Adele Gregory](#)

Voice quality has been noted in a number of grammars written on Australian Aboriginal languages (e.g. Nash 1990). In order to further investigate 'special voice qualities' we will need to draw from other linguistic studies that have focused on these 'phonetic settings' (Laver, 1980). These include cross-linguistic, clinical, language acquisition and sociophonetic studies. Each of these areas of study will be addressed in this paper, with an emphasis on methods and techniques that will help investigation of Australian Aboriginal languages going forward.

Previous reviews have reported as many as 67 terms for vocal quality in the literature (Pannbacker, 1984). In addition, researchers classify these types of voice quality with a range of measurements utilising a number of different linguistic techniques from phonetic labelling, to acoustic or aerodynamic measures. Unlike pitch and loudness, which are easily quantifiable as they have single acoustic correlates, voice quality is influenced by a range of factors.

Voice quality has been evaluated from a descriptive viewpoint in order to notate suprasegmental changes alongside segmental transcription. Multiple systems such as those by Laver (1980, 1994, 2000) and Ball, Esling and Dickson (2000) have endeavoured to capture the phonation types evident cross-linguistically and clinically.

Phonemic voice quality distinctions have been studied in a number of languages, for example Bai (Edmondson and Esling, 2006) or Gujarati (Esposito, 2006). These languages exhibit phonation patterns that provide phonemic distinctions that are both produced and perceived by native listeners. Contrasting phonation types can differ along multiple acoustic dimensions, and different languages utilise different strategies in order to produce the contrast. Listeners therefore have multiple perceptual cues to the contrasts and those with different language experience attend to different cues (Keating and Esposito, 2006). Research in this area has primarily focused on the acoustic correlates of voice quality (e.g. fundamental frequency, H1-H2, Cepstral Peak Prominence) or on how these voice qualities are physically produced (Esling, Fraser and Harris, 2005).

Disordered voice quality is another major area of study. Aerodynamic measures are used extensively in the clinical environment and are used to diagnose and examine the differences pre- and post-treatment (e.g. Hartl et al., 2003; Giovanni et al., 1999). Acoustic measures (e.g. jitter and Long Term Average Spectrum) are also utilised in both diagnosis and treatment evaluation.

Language acquisition studies have also examined voice quality concentrating on developmental trends of features (e.g. Benner et al., 2007; Gregory, 2013). These studies have used a combination of acoustic and auditory-perceptual methods to understand how voice quality changes over time.

Analysis of voice quality for sociophonetic purposes focuses on long-term cues, those features that can be detected more constantly throughout the stream of speech. Individuals are compared and those features of voice quality that are shared by a number of speakers (and therefore typify a given

linguistic, regional or social group) can be taken as an indicator or a marker of that group (Esling and Edmondson, 2010; 131). Studies have used articulatory, auditory and acoustic methods to analyse voice quality in these situations. All of these areas of study provide great insight into the processes of voice quality control and the techniques to label and measure voice quality.

This paper provides a methodological review of current practices in investigating voice quality. It makes some suggestions in terms of both phonetic labelling techniques and instrumental measures that can be utilised when investigating voice quality in Australian Aboriginal languages.

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Urbanisation and minority language in China: a case study of urban, upwardly mobile and language-less Zhuang people

Alexandra Grey

Migration within China happens on an extremely large scale and is almost entirely a process of urbanisation rather than urban-to-rural or rural-to-rural movement (see e.g. Iredale *et al* 2003 and Zhu 2014). This paper examines literature on social studies of migration, typically focused on international migration, and argues for its applicability for studies of migration within China; the internal borders which are crossed by migrants within China are linguistically constructed, amongst other things.

Building on the premise that mobility within China can be usefully explained using lenses from migration social studies, the paper then uses Levitt and Glick Schiller's (2004 p.1010) distinction between a "language of being" and a "language of belonging" to analyse the changing, and reducing, usage of Zhuang language amongst young people undertaking university education and their families. Zhuang language is an officially-recognised minority language in China. The paper argues that, under conditions of migration and to enable upward socio-economic mobility, Zhuang language is being replaced by Putonghua (the national, standardised Mandarin variant) in processes of social inclusion. The social "tolerability" (Grin 1995) of this change is produced through a number of discourses rationalizing the non-speaking of Zhuang for people who identify as ethno-culturally Zhuang, underpinned by language ideologies about the naturalness of speaking Putonghua as a Zhuang-Chinese person and about Zhuang language as an inherently rural language which will naturally fail to "grow" in cities. This latter is explicitly constructed through metaphor as well as being expressed implicitly in other ways.

Despite these discourses and ideologies, and despite the urbanisation and dispersal of Zhuang-speaking communities that China's migration is producing, an ethno-cultural Zhuang group is still a grouping with social and political meaning, re-constructed by individuals and the state.

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An ultrasound study of monophthongs in New Zealand English

[Matthias Heyne](#), Donald Derrick and Jennifer Hay

In an ongoing study, to date vowel data for seven native New Zealand English (NZE) speakers was collected using ultrasound, a noninvasive and relatively inexpensive method for imaging the surface of the tongue (cf. [1]). For all but the initial pilot participant, the following methods apply: A minimum of 19 tokens for each NZE monophthong was collected. Ultrasound data were collected along the midsagittal plane, and individual traces were extracted from the ultrasound video using GetContours [2, 3]. Average curves were then calculated in R [4, 5] using polar coordinates [6] and plotted together for reference. Individual traces were taken at the midpoints of vowels based on automatic segmentation employing the HTK toolkit [7] via its implementation in LaBB-CAT [8].

Visual inspection of the individual speakers' vowel systems, represented in Figures 1 and 2, show that the DRESS vowel (/e/, green dash-dot trace) is reliably produced with a higher tongue position than the KIT vowel (/ɪ/, light-blue dash trace) and that the GOOSE vowel (/ʊ/, purple dot trace) is quite fronted for all speakers included in our dataset, as expected for NZE (cf. [9]). Furthermore, the DRESS vowel is produced almost as high or even higher than the FLEECE vowel (/i:/, yellow dash trace) by young speakers with an 'advanced Kiwi accent', as exemplified in Figure 1 but not in Figure 2, providing synchronic articulatory evidence for a sound change in progress. Previous research has also shown that especially for these speakers, FLEECE increasingly diphthongizes to maintain the phonemic difference with DRESS [10], which might explain our articulatory results. In conclusion, the data presented in this paper provide articulatory evidence for many distinguishing features of NZE monophthongs that have previously only been investigated using acoustic methods.

Figure 1: S5 NZE – ‘advanced Kiwi accent’

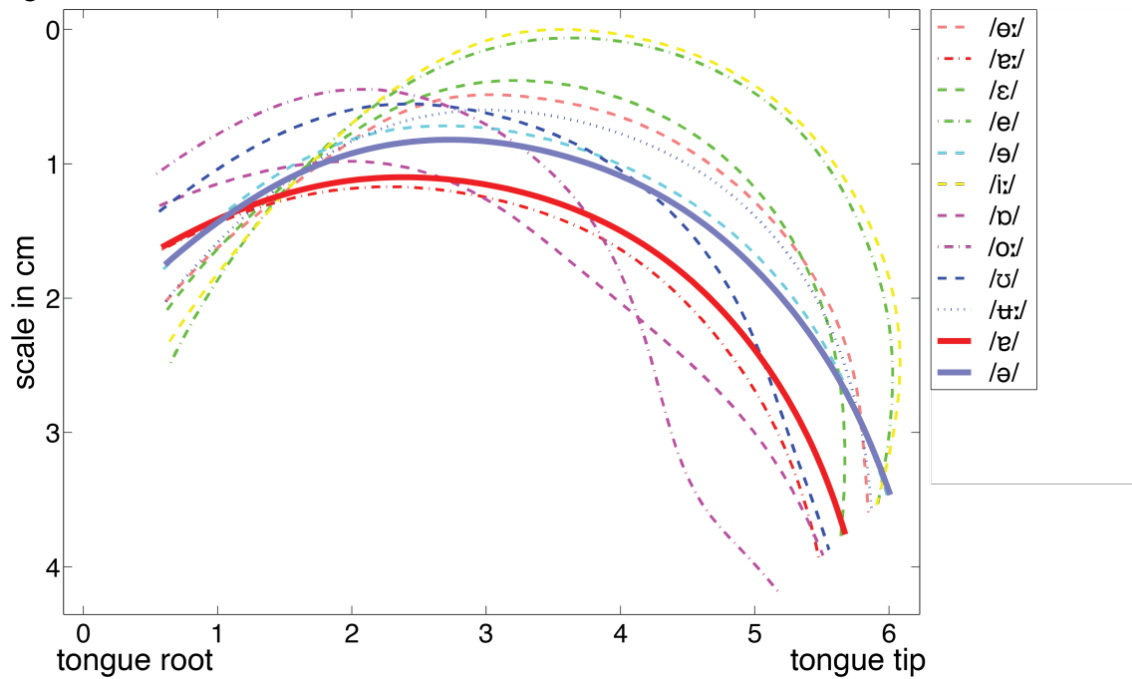
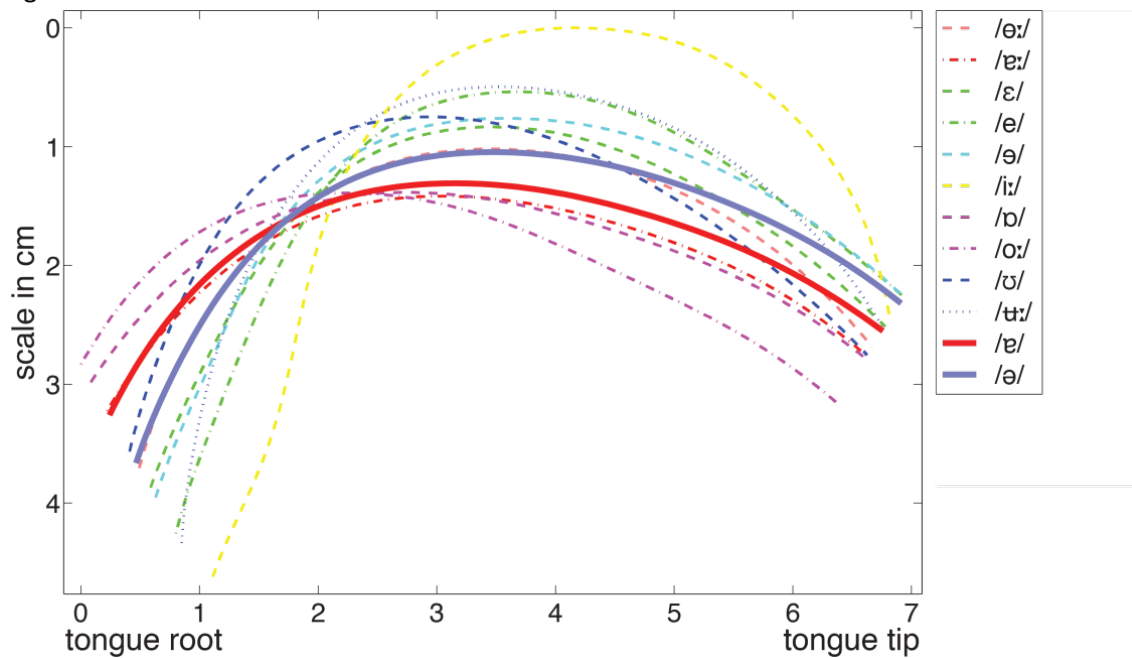


Figure 2: S25 NZE



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Two dyadic constructions and what they reveal about social practices and kinship relations in Longgu (Solomon Islands)

Deborah Hill

Among the several ways of referring to kinship relations in Longgu (South-east Solomonian, Oceanic) are two dyadic constructions. These noun phrases exhibit a number of grammatical and semantic properties distinguishing dyadic constructions (Evans 2006) from other relational terms.

As in other Oceanic languages (Lynch, Ross and Crowley, 2002), kinship terms form the head of one of two possessive constructions (alienable and inalienable). An alienable possessive construction is formed by directly affixing a possessive pronoun to the head noun (e.g. *vavune-gu* 'my brother' (female speaking)). An inalienable possessive construction is formed by postposing an independent possessive pronoun to a bare noun (e.g. *tia nau* 'my mother'). Dyadic constructions are formed by direct possession of a kin term, co-ordinated with either *rua* 'two' (1) or the dyad term *tala* (2). The two dyadic constructions differ in the number of people referred to (two or more) and in the kind of social relationship that is expressed. The *rua* 'two' dyadic construction expresses asymmetric relationships where one member of the pair is assumed to look after the other, *rua mi gale-na* 'mother and her child'. The *tala* 'dyad' group' dyadic construction suggests reciprocal or collective situations (e.g. *tala mi to'o-na* 'a group of brothers'). The two dyadic constructions reflect two types of social relationships that kin may have.

Kinship systems reflect social organization (e.g. for discussion of kinship in a similar society to Longgu, see Wegener, 2013). The Longgu kinship system is organized around the relationship with one's mother's brother (*sa'i*), reflecting the importance of this relationship in a matrilineal society where clan lines and land are passed down through the mother's line. Sibling terms distinguish age (younger or older same sex sibling) and gender (one term for opposite sex sibling). Terms are often reciprocal for ascending and descending generations (e.g. *vua* refers to grandparent and grandchild; *sa'i* refers to mother's brother and sister's child). Reciprocal terms in ascending and descending generations are used as terms of address and reference. These terms are not found in dyadic constructions.

A limited number of kin terms are found in dyadic constructions. These are the terms for 'child', 'spouse', 'older same sex sibling' and 'younger same sex sibling'. Kin terms used in dyadic constructions are both symmetrical (e.g. *burunga-na* 'his/her spouse') and non-symmetrical (e.g. *gale-na* 'his/her child'). The choice of kinship terms used in dyadic constructions provides linguistic evidence for social practices relating to who can accompany whom in daily activities.

The grammar of dyadic constructions shows the interrelationship between kinship terms, possessive constructions, and terms of address and reference. Dyadic constructions are used to refer to observable relations in daily life, rather than what may be seen as the most culturally significant relations (e.g. *sa'i* 'mother's brother; sister's child; *mama* 'father; son'; *vu'a* 'grandparent; grandchild'). The choice of kinship term in these two constructions explains something about the social practices of kinship groups while the choice of dyadic construction reflects two kinds of social relationship that kin may have with one another.

Examples

- (1) **Rua mi gale-na** arua la tete
two CONJ child-3SG.POSS 3DU.S go reef
A mother and her child walked on the reef.

- (2) Aralu ii'o ta-na te komu-i **tala mi gale-na**
3PAU.S live LOC-3SG.POSS one village-SG dyad CONJ child-3SG.POSS
A couple and their child lived in a village.

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Tonal Variation in Putonghua by Hong Kong Cantonese Speakers - A study of the High Falling tone in relation to age groups

[Szu-Jou Ho.](#)

The consideration of historical events that delineate language variants on a regional basis can enhance the study of how languages change over time and the subsequent creation of variants of the languages. Two historical events, the formation of the People's Republic of China in 1949 and the handover of Hong Kong in 1997, influenced tonal tendencies in modern Hong Kong and thus a generational change is expected, based on apparent-time interpretation in which individuals retain their childhood patterns, with each cohort of speakers registering a varying use of the variant. The current study, as a methodological replica of Labov's (1972) original study of the social stratification of /r/, employed the first syllable of *zhebian* 'this way' in Putonghua to investigate the tonal variation in relation to age groups in Hong Kong. The result showed that the average of High Falling tone use by all the informants was 57%; the respective usage among the young, the middle-aged and the elderly was 95%, 35% and 40%. This distinctive trend across age groups might imply that integrating Putonghua into the medium of instruction and as a core subject has resulted in greater tone accuracy. A most unexpected result was a considerable percentage of Mid-Low Rising tone in Putonghua, 5%, 60% and 40% for each age group, which was obviously not parallel to Chao's (1947) in Cantonese. The difference may indicate an overall language change that applied across all languages in Hong Kong within the past few decades. Only a survey of the tonal variation in Hong Kong Cantonese could clarify the surmise.

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Acoustic characteristics of oral clicks in Zimbabwean Ndebele: A preliminary case study

Rebecca Holt.

Zimbabwean Ndebele ('Ndebele') is a Bantu language with click contrasts at three places of articulation: dental, palatal and lateral (Bower & Lotridge, 2002), combining with five possible accompaniments: voiceless, voiceless aspirated ('aspirated'), voiced depressed ('voiced'), voiced nasalised and voiced nasalised depressed (Sibanda, 2004). These clicks impressionistically resemble their counterparts in Zulu (Doke, 1926) and Xhosa (Sands, 1991), both closely related to Ndebele, however it is not clear whether they share the same phonetic properties, as the acoustic and articulatory characteristics of Ndebele clicks have not previously been investigated. To begin to address this issue, this study provides a preliminary acoustic analysis of the oral (i.e. non-nasalised) clicks of a single speaker of Ndebele, with the aim of determining the acoustic correlates that characterise (a) the three places of articulation and (b) the three oral accompaniments.

The subject of this case study is a 37-year-old female native speaker of Ndebele residing in Sydney, Australia. Polysyllabic target words in a carrier phrase were used to elicit clicks word-initially and word-medially in a controlled phonetic environment (Table 1). Six acoustic characteristics were investigated: total click duration, closure duration, burst duration, post-burst noise duration, voice onset time (VOT) and burst amplitude (cf. Jessen, 2002; Sands, 1991). 266 tokens were analysed as follows: the onset and offset of the closure, burst and post-burst noise portions were identified on the waveform as shown in Figure 1; total click duration was considered the sum of these three components; VOT was defined as the time from the onset of the burst to the offset of post-burst noise, except where pre-voicing was present, where it was considered as the time from closure onset to burst onset; and burst amplitude was measured as the average intensity in decibels across the burst portion. A factorial analysis of variance was performed for each acoustic measure (Bonferroni correction was applied) with place of articulation (dental, palatal or lateral), accompaniment (voiceless, voiced or aspirated) and segment position (initial or medial) as the independent variables in each case.

The results showed that place of articulation was characterised by closure duration and burst amplitude. Palatal clicks had longer closures and greater burst amplitudes than either dental or lateral clicks, but the latter two did not differ from each other on any measure. Accompaniments were characterised by differences in total duration, burst duration, post-burst noise duration, VOT and burst amplitude. Of these, the most consistent acoustic correlate of accompaniment type was the combined values of burst and post-burst noise durations (Figure 2), which existed in different ratios between the different accompaniments. Additionally, VOT revealed that pre-voicing was less likely to occur in aspirated clicks than voiced or voiceless. Finally, word-initial clicks were found to have a longer total duration than word-medial and were less likely to be pre-voiced. These results corresponded to findings for Xhosa (Sands, 1991) with regard to some factors but differed on others.

These preliminary results suggest that all six of the included measures are relevant in acoustically characterising Ndebele oral clicks and that Ndebele clicks display at least some unique acoustic features, even when compared to a closely related language.

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Table 1 – Sample target words in the carrier phrase

	<i>Dental</i>	<i>Palatal</i>	<i>Lateral</i>
<i>Voiceless</i>	Uthi cabanga. Uthi bacabanga.	Uthi qabuka. Uthi baqabuka.	Uthi xabana. Uthi baxabana.
<i>Aspirated</i>	Uthi chasisa. Uthi bachasisa.	Uthi qhamuka. Uthi baqhamuka.	Uthi xhawula. Uthi baxhawula.
<i>Voiced</i>	Uthi *gcabala. Uthi *bagcabala.	Uthi gqagqela. Uthi bagqagqela.	Uthi gxamuza. Uthi bagxamuza.

Figure 1 – Sample waveform and spectrogram showing closure, burst and post-burst noise durations

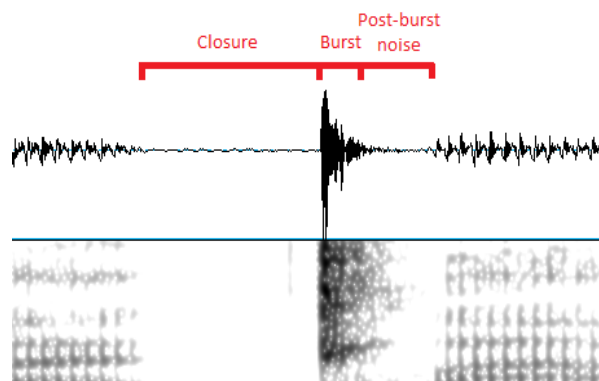
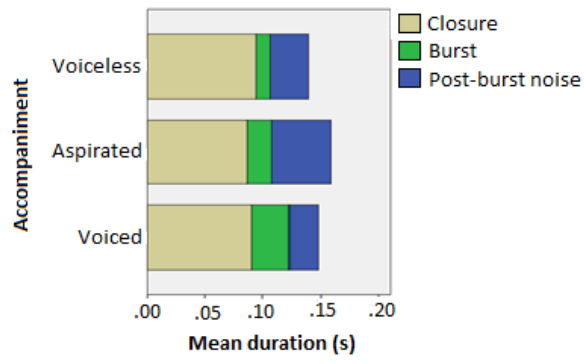


Figure 2 – Component durations by accompaniment showing burst/post-burst noise ratio



Tonal development of Taiwan Mandarin – a Southern Min interference?

Karen Huang

When a strict Mandarin-only policy was employed in Taiwan, the local population, mostly Southern Min speakers, was forced to speak Mandarin (Sandel, 2003). After six decades of language shift, Mandarin has become the dominant language among the younger generation (S.-F. Huang, 1993; Young, 1988), and Taiwan Mandarin has developed into a distinct dialect of Mandarin (Her, 2010). The features of Taiwan Mandarin are often attributed to the first language interference of the Southern Min speakers (Kubler, 1985), but Hsu and Tse (2009) claimed that some features were the result of three generations of levelling between the Southern Min speakers and the Mainlanders who emigrated from China in 1945.

Southern Min has seven tones (using a 5-point numeric scale: [55, 33, 24, 51, 21] and checked tones [53, 21]) (Peng, 1997), and Standard Mandarin has four tones [55, 35, 214, 51] (Chao, 1968). However, the four tones in Taiwan Mandarin by young speakers are reported to be to be [44, 33, 21, 53] (K. Huang, 2013). The development of Mandarin Tone 2 [SM:35; TM:33] is especially peculiar because the rising tone in Mandarin developed into a mid level pitch contour despite the fact that the rising pitch contour exists in Southern Min. Furthermore, this development has changed the Taiwan Mandarin tone system from /H, LH, L, HL/ into one with two registers and a \pm falling feature, which suggests a development at the phonological level.

This study examines the tonal development of Taiwan Mandarin. Specifically, it investigates whether the tonetic features of Taiwan Mandarin are a result of the interference of the Southern Min speakers producing the Mandarin tones as a second language. A cross-sectional acoustic study was carried out. Bilingual subjects of different age groups (18 ~ 35, 36 ~ 55, 55 ~ 65) were recruited to elicit their speech in both Mandarin and Southern Min. The elicited Mandarin and Southern Min words were disyllabic words with varying lexical tones in order to observe the pitch target of each tone. The elicited words were put in a frame sentence and the subjects were asked to repeat the sentences twice. For each speaker, their pitch targets of both Mandarin and Southern Min tones were compared.

The results show that for the older L1 Southern Min speakers, the pitch targets of Mandarin high-level, high-falling and low-falling tones are similar to the respective tones in Southern Min. The Mandarin rising tone shows variability in regard to its position, environment and speakers. In a phrase-final position, the Mandarin rising tone is assimilated to the rising tone (Tone 5: [24]) in Southern Min. However, in a non-phrase-final position, the Mandarin rising tones sometimes behave like a Southern Min mid-level tone, and sometimes have a rising pitch contour. This asymmetric result is likely because Tone 5 in Southern Min does not occur in a non-phrase-final position due to one of the tone sandhi rules, in which Tone 5 became Tone 7 in a non-phrasal-final position. The results suggest that for some speakers, the Mandarin rising tone was assimilated to Tone 5 in Southern Min, but the speakers have created a new phonological category for this rising tone in Mandarin. On the other hand, for some speakers, the Mandarin rising tone assimilated to different Southern Min tones depends on its context. The latter is likely to be a contributing factor for the mid-level Tone 2 in Taiwan Mandarin.

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Incorporation of English coda alveolar stops as retroflexes in Punjabi

[Qandeel Hussain](#), Mark Harvey and Katherine Demuth

Previous studies of Hindi have suggested that English alveolar stops are adapted as retroflexes rather than as dentals (Ohala, 1978). This would be consistent with the perceptual or phonetic theory of loanword adaptation (Peperkamp, 2005) because the category of alveolars is phonetically closer to retroflexes than to dentals (Tabain, 2012). However, this proposal is only based on informal observation; there has been no *acoustic* study of how English source alveolar stops are produced in Hindi or other Indo-Aryan languages. The aim of this paper is therefore to investigate the acoustic characteristics of English source alveolar stops produced by Punjabi speakers. To do this, we investigated several temporal and spectral cues that have been shown to characterize stop contrasts across languages (Tabain, 2012; Anderson & Maddieson, 1994).

Nineteen male Punjabi speakers (M age = 26 years) participated in a picture identification task (Paradis & LaCharité, 2011). The stimuli consisted of eight /CVt/ English loanwords (e.g., 'seat'), nine /CVɽ/ Punjabi words with the retroflex stop and nine /CVt̪/ Punjabi words with the dental stop. Since it has been reported that coronals interact with different vocalic contexts (Hussain et al., 2015), the target consonants were preceded by /i a u/. Participants were encouraged to produce the target words in a carrier phrase (i.e. [kɛ__əɖʒ] 'say__today'). Five tokens of each target word were collected. All utterances were recorded at 44.1 KHz and downsampled to 22 KHz. Burst and closure durations of the 2470 items were measured by manual identification of spectra and waveforms. Spectral moments (Centre of Gravity (CoG), variance, skewness, kurtosis) of stop bursts were measured in FFT spectra over sliding 20ms Hamming analysis windows.

We used repeated-measures ANOVA with burst duration, closure duration and four spectral moments (CoG, variance, skewness, kurtosis) as dependent variables, consonant type (English source alveolar stop, Punjabi retroflex stop, Punjabi dental stop), and preceding vowels (/i a u/) as within-subject factors. Firstly, we set a baseline by investigating the acoustic characteristics of the Punjabi retroflex and dental stops. The overall ANOVA results confirmed that the two stops are differentiated by burst and closure durations, CoG, variance and skewness (Table 1). Secondly, we compare Punjabi speakers' productions of English alveolar stops with Punjabi retroflex and dental stops. We expected to see several similarities in the acoustic cues of English source alveolar stops and Punjabi retroflex stops but more significant differences between English source alveolar stops and Punjabi dental stops. As predicted, the ANOVA results showed that, averaged across all vowels, there were no significant differences in the spectral cues (CoG, variance, skewness and kurtosis) of the Punjabi speakers' productions between the English source alveolar stop and the Punjabi retroflex stop (Table 1). On the other hand, burst and closure durations, variance and skewness of the English source alveolar stop and Punjabi dental stop were all significantly different. Thus, it appears that Punjabi speakers' productions of

English source alveolar stops are acoustically closer to the Punjabi retroflex stop (see Fig. 1). The results therefore provide acoustic support for a perceptual account of loanword adaptation in Punjabi (Peperkamp, 2005).

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Table 1. Overall statistical results of acoustic cues to different coda contrasts. * shows statistical significance with the alpha value of $p=0.05$.

Comparisons	Acoustic Measures					
	Burst	Closure	CoG	Variance	Skewness	Kurtosis
1. Punjabi /t/ vs. Punjabi /ʈ/	*	*	*	*	*	ns
2. English /t/ vs. Punjabi /t/	*	*	ns	ns	ns	ns
3. English /t/ vs. Punjabi /ʈ/	*	*	ns	*	*	ns

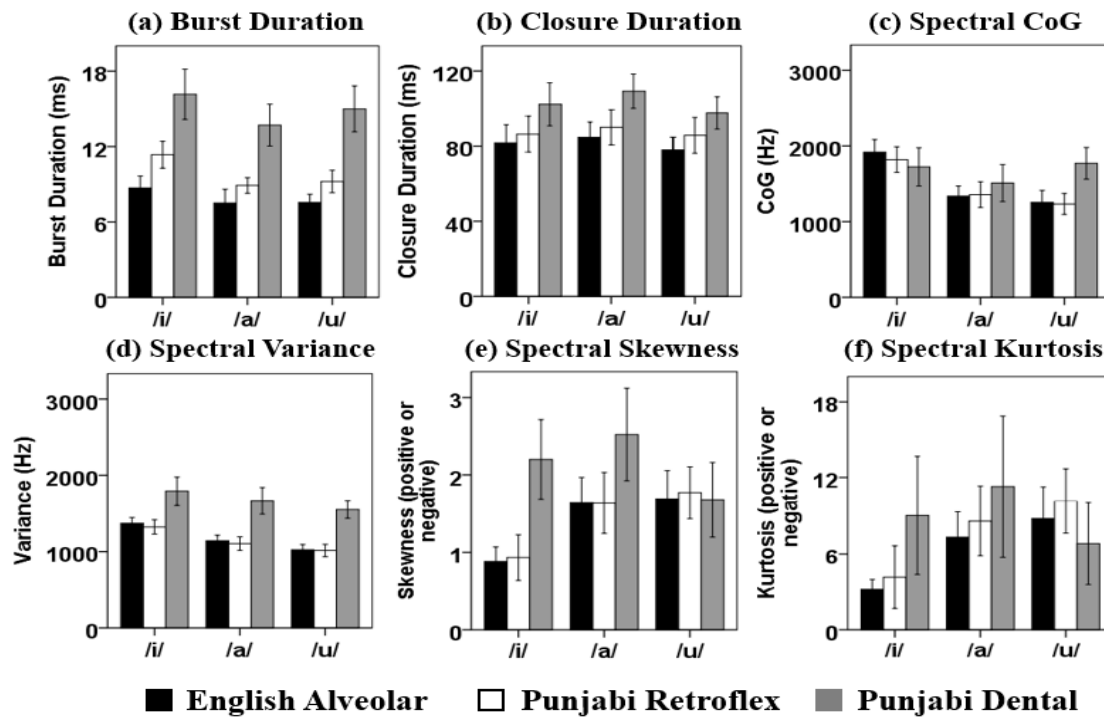


Figure 1. Mean burst duration (a), closure duration (b), and four spectral moments (c-f) as a function of preceding /i/ a u/ vowel contexts.

Contrastive vowel duration and consonant lengthening in Djambarrpuyngu

Kathleen Jepson, Hywel Stoakes and Janet Fletcher

Djambarrpuyngu, a Yolngu Matha language of northeast Arnhem Land, has been analysed as having six vowels divided by a three way quality contrast and a length distinction (Wilkinson 2012; for other Yolngu Matha varieties see Morphy 1983; Waters 1979; Wood 1978). The duration of vowels is only contrastive in the first syllable of a word, which is also putatively the position of prosodic prominence (i.e. stress) (Wilkinson 2012; Dixon 2002). For other Yolngu Matha varieties, there is hypothesised to be a relationship between vowel length and the duration of the following consonant (see Morphy 1983; Wood 1978). That is, when a word begins with an open syllable and the vowel is phonologically short the following consonant often has greater duration than those after long vowels of the same quality. This study is a quantitative acoustic investigation of the acoustic phonetic nature of the vowel length contrast in Djambarrpuyngu and the hypothesised relationship between vowel and consonant duration.

The corpus drawn on for this study comprised wordlists recorded at Galiwin'ku in 2010, with nine Djambarrpuyngu speakers (3 females, 6 males). We investigated words where the initial vowel was either phonologically short or long and followed by a singleton consonant. [See Table1.] Our aim was to see whether a) there was acoustic phonetic evidence of the phonological length contrast, and b) whether there was a temporal relationship between phonological vowel length and following consonant duration. Consonants and vowels were segmented in Praat using the acoustic waveform and wideband spectrograms and the duration values were extracted in EMU/R. A statistical analysis was undertaken in R using the packages *lme4* and *multcomp*. A general linear mixed effects model was run for vowel length in the first syllable and for word-medial consonant length.

Vowel durations are plotted in Figures 1 and 2. All phonologically long vowels have statistically significantly greater duration than phonologically short vowels for all speakers ($p < .001$), based on the results of a linear mixed effects model. The phonologically long vowels have a mean duration that is $102\text{ms} \pm 21\text{ms}$ longer than phonologically short vowels and the ratio of short to long vowels is 1:1.8. Post-vocalic consonant durations are plotted in Figure 3. Consonants which occurred after short vowels have a mean duration that is $45\text{ms} \pm 7\text{ms}$ longer than consonants which occur after long vowels ($p < .001$). The ratio of consonants after long vowels to consonants after short vowels is 1:1.2. [See Figure 3.] The combined duration of vowels and consonants in the word-medial position (i.e. $C_1V_1C_2V_2$) are presented in the boxplots in Figure 4. We found that there was no significant difference in duration between the sequence of a long vowel and following consonant and a short vowel and following consonant ($p > 0.17$). Further work will investigate the effect of place of articulation and manner of articulation of consonants on the overall sequence duration.

In this study, we have shown that vowel duration is indeed contrastive in the first syllable of Djambarrpuyngu words and that there is compensatory lengthening of consonants after short vowels. There is no statistically significant difference between the duration of a short vowel and consonant sequence and a long vowel and consonant sequence. This leads us to hypothesise that the first vowel and following singleton consonant are in a temporal relationship that preserves the duration of the first syllable. In summary, this study provides phonetic evidence for the proposed phonological length distinction in Djambarrpuyngu and through an analysis of the duration of post-vocalic consonants we

provide a base on which the relationship between the first vowel and following consonant can be investigated further in Djambarrpuyŋu and other Yolŋu Matha varieties.

Table 1: Total number of tokens V_1

	i	a	u	i:	a:	u:	Total
n (all speakers)	27	98	61	49	102	53	390

Figure 1: Boxplots of durations of Djambarrpuyŋu short vowels and long vowels

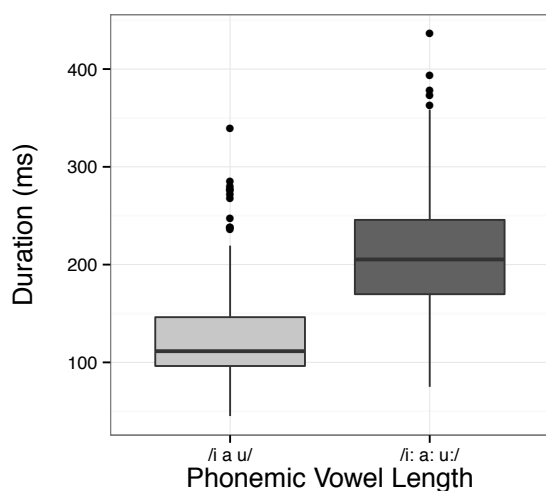


Figure 2: Boxplots of durations of the six Djambarrpuyŋu vowels

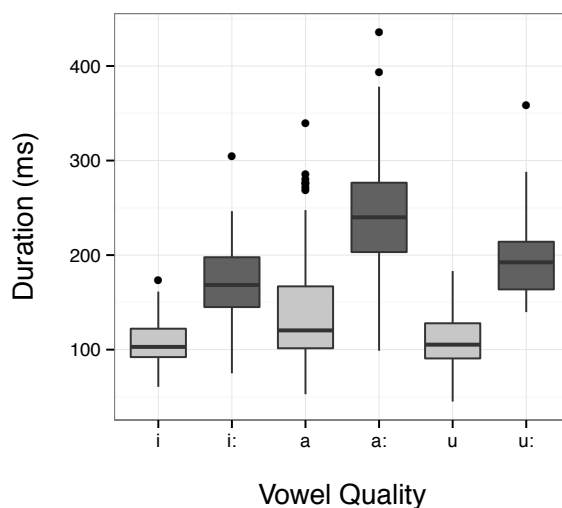


Figure 3: Boxplots of durations of Djambarrpuyŋu consonants

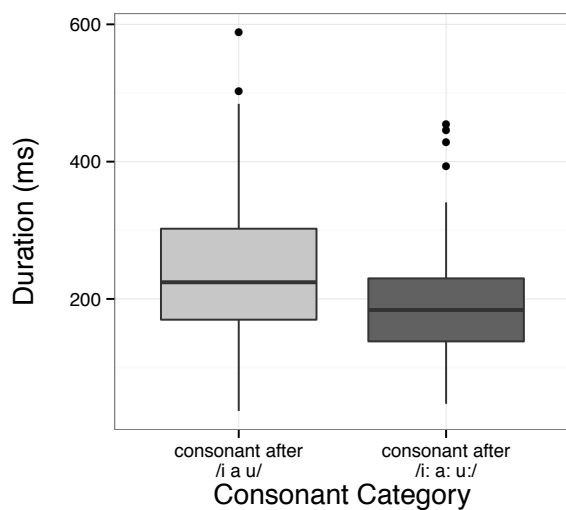
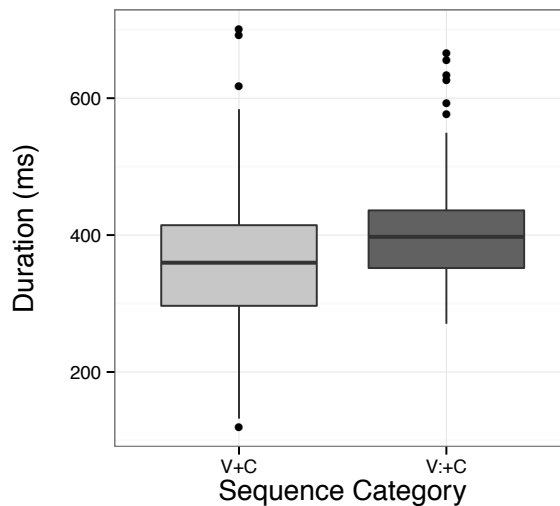


Figure 4: Boxplots of durations of short vowel and consonant sequences and long vowel and consonant sequences



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Do Aboriginal and non-Aboriginal Sydneysiders produce different high rising terminals?

Anna Jespersen

The high rising terminal (HRT) intonation pattern is often associated with Australian English, and is said to be one its most distinguishing features. It has been documented in several Australian varieties, and has been shown to occur more frequently in the speech of younger speakers, females and immigrants (Guy and Vonwiller 1989; Warren 1999). This paper investigates its phonetic realizations in different speech styles in the under-explored context of Aboriginal English, and compares these findings with results from standard Australian English.

The data for this investigation were recorded from online radio broadcasts from Sydney's Aboriginal radio station Koori Radio, and consist of recordings of 7 male and 4 female Aboriginal speakers, and 6 male and 4 female non-Aboriginal speakers. All the speakers were between 35–65 years old, and the Aboriginal speakers had resided in Sydney for a minimum of 15 years. Pitch excursion was calculated from f0 measures taken at the bottom elbow and rise of each HRT token. In order to operationalize variation in speech style, an adapted version of the Discourse Context Analysis framework (Gregersen, Nielsen and Thøgersen 2009) was used. This framework made it possible to classify and test individual properties of speech style such as interaction structure, speech genre, conversational context and topic. Statistical analyses were conducted by fitting mixed effects models to the data.

Rise tokens from both varieties were shown to conform to five different phonological categories: low-range and high-range low rises, low-range and high-range fall-rises and high-range high rises. Non-Aboriginal speakers were found to have higher rises than Aboriginal speakers overall, and within 4 of the 5 rise types. Stylistic parameters were found to effect both the distribution and form of the rises produced, with speech genre having the strongest effect on their form: narratives had the longest rises, as well as a higher frequency of rises. This resonates with findings from earlier studies of standard Australian English (Fletcher et al. 2006; McGregor and Palethorpe 2008), which found that different HRT contours were used with different dialogue acts. Interaction type and speech event were shown to have an effect on the distribution of the rises too, but these effects were less robust.

The findings presented here emphasize the complexity and variability of declarative rises in Sydney Aboriginal English, with both the distribution and pitch excursion of the rises being influenced by elements of speech style. They also show that ethnicity had a statistically significant effect on the height of the rises across the board. Taken together, this suggest that subtle phonetic variation in the realization of declarative rises is available to Aboriginal speakers for sociolinguistic purposes.

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Prosodic, syntactic and generational effects on the pronunciation of function words in Barunga Kriol

Caroline Jones, Katherine Demuth, Amy German and Sarah Cutfield

Function words tend to vary considerably in pronunciation, and this variation is sensitive to contextual factors. In English, for example, high-frequency function words (*the, that, and, of*) tend to be shorter and to have reduced vowels in fluent speech, or when in frequent multiword collocations, or when in utterance-medial position (Bell, Jurafsky, Fosler-Lussier, Girand, Gregory, & Gildea, 2003). Just as function words vary considerably in a given language at any point in time, so too are they often involved in grammaticalization over time (Bybee, 2001). Languages which are undergoing rapid change are a good place to examine both the synchronic and diachronic aspects of this variation.

This study investigates which factors affect the pronunciation of function words in Barunga Kriol, a local variety of north Australian Kriol regarded by its speakers as undergoing rapid change. In this study we focus on the phonological and phonetic variation in four high-frequency function words: two prepositions *blanga* / *bla* / *ba* 'for, of', *langa* / *la* 'to, at'; the 1st person plural pronoun *mibala* / *mela* 'we'; and the determiner *det* / *thet* 'the'. We assess the effect of two prosodic factors (speech rate and utterance position) and one syntactic factor (multiword collocation) on variation in the pronunciation of the function words, in terms of word duration, phone duration of initial vowel, and midpoint F1 and midpoint F2 of initial vowel. Note that word duration captures differences between tokens due to phonological variants (e.g. *blanga, bla, ba*) and phonetic variation (e.g. different durations of *ba*). To look at possible language change in progress we compare pronunciations across four generations: teenagers, young adults (20-34 years of age), middle-aged adults (35-50 years) and older adults (> 50 years). We expected function words to be shorter and have shorter, more centralised vowels, at faster speech rates, in medial utterance position, in high-frequency multiword collocations (i.e. when more predictable), and possibly in the speech of younger people.

The recordings draw on a new corpus of Barunga Kriol and comprise naturalistic conversation and story-telling session with 13 female speakers (3 teenagers, 5 young adults, 2 middle-aged, 3 older adults), audio-recorded by Indigenous peers without a non-Indigenous researcher present. The recordings were given orthographic transcription, then automatic segmentation and alignment using MAUS, then Praat scripts made phonetic measurements (word duration, plus duration, midpoint F1, and midpoint F2 of the vowel in the first syllable). Mixed effects models were fit to the data in step-wise fashion with factors added into the model in the order: speech rate, utterance position (initial, medial, vs final), multiword collocation (high-frequency collocations vs other), and then speaker generation (teenager, young adult, middle-aged adult, vs older adult). Here we present a summary of results significant at the $p < 0.05$ level or less.

Results show effects of both prosodic and syntactic factors, and an effect of speaker generation. The effects vary slightly by function word. The prosodic effects are as follows. At faster speech rates all function words are shorter in duration (see e.g. Fig 1), and so is the vowel phone for *ba* and *la*. Spectrally, faster speech yields a lowered initial vowel in *mela*. As compared with utterance-final position, in initial and medial position there are shorter durations for words (*ba, la, mela*) and vowels (*ba*). Spectrally vowels are also raised in medial (*la, det*) and initial position (*la*).

High-frequency multiword collocations are also sites of function word reduction in these data, as

compared with other collocations in the corpus. Word and/or vowel phone durations are shorter in: *mela olweis*, *la det*, *det lil*. See e.g. Fig 1. Function word vowels are more coarticulated in: *ba det*, *ba im*, *la det*, *la im*, *det lil*.

After prosodic and syntactic factors are controlled for, there is an effect of speaker generation (see Fig. 2 for raw data; prosodic and syntactic effects are not partialled out in the graph): the word durations for forms of the word *ba* are shorter for teenagers, young adults and middle-aged adults than older adults. This reflects the fact that the longer phonological variants *bla* and *blanga* are mainly used by older adults, suggesting language change in progress (see Fig. 3 for raw data; prosodic and syntactic effects not partialled out in the graph).

Figures

Fig 1. Word duration (ms) in *la* by speech rate, in high-frequency collocations (blue/red)

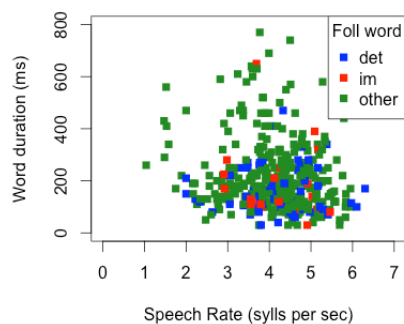


Fig 2. Word duration (ms) in *ba* by speaker generation (error bars are 95% C.I.s)

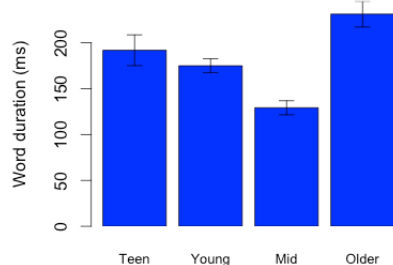
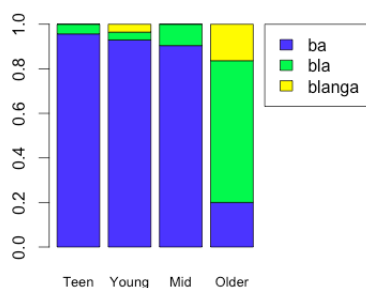


Fig 3. Proportion of the variants *ba*, *bla*, *blanga* by speaker generation



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“I’m plenty interested in being flogged”: Claiming versus displaying understanding in BDSM consent negotiations

[Ayesha Kaak](#)

Consent, particularly sexual consent, is a nebulous, ill-defined, and contested issue, both socially and academically (Archard 1998). Consent in a BDSM context is even more poorly defined, despite its central importance to the subculture, and remains an underexamined academic topic (Barker 2013; Chatterjee 2012; Jozifkova 2013; McLachlan 2011; Tsaros 2013). ‘BDSM’ (also referred to as ‘SM’, ‘S/M’ or ‘kink’) is an umbrella term for the practices, activities, skills, orientations, and identities of its practitioners. The acronym is itself “formed from three terms: bondage and discipline (B&D), domination/submission (D/s), and sadomasochism (SM)” (Weiss 2006:230). The BDSM community tends to be viewed from the outside as a subcultural realm of sexual abuse and deviancy. Yet consent forms the foundation of the community, its relationships, activities, and behaviours. Despite the often noted importance of consent to the BDSM community, the ways in which consent is constructed and navigated had never come under sociolinguistic scrutiny. There are valuable linguistic, social, and legal insights to be gathered from looking at consent conversations in a specifically BDSM context; value that extends far beyond the dungeon.

The paper will discuss the differences in language use as they pertain to a previously unexamined linguistic field – pre-scene negotiations in BDSM. By applying a conversation analysis (CA) framework to the pre-scene negotiations of BDSM practitioners it is possible to examine the interactions for their linguistic processes (Garfinkel [1976]1984). The paper examines 7 recordings from 14 participants with a total 25 minutes of recorded conversation. The negotiations took place at BDSM events prior to engaging in sadomasochistic pursuits or ‘play’. It is through these conversations that kinksters dialogically construct consent for the play-to-come. Of the observed phenomena in these consent negotiations, the most intriguing was the influence of an individual’s role identifier on their language use. In any given BDSM interaction, there is likely to be an individual identifying as the ‘Top’ and an individual identifying as the ‘bottom’. The Top, generally, acts as the dominant individual – the person in charge of the play – while the bottom, generally, acts as the submissive individual – receiving the actions of the Top. The recorded negotiations demonstrate Tops always claiming understanding and bottoms always displaying understanding. This difference in language use highlights the “[i]ssues of power [that] are at the core of SM play” (Newmahr 2011:69). Through using language in a certain way, kinksters claim a role identifier which, in turn, grants them more or less power in the scene being negotiated (Silverman 2006:187-188). The differences in language use as demonstrated in the recorded negotiations highlight further that “speakers design their talk for particular recipients” (Bolden 2014:212). By designing their talk for a particular recipient, kinksters are also tacitly displaying their understanding of who the recipient is, what the recipient knows or understands, and their relationship to the recipient (Bolden 2014:212). These differences in language use create a power dynamic between the individuals in the one space where individuals are supposed to have equal power and standing (Langdridge and Butt 2004:48; Sophia 2013:279). For if partners cannot be considered equal when negotiating consent, how can the consent be deemed

truly valid? The paper hopes to offer valuable sociolinguistic insight into the previously unexamined realm of pre-scene consent negotiations in BDSM.

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A new approach to *a posteriori* language sampling

Siva Kalyan and Mark Donohue

One task of a typologist is to arrive at a sample of languages that provides an adequate basis for drawing generalisations about Language. Typically, typologists try to choose languages to allow an even representation of language families, or else to allow an even representation of geographical areas. The trouble is that these two criteria are often in opposition: if we balanced a world sample by language family, Australia would be underrepresented. If we balanced the same sample by geography, Pama-Nyungan would be overrepresented.

One way to get around the problems of balancing areal and genealogical criteria is to ignore areas and genealogy completely, and simply focus on the distribution of languages in terms of their typological features. Then we can define a “representative sample” of languages as a set of languages that (a) is “maximally dispersed” through the feature space (in order to maximally represent diversity), and (b) is such that no two languages are “too close together” (in order to avoid over-representing very similar language types). Dahl (2008) makes an initial attempt at defining such an *a posteriori* approach to typological sampling, by simply computing the distance between every pair of languages, and then for every pair of languages that is “too close”, removing the one that is less well-described. However, this approach is limited by two factors: Firstly, it is deterministic, i.e., it produces only one sample for a given input set of languages, even though intuitively there should be many samples that are comparably good. Secondly, the threshold for languages being “too close” is arbitrarily determined by the desired sample size; in fact, we would like to argue that the sample size (and the criterion for when two languages are “too close”) should be determined by the inherent variation in the total set of languages

We propose that a typologically representative sample can be built in the following way: (1) Rescale the inter-language distances so as to maximise the variation between languages in dense neighbourhoods and languages in sparse neighbourhoods. (2) Pick one language at random, and add it to the sample. (3) Pick another language at random, and decide whether to include it in the sample based on how far (typologically) it is from the language already in the sample (if it’s far away, it’s very likely to be added; if it’s close by, it’s unlikely to be added). Continue picking languages at random, and decide the likelihood of including each one by how well-separated it is from the languages already in the sample. Continue until every language has been considered.

We present *a posteriori* typological samples computed on the basis of two typological feature sets: the morphosyntactic features in WALS (Dryer and Haspelmath 2013), as coded in the extended World Phonotactics Database (Donohue et al. 2013), and the phonological features in the WPD. We show that the number of languages in a morphosyntactically

representative sample of the world's languages is greater than the number of languages in a phonologically representative sample. This shows the economy achieved when using typology to drive typological sampling, and highlights the loci of global linguistic diversity.

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Genealogical and typological clustering of Austronesian and peri-Austronesian languages:

a comparison of non-cladistic methods

Siva Kalyan and Mark Donohue

In this talk we explore different ways of clustering the languages of Melanesia and Island Southeast Asia. We take a sample of 65 languages, distributed geographically and genealogically. These include 33 Austronesian languages representing most major non-Oceanic subgroups, a number of Papuan languages of Indonesia and New Guinea, and a selection of other languages that might be expected at some point to have had contact with Austronesian languages. We cluster these languages on the basis of (1) judgments of “plausible cognacy” for basic vocabulary lexemes (where potential borrowings are also classified as “cognates”), (2) phonological features from the World Phonotactics Database (Donohue et al. 2013), and (3) morphosyntactic features from *WALS* (Dryer and Haspelmath 2013). These different types of clustering can be expected to provide clues about both historical and typological patterns, and the process of teasing out the sources of these patterns forms the methodological backbone of our talk.

Because of the linkage-like structure of the families involved, we adopted non-cladistic clustering methods to tease apart the data. In particular, we used Correspondence Analysis (Faust 2005, Kalyan and Donohue in preparation), which is unique in allowing us to immediately identify which of the features in our data are responsible for each cluster of languages.

Not surprisingly, given the large proportion of Austronesian languages in our data, we consistently find strong lexical evidence for a cluster that contains most Austronesian languages in the sample, but with intriguing disparities on the fringes. For example, in terms of body-part vocabulary, Tai-Kadai languages (Ong Be, Thai and Zhuang) are surprisingly close to the Austronesian cluster, as is Makasae (Papuan, East Timor); by contrast, Ambai (Austronesian, Cenderawasih Bay) and Atayal (Austronesian, northern Taiwan) are highly divergent from the Austronesian “prototype”. In the domain of “tools”, however, Ambai hews closer to the Austronesian cluster, together with Makasae and a number of Papuan families; but Tai-Kadai is relatively distant. Comparing these patterns with those found when we examine the typological data, we are able to map the linguistic outcomes that reflect different social histories in this part of the world.

We briefly present a sample of the features in our data that are directly responsible for the clustering patterns that we see, and speculate on what these may tell us about social histories in Island Southeast Asia.

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Processing free affix order in polysynthesis

[Ivan Kapitonov](#)

Processing of scrambling (non-canonical word order) received significant attention in psycholinguistic research (e.g., Sekerina (2003); Kaiser and Trueswell (2004) and references therein). There is remarkably less work on processing of free affix ordering. The order of affixes in English has been addressed with a processing-based explanation in Hay and Plag 2004, Plag and Baayen 2009. The present paper contributes to the field with a behavioural study of morpheme order variation in Adyghe (Northwest Caucasian). We show that in agreement processing, ‘morphological scrambling’ does not increase the load, but relativization over the agreement slots does.

Adyghe is a polysynthetic language with highly elaborate verbal morphology, which includes polypersonal agreement with its arguments and some adjuncts (participants), TAM-suffixes, syntactic role and some other markers. Non-core arguments are introduced in applicative complexes of the agreement morpheme plus applicative itself. The verb is traditionally described as having templatic make-up, but recent research showed that some affixes may be scopally (compositionally) ordered (Korotkova and Lander 2010).

Important here is that some agreement prefixes may appear in reversed (i.e., not default) order, subject to idiosyncratic restrictions on stem/affixes combinations. Cf. default order in (1) and reversed order in (2). Sometimes a dispreferred reversed order (3) is rescued if the participant whose prefix moved leftwards is relativized (4), which resembles leftward A'-movement. Adyghe allows relativization of any participant that has a corresponding agreement marker.

These grammatical facts were manipulated to create a 2x2 experimental design. We employed a benefactive applicative and a general locative applicative complex, whose default ordering is “locative preceeds benefactive”. One parameter was the order (default vs. reversed), and the other relativization (present or absent in the benefactive complex). We conducted a self-paced reading study with native speakers to measure the reading times of the verb in the four conditions.

There are two research questions we address with the described design. One is, whether reversing the order of the morphemes produces effects comparable to scrambling in syntax: increased processing load, reflected in greater reading times (especially given the ban on some reversals, pace Hawkins (2004)). The other is, what is the import of relativization? On the one hand, we might expect it to increase reading times, since it is arguably more complex than absence of relativization. On the other hand, the observation that relativization can rescue a reversed order suggests that it may be easier (especially compared to reversed order without relativization).

The data obtained were statistically processed in R using analysis of variance and Tukey’s HSD. The results strongly support the hypothesis that relativization is harder to process in both the default and the reversed order (for both $p < .001$), comparable to *wh*-movement-related complexity. In overall, relativization had a significant effect ($F(1, 756) = 61.12, p < .001$), while the order did not ($F(1, 756) = 1.22, p = .27$). Thus, reversing the order of the applicatives influenced the reading times neither in the presence nor in the absence of relativization (no scrambling-like effects).

These results are compatible with a model in which free order of applicatives is base-generated, but relativization involves some operation (such as movement). The remaining questions concern the

restrictions on their basic order (which may largely come from lexicalisation of some stem plus applicative combinations (Arkhangelsky and Lander 2013)) and the exact mechanics of the relativization 'shift'. In the syntactic model for Adyghe verb proposed by Ershova (2015) the absolutive, which occupies the leftmost slot in the template, receives a special position in SpecTP. It is observed that absolutive is usually remains to the left of the relativization shift, which apparently precludes a possibility of movement into the left periphery (SpecCP).

We will discuss the implications of our findings for the morphological processing theory, and in particular for free affix order languages.

Examples

(1) j-ane

wəne-m š'ə-fe-gwəmeč'ə jə-č'al-ew
 3e-m
 š'ə-ʔe-m.

POSS-mother house-OBL **LOC-BEN**-grieve 3SG.PR-boy-ADV
 war-OBL LOC-be-OBL

'The mother grieves at home that her son is at the war.'

(2) marjet š'agwə-m ž'ane-r mwəratə **fə-š'**-jə-gəč'ə-ʋ əč'jə zeʔjətχə-ʋ.

Maret yard-OBL shirt-ABS Murat.OBL **BEN-LOC**-3SG.A-wash-PST and tear-PST

'Maret was washing a shirt for Murat in the yard and tore it.'

(3) *Mwe s-jə-č'ale
 pis'me-r a-xe-me
f-a-de-s-txə-š'tə-ʋ.

this 1SG.PR-POSS-boy letter-ABS that-PL-OBL:PL
BEN-3PL-COM-1SG.A-write-AUX-PST

'Together with them I was writing a letter to my son.'
 [Arkhangelsky and Lander 2013]

(4) Mwe pis'me-r
zə-f-a-de-s-txə-š'tə-ʋe-r
 s-jə-č'ale
 a-rə.

this letter-ABS
REL.IO-BEN-3PL-COM-1SG.A-write-AUX-PST-ABS
 1SG.PR-POSS-boy that-PRED

'Together with them I was writing a letter to my son.'
 [Arkhangelsky and Lander 2013]

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Armidale Train Song: An early contact song in historical context

Raymond Kelly and Jean Harkins

The arrival of the railway line in Armidale in 1883, and its northward progress in 1893, were events of great significance to Aboriginal and non-Aboriginal New Englanders alike. Historical records show that the first train was greeted by members of the first contact generation of Aboriginal people. A song commemorating this was transmitted orally and eventually tape-recorded some 85 years later (Gordon 1968), partially explained in English by its performer, the late Frank Archibald, but not further transcribed or analysed until now. It thus illustrates many of the issues presented by unanalysed archival material from traditional Aboriginal languages (Walsh 2007; Turpin & Stebbins 2010). How are the present-day inheritors of such cultural material to gain meaningful access to it?

This paper explores an Indigenous-based, interdisciplinary approach to unpacking this material by combining insights from historical records, linguistic methods, and orally transmitted cultural knowledge (Kelly 2015). We consider issues of when the song may have been composed, in the light of historical documentation; and its placement within a multilingual context, which raises questions of ‘which language’ it is in (Kelly 2013). The accuracy and insight of Mr Archibald in his performance and partial translations are striking, but might make little sense to contemporary listeners without a fuller understanding of the context and imagery; for example: ‘You see the bell, bell *bayiru birr’yilayiru* is when the boy got up to ring the bell ... to let the train go through you see ... and the *wanggalagiyi* means that the *Gabman* went then ... went along up to Glen Innes or somewhere.’ (Gordon 1968).

A line-by-line analysis of the song text reveals some regular phonological processes affecting traditional language words in song and connected speech, as Donaldson (1979, 1984, 1995) has observed in other NSW languages; along with a couple of early loanwords from English. The arrangement of verses, stanzas, and metre display a complex song structure, which assists in making a tentative identification of lexical and grammatical elements that appear at least partially consistent with other linguistic evidence from Thangatti (or Dhanggati, Lissarrague 2007). The combination of analytical methods opens up new possibilities for understanding, re-valuing and re-engaging with archival language material.

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“I talk...she copy with me”: Carer language-learning beliefs in Murrinhpatha
Barbara Kelly and Lucinda Davidson.

This paper examines language-learning beliefs of caregivers whose children are growing up acquiring Murrinhpatha, an Indigenous language of northern Australia. It investigates caregiver attitudes to language development and their beliefs regarding what children need in order to learn a first language. While studies have investigated language use and parental input in Indigenous Australia (e.g. Reenders 2008, Loakes et. al 2013) and some specifically have focused on a modified speech register to children (Hamilton 1981), sometimes referred to as *babytalk* or *Child Directed Speech* the study reported here is the first investigation of parental beliefs and understanding of language development in Murrinhpatha, and one of very few studies of this topic cross-linguistically.

The study addresses the following research questions (RQs):

- 1. What beliefs do Murrinhpatha-speaking primary caregivers hold regarding how Murrinhpatha-learning children develop language?**
- 2. What beliefs do Murrinhpatha-speaking primary caregivers hold regarding the use of a modified speech register to children?**
- 3. What does Murrinhpatha input look like, in light of RQs (1) and (2)?**

Data for this study comes from twelve semi-naturalistic interviews recorded for the Language Acquisition in Murrinhpatha Project (LAMP). Participants are all primary caregivers of infants and pre-school-aged children. Data for RQ 3 comes from around two hours' of caregiver-child data in total, yielding a total of 867 child directed utterances.

Overall, Murrinhpatha caregivers primarily view language as one of several developmental milestones, as suggested by Nora who says “when they’re crawling, and walking they’re always listening to what everyone is saying”. The research questions are addressed as follows:

- RQ (1) findings can be divided into two main beliefs: (i) explicitly teaching or modelling is needed, as illustrated by Tania “you gotta tell em what ta say” (ii) acquisition occurs through interaction and hearing language, as in Reta’s explanation of “just listen from...adults”.**
- RQ 2 findings indicate that while caregivers are aware that children may not understand all input, no caregiver reports that they alter their speech when talking to children.**
- RQ 3 findings show evidence of child-oriented distinctions at the level of discourse topic and language prompting. For example, Tania, who favours a teaching perspective, uses direct prompts (e.g. formulated by dictating target utterances, combined with *thama* “say!”) at three times (n=79) that of the next most frequent caregiver Eleanor (n=24) in the same amount of recording time, suggesting that caregiver beliefs regarding language acquisition may influence their language use with children.**

This study addresses several gaps in our understanding of the role of parental attitudes to language input and subsequent language development. In doing so, it contributes to our

understanding of language transmission, in light of speaker integration of language and culture.

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Memory for focused words in Korean

Heather Kember, Jiyoung Choi, & Anne Cutler

Introduction

While it is well established that words with focus receive a processing advantage in English and Dutch (Akker & Cutler, 2003; Birch & Garnsey, 1995; Cutler, 1976), little is known about the processing of focus in Korean. In English and Dutch, prosodic salience is marked by pitch accent, whereas in Korean accentual phrasing serves this purpose. Words that are to be focused invoke a new accentual phrase, with the word placed at the beginning of the phrase (Jun, 2000). Given this difference in focus realisation, it is unclear whether a processing advantage also ensues for speakers of Korean. Thus, the present study compared recognition memory for words in previously heard Korean sentences.

Methods

Sentences were constructed that had two target words – one with syntactic focus, and one without syntactic focus. Two versions of each sentence were recorded: one with prosodic focus on the first target and one with prosodic focus on the second target, however participants only heard one version. This design gave four different conditions: no focus (NF), prosodic focus (PR), syntactic focus (ST), or both prosodic and syntactic focus (PS).

1. 그녀의 선배(NF)가 요즘 관심을 두는 것은 논문(PS)이었어.
What her colleague (NF) is currently interested in is a thesis (PS).
2. 그녀의 선배(PR)가 요즘 관심을 두는 것은 논문(ST)이었어.
What her colleague (PR) is currently interested in is a thesis (ST).

20 native Korean speakers listened to twenty blocks of ten sentences. Each block was immediately followed by a recognition memory test for words that appeared in the previous block of sentences. Test words were presented on screen rather than through the headphones to avoid any potential priming bias. Interspersed with the experimental sentences and words, was a set of filler sentences and words.

Results

Overall, words that received focus of some kind were more likely to be remembered, and reaction times were faster for words with focus than words without focus, $F(1,19) = 18.68$, $p < .001$. Within the focus conditions, words with syntactic focus (ST and PS) were recognised faster than words with prosodic focus alone, $F(1,19) = 11.82$, $p = .003$. The difference between words with prosodic focus and words without focus was marginally significant, $F(1,19) = 4.15$, $p = .056$.

Discussion

These findings indicate that focus provides a processing advantage in Korean, as it has been shown to do in other languages. While words with prosodic focus did show faster reaction times and accuracy compared to words without focus, words with syntactic focus received an even greater processing advantage.

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Table 1

Percentage of correct responses by condition.

	Condition			
	No Focus	Prosodic Focus	Prosodic and Syntactic Focus	Syntactic Focus
Accuracy	67%	73%	82%	81%

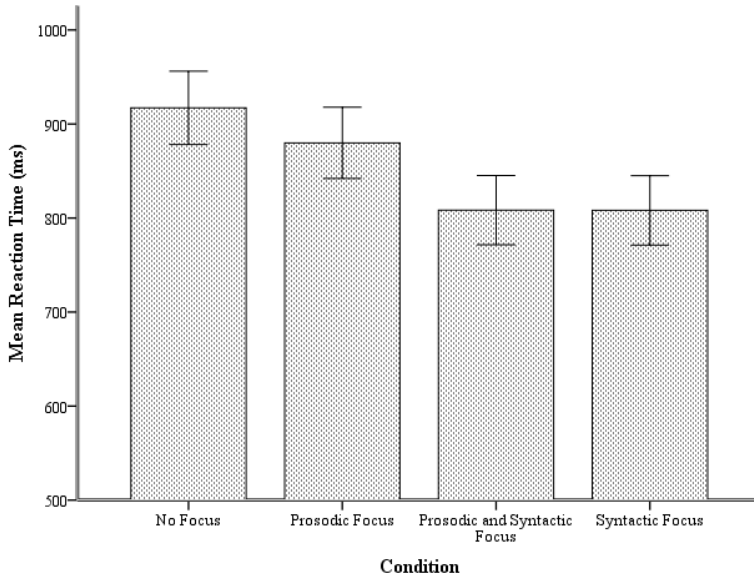


Figure 1. Mean reaction time for words in each of the four conditions. Error bars represent standard error of the mean

Towards the reconstruction of Proto-Pama-Nyungan kinterms

Harold Koch

From Austkin database of kinship terms from 800+ sources, what can be terms can be reconstructed, on the basis of the distribution of cognates, that have great time depth and can plausibly be attributed to (a) Proto-Pama-Nyungan, (b) high-level subgroups of Pama-Nyungan, or (c) major linguistic areas within Pama-Nyungan, and therefore belong to the early history of the language family? We survey about 10-15 kinship terms that are plausible candidates for high-level reconstruction on the basis of their wide distribution. The terms to be discussed will be ordered according to generation: parents', siblings', grandkin, as well as consanguineal vs. affinal (in-law) status. In establishing cognate terms, due consideration will be given to relevant phonological, morphological and semantic changes. Cognate stems may be recognised morphologically even where they have been augmented by means of suffixes, enclitics, language-specific increments, or reduplication. Thus the etymon *ngama 'mother' is recognised in forms like *ngama*, *ngamarnti*, *ngamatyi*, and *ngamaka*, and *kami 'mother's mother' (and its reciprocal) may be reflected as *kami*, *kamityu*, *kamintharr*, and *kamami*. Cognate stems may be recognised semantically where the meaning can be explained by recurrent semantic shifts such as 'mother's brother' to 'spouse's father'. Where there is more than one candidate for a given meaning, e.g. 'mother's brother' or 'mother's father', we present arguments (from geographical as well as semantic factors) for deciding which one is more likely to have been earlier. The results will be compared to proposals made by earlier literature on kin terminology (e.g. Alpher 2004, McConvell 1997, 2013,) and the higher-level subgrouping of Pama-Nyungan languages (Bowern & Atkinson 2012).

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Desert clicks, taps and sound symbolism: Vocal style in Ngaanyatjarra narratives

Inge Kral, Jennifer Green, Elizabeth Marrkilyi Ellis, Jane Simpson and Hywel Stoakes

Verbal art forms are ‘part of larger social and cultural systems organizing the social use of language’ (Bauman 1986: 9). In the Ngaanyatjarra world, an awareness of speech styles and the prosodic features of language is acquired through participation in various oral storytelling traditions that may include speech, sign, drawing, gesture and song (Ellis and Wilkes 2010; Green & Turpin 2013, Green 2014).

In Ngaanyatjarra storytelling practices, narrators use a number of linguistic strategies to move deftly between speech styles that have varying degrees of formality and informality. Various devices are used to add poetic and rhetorical complexity to performances. Non-linguistic aspects of speech, such as manipulation of intonation and vowel lengthening, add to the verbal texture of oral performances, sustaining interest and adding dramatic effect. Voice quality modifications, such as ingressive speech, tongue tapping and mouth clicks also add to the variety of the sonic repertoire (cf. Hale and Nash 1997; Walsh 2013). Various other acoustic effects may signal shifts in narrative perspective and dramatise the persona of protagonists by the imitation of their voices (cf. Klapproth 2004: 64). Tapping a beat or rhythm in the sand commonly accompanies the multimodal enactment of sand story narratives, as well as being a fundamental organising principle of music and song (Turpin, 2007). The Ngaanyatjarra sonic repertoire employs similar acoustic devices to sustain audience attention in *inma/turlku* ‘ceremony’—men mark rhythm by tapping sticks while women cup their hands and beat them on their laps. A distinct speech style with a particular cadence also signals the lead-in to oral performance associated with singing the *Tjukurrpa* ‘Dreaming’ or songs on a storyline.

Such attention to voice quality and sound is also displayed in everyday discourse. ‘Word games’ employ letter substitution, reversal and truncation (Langlois 2006, Borowsky 2010). *Yaarlpirri*—the early morning broadcast speech style—has its own distinctive sound profile, some birds are named according to the sound of their call, and ideophones with semantic meaning are commonly used.

In this paper we draw on our collection of inter-generational recordings of Ngaanyatjarra narratives and give both a sociolinguistic and acoustic analysis of short segments. Our data show that some aspects of these narrative styles are emulated by younger speakers, suggesting that these markers of verbal style have cultural salience that may be transmitted inter-generationally. This establishes the grounding for further research to outline the distribution and occurrence of these prosodic elements in a range of discourse types, and to determine their various functions (Woodbury 1992).

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Not released, not perceived: Mandarin Learners' perception of English oral-stop codas

Carmen Kung, Nan Xu Rattanasone, Elaine Schmidt and Katherine Demuth

For a second-language (L2) learner, learning the sounds of the L2 can be challenging in at least two following ways: The first one concerns learning an entirely new sound category that does not exist in the native language (L1). The second one concerns learning a sound category in the L2 that already exist in their L1, but the L2 sound is realised slightly differently from the L1 counterpart.

The two most prominent models—the speech learning model (SLM) [1] and the perceptual assimilation model (PAM) [2]—try to account for how L2 learners tackle these two challenges. The former is based on phonological features (e.g., voicing) while the latter is based on articulatory features, namely place of articulation (PoA). These two models make similar assumptions about the first challenge: L2 learners are assumed to learn a new L2 sound category easily since it is absent in their L1. However, the two models differ in their assumptions on the second challenge: According to SLM, L2 learners would treat an L2 sound as an L1 equivalent if it resembles closely to an L1 sound in terms of phonological features [1]. On the other hand, PAM assumes that L2 learners can learn an L2 sound that resembles an L1 sound depending on how distal the articulatory features are between two L2 sounds, and between an L2 and L1 sound.

However, two previous studies on Mandarin learners' perception of English codas have provided inconsistent evidence regarding the two models' assumption on acquiring an entirely new L2 sound [3], [4]. Since Mandarin does not have voiced stops, Mandarin learners were assumed to learn English voiced stops with ease. In contrary to this assumption, [3], [4] reported that Mandarin learners were only able to discriminate between /t/ and /d/ when the stops had a clear burst, but not when the stops were unreleased. However, note that these studies only examined alveolar stops, which are proposed to be phonologically underspecified in English [5]. Considering this, the Mandarin learners may fail to discern between /t/ and /d/, but not other stop codas.

Given that only two studies have examined Mandarin learner's perception of English oral-stop codas, and only alveolar stops [3], [4], it remains unknown how these learners perceive other types of English oral-stop codas. Thus in the present study, we tested Mandarin-speaking late L2 learners of English on their perception of English oral-stop codas using a phoneme identification task. For the task, participants had to identify the coda of English nonce words that differ by PoA, voicing, and release ([p', t', k', b', d', g', p̚, t̚, k̚, b̚, d̚, g̚]). For predictions (based on the two models), PAM would provide predictions on the PoA: L2 learners would discern between the L2 codas easily since the articulatory features are distal enough. SLM would provide predictions on the acquisition of voicing: Mandarin has voiceless aspirated and unaspirated stops at the onset position but not at the coda position, and it has no voiced stops at all. Because of this, the Mandarin learners might consider the English voiced stops as a new category, but much less so for the English voiceless stops.

Preliminary results of seven participants showed that they performed at ceiling for the identification of all *released* stops. However, their identification of the *unreleased* stops, and particularly the *voiceless unreleased* ones, was significantly worse than the *released* ones (see Figure 1). Further experiments are currently being conducted with more L2 learners to validate these results. The eventual results will be further discussed in light of the two models. In addition, to provide a more complete picture of these L2 learners' perception of English codas, we are testing more L2 learners' perception of both oral-stop and nasal-stop codas using an identification task and a discrimination task, and an English-speaking control group with the same tasks on the English codas to establish a baseline.

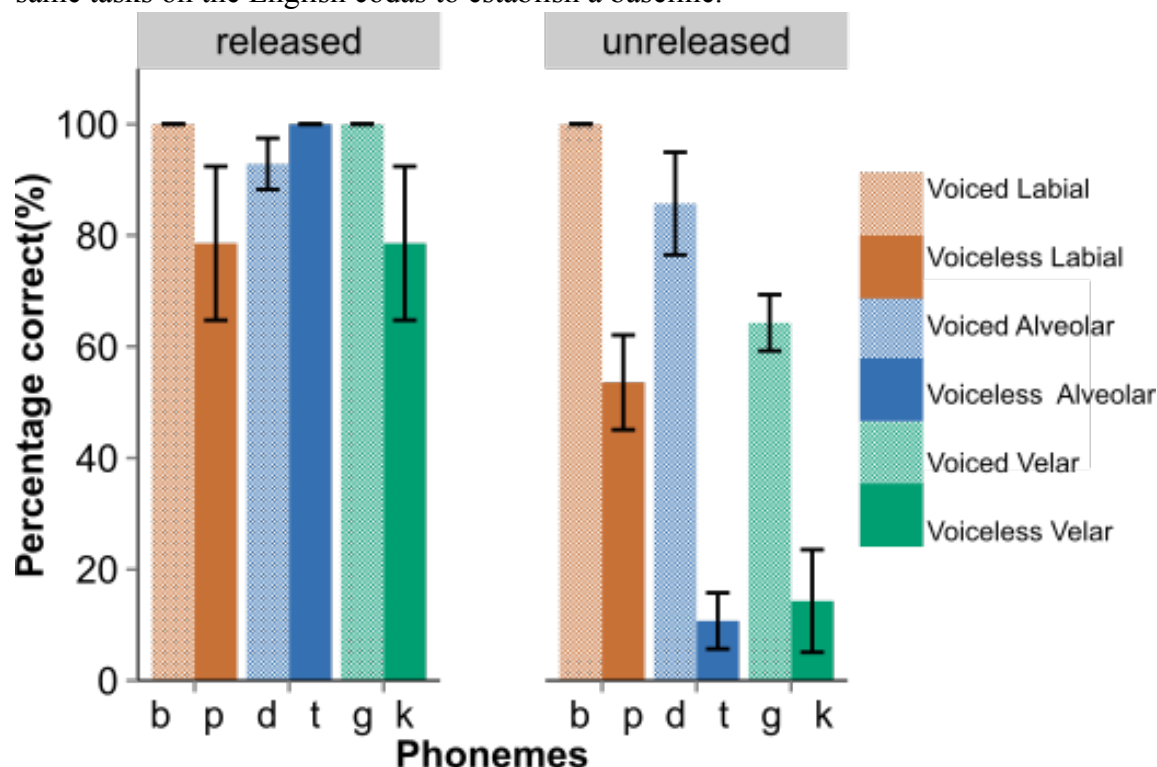


Fig 1. Identification of the 12 oral-stop codas [b', p', d', t', g', k', b̥', p̥', d̥', t̥', g̥', k̥'] by the seven Mandarin learners of English.

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The role of actor animacy and motion cues in predictive real-time language processing and sentence evaluation

Louise Kyriaki, Svenja Luell, Matthias Schlesewsky and Ina Bornkessel-Schlesewsky.

Animacy effects are ubiquitous in language: they play a central role in characterising the distribution of morphosyntactic marking across the languages of the world (e.g. Silverstein, 1976) and are pervasive in real-time language processing (e.g. Bornkessel-Schlesewsky & Schlesewsky, 2009; MacWhinney, Bates, & Kliegl, 1984). Bringing together these two lines of research, recent findings on the neurocognition of language comprehension suggest that animacy information also serves to shape language processing strategies: across typologically varied languages, the human language processing system attempts to identify the event participant that is primarily responsible for the state of affairs under discussion (the *actor*) quickly and unambiguously, drawing on the knowledge that prototypical actors are as high on the animacy hierarchy as possible (Bornkessel-Schlesewsky & Schlesewsky, 2013). Accordingly, when a sentence context sets up a prediction for an actor (e.g. "It was the window that the ...") and the actor participant subsequently encountered is inanimate ("...rock shattered") rather than animate ("...boy shattered"), this engenders measurable increases in processing effort (see Bornkessel-Schlesewsky & Schlesewsky, 2009, for a review).

While a number of previous studies have examined predictions for the actor argument during online processing, considerably less is known about how different types of actors shape predictions for the action performed. According to the assumptions of embodied theories of language processing, which posit that we undertake a mental simulation of linguistically expressed events in order to understand them (e.g. Barsalou, 1999; Gallese & Lakoff, 2005), action predictions should be stronger for animate as opposed to inanimate actors, as we can simulate animate (human) but not inanimate actions (Hypothesis 1; cf. also the notion of the 1st person as the most prototypical actor, Dahl, 2008; Tomasello, 2003). Alternatively, the language processing system may be able to rapidly adapt its predictions to match the current actor, based on prior experience with animate and inanimate actors in the world around us and the actions that they perform (Hypothesis 2). The second hypothesis is in line with domain-general assumptions of predictive coding as a unified principle of brain function (Friston, 2005; Friston & Kiebel, 2009). The present study tested these hypotheses by using eye-tracking during natural reading.

Native speakers of English read sentences of the form "A tourist/trawler swam/drifted across the lake ...". Subject (actor) arguments were either animate or inanimate and verbs were biased towards animate ("swim") or inanimate motion ("drift"). Critical nouns and verbs were matched for frequency and length and sentences were pretested for plausibility and degree of semantic fit between subject and verb. Critical sentences were embedded among unrelated filler sentences and participants answered comprehension questions on approximately 38% of trials.

At the position of the verb ("swam/drifted") and the following PP ("across the lake"), late eye-tracking measures (go-past and total times) revealed an interaction of actor animacy and verb animacy, which were due to increased reading times for sentences with an animacy mismatch between the actor and the verb. These results closely matched those of the semantic fit pretest,

but differed from the findings of the plausibility pretest, which not only showed an actor x verb animacy interaction, but also a general plausibility advantage for sentences with animate actors.

Our findings support Hypothesis 2, as they are indicative of a dynamic adaptation of predictive strategies to the properties of the actor argument, irrespective of actor animacy. They further demonstrate an intriguing mismatch between online predictive processing, as reflected in the eye movement record, and offline plausibility ratings. This suggests that prediction – as a key mechanism of real-time language processing – is at least partly independent of sentence evaluation.

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Expressing unwanted outcomes: the Warlpiri evitative

Mary Laughren

Warlpiri, like many Australian languages, contrasts dependent clauses which express desired as opposed to undesired eventualities. In Warlpiri this semantic contrast can be expressed by both finite or non-finite clauses. This presentation focuses on the latter, illustrated in (1), and more particularly on the meaning and syntactic structure of the clauses which express a possible but unwanted eventuality, or one that is not possible, even if desired.

The clause expressing the desired eventuality in (1a) is headed by the *purposive* complementizer *-ku/-ki* while the undesired eventuality in (1b) is headed by the *evitative* (or 'lest') complementizer *-kujaku/-kijaku*. Both complementizers may head either a nominal (1a' & b') or infinitival clause as in remaining sentences in (1). Irrespective of their complement, purposive and evitative clauses are aspectually dynamic.

The meaning expressed by the purposive complementizer consists of a presupposition "it's possible that there exist eventuality E" and a desire that E be realized: possible E; want E. In this case the possible world coincides with the desired world, i.e., one in which E exists.

The meaning expressed by the evitative complementizer as used in (1b to b'') shares the same presupposition, but sets up a contrast with an alternate desired world in which E not exist: possible E; want [not E]. This use of the evitative exhorts a change of circumstances to prevent the realization of E.

Another use of the evitative is illustrated in (2) in which the evitative is used to assert that it is not possible that there exist E, which contrasts with a presupposed world in which it is possible that E exist, a world which may or may not be desired: (want) [possible E]; NOT [possible E]. In this case circumstances *prevent* the realization of the contrary eventuality.

In addition to discussing this semantic contrast, the presentation will focus on the morpho-syntactic properties of evitative clauses, aiming to answer these questions:

- What arguments of the predicate in the scope of *kujaku* may be co-referent with the external subject of the evitative-headed clause?
- How are overt nominal arguments of the infinitive within the evitative clause assigned case?

In (1a-a'') the logical subject of the predicate in the scope of the evitative is gapped and is coreferent with the subject of the evitative clause and with the subject of the finite clause in which the evitative clause is embedded, whereas in (1b-b'') and in (2) it is the logical object of the non-finite predicate in the scope of the evitative which is gapped, being coreferent with the subject of the evitative clause. In (1b-b'') the subject of the evitative clause is coreferent with the subject of the finite clause while in (2) it is coreferent with the object of the finite clause in which the evitative is embedded.

The variation in the case-marking of the logical subject of a transitive predicate embedded in an evitative clause is illustrated in (3) while variation in the marking of the logical object is illustrated in (4). On the surface there is apparent structural ambiguity; the clause with a gapped object, (3a) and (3c), may have the same surface form as one with a gapped subject, (4a) and (4b). Only (3b) morphologically distinguishes the transitive subject by marking it with the ergative suffix as in a finite clause. Where the logical object of the predicate contained in the evitative clause is co-referent with the subject of the evitative clause the interpretation is passive-like as seen in (3). The syntactic structures underlying the variation in both subject and object case-marking, and the surface ambiguity will be proposed.

Finally other complementizers which select non-finite complements and which share the same morpho-syntactic properties as the purposive and evitative will be briefly discussed.

DATA

- (1) a. *Yapa=ka ya-ni karli(-ki) paka-rninja-ku.*
 person=AUX go-NPST boomerang-PURP hit-INF-PURP
 'Someone's going **to chop (wood) for a boomerang.**'
 a'. *Yapa=ka yani karli-ki.*
 'Someone's going **for (to get) a boomerang.**'
 a". *Yapa=ka yani paka-rninja-ku.*
 'Someone's going **to hit/chop (it/something).**'
 b. *Yapa=ka wuruly-parnka karli-kijaku luwa-rninja-kujaku.*
 person=AUX hide-run boomerang-EVIT strike-INF-EVIT
 'Someone's running away **to not get struck by a boomerang/boomerangs.**'
 b'. *Yapa=ka wuruly-parnka karli-kijaku.*
 'Someone's running away **to avoid (being struck by) a boomerang/ boomerangs.**'
 b". *Yapa=ka wuruly-parnka luwa-rninja-kujaku.*
 'Someone's running away **to not be struck.**'
- (2) *Kamany-kamany-mani ka=ju wanta-ngku milpa nya-nja-kujaku...*
 dazzle-RDLP-make AUX=1SG.O sun-ERG eye see-INF-EVIT
 'The sun is blinding me **from seeing.**'
- (3) a. TRANSITIVE SUBJECT MARKED BY COMPLEMENTIZER
Yapa paka-rninja-rla=ka wuruly-ya-ni jawajardu
 person strike-INF-LOC=AUX hide-go-NPST murderer
panu-kari-kijaku nya-nja-kujaku.
 several-other-EVIT see-INF-EVIT
 'After killing someone the murderer sneaks off **to avoid being seen by others.**'
 b. TRANSITIVE SUBJECT MARKED ERGATIVE; OBLIGATORILY PRE-INFINITIVE
Ngula-puru=rnalu juurl-pu-ngu marna-ngka-rtari marna-wana
 that-while=133.SUB jump-do-PST spinifex-LOC-heel spinifex-PERL
juju-ngku pura-nja-kujaku...
 evil_one-ERG follow-INF-EVIT
 'At that time we jumped on our heels from one clump of spinifex to the next **so that the evil one not follow (us).**'
 c. UNMARKED TRANSITIVE SUBJECT; OBLIGATORILY PRE-INFINITIVE
Lani, ngula=ji yangka kuja=ka parnka-mi [...]
 afraid that=TOP that (known) COMP=AUX run-NPST
jarnpa-paka-rninja-kujaku, yapa laninji, [...]
 kurdaitcha -strike-INF-EVIT person scared
 'Afraid' is like when a scared person runs [...], **lest a kurdaitcha man kill (him/her).**'
- (4) a. OBJECT MARKED BY COMPLEMENTIZER
Kurdu-kujaku pi-nja-kujaku=rna yirra-rnu.
 child-EVIT bit-INF-EVIT=1SUB put-PST
 'Lest (it) bite the child I put (it=dog) (away).'
- b. OBJECT UNMARKED, OBLIGATORILY PRE-INFINITIVE
 [...] *Jila-ngka kuja-jana warla-paju-rnu yapa-patu*
 Chilla-LOC COMP=333.O stop-cut-PST person-SEVERAL
ngapa nga-rninja-kujaku?
 water drink-INF-EVIT

'[...] At Chilla where he stopped the people **from drinking water.**'

How to be polite with subject expression in spoken Korean?

Na Rah Lee

A subject is likely to be an optional element in Korean, especially in spoken discourse, unlike in many other languages. While syntactic reasoning of the subject ‘omission’ in Korean has been in interests of a great number of linguists (e.g. Yang, 1979; Huang, 1984; Im, 1985; Lee, 1987; Nam, 1994; Ko, 1998; Ahn and Kwon, 2012) with regard to the phenomenon, pragmatic effects of overtly expressed subjects, first and second person subjects in particular, are investigated in the current paper. It comes to the problem of ‘pro-drop’ in syntax when a subject is not phonetically realised, but looking at the empirical data of subject expression in this study, what is expressed is not in dichotomy, either a pronoun or zero pronoun, in Korean. Rather, it is viable to see this as there are multiple options of subject expression: pronouns, names, kinship terms, titles, other noun phrases, and zero subject. As different forms convey different meanings, and the use of marked forms infers marked meanings (Levinson, 2000), distinct expressions of subjects appear to deliver different meanings from their alternates. When various subject expressions refer to the same first or second person speaker in spoken discourse, their pragmatic effects may be diverse even if their propositional meanings do not differ. There are pragmatic intentions and sociocultural backgrounds for speakers to choose particular person references out of possible options in accordance to contexts. I analyse three Korean spoken corpora and find the pragmatic effects that is caused by the expression of first and second person subjects. Every first and second person subject in utterances is categorised in six groups, as presented above, and demographic information of speakers is employed in the analysis of pragmatic motivations. The results show that the speakers make use of a proper person reference among several equivalents, including zero subject, for first or second person subjects to different interlocutors or in different contexts. It is commonly observed that a speaker refers to herself with different referential expressions depending on whom she is speaking to or in what context they are conversing. Similarly, speakers change person references for second person subject to the social relationship and context of the discourse. There appear to be various motivations for the speakers to choose certain person references and I argue that the choice of person references for first and second person subjects is fundamentally related to politeness and solidarity (Brown and Gilman, 1960;

Brown and Levinson, 1987; Kim, 1999; Kuo, 2003; Nariyama, 2004; Oh, 2007; Lee and Yonezawa, 2008; Manns, 2012).

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Language maintenance and shift in Hakka families: A case study from Sabah, Malaysia

Chih-I Liao

Over the past century, the Chinese in Malaysia have experienced several periods: the Chinese immigration (beginning in the mid-nineteenth century), independence of Malaya in 1957 (excluding Singapore), shifting loyalties amongst overseas Chinese with the change of mainland China's authority, and the increasing media influence by Hong Kong entertainment industry since the 1970s. These massive changes have affected language use to differing degrees by all ethnic Chinese groups in Malaysia. Hakka is one of the Chinese ethnic groups in Malaysia, they are the majority group in Sabah State. In the 1950s, Hakka language was the lingua franca among different Chinese groups. Nowadays, in Sabah, each city has its own Hakka Association to organize Hakka events and celebrate traditional customs. The goal of all Hakka Associations is to maintain Hakka culture in its original form and pass down Hakka identity from generation to generation. Hakka people seem to be an orthodox and conservative group after a long history of diaspora and their efforts to maintain Hakka culture appears to be successful. However economic development in Malaysia now forces Sabah Hakka people to adopt to external pressures. In order to share in the international markets, language use by Hakka people in Sabah is entering a new phase. Middle-aged Hakka people are capable of speaking various languages such as Hakka, Cantonese, Malay, Mandarin, and English (in that order of prevalent). Younger people are predominantly users of Mandarin and English replacing older community languages.

This article provides a case study of language maintenance and shift in Sabah Hakka families. It looks at language use in different generations, specifically focusing on parents and children. The research questions are what is the role of a strong Hakka identity in a Hakka family and how do different generations choose their languages. In this ethnolinguistic case study five Hakka families were interviewed. The themes identified included the influence of schooling, parenting decisions and the imperatives of globalization. This analysis is framed by a discussion of social factors including government policies.

Keywords: language maintenance and language shift, Hakka, Sabah, ethnolinguistic

Melodic Contour Training and Its Effect on Speech in Noise, Consonant Discrimination, and Prosody Perception for Cochlear Implant Recipients

Chi Yhun Lo, Catherine McMahon, Valerie Looi and William Thompson

Cochlear implant (CI) recipients generally have good perception of speech in quiet environments, but difficulty perceiving speech in noisy conditions (Stickney et al., 2004), reduced sensitivity to speech prosody (Chatterjee & Peng, 2008), and difficulty perceiving and appreciating music (McDermott, 2004). Advances in our understanding of neuroplasticity and learning capacity have led to interest in formal auditory training as a component of comprehensive (re)habilitation (Boothroyd, 2007). Studies have demonstrated that normal hearing (NH) musicians are particularly adept listeners under challenging conditions such as noise (Fuller et al., 2014), have enhanced neural responses at the phoneme level for the voiced stop consonants /ba, da, ga/ (Parbery-Clark et al., 2012), and were both faster and more precise at encoding voice onset time (VOT) (Strait & Kraus, 2014), relative to NH non-musicians. As such, recent efforts have focussed on the potential benefits of music-based training for CI recipients (Patel, 2014), with most studies emphasising pitch-based tasks (Wang et al., 2011). However, as the temporal requirement to effectively extract cues is generally much shorter in speech than in music, the exploration of shorter (and thus more difficult) note durations may be a mechanism for effective training. A key goal of the present study was to explore the transfer of non-linguistic musical skills to specific aspects of speech perception, evaluating the difference between two training programs that emphasised either pitch, or speed of processing.

Two take-home, PC-based melodic contour training programs were developed to evaluate their efficacy in improving speech perception abilities for CI recipients. The melodic contours were simple 5-note sequences formed into 9 contour patterns, such as “rising”, “falling-rising”, and “flat-falling” (Figure 1). The programs were adaptive (one-up, one-down procedure) and differentiated by two types of changes introduced in the stimuli: (i) Interval: the interval size (in semitones) was adjusted with note duration fixed—emphasising pitch processing; and (ii) Duration: the note durations were adjusted with interval size fixed—emphasising speed of processing. Sixteen adult CI recipients (aged 26–86 years) were randomly assigned a training program, and were tested on a speech perception battery at baseline and after 6 weeks of melodic contour training. Twelve NH adult listeners (aged 21–42 years) provided broad comparisons across the test battery. Results indicated benefits for speech perception tasks for CI recipients after melodic contour training, with specific improvement for stop consonant discrimination in quiet $F(1,14)=6.00$, $p=0.028$, and prosody perception $F(1,14)=9.31$, $p=0.009$ (Figure 2). In comparison, NH listeners performed at ceiling for these tasks. Despite previous studies indicating improvements for speech-in-noise after melodic contour training (Patel, 2014), our study found no significant gains. Additionally, there was no significant difference between the two melodic contour training programs on any speech test, indicating that both conferred benefits. As such, a training program manipulating both pitch and speed of processing difficulty may yield even greater improvement.

The findings suggest that both melodic contour training programs and their respective mechanisms (emphasising pitch or speed of processing) have had a beneficial outcome for CI recipients' perception of short transition cues in quiet. These cues are most relevant for stop consonant distinctions and speech intonation. Masking effects, such as noise, significantly disrupt access to these cues, reducing the efficacy of melodic contour training in adverse listening situations.

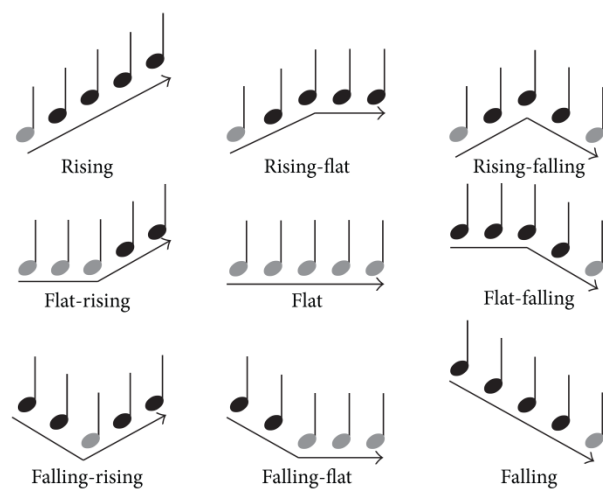


Figure 1. The 9 melodic contours used in the training programs.

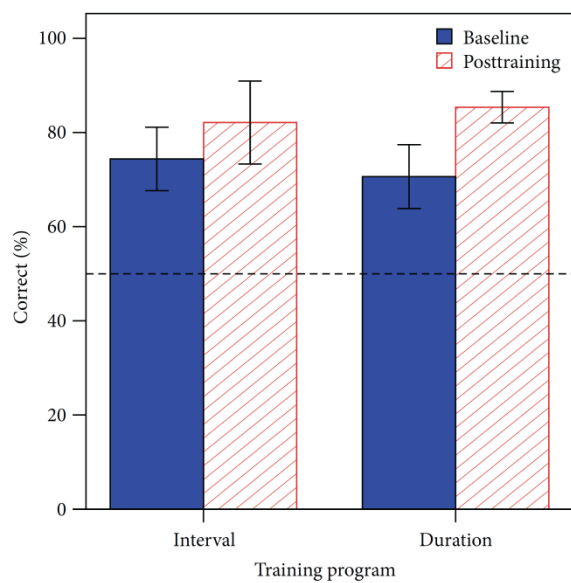


Figure 2. Baseline and post-training performance for prosody perception. The dashed line indicates chance score. Error bars indicate 1 standard error.

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Do minority communities participate in surrounding language changes in progress? Gathering evidence from perception data in Western Victoria.

Deborah Loakes, John Hajek and Janet Fletcher

Whether and how minority communities participate in surrounding language changes in progress is one of the questions posed by the ARC Centre of Excellence for the Dynamics of Language. This is an important concern in sociolinguistic / sociophonetic research because it gives insight into whether minority groups accommodate or distance themselves from the mainstream variety (e.g. Fought 1999). This study focuses on whether a sound change that occurs in Standard Australian English is also present in a "minority" community; L1 Aboriginal English participants from Western Victoria (who self-identify as such).

The sound change in question is a merger of DRESS and TRAP vowels prelaterally (i.e. /eI/-> [æI]), which occurs in southern Victoria (anonymous 2014, anonymous this conference). Previous work has shown this sound change is in progress, and is more common amongst the younger generation. The current study aims to determine whether the "minority" Indigenous group is participating in the /eI/-/æI/ merger.

In this study we focus on perception data (which we know is strongly linked to production, i.e. Anonymous 2014). We carried out a forced-choice listening test run on an iPad, in which listeners heard a word once and saw two words (a minimal pair) on the screen; their task was to choose which of the presented options they had heard. The experiment included various Australian English monophthongs in a variety of phonemic contexts, and included a 7-step continua for each possible minimal pair. For this study, we report on a small subset on the entire dataset, focusing on the extreme ends of the continua (actual tokens, not manipulated speech). These are 1) /hVt/ (*het-hat*) and 2) /hVI/ (*hell-Hal*). Listeners were 15 Standard Australian English speaking listeners and 22 L1 Aboriginal English listeners from Warrnambool and surrounds.

Comparing the two groups where perception of *het-hat* is concerned, there is no difference, with all participants agreeing on their categorisation. However, comparing the groups' responses for /hVI/, there is an association between group and response. This is borne out at the *Hal* end of the continuum, where the majority (15 / 22) of Aboriginal English listeners select *hell*, compared to the non-Indigenous participants (5 / 15), $\chi^2(1, n = 37) = 4.36, p < .05$. The effect size is medium, $\phi = .34$, and the differences between cells, comparing across group and within group (for response) are all statistically significant at the .05 level upon running a post-hoc z test for proportions.

Results show that this minority community does indeed participate in the surrounding language change in progress, and in fact the change is more entrenched for this group. Discussion of the wider sociophonetic implications of this, including links with socioeconomic factors, will also be presented.

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Another story:
The impact of narrative and non-narrative discourse on *be like*
[Celeste Rodriguez Louro](#), Sophie Richard and Sana Bharadwaj.

The quotative system of geographically far off Englishes has undergone sweeping reorganisation since the 1970s and synchronic research in the area is substantial (e.g. Tagliamonte & D'Arcy, 2004; Tagliamonte & Hudson, 1999). The latest enquiry has further expanded the remit to address the diachrony of quotation (Buchstaller, 2011; D'Arcy, 2012; Author's details), as well as how quotation is deployed in outer and expanding circle Englishes (Davydova, 2015; Davydova & Buchstaller, Under review). Despite the well-ploughed field, the question remains as to whether genre impacts quotation. Storytelling is viewed as the fountainhead of quotation (Buchstaller, 2014; Fox, 2012) and both tense and lexical type are heavily primed in narrative (Author's details); however, a systematic account of how genre influences quotation remains to be offered.

We analyse main clause quotative verbs (as in examples 1-5 below) accountably extracted from original narrative and non-narrative conversational data produced by Perth-based speakers who are consistent *be like* users (cf. Author's details). The synchronic dataset consists of 1,500 quotative tokens stemming from the speech of twenty-four 18-34 year-old Perth-based males (N=12) and females (N=12) for whom (mainstream) Australian English (AusE) is their first language. The narratives are analysed following Labov & Waletzky (1967). Non-narrative discourse encompasses genres such as argumentation, description, plans about the future and non-narrative retellings of past events (Labov, 1997).

Statistical modelling using Goldvarb *X* (Sankoff, Tagliamonte & Smith, 2005) and Rbrul (Johnson, 2009) confirms previous findings that the narratives of Australian youth show extensive variability between the Simple Past and the Historical Present, and that a lexical effect is in place: the Historical present is almost categorically encoded with *be like*. Our findings also show that some social factors/predictors are sensitive to discourse type. Speakers born in the 1990s are immune to genre effects: they consistently favour *be like* within and without narratives. Their use of *be like* across discourse types attests to *be like*'s entrenchment in this cohort. However, genre proves key in analysing *be like* usage by the 1970s-born. Identified in previous research as “the first generation of native users” in North America (Tagliamonte & D'Arcy, 2007: 204) and as “the generation on the frontlines” in Canada, New Zealand and Australia (Author's details), AusE speakers born in the 1970s only use *be like* in storytelling sequences, a finding also recently reported by Buchstaller (2015: 474) for Tyneside English.

As *be like* becomes entrenched in the quotative system, it specialises for the Historical Present (e.g. Tagliamonte & D'Arcy, 2007: 209). The fact that the first Australian generation of *be like* users restricts the form to narratives is indicative of the nature of *be like*'s diffusion. Having established itself as a narrative present tense marker in California (Tagliamonte & D'Arcy, 2007: 212), *be like* quickly travelled across the globe in re-tellings of personal experience. For the older AusE users of *be like*, this is the genre it is most associated with. As the form continued to encroach on the quotative system of AusE, younger speakers loosened these genre restrictions such that – amongst the 1990s-born – *be like* is attested in both narrative and non-narrative genres. Narrative is thus a “hospitable grammatical environment” (Tagliamonte & D'Arcy, 2007: 212) for linguistic change. Brown & Tagliamonte (2012) propose that changing linguistic variables are first used in a specific context such as storytelling from whence they

spread out into vernacular (non-narrative) language. Generations of speakers born across the English-speaking world in the 1970s were instrumental in the rapid spread of *be like* and storytelling provided the ideal interactional medium for this popular innovation to take the world by storm.

Examples

- (1) I **said**, “Oh it broke.” (Male, 26)
- (2) I **thought**, “Oh my god what am I doing?” (Female, 24)
- (3) And I **went**, “Oh that’s how I was doing it!” (Male, 28)
- (4) I still remember Sam Ø “Go on man. Go ask the library chick out.” (Male, 24)
- (5) So I messaged him and I **was like**, “Are you out tonight?” (Female, 23)

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Towards a conjunct-disjunct analysis of Dhivehi verbal morphology

Jonathon Lum

Conjunct-disjunct marking is a typologically rare verbal category in which 1st person statements and 2nd person questions share the same verbal marking ('conjunct'), while 2nd person statements, 3rd person statements/questions, and most 1st person questions share an alternative marker ('disjunct'). Conjunct-disjunct systems (also known as 'egophoricity' or 'assertor's involvement marking') have been documented in a number of Tibeto-Burman languages including Newari (Hale 1980), Lhasa Tibetan (DeLancey 1992; DeLancey 2001) and Sherpa (Kelly 2004; Schöttelndreyer 1980), as well as in certain languages in New Guinea, South America and the Caucasus (e.g., Creissels 2008; Curnow 1997; San Roque, Floyd & Norcliffe 2012). The functional motivation for conjunct-disjunct marking may relate to 'privileged access' to knowledge (Hargreaves 1991; Hargreaves 2005: 31), since in both 1st person statements and 2nd person questions, the subject has privileged access to the information contained or sought in the proposition, and can therefore be considered an 'epistemic source'; for other combinations of persons and clause types, the subject is not the epistemic source for the proposition. In this paper, I present evidence that Dhivehi (Indo-Aryan, Maldives) has a system of verbal marking that conforms to a conjunct-disjunct opposition, making Dhivehi the first Indo-European language reported to have such a system.

The most detailed grammatical descriptions of Dhivehi are those by Cain and Gair (2000) and Fritz (2002), and while both claim that the language has person agreement for finite, volitional verbs in certain tenses/aspects, the two accounts describe this person marking very differently. Cain and Gair propose that Dhivehi has a simple opposition between 3rd and non-3rd person, while Fritz presents a more complicated picture which mostly resembles a 1st vs. non-1st person distinction. This paper reconsiders the existing accounts of person marking in Dhivehi in light of data elicited during the author's own fieldwork in the Maldives, and argues for a conjunct-disjunct analysis of verbal marking in finite, volitional verbs. It is proposed that the disparity between previous accounts of Dhivehi person marking is partly explainable in terms of the fact that 2nd person verbs pattern sometimes like 1st person (namely, in questions) and sometimes like 3rd person (in statements), which is typical of conjunct-disjunct systems.

Furthermore, like many languages with a conjunct-disjunct opposition, Dhivehi exhibits conjunct-disjunct marking in reported speech constructions, where the conjunct form shows co-reference between the subject of the main clause and the reported subject, and the disjunct form signals a mismatch between subjects. In addition, it is shown that the verbal morphology observed in a number of other grammatical contexts is problematic for a person marking analysis, but is entirely consistent with a conjunct-disjunct analysis. The paper concludes by discussing some possible origins of the

conjunct-disjunct system in Dhivehi, and it is suggested that Dhivehi may have undergone a similar process to that described in Widmer (2015) and Widmer and Zemp (2015) in which a fully-fledged person marking system develops into a conjunct-disjunct system via a reanalysis of person markers in reported speech constructions.

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Ghost phoneme? The velar approximant in Iwaidja: evidence from ultrasound data

Robert Mailhammer, Mark Harvey, Tonya Agostini and Jason Shaw

Australian languages usually have labial, palatal, and retroflex approximant phonemes. In addition, it has been proposed that Iwaidja, a Non-Pama-Nyungan language spoken in North-Western Arnhem Land, has a velar phoneme which has been analysed variably as either an approximant /ɰ/ (Evans 2009: 160) or a fricative /ɣ/ (Evans 2000: 99). This phoneme has a limited distribution, occurring only between [+continuant] segments. Across Australian languages, velar approximants are common phonetic realisations of the velar stop phoneme in intervocalic position, where stops, particularly velar and labial stops, tend to undergo lenition. To ascertain the phonetic nature of the proposed /ɰ ~ ɣ/ phoneme in Iwaidja, and its relation to lenited stop realisations, we collected acoustic and ultrasound data on /ɰ ~ ɣ/ and the velar stop /g/. We also collected data on the palatal stop /tʃ/ and approximant /j/, as a comparison.

Ultrasound images and synchronized audio were collected in a field setting on Croker Island in the Northern Territory, Australia. Four speakers (1 female) participated in the study. Target words containing /g, ɰ ~ ɣ, tʃ, j/ in intervocalic position were elicited using objects pictured on a computer monitor. Ultrasound and audio data were recorded while participants named the pictures in a standardised carrier phrase. Ultrasound recordings were made with a GE 8C-RS ultrasound probe held at a 90 degree angle to the jaw in the mid-sagittal plane with a lightweight probe holder (Derrick et al., 2015). The probe was connected to a GE Logiq-E (version 11) ultrasound machine. Video output from the ultrasound machine went through an Epiphan VGA2USB Pro frame grabber to a laptop computer, which used FFMPEG running an X.264 encoder to synchronize video captured at 60Hz with audio from a Sennheiser MKH 416 microphone.

Preliminary analysis (see Figure 1) indicates a clear distinction between articulation of consonants previously analysed as stops (blue circles), and as approximants (red squares), at both palatal (left panel) and velar (right panel) places of articulation. The figure compares edgetracks (Li et al. 2005) of 6-8 tokens per contrast in the same [a_a] context. The origin of the plot is the posterior portion of the tongue. The stop [tʃ] (blue circles, left panel) differs from the approximant [j] (red squares, left panel) in being more front and slightly higher. The right panel shows the stop-approximant contrast at the velar place of articulation. Although the velar series is more variable than the palatal series, the velar stop is, on average, higher (~2mm) than the velar approximant.

Acoustic data provides clear evidence of closure for palatal stops but not for velar stops. The height of the tongue for /ɰ ~ ɣ/ is similar to the vowel /u/ in our data. Although more analysis is required, preliminary results do not support a consonantal contrast: /g/ vs /ɰ ~ ɣ/. Rather, at least between identical vowels, it appears that sequences previously analysed phonemically, for example as /auɰa ~ aɣa/, are phonetically overlong vowels [aaa]. Figure 2 shows that the duration of sequences historically analysed as /_auɰa_/ occurring as [_aaa_] in our data are nearly three times as long as [a] occurring in stressed position.

In some cases, there is historical evidence that these overlong vowels derive from sequences with a velar stop, such as /aga/ (e.g. Iwaidja *Nawahaj* vs. Bininj Gun-Wok *Nawagaj* 'subsection name). This suggests a kind of compensatory lengthening. Cross-linguistically, such losses of approximants in syllable onset position with simultaneous compensatory lengthening are rare (see e.g. Kümmel 2007: 126f) and cannot readily be explained by mora preservation (e.g. Hayes 1989) or some kind of a phonetic merger analysis (e.g. de Chene & Anderson 1979) Thus, the Iwaidja data is theoretically

challenging not because of the presence of a velar approximant, but because the timing slot of onset velar stops appears to have been preserved, even as the gestural structure has been reduced to the point of complete lenition.

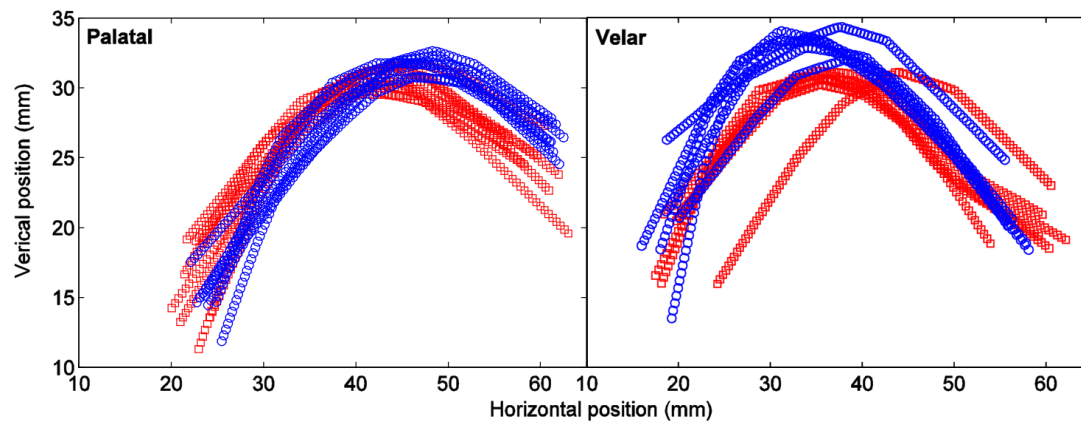


Figure 1: Palatal and velar approximants (red) vs. stops (blue)

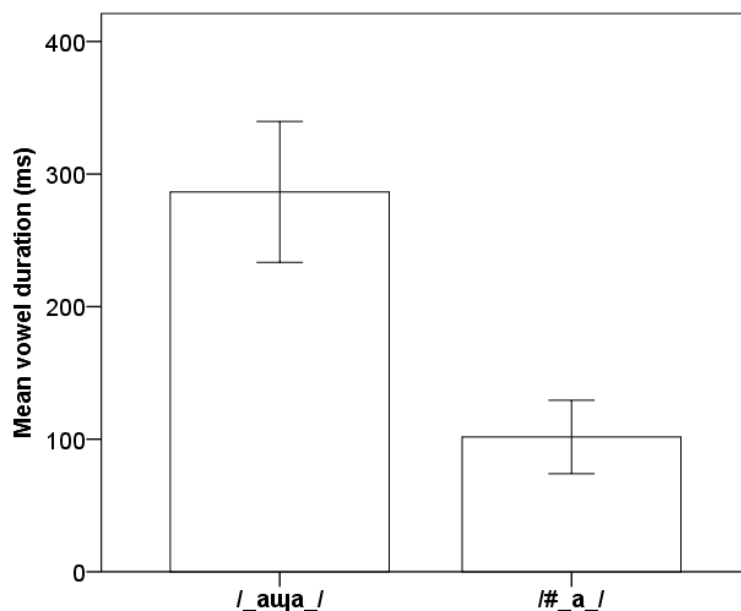


Figure 2: Vowel length of /auja/ [aaa] vs. /a/

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Stops in Croker Island English: making use of a multilingual repertoire

Robert Mailhammer, Stacey Sherwood and Hywel Stoakes

The phonetics of Aboriginal English is still under-researched (Eades 2014: 438). Apart from general overviews (see e.g. Butcher 2008; Fletcher & Butcher 2014), studies in which Kriol is the focus (Jones & Meakins 2013) and studies on Kriol only (Baker et al. 2014), instrumental phonetic research on varieties of Aboriginal English appears to be lacking. However, studying the phonetic detail of Aboriginal English is of great significance for mapping out the sociolinguistic variation of English, especially in relation to the linguistic contribution of Indigenous languages. Furthermore, it is relevant to a phenomenology of contact-induced change, due to the synchronic and diachronic complexity of the contact situation. For instance it has been speculated that the influence of Indigenous languages may be the reason that stops in some varieties of Kriol have a longer duration than in Standard Australian English (Baker et al. 2014: 328). Though suggestive, this remains an unproven assumption (see Jones & Meakins 2013: 216-17). Studies of contact-induced change in the area of phonetics and phonology have focused on transfer and convergence effects (e.g. Antoniou et al. 2011), rather than bilingual correspondence-matching and optimisation strategies, despite clear indication for such phenomena (Muysken 2013: 725).

This study investigates two phonetic parameters, Voice Onset Time (VOT) and Constriction Duration (CD), in Aboriginal English, Iwaidja and Kunwinjku, in order to answer the following research questions:

1. Does English spoken by Iwaidja and Kunwinjku speakers differ from general non-Aboriginal English and if so how can differences be described and explained?
2. Does English spoken by Iwaidja speakers differ from English spoken by Kunwinjku speakers with respect to these two parameters (see e.g. Antoniou et al. 2011: on the transferability of VOT settings), and if so, how can this be described and explained?

Acoustic data were collected on Croker Island, NT. Eight speakers (2 female, 2 male Iwaidja-English bilinguals, 2 female, 2 male Kunwinjku bilinguals) participated in the study. Suitable target words were elicited in English, Iwaidja and Kunwinjku either by written stimuli or by shadowing with stop phonemes in initial, medial and final position embedded in a natural carrier phrase controlling for the phonological environment (target words per condition). Recordings were made with a Countryman EMW microphone using an iPad with iRigPro preamp with a 16-bit sampling depth and a 48kHz sampling rate.

Preliminary results suggest both Iwaidja English and Kunwinjku English make use of CD as well as VOT to mark the phonemic voicing contrast in medial position, although in an asymmetrical way (see Figures 1 and 2): while in both varieties VOT and CD for voiced stops roughly pattern with non-Aboriginal English, CD in voiceless stops is significantly longer than in non-Aboriginal English. VOT and CD of Iwaidja and Kunwinjku English voiced stops matches with the relevant values of stops in Iwaidja and singleton stops in Kunwinjku. The use of a longer CD for voiceless stops in Kunwinjku English can be understood against the background of Kunwinjku: speakers seem to map the main phonetic correlate of the Kunwinjku long vs. short stops onto the voiceless vs. voiced stop contrast in English and use that in addition to VOT. However, this is not a likely explanation for Iwaidja English, as Iwaidja only has a single stop series. In fact, it would be expected that Iwaidja English neutralises the voicing distinction (Butcher 2008: 627). Instead, Iwaidja English differentiates “voiced” and “voiceless” stops also by CD and VOT. We interpret the Kunwinjku and Iwaidja English data as an “optimisation” or enhancement strategy in

the sense of Muysken (2013): speakers capitalise on correspondences in all available languages and use them simultaneously. Given that the English voiced stops match the Iwaidja single stop series in terms of CD, we suggest that the phonetically slightly longer VOT of English voiceless stops is exaggerated to provide a sufficient contrast.

Thus, this paper shows that convergence and transfer are inadequate in explaining the CD and VOT measured in Iwaidja and Kunwinjku English. Instead, language-specific strategies are used to find correspondences for phonological contrasts within the languages available.

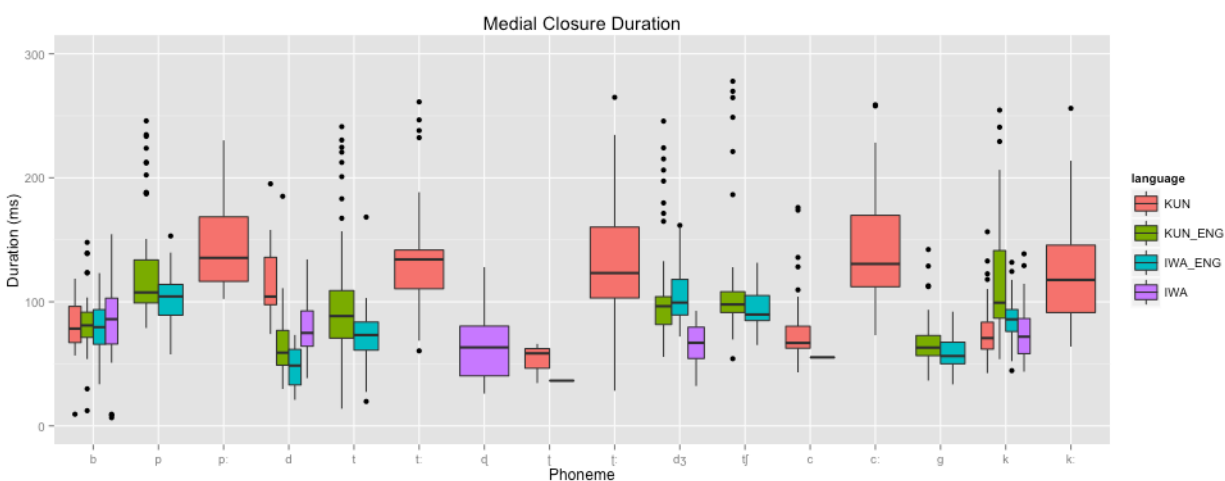


Figure 1: Medial position constriction duration in Iwaidja English, Kunwinjku English, Iwaidja and Kunwinjku (IPA symbols refer to phonetic features rather than phonemes)

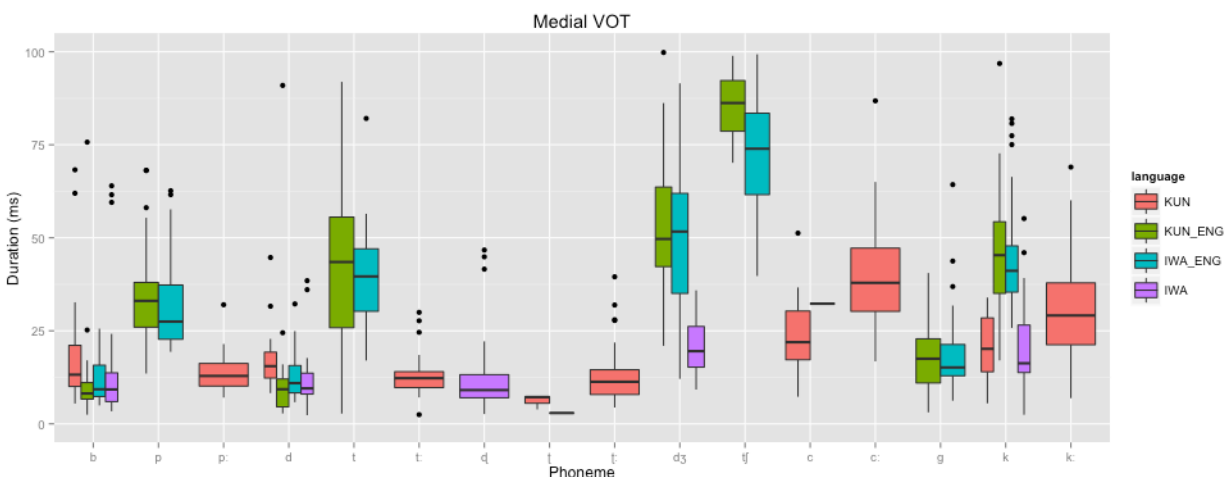


Figure 2: Medial position VOT in Iwaidja English, Kunwinjku English, Iwaidja and Kunwinjku (IPA symbols refer to phonetic features rather than phonemes)

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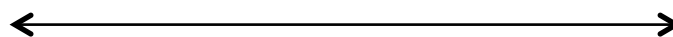
Cute and ugly: Sound symbolism in Gurindji and Murrinhpatha

Felicity Meakins and John Mansfield

Sound symbolism, or “iconicity”, has been studied across a number of language families including Indo-European languages and American languages (Bauer, 1996; Diffloth, 1994; Jespersen, 1933; Nieunwehuis, 1985; Sapir, 1929; Ultan, 1978). Phonological polarities, for example front versus back, high versus low, rounded versus unrounded, and their association with semantic binaries, for example weak versus strong, light versus dark, are commonly proposed in these studies (Anderson, 1998: 106). Many of these polarities are claimed to be universal, for example, Plank et al (1998) observe that diminutives tend to be marked by front high vowels and augmentatives by high back vowels cross-linguistically. However others have claimed that these phenomena are areal in nature (Gregová, Körtvélyessy, Zimmerman, 2010; Nieunwehuis, 1985; Ultan, 1978).

This paper examines iconicity in two unrelated languages of north-western Australia, Gurindji (Pama-Nyungan, Ngumpin-Yapa) and Murrinhpatha (Non-Pama-Nyungan, Southern Daly). Our study differs from the previous literature, where iconicity is posited in the phonological form of words in the languages. The type of iconicity we present operates not in lexical representations, but in phonetic settings that can be applied to speech independent of any particular lexical item. In these languages, palatalization has a “diminutive” effect, associated with compassion and baby talk (Jones & Meakins, 2013), while tongue retraction has an “augmentative” effect, iconic of danger, daring and strength.

PHONETIC SETTING	Palatalisation	Tongue Retraction
ORAL CAVITY BIAS	Front	Back
INDEX	Diminutive	Augmentative
CONTEXT	Baby talk	Danger, strength



Diminutive palatalization is a widespread sound symbolism cross-linguistically, and within Australia (Laughren, 1984; Turpin, 2014). However the tongue retraction setting observed in Gurindji and Murrinhpatha is not widely attested, although it has been noted as an index of combative, masculine stance in Cairo Arabic (Royal, 1985). The fact that this less common form of iconicity occurs in two Australian languages that are geographically close, but genetically distant, suggests that it may be an areal feature. We suggest that further debate on the universal or areal nature of sound symbolism should attend not just to iconicity in the lexicon, but also to the repertoire of phonetic settings that each language deploys.

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Deadly reckoning: Gurindji children's knowledge of cardinals

Felicity Meakins

Dramatic linguistic change has occurred among Gurindji people since colonisation. This change has affected individual linguistic systems in different ways. Many features of Gurindji have been maintained including case-marking, many other nominal suffixes and significant portions of vocabulary (Meakins, 2011a). Other systems have been significantly affected, for example the cardinal direction system is greatly reduced both inflectionally and functionally. Where older Gurindji people use 28 inflected forms for each cardinal direction and these are used pervasively to describe large and small-scale space, young adults use 4 inflected forms and they are only used for descriptions of large-scale space (Meakins, 2011b).

Meakins, Jones and Algy (to appear) tested whether this linguistic shift has had consequences for Gurindji spatial cognition. They administered the 'Animals-in-a-row' task (Cognitive Anthropology Research Group, 1992) to 107 Gurindji people of different ages and found a majority 'viewpoint independent' responses which suggests that the mental map of Gurindji people remains based on fixed bearings despite language change. Nonetheless participants with a tertiary education gave significantly more 'viewpoint dependent' responses which Meakins, Jones and Algy attributed to exposure to English, in particular literacy practices.

This study examines changes in the knowledge of absolute directionals (up/down/N-S-E-W) by 54 Gurindji children in comparison with 57 Gurindji adults. Participants were tested for (i) their active knowledge of Gurindji directional terms; (ii) their ability to point to these directions; (iii) their ability to use cardinals to locate non-visible landmarks; and (iv) their dead-reckoning skills for the same landmarks. The study found that all participants were more likely to give a correct response if (i) they were pointing to a location rather than using directional term for the same place, i.e. passive knowledge was higher than active knowledge; (ii) the location was abstract rather than concrete, i.e. the ability to point in the direction of N-S-E-W was better than dead reckoning skills; and (iii) if they gave 'viewpoint independent' responses on the 'Animals-in-a-row' task, which supports Meakins, Jones and Algy's (to appear) findings of a general attention to the geocentric coordinates. The study also found that knowledge of Gurindji absolute directionals improved significantly across the age groups. An examination of data from a subset of Gurindji children who were tested at three points in time demonstrates that this difference relates to acquisition rather than language change.

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Development of heritage language in 5-year-old Serbian-Australian bilingual children during the first year of schooling

Lucija Medojevic

For many parents in Australia, who are themselves bilingual the benefits of bilingualism may have become obscured, or hopelessly underestimated, perhaps because of the pressures they themselves experience in trying to learn to communicate in English. Worried parents often turn their own children into monolinguals unnecessarily, depriving both parents and children of important cognitive benefits accruing to themselves personally from the habit of communicating daily in two or more languages. Fortunately, some parents do continue to put effort into maintaining their heritage language, but the extent of their success is largely unexplored, especially the in the initial stages of children's school attendance. The paper explores whether Serbian-Australian children living in Sydney continue their Serbian heritage language development during the first official year of schooling.

The informants in this study are two 5-year-old Serbian-Australian children: one second generation female child, codenamed Dana, and one third generation male child, codenamed Tomas. A baseline for Serbian was obtained for the bilingual children by recording them just before commencing school (t0). They were again recorded at three month intervals (t1, and t2), and at the end of the school year (t3), using a range of communicative tasks. The single metric used for measuring morphosyntactic development in Serbian is Processability Theory (Pienemann, 1998; Medojevic, 2009, 2014; Di Biase, Bettoni & Medojevic, 2015). Its recent extension (Pienemann, Di Biase & Kawaguchi 2005; Bettoni & Di Biase, 2015) is used for measuring lexical growth and syntactic development (Lexical Mapping Hypothesis) on the one hand, and development at the discourse-pragmatic interface (Discourse Function Hypothesis) on the other hand. This study also investigates, albeit in a limited way, the development of children's storytelling abilities over the first year of school in the narrative context of the wordless picture-book *Frog, where are you?* (Mayer, 1969) within Berman and Slobin's (1994) tradition.

The results show that bilingual children did develop their heritage language, Serbian, but in very different ways for second- and third-generation children because the family's composition, education and linguistic routines play an important role in the child's development. The results show that for Dana, the second-generation child, whose morphosyntactic development on commencing school was close to native Serbian children her age, Serbian continuously developed and benefited from the overall maturational and linguistic development despite the much reduced input during school; narration skills, which had been learned in English, emerged in Serbian. The third-generation child Tomas became much more aware of the boundaries between English and Serbian, but, nevertheless, the use of Serbian receded. The Serbian language complex and late-developing systems, such as verb morphology and case marking, in the case of Tomas remained underdeveloped at this stage of the child's life, as they had not been in place when the child commenced school. The study's results provide insights into the nature and development of Serbian in children of different generations in the same age group, which has positive practical implications for parents and teachers alike.

The relationship between speech tone and singing in Tai Phake

Stephen Morey

Since musical melodies and lexical tones share some of the same features, e.g. relative pitch movement of pitch (contour) and duration, how do people sing in tonal languages?

In this paper I will present information about how lexical tone is realised in a number of song styles in the Tai Phake language - the *Khe Khyang* style already discussed in Morey (2014), as well as *Soi Yoi* (rice pounding song), *Sa Eui* (love song) and some modern styles.

In Tai Phake (Tai Kadai / Northeast India), with 6 tones distinguished by features of pitch, contour, phonation and duration, tone has a high functional. In at least some singing styles it can be shown that tones are either fully realised, or expressed with some phonetic residue (Ladd 2014). Constraints on the setting of text, dictated in particular by rhyme and the number of possible syllables per line, also play a role in the realisation of tones.

The way in which the different tones are realised in the different song styles will be exemplified by an analysis based on the comparison of (1) recordings of the songs with text, (2) recordings of the melodies sung on vocables – toneless syllables like /na/ and /ta/, and (3) spoken versions of the same portions of text, as well as the singer's own intuitions.

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Expectations about accents can distort optimal perception of speech

Nhung Nguyen, [Jason A. Shaw](#), [Michael D. Tyler](#), [Rebecca T. Pinkus](#) and [Catherine T. Best](#).

Listener expectations have been shown to shift perception of vowels in regional accents (Niedzielski, 1999; Hay et al., 2006; Hay & Drager, 2010). Studies involving foreign accents have shown that expectations can enhance (McGowan, 2015) or degrade (Babel & Russell, 2015) perception, but they have not investigated the precise ways in which phonetic expectations change with knowledge of speaker identity. In contrast to familiar regional accents (e.g., New Zealanders' knowledge of Australian vowels), listeners may not have detailed knowledge of phonetic variation in foreign accents (e.g., Australians' knowledge of Vietnamese vowels).

In this study, we asked how listeners' phonetic expectations would change when they knew the speaker had a (probably unfamiliar) foreign accent. With a Bayesian analytical approach, we investigated how a priori expectations about vowels would change when listeners were told to expect a Vietnamese-accented speaker. 58 Australian English participants (32 in Control group, 26 in Treatment) completed a vowel categorization task in which they were asked to listen to /hVdə/ non-words and choose a reference word that contained the same vowel as that in the non-word they just heard. Participants were trained on the task using 13 Australian-accented monophthongs (four repetitions/monophthong) before they were tested on Vietnamese-accented tokens. The Treatment group was told to expect an Australian speaker in the Training phase and a Vietnamese speaker in the Test phase, while the Control group was told to expect two different speakers with no additional information about speaker identities.

To analyse the results, we used Bayes theorem. In the Control condition, we assumed that listeners assigned equal probability to each vowel (since they heard each vowel equally) and solved for the signal specificity, the probability of the signal (the 'evidence' in Bayesian terms) given the vowel (the 'hypothesis'). In the Treatment condition, we tested to see whether listener prior probabilities ('priors') changed as a result of the experimental manipulation. Since the stimuli were the same in both conditions, we kept the term for signal specificity constant across conditions and solved for the prior in the Treatment condition. To express the change in priors across conditions (Control vs. Treatment), we subtracted the value of the prior in the Control condition from the value of the prior in Treatment.

Figure 1 shows the difference in priors across conditions for each vowel. Negative numbers indicate that the probability of choosing the vowel decreased in the Treatment condition (when listeners were told that the speaker was Vietnamese); positive numbers indicate that the probability of choosing the vowel increased. As can be seen from the figure, the prior probability of some vowels (FLEECE, NEAR, TRAP, STRUT, START, and FOOT) decreased while the probability of others (KIT, DRESS, SQUARE, NURSE, GOOSE, NORTH, and LOT) increased. Figure 2 considers where the vowels that increased/decreased fit within the Australian English

vowel space. A clear pattern is revealed: priors for vowels in the four corners of the vowel space (FLEECE/NEAR (high, front), TRAP (low, front), STRUT/START (low, back), and FOOT (high, back)) go down, while priors for all the other vowels go up. This indicates that, when listeners were told that the speaker was Vietnamese, they expected fewer cardinal vowels. This result not only supports the conclusion from previous research that listener expectations play a role in vowel perception (Niedzielski, 1999; Hay et al., 2006; Hay & Drager, 2010), it goes beyond to show that this is the case even when listeners may lack specific knowledge about the speaker's accent. Listeners appear to use phonetic stereotypes, however poorly informed, to guide speech perception. In the case at hand, knowledge that the speaker is Vietnamese caused listeners to expect fewer cardinal vowels which changed but did not improve vowel categorization (Control: $M_{Accuracy} = 0.486$, Treatment: $M_{Accuracy} = 0.484$).

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FIGURE 1: Change in probability of vowel choice from Control to Treatment

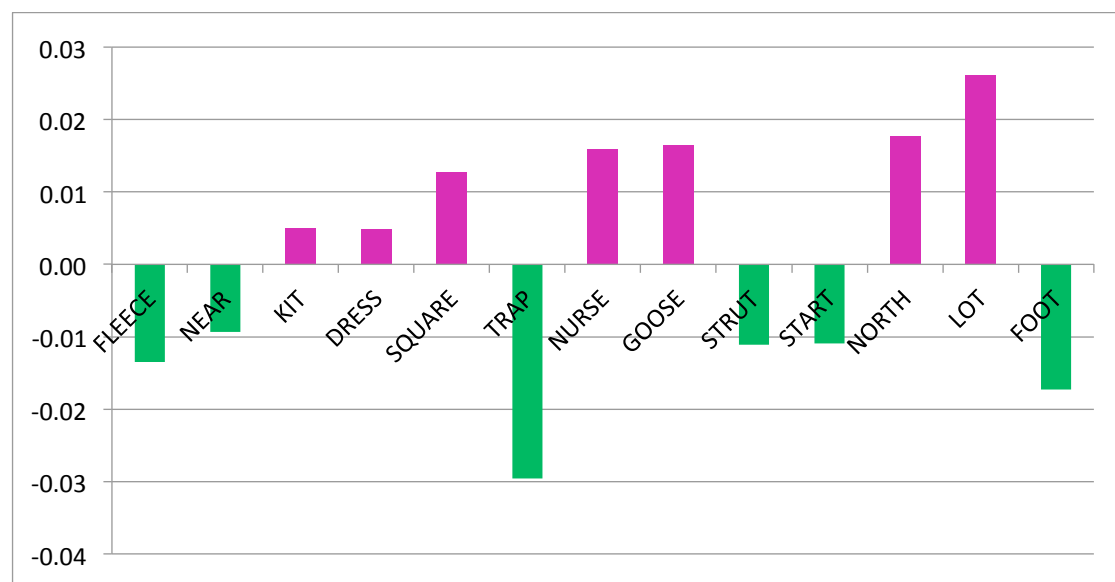
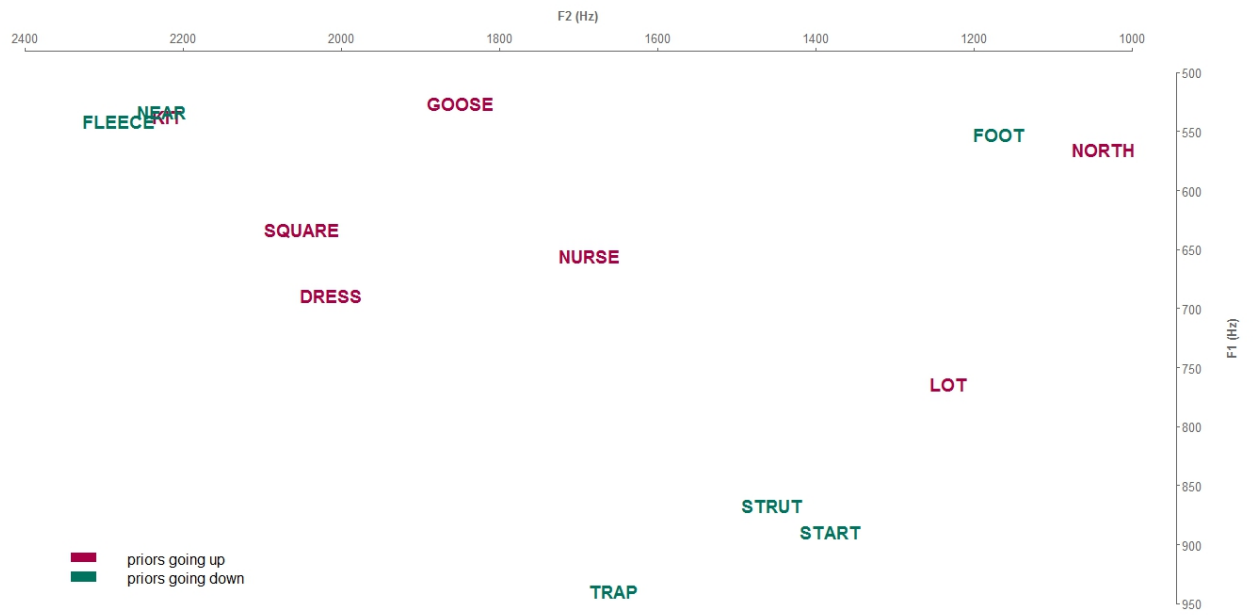


FIGURE 2: Change in probability of vowel choice within the Australian English vowel space



Caregiver attitudes and beliefs related to child language development: Perspectives from two Aboriginal Communities

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In this paper we report on the design and implementation of an interview-based study into caregiver attitudes and beliefs about child language acquisition in two remote Aboriginal Australian communities.

Language socialisation plays a crucial role in children's cognitive, social and cultural development, and the child-caregiver relationship is a fundamental site in this process. As in any study of language socialisation, a key focus is to gain insight into the underlying values and beliefs that govern social interaction within a given community (Ochs & Sheffelin 1984).

The two Arnhemland communities included in our study represent very different language ecologies, but together exemplify the sociolinguistic variation that typifies Aboriginal Australia. The first is Barunga, a small community where a variety of Kriol is the predominant language spoken. The second is Maningrida, a community of around 2000 people where fourteen distinct languages are spoken, with most individuals able to speak between two and six (Elwell 1982; Handelsmann 1996).

The interview structure ranges across four main themes: (i) the 'development of learning/milestones'; (ii) multi-party vs. dyadic input and competence; (iii) accommodation to the infant, verbal and environmental; and (iv) autonomy of the infant. These themes were identified from Language Socialisation literature (e.g. Kulick and Schieffelin 2004) and literature on child development in Aboriginal Australia (e.g. Philpott 2003; Hamilton 1981; Kruske et al 2012; Byers et al 2012; Lowell et al 1996).

Thus far the interviews have indicated that the stages of childhood development can be characterized in locally salient ways, for example *beibiwan* 'baby'; *biganini* 'small child' and *bigwanbigwan* 'grown/adult young person' at Barunga. These terms are defined in terms of physical development as well as the child's capabilities, such as clear speech, being able to care for ones self, as well as specific cultural milestones such as Initiation Ceremonies. We found that interview questions worked best when specific children from target age range were referred to elicit developmental stage e.g. "Would you use baby talk to 'children like John?' (children aged 2-3)". We also found that questions that contained inherent comparison or judgments of other people were not appropriate, for example the following two questions were deleted after workshopping with co-researchers in the community:

1. What kinds of things do mums and dads have to think about that people without kids don't need to think about?

2. Are some kids better talkers than others? What are they like?

We also found that some of the most successful questions were those that elicited spontaneous hypothetical (or real) narratives e.g. “When you see a baby (1-2 yrs old) John’s age do something dangerous what would you say to them? Can you give an example story?”

As well as discussing the development of our interview methodology, we present findings from the interviews themselves and contextualise this study as a starting point for an ongoing broader language socialisation study in both these communities.

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Murrinhpatha verbs and models of morphology

Rachel Nordlinger and John Mansfield

Murrinhpatha is a polysynthetic language of the Daly region of the Northern Territory, with a complex templatic verbal structure characterized by complex predicates, multiple exponence and discontinuous dependencies (Nordlinger 2010). Templatic systems are characterized by affix ordering that “has no apparent connection to syntactic, semantic or even phonological representation” (Inkelas 1993: 560); instead, affix order is “directly determined by the morphology proper” (Hyman 2003). However, templatic systems are largely compatible with either a morphemic or a realizational view of the morphology. In this paper we consider number marking in the Murrinhpatha verb, and show that it exhibits properties that are challenging both for morphemic approaches to morphology, and also for current realisational models (Anderson 1992; Stump 2001).

The Murrinhpatha verbal template is provided in Table 1. As this template shows, the marking of subject number is distributed across the verbal word, in slots 1, 2 and 8. It is the interaction of these slots that we consider in this paper. We show that the interpretation of the various morphs involved in the marking of subject number is often dependent upon the presence or absence of other morphs in the verbal word. Furthermore, in many cases the subject number associated with the fully inflected verb cannot have been constructed through the morphosyntactic properties of the individual morphs it contains. These facts argue strongly for a realizational word-based morphology, rather than a morphemic one (Stump 2001: 7).

Consider the examples in (1)-(5). Focussing on the classifier stem *ba-* and the dual number marker *-ngintha*, we can see that their possible interpretations depend on the presence or absence of other morphs in the verbal word: *ba-* will be interpreted as singular if there is no dual marker in the second position of the verb (1, 2). If the dual marker is present in slot 8, then *ba-* will be interpretable as either singular or dual if there is also a dual object marker in the verb (5), or as dual only if there is not (4). Similarly *-ngintha* can encode dual for the subject (2, 4, 5) or the object (5) depending on the other relevant morphs present in the verb. Thus, in order to interpret the subject or object number values for any given verb, one needs to consider the complete morphological structure of the verb – providing a clear argument for a word-based/realizational approach to the morphology (Nordlinger 2012).

However, a particularly interesting twist on the encoding of number in the Murrinhpatha verb is shown in (6)-(8). When there is no object or oblique marker in the verb, so that *-ngintha* is in Slot 2, the classifier stem used to encode dual subject is the *singular* form (6). However, when an object or oblique marker is present in the verb, meaning that *-ngintha* is realised in Slot 8 instead, dual subject is encoded by a *dual* classifier form (7). This option is not available if the dual marker is in Slot 2 (8). Crucially, in both cases, the number category of the subject remains the same, namely dual.

Thus, we find a particular type of discontinuous dependency holding between the *position in the template* of the dual marker, and the paradigmatic number category selected for the classifier stem in Slot 1: when the dual marker is in Slot 2, the classifier must be singular; but when the dual marker is in Slot 8, the classifier may be dual. Crucially, third singular objects (which are not marked in the verb) do not trigger this change in position for *-ngintha* and the subsequent classifier choice, showing that it is a purely morphological phenomenon triggered by the presence of an object/oblique morph in Slot 2.

This sort of morphologically-triggered discontinuous dependency appears challenging for all major models of morphology, and has not previously been reported in the literature (as far as we are aware). In this paper we will discuss the challenges these data raise for both morphemic and realizational models of morphology and consider the modifications that are needed to current realizational models in order to properly account for the complexity of Murrinhpatha verbs.

Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7	Slot 8	Slot 9
Classifier stem (portmanteau with SUBJ)	SUBJ Number / OBJ marker/ Indirect OBJ marker	Reflexive-reciprocal	Incorporated body part / Applicative	Lexical Stem	Tense/aspect/mood (TAM)	Incorporated adverbial	Number (SUBJ or OBJ)	Incorporated adverbial

Table 1. Murrinhpatha verbal template

- (1) *ba-Ø-ngkardu-nu*
1SGS.SEE(13).FUT-3SG-see-FUT
'I will see it/him/her.' (singular subject, singular unexpressed object)
- (2) *ba-ngintha-ngkardu-nu*
1SGS.SEE(13).FUT-DU.F-see-FUT
'We dual will see it/him/her.' (dual subject, singular unexpressed object)
- (3) *ba-nhi-ngkardu-nu*
1SGS.SEE(13).FUT-2SG.O-see-FUT
'I will see you.' (singular subject, singular object)
- (4) *ba-nhi-ngkardu-nu-ngintha*
1SGS.SEE(13).FUT-2SGO-see-FUT-DU.F
We dual will see you.' (dual subject, singular object)
NOT 'I will see you two.'
- (5) *ba-nanku-ngkardu-nu-ngintha*
1SGS.SEE(13).FUT-2DU.O-see-FUT-DU.F

‘I will see you two’ (singular subject, dual object)

OR ‘We dual will see you two.’ (dual subject, dual object)

- (6) *Nankungintha-ka the-wa ne-ngintha-bath-tha*
2DU.NSIB-TOP ear-EMPH 2SG.HANDS(8).PIMP-DU.F-know-PST
‘You dual should have known.’ (Lk2:41-52-009)
- (7) *Thangku-nu-wa ngay*
what-dat-emph 1sg
nira-nga-winhadhath-tha-ngintha=narde-yu?
2DUS.WATCH(28).PIMP-1SG.OBL-look-PST-DU.F=2DUS.BE(4).PIMP-DM
‘Why did you dual come looking for me?’ (Lk2:41-52-009)
- (8) **Nankungintha-ka the-wa numa-ngintha-bath-tha*
2DU.NSIB-TOP ear-EMPH 2DU.HANDS(8).PIMP-DU.F-know-PST
‘You dual should have known.’ (Lk2:41-52-009)

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The Ngarnka light verb: The missing link in Southern non-Pama-Nyungan

David Osgarby

Complex predicates are common in the languages of northern Australia, however there is great diversity in the nature of these verbal structures that vary by parameters such as; number of closed-class verbs, and nexus of open-class verb and closed-class verb (McGregor, 2002).

It has been reported that the Barkly languages—Jingulu, Ngarnka and Wambaya—have an open class of ‘verbs’ and a closed class of ‘auxiliaries’ (McQuay, 2005; Nordlinger, 1998) or ‘tense-aspect-mood-motion markers’ (Chadwick, 1975, 1978). However further investigation has revealed that Jingulu in fact possesses a ‘light verb–coverb’ structure (Pensalfini, 2003). I propose here that the Ngarnka verbal structure should be similarly reanalysed as a ‘light verb–coverb’ structure rather than a ‘verb–auxiliary’ structure, due to the fact that the closed-class verbs can constitute a verbal predicate without the presence of an open-class verb.

This paper provides a typology of verbal structures of Barkly languages, and suggests that Ngarnka represents a middle ground between the vastly different verbal structures of Jingulu and Wambaya (see Table 1). In addition, a reanalysis of the Ngarnka light verb reveals not only that the Ngarnka light verb template is isomorphic with the generic verb template of the distantly related language Jaminjung (Schultze-Berndt, 2000), but also that there is cognate verbal inflectional morphology shared by Jaminjung and Ngarnka; suggesting that Ngarnka is the most conservative of the three languages discussed.

The reanalysis of the Ngarnka light verb also informs further investigation into the etymological link between the Ngarnka light verb roots and Jaminjung generic verb roots. Building on the hypotheses of Harvey (2008) and Nordlinger (1998), I provide several more potential cognates between the two languages and I use evidence from the allomorphic variation of light verb roots to suggest that only forms related to the ‘potential’ Jaminjung generic verbs are present in Ngarnka.

Similarities can also be identified between the conservative Ngarnka light verbs and the Garrwa tense-aspect-mood clitics (Mushin, 2012). I briefly review some preliminary but convincing evidence that a number of Garrwa clitics can be formally, functionally and distributionally linked to the Ngarnka light verbs. In fact, recognising this potential etymological link may help to historically motivate some of the synchronic allomorphy of Garrwa clitics, such as the present tense and the habitual aspect clitics.

The observation that Ngarnka has a closed-class verbal template that is structurally more closely related to Jaminjung than previously thought, and that has formal, distributional and functional similarities to the Garrwa tense-aspect-mood clitics provides a key piece of evidence for bringing the Barkly languages into the larger conversation around southern non-Pama-Nyungan relatedness and development.

Table 1 Typology of open-class verbs (OC) and closed-class verbs (CC) in SE nPN

		#CC	CC.TENSE	OC.TENSE	Oblig. OC	Oblig. CC
Yirram	Jaminjung	~30	~Separable	N	N	Y
Ngurlun	Jingulu	3	Fused	N	N	Y
	Ngarnka	3	Fused	Y (PRS/NPRS)	N	Y
	Wambaya	3	Fused (AUX)	Y (FUT/NFUT)	Y	Y
Garrwan	Garrwa	—	> (=)TAM(=)	Y (various)	Y	> (=)TAM(=)

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The Australian Reduplication Project

Amy Parncutt and Erich Round

Reduplication is found in almost every human language (Inkelas, 2012), and has been described as one of the most primitive morphological processes in the world's languages (Mailhammer, 2007; Mattes, 2014). Accordingly, the phenomenon has received intense attention from linguists, and many theories have been proposed to account for reduplication and related phenomena. However, a recurrent, explicit concern in the literature is the lack of detailed and extensive empirical data needed for making valid cross-linguistic comparisons, and thus developing associated theories (Urbanczyk, 2007; Raimy, 2011; Hurch & Mattes, 2009). In this talk we present initial findings from the Australian Reduplication Project, which surveys reduplication in Australian languages with the aim of attaining a phonologically comprehensive level of description for each language examined. This is in contrast to previous studies which documented only some patterns in the languages studied, resulting in biases towards common and easily-described phenomena, and thereby underrepresenting the true empirical complexity of the continent's reduplicative typology.

Two prior typological studies exist in this area: Kiyomi's (1993) paper focuses largely on the semantics of reduplication, and looks at 20 Australian languages. Fabricius' (1998) study provides an overview of the semantic and syntactic nature of reduplication in approximately 120 Australian languages, and the phonological nature of reduplication in 43 languages, however the phonological complexities and irregularities that occur in these languages were largely excluded from the scope of her work. Our project strives for a new level of detail and breadth, via a comprehensive examination of reduplicative forms in some 120 languages, including the overarching phonological patterns that describe them, and the extensive complexities and irregularities that have, until now, been largely unattended to.

Methodologically, we employ a fine grained, 'microvariate' approach (Bickel, 2010; Round, 2013a; Round & Macklin-Cordes, 2015) to documenting and describing the intricacies of each form, using variables such as those listed in (1). This enables detailed complexities and idiosyncrasies to be captured, and makes possible more informative and sophisticated comparison and analysis, both at the language level, and cross-linguistically. In this talk we review the results so far, having covered 43 languages in this manner. We discuss the patterns found; the degree of variation within languages, and how languages differ in their internal diversity of reduplicative strategies; and we comment on emerging insights into the typology of reduplication in Australia, including the intriguing case of VC reduplication (Pensalfini, 1998; Round, 2013b; Gaby & Inkelas, 2014). Though the project's focus is on adducing reliable and rich empirical data, we also apply the emerging corpus to evaluate prominent theoretical claims in the literature on reduplication. We find that Moravcsik's (1978) hypothesis that all reduplicating languages employ total reduplication is substantiated, and Fabricius' (1998) claim that verbs and nominals in Australian languages employ distinct reduplication patterns is unsubstantiated. We also discuss some of the challenges in conducting the research so far.

(1) Variables involved in describing the status of final coda in the reduplicant:

- 1) There is no coda in the syllable of the base which corresponds to the final syllable of the reduplicant.
- 2) Coda in syllable of base corresponding to final syllable of the reduplicant is copied to reduplicant.
- 3) Coda in base is not copied to reduplicant.
- 4) Coda in base is not copied to reduplicant as it is part of a monogestural cluster which is syllabified as the onset of the following syllable.
- 5) Coda in base would otherwise have copied to the reduplicant but deleted due to some phonological process (for example):
 - 5a) Cluster reduction
 - 5a-i) Cluster is illicit
 - 5a-ii) Cluster is attested elsewhere in language
 - 5b-i) This is a general phonological process that occurs language-wide
 - 5b-ii) This is an attested process in the language but not language-wide
 - 5b-iii) Process is potentially specific to reduplication

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Glottalisation in Australian English: A change in progress.

Joshua Penney, Felicity Cox, Sallyanne Palethorpe and Kelly Miles

Glottalisation is known to serve as a cue to coda stop voicing in a number of varieties of English. In British and American English, the voiceless stops /p, t, k/ can all exhibit glottal reinforcement, but most commonly for /t/ (Roach, 1973; Redi & Shattuck-Hufnagel, 2001, Foulkes & Docherty 2006). Glottalisation in British English has been recorded since the late 19th Century, but early descriptions of Australian English (AusE) make no mention of either glottalling or glottal reinforcement. The lack of glottalisation in the variety was noted in the mid-1980s (Trudgill, 1986). It was not until the end of the 1980s that glottalisation was recorded (Ingram, 1989; Tollfree, 2001). Glottal reinforcement is attested before voiceless coda stops in AusE today (Cox & Palethorpe, 2007) although empirical work on this phenomenon is lacking. While this might suggest that glottalisation is a recent addition to AusE, “native speaker-hearers of AusE are largely insensitive to glottalised variants” (Tollfree, 2011:54). Therefore, it is possible that the feature was present prior to its emergence in the literature. The aim of this project is to examine the extent to which glottalisation is used to cue coda voicing in AusE and determine whether there is evidence of recent change.

We present the results of an apparent time study using data extracted from the AusTalk corpus word-list task (Burnham et al. 2011), we analysed the speech of two cohorts schooled entirely in Sydney from ages 5 to 18: the first group (n = 36) aged 18 - 35 years old at the time of recording; the second group (n = 31) were aged over 56 years. All words were in the standard hVt and hVd frame to provide a baseline for further analysis of connected speech and to enable a comparison between voiceless and voiced contexts. The vowels analysed were /i:, ɪ, e:, ɐ, ɒ, ɔ, ʊ:/ in the words HEED/HEAT, HID/HIT, HARD/HEART, HUD/HUT, HORDE/HORT, HOD/HOT, WHO'D/HOOT. 2427 tokens were processed using the MAUS automatic aligner (Schiel, Draxler, & Harrington, 2011) incorporating an AusE model. MAUS returned Praat textgrids (Boersma & Weenink, 2015) containing phonemic boundaries for each of the segments within the individual words. The data were then hand corrected with reference to wideband spectrograms and aligned waveforms and further coded for subsegmental components (including the beginning and end of irregular pitch periods during the vowel - IPP, and the beginning of the stop burst). The presence or absence of IPP (i.e. glottalisation) was established for each token. We fitted a multilevel mixed effects logistic regression model with independent variables gender, age-group, voicing and vowel (along with their two-way interactions) and speaker as a random factor to identify the best predictors of glottalisation. Manual backward stepwise elimination reduced the model to the significant predictor variables age, gender, voicing, vowel, and the interactions age by voicing and vowel by voicing (Wald χ^2 = 426.11, df = 16, p < .0001) (see model summary in Table 1).

The results demonstrate that glottalisation occurs more often in voiceless (55%) than in voiced (6%) coda contexts across the entire dataset, thereby supporting the hypothesis that glottalisation functions as a cue to coda voicing in AusE, as is common in other varieties of English. The logistic regression analysis revealed that females were nearly three times more likely to use glottalisation than males (Wald Z = -3.08, df = 1, p = .002), and that younger speakers were more than eight times more likely to employ glottalisation than older speakers (Wald Z = 6.14, df = 1, p < .0001). The age by voicing interaction showed that it was the voiceless context where younger speakers were more likely to use glottalisation than the older speakers (see Figure 1 showing the probability of glottalisation according to age-group and voicing). Increased glottalisation in the voiceless context was present for all of the vowels

examined although high vowels were glottalised less frequently than low vowels (see Figure 2 for probabilities associated with vowel and voicing).

The age effects in particular lead us to hypothesise that glottalisation as a cue to coda voicing is increasingly used in AusE. These findings raise further questions about the weighting of acoustic cues to coda voicing and how glottalisation and vowel duration (both important cues to coda voicing) interact in the management of the temporal characteristics of the rhyme. Further research will examine whether there is any evidence of phonologisation of glottalisation and how listeners use glottalisation in the perception of voicing.

Table 1: Summary of significant main effects and interactions resulting from the multilevel mixed effects logistic regression model.

Variable	df	χ^2	p<
Vowel	6	65.53	.0001
Age	1	37.75	.0001
Voicing	1	22.12	.0001
Gender	1	9.49	.0021
Age X Voicing	1	71.23	.0001
Vowel X Voicing	6	23.25	.0007

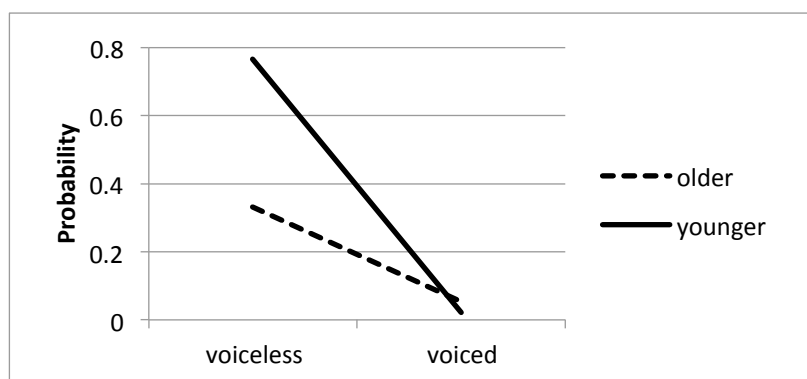


Figure 1: Probability of glottalisation per age-group and voicing context

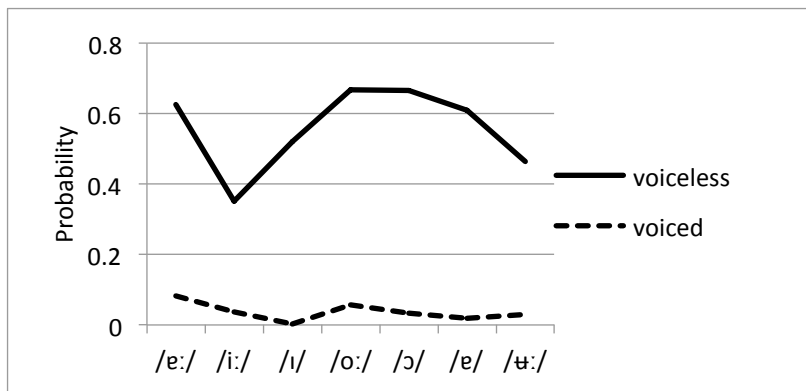


Figure 2: Probability of glottalisation per vowel and voicing context

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‘Highs, lows, and in-betweeners’: A case study of formant frequency differences and children’s social relationships

Benjamin Purser

While sociophonetic research with adult speakers has identified a clear role for social interaction in speech production via processes such as accommodation (e.g. Babel, 2010; Pardo et al., 2012), when and how these processes come to affect children’s speech is unclear. The current study investigated, via social network analysis (SNA), how the quality of children’s friendships affect their production of 5 vowel phonemes in Australian English.

Social and phonetic data were obtained from a classroom group of twenty-two (N=22) children aged 5;2-7;2 (mean age=6;1) who were acquiring Australian English. While former phonetic research divides children *a priori* according to pre-determined categories of age and sex (e.g. Perry et al., 2001; Busby and Plant, 1995), the current study constructed reciprocal friendships among the child participants via inductive analysis of data obtained from observations and interviews with the children themselves. Each participant was interviewed about their friendships within the class, and these data were supplemented by multiple 1-minute observations of the children’s social interactions at various points during the school day. The interview and observation data were analysed using social network analysis (SNA) (Daming et al., 2008), which enabled us to map out the strength of friendships (and therefore social interaction) across the sample and analyse these friendships in various social contexts (e.g. individual class work, group activities, outdoor play time).

Phonetic data were obtained from a lexical production task completed by each participant, in which children generate descriptions of images depicting common vocabulary items (e.g. Khattab and Roberts, 2011). Frequencies for the first, second, and third formants (F1, F2, and F3 respectively) were measured for 1,993 total tokens of the Australian English vowels /i:/, /e/, /æ/, /ɔ/, and /ʊ/ (as in *heed*, *head*, *had*, *hot*, and *hood* respectively) (Harrington et al., 1997). Given previous evidence of the social salience of both F3 (e.g. Perry et al., 2001) and relative differences in frequency between *adjacent* formants (Cartei et al., 2014) in distinguishing pre-pubertal children’s speech, the interaction of F2 and F3 was examined in addition to the traditional analysis of the F1xF2 acoustic space. Relative formant frequency differences for both F1xF2 and F2xF3 were calculated using Euclidean distances and compared with the measurements of the children’s friendships obtained from the interview and observation data.

It was hypothesised that children in reciprocal friendships would display smaller differences in formant frequency patterns. The results from statistical analyses (MANOVA) were mixed: reciprocity of the children’s friendships was not significantly linked to differences in formant frequency patterns overall, though specific effects were found for the interaction of F1 and F2 for /ʊ/. The results suggest that, unlike adult speakers of previous sociophonetic research, formant frequency differences are not used to index social relationships for these young speakers. Furthermore, it may be that this phenomenon may be emergent during later language acquisition and social development.

The current study serves to extend research on children's voices and also their social development, by contributing new formant frequency data to the literature and information about the nature of children's school-based social networks. Fundamentally, it contributes to expanding investigations into the social qualities of children's speech.

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Irish, *sean-nós* and the linguistic ecologies of traditional singing performance

Mahesh Radhakrishnan

From *seisiún* to *ceolchoirm*, classroom to cemetery, in kitchens, pubs and at random beachside encounters, the traditional singing art of *sean-nós* finds a number of niches for performance on the small island of Inis Mór in the west of Ireland. Intertwined within this style of singing is the traditional and official national language Irish (*Gaeilge*), in which many of the songs are sung, the stories behind them told and, importantly, the lives of the people lived and celebrated. Being an endangered language, much of the future vitality of Irish depends on its maintenance and regular use in *Gaeltachai* (Irish speaking areas) such as Inis Mór and a healthy symbiosis with increasingly dominant English.

It is somewhat useful to speak of such situations in terms of “linguistic ecology”, wherein languages are seen to co-exist and the balance should not be tipped against diversity (Haugen 2001, Mühlhäusler 2000). Ecological approaches to language have been subject to critique, particularly from constructionist perspectives (see, for example, Kelly-Holmes 1997, Pennycook 2005), highlighting the limitations and dangers of likening languages to organisms. While these arguments are valid and useful in recognising that languages are not discrete and there is much murkiness at the boundaries, it is equally valid and useful to identify languages as discrete and in “interaction” with other languages as long as scholars make room for hybridity and in-between spaces.

This presentation sheds some light on the linguistic ecology of the island based on a short ethnographic study focusing on people involved in the performance of singing and music. Drawing on the ecological perspective, performance events are viewed as “micro-climates” in which the balance and interplay between languages can be analysed as they unfold in discourse (both spoken and sung).

The observations will demonstrate the usefulness of the ecological metaphor as well as the role of singing and music in linguistic ecologies within the Irish context and beyond, making the case for the study of “musicolinguistic ecology”.

Goodies and Baddies: positioning Ngan'gi protagonist and antagonist narrative actors through vocal manipulation.

Nick Reid

abstract: The limited extant literature on voice manipulation for expressive purposes in Aboriginal languages is mostly focussed on pitch manipulation to signal quotation (Evans et al 1999), or lengthened pitch and sustained high pitch as devices conveying durative/progressive aspect (Mangarayi (Merlan, 1982) and Ngalakgan (Baker, 1999), Nunggubuyu (Heath, 1984), Alawa (Sharpe, 1972), Alyawarra (Yallop, 1977), Wik-Mun(g)kan (Sayers, 1976).

Most such previous discussions deal with phonetic pitch/prosody manipulation at the level of the word or phrase, and there appears to be little literature in Australia that addresses the wider topic of the expressive purposes of voice manipulation, other than a first exploration of lowered voice being used to signal the engagement with danger amongst Wadeye gang members (Mansfield's Kioloa paper, 2015).

Narratives involving multiple characters frequently include those that the speaker sides with, or implies that the audience should care about - let's call these 'the goodies, the protagonists', and who these are cast in narrative opposition to those that the speaker sides against, or implies that their audience should not care about - let's call these 'the baddies, or the antagonists'. This paper provides evidence of pitch manipulation underscoring this kind of oppositional placement of characters in narratives by Ngan'gi speakers who systematically use raised pitch for goodies and lowered pitch for baddies.

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Future Problems

[Marie-Eve Ritz](#) and [Alan Dench](#).

The language Martuthunira (Pilbara, Western Australia) presents a number of interesting problems for both synchronic and diachronic analysis in relation to what has been labeled its future tense (Dench, 1995). The future has two inflectional forms, *-layi* (on Ø-conjugation verb stems) and *-rninyji* (L and R conjugation stems) which are not relatable. The form *-rninyji* appears to be related to *-rninyja*, expressing past tense and perfective aspect respectively, in near neighbours Jiwari and Payungu, raising the question of whether a (perfective) past could have become a future, and if so how. Synchronically, the frequency of use and wide range of functions of the future remain to be explained. The present paper focuses on synchronic data and proposes a temporal and modal analysis of the Martuthunira future.

The present analysis was conducted on elicited sentences and short narratives as well as longer texts exemplifying different genres (traditional stories, programmatic narratives, conversations) making up a sub-corpus of approximately 90 pages including glosses. This sub-corpus reflects the fact that in the entire Martuthunira corpus, the future is nearly as frequent as the past tense, with 28% and 29% of uses of the most frequent T/A forms respectively (see Table 1). Uses of the future in purely narrative segments re-telling (distant) past eventualities (i.e. with all quoted material removed) are unexpectedly frequent. For instance, in narrative segments of a long text describing the creation of the first boomerang (Dench, 1995:287-314), the past-future tense ratio is 3:2.

Dench (1995) describes the future tense as both an absolute and relative tense, referring to a time subsequent to another time when an expected eventuality is to occur, as a mild imperative (Martuthunira also has an imperative). Dench (1995:149) also notes uses in programmatic narratives to describe “the next stage in an established sequence of events”. In addition, we also find uses in generic conditional statements, in statements expressing generic present states-of-affairs, as well as uses in narrative past contexts, as also briefly described in Ritz and Dench (2009).

A closer look at uses of the future in narrative segments describing distant past events and its alternations with other tenses show the following: as can be expected, the future always depicts eventualities that advance narrative time. It is often used in sequences where several events succeed each other in time, as exemplified below:

Yanga-rninyji ngurnaa, thani-rninyji-nu. Murti-i kuyilwa-rninyji, manku-layi-l.
 chase-FUT thatACC hit-FUT-QUOT speed-ACC spoil-FUT grab-FUT-THEN
They will chase it [= the boomerang], hit it, spoil its speed, then grab it.

In contrast, we find that the past tense is most often used to describe a background, to elaborate or explain a statement and for flashbacks (thus, no temporal progression is expressed; see Asher and Lascarides 2003, for temporal inferences of rhetorical relations). Q` 22121` 1` QW1`

QWa5zz5`15`15`1225`1221EFGDCVX X V V
5QWASD5QWASD5`1ASzx5`1ASzx5`12zx25`12zx2167B

0./*/4equences of events it contrasts with the future in that the future provides a ‘flash-forward’, describing events that are known by the narrator to occur after the currently established narrative time, while the past is used to return to events in the main story line.

In order to account for the range of uses of the Martuthunira future, we propose that its semantics include a temporal and an modal (epistemic) component, whereby the speaker expresses confidence, based on their knowledge, that an eventuality is to occur. We use Verkuyl’s (2008) Binary Tense theory and its recent extension incorporating modal meanings of future tenses in Broekhuis and 67B555`1225`1221267b (2014). This theory offers much flexibility for tense representation as it uses a set of binary operators as well as temporal intervals rather than time points. In this framework, the Martuthunira future can be viewed as locating an eventuality in the non-actualized part of a temporal interval (see diagram 1), which can contain the time of utterance, n , as a dividing line or a corresponding past time, n' , (to account for relative tense usage). The shifting point n/n' then provides a point of perspective for entering accessible possible worlds compatible with the speaker’s knowledge.

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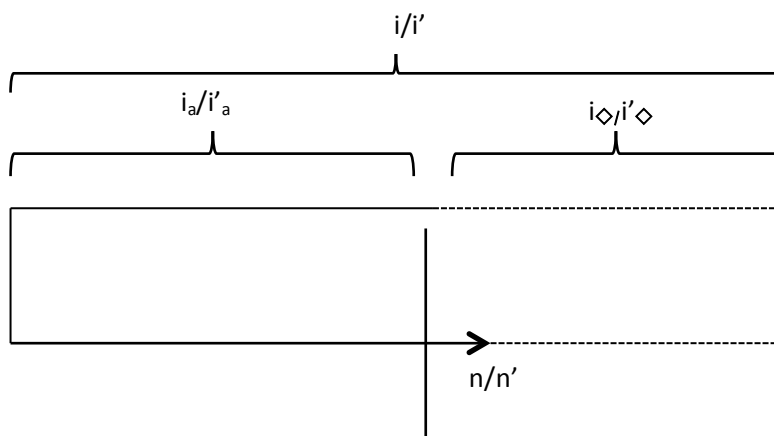
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Table 1: frequencies of main tense inflections in Martuthunira

FUT	Ø-class	-layi	801	65%	1232	28%
	L-class	-rninyji	431	35%		
PAST	Ø-class	-lha	797	62%	1290	29%
	L-class	-lalha	454	35%		
	RR-class	-rralha	39			
PURP	-purpss		118		406	9%
	-pups=o		226			

		-'5`1267b	62			
PRES	Ø-class	-guru	353	77%	461	10%
	L-class	-ruru	108	23%		
PresREL	Ø-class	-nyila	208	83%	252	6%
	L-class	-rnura	44	17%		
Contemp	Ø-class	-rra	462	61%	755	17%
	L-class	-l.yarra	273	36%		
	RR-class	-rryarra	20			

Figure 1: the (split) present tense domain i /past domain i' (Verkuyl, 2008, Broekhuis and Verkuyl, 2014)



Where i = the present time interval; i' = a definite past time interval; i_a = actualized present or past domain; $i_◇$ = non-actualized present or past domain; n = time of utterance; n' = a shifting time corresponding to n in a past domain.

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Linguistic repertoires and multilingualism of the Italians in Australia

Antonia Rubino

As part of the sociolinguistics of mobility proposed by Blommaert (2010), a new conceptualization has been offered of the linguistic repertoire in relation to the more diverse and fluid networking practices that increased mobility offers to speakers, for example through new technologies. From the original notion of the linguistic repertoire which is anchored to a fairly static and bounded speech community, focuses on language, and considers the individual mainly as part of a community (Gumperz 1964), the language repertoire is now viewed as complex and layered, more in relation to individuals and their personal learning trajectories, and comprising of all semiotic resources available to an individual (Blommaert and Backus 2012).

I draw upon this reconceptualization to revisit the sociolinguistic situation of various cohorts of Italian migrants and their children in Australia. These consist of post-war Italy-born (i.e. those who migrated up to the 1970s), their children and grandchildren; a small group of Italy-born who arrived throughout the 1990s; and growing numbers of (mainly) young Italians who have moved to Australia in the last 7 to 10 years. More specifically, in this paper I compare and contrast the linguistic repertoires of two second generation Italo-Australians who are children of post-war migrants, analyzing their language experiences, both past and present, their linguistic practices and levels of competence. I discuss the changing and dynamic nature of their repertoires, and how their linguistic resources are the result of different life opportunities and/or constraints. Furthermore, while it is true that in an individual repertoire “No single resource is a communicative panacea; none is useless.” (Blommaert and Backus 2012: 23), it is also true that the same resource can be more or less valued in a repertoire, and acquire a different indexical value and project a different identity because of the normative power of language and more or less inclusive language ideologies. As I will show through my data, such as participants’ metalinguistic comments, this is the case in particular with dialect and language mixing.

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The development of plural expressions in a Malay-English bilingual child

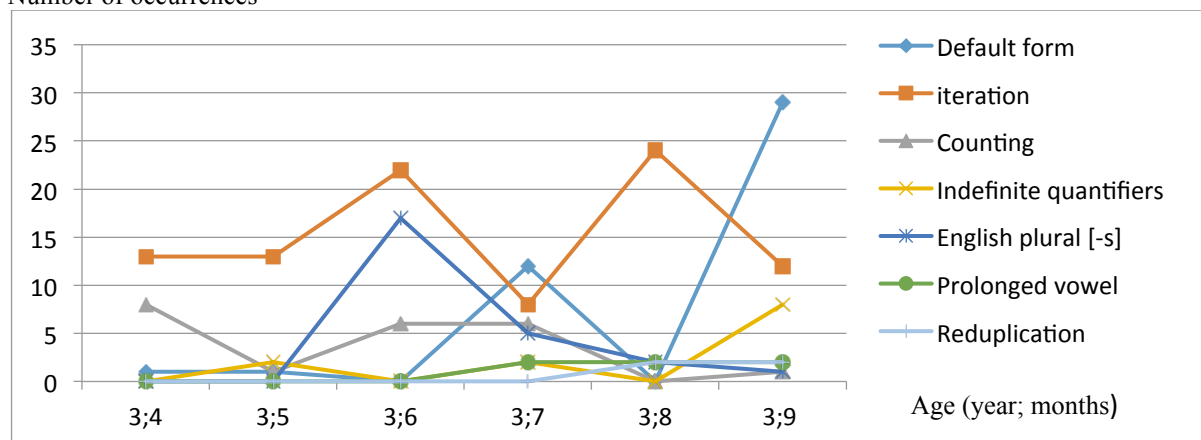
Rabiah Tul Adawouaj Mohamed Salleh, Satomi Kawaguchi, Caroline Jones, Bruno Dibiase

In Bilingual First language Acquisition (BFLA), one of the enduring questions is whether the two linguistic systems in a child acquiring two languages simultaneously develop autonomously (De Houwer, 1990; Paradis and Genesee, 1996) or the languages show crosslinguistic interactions in certain domains (Dopke, 1998; Muller and Hulk, 2001; Yip and Matthews, 2007; Nicoladis and Gavrilu, 2015). The present longitudinal study investigates plural development in a child raised in Malay and English over a 5 month period from age 3 year 4 months (3;4) up to 3 year 9 months (3;9). The two languages are typologically distant and express plurals differently; Malay plurals are expressed in various forms of reduplication such as '*rumah-rumah*' (houses) versus '*rumah*' (a house) and '*bukit-bukau*' (hills) from '*bukit*' (a hill) (Hj Omar, 1975). By contrast, English plurals are morphologically marked on nouns with suffix /-s/ as in *cats* versus *cat* and *goats* versus *goat* (Carstairs-McCarthy, 2002). To examine the child's plural development in each language she is audio and video recorded for about 30 minutes weekly in Malay and English sessions. To examine the child's plural development in each language she is audio and video recorded for about 30 minutes weekly in Malay and English sessions. Sessions are determined by the language used by adult interlocutors. This study addresses the following research questions; since plurality is expressed differently in each language, how does the child develop the two systems? Does the child develop two independent plural systems or does the child exhibit cross-linguistic influence in plural acquisitions? Results show that though the expression of plurality are different between Malay and English, the two developing grammars also manifest interaction. For example, in graph 1 and graph 2, which categorizes and quantifies the child's various expressions of plurality, some of the categories which characterize plurality in one language are also used (at least occasionally) in the other language. Thus, for instance iteration, which the child uses to express plurals predominantly in Malay context is also used in English context (e.g. *cat cat cat*, *dog dog dog dog*). Likewise, the English plural /-s/ which the child uses frequently in English context (e.g. *cats*, *dogs*), also appeared occasionally in Malay context (e.g. *mainans* 'toys'). These results suggest that the two hypotheses, the autonomous and the crosslinguistic hypotheses may not be mutually exclusive.

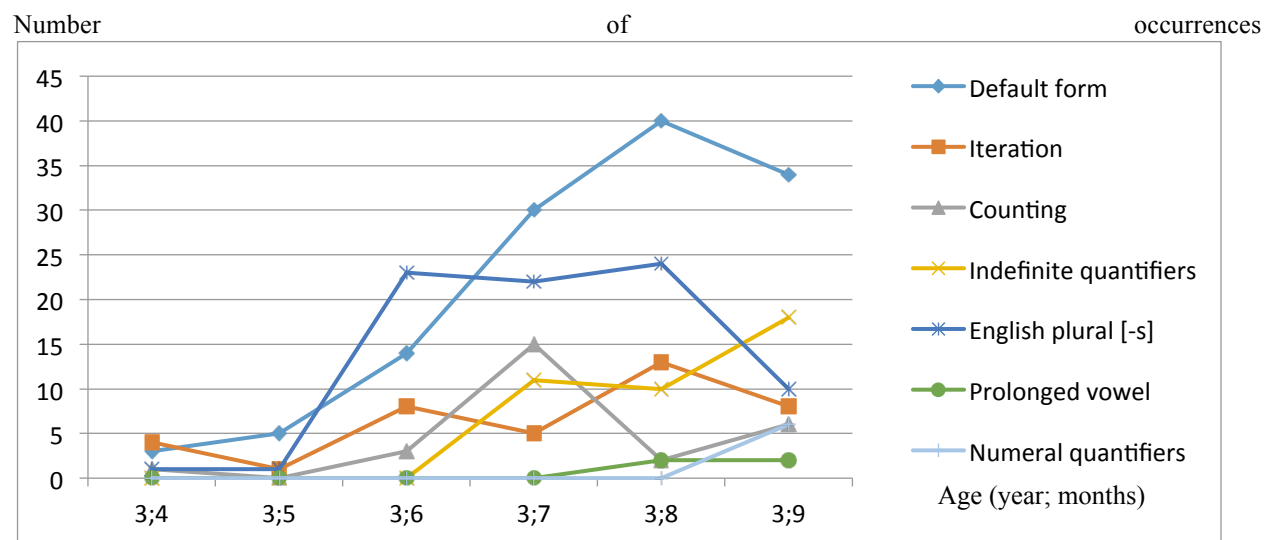
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Number of occurrences



Graph 1 Plural development in Malay context from age 3;4 to 3;9



Graph 2 Plural development in English context from age 3;4 to 3;9

An acoustic analysis of Kaytetye vowel variability

Nay San, Michael Proctor, Myfany Turpin, Mark Harvey, Katia Ringbauer, Alison Ross and Katherine Demuth

Kaytetye [ˈkerdɪf] is an Arandic language spoken by approximately 150 people in central Australia. Many aspects of Kaytetye phonology remain unclear, including the exact constituency of the vocalic inventory. We present data which shed more light on vowel contrasts in Kaytetye, and discuss broader implications for Arandic phonological structures.

Kaytetye has been analysed as a 2-vowel system (Turpin & Ross, 2012), contrasting a low /e/ with a higher vowel /ə/, whose phonetic quality partly depends on the phonological environment in which it appears. For example, word-initial /ə/ is realised as a high front vowel when followed by palatal or a peripheral consonant (*ipmarre-nke* [iˈmərənka] ‘scold-PRS’), and lower before interdentals or apical alveolars. Analyses of Kaytetye vocalic phonology, however, have largely been impressionistic, and there is yet to be a systematic acoustic study of the vowel system which can account for the rich allophony of the non-low vowel: [ʊ, ɔ, ɪ, i, ə, e]. Breen and Dobson (2005) describe the closely-related neighbouring language Arrernte as having four vowels: /i-a-ə-u/, but also observe allophony between /u/ and /ə/ following rounded consonants. In an acoustic study of Arrernte vowels, Tabain and Breen (2011) propose a 3-vowel system, /i-a-ə/, for the language.

To establish the phonetic properties of Kaytetye vowels, we first described their distribution in the speech of a 41-year-old female L1 speaker. Elicited studio recordings made for a multimedia Kaytetye-to-English dictionary were analysed; the informant producing two repetitions of each headword in the dictionary. A sample of 200 lexical headwords (x 2 repetitions = 400 tokens) were selected from the dictionary corpus, each predicted to contain at least two medial vowels, e.g. [ʃ(V)ˈCV.CV.C(V)ʃ], as in Kaytetye initial and final vowels in the orthography are prone to deletion. Audio files were independently transcribed (double-blind) and segmented in Praat by two annotators. The annotation workflow included measuring 4 formant frequencies for each vowel using Praat formant tracks, correcting values where necessary. Vowel formants were additionally estimated in MATLAB using two different methods, FormantMeasurer (Morrison & Nearey, 2001) and a custom LPC-based algorithm. Mean vowel formants were computed from the 4 estimates.

Transcribed vowel qualities were located on an F1-F2 plane, using mean formant frequency estimates to determine the distribution of perceived vowel qualities (Fig. 1). Stressed vowels were found to form more distinct groupings, clustering in the F1-F2 space. In unstressed medial lexical positions, vowels were generally produced as more acoustically central, as is evident by the relatively higher realisations of the [e] vowels. Surprisingly, unstressed high front vowels [i, ɪ] were realised with significantly higher mean F2 values than stressed [i] and [ɪ]. This may be indicative of a higher degree of coarticulation from the peripheral consonants in the unstressed position.

Few back vowel qualities (3/304 tokens) were perceived for vowels produced in unstressed positions by either transcriber, and Figure 1 reveals considerably more [ɔ, ʊ, u] labels associated with stressed vowels in the F1-F2 distribution. To further validate these categories, *z*-normalised F1, F2, F3 and vowel durations were classified into groups using a *k*-means clustering algorithm. The shapes (triangle, square, circle) next to the vowel labels in Figure 1 indicate the computed groupings. Interestingly, the optimal clusters for both unstressed and stressed vowels were 3 groups ([ɪ], [ə], [e]). That is, stressed back vowels

[ɔ, ʊ, u], as transcribed by the annotators, were determined not to be significantly different from the stressed central vowel [ə]. Of course, the relative frequency of occurrence of unstressed back vowels may be due to the sampling of the words.

In order to determine the extent of vocalic variation and the rules governing it in Kaytetye, it will be necessary to analyse the acoustic properties of vowels in the full range of phonological environments. Ongoing transcription and segmentation of the dictionary recordings will provide additional data and allow for further refinement of the method.

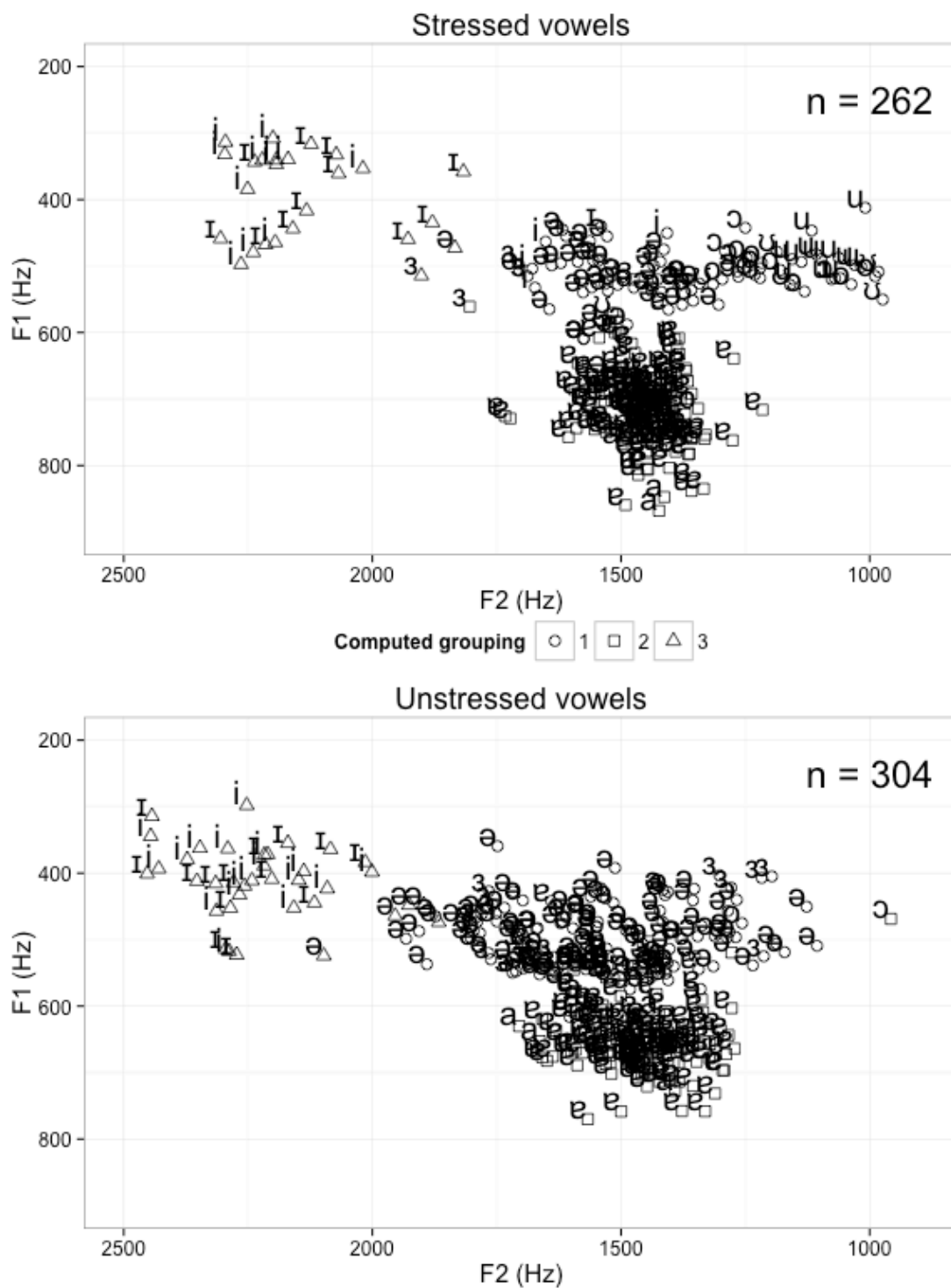


Figure 1. F1-F2 plots of stressed and unstressed medial vowels from Kaytetye (V)'CVCVC(V) words. Labels are phonetic transcriptions assigned by annotators and point shapes (e.g. circle, square) are groupings derived from a k -means clustering classification ($k = 3$).

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Grammatical code blending in Australian Sign Language (Auslan)

Adam Schembri, Trevor Johnston and Jane van Roekel

In this paper, we will discuss a unique type of language contact: *code-blending* involves aspects of a signed and a spoken language being combined simultaneously, and is thus distinct from sequential code-switching and code-mixing which may occur in both signed and spoken language contact situations (Bishop, 2006; Baker & van den Bogaerde, 2008; Emmorey, Borinstein & Thompson, 2005). Here, we used the term *code-blending* specifically to refer to lexical items from a spoken language being silently mouthed during the production of signs from a signed language. This phenomenon has been explored for a number of sign languages (Boyes-Braem & Sutton-Spence, 2001; Nadolske & Rosenstock, 2007; Banks, 2014), but there is a little agreement about its role. Some researchers suggest that at least some mouthings ought to be considered part of the lexical entry for the co-occurring sign (e.g., Boyes-Braem, 2001), while Ebbinghaus & Hessman (2001) argue mouthings are instead independently meaningful. Recent experimental research, however, provides evidence for the code-blend analysis, as mismatches between the production of mouthing and signs in British Sign Language suggest that they have separate mental representations which are accessed independently of each other (Vinson et al., 2010). In a recent study of mouth actions of a dataset of 17,002 signs produced by 38 deaf signers from the Australian Sign Language (Auslan) corpus, we found that 57% of all signs were accompanied by the mouthing of English words (Johnston, van Roekel & Schembri, 2015). Although frequent, the use of mouthing varies considerable between individual signers, with rates of mouthing varying from a low of 5% to a high of 82%. In an Rbrul analysis of this dataset, however, we found that none of the social factors we coded for (signer's sex, age, region, and age of sign language acquisition) predicted the use of mouthing, but linguistic factors, such as grammatical class, were significant. For example, some grammatical classes (such as nouns, prepositions, adjectives, and conjunctions) favoured the use of mouthing, while others (such as verbs and pronouns) disfavoured mouthing. In a follow-up study, we investigated the use of mouthing in pronominal and verbal signs, focussing on grammatical code-blends. Unlike English, pronouns in Auslan are not marked for case or gender – they involve pointing gestures directed towards present referents or towards locations around the signer's body associated with absent referents. Similarly, Auslan verbs are not marked for tense. In both cases, however, such signs may occur with mouthings of English pronouns (e.g., the sign PRO3 can co-occur with mouthed 'she') and with irregular past tense forms of verbs (e.g., the sign SEE co-occurring with mouthed 'saw'). Our analysis suggests that this subset of the data is in fact influenced by a single social factor – signer's age – with younger signers significantly favouring the use of English mouthing with Auslan pronouns and verbs. It is likely that this grammatical code-blending represents the legacy of the use of manually encoded English systems, such as Australasian Signed English, in late 20th century schools for deaf children, as well as other aspects of increased language contact between English and Auslan.

New Methods of using technology to assess children's morpho-phonological development in preschools, classrooms and clinics

Tamara Schembri, Ben Davies, Peter Budziszewski and Katherine Demuth

When conducting child research, researchers routinely experience difficulty in gaining access to research populations (Campbell, 2008; Fargas-Malet, McSherry, Larkin & Robinson, 2010). Parents are typically time-poor, and as such, visiting research laboratories is often low priority. Recruiting participants of special populations—such as children with hearing loss—can be even more difficult, as schedules are often very full. One strategy used by researchers is to set up experiments at participants' homes (Naigles & Tovar, 2012). Another strategy is to make research an enjoyable experience for children by developing experimental methods that are fun and engaging (Punch, 2002). In recent years, iPads have been encouraged for classroom use, due to students' sustained engagement (Henderson & Yeoq, 2012; Manuguerra & Petocz, 2011). The iPad also provides a highly portable experimental platform. Therefore we have developed specially designed iPad software capable of delivering controlled experiments to otherwise difficult-to-access populations. Furthermore, to our knowledge, this is the first use of the iPad to conduct a digital analogue to a lab-based experiment.

A recent perceptual study has found that typically-developing children have an emerging understanding of the English plural morpheme at 24 months (Davies, Xu Rattanasone & Demuth, 2015). However, it is not known when children with hearing loss develop this understanding, or how different types of hearing loss affect acquisition. Therefore, in order to reach this population, this research paradigm was adapted into an iPad app, allowing the study to be conducted in addition to children's regular clinical visits. The app plays a series of decision tasks, in which both auditory and visual stimuli are presented to the child through the iPad. Participants are presented with two pictures, one depicting an unfamiliar character/object (singular picture), the other depicting multiple identical instantiations of another unfamiliar character/object (plural picture). An recorded audio prompt instructs children to "Touch the [nonce word]". The nonce word is either singular (e.g., tep) or plural (e.g., teps). Children then decide which picture best corresponds with the word, and touches it on the iPad. The use of unfamiliar pictures and words ensures that only children's understanding of plural morphology is tested, not their lexical knowledge. Results of each trial are immediately made available to the researcher via a secure internet link.

This new method of conducting language perception experiments outside of a lab environment promises many uses in the field of child language development. The portability of the iPad means that data can be collected from more participants and from more locations, such as preschools classrooms and clinics. While the current application of the app is investigating children's knowledge of plural morphology, its potential uses are virtually limitless.

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Neurotypology: Why the neurobiology of language must be informed by cross-linguistic diversity

Matthias Schlesewsky and Ina Bornkessel-Schlesewsky

Recent years have seen an increasing interest in identifying the neurobiological underpinnings of language and language processing in the human brain. While earlier studies attempted to identify specific brain correlates for the subdomains classically assumed in theoretical linguistics (e.g. phonology, syntax, semantics and – more recently – pragmatics), this "one-to-one mapping perspective" has been shown to be incorrect by a range of studies, particularly from languages other than English. For example, the long-held assumption that the N400 event-related brain potential (ERP), which was originally discovered by Kutas and Hillyard (1980), reflects lexical-semantic processing (e.g. Lau, Phillips, & Poeppel, 2008) has been falsified by observations showing that N400 effects are frequently observable for aspects of processing that would traditionally be considered morphosyntactic in nature (e.g. subject-verb agreement, case marking, grammatical function assignment, word order: Bornkessel, McElree, Schlesewsky, & Friederici, 2004; Choudhary, Schlesewsky, Roehm, & Bornkessel-Schlesewsky, 2009; Frisch & Schlesewsky, 2001; Haupt, Schlesewsky, Roehm, Friederici, & Bornkessel-Schlesewsky, 2008).

In our presentation, we will argue that the problematic early generalisations and conclusions regarding domain-specificity resulted – at least in part – from the consideration of only a very narrow set of languages (mostly English), and that a careful consideration of linguistic diversity provides for a much more fruitful and informative approach to research on the neuroscience of language. We will illustrate this perspective using three examples. Firstly, we will show that, across different languages, a similar linguistic phenomenon induces qualitatively different neurophysiological results based on the specific properties of the language under consideration (Bornkessel-Schlesewsky et al., 2011; Tune et al., 2014). Secondly, we will argue that the way in which grammatical patterns evolve over time across the world's languages – and, in particular, which patterns occur more frequently than others – is shaped by neural mechanisms of language processing (Bickel, Witzlack-Makarevich, Choudhary, Schlesewsky, & Bornkessel-Schlesewsky, 2015). Thirdly, and building on this review of existing findings, we will present new data which demonstrate that overt language change from a morphologically rich system to a morphologically impoverished and sequentially fixed word order is foreshadowed by neurophysiological correlates of language processing in the brain. Using Icelandic as a test case, this study presented Icelandic native speakers with sentences that involved (a) grammatical case marking patterns in the current state of the language, (b) ungrammatical case marking patterns, and (c) ungrammatical case marking patterns that are projected to be grammatical if the current trajectory of language change progresses as expected (i.e. towards a morphologically impoverished, fixed word order system). Strikingly, we observed that, while speakers rejected both types of ungrammatical sentences in their overt judgements, type (c) sentences showed a similar electrophysiological response to grammatical structures. This finding suggests that, while overt judgements still reflect the normative environment of the speech community, the underlying processes of real-time language comprehension in the brain already provide a snapshot of the future state of the language.

We conclude that investigations into the neurobiology of language must embrace language diversity, and thereby advocate a typologically-inspired approach to language processing in the brain.

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Back to front: Body axis terms in Marshallese, Dhivehi and English.

[Jonathan Schlossberg](#), [Jonathon Lum](#) and Thomas Poulton.

This paper reports on experimental research into the extensional semantics of body axis terms (i.e. terms for ‘front’, ‘back’, ‘left’ and ‘right’) in three typologically diverse languages: Marshallese (Austronesian, Marshall Islands), Dhivehi (Indo-Aryan, Maldives) and English. All three languages have body axis terms that are used in multiple frames of spatial reference.

A frame of reference is a strategy for locating an entity (the ‘figure’) with respect to another entity (the ‘ground’) (Levinson 2003). The intrinsic frame locates the figure with regard to perceived internal facets of the ground object, as in *The man is in front of the house* – i.e. at the house’s front). The relative frame relies on a ‘viewpoint’ of some observer, as in *The ball is to the left of the tree* (from the speaker’s perspective). The absolute frame invokes features external to the figure-ground array, such as a system of cardinal directions or a topographically motivated axis, e.g. *The fire is downriver from the village* (Palmer 2015). However, among languages which employ the relative frame, it is common – if not universal – for relative terms to be identical with intrinsic ones (Levinson 2003: 45–47), as in the case of English *left*, *right*, *front* and *back* (e.g., in *The man is in front of the house*, the man could either be at the house’s front or else on whichever side is closest to the speaker).

Three subtypes of the relative frame of reference exist (e.g. Levinson 2003: 84–89). Of these, English uses a ‘reflectional’ subtype in which the ‘front’ of the ground is the side closer to the viewpoint, and the ‘back’ is the side further away, as if the ground were the viewer’s reflection in a mirror. However, some languages like Tongan (Bennardo 2000), Hausa (Hill 1982) and Marquesan (Cablitz 2006: 531–32) employ a ‘translational’ subtype in which the ‘front’ is at the far side and the ‘back’ at the near side, as though the ground were a person facing in the same direction as the viewer. Although this translational subtype is sometimes claimed to be widespread (e.g. Levinson 2003: 86), others have claimed it is ‘extremely rare’ (e.g. Bennardo 2000: 513), and the literature contains few examples of languages with such a system. A third, ‘rotational’ subtype treats the ground as though it were a person facing the viewer, but appears to be rarer still.

In this paper, we present evidence from an object placement task that Marshallese and Dhivehi both use a translational relative frame of reference, in contrast to English. However, like Tongan and Hausa, these languages also feature a reflectional relative frame that is used in some contexts and/or by some speakers. Marshallese and Dhivehi also employ the intrinsic frame of reference that can be used when the ground object is perceived as having inherent facets. Dhivehi also has a more unusual system in which the ‘front’ of an object in a ring-like configuration is the inner side, while the ‘back’ is the outer side. Terms for ‘front’ and ‘back’ in Marshallese, Dhivehi and English therefore have the potential to be ambiguous in several ways. We demonstrate how a range of configurational factors (e.g. occlusion of figure by the ground, orientation of the array with respect to the viewpoint), linguistic factors (e.g. construction type) and demographic factors influence how speakers interpret body axis terms, and suggest that notions of ‘front’ and ‘back’ relate not only to physical position but to factors including access and visibility.

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The processing of question and statement rises by Mandarin learners of English

Elaine Schmidt, Carmen Kung, Ivan Yuen, Brechtje Post and Katherine Demuth

Most varieties of English distinguish between questions and statements with multiple cues: word order, question words and intonation. Nonetheless, questions can also be asked simply by altering the intonation cue, leaving the syntax unchanged. A statement like “He plays with Sue” with a falling intonation becomes a question by changing the fall to a rise “He plays with Sue?”. However, in Australian English (AusE) rises can also be used for statements (S), not only questions (Q). Production data suggest that S-rises are realised differently from Q-rises: Male speakers, for example, use different pitch height in the pitch accent to distinguish between the two discourse functions while women use different pitch height in boundary tones [1]. However, it is unclear whether the different rises can be distinguished in perception as well, particularly if no additional contextual cues are available.

Furthermore, no research has been done on the interpretation of rises by L2 learners of AusE, especially if the native language is a tone language. As a result of their experience with pitch contours, Mandarin listeners are better at discriminating pitch contour differences in lexical tones than English listeners [2, 3]. Additionally, Mandarin and English listeners appear to use different perceptual strategies for the categorisation of English intonational contours [4]. This then suggests that Mandarin learners of AusE might be more *sensitive* to the subtle intonational differences in Q- and S-rises than AusE listeners. However, because the dual function of rises does not occur in either General American or Standard British English, the two varieties most frequently taught abroad, they might not be able to *interpret* these acoustic differences.

In this study we aim to establish whether Q- and S- rises can be perceptually distinguished by native and non-native listeners with an identification task. The stimuli consist of a carrier sentence with manipulated pitch height at the pitch accent of a trisyllabic CVCVCV target word (Fig. 1) which all end in the same rise. We established a monolingual AusE baseline with 40 listeners and compared these results to those of Mandarin L2 speakers of English who have lived in Australia for less than 3 years.

We predicted that AusE monolinguals would be able to distinguish between Q- and S-rises in the identification task, but would use different perceptual strategies depending on the speaker gender. Specifically, higher pitch accent height would lead to more Q responses for the male but not the female utterances where pitch height is not normally used contrastively in production. In contrast, we predicted L2 listeners would not be able to use pitch accent height to determine the discourse function of either speaker gender. Here, all rises would be identified as Q, regardless of pitch accent height or speaker as a result of the inability to attribute different rises to different linguistic categories.

Results of monolingual Australian participants (n=40) demonstrated that pitch height does not contribute to the interpretation of a rise as a Q or a S (Fig. 2). Instead, speaker gender

determines the interpretation of a rise. Specifically, all female utterances are interpreted as Q while male utterances are at chance level. Importantly though, this gender effect did not reflect production results which predicted a discrimination based on pitch height for the male speaker.

Initial results of Mandarin learners of AusE (n=6) suggest a different perceptual pattern in the identification of rises to AusE listeners. Here, all utterances were identified as Q regardless of pitch accent height or speaker gender (Fig. 2), thus confirming our prediction. This suggests that for Mandarin learners the perceptual space of rises is only reserved for the linguistic category of Q. More participants will establish the robustness of this effect.

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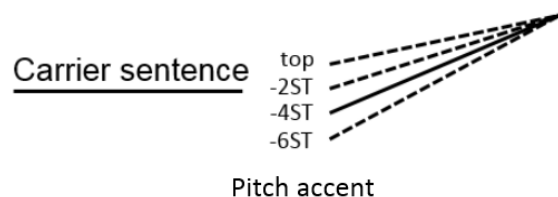


Fig. 1: Pitch manipulation of the target word in 2 semitone steps at the pitch accent.

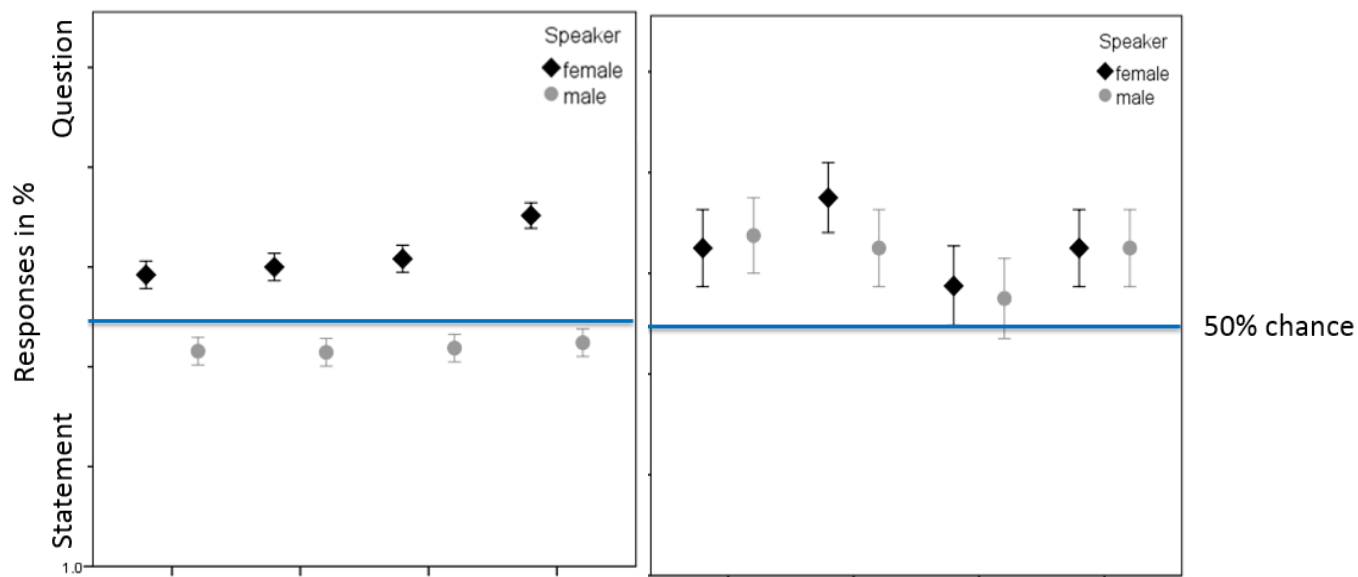


Fig. 2: Identification of pitch accent manipulations by monolingual Australian English (left) and Mandarin L2 learners of English (right) listeners

Using language variation to identify social relations between speakers: *ranuki* in Japanese

Stacey Sherwood

Language is dynamic in that the form it takes changes based upon contextual factors. Stylistic variation in particular is strongly influenced by the speaker's interlocutor (e.g., Bell, 1984, 1991, 2001). This research has shown that speakers change the way they use language depending on who they are speaking to. However, it is not yet known if listeners use interlocutor-conditioned variation to draw inferences about the social group of the interlocutor. To investigate this question, we examine the perception of a well-studied pattern of variation in Japanese verbal morphology; known as *ranuki* 'ra-deletion' in Japanese. The Japanese standard potential (meaning 'potential', or 'ability to do') verb suffix *-rare* is sometimes realised in a reduced form, *-re*, by deleting the syllable *-ra*. Previous studies have identified that the distribution is influenced by social factors (e.g., formality), but interlocutor effects on *ranuki* distribution are yet to be examined. Thus, this study seeks to determine if Japanese listeners use patterns of *ranuki* to socially classify the interlocutor.

60 native Japanese speakers from various regions in Japan participated in this study (25 male; 35 female). Listeners performed a perception task in the format of an online survey using Qualtrics survey software (Qualtrics, 2015). The task was to judge if the presented sentence was more likely said to a friend or to a superior, categories of high social relevance in Japanese society (Caudill, 1973; Lebra, 1992; Nakane, 1970). A significant main effect of allomorph form was found ($F[1,52] = 38.043$, $p < 0.001$). This indicated that listeners used patterns of *ranuki* to identify the interlocutor. The long form, *-rare*, was perceived to be more likely said to a superior, while the short form, *-re*, was perceived to be more likely said to a friend. In addition, there was a significant interaction between allomorph form and listener age ($F[1,21] = 6.593$, $p < 0.05$). This finding suggests that, while all listeners use patterns of *ranuki* to identify the interlocutor, listeners were most sensitive to the distinction between the forms when they are working adults between the ages of 46 to 55 years.

This interaction can be explained by recent work examining language use in workplace environments. Because ongoing negotiations of power and politeness are typical in workplaces, working-adults may be more adept at using language to express themselves politely or with deference to a superior (Holmes & Stubbe, 2015). As listeners transition into a life-stage where they are more likely to receive promotions, they are most aware of subtle differences in language use, i.e. the distinction in social meaning between the long and short forms, with reference to social hierarchies. This awareness decreases once the pressure of a promotion becomes less likely, particularly as listeners approach retirement age. The interaction suggests, then, that

listeners' perception of socially-indexed meaning is heavily influenced by their life-stage and their membership to social categories, i.e. working-adult.

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Fair go? Communication and credibility in Australian asylum procedures

Laura Smith-Khan.

Almost 60 million people are forcibly displaced around the world today. The vast majority are hosted in developing countries (UNHCR, 2015, p. 2). While only a small minority are able to seek asylum in the global North, they meet increasingly restrictive and exclusionary government policy (Crock & Ghezelbash, 2010; Maryns, 2004, p. 243). Recent approaches in Australia are no exception, with an institutional suspicion towards irregular arrivals. Often lacking identity documents or other documentary proof of persecution, asylum seekers must find other ways to support their claims. This means that communicating a credible refugee narrative is essential to accessing protection (Crock & Martin, 2013; Jacquemet, 2011, p. 478). Yet, visa applicants are confronted with many challenges to presenting a successful narrative and establishing their credibility. Poor interpreting or other issues with intercultural communication may create misunderstanding and lead to damaging inconsistencies in their story (Keselman, Cederbord, & Linell, 2010). Applicants' identity claims may even be undermined when their language use conflicts with institutional expectations (Eades, 2009). Such issues can have a fatal impact on an applicant's credibility and ultimately the success of their claim.

In this paper, I present early findings of my doctoral research on how communication is managed in Australian asylum procedures. Guided by Spolsky's (2004, 2009) *language management* and McCarty's (2011) multi-level language policy approach, I explore communication management at three levels: law (court decisions and legislation), government policy and individual applications. I identify the language management goals of the different actors involved at each level and consider how these goals are implemented and interact with each other, focusing specifically on the key management issue of facilitating and testing credibility.

Individual applications offer us insight into what actually happens when decision makers and applicants interact (Inghilleri, 2003) and creates an opportunity to evaluate the effects and effectiveness of law and policy. I will share findings resulting from a close analysis of individual case files of past refugee applicants from Afghanistan, Iran and Pakistan. This analysis is based on both written and audio records of their interactions with the Immigration Department. Focusing particularly on credibility, I consider whether the law and policy in this area is consistently and effectively implemented and whether it manages communication fairly. I pay close attention to the ways in which institutional and individual beliefs about language may influence language management, and argue that clashes disproportionately disadvantage applicants (see also Blommaert, 2010, pp. 172-3). I find that while attempts have been made to mitigate communication issues, some areas of policy and law require further refinement to fairly accommodate the complex communication that takes place in this setting. I argue that this is essential to best ensure a fair asylum system in Australia.

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Representations of Asylum Seekers and Refugees in Australian Print Media: A Corpus-Assisted Critical Discourse Analysis

Angus Stirling

Inspired by the work of Baker et al. (2008) in their examination of the discourses of asylum seeker and refugee identity in the UK press, this thesis employs a corpus-based critical discourse analysis to investigate the dominant discourse around refugees and asylum seeker identity in the Australian media, taking into consideration 40,000 articles from six newspapers over a period of seven years and nine months. The findings of this study indicate that Australian newspapers portray asylum seeker and refugee identity differently, with a much wider range of modifiers for describing refugees. The study found that the most common themes centred on plight and illegitimacy. However, unlike the British study, which reported finding no positive constructions of either refugee or asylum seeker identity in the British press, the Australian media did have some positive portrayals, particularly of refugee. The study ends with three comments about the media: the Australian press is not sufficiently adhering to the Australian Press Council's advisory guidelines on the representation of asylum seekers; the Australian press is over-representative in its depiction of both asylum seekers and refugees as bogus; and the expression 'genuine refugee' may have become naturalised, indicating that the topic of refugees has become very difficult to talk about except in terms of illegitimacy.

Baker, P., Gabrielatos, C., Khosravini, M., Krzyzanowski, M., McErery, T., & Wodak, R.

(2008). A useful methodological synergy? Combining critical discourse analysis and corpus linguistics to examine discourses of refugees and asylum seekers in the UK press. *Discourse and Society*, 19(3), 273-306. doi: 10.1177/0957926508088962

Alternative explanations for ‘antonymic change’ in Australian languages

Karen Sullivan

Many languages have ‘contronyms’, or words with contradictory senses, as recently publicised in the popular media (Herman 2014; Schulz 2015). For example, you can *seed* a field by adding seeds to it, but *seed* a grape by removing its seeds. Contronyms have played a particularly important role in Australian language research, where they have been considered the result of ‘antonymic change’ (O’Grady 1979); termed ‘enantiodroma’ by Murphy (2003). According to Hale (cited in O’Grady 1979), Australian languages demonstrate a semantic principle called ‘unity of the opposites’. O’Grady (1979, 1990, 1998) interprets ‘unity of the opposites’ as not only accounting for contronyms in individual Australian languages, but also as the source of opposite meanings of cognate items across Australian languages, such as *thama-lanyi* ‘bury’ in Southern Yinggarda and *thama-la* ‘clear ground’ in Umpila (O’Grady 1998: 224).

However, it is unclear how ‘unity of the opposites’ operates as a force in semantic change. Although antonyms are generally found in similar contexts (Gries and Otani 2010), these contexts do not normally allow ambiguity between antonymic meanings. For example, English *hard* and *soft* both attributively modify nouns that denote ground surfaces, as in *hard/soft ground*. Even though both adjectives occur in similar frames, these are not a probable ‘bridging contexts’ in the sense of Evans (1992). In context, there would be no confusion over whether the ground is ‘hard’ or ‘soft’, and one meaning could not directly lead to the other.

O’Grady suggests that ‘unity of the opposites’ is inspired by initiation languages, such as Walbiri *tjiliwiri* described by Hale (1971), in which Walbiri lexical items are used with ‘opposite’ antonymic meanings. However, two points render this explanation unlikely. First, an ‘upside-down’ secret language such as *tjiliwiri* is far from ubiquitous in Australia, and seems an unlikely cause of semantic change in languages as geographically distant as Yinggarda and Umpila, for example. Second, *tjiliwiri* is a secret language, which even initiates take some time to figure out, and several weeks to master (Hale 1971: 475). Although *tjiliwiri* demonstrates an incredible awareness of antonymy, it is unclear that this awareness, or the use of *tjiliwiri* in ritual contexts, would make antonymic change possible in Walbiri, let alone in Pama-Nyungan languages across Australia, as O’Grady suggests (1979, 1990, 1998).

Indeed, discussions of contronyms typically recognise that these ‘changes’ are the result of multiple links, rather than one ‘antonymic change’ (Schulz 2015, Murphy 2003). The ‘distribute seeds’ and ‘remove seeds’ senses of *seed* are both derived from the noun *seed*, and not from each other. I suggest that examples such as O’Grady’s *thama-lanyi* ‘bury’ and *thama-la* ‘clear ground’, if related at all, might also come from a common ancestor word, in this case meaning ‘dig’. This more general meaning could easily undergo narrowing through bridging contexts in which the more specific meaning ‘bury’ or ‘clear ground’ was appropriate.

I argue that most examples of supposed ‘antonymic change’ can be explained through common ancestry. Other purported examples, I argue, should not be considered cognates. O’Grady is

correct that if ‘unity of the opposites ... is accepted, the number of cognates which can be recognized among Pama-Nyungan languages undergoes a quantum leap’ (1979: 121). However, this ‘quantum leap’ is only desirable if the resultant cognates are accurate. The implausibility of antonymic change, and the presence of well-established alternative explanations for many supposedly antonymic changes, suggests that researchers should hesitate to identify cognates on the basis of antonymic meanings.

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Socio-indexical information is processed relatively late during speech perception

Anita Szakay

Indexical variation – such as talker variability – has been shown by numerous studies to affect speech processing (e.g. Peters 1955, Mullennix et al 1989, Church & Schacter 1994). For example, words are processed faster when spoken by the same talker, as opposed to different talkers. Luce et al (2003) suggest that this decrease in the magnitude of priming caused by a different talker (= indexical specificity effect) may take time to develop during the course of speech processing. When processing is fast and effortless, specificity effects do not occur. When processing is delayed, however, the reliance on indexical details increases, and greater specificity effects are obtained.

Studies supporting the time-course hypothesis have relied on various research paradigms, such as change deafness (Vitevitch & Donoso 2011), priming of easy vs. hard pseudo-words (McLennan & Luce 2005), healthy vs. dysarthric speech (Mattys & Liss 2008), and native vs. foreign accented speech (McLennan & Gonzalez 2012). The present study set out to test the time-course hypothesis using another source of indexical variability, namely the effect of ethnic dialect on speech processing, using standard vs. non-standard native varieties of English.

72 ethnically Maori New Zealanders participated in a short-term auditory lexical decision task, where prime and target pairs were made up of the two main ethnic dialects of New Zealand English: the standard variety (Pakeha English (PE)), and the non-standard variety (Maori English (ME)). This created four test conditions: two matched conditions (PE-PE and ME-ME), and two mismatched conditions (ME-PE and PE-ME). Critical trials consisted of repeated items (e.g. snow – snow), and control trials consisted of unrelated items (e.g. thing – food).

The results reveal that overall reaction times are significantly slower on ME targets. This suggests a processing benefit for the standard PE dialect, even for speakers of the non-standard ME variety. This difference in reaction times creates an ideal situation to test the time-course hypothesis proposed by Luce et al (2003). We expect more pronounced indexical specificity effects on the ME targets, where processing is slower, than on PE targets, where processing is faster. To gauge the magnitude of specificity effects, priming values were calculated as the difference in mean reaction times between related critical pairs and unrelated control pairs.

As expected, the priming results revealed no specificity effects on PE targets, showing that both ME and PE words are equally good primes in the ME-PE and PE-PE conditions. However, significant specificity

effects were obtained on ME targets, where priming was significantly attenuated in the mismatch condition. In other words, a standard PE word is not as good at priming a non-standard ME target, as a ME prime is.

The results demonstrate that indexical information, in particular ethnic dialect, is retained in memory and has consequences for subsequent processing. The results are consistent with Luce et al's (2003) time-course hypothesis, which posits that reliance on indexical details increases when responses are delayed by suboptimal processing conditions, in this case the slower processing of a non-standard ethnic dialect. Taken together, these findings suggest that socio-indexical information associated with different dialects is processed relatively late during speech perception, or at least that it plays a larger role later during processing. Future studies will investigate to what extent this effect is task-dependent by employing social tasks (e.g. ethnicity identification) as opposed to a strictly linguistic task, such as lexical decision used in the present study.

Bidirectional Language Learning in Migrant Families

Shiva Motaghi Tabari

In family studies, bidirectionality in learning processes within the family has received much attention in recent research. In a bidirectional relationship, a 'child-to-parent' direction of influence is added to the widely accepted notion of 'parent-to-child' influence (Kuczynski & Navara, 2006). This study investigates bidirectionality in second language learning in migrant families in Australia. Using a qualitative methodology, the study explores children's experiences of English language learning and use as well as their intersection with parental language learning and use. Additionally, this study explores the impacts of such interactions on familial relationships.

This paper draws on qualitative data gathered through semi-structured interviews and group discussions from newly-arrived migrant families of Persian background. In this presentation, I will discuss some of the findings, focussing on the ways in which children may affect parental English learning, their influential role in family language policy (FLP) decisions, and the impacts of children's agency on familial relationships. Most adult participants consider their children as available resources for their English improvement. Nevertheless, treating children as language learning resources is ambiguous because it is related to the disruption to familial relationships. Findings have implications for understanding the important role of children in family processes of language learning and use in migration contexts, which can be used for the development of appropriate language educational policies and services for migrant families.

Kuczynski, L., & Navara, G. S. (2006). Sources of innovation and change in socialization, internalization and acculturation. In M. Killen & J. Smetana (Eds.), *Handbook of Moral Development* (pp. 299-330). New Jersey: Lawrence Erlbaum Associates.

The past is a foreign country:
Disputed memories and telling rights in co-narrated refugee stories
Andrew Tanner and Lesley Stirling

The narration of personal experience requires accessing of encoded memories of experienced events and linguistic reconstruction of these in the form of a story which can be communicated to others. Where the events recalled are, in Ochs and Capps' terms, 'personal and collective events of consequence for groups and nations' (1997: 84), the act of remembering can take on a quality of bearing witness. This is frequently the case with the remembered personal histories of refugees. Hatoss (2012), Marlowe (2011), and Schweitzer, Greenslade and Kagee (2007) all discuss the power of narrative in the formation of self-identity in refugees in Australia. Blommaert (2009) and Shuman (2005: 54–59) draw attention to the fraught relationship between refugee narratives and the state institutions which interpret them.

Where two individuals are present who both bear entitlements to primary storyteller rights due to their shared personal experience of the events related, the possibility of both co-construction and conflict arise. Acts of telling memories are ways of seizing epistemic authority within the interaction but also make the teller vulnerable to contestation by others (Ochs & Capps 1997; Norrick 2005). Listeners with shared knowledge may monitor the current storyteller for correctness and step in if needed (Lerner 1992; Sidnell 2005). Tellers may need to establish teller rights and responsibilities and assign roles with respect to the storytelling process (e.g. Lerner 1992; Norrick 2000; Goodwin 1984, 1986).

Most work discussing contested narration between co-tellers has focused on spouses (Sacks 1995: 437–443) although some work has been done on narration by other close-knit pairs (Davis & Davis 2010). In most cases the stories discussed have been frequently co-told by the speakers over time (Sidnell 2005; Harris et al. 2011).

We report a micro-analysis of two hours of audio-recorded co-narrated stories from two brothers who fled Poland as refugees in the 1980s to take refuge in Austria, subsequently emigrating to Australia, and who prior to this occasion had never related the entire sequence of events in one sitting, and very rarely told the stories together. The time distance from the events recounted means that memory is an important determining factor in not just the content of the stories, but also the form. Our focus is an examination of how disputed memories and storytelling rights are negotiated within the sequential unfolding of the narrative.

Our analysis demonstrates that when events are described in general terms, with the minimum amount of detail, the two speakers perform in 'duet' (Falk 1980) – equally sharing the floor and the storytelling load, with fluid and regular turntaking, collaborative and co-constructive narration, and many examples of mutual reinforcement (Extract 1). However, the more fine-grained the detail offered in the story, the more the tellers expose themselves to challenges to their reliability – when discrepancies are detected by either party, the disputes follow a predictable pattern of challenge, negotiation and resolution before the narrative can continue (Extract 2). Negotiation is typically over aspects of the "Orientation" or setting of the story – chronology and location of events and identity of characters. Although these points of difference

may appear to be minor, they have a major effect on the flow of conversation, particularly turn-taking. When a discrepancy is detected, the externally directed narrative becomes an inward-focused dispute-resolution process. The teller who can offer the most detail or evidence regarding a memory can seize the telling rights.

The ability to convincingly demonstrate the reliability of one's memories is therefore a crucial determinant in who can claim the authority to tell a story. Our findings support the role of remembered detail in underpinning this authority (Potter 1996; Ochs & Capps 1997). However they contrasts with some previous work on co-narration of shared personal experience by intimate pairs, e.g. Harris et al (2011), whose co-narrating couples were *not* concerned with recall or accuracy of detail. A question which arises from our data is therefore why it appears to be of overarching interest and import to the tellers to establish the 'truth' of apparently minor details of their story.

Extract 1

5 J: (1.4) previously (.4) ah (.7) two brothers would never
6 (.6) get their passports (.) [together]
7 W: [sss-]
8 J: you know you [don't]
9 W: [at the] same time
10 J: (.) you don't hold the passport
11 and have it in your drawer ((laugh))
12 and decide to go somewhere
13 and pack up and go
14 ((sniff))
15 Er (.) you had to each time (1.2) [apply:]
16 W: [APPLY]
17 J: [and "where are you going?"]
18 W: [and they would refuse it]
19 J: and "purpose of your trip?"
20 S: mhm
21 J: you could [(.)] yeah EASily be refused

Extract 2

11 W: But he wasn't there (.) then (.)
12 W: w=
13 J: =yeah!=
14 W: =We visited him=
15 J: =Yeah yeah!=
16 W: =later-
17 was he?
18 J: (.5) Yeah yeah! That's where we stayed
19 (1.1)
20 W: No!=
21 J: =Oh no we [didn't]
22 W: [no no] no=
23 J: =no no no=
24 W: =no that was we went back there
25 to visit him when he was [()]
26 J: [thass right thass right]

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African linguistic repertoires in migration contexts: The experiences of African migrants in Australia

Vera Williams Tetteh

This paper is from a broader sociolinguistic ethnographic study with African migrants that explores the language, education and settlement trajectories of black African migrants in Australia. African migrants bring high oracy skills in their heritage languages and socially learnt lingua francas into Australia. Also, some African migrants arrive with literacy and proficiency in English and or a language other than English (LOTE) because of their countries' colonial histories, and have confidence in their ability to translate these resources into employment and economic independence in Australia; and there are some who arrive without proficiency in English or without having learnt how to read and write in any language and will be learning both oracy and literacy in English from scratch. The present paper argues that African migrants arrive from diverse sociolinguistic backgrounds but how these diversities inform their settlement trajectories in Australia are not well understood. The paper attempts to bridge the gap between African migrants' lived heterogeneity and perceived homogeneity in their settlement trajectories. The analysis draws on the notion of "linguistic repertoires" (Gumperz, 1964; Blommaert & Backus, 2012) to interpret data on the participants' pre-migration language experiences and shed light on how these play out for participants' choices and decisions about post-migration formal English language learning in their socialisation processes. The findings complicate mainstream ideologies of the second language learner. Also, implications for language-in-migration policies and migrant language training are highlighted.

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On the Morphosyntax of the New Expression *Bucuo V* in Taiwan Mandarin: A Case Study of Rule Borrowing

Jen Ting

Contact-induced structural change has long been an area of heated debate in contact linguistics. It is traditionally assumed (e.g., Lass 1980) that language change is caused by internal evolution and thus rule-governed and regular. Under this assumption, systematic changes induced by language contact are unexpected because externally-motivated changes would be unpredictable (Poplack & Levey 2010). Even if one adopts the view that contact-induced change may affect the structural (e.g., morphological and syntactic) domains, whether such change comes about as an indirect consequence of lexical borrowing (King 2000, Sankoff 2002) or results from application of morphosyntactic rules (Thomason 2006, forthcoming) or mechanisms (e.g. Harris & Campbell 1995, Campbell 2013) remains unsettled. In this talk, we use the new expression *bucuo V* ‘good to V’ in Taiwan Mandarin discussed in Tseng (2003), Kao (2008), Lien (2008), and Cheng (2014), illustrated in (1), as a case study to show that it serves as an instance of rule borrowing, thus in support of direct involvement of morphosyntactic rules in contact-induced change.

We first show that the *bucuo V* ‘good to V’ sequence is a word and does not involve an internal syntactic structure. Then we demonstrate that the morphological structure of *bucuo-V* ‘good to V’ is unique for the grammar of Taiwan Mandarin because Mandarin in general lacks adjectives with a modifier-head structure composed of a disyllabic plus a monosyllabic morpheme (cf. Pan 2010, Dong 2014). Rather, the morphological structure of *bucuo-V* ‘good to V’ patterns more with that of its equivalent(s) *bebai/bephai-V* ‘good to V’ in Taiwan Southern Min (or TSM) than with that of any other existing word in Taiwan Mandarin. Thus the emergence of this new expression is unlikely to be motivated by language-internal mechanisms but rather more likely by language contact with TSM. We then argue that a morphological rule that generates *bebai/bephai-V* ‘good to V’ in TSM is responsible for deriving *bucuo-V* ‘good to V’ in Taiwan Mandarin when the rule is borrowed or transferred from TSM to Taiwan Mandarin via language contact. The results of this study lend support to Thomason’s (2006, forthcoming) theory of rule borrowing as well as provide evidence for the view that syntactic change may result from syntactic borrowing.

- (1) a. Zhege xingren bing bucuo chi.
this.CL almond cake good eat
‘This almond cake tastes good.’ (Tseng 2003:105)
- b. Zhengbu dianying zhende shi hen bucuo kan.
whole.CL movie really SHI very good see
‘The whole movie is indeed really very good to see.’ (Tseng 2003:105)
- c. Zheben shu kanqilai bucuo du. (Kao 2008:224)
this.CL book read.QILAI good read
‘This book appears to be fun to read.’

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Linguistic intermarriage: a majority language perspective

Hanna Torsh

As a focus for understanding language practices in the context of global migration linguistic intermarriage is of great interest to researchers, parents and policy makers. However, the focus is almost always on language maintenance and therefore on language of the children rather than the adults. In addition, research into language use by migrants has often worked within fixed ethno-linguistic categories which do not account for the complex diversity of multilingual and multiethnic Australia. The interplay between English and other languages is also relevant here, as the dominance of English and its ever-increasing hegemony as a global language needs to be considered when looking at private language planning and use. Moreover, the role of gender on language practices and the ways in which language work in the family can become women's work or invisible work is an area of interest. Lastly, the perspectives of men on FLP and on language practise are rarely heard. My research seeks to fill these gaps by looking into the language learning and practises of adults in mixed (language) couples where one partner is a migrant and the other an Australian of English speaking background (ESB). I interviewed thirty participants over a period of eighteen months in Sydney, Australia, as well as designing and collecting a demographic and language questionnaire. During this time I also compiled a media corpus of articles on couples and bilingualism from Australian media sources. One of the early findings is that very few of the ESB participants had any consistent opportunities to study foreign languages (FL) in their schooling in Australia, which is typical for Anglophone countries where FL learning is weaker. Despite this, many participants attempted some language learning of their partner's language as adults, with varying degrees of seriousness and success.

Variationist typology: using the structure of variability to compare cross-language types

[Catherine Travis](#) and [Rena Torres Cacoullos](#)

Functionalist typologists and formalist syntacticians largely converge on a classification of language types according to the expression of pronominal subjects (e.g. Dryer 2011; Roberts & Holmberg 2010: 5). Here, we put forward *variationist typology* and ask how the postulated language types are distinguished according to the structure of intra-linguistic variability in actual speech. To do this, we apply the variationist comparative method (Poplack & Meechan 1998) to compare a “non-null subject language”—English—with a well-studied “null subject language”—Spanish. The database comprises first- and third-person singular verbs with specific human subject referents extracted from the Santa Barbara Corpus of Spoken American English (SBCSAE, Du Bois et al. 2000-2005, N=878) and the Corpus of Conversational Colombian Spanish (CCCS, N=2,809).

Along with patently different rates of expression (approximately 4% unexpressed in English compared with 60% in Spanish), English has a narrower envelope of variation. Prosodically-based transcription of these conversational data confirms that, in English, besides coreferential-subject verbs conjoined with a coordinating conjunction (as in (1) and (2)), unexpressed subjects are restricted to prosodic-initial position in declarative main clauses (as in (3), line i and (4) lines ii and iii) (cf. Harvie 1998: 21; Leroux & Jarmasz 2005: 4; Roberts & Holmberg 2010: 90; Weir 2012). Spanish, contrarily, has no such prosodic restriction (and in fact prosodic-initial position favors pronominal subjects), and has variability in both main and subordinate clauses.

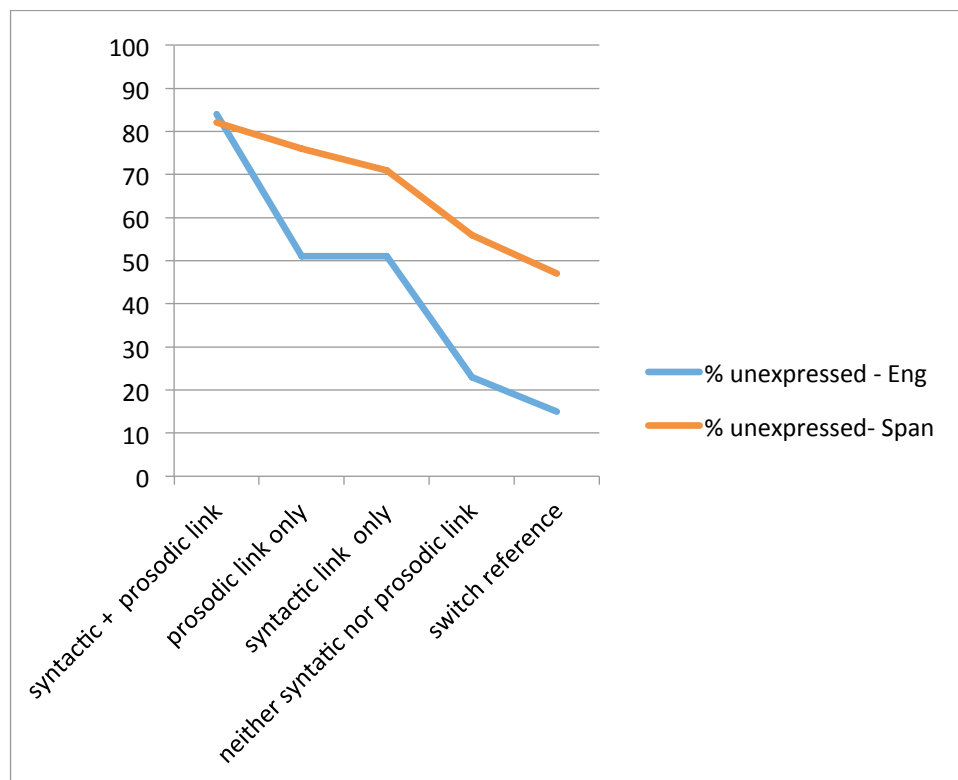
- (1) .. she laughed and **Ø** said, (SBCSAE 28:837)
- (2) (H) So this man walked up to him and **he** said, (SBCSAE 08:1224)
- (3) i. (H) I spoke perfect French,
- ii. **Ø** had beautiful clothes, (SBCSAE 55:600-601)
- (4) i. ... And yesterday was the first day she used it.
- ii. (H) **Ø** Put a bunch of stuff in it to read,
- iii. (H) **Ø** went home last night, (SBCSAE 43:34-36)

Comparison of the probabilistic constraints within each language’s variable context reveals remarkable similarities in the structure of variability, despite the overall rate difference. Unexpressed subjects in both English and Spanish are favored when linked with the preceding clause subject, where linking is both prosodic (when both verbs are on the same prosodic unit, as in (1) and (2), or separated at most by a continuing intonation contour, as in (3)), syntactic (when coordinating conjunction *and* is present, as in

(1) and (2)), and semantic (when both verbs have the same subject referent) (*Subject Linking*). Though coordination has been assumed to constitute a discrete category for English as a non-null subject language (under notions such as “VP coordination” or “conjunction reduction”), instead, we find gradience, that is, higher rates of unexpressed vs. pronominal subjects the tighter the link between the target and the subject of the preceding clause. As illustrated in Figure 1 below, this continuum is present in both Spanish and English. At the same time, the slope is steeper in English, due to a stronger disfavoured effect of the lack of linking with the preceding subject (including switch reference, and same reference with neither prosodic nor syntactic linking), as in (4) line ii. Also shared across the two languages is a favouring of unexpressed subjects in contexts where there is a temporal relationship with the previous coreferential subject (*Temporal Linking*) (as in (4) line iii) and when the preceding coreferential subject was also unexpressed (*Coreferential Subject Priming*) (as in (4) line iii).

These same factors have been found in other so-called “null-subject” languages and are therefore candidate cross-linguistic constraints (cf. Cameron 1994). We argue that the structure of variability may provide greater insights into universals than do either abstract classifications or overall usage rates.

Figure 1: Increased rate of unexpressed 1sg and 3sg (human specific) subjects in main clauses in English and Spanish conversation, according to linking with preceding clause subject, demonstrating that coordination is a semantic – syntactic – prosodic continuum.
(Note: English rates based on artificial 38% base rate, Spanish base (overall) rate of 59%).



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Non-native Japanese learners' perception of consonant length in Italian and Japanese

Kimiko Tsukada, Felicity Cox, John Hajek and Yukari Hirata

Processing Japanese length contrasts is known to be difficult for non-native learners from various language backgrounds (e.g. Han, 1992, Hirata, 2004, Sonu et al., 2013). In this paper, we report on an experiment designed to gain a better understanding of how length contrast is perceived by listeners from different linguistic backgrounds. To determine if the skill gained in second language (L2) learning might extend to perceiving length contrast in an unknown language, we used an identification task to compare the perception of short (singleton) and long (geminate) consonants in Italian and Japanese by non-native learners of Japanese (NNJ) at intermediate to (pre)advanced levels of proficiency from three different first languages (L1: Australian English (NNJ-OZ, n=12), Korean (NNJ-Korean, n=10), Taiwanese Mandarin (NNJ-Taiwan, n=8)). Both Italian and Japanese use consonant length contrastively, so incorrect use of length can impair communication (e.g. *eco* *echo* vs *ecco* *here* in Italian, *kako* *past* vs *kako* *parentheses* in Japanese). Australian English, Korean and Taiwanese Mandarin do not have contrastive consonantal length.

The same identification task was used to compare the NNJ learners' perceptual accuracy to that of three control groups of listeners: native speakers of Italian (n=16) with no knowledge of Japanese, native speakers of Japanese (n=10) with no knowledge of Italian and native speakers of Australian English (OZ) (n=8) with no knowledge of either Italian or Japanese. All listeners heard 84 Italian and 252 Japanese words and non-words in isolation and decided whether each item contained a short or long consonant word-medially.

As expected, native Italian and Japanese groups were most accurate in their L1s. Not surprisingly, the OZ listeners were least accurate in their perception of contrastive length in unknown languages, confirming the previous finding that length contrasts present processing difficulty (e.g. Han, 1992, Hirata, 2004, Sonu et al., 2013). The three NNJ groups closely resembled each other in their overall accuracy of not only Japanese but also Italian consonant length (Figure 1), suggesting a positive effect of L2 Japanese learning on processing Italian consonant length. However, while they misperceived geminates as singletons more frequently than misperceiving singletons as geminates in Italian (Figure 2), this direction of misperception was absent in Japanese (Figure 3).

These results suggest that the NNJ learners may categorize length in Italian and Japanese separately (e.g. possibly attending to acoustic-phonetic characteristics of the stimuli) rather than generalizing the concept of [±length] which they acquired in L2 Japanese learning to the processing of Italian consonant length. Finally, the results of native Italian and Japanese listeners suggest that L1 experience with consonant length may not necessarily guarantee native-like perception of consonant length in an unknown language, but it may offer an advantage over lack of exposure to consonant length.

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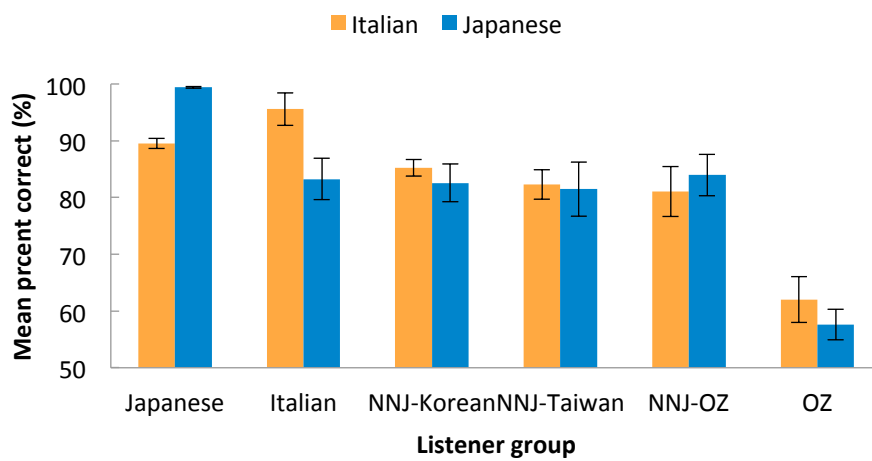


Figure 1: Mean % correct identification by six groups of listeners.

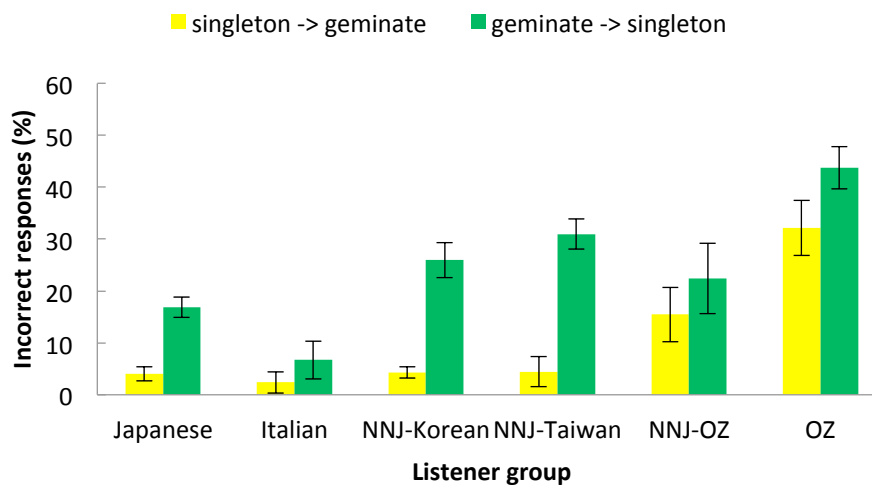


Figure 2: Mean % incorrect identification by six groups of listeners - Italian stimuli

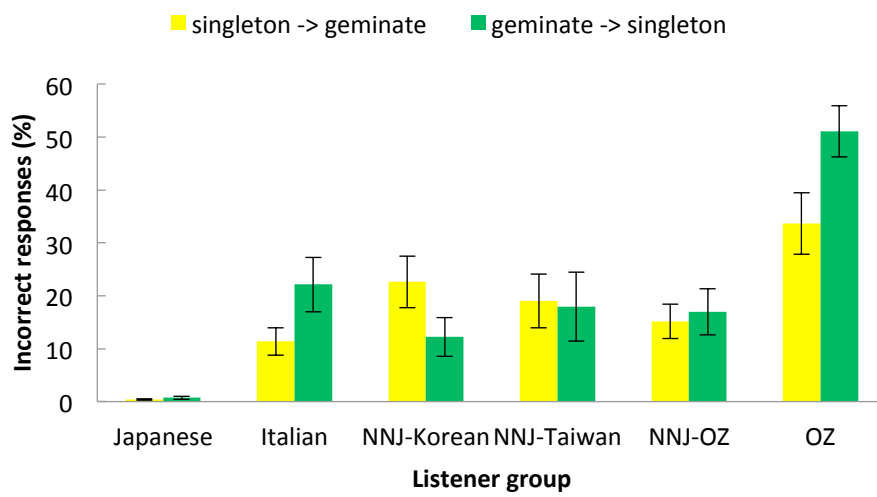


Figure 3: Mean % incorrect identification by six groups of listeners - Japanese stimuli

Authenticity in superdiversity

Sabina Vakser

In an era of increasing ‘super-diversity’ (Vertovec, 2007), in which previous patterns of migration and mobility have given way to more complex trajectories and affiliations, former models of language and society are slowly shifting to reflect new realities. Among these shifts we see ever-growing terminological and conceptual developments, with ‘repertoires’, for instance, taking precedence over abstracted ‘languages’ or ‘codes’ (Busch, 2012); ‘subjectivity’ deconstructing a more sedimented ‘identity’ (Kramsch, 2013); and ‘scales’ highlighting more nuanced ‘micro-macro’ relations (Wortham & Rhodes, 2012). Such shifts aim to reflect the situated nature of these phenomena, emphasising their capacity to change over space and time.

In a move towards processual and relational perspectives, scholars espousing a sociolinguistics of mobility, or globalisation, acknowledge heightened polycentric awareness (Blommaert, 2010) among transnational groups, and consider what this means for (socio)linguistic theory more generally.

Drawing on my doctoral research with Russian-speaking multilingual families in Melbourne, this paper will engage with one notion undergoing similar conceptual shifts – that of authenticity. How is authenticity understood in times of increasing mobility (Lacoste, et al., 2014), and how does this theme play out in everyday interaction among speakers within a single ‘minority group’? With reference to transcultural family dynamics, it is no surprise that perceptions of (in)authenticity also straddle an illusory divide. The paper will propose alternative ways of framing (in)authenticity when ‘communities’ and ‘speakers’ are not as anchored by tradition as they once may have been.

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The origins of an innovation in the Gurindji Kriol case system

Jackie van den Bos, Felicity Meakins and Cassandra Algy

Gurindji Kriol is spoken in the Victoria River District (NT) and is the product of proficient multilingualism on a community scale (McConvell and Meakins 2005). It found its origins at Kalkaringi/Daguragu in Gurindji country, but is now spoken by Ngarinyman and Bilinarra people as far north as Yarralin (Meakins 2011). It is the main language in use by the Gurindji, Ngarinyman and Bilinarra people approximately 40 years old and younger (Meakins 2011).

Previous work on Gurindji Kriol has only examined language use by Gurindji adults and children at Kalkaringi/Daguragu. The assumption has been that the structures and innovations described for Gurindji speakers of Gurindji Kriol were shared with Ngarinyman and Bilinarra speakers of the language. In this study, we examine sociolinguistic factors relating to a newly identified innovation in the case marking system found in Gurindji Kriol. Examples have been recorded of the nominative suffix *-ngku* (as described in Meakins 2015) being used to mark adnominal possession (example 2), a previously undocumented phenomenon which is confined to 10 of the 25 recorded children at Daguragu (van den Bos 2015). These tokens are found in a collection of Frog stories and Head/Tail card games used to elicit possessive constructions recorded by Meakins and Algy between 2009 and 2015.

An examination of the Gurindji sub-corpus of the Aboriginal Child Language (ACLA) project reveals that the innovative use of the nominative marker does not find its origins in the caregivers of the 10 children, who all use standard possessive marking, and is therefore a product of the new generation of Gurindji Kriol speakers.

In this paper, we claim that the innovation derives from Bilinarra children at Pigeon Hole (Nitjpurru), a small Aboriginal community of approximately 50 people located approximately 80km away. The 10 Gurindji children live in three neighbouring houses on the corner of a street in Daguragu who have close family connections with Pigeon Hole. Due to the lack of diffusion of the variant into greater Daguragu, we suggest that the variant found its genesis in Pigeon Hole and spread into Daguragu due to the high frequency with which the East Riverside children and their families visit Pigeon Hole.

- (1) *warlaku-ngku* i bin bait-im dat *marluka wartan-ta*
dog-NOM 3SG.S PST bite-TR the old.man hand-LOC

‘The dog, it bit the old man on the hand.’ (Meakins 2011)

- (2) i bin squashed langa *reindiya-ngku ngarlaka-ngka* na
3SG.S PST squashed LOC reindeer-NOM head-LOC FOC

‘He went on the reindeer’s head.’ (van den Bos 2015)

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The English spoken by Māori: changes in rhythm over time.

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One of the most salient features of Māori English (ME) is a distinctively less stress-timed rhythm (Szakay 2008) than is usual for New Zealand English. Since the rhythm of Māori is also considered to be less stress-timed (King et al. 2009; Bauer 1981), it has been assumed that this is the source of the rhythm pattern in ME (e.g. Holmes 1997: 89). However, definitive evidence for this association has not been produced. There is also a notable issue with this assumed link since speakers in the Māori and New Zealand English (MAONZE) corpus who are fluent in te reo Māori (the Māori language) are perceptibly more stress-timed in English than younger speakers who have the least native-like fluency in te reo Māori. This study investigated whether or not the less stress-timed rhythm of ME did originate in the rhythm of te reo Māori.

In order to address this question, recordings of English spoken by Māori (EM) have been taken from the MAONZE corpus with speakers selected in three broad age groups spanning approximately 100 birth years (1880s to 1980s). There were two subgroups within the middle age group: the Kaumātua (K) speakers who spent their adult lives in urban areas and an age-matched group of kaumātua (elders) who have spent most of their lives in the Tūhoe tribal area (TK) where they regularly spoke te reo Māori. Data from age- and class-matched Pākehā (Caucasian New Zealanders) English (PE) speakers were also gathered from the Origins of New Zealand English (ONZE) corpus. Normalized pairwise variability indices (nPVI: Grabe & Low 2002) were calculated for each speaker from these recordings.

The results showed three statistically significant relationships. Firstly, as shown in previous studies, both the EM and PE varieties have become less stress-timed over time. Secondly, the K speakers' English was significantly more stress-timed than that of the TK speakers. This can be attributed to the differences in socialization between the two groups of speakers. The urban-based K speakers interacted more with Pākehā English-speakers at a time when there was little prestige for Māori. The TK speakers were sheltered from this to some extent because of the prestige of Māori in their community.

Finally, a significant difference between the EM and PE nPVI scores has been consistently maintained over time, even as the rhythm of PE speakers has become less stress-timed. This suggests that rhythm, as a feature of Māori English, is an identity marker for Māori. This may be attributable to the fact that younger EM speakers have experienced increasing prestige associated with te reo Māori through the language revitalization efforts since the 1980s

This study is the first to analyse the recordings of the TK speakers and their nPVI scores have indeed provided the 'missing link' between the older and younger groups, a link which was previously assumed rather than explained. The results of this study have shown that the rhythm of EM does indeed appear to be derived from the rhythm of te reo Māori and the use of this

rhythm is related to the prestige of Māori in the speakers' socialization and the degree of Māori identity felt by the speaker.

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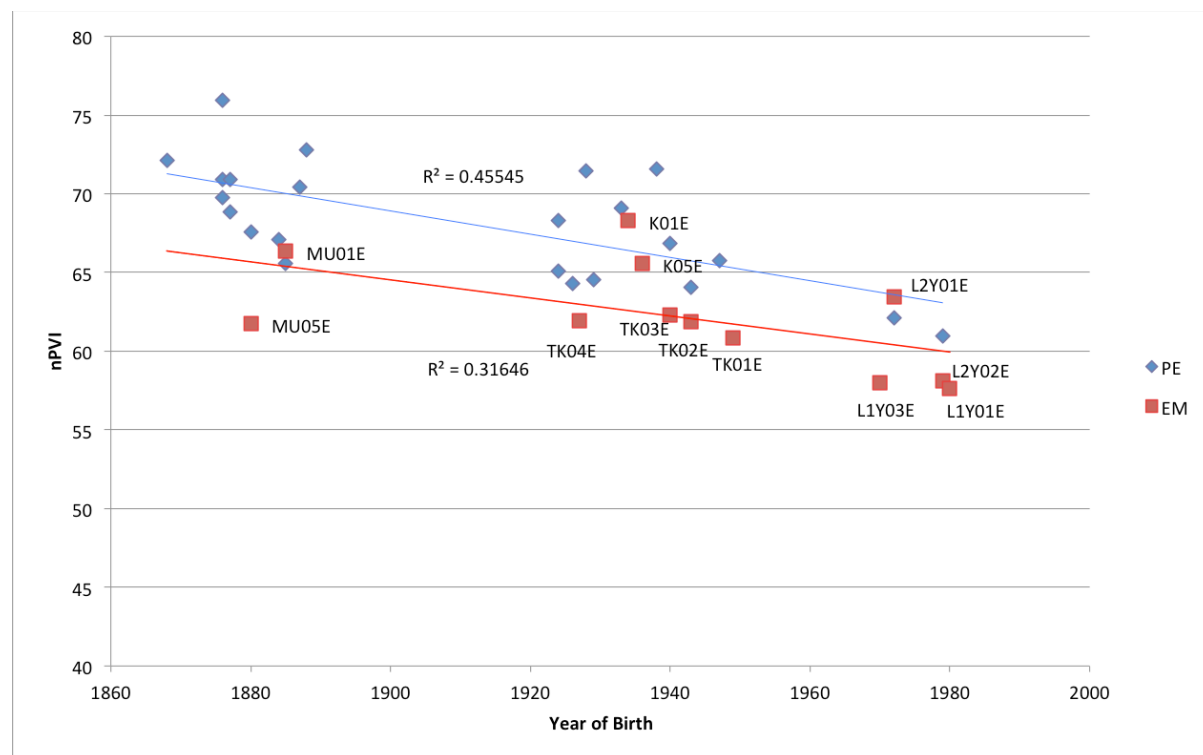
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Figures:



Scatterplot showing the mean nPVI of speakers over time with trend lines.

When migrants meet the locals: investigating the role of speakers' identities and attitudes in koineisation in Hohhot, China.

Xuen Wang

In the process of koineization, where contact-induced language change leads to the formation of a new dialect, a question that has often been discussed is whether and how the outcome of dialect mixture is influenced by social factors like speakers' identity and attitudes (e.g. Trudgill 2004, 2008, Kerswill & Williams 2000, Coupland 2008, Bauer 2008). This paper explores the degree to which people's attitudes influence their speech production by presenting the case of Hohhot, a Chinese immigrant city. Hohhot is home to a complex mixture of 'traditional', local residents, who speak Jin (晋) dialect, and migrants, who arrived in the 1950s and 1960s, encouraged by government policy. Thus, a mixed, new vernacular combining features of Jin and Mandarin was formed, known locally as "Hohhot Mandarin". Anthropological studies of Hohhot have shown that there are intense social conflicts between the local-born and migrant communities, and that the degree of integration into the community is different for different individuals (Jankowiak 1993, Borchigud 1996). Given this, I ask whether speakers vary in the degree to which they adopt Jin-features, and whether this variation is conditioned by their attitudes.

Data was collected in Autumn 2014, during the first large scale variationist investigation of Hohhot. 67 speakers from three generations were interviewed – 35 from the migrant community and 32 who are locally born. Attitude and identity information was collected from questionnaires, using magnitude estimation (Redinger 2010), which elicited data about speaker's attitudes towards local communities and their emphasis on the migrant identity. Principal Component Analysis revealed 4 different attitudinal categories: attitudes towards Jin dialect, attitudes towards Jin speakers, emphasis of migrant identity, and emotional attachment to Hohhot.

Language production data were collected from interviews and an elicitation task designed to explore variation in a set of words known as "l-words" (Hou 1999), which display variation in stress: a weak-strong stress pattern is more commonly associated with Jin dialect and a strong-weak pattern is typical of Mandarin (e.g. [xuə²⁴³la⁵¹] vs. [xua³⁵la], *scribble*). More than 4000 l-word tokens were analysed using binomial mixed effects models, which were hand fit with the lme4 library in R (Bates, Maechler & Bolker, 2011; R Core Team, 2013). The independent variables included were age group, sex, town, education, social networks, attitudes and identity scores. Word and speaker were treated as random intercepts.

The results suggest that the stress pattern of l-words in Hohhot is predicted by town, age group, sex, social networks and education, and, in a sub-section of the population, also with scores on the attitude questionnaires: speakers from the migrant community are more likely to use the Jin stress pattern if they demonstrate positive attitudes towards the local community. The results are discussed in terms of the interplay between patterns of contact and speakers psycho-social orientation in models of new dialect formation. The paper thus expands our understanding of the role of speakers' attitudes in koineization, and also shows the value of viewing long standing issues in variationist sociolinguistics through the lens of non-western localities (cf Labov, 2015).

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Production of English Coda Clusters in Plural and Singular Words by 3-year-old Monolingual and Mandarin L2-Learners of English

Nan Xu and Katherine Demuth.

Compared to English, Mandarin has a much more limited segmental inventory and syllable structure, with no consonant clusters, and few word final coda consonants – only nasals are allowed. Mandarin also lacks inflectional morphology. In contrast, English has a range of word-final inflectional morphemes, often appearing as part of a cluster, e.g., *rocks* [ɹɒks]. Mandarin-speaking adult L2-learners of English often exhibit persistent difficulties in producing English codas, especially for clusters and codas carrying inflectional morphemes (e.g., *cats*) (Broselow & Zheng, 2004; Hansen, 2001; Xu & Demuth, 2012). However it is unclear whether Mandarin-speaking preschool aged children learning English have similar challenges, as there are few studies of early L2 English learners.

A recent study using both acoustic analysis and ultrasound imaging found 2-year-old English-speaking children and adults produced monomorphemic (*box* [bɒks]) and bimorphemic (*rocks* [ɹɒks]) clusters differently, suggesting a possible morphological effect (Song, Demuth, Shattuck-Hufnagel & Ménard, 2013). A study of Mandarin-speaking 3-year-olds using elicited imitation found that coda clusters (e.g., in *cats*) were still more challenging to produce than singleton codas after 12 months of English exposure (Xu Rattanasone & Demuth, 2014). However, it is not clear whether this challenge results from learning a new *phonology* or a new *morphology*.

To tease apart the effects of phonology and morphology on early L2 acquisition of English final consonant clusters, we collected elicited imitations of singular and plural words ending in monomorphemic and bimorphemic /ks/ codas, and then measured relative vowel duration, closure and frication duration. Seventeen monolingual English-speaking and 16 Mandarin-speaking 3-year-olds learning English were recorded producing 10 simple 3-word, 3-syllable sentences in sentence medial and final positions, e.g., ‘*Their ducks bite*’ and ‘*There’re her ducks*’. If learning new phonotactic constraints in both monomorphemic and bimorphemic contexts are equally challenging, then Mandarin-speaking 3-year-olds should produce the same number of codas of both types. However, if learning inflectional morphology is more challenging, monomorphemic coda clusters should be produced more accurately than bimorphemic codas. Given previous research showing lower use of grammatical morphemes utterance medially (e.g. Song, Sundara & Demuth, 2009), we also predicted lower performance in that context.

As expected the English-speaking 3-year-olds were at ceiling on accuracy. However, compared to English-speaking children the Mandarin-speaking children produced fewer coda clusters ($f(1, 26) = 15.828, p < 0.001, \eta_p^2 = 0.378$), especially in sentence medial positions ($f(1, 26) = 4.164, p = 0.052, \eta_p^2 = 0.138$; see Figure 1). Acoustic analysis revealed that both groups of children produced vowels with longer duration in bimorphemic than monomorphemic words ($f(1, 31) = 36.711, p < 0.001, \eta_p^2 = 0.542$), and this effect is larger in English- than Mandarin-speaking children ($f(1, 31) = 4.091, p = 0.052, \eta_p^2 = 0.117$; see Figure 2). Although we did not find any differences in the duration of the coda cluster (closure and

frication), the longer vowel duration in bimorphemic words may indicate that English-speaking 3-year-olds show a morphological effect, whereas the Mandarin L2 learners of English do not. Taken together, these results show that the acquisition of phonologically complex cluster codas, especially in sentence medial position, is more challenging for Mandarin-speaking early L2 learners, regardless of morphological complexity. The implications for the development of early L2 lexical representations will be discussed.

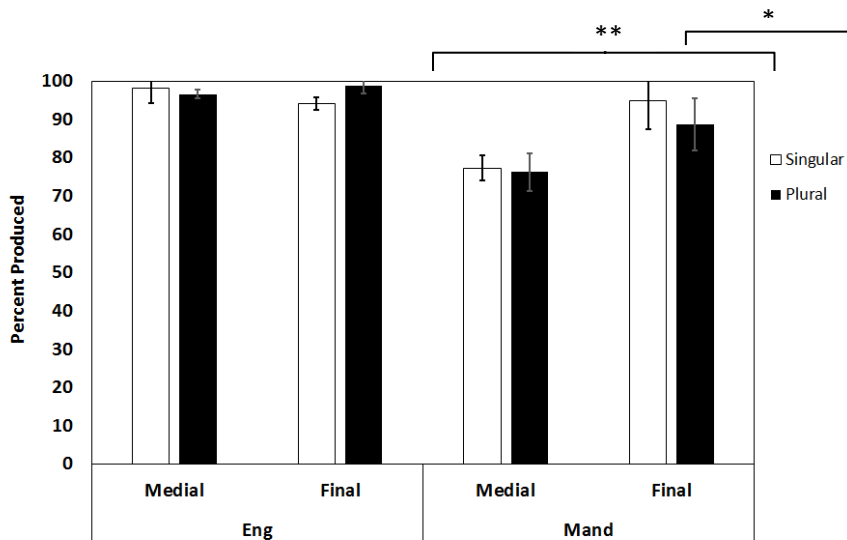


Figure 3. Percent of monomorphemic and bimorphemic coda clusters produced in sentence medial and final positions by English- and Mandarin L2 English-learning children. Error bars indicate standard errors of the mean (* $p < 0.05$; ** $p < 0.001$).

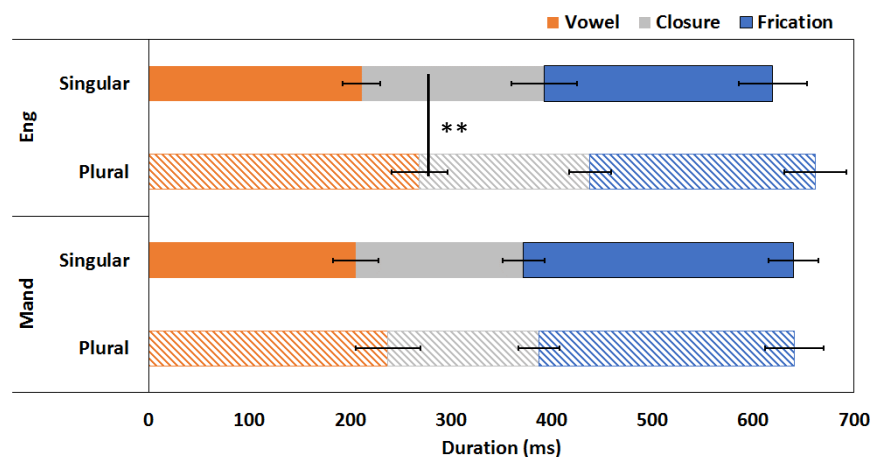


Figure 4. Vowel, Closure and Frication durations of English /ks/ codas in monomorphemic and bimorphemic contexts by English- and Mandarin-speaking children. Error bars indicate standard errors of the mean (** $p < 0.001$).

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Schwa and stress in Paiwan

Shih-Chi Yeh

That vowel sonority/quality affects the location of stress within the metrical domain is usually known as sonority-driven stress (de Lacy 2004) or quality-sensitive stress (Kenstowicz 1997), which can be observed in languages such as Kobon (Davies 1981), Takia (Ross 2002) and many others. In two village dialects of Paiwan, an Austronesian language spoken in the southern mountainous area of Taiwan, the assignment of stress is considered quality-sensitive (Chen 2006) or sonority-driven (Yeh 2011). This study shows that the seemingly quality-sensitive or sonority-driven stress in Paiwan can be attributed to the special phonological property of schwa—avoiding stress and phonotactically restricted. Also, an Optimality-Theoretic analysis is provided, employing a metrical constraint banning schwa in feet. A preliminary phonetic measurement is conducted to show that vowel duration of schwa is significantly shorter than other peripheral vowels in Paiwan.

The data in this study are collected from two village dialects of Paiwan, Piuma and Kazangiljan, in which stress differs from most Paiwan dialects in its sensitivity to vowel sonority. Stress in Piuma (Chen 2006) and Kazangiljan Paiwan favors peripheral vowels /i/, /u/ and /a/ over central schwa /ə/ within the two syllables at the right edge, while stress in most Paiwan dialects is regularly penultimate (Ho 1977, Ferrell 1982). In Piuma and Kazangiljan Paiwan, stress usually falls on the penultimate syllable if it contains a peripheral vowel, as shown in (1). However, if the penultimate vowel is a schwa and the final vowel a peripheral one, stress shifts to the ultima, as shown in (2). In the rightmost two-syllable-window, words with identical peripheral vowels obtain the unmarked penultimate stress, as shown in (3a-c). Interestingly, words with both schwas carry final stress in (3d-f), unlike the case observed in other languages with sonority-driven stress.

In an Optimality-Theoretic account (McCarthy and Prince 1986/1993, Prince and Smolensky 1993/2004), the constraint *FT/ə is employed to ban schwa(s) in feet. This set of ranking ALL-FT-R, TROCHEE >> *FT/ə >> FT-BIN captures the stress in Paiwan: when no schwa is involved, parsing one trochaic foot at the right edge is the most unmarked pattern. Nevertheless, when penultimate position is occupied by a schwa, the foot shrinks to avoid schwa, forming a monosyllabic foot at the right edge. The weak property of schwa, specifically referred by the crucial constraint *FT/ə, is not only found in stress, but also observed in segmental distribution: i) schwa never occurs in word-final open syllable, and ii) monosyllabic words do not contain schwa, as in (4). The phenomena suggest that schwa is a phonological weak element at both segmental and metrical levels.

Considering Hargus' (2001) suggestion that sonority-driven stress is conditioned by phonetic factors, mainly vowel duration, this study also measures duration regarding i) how schwa /ə/ differs from /i u a/ in Paiwan, and ii) why stress falls on the ultima in *CəCəC* words, rather than the penultimate syllable. The results show that the duration of /ə/ is significantly shorter than /i u a/. In *CəCəC* words, final stress likely appears because of the longer duration of final /ə/ than penultimate /ə/. Gordon et al (2012) mentions that schwa is phonetically differentiated from most vowels, but the phonological pattern of schwa may not necessarily differ. In the case of Paiwan, phonological and phonetic properties of schwa seem to run parallel in the stress assignment and phonotactics.

(1)	a.	[l̥a.vu]	‘ash’	d.	[tsa.l̥i.Na]	‘ear’
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	b.	[qí.las]	‘moon’	e.	[sa.ví.ki]	‘betel nut’
	c.	[vá.i]	‘wind’	f.	[ku.ǎ.vaw]	‘rat’

(2)	a.	[va.kə.ǎ]	‘arrow’	c.	[cə.vús]	‘sugarcane’	e.	[qa.pə.dú]	‘gall’
	b.	[kə.rí]	‘small’	d.	[tsu.qə. ǎǎ]	‘bone’	f.	[kə.ríǎ]	‘sparrow’

(3)	a.	[ka.má.ja]	‘mango’	d.	[ǎ.ǎǎt]	‘lip’
	b.	[sa.ǎ.im]	‘midnight’	e.	[və.tsə.qǎ]	‘short necklace’
	c.	[ǎ.kuts]	‘bird’s nest fern’	f.	[tsə.kǎǎ]	‘spouse’

(4)	a.	[va≡]	‘liver’	e.	[su≡t s]	‘purse with girdle’	i.	[di ×]	‘buttock’
	b.	[tu≡]	‘burning charcoal’	f.	[qa≡ m]	‘pangolin’	j.	[vu≡ c]	‘squirrel’

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Articulatory variation in /l/ transitions within and across syllable boundaries

Jia Ying, Jason Shaw, Donald Derrick, Catherine Best and Michael Proctor

Lateral consonants are produced with airflow along one or both sides of the tongue. Creating this side-branch for lateral airflow requires coordination of several parts of the tongue. The basic claim in past work is that laterals require the tongue tip to rise, the tongue middle to lower and the tongue back to retract relative to the position of the tongue for adjacent vowels. In many varieties of English, the timing and magnitude of these mid-sagittal movements has been shown to vary across phonetic environments, including as a function of syllable position (Giles & Moll, 1975; Sproat & Fujimura, 1993; Wrench & Scobbie, 2003) and preceding vowel (Espy-Wilson, 1992; Huffman, 1997; West, 1999). The articulatory studies mentioned above only recorded mid-sagittal movement. In this study, we examined how these articulatory variations in the mid-sagittal plane influence the sides of the tongue, expanding our understanding of /l/ production to lateral (i.e., para-sagittal) tongue dynamics.

To investigate the dynamics of lateralization during the production of /l/, we conducted a 3D electromagnetic articulography (EMA) study collecting both mid-sagittal and para-sagittal articulographic data. Three mono-lingual Australian English speakers (one male) were recorded. The numbers of valid tokens varied across speakers from 40-60 depending on how long the sensors remained attached. Three sensors were affixed mid-sagittally to the tongue tip, tongue middle and tongue back; two additional sensors were affixed para-sagittally to the sides of the tongue blade (Figure 1). Our materials varied the vowel preceding /l/, either /æ/ or /ɪ/, and the syllabic position of /l/, either as a syllable onset, as in the CVC.IVC frame, or as a syllable coda, as in the CVl.CVC frame. The vowels, /æ/ and /ɪ/, were chosen because of the different constraints that they place on the shape of the tongue preceding /l/ (Stone & Lundberg, 1996). The vowel /æ/ requires the opposite para-sagittal configuration as /l/. It usually has a complete groove tongue shape such that the sides of the tongue are curved up (instead of curved down in laterals). A vowel like /ɪ/, in contrast, does not conflict with the tongue shape required for /l/ to the same degree. Therefore, lateralization might have to start earlier in /æ/ than in /ɪ/ to achieve the /l/ target at the same time. By comparing /l/ in the context of these two vowels, we investigate how local variation in tongue shape impacts the time course of lateralization. By comparing /l/ across syllable positions, CVC.IVC vs. CVl.CVC frames, we investigate how known variation in the timing and magnitude of mid-sagittal movements (across syllable positions) are related to para-sagittal dynamics. Accordingly, we conducted two analyses of the data, a mid-sagittal analysis designed replicate past work and a para-sagittal articulatory analysis designed to explore the consequences of this variation for lateral side-branch formation.

For the mid-sagittal analysis, we measured the timing lag between the tongue tip and tongue back (timing lag = tongue tip extremum – tongue back extremum) to replicate Sproat & Fujimura's (1993) study. A negative value indicates that the tongue tip movement starts earlier than the tongue back; a positive value indicates that the tongue back movement starts first. For the para-sagittal analysis, we computed an index of lateralization that captures the degree to which the side of the tongue is higher or lower than the mid-sagittal plane and investigated the change of this index over time. The duration of the lateralization interval, reported below, indicates the time from the onset of lateralization to the point of most extreme lateralization as determined by the relative height of para-sagittal and mid-sagittal sensors.

Results for the mid-sagittal analysis (Figure 2) replicated past results. Timing lags in syllable onset position were either near zero or negative, indicating that the tongue tip moves with or before the tongue back. In coda position, in contrast, lags tended to be positive. Missing data are due to some subjects not producing /l/ with a tongue tip gesture in some environments, particularly before /ɪ/ (making it impossible to calculate the lag measure). There were no effects of preceding vowel on the timing lag (where we could measure them). Results for the second analysis indicated that the lateralization interval remained stable across syllable positions, even as timing lag varied. There was, however, an effect of vowel on the lateralization index, particularly for subject M04. As predicted, lateralization intervals were longer when /l/ was preceded by /æ/, although this is only true of coda /l/. Overall, adding results from sides of the tongue offers a richer view of articulatory dynamics, especially for laterals.

Figure 1. Schematic placement of tongue sensors.

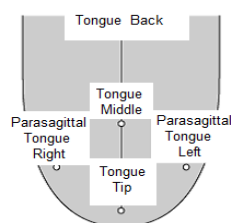


Figure 2. TT-to-TB lag for /l/ words in onset and coda position in /æ/ and /ɪ/ contexts by speaker

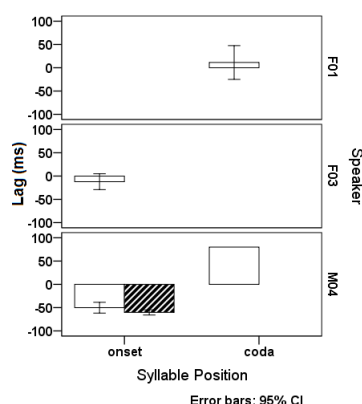
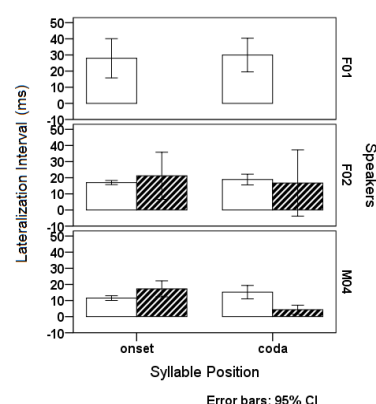


Figure 3. The mean lateralization interval for words preceded by /ɪ/ and /æ/ across syllable position by speaker.



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A study of the second person pronoun *anata* in Japanese: Absolute specification of second person

Yoko Yonezawa

This study explores the unique properties of the second person pronoun *anata* ‘you’ in Modern Japanese, and thereby sheds light on some aspects of the interface between language and sociocultural features.

It is widely known that personal pronouns as well as numerous other personal reference terms express not only referential functions but also fulfil a variety of non-referential or social functions. Japanese is rich in personal reference terms including pronouns and kinship terms and the use of these terms is closely related to biographical factors such as social status, age and gender of the interlocutors as well as the level of formality in the conversational setting (Suzuki, 1973; Shibatani, 1990; Miwa, 2005; Ide, 2006). This personal reference system is one of the linguistic resources used in Japanese to comply with the social norm that constantly requires the acknowledgement of relative social status between interlocutors (Ide, 2006).

Among the various personal reference terms, this study focuses on a particular second person pronoun *anata* ‘you’. *Anata* is originally a demonstrative directional reference ‘that way’ and came to be used euphemistically to refer to an addressee as a politeness strategy. It was later semantised as a formal/polite second person pronoun (Ishiyama, 2008). The politeness value of *anata* has declined over time and in Modern Japanese its properties have been unclear. This is reflected in the ways described below.

First, dictionaries of Modern Japanese define *anata* in several distinct ways. That is to say, some define the word as a formal second person pronoun, while others clarify it as an informal pronoun which can only be used towards an equal and an inferior addressee in terms of their social status. There are also some dictionaries which describe the historical transformation of the word and hesitate to provide a clear definition. This causes confusion if one consults a number of these dictionaries.

Second, despite the above situation, not many studies in the area of Japanese linguistics have attempted to resolve the uncertainty about this term. The previous literature also shows disparate views towards *anata* in the same way dictionary definitions do, that is, there are both polite views (Shibatani, 1990; Kanamaru, 1997) and impolite views (Suzuki, 1973; Miwa, 2005) towards the term. It also depicts *anata* as having certain function to control interlocutors’ distance (Takahara, 1992).

Third, reflecting the existing different perspectives, native speakers express a great deal of difficulty in using *anata* and tend to avoid it. The avoidance of *anata* is evidenced both in the naturally occurring conversational corpus and native speakers’ perceptual data. In the conversational corpus in this study, which includes a variety of face-to-face conversations between different interlocutors, the use of *anata* is overwhelmingly infrequent. Also, results of a native speakers’ self-reported survey reveal that the respondents scarcely reported the use of *anata* as a regular address term in any of these cases; when referring to a superior addressee, an inferior addressee and an equal addressee.

Given the above facts, this study has further analysed discourses in different genres and contexts, such as parliamentary debates and TV dramas, to examine various contexts where

anata occurs that are difficult to capture in naturally occurring conversations.

The analysis so far has revealed that an indication of the degree of politeness and a speaker's biographical characteristics are not genuine properties of *anata*. In fact, the use of *anata* specifies second person without indexing any social elements of the interlocutors. I adopt the notion of 'absolute specification' of the second person to provide the framework for my analysis. The study then attempts to systematically explain the mechanisms that lead to *anata* having such a socially inert role, which in turn allows its use to occur in particular genres and limited contexts as well as to create disparate perceptions among native speakers. This ultimately reveals aspects of how a particular word interacts with culturally specific contexts and norms in a particular language.

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Planning of inserted 'r' in the speech of Australian English-speaking children

Ivan Yuen, Felicity Cox and Katherine Demuth.

To become fluent speakers, children need to learn various connected speech processes when they combine words to form utterances. An important connected speech process in non-rhotic Australian English (AusE) is r-insertion (Cox, Palethorpe, Buckley & Bentink, 2014). Word pairs like 'sore/saw' are CV homophones in citation form, but in connected speech they may vary when followed by a word beginning with a vowel. For example, in phrases like 'sore arm' / 'saw arm', 'r' may be inserted after the first vowel (e.g. /so:ɹæ.m/) to break up the V₁V₂ sequence. The 'r' inserted after 'sore' is referred to as the *linking* 'r' (i.e., present in the orthography), and the other as the *intrusive* 'r'. While both have been observed in adult speech (Momean and an-Guillamon, 2009; Hay and Maclagan, 2012; Cox, et al, 2014), reports of r-insertion for children are inconsistent (Newton and Wells, 1999, 2002; Thompson and Howard, 2007) and there have been no studies of 'r' insertion for AusE speaking children. This raises the question of when AusE-speaking children become sensitive to r-insertion as a connected speech process. The goal of this study was therefore to 1) determine what proportion of AusE-speaking 6-year-olds use r-insertion, 2) whether the type of insertion context matters and 3) if, when used, 'r' is phonologically encoded together with V₁ during speech planning, or not?

Whalen (1990) suggests that planning of articulatory gestures occurs when speakers are aware of upcoming segments. He found that anticipatory co-articulation between vowels emerged in nonsense V₁CV₂ strings when V₂ was known in advance, but disappeared when V₂ was concealed. This indicates that speech planning can only lead to anticipatory co-articulation when the segmental composition of the larger word/phrase is known. If 'r' is planned ahead, we should expect this to be evidenced in the form of anticipatory co-articulation from the beginning of V₁, showing up as lowered F3 (Espy-Wilson et al., 2000).

Participants were 13 monolingual AusE-speaking children 6-year-olds (7F, 6M, mean age = 6;1 years). An additional 19 children were excluded due to exposure to other rhotic languages/dialects (n=13), incorrect use of prosody (n=4), dysfluency (n=1) or use of labio-dental approximant instead of 'r' (n=1). All were invited to participate in an elicited production experiment, producing sentences via a picture-naming task presented through a series of three-slide sequences. Four key test words were used: 'door/floor' (linking) and 'paw/claw' (intrusive). These key words were combined with 'of' and a set of 3 associated nouns (e.g. car, barn, cat, crab) to generate 6 key test sentences in two experimental blocks (intrusive and linking): e.g. 'This is the **paw of** the cat'. Three practice items were used for familiarisation. All responses were audio-recorded. An AusE-speaking phonetician perceptually coded the data for presence vs. absence of inserted /ɹ/. F3 values were then extracted from the V₁rV₂ sequence.

Perceptual analysis revealed that 55% of items contained inserted 'r' but there was no significant difference in the incidence of r-insertion between the linking and intrusive contexts suggesting that the status of inserted 'r' for these preliterate children is the same across all items. Of the 13 participants five produced no inserted 'r' but the remaining eight children produced at least 8/12 inserted 'r' (Figure 1.). This result suggests that some children use inserted 'r' but others do not,

raising questions about whether this is a sociophonetic or developmental effect. It would also be interesting to investigate how and when this process begins to be acquired.

The acoustic analysis then focused on the subset of 8 children who produced ‘r’ in at least 8/12 cases. This revealed a significant effect of anticipatory co-articulation. F3 at the onset of V₁ was lower when ‘r’ was inserted than when it was not, for both linking and intrusive contexts (linking: $t(7) = -5.301, p = .001$; intrusive: $t(7) = -4.101, p = .005$). Together these findings show that some 6-year-old AusE-speaking children use r-insertion as a connected speech process and that they phonologically encode ‘r’ together with V₁ during speech planning.

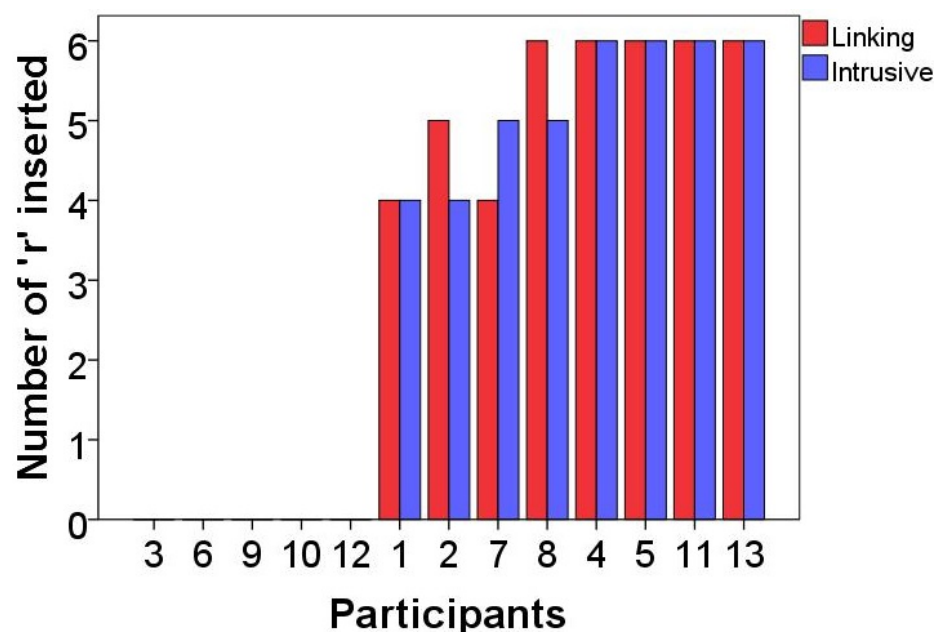


FIGURE 1: Number of ‘r’ insertions per child in linking and intrusive contexts.

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Multiple Voices under One Name: Ethnic Orientation and Heritage Language in Second-Generation Chinese Australians Shuyu Zhang

Australia as a multicultural country is a cornucopia of community languages (Clyne, 1991, Clyne, 2003), among which Chinese has a strong, and growing, presence, with Mandarin and Cantonese ranking 1st and 4th respectively (Australian Bureau of Statistics, 2011). With these (and other languages) captured under the name “Chinese”, it is understandable that the Chinese-speaking community is often assumed to be monolithic. Consequently, the dynamics of different groups within this community have not been widely studied. This research questions the notion of the Chinese community as a monolith and sheds light on the heterogeneity of the Chinese community in the Australian context.

The data for the study comes from sociolinguistic interviews conducted in 2015, with 30 second-generation Chinese-Australians, 15 of Mandarin-speaking heritage and 15 of Cantonese-speaking heritage. An Ethnic Orientation questionnaire, adapted from Hoffman and Walker (2010), was administered as part of the interview, in an effort to establish a measure of the participants’ orientation towards their heritage group. An Ethnic Orientation index has been included as a predictor of linguistic variation in Toronto, Canada (Hoffman and Walker, 2010, Nagy et al., 2014), as well as of reported use of *mate* in Australian English (Alimoradian, 2014). The Ethnic Orientation Index established as part of the current research allows for comparisons of the groups of Mandarin- and Cantonese-speaking origin in terms of their attitude to both their Chinese ethnicity and their language use. It is hypothesized that participants of Cantonese-speaking heritage would have a lower Ethnic Orientation towards their Chinese origin and a stronger affinity with Cantonese, while those of Mandarin-speaking origin would perceive Mandarin as a symbol of Chinese identity.

Responses that emerged in the interview relating to topics associated with ethnic identity were scored on a scale from 1 to 5, to establish an Ethnic Orientation index, according to which the higher score, the greater the orientation towards the relevant ethnic group. Thus, for example, a comment such as “I would just say I’m Chinese” would be scored a 5, whereas “the term Australian-Born-Chinese really resonates with me” a 3. Quantitative analyses of compiled scores, coupled with qualitative exploration of the responses, allow for a nuanced understanding of participants’ ethnic identification and reported language use.

Results indicate a complex situation that does not fully support the hypotheses: participants from a Cantonese-speaking background recognise more strongly their regional Hong Kong identity rather than a national Chinese identity, making a clear distinction between “Hong Kongese-Chinese” and “Chinese-Chinese”. This corresponds to their use of the regional dialect, Cantonese, with reported higher frequency and proficiency than the participants of Mandarin-speaking origin report using their heritage variety of Mandarin. An effect is also observed for socio-economic status. Proportionally more of the Cantonese-heritage participants have parents working in management and professional positions (that

is, ranked highly on the Australian Standard Classification of Occupations, Australian Bureau of Statistics, 1997) (13/15 for Cantonese-heritage vs. 9/15 for Mandarin-heritage participants), perhaps evidence of the more established and integrated position of the Cantonese community in Australia. Nevertheless, participants with parents of higher socio-economic status professions demonstrate a tendency to rate their heritage language skills higher and to report a more community-language-based home environment than those with parents of lower socio-economic status professions, regardless of their heritage.

The results presented here indicate that the “Chinese community” is not coherent in its ethnic orientation nor in its (reported) language use, providing an important foundation for future studies of Australian community languages and their speakers.

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