

Keynote Abstracts

Referential functions and the construction of prominence profiles

Professor Petra Schumacher, University of Cologne (Monday, Dec 10th, 2 pm, H2-16)

Referential expressions are essential ingredients for information processing. Speakers use particular referential forms to convey different discourse functions and thus shape the 'prominence profile' that organizes referents in discourse representation. The prominence profile, i.e. the ranking of the referential candidates, feeds into expectations for upcoming discourse referents and interacts with the choice of referential forms (e.g., less informative referential forms are more likely to refer to more prominent referents). The prominence profile can further be changed as discourse unfolds, i.e. certain referential expressions such as demonstratives can raise the prominence status of their referents. The talk discusses various cues that contribute to the dynamic construction of prominence profiles and presents evidence for the different referential functions from behavioral and event-related potential studies.

Manifestations of complexity in grammar and discourse

Professor Walter Bisang, University of Mainz (Wednesday, Dec 12th, 9 am, H2-16)

Linguistic discussions on complexity come in various shades. Some models are based on cognitive costs and difficulty of acquisition, others look at the properties of the form by which grammatical distinctions are expressed and connected, yet another group of linguists focus on recursion and merge and, finally, complexity can be measured in terms of algorithmic information theory. What is common to the above approaches is their concentration on linguistic form. In my presentation, I argue that form is only one side of complexity. If one looks at complexity from the perspective of the two competing motivations of explicitness vs. economy the form side can be seen as the result of explicitness, while there is a second side which is based on economy and the pragmatic inference of grammatical information which is available in the grammar of individual languages. The former type of complexity will be called overt complexity, the latter economy-based type will be called hidden complexity (Bisang 2009, 2014, 2015). Hidden complexity manifests itself in the omission of contextually inferable grammatical marking and the multifunctionality of individual grammatical markers. More concretely, I show the functioning of hidden complexity and the relevance of discourse with examples from East and mainland Southeast Asian languages (EMSEA). Since there is a large number of examples, I limit myself to phenomena like (i) radical pro-drop, (ii) the tense-aspect marker *-le* in Chinese, (iii) numeral classifiers as markers of definiteness and indefiniteness and (iv) the specifics of grammaticalization and multifunctionality. As a result, it will turn out that hidden complexity often comes with (i) a different division of labour between grammar and the lexicon (also cf. Xing 2015) and (ii) that even highly grammaticalized markers still express important discourse functions. If hidden complexity is dominant in a large number of grammatical domains this also affects some basic properties of grammaticalization and the results it can produce. If the ability of perspective taking and the formation of a Theory of Mind are seen as crucial for the evolution of language, pragmatic inference is a very important factor which

should also have its effects on how grammar works. In such a view, its properties must be seen as a combination of pragmatic inference (economy) and form (explicitness). As a consequence, it is to be expected that the encoding of information in terms of omission and multifunctionality is subject to cross-linguistic variation in individual domains of the grammar of individual languages. In extreme cases with many such instances, this may induce simple-looking surface structures which can only be adequately understood from the background of hidden complexity.

Open Talks Abstracts

Evaluating representations of culture in English Language textbooks in Saudi Arabia

Awatif Alshammri (Macquarie University)

In recent years, the Saudi Ministry of Education has enacted several educational reforms, including the introduction of English in the fourth year of the primary stage and an increase in the number of English as a Foreign Language (EFL) classes in both the secondary and intermediate stages, with the objective of increasing knowledge of English and foreign cultures. New English textbooks that were approved and published by a government publishing house were also introduced for these educational stages. The author studied how culture is taught along with English in these EFL textbooks and the language ideologies that are reproduced in these textbooks. The study was conducted for a Master by Research in 2017 and used Fairclough's (1995) Critical Discourse Analysis framework. This paper explains the findings of the study in regard to the representations of cultural identities and cultural elements in written, spoken and visual texts in the EFL textbooks used for teaching students in the intermediate stage (Grades 7-9).

First, the paper discusses how two imagined communities offered in the textbooks provide representations of a set of identity options including genders, occupational identities, ethnicities, nationalities and religious affiliations. These two communities comprise characters from the source culture (Saudi culture) and characters from the target cultures (Western cultures). The study found that the imagined community of Saudi characters was created through accurate representations of Saudi cultural identities whereas oversimplification, gender bias and misrepresentations were common in representations of foreign cultural identities. Next, the paper presents the analysis of the representations of elements of source and target cultures in the textbooks. It explains the study's finding that there is a focus on representations of Saudi and Islamic cultures, i.e. the source culture and religion of Saudi learners, whereas there are simplistic and non-religious representations of Western culture(s). This parallels the finding, above, regarding representations of people. In both cases, the representations reveal a "Saudi-centric" language ideology, with English-speaking people's identities and cultural practices modified to align with rather than to disrupt Saudi norms.

Finally, the paper discusses the impact of this "Saudi-centrism" of the representations of cultural content in the examined textbooks, arguing that these oversimplifications and misrepresentations of target cultures may have a negative impact on English learners' motivation and may also lead to weak English competence. This is significant, given the literature has established the importance of teaching culture along with language to enhance cultural awareness and communicative competence. The paper therefore concludes by calling for re-designed English language teaching materials that include a broader range of identity options for foreign characters as well as a broader range of cultural elements of foreign cultures.

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Temporal reference, categorisation and deixis in Anindilyakwa (Gunwinyguan, Australia)

James Bednall (*Australian National University/ Université Paris 7*)

This paper contributes to a more comprehensive understanding of the cross-linguistic semantic diversity of temporal adverbials, by examining this topic from the perspective of the Australian language Anindilyakwa (Gunwinyguan, Eastern Arnhem Land NT).

It has been remarked upon that lexical items expressing temporal distinctions tend to be less precise in many Australian languages in comparison to, for example, many Indo-European languages, and that in particular the temporal deictic centre in many Australian languages often involves less precision and greater polysemy in its expression, depending on the context (e.g. a term may cover notions covering ‘now’, ‘today’, ‘nowadays’, etc., in contrast to, e.g., a past temporal reference point) (Austin 1998, pp. 147-8).

I examine this notion in detail in Anindilyakwa, by focussing in particular on the adverbials *adhuwaya* ‘short time’, *arngkədharrba* ‘short time’, *adhənəba* ‘soon’, *adhənəkba* ‘already’; adverbials involved in conveying the notion of a short duration of time.

While these four adverbials all share this short duration of time property, they differ with respect to their capacity to express relational (temporally deictic) properties. While the adverbial *adhuwaya* ‘short time’ is a more straightforward measure adverbial, indicating the duration of time of the situation (as shown in example 1), the other three adverbials (*arngkədharrba*, *adhənəba*, *adhənəkba*) can additionally express deictic temporal relations, expressing the relation between the utterance time and the reference time (cf. Klein 1994). If we take *adhənəba* as an example, we can observe that (in combination with interaction of other elements at the level of the clause, see below), this adverbial can indicate that the situation takes place for a short duration of time (example 2), as well as expressing that the deictic centre occurs a short time before (example 3), or after (examples 3-6) the temporal reference point, with the deictic centre being the time of the utterance (as in examples 2-6), or some other contextual temporal reference point (example 7).

In this paper I analyse the uses of these adverbials and demonstrate how they are dependent particularly upon their interactions with event structure aspect/*Aktionsart* and inflectional tense/viewpoint aspect markers, at the clause level. In addition, I consider their roles in the wider discourse context, by analysing discourse relations and their temporal inferences using Segmented Discourse Representation Theory (SDRT) (Asher and Lascarides 2003).

This research builds upon and compliments other recent work on Australian languages that have provided detailed analyses of temporal adverbials and temporal connectives (cf. Ritz et al 2012; Ritz & Schulze-Berndt 2015).

References

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The relative clause conspiracy

Matthias Schlesewsky (University of South Australia) & Ina Bornkessel-Schlesewsky (University of South Australia)

Over the last 60 years, relative clauses have been used as a prime domain in which to investigate language comprehension and to build processing theories. In particular, one often finds the statement that object relative clauses are more difficult to process than their subject-initial counterparts or, based on more recent data (e.g. on Basque or Mandarin Chinese), that there are either structural complexity differences or differences regarding processing effort/working memory load between these two sentence types in all languages, even though the directionality may change from language to language. In our presentation, we will show that the line of argumentation that is typically used to derive these differences (e.g. the above-mentioned structural or working memory considerations) is a relict of early attempts to show the psychological reality of transformations. Importantly, it follows neither from a. recent linguistic theories and – more importantly – b. the complete range of experimental findings on this construction type. For example, the object relative clause disadvantage in English disappears if the head noun and the relative clause internal subject differ with regard to animacy (following the animacy hierarchy). Additionally, languages with case marking, e.g. German, provide evidence that so-called case-matching - the identity of case between head noun and relative pronoun - outranks a potential default subject relative clause advantage. We will argue that, without a deeper understanding of simple sentences and of the nature of head noun-relative pronoun relations, these complex constructions will never be understood even if the number of findings were to increase exponentially over the next years.

The exceptional role of the first person: Evidence from natural story processing

Ingmar Brilmayer (University of Cologne), Beatrice Primus (University of Cologne), Matthias Schlesewsky (University of South Australia) & Ina Bornkessel-Schlesewsky (University of South Australia)

The use of natural stories (e.g. narratives) provides us with a new way of studying linguistic information processing in the human brain. It allows us to replicate results from previous, controlled studies, but also opens up possibilities for investigating dependencies that span larger time units. This is, for example, relevant for research about the maximal size of temporal receptive windows. It can also increase our understanding about the role of predictions in language processing. In narratives, there are “global” predictions in the sense that protagonists will recur several times throughout the story, while temporal (“local”) predictions about this recurrence are relatively imprecise (i.e. it is difficult to predict precisely when a protagonist will be rementioned).

Here, we present initial EEG observations on the processing of narrative dependencies. Participants listened to a German audio book version of *The Little Prince* by Antoine de Saint- Exupery (recording by Will Quadflieg, chapters 1–17, excluding chapters 5,6 and 14). The narrative includes passages written from the perspective of the Little Prince, but also dialogical passages from the perspective of the Little Prince’s interlocutors, as well as a third person narrator. Twenty-five, monolingual native speakers of German (14 female; mean age 24.4, range 20–29) with normal hearing participated in this experiment.

For the current analysis we focused on two main aspects:

- A) Given the exceptional role of the first person (“I”) in comparison to second and third person, we investigated differences in the processing of first, second and third person pronouns. The exceptionality of the first person is motivated from a typological as well as processing perspective and may reflect a more general distinction between self vs other;
- B) We calculated the so called referential distance (RD) for every pronoun under examination. RD is calculated by counting the number of sentences that lie between the current mention of a discourse referent and its last mention in prior discourse. RD ranges from 0 to 20, while 20 is also assigned to referents without prior mention. Only referentially unambiguous pronouns encoded as grammatical subject were evaluated. In total, the recording contained 79 first person, 35 second person and 95 third person singular pronouns.

Results indeed revealed a difference between pronouns: between 150 and 250 milliseconds, first person pronouns showed a strong positivity as opposed to third person pronouns (P300), which in turn elicited more positive-going ERPs than second person pronouns ($1 > 3 > 2$). In addition, ERPs following first-person pronouns were nearly unaffected by referential distance. For second- and third-person pronouns, by contrast, P3 amplitude decreased with increasing referential distance.

Given the previously demonstrated sensitivity of the P300 for self-relevant behaviour, our results provide the first evidence that, even in narratives, the first person serve as an attentional cue for self relevance. In addition, the independence from RD for the first, but not the second and third person, could indicate that this type of attentional cue is prediction independent and constitutes a default in information processing in general.

Now then: another analysis of =lku in Warlpiri and Warlmanpa

Mitchell Browne (*The University of Queensland*)

Warlpiri and Warlmanpa (Ngumpin-Yapa, Pama-Nyungan) both have a clitic =lku which is typically translated as ‘now, then, and then’ (Nash, 1979, 1980). In this paper I provide a more nuanced analysis of the clitics. Using data from naturalistic spoken narratives, I suggest there are at least two functions of =lku in Warlpiri and Warlmanpa: a ‘temporal’ use, and a ‘topic shift’ use, reflecting similar analyses of other Pama-Nyungan languages: =rru in Panyjima (Ritz, Dench and Caudal, 2012) and =biyang in Jaminjung (Ritz and Schultze-Berndt, 2015).

Previous attempts to formalise the meaning of the Warlpiri clitic =lku rely on truth conditions over two discrete temporal periods. Simpson (2005, p. 79) defines =lku as specifying ‘X is in state S at time T, and X wasn’t in state S before time T’. Similarly, Green (1987, p. 9) views =lku as a three place predicate, specifying a proposition, and two time arguments: during the posterior time argument, the proposition is false, and during the anterior time argument, the proposition is true.

The Warlmanpa clitic =lku appears to have the same two functions, for (1) exhibits the state of ‘afraid’ which is false before time T and true after time T, the transition between truth values of the proposition prompted by the ‘spearing’ event. Similarly the Warlpiri example in (2) exhibits the state of ‘not knowing his name’ which is false before time T, and true at time T, where T is left to be pragmatically inferred. However in (3) and (4), =lku occurs in non-state predicates which are difficult to coerce into stative readings: in these examples, it is not self-evident what proposition would be ‘false before time T’ and ‘true at time T’, under the previous characterisations of =lku.

I propose two functions of =lku applicable to both Warlpiri and Warlmanpa. The ‘temporal’ function is detailed in the table below:

Encoded meaning	A1	There is some event or state B which commenced within the temporal consequence of A.
Presuppositions	B1	At the inception of A, B was false (previous analyses consider this =lku’s primary function in Warlpiri). Thus when B is a state (or attribute), =lku forces an inceptive reading.
	B2	The inception of B occurs after the inception of A.
Implicatures	C1	At the inception of B, A was false.
	C2	A caused B.

The ‘topic shift’ function of =lku signals the beginning of a new narrative section, as in (3) and (4), in which there is an abrupt change of topic in the narrative. The nominal hosting =lku then plays a major role in the imminent narrative section. These two functions are both salient in Warlmanpa and Warlpiri, as they are for =rru in Panyjima and =biyang in Jaminjung.

In addition to these two functions, Warlpiri exhibits a third use of =lku in a degree comparison construction, as in (5). In these constructions, it seems two entities exhibit a degree d (in this case, ‘length’), and =lku attaches to the degree nominal predicate, signalling that its subject exhibits d to a greater extent than the member of the comparison set. I discuss these types of examples in relation to Bowler’s (2016) argument that Warlpiri does not have gradable predicates which combine with degree arguments. I aim to show that this type of construction can only occur in a heavily restricted set of conditions, i.e. when comparing two generic entities. It cannot be used to compare specific entities, such as two specific dogs. Furthermore, it is not clear that this construction is available in

Warlmanpa, neither is it described for =rru in Panyjima or =biyang in Jaminjung. This ‘comparative’ function of =lku seems to be an innovation of Warlpiri, given the its highly restricted nature within Warlpiri, and the apparent absence of such an extension of the functions of these clitics in other languages exhibiting both the ‘temporal’ and ‘topic shift’ functions.

Examples

- (1) wawirri=rna karta pu-ngu, lani=**lku** jutu-ngu-rra
kangaroo=1SG.S spear act_on-PAST, afraid=THEN run-PAST-AWAY
I speared a kangaroo, and then it ran away afraid.
(Warlmanpa: author’s corpus)
- (2) kala yirdi-ki=**lki**¹ kula=rna pina ngajulu=ju
but name-DAT=THEN NEG=1SG.S know I=TOP
But right now, I don’t know his name.
(Warlpiri: Nash, 1980, p. 207)
- (3) manu nyanungu=**lku**=rla wangka-ja
and aforementioned=THEN=DAT speak-PAST
And then he (the Wardapi) said to him,
(Warlpiri: Swartz, 1991)
- (4) ngarrka=nganpa missionary-rlu=**lku** pa-nangu-rnu turnu
man=1EXL.PL.O missionary-ERG=THEN go-PAST-TWD assemble

ma-nu-rra=nganpa yapa=ma
get-PAST-IMPF=1PL.EXCL.O people=TOP
When the missionary man came to us, he gathered up all us people.
(Warlmanpa: author’s corpus)
- (5) lungkarda=piya=juku=jala palka=ju kala kirrirdi-pardu=**lku**
blue_tongue_lizard=LIKE=STILL=OBVIOUSLY body=TOP but tall-DIM=THEN

ngari warrarna=ju kirrirdi=**lki**
only Great_Desert_Skink=TOP tall=THEN
It’s body is just like that of the Blue Tongue but the Desert Skink is just a little longer. More elongated.
(Warlpiri: Mary Laughren, p.c., from Ken Hale’s fieldnotes 1966-7)

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¹ Warlpiri exhibits vowel harmony, hence =lki is a phonologically conditioned variant of =lku (see Nash, 1980).

Obstruent voicing distinctions in Light Warlpiri

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Background. Light Warlpiri (LW) is a mixed language spoken in Lajamanu Community, Northern Territory, by adults under approximately age 40 and all children. In addition to vocabulary from the traditional Australian Indigenous language Warlpiri, LW has significant English and Kriol vocabulary. The phonological inventory of Warlpiri is typically 'Australian' in that it is reported to have no voicing distinctions in stops. In contrast, Kriol and Australian English use systematic Voice Onset Time (VOT) differences to maintain stop contrasts, and, in the case of (Roper) Kriol, also systematic differences in stop constriction duration (CD), such that voiceless stops are characterised by long CDs, while voiced stops are characterised by much shorter CDs (Baker et al, 2014; Bundgaard-Nielsen & Baker, 2016). Such discrepancy in the phonological inventories of the parent languages, gives rise to important questions about the phonological inventories of mixed languages. Are such inventories reflective of just one of the languages (Warlpiri; English; Kriol), or are they reflective of the needs for contrast maintenance faithful to the inventories of each of the language, creating a 'super-phonology'? Or, do they form 'patchwork' phonologies, where some contrasts from each parent language are supported but not all? The present paper presents an acoustic study of stop and affricate voicing in LW, suggesting that speakers of LW use VOT and CD to differentiate voiced and voiceless stops and affricates with English/Kriol origins, and that likely they produce Warlpiri stops in a manner consistent with voiced English/Kriol stops in initial position, and voiceless Kriol stops in medial position.

Method. Eight female speakers of LW recorded in Lajamanu, between 2014-18, using a picture elicitation paradigm, in which they were encouraged to produce a target word or phrase, containing an initial and/or medial stop or affricate, in a Warlpiri carrier phrase. Some of the women produced multiple repetitions, while others produced each target only once. All fluent and uninterrupted tokens were included in the analysis. We extracted a total of 827 word-initial VOT measurements; 294 medial VOT and 317 medial CD measurements, including 20 taps/flaps. Most initial stops were in /CV/ or /CVC/ syllables, but a small number of /CCV-/ clusters were included; the medial measurements were all from morpheme-internal /VCV/s. There was a bias toward words of English and Kriol origin (initial context: 88%; medial context 68%); similarly the frequency of the phonemes elicited varied (**Table 1**). All stops and affricates were categorised according to the canonical phonological specifications of the source language, with the exceptions of 13 iterations of the initial stop in English/Kriol 'gun' and 'guitar' which were consistently produced with long-lag VOT (often in excess of 100ms duration) and reallocated to the /k/ dataset. Utterances of English /θ/ and /ð/ were produced as stops and analysed separately (T, D in Tables and Figures) as they are realised as dental stops in Kriol, and impressionistically also in LW.

Results. In order to assess whether speakers of LW show a voicing contract in stops and affricates, we conducted a series of ANOVAs (when the data provided three potential contrasts; *t*-tests when the data provided only two). The results suggest LW speakers produce initial stops and affricates in English/Kriol lexical items that differ systematically in terms of voicing in a manner consistent with the canonical voicing specifications of the source language (**Figure 1**). LW speakers produce the Warlpiri lamino-palatal /c/ in a manner that is consistent with the voiced affricate in words of English/Kriol origin, while words with Warlpiri /p/ and /k/ do not differ from either

English/Kriol /p/ or /b/, or /k/ and /g/ respectively, possibly due to a low number of Warlpiri target words in which these phonemes occur in our dataset. The values of these phones however appear consistent with the voiced English/Kriol counterparts. The results from the medial VOT and CD measures show some differentiation in terms of VOT, and that CD more reliably differentiates the stops such that, generally, the LW stops pattern with the voiceless English/Kriol stops, while the LW /c/ pattern with the voiced English/Kriol affricate (**Figure 2**). Low numbers of tokens in some cells likely influence the results, as does the fact that repetitions of a single lexical item ‘sugar’ contributes all but one measure of E/K medial /g/. With appropriate caution, the results suggest that the LW obstruent inventory consists of voiced and voiceless stops, realised through differences in VOT and medially also CD, and that word-initially, Warlpiri stops are realised as voiced English/Kriol stops, while medially, the stops /p t k/ are realised as voiceless stops. The retroflex stop /ɽ/ and tap /ɽ/ appear to occupy the voiced range.

Table 1. Mean VOT durations and Standard Deviations for all 827 word-initial E/K and W stops and affricates, categorised by source language, as well as all 294 word-medial VOT measurements, and 317 CD measurements.

English/Kriol							Warlpiri						
Phoneme	Initial VOT		Medial VOT		Medial CD		Phoneme	Initial VOT		Medial VOT		Medial CD	
	<i>M</i> (ms)	<i>N</i>	<i>M</i> (ms)	<i>N</i>	<i>M</i> (ms)	<i>N</i>		<i>M</i> (ms)	<i>N</i>	<i>M</i> (ms)	<i>N</i>	<i>M</i> (ms)	<i>N</i>
/p/	43	69	32	31	145	31	/p/	36	17	37	28	143	28
/b/	30	178	25	58	50	59	/t/			23	7	117	7
/t/	58	56	20	5	161	5	/ɽ/			22	13	41	13
/d/	33	59	18	15	21	16	/k/	46	25	37	39	127	40
T	32	31					/c/	42	55	32	7	28	7
D	16	10					Total		97		94		95
/k/	58	187	40	36	71	36	English tap and Warlpiri voiced retroflex						
/g/	43	30	36	22	84	22							
/tʃ/	74	57	55	28	116	28	/ɽ/					31	10
/dʒ/	46	53	17	5	34	5	/ɽ̥/					18	10
Total		730		200		202	Total						20

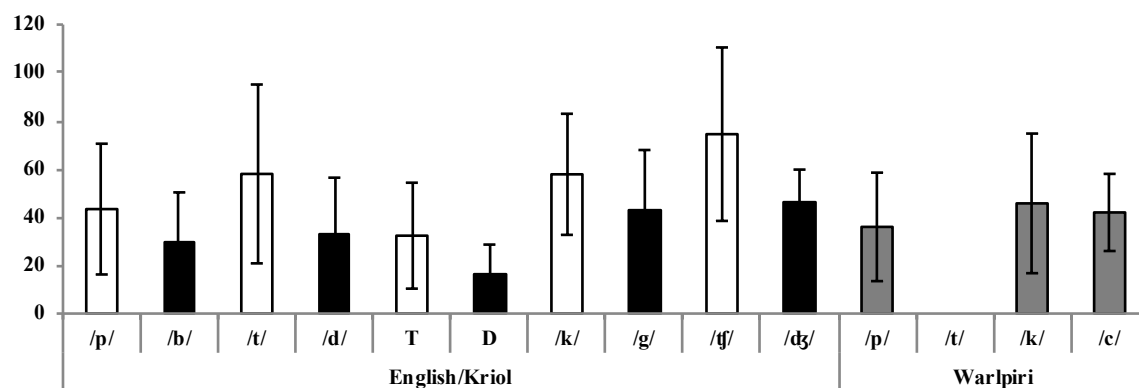


Figure 1. Mean VOT durations and SD for all 827 all stops and affricates, categorised by source language.

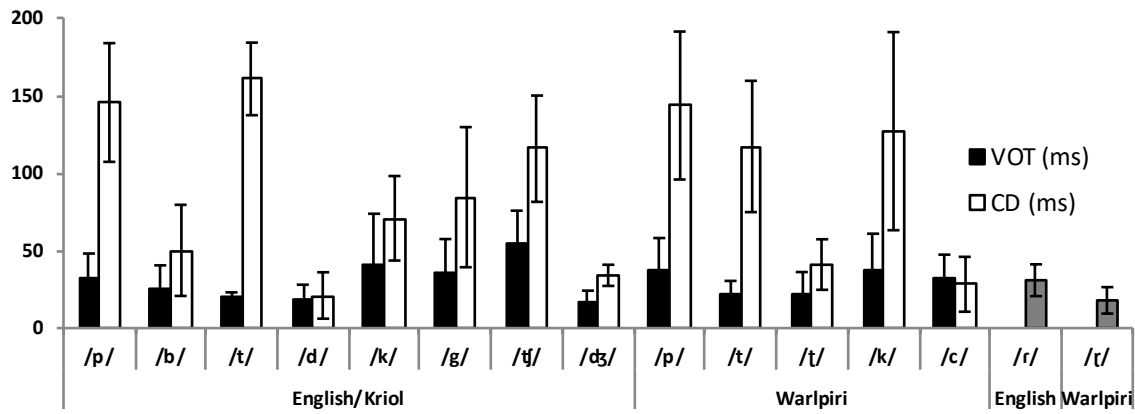


Figure 2. Mean medial VOT and CD and Standard Deviations for all stops and affricates, by source language.

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Acoustic correlates of lexical stress in Wubuy/Nunggubuyu

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Background. We examined the acoustic correlates of syllables in noun roots of the non-Pama-Nyungan Australian language Wubuy (a.k.a. Nunggubuyu: Heath 1984), for the purposes of determining likely position of lexical stress. Crosslinguistically, the most frequently reported acoustic correlates of lexical stress are duration, fundamental frequency (f_0), and intensity, in that order, according to a recent survey (Gordon and Roettger, 2017). A number of earlier studies of stress and accentual prominence in Australian language have looked at a range of cues but found that the primary cue to main stress was f_0 with conflicting evidence for other parameters (e.g. see Fletcher and Butcher 2014 for an overview). Apart from f_0 patterns, some Australian languages have been reported to show longer durations of consonants following a stressed vowel, a feature called 'post-tonic lengthening'. This behaviour has been measured instrumentally in Warlpiri (Butcher & Harrington 1999; Pentland 2004), Bininj Kunwok (Stoakes et al., in press), Mawng (Fletcher et al. 2015) and Djambarrpuynu (Jepson et al. under revision). Most Australian languages are reported to have main stress initially in words or roots (Baker 2014), although a number of northern languages are reported to prefer penultimate main stress (Evans 1995). Finally, a small number of Australian languages have been reported to have quantity-sensitive stress determined by closed syllables, as opposed to long vowels, notably Ngalakgan (Baker 2008), but with suggestions that the pattern may be found more generally in Arnhem Land.

Method. Data were collected in two separate studies. In Study 1, one female native speaker of Wubuy produced 46 target words, some with repetitions, in isolation over separate recording periods. In Study 2, three female native speakers produced five repetitions of 30 target words in a frame in which the target was utterance final. All target items were trisyllabic noun roots of Wubuy, containing a variety of open and closed syllables. From these words, we extracted a total of 344 vowels in Study 1, and 1213 vowels in Study 2. Recordings were hand-segmented and the following measures were extracted using R: vowel and consonant duration, pitch maximum and minimum, pitch range, intensity max/segment, intensity max/word.

Results. The results from four ANOVAs from Study 1 (words in citation) and Study 2 (words in phrase-final position in a Wubuy carrier sentence) show a significant main effect of Syllable (1, 2, 3) in terms of both vowel duration and maximum pitch (Fig. 1). In both studies, Syllable 2 and 3 are significantly longer than Syllable 1, and in Study 1, Syllable 3 has a lower pitch than Syllables 1 and 2. In Study 2, Syllable 2 differs from both Syllables 1 and 3 in having a higher pitch, likely partially reflecting intonational prominence (Fig. . Ongoing work is investigating whether other correlates, such as consonant duration, may be relevant, as has been shown in other Australian. An exploration of consonant durations of the onset of second syllable preceding open versus closed syllables found small but significant differences in duration for a sample of comparable consonants, such that the consonant preceding a medial open syllable was longer than that preceding a medial closed syllable (where Baker's 2008 analysis of Ngalakgan would predict weight to attract stress), although one pair (the retroflex stop) showed a

small unexplained difference in the opposite direction. These analyses however are able to make use of only a partial set of the recorded target words in the two studies.

Discussion. The results, given the cross-linguistically observed correlates of lexical stress reported in Gordon and Roettger (2017) would tend to point to consistent penultimate stress. However, given that other studies of lexical stress in Australian languages have reported that initial, stressed syllables can indeed be shorter than medial and final syllables, while the following consonant is lengthened, the possibility of post-tonic lengthening remains.

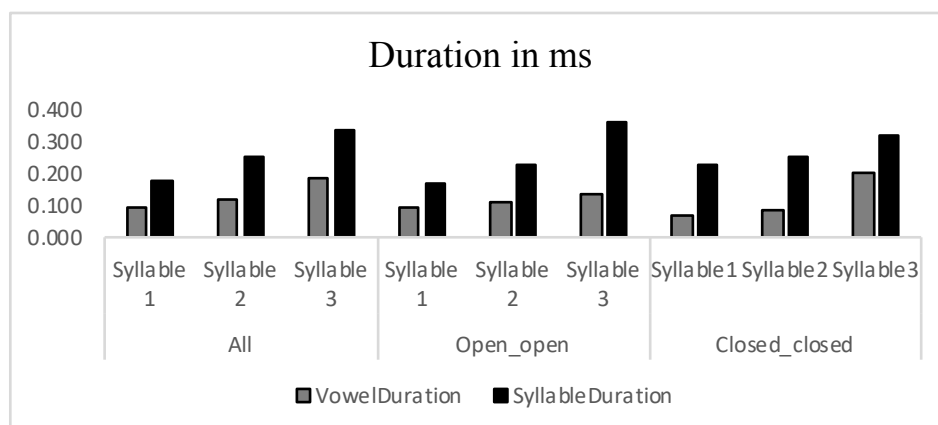


Fig. 1 Vowel duration as a function of syllable position and type.

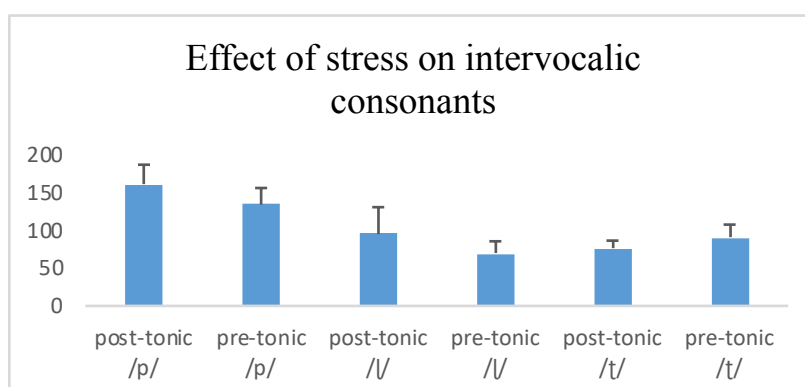


Fig. 2 Effects of stress on intervocalic consonants.

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Derivational morphology in Zamucoan

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Zamucoan is a small but easily identifiable family in the Chaco region of central South America. Two Zamucoan languages are currently spoken: Ayoreo (about 4,500 speakers) and Chamacoco (about 2,000 speakers). Zamucoan also includes a third language: †Old Zamuco, described in the first half of the 18th century by the Jesuit Father Ignace Chomé (Lussagnet 1958). In the present paper, data for Ayoreo and Chamacoco come from authors' fieldwork, carried out between 2009 and 2018, and from the available dictionaries (Barrios *et al.* 1995; Higham *et al.* 2000; Ulrich & Ulrich 2000); data for Old Zamuco come from the available historical sources (Lussagnet 1958; Ciucci, to appear).

Typologically, these languages differ sharply from all surrounding ones: they have typical fusional features (Bertinetto 2014[2009]; Ciucci 2016), as opposed to the agglutinating (or even polysynthetic) features of the families with which they have been diachronically in contact (Ciucci 2014). This paper will show that the Zamucoan languages offer obvious cases of non-prototypical derivation, partly similar to what one can find in Romance languages (cf., for instance, Rainer 1993), and also going beyond that. In particular, the Zamucoan languages have: (a) gender motion in both basic and derived nouns (i.e. nomina agentis), also including possessive classifiers, which morphologically speaking behave like nouns (Ciucci 2016); (b) affix transcategoriality, by which one and the same affix can attach to both nouns and verbs; (c) gender motion and affix transcategoriality in evaluatives, which are built by means of dedicated morphemes. The paper will also briefly mention other, typologically more standard, derivational affixes of Zamucoan, although it is to be noted that their number is not as large as, e.g., in Indo-European languages. Among these, one can (unsurprisingly) detect instances of idiosyncratic lexicalization. Finally, the paper will argue that the presently fusional Zamucoan languages might have had a (fairly remote) agglutinating past. The paper aims at contributing to the theoretical definition of non-prototypical morphological features (see, for instance, Payne 1985; Dressler 1989; Plank 1994; Booij 2000), also increasing their typological coverage.

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Pre-stopped nasals and laterals in Adnyamathanha, a language of South Australia

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Introduction: Pre-stopped nasals are phonemically distinct from ‘plain’ nasals in a number of Australian languages, notably the Arandic sub-group (Butcher 1990;1999; Harvey et al 2015). Pre-stopped laterals have not been reported as having phonemic status in any Australian language, as far as we know. Most of the Thura-Yura languages appear to have pre-stopped variants occurring as allophones of intervocalic nasals and laterals when preceded by a short stressed vowel (Simpson & Hercus 2004). In most cases pre-stopping is blocked in multi-syllabic words, especially reduplications and compounds and, in the case of nasals, if the syllable onset is (or historically was) also a nasal (Hercus 1994).

Aim: To establish the phonemic status and the phonetic nature of homorganic stop + sonorant sequences in Adnyamathanha, a Thura-Yura language spoken in the northern Flinders Ranges of South Australia.

Phonology: In Adnyamathanha there are many examples of pre-stopping which cannot be explained in terms of conditioned allophony. An exhaustive analysis of data collected from native speakers over more than 40 years (McEntee & McKenzie 1992; Schebeck 2000) shows that such examples are sufficiently numerous to warrant the conclusion that plain and pre-stopped nasals and laterals are in opposition at all four coronal places of articulation in Adnyamathanha, as well as in the bilabial place of articulation for nasals. We give reasons for preferring a complex segment analysis over one of stop + sonorant clusters.

Phonetics: Measurements were made from two sets of good-quality analogue recordings of first-language Adnyamathanha speakers. These are summarised in Figure 1. The durations of the stop components in both types of pre-stopped sonorant are not significantly different from those of singleton voiced stops (ca. 80 ms), but of greater duration than those in sonorant + obstruent sequences – 21% longer in the context of laterals and a massive 93% longer in the context of nasals. The sonorant components are some 25% shorter than their singleton counterparts and thus some 40 % shorter than in the corresponding homorganic clusters. The stop and sonorant components are thus of similar duration. The stops are substantially voiced, although the VOTs within the nasal releases are somewhat longer than those found in singleton voiced obstruents. Our cross-linguistic comparisons show that both pre-stopped nasals and pre-stopped laterals in Adnyamathanha bear a closer phonetic resemblance to the well-established phonologically contrastive pre-stopped nasals of Arandic languages (Butcher 1990; Harvey et al 2015), than to the phonetically pre-stopped variants of plain sonorants found in many other Australian languages (Butcher & Loakes 2008; Harvey et al 2015).

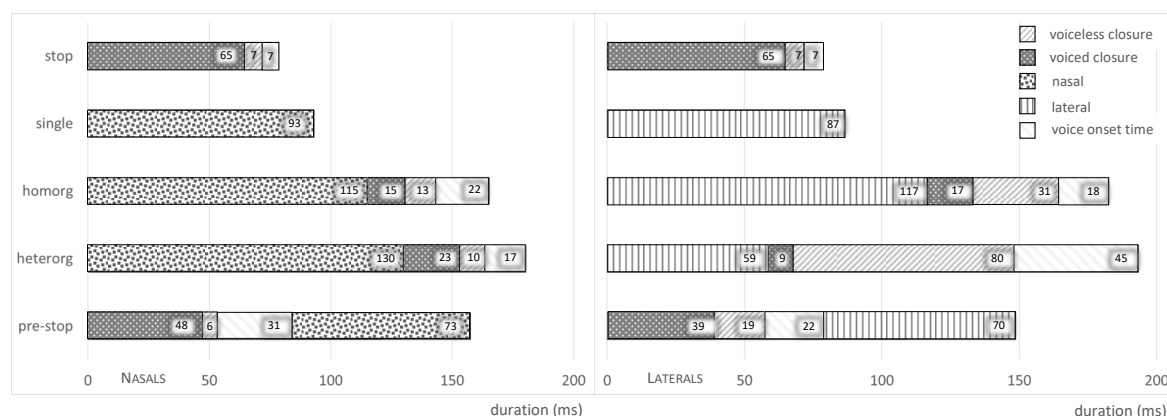


Figure 1: Durational components of sonorant-stop combinations in *Adnyamathanha*.

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Morph order vs word order: polysynthetic languages in relation to word-order typology

Kate Charlwood (Mirima Dawang Woorlab-gerring) & Rachel Nordlinger (The University of Melbourne)

Polysynthetic languages are characterised by ‘holophrasis’, whereby a single verb can express what would require a full sentence in many other languages, including English (Fortescue, Mithun, & Evans, 2017, p. 15). Illustrative examples are provided in (1) and (2). This raises interesting questions concerning the extent to which verbs in polysynthetic languages are structurally equivalent to sentences in other language types: are polysynthetic verbs ‘essentially exhibiting syntax in morphological clothing’, or are they governed by a distinct level of morphological organisation (Fortescue et al., 2017, p. 15)? To investigate this question, our study considers the degree to which verbal argument morphology in polysynthetic languages conforms to typological claims in the word-order literature.

There has been substantial research on word-order patterns cross-linguistically. Greenberg (1963) finds that the subject is considerably more likely to precede the object than follow it, and Dryer (2013) shows that all six logically possible orders of subject, object, and verb are possible in the world’s languages. Greenberg (1963) also identifies implicational word order universals. He finds that OV languages are likely to have head-final structures such as postpositions and genitive-noun order; whereas, VO languages are more likely to have head-initial structures, i.e. prepositions and noun-genitive order. These findings focus on syntactic ordering patterns. In our study we investigate whether these syntactic generalizations correlate with morph order within polysynthetic verbs.

Our study addresses the following research questions:

- (1) Which orders of subject marker, object marker, and verb stem do we find in a sample of polysynthetic languages?
- (2) How does the distribution compare to Dryer’s (2013) word order typology, and Siewierska and Bakker’s (1996) typology of person markers in non-polysynthetic languages?
- (3) Can Greenberg’s implicational universals be applied to polysynthetic languages, and if so, is it word order or verbal morph order that correlates with head position in other phrases?

Our corpus consists of data from 24 polysynthetic languages sampled across six continents. Data was coded for verbal morph order, dominant word order, dominant order of adposition and noun, dominant order of genitive and noun, and dominant order of relative clause and noun. Our results reveal five of the six logically possible orders of subject marker, object marker, and verb stem across the sample of polysynthetic languages, as well as a preference for the subject marker to precede rather than follow the object marker, albeit at a lower rate to what we find in the word order literature. We also found a dispreference for stem-medial verbal morph order in polysynthetic languages when compared to V-medial word order and stem-medial verbal morph order in non-polysynthetic polypersonal languages (Siewierska & Bakker, 1996).

Furthermore, we found that the order of verb stem and object marker does not correlate with head position in other phrases, while the order of verb and object NP often does. See (3) for an illustration of how dominant word order in polysynthetic languages (VO or OV) correlates significantly with adposition type: all OV languages are postpositional and all VO languages are prepositional (Table 1). Table 2 shows that the order of verbal morphs (V-O or O-V) does not correlate with adposition type: both V-O and O-V languages are more likely to be

postpositional than prepositional. That argument morphs in polysynthetic verbs do not pattern in the same way as argument NPs lends weight to the idea that polysynthetic verbs are structurally as well as phonologically distinct from clauses formed syntactically in non-polysynthetic languages.

This research shows how ordering typology can provide a unique perspective to bigger questions regarding the relationship between morphology and syntax. Our findings support the notion that polysynthetic verbs are governed by a level of grammatical organisation that is distinct from the rules and patterns of syntax.

- (1) *a-ban-yawoyʔ-wargaʔ-maŋe-gaŋ-giŋe-ŋ*
 1SG(S)-3PL(IO)-again-wrong-BEN-meat-cook-PST.PFV
 ‘I cooked the wrong meat for them again.’
 (Bininj Gun-Wok, Evans, 2017, p. 315)
- (2) *t-a-nk'e-mejn-a-jetem-a-nni-k-Ø*
 1SG(S)-E-midnight-big-E-yurt.cover-E-sew-1SG(S)-PFV
 ‘I sewed a lot of yurt covers in the middle of the night.’
 (Koryak, Kurebito, 2017, pp. 836, 844)

(3)

	Prep.	Post.	Total
VO	67.7%	33.3%	6
OV	0%	100%	10

Table 1. Word order with respect to adposition and noun order in the sample of polysynthetic languages. p value=0.008.²

	Prep.	Post.	Total
V-O	14.3%	85.7%	7
O-V	28.6%	71.4%	7

Table 2. Verbal morph order with respect to adposition and noun order in the sample of polysynthetic languages. p value=0.57.

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² According to *Fisher's Exact Test of Independence*

Morphological borrowing in the Chaco

Luca Ciucci (LCRC, James Cook University)

The Chaco lowland in South-America constitutes a cultural and possibly linguistic area (Comrie *et al.* 2010, González 2015), with languages belonging to the following families: Chiquitano, Enlhet-Enenlhet, Guaycuruan, Lule-Vilela, Mataguayan, Tupí-Guaraní and Zamucoan. This talk will show how the reconstruction of Proto-Zamucoan (Ciucci & Bertinetto 2015; 2017) permits to identify some remote cases of morphological borrowing, and their implications for the study of the Chaco sociolinguistic situation and the theory of language contact in general.

Zamucoan consists of two living languages, Ayoreo and Chamacoco, plus †Old Zamuco. All three languages present morphosyntactic correspondences, allowing robust diachronic insights (Ciucci 2016) supporting the idea that they stem from a common ancestor: Proto-Zamucoan. No other genetically related language has so far been identified. Biological studies confirm the common origin of the Zamucoan populations, as well as their genetic distance from the surrounding indigenous populations (Demarchi & García Ministro 2008; Rickards *et al.* 1994).

After having presented the reconstruction of Proto-Zamucoan verb and possessive inflection, I will compare it with the other surrounding languages, showing that Zamucoan, although genetically isolated, displays morphological similarities with the Guaycuruan and Mataguayan families (Ciucci 2014). Diachronic reconstruction permits to identify two stages of contact: (i) a first one which took place at the Proto-Zamucoan stage, so that this long temporal distance does not permit to identify the direction of the transfer; (ii) a second stage, mainly involving Chamacoco, which is the most innovative language of its family.

Interestingly, morphological borrowing comes together with a tiny percentage of shared lexicon between Zamucoan and Guaycuruan/Mataguayan, although it is generally acknowledged that morphological borrowing is rarer than lexical borrowing (see e.g. Matras 2009: 153-165). Such a situation reflects linguistic purism, as documented in the case of contact between genetically unrelated languages in other areas of South America (Aikhenvald 2002, 2012; Seifart 2011; Epps, to appear). A similar mechanism was noted among bilingual speakers of related languages, who monitor their speech production, showing an anti-doppel bias in lexical selection (Ellison & Miceli 2017). The fact that the most remarkable traces of contact involves person marking can be explained by the *Principle of Morphosyntactic Subsystem Integrity*, proposed by Seifart (2012), stating that it is easier to borrow morphosyntactically interrelated morphemes than isolated forms.

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Estimation of closure duration for absolute word-initial geminate/singleton coronal stops in Moroccan Arabic using ultrasound

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The most robust and universal cue distinguishing geminates from singletons is constriction duration (i.e. closure duration for stops) [1]. However, measuring closure duration acoustically can be particularly challenging for voiceless stops in utterance-initial position due to the lack of acoustic information about onset of closure. Articulatory investigations of gemination utterance-initially have employed electropalatography (EPG) [3] and oral airflow [1] to measure closure duration. However, these methods cannot be used to investigate the temporal dynamics of tongue movement directly for consonants that require lingual gestures. Direct techniques of monitoring tongue kinematics, such as ultrasound, have not been used previously to measure dynamic tongue configuration for initial gemination. In Moroccan Arabic vernacular (MA), word-initial gemination is highly functional. It results from a morphophonological process whereby the definite article /l/ totally assimilates to word-initial coronal stops, thus forming an initial coronal geminate. Nonetheless, there is no evidence that gemination is maintained in utterance-initial position in Moroccan vernacular. Position within an utterance affects the realization of word-initial gemination, but the effect varies across languages. Word-initial gemination is neutralized utterance-initially in Cypriot Greek (EPG) [4], weakened utterance-initially relative to utterance-medially in Kelantan Malay (voiced stops only; acoustic analysis) [5], or enhanced utterance-initially relative to utterance-medially in Tashlhiyt Berber (EPG) [3]. These differing results might well be caused by the techniques used and the typology of the phones measured.

The current study presents a semi-automatic method to estimate closure duration for word-initial coronal stop geminate/singleton contrasts directly from ultrasound video, in order to address key questions: do MA speakers maintain the contrast utterance-initially, and if so, what are its acoustic and articulatory properties and how does utterance position condition these properties? Acoustic and ultrasound data were collected from five MA speakers producing disyllabic minimal pair MA lexical items contrasting /t/ with /tt/ and /d/ with /dd/ word-initially 10 times each in isolation (utterance-initial) and in a carrier sentence (utterance-medial). Conventional analysis techniques for ultrasound tongue imaging involve fitting contours to the tongue surface in individual images; as manual correction of automatic contour fitting is often necessary, the time requirement for dynamic analysis can be quite substantial. To minimize manual processing, we used Temporally Resolved Articulatory Configuration Tracking of Ultrasound (TRACTUS; [6]) output to train a linear discriminate analysis on ultrasound frames related to consonant closure. This yields a time-varying articulatory “closure” signal that captures articulatory differences even in the absence of acoustic information. We used this signal to assess differences in closure dynamics between MA geminate-singleton pairs word-initially (Figure 1) ([7]). To estimate duration of the closure, 20% thresholds of the maximum

positive and negative velocity peaks were calculated. The stop closure duration was subsequently estimated as the duration of the interval between the peaks (200 ms; Figure 2).

The results of a repeated measures ANOVA revealed that MA initial geminates are characterized by a closure duration 1.40 times longer (μ 288ms) than singletons (μ 205ms) utterance-initially [$F(4,56) = 18.7$, $p < 0.001$]. These results suggest that initial gemination is indeed maintained articulatorily rather than neutralized in MA. The calculated duration values are substantially higher than those for utterance-medial geminates (μ 197ms) and singletons (μ 85ms), which also differ significantly [$F(4,56) = 28.4$, $p < 0.01$] by a ratio of 2.31. This suggests that speakers are using a domain-initial strengthening strategy. However, the difference in duration ratio (1.40 vs 2.31) indicates that the *difference* between geminates and singletons is proportionally smaller utterance-initially than utterance-medially. Interestingly, the same positional effects were found in Swiss German initial gemination using EPG [8], which provides converging support for the method employed in this study and also points to the possible existence of language-independent principles governing the impact of prosodic position on the realization of initial gemination.

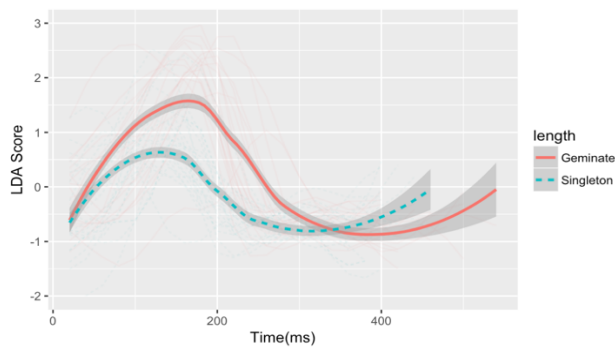


Figure 1: *The LDA class scores for geminates and singletons in word-initial position. The score lines show how the gesture develops over time. The peak of the scores corresponds to the closure interval. Geminates have a larger, later peak and more contact over a longer period of time than singletons*

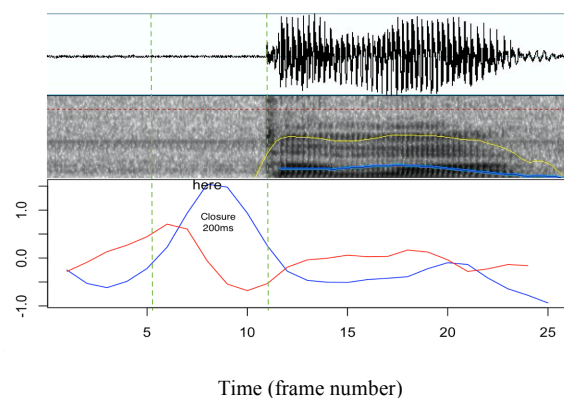


Figure 2: ***Estimation of closure duration of word-initial voiceless stop in [taman]: articulatory signal (blue line), velocity signal (red line) and time-aligned waveform and spectrogram***

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Second dialect acquisition in a second language

Ksenia Gnevsheva (Australian National University), Anita Szakay (Macquarie University) and Sandra Jansen (Paderborn University)

Second dialect acquisition (SDA) is the process whereby a speaker acquires features of another dialect; for example, a native speaker of American English using the word ‘lollies’ for sweets after living in Australia. SDA in the first language (L1) due to mobility is well-documented in the sociolinguistic literature, and a number of linguistic and sociolinguistic factors have been shown to affect its outcome: e.g., first and second dialect, age at migration, network composition (e.g., Siegel, 2010). However, SDA in a second language (L2) context (for instance, a native speaker of Russian moving to Australia after living in the USA and speaking American English) has received much less attention. With increased global mobility, however, the permanently settling migrant is not the only type and moving from one country of residence to another relatively frequently becomes more and more common.

The existing studies have conceptualized SDA in L2 as acquisition of a variety in a naturalistic environment after learning a Standard variety as a foreign language in an educational setting (e.g., Polish speakers who studied Received Pronunciation at school acquiring the Manchester variety after moving to Manchester in Drummond, 2012). Yet studies which explore intraspeaker variation in a second language due to relocation between native speaking communities are rare but will provide unique insight into probabilistic learning processes of second language learners. This study aims to investigate lexical preference in L2 speakers of English who – due to geographical mobility – have acquired two distinct dialects of English (Australian English and American English).

Four groups of participants with different linguistic backgrounds and exposure to American and Australian English are recruited: (1) mobile second language speakers of English who have moved from America to Australia (L1 Russian), (2) non-mobile second language speakers of English currently residing in Australia who have never lived in other English-speaking countries (L1 Russian), (3) native speakers of American English currently residing in Australia, and (4) native speakers of Australian English who have never lived outside Australia. To assess the participants’ preference of lexical items, they are shown 50 pictures of objects which are denoted by different lexemes in American and Australian English (e.g. candy vs lolly), which the participants had to name.

The analysis focuses on the probability of choosing an Australian word to designate the item, with the participant group, as well as length of residence in respective countries as predictors. Preliminary results based on a subset of participants suggest differences in the rate of choosing Australian words among the four groups. Such differences in SDA in the first and second languages have implications for our understanding of the fundamental differences between first and second language systems.

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Minimal languages and cross-translatability

Cliff Goddard (Griffith University)

A “minimal language” is a radically reduced version of an existing language, stripped back to its cross-translatable core vocabulary and essential grammar. The concept of minimal languages has been developed by linguists working in the Natural Semantic Metalanguage (NSM) approach (Goddard and Wierzbicka 2014, Ye 2017), primarily with a view to practical applications such as facilitating clearer and more cross-translatable messaging. The best developed minimal language so far is Minimal English (Goddard ed. 2018), but work has also been done using minimal versions of Finnish, Spanish, and Polish.

In this paper I argue that aside from their practical usefulness, minimal languages have the potential to bear on key theoretical concerns of linguistics, such as linguistic typology and a theory of translatability. This paper concentrates on the latter. Although there is an established field of translation studies (cf. Baker and Saldanha 2009), it mainly studies the processes and purposes of translation, with a particular focus on problems of translation. There is little linguistic theorisation about translatability as such; or, putting it another way, there is a major disconnect between linguistic semantics and translation studies. Exploring the similarities and differences between minimal languages offers a way forward on this problem. Minimal versions of different languages are devised to be as cross-translatable as possible – but how does this cash out in practice and what do we learn from it?

By case studies of culturally and grammatically divergent languages, we may identify cultural and grammatical stumbling blocks that interfere with cross-translatability, even in the limiting case of minimal languages. At the same time, it may turn out that a sufficiently robust set of semantic primes and molecules are shared across diverse languages to guarantee cross-translatability. In either case, prospects are there for building a better model of translatability.

The paper illustrates these contentions with examples from Minimal English, Spanish, Polish and Finnish, using parallel minimal texts devised for training doctors, nurses and paramedics with the Welch Emotional Connection Scale (WECS), a pediatric assessment protocol developed at Columbia University (Hane et al., in press). Linguistic features discussed from a translatability perspective include grammatical gender, reciprocal constructions, the lexicon of emotion and bodily affection, e.g. ‘love’, ‘kiss’, and cultural factors about emotional expressiveness and attitudes to children.

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The place of the Zhuang minority language in Chinese universities

Alexandra Grey (The University of Sydney)

The globalisation of Chinese tertiary education and of the employment market into which China's university students graduate problematizes the role of Zhuang, the language of China's largest official minority group, within tertiary education. Addressing this, the paper discusses some of the findings from the author's broader ethnography of Zhuang language policy, conducted as a doctoral project between 2013 and 2017. This paper focuses on the position language policy constructs for Zhuang in tertiary education – primarily, the 'Zhuang Studies' degree program offered at certain universities – and the language ideologies that are reproduced in tertiary education. The paper draws on the study's analysis of policies and original interviews, taking content and discourse analytic approaches. Interviewees included 43 Zhuang-speaking/ Zhuang ethnicity university students, including students undertaking Zhuang Studies degrees at three universities, and 9 university-level teachers/researchers of Zhuang.

First, the paper discusses the "structural apprenticeship" (Bourdieu, 1977, p. 89) the students experienced in primary and secondary schooling. Students became disposed towards the minimisation of their Zhuang and maximisation of their Putonghua (and English) as they passed through school. Then the paper moves to tertiary schooling, explaining the study's finding that language policy does not engage with or seek to destabilise the institutional practices in education that normalize Zhuang language's exclusion from most stages of education and construct it as a localised, oral practice. Nor does language policy seek to redress the absence of economic capital for Zhuang. Thus, the study finds, beliefs that Zhuang is not useful for educational, socio-economic or geographic mobility persist, even amongst students specializing in Zhuang at university. Nevertheless, these language ideologies relating to mobility are not universal: some students valued the Zhuang Studies degree as an experience of life at university in a big city which would have been denied to them were it not for Zhuang language proficiency having entitled them to preferential university entry, and others used Zhuang to gain access to postgraduate research positions. In addition, Zhuang Studies students at one university were encouraged to leverage their Zhuang to learn a related language, Vietnamese, and valued this for finding employment. Other students subscribed to beliefs about Zhuang's low economic and mobility value but valued the Zhuang Studies degree in relation to a passion for Zhuang or a desire to develop a Zhuang identity.

Overall, the paper argues that policy about Zhuang in tertiary education constructs a new market for Zhuang as an objectified research commodity distinct from a lived language practice or employable skill. While offering Zhuang language at the university level might be an example of policy intended as symbolically powerful validation, the symbolism can be overlooked by social actors (students and teachers) when the dominant language practices of schools and communities develop the expectation that Zhuang will be absent in mainstream education and even in many stages of the minority education stream.

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Mapping and Modelling Australia's Pacific Past

Rachel Hendery (Western Sydney University)

In the 19th and (for most of the) 20th centuries, Europeans saw the Pacific as a sea of static, isolated islands. Recently Pacific Studies scholars have argued instead that it is interconnected and dynamic, a place where the sea forms roads, not barriers. Australia sits amidst these roads, and its languages and cultures, like those of the Asia-Pacific region, still hold traces of significant historical interactions. Uncovering, collating and understanding these traces will allow us not only to better understand our region's past, but also to understand how long-term intercultural contact plays out. This kind of research requires us to draw together threads from a variety of fields: linguistics, anthropology, archaeology and genetics.

In this talk I will present some approaches we are using for this in a new project that sits at the intersection of linguistics and the digital humanities. I will discuss how the linguistic component of the project is examining colexification patterns (using methods such as in Schapper et al 2016), distribution of borrowings (including but not limited to 'Makassan' loanwords in the top end of Australia as discussed in Evans (1997), Zorc (1986), Urry & Walsh (1981)), and grammatical change. Other kinds of borrowings we have examined so far include words related to *tabu* 'taboo', and kinship terms (cf. McConvell 2015). a

The main challenge, however, is how to connect these linguistic distribution patterns to the archaeological and anthropological evidence for pre-colonial contact in the region, such as pottery (McNiven et al 2006), rock art (Brady 2010), canoe technology (Wood 2018), and shell fish hooks (Attenbrow 2010), among other examples. In this talk I will demonstrate some software that we are designing that helps facilitate such layering of data and can be used to identify particular regions for further investigation, concluding that initial research highlights the importance of closer investigation of the Coral Sea region.

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Interpreting in medical settings: Strategies and challenges for effective cross-cultural interpreting for Aboriginal and Torres Strait Islander patients

Maria Karidakis (The University of Melbourne)

There has been substantial research into interpreting in legal settings for Aboriginal and Torres Strait Islander peoples. There are also some studies in medical contexts which highlight the institutional, social or cultural issues that confound communication in interpreter-mediated interactions; however, there is a dearth of research into actions and strategies that interpreters of Australian Indigenous languages and Aboriginal Liaisons Officers (ALOs) use to ensure that communication works in hospital settings. This is particularly the case when English medical terminology and concepts have no or minimal equivalent in Aboriginal languages (or the converse). This study is based on 16 audio-recordings of interviews with interpreters and ALOs in metropolitan and rural Victoria, the Northern Territory and Western Australia (totalling 20 hours of audio material). The study addresses the following research questions: firstly, how do interpreters of Aboriginal languages and ALOs talk about the work they do and the challenges they face when interpreting for Aboriginal patients; and secondly, what strategies and actions are employed by Aboriginal Liaison officers and interpreters to resolve potential communication differences that may confound the interpreting process. Findings indicate that provisions need to be made for cultural differences, and that interpreters have to 'unpack' medical terminology and explain it in tangible terms to ensure patient understanding. Other strategies include talking about sensitive topics using culturally appropriate terms; avoiding certain question-answer routines typical in western communicative interaction and being aware of non-verbal aspects of communication.

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An experimental study of word order in Murrinhpatha

Evan Kidd (Max Planck Institute for Psycholinguistics), Rachel Nordlinger (The University of Melbourne) and Gabriela Garrido Rodríguez (Max Planck Institute for Psycholinguistics)

Murrinhpatha is a polysynthetic language of the Daly River region of the Northern Territory and, like many polysynthetic languages, has been described as having relatively free word order at the clausal level (Walsh 1976), although with a preference for SOV order (Street 1987). A recent corpus study finds that SV and OV are the most prevalent orders, but that all orders are possible and it is difficult to posit a default or basic word order (Mujkic 2013:57). In this paper we report on the results of recent experimental work on Murrinhpatha that examines sentence production and word order in transitive clauses. This study was undertaken with 42 L1 Murrinhpatha speakers, ranging in age from 17-63 years. Each participant described simple transitive events depicted on a computer while their eye-movements were recorded (following Norcliffe, Konopka, Brown, & Levinson, 2015). There were 48 target pictures, which fully crossed human and non-human entities in the agent and patient positions.

Results support the claim that there is no basic word order in Murrinhpatha. We find all possible orderings of S, O and V present in the experimental corpus (except VOS), and often from a single speaker. As expected for a polysynthetic language, we also find many responses in which there are no NPs expressed at all. The word order variability supports the claims in the Murrinhpatha literature that there is no basic word order as it is precisely in context-free experimental conditions such as these that we would expect an underlying or basic word order to emerge given the absence of pragmatic conditions to drive word order choices. The fact that there appears to be no basic word order provides evidence that the word order is truly (syntactically) free.

However, the data also reveals a number of interesting tendencies. NP accessibility significantly affects word order choice: participants were more likely to produce subject-initial sentences when agents were non-human and patients were human, and were more likely to produce object-initial sentences when agents were non-human. In contrast, verb-initial sentences were most common with human agents, and human participants were most often unexpressed. Of particular interest is the emergence of new ‘case-like’ strategies that are used by speakers to differentiate subject and object NPs in clauses where both are third person singular, and are therefore not differentiated by verbal morphology. These involve co-opting discourse markers and prepositions to mark subject and object in ways that have not been previously identified in other Murrinhpatha research.

Preliminary analyses on the eye-movement data suggest that: (i) the range of word orders available to Murrinhpatha speakers results in longer planning times, and (ii) like in verb-initial languages (e.g., Tzeltal), relational information between entities in a scene is encoded before describing it, although this may differ depending on whether the sentence is subject- or object-initial.

This study contributes significantly to the very limited literature on sentence production and word order in polysynthetic languages and provides a useful methodology for exploring in detail the ordering patterns employed by speakers of languages where ordering is not syntactically determined.

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Family-level domain knowledge improves automated cognate alignment

Edith Kirlew (*The University of Queensland*)

The manual comparative method has been immensely successful, but is slow and not easily scaled up. While computational methods, such as automated alignment of segments in cognates, cannot yet replace the comparative method, they can speed up its initial stages and explicitly record all comparisons made (List, 2014). However, existing automated cognate alignment tools are generic, and thus may ignore phonological details that are relevant in particular parts of the world, such as the contrasts among four coronal places of articulation in Australian languages. Here we show that incorporating family-level phonological knowledge, such as would be used in the manual comparative method, leads to improved automatic alignment of cognates, taking as a case study the non-Pama-Nyungan, Gunwinyguan family of northern Australia.

Approach In automatic alignment, a SCORING FUNCTION is used to quantify the similarity of any pair of segments, and thereby optimize the alignment of suspected cognates. We compared alignment results obtained using generic and customized scoring functions. Our generic baseline was SCA (Sound-Class-Based Phonetic Alignment) (List, 2010) implemented in the LingPy Python Library (List, Greenhill, & Forkel, 2018). The SCA scoring function is based on relationships among broad sound classes (List, 2010, p. 43) inferred from the ASJP dataset of forty-item lexical lists, encoded with an impoverished set of phonetic oppositions and covering over half the world's languages (Brown, Holman, & Wichmann, 2013). Given the coarse-grained, world-wide basis of the SCA scoring function, we hypothesized it may not be optimal for Australian languages. Accordingly, we coded an 'APA' (Australian-based Phonetic Alignment) function, which scores the similarity of segments with respect to known historical relationships within the sound systems of Australian languages (Dixon, 2002).

	Precision	Errors
SCA vs GS	0.952	48/1000
APA vs GS	0.964	36/1000

Table 1 Results

Data & results Using the web-based dataset editor EDICTOR (List, 2017), we compared alignments produced by SCA and APA against manually curated gold standard (GS) alignments of 2770 forms from eight Gunwinyguan languages, which make up 1000 cognate sets (adapted from Harvey, 2003). In Table 1, results are expressed as precision: the proportion of automated alignments identical to the gold standard. SCA performs well, at 0.952. However, APA with precision of 0.964, produces 25% fewer errors (McNemar's paired test $\chi^2(1, N=1000) = 827.3$, $p < 0.001$).

Significance Improvements in the speed, scale and accuracy of historical linguistics will come through a judicious mixture of automation and expert domain knowledge. We have demonstrated the viability of applying, and verifying the utility, of family- (or area-) specific

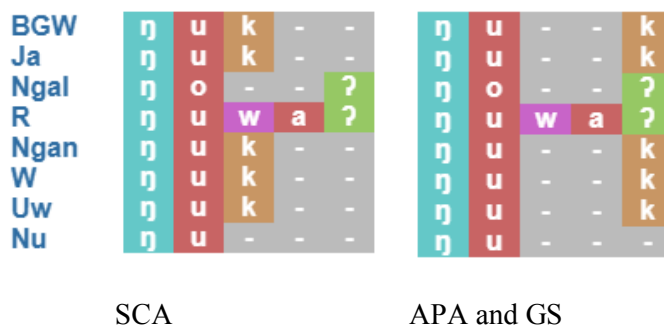


Figure 1 Example alignment of a cognate set: generic (SCA), customized (APA) and gold standard (GS)

historical phonological expertise in the scoring function of an automated cognate alignment method. Our APA function can be employed on other Australian data where high-quality manual work such as Harvey's (2003) is not available. More broadly, our findings indicate that custom scoring functions can help integrate expert domain knowledge of language families with emerging computational methods such as automated cognate alignment, enhancing their performance and thus their utility for historical linguistics.

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Coverb stacking in Wagiman

Daniel Krauß (University of Newcastle) and Mark Harvey (University of Newcastle)

Many northern Australian languages exhibit a type of complex predicate formation called ‘coverb construction’ (see Bower 2014 for an overview), in which an uninflecting coverb (CV) from an open class combines with an inflecting light verb (LV) belonging to a closed class, both of which are predicational and contribute to the overall argument structure. One of the languages with a productive CV-LV system is Wagiman, a near-extinct non-Pama-Nyungan language. By far the largest number of complex predicates in the area are combinations of exactly one CV and one LV, as illustrated by example (1) from Wagiman.

However, as has recently been observed (Hoffmann 2015a), several languages in the Daly river region also allow more than one CV to appear in such a construction. This phenomenon has been referred to as ‘serial (co)verb construction’ for structurally similar languages (Harvey [1990]:91; Hoffmann 2015a, 2015b; see also Schultze-Berndt 2000:122), but we use the term ‘coverb stacking’ for the current analysis, following the ‘preverb stacking’ analysis of Warlpiri (Bower 2010:65).

There has been no systematic analysis of coverb stacking in Wagiman to date, though the phenomenon has been briefly exemplified (Bower 2010:66; Hoffmann 2015a; Wilson 1999:71). We review all attested coverb stacking examples in the Wagiman corpora, drawing on Cook (1987), Wilson (1998), and our own fieldwork material, and show that not all of them have the same syntactic analysis and not all are complex predicates. Coverb stacking has at least five different functions in Wagiman:

- (a) Manner/adverbial (Ex 2)
- (b) Directional (Ex 3)
- (c) Cause-effect (Ex 4)
- (d) Clause-chaining, occasionally suffixed by *-wi* (Ex 5)
- (e) Participle construction, suffixed by *-yan* (Ex 6)

One important criterion for coverb constructions to be considered complex predicates are that all participating elements - CV and LV - must form one prosodic unit (Schultze-Berndt 2000:119-120). This criterion is satisfied with functions (a-c) but not with (d-e). Functions (a-c) are also differentiated from (d-e) in that interpretations of (a-c) necessarily involve temporal overlap between the CVs, whereas interpretations of (d-e) do not necessarily involve temporal overlap. The events in (a-b) are contemporaneous. In (c) (Ex4), there is a necessary partial overlap between the end of *nengh* ‘bash into’ and the start of *berrh* ‘fling’. By contrast, the events in (d-e) have interpretations without overlap. The semantic and prosodic bases for grouping (a-c) against (d-e) are independent of one another, and this provides a sound basis for distinguishing constructions (a-c) as monoclausal constructions from constructions (d-e) as multiclausal constructions. Hence only (a-c) are genuine complex predicates (Baker and Harvey 2010; Bower 2014; Nordlinger 2010:243), whereas (d-e) are not. Our sample reveals that genuine monoclausal coverb stacking in Wagiman must be of the shape CV LV CV (ex. 3) or CV CV LV (ex. 2 and 4) and cannot appear as *LV CV CV (ex. 7). Although neighbouring Kamu (8) allows for three and MalakMalak (9) for four CVs to be

stacked within one clause, we have no evidence for more than two CVs in one clause for Wagiman. Kamu and MalakMalak also differ from Wagiman in that stacking constructions may involve noun incorporation. This suggests that their stacking constructions have a distinct syntactic structure.

- (1) Gayh-gunda telegram **jowk-Ø** ng-a-Ø-ra-ng.
DEM.DIST-ABL telegram send-PFV PST-1SG.AGT-3SG.PAT-throw-PST.PFV
'From there, I sent a telegram.' (Cook 1987:139)
- (2) **Gabarn-a** **wek-ka** g-a-Ø-ra-n.
quick-NPFV swallow-NPFV PRS-3AGT-3PAT-throw-PRS
'He swallows it quickly.' (Wilson 1999:46)
- (3) **Joro-ma** g-a-ya **wilh-ma.**
return-NPFV PRS-3-go walk-NPFV
'He's walking back.' (Cook 1987:172)
- (4) Gurruwitj-yi **nengh-Ø** **berrh-Ø** Ø-la-ng.
car-ERG bash.into-PFV fling-PFV 3AGT>3PAT.PST-throw-PST.PFV
'A car bashed into him and flung him.' (Wilson 1999:71, gloss and translation altered)
- (5) [...], **bewh-wi** ng-a-di-nya **joro-ma.**
cross-SEQ PST-1SG-come-PST.NPFV return-NPFV
'[...], then I crossed over [the river] and came home.' (Cook 1987:259)
- (6) Gahan warren **luwi-yan** yunginy **juluny**
DEM.DIST child cry-PTCP sun set
'The kid cried until sundown.' (Wilson 1999:76)
- (7) *G-a-ya **joro-ma** **wilh-ma.**
PRS-3-go return-NPFV walk-NPFV
(intended: 'He's walking back.')
- (8) Yim may-ma goerr-goerr-wa-ga=anyayn
firewood DEM.DIST-PRM RED~drag-get-come=2SG.AUX.PP
'Did you drag that firewood back here.' (Harvey [1990]:193)
- (9) **Kubuk-karrarr** **dat-tyed** yuyu yanak ka yida=ke
swim-move.up look-stand 3SG.M.stand.PST one come 3SG.MASC.go.PST=FOC
'He crossed the river and looked once, then he came here.' (Hoffmann 2015a:7)

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Typologically rare cause-effect constructions in Vurës

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There is widespread agreement that in multi-verb cause-effect constructions, equivalent to ‘I *shot* (V1) him *dead* (V2)’, the cause verb (V1) must be transitive and the effect verb (V2) must be intransitive (Aikhenvald 2006:15; Bruce 1988:42; Foley & Olson 1985:42; Pawley 2006:90; Sebba 1987:43; Thepkanjana 1986:44). This observation makes sense both syntactically and semantically, since the V1 adds the causer to the overall construction and therefore cannot co-occur with a transitive V2 that already hosts an inherent agent role (Bruce 1988:42). From this perspective, the V2 must be syntactically intransitive and semantically unaccusative. However, a few exceptions to this hypothesis have been documented, including for White Hmong (Jarkey 2015:130), Khwe (Kilian-Hatz 2006:113), and Eastern Kayah Li (Solnit 2006:152).

Vurës, an Oceanic language of northern Vanuatu with productive SVCs, diverges from the claimed generalisation in two ways: cause-effect constructions where both V1 and V2 are transitive, and those where both are intransitive. Most cause-effect constructions in Vurës do consist of a transitive V1 and an intransitive V2. However two roots, *wor* ‘to break s.th. into pieces’ and *lēt* ‘to break s.th. brittle’, are inherently transitive yet occur commonly as V2 in cause-effect SVCs (Malau 2016:565), resulting in a cause-effect construction of two transitive roots, as in (1) and (2). Examples (3) and (4) show *wor* and *lēt* used alone with the detransitivizing prefix *mV-*, as evidence of their inherent transitivity. However, the fact that both verbs cannot occur alone as predicates without the prefix does raise the possibility that examples (1) and (2) are not genuine SVCs but verb compounds.

Conversely, Vurës also has a rare cause-effect construction where both V1 and V2 are intransitive without the need for the sole argument of each to be coreferential (5). The Vurës verb *siag* ‘sit’ is intransitive and cannot mean ‘sit on s.th.’, as evidenced by the ungrammatical sentence in (6), Example (7) shows that V2 can also be a stative verb, as opposed to (5), which has an active V2. Cause-effect constructions with two intransitive verbs are typologically very rare but they have been observed as a marginal feature in the neighbouring language Mwotlap (François 2006:231-33) and in some Sinitic languages (Fan 2016:150), such as Mandarin *ku xia* ‘cry blind’ and Jinjiang Southern Min *sau tsih* ‘blow broken’ as valid SVCs. Pawley (2009:131) gives the example *pug sug* ‘blow extinguished’ as an SVC for Kalam.

Although these constructions are at odds with claimed generalisations about multi-verb cause-effect constructions with regard to the valency of the two verbs, I show that they are monoclausal constructions and share logical arguments, rather than syntactic arguments.

- (1) No gē sēr **wor~wor** nivet aē.
1SG IPFV tear DIST~break four piece
‘I tear them into four pieces.’ (VVCMDVP22Nov0701-KD.10)

- (2) No mō=kōñ **lēt** o dem
1SG PRF=snap break ART yam
‘I snapped the yam.’ (Malau 2016:566)

- (3) Nē mē=mēs sōw, wōtōv ni **mo-wor**.
 3SG PRF=fall down bottle 3SG.AOR DETR-break
 ‘He fell down and the bottle broke.’ (Malau 2016:151)
- (4) O naw tē=mē~**mē-lēt**.
 ART sea PROG=DIST~DETR-break
 ‘The waves are breaking.’ (Malau 2016:400)
- (5) Nē mi=siag kir~kir no.
 3SG PRF=sit RED~fart 1SG
 ‘He sat on me so that I farted.’ (Malau 2016:567)
- (6) *Nē mi=siag no.
 3SG PRF=sit 1SG
 (intended: ‘He sat on me.’)
- (7) O wian mē=wian dōw~dōw nēn.
 ART rain PRF=rain DIST~be.wet 1PL.INCL
 ‘The rain rained on us and made us wet.’ (Malau, p.c.)

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The role of cortical oscillations during speech processing in older adults with hearing loss

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Age-related hearing loss is not only a disorder of the inner ear, but also of the brain, which has to complement the degraded speech input while also incurring structural and functional declines. This ‘central’ hearing loss may therefore manifest itself in various aspects of the brain, such as integrity of its structure, but also in its functional properties. For example, aging is associated with a change in absolute and relative oscillatory power in different frequency bands of the human electroencephalogram. These frequency bands have consistently been found to be related to speech comprehension. Specifically, oscillations in the theta frequency band (4-8 Hz) have been found to encode slowly changing acoustic speech cues like prosody, and oscillations in the alpha frequency band (8-12 Hz) have been found to be related to inhibition of irrelevant stimulus information. In the current study, while their electroencephalogram from 128 electrodes was recorded, N = 24 older adults with varying degrees of sensorineural hearing loss listened to an audiobook in four different background noise conditions, embedded in a 2-by-2 design: The number of background talkers as well as the signal-to-noise ratio were varied. We tested to what extent the modulation of theta oscillations as a proxy for older adults’ neuronal capacity to process prosodic cues would predict speech understanding in these challenging listening environments. We also tested the suitability of alpha oscillations as a proxy for the ability to inhibit irrelevant stimulus information. Results are discussed with respect to present theoretical accounts of the aging brain and the function of cortical oscillations during speech processing.

The Power of 'One'

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This paper will explore the meaning – or meanings – of the Warlpiri quantifier *jinta*, roughly equivalent to English 'one'. It will be shown that the different meanings, sometimes reflected in different English translation equivalents, can be represented as differences in scope. Warlpiri *jinta* can scope over either a member of a set or over a set. The interpretation of *jinta* when in the scope of local and clausal negation is also investigated.

In (1) *jinta* has scope over an individual, a single member of the set of children. This individuation is reinforced in (1b) by the addition of the suffix *-mipa* 'only' which strictly restricts the quantity to one, evaluated against the possibility of having more than one, operating as a universal quantifier. In (2) *jinta* does not quantify into the set of 'my brothers' to mean 'my one brother' or 'one of my brothers' but rather into the set that would satisfy the predicate 'went hunting' such that only one individual satisfies that condition and that individual also satisfies the predicate of being 'my brother'. English 'one' is not an appropriate equivalent for *jinta* in (2); rather 'alone' or 'by himself' or 'on his own' is felicitous. Unlike English 'alone', however, *jinta* cannot quantify over more than one individual as in the English sentence in (3a) which can be interpreted either distributively (each brother went on his own) or non-distributively (the relevant set of brothers went together in the absence of any other individual). The exclusion of individuals not belonging to the set of 'my brothers' satisfying the predicate 'went hunting' is expressed in (3c) by the co-referring third person pronoun *nyanungu-rra* to which the limiting (constant state) enclitic *=juku* is attached. In (3d) *jinta* is in the scope of *kulanganta* 'imagined world \neq actual world'; this phrase being compatible with the singular subject. In (4) the use of *jinta* to indicate equivalence is shown; the camp in which each of the two old men lived has a single referent. They have the 'one' or 'same' camp. Like English 'one', *jinta* cannot have scope over more (or less) than a single individual, whereas 'same' merely expresses equivalence irrespective of quantity, e.g. the *same*/**one* camps. However, 'one' may quantify over a set as expressed by a collective or mass noun, e.g. the **same**/**one** people/sheep/herd... Warlpiri *jinta* can also have scope over sets as in (5) in which it denotes the equivalence between sets. In (5a) the set of individuals called *ngataji* and the set of individuals called *manangkarra* are identical, i.e., have the same intension or extension. Similarly in (5b) *yumurnunju* and *ngarlajiyi* name identical sets of yam sp.

In the scope of clausal negation, expressed by the complementiser *kula*, as in (6a,b), *jinta* has a restrictive 'only/just one type of' meaning which is negated by *kula*. In (6a) the equivalence of sets of individuals or members of a set called *nama* 'ant' that is implied by *jinta* is negated by *kula* 'not' which has wider scope. It is clear from (6b) that *jinta* does not evaluate an individual referent belonging to the set of things called 'cave' (cf. (1)). Rather it has scope over the whole set of things called 'cave'. Negative *kula* denies the uniqueness of this set ('cave' set) as apt to be specified as 'wide'; thus the set of things that can be described as wide includes members of the 'cave' set, plus non-members of the 'cave' set.

These examples of *jinta* and others will be examined in the light of scope relations between negation and quantifiers: existential, universal and numerating. A comparison will also be made between *jinta* and *-mipa* 'only' (seen in (1b)) and the inclusive suffix *-rlangu* in (6b). The contrast between the interpretation of *jinta* and of the quantifiers 'some/any' in the scope of negation will also be canvassed.

(1)	a.	<i>Kurdu</i>	<i>ka=rna</i>	<i>marda-rni</i>	<i>jinta.</i>	
		child	PRS=1SG.S	have-npst	one	'I have one child.'
	b.	<i>Kurdu</i>	<i>ka=rna</i>	<i>marda-rni</i>	<i>jinta-mipa.</i>	
		child	PRS=1SG.S	have-npst	one-only	'I have the one child.'

(2)	<i>Ngajuku-pirdangka</i>	<i>wirlinyi</i>	<i>ya-nu</i>	<i>jinta.</i>	
	<i>my-sibling</i>	<i>hunting</i>	<i>go-PST</i>	<i>one</i>	'My brother went hunting alone .'
	≠My one brother went hunting. ≠ One of my brothers went hunting.				

(3)	a.	My brothers went hunting alone .			
	b.	<i>*Ngajuku-purdangka-patu=lu</i>	<i>ya-nu</i>	<i>jinta.</i>	
		my-sibling-several=PL.S	go-PST	one	
	c.	<i>Ngajuku-purdangka-patu=lu</i>	<i>ya-nu</i>	<i>nyanungu-rra=juku.</i>	
		my-sibling-several=PL.S	go-PST	3-PL=CNST	
		'My brothers went hunting just them/them only.'			
	d.	<i>Yangka=ju=rna</i>	<i>kulanganta</i>	<i>jinta</i>	<i>ya-ntarla=rni,</i>
		that=TOP=1SG.S	mistakenly think	one	<i>go-IRR=HITHER</i>
		<i>kala nyampu=ju=ji=li</i>	<i>para-ja=rni=yijala.</i>		
		but this=TOP=1SG.O=PL.S	follow-PST=HITHER=ALSO		
		'Like I mistakenly thought I would come alone , but these ones followed me here as well.'			

(4)	a.	<i>Nyurruwiyi,</i>	<i>purlka-jarra=lpa=pala</i>	<i>nyinaja</i>	<i>ngurra-ngka</i>	<i>jinta-ngka.</i>
		before	old man-two=IMPF=DUAL.S	lived	camp-LOC	one-LOC
		'Before, there were two old men who lived in the same/one camp.'				
	b.	<i>Yunta=ju</i>	<i>kala=palangu</i>	<i>karrija=yi</i>	<i>jinta=wiyi.</i>	
		shelter=TOP	PSTCOMP=DUAL.DAT	stood=CONT	one=first	
		'At first they shared the same/one shelter.'				

(5)	a.	<i>Jinta=juku=jala</i>	<i>ngataji,</i>	<i>manangkarra.</i>	<i>Warlpirirli=ji</i>	<i>ka=lu</i>	<i>ngarrirni.</i>
		one=CNST=CONTR	plain	plain	Warlpiri=TOP	PRS=PL.S	call
		'It is exactly the same/one (thing) that they call 'ngataji' and 'manangkarra' in Warlpiri.'					

	b.	<i>Yumurnunju,</i>	<i>ngarlajiyi</i>	<i>ka=rnalu</i>	<i>ngarrirni --</i>	<i>jirrama</i>	<i>ngula=ju</i>	<i>yirdi-jarra.</i>
		'yumurnunju'	'ngarlajiyi'	PRS=13PL.S	call	two	that=TOP	name-two
		Jinta-juku.						
		one-CNST						
		'We call it "yumurnunju" and "ngarlajiyi" which are two words for the very same thing.'						

(6)	a.	<i>Nama,</i>	<i>kula=ka=rnalu</i>	<i>jinta</i>	<i>ngarrirni</i>	<i>yangka</i>	<i>yirdi</i>	<i>nama,</i>
		ant	NEG=PRS=13PL.S	one	call	that	word	ant
		<i>kala</i>	<i>ngari</i>	<i>panu</i>	<i>ka=rnalu= jana</i>	<i>nama=ju</i>	<i>yangka</i>	<i>ngarrirni,</i>
		but	just	many	PRS=13PL.S=PL.O	ant=TOP	that	call
		<i>panu=juku=jala</i>	<i>-- nama</i>	<i>kujaka=lu</i>	<i>nyina.</i>			
		many=CNST=CONTR	ant	COMP=PL.S	be			
		'Ant, it's not just one (type of thing)that we call by that word 'ant'. We call many (types of things) 'ant'. It's ALL (the different types) that are ants.'						
		(≠ There is not one thing that we call...; ≠ There is one thing that we don't call...)						
	b.	<i>Kula=ka=rnalu</i>	<i>jinta</i>	<i>pirnki</i>	<i>ngarrirni</i>	<i>'wantiki'=ji,</i>		

		NEG=PRS=13PL.S	one	cave	tell	wide=TOP
		<i>wantiki</i>	<i>ka=rnalu</i>	<i>ngarrirni</i>	<i>yangka--</i>	<i>yurutu-rlangu</i>
		wide	PRS=13PL.S	tell	that	road-INCL
		<i>kujaka=lu</i>	<i>yarlu-pinja-yani</i>			
		COMP=PL.S	clear-make-go			
		'We don't just describe a cave/caves as 'wide', we use 'wide' of like -- something like a road that they open up (e.g., by grading).' (≠ We don't describe one cave as 'wide'.)				

Age as a driving force in referential choices for first and second person in spoken Korean

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The current research examines variation in subject expression in Korean. As a well known pro-drop language, there is much literature focusing on formal syntactic explanations of subject omission (e.g. Lee and Ramsey, 2000; Yang, 1979, 1986). What is less well understood, however, is what conditions the choice between different forms when subjects are expressed, which, in Korean, includes not only pronouns, but also kinship terms, professional titles, personal names and other lexical forms. Here, I test the distribution of subject expression in spoken Korean corpora for first and second person subjects. The distribution is predicted to be varied, even more than the T-V system (Brown and Gilman, 1960), considering that there are multiple speech levels in Korean in which age becomes a significant indicator (Oh, 2007, 2010; Sohn, 1999). This is seen in the following example, an older speaker uses a plain 1sg pronoun, *na*, and the younger speaker replies with a humble form, *ce*.

Senior: *na kumyoiley swuepi sey sipwuthe sa ney si sasip o pwunkkaci isse.*

‘*I-na* have classes from three to four forty five on Friday.’

Junior: *cenun ney sipwuthe yeses si.*

‘*I-ce* (have classes) from four to six.’

The analysis is based on subject expression patterns in three corpora of spoken Korean, totaling approximately 45,000 words (Sejong Spoken Corpus, CallFriend Korean Corpus and five Korean TV drama scripts). The overall rate of expression is 31% (868/2,772) for first person and 22% (613/2,822) for second person subjects. The analysis focuses on the makes of up these expressed subjects.

For first person, 92% of overt subjects are expressed via a pronoun. This is the case regardless of speakers’ age, though the pronominal form differs depending on the relationship between the speakers, as seen in the example above — younger speakers use the humble form *ce* to older speakers, while older speakers use the plain form *na* to younger speakers, and most speakers use the plain form *na* with equals. Use of terms other than pronouns is restricted to older speakers speaking to their child, pupil or sibling, where they may use a kinship term or a title for first person reference.

The second person forms are more varied. While pronouns remain the most frequent form overall, their use is restricted in a way that is not so for 1st person, being rarely used by younger people to older people. The preferred second person forms for younger people speaking to older people are kinship terms (54%) or titles (13%). When a pronoun is used toward an older speaker (21%), this tends to be in a situation of conflict, with the younger speaker breaking social norms to display impoliteness (Son, 2010; Wang et al., 2005). In the speech of older speakers or between equals, in contrast, pronouns are widely used.

This study provides empirical evidence that age is a driving force behind referential choices for first and second person subjects in Korean, with second person forms more sensitive than first person.

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Elicitation in linguistic fieldwork for Chin language and its dialects

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The lack of extensive documentation and description for newly arrived minority languages is a major challenge facing linguists, scholars, researchers and students as well as other language stakeholders and actors. Understandably, priority has been given to earlier settled language groups in Australia. However, the absence of literature on these newly arrived minority language groups remains to be addressed. This is particularly the case in Australia. While a large number of languages are in use in the Australian community, they have not all been studied with the same intensity and depth. One such language is the Chin language and its dialects, originally from the Chin State of Burma. Chin people are a newly arrived minority group representing an emerging, lesser-known language community in Australia. While the Chin community in Australia is growing and becoming more established, the Chin language has not been well studied and only very limited work is available. As a result, the sociolinguistic aspects of this language in the English-speaking environment is not yet well understood. This paper aims to provide an overview of the nature of linguistic variation and the complexity of Chin language, in particular, the Hakha dialect, which is viewed as a lingua franca because it is used by all generations of speakers in Australia, Burma and the Chin diaspora around the world.

Information Structure in Tsum: when lexical phonology encounters information packaging.

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This paper presents fresh data to support the analysis of how information structure induces the complex and puzzling phonological processes in Tsum, a tonal Tibeto-Burman language spoken in northern Nepal (ISO: ttz; ཅུ་མ་). Language employs different approaches, such as word order, morphology, and prosody, that available in a particular language, in organising elements of sentences in order to encode different information (Arka & Sedeng, 2018). This paper discusses that, for Tsum, suprasegmental feature, especially the tone, is dynamic in understanding the information structure. In the tonal language of Tsum, the tone has a significant role in information packaging and is also manipulated as a consequence of the information being communicated and the knowledge available to the interlocutors. Based on this, this paper also argues that the domain of information structure should include a fine-grained subset of focus in representing the knowledge and information exchanged (Krifka, 2008).

Firstly, the tone in grammatical morphemes carries the informational roles. In many Himalayan languages, grammatical morphemes can be used to express information structure values (Gawne, 2016; Hyslop, 2017; Mazaudon, 2003; Teo, 2012; Watters, 2002). This is even more complex in Tsum: it specifies information structure value by assigning a different tone in grammatical morpheme. For example, the locative and dative ‘la l’ (ལ) serve as the topic marker when occurring in LH tone. As shown in the example (1a), ‘la’ in non-focused position shows L pitch, but having a LH tone in the topic position in (1b) as a consequence of two moras associating to the morpheme in which allows both L and H to realise. Moreover, the tone in information structure makers reflects the speaker’s knowledge. The contrastive focus marker, if changing the tone, addresses the different implications of the speakers. For instance, in (2b), ‘rangl’ marks the contrastive focus of the clause when the speaker feels confirmed. Whereas in (2c), ‘rang l’, which is also marking the contrastive focus, expresses that the focused constituent is beyond the speaker’s knowledge and requires further confirmation from the interlocutor.

Secondly, not only the tone but the prosodic structure is also sensitive to the information structure which triggers a systematical change in the lexical phonological realisation. In Tsum, a strong focus, the contrastive focus, is favoured for appearing on the left periphery of intonation phrase. The prosodic phrase has been found misaligned with syntactic phrase especially when having an information structure role. This involves complex procedures of overwriting the prosodic phrase boundary, reapplying lexical phonology rules which change the segment and tone, and readopting phrasal intonation.

Thus, through examining the phonological processes presented in the information packaging, we see that the prosody can be highly dynamic in encoding information in tonal Tibeto-Burman language interacting with rich morphological and syntactic resources (Bögel, Butt, Kaplan, King, & Maxwell, 2009) although pitch is functioning intonationally, lexically, and/or grammatically.

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Examples:

(1) Topic marker 'la'

a. Locative 'la'

Nge-ra	lakpa-i	ngang-laI	wa.
1 st .GEN-REFL	hand-GEN	inside_LOC	AUX/TOP.

'(the right) is in my self's hand'

b. ani phumo laI tei ma?
Aunt's daughter TOP what say

'How would you address aunt's daughter?'

*'what (you) say at your aunt's daughter('s place)?'

*'what (did you) say to your aunt's daughter?'

(2) Contrastive Focus maker 'rang' in different tones

teje.teəŋ	kangpa renpo	tee.tee	wa	mam	pa?
Bird	arm long	AUX	TOP	NEG	Q

'Isn't a bird having a long leg?'

a. teje.teəŋ mam.

Bird NEG

'Not a bird'

b. teje.teəŋ rangI mam. (questioning and surprising)

Bird FOC NEG

'Not a bird' (Implication: No, this is not a bird but I did not think like this before you said that, Are you sure?)

c. teje.teəŋ rangI mam.

Bird FOC NEG

'Not a bird' (Implication: I confirm this is not a bird)

Phylogeny in phonotactics: A multivariate approach for stronger historical signal

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Computational methods continue to rise in comparative fields of linguistics, historical and synchronic. However, there has been less development of the kinds of data used with these methods. Computational phylogenetic studies (*e.g.* Bouckaert, Bower, and Atkinson 2018; Kolipakam et al. 2018) tend to rely on lexical data consisting of expert, manually-coded cognate judgements. This is a rate-determining step and a barrier where language documentation is limited (notwithstanding progress by List et al. 2018).

Phylogenetic comparative methods can be used to identify and quantify historical patterns in comparative datasets. It is possible to empirically test whether novel kinds of linguistic data accord with known phylogenetic histories of languages (*phylogenetic signal*) and therefore contain information of interest to historical linguistic inquiry. Recent work (author *et al.*, submitted) considers statistical phonotactic data using this approach. Phylogenetic signal is found in variables coding the frequencies of transitions from segment x to segment y in the sequence xy relativized over all instances of x , extracted from wordlists and compared to an independent reference phylogeny inferred using lexical cognate data. In addition, a higher degree of phylogenetic signal is found in relative frequencies of transitions between natural sound classes. There are two limitations, however: (1) Statistics for quantifying phylogenetic signal require large datasets, becoming unstable with fewer than 40 languages. (2) Phylogenetic signal is quantified for each variable individually, which does not directly test the question of whether a language's overall phonotactic system contains historical information more generally.

In this study, we address both limitations by estimating the level of phylogenetic signal for whole phonotactic datasets using a multivariate version of the K statistic (Blomberg, Garland, and Ives 2003), K_{mult} (Adams 2014). This method collapses a multivariate dataset into a matrix of Euclidean distances between languages and compares those distances to the phylogenetic distances between languages in a reference tree. We calculate distances between 113 Pama-Nyungan wordlists from a dataset of 1,738 variables coding transition frequencies between phonological segments and find $K_{mult} = 0.54$, which is statistically significant, outperforming all 10,000 random permutations of the dataset (Fig. 1). $K_{mult} = 0.72$ for a dataset of 389 variables coding frequency transitions between natural sound classes (Fig. 2). We detect a greater degree of phylogenetic signal by jointly estimating K_{mult} for all variables—comparing distances between the statistical phonotactics of languages overall—rather than estimating K for each variable individually. This is despite the presence of variables with many NA or zero values creating noise. Further, phylogenetic signal remains high in samples of as few as 10 languages.

We demonstrate how a high degree of historical information is recoverable from phonotactics, even in cases of dataset sparsity and small language sample sizes. This is achievable by statistically modeling a whole sets of data from each language rather than analyzing single variables at a time. Our results open the possibility

of incorporating a novel data source in areas of historical linguistic inquiry where uncertainty exists or linguistic documentation is limited.

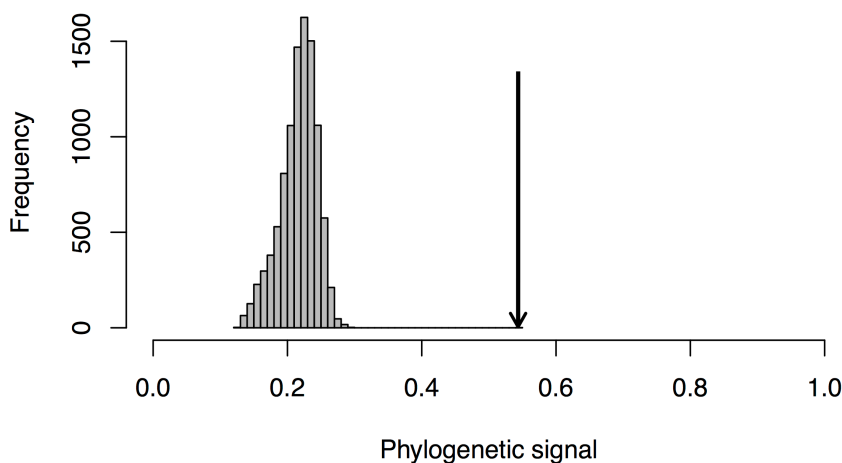


Figure 1. K_{mult} for biphone transition frequency dataset. Observed K_{mult} is indicated by the arrow. K_{mult} for random permutations of the dataset are plotted as a histogram.

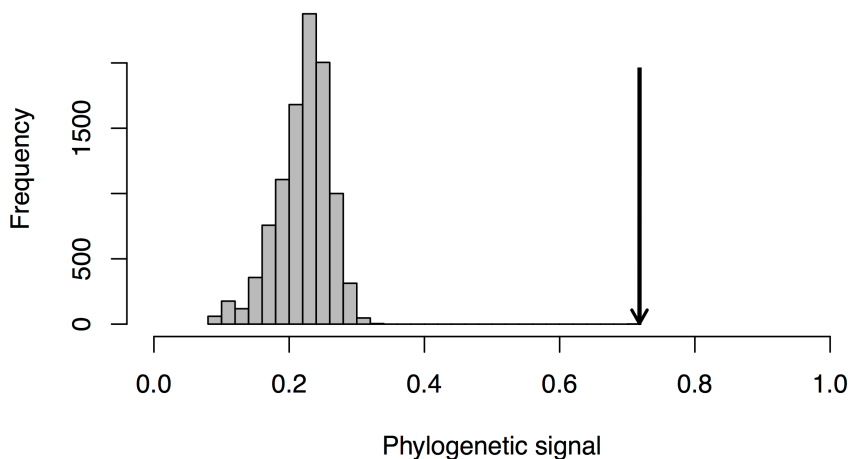


Figure 2. K_{mult} for sound class transition frequency dataset.

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Epistemic stance marking in Murrinhpatha and Ngan'gi

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Australian Aboriginal societies have often been claimed to prefer consensual, collaborative and circumspect modes of verbal interaction (e.g. Liberman, 1982; Walsh, 1997). Assuming superior knowledge is therefore a marked speech act, which must be carefully managed and monitored. We propose that in two sister languages of the Daly region, Murrinhpatha and Ngan'gi, there is morphological marking of epistemic authority. Cognate *kV-* prefixes in these two languages have been somewhat elusive to interpretation, with grammatical descriptions variously proposing deictic, aspectual, existential and 'conceptually distant' interpretations (Laves, 1930; Hoddinott & Kofod, 1989; Nordlinger & Caudal, 2012; Reid, 1990; Street & Kulampurut, 1978). However, drawing on recent research into epistemic stance management, we propose that the prefixes can be better understood as a means of flagging asymmetric epistemic states, where the speaker assumes greater knowledge than the addressee (Evans, Bergqvist, & San Roque, 2017; Heritage, 2012; Stivers, Mondala, & Steensig, 2011).

Although we do not propose that the function of the *kV-* prefixes in Murrinhpatha and Ngan'gi are identical, in this presentation we illustrate their commonalities. Existential uses in Murrinhpatha (1, 2) and 'out of sight' uses in Ngan'gi (3, 4), can both be analysed as special cases of addressee's epistemic deficit. We also note the use of formally similar *kV-* irrealis prefixes in both languages, which may also have an epistemic management function in Ngan'gi, but not in Murrinhpatha.

Finally, we discuss the social profile of epistemic authority marking, as evidenced in the Murrinhpatha corpus. The marker is used more by older people than younger, and is especially prolific in the genre of Dreaming narratives. We argue that this grammaticalisation of epistemic stance has been fomented by a cultural epistemics in which shared knowledge is the unmarked norm, while 'owned' knowledge is a carefully controlled domain.

Examples

(1) *Murrinhpatha*

1. PB: *Kura-kathu!*
'Give me some water!'

2. EC: *Nanthi ngu–*
'The thing–'

3. PB: *Nangayit kura-wa mampirra*
'Hold it for me, I gave them water.'

4. EC: *Makura-ya karrim*
'There is no water here.' [holding out empty bottle]
(Blythe, 2018, fragment 10)

(3) ya ku-thirrinhin pangu kurran-kem
 hey ANIM-skink there go.3SG.AUTH-SIT.AUTH
 'Hey, there's a skink crawling along there!' (LAMP_20140321_LD_01)

Ngan'gi

(3) yu Darwin kine, wembem yaga,
 yes PLACE.NAME this house DEM
buy-gumum-derri-gaganim
white-do.3SG..PRS.SR-back-go.3SG.PRS.SR
 'Yes this is Darwin alright, the houses are standing out white in the distance.' (Reid 1990: 111)

(4) yu wetimbi kinyi gibem
 yes didgeridoo here lie.3SG.PRS.SR
 'Yeah OK! (the didgeridu) is here (inside the house / out of sight).'
 (Reid 1990: 111)

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Contact between northern Australian and Austronesian Languages: Sound change as evidence of chronology in the late Holocene

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McConvell (2017, forthcoming) has proposed that the lexical item tabu(r/l) ‘tabu’ and related meanings’ came from Vanuatu to North Queensland (specifically the Kuku Nyungkul area north of Cairns), and spread into other areas of Australia. There is some archaeological evidence from nearby Lizard Island that this contact took place at some time before the colonial period, but the results are not published. Consequently some have doubted the time depth and suggested that the contact and diffusion of the word took place in the 1860’s-70’s when ‘blackbirded’ people were set to work on the earliest sugar cane plantations in Australia in the same area. This paper will show that the late nineteenth century date of diffusion is incompatible with both the geographical spread of term and the sound changes in the word. which are otherwise known in parts of North Queensland, which fit a longer contact going back 1000-2000 years. If time allows, apparently related terms in the South Moluccas and Arnhem Land will be examined to see if these are also part of the the same diffusion or a separate more western spread. Other items diffused internally in Cape York Peninsula and Australia more generally (eg types of spearthrowers) are assessed to see if they are subject to the same sound changes. Some of the sound changes in CYP (eg initial dropping, Verstraete 2018) cause deformation of the etyma shapes to the extent that ‘eyeballing’ forms is inadequate to provide evidence of links between related forms, either cognates or loans/Wanderwoerter – detailed study of sound change is essential.

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Do Sound Symbolic Words Resist Phonological Change? A case study from Ryukyuan

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As a cross-linguistic class, a characteristic feature of sound symbolic words, or ideophones, is that they exhibit marked phonotactic behaviour (Dingemanse, 2012). For example, Japanese ideophones like *piripiri* ‘a tingling, burning sensation’ occur with word-initial *p*, which is disallowed elsewhere in the native lexicon (Hamano, 1998). As Hamano identifies, this is a retention from Old Japanese. That is, when Old Japanese word-initial /*p*/ shifted to word-initial /*h*/, the ideophones alone (in the native lexicon) were unaffected by this change (Sato, 1977). Hamano (1998) discusses other ways in which the phonology of the sound symbolic strata in Japanese resembles that of older forms of the language. From this, she hypothesises that the non-arbitrary relationship between the forms and meanings of ideophones makes them more resistant than other words to regular processes of phonological change. Hamano (2000) emphasises the value of the sound symbolic strata for historical reconstructions, and laments that ideophones are under-utilised by historical linguists in Japan and elsewhere.

In this study, I test Hamano’s hypothesis that ideophones resist phonological change by comparing the phonology of the sound symbolic strata with the regular phonology of one variety of Northern Ryukyuan (from the island of Yoron) and one variety of Southern Ryukyuan (from the island of Miyako). I chose these Ryukyuan varieties as they have undergone considerable phonological change since they split from Japanese approximately two millennia ago (Lee & Hasegawa, 2011). Using data from Kiku & Takahashi’s (2005) dictionary of Yoron, and Shimoji’s (1979) dictionary of Miyako, I compare the number of phonological changes and innovations occurring in samples of ideophones versus other words for each variety. Preliminary results suggest the ideophones exhibit significantly fewer phonological changes and innovations. However, there also appear to be differences *within* the ideophone category in that onomatopoeic ideophones, e.g. *bzi*: ‘buzzing of a cricket’ (Miyako), are more likely to incorporate phonological changes and innovations than other ideophones³. This supports Hamano’s hypothesis and strengthens the case for the careful use of ideophones in Japanese historical linguistics. It also raises the question of whether ideophones in other languages are similarly resistant to phonological change. Currently, I do not know of any studies that look at this outside of Japan, but I present it as an area for future research, both for those interested in sound symbolism and historical linguistics.

The current literature on ideophones in Japanese dialects focuses strongly on the differences between dialectal and standard ideophones, most commonly in terms of morphosyntactic properties or general usage (see Kobayashi, 2018 for a summary). However, from a typological perspective the uniformities and stability of ideophones across dialects are also interesting. In addressing the question of how and why ideophones vary in time and space, it is important not only to look at where variation is found but also at where it is not

³ While in English and many other Indo-European languages the majority of ideophones are onomatopoeic, Japanese ideophones depict not only sounds but also a broad range of sensory phenomena including movements, tactile sensations and interoceptive sensations such as pain and emotion.

found. I thus present this study not only as a contribution to (historical) linguistic research in Japan, but also to the nascent field of ideophone typology.

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The rapid acquisition (and loss) of grammatical categories - the case of the Tangsa verb system

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Tangsa is a name given since 1959 to a group of Tibeto-Burman languages of the Northern Naga sub-group spoken in Changlang district of Arunachal Pradesh state, India and in Sagaing region, Myanmar. There are around 80 varieties, some fully mutually intelligible with each other, and others completely unintelligible. Within Tangsa there is a group of around 28 varieties usually termed ‘Pangwa’ in India.

Pangwa varieties all have verbal agreement, which in its simplest form consists of a verbal stem and an ‘agreement word’ (DeLancey 2015) the latter being an eroded verbal operator, perhaps once a copula verb of some kind, and a person agreement marker. These verbal operators, which are now generally initial consonants, convey categories of tense, aspect, modality and also negation, as in (1), from the Muishaung variety of Pangwa:

- 1) ηa^1 ka^1 $ta\eta\eta^2$
 1SG go FUT.INTR.1SG
 ‘I will go’

Uniquely, in Muishaung, there are two different verbal operators in the future, one with initial *t*- for intransitive verbs, as in (1), and a second with initial *f*- for transitive verbs, as in (2):

- 2) ηa^1 $fau\eta^1$ $fau\eta^2$
 1SG sell FUT.TR.1SG
 ‘I will go’

No other Pangwa varieties distinguish transitivity in the future in this way, and we assume that this is a recent innovation. This assumption appears to be confirmed since both these sentences are found in the only early source of Muishaung, Needham (1897:10), which show an invariant form <khâung> in the future, as in (3), with the same agreement marker *-auη* marking 1st person.

- 3) $ngâ\ kâ\ khâung$ ‘I will go’
 $ngâ\ shong\ khâung$ ‘I will sell’

When the older speakers of Muishaung were told about the examples in Needham’s book, they said that they remembered that there was a form $k^hau\eta^2$ in the language.

In this paper we will present these and other examples of the acquisition of, or loss of, categorial distinctions in the morphosyntax of the Tangsa languages, changes that are believed to be of shallow time depth. We will further speculate as to the motivation behind this rapid and recent language change, relating this to the idea of ‘deliberate manipulation’ of the languages to set groups aside from their neighbours, as reported for other language communities in the India-Myanmar border area. (Burling 2003: 182-183)

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Definiteness in Muklom (Tibeto-Burman)

Mijke Mulder (La Trobe University)

Muklom is an endangered and understudied Tibeto-Burman language variety that is spoken by a few thousand inhabitants of the Changlang District in the state Arunachal Pradesh, Northeast India. The Muklom people are part of a larger ethno-cultural group called Tangsa or Tangshang that spans the India-Myanmar border. Morey (2017) estimates that there are approximately 80 different Tangsa varieties, which are sometimes mutually intelligible, but often are not (Statezni 2013). Much work remains to be done on the internal classification of this linguistically diverse group of language varieties.

This paper explores the expression of definiteness in Muklom. It discusses the paradigms of definite and demonstrative markers in Muklom and relates them to the expression of these categories in Tibeto-Burman and beyond, from a typological perspective, and assesses their value for internal linguistic subgrouping of Tangsa varieties.

Muklom has one definite marker, and a three-way demonstrative system that splits into proximate, medial, and distal distance, with the speaker as point of reference. The root forms of these markers are as follows: /tʰi³/ for definite referents, /ɿ³/ for proximate, /ni³/ for medial, and /ɟi³/ for distal referents. Superscript numbers in the transcription indicate tone categories. These definite and demonstrative markers can fill two quite different slots in the sentence, functioning either as independent pronouns or as determiners that modify the adjacent noun.

Features of the definite and demonstrative markers that stand out include: a) the use of double determination, i.e. placing one determiner in front of the noun and one after, as illustrated with the medial demonstrative marker /ni³/ in example (1), b) the occurrence of an independent definite pronoun, /e² tʰi³/, exemplified in (2), and c) the compatibility of the definite and demonstrative determiners with personal pronouns and proper names, as illustrated with an allomorph of the definite marker, prefix /tʰ-/ , with personal pronoun /pi⁴/ ‘she/he’ in (3) and the personal name /tɕɛŋ³ βa¹/ in (4), which by their nature are already intrinsically definite.

When comparing Muklom to certain other Tangsa varieties, we find that they have quite different definite and demonstrative markers. The Muklom system stands out as being highly transparent. That is, there are no irregularities in the paradigm or portmanteau morphemes, but a one-on-one mapping of meaning and form (Leufkens 2015). The degree of transparency might indicate a relatively shallow time-depth of the system. In other words, the Muklom paradigms could reflect an innovation that is not shared with all other Tangsa varieties. As such, this description of Muklom definite and demonstrative markers may contribute to the internal classification of Tangsa varieties, which should be based on the distribution of innovative linguistic features rather than retentions or extra-linguistic characteristics.

Examples

- (1) [e² ni³ mɛŋ² ni³] p^hʌn³ tɛʌk u³!
NON.PROX MED cat MED chase PRF 2SG

‘Chase that cat away!’ (B1.18)

- (2) [e² t^hi³] mʌl² ʌŋ² t-a¹ mʌn¹ p^hʌn³.
NON.PROX DEF like be PST-3 story

‘The story was like that.’ (20160106_02)

- (3) [pi⁴ t^h-ɛ³] ba³ ja³ ʃi⁴ kʌp t-a¹ ti³.
3SG DEF-ERG then bad receive PST-3 REP

‘She took it the wrong way.’ (20160106_04)

- (4) e² t^hɔ³ [tɛŋ³ βa¹ t^h-ɛ³] u³ na³ βaŋ³ kɛl² diŋ² ni³a³ tsʌm¹ nʌm³
and Chengwa DEF-ERG 3SG.POSS ear from earthworm and paddy stalk
tsɔŋ³ a³ t^h-a² xʌm² t^h-ɔ⁴ lʌt kɔ⁴ t-a¹.
wear.in.ear 3 DEF-ABS mat DEF-at pull.out give PST-1SG

‘And Chengwa pulled out from his ear the earthworm and the paddy stalk that he was wearing in it and put them on the mat.’ (20160106_01)

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Building a database of spatial referential systems in Australian languages

Bill Palmer (University of Newcastle), Bill Pascoe (University of Newcastle) and Dorothea Hoffmann (University of Oregon Eugene)

This paper reports on a pilot project to model an interactive online database and map for spatial referential systems in Australian languages. Australian languages loom large in the theoretical literature on spatial language and spatial cognition, widely cited as exemplifying languages with a dominant absolute frame of reference (FoR) in the form of an abstract cardinal system, a claim based on detailed studies of a small number of languages, particularly Guugu Yimithirr (Haviland 1993, 1998; Levinson 2003:113-146) and Eastern Arrernte (Wilkins 1997, 1999, 2006). The findings for Guugu Yimithirr have been assumed to be representative for Australian languages (Levinson 2003:145-146). This view of the primacy of cardinals in Australian referential systems is consistent with descriptions of cardinal systems in languages like Garrwa (Furby & Furby 1976), Warlpiri (Laughren 1978) and Western Desert (Lewis 1976). However, these studies predate a modern understanding of absolute FoR with its potential for systems invoking landscape features such as watercourses or coastline, or an understanding that apparent cardinal axes may actually invoke phenomena such as river drainage (e.g. where north-south is actually downriver-upriver), or seasonal winds (e.g. where east-west is actually upwind-downwind). More recent studies of individual languages have shown that Australian languages vary in the extent to which they favour absolute FoR (Murrinhpatha lacks it entirely (Blythe et al 2016)), and in the bases on which their absolute systems are constructed (Bower 2016; Edmonds-Wathen 2011; Meakins 2011; Schultze-Berndt 2006; Stirling 2010). However, the extent to which Australian spatial systems invoke environmental features is under-represented in the wider spatial literature. The extent to which non-cardinal absolute axes coexist with cardinals in individual languages is also largely uninvestigated (e.g. Eastern Arrernte is often cited as having abstract cardinals, but an alternative upriver-downriver axis also exists, reported in a single footnote (Wilkins 2006:54 fn7)). In short, while Australian languages are held to cast light on spatial cognition, actual data on spatial referential systems across Australia is extremely limited, giving a partial and skewed picture.

The first step towards an empirically grounded understanding of the implications of Australian spatial referential systems is to establish what components of spatial systems actually occur in what combinations across the continent. We propose to develop an interactive online survey database of Australian spatial systems that is rendered both as an interrogatable database, and an interactive mapping front end representing directional axes at points in individual language territories. In order to test for systematic correlation between absolute axes and the environment, following Palmer (2015), the database will include environment data such as river drainage, escarpments, seasonal wind patterns, etc. These will also be rendered in the map to allow visual comparison of referential systems and environment. For maximal comparability, where possible fields will involve closed sets of options (e.g. a field for relative FoR with options such as ‘preferred’, ‘possible’, and ‘not present’; a field for absolute FoR with options for axes such as ‘north-south’, ‘upwind-downwind’ etc). Once constructed, the database can be populated with data as available, with individual researchers correcting or adding to data already present for languages with which they are familiar.

However, developing a survey database like this poses numerous challenges, from content (what environmental features should be included?; how do we avoid imposing the analyst’s culturally specific categories on Indigenous classifications? etc), to technical implementation (e.g. how can directional axes selected from a closed set be rendered interactively on the map?). In this paper we report on a feasibility project to pilot the design and implementation of a database and mapping front end for a test fragment of the continent: an area including MalakMalak, Ngan’gityemerri, Matngele and Wagiman. This sample is a useful test as the languages are known to employ a range of absolute axes, and employ grammaticized absolute FoR to varying extents, and because it involves drawing on sources of diverse types, from spatial studies (Hoffmann 2013), to grammatical descriptions of directional forms (Reid 2011), to field notes. We report on challenges encountered in developing the database and map; and the kinds of choices we faced to design and implement the database. Finally, we demonstrate the resulting pilot database and interactive map.

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The Constituency of the Verb Phrase in Kaytetye: Associated Path

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The participle phrase analysis predicts that motion verbs will not occur as the lexical verb in AM construction, since this would be redundant. However, it is possible for the same motion verb to occur as both the lexical verb root and the AM verb in the construction, such as that in 1).

1. arlwenthe atherr=aperte **alpe-ye=rn=alpe-rrane**
couple two=just **return-AFTER=HITH=return-PRS:IPFV**
‘Just those two are coming back’

Under the participle phrase analysis, the motion verb is the head, and so determines the argument structure of its clause. An intransitive motion verb (e.g. *alpenke* ‘return (intrans.)’) should not permit ergative case. Examples such as (2), however, show this prediction is not supported.

2. school-warle **atye** kwere eletnhe-l=alpe-nhe
school-ALL **1SG.ERG** 3SG.ACC deliver-BEFORE=return-PST:PFV
‘I dropped her off at school (then came back)’

In (4) and (5), the participial phrasal analysis does not make the correct predictions. On the other hand, none of the data in **Error! Reference source not found.2)** is a problem for the auxiliary analysis. Because auxiliaries are grammatical, they do not affect the argument structure of the sentence, and permit repetition such as in cases like 1). Because the construction is phrasal, the auxiliary analysis predicts occurrence of clitics at word boundaries and lexical stress on words (see summary in table 1). We propose that the auxiliary has a path, and not a motion function. Path functions, unlike motion functions, are compatible with stative verbs, and AM constructions do appear with stative verbs, as in (6).

3. elpaye-l=arle atnte-r=atnte-r=etnye-rrane arwele aylpel=inenge
creek-LOC=EMPH stand-CONC=along-CONC=give-PRS:IPFV tree river.red.gum=COLL
‘The river red gum trees stand along the creek’

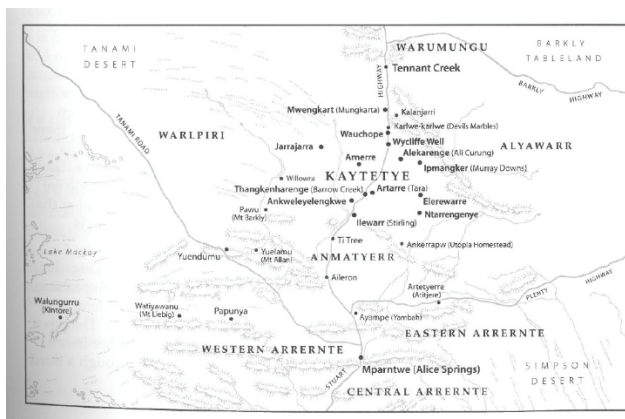


Figure 1: Location of the traditional land of the Kaytetye people (Turpin 2000: 1)

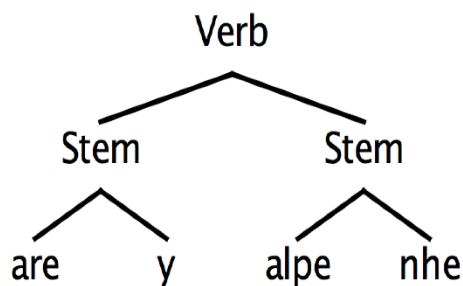


Fig. 2: Tree structure of word
Analysis of *arey-alpenhe* ‘went back and saw’

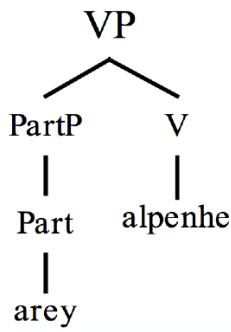


Fig. 3: Tree structure of phrasal analysis

In which the motion verb is a lexical verb.

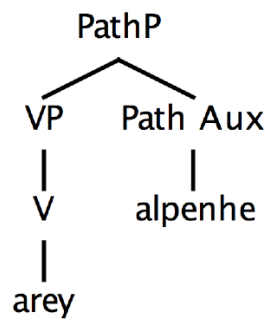


Fig. 4: Tree structure of phrasal analysis

In which the motion verb is an auxiliary verb.

Analysis	Clitic Placement	Stress	Repetition of Form	Argument Structure
Word	Clause-level clitics are not placed within words	The construction receives a single word-level stress	Motion component is grammatical, so usage of the same form is expected	Motion component will not affect argument structure
Lexical Motion Verb With Participle	Clause-level clitics can be placed within phrases	The construction has multiple word-level stresses	Motion verb is lexical, so the same verb will not appear as the participle	Intransitive motion verbs will only occur in intransitive sentences
Path Auxiliary	Clause-level clitics can be placed within phrases	The construction has multiple word-level stresses	Path auxiliary is grammaticalized, so same form is expected	Path auxiliary will not affect argument structure

Table 1: Evaluation of Word, Lexical, and Path Auxiliary analyses of Associated Motion

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A Socio-Phonetic Analysis of Australian Neo-Jihadis

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This paper examines phonetic variation with respect to the speech of a group of native Australian English speaking males who subscribe to a fundamentalist interpretation of Islam. This is realised in variation in both consonants (e.g. aspiration of final stops) and vowels (e.g. exaggerated rounding of high non-front vowels). This group of speakers, who share their beliefs as part of an online population of self-appointed Sheikhs and internet preachers, broadcast across the world via YouTube channels. The focus group consists of individuals who are second or third generation Australians who, although many have studied or lived for short periods in Arabic speaking countries, would not normally be expected to display a non-native English accent. The features of interest in their use of language are the marked “Arabised” sounds within their speech. The first aim of this study is to complete a comparative acoustic analysis, to determine if there is any substantial, acoustically testable difference between the speech of a small group of these individuals and that of Australian males from similar social contexts. The presence of an ‘arabised’ accent raises the question of what its function is. Indexical markers within individuals’ speech patterns, understood as one or several specific phonetic features which serve to highlight a particular aspect of the speaker’s identity, have long been a focus of sociophonetic analysis. While significant studies in the field have examined variation and social indexing, focused around larger social group identities such as age; gender; socioeconomic status; and sexual orientation, variation associated with ideologies has been less studied. The second aim of the paper therefore is to investigate whether this particular set of phonetic variations is being used to index a shift in ideological orientation.

A corpus-based analysis of the Australian English and New Zealand English amplifier systems

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This study takes a quantitative corpus-based approach to investigate the degree of similarity of the trajectories of the ongoing changes in the amplifier systems of Australian and New Zealand English. For that end, the study examines co-occurrence patterns of amplifiers and adjectives (cf. 1) based on the Australian and the New Zealand components of the *International Corpus of English* (ICE). From a language variation and change perspective intensifiers are particularly interesting because intensifier systems are a major area of grammatical change and particularly prone to change (Ito & Tagliamonte 2003:257; Quirk et al. 1985:590).

- (1) a. It's a very elegant technique (ICE NZ: S2A-038)
- b. oh wow that's really cool (ICE NZ: S1A-096)
- c. she looks bloody old in that picture any rate (ICE NZ: S1A-096)

To arrive at a suitable data set, the corpus data was POS-tagged by implementing a maximum entropy part-of-speech tagger to enable the extraction of adjectives. For each adjective, it was determined whether or not it was amplified and which type of amplifier occurred before a given adjective. To zero in on the variable context, only adjectives that were amplified by a minimum of two distinct amplifier types were considered. Comparative and superlative forms as well as negated adjectives were removed from the analysis.

Aside from investigating the apparent time distribution of amplifier types, correspondence, cluster analyses, and mixed-effects binomial regression models as well as configural frequency analyses (CFAs) were applied to the data in order to statistically model the distributional changes in amplifier-adjective bigrams and to test whether semantic similarity - measured as convergence of collocational profiles of amplifier types - is a precondition of lexical replacement. Finally, the analysis aims to add to our understanding of how an innovative amplifier manages to outcompete rival variants. The underlying hypothesis proposed in this paper is that successful amplifiers attach predominantly to high-frequency adjectives which leads to an increase in the token frequency of that amplifier variant. This increased token frequency causes the amplifier type to become more deeply entrenched which provides the amplifier with an advantage over rival variants as more deeply entrenched forms are easier to retrieve.

The results of the statistical analyses show that the apparent time trajectories of amplifier types are very similar across AusE and NZE with *really* replacing *very* in both varieties. The data do not support the hypothesis that semantic similarity is a sufficient precondition for lexical replacement but confirms that successful amplifier variants do indeed significantly collocate with high frequency adjectives – thus substantiating the proposed cognitive mechanisms which uses entrenchment to explain the trajectories of the observable ongoing changes.

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The use of *stupid** and *dumb** in online metalinguistic discourse

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Much of public discourse on the English language is dominated by people who, as Crystal (2006:1) describes them, ‘worry about English usage’. They focus on the supposed value of particular linguistic items – which parts of language are good, which parts are bad, and what can be done to make them better. Milroy & Milroy (2012:33) argue that this (prescriptive) discourse is based on three central assumptions, one of which is the belief ‘[t]hat people ought to use the standard language and that it is quite right to discriminate against non-standard users, as such usage is a sign of stupidity, ignorance, perversity, moral degeneracy, etc.’. This is said to stand in opposition with the descriptive principles of linguistics, which ‘has no place for value-judgements’ (Milroy & Milroy 2012:10). Being labelled stupid, ignorant, or morally degenerate is likely to have very serious day-to-day consequences for speakers whose language is labelled in this way – e.g. affecting access to education, employment, and fair treatment in the justice system (see, e.g. Allard et al. 2014; Lønsmann 2014; Eades 2012 respectively). Given this, linguists understand a need to discourage the assumption that this behaviour is acceptable; however, in order to be able to facilitate this, it is necessary to first understand the ways in which English speakers are using terms such as *stupid** and *dumb** in reference to others in metalinguistic discourse.

In this talk, I draw on data from the forum website Reddit (www.reddit.com) to explore the ways in which *stupid** and *dumb** are used in online metalinguistic discourse in English. Examination of data reveals that the use of *stupid** and *dumb** is not restricted to prescriptive discourse. Descriptive metalinguistic discourse too features English speakers referring to others as *stupid** and/or *dumb**. Importantly, however, there are distinct differences in how people displaying prescriptive and descriptive stances use these words. Most strikingly, prescriptive discourse tends to include references to others’ language, while descriptive discourse includes rebukes of such uses and instead features the words being used in reference to others’ metalinguistic opinions. Thus, it is perhaps too simplistic to argue that prescriptivism alone is the realm of value-laden discourse.

Labels such as *stupid** and *dumb** are not just the domain of prescriptivists; internet users displaying descriptive, prescriptive and unclear normative language stances all use these words in reference to others – albeit in different ways. In acknowledging and better understanding the nuanced ways that people with different normative language stances are using *stupid** and *dumb** towards each other, we may be better positioned to challenge these uses and, by extension, able to more effectively combat value-laden metalinguistic discourse in the public sphere.

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Identity trumps linguistic experience: the case of *yeah-no* in Australian English

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The social categories that characterise a speaker frequently correlate with the use of linguistic variables. Sociolinguists suggest that this correlation is perceivable as social meaning that is indexed upon the variable (e.g., Campbell-Kibler, 2008; Eckert, 2008; Podesva, 2011). However, variables and social categories which correlate in production are not always perceivable as social meaning by speaker-listeners (e.g., Buchstaller, 2006; Dailey-O'Cain, 2000; Kirtley, 2011; Plichta & Preston, 2005; Rahman, 2008). In this study, we investigated the role of speaker identity in the perception of social meaning. We conducted two perception-based experiments on the Australian English discourse marker *yeah-no*. Previous studies have identified that the distribution of *yeah-no* is influenced by social factors including age and gender (Burridge & Florey, 2002; Moore, 2007), but to date, how listeners perceive *yeah-no* has not been examined. Thus, this study seeks to determine if (1) the correlation between *yeah-no* and the social categories of age and gender are perceivable as social meaning by speaker-listeners, and (2) if the affiliation of the speaker-listener affects their perception of the socially indexed meaning of the variable.

65 native Australian English speakers participated in Experiment A, which examined *yeah-no* and the social category of age (32 male, 33 female). The participants performed a perception task in the format of an online survey using Qualtrics. First, participants judged if the presented sentences were more likely to be said by a speaker at a younger or older life stage, that is, by a student or by an employee. The second part of the experiment was a self-report task where participants were asked to decide which of four responses they would be most likely to choose in responding to a speaker's question; one response included *yeah-no* to determine if the participant identified as a *yeah-no* user. The results indicated that sentences including *yeah-no* were judged as more likely to be said by a student ($F[1,64] = 18.497, p < .001$). This effect was stronger for participants who did not identify as *yeah-no* users. Experiment B was identical in design to Experiment A but examined the social category of gender, and involved 55 participants (25 male, 30 female). While there was no significant effect of discourse marker on participant judgements across the sample, participants who identified as *yeah-no* non-users showed a significant effect of discourse marker ($F[1,31] = 8.241, p = .007$). That is, participants who did not identify as *yeah-no* users were more likely to judge *yeah-no* as said by a male speaker rather than a female speaker.

Overall, the two perception experiments were consistent with the distribution found in earlier production studies. *Yeah-no* was associated with the social category of life-stage, but the category of gender was only significant for speaker-listeners who did not identify as *yeah-no* users. This finding has implications for research pertaining to social meaning. If the successful perception of socially indexed meaning is contingent upon an interlocutor's identification with a variable or group, it suggests that abstraction plays a larger role in linguistic perception than implicit linguistic experience. Furthermore, speaker-listener identity may explain the asymmetry found in previous social evaluation studies. Our study shows that it is important to combine production-, perception- and self-report-based research methods to tease apart these various factors.

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Verbs of speech and noise-making in central and northern Australian languages

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The Pama-Nyungan (PN) language family extends across much of Australia. Most PN languages mark the subject of a transitive verb as Ergative, but vary as to whether Ergative marking is categorical, or whether its presence signals a discourse function as well (McGregor 2002, McGregor and Verstraete 2010). Many PN languages have derivational morphemes (or bound verbs) for creating transitive and intransitive verbs (including borrowed verbs). Most verbs in these languages are either rigidly transitive (having Ergative marked subjects and morphologically unmarked objects), or intransitive (morphologically unmarked subjects). Exceptions include verbs (free or bound) of speaking, noise-making and doing which in some languages are collapsed. For example, in Warlpiri, the bound verb *-ma-ni* used as a causative (2) and its free counterpart ‘get’ (1) both have Ergative subjects, while the bound verb *-ma-ni* used as a noise production verb has an Absolutive subject (3).

1. Jungarrayi-rli ka ma-ni Nangala.

Jungarrayi-ERG PRES get-NPST Nangala

Jungarrayi marries (gets) Nangala. [Warlpiri Dictionary]

2. Ngapa-ngku=ju nyurnu-ma-nu.

water-ERG=1sgO sick-CAUS-PAST

The water made me sick. [Warlpiri Dictionary H59:7]

3. Wati ka nguurn-ma-ni wangka-nja-wangu.

man.ABS PRES hum-SOUND-NPST talk-NOM-WITHOUT

The man is humming and not talking. [Warlpiri Dictionary ljj] 1. Jungarrayi-rli ka ma-ni Nangala.

While generally the verbs of doing have Ergative subjects and are rigidly transitive, the speech and noise production verbs vary across languages. They may be intransitive with Ergative subjects or with unmarked subjects, transitive with Ergative subjects and unmarked cognate objects, or bivalent with unmarked subjects and Dative recipients (Kofod 1995, Rumsey 1994). Most PN languages also have an open class of verbs. But in Central Australia closed classes of verb roots are found in some Pama-Nyungan languages (e.g. Warumungu and the Ngumpin Yapa family which includes Warlpiri and Walmatjarri) adjacent to northern non-Pama-Nyungan languages (e.g. the Mirndi languages which includes Jaminjung and Jingulu). Neighbouring languages to the south and west have open classes of verb roots (e.g. Western Desert languages and Arandic languages).

This paper surveys verbs of speaking and noise production across these languages, with respect to forms reconstructible to proto-PN and to non-PN languages (Merlan 1979). The aim is to work out which patterns of valence and case-marking are shared in PN languages and potentially reconstructible, which patterns may be due to areal contact with non-PN languages, and whether they relate to the widespread use of rigidly transitive or intransitive bound morphemes for borrowing verbs from English and Kriol.

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An Investigation of Tone in Kwényĩ

Samantha Soon (University of Sydney)

There are only a handful of Austronesian languages that are described as tonal, and among them five are said to be found in New Caledonia. These New Caledonian languages - Cemuhî and Paicî in the center north, and Drubea, Numèè and Kwényĩ in the far south - are significant. Not only because they stand out among New Caledonian and Austronesian languages that are non-tonal, but also because the emergence of tone has been described to be ‘system-internal’ (Blust, 2013). Yet, the tonal system of these languages have remained largely undescribed. This paper attempts to address this by investigating the tonal system of Kwenyi, whose complexity has caused past researchers to have conflicting descriptions of.

Tone in Kwényĩ has been described as unstable and hardly noticeable (Rivierre, 1973), and varied across individuals (Dubois, 1978). It was earlier described as having a three way contrast (Leenhardt, 1946), but more recently said to have a two way contrast (Gouraya, Kombouare and Vernaudo, 2011). Rivierre (1978) made several additional observations on Kwenyi’s tone, stating that it has a complex tonal morphology, and tonal realizations were vague, causing difficulty in establishing tonal contrasts. If so, can tone still be considered as significant in Kwényĩ? The objective of this investigation is thus to ascertain the presence of tone in Kwényĩ, and to provide a current description of its state.

The data presented is collected in 2018 on the Isle of Pines in New Caledonia, where the language is spoken. To verify tonal contrasts, the field data will be contrasted against linguistic evidence from Cemuhî and Paicî. This is based on Rivierre’s (1993) hypothesis on tonogenesis in New Caledonia, which provides evidence of tonal reversal where high tones in the languages of the center north correspond with low tones in the languages of the far south. The results show a possibility of tone loss in Kwényĩ, and provides basis for further study on how tone may be reinterpreted in the language.

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A Description of Tone in Northern Lisu

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Spoken by roughly one million people in south-western China, northern Myanmar, Thailand, and Arunachal Pradesh (Bradley, 2003), the Lisu language has several main dialects – which David Bradley (2003) broke into Northern, Central, and Southern. It is part of the Loloish branch of the Tibeto-Burman language family (Bradley, 2003), and related to the Lahu, Jingphaw, and Yi languages (Bradley, 2003).

Varieties of Lisu typically have six tones, though some have only four or five tone distinctions (Yu, 2003). The six tone systems consist of: high level (55); mid rising (35); mid level (33); mid level creaky voiced (33̥); low falling (21); and low falling, creaky voiced, with a final glottal stop (21̥) (Yu, 2003). One variety, Lipo, has no rising tone (35), and the contrast between creaky and modal voiced tones has been partially lost in Lipo and the variety spoken in the Ninglang Yi Autonomous County, in Northwest Yunnan, China (Yu, 2003).

This study presents a phonetic examination of the tone system in Northern Lisu, spoken in and around the Nujiang Lisu Autonomous Prefecture, in Western/Northwestern Yunnan Province, China. Using wordlist recordings obtained from native speakers in their early 20s (N = 8, four male speakers and four female speakers), pitch traces were extracted from Praat (Boersma & Weenink, 2018), and plotted over normalised time in R (R Development Core Team, 2008), using the emuR package (Winkleman, Jaensch, Cassidy, & Harrington, 2018) and ggplot2 (Wickham, 2016).

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Ethnolectal variation ov(er) time

Catherine Travis, (Australian National University) James Grama (Australian National University) and Simon Gonzalez (Australian National University)

The role of ethnicity in variation and change has been a longstanding question in sociolinguistics (from Labov 1966) and has garnered much recent attention in today's increasingly diverse major urban centres (e.g., Cheshire et al. 2011; Gross et al. 2016; Hoffman & Walker 2010). In this paper, we consider the role of ethnolectal variation in Australian English, as spoken in Sydney, its largest, and most ethnically diverse city.

We capitalize on foundational ethnolectal work conducted by Barbara Horvath in the 1970s, using the Sydney Social Dialect Survey (Horvath 1985) as a benchmark against which to compare Sydney speech recorded today. These two datasets form part of the *Sydney Speaks* corpus of prosodically transcribed sociolinguistic interviews, allowing for robust comparisons over time. Participants are adults and teenagers recorded in the 1970s (born 1930s and 1960s, respectively), and older and younger adults recorded in the 2010s (born 1960s and 1990s, respectively). All are native speakers of Australian English, representing major ethnic groups in the country at the time of data collection: Anglo-, Italian- and Greek-Australians from the 1970s, and Anglo-, Italian- and Chinese-Australians recorded today.

The feature of interest is word-final (er), illustrated in (1). In Australian English the variable pronunciation of (er) as [ə] or [ɐ] has been described as one of “the most conspicuous” or “salient” features of ethnolectal variation in Australia (Clyne et al. 2001: 228; Kiesling 2005: 2). Previous research has suggested that (er) was undergoing a change in the speech of Australians in the late 1990s, towards a backer variant, led by Greek- (compared with Anglo-, Lebanese- and Italian-) Australians (Kiesling 2005: 18).

(1) *I've never found that.*

And I don't think my little brotherer finds it either.

[SSDS_ITFU 019]

All tokens of word-final (er) were extracted from approximately 30 hours, or 300,000 words of speech, from 80 women from the *Sydney Speaks* corpus. Over 6,000 tokens were acoustically analysed for vowel duration and position in F1/F2 space.

Change over time is evident in word-final (er), specifically in terms of lengthening, with concomitant lowering and backing. The locus of change is limited to final position in the prosodic unit, here, the Intonation Unit (Du Bois et al. 1993); in IU-final position (as in *either* in (1)), (er) exhibits incremental lengthening over time, but IU-medial (er) (*never* and *brother* in (1)) has remained stable. The difference between IU-medial and IU-final position more than doubles over the timespan captured here (from a mean of 27ms for 1970s adults, to 62ms for today's young adults). Furthermore, vowel height and backness are found to be dependent on duration, such that longer (er) motivates lower and backer vowels.

We find ethnolectal variation in the 1970s, in that the Greek-Australian teenagers have significantly longer (er) than both the Italians and the Anglos. They are, thus, the leaders in this change, in line with prior observations about this variable, and more broadly, with Horvath's prediction, for other vocalic variables,

that ethnic minorities may drive change (Horvath 1985: 176). The contemporary data, in contrast, show no ethnolectal variation; that is, the (er) realisations of the Anglo-, Italian- and Chinese-Australians are very similar, and parallel the length exhibited by the Greek-Australians of the 1970s. While we do not have contemporary data from the Greek community to compare their behaviour today, our findings identify a change that appears to have been innovated and propagated by a minority group (Greek teens in the 1970s), which has now been widely adopted, by socially entrenched Anglo Australians, as well as older (Italian) and newer (Chinese) migrant groups.

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Metrical structure in Pitjantjatjara/Yankunytjatjara

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Pitjantjatjara and Yankunytjatjara have been described as having left-headed binary feet, primary word stress at the left word-edge, and secondary stress on every odd-numbered syllable thereafter (Goddard, 1985). More recent phonetic analysis of Pitjantjatjara has called into question the existence of secondary stress (Tabain, Fletcher, & Butcher, 2014). In this presentation we investigate other phenomena in Pitjantjatjara and Yankunytjatjara (P/Y) that nonetheless suggest the presence of metrical structure, namely verb inflection classes and syllable deletion. In doing so we follow recent studies that have found evidence for metrical structure even where this does not manifest as stress (e.g. Garcia, Goad, & Guzzo, 2017; Heston, 2016).

The P/Y verb inflection class system suggests generalisations based on foot alignment. Verbs in some inflection classes require the insertion of an epenthetic syllable before certain suffixes in order to complete a metrical foot. Other suffixes are unaffected and can be attached to the bare stem regardless of metrical structure. These inflection classes have been described as correlating with the ‘mora parity’ of the stem (to use Goddard’s (1985) terminology). We analyse the inflection class membership of all verbs listed in Goddard’s P/Y to English dictionary (2001), showing a number of apparent exceptions to this prediction. However closer examination of these words provides evidence about metrical structure in morphologically complex words, supporting the claim that disyllabic suffixes are aligned to feet. A second line of evidence comes from optional syllable deletion phenomena, reported by both Goddard (1985) and Langlois (2004). These deletions are constrained to some extent by segmental and morphosyntactic phenomena, but in some cases also suggest a metrical constraint. We also discuss some relevant areas of variation and change reported by Langlois (2004) in Areyonga Teenage Pitjantjatjara in the 1990s.

Finally, we discuss the implications of these phenomena for theories of morpho-prosodic alignment. Recent work drawing on Chukchansi syllable epenthesis (Guekguezian, 2017) proposes that such phenomena can be accounted for if prosodification is driven by syntactic ‘phases’ (Chomsky & Kenstowicz, 2001). We argue, however, that P/Y morpho-prosodic alignment, which is specific to certain suffixes, is not predicted by phase theory. The morpho-phonology exhibits synchronically arbitrary patterns for which the only available explanations are diachronic.

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Sociolinguistic Variation and Change in Australian English Definite Article Allomorphy

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The Standard English rule is that “the” is realised as [ði:] before vowels, and when carrying emphatic stress, but [ðə] elsewhere. This difference in realisation is mostly caused by either a glide or a glottal stop being inserted to break vowel hiatus (Britain & Fox, 2008). However, there is some evidence to suggest that glottal stop insertion, the phonetic process that results in [ðə] before vowels is becoming more frequent in varieties of English around the world (Davidson & Erker, 2014).

Existing studies in New Zealand (Hay, Walker, McKenzie, & Nielsen, 2012), England (Fox, 2015a, 2015b), and the USA (Davidson & Erker, 2014) provide evidence that this feature is undergoing a change in progress and some suggest that the variation behind this change patterns according to socio-economic status, gender and ethnicity.

Drawing upon data (1088 tokens) collected by undergraduate sociolinguistics students using a reading passage and cartoon description task, this paper investigates variation and change in the pre-vocalic definite article among speakers of Australian English. The study uses an apparent time methodology to demonstrate how this feature is changing over time, and also explores the effect of other social factors that may account for variation among speakers, such as gender, ethnicity, location, and socio-economic status. The findings are statistically supported using mixed model regression. The patterns found in this data are compared with patterns found in other studies in other varieties of English, leading to a discussion of how the different sociolinguistic ecologies of these varieties may lead this feature to change faster or slower.

A further focus of this study discusses the use of research-based teaching in sociolinguistics and discusses the advantages and limitations of such an approach.

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Intermingling language use by school-aged Chinese Australians: An analysis from the dual-track perspective

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Language use is important in the culturalisation process of migrants. Many existing studies analyse the Chinese language learning and use by school-aged Chinese Australians in the education sphere. As one of the vital methods to complete their culturalisation, cultural use of the Chinese language has, however, tended to be ignored within the literature to date. There is few research exploring how they use and practice the Chinese language outside of school systematically. This study analyses this issue by examining Chinese language use by Chinese Australian children outside of school. Drawing on 64 in-depth qualitative interviews and class observations conducted in 17 classrooms, this research aims to explore Chinese Australian children's intermingling language use in their communication, cultural consumption and cultural practices in the wider social settings. This research suggests that Chinese Australian children are themselves the control mechanisms in switching between Chinese, English, or a combination of languages according to their interlocutors. In the aspect of cultural consumption, this research finds that Chinese visual cultural products are consumed more than print cultural products, and the consumption of Chinese cultural products is beneficial to the reinforcement of family relations. In addition, the practice of Chinese in the other social settings by these children is an important finding which is overlooked by previous studies.

Poster Abstracts

Mapping and comparing East and Southeast Asian language tones

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Despite the fact that tone languages account for 70% of the languages in the world (Yip, 2002), studies have concentrated on only a few tone languages, such as Mandarin, Cantonese and Thai. There is a need to study a broader range of tone systems across languages, especially for Southeast Asian languages that are richer in contour tones. One reason to broaden our understanding of tone systems is that it is essential for any efforts to identify optimal, universal phonetic (acoustic/perceptual) features for representing and distinguishing tones. Such features can facilitate comparison of tone inventories among tone languages, e.g., for phonological analyses of tone systems, and would also provide a common frame of reference, other than Chao notation (in which “1” = lowest perceived pitch, “5” = highest), for studies of cross language perception and second language learning of tone languages.

Previous studies have shown that two properties of F0 (the acoustic correlate of perceived pitch) in speech more generally, F0 height and F0 change, are related to articulatory gestures: cricothyroid and sternohyoid movement (Erickson, 1993; Honda, 1988) and jaw movement (Erickson, Iwata, Endo, & Fujino, 2004; Lim, Lin, & Bones, 2006). However, it is controversial as to how F0 height and F0 change can help to identify the relevant acoustic/perceptual variables needed for universal characterisation of lexical tone properties across languages. F0 onset and offset have been used to quantify F0 change in Cantonese (Barry & Blamey, 2004), Mandarin (Zhou & Xu, 2008) and Thai tones (Xu Rattanasone, Attina, Kasisopa, & Burnham, 2013). However, while this approach can capture average F0, slope (rate of change) and direction for level or simple rising or falling tones, it fails to correctly capture complex contour tones that have an internal valley or peak.

This study explored several additional acoustic measures (F0 onset, F0 offset, F0 mean, F0_{max}, F0_{min}, F0_{max-min} excursion size, F0_{max} velocity, and F0_{max} location) to optimise identification of the best way to represent acoustic features of lexical tones in three languages with differing tone systems: Mandarin, Thai, and Northern and Southern dialects of Vietnamese. Principal Component Analysis (PCA) was used to reveal how tones from different languages/dialects are organised around these acoustic variables. PC1 and PC2 (the linear combinations of the original variables) account for 74.16% of the variance (see Figure 1). Distances between tones indicate their distances in the PC1-PC2 space. Some tones (e.g., t33, nv33, sv33) with identical Chao notation are acoustically different. The acoustic measures (in red) of F0 onset, F0 offset, F0 mean, F0_{max}, F0_{max} velocity(maxv), and F0_{max} location(maxf0loc), point to a similar direction from the centre (the black vectors). The direction and length indicate the highest squared multiple correlation with the PCs. Thus these acoustic variables are similar to each other in describing tones in the PC1-PC2 space. But F0_{max-min} excursion size and F0_{min} point to different directions, showing that their roles in describing tones are different.

Thus when comparing and mapping tones, $F0_{\max-\min}$ excursion size, apart from $F0$ onset and $F0$ offset, can be informative in distinguishing tones. $F0_{\max}$ velocity and $F0_{\max}$ location do not contribute more information in a general sense. In addition, in cross-language tone perception studies, Chao numbers alone are insufficient and can even be misleading for characterising and comparing the tones of different tone inventories. Direct acoustic comparisons, using multiple measures and not only $F0$ onset and offset, are necessary for adequately representing tones in different tone languages, and for providing a more informative basis for predicting and explaining cross-language tone perception patterns.

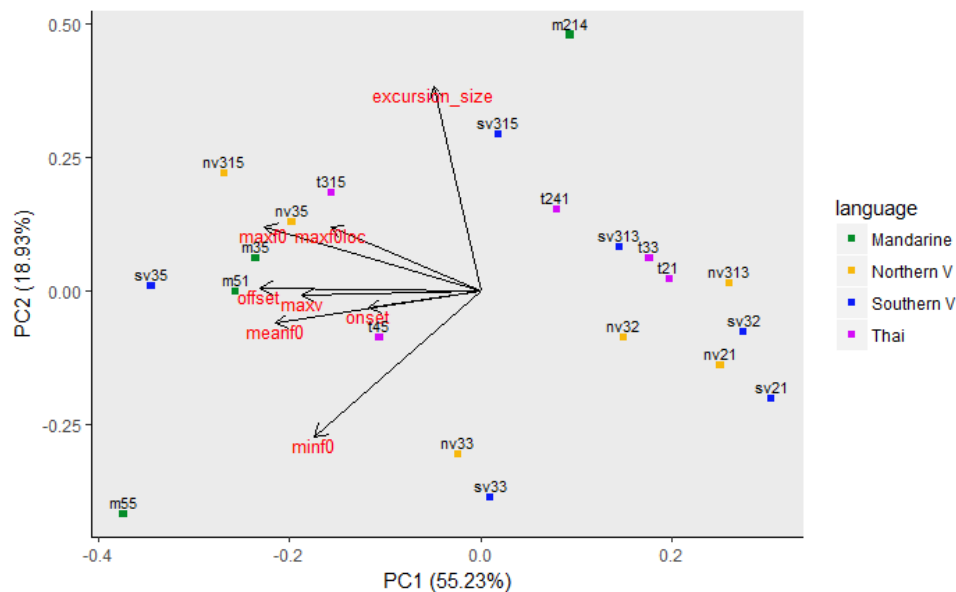


Figure 1. Biplot with PC1 and PC2 for tones in Mandarin (m), Thai (t), Northern and Southern Vietnamese (nv and sv), followed by Chao numbers indicating pitch values. Acoustic variables are in red. Black vectors indicate the coefficients of each variable for PC1 versus PC2.

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The relationship between EEG resting state power and verbal generation performance across the lifespan

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There have been many resting state EEG power investigations of cognitive performance over the past three decades. The findings have been mixed, although higher theta power, lower alpha power, and lower alpha peak frequency have been more consistently associated with impaired states such as mild cognitive impairment (MCI). Studies have also shown that alpha power increases are correlated to verbal generation performance. We aimed to investigate if common EEG power measures, both during a verbal generation task and resting state, were 1) significantly different between young healthy adults and older adults with and without MCI, and 2) how these measures were related to differences in verbal generation performance

61 participants: 7 older adults with MCI ($M=73.3$, $SD=4.5$; according to the Addenbrooke's Cognitive Examination III/ACEIII), 29 healthy older adults ($M=70.8$, $SD=5.2$) and 25 healthy young adults ($M=26.5$, $SD=6.9$). EEG was recorded for 2 minutes with eyes closed. Verbal generation and other cognitive domain performances were measured using the ACE III.

Contrary to findings in similar studies, no linear relationships were found between EEG spectral power and verbal generation performance using traditional analysis bands, ratios and methods such as alpha:theta, alpha band power and delta+theta:alpha+beta in subgroups or across all participants. A follow-up quadratic regression analysis showed more extreme alpha peak frequency values (i.e. very low or very high) were associated with lower ACE III total ($r=0.5$, $p<0.05$), attention sub-scale ($r=0.6$, $p<0.005$) and spatio-visual sub-scale ($r=0.4$, $p<0.05$) scores in healthy young individuals but no relationship was found with verbal performance. In older participants (regardless of MCI status), lower alpha peak frequency linearly correlated with reduced cognitive performance, but the relationship was driven by age (as reduced to non-significant when age added as a covariate).

The effect of verb type on language processing as revealed by event-related potentials

Louise Kyriaki, Matthias Schlesewsky, & Ina Bornkessel-Schlesewsky (Centre for Cognitive and Systems Neuroscience, University of South Australia)

Semantic reversal anomalies (SRAs) are a linguistic manipulation known to elicit differential event-related potential (ERP) responses as a function of language. However, recent research suggests that the elicited ERP response can also be modulated by verb type. Typical English SRAs involving agent subject verbs (ASVs, e.g. “The crimes will commit the culprits on the street”) elicit a P600, but SRAs involving experiencer subject verbs (ESVs, verbs describing a psychological state such as “please”) have been found to elicit an N400-P600 pattern. The present study aimed to replicate the within-language ERP modulation and additionally investigate whether task type affected the ERP. Participants ($n=48$; mean age= 23.2, 32 female) read SRAs and control sentences in a rapid serial visual presentation paradigm. They performed a judgement or comprehension task while their electroencephalogram was recorded. Data were analysed using linear mixed effects models. As predicted, violations at the position of the ASV (i.e. “commit”) elicited a P600 effect. Task also modulated the ERP response: the judgement condition showed an unexpected significant N400 effect, and a larger P600 amplitude than the comprehension condition. For the ESV verb (i.e. “please”), the predicted N400-P600 pattern was not observed. In the comprehension task, violations elicited a significant N400 response, with no significant effects in the P600 time-window. In the judgement group, neither the predicted N400 or P600 were observed for violation verbs. These results support the claim that verb type influences the ERP pattern elicited by SRAs, but the observed patterns differ from those in previous research. Additionally, task type modulates the ERP pattern to both ASV and ESV SRAs. Further research is required to understand the complex modulatory role of both task and verb type on the ERP correlates of language comprehension. L.K. is supported by an Australian Government Research Training Program Scholarship.

Investigating correferential processing in ambiguous sentences: a psycholinguistic study between Brazilian Portuguese and Australian English

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This paper aims at unveiling aspects of intrasentential ambiguity resolution in the framework of pronominal coreference and the influence of verbal semantics in its processing. In addition, we try to contribute to the better understanding of the specificity of the syntactic domain, its independence and the multiple biases - semantic and pragmatic – by which it is influenced.

The assumptions we make are that (i) the establishment of intrasentential co-reference commonly engages in ambiguity and disambiguation and is multifactorial; (ii) for the resolution, syntactic constraints are applied first; (iii) Contextual information can only be captured in the off-line measures in ambiguity resolution.

Two self-paced reading tests were applied to investigate the semantic bias of the verb root to select arguments through anaphoric relations to understand whether and to what extent it can influence the processing of pronominal coreference. The joint goal of both tests was to define the structural role in the coreference process established in sentences both with the filled pronoun and with its null form (pro). The two tests showed the same six conditions and their difference was the type of pronoun.

From our results, we can see that participation syntactic factors relate to pronouns, semantic factors inherent to the root and also beyond them. Another strength from cognitive memory resources could act related to recency of available antecedents but the syntactic factor seems to have acted first.

In natural language, according to principle B of Binding Theory, intrasentential pronominal co-reference requires pronouns to be free in their binding domain (Chomsky 1981). In relation to this syntactic principle, work on Brazilian Portuguese has investigated co-referential processing, structural position, syntactic parallelism, word order and anaphoric resolution (Hora 2014; Teixeira et al. 2014; among others).

For Italian, Carminati (2002) proposes a complementary distribution of the parameters (type of pronoun) where the object acts as natural antecedent for overt pronouns, and the subject for null pronouns. This paper focuses on aspects of intrasentential ambiguity resolution of pronominal co-reference and on influence of verbal semantics during its processing in Brazilian Portuguese sentences. Two factors that may interfere in the resolution of the antecedent are a) alternation of full pronouns and empty categories and b) manipulation of verbal semantics in the subordinate clauses, as shown in (1)-(3).

- (1) *O* *frentist-a* *cham-ava* *o* *client-e*
enquanto
 DET.MSG attendant-MSG call-PST.3SG DET.MSG customer-MSG
 while
ele / *Ø* *tomava* *a* *águ-a* *no* *posto.*
 PRO.3MSG *Ø* drink-PST.3SG DET.FSG water-FSG PREP-DET.MSG station
 ‘The attendant called the customer while he / *Ø* was drinking water at the station.’

- (2) *O* *frentista* *chamava* *o* *cliente* *enquanto*
 DET.MSG attendant-MSG call-PST.3SG DET.MSG customer-MSG while
ele / *Ø* *conferia* *o* *motor* *no* *posto.*
 PRO.3MSG *Ø* check-PST.3SG DET.MSG engine-MSG PREP-DET.MSG station
 ‘The attendant called the customer while he / *Ø* checked the engine at the station.’

- (3) *O frentista chamava o cliente enquanto ele / Ø pagava a conta no posto.*
 DET.MSG attendant-MSG call-PST.3SG DET.MSG customer-MSG while
ele / Ø pagava a conta no posto.
 PRO.3MSG Ø pay-PST.3SG DET.FSG bill-FSG PREP-DET.MSG station
 ‘The carrier called the customer while he / Ø paid the bill at the station.’

We assume three hypotheses: (i) ambiguity is usually involved in the operation of establishing intrasentential resolution as it is multifactorial, (ii) during resolution, syntactic constraints such as computation of empty categories are applied first, and (iii) contextual information enters the computation and adds to the syntactic constraints.

Our proposal tests Carminati’s thesis of complementary distribution with two self-paced reading tests. According to our results, we argue here that the complementary distribution of the principles does not extend to the parameters. We propose the existence of two types of factors occurring with each type of sentence. One, for the resolution of the null pronoun, syntactic cues would be used, and two, the overt pronouns would be supported by the lexical properties of the pronominal traits and resources such as memory.

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How racist is ‘Stop the Mosque in Bendigo’? A quantitative framing study

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Racist language tends to frame the target group in particular ways. For example, when a target group is called ‘pigs’ or ‘dogs’, the group is framed as subhuman and incapable of reason. However, derogatory frames range from relatively benign, such as when church leaders are called ‘cowardly’ in the current study; to genocidal, as in Hitler’s metaphors for Jewish people in *Mein Kampf*. How can we tell which of these frames are harmless, which are racist, and which are indicative of genocidal intentions?

The current paper examines the frames employed by the public Facebook group ‘Stop the Mosque in Bendigo’ to describe Muslims, the LGBTIQ community, and other segments of society. First, all 4,533 adjectives and nouns referring to human beings were collected from sixty-three posts and their comments on the ‘Stop the Mosque in Bendigo’ page. These adjectives and nouns were then screened for membership in sixteen semantic categories based on WordNet associations with racist, evil, parasite, and other words associated with derogatory framing in previous studies. The frames describing Muslim referents were then compared with those describing other groups. These frames are also compared with those from previously studied sources, including immigration discourse in the US and the UK, German news reports on terrorist groups, and Hitler’s *Mein Kampf*.

The complexity and type of the frames in this study and previous studies are argued to suggest three levels of perceived threats. Firstly, the frames in non-racially motivated discourse, such as ‘Stop the Mosque’ group members describing non-Muslim Australians, may be insulting but rarely frame the targets as dangerous. Leftist Australians who are not Muslims are called ‘stupid’, ‘sick’ and ‘cowardly’, but are not framed as enemies or any other kind of serious menace.

The second threat level appears in the frames that the members of ‘Stop the Mosque in Bendigo’ employ to describe Muslims. When Muslims are described as ‘inbreeding violent criminals’, for example, they are framed as not only inferior, but also dangerous. Frames at this threat level are more systematic than those at the lower threat level, and include the ‘parasite’ and ‘criminal’ frames. The frames that Germans use to describe Al-Qaida, or the frames Britons and Americans apply to immigrants, also demonstrate this level of threat.

The highest threat level is demonstrated by the metaphoric frames in Hitler’s *Mein Kampf*, analysed in Musolf’s 2007 study. These frames demonstrate a systematicity and complexity not found in the current study or the other sources reported here. These structures may yet be documented elsewhere. Nevertheless, their scarcity in ‘Stop the Mosque in Bendigo’ suggests that the group’s language, although extreme, may lack some of the cognitive structures that directly and actively encourage genocide.

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Grammaticalization of the Negative Adverb "Hardly"

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The purpose of this presentation is to show the overall process of grammaticalization of the English adverb “hardly.”

In present-day English, “hardly” is used as a negative adverb whose meaning is “almost not” or “not at all.” “Hardly” is an unmotivated grammatical item, and the reason for its having such a negative connotation has been unknown.

Based on abundant evidence gathered by thorough investigation into the literature since the tenth century, I found out that “hardly” has undergone the diachronic process of the grammaticalization, and that the lexical meanings of “hardly” have been attenuated and emptied of meaning in the historical development. “Hardly” had rich lexical meanings such as “fiercely” and “resolutely” in Old English. In Middle English, “hardly” had lexical meanings such as “certainly” and “confidently.” By Early Modern English, though, “hardly” had come to be used in negative contexts with meanings such as “scarcely” and “almost not.”

The attenuation and bleaching of the lexical meanings coincided with gradual changes of phonological and morphological erosion. “Hardly” had been spelled such as “hærdeliche” and “hardeliche” in Old English, “hardelye” and “hardely” in Middle English, and “hardly” in Early Modern English. Loss of morphological elements and simplification of phonetic substance are distinguishing features of grammaticalization from a diachronic perspective (Heine and Kuteva 2007).

The derivation and extinction of the historical meanings of “hardly” show another characteristic of grammaticalization: “layering” (Hopper 1991). Old meanings had continued to be used for several centuries. Meanwhile, the new, attenuated meanings appeared and coexisted with the old, rich meanings. For example, the meaning “firmly” lasted from the 1200s to the late 1500s, while the meaning “with difficulty” lasted from the early 1500s to 1800s; they coexisted in the 1500s.

According to the *Oxford English Dictionary*, “hardly” has not acquired a new meaning since the late 1500s. Instead, it has gained a function as a prefix, a grammatical morpheme that forms a compound adjective, such as “hardly-removed” and “hardly-used.” “Hardly” has become a grammatical element that can only be used before a stem, losing its autonomy as an adverb.

The diachronic approach of this study can organize points for discussion and maintain consistency in the grammaticalization theory. The historical examples, given in chronological order, give deep insight into many questions regarding grammaticalization, and some answers will be provided to several key issues.

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Code-switching and grammars in contact

Catherine Travis (Australian National University) and Rena Torres Cacoullos (The Pennsylvania State University)

It is widely held that code-switching promotes grammatical convergence – languages becoming more similar to each other through contact (e.g., Backus 2005:333; Gumperz and Wilson 1971:217; Thomason and Kaufman 1988:154). Evidence for this, however, remains elusive. Here, we provide quantitative diagnostics of grammatical similarity and difference by using structural variation in speech (cf., Poplack and Meechan 1998).

The linguistic feature of interest is subject pronoun expression, illustrated in (1) and (2). With Spanish and English classified as null- and non-null subject language types respectively, subject expression has been the poster child for convergence of Spanish toward English (Heine and Kuteva 2005:70; Otheguy and Zentella 2012; Silva-Corvalán and Enrique-Arias 2017:172-187).

Variation patterns are uncovered in an unprecedented 300,000-word bilingual corpus, capturing the spontaneous speech of members of the long-standing bilingual community in northern New Mexico (Torres Cacoullos and Travis 2018). Approximately 10,000 tokens of the variable are extracted from this bilingual corpus, and from comparable monolingual speech corpora of both Spanish and English.

The copious code-switching in the bilingual corpus, illustrated in (3), allows for the hypothesis of convergence via code-switching to be directly tested in a way that has not been done to date: comparing bilinguals' own use of the two languages in the same conversation. Analyses show that, in the linguistic conditioning of variable subject expression, the bilinguals' two languages differ from each other, and align with their respective monolingual benchmarks. Moreover, comparisons in the presence and absence of code-switching reveal that bilinguals maintain Spanish-particular patterns even in the context of proximate use of English.

We conclude that grammatical change through contact is not a foregone conclusion in bilingual communities. Bilinguals are adept at maintaining distinct structures in their two languages, even while switching between them. Spanish and English in this community are connected but not conflated, combined but not mixed.

(1)

*yo no lo conocí.
.. pero Ø me imagino que sí.
[NMSEB 04, 09:29- 09:32]*

*'I didn't meet him.
.. but (I) think he did.'*

(2)

*.. I was able to scramble and,
.. find the --
my other flashlight,
... Ø turned it on,
Ø worked on the one I had just broke.
[NMSEB 16, 26:06- 26:12]*

- (3)
- | | |
|---|--|
| .. <i>pero me gusta trabajar en ~Saint Anthony's.</i> | ‘.. but I like to work in ~Saint Anthony’s. |
| ... <i>me gusta trabajar mucho porque,</i> | ... I like to work a lot because, |
| ...(0.7) <i>como que they appreciate you there.</i> | ...(0.7) it’s like <i>they appreciate you there.</i> ’ |

[NMSEB 06, 40:41-40:47]

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Encoding Efficiency of an Artificial Language Modulates Sleep-Related Memory Consolidation: Insights from ERPs

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Language learning is a dynamic and complex process, with recent studies demonstrating a beneficial effect of sleep during consolidation. Cortical slow oscillations (SOs; <1.0 Hz) and sleep spindles (~10-16 Hz) provide a marker of memory trace replay within the hippocampo-cortical network. However, it is unknown how these oscillatory mechanisms are involved in the consolidation of sentence-level combinatorics, and how this effect manifests in language-related electrophysiological activity. In this language learning study, we examined sleep-based consolidation effects on event-related potentials (ERP) in response to word-order violations in an artificial language modelled on Mandarin Chinese.

17 monolingual English speakers (9 male, 23.6 ± 5.8 years) completed an implicit learning phase, baseline sentence comprehension task, followed by an 8hr sleep opportunity, and a delayed comprehension task. EEG was recorded during the tasks and sleep. ERPs were extracted within a 300-500ms time window at the critical word that determined correct and incorrect word-order variations, while spindle-SO co-occurrence (SOC) was quantified during NREM sleep.

There was no significant effect of SOC on probability of correct response when controlling for baseline performance. However, linear mixed effects model showed that subjects who demonstrated a stronger left lateralised ERP negativity during the baseline task (violation condition) also demonstrated greater positive SOC-ERP associations during the delayed task.

SOC appears to provide a fine-tuned temporal frame for the transfer of hippocampal memory traces, with this effect manifesting in a stronger left-lateralised negativity during the detection of word-order violations. This effect was enhanced for subjects who demonstrated a stronger negativity during the baseline task, highlighting the importance of encoding efficiency on subsequent sleep-related consolidation of complex sentence-level combinatorics.