Russian Journal of Linguistics
ISSN 2687-0088 (print), ISSN 2686-8024 (online)

2022 Vol. 26 No. 4 995–1011
http://journals.rudn.ru/linguistics

https://doi.org/10.22363/2687-0088-32349

Research article / Научная статья

Pushing the boundaries: Marginal phonemes and dialogic interaction

Nicholas EVANS ✉

Australian National University, Australian Research Council Centre of Excellence for the Dynamics of Language (CoEDL), Canberra, Australia
✉nicholas.evans@anu.edu.au

Abstract
Phonemes with restricted distribution represent an interesting analytic challenge. Well-known sources include the adoption of certain phonemes from other languages in borrowed words, emerging phonemic splits, and special phonological subsystems (e.g. ideophones). This paper aims to widen our conception of such marginal phonemes, by incorporating another source: specific vocal gestures called into play in interactional settings. Our initial puzzle involves a restricted phoneme set in the Papuan language Nen: two classes of sounds are restricted to interactive contexts, namely interjections and deictics. These sounds are the nasal vowels *ã*, *ẽ*, and the glottal fricative *h*. Several questions arise here. Should these restricted sounds be considered part of the phoneme system? How did they evolve? How does their presence interact with seemingly equivalent sounds in neighbouring languages, in contexts of possible loanwords? We then pass to two other languages where sounds that are unquestionably phonemes have, in at least some phonotactic positions, clear correlations with interactive uses: initial /ð/ in English, essentially restricted to words of person (thou), space (that), time (then), or discourse deixis (the, though), and glottal stops with morphemic function in Bininj Kunwok, restricted to immediate aspect[1], addressee-engaged demonstratives, and kinship vocatives. It is already known that non-phonemic speech sounds (e.g. what is written mhm in English) are used in interaction. This paper proposes that the special phonetics of interaction can integrate further into the sound system and, in such cases as those presented here, either expand the phonological system in absolute terms by adding new phonemes, or expand the phonotactic possibilities of phonemes already occurring in other phonotactic positions.
Keywords: *marginal phonemes, Nen, Bininj Kunwok, voiced dental fricatives, restricted phonemes, phonologisation*

[1] 'Immediate aspect' indicates that the event is unfolding in the here and now. Bininj Kunwok lacks a present tense inflection (using a general 'non-past'), so in some circumstances this would be translated by an English present tense, but the semantics is more precise, drawing attention to the immediacy of the situation.

For citation:
Evans, Nicholas. 2022. Pushing the boundaries: Marginal phonemes and dialogic interaction. *Russian Journal of Linguistics* 26 (4). 995–1011. https://doi.org/10.22363/2687-0088-32349

Раздвигая границы: Фонемы с ограниченной дистрибуцией и диалогическое взаимодействие

Николас ЭВАНС

Австралийский национальный университет, Австралийский исследовательский консультативный центр передового опыта в области динамики языка (CoEDL), Канберра, Австралия
nicholas.evans@anu.edu.au

Аннотация
Исследование фонем с ограниченной дистрибуцией – это интересная аналитическая задача. Хорошо известные источники включают усвоение определенных фонем из других языков в заимствованных словах, возникающее расщепление фонем и специальные фонологические подсистемы (например, идеофоны). Цель этой статьи – расширить наши представления о такого рода фонемах с ограниченной дистрибуцией посредством привлечения других источников: специфических вокальных жестов, возникающих в условиях интеракции. Наша первая проблема связана с набором ограниченных фонем в папуасском языке нен: два вида звуков ограничены интерактивными контекстами, а именно междометиями и дейктическими словами. К ним относятся назальные гласные *ã*, *ẽ*, а также глоттальный фрикативный согласный *h*. Здесь возникают некоторые вопросы. Следует ли считать эти фонемы с ограниченной дистрибуцией частью фонематической системы? Как они возникли? Как они взаимодействуют в составе заимствований со звуками соседних языков, кажущимися эквивалентными? Затем мы переходим к двум другим языкам, где звуки, несомненно являющиеся фонемами, имеют, по меньшей мере, в некоторых фонотактических позициях явные взаимосвязи с интерактивным использованием: начальное /ð/ в английском языке, которое существенно ограничено словами, выражающими лицо (thou), пространство (that), время (then) или дискурсивным дейксисом (the, though), и морфемный твердый приступ в австралийских языках гунвиньгу, позиционное употребление которого ограничено формами глагола «непосредственного аспекта»[2], также указывающими на адресата демонстративами и терминами родства в функции вокативов. Уже известно, что в коммуникации используются нефонематические звуки речи (например, обозначаемые как mhm в английском языке). В статье высказывается мысль о том, что интерактивная фонетика может в дальнейшем интегрироваться в звуковую систему и в случаях, подобных описанным, либо расширять фонологическую систему за счет включения в нее новых фонем, либо расширять фонотактические возможности фонем, встречающихся в других фонотактических позициях.
Ключевые слова: *фонемы с ограниченной дистирибуцией, нен, яхыки гунвиньгу, звонкие зубные фрикативы, фонологизация*

[2] «Непосредственный аспект» указывает на то, что событие разворачивается здесь и сейчас. В языках гунвиньгу отсутствует форма настоящего времени (используется общее «непрошедшее»). Хотя в некоторых случаях можно было бы говорить о настоящем времени, термин «непосредственный аспект» является более точным, так как привлекает внимание к непосредственности ситуации.

Для цитирования:
Evans, Nicholas. Pushing the boundaries: Marginal phonemes and dialogic interaction. *Russian Journal of Linguistics.* 2022. V. 26. № 4. P. 995–1011. https://doi.org/10.22363/2687-0088-32349

Dedication

With this modest offering I pay tribute to Igor Aleksandrovič as a mentor, friend, inspiration and mensch. Igor was asked to visit the Australian National University in the early 1980s when I was just beginning my linguistic studies, taking up an invitation by Anna Wierzbicka. He taught a course on Meaning Text Linguistics which I had the good fortune to attend, and which offered a completely different perspective on how to integrate meaning into grammatical description, particularly at the interface between lexicon, meaning and syntax. He made a deep impression on a group of us who were just starting out on our careers as linguists. Quite apart from his linguistic work, including a crucial article (Melchuk 1979) that led Australianist linguists like Cliff Goddard (1982) to argue for a significantly different analysis of Australian case systems he mesmerised us as a larger-than-life figure. A memorable example was his lunchtime talk to the Linguistics Students Association on 'Why I am a linguist in Montréal and not in Moscow', whose Tolstoyan dimensions left the succeeding speaker (the late Michael Silverstein) standing waiting for the seminar room to become free until in desperation he began his own seminar in the corridor. Equally memorable were his inexhaustible repertoire of jokes, his complete independence of thought on all topics, and his love of cross-country skiing, a passion he shared with David Wilkins and myself in the Snowy Mountains. These deep impressions led to him being invited back to Australia a number of times, greatly enriching the linguistic scene here.

In these mad times, when his beloved Odessa lives in the shadow of a senseless war, one of his replies during a seminar on Meaning-Text Theory sticks in my mind. He had spent the whole seminar tracing the whole derivation of a sentence (I forget which) from the level of a meaning network to its linear surface form. Bob Dixon, though willing to concede that this example had worked, felt the urge to ask him something along the lines of: 'that's all very well, but not all speakers would accept this form. How do you deal with speakers who might disagree?' With a twinkle in his eye, Igor replied 'My solution is simple, and characteristically Soviet: I shoot them!' In another episode he told us about how during his time doing Soviet military service he managed to earn the right for him and his company to keep hidden the mufti they needed to go out at nights incognito. In competition with three swearing army sergeants, renowned for their mastery of swearing (мат), he compiled and memorised a vast combinatoric table of obscene linguistic elements and used it to outlast his rival in a competition to see who could swear the longest without repeating themselves: 'My soulless, inhuman technique vanquished these inspired intuitive masters' (email from IM to author, 18/1/2018).

Igor, I could never associate the words 'soulless' or 'inhuman' with you, and however much you try to remain in the realm of technique you cannot escape being inspired and intuitive!

So happy birthday, dear friend and teacher!

1. Introduction

Igor Melchuk chose, as an opening quote to one of his many masterpieces, the Explanatory Combinatorial Dictionary of Modern Russian (Melchuk & Zholkovsky 1984: 34, 38), the following lines from Vladimir Nabokov:

«…для ума	*'And no obstruction for the sage*
Внимательного нет границы	*Exists where I have put The End;*
Там, где поставил точку я:	*The shadows of my world extend*
Продленный призрак бытия	*Beyond the skyline of the page,*
Синеет за чертой страницы,	*Blue as tomorrow's morning haze –*
Как завтрашние облака,	*Nor does this terminate the phrase'.*
И не кончается строка»	
Владимир Набоков «Дар»	Vladimir Nabokov 'The Gift'

This awareness of what lies beyond the boundaries is typical Mel'čukian paradox, since one of the hallmarks of Igor's work has always been to neatly delimit a set of phenomena and then to investigate them with ruthless rigor. The present offering explores one such delimitation, and also pushes the boundaries in terms of how this current special issue is conceived. It is not about Meaning Text Theory, though it does explore one corner of the Linguistic Universe and at least touches on a phenomenon close to what Iordanskaja and Melchuk (2017) call 'pragmatèmes'. And, vast as the range of topics which Igor has tackled in his lifetime, it does not to my knowledge treat a topic he has written about. Nonetheless, at least from the point of view of this author it reflects two ways in which my own work has been inspired by his.

Firstly, his interest in the application of 'calculi of possibilities' to exploring the design space of possible linguistic phenomena, something he has advocated and employed widely (see e.g. Melchuk 2006). It was through my interactions with Igor that I realised that while many linguists with intellectual roots in the English-speaking world unconsciously take Darwin's induction from the sprawling jungle of natural organisms as the relevant scientific paradigm, for many from the Russian-speaking tradition it is rather Mendeleev who is the 'type scientist', with his demonstration of how apparent gaps in the 'calculus of possibilities' (in his case, the periodic table of elements) can be filled if we look in the right places.

Secondly, I was always struck by the following puzzle. While Igor's professional interests in linguistics rarely if ever focused on interaction, conversation or pragmatics, he is in fact one of the most interactive people I have ever met, drawing an enchanted and intense circle around all sorts of people who come into contact with him. I hope that by the end of this article the connection between these two points and the topic I examine here will become apparent.

Here, then, is the problem we pose in this contribution: how do we deal with putative phonemes which appear to be confined to words found only in interactional settings? And what are the means by which they arise?

Determining the number of phonemes in a language is a fundamental and heuristically initial problem in the study of any language. But this is often a less simple question than it appears, because of the existence of what are often called 'marginal' phonemes. And phonemes may be marginal for many reasons. They may be confined to loanwords (like English /æ/ in French *scanner* /skæne/ 'to scan', or /x/ in the pronunciation of Arabic loanwords in the Indonesian of some (predominantly Muslim) speakers, like /xabar/ <*kabar ~ khabar*> 'news'). Or they may be limited (either absolutely, or in terms of particular phonotactic positions) to onomatopoeic or ideophonic words. In Kisi, for example (Childs 1988: 172–173) the particular properties of ideophone phoneme inventories include allowing word-initial labial-velar stops (/gb/), as in /gbólúng-gbólúng/ 'ringing, switching', a specially raised and lengthened nasal vowel /ã/, word-final voiceless vowels, and the presence of a schwa phoneme. And in Nungon (Sarvasy 2016) word-initial consonant clusters like *kr* and *br* only occur in 'warblish' – ideophonic imitations of birdsong. The case that interests us here, though, constitutes a third type, which to my knowledge has not been examined in the literature:[3] the existence of phonemes that are confined, either absolutely or in particular phonotactic environments, to interactional contexts.

We begin by examining the phenomenon in Nen (§2), the language where I was most clearly forced to confront the phenomenon. I then pass to some other languages – Bininj Kunwok and Dalabon in northern Australia (§3), but also, less exotically, English (§4), before concluding in §5. It is not my goal to explore the phenomenon across the world's languages – a vast undertaking that would burst the bounds of my allocated space – but to draw attention to the phenomenon as a first step in confronting it properly.

2. Marginal phonemes in Nen and their interactional setting

Nen is a Papuan language of the Yam family – see Evans (2014, 2015a,b) for basic grammatical information. Here we focus on its phonological system, for which more detailed information can be found in Evans & Miller (2016). In

[3] I distinguish cases like those we will be discussing, where interactionally-derived sounds behave like phonemes, in the sense of combining with other phonemes to build morphemes and words, from the use of non-combining sounds for interactional purposes. Dingemanse et al. (2013), in their discussion of the sound approximated in their article as 'huh?', is one such case; others are e.g. the use of the reduplicated dental click to express disapproval in English (variously rendered tut-tut or tsk-tsk in English orthography), or the use of *ʃ* (only in the word *ʃa*) to shoo away dogs in a number of languages of Anhem Land (e.g. Bininj Kunwok) which lack fricatives in their normal phoneme inventory. While broadly relevant to the argument advanced here, in the sense of showing how interaction calls forth a wider palette of sounds than those on the regular phonemic inventory, they differ because of their lack of combinatoric options.

particular, I focus on the status of three marginal phonemes: the nasalised vowels /ã/ and /ẽ/, and the glottal fricative /h/.

The phoneme inventory for Nen is given in Figures 1 (consonants) and 2 (vowels). Most phonemes in this inventory are richly attested. However, each of the three phonemes at issue here are marginal, in terms both of the number of words they occur in and their contexts of occurrence, and so are placed in rounded brackets (as distinct from angle brackets, used for graphemes where these depart from the standard IPA values; this is the practical orthography to be used here).

	Bilabial	Dental/ Alveolar	Palatal	Velar	Labial Velar	Glottal
Plosive	p b	t̪ d		k g	k͡p <q> g͡b <g̃>	
Prenasalised Plosive	ᵐb	ⁿd		ᵑg	ᴺg͡b (ng̃)	
Affricate			ʤ <z>			
Prenasalised affricate			ⁿʤ <nz>			
Nasal	m	n	ɲ (ñ)			
Trill		r				
Fricative		s				(h)
Approximant			j (y)		w	
Lateral Approximant		l				

Figure 1. Nen consonant phonemes

	Front	Mid	Back
High	i	ɪ <í>	u
Mid	e (ẽ)	ə[4]	o
Low	æ <ä>	a (ã)	

Figure 2. Nen vowel phonemes

Let us now exemplify these marginal phonemes one at a time. Since the number of words they occur in is small and finite – in contrast with all other phonemes of the language – we will give complete listings.

First, /ẽ/. This is confined to two interactional words. The first of these is the word for 'yes', *ẽ*, as in (1).

1 *Bm* *be-gre* *n-ng-m?* *Ẽ* *ta-gre* *w-ng-m*
2ABS 2SG-alone 2SG-AWAY-be:nd Yes 1SG-alone 1SG-AWAY-be:nd
'Are you going on your own?' 'Yes, I'm going on my own.'

[4] Schwas in Nen are almost entirely predictable epenthetically, with the exception of a couple of words where they occur word-initially. When predictable, they are simply not written, e.g. <kənəm> [knm] 'come!' Word-initially they are written as <á>. /ə/ and /ɪ/ are both short and in their phonology are rather reminiscent of the jers in early Slavic.

If this were only our example, it would be easy to relegate it to the realm of once-off sounds comparable to what is represented orthographically in English as *mhm*. However, it also occurs in one of the demonstratives, *gehẽ ~ gẽhẽ*, roughly translatable as 'that one there – you should be able to find it easily, following my point'. In this demonstrative the last vowel is always /*ẽ*/; nasality may or may not creep back to the preceding vowel.

2 *Bä* *y-m* *gehẽ*
3ABS 3SG- be:nd DEM
'There he is; here, this one is him (with pointing accompaniment)'

3 *Tande* *nne* *bermber* *gehẽ*
1SG.POSS food(ABS) portion(ABS) DEM
'Here's my portion (accompanying presentation of something).'

Each of these two words – *ẽ* 'yes' and *ehẽ* 'this/that one here/there' – are 'interactional' in the sense that they only make sense in closely-coupled dialogic contexts, the first as a response by one party to a question by the other, and the second when one party guides the attention of the other through pointing or presentation.

Now consider the other nasal vowel, /ã/. This is a slightly different case to /ẽ/. One of the words it occurs in is clearly interactional, while the other is an onomatopoeic bird name (and recall that onomatopoeic words and ideophones were mentioned above as another place where marginal phonemes are found).

Giving the interactional example first, there is a word /ahã/ or /ãhã/, whose primary use is in handing something to another person – something like 'here you are' in English, though there are other languages with special interjections to signal this, such as the word *nja!* In Bininj Gunwok / Mayali (Evans 1992). Examples are given in (4) and (5). There is also a secondary use, not exemplified here, with a meaning close to English 'sprung!' (but also one sense of 'aha!'), uttered when you have come across your interlocutor at the moment of doing something they shouldn't be doing.

4 *Ãhã* *ämbs* *bm* *t-parma-ø*
here.you.are one 2SG(ERG) 3SG.O-break.banana.off.bunch-IMP.SG
'Here you are (offering a bunch of bananas), break one off!'

5 *Ahã* *Gbae* *ynd* *begta* *tande* *yép*
2ABS [name] 1SG(ERG) 2SG.OBL 1SG.POSS bag(ABS)
räm-s-t *n-ng-a-w-apap-nd-n*
give-INF-AL 2SG.O-AWAY-BEN-TR-begin-ND-1SG.S
'Here, Gbae, I'm about to give you my bag.'

The other place this phoneme occurs (for some speakers only) is in the name of the 'whistling kite', a type of bird. According to the speaker, this word is pronounced in one of four ways: *sikãka ~ sĩkãka ~ siŋkaŋka ~ sinkanka*. Each of these is phonologically anomalous in some respect. In the first two there are nasal vowels (in non-interactional words). In the third version we have the abnormal

sequence *ŋk* (/ŋg/, with voiced /g/ preceded by /*ŋ*/, would be alright, since prenasalised voiced stops occur, but there is no other case of a voiceless stop preceded by a homorganic velar nasal). And in the fourth version we have a heterorganic nasal + stop sequence /VnkV/; this is permitted at the phonemic level in Nen but the sequence *nk* would normally be broken up by an epenthetic vowel (see footnote 3 above), to give *[sinəkanəka], whereas the attested pronunciation among the speakers is [sinkanka].

In any case, what is important here is that for some speakers, at least, the name of the bird[5] includes a nasal /ã/ (with further optional backwards propagation of nasality, as we saw with *ahã ~ ãhã* 'here you are' and *gehẽ ~ gẽhẽ* 'this/that one I'm indicating').

Let us now pass from the nasal vowels /ã/ and /ẽ/ to the other marginal phoneme in Nen: the glottal fricative /h/. This is an interesting case, because Nen speakers are impressively multilingual, due to rules of clan exogamy that typically constitute bilingual households in which husband and wife speak different languages (Evans 2012a) and on top of that there is substantial exposure to English as a modern lingua franca. As a result, Nen speakers also knowing the neighbouring and closely related language Nmbu are familiar with, and use when speaking Nmbu, the phoneme /h/, which is in fact the regular reflex of Nen /s/, as can be seen from cognate pairs like Nen /sakr/ Nmbo /hakr/ 'brother, boy'; Nen /samba/ Nmbo /hamba/ 'village'; Nen /suri/ Nmbo /huri/ 'true'.[6] However, I do not know of any loanword from Nmbo into Nen that preserves the /h/ phoneme from Nmbo. The situation with English loanwords is rather different: according to their degree of familiarity with English, Nen speakers retain or drop English /h/ from loanwords like *headmaster* (> Nen /hedmasta/ ~ /edmasta/) or *horse* (> Nen /hos/ ~ /os/). In these cases the /h/ is word-initial and not connected with any unusual behaviour in adjoining segments. What we see with English loans, then, is a highly variable treatment of initial /h/, reflecting the complexities of how much English the speakers have in their repertoire.

In contrast to all of this, the situation with /h/ in interactional words is quite stable. All Nen speakers, in all contexts, reliably pronounce the /h/ in the words we have already seen, namely the two words /ahã/ and /gehẽ/. As far as I know (based on an initial collection of around 4,000 vocabulary items, given in Evans 2019) these are the only words with this phoneme. It is striking that in both cases the /h/ precedes a nasal phoneme (and of course that these are in turn restricted phonemes). This appears to be an instance of what Matisoff (1975) called rhinoglottophilia – the connection between laryngeal (glottal) and nasal articulations. He proposed that the effect was due to the acoustic similarity between glottal and nasal segments: both produce antiformants, due to their branched resonators, namely both nasal and

[5] For another bird-related Papuan example with a nasal vowel absent from the general phonemic system, see Mian, though here it is a matter of bird calls rather than bird names: 'Nasal vowels are not phonemic in Mian but the cry of a crow is consistently emulated as *hẽẽ*.' (Fedden 2011: 580).

[6] See Evans et al. (2018) for some regular sound correspondences. However, for Nmbo speakers the status of /h/ is tenuous, since younger speakers tend to drop it word initially (Kashima 2020).

oral cavities for nasal vowels, and both for glottals and laryngeals in the case of /h/, since the space below the glottis acts as a second resonator.[7]

What we have in the case of /h/, then, is a double distribution: a sociolinguistically-fluctuating distribution, word-initially, without other phonetic consequences, in the case of /h/ in loanwords, coupled with a sociolinguistically-fixed usage, by all speakers, in just a couple of interactional words, and in each case clearly associated with following nasal vowels.

More generally, to draw together our examination of marginal Nen phonemes in this section:

(a) The three relevant Nen phonemes – /ã/, /ẽ/ and /h/ – are all confined to interactional contexts, namely the interjections /ahã/ 'here you are', /ẽ/ 'yes' and /gehẽ/ 'over here/there, look!'.

(b) Each of these marginal phonemes is invariant across the speaker population, in contrast to what appear phonetically to be comparable marginal phonemes either in onomatopoeic words (*sikãka* ~ *sĩkãka* 'whistling kite') or loanwords (*hedmasta* ~ *edmasta* 'headmaster')

(c) The nasal-vowel and glottal-fricative marginal phonemes are closely interlinked, exhibiting an interesting form of rhinoglottophilia: interactive /h/ only occurs in intervocalic position before a nasal vowel, and all interactive words of more than one syllable that contain a nasal vowel also contain an /h/.

Should these be included as regular phonemes or not? There is no straightforward answer to the question. /ẽ/ forms a minimal pair with /e/ ('cry', a preverb [Evans 2019]), but for the others it is impossible to find an exact minimal pair because of the presence of two, mutually conditioned, restrictive phonemes (i.e. since both a nasalised vowel, and an /h/, are co-present, it is not possible to find a word differing on just one of these). In other words we can contrast *eC*$_{<\text{-nasal}>}$*e* with *ẽhẽ* (as in *gege* 'son' vs *gẽhẽ* 'over here/there, look!'), but we can't independently vary the vowel nasality and the glottal articulation to construct contrasts on just one of those.

If we appeal to number of words the case for including them is weak; on the other hand they exhibit regular phonotactics apart from the rhinoglottophilia effects just mentioned. The most convincing answer is probably to say that they are phonemes, but not regular ones: that the phonology is structured around a core of fully regular phonemes augmented by an outer layer of more restricted ones, to which /ã/, /ẽ/, and /h/ belong. And unlike all other phonemes, for which it is not possible to find a unifying semantic or pragmatic characteristic, these three restricted phonemes all have a strong 'interactional' flavour – in each case they occur in contexts where the dialogic element of language is particularly salient: the interaction between speaker and hearer across question-and-answer (*ẽ* 'yes'),

[7] For further examples of rhinoglottophilia see e.g. Krim, which lacks contrastive nasal vowels but in which are strongly nasalised after /h/, Pirahã which exhibits similar nasalisation effects after /h/ and /ʔ/, and Inor (Gurage, Ethiopia) which has developed nasal vowels where there were etymological laryngeals/pharyngeal consonants. See Ahland (2006) and Boivin (1996).

request-and-fulfilment (*ahã* 'here you are') or training of mutual attention (*gẽhẽ* 'here/there, look!').

3. An English puzzle: initial /θ/ vs /ð/

After our initial discussion of a little-known Papuan language, Nen, the reader may ask how relevant such obscure languages are to general questions of linguistics. It therefore behoves us to return to a well-studied language, English, to show that comparable effects are to be found there, in a different guise, namely the distribution between /θ/ and /ð/ in word-initial position.

As is well-known, English contrasts fricatives, by voicing, at several points of articulation, and in all major phonotactic positions – word-initial (*feel* vs *veal*), word-medial (*elfish* vs *elvish*) and final (*life* vs *live*[8]). Curiously, however, the contrast between /θ/ and /ð/ (unhelpfully represented by the same digraph <*th*>) is not found in all three positions. While occasional minimal pairs can be found word-finally, particularly in association with noun-verb heterosemy: *wreath* [θ] (n.), *wreath* [ð] (v.); *teeth* [θ] (n.), *teeth* [ð] (v.), *mouth* [θ] (n.), *mouth* [ð] (v.).

However, there are basically[9] NO minimal pairs word-initially: both phonemes are found in word-initial position, but they are assorted by lexeme, as in Table 1.

Table 1. **English /θ/ vs /ð/ in word-initial position**

θ	ð
thick, think	*this, these*
thin	*that. those*
through	*then*
thresh	*there, thither, thence*
thew, three, thigh	*thou, thee, thy*
thought	*though*
theft	*they, them, their*
thalidomide	*the*
thank	*than*

Different scholars have commented on the semantics of this division. Minkova (2011: 39) refers to it as 'initial voicing [of [θ] ~ [ð] – NE] in … function and pronominal words'.[10] She points out that this distinction was already present in Old

[8] The deficiencies of English orthography make it necessary to specify that the pronunciation of *live* intended here is /laiv/, as in 'live wire' or 'live show'.

[9] Depending a bit on where we draw the boundaries. If we include the archaic *thy*, then *thy* vs *thigh* is a minimal pair. If we allow multi-word sequences, with *this'll* [ðɪsel] (< *this will*) contrasts minimally with *thistle* [θɪsəl]. Both these pairs contrast a closed-class, interactional word with an open-class noun.

[10] Bickel & Nichols (2007) introduce the notion of 'eidemic resonance' to account for how 'forms of a paradigm often resonate with each other through alliteration, rhyme, or other paronomasia, but without entailing any consistent semantics. Rather, the resonances serve to structure paradigms, compartmentalize the lexicon, and provide psycholinguistic processing cues.' They see it as 'probably best attested in small closed lexical paradigms such as personal pronouns, basic kin terms …, essential deictics, and the like, but also … in inflectional paradigms'. While there

English, and calls it a 'transparent case of prosodically induced change', without discussing why prosody should operate differently in precisely this set of words; elsewhere (Minkova 2014: 94ff) she argues that it operates in words that usually appeared in prosodically weak positions. Further, she advances a scenario (synthesising analyses by Bennett (1955) and Lass (1992: 41) in which '/θ-/ was categorically voiced in initial position in Old English (West Saxon, Kentish, or West Mercian)' (ibid: 40), with 'a later reversal of the initial voicing in major class words, presumably under dialectal influence from the northern areas where the voicing did not occur' (ibid: 40). This raises the question, though, of why all and only the 'major class' words should be subject to the devoicing influence of other dialects.

Lass (1992: 59) characterises the group of modern forms with initial /ð/ as 'deictics like *the, this, that, these, there, then, thou* and a few conjunctions like *though*'. He states that these normally occur 'under low sentence stress', but while this is certainly true[11] for words like *the* and perhaps *though* it is far from true when deictics are used as one-word answers in ignorative-deictic sequences (Karcevski 1941, Wierzbicka 1980, Evans 2012b) like *Which? This!*, *When? Then!* Or *Where? There*.

This characterisation by Lass can be pushed further. Of the words beginning with /ð/ in Table 2, it is not unreasonable to say that are all are in fact deictics: of space in *this/these*, *that/those*, and *there/thither/thence*, of person in *thou/thee/thy*, of time in *then*, of presupposed identifiability (i.e. discourse deixis) in *the*, and of speaker beliefs about the expected compatibility of two events in *though*. The only apparent exception is *than*, but the etymology of this goes back to Old English þanne, a variant of þonne ('then, since, because'), in turn from Proto-Germanic *þan ('at that, at that time, then'), so that at least etymologically it is also a deictic. Aside from *than*, all these words are fundamentally interactional in synchronic terms, although they take in a wider range of interaction types than the Nen words examined in §2. On the other hand, none of the words with /θ/ are deictic or interactional in this sense. We therefore have a very clear semantic partition of the two realisations: interactional for /ð/, non-interactional for /θ/.

Before going on it is necessary to address another possible explanation: frequency. Could it be the case that is simply the higher-frequency words that exhibit the voiced forms? It turns out that this is only partially true. If we take the listing of English word frequencies at (ENA, 13 October 2022)[12], and look at the top 200 words by frequency, we find that 17 begin with /ð/ or /θ/, and that there is a correlation, but not an absolute one. In terms of frequency, we find the ranking in Table 2.

are similarities to the present case, they do not specifically mention that eidemic resonance can condition allophonic differences, nor do the cases discussed here form a paradigm in the strict sense.

[11] And of course 'normally' is not categorical: in a sentence like *Igor is THE expert on this* the article receives full stress but retains its initial voicing.

[12] https://frequencylist.com

Table 2. **Frequency rankings of words beginning with interdental fricatives, top 200 words of English**[13]

ð		θ	
Freq #		Freq #	
4	the		
9	that		
18	this		
		38	think
51	they		
70	there		
		73	thing
83	there		
91	them		
93	then		
		119	thank
130	these		
140	those		
163	than		
178	their		
		188	three
		191	thanks

Source: ENA, 13 October, 2022.

The data in Table 2 suggest that although frequency is a correlation with voicing of dental fricatives, the correlation is not perfect. It is therefore unlikely that frequency is, in itself, the reason for the split distribution we find in English. We have also rejected, above, the idea that these simply reflect low sentence stress. The issue thus remains an unresolved puzzle. It is useful, then, to look at another language in which a particular phoneme has – at least in some positions – a highly interaction-dependent distribution, and it is to this language – the Australian language Bininj Kunwok – that we turn in the next section.

4. A clue from Bininj Kunwok

Bininj Kunwok[14], like many other languages of Arnhem Land, Northern Australia (Harvey 1991, Evans 1995), has a phonemic glottal stop with a very limited distribution.

In morpheme-final, syllable-final position it contrasts with zero in a few words, e.g. *kunwor* 'leaf' vs *kunwor?* 'satiation', *lar* 'sandpaper fig' vs *anlar?* 'callitris pine'. In none of these cases does it form a minimal semantic contrast, in other

[13] https://frequencylist.com

[14] Orthography for the language has now stabilised on this spelling; at the time of publishing my pan-dialectal grammar (Evans 2003) the spelling *Gun-wok* for the second part of the name was still prevalent.

words it is not the glottal stop itself but the assemblage of sounds which gives the morpheme its meaning.[15]

On the other hand, there are three sets of words in which the glottal stop does constitute a morpheme in itself:

(a) 'immediate aspect' on verbs (Evans 2003: 524–5) – something happening in the here and now, forming minimal pairs with verbs lacking the glottal stop, which typically have a generic sense. Cf *ŋaŋun* 'I eat', *ŋaʔŋun* 'I am eating right now'. In this use, the glottal stop directly follows the subject pronominal prefix (here *ŋa-* '1SG.SUBJ') and precedes the verb stem (here *ŋu* 'eat'; *-n* is the non-past suffix).

(b) immediacy in some demonstrative contrasts (Evans 2003: 290–302). Cf *nabeɳu* 'the one over there' vs *nabeʔɳu* 'the one which you wanted to know about, which is right here (presenting it at the moment of utterance)', or *nani* 'there (in a series, e.g. a series of stops on a journey)' but *naʔni* 'this one right here (presenting an object to the addressee'

(c) vocatives of some kin terms, e.g. *beɭu* 'auntie (referential)' *beɭuʔ* 'hey auntie!'

Each of these uses is clearly interactional in the sense of relating the statement to the here and now: in (a) it locates the unfolding action to the moment of speech, in (b) it draws the addressee's attention to an entity being presented for their attention, and in (c) it summons the addressee by calling their attention through the use of a kinship term.

While this generalisation is true of these basic uses, there are two constructions in Bininj Kunwok which have taken these basic interactional uses and extended them to non-interactional meanings:

(a) the immediate aspect also gets used in complements of perception verbs, as in (6). This is best treated as a type of 'displaced immediacy', comparable to the displaced deixis in direct speech ('He thought: 'There's someone out there'').

6 *Ba-na-ŋ* *ka-ʔ-baɳḍi*
3SG.SUBJ:PST-see-P.PFV 3SG.SUBJ:PRES-IMM-hang.up(NPST)
'He saw it hanging up'

(b) the vocative use gets used with address-based kinship verbs, e.g. in *ŋaŋalkurŋʔme* 'I call her *ŋalkurŋ* 'mother-in-law'. Here the /ʔ/ is added to the kin term *ŋalkurŋ* 'mother-in-law' to form a displaced vocative, which is then incorporated into the verb in a special 'call OBJ kin' construction, literally 'I 'mother-in-law!' call her'. See Evans (2000) for other examples of languages which form 'call Obj Kin' verbs by incorporating kinship expressions into a verbal stem;

What is interesting about both these constructions is that they show how semantics that originate in interactional settings can be adapted into less contextual

[15] In at least one case, one word of such a pair is interactional in the sense used here: cf *kun-waŋ* 'armpit', *waŋʔ* 'well then; now; let's move on to the next thing' (Evans 1992). However, as with the other words exemplified here, the ʔ is not in itself a morpheme in this case.

uses through displaced deictic use. Concomitantly, they show how phonemic possibilities that are initially constrained by interactional settings may have their uses widened as interactional meanings are adapted into other construction types.

5. Conclusion

We have explored three languages in which phonemes, marginal in one way or another, are all linked to what we have broadly labelled 'interactional uses'. In Nen the relevant phonemes are the glottal fricative /h/ and the two nasal vowels /ã/ and /ẽ/, between them restricted to a handful of words only found in face-to-face interaction: 'here you are', 'over there look!', 'yes'. In English the marginality – concerning the voicing of the dental fricatives /ð/ and /θ/ – is limited to word-initial position. Elsewhere in the word the contrast serves other roles (e.g. limited possibilities of converting nouns into verbs). But initially there is a clean cleavage of /ð/ into words that are synchronically or diachronically deictic, and /θ/ into words whose meaning is simply referential, and does not need to take interactional context into account. In Bininj Kunwok the relevant phoneme is the glottal stop: while this sound can occur intra-morphemically as part of referential lexical contrasts (e.g. 'leaf' vs 'satiation') its primary use as a morpheme comprising a sole phoneme is restricted to the three interactional senses of 'immediate aspect (in the here and now)', 'engaged attention' (in demonstratives) and 'calling the attention of designated kin' (in kinship vocatives).

What is common to all these examples is that particular vocal gestures – vowel nasalisation (Nen), initial voicing of fricatives (English), glottal fricatives (Nen) and glottal stops (Bininj Kunwok) – seem to arise, whether entirely (Nen) or in some phonological or morphological positions (English, Bininj Kunwok) – specifically in contexts of interaction.

We can hypothesise that what has happened, in such contexts, is that suprasegmental prosodic signalling, aimed at attracting or directing the addressee's attention, has entered the speech system as part of the suite of paralinguistic and prosodic sounds used to modulate conversational interaction (agreeing, pointing, presenting...). In doing so, it has become associated with particular words or lexical sets to the point where it has ceased to be simply 'extraphonemic', and begun to be integrated into the core phonological system. Sometimes, as in Nen, this process is at a very early stage, and the phoneme is only attested in a handful of words. At other times, as in English, the process has advanced much further and is only detectable in particular phonotactic positions.

If correct, the importance of this mechanism for our understanding of how phonological systems evolve is that it removes the impermeable barrier between 'extralinguistic' speech sounds found just in interaction (but in a non-combining way), and the set of phonemes which a language uses to construct new words and morphemes. As examples of 'extralinguistic' speech sounds, we may consider the discussion by Dingemanse et al. (2013) of the sound approximated in their article as 'huh?', the use of the reduplicated dental click to express disapproval in English (variously rendered *tut-tut* or *tsk-tsk* in English orthography), or the use of ʃ (only

in the word *ʃa*) to shoo away dogs in a number of languages of Arnhem Land (e.g. Bininj Kunwok) which lack fricatives in their normal phoneme inventory. In each of these cases, a full study of the communicative use of speech sounds in interaction calls forth a wider palette of sounds than those on the regular phonemic inventory. But, in contrast to the cases discussed here, the relevant sounds lack combinatoric options.

In another of his important works, Igor and his long-term collaborator Lydia Iordanskaja introduce the notion of 'pragmatemes' (pragmatèmes in French), defining them as follows:

'Un formulème est un pragmatème si et seulement si il est contraint par rapport à la situation extralinguistique de son utilisation.' (Iordanskaja & Melchuk 2017: 102)

This characterisation relates closely to the phenomena discussed in this article – with the exception that pragmatemes are lexical or even phrasal items rather than the phonological building blocks from which they are constructed. A bit further on in the same book (p. 104), they point out that

'toute unité linguistique, y compris un syntagme compositionnel, peut être contrainte par la situation extralinguistique de son emploi'

The phenomena discussed here show that this observation can be applied to the very building blocks of a language: its phonemes. The pragmatic demands of interaction feed, over time, into the organised heart of the linguistic system, through the impact of prosody on such features as nasalisation and glottal gestures for signalling aspects of the here-and-now. And in this way the intense human interaction which makes us all think of Igor with such vivid warmth, also has its part to play in the never-ending creation and re-creation of our phonological systems.

Acknowledgements

I thank Tatiana Larina for giving me this opportunity to pay tribute to Igor Melchuk in this way, and for her patience in dealing with a sequence of missed deadlines. I also thank my Nen and Bininj Kunwok language teachers, especially Jimmy Nébni and the late Eddie Hardy, Cynthia Allen and Robert Mailhammer for discussions and sources on the English dental fricative voicing contrast, Keira Mullan for her assistance formatting and checking the manuscript, and the Australian Research Council (particularly Grant CE140100041, ARC Research Centre for the Dynamics of Language) for its support of my research on Australian and Papuan languages over many years.

REFERENCES

Ahland, Michael. 2006. Nasal spreading, rhinoglottophilia and the genesis of a non-etymological nasal consonant in Mesmes. *Proceedings of the annual meeting of the Berkeley Linguistics Society*.13–24.

Bennett, William H. 1955. The Southern English development of Germanic initial [f s]. *Language* 31 (3). 367–371. https://doi.org/10.2307/410804

Bickel, Balthasar & Johanna Nichols. 2007. Inflectional morphology. In Timothy Shopen (ed.), *Language typology and syntactic description,* 169–240. Cambridge: Cambridge University Press.

Boivin, Robert. 1996. Spontaneous nasalization in Inor. In Grover Hudson (ed.), *Essays on Gurage language and Culture*, 21–33. Wiesbaden: Harrassowitz Verlag.

Childs, George Tucker. 1988. The phonology of Kisi ideophones. *Journal of African Languages and Linguistics* 10 (2). 165–190. https://doi.org/10.1515/jall.1988.10.2.165

Dingemanse, Mark, Francisco Torreira & Nick J. Enfield. 2013. Is "Huh?" a Universal Word? Conversational Infrastructure and the Convergent Evolution of Linguistic Items. *PLOS ONE* 8 (11). e78273. https://doi.org/10.1371/journal.pone.0078273

Evans, Nicholas. 1992. Wanjh, bonj, nja: Sequential organization and social deixis in Mayali interjections. *Journal of Pragmatics* 18 (2/3). 71–89. https://doi.org/10.1016/0378-2166(92)90053-E

Evans, Nicholas. 1995. Current issues in Australian phonology. In John Goldsmith (ed.), *Handbook of Phonological theory,* 723–761. Oxford: Blackwells.

Evans, Nicholas. 2000. Kinship verbs. In Petra M. Vogel & Bernard Comrie (eds.), *Approaches to the Typology of Word Classes,* 103–172. Berlin: Mouton de Gruyter.

Evans, Nicholas. 2003. *Bininj Gun-wok: A Pan-Dialectal Grammar of Mayali, Kunwinjku and Kune*. Canberra: Pacific Linguistics.

Evans, Nicholas. 2012a. Even more diverse than we thought: The multiplicity of Trans-Fly languages. In Nicholas Evans & Marian Klamer (eds.), *Melanesian languages on the edge of Asia: Challenges for the 21st century. Language documentation and conservation special publication No. 5*, 109–149. Honolulu: University of Hawai'i Press.

Evans, Nicholas. 2012b. Nen assentives and the problem of dyadic parallelisms. In Andrea C. Schalley (ed.), *Practical theories and empirical practice. Facets of a complex interaction*, 159–183. Amsterdam: John Benjamins.

Evans, Nicholas. 2014. Positional verbs in Nen. *Oceanic Linguistics* 53 (2). 225–255.

Evans, Nicholas. 2015a. Chapter 26. Valency in Nen. In Andrej Malchukov & Bernard Comrie (eds.), *Valency classes in the world's languages,* 1069–1116. Berlin: Mouton de Gruyter.

Evans, Nicholas. 2015b. Inflection in Nen. In Matthew Baerman (ed.), *The Oxford handbook of inflection*, 543–575. Oxford: Oxford University Press.

Evans, Nicholas & Julia Colleen Miller. 2016. Nen. *Journal of the International Phonetic Association* 46 (3). 331–349. https://doi.org/10.1017/S0025100315000365.

Evans, Nicholas, Wayan Arka, Matthew Carroll, Yun Jung Choi, Christian Döhler, Volker Gast, Eri Kashima, Emil Mittag, Bruno Olsson, Kyla Quinn, Dineke Schokkin, Philip Tama, Charlotte van Tongeren & Jeff Siegel. 2018. The languages of Southern New Guinea. In Bill Palmer (ed.), *The languages and linguistics of New Guinea: A comprehensive guide*, 641–774. Berlin: Walter de Gruyter.

Fedden, Sebastian. 2011. *A Grammar of Mian*. Berlin: Mouton de Gruyter.

Goddard, Cliff. 1982. Case systems and case marking in Australian languages: A new interpretation. *Australian Journal of Linguistics* 2. 167–196. https://doi.org/10.1080/07268608208599290

Harvey, Mark. 1991. Glottal stop, underspecification and syllable structure among the Top End Languages. *Australian Journal of Linguistics* 11. 67–105.

Iordanskaja, Lydia & Igor Melchuk. 2017. *Le mot français dans le lexique et dans la phrase.* Paris: Hermann.

Karcevski, Serge. 1941. Introduction à l'étude de l'interjection. *Cahiers Ferdinand de Saussure* 1. 57–75.

Kashima, Eri. 2020. *Language in My Mouth: Linguistic Variation in the Nmbo Speech Community of Southern New Guinea* [Unpublished PhD Dissertation]. The Australian National University.

Lass, Roger. 1992. Phonology and morphology. In Norman Blake (ed.), *The Cambridge history of the English language. Volume II: 1066–1476,* 23–155. Cambridge: Cambridge University Press.

Matisoff, James, A. 1975. Rhinoglottophilia: The Mysterious connection between Nasality and Glottality. In Charles A. Ferguson, Larry M. Hyman & John J. Ohala (eds.), *Nasálfest: Papers from a Symposium on Nasals and Nasalization*, 265–287. Universals Language Project, Stanford University, Stanford.

Melchuk, Igor. 1979. *Studies in Dependency Syntax*. Ann Arbor: Karoma.

Melchuk, Igor. 2006. Calculus of possibilities as a technique in linguistic typology. In Felix Ameka, Alan Dench & Nicholas Evans (eds.), *Catching language: The art and craft of grammar writing,* 171–205. Berlin: Mouton de Gruyter.

Minkova, Donka. 2011. Phonemically contrastive fricatives in Old English? *English Language and Linguistics* 15 (1). 31–59. doi:10.1017/S1360674310000274

Minkova, Donka. 2014. *A Historical Phonology of English*. Edinburgh: Edinburgh University Press.

Sarvasy, Hannah. 2016. Warblish: Verbal mimicry of birdsong. *Journal of Ethnobiology* 36 (4). 765–782. https://doi.org/10.2993/0278-0771-36.4.765.

Wierzbicka, Anna. 1980. *Lingua Mentalis: The Semantics of Natural Language.* Sydney: Academic Press.

Dictionaries

Evans, Nicholas. 2019. *Nen dictionary. Dictionaria 8*. 1–4997. (Available online at https://dictionaria.clld.org/contributions/nen) (accessed 12 October 2022).

Melchuk, Igor & Aleksander Zholkovsky. 1984. Tolkovo-kombinatornyi slovar' sovremennogo russkogo yazyka. [Explanatory Combinatorial Dictionary of Modern Russian]. Vienna: Wiener Slawistischer Almanach.

Article history:
Received: 28 July 2022
Accepted: 04 September 2022

Bionote:
Nicholas EVANS is Distinguished Professor of Linguistics at the Australian National University. He has carried out wide-ranging fieldwork on indigenous languages of Australia (Kayardild, Bininj Kunwok, Dalabon) and Papua New Guinea (Nen). His driving interests are the interplay between the diversity of the world's languages and the many scientific and humanistic questions they can help us answer about human history, culture, mind and society.
e-mail: nicholas.evans@anu.edu.au
https://orcid.org/0000-0003-0893-3713

Сведения об авторе:
Николас ЭВАНС – Заслуженный профессор лингвистики Австралийского национального университета. Он проводит обширные полевые исследования языков коренных народов Австралии (каярдильд, гунвингу, далабон) и Папуа – Новой Гвинеи (нен). Основная сфера его научных интересов – взаимосвязь между многообразием языков мира и многочисленными научными и гуманитарными вопросами о человеческой истории, культуре, мышлении и обществе, на которые они могут помочь нам найти ответы.
e-mail: nicholas.evans@anu.edu.au
https://orcid.org/0000-0003-0893-3713