

Word Games as Experimental Linguistics

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“Word games” in languages can tell us something about syllable structure and underlying forms. Sometimes they are helpful in determining orthographic issues, such as whether to include a letter in the spelling or not. Here I introduce word games by discussing Pig Latin in English, and then report on two SIL projects which used language games to gain more insight into the language.

1. What are word games?

There are undoubtedly many kinds of games with language around the world, but here I want to focus on one particular type. What I call “word games” in this article are games where people systematically insert sounds or switch the order of individual sounds or syllables. Pig Latin is perhaps the best-known word game in English.

In Pig Latin, you remove the first consonants of a word, add them to *-ay* (phonetically [eⁱ]) and put that new syllable at the end of the word. So ‘pig’ becomes *ig-pay*. ‘Star’ becomes *ar-stay*. ‘Scratch’ becomes *atch-scray*. It is not just the first consonant that moves, but the whole consonant cluster, even if it is not written as a consonant. ‘Choir’ becomes *ire-quay* and ‘squid’ becomes *id-squay*. (If the target word begins with a vowel, instead of removing a consonant you add ‘way’ at the end, so ‘item’ becomes *item-way*.) One of the main conclusions you can draw from Pig Latin is that the ONSET of a syllable in English is a psycholinguistically real unit, whether it is one consonant or three.

But even so well-known a game as this can have some surprises. The word ‘cute’ in English is phonetically [kjut] in broad transcription. If you are sitting next to a native English speaker, try this experiment right now. If he knows Pig Latin, ask him what the Pig Latin for ‘cute’ is. What did you find? If one strictly followed the rule of removing the initial consonant cluster, you should get [ut-kjeⁱ]. But *no one* I asked gave this response, at least not at first. I asked about twenty people in an informal survey, and the inevitable response was hesitation, and then usually a very tentative response.¹ The most common answers were [jut-keⁱ] and [ut-kweⁱ], with a few [ut-keⁱ] responses too. One would think the palatalized consonant [ky] should behave like the labialized consonant [kw]. But there is no problem with ‘quit’ becoming [it-kweⁱ], while ‘cute’ makes people stumble. The two commonest responses both have

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¹ Thanks to the students and staff at the Oregon SIL school for putting up with my questions and then getting quite interested themselves!

something wrong with them in terms of the Pig Latin game. [jut-keⁱ] starts with a glide, but proper Pig Latin words always start with a vowel. As for [ut-kweⁱ], how in the world did the original [kj] become the Pig Latin [kw] that quite a few people gave?

In the linguistic literature on word games, there may be an authoritative answer (or maybe not—it's interesting how everyday phenomena get overlooked sometimes). Here are a couple of ideas I have, though these would definitely need more research to verify.

One factor to notice is that the “correct” Pig Latin form that no one gave, [ut-kjeⁱ], has an illegal sequence in it. The palatalized [kj] can only be followed by [u] in English, never any other vowel. So a process that produces an output [kjeⁱ] is immediately judged to be impossible English. The speaker flounders mentally for a few seconds. He may come up with [ut-keⁱ], but this doesn't work well because the [j] is deleted altogether. (Besides, this is also the output when the word ‘coot’ is input.) Some arrive at [jut-keⁱ], insisting that this is a legal form. It is not, since Pig Latin forms always begin with a vowel, never a glide. We see that ‘yellow’ produces *ello-yay*, among other examples of words beginning with [j]. I find the [ut-kweⁱ] response to be perhaps the most interesting of all. The speaker does not produce a palatalized [k], but realizes he should not produce a plain [k] either. What else is available in English to modify a [k]? Labialization, of course!

It would be interesting to teach Pig Latin to a person whose native language *does* allow [kjeⁱ], and see what he produces. I would also like to try this on children who have not learned to read yet, in case there is some interference from that. The remaining sections of this paper report on word games in languages other than English, and what the language workers learned from them.

2. Awara—Papua New Guinea

Ed and Susan Quigley had a puzzle with nasals in the Awara language they were working in. There were words like [sandun] ‘axe’, which looked like they had a nasal at the end of both syllables. But they noticed a word game that children would play, in which they moved the first syllable to the end of the word, as follows:

(1)	Normal	Word game	Gloss
	kahat	hatka	‘betelnut’
	tawik	wikta	‘clothing’
	payip	yipa	‘knife’
	notna	nanot	‘my friend’
	kayamut	yamutka	‘cucumber’

However, in this game, *sandun* became *dunsa*, not the expected *dunsan*. The final nasal disappeared. Why? They realized that what they thought was the nasal in the first syllable was actually part of a prenasalized stop. The psychological syllable pattern was *sa.ⁿdun*, not *san.dun*, where periods divide the syllables. This agrees with other patterns of the language. A plain voiced stop such as [d] is perfectly fine word-initially, and the output of the word game often had these word-initially also. But any voiced stop that occurred between vowels had an accompanying nasal—it was prenasalized. More examples of this type are below:

(2)	Normal	Word game	Gloss
	sandun	dunsa (<i>not</i> dunsan)	‘axe’
	sunḡum	gumsu (<i>not</i> gumsuḡ)	‘sweet potato’
	simbut	butsi (<i>not</i> butsim)	‘taro cake’

The nasal before the [d] in [sandun] disappeared when the first syllable was moved to final position, because psycholinguistically that nasal never belonged to the first syllable (even though phonetically it might have sounded like it).

The prenasalized voiced stops always occurred between vowels, and the plain voiced stops occurred word-initially. Since there is complete complementary distribution between these, it was clear that prenasalized stops were allophones of the plain stops. To summarize:

(3)	Underlying	Normal	Word game	Gloss
	/sibut/	sim.but	but.si	‘bread’
	/sadun/	san.dun	dun.sa	‘axe’
	/sugum/	su.gum	gum.su	‘sweet potato’

Ed Quigley notes that people playing this game often do actually pronounce the word final nasal at first (for example, *simbut* as [but.sim]), but then correct themselves and say [but.si]. He posits that they may go through a two step process. First is to transpose the phonetic syllable. The second is to reanalyze the word. Thus, though they perceive the nasal there phonetically in moving the syllable, they delete it when they reapply phonological constraints.

With this linguistic analysis, it would seem that the way to spell [simbut] would be <sibut>, since the [m] is predictable and allophonic. However, people who read Pidgin or English have learned to hear this prenasalization and want to see it written. If it is not written, then they interpret it as not being there. That is, if they see <sibut>, they think it should be pronounced [sibut], which is incorrect.

The Quigleys actually did a preference test, too, to see how the Awara reacted to the two spelling systems. They gave choices like <sibut> and <simbut>, and the preference was with the nasal form. Greater education generally led to a greater preference for <simbut>, the nasal form. As Ed writes, “Sociolinguistically, it is these people who will encourage or discourage the less literate people in learning to read Awara. It is important that they feel comfortable with what is produced.”

So here is a case where the word game helped elucidate the linguistics and had potential for affecting the orthography. Sociolinguistic factors ended up overruling the strict linguistic ones in the orthography, as often happens. Still, the word game helped give deeper insights into how the language actually worked.

3. Komo—Democratic Republic of Congo

Paul Thomas writes in his thesis (Thomas 1992) about a language game of the Komo people that they call *Kimasa*. In *Kimasa*, the order of syllables in a word is completely reversed. The name is derived from the Swahili word *samaki* ‘fish’. When you reverse the syllables of *samaki*, the resulting word *kimasa* sounds like a language name. This is because it appears to have the prefix *ki-*, which is used to indicate languages, among other things, e.g., *kifaranza* ‘French’, *kigerumani* ‘German’.

As stated, the Kimasa game reverses the order of the syllables.² The data below show examples of how this works.

- (4) Kimasa word game examples
(High tones are marked with acute accent; low tones are unmarked)

Komo	Kimasa	Gloss
čédé	děčé	'frog'
číko	kóči	'field'
basú	suḃá	'fish (pl.)'
baḃíí	iḃíḃá	'guitar'

Note that the last example shows that the <ii> in 'guitar' is made up of two syllables. Also note that the tones stay with the same position in the word that they started with. This shows the relative independence of tones and segments. You can move whole syllables around and the tones stay in the same relative position, as autosegmental phonology would predict.

In the next data set, there is the complication of nasals before voiced stops. Note that the nasal behaves as a member of the following syllable; it moves along with the voiced stop that follows it. So this data set shows that these nasals are actually the manifestation of prenasalization on the voiced stop following them.

- (5) (b) Kimasa word game with prenasalized voiced stops

mbáŋgɔ	ŋgɔmba	'fast'
mbókó	kómbó	'horn'
ndúmbú	mbúndú	'nude'
ŋgáná	náŋgá	'refuse'
ḃoŋgbíŋgbí	ŋgbíŋgbíḃó	'length'

What about voiceless stops? Below is a data set showing nasals before voiceless stops. In this case, the nasals are full syllables in their own right. In the Kimasa game, the nasals move just as any other syllable, and take tone just as any other syllable. So this data shows these nasals are syllabic nasals. This is also supported by the optional glottal stop of the Kimasa forms. I assume this is inserted to enhance the separation of the nasal syllable from the syllable preceding it.

² With the data below, an alternate hypothesis is that the first and last syllables of a word are switched. For two- and three-syllable words, the two hypotheses would give the same output. But consider a four-syllable word with syllables ABCD. Thomas' "reversal" hypothesis would give DCBA, but the "switch" hypothesis would give DBCA. Though not recorded in his thesis, Thomas writes me (personal communication) that Komo has verbs of 4 and more syllables and his language helper was able to proficiently reverse them.

(6)	Kimasa word game with syllabic nasals		
	mpáti	tipám ~ tipáʔm	‘track’
	nípo	póm ~ póʔm	‘then’
	mφáse	seφám ~ seφáʔm	‘twin’
	nčáŋjá	njáčáń ~ njáčáʔń	‘shallows’
	ntíndí	nditíń ~ nditíʔń	‘civet’
	ŋkpá	kpań ~ kpaʔń	‘person’

The results of this word game were helpful in determining syllable structure. A word-initial nasal before a voiced stop is not underlyingly syllabic, but a word-initial nasal before a voiceless stop is syllabic.

4. Other research

SIL members are not the only ones who have “played with word games.” Bagemihl (1995) speaks of the phonological theory behind such language games, and gives more references and examples. Some of them are: Tigrinya inserts a [gV] sequence after the first syllable. Amharic inserts [ay] after the first consonant. The Tagalog game Golagat reverses the segments of the entire word. Cuna replaces all vowels of a word with [i]. If you are interested in how to formally represent the phonology behind all these, or just want more examples of what has been documented in some of the world’s languages, Bagemihl’s paper is a good place to start.

Finally, I am sure that there are other word games out there in languages that SIL members are working in. Both the examples in this article happen to crucially involve nasals, but I would think that there are other phenomena that can be clarified by word games. If the language you are working in has a word game (not all languages have one), write it up and send it in, even if it’s just a brief paragraph.

I anticipate there will be other short articles on “experimental linguistics” in the future as well, not only word games. I hope most of them will be from you!

References

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