Australian National University

The diachronic stability of Japanese ideophones and the iconicity-systematicity relationship

Bonnie McLean
Masters student
Australian National University

The 12th International Symposium on Iconicity in Literature and Language

Lund University, Sweden

5th May 2019

Iconicity and Systematicity

- The focus of research into ideophones or iconic words has largely been on their iconicity.
- However, the behaviour of ideophones is not a function of their iconicity alone.
- This talk will focus on the role of systematicity—statistical regularities between form and meaning or function—in the diachronic development of iconic words in Japanese.

Road map

For iconic words in Japanese, I will be examining the role of systematicity in:

1. Phonological change
2. Semantic domains (pilot study)
3. Grammar and use (via Kimi Akita)

I argue that iconicity and systematicity are inversely correlated.

Iconicity, systematicity and phonological change

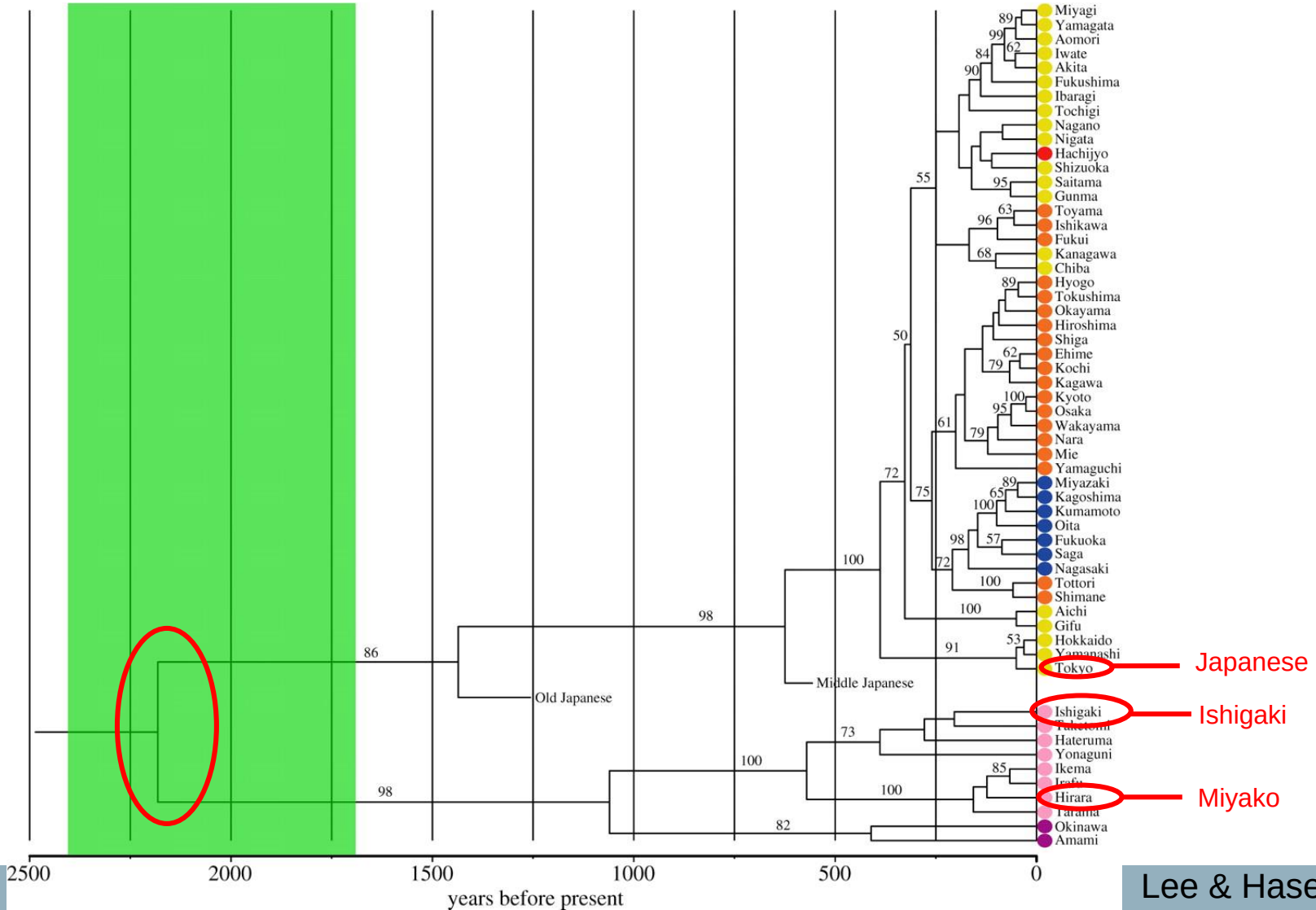
Iconic words and sound change

- Ideophones or iconic words have often been noted to conserve form diachronically.
- e.g. Diffloth (1979): the expressive phonology versus the prosaic phonology.
- This has assumed to be motivated by a need to preserve iconic mappings.

Testing resistance to sound change

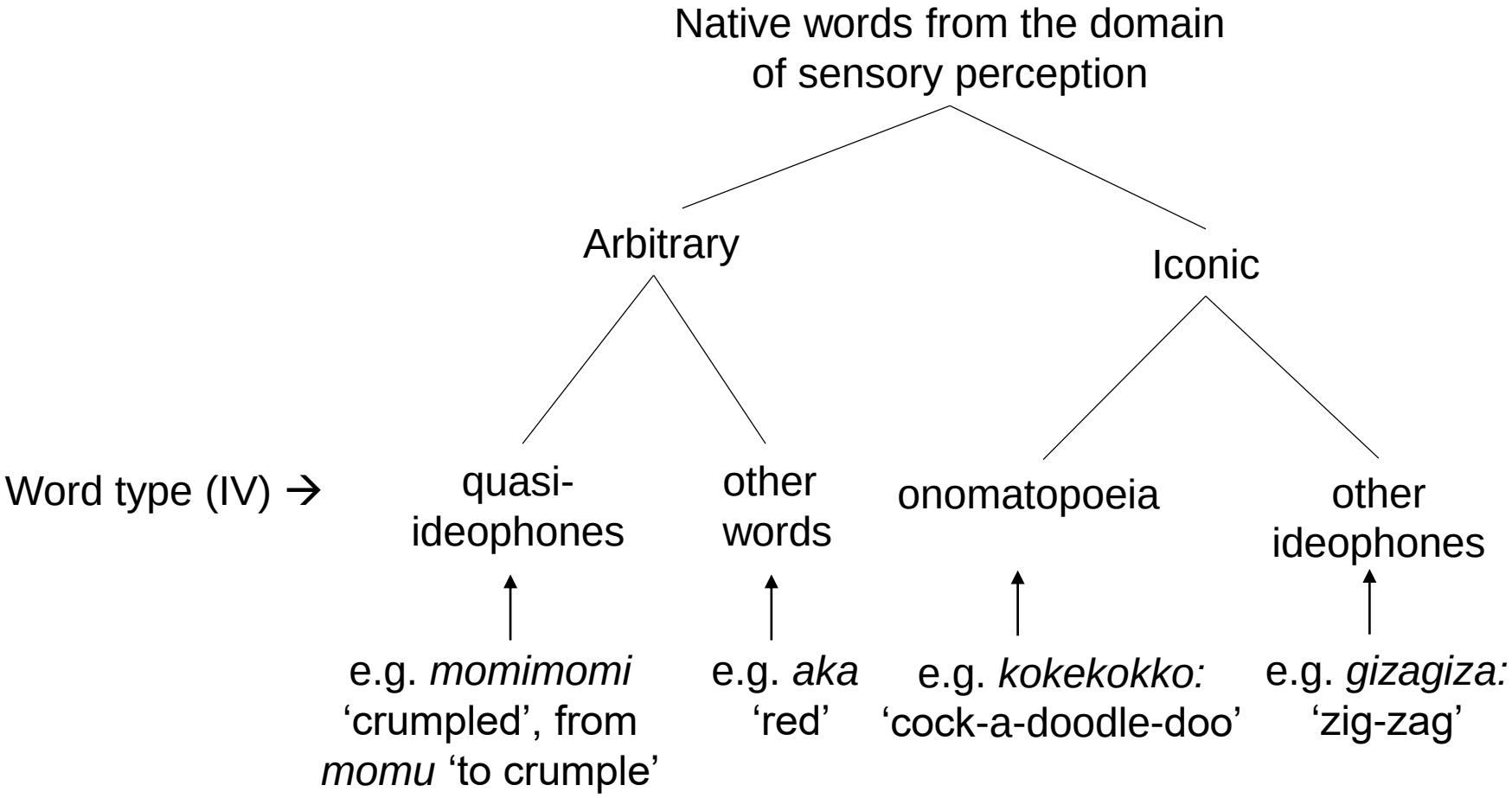
- Taking standard Japanese as a baseline, I adopt a double-pronged approach to quantifying the degree to which sound change has occurred in iconic (n=111) versus comparable arbitrary words (n=219) in two varieties of Ryukyuan—Ishigaki and Miyako—notable for their divergent phonological systems.
- These words were extracted from dictionaries: Shimoji (1975) and Miyagi (2003).

Linguistic affiliation between Japanese and Ryukyuan



Lee & Hasegawa (2011)

Classification of words



Measuring resistance to sound change

1. For Ryukyuan words that have a cognate in standard Japanese, I calculated the string edit distance between the cognates to measure the degree to which sound change has occurred in the cognate set.
2. For all words, I also calculate a ‘phonotactic deviation score’ which is a measure of how much the form of a particular Ryukyuan word has changed from standard Japanese words in general, based on the number of deviations it makes from standard Japanese phonotactics.

Calculation of string edit distances

Miyako:	*s*	*ɨ*	*b*	*u*	'narrow'
Japanese:	*s*	*u*	*b*	*o*	
	0	1	0	1	string edit distance = 2/4 = 0.5
Miyako:	*t*	*u*	*r*	*u*	'flowing'
Japanese	*t*	*o*	*r*	*o*	
	0	1	0	1	string edit distance = 2/4 = 0.5
Miyako:	*p*		*j*	*a:*	'fast'
Japanese	*h*	*a*	*j*	*a*	
	1	1	0	0.5	string edit distance = 2.5/4 = 0.625

Levenshtein algorithm taken from GABMAP (Nerbonne et al. 2011)

Calculation of phonotactic deviation scores

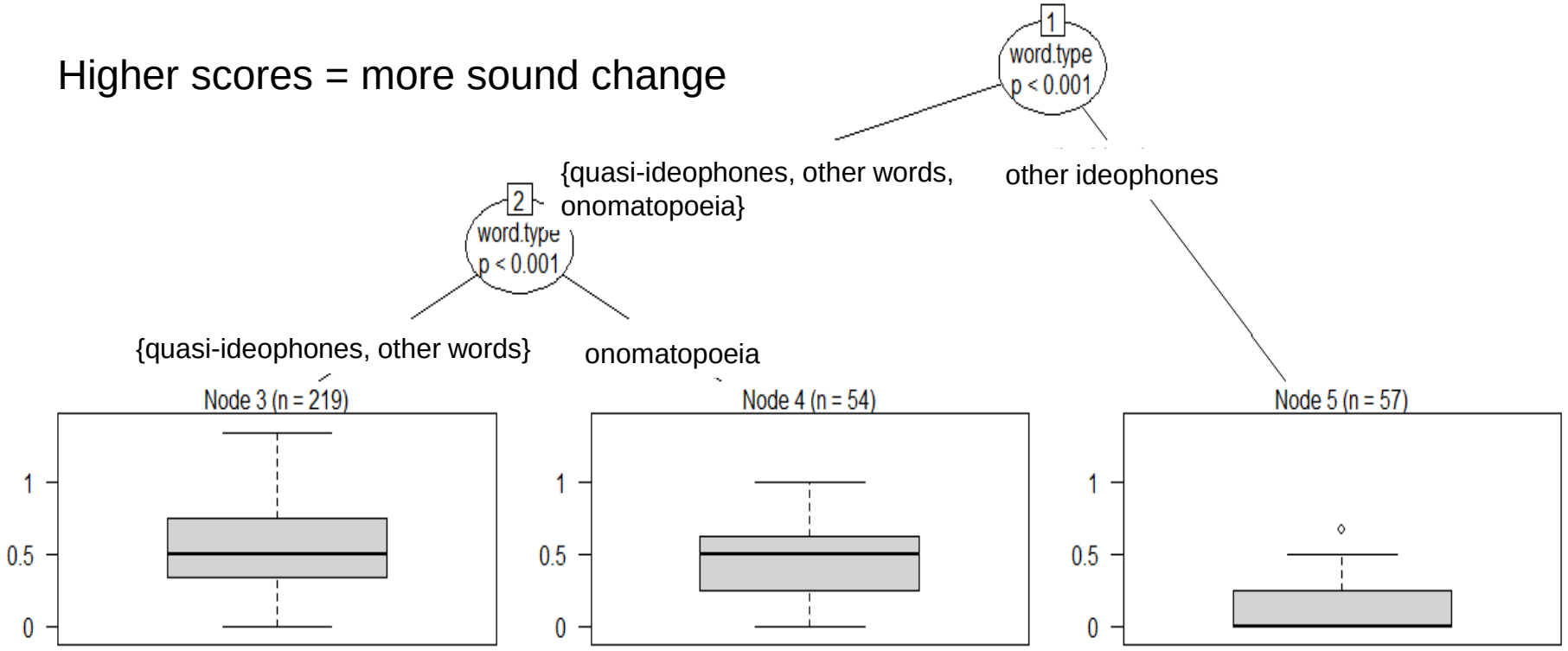
- If the phonotactics of standard Japanese were applied to Miyako/Ishigaki, words receive 1 point for every deviation they contain. The score is then normalised over the length of the word.
- This does not rely on the words being cognate.

	Phonotactic deviation score
e.g. *s:a* [usura] ‘faint, dim’	1/2 = 0.5
kiv [kebu] ‘smoky’	2/3 = 0.67
gaba:ŋ ‘gooong’	1/5 = 0.2

String edit distance by word type

Conditional inference tree predicting string edit distance from word type

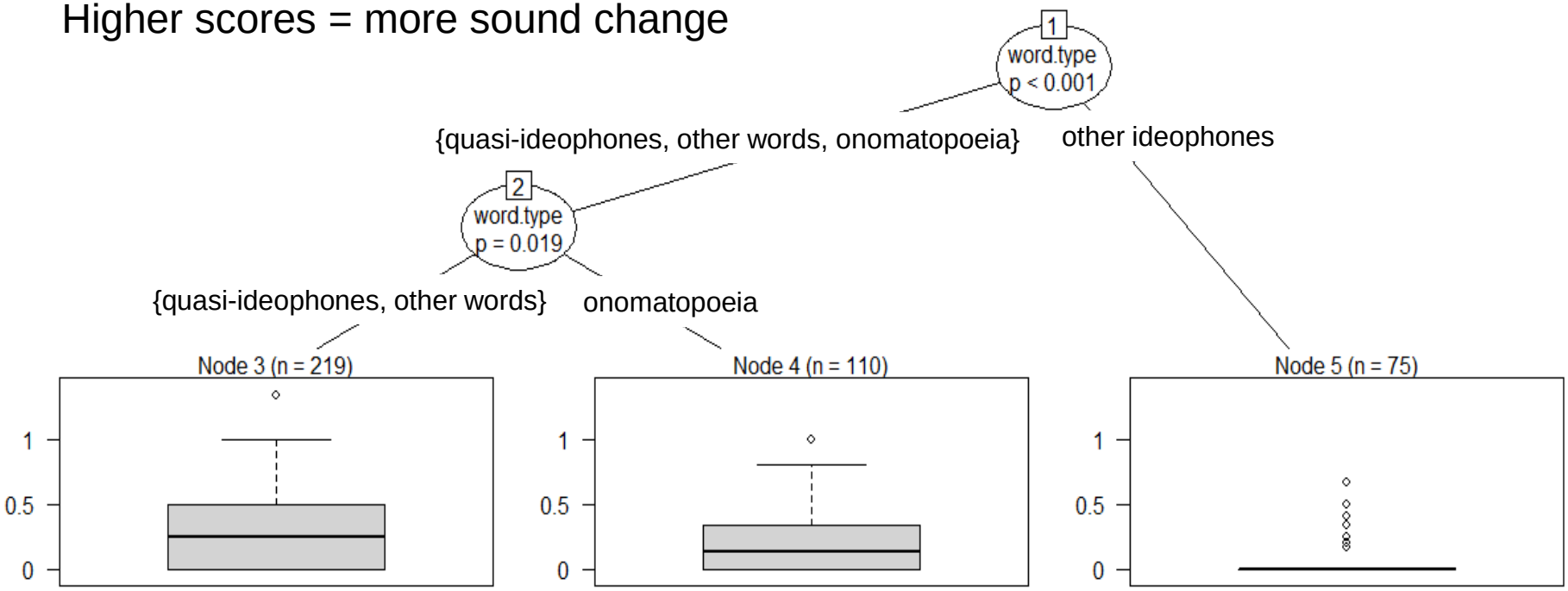
Higher scores = more sound change



Phonotactic deviation score by word type

Conditional inference tree predicting phonotactic deviation score from word type

Higher scores = more sound change



How does iconicity drive resistance to sound change?

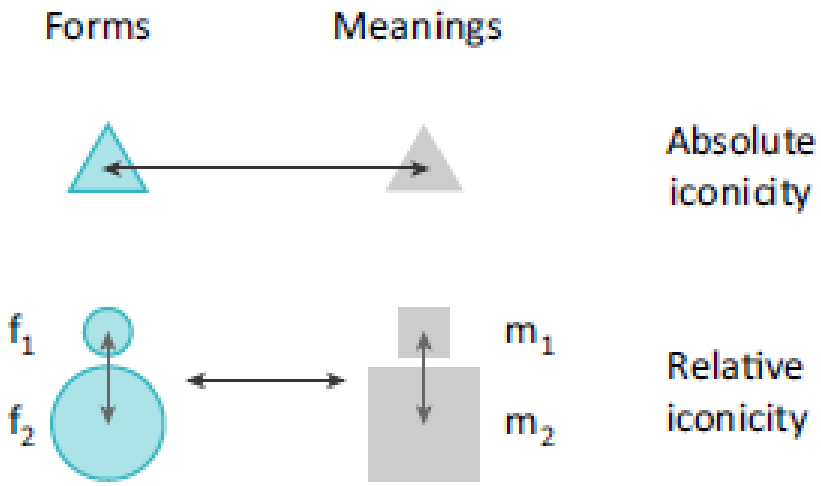
Sound changes affecting ideophones

- Small, non-contrastive pronunciation differences (e.g. ʃi/si, ɸ/f, z/dz, glottalization of word-initial vowels in Ishigaki) ✓
- Changes affecting *relative* iconicity (e.g. voicing alternations, Japanese /o/ raising to /u/)[1] ✓
- Sound changes affecting *absolute* iconicity (e.g. t > s, r > d / n / s etc.) ✗
- Losses of segments[2] (e.g. *kiru* > *ks* 'to cut' (Miyako)) ✗

[1]onomatopoeia are sometimes an exception, e.g. Japanese *don* – Miyako *dom* (bell sound)

[2]onomatopoeia are sometimes an exception, e.g. Japanese *gabugabu* – Miyako *gav* (gulping)

Sound changes affecting ideophones



(Dingemanse, Blasi, Lupyan, Christiansen, & Monaghan, 2015)

Absolute iconicity ✗

Relative iconicity ✓

taratara	'trickling'	*sarasara* 'flowing'
daradara	'dribbling'	

Why were the onomatopoeia so much less resistant to sound change?

Sound changes occurring exclusively in onomatopoeia

1. Losses of segments, e.g. *ʃitoʃito* > *stustu* ‘drizzling rain’.
2. Use of segments not found in the baseline (standard Japanese), e.g. /v/ /ɨ/ and coda /m/ in Miyako, /gw/ /kw/ and coda /m/ /ŋ/ in Ishigaki. Some of these are retentions of old segments (/kw/ and /gw/) lost in standard Japanese. The rest are additions of new segments (/v/, /ɨ/ and /m/ /ŋ/ as coda) unique to these Ryukyuan varieties.

Why?

- The iconicity of onomatopoeia is often more of the ***primary*** type than the iconicity of other ideophones.

Primary iconicity: the perception of an iconic ground obtaining between the object and the sign is the main reason for positing the existence of a sign function relating these two things.

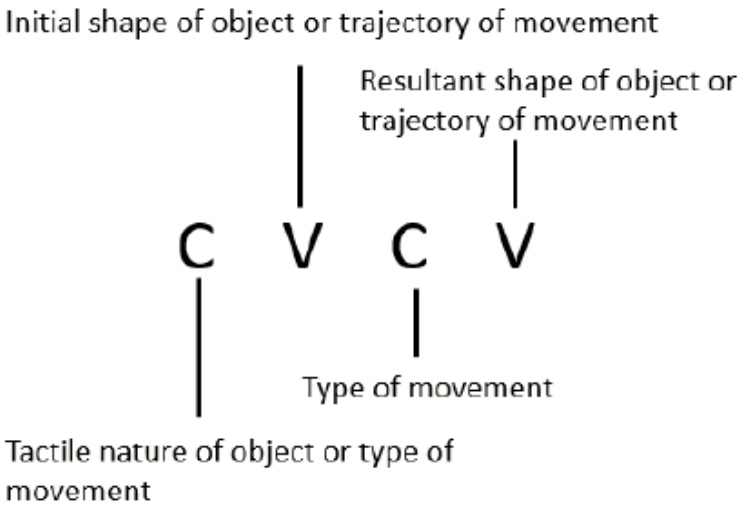
Secondary iconicity: the *knowledge about* the existence of a sign function between the object and the sign is the main reason for the *perception* of an iconic ground between them.

Based on Sonesson (1997)

Sound changes occurring exclusively in onomatopoeia

1. Losses of segments, e.g. *ʃitoʃito* > *stustu* ‘drizzling rain’

- Ordinarily, each CVCV segment in a Japanese ideophone is systematically associated with a particular function (see right).
- This *scaffolds* the interpretation of meaning for signs whose iconicity is secondary.
- However, the iconicity of onomatopoeia is more direct (primary) and synthetic (does not require scaffolding), and less amenable to a componential analysis (Akita 2013; Hamano 1998).



Systematic functions of vowel and consonant positions in Japanese ideophones (Hamano 1998)

Sound changes occurring exclusively in onomatopoeia

2a. Additions of new segments (/v/ /ɨ/ and coda /m/ /ŋ/)

- Other ideophones rely on systematic sound-meaning associations which take a long time to establish.
- But these new phonemes can be used in onomatopoeia immediately with a direct interpretation.
- Thus, new phonemes appear first in onomatopoeia.
- See also Hamano (in press): the syllable-final nasal /N/ and voiceless fricative /h/ (absent in Old Japanese) appeared in monosyllabic ideophone roots before they appeared in disyllabic ideophone roots.
- Monosyllabic ideophone roots are also more likely to be onomatopoeia (Akita 2013, p. 336)
- Also Cholan-Tzoltzilan languages: /r/ (first only in the language through Spanish loanwords) was later extended to native words through onomatopoeia (Campbell 1996, p74)

Sound changes occurring exclusively in onomatopoeia

2b. Retentions of old segments (/kw/, /gw/)

- Onomatopoeia may be more likely to resist very pervasive sound changes (e.g. loss of kw, gw, vowel raising) than other ideophones.
- This may reflect the lesser integration of onomatopoeia (compared to other ideophones) into the phonological system of the language.

Iconicity and Systematicity

- Systematicity facilitates the perception and interpretation of iconicity which is secondary, but is less necessary for signs whose iconicity is *primary*.
- This enables onomatopoeia to use a wider variety of structures and sounds (even uncommon/new/obsolete ones) whilst still remaining interpretable.
- On the other hand, ideophones whose iconicity is secondary are more likely to stick to templates that are highly systematic and prototypical for ideophones (flagging themselves as iconic).
- This is true synchronically as well as diachronically (Akita 2009), and has been noted for other languages as well (Kwon 2018)

Ideophones and sound change

- The resistance of ideophones to sound change is not only a function of their iconicity, but is related to their high systematicity as well.
- This makes less systematic ideophones (onomatopoeia) less diachronically stable.
- Iconicity and systematicity appear to be inversely correlated, with the systematicity of ideophones decreasing as they approach the most directly iconic end of the iconicity continuum.

Iconicity & systematicity in semantics

A pilot study

- To investigate whether there are systematic associations between sounds and semantic categories in ideophones, I compared the forms of ideophones for sounds, movements, textures, and internal states in Japanese.

Data

- Caldwell's (2010) list of Japanese ideophones extracted from the Kotonoha and JpWaC corpora.
- Quasi-ideophones (e.g. *subesube 'slippery'* from *suberu* 'to slip') were excluded.
- Ideophones highly polysemous across more than one semantic domain (e.g. sound & motion, or motion & internal state) were also excluded.
- As monosemous ideophones for textures and internal states are rare in Japanese, extra ideophones in these domains were sourced from Akita (2010) and Sakamoto & Watanabe (2017)

Analysis

- Ideophones were classified according to their semantic domain: sound (n=168), movement (n=149), texture (n=56), or internal state (n=50).
- Using a chi-squared test, I examined the associations between sounds occurring in C1, V1, C2, and V2 position of the CV(CV) root, and the semantic domain of the ideophone.

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

This could help avoid ambiguity (e.g. *petapeta* ‘sticking sound’ versus *nebaneba* ‘sticky texture’).

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

bukabuka ‘boiling’ versus *mukamuka* ‘boiling with anger’ as in
mune-ga mukamuka waki-tat-te-ki-ta
CHEST-NOM mukamuka boil-stand-CONJ-come-PST

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

pukupuku ‘puffing up movement’ versus *punyupunyu* ‘springy texture’

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

The distribution of sounds across semantic domains is **contrastive.**

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

Some of these associations may also be **iconic**.

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

noisier/louder sounds = sound ???

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

r = movement, articulatory iconicity ???

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.20 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

Onomatopoeia are associated with less sonorous sounds, but these associations are weaker.

Systematic associations

Domain	C1		V1		C2		V2
sound	g 2.81 k 2.55 ty 3.04 zy 3.02	n -3.98 y -2.58	a 6.34	u -5.52	h 2.2 s 2.59 sy 3.13 ø 4.96	n -2.30 r -4.54 z -2.11	ø 5.18 u -2.84
motion	t 3.34 y 4.36	m -2.88 zy -2.22		a -3.33	k 2.06 r 7.11	n -2.09 ny -2.69 ty -3.18 ø -2.88	ø -3.23 o 2.09
texture	n 6.33		u 5.89	a -3.19 o -3.03	n 6.28 ny 7.11 ty 4.02	ø -3.12 r -2.52	ø -2.89
internal state	ø 4.06 m 3.92 w 2.92	g -2.81 p -2.23	o 2.32		z 4.26		

Ideophones whose iconicity is more abstract/secondary are associated with more sonorous sounds, and these associations are stronger.

Summary

- It appears that certain sounds in certain positions provide systematic ‘hints’ about the meaning of a particular ideophone.
- These ‘hints’ are more pervasive in ideophones whose iconicity is more abstract/secondary than in onomatopoeia.

Iconicity & systematicity in grammar and use

Via Akita (2019)

- Low iconicity and high systematicity correlate again in reduplicated (as opposed to suffixed) Japanese ideophones.

Reduplicated: *ponpon* ‘popping repeatedly’, *pokipoki* ‘cracking repeatedly’

Suffixed: *pon* ‘popping once’, *pokiQ/pokin/pokiri* ‘cracking once’

Reduplicated versus suffixed Japanese ideophones (Akita 2019)

Reduplicated ideophones (high systematicity, low iconicity)	**Suffixed ideophones (low systematicity, high iconicity)**
- More frequent in corpora (prototypical ideophones)	- Less frequent in corpora
- Exhibit systematic accent-category correlation (adverbial and verbial uses are initially accented, adjectival and nominal uses are unaccented) (Usuki & Akita 2015)	- No systematic accent-category correlation
- Occur less often with expressive morphology (vowel lengthening, mora augmentation, partial multiplication, stem repetition) and iconic gesture	- Occur more often with expressive morphology (vowel lengthening, mora augmentation, partial multiplication, stem repetition) and iconic gesture
- Ambiguous aspectuality (less iconic, more systematic) *pokipoki* 'cracking more than once/*exactly twice'	- One-to-one correlation between number of occurrences of the root, and number of occurrences of the event (more iconic, less systematic) *pokiQ* 'cracking once' *pokiQ pokiQ* 'cracking exactly twice' *pokiQ pokiQ pokiQ* 'cracking exactly three times'

Summary

- This talk has addressed the claim that the iconicity of ideophones leads them to have diachronically stable forms.
- This claim was supported by my data, with the added insight that the systematicity of ideophones is also relevant to their diachronic stability, as less systematic ideophones (specifically onomatopoeia) may be less diachronically stable.

Summary

- From here, I examined the role of systematicity in other phenomena related to ideophones, including their semantics, grammar, and use.
- In all areas (diachrony, semantics, grammar and use) low iconicity correlates with high systematicity, and high iconicity with low systematicity, suggesting an inverse relation between iconicity and systematicity.

Summary

- This can be understood through the concept of primary and secondary iconicity, as systematicity facilitates the establishment and interpretation of an iconic ground in words whose iconicity is secondary, but is less needed for words whose iconicity is primary.

Thank you!

I would especially like to thank my supervisor in Australia, Catherine Travis, as well as Kimi Akita in Japan who has been a mentor for me and helped me a lot with this presentation and my thesis.

References

Akita, K. (2013). The lexical iconicity hierarchy and its grammatical correlates. In L. Elleström, O. Fischer, & C. Ljungberg (Eds.), *Iconic investigations* (Vol. 12, pp. 331-349). Amsterdam: John Benjamins Publishing Company.

Akita, K. (2019). Iconicity, systematicity, and prototypicality: Reduplicated vs. non-reduplicated ideophones in Japanese. Paper presented at the *Expressives Kaken Meeting*, Center for Southeast Asian Studies, Kyoto University, Kyoto, Japan.

Diffloth, G. (1979). Expressive phonology and prosaic phonology in Mon-Khmer *Studies in Tai and Mon-Khmer phonetics and phonology: in honour of Eugenie J.A. Henderson* (pp. 49-59). Bangkok: Chulalongkorn University Press.

Dingemanse, M., Blasi, D. E., Lupyan, G., Christiansen, M. H., & Monaghan, P. (2015). Arbitrariness, Iconicity, and Systematicity in Language. Trends in Cognitive Sciences, 19(10), 603-615.

Hamano, S. (1998). The sound-symbolic system of Japanese. Stanford: CSLI Publications.

Hamano, S. (in press). Monosyllabic and disyllabic roots in the diachronic development of Japanese mimetics. In K. Akita & P. Pardeshi (Eds.), *Ideophones, Mimetics and Expressives.*

References

Kwon, N. (2018). Iconicity correlated with vowel harmony in Korean ideophones. Laboratory Phonology: Journal of the Association for Laboratory Phonology, 9(1), 1-18.

Miyagi, N. (2003). *Ishigaki hoogen jiten [Ishigaki dialect dictionary]*. Naha: Okinawa Times.

Nerbonne, J., Colen, R., Gooskens, C., Kleiweg, P., & Leinonen, T. (2011). Gabmap-a web application for dialectology. *Dialectologia: revista electrònica*, 65-89.

Shimoji, K. (1979). *Miyako guntōgo jiten*. Naha: Shimoji yoneko.

Sonesson, G. (1997). The ecological foundations of iconicity. In I. Rauch & G. F. Carr (Eds.), *Semiotics Around the World: Synthesis in Diversity. Proceedings of the Fifth International Congress of the IASS, Berkeley, June 12-18, 1994* (pp. 739-742). Berlin & New York: Mouton de Gruyter.