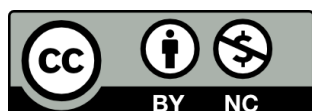

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Guessability

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Language is Arbitrary? I Wouldn't Be Saussure: Multimodal Ideophone Guessability

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Abstract: Ideophones (marked, sound symbolic words depicting sensory imagery) are an increasingly described feature of many languages, across families. However, these words have been understudied compared with the other types of words making up the world's languages. Few experiments have been done on ideophones in natural languages, rather the majority of experiments have been done regarding invented name-shape correspondences. Recent attempts have been made to bridge these currents in the research and this paper follows that path. Here I present a case for weak cross-linguistic iconicity (linguistic non-arbitrariness) in situations where monolingual English speakers are asked to guess the meaning of Japanese and Korean ideophones. Videos containing a native speaker of Korean and Japanese (respectively) were shown to native English-speakers who were ignorant of both languages. Four possible meanings were given for each ideophone. Participants guessed the correct meaning of 20 ideophones with the result that the ideophones were guessed above chance, arguing for possible iconic properties of Japanese and Korean ideophones in a multimodal context.

Keywords: multimodal(ity), iconicity, ideophones, Korean, Japanese

1. Introduction

Research into linguistic iconicity takes a researcher from inside the human brain to inside the workings of a culture. Literary luminaries and laudable linguists have taken pains to explain why and how certain sounds are paired with certain meanings. The field of linguistics was founded on the idea that language was arbitrary; that there existed no relationship between the English word 'tree' and the object it refers to, other than that the English language uses that series of sounds, 'tree' to designate a particular plant with bark, leaves, etc. Each word is a sign representing an object or idea and each of these linguistic signs is arbitrary. This, at least, was the view of Ferdinand de Saussure as outlined in his 1916 *Course on General Linguistics*. However, running counter to this idea was the notion of sound symbolism, that certain sounds may indeed capture an aspect of their meaning, that certain sounds or even whole words in a language may not be as arbitrary as Saussure and others postulated.

Systematic thought regarding sound symbolism (written in European languages) is traceable to thinkers such as Prussian polymath Wilhelm von Humboldt. Humboldt claimed that certain consonants were less than arbitrary. 'St' suggested being fixed, as in the German word stiff (*starr*) and stand (*stehen*). The 'w,' by contrast suggested movement/inconstancy in words such as wavering (*Wirren*) and wind (*Wind*) (von Humboldt, 1836, as found in Levelt, 2013). These efforts sparked contemplation of the origins of language, as the possibility that there were non-arbitrary starting points. Despite these early efforts and later revisitations, Pim Levelt concluded 'We will probably never know whether savage man was a phonetic symbolizer' (Levelt, 2013).

In the mid 19th century, Western linguistics (particularly working in Western and Central Africa) started to become increasingly interested in ideophones. They were to remain as such, minus forays of Japanese researchers and researchers of Japanese into the radar of Western academia until Ramachandran and Hubbard (2001) conducted their famous kiki-bouba experiment, an update of Wolfgang Köhler's 1929 Maluma-Takete study.

In both experiments, two names were paired with two shapes (see figure 1). This was then repeated with a variety of shapes and names. The pairing of, for instance, a 'round' bouba sound with a round shape (the shape on the left) and the 'jagged' sound of kiki with jagged shape led Köhler and later Ramachandran and Hubbard to argue for non-arbitrariness in language, with Ramachandran and Hubbard identifying the human angular gyrus with cross-modal abilities.

However, natural languages are once again being looked into regarding ideophony. Ideophones are 'marked words that depict sensory imagery' (Dingemanse 2012). A wide array of natural languages contain words defined as ideophones and Japanese, specifically, has received a lot of attention of late for its high number of 'mimetic'¹ words. Whether Japanese is particularly rich in ideophones compared to other Central/East Asian or African languages is up for debate. Japanese has been very well described, a situation not applicable to the many South American, African, Central and South East Asian languages in which descriptions of ideophones are growing, but often still limited (Dingemanse 2017, 2018). This experiment seeks to add to the growing literature on ideophones and their role in human language and languages.

Table 1. Japanese ideophone examples.

Ideophone	Meaning
Ton ton	Knocking on a door
Pan pan	Full, bursting
Tsuru tsuru	Slippery, smooth surface
Bacha bacha	Water splashing
Neba neba	Sticky
Mero mero	Blurred
Tsun-tsun	The state in which something small is sharp-pointed
Mokomoko	Weak and warm
Gito gito	Being oily
Gari gari	Scraping sound

The present study takes its inspiration from Dingemanse et al. (2016). In their study, Dingemanse and colleagues words that had been described previously as iconic. They presented participants with 203 ideophones from five languages. The eight-two native Dutch speaking listeners listened to these ideophones and then were presented with a binary-choice task, in four versions: an original recording, a full diphone resynthesis, a segments-only resynthesis, and a prosody-only resynthesis.

Participants then guessed the meaning of each ideophone (out of two choices). All four versions of the ideophone (with the potential modifications described above) were guessed above chance by the participants. The effect was not so large as those found in experiments using pseudo-words

¹ Scholarship on Japanese has often used the word 'mimetic' in the same way I am using 'ideophone' here (see Iwasaki, Sells & Akita 2017, or Dingemanse et al., 2016).

Table 2. Korean ideophone examples

Ideophone	Meaning
T'aengt'aeng	Blown up, like a balloon
K'ungk'ung	Pounding from a big and heavy stuff/obese person walking
Pogŭlbogŭl	Boiling sounds
Öngöng	Crying
T'oshilt'oshil	Chubby
Songsong	Chop into small pieces
Pasakpasak	Crispy, easily breaking
Mikkŭlmikkŭl	Oily/fish's skin
Pölböl	Shivering/shaking
Tchallangtchallang	Metallic sound/small bell

(such as the boubi/kiki experiment conducted by Ramachandran and Hubbard). They found that both the segmental and suprasegmental prosodic information drove the modest effect they found. Thus, iconicity was co-mingled with arbitrariness in the ideophones as a whole.

I sought to find out if this modest effect would be altered by situating the ideophones in a multimodal context (in this case, a video recording of the respective speakers). The reasoning was that a video more closely reproduces the multimodal context in which an ideophone is normally perceived (that is, a interlocutor is simultaneously a listener as well as a viewer of spoken language, with the speaker's body also assisting in meaning-production). Thus, this design more closely mirrored naturalistic ideophones, as found in situ, as speakers would find them (instead of audio recordings without a human face). As Dingemanse (2018) puts it 'Ideophones emerged as multimodal performances, inviting the listener to imagine what it is like to perceive the scene depicted'. I chose to present the participants with four options, since a forced-choice provides an artificially high likelihood that guessing will lead to a correct answer (50% chance for forced-choice, compared to 25% when faced with four options).

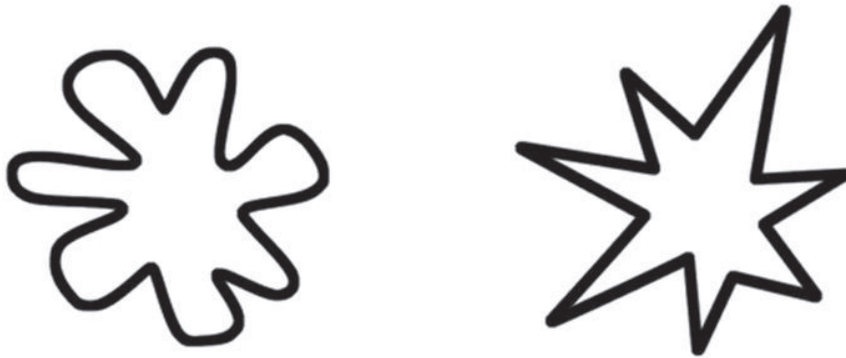
2. Methodology

The stimuli consisted 20 videos featuring native speakers of Japanese and Korean respectively (10 videos per language).² These videos were recorded in Nijmegen, the Netherlands by the author using a camcorder, capturing the speaker's profile from the shoulders up. Ideophones were selected randomly from the openly available materials from Dingemanse et al. (2016).³ Participants were recruited in the (U.S.) American city of Portland, Oregon. After a description of the task, participants viewed 20 videos, evenly split into 10 displaying Japanese ideophones and 10 displaying Korean ideophones, respectively. Participants volunteered and were not paid.⁴

² The speakers recorded for the stimuli were native Korean-speaker Jeongin Yoon and native Japanese speaker Haruna Chinzei, both students at Radboud Universiteit Nijmegen. Their willingness to aid this project are very much appreciated and this paper would not have been possible without them.

³ See figures 1. and 2.

⁴ Some volunteers were compensated for their efforts, but there was no standard form of compensation.



Participants sat in front of a computer screen with the experimenter. Instructions were explained orally, stating the participants would watch 20 videos, containing 10 words from Japanese and 10 words from Korean (participants were not told which words were from which language). Participants were not told that the words were alleged to be sound-symbolic. Participants were asked to guess the correct translation from the four options that would be presented on a web document on the computer screen (the experimenter switched manually between the intended video and the computer screen displaying the word and the accompanying options). In each trial, participants heard a stimulus word and were taken back to the web document to select the English meaning they felt best matched the word in the video. Four choices were given (the three incorrect choices were created such that the four choices contained the correct response, its opposite, a semantically unrelated meaning and that semantically unrelated meaning's opposite). All participants saw/heard the ideophones in the same order; no randomisation techniques were employed.

Examples (correct answers in **bold**)

(1) Mocomoko (Japanese)

Strong and cold

Plump

Thin

Weak and warm

(2) Korean

T'oshilt'oshil

Tall

Thin

Chubby

Short

2.1 Results

Table. 3 Title?

Participant	Correct (Out of 20)
1	7
2	6
3	11
4	6
5	8
6	5
7	5
8	7
9	9
10	8
11	4
12	7
13	7
14	7
15	9

A one-tailed t-test was conducted comparing the mean score to 25% (assumed chance of a correct response for an test with questions comprising of four options). the mean proportion of correct responses for the test comprising both Japanese and Korean ideophones was found to be 35%, instead of the 25% chance-level. That is, the mean proportion of correct responses for the test comprising both Japanese and Korean ideophones was found to be slightly above average ($M = 7.07$, $SD = 1.79$). The low p-value ($p < .001$) suggests this result is highly significant.

Some videos included slight errors of editing which could not be remedied once the dataset was in use. Some videos contained English numbers preceding the Japanese or Korean ideophone.

During testing one participant did not appear to have heard the stimulus correctly and was asked ‘was that clear?’ The word ‘clear’ was one of the options from which to choose and this instance was a possible instance of priming.

3. General Discussion

Dingemanse et al. (2016) employed a two-alternative forced-choice task in which ideophones, of various vocal qualities, were played to participants with two choices of correct meaning. This present study chose to depart from a two-alternative forced-choice in order to potentially lessen the likelihood that participants would guess correctly above chance. 7.06/20 is not above 50 percent correct attribution of ideophones to their meaning.

However, assuming 100% guessability or even 50% guessability on a task

requiring participants to choose amongst four potential meanings is not entirely reasonable. Assuming a weaker ‘iconicity’ as found in Dingemanse et al. 2016, it is not surprising that a weaker effect was found. Despite the video input providing more information by nature of being multimodal, giving four options amongst which to choose should vastly increase the difficulty of the task. As Dingemanse et al. assumed ‘50% correct, that is, chance performance in a two-alternative forced-choice task.’ The present experiment may assume fewer correct responses, by roughly half. If that assumption is valid, the rate of correct responses should be 25% (1/4 or 5/20). Given that, in effect, 7/20 correct was the average per participant and that this is higher than chance ($p < .001$), one can assume some level of iconicity. This is if one accepts the notion that 15 participants forms a relevant sample size. Likely it does not. However, taken together with Dingemanse et al., there is a strong case to be made for weak iconicity. However, there remains a weak case to be made for strong iconicity. Ramachandran and Hubbard’s results have hardly been replicated. Their initial study, very elegant, yet vaguely described) found a roughly 95% rate of attribution for round shapes with ‘round’ sounds (such as the /u/ vowel).

Such research is highly suggestive of a weak form of iconicity for ideophones. More work should be conducted on a wider array of languages throughout the world to determine if the guessability holds true across a large sample of ideophone-rich languages. Further tests to be done include testing guessability of ideophones in speakers of other ideophone-rich languages. If individuals speaking ideophone-rich languages are better able to discern the meaning of ideophones in other, otherwise unrelated languages, this would suggest that either ideophones as a word class are close enough in structure to be guessable across languages, that ideophony, like the use of tones in languages, may train a certain underlying skill allowing for a heightened awareness of the sound symbolic nature of ideophones in general, regardless of context. However, these last points are speculation.

4. Conclusion

In sum, ideophones are an intriguing experimental handle for sound symbolism in human language. They have long since been thought to be non-arbitrarily sound symbolic (by certain language traditions). Interestingly, there is evidence of non-arbitrary sound-shape mappings from the experimental psychological and behavioural neuroscience literature. However, only recently have there been attempts to bridge the gap between these two scientific traditions (observational field linguistics/linguistic anthropology on the one hand and psychology/behavioural neuroscience on the other). This paper has been attempt to continue down that trail so little blazed. I have here suggested weak sound symbolism for Japanese and Korean ideophones as perceived by native English speakers, paralleling findings by Dingemanse et al. who found weak sound symbolism for Ewe, Siwu, Korean, Japanese, and Semai ideophone.

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Competing Interests

The author has no competing interests to declare.

References

- Dingemanse, M. (2018). Redrawing the margins of language: Lessons from research on ideophones. *Glossa: a journal of general linguistics*, 3(1). List of Ideophones with English Translations
- Dingemanse, M. (2017). Expressiveness and system integration: On the typology of ideophones, with special reference to Siwu. *STUF-Language Typology and Universals*, 70(2), 363-385.
- Dingemanse, M., Schuerman, W., Reinisch, E., Tufvesson, S., & Mitterer, H. (2016). What sound symbolism can and cannot do: testing the iconicity of ideophones from five languages. *Language*, 92(2), e117-e133. doi:10.1353/lan.2016.0034.
- Dingemanse, M. (2013). Ideophones and gesture in everyday speech. *Gesture*, 13(2), 143-165.
- von Humboldt, W. (1836). *Über die Kawi-Sprache*. Berlin: Druckerei der Königl. Akademie der Wissenschaften/F. Dümmler.
- Imai, M., Kita, S., Nagumo, M., & Okada, H. (2008). Sound symbolism facilitates early verb learning. *Cognition*, 109(1), 54-65.
- Kanero, J., Imai, M., Okuda, J., Okada, H., & Matsuda, T. (2014). How sound symbolism is processed in the brain: a study on Japanese mimetic words. *PLoS one*, 9(5), e97905.
- Levelt, W. (2014). *A history of psycholinguistics: The pre-Chomskyan era*. Oxford University Press.
- Lockwood, G., Hagoort, P., & Dingemanse, M. (2016). How iconicity helps people learn new words: Neural correlates and individual differences in sound-symbolic bootstrapping. *Collabra*, 2(1).
- Ramachandran, V. S., & Hubbard, E. M. (2001). Synaesthesia--a window into perception, thought and language. *Journal of consciousness studies*, 8(12), 3-34.

Appendix

Options presented to participants following the corresponding video:

Japanese Ideophones (correct answers in **boldface**)

(1) Ton ton

- a. Squishing something slimy
- b. **Knocking on a door**
- c. Snapping something (like a twig)
- d. Shattering something (such as glass)

(6) Mero mero

- a. Clear
- b. Stinky
- c. **Blurred**
- d. Fragrant

(2) Pan pan

- a. **Full, bursting**
- b. Tall
- c. Empty, barren
- d. Short

(8) Mocomoko

- a. Strong and cold
- b. Plump
- c. Thin
- d. **Weak and warm**

(3) Tsuru tsuru

- a. Rough, sandpaper surface
- b. Hot substance
- c. **Slippery, smooth surface**
- d. Cold substance

(7) Tsun-tsun

- a. The state in which something large is dull
- b. **The state in which something small is sharp-pointed**
- c. Very red
- d. Very green

(4) Bacha bacha

- a. Fire crackling
- b. Horse hooves on stone
- c. **Water splashing**
- d. Knocking on a door

(9) Gito gito

- a. **Being oily**
- b. Being on fire
- c. Being sticky
- d. Being frosty

(5) Neba neba

- a. **Sticky**
- b. Dry
- c. Slippery
- d. Spongey

(10) Gari gari

- a. **Scraping sound**
- b. Tiptoeing
- c. Wiping (as with a cloth)
- d. Pounding

Korean Ideophones (correct answers in **boldface**)

- (1) Taengt'aeng
- Flapping, like a flag
 - Blown up, like a balloon**
 - Deflated
 - Bright (with respect to light)
- (2) K'ungk'ung
- Click of one's tongue
 - The light tap of feet
 - Giggling
 - Pounding from a big and heavy stuff/obese person walking**
- (3) Pogŭlbogŭl
- Dripping
 - Heartbeat
 - Boiling sounds**
 - Whistling
- (4) Öngöng
- Crying**
 - Whispering
 - Laughing
 - Shouting
- (5) T'oshilt'oshil
- Tall
 - Thin
 - Chubby**
 - Short
- (6) Songsong
- Grind into powder
 - Squish
 - Chop into small pieces**
 - Congeal
- (7) Pasakpasak
- Goopy
 - Crispy, easily breaking**
 - Sturdy, unbreakable
 - Dusty
- (8) Mikkŭlmikkŭl
- Oily/fish's skin**
 - Lava
 - Dirt/earthy
 - Fur/furry
- (9) Pölböl
- Shivering/shaking**
 - Tightening muscles
 - Flying
 - Hopping/skipping
- (10) Tchallangtchallang
- Metallic sound/small bell**
 - Jumping sound
 - Crunching/chewing sound
 - Pounding wood/wooden drum