

Iconicity in Language and Literature 16

Ideophones, Mimetics and Expressives

Edited by
Kimi Akita
Prashant Pardeshi

John Benjamins Publishing Company

Ideophones, Mimetics and Expressives

Iconicity in Language and Literature (ILL)

ISSN 1873-5037

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Volume 16

Ideophones, Mimetics and Expressives

Edited by Kimi Akita and Prashant Pardeshi

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Amsterdam / Philadelphia



The paper used in this publication meets the minimum requirements of the American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

DOI 10.1075/ill.16

Cataloging-in-Publication Data available from Library of Congress:
LCCN 2019002823 (PRINT) / 2019011253 (E-BOOK)

ISBN 978 90 272 0311 3 (HB)

ISBN 978 90 272 6260 8 (E-BOOK)

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Table of contents

Editors and contributors	VII
Abbreviations and symbols	IX
INTRODUCTION	
Ideophones, mimetics, and expressives: Theoretical and typological perspectives <i>Kimi Akita and Prashant Pardeshi</i>	1
Part I. Phonology and morphology	
CHAPTER 1	
'Ideophone' as a comparative concept <i>Mark Dingemanse</i>	13
CHAPTER 2	
The phonological structure of Japanese mimetics and motherese <i>Haruo Kubozono</i>	35
CHAPTER 3	
Monosyllabic and disyllabic roots in the diachronic development of Japanese mimetics <i>Shoko Hamano</i>	57
CHAPTER 4	
Cross-linguistic variation in phonaesthetic canonicity, with special reference to Korean and English <i>Nahyun Kwon</i>	77
CHAPTER 5	
Classification of nominal compounds containing mimetics: A Construction Morphology perspective <i>Kiyoko Toratani</i>	101

Part II. Semantics and pragmatics

CHAPTER 6

- Ⓣ Towards a semantic typological classification of motion ideophones:
The motion semantic grid 137
Iraide Ibarretxe-Antuñano

CHAPTER 7

- The sensori-semantic clustering of ideophonic meaning in Pastaza Quichua 167
Janis B. Nuckolls

CHAPTER 8

- The power of ‘not saying who’ in Czech onomatopoeia 199
Masako U. Fidler

CHAPTER 9

- Mimetics, gaze, and facial expression in a multimodal corpus of Japanese 229
Kimi Akita

Part III. Language acquisition and multilingualism

CHAPTER 10

- The structure of mimetic verbs in child and adult Japanese 251
Keiko Murasugi

CHAPTER 11

- Iconicity in L2 Japanese speakers’ multi-modal language use:
Mimetics and co-speech gesture in relation to L1 and Japanese proficiency 265
Noriko Iwasaki and Keiko Yoshioka

CHAPTER 12

- Ⓣ Ideophones as a measure of multilingualism 303
G. Tucker Childs

Subject index 323

Language index 325

Ⓣ indicates the availability of online files

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Abbreviations and symbols

1	first person	INF	infinitive
2	second person	L	linker
3	third person	LIM	limitative
ACC	accusative	LOC	locative
ADV	adverbial	MASC	masculine
AG	agentive	MIM	mimetic
ATTR	attributive	N	moraic nasal
CAUS	causative	NEG	negative
CL	classifier	NMLZ	nominalizer
COP	copula	NOM	nominative
COR	coreference	NPST	nonpast
DAT	dative	PASS	passive
DECL	declarative	PERF	perfective
DES	despitative	PL	plural
DIM	diminutive	POL	polite
DUR	durative	POSS	possessive
EV	evidential	POT	potentive
EXCL	exclamative	PST	past
FEM	feminine	Q	syllable-final moraic obstruent
FINF	future infinitive	QUOT	quotative
FUT	future	SFP	sentence-final particle
G	gesture	SG	singular
GEN	genitive	SUF	suffix
GER	gerundive	SWRF	switch reference
IDEO/IDPH	ideophone	TOP	topic
IMP	imperative	VBL	verbalizer
INC	inclusive	↑	intonational foregrounding

INTRODUCTION

Ideophones, mimetics, and expressives

Theoretical and typological perspectives

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1. Background and goals

This volume is a collection of selected papers from the NINJAL International Symposium 2016 ‘Mimetics in Japanese and Other Languages of the World’ that was held at NINJAL in Tokyo on December 17–18, 2016. The symposium was an unprecedented, large-scale meeting in Asia focused on ideophones, drawing over a hundred participants from more than ten countries. The foci of the symposium were theoretical and typological approaches to prototypically iconic, sound-symbolic lexemes that are known as ‘ideophones’ in African or general linguistics, ‘mimetics’ (or *giongo/gitaigo*) in Japanese linguistics, and ‘expressives’ in South and Southeast Asian linguistics. This volume presents *new frontiers* in ideophone research and aims at establishing *common grounds for theoretical and crosslinguistic discussions* of ideophones in linguistic and communicative systems.

Ideophones are generally defined as “marked words that depict sensory imagery” (Dingemanse 2011: 25, this volume). They imitate a broad range of sensory experiences that involve auditory, visual, tactile, or other types of perception (Dingemanse 2012; Ibarretxe-Antuñano, this volume; Nuckolls, this volume). For example, Japanese mimetics depict sound (e.g., *piyopiyo* ‘tweeting’, *don* ‘bang’), movement (e.g., *burabura* ‘strolling’, *kirari* ‘glistening’), textural properties of objects (e.g., *sarasara* ‘dry and smooth’, *torori* ‘creamy’), and private feelings and sensations (e.g., *wakuwaku* ‘excited’, *zukin* ‘one’s head throbbing’) (Martin 1975; Kindaichi 1978). Prototypically, ideophones stand out with marked phonotactics (e.g., *vroom*), morphology (e.g., reduplication), prosody (e.g., vowel lengthening, extra-high pitch, falsetto), and syntax (e.g., utterance-end realization, quotation) (Childs 1994; Dingemanse and Akita 2017). These formal features are not only iconic

representations of eventualities, but they also mark the special semiotic/communicative mode or dimension that distinguishes ideophones from non-ideophonic, prosaic words (Diffloth 1972; Kita 1997; Dingemanse 2011, 2015; see also Akita, this volume). This is where ideophones resemble pictures, iconic gestures, and reported speech, which also are attempts to reproduce the holistic images of things and events that prosaic words would describe in an arbitrary, analytic fashion (see Clark 2016).

Due to the influential Saussurean principle that the relationship between the signifier and the signified is arbitrary (de Saussure 1916), ideophones, including onomatopoeia, have long been viewed in modern linguistics as peripheral, negligible, immature, or extra-linguistic. Ideophones indeed do not appear to be abundant in most European languages, which have been the primary focus of theoretical linguistics. However, studies of individual languages in the past century have revealed that every major continent has some languages with a developed ideophonic lexicon. Such languages include Korean, Japanese, Tamil, Bengali, Mundari, Semai (Asia), Basque (Europe), Hausa, Siwu, Ewe, Yoruba, Shona, Zulu, Sotho, G|ui (Africa), and Quechuan languages (South America) (Nuckolls 1996; Hamano 1998; Ibarretxe-Antuñano 2006; Dingemanse 2012; among others).

These minimum descriptions of ideophones are primarily based on the century-long investigations into these individual languages, especially Niger-Congo languages (for recent reviews, see Dingemanse 2018; Akita and Dingemanse 2019). Since the early ages of ideophone research, linguists have debated what makes ideophones special and how they should be defined in relation to basic categories like nouns and verbs (Westermann 1927; Doke 1935; Kunene 1965; Samarin 1965; Newman 1968; Diffloth 1972). They have noticed that, despite the above prototypical features, ideophones exhibit considerable variations in both form and meaning across languages. More recently, two monumental volumes symbolized the growth of linguistic interest in ideophones. *Sound Symbolism* (Hinton et al. 1994) illustrated various linguistic and psycholinguistic approaches to ideophones in the world's languages. *Ideophones* (Voeltz and Kilian-Hatz 2001) demonstrated the continued and deepened curiosity about this word class among fieldworkers. The last decade or two have further seen the recognition of ideophones as iconic or depictive signs in the broader context of cognitive science (Imai and Kita 2014; Dingemanse et al. 2015; Ferrara and Hodge 2018). This new stream involves the close connection between ideophone research and sign language research, seeking developmental and evolutionary implications (see also Haiman 2018).

2. A view from Japanese linguistics

Among the languages that reportedly have ideophones as active vocabulary items, Japanese presents arguably one of the most developed systems of ideophonic expressions, where phonological considerations strongly suggest that ideophones constitute a lexical stratum on a par with the native, Sino-Japanese, and foreign lexical strata (McCawley 1968; Itô and Mester 1995; Nasu 2015). The literature on Japanese mimetics consists of a thousand papers and books (Takehi and Tamori 1993; Tamori and Schourup 1999; Shinohara and Uno 2013; Iwasaki et al. 2017; Kubozono 2017; see Akita 2005–2010 for a bibliography) and more than twenty dictionaries dedicated to this particular word class (e.g., Takehi et al. 1996; Yamaguchi 2002; Ono 2007). Although the vast majority of these studies limit themselves to the descriptions of the morphophonology and sound symbolism of mimetics, the last two decades have seen the emergence of theoretical and psychological approaches (Kita 1997; Hamano 1998; Imai et al. 2008). In this regard, Japanese, a language with a long research history and rich linguistic resources, has strong potential to play an essential role in the research on ideophones in the world's languages.

However, the actual contribution of Japanese studies in this research area has not been as prominent as it should be due to their limited interactions with studies of other languages. Moreover, while it has become increasingly clear that Japanese mimetics are 'manageable' using the apparatuses of existing theories, such as Construction Grammar (Tsuji-mura 2005; Akita and Tsuji-mura 2016; Akita and Usuki 2016), Role and Reference Grammar (Toratani 2007), Lexical-Conceptual Semantics (Kageyama 2007), Cognitive Semantics (Yu 2014), and Optimality Theory (Nasu 2002, 2015; Kurisu 2014), the question remains completely open as to whether ideophones call for any serious additions or modifications to these theories or in what way they contribute to the construction of new general theories. Furthermore, theoretical discussion must necessarily take into account the universality and language-particularity of ideophones (Alderete and Kochetov 2017; Dingemanse 2012, 2018; Dingemanse and Akita 2017; Franco 2017; Ibarretxe-Antuñano 2017). An additional goal of this volume is, therefore, to export descriptive and theoretical findings from Japanese mimetic research and make specific theoretical, methodological, or typological proposals that have broad crosslinguistic applicability.

3. Chapters

This volume consists of twelve chapters that share the above goals. Drawing on data from Asian, African, American, and European languages, they bring theoretical and typological insights to the traditional descriptions of ideophones, mimetics, and expressives and explore some new areas of research, notably diachrony (Chapters 1 and 3), multimodality (Chapters 6, 7, 9, and 11), and discourse functions (Chapter 8). Moreover, many chapters delve into the relationship between ideophones and prosaic words, asking how ideophones are special (Chapters 1, 2, 3, 4, 8, and 9), how representative they actually are of language (Chapters 2, 10, and 12), or how they are integrated with the prosaic lexicon and grammar (Chapters 3, 5, and 9).

Part I: ‘Phonology and morphology’ contains five theoretical studies. It opens with Mark Dingemans’s key chapter entitled “‘Ideophone’ as a comparative concept’ (Chapter 1). Looking at both central and peripheral cases of ideophonic phenomena in several languages, he builds the basis for a (canonical) typological and diachronic comparison of the open word class of ideophones.

Haruo Kubozono’s chapter ‘The phonological structure of Japanese mimetics and motherese’ (Chapter 2) focuses on Japanese phonology. Japanese has a rich inventory of mimetics and motherese words, and they have some phonological similarities. Kubozono shows that both mimetics and motherese words are essentially accented, prefer disyllabic structure, and disprefer light-heavy syllable sequences. Citing a wide range of phonological phenomena in Japanese, he concludes that the observed parallelisms come from the unmarked phonological structures of the language.

Shoko Hamano’s chapter ‘Monosyllabic and disyllabic roots in the diachronic development of Japanese mimetics’ (Chapter 3) also deals with the phonological characteristics of Japanese mimetics. By tracing the diachronic development of coda-nasal /N/ and root-initial /h/ in mimetics since the 8th century, she demonstrates that monosyllabic mimetic roots have remained stable, whereas disyllabic mimetic roots have evolved in close interaction with prosaic phonology. It is proposed that disyllabic mimetic roots always formed a newer and more language-specific layer over more iconic, more universally motivated monosyllabic mimetic roots.

In her chapter called ‘Cross-linguistic variation in phonaesthetic canonicity, with special reference to Korean and English’ (Chapter 4), Nahyun Kwon systematically compares paradigmatic phonaesthemes in Korean ideophones (e.g., the lenis-aspirated alternation in $p\epsilon\eta p\epsilon\eta \sim p^h\epsilon\eta p^h\epsilon\eta$ ‘a neutral ~ stronger and more violent motion of circling’) and non-paradigmatic phonaesthemes in English (e.g., *gl-* ‘vision, light’ in *glisten*, *glitter*, *glow*) within the framework of Canonical Typology. She argues that the two types of phonaesthemes are alike in terms of the frequent occurrences in lexical stems and in many parts of speech, the canonical

accompaniment by meaningless residues, and the strict restriction of one form per meaning. However, they are differentiated in terms of the strict restriction of one meaning per form.

Kiyoko Toratani concludes Part I with her study on ‘Classification of nominal compounds containing mimetics: A Construction Morphology perspective’ (Chapter 5). She applies Construction Morphology to Japanese nominal compounds with mimetic components (NCMs), such as *zaazaa-buri* (MIM:pouring-fall) ‘downpour’. She argues that NCMs are mostly right-headed, and mimetics combine with nouns of types similar to those that combine with prosaic components. These findings lead Toratani to conclude that NCMs are part of the inheritance hierarchy for nominal compounds, whose top node diverges according to the head position.

Part II: ‘Semantics and pragmatics’ contains four innovative empirical studies on the functions of ideophones. It starts with Iraide Ibarretxe-Antuñano’s ‘Towards a semantic typological classification of motion ideophones: The motion semantic grid’ (Chapter 6). She proposes a crosslinguistically applicable semantic classification of ideophones for spatial motion events (e.g., Basque *kli-kli* ‘fly (of insects)’). She applies her semantic criteria to 453 motion ideophones in Basque and compares them with 186 motion ideophones from 16 genetically and geographically different languages. This method allows us to see which aspects of motion events (e.g., rate, Figure’s inner state, Ground’s physical property) ideophones in each language tend to specify.

Janis B. Nuckolls adopts a multisensory approach to ideophone semantics in ‘The sensori-semantic clustering of ideophonic meaning in Pastaza Quichua’ (Chapter 7). Abandoning the traditional monosensory description, she analyzes approximately 500 archived ideophone tokens using a sensory cluster diagram featuring an implicational logic based on three supercategories, each of which has two subcategories: VISUAL (Color, Pattern), MOVEMENT (Configurational, Haptic [subsuming Proprioception]), SOUND (Cognition, Emotion). This makes it possible to show sensory qualities that tend to occur together in ideophones and logically outline their verbally and nonverbally expressed meanings.

Masako U. Fidler’s study on ‘The power of “not saying who” in Czech onomatopoeia’ (Chapter 8) approaches the discourse-pragmatic functions of onomatopoeic ideophones in Czech. Using the corpus-linguistic method of keyword analysis, she argues that onomatopoeic expressions prefer dramatic, foregrounded parts of discourse and defocus the agent of the event, reflecting their demonstrative (or depictive) mode of signification. She further finds traces of this ‘diffusion of agency’ function in onomatopoeia’s higher frequency of occurrence in artistic literature in which agency tends to be suppressed and in the low transitivity of their verbal forms.

In the final chapter of Part II, ‘Mimetics, gaze, and facial expression in a multimodal corpus of Japanese’ (Chapter 9), Kimi Akita pursues the multimodality

of ideophones, focusing on the speaker's facial expression and gaze behavior in a multimodal corpus of Japanese. He reports that Japanese mimetics are slightly more likely than quasi-mimetic adverbials and prosaic verbs to cooccur with the speaker's eye contact with the hearer and obvious facial change. These findings suggest that ideophones are more than mere depictive signs, utilizing depiction for interactional or affective purposes, such as mutual affiliation and response solicitation.

Part III: 'Language acquisition and multilingualism' contains three chapters on how we learn ideophones or language in general. In her contribution 'The structure of mimetic verbs in child and adult Japanese' (Chapter 10), Keiko Murasugi proposes that the so-called light verb *suru* 'do' in Japanese mimetic verbs (e.g., *dokidoki-suru* 'be thrilled') is the realization of small *v* (under the *v*P shell analysis) in both adult and child languages. She argues that there is no syntactic/semantic discrepancy between mimetic and prosaic verbs, allowing mimetic verbs to bootstrap child grammar, which develops continuously into adult grammar.

In 'Iconicity in L2 Japanese speakers' multi-modal language use: Mimetics and co-speech gesture in relation to L1 and Japanese proficiency' (Chapter 11), Noriko Iwasaki and Keiko Yoshioka investigate how mimetics and iconic gestures co-develop in L2 Japanese. Speech elicitation experiments using an animation and videos of disasters suggested that speakers of Korean (a language with a huge mimetic lexicon) use more mimetics than speakers of English (a language with a limited mimetic lexicon) in the initial stage of learning. However, both groups of participants, regardless of their Japanese proficiency levels, frequently used co-speech gestures, suggesting that the synchronized use of mimetics and gestures depends on a universal factor, such as their affective-imagistic properties.

G. Tucker Childs concludes this volume with 'Ideophones as a measure of multilingualism' (Chapter 12). Through a pilot study in Shenge, Sierra Leona, where the population is shifting from Bolom to Mende, he proposes a method for evaluating multilingualism by means of speakers' knowledge of ideophones, especially ones with low iconicity. This methodological proposal demonstrates how ideophone research can contribute to African sociolinguistics and beyond.

The NINJAL symposium also featured the following four papers, which the authors decided not to contribute to the present volume: 'The phonological regularity of Japanese mimetics: Segmental markedness in mimetic neologisms' (Akio Nasu, University of Tsukuba), 'Historical morphology in Austroasiatic Expressives' (G rard Diffloth), 'Translation as an investigative tool: Searching for a common ground for examining mimetics in Japanese and JSL' (William J. Herlofsky, Nagoya Gakuin University), and 'What insights can we draw from universal and language-specific sound symbolism onto the Symbol Grounding Problem?' (Mutsumi Imai, Keio University).

Acknowledgements

The NINJAL International Symposium 2016 ‘Mimetics in Japanese and Other Languages of the World’ was held as part of the NINJAL collaborative research project ‘Cross-linguistic studies of Japanese prosody and grammar’. We thank Taro Kageyama, Haruo Kubozono, and Timothy J. Vance, who organized the symposium with us. Our sincere gratitude also goes to Olga Fischer and Christina Ljungberg for publishing this volume in their series.

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PART I

Phonology and morphology

‘Ideophone’ as a comparative concept

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This chapter makes the case for ‘ideophone’ as a comparative concept: a notion that captures a recurrent typological pattern and provides a template for understanding language-specific phenomena that prove similar. It revises an earlier definition to account for the observation that ideophones typically form an open lexical class, and uses insights from canonical typology to explore the larger typological space. According to the resulting definition, a canonical ideophone is a member of an open lexical class of marked words that depict sensory imagery. The five elements of this definition can be seen as dimensions that together generate a possibility space to characterise cross-linguistic diversity in depictive means of expression. This approach allows for the systematic comparative treatment of ideophones and ideophone-like phenomena. Some phenomena in the larger typological space are discussed to demonstrate the utility of the approach: phonaestemes in European languages, specialised semantic classes in West-Chadic, diachronic diversions in Aslian, and depicting constructions in signed languages.

1. Introduction

Ideophones are words that seem to carry their meaning on their sleeve. In Siwu, a language of Ghana, you only have to say the word *mukumuku* to get a taste of its meaning ‘mumbling mouth movements’, and *tagbaraa*: means ‘long’ like the word itself is long. Such colourful examples can easily lead to the assumption that ideophones can be defined as iconic words: lexemes characterised by structural resemblances between form and meaning. But several problems arise. Are all iconic linguistic signs ideophones? Are all ideophones iconic to the same degree? What makes us think of ideophones as iconic in the first place? Are ideophones united in other ways besides their apparent iconicity?

This chapter is an effort to bring together in one place a number of considerations bearing on these questions. I revisit fundamental issues in the definition and operationalisation of ideophones. The aim is to provide conceptual clarity in the service of comparative work on ideophones and iconicity. While some work has

succeeded in drawing out salient points of unity and diversity in ideophone systems across languages, it has been hampered by the lack of a common framework to capture key dimensions of variation. The five dimensions presented here are rooted in descriptive and comparative work on ideophones across the globe, and help illuminate the typological possibility space of ideophones and kindred phenomena.

2. ‘Ideophone’ as a typological concept

Here is the argument to be pursued in a nutshell. The term ‘ideophone’ is best seen as a comparative concept (Haspelmath 2010), like ‘adjective’, ‘future tense’ or ‘serial verb construction’. This has two sides. First, it means the concept is intended as a language-general notion, not directly defined in terms of its occurrence in particular languages. Second, it means that we expect instantiations of this concept in particular languages to show language-specific nuances. Just like German adjectives are different from Lao adjectives, and yet it still makes sense to have a typologically general notion of ‘adjective’, so Siwu ideophones are different from Japanese ideophones while still being usefully seen as instances of the same typological concept of ‘ideophone’.

2.1 Five key properties of ideophones

The earliest investigations of ideophone-like phenomena used a wide range of labels, from ‘intensifying adverbs’ and ‘picture words’ to ‘onomatopoeic interjections’ and ‘radical descriptives’ (Dingemans 2018). Doke, a scholar working on the Bantu languages of Southern Africa, introduced the term ‘ideophones’ in a bid to do justice to the large grammatical category of items of this type encountered in just about any Bantu language (Doke 1935). Descriptive work soon revealed the existence of similar lexical classes in languages beyond Bantu and beyond Africa. Samarin discussed a wide range of “languages in which words are found which, despite the nonrelatedness of the languages themselves, reveal certain phonologic and semantic similarities” (Samarin 1970: 155). His contemporary Diffloth pointed to ideophone-like words in Bantu, Chadic, Indo-Aryan, Dravidian, Mon-Khmer, Japanese and Korean and commented, “[s]uch a wide geographic and historical distribution indicates that ideophones are characteristic of natural language in general, even though they are conspicuously undeveloped and poorly structured in the languages of Europe” (Diffloth 1972: 440).

Today, the label ‘ideophone’ has come to be widely used and has shed its Bantu connotation (Wescott 1977). It is used in descriptions of languages around the

world, from Awetí, Basque and Chintang to Xhosa, Yir-Yoront and Zuni (Alpher 1994; Gxowa 1994; Tedlock 1999; Rai et al. 2005; Reiter 2012; Ibarretxe-Antuñano 2017). The alternative labels 'expressives' and 'mimetics' continue to be current in the prolific research traditions of South-East Asian and Japanese linguistics (e.g., Diffloth 2001; Iwasaki et al. 2017), but there seems to be broad agreement that these point to essentially the same phenomenon, with expected language-specific and areal nuances (Akita 2015; Armoskaite and Koskinen 2017). Other terms occasionally used in cross-linguistic studies of the phenomenon are 'sound-symbolic words' or 'iconic words', but for reasons clarified below, I think these do not cover quite the same ground.

Justifying the existence of a category of ideophones or any other lexical or grammatical class in a given language is something that has to be done on language-internal grounds. Here I lay out the elements of a cross-linguistic definition of the phenomenon that can help in language description but can also support generalisations across languages. In previous work I have proposed the following characterisation: "Ideophones are marked words that depict sensory imagery" (Dingemanse 2012: 655). The formulation is designedly simple: general enough to leave room for language-specific notes yet specific enough to have empirical bite for comparative purposes. It captures four key properties of ideophones that are recurrent across languages (for details, see Dingemanse 2012; Ibarretxe-Antuñano 2017):

- i. ideophones are **MARKED**, i.e. they have structural properties that make them stand out from other words
- ii. they are **WORDS**, i.e., conventionalized lexical items that can be listed and defined
- iii. they **DEPICT**, i.e., they represent scenes by means of structural resemblances between aspects of form and meaning
- iv. their meanings lie in the broad domain of **SENSORY IMAGERY**, which covers perceptions of the external world as well as inner sensations and feelings

This definition of ideophones has been fruitfully applied in descriptive and comparative settings (e.g., Mihas 2012; Jacques 2013; Barrett 2014; Kwon 2015; Nuckolls et al. 2016; Ibarretxe-Antuñano 2017; Mattes 2018). However, it is incomplete. Implicit in its formulation, and in studies of ideophones more broadly, is another characteristic: ideophonic words typically form an open lexical class that makes up a distinctive stratum of vocabulary (Westermann 1927; Newman 1968; Diffloth 1972; Güldemann 2008; Akita 2008).

- v. ideophones form an **OPEN LEXICAL CLASS**, i.e., a set of lexical items open to new additions

Ideophones form a sizable lexical class in many unrelated languages, from Aslian (Matisoff 2003) to Japanese (McCawley 1968) and from Ewe (Ameka 2001) to Quechua (Nuckolls 1996). Evidence that the class is open to new members comes from its sheer size, which is on the same order of magnitude of other major open word classes in many languages. Further evidence comes from processes of ideophonisation and ideophone creation, which can add new members to the class (Westermann 1927; Kunene 1965; Dingemans 2014).

That ideophones form a recognisable lexical class does not mean they must be a distinct syntactic category or show the same morphophonological properties across languages. This is a question that must be answered for each language on its own terms. For instance, while the Chadic languages Hausa and Tera both have a recognisable lexical class of ideophones, their syntactic behaviour requires description in language-specific terms (Newman 1968). Similarly, while both Japanese and Korean have large and open lexical classes of ideophones, their morphophonological make-up differs according to the language (Sien 1997; Akita 2011). As Ameka puts it, ideophones “are first and foremost a type of words – a lexical class of words – which need not belong to the same grammatical word class in a particular language nor across languages” (Ameka 2001: 26).

Some words may be imitative in origin yet not classified as ideophones. In Siwu, words like *kpa:kpa* ‘duck (n)’ or *ifokofoko* ‘lung (n)’ are not part of the ideophone class: even though they likely have imitative origins, they behave morphosyntactically like nouns and their semantics is primarily referential rather than qualificative. On the other hand, words like *tsɔkwetsɔkwe* ‘sawing movement’, or *nyēkēnyēkē* ‘intensely sweet’ are united in belonging to the class of ideophones, an open lexical class that has, in this language, at least a thousand more members.

2.2 Refining the definition

While it might be possible to argue that the issue of lexical classification is captured partly in the markedness of ideophones – after all, groups of words acquire their markedness in relation to other strata of vocabulary – it is better to make it explicit, both to align with established practice in language description and to allow more precise comparative statements. Therefore, I propose the following sharpened definition of ideophones:

IDEOPHONE. A member of an open lexical class of marked words that depict sensory imagery.

This more specific version subsumes the earlier formulation and is compatible with it, but it explicitly defines the comparative concept of ideophones as an open lexical class. As we will see, this more explicit formulation can help to illuminate the typological unity and diversity in this area.

Given the long history of interest in ideophones (reviewed in Dingemane 2018) it is remarkable that there are relatively few definitions intended for comparative use. Doke's work has sometimes been used in this way, though it was actually designed for Bantu grammatical description. To show how the current definition builds on earlier comparative work, Table 1 compares a number of accounts of ideophones used or intended for cross-linguistic comparisons.

Table 1. The evolution of a definition: building blocks identified in comparative work

	(Westermann 1927)	(Doke 1935)	(Newman 1968)	(DeCamp 1974)	(Childs 1994)	(Akita 2011)	(Dingemane 2012)	this chapter
open lexical class	✓	✓	✓		✓	✓		✓
structurally marked		✓	✓		✓	✓	✓	✓
conventionalised words		✓	✓	✓	✓	✓	✓	✓
depictive mode	✓			✓			✓	✓
sensory meanings	✓	✓		✓	✓	✓	✓	✓

Other properties than those listed here have been considered, though not as widely: ideophones have been described as “vivid” (Doke 1935), “syntactically isolated” (Nuckolls 1996), and “context-dependent” (Moshi 1993). These features either directly follow from the basic properties (all depictions are vivid performances by nature, and as such require a degree of syntactic freedom) or are not unique to ideophones – ideophones do not seem more context-dependent than other words in face-to-face interaction.

Each of the approaches to ideophones in Table 1 has its own preoccupations and points of emphasis. Some focus primarily on form and meaning (providing an essentially phonosemantic definition) while for others, the depictive mode of signification is more important. The definitions by Newman and DeCamp are almost entirely complementary: “[a] phonologically peculiar set of descriptive or qualificative words” (Newman 1968: 107) is clear on the structural side but does not bring out the depictive character of ideophones, whereas DeCamp’s “a word which conveys an impression of an action or a sound rather than naming it or directly imitating it” (DeCamp 1974: 54) foregrounds the depictive nature of ideophones but mentions no structural properties. Despite such differences in emphasis, there is strong convergence across the board in the properties proposed as fundamental to understanding, describing and comparing ideophones.

2.3 Ideophones are not (just) iconic signs

A recurring temptation in a small portion of work on ideophones is to define them simply as iconic words that exhibit a direct, unmediated connection between sound and meaning (Johnson 1976; Tedlock 1999). For Tedlock, ideophones are “words or phrases that do the work of representation by phonetic means” (Tedlock 1999: 118). If we take this at face value it would mean that we need nothing more than the phonetics to assign an interpretation to forms like *mukumuku* or *tagbaraa*. The reader is invited to try this, and then compare the result to the lexical meanings given in the first paragraph of this chapter.

The reason this rarely works is threefold: (i) the number of possible iconic interpretations of any string of speech sounds is vast, (ii) the space of possible lexical meanings is orders of magnitude larger if not infinite, and (iii) both the form and meaning spaces are warped by language-specific properties (Bühler 1934; Werner and Kaplan 1963; Dingemans 2018). Especially in languages with inventories of conventionalised ideophones that run into the thousands, there is no way that these words could simply present unmediated iconic associations (Güldemann 2008). Instead, iconic associations in ideophones are socially mediated, and are shaped by local linguistic systems. This argument finds empirical support in experimental work in which people are made to guess the meanings of ideophones (Fischer-Jørgensen 1978; Iwasaki et al. 2007). They can do this to some extent, but never without error and usually only moderately better than chance. This is because ideophones are conventionalised words that combine iconic and arbitrary form-meaning mappings.

Still, ideophones are often treated as iconic signs by language users and linguists alike. Clearly there is something about them that invites us to treat their form as suggestive of their meaning. This is their depictive mode of signification (Kunene 1965; Dingemans 2012). The relation between ideophones and iconicity is mediated by convention and highlighted by depiction. The act of depiction is the spotlight that invites us to find iconic form-meaning associations. To bring this out more clearly, consider the relation between depiction and iconicity, and between ideophones and iconic signs (Ahlner and Zlatev 2010; Dingemans 2012; Clark 2016).

DEPICTION. An analogical mode of communication that invites and affords the construal of iconic mappings between form and meaning.

ICONICITY. A perceived resemblance between aspects of form and meaning.

IDEOPHONE. Member of an open lexical class of marked words that depict sensory imagery.

ICONIC SIGN. Conventionalised linguistic sign that exhibits some form of iconicity.

The conceptual distinctions made here have some implications worth noting. Because ideophones are defined as lexicalised depictions, we can expect them to exhibit some iconic form-meaning associations, but, as with all conventionalised linguistic resources, we also expect a degree of arbitrariness. Decoupling the definition of ideophones from iconicity fits the nature of attested ideophone systems, which show a degree of language-specificity in form-meaning associations, and considerable internal diversity in terms of their perceived iconicity (Güldemann 2008; Akita 2009).

Because ideophones are depictions first and foremost, they can invite us to experience a sense of iconicity (perceived resemblance) even when it may be hard to put a finger on the precise structural correspondences between form and meaning. This helps explain why native speakers are adamant that all ideophones are iconic (Kita 1997; Hamano 1998): they have a lifetime of experience with ideophones being presented as depictions. Outside the context of the depictive frame, the iconicity of at least some ideophones can be far less obvious. The effect can be compared to paintings that vary in degree of abstraction and nonetheless tend to be treated as depictions (Dingemanse 2012). Properly framed, Duchamp's *Nu descendant un escalier* is likely to be interpreted as an iconic representation of a moving body, even though at a careless glance it could be compared to a mere decorative rug, as Theodore Roosevelt once did (Roosevelt 1913). Likewise, if we frame an ideophone as a depiction it is easier to appreciate its iconic potential than when we encounter it in a sea of other syllables. A useful metaphor for this process is that framing something as a depiction can seduce us to see it as iconic (Webster 2017).

Because depiction is defined as a communicative act and not by reference to iconic signs or ideophones, important similarities become visible between ideophones, iconic gestures, direct quotations, bodily demonstrations, and enactments, all phenomena united by their fundamentally depictive nature (Güldemann 2008; Ferrara and Hodge 2018). While it pays off to be attentive to the semiotic kinship between these phenomena, there are also salient differences in terms of modality, gradience and conventionalisation (Okrent 2002).

Ideophones and iconic signs are at best overlapping sets. This means that not all ideophones may be equally iconic, as we saw above. It also means that not all iconic signs are ideophones. In particular, languages can have clusters of iconic signs which we may or may not want to call ideophones. This helps clarify the typology of ideophones and related phenomena, both in spoken languages (Lieberman 1975) and in signed languages (Lu and Goldin-Meadow 2018). Which brings us to the next section.

3. Ideophones and related phenomena

Typological definitions generally aim to capture the centre of gravity of a phenomenon rather than providing a list of necessary and sufficient properties. This approach is in line with recent typological thinking about word classes (Dryer 1997; Croft 2001; Haspelmath 2007, 2010). For ideophones, it goes back at least to Childs (1994: 181, 196): “[i]t is thus best to think of ideophones as a prototype category”, with “a core of ‘best’ ideophones at the center. As one moves outward members become less and less ‘good,’ leaving the ideophone category and joining another word class, or even joining forms of non-linguistic expressiveness such as gesture”.

Today, this insight can be captured in a framework like canonical typology (Corbett 2007; Brown and Chumakina 2013; for an elegant example of this method applied in the domain of phonaesthemes, see Kwon and Round 2015). This approach formulates a canonical core in terms of elementary dimensions which together create a possibility space in which related phenomena across or within languages can be positioned. For ideophones, the five characteristics identified here can be treated as the elementary dimensions. Each of them is amenable to finer-grained treatment, and there may be more than five, but hopefully this is a useful first pass. Together they generate a multidimensional space in which we can locate ideophone and ideophone-like phenomena within and across languages. So a given linguistic resource can be more or less class-like, structurally marked, word-like, depictive, or sensory in meaning, and the further it deviates on these dimensions from the canonical prototype, the less reason there is to identify it with the comparative concept of ideophones.

There is broad agreement that Japanese, Basque, Quechua, Semai and Siwu are good examples of languages with open lexical classes of marked words that depict sensory imagery, i.e., ideophones. But what about items that do not clearly form coherent lexical classes, or languages realised in different modalities? Here I survey four areas in the broader typological space to show how a comparative definition of ideophones can help us get a handle on typological diversity.

3.1 Phonaesthemes

Phonaesthemes are form/meaning pairings that recur across clusters of words like *flash/flare/flare* or *twirl/curl/whirl* (Bolinger 1961; Bergen 2004; Kwon and Round 2015). Phonaesthemes and ideophones are defined on planes that crosscut each other. As submorphemic patches of form-meaning associations, phonaesthemes can occur throughout the lexicon; as a lexical class of depictive words, ideophones may be especially likely to feature such recurrent form-meaning associations (cf. Kwon, this volume). Indeed, two of the four languages beyond English cited by

Bergen (2004) as having phonaesthemes are well-known for their large ideophonic systems: Japanese (Akita 2009) and Indonesian (Uhlenbeck 1952). Phonaesthetic words share with ideophones a degree of structural markedness (as seen for instance in phonotactically rare onsets or codas). Words featuring phonaesthemes are also conventionalised lexical items, and their meanings tend to be in the domain of sensory imagery. But phonaesthemes can be distinguished from ideophones with respect to at least two of the five key properties considered here: they do not usually form an open lexical class, and they are not depictive.

Phonaesthetic words often straddle several grammatical categories, and at least in Indo-European languages, small clusters of phonaesthetic words tend to occur as isolated patches in the vocabulary, rather than forming a larger lexical class (Kwon and Round 2015: 13–14). Despite their phonaesthetic elements, words like *flame* (n) or *twirl* (v) are, on the whole, fairly unassuming lexical items: their morphosyntactic behaviour aligns with other members of their grammatical categories and they are not regularly produced with performative foregrounding, the tell-tale cue of a depictive sign. Ideophones on the other hand tend to be whole words foregrounded as speech heard in a special way. If phonaesthemes suggest hints of meaning in a rather unassuming way, ideophones are their eye-catching counterparts, wearing the extravagant garb of performative foregrounding as an open invitation to map sound onto sense.

It has been noted that Standard Average European languages seem to lack ideophones (Diffloth 1972; Liberman 1975; Nuckolls 2004). That is not to say that their lexicon does not harbour ample instances of iconicity (Jespersen 1921; Waugh 1994; Perry et al. 2015). Phonaesthemes are one of the areas where a bit of iconicity comes to the surface even in the lexicons of Standard Average European languages (Nuckolls 1999). As Liberman has noted, “In many cases (e.g. English) there is not a clearly identifiable ideophonic section of the lexicon, as there is in Bahnar, Korean, etc., but rather scattered classes of examples which have ideophonic or partly ideophonic character, and which shade off into areas where meanings are iconically arbitrary” (Liberman 1975: 146). We can capture this observation by reference to the canonical concept of ideophone: though these languages feature scattered clusters of partially iconic signs, what appears lacking in at least some of them is an open lexical class of marked words that depict sensory imagery.

3.2 Semantic subclasses: The case of Mwaghavul

While African languages are often seen as presenting textbook cases of ideophone systems, here too, fine-grained description can bring to light differences that are worth capturing. In a recent study of ideophone-like words in Mwaghavul, a Chadic language of Nigeria, Roger Blench stakes out the following position:

Ideophones not only fall into different word classes, but also into a range of conceptual classes. They may demonstrate a characteristic phonology, morphology or canonical form, but this is absent in some languages, even where the ideas they express are conserved. To characterise this richness, it is helpful to switch to a larger class of ‘expressives’ (a characteristic Asian terminology) to encompass these ideas; ideophones would just be a subset. (Blench 2013: 53)

The data that prompts this discussion is a rich set of ‘body epithets’ in Mwaghavul. These are colourful words that draw attention to bodily characteristics, often in an insulting way, e.g., *dùghùl* ‘flat footed’, *kaamkaam* ‘jug-eared’, *koryòng-koryòng* ‘standing with crooked legs’. Body epithets are semantically similar to ideophones, and indeed the practice of using ideophones in insults is well-documented (Samarin 1969). However, according to Blench, this set of words does not appear to show the structural markedness that would allow them to be described (in this language) as ideophones, despite the fact that in related languages, these domains are often covered by ideophonic lexicon.

To resolve this puzzle, Blench presents two proposals. The first is to put forward ‘body epithets’ as one of a number of more specific ‘conceptual classes’ carving up the space of ideophones in the Nigeria/Cameroon area. Other subclasses include onomatopoeia, ontophones (“terms that indicate states of mind or sensory experiences”), ophresiophones (“descriptive terms applied to odours”) and colour intensifiers (“terms added to basic [colour] vocabulary to denote different intensities”) (Blench n.p.). This proposal is at the level of language description: the claim is that these classes are especially useful for characterising some segments of the lexicon in the Nigeria/Cameroon area.

The second proposal is to introduce a larger class of ‘expressives’, which would include not just ideophones but also words with ideophone-like meanings that appear to lack other ideophonic properties. This is a proposal at the level of language comparison: the diluted superset of ‘expressives’ is proposed to have crosslinguistic application, and is listed as being broadly similar to ideophones in terms of its properties, though perhaps with less strict application of the diagnostic of structural markedness (Blench 2013: 56). This ideophone-like class of ‘expressives’, linked to work on Asian languages, is apparently to be distinguished from even more inclusive uses of the term ‘expressive’ like Klamer’s (2002), which includes not just ‘sense words’ but also names and taboo words.

I think the case is sufficiently covered by adopting only the first proposal. It is very useful to have a localised inventory of conceptual or perceptual classes of ideophones, especially when it captures recurrent trends in related languages or linguistic areas. It is not clear what the second proposal adds, and it raises two questions. A definitional one: how far can we dilute the definition of a phenomenon

before we lose substance? And an analytical one: when does a language-specific classificatory knot justify the introduction of a new comparative concept?

From the apparent lack of structural markedness of Mwaghavul body epithets, Blench makes a leap to the comparative level: “identifying expressives by shape clearly does not work for many languages” (Blench 2013: 55). This is a truism: there are few if any attempts to define ideophones solely by shape, as we have seen above. Though Blench doesn't mention this, most approaches already use a combination of structural, semiotic and semantic characteristics, as we saw in Table 1 above. Moreover, the counterproposal to introduce a meaning-based superset of 'expressives' seems vulnerable to the inverse problem. If we were to drop the criterion of structural markedness entirely, this leaves us only with a very general semantically based notion. What is to stop us from including every word in every language that happens to 'conserve the ideas' normally expressed by ideophones? What degree of conservation is sufficient for inclusion in the superset of expressives?

A canonical definition of ideophones can help to resolve this matter. For the synchronic description of Mwaghavul, it seems we can distinguish a class of body epithets alongside classes covering a number of other salient perceptual domains. If and when the language-specific categories are described to satisfaction we can then link them to the comparative concept of ideophones by specifying exactly how they are similar (e.g., classes of sensory imagery) and/or different (e.g., degree of phonological markedness). We can even employ a localised version of canonical typology to systematically articulate, for a number of subclasses, their similarities and differences to the canonical category of ideophones in the language (Kwon 2017).

3.3 Diachronic diversions: An Aslian parallel

There is another reason it is unattractive to deal with a recalcitrant class of words by shelving them away in a larger, diluted category. It may lead us to lose sight of diachronic connections between ideophones and ideophone-like phenomena (Dingemanse 2017). Consider a possible parallel in two branches of the Aslian language family spoken in mainland Southeast Asia.

Aslian is well-known for its ideophones. As noted above, such words are usually called 'expressives' in this region, though most authors directly equate them to ideophones and define them using the same combination of structural, semantic and semiotic criteria (e.g., Diffloth 1976 on Semai; Kruspe 2004 on Semelai). Cognate forms occur across different branches in this closely-knit language family (Kruspe 2004), and some may be traced back even to the common ancestor of Khmuic and Aslian (Burenhult and Majid 2011). For clarity, I will use 'ideophones' as the overarching term in the comparative sense.

Semai (Central Aslian) has an ideophone class of the same order of magnitude as nouns and verbs (Diffloth 1976). Semai ideophones exhibit the marked sound patterns and sensory meanings typical of depictive vocabulary (Diffloth 1972). As part of this class Semai has a comparatively large number of smell ideophones. Examples include *pŋūs* ‘of mold; wet fur’ and *sʔē:k* ‘of rancid fish/meat’ (Tufvesson 2011: 91). The North Aslian language Jahai has a corresponding set of smell terms, cognate in many cases. Examples include *pʔus* ‘moldy or musty odour’ or *pʔeŋ* ‘blood odour’ (Burenhult and Majid 2011: 24).

However, unlike in Semai, the Jahai terms are not ideophones. There are clear structural arguments for the non-ideophonic nature of these words in Jahai (Burenhult and Majid 2011: 25–26): they are “analyzed on syntactic grounds as stative verbs”, and as such, they “can be negated, relativized, and nominalized”: all properties not normally connected to ideophones. Maniq, another North Aslian language, presents much the same picture: the majority of its smell terms are stative verbs (Wnuk and Majid 2014), and indeed Maniq appears to lack a dedicated lexical class of ideophones (Wnuk 2016: 101).

So here we have two classes of words that are broadly semantically equivalent in closely related languages: Semai smell ideophones and Jahai and Maniq smell verbs. One of them is clearly ideophonic, the other not. If we were to follow the logic of Blench’s second proposal above, we might lump them together under a diluted, semantically based notion of ‘expressives’. However, this would obscure what is in fact an interesting historical development of lexical stock in two opposing directions: the ideophonic, depictive direction in Semai and the predicative, stative verb direction in the North Aslian languages. Comparative evidence from the larger family indicates that the depictive words (as in Semai) may represent the ancestral state (Kruspe 2004), so the simplest explanation would be that a common ancestor of the North Aslian languages introduced a change in the stative verb direction.

Once again, a canonical definition of ideophones helps illuminate this case, as it allows us to be precise about how exactly the North Aslian words differ from their Semai equivalents. In this case, it can no longer be said they are one and the same lexical class; instead, in Jahai and Maniq, these words now pattern with stative verbs and appear to have lost their depictive mode of representation, leaving only the sensory meanings and cognate forms to enable us to draw a parallel to their ideophonic cousins in Semai.

3.4 Are there ideophones in signed languages?

The etymology of 'ideophone' is transparently sound-related, and most scholars associate the notion of ideophones with spoken languages. Nonetheless we can ask whether it must be a modality-specific phenomenon. Are there ideophones in signed languages?

This is an important question, as it is always a good idea to avoid modality chauvinism and aim for maximally general concepts. But a difference must be made between the conceptual tools we use to ask such questions (which must be modality-agnostic), and the typological notions we use to capture empirically attested patterns of language structure (which must be modality-sensitive and may turn out to be modality-dependent). Take phonology. While it makes modality-agnostic sense to ask what the minimally distinctive features are, the answer turns out to be modality-dependent: in the visual modality the key dimensions of distinctive units include handshape, location and movement (Stokoe 1960), whereas in the aural/oral modality they include laryngeal features, manner and place of articulation (Hyman 1975). The question here is whether something similar holds for spoken language ideophones and kindred phenomena in signed languages.

In the first study to tentatively relate ideophones to structures found in a sign language, Bergman and Dahl (1994) link the ideophone system of Kammu (an Austroasiatic language spoken in Northern Laos) to certain iconic features of tense-aspect expression in Swedish Sign Language. The main observed similarity is the use of reduplication: this is connected to the expression of iteration and repetition in both Kammu ideophones (Svantesson 2018) as well as in Swedish Sign Language tense/aspect expressions. So the Kammu ideophonic root *ɲùk* can be derived into reduplicated forms like *ɲùk kɲùk* 'keep nodding' and *cɲuk cɲúk* 'nod a few times at some interval'; and similarly, the Swedish Sign Language sign for WAIT can be produced with a repeated movement or with slow or fast reduplication, with analogous differences in possible aspectual interpretations.

However, the differences are more striking. The meanings of Kammu ideophones cover a broad range of sensory imagery, while the putative similarity only extends to one formal feature of ideophones and signs (reduplication) and one dimension of meaning (temporal/aspectual unfolding). Kammu ideophones are a distinct lexical class with their own morphosyntactic profile, whereas the Swedish Sign Language tense-aspect expressions consist of iconic morphological operations on other lexical signs, produced in simultaneous constructions. The similarity lies in the iconic use of reduplication. It seems unnecessary to posit a class of ideophones in Swedish Sign Language.

In other work in sign language linguistics, spoken language ideophones have been linked to mouth gestures, the iconic markers that function as facial additions to manual signs (Ajello et al. 2001; Hogue 2011), or to the depicting constructions that often feature such mouth movements (Lu and Goldin-Meadow 2018). This is mainly because spoken language ideophones and signed language depicting constructions (mouth movements included) are united in being depictions, inviting addressees to perceive iconic correspondences between form and meaning. But here, too, the differences should not be glossed over. Whereas ideophones are conventional, lexical items, iconic aspects of depicting constructions are relatively unconventionalised and are typically combined with categorical handshapes or classes of signs (Ferrara and Halvorsen 2017). There are six common depictive mouth gestures in American Sign Language which can be overlaid on manual lexical signs to iconically signify broad aspectual meanings like ongoingness or unimpededness (Hogue 2011). But there are thousands of ideophones in spoken languages like Japanese, Korean, Basque, or Gbeya (Dingemanse 2018). The similarity in mode of signification notwithstanding, the linguistic status of these items appears to be fundamentally different in spoken and signed languages.

So are there ideophones in sign languages? Not in the sense of an open lexical class of marked words depictive of sensory imagery, current evidence suggests. There are important similarities in mode of signification, and in the gradient modification of semiotic substance to derive analogous modifications in meaning, but these are best captured in more general terms. Conceptual tools for doing this already exist. The notion of reduplication covers the morphological processes used in both ideophones and Swedish Sign Language tense/aspect expressions. The Peircean classification of signs into indexical, iconic and symbolic provides a modality-agnostic way of thinking about possible relations between form and meaning (Peirce 1955) and the three corresponding modes of communication – indication, depiction and description – are universally relevant to the analysis of communicative behaviour across modalities (Clark and Gerrig 1990; Ferrara and Halvorsen 2017; Ferrara and Hodge 2018). The linguistic facts do not impel us to posit a class of ideophones in Swedish Sign Language or American Sign Language, much like they do not require us to posit a class of adverbial mouth gestures in most spoken languages.

Partial equivalences can obscure telling differences. In many spoken languages, we find a distinctive stratum of conventionalised depictive signs amidst a sea of otherwise largely descriptive lexical stock. These ideophones are typically produced as performances that stand out in terms of prosody and are characterised by a low degree of syntactic integration (Kunene 1965; Güldemann 2008). In signed languages the cards appear to be dealt differently: iconicity is more pervasive throughout the lexicon (Perniss et al. 2010; Perlman et al. 2018) and creative depiction is rampant

in simultaneous constructions, overlaid on more discrete and categorical signs (Lu and Goldin-Meadow 2018).

One perhaps surprising consequence of this is that we do not need to define ideophones with reference to the spoken modality. If we were to find a sign language in which there is an open lexical class of this type, this would be worth noting, and it might well deserve a label in common with equivalent phenomena in other modalities. But so far, the evidence suggests that spoken languages are more likely than signed languages to have a dedicated lexical class of conventionalised words depictive of sensory imagery. This appears to be a genuine finding of a biased distribution across semiotic resources, enabled by a modality-agnostic definition of a comparative concept.

Part of the explanation lies in the differential affordances of audible and visible semiotic resources. Speech has a relatively narrow range of affordances for iconic expression and invites more linearised and conventionalised productions. Visible semiotic resources have a broader range of affordances for iconicity, which may make depictions more interpretable even if they veer away from conventionalisation (Levelt 1980; Taub 2001). However, this only scratches the surface, and ignores the interesting fact that ideophones in face-to-face interaction seem to attract depictive resources across modalities, such as manual gestures or bodily depictions (Kunene 1965). The relative conventionalisation of depictive devices across semiotic resources is a fruitful locus for comparative research in cross-modal typology.

4. In closing

I have set out the evidence for 'ideophone' as a comparative concept and refined an earlier definition, readying it for more explicit comparative use. The utility of a typological definition must show itself not just in how it captures core cases, but also in how it illuminates the periphery of a phenomenon. To that end, the five core elements of canonical ideophones can be seen as five dimensions along which we can characterise crosslinguistic variation.

Our exploratory tour through the typological space of ideophones has been necessarily brief and selective, but it has hopefully prepared the ground for more systematic treatments. To the boundary cases discussed in some detail here we can add a range of observations that seem ripe for such a treatment. For instance, some ideophone-like forms may not form a distinct lexical class but may be derived from roots with expressive morphology, as in the Mayan languages Tzeltal and Yucatec (Maffi 1990; Le Guen 2012). Others may not be all that depictive, or may feature meanings that are more schematic than sensory, as in the Luhya languages (Bowler and Gluckman 2018). Within a language, lexical items may vary in the degree to

which they are ideophone-like, partly as a function of frequency and morphosyntactic flexibility (Dingemans 2017). Onomatopoeia, defined as words that originate as imitations of sounds, rarely form a coherent lexical class and may therefore only partly overlap with canonical ideophones (Kilian-Hatz 1999; Akita 2009). In each case we can articulate how a given phenomenon relates to the canonically defined concept of ideophones. The attested linguistic diversity, while bewildering at first, resolves itself into an orderly possibility space when we navigate using the compass of a comparative concept.

The most useful typological definitions inspire further exploration: they do not so much plant a flag as draw a map. As I have shown here, current research on ideophones provides ample material to replace the ‘here be dragons’ of older accounts with a typologically informed understanding of conventionalised depictions in spoken language. Now we need more fine-grained considerations of the features and dimensions that make us think of words as ideophonic or ordinary. And the next frontier is already in sight: we must extend this comparative perspective to the use of ideophones in face-to-face interaction and the distribution of depictive resources across modalities. Many adventures await us.

Acknowledgements

I thank Kimi Akita for being a decade-long interlocutor on all things ideophonic, and Roger Blench, Tom Güldemann, Gabrielle Hodge, Lindsay Ferrara, Nahyun Kwon and David Sidhu for thought-provoking comments and questions. Thanks to the organisers and audience of the NINJAL ‘Mimetics in Japanese and Other Languages of World’ conference for providing a global view of the diversity of ideophone systems. Small portions of the text incorporate and revise material from an unpublished PhD thesis and a blog post by the author. This work was funded by NWO grants 016.154.087 and 016.Vidi.185.205 to M. Dingemans.

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The phonological structure of Japanese mimetics and motherese

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Japanese is known to have a rich inventory of words both in mimetics and motherese (baby talk words). The purpose of this chapter is to examine interesting similarities that these two types of vocabulary exhibit in phonological structure. First of all, words in both mimetics and motherese are basically disyllabic although mimetic words also permit longer strings of syllables. Second, they are subject to a prosodic restriction by which word-final sequences of a light syllable plus a heavy one are prohibited. Third, all baby talk words are lexically ‘accented’, i.e., pronounced with an abrupt pitch fall, as opposed to ‘unaccented’. This prosodic feature is also shared by mimetic words. This fact is astonishing because a majority of native words in adult Japanese are lexically unaccented, which raises the interesting question of why mimetics and motherese are accentually different from the adult language.

By carefully analyzing various phenomena in adult phonology, this chapter presents evidence that the phonological biases commonly shown by mimetics and motherese represent unmarked phonological structures of the language that emerge in derived words in adult phonology. This allows us to link mimetics and motherese on the one hand, and adult and child phonology, on the other.

1. Introduction

While the phonological structure of mimetic words in Japanese has been studied in considerable depth (see, for example, the series of independent work by Ito and Mester, Hamano, and Nasu: e.g., Ito and Mester 1995, 1999; Hamano 1998, 2014; Nasu 1999, 2005, 2015), the corresponding structure of motherese, or baby talk words, has not been extensively studied in the literature. This chapter aims to compare the structure of these two types of vocabulary and demonstrate that they have fundamental phonological features in common. It also argues that the phonological structures of mimetics and motherese form the core of the adult Japanese

phonology; namely, that these two types of vocabulary represent the unmarked phonological structures of the language.

Before discussing similarities and differences between motherese and mimetics, let us establish some basic facts about Japanese motherese known as *akachan-kotoba* ‘baby talk words’, *hahaoya-kotoba* ‘mother’s language’, or *ikujigo* ‘language used for bringing up babies’ in the language. Japanese is known for its abundance of mimetic vocabulary, but it also has a rich inventory of motherese. The latter is the language used in conversations between a baby and the adults taking care of her. It is not clear where the language started, that is, whether babies use the language because their parents/grandparents first used it or whether the adults come to use it because their babies first used it. No matter where the cycle starts, it forms a lexical class distinct from the vocabulary that adults use when talking to each other.

Words in Japanese motherese have two major sources: mimetic words and ordinary conventional vocabulary. The first source comes mostly from *giongo*, or mimetic words that mimic sounds, as exemplified in (1). Most of these words function both as baby talk words and mimetic words in the language. In (1) and the rest of this chapter, dots *./* indicate syllable boundaries.

- (1) wan.wan ‘dog’
 mee.mee ‘sheep, goat’
 tyuu.tyuu ‘mouse’
 nyan.nyan ‘cat’
 buu.buu ‘pig, car’
 pon.pon ‘tummy’
 kon.kon ‘cough(ing)’
 sik.ko ‘peepee’
 un.ko~un.ti ‘poopoo’

The relationship between sound and meaning in these words is straightforward. Dogs, for example, are called *wanwan* because native speakers of Japanese hear them bark *wanwan*. Similarly, the tummy is named *ponpon* because this is the sound that is heard by Japanese when they pat their tummies.

The other source of the vocabulary in Japanese motherese is words used by adults in adult-directed speech. Some examples are given in (2), where the words on the left are baby talk words and those on the right are the original adult forms.

- (2) hai.hai < ha.u ‘to crawl’
 nai.nai < nai ‘to tidy up, no more’
 on.bu < o.bu.u ‘to carry on the back’
 nen.ne < ne.ru ‘to sleep’
 man.ma < ma.ma ‘food’
 on.mo < o.mo.te ‘outdoors’

an.yo < a.yu.mu 'foot, leg, to walk'
 dak.ko < da.ku 'to hold up'
 ok.ki < o.ki.ru 'to get up'
 hop.pe < ho.o 'cheek'
 kuk.ku < ku.tu 'shoes'
 pok.ke < po.ket.to 'pocket'
 baa.ba < ba.ba or o.baa.tyan 'grandma, old woman'
 zii.zi < zi.zi or o.zii.tyan 'grandpa, old man'

Having understood where words in Japanese motherese come from, let us consider in the following sections how they are linguistically similar to or different from mimetic words used by adults.

2. Syntactic and morphological structures

Mimetic words and motherese in Japanese look quite different from each other in their syntactic aspects. As is well known, mimetic words in the language are used primarily as adverbs, whether they are *giongo* (words expressing sounds) or *gitaigo* (words describing state or manner). They are illustrated in (3) and (4), respectively, where mimetic words are highlighted with bold. Phonologically, these mimetic words are independent of their neighboring words in that they form prosodic words or accentual units independent of the following words.

- (3) a. *Hi.to ga wan.wan nai.ta.*
 person NOM in.a.big.voice cry-PST
 'The person wailed.'
- b. *Ka.ne ga kan.kan naru.*
 bell NOM with.resounding.claps ring
 'The bell clangs.'
- c. *So.to de ka.sa.ka.sa o.to ga si.ta.*
 outside LOC with.a.rustling.sound sound NOM did
 'We heard a rustling sound outside.'
- d. *Ta.roo ga bu.tu.bu.tu it.ta.*
 Taro NOM in.a.small.voice say-PST
 'Taro murmured.'
- (4) a. *Hi ga kan.kan te.ru.*
 sun NOM strongly shine
 'The sun is blazing down.'
- b. *Ha.da ga ka.sa.ka.sa su.ru.*
 skin NOM dry.and.rough do
 'The skin feels dry and rough.'

- c. *Ha.da ga bu.tu.bu.tu si.te iru.*
 skin NOM in.a.rash do be
 ‘The skin has broken out in a rash.’

In addition, mimetic words sometimes behave like adjectives and nouns, as exemplified in (5) and (6), respectively.

- (5) *Ha.da ga ka.sa.ka.sa da.*
 skin NOM dry.and.rough be
 ‘The skin is dry and rough.’
- (6) *U.de ni bu.tu.bu.tu ga de.ki-ta.*
 arm on rash NOM emerge-PST
 ‘I have a rash on my arm.’

On the other hand, words in Japanese motherese are usually used as nouns, as illustrated in (1) above. This is a point on which they differ crucially from mimetic words used in adult language. However, it is worth pointing out that words in motherese are syntactically ambiguous since they can also be analyzed as one-word sentences, which are dominant in the talk of one-year or two-year-old babies (Fromkin and Rodman 1988). Thus, the word *wanwan* ‘dog’ in (1) is not just a single word, but may be a one-word sentence meaning ‘Look at the dog!’, ‘I wanna see a dog’, ‘Where’s my dog?’, etc.

While mimetics look quite different from motherese in syntactic terms, they are similar to each other in morphological structure. The most noticeable similarity is that they favor reduplicated forms. That mimetic words are rich in reduplicated forms may not be surprising since this appears to be a common morphological feature shared across languages, especially to represent repeated sounds and movements (Hinton et al. 1994). In English, for example, many mimetic words have reduplicated forms as in *murmur*, *boing-boing*, and *coo-coo*, or semi-reduplicated ones as in *tick-tock*, *ding-dong*, and *zig-zag*. Japanese mimetics show the same morphological feature, as exemplified in (3)–(6) (see the next section for non-reduplicated mimetic words).

Interestingly, words in Japanese motherese exhibit the same morphological structure. This may not be surprising in the case of words that come from mimetics as in (1), but the same structure is found in many words that derive from adult forms, too. Thus, /hai.hai/ ‘to crawl’ and /nai.nai/ ‘to tidy up, no more’ in (2) are reduplicated from non-reduplicated adult forms /hau/ ‘to crawl’ and /nai/ ‘do not exist’. Moreover, quite a few words such as /nen.ne/ ‘to sleep’ and /kuk.ku/ ‘shoes’ in (2) are semi-reduplicated forms based on the initial syllable of the source words.

3. Phonological structures

Mimetics and motherese are more similar to each other in phonological structure. In this section, we will consider three phonological aspects: word length, prosodic structure, and word accent.

3.1 Word length

Mimetic words in Japanese are predominantly three or four moras long. Of these, non-reduplicated mimetic forms are generally three moras long, consisting of a two-mora stem/base¹ and a monomoraic mimetic suffix. There are three suffixes that are productively attached to the base: an archaic suffix /ri/, the moraic nasal /N/ known as *hatsuon*, and the moraic obstruent often symbolized as /Q/ and known as *sokuon*.² In Japanese phonetics, /N/ and /Q/ are homorganic with the following consonant (Kawakami 1977; Ito 1986). The three suffixes are illustrated in (7), with the base /ba.ta/.³

- (7) a. ba.ta.ri ‘with a flop’
 b. ba.taN ‘with a bang’
 c. ba.taQ ‘with a crash’

On the other hand, reduplicated mimetics are mostly four moras long as illustrated in (3)–(6) above because the base is typically two moras long. Some mimetic words take six-mora reduplicated forms such as /bataN-bataN/ ‘with a bang and bang’ and /yurari-yurari/ ‘in a slow motion’, by reduplicating the base+suffix rather than just the base. However, these six-mora reduplicated forms are usually pronounced in two prosodic words, or accentual units, with each component showing its own accent: e.g., /ba.ta’N ba.ta’N/, /yu.ra’ri yu.ra’ri/.⁴ Therefore, their existence presupposes the existence of four-mora reduplicated forms which, like the three-mora forms in (7), are manifested in one prosodic word. If we restrict our analysis to

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1. This chapter uses the terms ‘stem’, ‘base’ and ‘root’ interchangeably to refer to the base form without any suffixes.
 2. These three suffixes convey slightly different meanings. See Hamano (1998, 2014) for details.
 3. Some mimetic words consist of a monomoraic base and a monomoraic suffix, e.g., /baN/, but they appear in Japanese far less productively than bimoraic bases as in (7).
 4. Apostrophes indicate word accent in Tokyo Japanese. They are attached to the accented mora/syllable and are phonetically implemented as an abrupt pitch fall (Hattori 1954; McCawley 1968).

words forming a single prosodic word, four moras represents the default length of reduplicated mimetic forms.⁵

It is worth noting here that three-mora non-reduplicated mimetics and four-mora reduplicated mimetics can be treated uniformly if we pay attention to the way they are used in natural speech. Crucially, three-mora forms as in (7) cannot be used on their own in sentences, but are obligatorily followed by a monomoraic particle *to* as in (8) (Nasu 1995).

- (8) *Ki ga batari/N/Q to taore-ta.*
 **batari/N/Q*
 tree NOM with.a.flop/bang/crash fall-PST
 ‘A tree fell with a flop/bang/crash.’

In contrast, four-mora reduplicated forms can appear in sentences without any following particle, as shown in (3) and (4) above. This indicates that both reduplicated and non-reduplicated mimetic forms are four moras long in actual speech.

Just as four moras seems to be the default length of mimetic words in Japanese, words in motherese are also quite restricted in word length. As can be seen from the examples in (1) and (2) above, they are four moras long if they are reduplicated forms, whereas non-reduplicated forms are three moras long. This is true regardless of the source of the words, namely, whether they originate from mimetic words as in (1) or from adult words as in (2). This length restriction can be seen clearly from the words of the latter source: the original words in the adult language vary in phonological length, but the output forms in motherese are either three moras long (non-reduplicated) or four moras long (reduplicated). This is shown in (9).

- (9) Adult forms vs. baby forms
- a. Two moras → three moras
 - ku.tu kuk.ku
 - da.ku dak.ko
 - ho.o hop.pe
 - ne.ru nen.ne
 - ma.ma man.ma
 - b. Three moras → three moras
 - o.mo.te on.mo
 - o.bu.u on.bu
 - o.ki.ru ok.ki
 - a.yu.mu an.yo ‘foot, leg, to walk’

5. Emphatic forms of reduplicated mimetics exceptionally form five-mora-long prosodic words: e.g., /bat.ta-ba.ta/ < /ba.ta-ba.ta/ ‘bustling about’ (Nasu 2005). These are typically *gitaigo* (manner mimetics) and are pronounced without an accent, i.e., with the unaccented pattern.

- c. Four moras or longer → three moras
 po.ket.to pok.ke
 o.baa.tyan baa.ba
 o.zii.tyan zii.zi
- d. Two moras → four moras
 ha.u hai.hai
 nai nai.nai

The discussion so far has shown that both mimetics and motherese are subject to a severe length restriction: they are three moras long if they are not reduplicated, and are four moras long if they are reduplicated. Given this, one may naturally wonder where this length restriction comes from. An important fact that bears crucially on this is that the same tendency is observed in adult grammar although in a less restricted manner. Analyzing about 47,000 words listed in a Japanese dictionary, Hayashi (1957) reports that the predominant word length in Japanese vocabulary is four moras: four-mora words account for 38.8%. Combined with three-mora words, they account for over 60% of all words in (adult) Japanese. Hayashi's data are summarized in Figure 1.

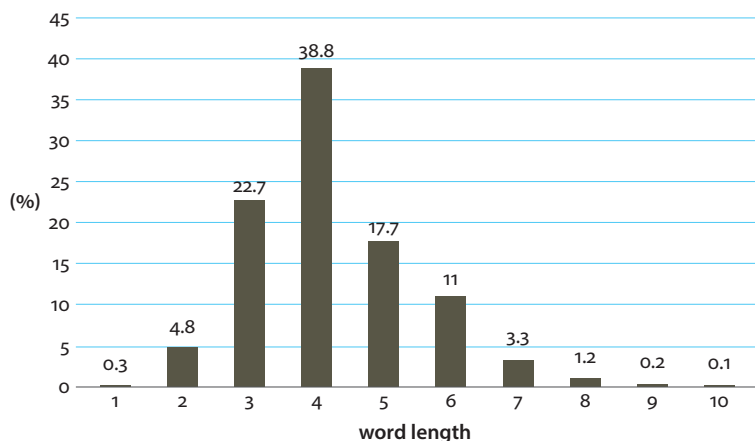


Figure 1. Frequencies (%) of dictionary-listed Japanese words as a function of word length (in moras).

It is not clear where the length restriction originally comes from, that is, whether motherese/mimetics obey the tendencies existing in adult forms or the adult forms reflect the restriction in motherese/mimetics.⁶ In either case, it is interesting that

6. A reviewer hints the possibility of some universally optimal length of words across languages. This possibility is not high since the optimal length of words is known to vary greatly from

there is a close relationship between motherese/mimetics and the adult lexicon regarding the preferred length of words.

The nature of the length restriction in question can be understood better if we make a closer analysis of the data on motherese and mimetics. As mentioned above, reduplicated forms in both motherese and mimetics are usually four moras long since they consist of a bimoraic base: e.g., *wanwan*, meaning ‘dogs’ in motherese and the sound of dogs barking in mimetics, involves a reduplication of a bimoraic base, *wan*. Most non-reduplicated forms of mimetics are also based on a bimoraic base, e.g., /ba.ta/ in (7).

These bimoraic bases are known to represent the minimal length of words in (adult) Japanese phonology, where the notion of bimoraic foot explains a wide range of phenomena (see, among others, Poser 1990; Kubozono 1999; Ito and Mester 2015). It explains, for example, why monomoraic nouns undergo vowel lengthening in many expressions including an enumeration of numbers as in (10a) and that of days as in (10b) (Kubozono 1999).

- (10) a. go ni go → goo nii goo
 5 2 5 ‘525’
 b. ka do → kaa doo
 Tuesday Saturday ‘Tuesdays and Saturdays’

Moreover, truncated words in Japanese are minimally two moras long. This is true not only in the truncation of loanwords as in (11a) (Ito 1990), but in the truncation of native and Sino-Japanese names as well, as in (11b) (Kubozono 2002).

- (11) a. tyo.ko.ree.to → tyo.ko ‘chocolate’
 su.to.rai.ki → su.to ‘(labor) strike’
 b. ko.ba.ya.si → ko.ba ‘Kobayashi (family name)’
 me.gu.mi → me.gu *or* gu.mi ‘Megumi (given name)’

In addition to the bimoraic foot, adult Japanese is known to use a four-mora template in many morphophonological processes. The most famous one is the process of compound truncation, which combines the initial two moras of each component of compounds to yield four-mora outputs (Ito 1990; Kubozono 1999; see Kubozono 2002 for exceptions). It is the number of moras that counts in this process, not the number of syllables.

one language to another: English and Mandarin Chinese, for example, are typical ‘monosyllabic languages’ that favor monosyllabic words, whereas Japanese is a ‘polysyllabic language’ where monosyllabic words are limited in number.

- (12) a. po.ket.to mon.su.taa → po.ke-mon ‘Pokémon, pocket monster’
 b. yu.nii.ku ku.roo.zin.gu → yu.ni-ku.ro ‘UNIQLO (company)’
 c. kyoo.to dai.ga.ku → kyoo-dai ‘Kyoto University’
 d. too.kyoo si.ba.u.ra → too-si.ba ‘Toshiba’

Another process sensitive to the length restrictions is the truncation of long words, typically that of loanwords. Words in Japanese may range in length from mono-moraic ones to ten-mora words, as we saw in Figure 1 above. However, word truncation is subject to rather strict length restrictions with respect to both its input and output. In the case of loanword truncation, words to be truncated are typically five-mora or longer words: few four-mora or shorter words are subject to shortening.⁷ Moreover, forms that result from this process range from two to four moras: five-mora or longer outputs are not allowed. Some examples are given in (13).

- (13) a. 2-mora output
 su.to.rai.ki → su.to ‘labor strike’
 ro.kee.syon → ro.ke ‘location’
 b. 3-mora output
 roo.tee.syon → roo.te ‘rotation’
 pan.hu.ret.to → pan.hu ‘pamphlet’
 te.re.bi.zyon → te.re.bi ‘television’
 de.hu.ree.syon → de.hu.re ‘deflation’
 c. 4-mora output
 pu.re.zen.tee.syon → pu.re.zen ‘presentation’
 ri.ha.bi.ri.tee.syon → ri.ha.bi.ri ‘rehabilitation’
 i.ra.su.to.ree.syon → i.ra.su.to ‘illustration’
 in.hu.ree.syon → in.hu.re ‘inflation’

Taken together, these facts mean that the input to truncation must be longer than four moras, while the output must be shorter than five moras. Kubozono (2004) interpreted this as evidence that optimal simplex words in Japanese are minimally bimoraic and maximally four moras long.

Zuuja-go formation is another process subject to the length restrictions in question. It is a jazz musicians’ secret language involving metathesis: it reverses the input by combining the final two moras of the input with the initial two moras to yield an output unfamiliar to ordinary people (Ito et al. 1996). This process typically produces three- or four-mora outputs, turning four-mora or longer inputs into

7. Exceptions to this include four-mora words such as /a.ma.tyu.a/ ‘amateur’, which results in a bimoraic output, /a.ma/.

four-mora words and shorter inputs to three-mora words.⁸ Here, too, four moras is the maximal length of words in the output.

- (14) a. ma.nee.zyaa → zyaa-ma.ne 'manager'
 ba.tu.gun → gun-ba.tu 'outstanding'
 b. go.men → men.go 'I'm sorry'
 zya.zu → zuu-zya 'jazz'
 me.si → sii-me 'rice, meal'
 kii → ii-ki 'key'
 me → ee-me 'eye'

A less known process sensitive to the four-mora maximality constraint is the accentual phrasing of telephone numbers (Kubozono 2004). Numbers in Japanese are either monomoraic or bimoraic lexically, but monomoraic numbers become two moras long because of the vowel lengthening shown in (10a). These numbers undergo prosodic grouping when they are pronounced in sequences as in the citation of telephone numbers. What happens in this process is that numbers are grouped together in two-digit units to form a four-mora template as an accentual unit. Thus, 5252 is realized in two prosodic words each consisting of four moras (or, equivalently, two numbers). 525 is also grouped into two prosodic words, where the first two numbers, i.e., 52, form a four-mora prosodic word and the third number forms a deficient two-mora prosodic word. These are illustrated in (15), where { } denotes prosodic word boundaries and apostrophes /' / denote word accent.

- (15) a. go ni go ni → {gooni'i}{gooni'i} '5252'
 ro.ku ha.ti i.ti san → {rokuha'ti}{itisa'n} '6813'
 b. go ni go → {gooni'i}{go'o} '525'
 ro.ku ha.ti i.ti → {rokuha'ti}{iti'} '681'

What is interesting about the process in (15) is that formation of a single word from a sequence of three numbers is disallowed, e.g., *{gooniigo'o}, *{rokuhatiit'i}. Instead, the entire strings are grouped into two prosodic words, one with four moras and the other with the remaining two moras. Moreover, every four-mora prosodic word exhibits a uniform accent pattern with an accent on the penultimate mora. Deficient prosodic words consisting of two moras take the lexical accent pattern of the number as in the second prosodic words in (15b).

8. Many of the three-mora outputs in (14) permit four-mora forms as variant patterns (Poser 1990): e.g., /sii-mee/ 'rice' and /ii-kii/ 'key'.

Japanese has some more phenomena subject to the four-mora restriction (see Kubozono 2004 for more data and evidence).⁹ All these phenomena including (14) and (15) show that four-mora templates define the maximal length of optimal words in adult grammar. In conjunction with the notion of bimoraic foot (see (10) and (11)), it can be said that optimal words in (adult) Japanese are minimally two moras long and maximally four moras long. The minimal length shows itself in the bimoraic base in mimetics and motherese, while the maximal length is reflected in the fact that words in mimetics and motherese are maximally four moras long. The latter restriction also explains the prosodic difference between four-mora and six-mora reduplicated mimetic forms mentioned above, namely, why four-mora mimetics such as /yu.ra.yu.ra/ readily form one prosodic word, {yu'.ra.yu.ra}, whereas six-mora mimetic words such as /yu.ra.ri yu.ra.ri/ are realized in two prosodic words, {yu.ra'.ri}{yu.ra'.ri}.

3.2 Prosodic structure

Mimetics and motherese are even more similar to each other in prosodic structure. First of all, both mimetic words and motherese are typically disyllabic.¹⁰ This can be seen from the mimetic words in (3) and baby talk words in (1)–(2) above. Some mimetic words consist of four syllables like *kasakasa* and *butubutu* in (3)–(4), but they are typically *gitaigo* (manner mimetics), which are believed to appear after *giongo* (sound mimetics) are established in child language (Okubo 1967; Herlofsky 1998). As for motherese, virtually all words are disyllabic, whether they come from mimetics, e.g., *wan.wan*, or adult forms, e.g., *hai.hai*, and whether they involve a reduplication or not, e.g., *un.ti*, *dak.ko*. This disyllabic structure is probably not a unique property of Japanese motherese, but a common feature of motherese in many languages (Vihman and Croft 2007).¹¹

In addition to the number of syllables involved, mimetics and motherese are similar to each other in the way syllables are organized into prosodic words.

9. For example, compound nouns fall into two groups according to their accentual behavior, those whose final member is up to four moras long and those that have a five-mora or longer final member.

10. Baby talk words occasionally take a monosyllabic form, e.g., *tyuu* 'kiss', or a trisyllabic one, e.g., *o.te.te* 'hand', the former originally coming from a mimetic word mimicking the sound of kissing and the latter from a monomoraic adult form, *te*. These are not numerous in Japanese motherese.

11. For example, baby talk words in English also typically have a disyllabic length: *peepee* 'urine', *poopoo* 'feces', *tummy* 'stomach', *kitty* 'cat', *fishy* 'fish', *birdie* 'bird', *telly* 'telephone, television'.

Motherese shows a stronger restriction in this regard, permitting only two structures: forms consisting of either two heavy, i.e., bimoraic, syllables or a sequence of a heavy syllable followed by a light, i.e., monomoraic, syllable. This can be seen from the baby talk words derived from adult words as in (16), where the input and output forms are compared.^{12,13} H and L denote heavy and light syllables, respectively. The same bias can be found in baby talk words derived from mimetics, e.g., those in (1).

(16) Adult forms vs. baby forms

- a. LL → HL
 ku.tu kuk.ku 'shoes'
 da.ku dak.ko 'to hold up'
 ho.o hop.pe 'cheek'
 ne.ru nen.ne 'to sleep'
 ma.ma man.ma 'food'
- b. LLL → HL
 o.mo.te on.mo 'outdoors'
 o.bu.u on.bu 'to carry on the back'
 o.ki.ru ok.ki 'to get up'
 a.yu.mu an.yo 'foot, leg, to walk'
- c. LHL or LHH → HL
 po.ket.to pok.ke 'pocket'
 o.baa.tyan baa.ba 'grandma, old woman'
 o.zii.tyan zii.zi 'grandpa, old man'
- d. LL or H → HH
 ha.u hai.hai 'to crawl'
 nai nai.nai 'to tidy up, no more'

As can be seen from these examples, adult forms vary in prosodic structure, ranging from a single H syllable to trisyllabic LHL or LHH structures. On the other hand, baby forms can only take two disyllabic structures, i.e., HL (non-reduplicated forms) and HH (reduplicated forms). The former forms do not permit LH disyllables like **ne.nen* and **ba.baa*. We will return below to this interesting asymmetry between HL and LH.

12. Nicknames for babies and small children undergo the same prosodic changes. The nickname for *Sachiko* /sa.ti.ko/, for example, is /sat.tyan/, which is used by herself as well as by the adults around her. This process creates an HH disyllabic output from the LLL input. A more recent process of nickname formation yields /sat.tii/ from the same input, again creating an HH output.

13. There is accentual evidence that /ho.o/ in (16a) and /ha.u/ in (16d) are disyllabic, whereas /o.bu.u/ in (16b) is trisyllabic (Kubozono 2015a).

The prosodic structure of mimetics is also restricted, but in a slightly different manner. Reduplicated mimetics typically take disyllabic forms (HH) or four-syllable forms (LLLL), depending on whether their base is monosyllabic (H) or disyllabic (LL). This is illustrated in (17). As noted above, *giongo* (sound mimetics) are predominantly disyllabic, while *gitaigo* (manner mimetics) are primarily four syllables long. Babies are known to acquire the first type of mimetics before they acquire the second type.

- (17) a. HH
 ban-ban ‘with a big bang’
 b. LLLL
 ba.ta-ba.ta ‘noisily, one after another’

On the other hand, non-reduplicated mimetics take LH or LLL forms from an LL base, as illustrated in (18) ((7)).

- (18) a. LH ba.taN ‘with a bang’, ba.taQ ‘with a crash’
 b. LLL ba.ta.ri ‘with a flop’

As noted above, the LLL forms in (18b) are slightly archaic and are not used as frequently in everyday speech as LH forms in (18a). Both LLL and LH forms look quite different from the words in motherese in (16). In particular, LH disyllables are permitted in mimetics as in (18a), whereas they are disallowed in motherese. However, this difference can be solved if we recall that mimetic forms with LH cannot form prosodic words on their own as pointed out in (8) above; rather, they can be used in sentences only when they are followed by the monomoraic particle *to*. This means that three-mora mimetic forms in (18) actually have LHL and LLLL structures at the level of prosodic words (Nasu 1995):

- (19) a. LHL ba.taN-to ‘with a bang’, ba.taQ-to ‘with a crash’
 b. LLLL ba.ta.ri-to ‘with a flop’

Excluding the more archaic LLLL forms, non-reduplicated mimetic words now have an LHL structure, which involves an HL structure in final position.¹⁴ This structure is identical to the prosodic structure of non-reduplicated forms of motherese in (16). This prosodic similarity becomes more evident when we consider the accentuation of both types of words in Section 3.3 below.

14. It is indeed important to have an HL structure in word-final position in Japanese. This manifests itself in consonant gemination in loanwords (Kubozono 2015b; Ito et al. 2017) as well as metathesis in speech errors: /hun.i.ki/ → /hu.in.ki/ ‘atmosphere’ (Kubozono 2017b). Accent rules also refer to the right edge of the word, not the beginning (Section 3.3).

So far, we have seen that mimetics and motherese share the same prosodic structures – HH structure in reduplicated forms and (L)HL structure in non-reduplicated forms. This similarity naturally raises a question of where these prosodic biases come from, in particular why HL is allowed but LH is not. This is a challenging question since the adult language permits every prosodic structure including LH disyllables. This is true across the three lexical strata – native _(N), Sino-Japanese _(SJ), and foreign _(F), as exemplified in (20).¹⁵

(20) a. Monosyllables

L: te_(N) ‘hand’, me_(N) ‘eye’, sa_(SJ) ‘difference’, ga_(SJ) ‘moth’

H: ai_(N) ‘indigo blue’, ai_(SJ) ‘love’, pai_(F) ‘pie’, boo_(SJ) ‘stick’, too_(SJ) ‘tower’, too_(N) ‘ten’, ten_(SJ) ‘heaven, point’, sen_(SJ) ‘line, thousand’

b. Disyllables

LL: ha.na_(N) ‘flower’, e.ki_(SJ) ‘station’, ba.su_(F) ‘bus’

HL: ton.bi_(N) ‘kite (bird)’, bon.go_(SJ) ‘Sanskrit’, tan.go_(F) ‘tango’

LH: ki.noo_(N) ‘yesterday’, ni.hon_(SJ) ‘Japan’, ba.ree_(F) ‘volleyball’

HH: nii.san_(N) ‘elder brother’, roo.doo_(SJ) ‘labor’, koo.hii_(F) ‘coffee’

While it is true that every prosodic structure is lexically permitted, it must not be overlooked that derived words are subject to certain restrictions even in the adult language. In fact, many processes deriving new forms from lexical words exhibit an asymmetry between HL and LH structures. Loanword truncation discussed in depth by Ito (1990), for example, permits two-mora, three-mora, and four-mora outputs, which range widely in prosodic structure. However, LH disyllables, as well as H monosyllables and LHL trisyllables, are not allowed as output structures.

(21) a. LL output

su.to.rai.ki → su.to ‘labor strike’

ro.kee.syon → ro.ke ‘location’

b. HL output

roo.tee.syon → roo.te ‘rotation’

pan.hu.ret.to → pan.hu ‘pamphlet’

c. LLL output

te.re.bi.zyon → te.re.bi ‘television’

de.hu.ree.syon → de.hu.re ‘deflation’

d. LLH output

pu.re.zen.tee.syon → pu.re.zen ‘presentation’

15. Foreign words exceptionally do not permit monomoraic forms. Sino-Japanese morphemes are maximally two moras long, which means that three-mora or longer SJ words are morphologically complex. Most native morphemes range from one mora to three moras in length.

- e. HH output
baa.ten.daa → baa.ten ‘bartender’
- f. LLLL output
ri.ha.bi.ri.tee.syon → ri.ha.bi.ri ‘rehabilitation’
i.ra.su.to.ree.syon → i.ra.su.to ‘illustration’
- g. HLL output
in.hu.ree.syon → in.hu.re ‘inflation’

A second process that shows a bias for HL and against LH disyllables is *zuuja-go* formation, discussed in (14) above. This process involves a metathesis of the initial and final parts of the input, thus turning LH inputs into HL outputs as in (22a). However, HL input does not yield an LH output, but results in an HL output by reversing the mora sequences, as in (22b) (Ito et al. 1996).¹⁶

- (22) a. LH → HL
go.men → men.go ‘I’m sorry’
- b. HL → HL
pan.tu → tun.pa ‘underpants’

Moreover, monomoraic and bimoraic words also change into HL as in (23). They thus exhibit a bias for HL and against LH in the output.

- (23) a. L → HL
me → ee.me ‘eye’
- b. H → HL
kii → ii.ki ‘key’
- c. LL → HL
me.si → sii.me ‘rice’
zya.zu → zuu.zya ‘jazz’

Adult Japanese displays more evidence for the asymmetry between HL and LH disyllables (Kubozono 2002, 2003a, 2017b). This bias in the adult language squares well with the data from mimetics and motherese. Namely, in all these types of vocabulary, HH# and HL# structures form perfect output forms, whereas LH# is disfavored. The various processes in the adult language take place in such a way that they highlight the prosodic structures present in mimetics and motherese. Stated conversely, mimetics and motherese reveal the default prosodic structures of Japanese which show up in various processes deriving new words from lexical ones in adult phonology.

16. An exception arises if the two syllables in the input belong to different morphemes: gin+za (HL) → za+gin (LH) ‘Ginza’ (Ito et al. 1996).

3.3 Accent

Let us now consider lexical pitch accent, which is another prosodic feature in the language. Mimetics and motherese are basically accented on their initial syllables if they are reduplicated as shown in (24)–(25).¹⁷ Since they are four moras long, a foot-based analysis can generalize their accent patterns as in (26), which places an accent on the bimoraic foot as close to the end of the word as possible, but not at the very end. Again, apostrophes denote the position where an abrupt pitch fall occurs as a phonetic manifestation of phonological pitch accent in the language. () represents foot boundaries. As for foot formation, we follow the orthodox footing principles adopted in the literature: each heavy syllable forms a foot on its own; monomoraic, i.e., degenerate, feet are prohibited; feet are bounded by morpheme boundaries (i.e., no foot is formed across a morpheme boundary), etc. (Kubozono 1995, 1997, etc.).

- (24) Mimetics
- a. H-H reduplications
(ba'n).(ban)
 - b. LL-LL reduplications
(ba'ta).(ba.ta)
- (25) Motherese
(wa'n).(wan), (ha'i).(hai), (na'i).(nai)
- (26) Default accent rule in Tokyo Japanese
Accent is placed on the rightmost, non-final foot.

This rule accounts not only for the reduplicated forms of mimetics and motherese as in (24)–(25), but also their non-reduplicated counterparts as shown in (27)–(28). Recall here again that three-mora mimetic forms must be accompanied by a monomoraic particle *to* to form an independent prosodic word. In contrast, three-mora words in motherese can form independent prosodic words without any particle, as in {u'n.ti}{su.ru} 'poopoo, do; to defecate'.

- (27) Mimetics
ba.(sa'ri)-to, ba.(ta'N)-to, ba.(ta'Q)-to
- (28) Motherese
(o'n).bu, (u'n).ti, (da'k).ko, (si'k).ko, (ba'a).ba, (zi'i).zi

17. Reduplicated mimetic forms can take the so-called 'unaccented pattern', or a flat pitch pattern, when they are used as adjectives rather than adverbs: e.g., *basa-basa no kami* 'uncombed hair', *kaminoke ga basa-basa da* 'the hair is uncombed'. This second accent pattern is syntactically predictable and, moreover, occurs only in *gitaigo* (manner mimetics), which is secondary to *giongo* (sound mimetics) in child language.

Given the general rule (26) that governs the accentuation of words both in mimetics and motherese, one may naturally wonder where it comes from. At a glance, this is a mystery since a majority of adult Japanese words, especially nouns, are so-called unaccented words, or words pronounced without an abrupt pitch fall even when they are followed by a grammatical particle: e.g., /ha.na/ 'nose', /ne.zu.mi/ 'mouse', /too.kyoo/ 'Tokyo', /a.me.ri.ka/ 'America' (Kubozono 2006). If baby talk words and mimetic words should follow the most popular accent pattern in the adult language, they should also predominantly take the unaccented pattern. This is not, however, what is observed.

The discrepancy between mimetics/motherese and adult phonology in accentuation can be resolved if we focus our attention on accented words in the adult language. As pointed out by Kubozono (2006, 2008), most accented words in the adult vocabulary are accented on the syllable containing the antepenultimate mora in all three lexical strata – native, Sino-Japanese, and foreign. This accent pattern can be explained by the foot-based rule in (26) above in a straightforward manner, as shown in (29).

- (29) a.(za'.ra).si 'seal, earless seal'
 (tyu'u).(go.ku) 'China'
 wa.(si'n)(ton) 'Washington'

As demonstrated by Kubozono (2008, 2011), the rule in (26) is responsible for the accentuation of a wide range of words in Tokyo Japanese including proper nouns, compound nouns, and verbs/adjectives. Most compound nouns, for example, are accented according to this rule, as demonstrated by Kubozono (1995, 1997). More importantly, the same rule accounts for newly created words whose accentuation would otherwise remain unexplained. For example, new names derived from unaccented lexical entries are accented in accordance with this rule, as shown in (30).¹⁸ This includes new names ending in a long vowel and the plural ending *su/zu*, for which Kawahara and Wolf (2010) proposed an ad-hoc initially-accenting rule. Unaccented words are marked with superscript ⁰.

- (30) a. ton.ne.ru⁰ 'tunnel' → (to'n).(ne.ru)-zu 'Tunnels (comedians)'
 b. gin.ta.ma⁰ (name of a comic book) → (gi'n).ta.(maa)-zu
 c. sa.wa.mu.ra⁰ 'Sawamura (proper name)' → sa.(wa'.mu).(raa) 'Sawamura (a pocket monster)'
 d. kai.ri.ki⁰ 'superhuman power' → (ka'i).ri.(kii) 'Kairikii (a pocket monster)'
 e. goo.ri.ki⁰ 'herculean strength' → (go'o).ri.(kii) 'Goorikii (a pocket monster)'

18. The plural ending /zu/ is usually extraprosodic in Tokyo Japanese: that is, it is attached after word accent is determined in the remaining part of the word.

The accent rule in (26) also accounts for the accentuation of various types of nicknames in Japanese (31). What is interesting here is that one and the same accent pattern emerges in these derived words regardless of the accentuation of the input words. Thus, both accented and unaccented inputs result in the same output forms which are accented in conformity to the rule in (26):

- (31) a. sa'ti.ko 'Sachiko', sa.ti.e⁰ 'Sachie' → (sa't).(tyan), (sa't).(tii)
 b. ma'sa.ko 'Masako', ma.sa.mi⁰ 'Masami' → (ma'a).(tyan), (ma's).(sii)
 c. ma'sa.si 'Masashi', ma.ko.to⁰ 'Makoto' → (ma'a).(kun), (ma'a).(tyan),
 (ma't).(tyan), (ma's).(sii)
 d. su.zu.mo.to 'Suzumoto', su.zu.ki⁰ 'Suzuki' → (su'zu).(san), (su'u).(san)
 e. ya.na.gi'.mo.to 'Yanagimoto', ya.na.gi.ta⁰ 'Yanagita' → (ya'na), (ya'na).(kun),
 (ya'na).(tyan)

In all these newly coined words, we observe an effect of the so-called TETU (The Emergence of The Unmarked) principle (McCarthy and Prince 1994) by which the default pattern of the language emerges in certain environments, particularly in derived words, or words derived from existing words. Seen in this light, it can be said that the rule in (26) is the default accent rule of (Tokyo) Japanese that emerges in words with no lexical pitch specification.¹⁹

It is true that some new/derived words take the unaccented pattern, but they can be accounted for on independent grounds (see Kubozono 2017a for a summary of factors). For example, the unaccented pattern in loanwords such as /a.me.ri.ka⁰/ 'America' and alphabetic acronyms/initialisms such as /e.su.e.hu⁰/ 'SF' and /sii.e.mu⁰/ 'CM' can be attributed to their phonological length and prosodic structure (Kubozono 1996, 2003b, 2010). The unaccented pattern in truncated compounds such as /po.ke.mon⁰/ 'Pokémon' and /han.su.to⁰/ 'hunger strike' can also be accounted for in terms of their morphological and phonological structures: they are composed of two bimoraic elements. Furthermore, the unaccented pattern in compound nouns can be attributed to the morphological property of some lexical items, e.g., /i.ro'/ 'color' in /o.ren.zi-i.ro⁰/ 'orange color', or to a particular prosodic configuration involved, e.g., /nankyoku-tankentai⁰/ 'Antarctic expedition' (Kubozono 2017a).²⁰ Thus, the unaccented pattern is not a default accent pattern in the language, but a pattern that emerges for independent linguistic reasons.

19. This analysis speaks against the generalization proposed Kawahara and Wolf (2010), who attributed the output accent in words like (30a, b) to a morpheme-dependent initial-accenting rule.

20. /i.ro'/ 'color' is one of the so-called 'deaccenting morphemes' by which the entire compounds are deaccented when they form the final member of compounds. /nankyoku-tankentai⁰/ 'Antarctic

In summary, mimetics and motherese are crucially similar to each other with respect to their accentuation: they are governed by the rule in (26). Their accentuation may seem different from that of ordinary words in adult grammar, but a careful examination reveals that they, too, follow the same rule in principle. What remains unclear is which is the chicken and which is the egg – whether mimetics and motherese follow the default accent rule in the adult grammar or the adult phonology mimics the basic accent rule of mimetics and motherese. In either case, the fact remains that the accent rule governing mimetics and motherese represents the default accent rule of the adult grammar.

4. Conclusions

The present study has examined similarities and differences between mimetics and motherese in Japanese on the one hand, and between them and the adult vocabulary, on the other. Syntactically, mimetics and motherese are different from each other in that mimetic words are used primarily as adverbs and motherese as nouns. However, they are morphologically similar in favoring reduplications, especially reduplications of bimoraic bases. Their similarities become more evident if we turn our attention to their phonological and prosodic structures. First, they are both subject to a severe length restriction by which only three-mora and four-mora forms are allowed. This restriction can be attributed to a minimality constraint militating against monomoraic bases and a maximality constraint prohibiting five-mora or longer forms.

Mimetics and motherese look even more similar to each other when we look at their prosodic structures. They are both disyllabic in principle and favor a Heavy-Heavy or Heavy-Light disyllabic structure as against a Light-Heavy structure. The similarities in accentuation are also striking in that they both follow one and the same accent rule that assigns an accent to the rightmost, non-final foot. These similarities are observed in both types of motherese, those derived from mimetic words (*giongo*, or sound mimetics) and those derived from adult words.

In addition to the interesting similarities between mimetics and motherese, the present study has also shown their phonological/prosodic resemblances with the adult vocabulary. As for word length, for example, the adult vocabulary also prefers three- and four-mora lengths. Moreover, adult words are subject to the same minimality and maximality constraints as mimetics and motherese in various phenomena. Furthermore, adult phonology exhibits many phenomena that

expedition' remains unaccented because its second member, /tankentai⁰/, is longer than two feet and is unaccented.

show a strong bias towards Heavy-Heavy and Heavy-Light structures in word-final position as well as a bias against Light-Heavy structure. And last, but not least, the accent rule governing mimetics and motherese in Japanese is the very basic rule that underlies accented words in the language. That is, one and the same accent rule governs mimetics, motherese, and words in the adult vocabulary. Given that unaccented words are also numerous in the adult vocabulary, it is probably reasonable to assume that the accent rule of mimetics and motherese is inherited by adult phonology as its default accent rule.

In sum, mimetics and motherese are similar to each other in basic phonological and prosodic structures. These phonological processes form the core of the adult grammar: mimetics and motherese represent the unmarked structures of Japanese phonology. This suggests that it is essential to study mimetics and motherese to understand the fundamental structures of adult phonology.

Acknowledgments

An earlier version of this chapter was presented at the international conference on mimetics held at NINJAL in December 2016. I would like to thank the audiences of this conference, editors of the volume, and an anonymous reviewer for their invaluable comments. Remaining errors, if any, are my own. The work reported here was supported by JSPS KAKENHI Grant Numbers 26244022, 16H06319, and 17K18502 as well as the NINJAL collaborative research project ‘Cross-linguistic studies of Japanese prosody and grammar’.

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Monosyllabic and disyllabic roots in the diachronic development of Japanese mimetics

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It has been demonstrated that the distinction between monosyllabic and disyllabic roots is critical in synchronic analyses of Japanese sound-symbolic vocabulary (also known as mimetics). This chapter demonstrates the relevance of this distinction for the diachronic development of Japanese mimetic words. Specifically, the chapter traces the development of the syllable-final nasal /N/ and the voiceless fricative /h/ and argues that these elements existed in monosyllabic mimetic roots before they appeared with disyllabic mimetic roots. The chapter suggests that this dichotomy may have implications for broader issues of language evolution.

1. Introduction

Any analysis of Japanese mimetic vocabulary must make reference to two root types: more imitative monosyllabic (CV or CVN) roots and more analytical disyllabic (CVCV) roots (Hamano 1998, 2015). Table 1 gives examples of each.

Table 1. Examples of monosyllabic and disyllabic mimetic roots

Monosyllabic mimetic roots (CV or CVN)	Disyllabic mimetic roots (CVCV)
<i>paN</i> ‘explosion or hitting of a tensely stretched surface’	<i>pari</i> ‘a thin object being crunchy’
<i>ha</i> ‘laughter’	<i>haki</i> ‘expressing opinions clearly’

The distinction is essential for the analysis of the Japanese mimetic system. Monosyllabic mimetic roots are more naturally motivated and less linguistically constrained. Many monosyllabic mimetic roots in Japanese are onomatopoeic and find more or less similar monosyllabic counterparts in other languages. By contrast, disyllabic mimetic roots are more linguistically structured and unique to Japanese.

Morphological, phonological, semantic, and syntactic properties of Japanese mimetics can be fully understood only if this distinction is articulated first.

This distinction is also critical in order to understand the overall structure of Japanese lexicon. The Japanese language is commonly divided into four lexical layers: Sino-Japanese vocabulary, recent loanwords, native vocabulary (*wago*), and mimetic vocabulary (McCawley 1968). Nasu (2015) rightly points out that native and mimetic vocabulary share many phonological features. However, it is not monosyllabic mimetic roots but disyllabic mimetic roots that share many properties with native vocabulary.

In this chapter, I will demonstrate that the distinction has also been relevant in the diachronic development of Japanese mimetic words. Focusing specifically on the history of /N/, the syllable-final, moraic nasal,¹ and of the voiceless fricative /h/, I will argue that the rigid distinction of these two root types has been maintained since as far back as the 8th century (and most likely going further back) despite changes and loss of specific mimetic expressions. I will also argue that monosyllabic mimetic roots have remained stable while disyllabic mimetic roots have evolved in close interaction with non-mimetic vocabulary. This means that Japanese disyllabic mimetic roots always formed a newer and more language-specific layer over more universally-motivated monosyllabic mimetic roots.

The structure of the chapter is as follows. First I will point out some of the synchronic contrasts between monosyllabic and disyllabic mimetic roots. I will then examine the diachronic development of /N/ in mimetic words with reference to the contrast between monosyllabic and disyllabic mimetic roots. This will be followed by an examination of the diachronic development of /h/, again with reference to the contrast between the two types of roots. The chapter will conclude with some implications of the dichotomy between monosyllabic and disyllabic mimetic roots for broader issues of the evolution of the Japanese language and beyond.

2. Synchronic contrasts between monosyllabic and disyllabic mimetic roots

2.1 Sound symbolism

Hamano (1986, 1998) elucidated subtle but consistent differences in the sound-meaning associations between monosyllabic and disyllabic mimetic roots. For instance, obstruents can have different meanings depending on whether they appear in monosyllabic mimetic roots or disyllabic mimetic roots, as summarized in Table 2.

1. See Vance (2008) for a detailed description of /N/.

Table 2. Sound symbolism of obstruents

	Onset of a monosyllabic root	C ₁ in a disyllabic root	C ₂ in a disyllabic root
p	Hitting or explosion of a stretched surface	Stretched surface	Explosive movement
t	Tapping a lax surface	Lax surface	Coming into contact
k	Striking a hard surface	Hard surface	In-out or up-down movement
s	Sliding over a smooth surface	Smooth surface	Friction

This table shows the following. An obstruent in the onset of a monosyllabic root generally captures the whole image of a movement imitatively in terms of its kinetic type and the tactile property of the surface that is involved.² The semantic associations are quite iconic. In disyllabic mimetic roots, on the other hand, the initial obstruent only captures the tactile nature of the surface while the second obstruent only captures the kinetic nature of the movement. In other words, undifferentiated semantic complexes associated with the onset of monosyllabic mimetic roots are analyzed and unpacked to separate positions in disyllabic mimetic roots. To take a concrete example, /t/ has the meaning ‘hitting a lax surface’ in monosyllabic mimetic roots. However, in disyllabic mimetic roots, /t/ in the initial syllable only has the meaning of ‘lax surface’. The meaning of ‘hitting’ is associated only with /t/ in the second syllable.

Consequently, an identical pair of obstruents, when ordered differently, creates totally different disyllabic mimetic roots, as shown in (1). Note that *toku* means ‘gurgling sound of liquid flowing out from a small aperture’, while *kotu* means ‘tapping a hard surface’. The contrast is attributable to the contrast between /t-k-/ meaning ‘lax surface and in-out movement’ and /k-t-/ meaning ‘hard surface and hitting’.

- (1) a. *Sake o toku-toku sosoida.*
 sake ACC poured
 ‘I poured sake with a gurgling sound.’
 b. *Ita o kotu-kotu tataita.*
 board ACC hit
 ‘I tapped on the board.’

Thus, in disyllabic mimetic roots, identical phonetic elements have different functions depending on their positions. Permutation of identical sounds systematically results in totally different meanings just as syntactic permutation creates totally different meanings. Furthermore, the process of suppression of part of the meaning

2. One major exception to this generalization is the symbolism of /k/. Although it is produced at the soft palate, it means ‘hard surface’. Its iconic basis may be more acoustic than articulatory.

observed in disyllabic mimetic roots is similar to the creation of fully grammaticalized affixes from lexical items widely observed in world languages (see, for instance, Hopper and Traugott 1993).

2.2 Phonotactics

Disyllabic mimetic roots exhibit considerable phonotactic complexities, not accountable in terms of sound-symbolic motivation.

Disyllabic mimetic roots rarely contain two voiced obstruents. If they contain one voiced obstruent, it is generally restricted to initial position. That is, distinctive voicing, which is accompanied by the concomitant sound-symbolic meaning of ‘weight’, is assigned only once per mimetic root and is essentially restricted to the root-initial position. The second consonant in a disyllabic mimetic root cannot bear contrastive voicing. Thus, we have *pata* ‘manner in which a light flat object hits a surface’ and *bata* ‘the manner in which a heavy flat object hits a surface’, but not **pada*.

Apparent exceptions to the above constraint actually prove that it is contrastive voicing that is limited to one occurrence per root. Intervocalic /b/ in disyllabic mimetic roots is considered to have arisen historically from /p/, as in *zubo* ‘sinking into something soft’ (< /zupo/), in order to retain the sound-symbolic association between the bilabial stop and the meaning of ‘explosion’ as the rest of the language was losing intervocalic /p/ (Hamano 1998, 2000). So there is no contrast between /p/ and /b/ in intervocalic position. In other words, /b/ in intervocalic position does not bear contrastive voicing.

A related fact has been pointed out by Nasu (1999). Sonorant-initial roots can have a voiced obstruent in the second syllable, as in *mozi* ‘shy’, *muzu* ‘feeling itchy’, *mago* ‘perplexed’, and *mogo* ‘speaking indistinctly’. This distributional irregularity is allowed precisely because the voicing in a sonorant is non-contrastive. These apparent violations to the initial generalization thus prove that it is contrastive voicing that is restricted.

Like contrastive voicing, contrastive palatalization is severely constrained in disyllabic mimetic roots (Hamano 1994, 1998). It cannot appear more than once per mimetic root: consequently, *patya* ‘splashing’, but not **pyatya*. Some of the forms that apparently violate this constraint are actually reduplicative forms based on monosyllabic mimetic roots. For instance, *kyukyuQ* ‘squeaking sounds’ is analyzed as /kyu-kyu-Q/.³

Furthermore, palatalization in disyllabic mimetic roots prefers coronal consonants /t/, /d/, /s/, /z/, and /n/. If a disyllabic root contains one of them, palatalization

3. /Q/ is a syllable-final homorganic obstruent. See Vance (2008) for details.

docks onto it, as in *kutya* ‘crumpled’, *nyoro* ‘slender object wriggling’. If a disyllabic root contains none of the preferred coronal consonants, palatalization docks on to the root-initial consonant, as in *pyoko* ‘jumping up unsteadily’. Hence, **kyota*, **nyoro*, and **pokyo* are ruled out.

These distributional constraints on disyllabic mimetic roots are not sound-symbolically motivated. The docking pattern of mimetic palatalization, although not exactly the same, is akin to that of an autosegmental, feature-sized morpheme (Mester and Ito 1989; Alderete and Kochetov 2017). Where it docks onto is phonologically constrained, having no sound-symbolic consequence, unlike the location of a specific consonant or vowel. Likewise, as we have seen above, mimetic voicing behaves much like an autosegmental morpheme, and its limited appearance in root-medial position of a disyllabic mimetic root is conditioned by the phonological property of the initial consonant; it has no sound-symbolic consequence.

3. Diachronic changes in monosyllabic and disyllabic mimetic roots

To summarize the discussion so far, monosyllabic mimetic roots are more iconic than disyllabic mimetic roots. Disyllabic mimetic roots are more linguistically structured and constrained than monosyllabic mimetic roots. It is reasonable to expect the distinction between monosyllabic and disyllabic mimetic roots to have been relevant diachronically, too.

Below, I will show that this prediction is indeed borne out with regard to the development of /N/, the syllable-final nasal, and of the voiceless fricative /h/. The analysis of /h/ in particular sheds light on the close diachronic interaction between the native lexical stratum and disyllabic mimetic roots, while at the same time pointing to the autonomy and stability of monosyllabic mimetic roots.

3.1 Syllable-final nasal /N/

In this section, I will demonstrate that /N/ developed differently in monosyllabic and disyllabic mimetic roots.

3.1.1 *Semantic characteristics of /N/*

We have already observed that disyllabic mimetic roots suppress certain semantic features of obstruents depending on their position. That is, the meaning of movement is suppressed in the initial obstruent, and the meaning of tactile characteristics is suppressed in the second obstruent in disyllabic mimetic roots. Thus, sounds are less imitative in disyllabic mimetic roots than in monosyllabic mimetic roots; they function as abstract linguistic units.

There are other examples of sounds in disyllabic mimetic roots having more abstract meanings than sounds in monosyllabic mimetic roots. I have demonstrated that /N/ added to disyllabic mimetic roots has more abstract meanings than /N/ in monosyllabic mimetic roots (Hamano 2015). In fact, the former qualifies as a full-fledged suffix to a disyllabic root, while the latter is an inseparable part of a root shaped CVN. We will see this contrast in more detail below, before going into the discussion of its development.

/N/ in monosyllabic mimetic roots is associated with meanings that are grounded on the physical properties of nasal sounds. The majority of monosyllabic mimetic roots with /N/ imitate resonating sounds.

- (2) a. *piN* ‘sound of a tightly drawn string’
- b. *poN* ‘small popping sound’
- c. *paN* ‘explosion or hitting of a tensely stretched surface’
- d. *koN* ‘sound of tapping a hard surface’
- e. *kyaN* ‘yelping’
- f. *miN* ‘cicada’s singing’
- g. *hiN* ‘horse’s neighing’
- h. *waN* ‘dog’s barking’

In addition, /N/ appears in expressions of ‘nasal sounds’ and expressions related to the nasal passage, as in (3). A similar tendency for the alveolar nasal to be associated with ‘nose’ is attested cross-linguistically (Blasi et al. 2016).

- (3) a. *huN* ‘snorting’
- b. *kuN* ‘sniffing’
- c. *tuN* ‘stinging sensation in the nose’

In some cases, monosyllabic mimetic roots ending with /N/ describe ‘movement with a curving trajectory’ or ‘bouncy, forceful movement’, as in (4).

- (4) a. *poN* ‘throwing something casually’
- b. *pyoN* ‘hopping’
- c. *guN* ‘moving forward forcefully’.

On the other hand, /N/ attached to disyllabic mimetic roots typically has a more abstract, aspectual meaning, namely of ‘redirection of the main movement denoted by the root’, as in (5).

- (5) a. *potoN* ‘falling and bouncing’
- b. *dosiN* ‘stamping and bouncing’
- c. *gakuN* ‘jerking and bobbing’

Take *potoN*. This means that something like a drop of liquid falls, hits a surface, and bounces up. It consists of the phase of *poto* ‘a drop of liquid falls, hits a surface’ and the phase of /N/ ‘bouncing = redirection’. /N/ systematically adds this sense of ‘redirection’ to a disyllabic base. In this sense, its function is very close to that of the morpheme in the traditional sense. This situation contrasts sharply with the situation with /N/ in a monosyllabic root described above.

The type of phono-semantic association observed for /N/ in monosyllabic mimetic roots seems to be observed in diverse languages. For instance, English onomatopoeic forms having final *-ng* (as in *bonk*, *clank*, *clunk*, *clink*, *boink*, and *bang*) and final *-m* (as in *boom*) describe resonating sounds whose volume gradually decreases (Oswalt 1994).

Similarly, in Czech, *bum* ‘resonating sound of a large object hitting a hard surface’, *pum* ‘gun shot sound’, *vrum* ‘the sound of an engine’, *čim* ‘sparrow’s chirping’, *bzum* ‘the sound of a rocket being shot up’, *drnn* ‘the ring tone of a telephone’, etc. exemplify the use of a syllable-final nasal for representing ‘gradual decay of resonance’ (Fidler 2014: 108).

Likewise, in Korean, *ttang* stands for the sound of a gong (while *ttak* stands for the sound of an arrow hitting a target) (Kim-Renaud 2009). Akita (2013, 2017) cites *gbiim* ‘bang’ from Siwu of Ghana and *zaunk* ‘a dog’s barking’ from Basque. The syllable-final nasal in monosyllabic mimetic expressions is thus used to mimic a resonating sound in diverse languages and most likely universally. However, the more abstract aspectual function of /N/ used with Japanese disyllabic mimetic roots seems to be of a very limited scope cross-linguistically.

3.1.2 Diachronic development of /N/

The synchronic universality of syllable-final nasal symbolism with monosyllabic mimetic roots implies its diachronic antiquity and constancy. Indeed, historical evidence suggests that it existed in Japanese long before the appearance of the more abstract symbolism of /N/ associated with disyllabic mimetic roots.

Old Japanese (700–800) is usually considered to have had only open syllables. Changes occurred to this canonical syllable structure beginning in the 9th century in Early Middle Japanese (800–1200) (Sato 1977), resulting in the creation of the syllable-final nasal /N/. Various transitional conventions such as characters or letters representing the syllables /mu/, /ni/, /i/, or /u/ came to be used to represent this new phonological unit.

As the first evidence of /N/ in monosyllabic mimetic roots, researchers point to the use of the same orthographic practices for monosyllabic sound-mimicking expressions around the 12th century (Yamaguchi 2002; Suzuki 2007). For instance,

the sounds of a horse and a fox were transcribed with う /u/, one of the above conventions, as いう and こう, suggesting that they had the shapes iN^4 and koN .

With disyllabic mimetic roots, clear cases of /N/ did not appear until very late (Yamaguchi 2002; Suzuki 2007). Suzuki (2007) identifies the first cases of CVCVN in Late Middle Japanese (1200–1600) in *toboN* ‘sound of something falling into water’, a rather iconic CVCVN form. Slightly later examples from Early Modern Japanese (1600–1868) include *supoN* ‘manner or sound of something coming off and bouncing’ and *pokaN* ‘a resonant sound made as the result of a hollow object being struck’, still fairly iconic expressions. Only in Modern Japanese have forms like *kyotoN* ‘the state of being dazed from surprise’ and *toroN* ‘the state of being drowsy’ appeared, which I consider to contain an abstract meaning of ‘lasting state’, a metonymic extension of the meaning of ‘resonation’.

We can infer from this orthographic history that, in the spoken language as well, the use of /N/ as a suffix to disyllabic mimetic roots began much later than the use of /N/ in monosyllabic mimetic roots. The remaining question is when the use of /N/ in monosyllabic mimetic roots began. Did the change in the canonical syllable structure trigger changes in perceptions, transforming for instance *ko* to *koN*? Or did /N/ already exist in the mimetic vocabulary stratum prior to the change in the canonical syllable structure in the native vocabulary stratum? My assertion is an affirmative to the latter.

As explained above, the sounds of a horse and a fox most likely were iN and koN in Middle Japanese. Then, they would have had the same type of coda in Old Japanese. Information relevant for identifying their Old Japanese phonetic values is found in *Man’yoosyuu*, a collection of poems compiled during the 8th–9th century.

First, Yamaguchi (2012) suggests the possibility that the expression for horses’ neighing contained /N/ in Old Japanese on the basis of the following phrase in Poem 2991 of *Man’yoosyuu*.

- (6) *i bu se ku* ‘gloomy’
 馬聲
 ‘horse voice’

In this phrase, 馬聲 ‘horse voice’ is used as a rebus for a single syllable. The target pronunciation of this phrase would have been [i.^mbu.se.ku]. The sequence [i.^mbu] is due to the fact that an Old Japanese voiced obstruent, which was prenasalized, nasalized its preceding vowel (Frellesvig 2010). In light of this and the later

4. In Section 3.2, I will claim that the word for neighing was actually hiN .

pronunciation of the word for neighing, it would be most logical to conclude that the word for neighing was either *iN* or *i⁵* in Old Japanese.

Second, Poem 3824 contains a pun on the word, 来 *komu* ‘will come’, and the vocalization of a fox, 許武 *komu*. Yamaguchi (2002) argues that this pun proves that the fox’s vocalization was captured as either monosyllabic *kom* or disyllabic *komu*.

Reconciling these pieces of information, I conclude that the two animal vocalizations were realized with a syllable-final nasal.

To summarize this section, I have argued that monosyllabic mimetic roots with /N/ already existed in Old Japanese. That is, /N/ existed in Old Japanese monosyllabic mimetic roots long before it came to be explicitly represented in writing. It spread to disyllabic mimetic roots in tandem with a critical change in the canonical syllable structure of the native vocabulary stratum at the stage of Middle Japanese. Its adoption into disyllabic mimetic roots apparently began with the more iconic end of the continuum, with a more iconic meaning of /N/, ‘echoing, reverberation’. Suffixal /N/ eventually acquired further semantic abstractions. Figure 1 summarizes this.

		Old Japanese	Middle Japanese	Modern Japanese
Mimetic Stratum	Monosyllabic Roots	CV →		
		CVN → ‘resonance, nasality’ →		
	Disyllabic Roots	CVCV →		
			CVCVN → ‘reverberation’ → ‘redirection’ → ‘lasting state’ →	
Native Stratum	Canonical Syllables	CV →		
			CVN →	

Figure 1. Development of /N/

Thus, the contrast between monosyllabic and disyllabic mimetic roots played a key role in the history of /N/. /N/ in monosyllabic mimetic roots has been an ever-present and stable element. By contrast, /N/ used with disyllabic mimetic roots

5. This latter possibility was suggested by a member of the audience at the LSA 2016 annual meeting where part of this chapter was presented.

took longer to be accepted. Once it was accepted, it acquired a semi-morphological status and gradually extended its symbolic meanings.

3.2 Development of /h/ in monosyllabic and disyllabic mimetic roots

In this section, I will demonstrate that /h/ developed differently in monosyllabic and disyllabic mimetic roots.

3.2.1 *Standard view on the development of /h/*

It is an established view in Japanese historical linguistics that non-sibilant fricatives /h/ [h ~ ç ~ φ] developed as a result of the weakening of [p] (Frellesvig 2010; Pintér 2015; Takayama 2016).

To be sure, Japanese does not seem to have had root-initial [h] in the native lexical stratum of Old Japanese (700–800) or Early Middle Japanese (800–1200). Loanwords from Chinese that had [h] in initial position were adopted into Japanese with [k] instead. The consequence of this nativization process is observed, for instance, in the contrast between the Japanese word *kanji* ‘Chinese character’ and its Chinese and Korean cognates, *hanzi* and *hanja*.

By Early Middle Japanese, the change from word-initial [p] to [φ] had taken place in the native lexical stratum (Frellevig 2010).

- (8) a. [pa] ‘leaf’ > [φa]
 b. [pito] ‘person’ > [φito]
 c. [pune] ‘boat’ > [φune]

The bilabial fricative [φ] further changed to [h] before /a, o, e/ and to [ç] before /i/ by the second half of the 17th century (Pintér 2015), as illustrated in (9).

- (9) a. [φa] ‘leaf’ > [ha]
 b. [φito] ‘person’ > [çito]
 c. [φune] ‘boat’ (no change)

Intervocalic [p] had weakened much earlier and completely to zero in many environments in the native lexical stratum (Pintér 2015), as briefly summarized in (10) and (11).

- (10) [p] > [w] /V_V; [w] > Ø __/ [i, u, e, o]
 (11) a. [kopaki] ‘awe-inspiring’ > [kowai] ‘scary’
 b. [kapo] ‘face’ > [kao]

On the other hand, [p] took different paths in the mimetic stratum. The weakening of root-initial [p] was apparently blocked by its sound-symbolic function. Intervocalic [p] succumbed to the weakening process, but only to the extent that it had to: it became [b] in order to preserve the meaning of ‘explosive action’ (Hamano 2000), as shown in (12).

- (12) [gapo] ‘gulping’ > [gabo]

The emergence of word-initial [ɸ] in the native lexical stratum apparently also led to its adoption in the mimetic stratum, as noted with *f* in the Portuguese-Japanese dictionary of 1603/1604 (Tsuchii et al. 1980).

- (13) a. *fappato* [ɸappato] ‘fragrance spreading’
b. *fararito* [ɸararito] ‘fluttering’

Root-initial voiceless bilabial fricative [ɸ] was analyzed as a new sound-symbolic unit with a more abstract and aesthetic sense of ‘weakness/fragility/elegance’, in opposition to highly iconic [p], which had the sense of ‘tenseness’ or ‘abruptness’ (Hamano 1998, 2000).

Root-initial voiceless bilabial fricative [ɸ] further weakened in the same manner as in the ordinary vocabulary stratum. Hence, we now see many minimal pairs such as the following.

- (14) a. *huka* [ɸuka] ‘being soft’
b. *puka* [puka] ‘floating’
(15) a. *heta* [heta] ‘falling down weakly’
b. *peta* [peta] ‘sticking to a flat surface’
(16) a. *hira* [çira] ‘fluttering elegantly’
b. *pira* [pira] ‘fluttering cheaply’

Thus, in modern Japanese, the voiceless fricative /h/ is largely restricted to root-initial or word-initial position in the mimetic as well as the native vocabulary stratum, as shown in (17).⁶

6. Apparent exceptions to this generalization, such as *goho* ‘sound of coughing’ and *ehen* ‘sound of clearing the throat’ belong to a group of mimetic expressions that have identical vowels throughout and relate to laughter or coughing:

- (i) laughter: *ahaha, ihihi, ehehe, ohoho, uhuhu, wahaha, gyahaha*
coughing: *goho-goho*

These are actually combinations of monosyllabic mimetic roots. This is clear from the fact that, whereas *ahaha* ‘loud laughter’, for instance, can be extended to the right as in *ahahaha*, unambiguously disyllabic mimetic roots do not allow this:

- (17) a. *huN* [ɸun] ‘snorting’ (monosyllabic mimetic)
 b. *hira* [çira] ‘fluttering elegantly’ (disyllabic mimetic)
 c. *hana* [hana] ‘flower’ (native lexical stratum)

Furthermore, in the mimetic system, /h/ is distributed more or less evenly between monosyllabic (18a) and disyllabic (18b) roots:

- (18) a. *hiN*, *huN*, *ha*, *hi*, *hu*, *he*, *ho*
 b. *hita*, *hutu*, *hata*, *hiso*, *huka*, *heto*, *horo*, *hara*, *hira*, *huwa*, *hera*, *hoku*, etc.

This situation seems to have led to the assumption that initial /h/ in modern Japanese has a single historical source. However, the superficially identical distributional pattern of /h/ conceals the critical difference between /h/ in monosyllabic mimetic roots on the one hand and /h/ in disyllabic mimetic roots on the other, to which we will turn next.

3.2.2 *Differences between monosyllabic and disyllabic mimetic roots regarding /h/*

In the mimetic system, the meaning of /h/ differs depending on whether it appears in a monosyllabic or disyllabic mimetic root: /h/ in a disyllabic root adds an evaluative meaning of ‘weakness/elegance’, as we have seen in (14), (15), and (16). This is a meaning that apparently developed in the process of the weakening of bilabials.

The newly developed semantic association was not extended to monosyllabic mimetic roots. In a monosyllabic root, /h/ means ‘respiration/breath/laughter’, as shown in (19).

- (19) *hin* ‘neighing’
hii-hii ‘gasping’
huu ‘breath’
huN ‘snorting’
ha-ha ‘laughing’

It does not have the aesthetically positive sense observed with disyllabic mimetic roots. Clearly, the meaning of /h/ in monosyllabic mimetic roots is grounded in

-
- (ii) *ahaha*, *ahahaha*, *ahahahaha*, etc.
 **kerara* to *warau* ‘(intended) to laugh *kerara*’
 **katiti* to *naru* ‘(intended) to sound *katiti*’

Thus, expressions of laughter and coughing are not really based on disyllabic mimetic roots; they should be analyzed as /a-ha-ha/, /i-hi-hi/, /e-he-he/, etc., essentially combinations of monosyllabic mimetic roots. Consequently, we can say that /h/ is restricted to morpheme-initial position throughout the mimetic system.

the phonetic features of the voiceless fricative /h/; it cannot have been the result of weakened [p].

Consequently, I argue that /h/ has different histories in monosyllabic and disyllabic mimetic roots. I argue that /h/ existed in monosyllabic mimetic roots long before it was added to the native lexical stratum and subsequently to disyllabic mimetic roots as a result of the weakening process.

The opposite view that /h/ did not exist in Japanese at all up to Early Modern Japanese seems to have been assumed since Shinkichi Hashimoto's well-known article on horses' neighing (Hashimoto 1950). Hashimoto argued that the neighing of horses, which had originally been expressed as $\iota \iota i$ or $\iota \iota \iota iN$, began to be recorded as $\cup hi$ or $\cup \iota hiN$ during the Edo period. He argued that this was because the phonetic value of the letter \cup changed from [phi] to [hi] (or more likely [çi]) as a result of the labial weakening (Hashimoto 1950), pointing to the time when [phi] changed to [çi]. This is a reasonable hypothesis as far as the timing of the specific sound change is concerned.

However, in my view Hashimoto erred in equating the absence of a way to express the sound and the actual absence of the sound, when he said "*when the Japanese language did not have [hi]* [emphasis mine], it was natural that they used the letter $\iota \iota i$ to represent horses' neighing because there was no other sound as close as [i] for horses' neighing" (Hashimoto 1950: 49; my translation).

Hashimoto's observation may indeed allow us to establish the time when [phi] changed to [h] or [çi] (if we can verify the exact first recording of horses' neighing with $\cup \iota \iota$.) However, it does not mean that [h] or [çi] did not exist in the mimetic system. I argue that [h] or [çi] existed separately from [p] and [phi] in monosyllabic mimetic roots. Unless their psychological representation of the neighing already contained a sound very similar to [h] or [çi], why would Early Modern Japanese speakers have been motivated all of a sudden to add the weakened reflex of [p] that had the symbolism of 'weakness' and 'elegance' to the clamorous sound of neighing *and* at the same time to appropriate the letter with the new sound value? The gap would have been too great.

Thus, it is more likely that the neighing of horses had been perceived as something close to [hiN] or [çiN] long before the writing system could accommodate the representation of initial /h/, just as /N/ exited with monosyllabic mimetic roots long before it was incorporated into the native stratum and disyllabic mimetic roots.

The above analysis is further supported by the observation of /h/ in expressions of laughter, as reported by Nakazato (2007), and expressions of clearing one's throat and coughing. Nakazato found most expressions of laughter such as (20a) began to appear in the literature for the first time beginning in Early Middle Japanese. As I mentioned in footnote (viii), in my analysis, these consist of repetition of identical

monosyllabic roots, as in (20b); /h/ in these forms is not in tauto-morphic intervocalic position. This pattern persists in present-day Japanese.

- (20) a. *huQ, huhuN, hahahahaha, aha-aha-aha, ihii-ihii-ihiihiihiihi, ehehehehe, wohohohoho, waha-waha, uhahahahaha*
 b. *huQ, hu-huN, ha-ha-ha-ha-ha, a-ha-a-ha-a-ha, i-hi-hi-i-hi-i-hi-hi-hi-hi-hi, e-he-he-he-he, wo-ho-ho-ho-ho, wa-ha-wa-ha, u-ha-ha-ha-ha-ha*

We can add creative modern expressions of laughter such as (21) to the list. They all conform to the same pattern.

- (21) *gya-ha-ha, wa-ha-ha, a-haa, ha-ha-ha, wa-ha-wa-ha, ihi-hi, u-hu-hu, hu-hu, huN, hu-huN, huQ, e-he-he, he-he, ho-ho, o-ho-ho, u-ha-u-ha, u-ha-ha-ha, nya-ha-ha, u-hya-hya*

Expressions such as (20) can apparently be traced back to Early Middle Japanese. In other words, it appears that just as the sound values of ばひへぼ were changing to [ha, çi, he, ho], the representation of laughter with /h/ became prolific in the literature. Here again, it is more likely that the sounds existed before the sound values of the graphemes changed and became available for appropriation.⁷

To summarize, I contend that /h/ in disyllabic mimetic roots and /h/ in monosyllabic mimetic roots have different histories. Having the meaning of ‘respiration’, a phonetically grounded iconic meaning, /h/ probably existed side by side with /p/ in monosyllabic mimetic roots long before it began to appear elsewhere.

Word-initial /p/ changed to [ϕ] in the native stratum, resulting in the change in the sound values of the graphemes ばひふへぼ to [ϕa, ϕi, ϕu, ϕe, ϕo]. This change eventually engendered in disyllabic mimetic roots a new phoneme /ϕ/ with an abstract and aesthetic sound-symbolic meaning of ‘weakness/elegance’, which contrasted with /p/.

Subsequent sound changes added [h, ç] to the native stratum and disyllabic mimetic roots and changed the sound values of ばひふへぼ to [ha, çi, ϕu, he, ho]. The use of these graphemes then spread to monosyllabic mimetic roots, which had already contained [h, ç]. Figure 2 summarizes just the phonetic and sound-symbolic portions of the above changes.

7. One apparent exception is ぼぼ, a description of laughter found in various Early Middle Japanese collections of stories such as *Ochikubo Monogatari*, *Utsubo Monogatari*, and *Eiga Monogatari*. However, Komatsu (1981) convincingly argues that this was a reduplicated form of [po], similar to present-day *puQ*, which means ‘bursting (into laughter)’. Hence, this is not a counter-example to the claim that expressions of laughter containing /h/ only started to appear in documents about the same time as the expression of horses’ neighing did.

		Old Japanese	Middle Japanese	Modern Japanese
Mimetic Stratum	Monosyllabic Roots	/p/ → 'explosion of a tense surface' →		
		/h/ → 'respiration' →	/h/ [h ~ ç ~ φ] →	
	Disyllabic Roots	root-initial /p/ [p] → 'tense surface' →		
		root-initial /φ/ [φ] → /h/ [h~ ç ~ φ] → 'weakness/elegance' →		
Native Stratum		word-initial /p/ [p] → /φ/ [φ] → /h/ [h~ ç ~ φ] →		

Figure 2. Development of /h/

The contrast between monosyllabic and disyllabic mimetic roots thus played a significant role in the development of /h/ in the mimetic system. Disyllabic mimetic roots acquired /h/ in close interaction with the native lexical stratum; /h/ in monosyllabic mimetic roots was unaffected.

4. Implications for cross-linguistic discussions of mimetics

Japanese lexicon is often classified into four strata: native, Sino-Japanese, (Western) loanwords, and mimetic. However, it is also important to separate monosyllabic and disyllabic mimetic roots within the mimetic stratum. Monosyllabic mimetic roots are at one end of the iconicity continuum (Akita 2013), distinct from disyllabic mimetic roots. They are less constrained by structural properties of Japanese in general. Disyllabic mimetic roots, on the other hand, are more linguistically and language-specifically constrained. They share many structural properties with native lexical items. This chapter has shown that the contrast has also been significant diachronically.

In this remaining section I explore some implications of the present study for cross-linguistic discussions of mimetics. Here and there above, I have asserted the universality of monosyllabic mimetic roots of the type CV and CVN as opposed to disyllabic mimetic roots. When trying to extend this dichotomy between monosyllabic and disyllabic mimetic roots beyond Japanese, we should expect the dichotomy to turn up differently depending on the allowable syllable structures of each specific language. For instance, the Korean counterpart of the Japanese disyllabic root template seems to be CV(C)CVC (Iwasaki et al. 2013). In other languages,

however, CV and CVN roots may contrast with CVC roots with a non-nasal coda. Regardless of what they may contrast with, CV and CVN roots will occupy the more iconic end in any language, and the properties of Japanese monosyllabic mimetic roots will most likely be shared by many languages.

The contrast between the universality of monosyllabic mimetic roots and the language-specificity of more complex mimetic roots is observed in experimental contexts, too. Iwasaki et al. (2013) report that, when prompted by identical cues, speakers of Japanese and Korean produce similar monosyllabic mimetic forms but dissimilar disyllabic mimetic forms.

The current study also suggests that monosyllabic mimetic roots should have a long stable history in many languages. In the case of Japanese, /N/ and /h/ in monosyllabic mimetic roots trace their history back to the time long before they began to appear in association with disyllabic mimetic roots. Their meanings have also been stable. This would certainly have cross-linguistic implications.

The universality and stability of monosyllabic mimetic forms also find developmental correlates in the manner children acquire mimetic expressions. Japanese children begin to use monosyllabic mimetic roots before they begin to use unambiguously-disyllabic mimetic roots. Kimi Akita (personal communication) points out that the child in Noji (1973–1977) acquired monosyllabic mimetic roots before disyllabic mimetic roots. Forms such as (22) also abound in the speech of the young child in the Ishii corpus at CHILDES (Ishii 1999).

- (22) a. *nyaN-nya* ‘meow’, *waN-waN* ‘bow-wow’, *buu-buu* ‘automobile sound’
(1 year and 7 months)
b. *ko-koN* ‘railroad crossing alert sound’ (1 year and 10 months)

Naturally, such monosyllabic phonomimes will be found widely across languages and remain stable over time.

In contrast to universally motivated monosyllabic mimetic roots, disyllabic mimetic roots are expected to be learned more like ordinary vocabulary items.

Given this language-specific nature of disyllabic mimetic roots in Japanese, their structural stability over millenniums is somewhat surprising. Even though specific disyllabic roots may have undergone semantic and phonological changes or gone out of use, documentations of mimetic forms clearly show that the disyllabic root template with the peculiar semantic differentiation of consonantal positions that we observed in Section 2.1 has remained intact at least since Old Japanese.

Furthermore, preliminary research indicates that Ryukyuan mimetic roots are also divided into monosyllabic and disyllabic mimetic roots. Ryukyuan is the other member of the Japonic language family to which mainland Japanese belongs. Ryukyuan disyllabic mimetic roots have characteristics remarkably similar to

disyllabic mimetic roots in mainland Japanese dialects. Below I give some examples from Okinawan, one member of Ryukyuan spoken around Naha.

- | | | | |
|------|---------------------|------------|------------------------------|
| (23) | Okinawan | | Japanese |
| | <i>kwata-kwataa</i> | 'boiling' | <i>gutu-gutu</i> 'boiling' |
| | <i>nuura-kwaara</i> | 'slimy' | <i>nuru-nuru</i> 'slimy' |
| | <i>sikai-tu</i> | 'securely' | <i>sikkari-to</i> 'securely' |

Such correspondences naturally lead to the hypothesis that the same disyllabic mimetic template existed long before Ryukyuan and Japanese split. This takes us back to the 3rd century or before according to Pellard's (2015) proposal concerning the timing of the split. The disyllabic mimetic template then may be considered a defining characteristic of the Japonic language family.

Credible evidence has not been presented about the Japonic language family's relationships with other world languages. Matsumoto (2007) argues that reconstruction of genetic relationships between the Japonic family and other world languages based on cognates is not feasible because the split must have happened more than 6000 years ago and most true cognates must have disappeared long ago. What he suggests instead as a more promising method for reconstruction of genetic relationships is to utilize stable structural characteristics that are not predictable typologically. Needless to say, the existence of similar monosyllabic mimetic roots in separate languages is no proof of their common ancestral origin because they are more naturally motivated and universal. By contrast, disyllabic mimetic roots are more language-specific. Will they not fit the bill for a structural property that is not predictable typologically?

Can we then hope to find a language beyond the Japonic family that exhibits a similar disyllabic mimetic template or maybe a CVC template in which a non-nasal syllable-final consonant consistently symbolizes the nature of movement rather than the tactile nature of an object? Conversely, would there be a language in which a CVCV or CVC template shows exactly the opposite of the Japonic family semantic configuration so that we can say that the ordering is not iconically motivated?⁸ These questions are of course beyond the scope of this chapter. However, raising such questions may provide principled guidelines in cross-linguistic comparisons.

8. In this respect, it is intriguing that Iwasaki et al. (2013) report that Korean and Japanese speakers use the same segments in reverse order in describing a door closing and a splash. Also, Korean vocalic size symbolism is a cross-linguistic exception (Kim 1977; Garrigues 1995). Would these facts suggest that notwithstanding their typological similarities in syntax, these two languages carry different sound-symbolic undercurrents?

Finally, this chapter's main claim that the distinction between monosyllabic and disyllabic root templates has been relevant diachronically also has evolutionary implications. That is, language evolution could have proceeded from less analytical and more imitative monosyllabic mimetic forms to more compositional and language-specifically constrained sound-symbolic forms. From this perspective, also, it is hoped that similar structural layering of sound-symbolic phenomena will be identified in other languages rich in sound-symbolic vocabulary.

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Cross-linguistic variation in phonaesthetic canonicity, with special reference to Korean and English

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This study compares the canonicity values of Korean paradigmatic phonaesthemes (e.g., *peŋpeŋ*: *p^heŋp^heŋ* ‘a neutral: stronger and more violent motion of circling’; *piŋkil*: *p^heŋkil* ‘twirling of a bigger: smaller object’) and of English non-paradigmatic phonaesthemes (e.g., *gl-* ‘vision, light’ in *glisten*, *glitter*, *gleam*, *glow*). Measured against Kwon and Round’s (2015) seven canonical criteria for phonaesthemes, it reveals that they are differentiated only in terms of the strict restriction of one meaning per form. The contribution of the current canonical analysis of variations in phonaesthetic phenomena is twofold: (i) it empirically clarifies the relationship between English and Korean phonaesthemes; and (ii) it demonstrates the utility of the proposed canonical criteria for phonaesthemes, for cross-linguistic comparisons of phonaesthetic phenomena.

1. Introduction

Phonaesthemes are recurrent sound-meaning pairings (Firth 1930: 184–185). Two representative types of phonaesthemes are those that consist of multiple segments phonotactically, as shown in the English examples in (1), and those that consist of oppositions between multiple phonological units paradigmatically, as shown in the Korean examples in (2a)–(2b).

- (1) *gl-* ‘vision, light’ *glisten*, *glitter*, *gleam*, *glow*, *glint*, *gloss*, etc.
-ash ‘hit, fragments’ *ash*, *bash*, *dash*, *clash*, *mash*, *crash*, *smash*, etc.

(Bolinger 1950: 132–133)

- | | | |
|--------|--|--|
| (2) a. | high: low vowel
<i>piŋkil: pɛŋkil</i> ¹ | ‘augmentative: diminutive’
‘twirling of a bigger: smaller object’ |
| b. | lenis: fortis: aspirated obstruent
<i>piŋ-piŋ: pʰiŋ-pʰiŋ: pʰiŋ-pʰiŋ</i> | ‘neutral: intensive: paraintensive’
‘a neutral: stronger: strongest motion of circling’ |
- (McCarthy 1983; Kwon 2015)

The prevalence of one type of phonaestheme over another is language-specific. For example, all Korean phonaesthemes are paradigmatic but the majority of English phonaesthemes are singleton.² Despite such cross-linguistic variations to the phonaesthetic phenomenon, research on the characterizations of the diverse range of phonaesthetic data across languages has been sparse. Indeed, most previous phonaesthetic studies have been preoccupied by behavioral or corpus-based investigations of English phonaesthemes in the domain of iconicity (Hutchins 1998; Parault 2006; Parault and Schwanenflugel 2006; Otis and Sagi 2008; Abramova et al. 2013; Kwon 2016; cf. Abelin 1999).

Given this, the current study aims to conduct theoretical comparisons of the properties of English non-paradigmatic versus Korean paradigmatic phonaesthemes resorting to a logically coherent typology of phonaesthemes. The conceptual methodology used for this purpose is the framework of Canonical Typology (Corbett 2003, 2005, 2007, 2010, 2015, etc.). Within the framework, I assess several instances of Korean paradigmatic phonaesthemes, based on vowel or consonant quality, against multiple scales along which the properties of instantiations of phonaesthemes across languages could be calibrated. The scales (referred to as canonical criteria in the framework) are adopted from Kwon and Round’s (2015) study on English phonaesthetic canonicity. I then compare the locations of individual Korean phonaesthemes with those of English phonaesthemes along the scales and define their relative canonicity values. The current multi-dimensional cross-linguistic comparisons are laid out across the logical theoretical space of possibilities (i.e., canonical base) for phonaesthemes, which Kwon and Round (K&R, henceforth) specified by a minimal description of the phenomenon as “a sound-meaning pairing which occurs as part of a lexical stem” (p. 11).

This chapter is organized as follows. Section 2 describes the essential components of Canonical Typology and provides a detailed summary of K&R’s study,

1. Following Larsen and Heinz (2012), Korean expressions, including linguistic examples, are presented in this paper through a one-to-one transliteration from Korean spelling to IPA symbols (one-to-zero in the case of the null onset symbol).

2. Only a few English phonaesthemes have the shape of syllabic nuclei, such as *-i-*, *-o-* in *drip*, *drop*; *ding*, *dong*; *tick*, *tock* (Firth 1930: Chapter 6; Marchand 1969: 426–427; Kwon and Round 2015; cf. Zingler 2017).

which identifies a set of logically consistent criteria for phonaesthetic phenomena. Section 3 introduces Korean paradigmatic phonaesthemes and Section 4 delineates the scope of Korean data that undergo canonical analysis. The canonicity values of Korean phonaesthemes obtained through measurements against phonaesthetic canonicity are provided in Section 5. Implications of the comparisons of the canonical analyses of Korean and English phonaesthemes appear in Section 6, where I propose a coherent place for them in the domain of phonaesthetic phenomena and discuss avenues for further enquiry. Conclusions are presented in Section 7.

2. Canonical Typology

As in Daniel Jones' (1956) cardinal vowel quadrilateral, which enables the plotting of different vowel sounds against the cardinal vowel reference points (Brown et al. 2012), Canonical Typology enables the calibration of individual instances of phenomena against multiple reference scales ('canonical criteria'), developed from the logically maximal definition of the phenomena ('canonical core'). Canonical core and canonical criteria are accommodated within a theoretical space of possibilities ('canonical base'), which is defined by a minimal description of the phenomena.

2.1 Essential components of the framework: base, core, and criteria

As briefly mentioned above, taking a canonical approach to typology essentially involves the establishment of the base, canonical core, and criteria (Brown and Chumakina 2013). The base is a broad approximation of the domain of investigation. It characterizes the necessary properties of a target linguistic phenomenon, and encompasses both canonical and non-canonical instances of the phenomenon (Bond 2013). This broad theoretical space of possibilities, which may overlap with other domains, is given a multi-dimensional internal structure by several canonical criteria. The criteria are projected from the canonical core, which is the clearest, best and indisputable instance of the phenomenon (Corbett 2005). The canonical core is a linguist's ideal theoretical construct, and is based on generalizations from "what we have already observed" to "what could exist in principle" (Brown et al. 2012: 235–236). The canonical core (= logically maximal endpoint of a phenomenon) can be compared to the system of cardinal vowels, which provides anchoring points for a vowel space, as in Figure 1. The vowel space, within which different vowels are calibrated from the cardinal vowels, is analogous to the canonical base (= theoretical space of possibilities), where several occurring instances of a linguistic phenomenon are calibrated out from multiple canonical criteria (Baerman and Corbett 2012; Brown et al. 2012; Corbett 2010).

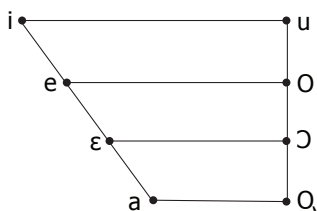


Figure 1. Cardinal Vowel chart

(Adopted from http://www.phonetics.ucla.edu/course/chapter_9/cardinal/cardinal.html)

In sum, Canonical Typology³ is useful to calibrate various instances of a phenomenon against consistent criteria (= dimensions) and to find their appropriate locations within the space of possibilities. The core machinery of Canonical Typology is therefore to provide a metalanguage for intra- and inter-linguistic comparisons of the variations in a phenomenon in a logically consistent way.

2.2 Previous study on phonaesthetic canonicity: Kwon and Round (2015)

With an aim of clarifying the relationship between phonaesthemes and other stem-building morphology in a principled way, K&R firstly defined the canonical base for phonaesthemes (p. 11) using a minimal description of phonaesthetic phenomena, namely, that “[a] phonaestheme is a sound-meaning pairing which occurs as part of a lexical stem”.⁴ They then identified the canonical core for phonaesthemes, as in (3) below, to fix the logical endpoint of the broad domain of phonaesthetic phenomena.

- (3) The most canonical phonaesthemes are:
- a. sound-symbolic pairings of sound and meaning; and
 - b. identifiable by virtue of their frequent occurrence in the lexical stems of a language.

Stems containing the most canonical phonaesthemes:

- c. have a transparent, bipartite formal composition; and

3. For an extensive bibliography of the utility of the framework for intra- and cross-linguistic investigations in various areas, ranging from inflectional and derivational morphology (e.g., Corbett 2007; Kwon 2017) to phonology (Hyman 2012), refer to <http://www.smg.surrey.ac.uk/approaches/canonical-typology/>

4. This broad definition of phonaesthemes covers derivational morphemes as well as canonical and non-canonical cases of phonaesthemes.

- d. are comprised of the phonaestheme, plus a ‘residue’ which does not recur as a sound-meaning pairing elsewhere in the lexicon (K&R: 11)⁵

The core describes the characteristics that ideal phonaesthemes should possess, based on broad agreements regarding the clearest examples of a phonaesthetic phenomenon among the previous phonaestheme literature (Bergen 2004; Bolinger 1950, etc.). The multiple characteristics of the canonical core for phonaesthemes project several canonical criteria, as shown in (4) (p. 13):

- (4) Criteria for the canonicity of phonaesthemes (A > B indicates A is more canonical than B):
- Criterion 1 The phonaestheme occurs in many lexical stems > in few
 - Criterion 2 It occurs in many parts of speech > in few
 - Criterion 3 It is strongly image-iconic > weakly > not image-iconic
 - Criterion 4 Its form is paired with only one meaning > with many
 - Criterion 5 Its meaning is paired with only one form > with many
 - Criterion 6 It combines only with non-recurring residues > also with recurring residues > is able to occur alone
 - Criterion 7 It combines agglutinatively with residue > non-agglutinatively

The core property characterized as ‘the frequent occurrence of phonaesthemes’ (3b) is reflected in Criterion 1 (‘frequency among lexical stems’) and Criterion 2 (‘frequency among parts of speech’). The property corresponding to ‘sound-symbolic sound-meaning pairings’ (3a) is figured in Criterion 3 ‘image iconicity’ (i.e., one-to-one resemblance between sound and meaning), Criterion 4 ‘one meaning per form’ (i.e., no polysemy), and Criterion 5 ‘one form per meaning’ (i.e., no homonymy). The core characteristics of the phonaesthetic stems (3d) and (3c) are reflected in the remaining criteria, i.e., Criterion 6 ‘non-recurrent residue’ and Criterion 7 ‘transparency of form’, respectively. The criteria define dimensions in the canonical base, where several occurring types of phonaesthemes receive multi-dimensional evaluation. In general, canonical criteria have binary canonical and non-canonical ends. However, the framework can allow multiple points of distinction along dimensions if necessary (Brown et al. 2012: 236), as exemplified in Criteria 3 and 6 in (4) above.

Using the seven criteria, K&R accounted for the variability of their phonaesthetic data, predominantly drawn from English (see details in Section 5). For example, measured against Criterion 1, K&R showed that the phonaestheme *cl-* ‘denoting

5. K&R (Section 7.4) argued that Rhodes and Lawler’s (1981) claims about the possibility that many phonaesthetic words could be exhaustively decomposed into phonaesthemes contain a ‘p-hacking’ problem.

sound' is more canonical than the phonaestheme *spr-* 'spread' in terms of its frequency among stems – *cl-* occurs in many lexical stems, including *cluck*, *click*, *clap*, *clack*, *clash*, *clutter*, *clang*, *clank*, *clamber*, *clamour*, *clam*, *clump*, *clip* (Marchand 1969: 410), whereas *spr-* occurs in relatively few stems (e.g., *spout*, *spread*, *spring*, *sprawl*, *sprinkle*). For a summary of the result of the canonical analysis pertaining to non-paradigmatic English phonaesthemes and the relevant examples for each criterion (if any), see Table 1 below.

Table 1. Canonicity values of non-paradigmatic English phonaesthemes relative to the seven canonical criteria for phonaesthemes

Criterion	Canonicity values	
	Canonical	Non-canonical
1	✓ <i>cl-</i> 'denoting sound'	✓ <i>spr-</i> 'spread'
2	✓ <i>gl-</i> 'visual salience of activity'	✓ <i>-ask</i> (no definition given)
3	✓ <i>-ng</i> 'resonant sounds'; ✓ <i>-nk</i> 'resonant sounds cut short'; ✓ <i>-ck</i> 'abruptly terminating sounds'	✓ <i>gl-</i> 'visual salience of activity'
4	✓ <i>tr-</i> 'tread'	✓ <i>sl-</i> 'falling or sliding' 'a falling blow' 'slimy/slushy matter'
5	✓ <i>sw-</i> 'swing, sway'	✓ <i>cl-</i> 'grasp'; <i>gr-</i> 'grasp'
6	✓ Almost all	✓ <i>-owl</i> 'sinister'
7	✓ Almost all	✓ <i>sp_t</i> 'a rush of liquid'

One of the contributions of K&R's study is that they teased apart the multi-dimensional variability of individual English phonaesthemes (e.g., *gl-* is canonical when measured on Criteria 2 and 6 but non-canonical measured on Criterion 3 in Table 1). A remaining question to be answered is whether their broad typological context of phonaesthemes is indeed utilizable for cross-linguistic comparisons. To seek an answer, I now proceed to the measurements of the canonicity values of Korean phonaesthemes, using K&R's seven criteria for phonaesthemes. Korean phonaesthemes are chosen as targets for comparisons with English phonaesthemes for examination of the nature of the two representative types of phonaesthemes across languages – non-paradigmatic and paradigmatic phonaesthemes (K&R: 23).

3. Overview of Korean phonaesthemes in ideophones

Ideophones are a class of words that depict sensory imagery, such as sounds, movements, visual or tactile experiences, or mental states (Dingemanse 2012; Dingemanse et al. 2015). Cross-linguistically speaking, ideophonic stems can often be structurally analyzed as containing phonaesthemes, particularly phonaesthemes arranged into paradigms (Blust 1988: 37–45; Dingemanse et al. 2015; Tufvesson, 2011). For example, Japanese ideophones, in which initial voicing contrast is systematically associated with contrastive weight/size/intensity connotations (e.g., *gira-gira* ‘glaring’ vs. *kira-kira* ‘twinkling’) (Hamano 1998), can be analyzed as having paradigmatic phonaesthemes based on voicing.

Similarly, Korean ideophones can be analyzed as having paradigmatic phonaesthemes based on vowel and/or consonant qualities; typical Korean ideophones, such as *pipi* vs. *pepe* ‘a state of bigger vs. smaller things being entwined’, alternate vowels of different height to evoke different perceptual connotations in size-related concepts. They also often mutate three different laryngeal settings of the obstruents to connote different degrees of intensity (e.g., *piŋ-piŋ* vs. *p’iŋ-p’iŋ* vs. *p^hiŋp^hiŋ* ‘a neutral vs. strong vs. strong and violent motion of circling’). Adopting the autosegmental theory of morphology, McCarthy (1983) argued that the phonaesthemes based on the three different laryngeal settings of syllable-initial obstruents, lenis, fortis, and aspirated, in Korean ideophones are composed of different values of distinctive features ([±stiff vocal cords (v.c.)] and [±spread glottis (gl.)]). The specific values of [stiff v.c.] and [spread gl.] become autosegmentally associated with the phonologically unspecified consonant slots in ideophones and, consequently, evoke connotational differences in intensity of perceptual core meanings. Likewise, the paradigmatic phonaesthemes based on vowel quality are composed of different values of the feature [±low].⁶ The specific values of [low] are linked to the empty vowel slot of *pVŋkil* ‘twirling of an object’ in (2a) by autosegmental association, and produce designated connotational shifts (e.g., size of the referent) relative to a core, perceptual meaning. On this basis, McCarthy (1983) coined a special term for the paradigmatic phonaestheme, ‘feature-sized morpheme’, by positing that “a morpheme can consist of as little as a single phonological distinctive feature, while morphemes composed of segments (as in the familiar languages) are a special case in which the feature bundles happen to be fully specified” (p. 137).

6. This tongue-height-based phonological feature serves as only a rough distinguisher of the two Korean paradigmatic vowel sets, semantically referred to as dark and light. The dark and light vowel sets are not natural classes that can be clearly distinguished by a distinctive feature in a synchronic term (Kwon, to appear).

Within this autosegmental theory, which attends to the underlying form of the phonaestheme, paradigmatic phonaesthemes allow the exhaustive decomposition of an ideophonic stem. In detail, the underlying form of a paradigmatic phonaestheme, namely a feature-sized morpheme, corresponds to several closely related meanings, as shown in (5) and (6). Its multivalent residues, such as *pVŋkil* in (2a) and *PiŋPiŋ* (capital letter indicates consonant slot unspecified for laryngeal features) in (2b), arguably also correspond to perceptual, core meanings.⁷

- (5) [-low] ‘darkness, heaviness, dullness, slowness, deepness, and thickness’
 [+low] ‘brightness, sharpness, lightness, smallness, thinness, and quickness’
 (Sohn 1999: 96)
- (6) lenis [-stiff v.c., +spread gl.] ‘slowness, gentleness, heaviness, and
 bigness’
 fortis [+stiff v.c., -spread gl.] ‘compactness, tightness, hardness,
 smallness, and extra swiftness’
 aspirated [+stiff v.c., +spread gl.] ‘flexibility, elasticity, crispness, and
 swiftness’ (Sohn 1999: 97)

Such compositionality, however, does not occur when attending to the surface form of a paradigmatic phonaestheme. For example, a phonaestheme based on vowel quality constitutes one or more phonological features, which can produce various surface forms, depending on the pre-specified feature, such as [front], [back], and [round] for the vowel slots in the templates (see Table 2 below). Therefore, one cannot point to individual segments that belong entirely to the phonaestheme. On the other hand, in an underlying manner, one can say that a certain feature belongs to it.

Table 2. Underlying and surface forms of Korean phonaesthemes

	Underlying form	Surface form
Phonaesthemes based on vowel quality	[-low]	[i], [i], [ə], [u]
	[+low]	[ɛ], [a], [o]
Phonaesthemes based on consonant quality	[-stiff v.c., +spread gl.]	[p], [t], [k], [s]
	[+stiff v.c., -spread gl.]	[pʰ], [tʰ], [kʰ], [sʰ]
	[+stiff v.c., +spread gl.]	[pʰ], [tʰ], [kʰ]

Crucially, this indicates that the surface form of a paradigmatic phonaestheme cannot be accommodated within the canonical base for phonaesthemes in Section 2.2 – “A phonaestheme is a sound-meaning pairing which occurs as part of a lexical stem”. Since the canonicity of the surface form of Korean phonaesthemes is not

7. They are considered as multivalent residues rather than phonaesthemes because they do not have a recurrent meaning in the lexicon outside of their phonaesthemic paradigms.

measurable by K&R's seven canonical criteria for phonaesthemes, which construct the internal structure of the canonical base for phonaesthemes, I measure the canonicity of their underlying forms only in the following sections.

4. Data

In order to examine various instances of Korean phonaesthemes, I consulted a written corpus of 29,015 Korean ideophones, which was developed during the compilation of *ph^hjocunkukatesacən* 'the Great Dictionary of Standard Korean' (The National Institute of the Korean Language 2001). Regarding the accuracy of the corpus, it has a few limitations, as the distributor of the corpus has admitted. Firstly, it does not provide an exhaustive list of Korean ideophones. I did not make any modifications to the list, in order to allow its straightforward use in future replication studies (cf. Larsen and Heinz 2012). Secondly, not all items in the corpus are irrefutably ideophonic according to the dictionary's own definition of ideophones. Some words do not satisfy the semantic criteria of Korean ideophones specified in the compilation guidelines for the Great Standard Korean Dictionary.⁸ That is, their meanings do not contain any of the following phrases: 'the sound of ...', 'the sound made when conducting the action of ...', 'the shape/way of ...', 'the state of ...', or 'the feeling of ...' in word-for-word translations.⁹ Nevertheless, they were included in the corpus because they exhibit the systematic vowel and consonant alternations correlating with certain connotation shifts, as most ideophones do (e.g., *kak'ulo* 'upside down' vs. *kək'ulo* 'a big object being upside down'; *kapcaki* 'suddenly' vs. *kipcaki* 'very suddenly').¹⁰ Lastly, the corpus contains multiple variants of a single underlying ideophonic stem that are derived by reduplication or by the attachment of a verb/copula, *-hata* 'do, be', or verbal suffix, *-kəlita* or *-teta* 'keep doing'. For example, it contains four variants built on *katuŋ* 'swaying one's

8. http://www.korean.go.kr/front/reportData/reportDataView.do?report_seq=56&mn_id=45

9. While there are several prototypical characteristics of ideophones (e.g., productive reduplication, semantic specificity, deviant phonotactics, etc.), none of them serve as consistent criteria for a clear-cut delimitation of an ideophonic category (Childs 1994; Hamano 1998; Dingemanse 2012). Indeed, a definitional ambiguity regarding what are ideophones and what are not has been a longstanding issue in ideophonic studies across languages. Acknowledging a need for a thorough future investigation of the characterization of the ideophonic category, this study only provisionally adopts a traditional semantics-based definition for Korean ideophones that are sub-classified into onomatopoeic (i.e., *ijsəŋə*) and cross-modal (i.e., *ijteə*) items. A proper categorization of ideophones is not a primary concern of this paper.

10. The sound-symbolic alternations are distinctive characteristics of ideophones but they are not exclusive to the ideophonic lexicon (Lee 1992: 138; see also Ultan 1978; Woodworth 1991).

hips' – *katuŋ-katuŋ*, *katuŋ-katuŋ-hata*, *katuŋ-kəlita*, *katuŋ-teta*. For simplicity, I retained bipartite lexical stems only (e.g., *katuŋ*) and discarded their derivatives (e.g., *katuŋ-katuŋ*, *katuŋ-katuŋ-hata*, *katuŋ-kəlita*, *katuŋ-teta*) in the dataset. The extracted bipartite lexical stems amounted to 2,745 ideophones, 449 prosaic words, and 53 interjections, totaling 3,247. Of those, 445 items were labeled as North Korean forms (e.g., *kapsak* 'bowing lightly' vs. *kapsək* '...deeply'). In order to limit the data to forms from one dialect, I eliminated those items from the dataset. Other forms that were eliminated are:

- (a) 27 forms that had no entries in the Great Dictionary of Standard Korean.
- (b) 49 forms that were defined as erroneous forms of other existing items. For example, *kaŋcoŋ* and *k'aŋc'oŋ* were reported to be mistakes of *kaŋcuŋ* 'jumping with short legs' and *k'aŋc'uŋ* 'strong jumping with short legs', respectively, in the dictionary. The erroneous forms were removed, but all of their correct correspondents were retained in the dataset.

Consequently, a total of 2,626 forms, consisting of 2,235 ideophones, 442 prosaic words, and 49 interjections, remained as data for canonical analysis.

5. Canonical analysis of Korean paradigmatic phonaesthemes

For the assessment of Korean phonaesthemes within the framework of Canonical Typology, I chose to establish a canonical core uniquely for the underlying forms of a paradigmatic phonaestheme, by assuming that the canonical underlying forms of a paradigmatic phonaestheme may be different from the canonical surface forms of non-paradigmatic phonaesthemes. Previous studies on paradigmatic phonaesthetic units (McCarthy 1983; Silverstein 1994; Diffloth 1994; Tufvesson 2011; Kwon 2015) indicate that a canonical core for the underlying form of paradigmatic phonaesthemes contains the characteristics shown in (7).

- (7) A characterization of the canonical core for the underlying forms of paradigmatic phonaesthemes:

The most canonical underlying forms of paradigmatic phonaesthemes are:

- a. sound-symbolic pairings of form and meaning; and
- b. identifiable by virtue of their paradigmatic alternation in the ideophonic stems of a language.

Stems containing the most canonical underlying forms of paradigmatic phonaesthemes:

- c. have a transparent, bipartite composition; and
- d. are comprised of the phonaestheme, plus a 'residue' that is not an isolate, but which recurs as a sound-meaning pairing in its paradigm.

Non-canonical instances of the underlying form of a paradigmatic phonaestheme may violate at least one characteristic in (7a)–(7d), although they always constitute a pairing of sound and meaning and contribute to the composition of a lexical stem. This defines a broad description of the underlying form of a paradigmatic phonaestheme as a sound-meaning pairing which occurs as part of a lexical stem. Crucially, the canonical base for the underlying forms of paradigmatic phonaesthemes overlaps with the canonical base for the surface forms of non-paradigmatic phonaesthemes, (described in Section 2.2). The fact that the two types of phonaesthemes share the same base enables the assessment of Korean phonaesthemes against K&R's criteria, which construct the internal structure of the base for the surface forms of non-paradigmatic phonaesthemes, in the following sub-sections.

5.1 Frequency among lexical stems

Criterion 1: Occurs in many lexical stems > in few

Criterion 1 states that if a phonaestheme recurs in many lexical stems, it is more canonical than if it recurs in few. With respect to Criterion 1, the vocalic phonaestheme correlated with a connotational contrast in the size of the referent is considered canonical, since it recurs across many stems (277 pairs), as in (8).

- (8) [–low]: [+low] ‘large: small’
- | | |
|-------------------------|--|
| <i>talkək: talkak</i> | ‘sound of big: small objects clinking against each other’; |
| <i>tʻəŋ: tʻaŋ</i> | ‘sound of a big: small metal clinking’; |
| <i>kintək-: kantak-</i> | ‘a big: small object swaying’; |
| <i>kʻumpək: kʻampak</i> | ‘big: small eyes blinking’; |
| <i>kʻulləŋ: kʻolləŋ</i> | ‘liquid sloshing inside a big: small bottle’; |
| <i>nəpʰəl-: napʰal-</i> | ‘a big: small cloth fluttering’; |
| <i>tekul-: tekul-</i> | ‘a big: small object rolling’; |
| <i>teŋkaŋ: teŋkaŋ</i> | ‘a big: small object being cut off’; |
| <i>tuy: toŋ</i> | ‘sound of a big: small drum’; |
| <i>tuyčʰi-: toŋčʰi-</i> | [prosaic] ‘bind up a big: small object’, etc. |

A less canonical phonaestheme is the vocalic phonaestheme correlated with a connotational contrast in pejoration. Its occurrence is limited to only few prosaic stems (13 pairs; cf. Lee 1992: 106), as in *pucilən-: pajilən-* ‘diligent: ...even for small matters’ and *kʻəpcil: kʻəpcil* ‘cover: detesting cover’.

Regarding English phonaesthemes, they also have differing levels of canonicity with respect to Criterion 1, according to K&R's study (p. 13); *cl-* ‘denoting sound’ in *cluck, click, clap, clack, clash, clutter, clang, clank, clamber, clamor, clam, clump, clip* is more canonical than *spr-* ‘spread’ in *sprout, spread, spring, sprawl, sprinkle*. This indicates that Criterion 1 groups English and Korean phonaesthemes together, as summarized in Table 3.

Table 3. Canonicity values of English and Korean phonaesthemes relative to Criterion 1 (C = canonical, NC = non-canonical)

English phonaestheme		Korean phonaestheme	
C	NC	C	NC
✓ <i>cl-</i>	✓ <i>spr-</i>	✓ [-low]: [+low] 'large: small'	✓ [-low]: [+low] 'neutral: pejorative'

5.2 Frequency among parts of speech

Criterion 2: Occurs in many parts of speech > in few

Criterion 2 states that canonical phonaesthemes are frequently attested among many parts of speech. Korean ideophonic stems are generally realized as adverbs (Larsen and Heinz 2012; Martin 1962; Sohn 1999: 101) but most of them can combine with various class-changing suffixes. As a result, paradigmatic phonaesthemes occurring inside ideophonic stems can be found across many parts of speech (Lee 1992: 93). For example, they are attested in verbs, when ideophonic stems combine with the verbal suffix *-kərita* 'keep doing' (e.g., *piŋkil-*: *peŋkil-kərita* 'a big: small object keeps twirling'), in adjectives, with the attachment of *-hata* 'be' (e.g., *t'unt'unt-:* *t'ont'ont-hata* 'tall: short and chubby'), and in nouns, with the attachment of *-i* 'something/someone that produces that manner' (e.g., *t'unt'unt-:* *t'ont'ont-i* 'a tall: short and chubby person'). The morphosyntactic processes (such as suffixation) that can alter ideophonic stems into many other parts of speech, however, are excluded from current consideration, since I have limited discussion to bipartite lexical stems in Section 4. Nevertheless, the occurrences of Korean phonaesthemes among different parts of speech are still observed. That is so because, as mentioned in Section 4, a restricted number of prosaic (i.e., non-ideophonic) stems can be analyzed as containing phonaesthemes arranged into paradigm. For example, the consonantal phonaesthemes correlated with a connotational contrast in intensity¹¹ occur not only in an adverbial ideophone (e.g., *kaŋcuŋ:* *k'aŋc'unt'unt* 'jumping: ... strongly'), but also in a verb stem, *tutil-:* *t'util-* 'to knock: ... strongly', an adjectival stem, *tantan-:* *t'ant'an-* 'hard: ... to a great degree', an interjection, *eki:* *ek'i* 'Ugh!: ... [emphatic]', and a noun, *kasi:* *k'asi* 'thorn: (stinging) thorn' [colloquial]. This indicates that the phonaestheme [-stiff v.c., +spread gl.]: [+stiff v.c., -spread gl.] 'neutral: intensive' is highly canonical with regard to Criterion 2. A less canonical instance includes the

11. Intensification (increase of degree) involves the meanings "something is performed with greater energy" (Moravcsik 1978: 321) or "possessing a property to a greater degree" (Uspensky 1972: 69).

vocalic phonaestheme correlated with a connotational contrast in terms of the distance to the speaker, since it appears only in deictic terms, such as *cə-*: *co-* ‘that: ... (closer to speaker)’. In sum, with respect to Criterion 2, Korean phonaesthemes possess both canonical and non-canonical examples.

The same applies to English phonaesthemes. K&R (p. 14) showed that, measured against Criterion 2, *gl-* ‘visual salience of activity; darkness or ponderous activity’ occurs across multiple parts of speech, including nouns (e.g., *glass*, *glimmer*, *glimpse*, etc.), verbs (e.g., *gleam*, *glisten*, etc.), and adjectives (e.g., *glum*). Thus, it is more canonical than *-ask* ‘(no definition given)’, which appears only in nouns (e.g., *cask*, *flask*). Altogether, as with Criterion 1, Criterion 2 groups Korean and English phonaesthemes together, as represented in Table 4.

Table 4. Canonicity values of English and Korean phonaesthemes relative to Criterion 2 (C = canonical, NC = non-canonical)

English phonaestheme		Korean phonaestheme	
C	NC	C	NC
✓ <i>gl-</i>	✓ <i>-ask</i>	✓ lenis: fortis ‘neutral: intensive’	✓ [-low]: [+low] ‘neutral: proximal’

5.3 Image iconicity

Criterion 3: Is strongly image-iconic > weakly > not image-iconic

Phonaesthemes are often discussed within the domain of iconicity (Perniss et al. 2010; Lockwood & Dingemanse 2015) with some support from experimental evidence (Abelin 1999; Hutchins 1998; Kwon 2016).¹² Arguably, the clearest manifestation of iconicity in spoken language is image (or absolute) iconicity (Dingemanse et al. 2015; Dingemanse et al. 2016), which is at work when there is a direct form-meaning resemblance within the same modality, i.e., speech sound mimics non-speech sound in the external world, as in onomatopoeia (Peirce 1932; see also Haiman 1980). In this regard, K&R proposed Criterion 3, stating that phonaesthemes with a high level of image iconicity are more canonical than those

12. The core mechanism that underlies phonaesthemes is iconicity rather than systematicity, in which form-meaning mappings arise *exclusively* from statistical regularities (Dingemanse et al. 2015). While phonaesthemes are often discussed as conventional, some of them, such as *sn-* (where the nasal sound /n/ seems to evoke its associated semantic domain, the ‘nasal/oral area’), have a perceived form-meaning resemblance (Hinton et al. 1994: 5; Monaghan et al. 2014; cf. Blasi et al. 2016).

that are weakly or not at all image-iconic. Measured against Criterion 3, K&R argued that English phonaesthemes, such as *-ng* ‘resonant sounds’ (e.g., *boing*, *clang*, *ding*, etc.), *-nk* ‘resonant sounds cut short’ (e.g., *bonk*, *clank*, *clunk*, etc.), and *-ck* ‘abruptly terminating sounds’ (e.g., *whack*, *thwack*, etc.) are highly canonical. The phonaestheme *sn-* ‘nasal/oral area’ (e.g., *snarl*, *sneer*, *sneeze*, etc.), in which there is a perceptuomotor analogy between the meaning and part of the form (the nasal /n/) is less canonical. The phonaestheme *gl-*, whose meaning is not predictable at all from its form, is non-canonical.

Regarding the underlying forms of Korean phonaesthemes, their canonicity values are not measurable on Criterion 3 because they are not phonetically realized. Image iconicity is measured only according to the degree of resemblance between the phonetic properties of sounds and the acoustics of their denotata.

5.4 One form, one meaning

Criterion 4: Form is paired with only one meaning (i.e., monosemy) > with many (i.e., polysemy, homonymy)

Criterion 5: Meaning is paired with only one form > with many (i.e., allomorphy, synonymy)

Criteria 4 and 5 posit that canonical phonaesthemes have a one-to-one sound-meaning correspondence. For a strict evaluation as to whether a lexical unit is polysemous or homonymous, native speakers’ semantic judgements are necessary. However, it is difficult to apply such empirical judgements to phonaesthemes, which are sub-morphemic. Setting aside the limitation, it still seems possible to make *approximate* canonicity judgements of phonaesthemes against the two criteria. For example, a single underlying form of a Korean phonaestheme seems to correspond to several closely related meanings, as shown in (5–6). The feature contrast, [\pm low], corresponds to a big: small connotation contrast with the residue *cV k ’in*, as in *cik’in*: *cak’in* ‘the snapping of a big: small object’, but with the residue *cV k il*, it corresponds to an intensive: neutral contrast, as in *cikil-*: *cakil-* ‘a strong: ... sound of sizzling’. Similarly, the feature contrast, [–stiff v.c., +spread gl.]: [+stiff v.c., –spread gl.], corresponds to a neutral: intensive connotation contrast in several ideophonic or prosaic stems, as exemplified in (9). However, the same phonaestheme connotes a light: deep contrast in colour terms, such as *palkah-*: *p’alkah-* ‘light: deep red’, or a neutral: pejorative contrast in some colloquial prosaic words such as *sacay*: *s’acay* ‘boss: ... (derogatory) (Lee 1992: 139). Thus, with respect to Criterion 4, the underlying form of a Korean phonaestheme cannot achieve full canonicity. On

the other hand, with respect to Criterion 5, it appears to have differing canonicity values. For example, a neutral: intensive contrast is instantiated by the consonantal phonaestheme, [-stiff v.c., +spread gl.]: [+stiff v.c., -spread gl.], and also the vocalic phonaestheme, [+low]: [-low], as seen in (9–10). They are non-canonical.

- (9) [-stiff v.c., +spread gl.]: [+stiff v.c., -spread gl.] ‘neutral: intensive’
- | | |
|--|--------------------------------------|
| <i>kač^hil-: k’ac^hil-</i> | ‘haggard: ... to a great extent’; |
| <i>kaŋcuŋ: k’añc’uŋ</i> | ‘jumping: ... strongly’; |
| <i>komsil-: k’omsil-</i> | ‘wriggling: ... strongly’; |
| <i>tətım-: t’ətım-</i> | ‘stuttering: ... to a great degree’; |
| <i>sakak: s’akak</i> | ‘crunching: ... strongly’; |
| <i>contik-: c’ontik-</i> | ‘sticky: ... to a great degree’; |
| <i>kukis-: k’ukis-</i> | ‘crumpled: ... to a great degree’; |
| <i>cokim: c’okim</i> | ‘a little: just a little’ |
- (10) [+low]: [-low] ‘neutral: intensive’
- | | |
|--------------------------|---|
| <i>cakil-: cikil-</i> | ‘sound of sizzling: strong ...’; |
| <i>tak: tik</i> | ‘sound of scraping: strong ...’; |
| <i>palk’ak: p’alk’ək</i> | ‘sudden opening (of a closed door): sudden strong ...’; |
| <i>katik: kitik</i> | ‘full: ... to a great extent’; |
| <i>nilis-: nalis-</i> | ‘slow: ... to a great degree’ |

A relatively canonical phonaestheme is [+stiff v.c., -spread gl.]: [+stiff v.c., +spread gl.] ‘intensive: para-intensive (i.e., strong and violent)’ in (11), since the target connotation contrast corresponds to just one form, i.e., the fortis: aspirated contrast.

- (11) *t’alkak: t^halkak* ‘strong: strong and violent rattling’;
- t’otak-: t^hotak-* ‘strong: strong and violent patting’;
- p’asak: p^hasak* ‘strong: strong and violent rustling’.

Regarding English phonaesthemes, they have instances of differing canonicity with respect to both Criteria 4 and 5 (K&R: 15–16). In detail, measured against Criterion 4, the phonaestheme *tr-* ‘tread’ (e.g., *tread*, *tramp*, *trample*) with a single meaning is more canonical than *sl-* ‘falling or sliding movement’ (e.g., *slide*, *slither*); ‘a falling blow’ (e.g., *slay*, *slaughter*); ‘slimy/slushy matter’ (e.g., *slime*, *slush*) with multiple meanings. On Criterion 5, the phonaestheme *sw-* ‘swing, sway’ is more canonical than *cl-* (e.g., *clutch*, *claw*) and *gr-* (e.g., *grasp*, *grip*), which share the common ‘grasping’ meaning.

Altogether, Criterion 4 differentiates Korean phonaesthemes from English phonaesthemes, while Criterion 5 groups them together, as summarized in Table 5 below.

Table 5. Canonicity values of English and Korean phonaesthemes relative to Criteria 4 and 5 (C = canonical, NC = non-canonical)

	English phonaestheme		Korean phonaestheme	
	C	NC	C	NC
Criterion 4	✓ <i>tr-</i>	✓ <i>sl-</i>	✗	✓ All
Criterion 5	✓ <i>sw-</i>	✓ <i>cl-, gr-</i>	✓ fortis: aspirated intensive: para-intensive	✓ lenis: fortis neutral: intensive

5.5 Non-recurrent residues

Criterion 6: combines only with non-recurring residues > also with recurring residues > able to occur alone

The underlying form of a Korean phonaestheme always co-occurs with other elements, which do not recur with the same meaning in the wider lexicon. The residues recur only within a paradigmatic set of a phonaestheme. So, they are fully canonical with respect to Criterion 6. Most English phonaesthemes show a similar behavior. For example, none of the residues (*-ow*, *-ance*, *-are*, *-eam*, etc.) of the phonaestheme *gl-* (in *glow*, *glance*, *glare*, *gleam*, etc.) recur with the same meanings in the lexicon. Exceptions include *sneer*, which is arguably analyzed as consisting of the two phonaesthemes *sn-* ‘nasal/oral area’ and *-eer* ‘expression of contempt’ (e.g., *leer*, *jeer*), and the phonaestheme *-owl* ‘sinister’, which can stand alone (K&R: 16–17). Leaving aside those rare cases, Criterion 6 generally groups Korean and English phonaesthemes together, as shown in Table 6.

Table 6. Canonicity values of English and Korean phonaesthemes relative to Criterion 6 (C = canonical, NC = non-canonical)

	English phonaestheme		Korean phonaestheme	
	C	NC	C	NC
Criterion 6	✓ Most	✓ <i>-eer</i> , <i>-owl</i>	✓ All	✗

5.6 Transparency of form

Criterion 7: Combines agglutinatively with residue > non-agglutinatively

Criterion 7 states that a canonical phonaesthetic stem forms a transparent structural composition of a phonaestheme and its residue. It instantiates a kind of concatenative morphology, which involves morphemes being strung together in a

sequential manner. According to McCarthy (1989), morphemes at an underlying level have no linear ordering relations with respect to one another; the relative linear order of morphemes is determined only once they are concatenated phonologically, or otherwise linked autosegmentally to ordered strings of timing slots/nodes within a surface phonological representation. Therefore, Criterion 7 is inapplicable to the underlying form of a Korean phonaestheme, for which the distinction between concatenative or non-concatenative morphology has no interpretation.

In contrast, the surface forms of English non-paradigmatic phonaesthemes can be measured with respect to Criterion 7. Almost all of them are either prefixal (e.g., *gl-*, *sn-*, *tr-*, *sw-*, etc.) or suffixal (e.g., *-ask*, *-nk*, *-ck*, etc.) and therefore canonical. Exceptional non-canonical cases include a few circumfixal phonaesthemes, such as *sp_t* 'a rush of liquid' in *spat*, *spout*, *spurt*, etc., and *str_p* 'a line having breadth' in *strap*, *strip*, *stripe*, etc. (Hutchins 1998).

6. Discussion

Table 7 summarizes the canonical analyses of the surface forms of English non-paradigmatic phonaesthemes and the underlying forms of Korean paradigmatic phonaesthemes.

Table 7. The results of canonical analysis of Korean and English phonaesthemes

Criteria	English phonaestheme	Korean phonaestheme
1 ('frequency in lexical stems')	C, NC	C, NC
2 ('frequency across parts of speech')	C, NC	C, NC
3 ('image iconicity')	C, I, NC	–
4 ('one form – one meaning')	C, NC	NC
5 ('one meaning – one form')	C, NC	C, NC
6 ('recurrence of residue')	C (most), NC	C
7 ('linear ordering')	C (most), NC	–

Measured against K&R's seven criteria for phonaesthemes, Korean and English phonaesthemes are alike in terms of Criteria 1, 2, 5, and 6, but different with regard to Criterion 4. Regarding Criteria 3 and 7, it is not possible to make comparisons between the two sets of phenomena, since the two criteria cannot be applied to measure the canonicity values of Korean phonaesthemes.

Complementing the above analysis, I briefly assess the aspects in which the underlying forms of Korean paradigmatic phonaesthemes are like or not like the surface forms of English non-paradigmatic phonaesthemes vis-à-vis derivational morphology. Since the defined canonical base for phonaesthemes broadly captures

instances of not only the underlying and surface forms of phonaesthemes, but also compounding and derivational morphology, it is possible to measure the canonicity values of phonaesthemes against Corbett's (2010) criteria for derivational morphology below.

- Criterion 1: Canonical derived words consist of a base and at least one derivational marker, each of which can be substituted to yield another derived word.
- Criterion 2: The meaning of a canonical derived word can be computed regularly from the meaning of the base and the additional meaning of the derivation.
- Criterion 3: The form of a canonical derived word is transparent: its structure, consisting of base and derivational marker(s), is evident.
- Criterion 4: A derived word has a separate lexical index.
- Criterion 5: A derived word includes an additional semantic predicate in comparison with its base.

A typical underlying form of a Korean phonaestheme adheres to the derivational morphological canon with respect to Corbett's Criteria 2, 3, and 5. For example, the meaning of a typical ideophonic stem *piŋkil* is computable from the meaning of the multivalent residue *pVŋkil* 'twirling of an object' and that of the phonaestheme [-low] 'augmentative' (Criterion 2). Furthermore, *piŋkil* 'twirling of a big object', is transparently decomposed into its parts *pVŋkil* 'twirling of an object' plus the phonaestheme [-low] (Criterion 3), and the affiliation of the phonaestheme to the empty vowel slots in the residue adds augmentative connotation to the core, perceptual meaning (Criterion 5). However, the multivalent residue does not recur in other forms outside the ideophonic paradigm (Criterion 1). Criterion 4 is inapplicable, because neither the phonaestheme [-low] nor the residue *pVŋkil* possesses a lexical index, from which the index of ideophone *piŋkil* may differ.

With respect to a typical English non-paradigmatic phonaestheme, it satisfies only Criteria 3 and 5 (K&R: 12), in contrast to a typical Korean paradigmatic phonaestheme. For example, a typical phonaesthemic word (such as *glow*) is transparently decomposed into *gl-* (which also appears in *gloss*, *glitter*, *glisten*, and *glint*) and *-ow* (Criterion 3), and the addition of *gl-* to *-ow* or vice versa adds a semantic predicate (Criterion 5). However, *glow* does not show semantic transparency, because the residue *-ow* does not possess a clear meaning (Criterion 2). Moreover, the residue *-ow* does not recur in other forms (Criterion 1). Criterion 4 is inapplicable, because neither *gl-* nor *-ow* possesses a lexical index, from which the index of *glow* might differ. For a summary of the canonical comparisons between Korean and English phonaesthemes in derivational morphology, see Table 8 below.

Table 8 shows that English phonaesthemes are set apart from derivational morphology on Criteria 1 and 2, but that Korean phonaesthemes are set apart from derivational morphology on Criterion 1 only. (The status of the Korean and English phonaesthemes within canonical derivational morphology is undefinable with

Table 8. The canonical analysis of phonaesthemes vis-à-vis derivational morphology

	Derivational morphology	Non-paradigmatic English phonaesthemes	Paradigmatic Korean phonaesthemes
Criterion 1: 'Many-to-many substitutability'	✓	x	x
Criterion 2: 'Transparent semantics'	✓	x	✓
Criterion 3: 'Transparent form'	✓	✓	✓
Criterion 4: 'Separate lexical index'	✓	–	–
Criterion 5: 'Additional semantic predicate'	✓	✓	✓

respect to Criterion 4.) In sum, Korean and English phonaesthemes are distinct from each other within the canonical typology of phonaesthetic phenomena and they are also distinct from each other relative to canonical derivational morphology.

For further comparisons between Korean and English phonaesthemes, the relationship between phonaesthemes and lexical stems, where phonaesthemes are attested, can also be examined. For example, K&R's Criterion 3 (image iconicity) is not utilizable to measure the canonicity values of the underlying forms of Korean phonaesthemes, and so it is impossible to compare them with English phonaesthemes on that criterion. However, given that most Korean phonaesthemes occur in ideophonic stems, it would be useful to investigate the implications that this whole word class has for the evaluation of phonaesthemes against Criterion 3. In detail, iconicity is an important lexical property of ideophones (Dingemanse 2012) and empirical studies (Dingemanse et al. 2016; Kwon 2018) have shown that sound ideophones have a more transparent iconicity than cross-modal ideophones. Perhaps relating different iconicity levels of ideophones to the phonaesthemes that are attested in them enables further expansion of the current characterizations of Korean and English phonaesthemes.

Another possible way to expand a typology of phonaesthemes is to employ other cross-linguistic examples from paradigmatic and non-paradigmatic phonaesthetic sets. For example, a canonical analysis of phonaesthemes in Wasco (Native American; Silverstein 1994), Semai (Austroasiatic; Tufvesson 2011), or Japanese (Isolate; Hamano 1998),¹³ where the paradigmatic organization of phonaesthetic units is pervasive, could be compared with the current canonical analysis of Korean

13. Even at a cursory glance, we see that shapes of paradigmatic phonaesthemes differ depending on languages; Korean makes extensive use of consonantal and vocalic paradigms, Semai uses the latter, Japanese uses the former (i.e., voicing of consonants).

paradigmatic phonaesthemes. In addition, a canonical analysis of phonaesthemes in Swedish (Abelin 1999), where non-paradigmatic phonaesthemes are pervasive, could be compared with the current canonical analysis of English non-paradigmatic phonaesthemes. Further investigations into each set of phonaesthetic phenomena with its own cross-linguistic cousins would enable better understanding of the nature of singleton and paradigmatic phonaesthemes in a broader typological context.

7. Conclusion

This chapter has evaluated two types (i.e., paradigmatic and non-paradigmatic) of phonaesthetic instances in Korean and English against a set of canonical criteria for phonaesthemes. K&R proposed seven criteria for phonaesthetic canonicity, based on four core properties that a logically maximal instance of phonaestheme should possess – ‘the frequent occurrence of phonaesthemes’, ‘sound-symbolic sound-meaning pairings’, ‘transparent formal composition’, and ‘non-recurrent residue’. K&R successfully demonstrated the utility of the criteria for measurement of the surface form of an English non-paradigmatic phonaestheme. As an extension of K&R’s study, this chapter has measured the underlying forms of Korean paradigmatic phonaesthemes against the same criteria: (i) to examine the cross-linguistic exportability of the criteria; and (ii) to determine the relationship between Korean and English phonaesthemes. The results reveal that: (i) Criteria 3 (‘image iconicity’) and 7 (‘linear ordering’) cannot measure the canonicity values of Korean phonaesthemes; and (ii) only Criterion 4 (‘one form – one meaning’) provides a strong point of differentiation between Korean and English phonaesthemes. Notwithstanding the limited applicability of the criteria to the underlying forms of Korean paradigmatic phonaesthemes, the current typology of phonaesthemes still has the potential to expand its scope by integrating ideophonic canonicity into phonaesthetic canonicity, or by employing other cross-linguistic examples of phonaesthemes. For example, the integration of canonical analyses of paradigmatic phonaesthemes in ideophone-rich languages, such as Wasco (Native American), Semai (Austroasiatic), or Japanese (Isolate), into canonical Korean phonaesthemes (Isolate) may provide new avenues for future phonaesthetic research.

Acknowledgements

The author was a postdoctoral research fellow of the Japan Society for the Promotion of Science at Nagoya University at the time of the NINJAL symposium. This study was partly supported by Grant-in-Aid for JSPS Research Fellows (JP16F16729).

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Classification of nominal compounds containing mimetics

A Construction Morphology perspective

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In Japanese, some nominal compounds have mimetic components (Nominal Compounds with Mimetics (NCMs)) (e.g., *zaazaa-buri* [MIMETIC(the sound of heavy rain)-a fall(from the sky)] ‘a downpour’). This paper examines how mimetics participate in word-formation of nominal compounds, applying Construction Morphology. Examination of representative NCMs indicates: (i) NCMs are mostly right-headed, although some are double-headed, and (ii) mimetics combine with the types of nouns that combine with non-mimetic components. Given this, the paper proposes NCMs are part of the inheritance hierarchy for nominal compounds; specifically, their top node diverges according to the head position, building on Booij (2010: 7). The hierarchy consists of different constructional schemas, such as $\langle [x_i\text{-}hada]_{nk} \leftrightarrow [hada \text{ ‘skin’ with attribute SEM}_i]_k \rangle$, wherein the variable x can be replaced by a mimetic, as in *gasagasa-hada* ‘rough skin’, or a non-mimetic, as in *yawa-hada* ‘soft skin’. The paper argues that mimetics are an integral part of nominal compound word formation, enriching lexical varieties of nominal compounds. The Construction Morphology representational system proves useful to indicate where NCMs appear in the word network.

1. Introduction

Japanese has nominal compounds which take mimetics as their components (Nominal Compounds with Mimetics (NCMs)), such as *huwahuwa-keeki* [MIM(fluffy-fluffy)-cake] ‘fluffy cake’ and *garagara-hebi* [MIM(rattle)-snake] ‘rattle-snake’. Despite their solid infiltration into present-day Japanese (Kageyama and Saito 2016), their characteristics are much less discussed than those of mimetics appearing as lexemic elements (cf. Akita and Tsujimura 2016). Some studies briefly touch on the characteristics of NCMs (e.g., Hamano 1998: 53–55; Tamori and Schourup 1999: 61–63). Yang (2011, 2013) is exceptional in that she covers

various types of NCMs, attempting to classify them, but her studies remain purely descriptive, missing theoretical insights. Naya and Ikarashi (2017) provide a theoretical discussion but are limited in their empirical coverage, examining only a small subset of one type of NCMs. Kageyama and Saito (2016) offer an insightful discussion about NCMs, but NCMs are not the focus of their study. In short, until now, no study has examined the characteristics of NCMs from a theoretical stance and with reasonable empirical coverage.

This paper considers how NCMs relate organizationally to compounds from other vocabulary strata, applying Construction Morphology (Booij 2010) and adapting the classification of compounds by Scalise and Bisetto (2009). It compares the types of nominal compounds containing non-mimetic components with those containing mimetic ones to argue that, building on Booij (2010: 7), NCMs are part of the semantic network of nominal compounds that are organized in the inheritance hierarchy. The discussion is based on 100 representative NCMs, mostly drawn from Yang (2011, 2013), with some additions.

The organization of the paper is as follows: Section 2 briefly reviews previous literature. Section 3 provides some basic information on Construction Morphology and lexical categories of mimetics. Section 4 discusses the data. Sections 5, 6 and 7 turn to each type of compound: attributive (Section 5), subordinate (Section 6), and double-headed (Section 7). Section 8 contains concluding remarks.

2. Previous literature

This section touches on the work of Yang (2011, 2013) and Kageyama and Saito (2016), as these critics raise some relevant points for the present discussion.¹

Yang (2011) focuses on forms, arguing mimetics can be combined with different types of words: nouns (e.g., *asi* 'leg', *mune* 'chest'), verbs [to be more precise, *ren-yookee*, an 'infinitival form' of the verb] (e.g., *aruki* 'walking') and deverbal nominal forms of Sino-Japanese words (e.g., *unten* 'driving'), adjectival forms (e.g., *kara(i)* 'spicy'), and suffixes (e.g., *-gata* 'style'). In later work, Yang (2013) offers a classification of NCMs, adopting the semantic categories used in a mimetic dictionary (Ono 2007). These categories are summarized in Table 1.

1. While Yang (2011, 2013) covers a wide range of examples, she mixes different types of compounds, treating them as forming a coherent group: (a) compounds consisting of non-mimetic components are included (e.g., *nuru-me* 'lukewarm more or less' < *nurui* 'lukewarm' (adjective)); (b) lexical compounds are mixed with syntactic compounds (see Section 4.1), and (c) compounds with a mimetic appearing on the right are treated the same as those with a mimetic appearing on the left.

Table 1. Classification of NCMs (adapted from Yang 2013: 14–16)

Major category	# of token	Sub-category	Example
Nature	3	Weather	<i>karakara-tenki</i> MIM(dry)-weather 'dry weather'
(11/215 =5.1%)	7	Water/liquid	<i>sitosito-ame</i> MIM(drizzling)-rain 'drizzling rain'
	1	Earth/fire	<i>toro-bi</i> MIM(simmering)-flame 'simmering flame'
Human	44	Manner	<i>burabura-aruki</i> MIM(strolling)-walking 'strolling'
(111/215 =51.6%)	25	Emotion/ sensation	<i>mune-kyun</i> chest-MIM(squeeze) 'feeling emotional'
	22	Characteristics	<i>baribari-kisya</i> MIM(energetic)-news.reporter 'bright and eager news reporter'
	20	Physique/ figure	<i>bata-asi</i> MIM(fluttering)-leg 'flutter kick (of swimming)'
Phenomenon	27	Movement/ change	<i>bikkuri-bako</i> MIM(surprise)-box 'jack-in-the-box (lit. surprise-box)'
(93/215 =43.3%)	56	Shape/condition	<i>hokahoka-gohan</i> MIM(warm)-rice 'warm delicious-looking rice'
	7	Sound/ instrument/ money	<i>tintin-densya</i> MIM(tinkle-tinkle)-train 'tinkling train'
	3	Degree	<i>doka-yuki</i> MIM(heavy)-snow 'heavy snow fall'
Total:	215		

As Table 1 shows, NCMs belonging to *ningen* 'human' (51.6%) and *zisyoo* 'phenomenon' (43.3%) constitute the large majority, with some belonging to *sizen* 'nature' (5.1%). According to Yang, those expressing an attributive state (e.g., *hokahoka-gohan* MIM(warm)-rice 'warm delicious-looking rice') are the most prevalent.²

2. Table 1 is a simplified and translated version of Yang's (2013) original in Japanese.

Although Yang's work indicates the general tendency of NCMs' distribution in semantic categories (Yang 2013) and suggests which lexical categories can be recruited to form a compound (Yang 2011), it does not consider how NCMs are relevant to word-formation of Japanese nominal compounds in general. This point is more directly addressed by Kageyama and Saito (2016). They report words from different vocabulary strata (native, Sino-Japanese, foreign, and mimetic) can form compounds with all possible combinations, both hybrid and same-member combinations. In a sample of their work, (1) shows a series of hybrid combinations: in (1a)–(1c), mimetics appear on the left, whereas in (1d)–(1f), mimetics appear on the right. Kageyama and Saito (2016) also annotate the degree of commonality in parentheses. (2) shows an example of the mimetic-mimetic combination.

- (1) a. *garagara-hebi* [Mimetic + Native] (common)
 MIM(rattle)-snake
 'rattlesnake'
- b. *tintin-densya* [Mimetic + Sino-Japanese] (common)
 MIM(tinkle-tinkle)-train
 'tinkling train'
- c. *bikkuri-man* [Mimetic + Foreign] (common)
 MIM(surprise)-man
 'Bikkuriman'
- d. *hara-peko* [Native + Mimetic] (common)
 stomach-MIM(empty)
 'hungry'
- e. *nekki-munmun* [Sino-Japanese + Mimetic] (not common)
 heat-MIM(steamy)
 'hot and stifling'
- f. *pan-tira* [Foreign + Mimetic] (rare)
 panty-MIM(showing)
 'panty shot' (Kageyama and Saito 2016: 16)
- (2) a. *garagara-pon* [Mimetic + Mimetic]
 MIM(rattle)-MIM(pop)
 'lottery wheel'
- b. *don-pati* [Mimetic + Mimetic]
 MIM(bang)-MIM(flick)
 'gun-battle' (Kageyama and Saito 2016: 34)

While Kageyama and Saito (2016) raise an important point, namely that mimetics participate in compound word formations in parallel with words from other vocabulary strata in terms of combinatory possibilities, they do not tell us how

NCMs relate to compounds from other vocabulary strata in terms of organization in the lexicon. For instance, how are compounds like *kaisoku-densya* ‘rapid-service train’ and *tintin-densya* ‘tinkling train’ (a street car with the sound of a signaling bell that goes *ting ting*) related? They both have a Sino-Japanese word as the right element (*densya* ‘train’) but they differ in the left element – a Sino-Japanese word (*kaisoku* ‘rapid-service’) appears in the first example, and a mimetic word (*tintin* ‘tinkle tinkle’) is in the second.

3. Background information

This section gives some basic but essential information on Construction Morphology (Section 3.1). This is followed by a note on lexical categories in Japanese (Section 3.2), as this sheds more light on the inheritance hierarchy of nominal compounds.

3.1 Construction Morphology

3.1.1 Inheritance hierarchy of nominal compounds

Simply stated, Construction Morphology posits a hierarchical lexicon, described by Booij (2010) as an ‘inheritance tree’ wherein “each node inherits the properties of its dominating nodes” (Booij 2010: 25). For Japanese nominal compounds, Booij (2010) proposes the inheritance hierarchy shown in Figure 1. In this tree, the top-most node can go right or left, depending on the head position.

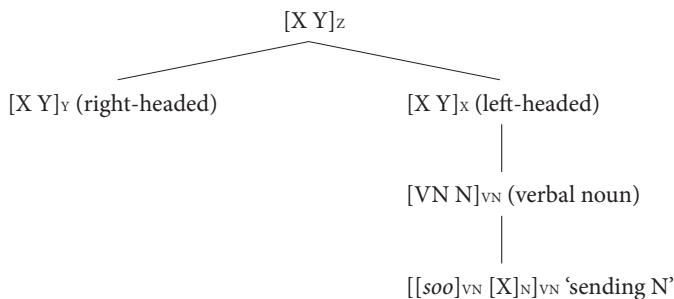


Figure 1. Noun compound schema for Japanese (Booij 2010: 70)

(3b) is more concrete than (3a), as the variable Y is replaced by an actual word *maker* and the category label is specified as N, with the meaning represented as ‘one_j who makes SEM_i’, where ‘SEM’ stands for ‘semantic representation’ (Booij 2010: x). (3c) is even more concrete than (3b), as the variable X is replaced by an actual word, creating a specific compound *moviemaker*, meaning ‘one_j who makes movies.’

These representations are ordered in a hierarchy. Those with more variables, such as (3a), take a higher node than those with fewer variables, such as (3b). The actual instance, such as (3c), is positioned at the lowest node, as there are no more variables to be replaced. These relationships are indicated by a line connecting the constructional schemas and subschemas, as seen in (3).

3.2 Lexical categories in Japanese

Japanese has common lexical categories, such as noun (N), verb (V), adjective (A), and adverb (ADV). But Japanese has two additional and equally important categories: adjectival noun (AN) and verbal noun (VN) (cf. Kishimoto and Uehara 2016).

(4) shows examples of words with different lexical categories. In each example, the word in question is presented as part of the modifier of the head noun, with the indication of the category in parentheses.⁵

- (4) a. Noun (N)
*hana*_(N) *no* *hon*
 flower GEN book
 ‘a book of flowers’
- b. Verb (V) (Native Japanese)
*kawai-ta*_(V) *hada*
 dry-PST skin
 ‘dried skin’
- c. Verb (V) (Sino-Japanese)
*kansoo-si-ta*_(V) *hada*
 drying-do-PST skin
 ‘dried skin’
- c’. Verbal Noun (VN) (Sino-Japanese)
*Kansoo*_(VN) *ga* *kininaru*
 drying NOM bother
 ‘The drying (of my skin) bothers (me).’

5. The examples in (4) are all noun phrases except for (4 c’) (i.e., a modifying expression followed by the head noun). This format is adopted so that the examples can serve as references when we determine the lexical category of the left element based on its morphosyntactic characteristics in Section 5.

- d. Adjective (A)
*nagai*_(A) *kami*
 long hair
 ‘long hair’
- e. Adjectival Noun (AN)
*kenmee*_(AN) *na/no* *doryoku*
 wholehearted COP.ATTR effort
 ‘a wholehearted effort’ ((4e), adapted from Uehara 1998: 98)
- f. Adverb (ADV)
*sizen-ni/to*_(ADV) *kawai-ta kami*
 naturally dry-PST hair
 ‘hair, naturally dried’

In the pre-nominal position, nouns are followed by the genitive case particle *no* as in (4a). Verbs require no linkers, but tensed forms, such as those with *-ta* (past), directly appear before the head noun: in native Japanese, verbs inflect for tense directly, as in (4b), whereas in Sino-Japanese verbs, the light verb *suru* ‘do’ inflects for tense, as in (4c).⁶ Note that Sino-Japanese forms (without the light verb) such as *kansoo* ‘drying’ are usually treated as verbal nouns (VN), as in (4c’). Verbal nouns are semantically like verbs expressing events (Sells 2017: 9), but morphosyntactically, they require *suru* ‘do’ to occur in the predicate position. As the name suggests, they can also function as nouns, taking a case particle, such as *ga* ‘nominative’. Adjectives are normally reserved for native Japanese words ending in inflectional *-i*, such as *oisii* ‘delicious’ and *nagai* ‘long’. Pre-nominally, the tensed forms, such as those ending with *-i* (non-past), directly appear before the head noun, as in (4d). Adjectival nouns are semantically like adjectives expressing the properties and attributes of an entity (cf. Sells 2017: 9), as in *genki* ‘energetic’, but morphosyntactically, they occur in an environment similar to nouns, requiring copular *da* in the predicate position. Pre-nominally, they are followed by the attributive form of *da* which is *na*, but some can be followed by *no*, as in (4e) (see Uehara 1998 for a discussion of the fuzzy nature of the category). Lastly, Japanese adverbs assume a variety of forms (e.g., (4f)). Some require the quotative particle *to* to occur in a sentence.

Although the categorial status of mimetics is debated (cf. Tsujimura 2001), I assume mimetics are assigned the same category as non-mimetic words when they display the same morphosyntactic realization patterns. Under this assumption, mimetics are realized as N, V, VN, AN, ADV (cf. Sells 2017), as exemplified in (5).

6. Foreign words can also serve as the source of verbs followed by *suru* ‘do’ as in *tenisu-suru* ‘play tennis’.

- (5) a. Noun (N)
*wanwan*_(N) *no mimi*
 MIM(doggy) GEN ear
 ‘the doggy’s ear’
- b. Adjectival Noun (AN)
*betabeta*_(AN) *na/no ame*
 MIM(sticky) COP.ATTR candy
 ‘sticky candy’
- c. Verb (V)
*gasagasa-si-ta*_(V) *hada*
 MIM(rough)-do-PST skin
 ‘rough skin’
- d. Verbal Noun (VN)
*Harahara*_(VN) *suru*. (Kageyama 2016: 9)
 MIM(feel uneasy) do
 ‘feel uneasy’
- e. Adverb (ADV)
*petapeta to*_(ADV) *osi-ta sutanpu*
 MIM(slap-slap)stamp-PST stamp
 ‘stamps slapped all over’

As for nouns, some mimetics from children’s language, such as *wanwan* ‘doggy’, *buubuu* ‘car’, are usually classed as nouns (cf. Tamori and Schourup 1999: 59). Like regular nouns, they take *no* ‘genitive’ to modify the head noun, as in (5a).

Mimetics also function as adjectival nouns. In the pre-nominal position, they are followed by *no* or *na*, the attributive form of a copula, as in (5b), though the former option seems much more common (cf. Uehara 1998; Hamano 1998: Chapter 2).

The verbal forms of mimetics are realized by *suru* ‘do’. In the pre-nominal position, the tensed form, such as the one with *sita* ‘did’, directly appears before the head noun, as in (5b). What, then, is the category of a mimetic without *suru*? If we follow Kageyama (2016: 9), a mimetic such as *harahara* ‘feel uneasy’ without *suru* ‘do’ is a verbal noun, as in (5d).

Lastly, mimetics commonly occur as adverbs, in which case, they are marked by *to*, as in (5e). However, some forms require no marking (cf. Toratani 2017a).⁷

7. Mimetics normally cannot be realized as A, which must have *-i* as the final element of the form as in *nagai* ‘long’ (cf. Akita 2009: 107–109). But as a reviewer notes, there is a limited number of counterexamples, as in *boroi* ‘run-down’ and *tyoroi* ‘easy’, where the mimetic root is followed by *-i*.

4. Data

4.1 Consulted examples

For this paper, I sampled 100 representative examples of NCMs, mostly from Yang (2011, 2013), but I included several other sources to cover types not found in Yang: Kageyama and Saito (2016), Naya and Ikarashi (2017), blog entries, and a Japanese online corpus, NINJAL-LWP.

The targeted NCMs are lexical compounds (Hamano 1998: 53–55), with the exclusion of two types: compounds with an affix (i.e., those with a head noun that cannot occur independently as a word, such as *-san* ‘Mr.’ (*kunekune-san* ‘Mr. Wiggly’) and *-kee* ‘type’ (*pasapasa-kee* ‘dry type’)) and syntactic compounds. The determination of whether compounds are syntactic or lexical is based on the criteria set in Kageyama (1993: 178–179): i.e., compounds with one accentuation peak are analyzed as ‘lexical’, and those keeping the respective accentuation of each component (accented or accent-less) are ‘syntactic’, as exemplified below:

- (6) a. lexical: *asa-góhan*
 morning-rice
 ‘breakfast’
- b. lexical: *sitosito-áme*
 MIM(drizzling)-rain
 ‘drizzling rain’
- c. syntactic: *kákusa zesee*
 difference correction
 ‘the correction of the difference’
- d. syntactic: *áse dakudaku no syatu*
 sweat MIM(pouring) GEN shirt
 ‘shirt soaked with sweat’

(6a)–(6b) are examples of lexical compounds: (6a) has a non-mimetic left component, and (6b) has a mimetic one. In both instances, the entire compound has a single accent, falling onto the first vowel of the right component, as indicated by the accent marks. The forms with accented patterns as in **ása góhan* and **sitosito áme* are both ill-formed. (6c)–(6d) are example of syntactic compounds. (6c) has a non-mimetic left component, and (6d) has a mimetic. In both instances, each component has a respective accentuation pattern: in (6c), each component is accented, whereas in (6d), the noun *áse* ‘sweat’ is accented but the mimetic on the right is accent-less. Singly-accented forms are ill-formed in both cases (**kakusa-zéseee*, **ase-dákudaku*).

4.2 Classification: method

Figure 2 lists the categories of compounds, gives examples of NCMs, and shows their distribution among the 100 examples in parentheses.

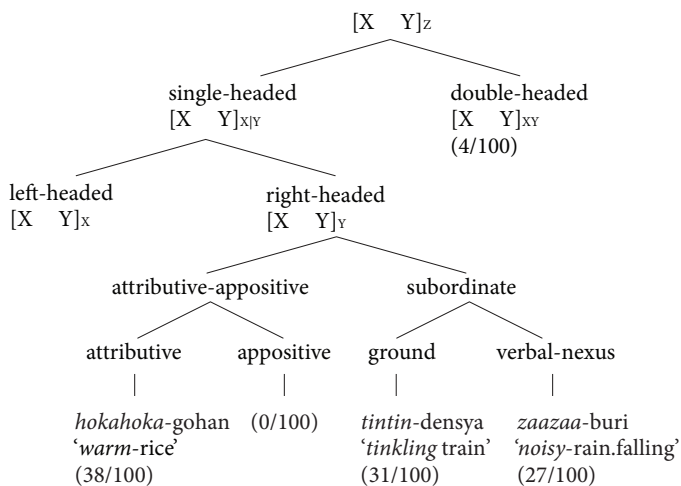


Figure 2. Partial network of nominal compounds in Japanese

(7) shows the tests used to classify compounds.

- (7) a. *Do both X and Y in the compound [X Y] have a reference of their own?*
 Yes → Double-headed
 No → Single-headed
- b. (Among single-headed compounds)
 Is the compound [X Y] a kind of X, literally or non-literally?
 Yes → Left-headed
 No → Right-headed
- c. (Among right-headed compounds)
 Does X describe the attribute of Y
(including a metonymic reading)?
 Yes → Attributive
 No → Subordinate
- d. (Among subordinate compounds)
 Is the head a derived noun?
 Yes → Verbal-nexus
 No → Ground

First, compounds are divided into single-headed and double-headed ones. If the answer to the question, *Do both X and Y in the compound [X Y] have a reference of their own?* (7a), is ‘yes’, the compound is categorized as double-headed; otherwise, it is single-headed. As Kageyama and Saito (2016: 212) define, “Double- (or multiple-) headed compounds are coordinate compounds (also known as “dvandva”) that consist of two or more members functioning as heads on an equal footing” (see Section 7).

Among the single-headed NCMs, if the answer to the question, *Is the compound [X Y] a kind of X, literally or non-literally?* (7b), is ‘yes’, the compounds are categorized as left-headed, and right-headed otherwise. It turns out that all the single-headed examples are right-headed.

Among the right-headed NCMs, if the answer to the question, *Does X describe the attribute of Y (including a metonymic reading?)* (7c), is ‘yes’, the compounds are categorized as ‘attributive-appositive’, and are otherwise ‘subordinate’. In the attributive relation, the left element expresses a property of the head (Scalise and Bisetto 2009: 51): e.g., in an English compound *blue cheese*, the left element *blue* expresses a property of the head *cheese* (Bisetto and Scalise 2005: 327). In the appositive relation, the left element also expresses a property of the head but “by means of a noun, an apposition, acting as an attribute” (Scalise and Bisetto 2009: 51). This is often done metaphorically (Scalise and Bisetto 2009: 52). In an English example *snailmail*, the left element *snail* does not mean a property of *mail* (*snailmail* does not mean a *mail* that is a *snail*) but has a metaphorical sense expressing the slowness of the mail (i.e., a *mail* delivered slowly, like a movement of a *snail*). The NCMs include the attributive type but lack the appositive type in my data (see Section 5).⁸

By contrast, in the subordinate compounds, the left element conveys non-attributive information about the head noun. These compounds are further divided into two sub-types: ground and verbal-nexus compounds.⁹ Among the

8. In Japanese, appositive compounds with non-mimetic components are commonly found as exemplified below.

- a. [*kinoko*_N-*gumo*_N]_N (mushroom-clouds) ‘clouds that look like mushrooms’
- b. [*teppoo*_N-*ame*_N]_N (bullet-rain) ‘rain that moves fast like bullets of the gun’

In my data, however, there was no example of appositive, possibly because by definition, the non-head must be a noun, whose referent can be construed metaphorically (Scalise and Bisetto 2009: 51). In attributive-appositive NCMs, mimetics (as the left element) express a state (e.g., *gasa-gasa* ‘rough’); they do not denote a concrete object such as *kinoko* ‘mushroom’, thereby not functioning as a noun proper. Given this lack of the appositive, I focus on attributive NCMs in Section 5.

9. Scalise and Bisetto (2009: 50) explain why they use ‘ground’ instead of ‘root’, the more traditional term: “[this is] a term that we agree to adopt because in our view it [ground] appears more neutral and more general as opposed to the traditional definition of *root*.”

subordinate compounds, if the answer to the question, *Is the head a derived noun?* (7d), is ‘yes’, the compound is verbal-nexus; otherwise, it is ground. In verbal-nexus compounds, such as *book seller*, the head noun is *seller* which is derived from the verb *sell* whereas in ground compounds, such as *mushroom soup*, the head is a non-derived noun *soup* (see Section 6 for Japanese examples).

In terms of the distribution of the data, double-headed compounds constitute a small fraction of NCMs (4/100), leaving right-headed compounds to comprise the large majority. Among these, there are more subordinate (31 + 27 = 58) than attributive compounds (38/100).¹⁰ Each type is discussed in the sections that follow.

5. Attributive compounds

In attributive compounds, the left element provides information about an attribute of the head noun (see (7c)). In this case, the paraphrase *The Y is X* should be possible. For instance, the compound *kuro-kami* ‘black hair’ is an attributive compound. This compound passes the Japanese equivalent of *The Y is X* test: *Kami wa kuroi* ‘(Her) hair is black’, where Y is *kami* ‘hair’ and X is *kuro-* ‘black’. Other examples include:

- (8) Attributive compounds: $[X_{[\text{non-head: non-MIM}]}-Y_{[\text{head: N}]}]_N$
- | | | | |
|----|--------------------|--------------|----------------|
| a. | <i>ganko-oyazi</i> | stubborn-man | ‘stubborn man’ |
| b. | <i>kansoo-hada</i> | dry-skin | ‘dry skin’ |
| c. | <i>yawa-hada</i> | soft-skin | ‘soft skin’ |
| d. | <i>naga-sode</i> | long-sleeve | ‘long sleeves’ |

In (8a) *ganko-oyazi* ‘stubborn man’, the head noun is *oyazi* ‘man’, and the right element *ganko* ‘stubborn’ expresses an attribute of the man. Similarly, in (8b) *kansoo-hada* ‘dry skin’, the head noun is *hada* ‘skin’, and the right element *kansoo* ‘dry’ expresses the attribute of the skin.

To examine the lexical category of the left element, the compounds in (8) are first paraphrased into a noun phrase by releasing the left element from the compound as in (9). The morphosyntactic realization of the left element is then examined, following (4): if the element takes *na* or *no* (the attributive form of copula), it is judged an adjectival noun; if it takes the inflectional ending *-i*, it is judged an adjective; and if it takes *sita* ‘(lit.) did’, it is a verbal noun.

10. This differs from the result of Yang, who reports: “we can find most of them [compounds with a mimetic component] are presenting static attribute of things” (2013: 19).

- (9) a. *ganko*_{AN}-*oyazi* ‘stubborn man’ (=8a)
 → *ganko na oyazi*
 stubborn COP.ATTR man
 ‘stubborn man’
- b. *kansoo*_{VN}-*hada* ‘dry skin’ (=8b)
 → *kansoo-sita hada*
 drying-did skin
 ‘dry skin’
- c. *yawa*_{AN}-*hada* ‘soft skin’ (=8c)
 → *yawa na hada*
 soft COP.ATTR skin
 ‘soft skin’
- d. *naga*_A-*sode* ‘long sleeves’ (=8d)
 → *nagai sode*
 long sleeve
 ‘(clothes with) long sleeves’

In (9a) and (9c), the left element is an AN, as it takes *na*; it is a VN in (9c) as it takes *sita* ‘(lit) did’; and it is an adjective in (9d), as it takes *-i*.

Attributive compounds are instantiated not only by non-mimetic components but also by mimetics. (10) shows examples of NCMs with mimetics appearing on the left.

- (10) Attributive compounds: $[X_{[\text{non-head: MIM}]}-Y_{[\text{head: N}]}]_N$
- a. *purunpurun-zerii* jiggly-jelly ‘jiggly jelly’
 b. *turuturu-hada* smooth-skin ‘smooth skin’
 c. *botteri-bara* plump-belly ‘plump belly’
 d. *gatigati-oyazi* hard-man ‘stubborn man’
 e. *tiritiri-atama* frizzy-head ‘frizzy-haired head’
 f. *mozyamozya-ude* shaggy-arm ‘shaggy-haired arm’

In (10a)–(10c), the mimetic expresses the attribute of the head noun in the literal sense. For instance, in (10a), *purunpurun-zerii* ‘jiggly jelly’, the mimetic *purunpurun* expresses the jiggly condition of the head noun, *zerii* ‘jelly’. Or in (10b), *turuturu-hada* ‘smooth skin’, the mimetic *turuturu* expresses the smooth condition of the head noun, *hada* ‘skin’. In (10d)–(10f), however, the head noun must be construed metonymically. For instance, in (10d), the head noun is *oyazi* ‘man’. It is construed as standing for a way of thinking (by *oyazi* ‘the man’), modified by the mimetic *gatigati* to express a hard, rock-solid condition. Similarly, in (10e), the head noun is *atama* ‘head’. It is construed as standing for the person’s hair, modified by the mimetic *tiritiri* to express the hair’s frizzy condition.

A paraphrase can be used to determine the lexical category of the mimetic, modeling (9).¹¹ Several examples are shown below.

- (11) a. *purunpurun-zerii* ‘jiggly jelly’ (= (10a))
 → *purunpurun*_{AN} *no* (?*na*) *zerii*
 jiggly COP.ATTR jelly
 ‘jiggly jelly’
- b. *gatigati-oyazi* ‘stubborn man’ (= (10d))
 → *gatigati*_{AN} *no* *oyazi*
 hard COP.ATTR man
 ‘stubborn man’
- c. *botteri-bara* ‘plump belly’ (= (10c))
 → *botteri*_{VN} *sita* *hara* (< *bara*)
 plump do-PST belly
 ‘plump belly’
- d. *tiritiri-atama* ‘frizzy-haired head’ (= (10e))
 → *tiritiri*_{AN} *no* (?*na*) *atama*
 frizzy COP.ATTR head
 ‘frizzy-haired head’

As (11) shows, the application of paraphrasing detects two categories, AN and VN. It is common to have an AN, as in *purunpurun* ‘jiggly’ and *gatigati* ‘hard’ followed by *no* (COP.ATTR). Less common is those that can be realized only as a VN, as in *botteri-bara* ‘plump belly’ (11c), where the mimetic is followed by *sita* ‘did’, indicating that the mimetic *botteri* is a VN (**botteri na hara*).

Based on the discussion above, I propose constructional schemas for the attributive compounds as in Figure 3, covering both mimetic and non-mimetic left elements.

(12) shows that the compound noun N_k consists of the right element (head noun N_j) and the left element (modifier X_i), expressing the attribute SEM_i of the head SEM_j (or its metonymically related entity). (12) becomes less abstract when N_j is replaced by an actual noun, *hada* ‘skin’, as in (13). Lastly, the schema can be actualized by specifying the attribute (from different categories), as in (14), where the variable X can be replaced by an element from a different category, either a non-mimetic word such as *yawa*_{AN}- ‘soft’ and *kansoo*_{VN}- ‘dry’ or a mimetic such as *turuturu*_{AN} ‘smooth’.

11. It should be noted that the relationship between the lexical category and one form of mimetic may not be one to one, in which case, the mimetic can be classed into more than one category. How these relationships should be represented in the inheritance hierarchy is unclear and calls for more examination.

Schema for attributive nominal compounds in Japanese:

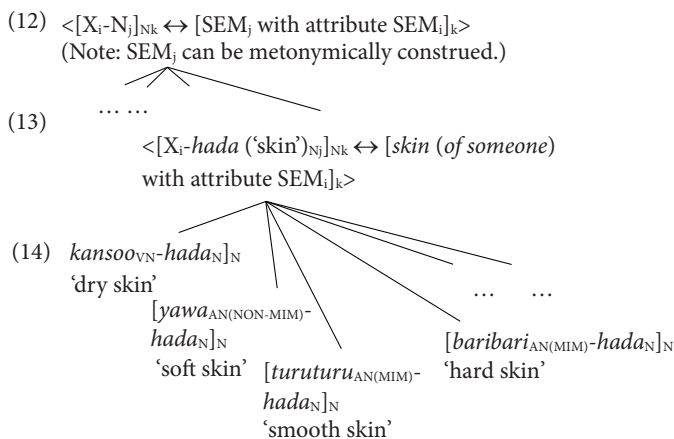


Figure 3. Partial sketch of the hierarchical network of nominal compounds (Attributive compounds)

As far as the head noun *hada* 'skin' is concerned, a variety of mimetics can take the X slot in (13): *baribari* 'dry and rough', *zarazara* 'unsmooth', *gorigori* 'hard', *zikuziku* 'wet', *betabeta* 'sticky', *motimoti* 'soft', *turuturu* 'smooth', *subesube* 'smooth', *gitogito* 'oily', *pukupuku* 'plump', and *gatigati* 'rough', to name a few. This stands in sharp contrast to non-mimetic words; these seem fairly limited, suggesting that the richness of Japanese mimetics expressing tactility (Kindaichi 1978) enriches lexical varieties of nominal compounds dealing with the skin condition.

Summing up: (a) the mimetics that participate in NCMs can be classed as AN or VN; (b) head nouns combined with mimetics are semantically similar to those combined with non-mimetic words, such as body parts or objects with a particular attribute; (c) as mimetics have a rich ability to express tactility and bodily sensation, they offer a unique semantic coverage for nominal compounds, compensating for the semantic areas not vigorously covered by non-mimetic words.¹²

12. A reviewer notes that mimetics are also rich in expressing "visual attribute". In fact, my data include examples such as *sukasuka-oseki* 'loosely packed new year meal boxes' and *yoboyobo-baasan* 'decrepit old woman'.

6. Subordinate compounds

In subordinate compounds, the left element expresses non-attributive information about the head noun. Because of this, they cannot be restated as ‘*The Y is X*’, as *X* is not an attribute (in contrast, attributive compounds allow the paraphrase). For example, *yasai-suupu* ‘vegetable soup’ cannot be paraphrased using ‘*The Y is X*’ formula, as *Sono suupu wa yasai da* ‘The soup is vegetable’ does not have precisely the same meaning as the compound, i.e., ‘soup, whose main ingredients are vegetables’.

Subordinate compounds are further divided into ground and verbal-nexus compounds. If the head is a noun (a non-derived nominal) such as *suupu* ‘soup’ in *yasai-suupu* ‘vegetable soup’, the compound is judged to belong to the ground type; if the head is a derived nominal such as *aruki* ‘walking’ (< *aruku* ‘walk’) as in *yama-aruki* ‘mountain walking’, the compound is a verbal-nexus type.

6.1 Subordinate compounds: Ground type

Ground compounds are common among nominal compounds with non-mimetic elements. Several examples are given below. Each example is followed by a paraphrase that models after (9) (shown after the arrow); the paraphrase identifies the lexical category of the left element, based on its morphosyntactic environment.

- (15) Ground-type compounds: $[X_{[\text{non-head: non-MIM}]}-Y_{[\text{head: N}]}]_N$
- a. *omotya_N-bako* ‘box for toys’
 → *omotya no hako* (*bako* in compound)
 toy GEN box
 ‘box for toys’
 - b. *benkyoo_{VN}-beya* ‘room to study’
 → *benkyoo-suru heya* (*beya* in compound)
 studying-do room
 ‘room to study’
 - c. *naga_A-ame* ‘long rain’
 → *nagai aida huru ame*
 long duration fall room
 ‘rain that falls for a long time’
 - d. *benri_{AN}-guzzu* ‘convenient goods’
 → *benri na guzzu*
 convenient COP.ATTR goods
 ‘convenient goods’

The semantic relationship of the left element to the right is varied. In essence, the left element specifies the meaning of the head noun by adding information to the event or condition related to the head noun; for instance, by expressing the function of an object (e.g., *omotya-bako* ‘box for holding toys’ (15a)), the purpose of an activity (e.g., *benkyoo-beya* ‘room to study’ (15b)), temporal information on how long an event lasts (e.g., *naga-ame* ‘rain that continues for a long time’ (15c)).

The lexical categories of the left element can vary. The element can be a noun (e.g., *omotya* ‘toy’ in (15a) can be linked to the head noun using *no* ‘genitive’), a VN (e.g., *benkyoo* ‘studying’ in (15b) must be realized in a verbal form with *suru* ‘do’), an A (e.g., the left element in (15c) must appear with the inflection ending *-i* as in *nagai* ‘long’), or an AN (e.g., *benri* ‘convenient’ (15d) is realized with *na*, the attributive form of copula).

The ground compounds can also be formed with a mimetic component.

- (16) Ground compounds: $[X_{[\text{non-head: MIM}]}-Y_{[\text{head: N}]}]_N$
- a. *sitosito*_{ADV}-*ame* ‘gentle rain’
 → *sitosito* *huru ame*
 MIM(drizzling) fall rain
 ‘rain that falls *drizzingly*’
- b. *ponpon*_{ADV}-*zyooki* ‘chugging steamship’
 → *ponpon* *to susumu zyooki(sen)*
 MIM(chugging) QUOT proceed steamship
 ‘a steamship that *chugs* along’
- c. *hisohiso*_{ADV}-*goe* ‘whispered voice’¹³
 → *hisohiso* *hanasu koe*
 MIM(whispering) speak voice
 ‘voice (in which people) talk *whisperingly*’
- d. *bikkuri*_{VN}-*bako* ‘jack-in-the-box’
 → *akeru to hito ga bikkuri suru hako*
 open when people NOM MIM(surprise) do box
 ‘the box that *surprise* people when they open it’

A few points are noteworthy about the NCMs in (16), compared to the compounds with non-mimetic components in (15). First, the same head noun occasionally appears for both types of compounds, as in *ame* ‘rain’ and *hako* ‘box’, suggesting that mimetics are not completely independent or heterogeneous elements that cannot participate in the word-formation of nominal compounds. Second, the two types of compounds are similar in that the left element narrows down the meaning of the head noun by adding some information to it, directly or indirectly.

13. A speaker may have had a whispering voice since birth. If the mimetic refers to the characteristic of the person’s voice, the compound should be classed as attributive.

Third, the semantic areas covered by mimetics differ. It does not seem common to convey temporal information, such as a long time as in (15c) or a function of an object, such as a purpose as in (15b), although it is not totally impossible, as a reviewer notes (e.g., in *hokahoka-kairo* ‘a pocket warmer that keeps one warm’, the mimetic expresses an object’s function to keep the body warm).¹⁴ More commonly, mimetics express a manner (*sitosito* ‘drizzling’ in *sitosito-ame* ‘gentle rain’ (16a), *hisohiso* ‘whispering’ in *hisohiso-goe* ‘whispered voice’ (16c)), or a sound (e.g., *ponpon* ‘chugging’ in *ponpon-zyooki* ‘chugging steamship’ (16b)). Other examples include a case where mimetics express a concept related to a psychological state: *bikkuri* ‘surprised’ in *bikkuri-bako* ‘jack-in-the-box’ (16d) is used to convey the surprised state of a person opening the box.

Fourth, there is a major difference between the two types of compounds in their lexical categories. The lexical categories of mimetics (as the left element) in the examined data distribute as follows: ADV (24/29 = 83%), VN (4/29 = 14%), and AN (1/29 = 3%), showing that ADV is the dominant lexical category for ground type NCMs. By contrast, as (15) shows, none of the left elements (i.e., non-mimetics) is ADV. Though a quantificational support is called for, ADV does not seem a major category for the left element in compounds with non-mimetic components. For example, *hagesiku/yoku naku* (or *warau*) ‘cry (or laugh) hard/often’ with the ADV *hagesiku* ‘hard’ or *yoku* ‘often’ does not have the compound version (**hagesi/yoku-naki*, **hagesi/yoku-warai*), and *tuyoku osu* (or *kaku*) ‘push (or write) firmly’ with the ADV *tuyoku* ‘firmly’ does not have the compound version (**tuyo-osi/*tuyo-gaki*).¹⁵ Yet the abundance of NCMs with mimetics functioning as ADVs seems reflective of the fact that mimetics dominantly occur as adverbs (cf. Toratani 2013).

The compounds discussed so far are all semantically endocentric (i.e., they have a head) (cf. Scalise and Bisetto 2009: 38). But the data for ground type NCMs also contain four examples of semantically exocentric compounds (i.e., those without a head).

14. A reviewer notes that *daradara-zaka* ‘gentle slope’ serves as a counterexample of the mimetic’s inability to express a temporal concept. The mimetic *daradara* in the compound refers to the physical shape of a slope with a continuous gentle gradient; it does not mean ‘long time’. It may take a traveler a long time to go up/down the slope, but it is also possible for him/her to run down/up the slope in a shorter period of time. The physical shape seems independent of how much time a person actually spends traveling. Even if this serves as a counterexample, we can maintain that it is not a typical example of NCMs.

15. On the other hand, it does not seem impossible to have an adverb as the left element. For instance, in *hayaku aruku/hasiru* ‘walk/run fast’ has a compound counterpart *haya-aruki/basiri* ‘walking/running fast’.

- (17) Exocentric compounds (ground type NCMs):¹⁶
- a. *bata*_{V/ADV}-*asi*
MIM(fluttering)-leg
'flutter kick (of swimming)'
 - a'. *batabata* *ugokasu/ batabata saseru asi*
MIM(fluttering) move/ MIM make leg
'(lit.) the legs you move/make move *flutteringly*'
 - b. *beta*_{ADV}-*asi*
MIM(sticky)-foot
'flatfoot'
 - b'. *beta*_Q *to tui-ta asi (no ura)*
MIM(sticky) QUOT attach-PST fee GEN back
'(lit.) the (back of) feet placed *flat*'
 - c. *muka*_{Q_{VN}}-*para*
MIM(disgusted)-belly
'disgusted feeling'
 - c'. *muka*_Q *to hara o tate-ta hito*
MIM(disgusted) QUOT belly ACC raise-PST person
'(lit.) someone who felt *disgusted*'
 - d. *tamago*_N-*huwahuwa*
egg-MIM(fluffy)
'(name of an egg dish)'
 - d'. *tamago de deki-ta huwahuwa si-ta mono*
egg by make-PST MIM(fluffy) do-PST thing
'a *fluffy* thing made of eggs'

In all of the compounds, the structural head is the right element, as it is a noun, and the category of the NCM is noun. However, semantically, all are exocentric. In (17a), *bata-asi* 'flutter-leg' is not a kind of *asi* 'leg', but the entire compound refers to a method of swimming, 'flutter kick'. In (17b), *beta-asi* 'sticky-foot' is not a kind of *asi* 'foot' but denotes a particular shape of a foot, such that the bottom is completely flat. In (17c), *muka*_{Q-para} 'disgusted-belly' is not a kind of a belly but refers to someone's disgusted feeling. An interesting case is (17d), *tamago-huwahuwa* '(name of an egg dish)', where the mimetic appears on the right (cf. Naya and Ikarashi 2017 on *kabe-don*). The NCM does not refer to any fluffy stuff with eggs but is the name of a specific dish made of eggs.¹⁷

The question that arises at this point is where the exocentric compounds situate in the inheritance hierarchy. They cannot be placed immediately below a given

16. "Q" represents a "syllable final moraic obstruent" (Hamano 1998: 9).

17. This dish was popularized in the Edo period (1603–1867) but is eaten today only in some places. According to Matsumoto (1992: 908–909), 12 cooking books from the Edo period mention it. It is a dish made of eggs with *dasi* soup (*sake* and soy sauce).

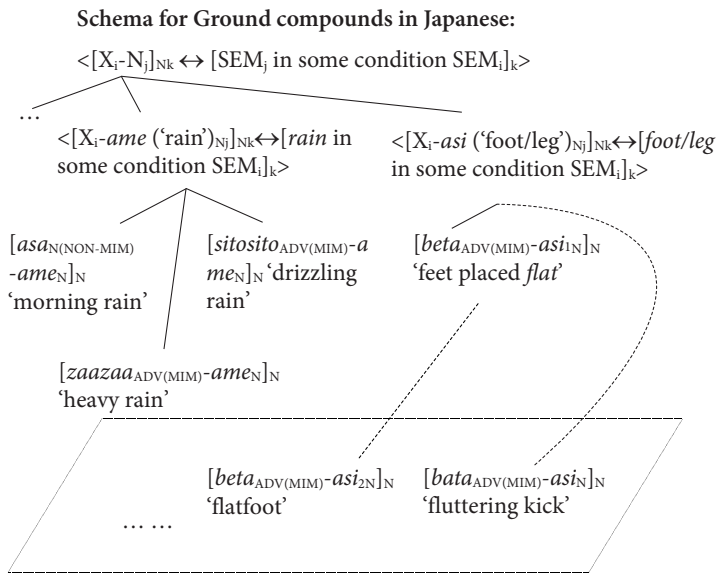


Figure 4. Partial sketch of the hierarchical network of nominal compounds (ground type)

constructional schema, since exocentric compounds do not directly inherit the meaning of the head. I suggest they are situated in a dimension different from that containing the inheritance hierarchy, following Toratani (2017b: 254). As proposed in Figure 4, the two dimensions are orthogonally positioned.

In Figure 4, the highest node contains the constructional schema for the ground compounds; the left element SEM_i specifies the meaning of the head noun SEM_j by adding some information to the event or condition related to the head noun, such as the function of the event or the manner in which the event is carried out. The schema becomes less abstract when N_j is replaced by an actual noun, such as *ame* 'rain' and *asi* 'leg/foot', as in the next level down. This subschema can be actualized by specifying the condition, with the variable X replaced by an element from a different category, either a non-mimetic (e.g., *asa*_N 'morning' from the native Japanese stratum) or a mimetic (e.g., *sitosito*_{ADV} 'drizzling') component.

The head noun *asi* 'foot/leg' can also be combined with a left element that comes from a non-mimetic word, such as a VN, *isogi*- 'hurrying' (from the native Japanese stratum), or a mimetic, such as *bata*- 'fluttering'. A noteworthy point about *beta-asi* is that it has two senses according to *Kōjien* dictionary (2008/2009): the literal sense (sense1: feet placed *flat*), and the extended sense (sense2: flatfoot). The former is considered to appear in the network of the inherence hierarchy, whereas the latter appears in the dimension of the extended senses, the area indicated in the parallelogram. The relationships in the former are indicated by solid lines; those in the latter by dotted lines. As for *bata-asi* 'fluttering kick', since it does not seem

to have the literal sense, it is assumed that the NCM is created directly from the subschema, $[X_i\text{-}asi_N]_N$, but is situated in the dimension of the extended network.

Another noteworthy point is the morphophonemic structure of the mimetic component. Typically, the mimetics in NCMs consist of four morae. To encompass this information, the constructional schema may be elaborated as follows, following Akita and Usuki (2016).

- (18) $\langle [x_i\text{-}N_j]_{Nk} \leftrightarrow [SEM_j \text{ in some condition } SEM_{i,k}] \rangle$, where X is a mimetic
 |
 Morphophonemic structure of the mimetic component: $[\mu\mu\mu\mu]$

The representation has a link to the main part of the schema to indicate the information on the morphophonemic features of the mimetic word, where μ stands for a mora.¹⁸

This does not mean that all the mimetic components must be four moras long. In Construction Morphology, both ‘default inheritance’ and non-default inheritance are possible, as Booij (2010: 28) notes: “The specification of a word for a particular property is inherited from the dominating node [i.e., default inheritance], unless the actual lexical entry has another specification for that property [i.e., non-default inheritance]” (Booij 2010: 27–31). In other words, inheritance usually follows the default pattern, creating an NCM with a mimetic consisting of four moras, but it is possible for the constructional schema to instantiate a two-mora-long mimetic, as in *beta-asi* ‘feet placed flat’.

6.2 Subordinate compounds: verbal-nexus type

Recall that verbal-nexus compounds are those whose head noun is derived from a verb, as in *seller* of a *book seller*. Roughly one third of the data (29/100) belong to this type of compound, with the right element coming from different lexical strata, as follows:¹⁹

- (19) a. *Renyookee* ‘infinitival form’ of Native Japanese verbs 65.5% (19/29)
 (-*aruki* ‘waking’):
 b. Sino-Japanese VNs (-*unten* ‘driving’): 13.8% (4/29)
 c. Mimetic VNs (-*don* ‘a bang’): 20.7% (6/29)

Verbal-nexus compounds can have mimetic or non-mimetic heads.

18. This can be further elaborated by adding accentuation information, as in Akita and Usuki (2016).

19. Though my sample does not contain any deverbal nominal heads from ‘foreign words’, an Internet search points to examples such as: *noronoro-tenisu* [MIM(slow)-tennis] ‘(name of a game)’, and *guzuguzu-geemu* [MIM(slow)-game] ‘(name of a blog)’.

6.3 Verbal-nexus type with a non-mimetic head

The verbal-nexus compounds with a non-mimetic head covers the forms in (19a) and (19b), the *renyookee* ‘infinitival form’ of native Japanese verbs and Sino-Japanese VNs, respectively. Examples of the former are given in (20a–e). Examples of the latter are shown in (20f–g). As the head nominals in these examples are verbal, the nominalizer *koto* ‘(lit.) matter’ is added to turn the paraphrase into a nominal phrase.

- (20) Verbal-nexus compounds: $[[X_{[\text{non-head: (non-MIM)}]}-Y_{[\text{head: N}]}]_N]$
- a. *yama_N-aruki* ‘mountain walking’
 → *yama o aruku koto*
 mountain ACC walk NMLZ
 ‘that (someone) walks in the mountain’
 - b. *yoko_{ADV}-buri* ‘(rain) coming slanting down’
 → (*ame ga*) *yoko.ni huru koto*
 rain NOM diagonally fall NMLZ
 ‘that (rain) diagonally falls’
 - c. *haya_{A(ADV)}-ne* ‘going to bed early’
 → *hayaku neru koto*
 early sleep NMLZ
 ‘that (someone) goes to bed early’
 - d. *uzu_N-maki* ‘whirlpool’
 → *uzu ga maku koto*
 whirlpool NOM turn NMLZ
 ‘that (the tide) whirls around’
 - e. *ori_N-zume* ‘packing (food) into a box’
 → *ori ni tumeru koto*
 box DAT pack NMLZ
 ‘that (someone) packs (food) into a box’
 - f. *anzen_{AN(ADV)}-untten* ‘driving safely’
 → *anzen.ni untten suru koto*
 safely driving do NMLZ
 ‘that (someone) drives safely’
 - g. *dobu_N-soozi* ‘cleaning the gutter’
 → *dobu o soozi suru koto*
 gutter ACC cleaning do NMLZ
 ‘that (someone) cleans the gutter’

There are two main types of relationship between the left element and the head. In the first, the left element functions as a semantic argument of the verbal noun head or provides information related to the event expressed by the head. For instance, in

(20a), the left element *yama* ‘mountain’ is the semantic argument of *aruku* ‘walk’, designating the area of the walking event, or in (20e), the left element *ori* ‘box’ is an oblique argument of *tumeru* ‘pack’ expressing the location where the object is placed. In the second type, the left element functions as an adverbial modifier, providing temporal information about the verbal event (*haya-* ‘early’ in (20c) conveys temporal information about the event of getting up) or expressing a manner (*anzen-* in (20f) refers to how the event of driving should be conducted).²⁰

Mimetics can also serve as the left element in verbal-nexus type compounds. Some of the mimetics resemble the non-mimetic compounds in (20) in that they (as the left element) express a manner, as in (21). Others express a meaning not observed in (20): i.e., a resultative state, as in (22).²¹

(21) Verbal-nexus compounds:

$[X_{[\text{non-head: MIM}]}-Y_{[\text{head: VN}]}]_{\text{VN}}$, where the mimetic expresses a manner

- a. *yotiyoti*_{ADV}-*aruki* ‘toddling’
 → *yótiyoti* *aruku koto*
 MIM(toddling) walk NMLZ
 ‘that (someone) walks *toddle-toddle*’
- b. *zaazaa*_{ADV}-*huri* ‘raining heavily’
 → *záazaa* *huru koto*
 MIM(pouring) fall NMLZ
 ‘that it rains *pour-pour*’
- c. *goro*_{ADV}-*ne* ‘flopping down’
 → *goróQ-to* *neru* *koto*
 MIM(a flop) lie.down NMLZ
 ‘that (someone) lies down *flop*’

(22) Verbal-nexus compounds:

$[X_{[\text{non-head: MIM}]}-Y_{[\text{head: VN}]}]_{\text{VN}}$, where the mimetic expresses a result

- a. *gyuugyuu*_{AN}-*zume* ‘being jam-packed’
 → *gyuugyuu* *ni* *tume-rare te iru koto*
 MIM(squeeze) COP.ADV pack-PASS L be NMLZ
 ‘that (something) is being packed *squeeze-squeeze*’

20. *Haya* is the root of the adverbial form *hayaku*, derived from the adjective *hayai* ‘fast/early’, and *anzen-* is the root of the adverbial form (*anzen ni*) of an AN, *anzen* ‘safety’.

21. Though (21) does not contain the resultative type, it does not seem impossible: e.g., *kata/yuru-maki/zume* ‘be coiled/packed tightly/loosely’ or *kintoo-nuri* ‘paint evenly’, but they do not seem too productive: **kiree-maki/zume* ‘(intended) be coiled/packed neatly’, ?*ranzatu-hagasi* ‘(intended) peel disorderly’, ?*kanzen-ake* ‘(intended) open completely’.

- b. *guruguru*_{AN}-*maki* ‘being coiled up’
 → *guruguru ni mak-are te iru koto*
 MIM(going round) COP.ADV coil-PASS L be NMLZ
 ‘that (something) is being coiled up *round and round*’
- c. *bisyo*_{AN}-*nure* ‘being completely soaked’
 → *bisyobisyo ni nure te iru koto*
 MIM(soaked) COP.ADV get.wet L be NMLZ
 ‘that (someone) is *soaking* wet’

In (21), the mimetics express a detailed manner of how the event denoted by the head verbal noun is carried out. For instance, in (21a), the mimetic *yotiyoti* ‘toddling’ refers to the manner of how the event of walking is carried out, or in (21c), the mimetic *goroQ* expresses the manner of someone flopping down. Note that the mimetics are accented when they express a manner in the paraphrase, indicating that they are adverbial (cf. Hamano 1998: 32). This differs from the mimetics in (22). They are all accent-less, thus indicating they are ANs. This is supported by the fact that they accompany *ni* (copula) to modify the verb, and this is the morpho-syntactic pattern of an AN. They differ from (21) in meaning as well. In (22), the mimetics refer to the resultative state of the event denoted by the head verbal noun. For instance, in (22a), the mimetic *gyuugyuu ni* refers to a jam-packed condition, obtained as a result of something being packed and expressed by the verbal noun head, or in (22b), the mimetic *guruguru ni* refers to a condition where something is all wrapped up, a condition obtained by something being coiled many times, as expressed by the verbal noun head.

The mimetic *bisyo-* in (22c) is a truncated form of the full-fledged form of the mimetic *bisyobisyo*. Tamori and Schourup (1999: 61) note that mimetics expressing resultative states are truncated from a fully reduplicated form, showing examples like (23).

- (23) a. *butu-giri* MIM(snap)-cut ‘a chunk’ (< *butubutu*)
 b. *gotya-maze* MIM(chaotic)-mix ‘a jumble’ (< *gotyagotya*)
 c. *boro-make* MIM(shreds)-lose ‘a lopsided loss’ (< *boroboro*)
 d. *gara-aki* MIM(empty)-vacant ‘nearly empty’ (< *garagara*)
 e. *gotta-ni* MIM(messy)-cook ‘hotchpotch’ (< *gotagota*)²²
 f. *metta-giri* MIM(totally)-cut ‘hack to pieces’ (< *metameta*)

(Tamori and Schourup 1999: 61)

While it is not clear why many mimetics expressing a resultative state have a truncated form like (23), it is apparently not a morphophonemic requirement for the

22. A reviewer questions whether all the forms come from fully-reduplicated mimetics.

mimetic forms to be truncated; as examples like (22a) and (22b) show, not all mimetics are truncated in this type of compound.

The truncation of the mimetic portion is not limited to the expression of a resultative state. In fact, examples can be found in all types of compounds discussed here: attributive, ground, and verbal-nexus.

(24) Attributive compounds:

- a. *zara-gami* MIM(rough)-paper ‘pulp paper’ (< *zarazara*)
- b. *gyoro-me* MIM(goggly)-eye ‘goggle eyes’ (< *gyoroQ*)
- c. *petya-pai* MIM(flat)-chest ‘flat chest’ (< *petyaQ*)

Ground compounds:

- d. *doka-yuki* MIM(a lot)-snow ‘heavy snow’ (< *dokaQ*)
- e. *dota-gutu* MIM(tromp)-shoe ‘clodhoppers’ (< *dotadota*)
- f. *koso-doro* MIM(sneaky)-thief ‘sneak thief’ (< *kosokoso*)
- g. *bata-asi* MIM(fluttering)-leg ‘flutter kick’ (< *batabata*)
- h. *beta-asi* MIM(sticky)-foot ‘flatfoot’ (< *betaQ*)

Verbal-nexus compounds (manner):

- i. *gui-nomi* MIM(gulp)-drink ‘drinking at a gulp’ (< *guiQ*)
- j. *zaku-giri* MIM(coarse)-cut ‘cutting into big pieces’ (< *dokaQ*)

The truncated forms do not constitute the large majority of NCMs (15/100 = 15%), and there appear to be no principled reasons why some mimetics, like those above, go through truncation while others do not. For instance, *gyuugyuu-zume* ‘being jam-packed’ (22a) cannot be realized as **gyuu-zume*, despite the tendency of mimetics expressing the resultative state to go through truncation (Tamori and Schourup 1999: 61); in another example, *zarazara-hada* ‘rough skin’ is much more acceptable than the truncated counterpart *zara-hada* although it does not seem totally unacceptable.

Speculatively, the truncated form represents an accelerated state of lexicalization, showing a lexical-item-specific characteristic. One piece of evidence supporting this idea is that some truncated forms have become prefixes, or at least are listed as such in a dictionary (Shogakukan 2006):

- (25) a. *boro-* ‘intense degree’ (e.g., *boro-mooke* MIM-earn ‘easy money’)
 b. *gotta-* ‘chaotic’: (e.g., *gotta-maze* MIM-mix ‘mixing things’)
 c. *doka-* ‘a lot’: (e.g., *doka-beri* MIM-lose ‘losing a lot suddenly’)
 d. *koso-* ‘secretly’: (e.g., *koso-akinai* MIM-trade ‘secret trade’)
 e. *gui-* ‘with vigor’: (e.g., *gui-ne* MIM-sleep ‘sleep immediately’)

Another supporting piece of evidence is that some compounds with truncated mimetic components have a lexical-item specific meaning, instead of a meaning obtained compositionally from the meaning of each component.

(26) *zara-gami* MIM(rough)-paper ‘pulp paper’

In (26), the NCM refers to low-grade (non-Japanese) printing paper, but not just any paper that feels rough: although some Japanese paper may feel rough on the surface, it will not be called *zara-gami*.

A third and final piece of evidence is that both forms (truncated and non-truncated form) occasionally co-exist but the truncated form is more frequently used, thereby possibly becoming more entrenched. One example is *koso-doro* ‘sneak thief’ (*koso* < *kosokoso* ‘secretly’, *doro* < *doroboo* ‘thief’). This word’s entry in a dictionary (Shogakukan 2006) lists two other forms as reference, *kosokoso-doroboo*, and *koso-doroboo*, hinting at how the full-fledged form may be transforming into the commonly used form *koso-doro*. The above is speculative, however; further investigation is necessary to clarify the status of truncated forms.

6.4 Verbal-nexus type with a mimetic head

Some verbal-nexus compounds can take a mimetic as the head, as exemplified below.

(27) Verbal-nexus compounds: $[[X_{[\text{non-head: (non-MIM)}]}-Y_{[\text{head: MIM (VN)}]}]_{\text{VN}}$

a. *mune-kyun* ‘feeling emotional pain’

→ *mune ga kyun to naru koto*
chest NOM MIM(squeeze) QUOT become NMLZ
‘that the chest feels painful (as if it is given a) *squeeze*’

b. *kabe-don* wall-bang ‘a bang on the wall’

→ *kabe o don to tataku koto*
wall ACC MIM(bang) QUOT hit NMLZ
sense1: ‘that (someone) bangs on the wall’
sense2: ‘that (a man) bangs (his hand) onto the wall once
(while closing in on a female)’

c. *neko-banban* ‘cats, knock knock’

→ *neko o (sukuu tameni syatai o) banban suru koto*
cat ACC save for car.body ACC MIM do NMLZ
‘that (someone) bangs on (the car body to save) the cats (hiding under the car, from getting injured by alarming them)’

d. *herumeQ-tyu* ‘helmet kissing’

→ *herumetto to herumetto ga tyuu suru koto*
helmet and helmet NOM MIM(kissing) do NMLZ
‘that the (two people with) helmets (collide lightly as if they) kiss each other (on their heads).’

While the NCM in (27a) has been used for some time, the NCMs in (27b)–(27d) are more recent inventive neologisms found in social media (cf. Naya and Ikarashi 2017). In this type, the noun on the left refers to an entity related to the event expressed by the mimetic on the right, and may not necessarily be the semantic argument of the mimetic. In (27a), the entire compound expresses a momentarily felt and emotionally painful condition as if someone gave the person's chest a squeeze, where *mune* 'chest' is considered the semantic argument of the mimetic *kyun* 'squeeze'. The compound in (27b) has at least two senses: in one, it refers to the literal action of someone banging on a wooden wall (to warn the person next door), and in the other, it refers to "the act of a man cornering a woman by placing his arm(s) against a wall with a thud" (Naya and Ikarashi 2017: 383), which is supposed to be a romantic moment welcomed by the female. In either sense, the left element *kabe* 'wall' is considered one of the semantic arguments of the mimetic *don* 'bang'. An interesting case is (27c), a 2015 coinage by an automobile company.²³ In this compound, the left element is *neko* 'cat', and the right element is the mimetic *banban* which expresses an act of banging. From the general pattern of synthetic compounds (e.g., Lieber 1983), we might consider the cat to be the semantic argument of the verbal event of banging; i.e., the cat is the one that gets banged. However, this is not the case. The object people are supposed to bang is the hood of the car. This is done to startle the cats (who are likely hiding under the car during the cold weather) so that the cats will get away from the car and will not be hurt when the engine is started: i.e., *neko-banban* is a considerate act to protect the lives of the cats. (27d) is a playful coinage by a motorbike company used in a TV commercial, blending *herumetto* 'helmet' with *tyuQ* 'sound of a kiss'.

The constructional schemas for verbal-nexus compounds can be proposed as in Figure 5.

In this portion of the inheritance hierarchy, the topmost node is occupied by a constructional schema, $\langle [x_i - vN_j]_{vNk} \leftrightarrow [\text{an event of SEM}_j \text{ in some condition SEM}_i]_k \rangle$, in which a verbal noun (VN) appears as the head of the compound. In the next level down, this is realized by words from a different lexical stratum, for example, an infinitival form of a native Japanese verb (e.g., *-buri* '(rain) falling') and a mimetic (e.g., *-don* 'bang'). Regardless of the difference in the stratum, the mechanism of how the information is passed down follows the previous cases: the realization becomes more concrete as the level descends, with the lowest level containing the most concrete instantiation of the constructional schema, e.g., $[zaazaa-buri]_{vN}$ '(rain) pouring' and $[kabe-don]_{vN}$ 'a bang on the wall'.

23. The automobile company's message is found at: <http://www2.nissan.co.jp/SOCIAL/CAMP/NEKOBANBAN/>. Translated, it means: 'During the winter time, bang (*banban*) on the hood of your car before you get in. A simple action like that can help the lives of cats.' Naya and Ikarashi (2017) seem the first to discuss this type of compound.

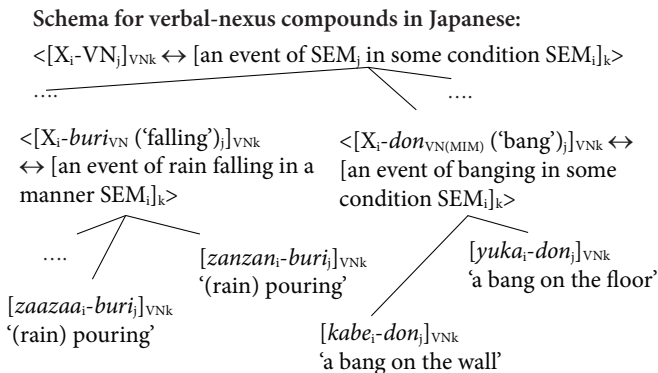


Figure 5. Partial sketch of the hierarchical network of nominal compounds (Verbal-nexus type compounds)

7. Double-headed compounds

Double-headed compounds “are coordinate compounds (also known as “dvandva”) that consist of two or more members functioning as heads on an equal footing” (Namiki and Kageyama 2016: 212). Among the subtypes discussed in Kageyama (2009), the most pertinent to NCMs is: “a separate-reference type, where each of the coordinated elements has a syntactically visible reference” (Kageyama, 2009: 514). For instance, in *oya-ko* [parent-child] ‘parent(s) and/or child’, each component has its own reference: the former refers to ‘parent(s)’ and the latter, ‘child’ (see also Namiki and Kageyama 2016).

The data include the following four instances of double-headed compounds.

- (28) Double-headed compounds: [[X_[head: MIM]-Y_[head: MIM]]_N
- a. *pittasi-kankan*
 MIM(perfect)-MIM(clang-clang)
 ‘(name of a quiz show)’
 - b. *gatyā-pon*
 MIM(clank)-MIM(pop)
 ‘capsule toys dispensed from a small coin-operated machine’
 - c. *garagara-pon*
 MIM(rattle)-MIM(pop)
 ‘a lottery wheel’ (Kageyama and Saito 2016: 34)
 - d. *don-pati*
 MIM(bang)-MIM(flick)
 ‘gun battle’ (Kageyama and Saito 2016: 34)

As the example shows, both components of the compounds are mimetic, and the data contain no double-headed NCMs where only one component is a mimetic, suggesting that the components must come from the same lexical stratum, at least as far as the mimetics are concerned. In each compound, the mimetic on the left depicts one aspect of the event/state in question, and the one on the right depicts another. Importantly, the entire compound refers to a single object/event. For instance, (26a) is the name of a TV program created by combining the names of two competing teams: *pittasi-tiimu* [perfect-team] and *kankan-tiimu* [clanging-team]. Each mimetic has a referent of its own. As the entire compound refers to a single concept, the name of the quiz show, and this is distinct from the meaning of each component, the compound is judged exocentric. In (28b), the first mimetic *gatya* depicts the sound emitted when the handle of the machine is turned to release a capsule, and the second depicts the sound emitted when the capsule is ejected. In other words, each mimetic iconically depicts the sound associated with the machine's sequence of operation. But as the entire compound refers to a toy, it is also an exocentric compound. (28c) shows a similar mechanism involving two sounds emitted from a machine, this time, a lottery wheel. The mimetics in (28d) also depict two types of sounds but the entire compound refers to an event this time, i.e., a gun battle.

The constructional schema for double-headed compounds might look like the following:

$$(29) \quad <[\text{VN}(\text{MIM})_i - \text{VN}(\text{MIM})_j]_{\text{N}_k} \leftrightarrow \\ <[\text{an event of SEM}_i \text{ and/or an event of SEM}_j]_{\text{N}_k}>$$

As the examples found for (29) are all exocentric, they are assumed to be located on a plane orthogonal to the dimension containing the inheritance hierarchy.

8. Concluding remarks

This paper discusses how mimetics participate in nominal compound formation, proposing an inheritance hierarchy for nominal compounds, whose top node diverges according to the head position, with the lower nodes diverging into the categories 'attributive-appositive' and 'subordinate' (Scalise and Bisetto 2009). The proposed Construction Morphology representational system proves useful to indicate where NCMs appear in the word network.

The discussion reveals that mimetic and non-mimetic components are combined with the same types of nouns and verbal nouns. However, mimetics excel especially in detailing the condition obtained through tactility and bodily sensation

in attributive compounds and the manner of how the event is performed in subordinate compounds, suggesting that mimetics can enrich lexical varieties of nominal compounds. As the examples show, mimetics are solidly integrated into the word formation system of Japanese, both semantically and morphologically, and interact with words from different lexical strata. It remains to be investigated if this finding offers a counterexample to Kita's (1997, 2001) proposal to designate a special semantic representation for mimetics (the affecto-imagistic dimension), distinct from that for prosaic words (the analytic dimension).

Although it is not clear whether Japanese is exceptional in having a fairly large number of NCMs, as (30) shows, Japanese is not the only language with NCMs.

- (30) a. Japhug (Rgyalrong, Sino-Tibetan) (Jacques 2013: 282)
 jəkmɯ-zdovzdov
 thumb-IDEO (small and active)
 'bird sp.'
- b. Gbaya (Niger-Congo) (Noss 1985: 247)
 kpu-kpút-yi
 IDEO-water
 'bubbling water'
- c. Korean (Ahrong Lee, personal communication)
 sandeul-param
 MIM (gently, softly)-wind
 'gentle wind, breeze'

A closer observation of cross-linguistic data will reveal the characteristics of ideophones in general and show to what extent the elements are integrated into the language system.

Acknowledgements

An earlier version of this paper was presented at the International Symposium 'Mimetics in Japanese and Other Languages of the World' held at NINJAL, on December 17, 2016. The paper benefited greatly from questions from the audience, especially Yo Matsumoto. I am grateful to the two reviewers for their insightful comments which improved the quality of the content of this paper. Thanks also go to Elizabeth Thompson for her editorial suggestions. The remaining errors, omissions and shortcomings are, of course, solely my responsibility.

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PART II

Semantics and pragmatics

Towards a semantic typological classification of motion ideophones

The motion semantic grid*

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Motion ideophones are ubiquitous across languages. They expressively enact the way a motion event takes place. The main goal of this chapter is to offer a working proposal to classify motion ideophones from a semantic typological perspective. After a description of motion ideophones, the semantic grid for motion ideophones is presented. This consists of 7 first-level components plus 26 second-level and 121 third-level sub-components. The second part comprises two studies: a first-level analysis of 453 Basque motion ideophones and a fine-grained subcomponent analysis on a selection of 186 motion ideophones from 16 genetically and geographically different languages. The last section discusses the usefulness and applicability of this type of semantic typological classifications.

1. Motion ideophones across languages

Ideophones are described as expressive marked linguistic units with a dramaturgic depictive function. This definition comprises, at least, a couple of crucial facts about these words. First, they are usually structurally foregrounded, that is, they exhibit particular linguistic characteristics that made them stand out when contrasted with other word categories in their respective languages. For instance, in some languages, ideophones contain particular phonemes, tones, and phonotactics that do not occur elsewhere. This is the case of the voiceless bilabial plosive /p/ and the voiced velar nasal /ŋ/ in Katuena (Cariban, Amerindian, Smoll 2015), the high tone in Emai (Nigeria, Egbokhare 2001), and the /tq'/ cluster in onset position in G|ui (Khoe, Nakagawa 2011). Ideophones also display partial or total repetition of morphs, special morphological marking, and distinct phrase/clause position.

* Online appendixes available from <https://doi.org/10.1075/ill.16.07iba>

This is the case of the triplicated form *ná-ná-ná* ‘walking arrogantly continuously’ in Etulo (Nigeria, Okoye and Egenti 2015), the deidephonical verbal circumfix *ka- -k* in Kambera (Austronesian, Klamer 2001), and the final-clause position in KiVunjo-Chaga (Bantu, Moshi 1993).

Second, they are bearers of a compact and multifaceted meaning; that is, not only do they describe an entity or an event, but also enact them both resulting in a vividly expressive and precise depiction. For example, the ideophone in Pastaza Quichua *dzir* refers to different kinds of smooth or hard frictional movements (sliding, rubbing, scraping, etc.) performed by different kinds of agents (from animals to plants and even the earth) (Nuckolls 2010: 40). When this ideophone is used in the expression *dzir kakuna* (IDPH rub), it can be paraphrased as ‘the way a type of leaf is rubbed repeatedly over a fishing hook before casting it out in the water to ensure a good match’ (Nuckolls 2001). Similarly, the Tuvan ideophone *tfuuzur tfuuzur* means ‘the sound of the tree tops moving, swaying, cracking, or snapping as a result of bears marking the trees by clawing at them and by scratching their backs up against them’ (South Siberian Turkic, Harrison 2004). Likewise, the Japanese ideophone *syinari-syanari* indicates a woman’s graceful manner of walking; walking with an affected gait, typical of the *maiko* in Kyoto with the rustling sound of their kimonos (Kakehi et al. 1996; Kimi Akita, p.c.).

What is interesting about ideophones such as *dzir*, *tfuuzur tfuuzur*, and *syinari-syanari* is that they encapsulate, in a very ‘economical’ way, an enormous amount of information. This information, encoded in a few sounds which could be the equivalent of whole sentences in other languages, is not just descriptive (i.e., the action of frictional, swaying, or graceful walking movement) but vividly depictive (i.e., the performance of frictional, swaying, or graceful walking movement) (see Clark 2016; Dingemanse 2012 for a review). This is probably one of the reasons why ideophones are usually produced together with gestures and prosody (Alpher 2001; Dingemanse 2013; Hatton 2016; Kita 1997; Mihas 2013), widely used for stylistic purposes – comics and poetics (Barrett 2014; Gasca and Gubern 2008; Lahti 2014; Pischedda 2017; Webster 2014), and extremely difficult to translate – the inevitable loss of depictive information (Casas-Tost 2012; Jawad 2010; Masubelele 2018; Noss 1985, 1999, 2003; Pogacar et al. 2017; Teilanyo 2010).

Ideophones are not exactly the same across languages, that is, they cannot be homogeneously characterised; however, they are bound to share a number of typological features such as those mentioned above (see Dingemanse 2012, 2017, 2018; Ibarretxe-Antuñano 2017 for an overview on typological characteristics). Languages, on the other hand, differ with respect to their ideophoncity, that is, the (high/low) number and use of ideophones. There are some language areas such as Africa, South America, and Southeast Asia, for example, where ideophone inventories are well-known, large, and crucial in the language system (see Akita and Pardeshi, this volume; Childs 2001; Diffloth 1972; Dingemanse 2017; Emeneau

1969; Hinton et al. 1994; Iwasaki et al. 2017; Kulemeka 1995; Lahaussais 2017; Samarin 1970; Voeltz and Kilian-Hatz 2001); whereas there are some other language areas such as Europe where these words are less prominent. Several reasons could jointly explain why: the number of ideophones is smaller (but see García de Diego 1968; Kloe 1977), they have already gone through a process of lexicalisation, or ‘deideophonisation’ (Childs 2001; Msimang 1987), that ‘hides’ their ideophonic origin (e.g., Spanish *chirriar* ‘to make a continuous, unpleasant, and scratchy noise, usually when scraping one thing against another’, Italian *sgnaccare* ‘squash, press, crush’), and/or simply they have been discarded as ‘childish’ sound imitations (e.g., English *splish-splash*, *higgledy-piggledy*).

In any case, it might not be too venturous to say that *all* languages, regardless of the size of their inventories, possess ideophones. It might be a question of distinguishing different subtypes of ideophones. One clear criterion is iconicity, that is, the degree of resemblance between the meaning of the ideophone and its form (cf. Hamano’s (1998: 9) ‘iconic resemblance scale’). In some ideophones, there is a clear perceived similarity between form and meaning (e.g., French *coucou* ‘cuckoo’, Italian *ciuf ciuf* ‘choo choo’, English *pit-a-pat*, German *klatsch* ‘slap, smack’) while in some others, this resemblance becomes less and less obvious (e.g., compare Aragonese *china-chana* ‘walk slowly, step by step’, Japanese *dosi-dosi* ‘march with stamping steps’, and Basque *dir-dir* ‘shine’). Ideophones such as *coucou*, *ciuf ciuf*, *pit-a-pat*, and *klatsch*, traditionally known as onomatopoeia, are probably found in every language, whereas the others, *china-chana*, *dosi-dosi*, and even more *dir-dir*, are likely to be less common.

Following previous work in this area (cf. Akita 2009: 20–32; Hamano 1998; Hinton et al. 1994; Kilian-Hatz 1999: 35–41), Dingemans (2012) builds the implicational hierarchy reproduced in (1) to explain the recurrence of ideophone subtypes cross-linguistically.

- (1) SOUND < MOVEMENT < VISUAL PATTERNS < OTHER SENSORY PERCEPTIONS < INNER FEELINGS AND COGNITIVE STATES

“if a language has ideophones at all it will have at least ideophones for sound (i.e. onomatopoeia). If a language has ideophones for movement it will also have ideophones for sounds. If a language has ideophones for visual patterns (e.g. spatial configuration or surface appearance), it will also have ideophones for movements and sounds, et cetera. Conversely, a language that does not have ideophones for sounds or movements will not have ideophones for cognitive states.”

(Dingemans 2012: 663)

As this hierarchy shows, the higher the degree of resemblance in the ideophone the higher the probability of occurrence across languages. This is expected since natural sounds can be ‘easily imitated’. However, one cannot forget the dual functionality of ideophones. They might be onomatopoeic reproductions of sounds, but they also

depict actions and events. This is what Katsuki-Pestemer (2014: 122) refers to as ‘semantic conflation’. Japanese *dosi-dosi* and German *klatsch* fall into this category; they both refer to the sound (‘stamp’, ‘slap’) and the manner of event (‘(march) stamping’, ‘(hit, fall) slapping’).

MOVEMENT, the topic of this chapter, occupies the second place in this hierarchy. According to Dingemanse (2012: 663), it “frequently comes packaged together with sound in sensory input, and to depict movement events, we can use not just sound but also the suprasensory attributes of speech, for instance intensity and aspectual structure [...] we can use reduplication to suggest repetition and the vowel space to suggest different grades of intensity”.

Similarly to Dingemanse, but almost two decades before, Hinton et al. (1994: 1–6) also single out this type of ideophones, which they called ‘movement imitatives’, in their sound symbolic categorisation for similar reasons. Based on “degree of direct linkage between sound and meaning”, and without the implicational character of Dingemanse’s hierarchy, these authors classify sound symbolism into four different categories as schematised in (2).

- (2) CORPOREAL (speaker’s internal state) → IMITATIVE (environmental) → SYNESTHETIC (visual, tactile, proprioceptive properties) → CONVENTIONAL (phonestemes)

Movement imitatives fall into the second category, imitative sound symbolism, since they are taken as “representation[s] of movement with the same kinds of sound symbolic forms that they use for the representation of sounds” (1994: 3).

No matter which hierarchy one prefers, what seems to be clear is that motion-related ideophones are good candidates to turn up cross-linguistically. A brief survey on some languages from the five continents (with and without alleged ideophone inventories) proves this to be truth. Table 1 illustrates the ubiquity of motion ideophones.

Table 1. The ubiquity of motion ideophones

Language (source)	Motion ideophones
Somali, Cushitic, Afro-Asiatic	<i>baw baw</i> ‘hopping lifting the legs from the ground together’ <i>daf</i> ‘rush in or out without noise’
Somalia (Dhoorre and Tosco 1998)	<i>fud</i> ‘come out unexpectedly and noiselessly’ <i>gaf</i> ‘come out, off’ <i>jalaw</i> ‘fall, drop in a narrow place’ <i>shuluq</i> ‘fall, drop into the water or a liquid’ <i>shulux</i> ‘fall into or out of something with a soft sound’ <i>wab</i> ‘fall down rolling’ <i>yulux</i> ‘pass through with a swishing sound’

Language (source)	Motion ideophones
Chichewa, Southern Bantu, Niger-Congo Malawi (Kulemeka 1993)	<p><i>č^hóli</i> ‘small object fall neatly into a deep hole’</p> <p><i>deseredesere</i> ‘slow movements of a fat person’</p> <p><i>dzandidzandi</i> ‘walk unsteadily everywhere’</p> <p><i>gubudu</i> ‘rocks knocking against other rocks rolling downhill or downstream’</p> <p><i>k^hu:vu:</i> ‘big object falling in water producing a splash’</p> <p><i>kwi:č^hi:</i> ‘stop completely’</p> <p><i>^msi:</i> ‘putting an object at the very top of a heap; not tying it but pressing it so that it clings precariously’</p> <p><i>ⁿdwi:</i> ‘sit motionless a long time’</p> <p><i>táŋátanja</i> ‘walk with legs spread apart and feet pointing in different directions’</p> <p><i>t^hápsát^hapsa</i> ‘walk on mud’</p> <p><i>thi thi thi</i> ‘feet stamping the ground’</p> <p><i>zúⁿgúlízúⁿgúli</i> ‘go round and round’</p>
Siwu, Kwa, Niger-Congo Ghana (Dingemanse 2011)	<p><i>gadara-gadara</i> ‘walk like a drunk’</p> <p><i>gidigidi</i> ‘running energetically’</p> <p><i>kpie</i> ‘careful step of an antelope’</p> <p><i>pɔ</i> ‘frog hop’</p> <p><i>yààà</i> ‘flowing quietly without obstruction’</p> <p><i>kɔtɔtɔ-kɔtɔtɔ</i> ‘walk like a tortoise’</p> <p><i>tsoàà</i> ‘splash; a sudden movement of water’</p> <p><i>nyemere-nyemere</i> ‘small snake wriggling’</p> <p><i>nyɔ̃ɔ̃</i> ‘big snake wriggling’</p> <p><i>kɔpɛgɛɛ</i> ‘proud upright body posture’</p>
Upper Necaxa Totonac, Totonac-Tepehua, Mesoamerican Mexico (Beck 2008)	<p><i>kunìkuni</i> ‘caterpillar crawling’</p> <p><i>laksliwilaksliwi</i> ‘a four-legged animal limping along on three legs’</p> <p><i>ʔanataná</i> ‘person running around in a panic because s/he is late’</p> <p><i>linʔilinjì</i> ‘a heavy animal walking and making the ground shake’</p> <p><i>luŋʔuluŋʔtu</i> ‘something jumping around’</p> <p><i>slupslup</i> ‘object falling into water’</p> <p><i>tʔafʔafʔ</i> ‘person moving quickly, person making an energetic motion’</p>
Pastaza Quichua, Quechuan Ecuador (Nuckolls 2014)	<p><i>aki</i> ‘kind of back and forth path of movement’</p> <p><i>chak</i> ‘X moves in the manner of X makes impact with something and X is spread outward’</p> <p><i>dzir</i> ‘frictional movement; X moves in the manner of X slides along surface’</p> <p><i>huy</i> ‘dangling motion’</p> <p><i>ki</i> ‘released objects spilling and configuring into a pile of heap’</p> <p><i>ling</i> ‘the insertion of something into a contained space’</p> <p><i>ʔuw</i> ‘a curving, back and forth movement’</p> <p><i>polo</i> ‘movement through a barrier’</p> <p><i>sa sa</i> ‘scattered; expanded or random movement from or within a locus’</p> <p><i>tupung</i> ‘X moves in the manner of X falls and X moves downward; falling into water with a resonant ‘kerplunk’-y kind of a sound’</p>

(continued)

Table 1. (continued)

Language (source)	Motion ideophones
Ashéninka Perené, Amazonian Arawak, Eastern Peru (Mihás 2012)	<i>pakarararara</i> 'falling of ripe fruit from a tree' <i>pitso pitso</i> 'a woman walking with gyrating hips' <i>sakiririri</i> 'a flock of birds flying in one direction' <i>sheroririri</i> 'sliding down the tree' <i>shetak shetak</i> 'walking limping (of polio victims or cripples)' <i>shiri shiri</i> 'slowly climbing up a tree' <i>shoi shoi</i> 'turning/walking around an object' <i>tapo tapo</i> 'leaping like a frog' <i>tek tek tek</i> 'running' <i>terempiri terempiri</i> 'moving in a curved trajectory' <i>tsomi tsomi</i> 'walking with bouncing breast' <i>tyaapaki tyaapaki</i> 'walking in a duck-like manner'
Kotan, Dravidian India (Emeneau 1969)	<i>burk</i> 'noise of flying up from ground' <i>cari-l cari-l</i> 'with noise of a snake's motion, glidingly' <i>cor cor</i> 'noise made in walking over fallen leaf' <i>daba-r</i> 'noise of a body falling in a heap onto ground from a height' <i>diḍḍiḍ</i> 'trampling noise' <i>golbak</i> 'noise of a large body falling into water' <i>gorḡor</i> 'swift movement' <i>gurḡur</i> 'noise of water running with a gurgle' <i>molmol</i> '(small objects, tears, etc.) fall in a shower' <i>neṭe-n</i> 'directly (of motion)'
Bengali, Indo-Aryan Bangladesh, India (Ráčová 2014)	<i>tiri</i> ; / <i>tirik'a</i> 'sudden skip' <i>kikil</i> / <i>kilbil</i> 'movement in a swarm (of fish, esp. small ones, worms, etc.)' <i>gaṭgaṭ</i> / <i>gaṭmaṭ</i> 'the sound of walking or marching firmly and arrogantly' <i>jhap</i> 'the sound of diving or falling into water or air suddenly; a sudden splashing sound' <i>jhaljhal</i> 'the state of hanging loosely' <i>ṭoṭo</i> 'continuous and frequent wandering without any aim' <i>tartar</i> 'quick climbing or the quick running of a stream' <i>tharthar</i> 'violently trembling or shaking' <i>thurthur</i> / <i>thurthur</i> 'constant trembling or inability to stand steady owing to decrepitude or weakness' <i>duṛduṛ</i> / <i>duṛdaṛ</i> 'noise of heavy and hurried footsteps or of the rumbling of cloud' <i>pilpil</i> 'a swarming crowd' <i>pyācpyāc</i> 'the noise caused by going along or wading through a slimy or miry place' <i>pharphar</i> 'fluttering noise as made by the repeated and rapid movement of a thin article in air' <i>phuṛuk</i> / <i>phuṛut</i> 'sudden flying away' <i>hanhan</i> 'walking or moving at a great speed' <i>hiṛhiṛ</i> 'rapid and violent dragging along or falling down'

Language (source)	Motion ideophones
Japanese, Japonic Japan (Kakehi et al. 1996; Akita 2009)	<p><i>doya-doya</i> ‘the manner in which a large number of people enter or leave a place together noisily’</p> <p><i>ettira-ottira</i> ‘the manner of walking with an unsteady gait, as if weighed down by something’</p> <p><i>giku-giku</i> ‘the state in which one’s movements are stiff and awkward’</p> <p><i>hyoi</i> ‘the manner of making a single light and nimble movement’</p> <p><i>hyoro-hyoro</i> ‘the manner of swaying unsteadily from side to side as one walks with faltering steps’</p> <p><i>nosi-nosi</i> ‘the manner of walking heavily’</p> <p><i>sorori-sorori</i> ‘the manner of moving slowly’</p> <p><i>ota-ota</i> ‘the manner of walking, stumbling or acting in a confused way’</p> <p><i>pyon-pyon</i> ‘the manner of jumping or hopping repeatedly’</p> <p><i>sina-sina</i> ‘the manner of moving gracefully and pliantly’</p> <p><i>toko-toko</i> ‘the walking, trotting, etc., with quick, short steps; the manner in which a slow-moving vehicle travels at its maximum speed’</p> <p><i>zuka-zuka</i> ‘the manner of walking into a place rudely or without hesitation’</p>
Semai, Aslian, Mon-Khmer Malaysia (Diffloth 1976; Tufvesson 2011)	<p><i>cid̥id̥</i> ‘impression of a short, chubby person, tilting from one side to another when walking’</p> <p><i>cm̥cayem</i> ‘contracted fingers of human or animal, not moving’</p> <p><i>cm̥cɲayem</i> ‘contracted legs of insect moving’</p> <p><i>dỹ:ldỹ:l</i> ‘the appearance of an object floating down a river and getting stuck here and there’</p> <p><i>klc̥w̥cklc̥w̥c</i> ‘irregular flapping circular movements (e.g., of a tortoise’s feet struggling to escape)’</p> <p><i>klknare:l</i> ‘an arrow or knife stiffly vibrating after embedding itself into a piece of wood; it can also describe the walk of a tall, skinny old man’</p> <p><i>laʔor</i> ‘impression of someone strolling in a carefree manner, eager to make contact with people’</p> <p><i>ɲnar̥a:w</i> ‘appearance of several people jumping’</p> <p><i>parparpar</i> ‘noise of appearance of birds in flight, of fish struggling among roots in water’</p> <p><i>perperper</i> ‘small bird or insect in flight’</p> <p><i>tustustus</i> ‘repeated sound of running fast’</p>
Numbami Papua New Guinea (Bradshaw 2006)	<p><i>galála-adala</i> ‘splashing, disrupting surface (as rain or fish feeding)’</p> <p><i>gidogido-adala</i> ‘trembling’</p> <p><i>golópu-adala</i> ‘slipping or dripping through’</p> <p><i>ká-andala</i> ‘bouncing back, ricocheting’</p> <p><i>kelekále(-adala)</i> ‘meandering, staggering’</p> <p><i>kilikála(-adala)</i> ‘crackling, scurrying, scampering’</p> <p><i>kilikili-adala</i> ‘scampering, scurrying, crackling’</p> <p><i>páku-adala</i> ‘plopping, splashing’</p> <p><i>palapála-adala</i> ‘flip-flopping, moving restlessly’</p> <p><i>pi-andala</i> ‘bouncing up, springing up, rising up (cf. <i>-pi</i> ascend, rise)’</p>

(continued)

Table 1. (continued)

Language (source)	Motion ideophones
	<p><i>sái-andala</i> ‘spurting, spraying’ <i>salála-adala</i> ‘slipping, sliding’ <i>solólo-adala</i> ‘plummeting, whistling’ <i>sulúpu-adala</i> ‘disappearing (cf. <i>sulúpama</i> underwater; <i>-suluma</i> get dark)’ <i>taká-adala</i> ‘stuck fast, planted firmly’ <i>talála-adala</i> ‘slipping, sliding’ <i>talápu-adala</i> ‘slipping, sliding’</p>
Jabêm Papua New Guinea (Bradshaw 2006)	<p><i>antagen</i> ‘with one leap, taking an enormous leap’ <i>balap</i> ‘get away with one forceful jump (said of game breaking away)’ <i>bambam</i> ‘the quicker flapping of wings just before a flying fox...settles on a branch’ <i>duḡduḡ</i> ‘stamping and tramping on the floor or ground, resounding’ <i>gaḡgaḡ</i> ‘splashing, e.g., when walking through water (cf. <i>gaḡ tagen</i>)’ <i>guluc-guluc(gen)</i> ‘roll about, move about (in the womb); rumble (in the stomach)’ <i>gwalac-gwalac</i> ‘splashing, e.g., while walking through water or a loud blow/clap/clatter/slap, as caused by hitting a board or shield with a stick’ <i>koḡ tagen</i> ‘noise caused by s.t. heavy falling onto s.t. elastic, e.g., s.t. falling from the upper room of a men’s house onto its bottom section’ <i>pélan tagen</i> ‘noise caused by an object hung up on a wall dropping/falling/sliding down’ <i>puiḡ tagen</i> ‘gliding, skidding, sliding, slipping off’ <i>solon tagen</i> ‘glide, slide, slip’</p>
Yir-Yoront, Paman, Pama-Nyungan Australia (Alpher 1994)	<p><i>chan</i> ‘of hanging or being suspended’ <i>chichichi</i> ‘of a dog running’ <i>chirr</i> ‘of a boat’s fast motion’ <i>churup</i> ‘of a manta ray landing on the water’ <i>nyom</i> ‘of losing one’s footing as one’s legs go rubbery, or when deep in water’; ‘of falling dead’; ‘of going under water, deliberately’ <i>pooor</i> ‘of floating up to surface of water’ <i>purr</i> ‘of emerging or appearing or rising ([...] general association with ‘upward’ and ‘downward’) <i>puy</i> ‘of setting off and going away’; ‘of turning aside from something finished’ <i>turr</i> ‘of jumping’ <i>tharrch</i> ‘of sudden upward motion’ <i>thut</i> ‘of assuming a stable relative position’ <i>wurl wurl wurl</i> ‘of running from water in a panic’ <i>wuuuu(t)</i> ‘of tree beginning to fall’</p>

Language (source)	Motion ideophones
Estonian, Balto-Finnic Estonia (Mikone 2001)	<i>jönt-jönt</i> 'move steadily, heavily' <i>kohvat-kohvat</i> 'move slowly, cumbersome, dragging along' <i>liipadi-laapadi</i> 'move heavily, cumbersome, dragging along' <i>tinga-tinga</i> 'move steadily, heavily with short steps' <i>tipa-tapa</i> 'walk carefully with quick and short steps' <i>tipp-tibinal</i> 'move with short and quick steps' <i>tuikadi-tuikadi</i> 'move swaying, staggering, waddling' <i>vinka-vinka</i> '(for a vehicle) when not heading straight, from one side to the other, zigzagging' <i>vuta-vuta</i> '(child's movements) quickly, easily, with short steps'
Catalan, Romance, IE Spain (Espinal 2006; Riera- Eures and Sanjaume 2010)	<i>banzim-banzam</i> 'swinging, rocking, especially when walking' <i>catric-catrac</i> 'sound of steps when walking or dancing with high-heels or similar shoes' <i>patrip-patrap, trap-trap</i> 'dry and repetitive sound of steps when walking or running with clogs or similar shoes' <i>pengim-penjam</i> 'walk idly, swaying, side to side, without any grace or enthusiasm' <i>tras-tras</i> 'sound of walking' <i>tris-tras</i> 'walk with determination towards a specific place' <i>xi</i> 'sound of a liquid spurting, gushing out forcefully and suddenly' (fountain, hose, tap) <i>xip-xap, patatxip-patatxap, patxip-patxap</i> 'splish-splash, splosh; murmur of water splashing when swimming' <i>xuc-xuc</i> 'sound of a train in rapid motion' <i>zim-zam</i> 'sound of things that swing such as waves, rocking chairs, and swings'
Basque, isolate Spain/France (Ibarretxe-Antuñano 2006)	<i>abuen-abuen</i> 'about to fall down' <i>bristi-brasta</i> 'walk hastily' <i>faia-faia</i> 'go' <i>fil-fil-fil</i> 'fall down slowly in circles' <i>firin-faran</i> 'walk to and fro aimlessly' <i>hilinki-halanka</i> 'walk with difficulty, trudge' <i>irrist</i> 'slide, slid' <i>jitipiti-hatapata</i> 'crawl' <i>klun-klan</i> 'rock (cradle)' <i>kruk-kruk</i> 'walk on snow' <i>pilimpi-palanpa</i> 'walk purposefully' <i>plisti-plasta</i> 'wade, splish-splash' <i>pur-pur-pur</i> 'exit (crowd)' <i>tenk</i> 'stop' <i>tipirri-taparra</i> 'run with difficulty' <i>tuku-tuku</i> 'walk little by little to leave unnoticed' <i>zapa-zapa</i> 'walk without stopping'

Data in Table 1 show not only that motion ideophones are found in languages across the world, but also that they codify different aspects of a motion event. They provide information about the entity that moves (Semai *perperper* ‘small bird or insect in flight’), the place where the movement takes place (Chichewa *t^hápsát^hapsa* ‘walk on mud’), the type of trajectory followed by the entity (Ashéninkan *terempiri terempiri* ‘moving in a curved trajectory’), and the way the movement is performed (Japanese *sina-sina* ‘the manner of moving gracefully and pliantly’).

These data immediately give rise to a couple of questions from a semantic typological perspective: (i) which semantic components are basic in motion ideophones and (ii) which of these semantic components are encoded across languages and how.

To date, studies on particular languages have classified motion ideophones using general categories such as Talmy’s Manner, Path, Ground, or Figure¹ (cf. Talmy 2000; Ibarretxe-Antuñano 2006; Boas 2008; Toratani 2012; Nuckolls 2014). Despite the usefulness of these classifications, they result insufficient to describe all the nuances of motion semantics and, above all, to carry out sound contrastive analyses from a cross-linguistic point of view. On the one hand, they are too broad (manner includes, for instance, motor patterns (walking, swimming, flying...), speed (fast, slowly), etc.). On the other, many of these motion ideophones are semantically multicategorical; that is, they include information of several semantic components and subcomponents. For example, Japanese *doya-doya* codifies manner (moving noisily), path (enter/leave), and figure (large number of people together), and Upper Necaxan *laksliwilakslwi* includes figure (a four-legged animal), and two manners (limping, three legs).

This chapter offers a first attempt to provide the necessary tools to build up a semantic typological classification for motion ideophones. Section 2 presents a tentative motion semantic grid for typological description, and Section 3 illustrates how this semantic classification can be applied to different languages at different levels of granularity. Section 4 discusses these results and points out future lines of research.

1. Talmy capitalises the initial in semantic components. Since the components in this chapter will be presented from a ‘neutral’ theoretical perspective, this convention will be avoided unless they specifically refer to Talmy’s work.

2. Motion semantic grid

The design of a semantic grid for motion is not an easy task. Motion is a semantic area that has been explored from many different perspectives, and therefore, the literature on what a motion event is and how it can be characterised is ample and varied. The choice of semantic properties for the grid is not easy either: the list of properties to be explored need to keep the balance between having to capture crucial semantic typological information and maintaining a workable and user-friendly number of elements.

The motion semantic grid builds on previous work on motion semantic components, mainly on Ibarretxe-Antuñano (2006), Cifuentes-Férez (2010), Nuckolls (2014, this volume), and Toratani (2012), and has been developed in collaboration with Kimi Akita. Before presenting the whole semantic grid a few formal clarifications are in place:

- i. The list of components in this motion grid is by no means exhaustive. It has to be taken as an open-ended list to be modified depending on two variables: necessity (crucial semantic information missing) and regularity (pervasive characteristic across several ideophones).
- ii. The label adopted for each of these components is thought to be as much self-explanatory and easily-understandable as possible. Some of these labels are easily recognisable in the motion literature, for instance, Talmy's figure, ground, path, etc.; some others are well-known in linguistics, for example, aspect. This is why in what follows only main components and those cases that require further explanation are fully described.
- iii. Third-level subcomponents may also include the second-level subcomponent to cover other unspecified cases (and therefore, to avoid an unmanageable dispersion of characteristics). For example, SOUND second-level subcomponent includes loud, mute, quiet, and sound. The latter is meant to be an umbrella term to cover any kind of noise.
- iv. Third-level subcomponents may appear reduplicated. If they are linked with a slash (/), it means that the subcomponents may occur alternatively in the semantics of the ideophone. For instance, Japanese *doya-doya* 'the manner in which a large number of people enter or leave a place together noisily' (enter or leave). If they are linked with a dash (-), it means that the subcomponents occur at the same time. For example, Semai *klknare:l* 'the walk of a tall, skinny old man' (tall and skinny).

The motion semantic grid as shown in Figure 1 consists on 7 first-level semantic components (in bold capital letters) subdivided into 26 second-level (in small caps) and 121 third-level (in roman) subcomponents:

- i. The first semantic component is **FIGURE**, i.e., the entity that performs the motion event, and it has three main second-level subcomponents: **QUANTA** (number of figures), **ANIMACY** (presence (or lack) of the quality of being alive) and **PHYSICAL CHARACTERISTICS** (size and shape).
- ii. The second component is **GROUND**, i.e., the entity or entities which the figure performs the motion event in relation to; it is further subdivided into **TYPE** (kind of matter) and **PHYSICAL CHARACTERISTICS** (size, shape, place).
- iii. The third component is **PATH**, i.e., the course followed by the Figure, It has three second-level subcomponents: **CONTOUR** (shape of path), **DIRECTION** (trajectory), and **DEIXIS**.
- iv. The fourth component is **MOTION**, i.e., the presence (or lack of) motion per se, further subdivided into **MOVEMENT** (translational and locomotive motion is performed) and **STATIONARY** (lack of translational motion but a stationary situation).
- v. The fifth component is **MANNER**, the biggest with twelve second-level subcomponents: **MOTOR PATTERN** (body positions required for performing motion), **ENERGY** (stamina required), **RATE** (speed of motion), **FORCE** (strength), **REGULARITY** (degree of uniformity), **STEP** (length and type of steps), **LEG** (number of legs), **INSTRUMENT** (gadget or vehicle), **SOUND** (presence or absence of noise), **POSTURE** (position in which the figure holds their body), **FIGURE-INDUCED BEHAVIOUR** (figure's attitude, characteristics, etc., relevant for the manner of motion), and **CASUALNESS** ((un)expectedness of event).
- vi. The sixth component is **CAUSE** and it covers information about two second-level subcomponents, **CAUSER** (agent) and **REASON** (justification or explanation).
- vii. Finally, the seventh component is **EVENT EXTENSION**, with **PHASE** (event stage) and **ASPECT** (attributes related to the event²) as its second-level subcomponents.

The following section provides illustrative examples of how this etic grid can be applied to describe motion ideophones across languages.

2. The semantic component **ASPECT** has to be taken as a broad, theory-free category that includes general notions 'adapted' (i.e. not necessarily interpreted in the same rigid way) from both grammatical and lexical aspect. The list of third-level subcomponents can be easily expanded given the number of aspectual categories in the literature (see Binnicker 2012; Comrie 1976).

- 1. FIGURE
 - QUANTA
 - one
 - two
 - plural
 - mass
 - ANIMACY
 - inanimate
 - animate
 - human
 - child
 - adult
 - old
 - non-human
 - no-legs
 - bipedal
 - quadrupedal
 - other
 - PHYSICAL CHARACTERISTICS
 - size
 - shape
 - other
- 2. GROUND
 - TYPE
 - gaseous (e.g., air)
 - liquid (e.g., water)
 - slippery (e.g., ice)
 - solid (e.g., earth)
 - viscous (e.g., mud)
 - PHYSICAL CHARACTERISTICS
 - place (3-D, 2-D, everywhere...)
 - shape
 - size
- 3. PATH
 - CONTOUR
 - circle
 - straight
 - zigzag
 - contour
 - DIRECTION
 - along
 - away
 - back
 - down
 - forward
 - from
 - in
 - off
 - out
 - through
 - towards
 - up
 - direction
- DEIXIS
 - andative
 - venitive
- 4. MOTION
 - MOVEMENT
 - STATIONARY
- 5. MANNER
 - MOTOR PATTERN
 - body motion (all body)
 - fly
 - jump
 - obstructed (problems)
 - run
 - swim
 - walk
 - ENERGY
 - low
 - medium
 - high
 - RATE
 - very fast
 - fast
 - medium
 - slow
 - very slow
 - FORCE
 - smooth
 - forceful
 - controlled
 - unrestrained (e.g., uncontrolled)
 - force
 - REGULARITY
 - regular
 - irregular
 - STEP
 - size (long, short)
 - type (hard, soft, unsteady, sure, other)
 - LEG
 - one
 - two
 - three
 - four
 - four+
 - leg
 - INSTRUMENT
 - object (e.g., skate)
 - transport (e.g., car)
 - SOUND
 - loud
 - quiet
 - mute
 - sound
- POSTURE
 - crouched
 - erect
 - hanging
 - horizontal
 - leaning
 - sitting
 - posture
- FIGURE-INDUCED BEHAVIOUR
 - attitude (e.g., proud)
 - physical (e.g., fatness)
 - purpose (e.g., furtive)
- CASUALNESS
 - expected
 - sudden (e.g., abrupt)
- 6. CAUSE
 - CAUSER
 - artificial
 - natural
 - REASON
- 7. EVENT EXTENSION
 - PHASE
 - before
 - beginning
 - middle
 - end
 - after
 - ASPECT
 - accidental (by chance)
 - accomplishment (completely)
 - attenuative (softer)
 - causative (enforced)
 - continuative (still happening)
 - defective (almost)
 - durative (a certain amount of time)
 - frequentative (repeated event)
 - habitual (occurring habitually)
 - imperfective (unfolding)
 - intensive (stronger, more forceful)
 - intentional (on purpose)
 - iterative (repeatedly, same event)
 - moderative (neutral)
 - momentane (once)
 - perfective (completed)
 - prospective (about to happen)
 - protractive (same event on and on)
 - punctual (point in time)
 - resultative (with consequences)
 - segmentative (successive)

Figure 1. Semantic grid for motion ideophones

3. Motion semantic grid into practice

In order to illustrate how the motion semantic grid works and some of its advantages, two different analyses are presented. The first study corresponds to a first-level analysis of 453 Basque ideophones. The second study presents a fine-grained second- and third-level subcomponent analysis on the 186 motion ideophones compiled in Table 1 (see Section 1).

3.1 First-level semantic components in Basque ideophones

One of the possible applications of the motion semantic grid is to study how first-level semantic components are distributed in one particular language. This will allow us (i) to have a general overview of those semantic areas that are prominent for one language with respect to motion ideophones, and (ii) to observe how semantically complex these ideophones are, i.e., how many semantic components are combined in one single ideophone.

On this occasion, Basque motion ideophones will illustrate how a first-level semantic component study works. Basque is a language with a rich ideophonic inventory (see Ibarretxe-Antuñano 2017 for an overview) and, as expected, a large part of this lexicon is devoted to the description of motion.

As part of the semantic typological procedure, the items under study have to be selected on the basis of two main criteria:

- i. Criterion 1: (if possible) they have to be attested in a reliable source (dictionary, descriptive grammar, etc.). This restriction has a double purpose. On the one hand, it provides a ‘citation lemma’ that covers different variations (dialectal, orthographical, etc.) of the same ideophone. On the other, it controls the inclusion of items on the basis of their ‘conventionalisation’. That is, it avoids a typical characteristic of ideophones: speakers’ ad hoc creation.
- ii. Criterion 2: their first and/or only meaning has to be related to motion. Ideophones are very polysemous and can be adapted to a wide range of contexts. This criterion allows only those ideophones whose only meaning is devoted to motion or those whose first, and therefore, prototypical meaning, is related to motion.

In the case of Basque, all ideophones have all been drawn from the *Orotariko Euskal Hiztegia* (OEH, *General Dictionary of the Basque Language*, Mitxelena 1985–2005). The OEH is a sixteen-volume dictionary that compiles all the information available for each entry including not only dialectal variations and diachronic/synchronic meanings but also attributed quotations. The OEH guided the choice of ideophone lemmas and the inclusion of all the corresponding variations under the same entry. It also provided the basic meaning in Basque, French, and Spanish. This was later expanded and translated into English.

The result is a corpus of 453 ideophone lemmas.³ As illustrated in Figure 2, each lemma contains a list of variations (forms), a meaning description in English

3. This corpus and study have thus to be taken as a revised and updated version of Ibarretxe-Antuñano’s (2006) first analysis of motion ideophones.

<i>ideophone</i>	type	<i>forms</i>	translation	FIGURE	GROUND	PATH	MANNER	CAUSE	MOTION	EVENT EXTEN.
<i>bristi-brasta</i>	R	bristi-brasta, brista-brasta, brista-brista, fristi-frasta, frixti-fraxta, fixiti-faxta, brixta-brixta, fristan	walk hastily				MANNER		MOTION	
<i>tzapast</i>	S	tzapast, tzapasta, txapasta, zapasta, xapasta, sapast, tzapastaka, tzapastatu	swash, liquid moving in a container	FIGURE	GROUND		MANNER		MOTION	
<i>durdulaxka</i>	D	durdulaxka, durdulaska, durduilaxka, durdullaska, durdullekatu	spinning rolling			PATH	MANNER		MOTION	

Figure 2. An example of first-level component analysis in Basque ideophones

(translation), and a first-level component analysis. On top of this, information about the structure of the ideophone has also been included (type). Ideophones are largely iconic, and therefore, their form might explain the presence of some semantic (sub)components. There are three types of structure: reduplicated forms (R = 254), singleton forms (S = 135), and derived forms (D = 64).

The full first-level component analysis of the Basque motion ideophone corpus can be found in Appendix 1 (<https://doi.org/10.1075/ill.16.07iba.appendix1>). With respect to the saliency of a semantic component, as shown in Table 2, this analysis reveals that MANNER is by far the most frequent encoded information, and CAUSE the least prominent. MOTION is not taken into account in this case since it is present in all ideophones (either as MOVEMENT or STATIONARY).

Table 2. Distribution of first-level components in Basque ideophones

First-level component	Tokens
MOTION	453 (100%)
MANNER	440 (97.15%)
EVENT EXTENSION	168 (37.08%)
PATH	98 (21.63%)
FIGURE	63 (13.9%)
GROUND	53 (11.69%)
CAUSE	5 (1.1%)

EVENT EXTENSION is an interesting case to be discussed further. Within this component, ideophones such as *traka* ‘start walking stealthily’ describe the PHASE of the motion event, that is, the beginning or the end. Most of these ideophones, however, encode different types of aspectual information (see Section 2) as illustrated in (3).

- (3) ASPECT in ideophones
- a. Causative: *zirri-zarra* ‘drag clumsily’
 - b. Frequentative: *tristi-trosta* ‘swarm around’; *garra-garraka* ‘rolling around’
 - c. Intensive: *dzaust* ‘throw something and put it into an opening or corner deeper than *dzast*’
 - d. Intentional: *zirin-zirin* ‘flow, slide on a slope (intentionally)’
 - e. Iterative: *birun-birun* ‘go around in circles, rolling’; *punpa-punpaka* ‘tumble down’
 - f. Prospective: *abuen-abuen* ‘about to fall down’
 - g. Protractive: *zapa-zapa* ‘walking without stopping’; *tipi-tapa* ‘walk in small steps’
 - h. Punctual: *txonbo* ‘dive, dipping one’s head in the water’, *pinpa* ‘bounce (ball, elastic object)’; *krak* ‘stop suddenly’

Sometimes this kind of aspectual information has been overlooked in the discussion of ideophones (but see Nuckolls (2014) for Pastaza Quichua). On many occasions, the definitions (or translations, and hence, analyses; see, for instance, Ibarretxe-Antuñano 2006) of ideophones do not capture some of these aspectual ‘nuances’; they focus on the speed, the kind of ground or figure, or the direction. However, their aspectual information is crucial; it is part of the full depictive power in these words. For instance, *tipi-tapa*, perhaps one of the most frequent motion ideophones in Basque, is defined as ‘walk in small steps’. MANNER is indeed a main trait in this ideophone, but so is its protractive ASPECT. *Tipi-tapa* is not just walking in small steps but also continuously. Sometimes it is even the key aspect to distinguish between similar ideophones as in *dzast* and *dzaust*; both mean to throw something and put it into an opening or corner; their difference lies on the intensive ASPECT of the latter. The study of ASPECT in ideophones, not only the different types but its relation with their form (singleton, reduplicated, and derived), is an issue that deserves further research in the future.

In relation to the combination of semantic components, the most frequent patterns combine two or three semantic components, and the most complex pattern encodes five components, but with only two tokens. Table 3 compiles all the combinatory possibilities found in the data.

Table 3. Combinations of first-level components in Basque ideophones

# comp.	Combinations example	Tokens	Total tokens
1	----	0	0
2	MANNER + MOTION <i>hili-hili</i> ‘walk clumsily, without energy’	185	190
	PATH + MOTION <i>apitxin</i> ‘leave’	1	
	EE + MOTION <i>faia-faia</i> ‘go (non-stop)’	4	
3	EE + MANNER + MOTION <i>drak</i> ‘stop suddenly’	88	171
	PATH + MANNER + MOTION <i>tal-tal</i> ‘walk from one place to another’	28	
	GROUND + MANNER + MOTION <i>dza-dza</i> ‘walk on soft snow’	24	
	FIGURE + MANNER + MOTION <i>zara-zara</i> ‘fly slowly (birds)’	22	
	FIGURE + PATH + MOTION <i>aurt</i> ‘turn round (cattle)’	5	
	CAUSE + MANNER + MOTION <i>tuku-tuku</i> ‘walk little by little to leave unnoticed’	3	
	EE + PATH + MOTION <i>sast</i> ‘put an object into another’	1	
4	PATH + EE + MANNER + MOTION <i>firri-farraka</i> ‘rolling, spinning very fast’	38	73
	FIGURE + GROUND + MANNER + MOTION <i>pilisti-palasta</i> ‘move water in a bucket’	10	
	FIGURE + EE + MANNER + MOTION <i>txin-txin-txin</i> ‘jump (small insect)’	10	
	GROUND + EE + MANNER + MOTION <i>txonbo</i> ‘dive, dipping one’s head in the water’	8	
	FIGURE + PATH + MANNER + MOTION <i>bar-bar</i> ‘rhythmic falling of a light body’	5	
	EE + CAUSE + MANNER + MOTION <i>kluk</i> ‘stop out of tiredness’	1	
	FIGURE + PATH + EE + MOTION <i>pur-pur-pur</i> ‘exit (crowd)’	1	
5	FIGURE + PATH + EE + MANNER + MOTION <i>taska-taska</i> ‘fall down (tears)’	8	17
	GROUND + PATH + EE + MANNER + MOTION <i>plaf</i> ‘fall down in water’	8	
	GROUND + PATH + CAUSE + MANNER + MOTION <i>firi-firika</i> ‘spin, roll when thrown in the air’	1	
6	FIGURE + GROUND + PATH + EE + MANNER + MOTION <i>dzaust</i> ‘throw something and put it into an opening or corner deeper than <i>dzast</i> ’	2	2

3.2 All-level semantic components for ideophones across languages

One of the major applications of the motion semantic grid is to unveil typological similarities and differences in the distribution and prominence of motion (sub) components in ideophones across languages. As shown in Section 1, motion ideophones are ubiquitous; they describe different aspects of motion and, given the results on Basque motion ideophones in Section 3.1, **MANNER** is possibly the most frequent semantic component encoded. However, several questions arise: Are ideophones equally complex across languages? Do ideophones have different preferences when encoding second- and third-level subcomponents?

In order to obtain sound typological answers for these two questions, one would need to apply the complete motion semantic grid to whole motion ideophone inventories in different languages. But, before jumping into a large-scale typological study, it is crucial to test the validity of the motion semantic grid on a sample of motion ideophones from different languages. With this goal in mind, this section examines the 186 ideophones compiled in Table 1.

The selection of these ideophones followed the two criteria described in Section 3.2: they were drawn from attested reliable sources (dictionaries (e.g., Catalan, Japanese), research articles (e.g., Ashéninka, Jabêm), and books (e.g., Chichewa, Basque); see references in Table 1) and their first/only meaning, according to the sources, relates to motion. In addition to these two criteria, the choice of these specific ideophones depended on the sources⁴. In some cases, the list includes all the suitable ideophones available in the source (e.g., Totonac, Somali). In some other cases, where the source provided a large list of suitable motion ideophones to choose from (e.g., Japanese, Basque) the selection was mainly ad hoc; they only have to be formally (phonemically) different. The sixteen languages were selected on the basis of their geographical and genetic diversity. Appendix 2 (<https://doi.org/10.1075/ill.16.07iba.appendix2>) contains the results of the all-level (sub)component analysis of these ideophones.

Given the restrictions about the selection of ideophones, it is not possible to draw sound conclusions on the prominence of a certain (sub)component or component combination. This will have to be done in the future when full motion ideophone inventories are examined. However, it is indeed possible to highlight a few general tendencies with respect to both component prominence and complexity.

4. It is important to bear in mind that the definitions/explanations that these sources provided were the only information used for the semantic classification. Ideophones are not only tricky to define but also usually performed together with suprasegmentals and gestures; elements that add and complete the ideophone information. The analysis in Appendix 2 has to be taken as an illustrative example of how the motion semantic grid works, but any future large-scale study with the motion semantic grid should take into account these elements.

Table 4 summarises results on the prominence of the first-level component. Bold numbers indicate the most prominent within a language and the shaded box, the most prominent across languages. Since MOTION is present in all ideophones it is not included in this chart.

Table 4. Prominence of first-level component within (bold) and across languages (shaded box)

Language	Total # ideophones	# Ideophones with this first-level component					
		FIGURE	GROUND	PATH	MANNER	CAUSE	EE
Somali	9	0	2	9	8	0	0
Chichewa	12	4	6	5	10	0	4
Siwu	10	3	1	4	10	0	1
U. N. Totonac	7	7	1	1	7	1	3
P. Quichua	10	0	4	9	7	1	4
Ashéninka P.	12	4	3	6	10	0	0
Kotan	10	3	3	5	9	0	0
Bengali	17	4	3	6	17	2	3
Japanese	13	2	0	13	13	1	1
Semai	13	11	5	4	13	2	6
Numbami	17	2	0	5	17	0	1
Jabêm	11	3	6	6	11	0	3
Yir-Yoront	14	4	4	7	11	1	2
Estonian	9	2	0	1	8	0	0
Catalan	10	4	2	3	10	0	0
Basque	17	3	2	5	14	2	6

With respect to the prominence of first-level components, **MANNER**, as expected, is the most frequently encoded component in all languages, except in Somali and Quichua (where **PATH** is), and **CAUSE** is the least prominent. As far as the other components are concerned: **FIGURE** stands out in Upper Necaxa Totonac (100%, all ideophones) and also in Semai (84.61%); **GROUND** in Chichewa (50%) and Jabêm (54.55%); **PATH** in Somali (100%), Japanese (100%), and Quichua (90%), and **EVENT EXTENSION** in Semai (46.15%).

In relation to the complexity of first-level components combinations, the range of combinations goes from two elements (e.g., Kotan *goꝛgoꝛ* ‘swift movement’ encodes **PATH** and **MANNER**; Ashéninka Perené *terempiri terempiri* ‘moving in a curved trajectory’, **PATH** and **MOTION**) to the most complex with six, which only happens in Semai (e.g., *dȳ̄:l̄dȳ̄:l̄* ‘the appearance of an object floating down a river and getting stuck here and there’ encodes all components but **CAUSE**).

Besides these descriptive results, what this motion semantic grid really shows is that this type of typological analysis does require such as a fine-grained analysis. First-level component analysis fell short when unveiling differences across languages. Let us have a look at some examples.

It has been just mentioned that **MANNER** is the most prominent component in most languages; however, the type and quantity of second- and third-manner subcomponents is not necessarily the same as shown in Table 5.

Table 5. Second- and third-level subcomponents in **MANNER** across languages

Second-level subcomponents Tokens	Third-level subcomponents	Tokens
MOTOR PATTERN 99	body motion (all body)	21
	fly	6
	jump	12
	obstructed (problems)	3
	run	8
	swim	2
	walk	47
ENERGY 17	low	6
	medium	2
	high	9
RATE 30	very fast	7
	fast	17
	medium	1
	slow	5
FORCE 63	very slow	0
	smooth	20
	forceful	15
	controlled	4
	unrestrained (e.g., uncontrolled)	24
REGULARITY 37	force	0
	regular	18
STEP 14	irregular	19
	size (long, short)	8
LEG 10	type (hard, soft, unsteady, sure, other)	6
	one	1
	two	3
	three	1
INSTRUMENT 2	four	4
	four +	1
	object (e.g., skate)	2
	transport (e.g., car)	0

(continued)

Second-level subcomponents Tokens	Third-level subcomponents	Tokens
SOUND 33	loud	3
	quiet	3
	mute	2
POSTURE 19	sound	25
	crouched	2
	erect	5
	hanging	4
	horizontal	0
	leaning	1
	sitting	1
FIGURE-INDUCED BEHAVIOUR 39	posture	6
	attitude (e.g., proud)	12
	physical (e.g., fatness)	23
CASUALNESS 15	purpose (e.g., furtive)	4
	expected	0
	sudden (e.g., abrupt)	15

MOTOR PATTERN (99 tokens) is the most prominent second-level subcomponent, followed in the distance by FORCE with 63 tokens. INSTRUMENT is the least prominent subcomponent (2 tokens), followed by LEG (10 tokens). Similarly, on the third-level subcomponents, the distribution of occurrences is also quite different within categories. In REGULARITY, for example, the distribution of third-level subcomponents is balanced, whereas in RATE, fast is the most prominent, or in CASUALNESS, expected is not found.

Similar results are found in other first-level components. For instance, as shown in Table 6, the most prominent second-level subcomponent in PATH is DIRECTION (68 tokens) and within this, the third-level subcomponent down (18 tokens).

However, one of the most powerful applications of the motion semantic grid at the subcomponent level is that it allows us to draw interesting cross-linguistics comparisons between and within languages. Subcomponents reveal differences between languages. For example, languages in Table 7 share the same number and type of first-level components: MOTION and MANNER. However, a look at the subcomponents shows that the information (number and type) they encode and the way it is combined is not exactly the same. For example, Bengali *tharthar* has the STATIONARY subcomponent and, thus, differs from the rest of the ideophones with the MOTION first-level component. Similarly, Somali *fud* is the only one with the subcomponent [CASUALNESS (sudden)]. These differences also arise within languages as illustrated in Chichewa and Numbami examples. This fine-grained analysis also reveals interesting similarities. For instance, the combination of

Table 6. Second- and third-level subcomponents in PATH across languages

Second-level Subcomponents Tokens	Third-level subcomponents	Tokens
CONTOUR 17	circle	9
	straight	1
	zigzag	7
	contour	0
DIRECTION 68	along	4
	away	4
	back	1
	down	18
	forward	0
	from	1
	in	4
	off	1
	out	7
	through	3
	towards	1
	up	10
	direction	2
	back-forward	3
	down-in	4
	up-down	2
	in / out	3
DEIXIS 6	andative	4
	venitive	2

MOTION [**MOVEMENT** (movement)] + **MANNER** [**MOTOR PATTERN** (body motion), **FORCE** (smooth), **REGULARITY** (regular)] seems to be quite widespread. Languages from around the world such as Ashéninka Perené, Basque, Jabêm, Numbami, and Siwu have ideophones to describe this kind of motion.

Table 7. A sample of second- and third-level subcomponents in the combination MANNER + MOTION across languages

Language	Ideophone	MOTION					MANNER								
		Move.	Station.	M.P.	Energy	Rate	Force	Regul.	Step	Leg	Instr.	Posture	F-I-behav.	Casu.	Sound
Ashéninka	<i>sheroririri</i> 'sliding down the three'	move.		body m.			smooth	regul.							
	<i>pilinpi- palanpa</i> 'walk purposefully'	move.		walk	high								purp.		
Basque	<i>irrist</i> 'slid, slide'	move.		body m.			smooth	regul.							
Bengali	<i>tharthar</i> 'violently trembling or shaking'		station.				forceful	irregul.			erect				
Catalan	<i>catric-catrac</i> 'sound of steps when walking or dancing with high-heels or similar shoes'	move.		walk							object				sound
Catalan	<i>patrip-patrap / trap-trap</i> 'dry and repetitive sound of steps when walking or running with clogs or similar shoes'	move.		walk							object				sound

(continued)

Table 7. (continued)

Language	Ideophone	MOTION						MANNER							
		Move.	Station.	M.P.	Energy	Rate	Force	Regul.	Step	Leg	Instr.	Posture	F-I-behav.	Casu.	Sound
Chichewa	<i>táŋátaya</i> 'walk with legs spread apart and feet pointing in different directions'	move.		walk						two		posture			
Chichewa	<i>thi thi thi</i> 'feet stamping the ground'	move.			high		forceful			two					
Estonian	<i>tuikadi-tuikadi</i> 'move swaying, staggering, waddling'	move.		obstruct.				irregul.							
Jabêm	<i>soloŋ tageŋ</i> 'glide, slide, slip'	move.		body m.			smooth	regul.							
Japanese	<i>toko-toko</i> 1 'the walking, trotting, etc., with quick, short steps'	move.		walk			fast			size					
Kotan	<i>diḍdiḍ</i> 'trampling noise'	move.		walk			forceful			type					sound
Numbami	<i>kilikála(-adala)</i> 'crackling, scurrying, scampering'	move.		walk			fast			size					

(continued)

Table 7. (continued)

Language	Ideophone	MOTION					MANNER								
		Move.	Station.	M.P.	Energy	Rate	Force	Regul.	Step	Leg	Instr.	Posture	F-I-behav.	Casu.	Sound
Numbami	<i>kilikili-adala</i> 'scampering, scurrying, crackling'	move.		run						type			attit.		
Numbami	<i>salála-adala</i> 'slipping, sliding'	move.		body m.			smooth	regul.							
Quichua	<i>huy</i> 'dangling motion'	move.					smooth				hanging				
Siwu	<i>gadara-gadara</i> 'walk like a drunk'	move.		walk				irregul.				phys.			
Siwu	<i>yààà</i> 'flowing quietly without obstruction'	move.		body m.			smooth	regul.							quiet
Totonac	<i>luytuytu</i> 'something jumping around'	move.		jump											
Somali	<i>baw baw</i> 'hopping lifting the legs from the ground together'	move.		jump						two					
Somali	<i>fud</i> 'come out unexpectedly and noiselessly'	mov.												sudden	mute

4. Conclusions: Motion ideophones from a semantic typological perspective

The description of motion ideophones from a semantic typological perspective is challenging. On the one hand, ideophones are bearers of a compact and multifaceted meaning; that is, they encapsulate an enormous amount of depictive information in just a few sound sequences. On the other hand, every language devotes some structures to describe spatial and motion notions, but not every language focuses on the same type of information. Motion ideophones ‘inherit’ these traits and, thus, they are ubiquitous and semantically complex.

The main goal of this chapter has been to provide the necessary tools to make the cross-linguistic study of motion ideophones less challenging. With this goal in mind, the motion semantic grid has been developed. It consists of three different levels of semantic components: 7 first-level, 26 second-level, and 121 third-level. These levels are designed to both capture general tendencies as well as to unveil specific nuances in the semantics of motion ideophones within and across languages.

The motion semantic grid has been applied to two different studies, one on 453 Basque ideophones and one on 186 ideophones from sixteen genetically and geographically different languages. Results show that semantic components are not equally prominent. On a (non-implicational) cline of prominence, first-level components can be placed as follows: **MOTION** → **MANNER** → **PATH** → **FIGURE** → **GROUND** → **EVENT EXTENSION** → **CAUSE**. Although there are some differences in the order of middle components (e.g., **EVENT EXTENSION** is the second most prominent in Basque), **MANNER** is by far the most salient and **CAUSE** the least. As far as their combinatory possibilities, the number of combined components ranges from two to six (quite salient in Semai), but most ideophones combine two or three components (30.36% and 39.79%, respectively). The same combinatory patterns hold for Basque ideophones.

These similarities become less obvious in the analysis of second- and third-level components. It has been shown that ideophones, similar at the first-level, offer quite a different picture at these fine-grained levels. Bengali *tharthar* ‘violently trembling or shaking’ and Catalan *catric-catrac* ‘sound of steps when walking or dancing with high-heels or similar shoes’ share **MOTION** and **MANNER**, but none of their subcomponents.

However, this fine-grained level analysis does not only reveal differences but also similarities. For instance, several subcomponents tend to occur together ([**PATH DIRECTION** (down) and **MANNER FORCE** (unrestrained)]), while others hardly turned up in the corpus ([**MANNER INSTRUMENT**], [**MANNER CASUALNESS** (expected)], **MANNER RATE** (very slow])). There are also interesting crosslinguistic tendencies in relation to the encoding of certain types of information. For example,

most languages have ideophones to describe ‘sliding motions’ and ‘walking with information about rate and size of steps’.

Given the corpus that has served as the basis for this crosslinguistic study, it is not possible to push too far these tendencies or to establish other kinds of implicational hierarchies. In order to do so, more languages, full motion ideophone inventories (not a sample), statistical methods, etc. are required. It is nonetheless significant that, despite limitations, these similarities have become already evident. This is surely an indicative of the great potential of a descriptive tool such as the motion semantic grid. A potential that hopefully future studies will unleash and make the most of.

Acknowledgements

This research has been supported by grants FFI2013-45553-C3-1-P and FFI2017-82460-P from the Spanish Ministry of Economy, Industry, and Competitiveness and by the Government of Aragon (Psylex H11-17R). I would like to express my deepest gratitude to the editors. Not only did they organise a wonderful, stimulating, and, probably, once-in-a-lifetime workshop in Japan in 2016 but also patiently (and politely) cope with my unforgivable tardiness. Special thanks to Kimi Akita for being always available to quickly supply me with ideophone information.

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Appendixes

Online appendixes 1 and 2 can be found at <https://doi.org/10.1075/ill.16.07iba>

The sensori-semantic clustering of ideophonic meaning in Pastaza Quichua

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I formulate an approach to ideophone semantics which, though based on a corpus from Pastaza Quichua, a South American indigenous language, has potential for analyzing the semantics of ideophone systems more generally. Research on ideophones' formal properties has preoccupied an increasing number of scholars, while systematic semantic analyses are lagging. Ideophones' semantics pose challenges because of their intonation and gesture, sound symbolism, and sensory complexity. These qualities require an approach going beyond the traditional mono-sensory classifications, which have dominated ideophones' semantic descriptions. Using a sensory cluster diagram featuring an implicational logic based on 10 super- and subcategories of sensory experience, this paper analyzes a sample of ideophones drawn from an online corpus featuring 500 archived ideophones.

1. Introduction

In his essay *Modes of Meaning* ([1951] 1964: 193) the linguist J. R. Firth said the following: "To begin with, we must apprehend language events in their contexts as shaped by the creative acts of speaking persons". This quote represents a guiding principle for my study of a contextually rich way of speaking, involving the class of expressions known as ideophones. Ideophones are sound-imitative words that simulate or depict senses, perceptions, and emotions.¹ Although African and Asian languages are best known for their extensive ideophonic vocabularies, "every major

1. Ideophones' special mode of meaning will be referred to with the terms 'simulate', 'perform', 'depict' and 'enact'. The term 'depict' is indebted to Dingemanse (2012), who has been influenced by scholars of art (Goodman 1968), and gesture, especially Streeck (2008). Depiction is considered by Streeck to be an alternative to the semiotic concept of iconicity, which is Peirce's term for relationships of resemblance between a sign vehicle and what it communicates about. Streeck's position is that iconicity is overly restricted to relations of resemblance. Depiction is offered as

continent has some languages with a developed ideophonic lexicon” (Akita and Pardeshi, this volume). A common stance adopted by linguists has been to foreground ideophones’ distinctiveness from their languages’ typical structural patterns in order to call attention to the urgency of expanding our views of what a linguistic system must include (Diffloth 1976; Kita 1997; Kunene 2001). Now that ideophones are more established as a legitimate topic for linguistic inquiry, an increasingly common strategy is to identify possibilities for ideophones’ integration within their respective languages’ subsystems (Dingemanse 2017; Newman 2001; Nuckolls et al. 2016), and further, to seek typological generalizations for ideophones (Akita 2009; Akita and Tsujimura 2016).

Integrative studies have focused mainly on the phonology, morphology and syntax of ideophones, although preliminary generalizations exist for semantics (Dingemanse 2012). For the most part, however, semantics seems to occupy a kind of ‘final frontier’ for integrative analyses. For example, even in fairly recent work, ideophones have been said to be so dependent on adjacent words and other contexts that they “do not seem to have independent semantics” (Bodomo 2006: 207). Their meanings have also been characterized as “highly elusive” (de Schryver 2009).

This chapter seeks to analyze the regularities of ideophone semantics in Pastaza Quichua by first of all outlining their sensori-semantic organization. Based on archived, audiovisual data consisting of over 500 ideophone utterances from two closely related dialects, the Pastaza Quichua, or PQ, and the Upper Napo Province or NQ dialects of Amazonian Ecuador, I will argue that 10 categories are relevant for understanding the semantic structure of most ideophones in this language.² Second, I will show that although these 10 categories are separable in principle, most ideophones tend to cluster two or more of them together. It is not my intention to use these 10 categories for the purpose of exhaustively accounting for the unlimited pragmatic nuances and subtleties of ideophone use. The purpose of positing these categories is to determine the extent to which ideophone’ semantics are multisensory in their depictions. The answer to this question has implications

an alternative that is intended to account for the complex blend of imagic and indexical movements that evoke, rather than simply resemble, what is communicated.

I use the term ‘simulate’ when a speaker seems so involved in the ideophonic utterance that he or she seems to *become* what is being simulated. This is evident in comparing different instances of the same ideophone articulated by the same speaker, in terms of overall bodily comportment, gestures used, and energy invested in the ideophone. The terms ‘perform’, ‘depict’, and also ‘enact’ will be used as synonyms of each other, to refer to the same type of marked and foregrounded, but somewhat more detached articulation of an ideophone.

2. The vast majority of archived examples are drawn from PQ speakers. I am greatly indebted to my colleague Tod Swanson, who conducted many of the interviews from which my archived examples are drawn.

for the ways in which ideophones have been defined in the past, and continue to be approached in the present. Third, I will take steps in the direction of untangling what is communicated by an ideophone's inherent semantics, from what is communicated pragmatically by performative elaborations of intonation and gesture.

The overall significance of this paper is that it will advance our understanding of ideophone semantics for Pastaza Quichua, a South American language isolate. It is hoped, moreover, that the framework implemented here may also prove useful for understanding how much ideophone semantics may vary from one language to another. As stated earlier, ideophone semantics are a kind of 'final frontier' for understanding a category of expressions whose formal properties are undergoing increasing scrutiny, yet their semantic descriptions remain surprisingly trapped in simplified folk models of Aristotelian sensory classifications.

2. Methodology

This paper's analysis is based on data acquired over the last 6 years of fieldwork. Each ideophone utterance has been archived in a corpus entitled Quechua Realwords, accessed at <http://quechuarealwords.byu.edu>. Each ideophone utterance token appears as an example of an ideophone type. Each ideophone type has its own page, which may be accessed by going to the main page of the site and clicking the tab for 'all ideophones', where an alphabetically arranged list will be found. My goal for each ideophone is to have a definition, an IPA transcription, a list of affixes that may attach, a sensori-semantic classification that encompasses every example for a particular ideophone, a list of any variant forms for an ideophone, any semantically related ideophones, a brief mention of the paralinguistic properties involving special intonation and gesture accompanying an ideophone, and any videos illustrating the ideophone in use. In addition, each video on a page will eventually have an IPA transcription of what the speakers in the videos are saying, as well as a translation. For some ideophones, there may only be one video example. Others may have as many as 10. An unusually prolific ideophone, *wing*, has more than 40 video recorded examples. All of the examples of ideophones presented and analyzed in this chapter are complete on the site. The main task at present is to add transcriptions and translations for all the rest of the videos included in the site. The videos were recorded either by me, my colleague Tod Swanson, or by my undergraduate and graduate students. They are drawn from many different contexts, including informal conversations, classroom elicitation sessions, personal experience and traditional narratives.

I proceed with a discussion of sensory categories and how their conceptualization has informed my own treatment. I then outline the 10 sensory categories to be

used for Pastaza Quichua and Napo Quichua ideophones' semantic organization and categorization and discuss how I classify their sensori-semantics, with sample analyses of ideophones' audiovisually recorded utterances. I then discuss a small group of ideophones that are not easily described with the sensori-semantic framework developed here. Finally, I conclude with some charts comparing numbers of ideophones for the respective categories, and the implications for ideophone semantics.

3. Unpacking sensory categories

Our most common folk model of the senses is indebted to Aristotle's *De Anima*, Book 2, Chapters 5–12, where he discusses the senses and their role in typologizing various lifeforms. Two perspectives in these chapters are of particular relevance for ideophone semantics. On the one hand, Aristotle's categorization of the senses emphasizes the distinctiveness of each of the five senses by its relation to a distinctive organ of the body. According to this conception, each of these distinctive organs, located as they are, on the periphery of the body (eyes, nose, ears, skin, taste buds), has the capacity of being materially affected by a body's interaction with the world: "The power of sense is parallel to what is combustible, for that never ignites itself spontaneously, but requires an agent which has the power of starting ignition" (Barnes 1984: 663). In other words, the taste buds, for example, will not activate our perception of what something tastes like unless an object from outside the body, such as a salty substance, interacts with them.

The distinctiveness and separability of sensory organs from each other is what is emphasized in this section of Aristotle's discussion, in part because of his interest in the role played by different senses in constructing knowledge of the world. And it is this conception that has come to dominate our folk models of the senses, despite the fact that neurobiological studies point to the difficulty of drawing strict boundaries around sensory organs and the rest of the body's motor systems that assist in the processing of sensory perceptions (Keeley 2013: 949). Moreover, as Winter (2019), in the context of an argument for a supramodal account of the senses has recently pointed out, a number of the senses have overlapping neurophysiological receptors. An additional problem with the five senses model is that it is inadequate, especially with respect to touch, which, according to Keeley, should be 'balkanized' to account for pressure, texture, and temperature (ibid: 942). Despite the fact that Aristotle may have undercounted the senses, the main point here is that by labeling such complex processes with the noun 'sense' which can be pluralized into the countable noun form 'the senses', we run the risk of essentializing the active nature of what is happening. What Aristotle means by 'the senses' is an interactive, inference-making process taking place between an organism and the world.

The second perspective on sensation discussed by Aristotle that is most relevant for ideophones' sensori-semantics is found in Chapter 6 where he discusses 'sensory objects' or 'sensibles'. Sensibles are whatever is perceived through sensory interactions. There are two types of sensibles relevant for this paper: special sensibles and common sensibles. Special sensibles consist of what can only be perceived by a single sense. Color, for example, can only be perceived visually. Sound is another special sensible because it can only be perceived auditorily. Common sensibles, by contrast, "are not special to any one sense but are common to all" (Barnes 1984: 665). Examples of common sensibles given by Aristotle are "movement, rest, number, figure, magnitude".

Aristotle's discussion of sensory interactions clarifies two important points. First of all, despite how we refer to this complex process, sensory perception is an active process of inference making that we engage in while interacting with the world. We may infer the existence of bread baking, for example, without seeing it, because of the stimulations which react with our olfactory organs. Second, it is probably true that most of our experiences in the world are simultaneously involved with more than one sensory faculty at a time. When the bread is finished baking, we can smell it, see it, taste it, touch it, and even hear its crispness when breaking off a piece of it to eat.

It is also important to remember that even when we think we are making inferences from only one sensory faculty, such inferences may also implicate other kinds of inferences. For example, if we are in a forest and hear a rustling sound without seeing where it came from, we are perceiving a sound through our auditory faculty, but the nature of this specific auditory quality also helps us infer that movement of some kind must have taken place, whether we can see the source of that movement or not. In other words, the sound and movement are simultaneous, despite what our ordinary speaking practices tend to do, which is to simplify and reduce our perceptions to one sensory modality, as I just did when I mentioned 'a rustling sound', instead of referring to it more accurately as 'a rustling sound-movement'. In short, most of our experiences in the world are complex and multi-sensorial, not only with respect to the senses involved with our inference making, but also in terms of the sensibles that are most salient. It is reasonable, therefore, that ideophones should also be complex and multisensorial in what they depict³.

3. The five senses model may also be found in other traditions, such as the scholarly literature on mimetics in Japan. Despite the traditional classification of mimetics into three main categories, namely *giongo* 'phonomime for sound', *gitaigo* 'phenomime for vision, touch', and *gijōgo* 'psychomimes for inner feelings' the separability of the senses is also implied by these categories. Kimi Akita (personal communication) reports that recent studies in Japanese have found that when subjects were asked to rate how strongly mimetics were associated with particular 'senses' many mimetics were in fact related to more than one.

4. Sensori-semantics of Pastaza Quichua ideophones

While much of Aristotle's discussion of the senses is concerned with how they may be reliably distinguished from each other, such separability is not helpful for understanding the sensori-semantics of ideophones, which enact the special and common (i.e., multi-sensory) sensibles of lived experience. To understand what ideophones mean, it is necessary to ask how one can know what they are attempting to simulate or depict. In order to answer such a question, ideophones have to be observed in use. This means analyzing any gestural or intonationally special effects, and understanding, as well, the contexts in which they occur.

Having done this for hundreds of ideophone tokens, I have found 10 categories of sensory inference and sensible perception to be most relevant for PQ ideophonic communication. I begin with 3 super categories that will be represented in capital letters as: VISION, MOVEMENT, and SOUND. They are labeled 'supercategories' because they are the most important general categories. Every ideophone will have at least one supercategory as part of its sensori-semantics. Two of the supercategories, VISION and SOUND, are from the five sensory faculties identified by Aristotle. Although the supercategory MOVEMENT is not one of Aristotle's sensory faculties, he does include it in his discussion of 'objects of perception' or 'sensibles'. As so many ideophones simulate various types of movement, I include it here as a supercategory.⁴ Although the sensory faculty of touch is one of the five major faculties for Aristotle, it appears in this scheme, not as a super category, but as a subcategory of MOVEMENT, since any act of touching must be preceded by a movement of some kind toward whatever is touched. It is labeled 'Haptic', and includes ideophones that involve contact between any types of surfaces, whether mediated through skin or not. As there are no ideophones dedicated to taste or smell, these two categories do not appear on the chart.⁵

Each supercategory has at least two subcategories. VISION's two subcategories are Color and Pattern. Patterns can be of various kinds, including linear, distributed throughout a space, or sporadically at intervals, mottled, splotted, or curved. MOVEMENT's two subcategories are Configuration and Haptic. The Haptic subcategory also has a subcategory of its own, 'proprioception', which is involved with

4. Although space does not permit a detailed discussion of the role of movement in perception, it is possible to find current work that argues for an enactive view of perceptual experience (Noe 2004), which would give sensorimotor *activity* a major role in such experiences, contrary to the standard view, in which perceptions are considered to be 'in the head'.

5. Interestingly, Japanese is another example of a language without ideophones for taste, smell, or color (Akita and Tsujimura 2016: 152), although Korean has a number of ideophones for taste and smell (Rhee and Koo 2017).

perceptions of pressure, texture, or temperature. SOUND's two subcategories are Emotion and Cognition.

Figure 1 is an outline of these categories and how they interrelate. Any category that is linked with any other category by a line, can occur together in the same ideophone.

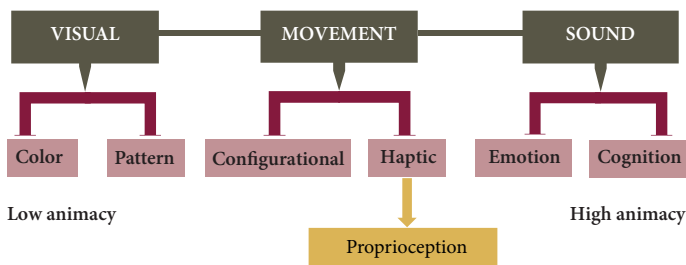


Figure 1. Sensori-semantic categories for Quichua ideophones

The three supercategories are linked with horizontal lines to indicate that they may co-occur within a single ideophone. An example of such co-occurrence is the ideophone *tyak*, to be discussed below, which depicts the action of hitting a tree with a machete. This ideophone encodes all three supercategories, namely VISUAL, MOVEMENT, and SOUND, because it is a visually observable movement that is audible. Since the movement of the machete toward the tree results in contact, this ideophone is also encoded with the subcategory Haptic.

Although most ideophones have at least one supercategory and one subcategory, the subcategorical specifications are optional. There are, for example, a very small number of ideophones that encode the supercategory SOUND, without specifying anything else. The advantage of this schema is that it captures interrelations between sensory inferences and sensibles that co-occur in ideophonic depictions in a way that displays their interconnectedness. Their interrelatedness is evident by the fact that an ideophone's categories and subcategories will always be adjacent to each other. For example, if an ideophone depicts sound, it will not at the same time depict sensory categories at the opposite end of Figure 1, unless it also includes those categories which are immediately adjacent to it in the middle, namely the MOVEMENT categories. Whatever sensory categories an ideophone depicts will be identified with at least one supercategory, and most probably at least one subcategory.

This diagram of sensori-semantic features for ideophones may be considered as a possible conceptual space for the mapping of Quichua ideophone semantics' usage-specific meanings. Although not designed for ideophone semantics, Croft's semantic map connectivity hypothesis is affirmed by the interconnectedness of ideophones' meanings. According to this hypothesis, "any relevant language-specific

and/or construction-specific category should map onto a connected region in conceptual space” (Croft 2003: 134). Figure 1 is also governed by animacy considerations. Ideophones encoded for VISUAL and its subcategories are low in volitionality, while those that encode MOVEMENT and SOUND will tend to depict higher animacy entities with volitionality. I now proceed with a discussion of each supercategory and its subcategories, providing examples from the quechuarealwords site of ideophones exemplifying various sensori-semantic clusters.

4.1 VISUAL

The supercategory VISUAL is encoded in numerous ideophones that are depictive of visually observable phenomena. It features Color and Pattern as subcategories because they are both restricted to the VISUAL sensory faculty. Although Color ideophones are quite small in number, ordinary color words may undergo ideophonization by suffixation and by performative elaborations of gesture and intonation. The other subcategory Pattern is included with VISUAL because whatever is patterned often stands out from its surroundings like a figure against a ground.⁶

Ideophones that are restricted to the VISUAL supercategory alone are few. The majority of ideophones combine VISUAL with MOVEMENT perceptions, and some ideophones may include all three supercategories as stated earlier regarding the ideophone *tyak*. In what follows, then, I will illustrate how ideophones encoded for the VISUAL supercategory usually work. I discuss some typical examples of VISUAL ideophones as well as ideophones that cross over into MOTION. These examples will illustrate the dynamic nature of ideophones’ sensori-semantic structure.

My first example features an ideophone illustrating VISUAL as well as its Pattern subcategory. The ideophone *chem* is depictive of a collection of objects that stand out in a distinctive way from their surroundings, such as a collective image of fruits or flowers that are distributed throughout a tree. Video 1 at the following link: <http://quechuarealwords.byu.edu/?ideophone=chem> illustrates this sense. The example consists of the ideophone *chem* as part of a speech report occurring within a narrative:

- (1) *’Turi riku-k εamw-i! tεem! apari-εka-mi εaja-w-η’ ni-ra*
 brother look-AG come-IMP IDPH bear-PERF-EV stand-DUR-3 say-PST
 ‘Come and look brother! They are *chem* (all over the tree)!’

6. Temporal patterns, such as repeated rhythms, are not considered part of an ideophone’s sensori-semantics. Instead, such temporally unfolding patterns will be considered part of an ideophone’s pragmatic performativity as well as its grammatically aspectual unfolding. The relationship between aspect and ideophones was treated in Nuckolls (1996).

The ideophone *chem* is coded for VISUAL as well as Pattern because it depicts the visually observed spatial expanse of fruits that are distributed all over a tree. As happens in Example 1, speakers often gesture a Pattern ideophone with sweeping movements to illustrate the extent to which the pattern is distributed throughout a space. However, such sweeping gestures are not indicative of any actually perceived movement, since Pattern is a low animacy, static feature. This particular example serves as an object lesson about the necessity of understanding an ideophone's context in order to unpack its sensori-semantics. Example sentence 1 is mappable as a section of Figure 1, with the following diagram.

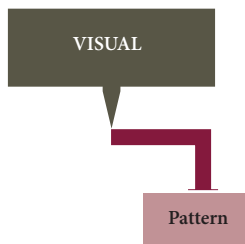


Diagram 1. *chem*

I turn next to a rare example of a dedicated ideophone for color, the ideophone *shinki*. *Shinki* depicts a blackness that has a luminescent or shiny quality as well. It occurs in video 1 in an excerpt from a story at the following link: <http://quechuar-ealwords.byu.edu/?ideophone=shinki> where it depicts the complete extent of shiny blackness on a person's face:

- (2) *Kaku-kpi na shinki nawi tuku-cka paj-ba nawi*
 rub-SWRF then IDPH face become-PERF he-POSS face
 'As it had been rubbed (with *wituk* juice) now, *shiiinki* (so black and shiny) his face had become.'

The ideophone *shinki* is encoded for VISUAL, Color, and Pattern because all three are depicted in this example. The speaker is communicating the observed pattern of the complete extent of the shiny black color on the character's face, and the way it stands out from its surroundings, by gesturing across her own face. Despite the fact that the speaker is gesturing the extent of the color on the protagonist's face with a motion that moves across the expanse of the face, this ideophone's semantics is not encoding MOVEMENT. The speaker's gesture is using her hand motion to depict the spatial expanse of the color, just as the speaker of the first example used a motion gesture to depict the expanse of fruits on a tree. Its semantic structure may therefore be represented as follows:

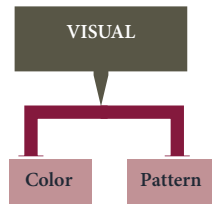


Diagram 2. *shinki*

The most prolific ideophone in our database is the VISUAL ideophone *wing*, which in IPA is [βin]. It depicts any thing, group or collection of entities, or expanse of entities, considered as a whole. Although the numbers of ideophones that are exclusively depictive of the VISUAL supercategory are not high, there are more tokens of this particular ideophone than of any other ideophone in the quechuarealwords site. Example 3 is from Video 1 found at <http://quechuarealwords.byu.edu/?ideophone=win> and is taken from an account of the way an entire house looked as it burned after being set on fire. The speaker gestures the expanse of the house as a whole to depict that it was the entire house that was burning.

- (3) *tei-ga ja βin wasi sindi-η kaλari-εka, hapiri-εka wasi kucniη*
 this-TOP then IDPH house burn-3 begin-PERF catch-PERF house IDPH
hapiri-kpi ja rupa-w-εa kaλpa-na tuku-εka tei runa
 catch-SWRF then burn-DUR-COR run-INF become-PERF those people
 ‘So then, as (the entire) house *wing* began to burn, that caught-on-fire-house
 was going up in smoke, as it had been lit, and as it was burning, those people
 had to run out.’

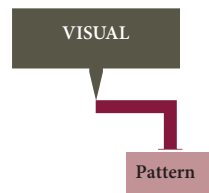


Diagram 3. *wing*

As stated earlier, the sensori-semantics of many VISUAL ideophones cross over into the MOTION supercategory. An example of such an ideophone is *kingu*, which depicts a zig-zag pattern. This ideophone is a bit complicated to classify, however, because it depicts a pattern that seems to be intrinsically active, even when appearing as a static design on a flat surface. Speakers may use *kingu* to describe the meandering pattern of a river as seen from an airplane, or it may describe actual

movements, such as the curving back and forth movement of snakes. This ideophone, therefore, may encode a VISUAL Pattern that is apprehended all at once, or a Configurational MOVEMENT that has a discernible shape as it actively unfolds. The malleable semantics of *kingu* exemplifies the concept of ‘fictive motion’ discussed by Talmy, in which the overlap between distinctive cognitive systems allows static visual phenomena to be linguistically conceptualized as active, thus revealing the human cognitive bias toward dynamism (2000: 171).

The first example of *kingu* is drawn from Video 1 on this ideophone’s page at <http://quechua-realwords.byu.edu/?ideophone=kingung>. It illustrates the use of *kingu* to depict the pattern of a river’s movement. It therefore encodes VISUAL as well as the subcategory Pattern. Since this particular pattern is visually very active, *kingu* is also classified as a MOVEMENT ideophone in this example. The following example of *kingu* is unusually fortuitous because it is supported by a visual prop in the form of a clay bowl painted with zig-zag lines which, the ceramicist explained to Tod Swanson, were illustrating a particular river she had travelled:

- (4) *Tɛiga kaj-ga kuti jaku masti paj kingu kingu ri-g aŋ tɛi-ta*
 so.then here-TOP well water um it IDPH IDPH go-AG be-3 that-ACC
tɛura-ɛka-mi aŋ
 put-PERF-EV be-3
 ‘So here, well, um, the water goes *kingu kingu*; that’s what’s been put (there).’

Given the static and at the same time, active nature of the design on the bowl’s surface, it seems reasonable to classify this ideophone as follows:

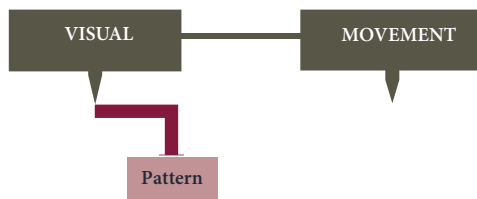


Diagram 4. *kingu*

The next example features the same ideophone, *kingu* suffixed with *-ng*, a commonly used suffix on nouns that are adverbialized, to describe the zig-zag meandering movements of a type of pit viper which had just been discovered by people after it had killed a hawk. The significance of this example is that it reveals how different uses of the same ideophone can encode different sensori-semantic properties. This example may be observed in Video 2 at the same site as Example 4: <http://quechua-realwords.byu.edu/?ideophone=kingung>:

- (5) *Tɛiga riku-kpi kinguŋ kinuŋ kinguŋ kinguŋ kunan wapuŋta siyuka-ta*
 so.then see-SWRF DPH IDPH IDPH IDPH IDPH dead hawk-ACC
rikungi ma-ra ni-ra
 look-2SG be-PST say-PST
 ‘And then, upon looking (I saw a snake slithering away) *kingung kingung kin-*
gung kingung; and you would have seen the dead bird there.’

Rather than describing a static pattern, *kingu* is used in Example 5 to describe an active movement made by something alive. For this reason, it is apparent that *kingu* encodes the Configurational subcategory of the Movement supercategory. It therefore encodes not only VISUAL and MOVEMENT supercategories, but the Configurational subcategory as well, which will be discussed below.

4.2 MOVEMENT

The supercategory MOVEMENT is visually at the center of Figure 1 and for good reasons. Ideophones that have this supercategory as part of their semantic structure are the most numerous. More than half of the ideophones in the database have a MOVEMENT component in their meaning. Ideophones that are coded for this feature are some of the most commonly enacted motions that a body can be involved in, including bending over, collapsing, sitting up straight, opening a mouth or eyes widely, falling, moving back and forth, or dangling in mid-air. Such ‘short-range motions’ include even the micro-motions of bodily activities such as chewing food.⁷

The subcategories of MOVEMENT also have one more subcategory than the other two supercategories. The Configurational subcategory will be discussed first. An ideophone will be coded for the Configurational subcategory if it depicts a movement that has a distinctive profile. Ideophones marked Configurational are active rather than static. If something moves with a discernible shape or outline, it is Configurational. Ideophones coded for Configurational may depict movements that are distinctively shaped as they move, or they may depict movements that come to rest in a distinctive shape. Example 6 below depicts the first of these, a Configurational movement that is discernible while the speaker gestures its motion. It occurs in Video 1 for the ideophone *aki*, which is defined as any back and forth type of motion and may be viewed at: <http://quechuarealwords.byu.edu/?ideophone=aki>:

7. Nuckolls (2012) discusses the verbs with which ideophones occur according to a number of categories of bodily experience.

- (6) *Wawa-ta marka-εa-ga aki aki aki aki ri-εka apa-εa-ga*
 baby-ACC carry-COR-TOP IDPH IDPH IDPH IDPH go-PERF take-COR-TOP
 ‘Carrying the baby he went (wobbling back and forth) *aki aki aki aki*, as
 he was taking it away.’

Watching the video of its use clarifies why these sensory categories are used. First of all, what the ideophone depicts is visually observable, hence the VISUAL category. Second, the ideophone depicts clearly observable MOVEMENT. The speaker is moving her entire upper body. Third, the ideophone depicts movement that follows an identifiable configuration. The speaker is moving her body sideways back and forth from a starting position, which she then returns to.

Example 7, by contrast is an example of an ideophone depicting a movement that comes to rest in a Configurational arrangement. This ideophone *sa* enacts a movement of multiple entities moving outward from a center, in an expansive, radiating pattern, which the speaker gestures with outward movements of her hands. This example can be observed at <http://quechuarealwords.byu.edu/?ideophone=sa>, in video 1, where it is used to depict the way logs on a raft spread apart when their moorings have been unfastened:

- (7) *Piti-kpi-ga na sa tuku-η; tuku-kpi-ga tεaj*
 cut-SWRF-TOP then IDPH become-3 become-SWRF-TOP that
 ‘As it was cut, well then *sa* (the logs became scattered), and as they became (like that), that’s how (the people died).’

Ideophones from Examples 5, 6, and 7 may all be diagrammed as follows:

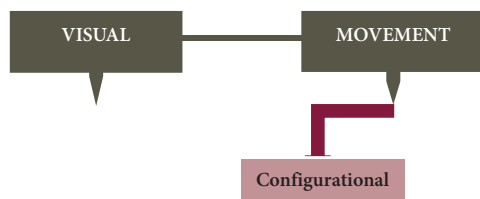


Diagram 5/6/7. *kingu, aki, sa*

Not all movement takes place in an obvious configurational manner. Movement which simply changes location from point A to point B will not be counted as Configurational. As an example of non-configurational movement, which merely changes location, the ideophone *tyak* may be observed at: <http://quechuarealwords.byu.edu/?ideophone=tyak>. It is defined as ‘to touch or hit lightly’. Video 1 at this link reveals a speaker lightly hitting the surface of a tree with a machete to explain how its bark may be harvested:

- (8) *Kasna tyak tyak tyak tsagma-ɛa-ng tsupin tsupin ʎuchu-g a-ŋ nuka*
 like.this IDPH IDPH IDPH hit-COR-INC IDPH IDPH peel-AG be-3 my
kari kasna ra-ɛa
 husband like.this do-COR
 ‘Hitting like this, going *tyak tyak tyak* my husband would peel it (bare) *tsuping*
tsuping, going like this.’⁸

The MOVEMENT feature is evident in the video, but it is movement directed to a goal, namely hitting the tree’s surface so that its bark may be removed. The feature Haptic therefore is part of its semantic structure, since the movement results in a ‘touching’ of surfaces. As stated earlier, the feature Haptic does not require actual contact with the human sensory organ of skin, although that may occur with some ideophones. The ideophone *tyak* also features SOUND as part of its sensori-semantics, since the contact is audible. This ideophone, then, encodes all three supercategories of VISION, MOVEMENT, and SOUND, as well as the subcategory Haptic.

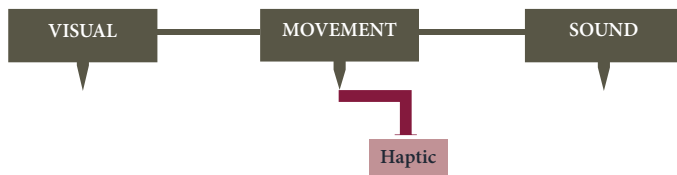
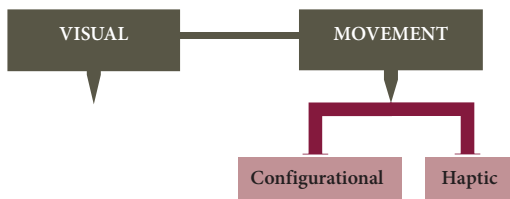


Diagram 8. *tyak*

Just as VISUAL subcategories of Color and Pattern were found to occur in the same ideophone, the same can be said of MOVEMENT subcategories. While many ideophones might be one or the other, some may be both. The ideophone *tyam* in video 1: <http://quechuarealwords.byu.edu/?ideophone=tyam> defined as ‘a complete turning, revolving, or rolling movement’ may combine Haptic and Configurational subcategories. The following constitutes such an example, in an enactment by a speaker who simulates the wrapping of vines around her hands:

- (9) *Imina ra-ɛa tɛi-ta kiɛpi-g a-naw-ra tjam tjam tjam tjam*
 However do-COR that-ACC escape-AG be-3PL-PST IDPH IDPH IDPH IDPH
tjamɛi kumal angota hapi-ɛa-ga voltjari-ɛa . .
 IDPH-EV sweet.potato vine-ACC grab-COR-AG turn-COR
 ‘However did they escape? Grabbing sweet potato vines and wrapping them
tyam tyam tyam tyam tyam (around themselves).’

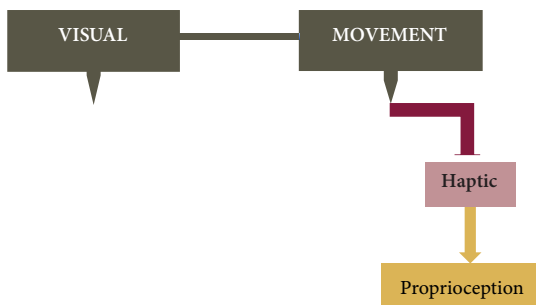
8. The ideophone *tsuping* will be discussed in Section 5 where this example is re-presented as Example 28.

Diagram 9. *tyam*

As stated earlier, the subcategory Haptic is encoded in ideophones that simulate any contact between surfaces, whether direct contact with a sensory organ such as skin, or mediated contact between surfaces. A subcategory of MOVEMENT, ‘proprioception’ is relevant for ideophones that depict feelings of movement originating from within the body. These can be feelings of suddenness, such as a jolt of awareness, very slight feelings of movement such as twitching sensations, which Quichua people believe are important to attend to, as they often precede important life events, and even feelings of weakness. Some of these are visually observable and some are not.

The first example of a proprioceptive ideophone, Example 10, features the ideophone *dzing* in video 1, viewable at <http://quechualrealwords.byu.edu/?ideophone=dzing>. In this example *dzing* is visually observable as it depicts a startled movement by one person, which is observed by another.

- (10) *te-iga dzing-ei tuku-εka na jaja-ta mana riku-εpa-λata-ei*
 that-TOP IDPH-EV become-PERF NOW father-ACC NEG see-COR-ADV-EV
dzing tuku-k
 IDPH become-AG
 ‘Then *dzing* (startled) she became although she had not noticed my father,
 she became *dzing* (startled).’

Diagram 10. *dzing*

Not all proprioceptive movements are visually observable. Some are detectable only by the individual experiencing such an event: feelings of pressure resulting from pain or swelling, or the sensations that are activated within one, when touching textured objects, including bumpy, rough, or sharp surfaces. The experience of temperatures such as warmth or cold is also included here, since such experiences are often subjectively experienced as motions which make their way through the body, for example, the way warmth in the form of a fever moves through the body, or the way cold makes one shake or shiver.

Example number 11 features a nonvisual proprioceptive ideophone depicting the feeling of a fever moving through one's body. This example is drawn from video 1 at <http://quechuarealwords.byu.edu/?ideophone=rupax>.

- (11) *na yatei-wa-η amsa rupa-xxxxx/aa kwerpo-ta yatei-wa-ra;*
 well feel-1ACC-3 little IDPH-SUF body-ACC seem-1ACC-PST
 'Well it felt to me like a kind of burniiiiiii; that's how it affected my body.'

Although the speaker is visibly performing the movement of the fever through her body for the sake of her interlocutor, the movement she ideophonically enacts is not intrinsically visual. It is therefore diagrammed as follows:

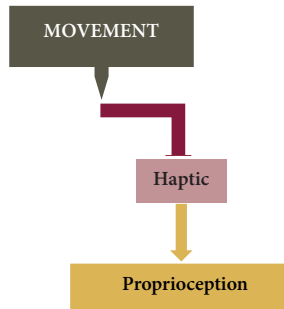


Diagram 11. *rupax*

To conclude this section, it is important to state that gestures indicating movement may be observed to occur with some ideophones that will not be considered encoded for movement because the movement is not intrinsic to that ideophone's meaning. In some instances, for example, an ideophone for a bird's sound will be accompanied by a movement which indicates that bird's flight path. In such an instance, the movement does not create the sound, it simply accompanies it as a pragmatic embellishment. In Example 12, video 1, found at <http://quechuarealwords.byu.edu/?ideophone=kukuli> the ideophone *kukuli* enacts the sad sound of a bird crying as it circles the sky by itself:

- (12) *kukuli kukuli kukuli kanta-g a-η laki-εa*
 IDPH IDPH IDPH sing-AG be-3 sad-COR
 ‘*kukuli kukuli kukuli* it sings sadly (while flying)’

Since the speaker characterizes this sound as sad and mournful, it is diagrammed as a SOUND ideophone with an Emotion subcategory. However, no MOVEMENT is encoded by its semantics since the bird’s movement does not create the sound.

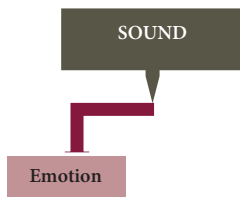


Diagram 12. *kukuli*

4.3 SOUND

There has historically been a bias on the part of ideophone researchers toward viewing sound-imitative ideophones or ‘onomatopoeia’, as a downgraded and simplistic form of ideophony. The position adopted here, based on PQ data as well as recent research, is that the use of linguistic sound to imitate other types of sound is not as simple and straightforward as is often assumed. Recent acoustic phonetic research by Assaneo et al. (2011), for example, has found that when a vocal tract attempts to imitate a sound produced mechanically, or by animals, there is much effort required, and no simple correspondence between vocal/articulatory configurations and sounds. Even apparently simple sounds, such as clicks or knocks, are not imitated with correspondingly simple onomatopoeic forms but rather with combinations of sonorous and noisy sounds. The authors also mention neurolinguistic evidence for the importance of cross-modal relationships between sound and other sensory modalities.

Data from PQ ideophones also reveals that Quichua speakers conceptualize sound imitation as more complex than might be assumed. Sound-imitative ideophones only rarely encode ‘mere’ sound. Most often, ideophones belonging to the supercategory SOUND are also linked with emotional expression as well as thoughts that are believed to have cognitive significance. For this reason, the supercategory SOUND typically involves higher animacy and volitionality than the other supercategories. This does not mean that all ideophones encoding sound will be depicting high animacy beings. I am simply claiming that high animacy beings are most likely to be performatively depicted with ideophones that encode SOUND.

Example 13 illustrates a contrast between two ideophones that are imitative of two different sounds said to be made by the same bird. The first ideophone *tar* is a rare example of a sound that is said by a speaker to be a sound without any significance. She contrasts this non-communicative ideophone *tar*, with another ideophone *piriya*, which is said to be that same bird's sad crying sound. Both ideophones occur in video 1 at the following link: <http://quechualwords.byu.edu/?ideophone=tar>.

- (13) *Paj t̥ei tar tar ni-ŋ, t̥ei-ga j̥aŋga puri-u-ɛa-mi t̥ei-ta*
 he this IDPH IDPH say-3 this-TOP uselessly walk-DUR-COR-EV this-ACC
t̥easna ja t̥ei waka-w-ɛa-ga t̥ei pirija pirija pirija waka-g
 like.that then this cry-DUR-COR-TOP this IDPH IDPH IDPH cry-AG
awŋ ja paj wakawɛa
 be-DUR-3 then he cry-DUR-COR

‘When he says *tar tar*, then he is going about (sounding) like that without any reason; but when he is crying, that one goes *piriya piriya piriya*, then he’s crying.’

Each of these two ideophones, then, needs its own sensori-semantic diagram:



Diagram 13a. *tar*

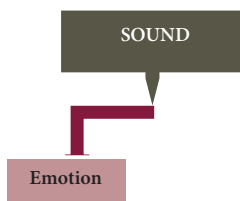


Diagram 13b. *piriya*

Given the animistic framework of Quichua beliefs, it is not surprising that people consider nature and nonhuman life to be endowed with a subjective perspective (Nuckolls and Swanson 2014). Ideophones are one tool for expressing animistic thought by allowing nonhuman life to use sounds that express the emotions of all kinds of birds, as well as monkeys, sloths, tapirs, human infants, forest spirits, thunder, and even trees. The range of emotions is fairly basic. Emotion ideophones express sadness, often by means of crying sounds, happiness often with laughter sounds, and occasionally, anger sounds are expressed by atmospheric phenomena such as thunder, or by birds.

Example 14, video 1, at <http://quechuarealwords.byu.edu/?ideophone=gyawng> features two women enacting the sad, mournful quality of a tree as it falls to the ground after being chopped. It is noteworthy that the same ideophone seems to be spontaneously used by two different speakers who, in an almost perfect unison, enact the same sound. Second, the ideophone *gyawng* is not only encoded for SOUND and subcategorized for Emotion, but it involves the supercategory of MOVEMENT as well, since the sound, which might be described as ‘creaking’ or ‘groaning’, could not be perceived without the motion of the tree’s falling. The movement of the tree toward the ground is inextricably linked with the sound and the emotion encoded in this ideophone:

- (14) *Urma-w-ɛa waka-g a-k-ta mana uja-g a-ŋgi? gjawwwwwŋ*
 fall-DUR-COR cry-AG be-AG-ACC NEG listen-AG be-2 IDPH
waka-w-ŋ hatun ruja-ta kutɛu-kpi
 cry-DUR-3 big tree-ACC chop-SWRF
 ‘As it falls, it cries. Haven’t you heard? *Gyawwwwwŋ* it cries when someone chops a big tree.’

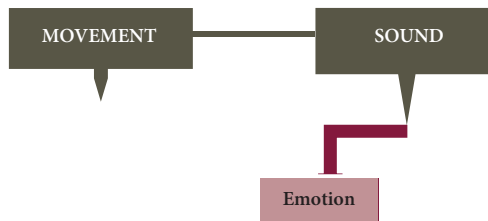


Diagram 14. *gyawng*

It is not simply emotions that are connected with sound in Quichua belief, but more complex cognitive operations as well. In fact, nonhuman lifeforms, especially birds, are often said to be closely monitoring human activity and commenting on it. The hummingbird, for example, may warn a woman with angry sounds, that her husband is waiting for her and is himself angry and likely to assault her when she returns home. A description of how this works is found at video 1 from the following link <http://quechuarealwords.byu.edu/?ideophone=pis>. The example occurs below:

- (15) *jukantɛi-ta musija-tɛi-n: pis pis pis tɛi-ga ɛamu-ɛa*
 we-ACC notice-CAUS-3 IDPH IDPH IDPH that-TOP come-COR
jukantɛi-ta maka-ŋgawa ɛamu-n
 we-ACC beat-FINF come-3
 ‘It makes us aware (by sounding angrily) *pis pis pis*; that means he (i.e., a husband) is coming to beat us.’

Although the bird's sounds are accompanied by active movements, it is not clear whether the manner of the bird's movements is also considered to have an angry quality. Unless further questioning were to reveal that this bird has one type of movement to express anger and another type of movement to express happiness or sadness, the safest analysis is that this ideophone encodes SOUND, Cognition, and Emotion, and that movement is a performative quality that is not intrinsic to its meaning.⁹

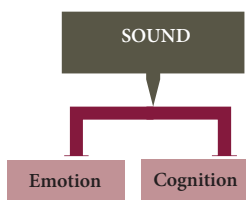


Diagram 15. *pis*

Associating emotions with nonhuman life may not seem all that unusual, even for someone not invested in an animistic outlook. However, there are other types of messages expressed by nonhumans that are interpreted by people as meaningful, which have no equivalent in Standard Average European ideophonic expression. When ideophones express ideas with sound that are not emotional, but nevertheless, they communicate something informative, I consider these to be examples of the subcategory Cognition. Such ideophones may communicate fairly complex messages. For example, I have been told by a number of consultants that a type of cuckoo, the squirrel cuckoo, *Cuculidae*, is believed to verify the truth of what it hears humans saying, or, it may also call into question their words. This bird may even portend disaster (Nuckolls 1996: 61–77).

This bird's calls are represented by two different ideophones. If someone is telling the truth, or, if someone's actions are congenial with their goals, then the bird is believed to comment by uttering *chik*, an example of which is found at video 1 from the following link: <http://quechuarealwords.byu.edu/?ideophone=chik>:

- (16) *tɛik tɛik tɛik tɛik tɛik; tɛik tɛik tɛik tɛik tɛik*
 IDPH IDPH IDPH IDPH IDPH IDPH IDPH IDPH IDPH IDPH IDPH
 '(The squirrel cuckoo goes) *chik chik chik chik chik; chik chik chik chik chik*'

On the other hand, if someone is telling a lie, or if their behavior is not congenial with their inner desires or explicitly stated goals, the bird may utter *chikwang*.

9. For examples of hummingbirds expressing happiness and sadness, see the audiovisual examples for the ideophone *tsyun*, at <http://quechuarealwords.byu.edu/?ideophone=tsyun>.

Although a number of our consultants take the bird's calls seriously, one man explained to Tod Swanson that this bird may at times be deceptive with its calls. The next example constitutes such an example of deception, because it features a bird uttering *chikwang* at a group of hunters who, upon hearing that sound, interpret the bird as telling them that their goal of catching meat is futile. The hunters then let down their guard, believing there was no game nearby, when in fact, there was.¹⁰ This example occurs in video 1 at: <http://quechuarealwords.byu.edu/?ideophone=chikwang>:

- (17) *aytɛa jaja-guna ri-nawn ruku-guna ajtɛa-nga ri-ɛkaj ajtɛa*
 meat father-PL go-3PL old-PL hunt.meat-FINF go-PERF-NOM meat
tija-w-ɛera na na maja-ɛa-ŋ tija-w-ŋ wangana
 exist-DUR-ADV then then where-LIM-ADV exist-DUR-3 forest.pig
tijaŋ-ga tɛari o venado tija-ŋga tɛari, mono tija-ŋga tɛari
 exist-3FUT maybe or deer exist-3FUT maybe monkey exist-3FUT maybe
aytɛa, ima tono picku-ɛa-s tija-w-ɛata a-ra paj rima-na
 meat what type bird-LIM-DES exist-DUR-ADV be-PST he speak-INF
tɛikwaŋ tɛikwaŋ tɛikwaŋ ni-kpi
 IDPH IDPH IDPH say-SWRF

‘The hunters, the old ones (will) have gone to catch meat, and even though there is meat nearby, there might be forest pig, or deer, or monkeys, whatever type of bird there is, he is going to speak (saying) *chikwang chikwang chikwang* (in order to deceive them).’

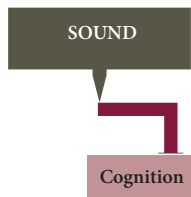


Diagram 16/17. *chikwang*

10. An additional example of a SOUND-Cognition ideophone used deceptively is found in the corpus at <http://quechuarealwords.byu.edu/?ideophone=hyaw> for the ideophone *hyaw*, which is said to be the sound uttered by a snake intending to deceive a rodent by making it think the snake himself is a rodent and therefore harmless. Ideally, a rodent hearing that sound is then tricked into approaching the source of the sound and becoming the snake's next meal. The ideophone *hyaw* was also used by a male consultant interviewed with considerable experience in hunting, whose performance of the ideophone *hyaw* as well as a whistling sound, said to more closely approximate the actual sound coming from the snake, may also be found at the same link. Both instances of *hyaw* occurred during interviews conducted by Tod Swanson.

It is clear from the examples of this section that, except for a very few cases, the semantics of the supercategory of SOUND ideophones are as enmeshed with other sensory categories as are the VISUAL and MOTION ideophones. This makes very problematic the assumption that onomatopoeic ideophones' semantics are simpler than other sensory categories. I turn, next to a discussion of a category of ideophones that are not describable with Diagram 1 because they cannot be easily discussed within any of the supercategories. They are a small set of ideophones with widespread use that minimize sensory depiction, but at the same time, are dependent on it to some extent.

5. Low sensory ideophones

I first discuss two low sensory ideophones that I characterize as 'anti-sensory' ideophones because they are defined not as depictive of any sensory categories, but as depictive of the absence of these categories. Such anti-sensory ideophones have been attested in a number of other languages and are presumably found in many more. One anti-sensory ideophone in widespread use, not only within Pastaza Quichua and Upper Napo Quichua, but in a neighboring dialect, the Limoncocha (Orr and Wrisley 1981) as well, is *tay*. It depicts a lack of movement by speakers who may simulate that lack of movement by arranging their upper limbs close to the trunk of the body and then holding themselves absolutely still. Audiovisuals of *tay* are found at <http://quechuarealwords.byu.edu/?ideophone=tay> where video 1 features a speaker simulating a lack of movement with her entire upper body:

- (18) *singa-ta-ɛi riku-ɛka; paj-ga taj sama-ɛa kaj-ɽa wawa-ta-ɛi*
 nose-ACC-EV look-PERF he-TOP IDPH breathe-COR this-LIM little-ACC-EV
sama-w-ŋ
 breathe-DUR-3

'(The forest spirit) inspected his nose (and the man was utterly still) *tay*; only this little bit did he breathe.'

A similar ideophone from the Limoncocha dialect, *day*, is found at video 1, <http://quechuarealwords.byu.edu/?ideophone=day> where a speaker who is telling a traditional story, stops to explain, using props consisting of a notebook and pen, how a tree was not shaken or moved by the earth. He does this by positioning the tip of the pen, which stands for the immovable tree onto the notepad, which stands for the earth, while using the ideophone *day*:

- (19) *kaj jurak-p mana puri-k-tɛu ka-ska ni-ŋ kaj aʎpa mana*
 this tree-LOC NEG move-AG-NEG be-PERF say-3 this earth NEG
kujuri-k tɛaj-pi jukantɛi uraj parti-ma ni-ntɛi daj; daj
 shake-AG that-LOC we down part-DAT say-1PL IDPH IDPH
ɛajha-ɛka ja mana kuju-k; tɛaj-pi ɛaja-ŋɕ
 stand-PERF then NEG shake-AG there-LOC stand-3
 ‘Near that tree the earth was not shaking, they say, but stood *daj* (not moving);
 (it was standing) *daj*, not shaking.’

Besides the absence of movement, there is also the ideophone *chun* which depicts a complete absence of sound. Despite the fact that it is depicting an absence of sound, it may be pronounced with more volume than its surrounding utterance, and is often punctuated by various kinds of gestures, indicating the way a silence may stand out from ongoing discourse. Both examples of *chun* that I discuss here feature a similar kind of spreading out gesture when their speakers say this ideophone. Example 20 at <http://quechuarealwords.byu.edu/?ideophone=chun-2> video 1, depicts the humorous way a woman’s uncle would bathe himself in a river, alternating between making lots of noise and being completely quiet:

- (20) *jambana ni-ɛa ujari-u-ɕhka tɕun tuku-ɛka tɛi-ga tɛi*
 EXCL say-COR sound-DUR-PERF IDPH become-PERF this-TOP this
wɛɛa paj-ga ha ha ha
 after he-TOP IDPH IDPH IDPH
 ‘After saying ‘*yambana*’ it became *chun* (quiet) and after that he went *ha ha ha*
ha (laughing).’

Example 21 from video 2 at <http://quechuarealwords.byu.edu/?ideophone=chun-2>, features *chun* used by a different speaker to describe the complete silence of the forest after forest spirits named *hurihuri*’s, based on the sounds they are heard making, have been heard and suddenly stop:

- (21) *ujari-u-k-guna ujari-u-k-guna tɛi hurihuri-guna paktamu-ɛa tɕun*
 sound-DUR-AG-PL sound-DUR-AG-PL that hurihuri-PL arrive-COR IDPH
tuku-ɛka
 become-PERF
 ‘Those *hurihuri*’s that were being heard and being heard, having arrived, (suddenly quiet) *chun* they became.’

In addition to anti-sensory ideophones, there are two ideophones which are so semantically ‘light’, that they seem to be able to take on the sense of whatever verb they modify. This ability is evident when speakers gesture the actions or meanings of a verb while pronouncing the ideophone, thereby tying the ideophone and the

verb together into a unified expression. The most general possible sense that can be attributed to these two ideophones is aspectual. I first discuss the ideophone *tas*. This ideophone seems to depict an exhaustive sense of completeness for an action, event, or process and is coarticulated with different gestures, each of which is semantically affiliated with a different verb to express a completed manner of motion, a path of motion, or a spatial expanse of a motion, activity, process, or state. Possibly because its meaning is so abstract, *tas* can be used with over 40 different verbs.¹¹

The first example of *tas* demonstrates a characteristic of ideophones that has been reported for many languages, namely, the tendency for ideophones to substitute for verbs and replace them in an utterance. This occurs in Example 2, found in video 1, at: <http://quechuarealwords.byu.edu/?ideophone=tas> where *tas* describes the way an illness completely left the speakers body, which she gesturally simulates with a hand moving away from her. In this example there is no finite verb that *tas* modifies. It must be contextually inferred:

- (22) *tcəj-bi uku-ɕa upi-tɕi-nawn tɕi-ta tas rimidʰu ɕina-ɕa*
 that-LOC wet-COR drink-CAUS-3PL that-ACC IDPH medicine like-LIM
 ‘In that (cup), mixing that with water, they gave me to drink (and it made my illness leave my body) *tas* (completely) just like medicine.’

A different gesture simulates the action of drinking something completely down in Example 3, where *tas* occurs with the verb *upirani* ‘I drank’. This example occurs in video 2 at <http://quechuarealwords.byu.edu/?ideophone=tas>:

- (23) *tcarak wambra ma-ra-ni juka; tcasna a-k-ga tas*
 still child be-PST-1SG I like that be-AG-TOP IDPH
upi-ra-ni Aj!
 drink-PST-1SG EXCL
 ‘I was still young back then, and being like that, I drank it (down) *tas*, Ay!’

Yet another completive sense of *tas* occurs in Example 24, where it is depicting the disappearance of people. This example occurs in video 3 at <http://quechuarealwords.byu.edu/?ideophone=tas>. The narrator uses both hands in an outwardly expanding gesture to communicate the utterly complete expanse of where people were not found:

- (24) *puri-u puri-u tas tɕingari-ɕa*
 walk-DUR walk-DUR IDPH disappear-COR
 ‘Walking and walking about, they completely disappeared *tas!*’

11. Not all of the verbs that can occur with *tas* appear on our site because some were audio-recorded before the quechuarealwords site existed.

Having just demonstrated that the sense of the ideophone *tas* is more grammatical than semantic, since it communicates aspectual completiveness, I turn now to the next low-sensory ideophone *dzas*, which is also grammatically aspectual. *Dzas* simulates or depicts any action performed very quickly. It is occasionally used for states, but most often for actions involving fast motion.¹² The grammatical function of *dzas* is therefore aspectually punctual. Example 5 is from video 1 found at <http://quechua-realwords.byu.edu/?ideophone=dzas>. It is drawn from a narrative about warfare practices and features *dzas* in a description of the difficulty of removing arrows from one's body when they have been notched, which makes them very breakable. The narrator simulates the pulling by very quickly moving his hand away from his upper arm:

- (25) *tcəj-ga tsak tsak tsak ima ɛina-ta ajcha-j jajku-ɛka-ta dzas*
 SO-TOP IDPH IDPH IDPH what how-ADV flesh-LOC enter-PERF-ACC IDPH
mana surkwi-baktɛu a-ŋ chem chem kilina-ɛka, kilina-ɛka
 NEG remove-able-NEG be-3 IDPH IDPH notch-PERF notch-PERF
a-ka pakiri-ɛka
 be-AG-TOP break-PERF

‘So (the arrows pierce) *tsak tsak tsak*, (you know) how they enter, they are not removable *dzas* (quickly), (because they break off) *chem chem*, as they are notched; being notched they break off.’

Another example of *dzas* is found in Example 26. In video 2 at <http://quechua-realwords.byu.edu/?ideophone=dzas> there is an instruction on how to disable a venomous snake by cutting its body. The speaker explains that the machete blade has to be positioned at an acute angle rather than perpendicular to the surface of its skin, due to the fact that its scales will repel the blade, and even knock the machete out of a person's hand. She forcefully and energetically simulates the punctual execution of such an action with her own machete against a wooden support pole:

- (26) *Mana kasna-ma piti-na-tɛu a-ŋ, ruja-ta*
 NEG like.this-DAT cut-INF-NEG be-3 tree-ACC like
ɛina mana, dzass!
 NEG IDPH

‘One doesn't hit (a snake's skin) like this; not (like you would) a tree; (you go) *dzass!* (hitting at an angle).’

12. There is an example of *dzas* occurring with the stative verb *wawayana* ‘to be come pregnant’ in Nuckolls (2010: 91), where a speaker explains that she did not become pregnant instantly after taking a husband. I interpret this as a figurative use of *dzas*.

The gestures used by the speakers for Examples 5 and 26 are quite different, although both are very quickly executed. Example 5's speaker pulls an imaginary object quickly away from his body, while Example 26's speaker moves quickly toward a target in front of her.

If there is a unifying sense that can be found in all of the low sensory ideophones it would have to be the aspectual completiveness or punctuality of these ideophones. The anti-sensory ideophones *tay* 'complete lack of movement' and *chun* 'complete lack of sound', and the light ideophones *tas* 'an action, event, or process considered as complete', and *dzas* 'to accomplish anything quickly and punctually' all encode aspectual values that are reinforced by speakers' performative gestures.

I have not considered the temporal unfoldings of actions, events, and processes as part of the intrinsic sense of most other ideophones because I consider their aspectual temporality to be part of their pragmatically expressed meanings, which are mainly enacted in performative foregroundings that are facilitated by intonational lengthening, or by repetition. I believe that this is an appropriate strategy because many richly sensory ideophones may seem to encode aspectuality, yet, their aspectuality is highly sensitive to performative elaboration, either by intonation or repetition.

The ideophone *tsuping*, for example, is a VISUAL, MOVEMENT, Configurational, Haptic ideophone found in video 1 at <http://quechuarealwords.byu.edu/?ideophone=tsuping>. It is used to depict a complete removal, laying bare, or stripping clean of some surface. Its meaning, therefore, seems to be congenial with aspectual completiveness, and this is in fact what is communicated by the first example, which describes how the head of a mythic woman who had been turned into a bird, gradually lost all of its hair until it was completely bald:

- (27) *Uma-ta tsupij luchuri-g-ei a-ra*
 head-ACC IDPH shed-AG-EV be-PST
 'And her head had completely shed (its hair until it was) *tsuping* (bare).'

Video 2 for this ideophone at <http://quechuarealwords.byu.edu/?ideophone=tsuping> reveals, however, that it can also be used to describe an ongoing iterative action. Example 8, which was the focus of the earlier discussion for *tyak*, is now reproduced here as Example 8 for the purpose of discussing *tsuping*. It features two women conversing about the way to strip bark from a tree. *Tsuping* is repeated to describe the iterativity of the process of stripping bark:

- (28) *Kasna tjak tjak tjak tsagma-ea-ng supij tsupij luchu-g a-ŋ juka*
 like.this IDPH IDPH IDPH hit-COR-ADV IDPH IDPH peel-AG be-3 my
kari kasna raa (= (8))
 husband like.this do-COR
 'Hitting like this, going *tyak tyak tyak* my husband would peel it (bare) *tsuping tsuping*, going like this (hitting the tree).'

Examples 27 and 28 demonstrate that the aspectual values of *tsuping* vary with context, and that their performativity may specify varying aspects. We may consider the event of stripping something bare as a completive, accomplished action, or as an iterated process consisting of individually completive microevents.

6. Discussion and conclusion

If we consider the struggles over the years to come to terms with ideophones as a class of expressions, then it is not very surprising that their semantics have been set aside as a topic for in depth study. The problems we face when attempting a semantic analysis of ideophones begin with the difficulties of attempting to even define them. Doke's (1935: 118) influential characterization of the ideophone as: "A vivid representation of an idea in sound. A word, often onomatopoeic, which describes a predicate, qualificative or adverb in respect to manner, colour, sound, smell, action, state or intensity" has been critiqued on a number of grounds.¹³ One problem with this definition that has not been mentioned is the listing of each sensory semantic category, which gives no clue as to their possible interconnectedness with each other. Although Dingemanse (2012) suggests an implicational relationship between each of the senses represented by ideophones, the nature of their sensori-semantic clustering is not addressed by this scheme either.

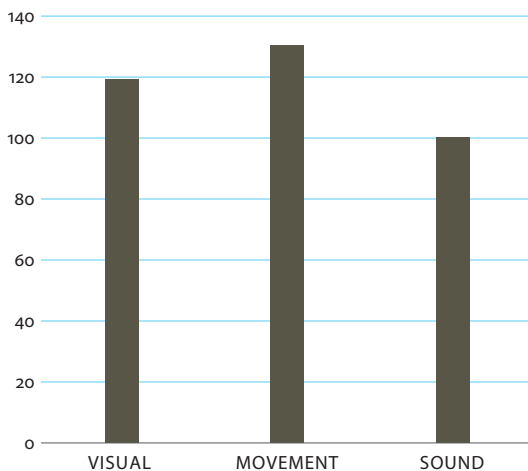
Having examined over 500 ideophone tokens for this study, I can now confidently assert that only a very small number of them are monosensory. There are 7 ideophones that are encoded only for SOUND and not for any subcategory of SOUND, nor for any other supercategory. All of them depict sounds made by nonhumans, without any cognitive or emotional sense. It is also possible that further probing of my consultants would reveal that these sounds do have emotional or cognitive significance for speakers. For now it is clear, however, that PQ ideophones, are on the whole, quite sensorily interconnected with each other.¹⁴

13. See Dingemanse (2008, 2018) for thorough discussions of the emergence of the term 'ideophone', as well as its indebtedness, not only to Doke, but to E.W. Scripture and possibly A. J. Ellis, and some of the problems attending this definition.

14. The numbers of examples for each ideophone are quite variable. Of 200 ideophones in the database, 77 ideophones have anywhere from 2 to 52 audiovisually recorded examples of use. That means that for 123 ideophones, there is only 1 audiovisual example of use. Of these 123 'single example' ideophones in the database, only 16 were unfamiliar to me from past research experience. The rest are all familiar and exist in audio-recorded files and transcribed texts. Another interesting figure is the number of ideophones that resulted from lexical words being performatively enacted. Out of 200 ideophones in the site, 27 are from identifiable lexical items, while the rest are dedicated ideophones.

I have proposed 3 supercategories and 7 subcategorical specifications in order to show the possibilities for talking about Pastaza Quichua ideophones' polysensory interconnectedness. One indication of the validity of the three supercategories as overarching general specifications, is that they are numerically more prolific than any of their subcategories. If we consider the *VISUAL* supercategory, a count reveals that there are 119 ideophones that encode this supercategory. The *MOVEMENT* supercategory features a total of 130 ideophones, and the *SOUND* supercategory has 100 ideophones total.

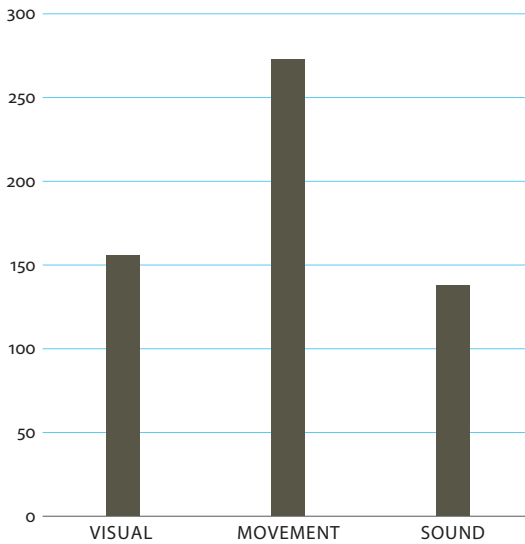
Graph 1 below represents the numerical relationships between the numbers of ideophones encoded for each supercategory, without any subcategorical specification.¹⁵ The numbers to the left reflect the numbers of each ideophone encoded for a supercategory.



Graph 1. Ideophones Coded for each supercategory

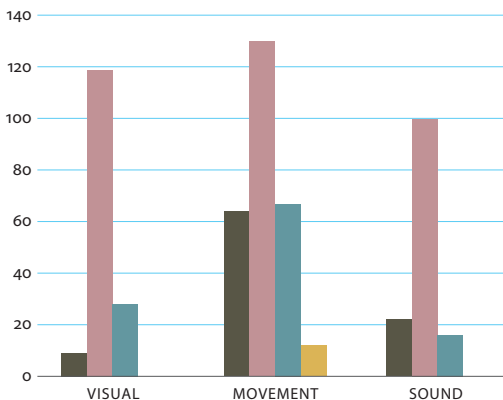
Turning next to the subcategories, we note that for *VISUAL*, there are 9 ideophones specified for Color and 28 for Pattern. The subcategories for *MOVEMENT* are more numerous than for *VISUAL* with 64 ideophones for Configurational, 67 for Haptic, and 12 for proprioception. The subcategories for *SOUND* have 16 ideophones encoding Cognition and 22 encoding Emotion. Graph 2 below shows how the relationships between the supercategories look when their subcategories are added:

15. The numbers for Graphs 1, 2, and 3 may be found by going to the quechuarealwords main page at <http://quechuarealwords.byu.edu> and then clicking the tab at the top for 'Ideophones by Modality', where each super- and subcategory lists the ideophones it specifies.



Graph 2. Numbers of ideophones coded for super categories combined with their subcategories

Finally, Graph 3 breaks down the supercategory and subcategory ratios. The tallest bar for each sensory category reflects the supercategory numbers. The numbers to the left are the numbers of ideophones coded for each supercategory and subcategory:



Graph 3. Numbers of ideophones coded by supercategories with subcategories separated

The graphs are revealing of a number of generalizations. First of all, as seen in Graph 1, the three supercategories considered by themselves are not that different from each other numerically. There seems to be a fairly even division of labor among

them. When we look at Graph 2, with the added subcategories, however, it looks as if the super- and subcategories for MOVEMENT are almost twice as numerous as those for VISUAL and SOUND. Graph 3 is very telling as well, because we see the proportions of subcategorical specifications for each supercategory. What is particularly interesting about Graph 3 is that the VISUAL and SOUND subcategorical specifications are quite small compared to the numbers of ideophones specified for MOVEMENT subcategories. What this suggests, then, is that the VISUAL and SOUND supercategories are underspecified for their subcategories because these two supercategories are more likely to be part of the semantics of other supercategories' ideophones.

The advantage of this classification scheme is that it offers a framework which accounts for ideophones' sensori-semantic interrelations without rigidly prescribing the expression of their pragmatic nuances and expressivity. The same ideophone may at times encode one cluster of sensory categories which are different from another usage when a different cluster is evoked. The ideophone *kingu* demonstrated this clearly when it was used for a relatively static, but at the same time, movement-oriented image in Example 4. In Example 5, where it depicted the movements of a snake, however, it became additionally specified for the Configurational subcategory. Although each usage is potentially able to evoke a different sensori-semantic cluster, the framework outlined here gives a rough blueprint for understanding how individual ideophonic performances are interrelated, yet fresh and new every time they are used. As Firth reminded us, "The use of the word 'meaning' is subject to the general rule that each word when used in a new context is a new word" ([1951] 1964: 190).

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URL's for examples

1. <http://quechuarealwords.byu.edu/?ideophone=chem>
2. <http://quechuarealwords.byu.edu/?ideophone=shinki>
3. <http://quechuarealwords.byu.edu/?ideophone=win>
4. <http://quechuarealwords.byu.edu/?ideophone=kingung>
5. <http://quechuarealwords.byu.edu/?ideophone=kingung>
6. <http://quechuarealwords.byu.edu/?ideophone=aki>
7. <http://quechuarealwords.byu.edu/?ideophone=sa>
8. <http://quechuarealwords.byu.edu/?ideophone=tyak>
9. <http://quechuarealwords.byu.edu/?ideophone=tyam>
10. <http://quechuarealwords.byu.edu/?ideophone=dzing>
11. <http://quechuarealwords.byu.edu/?ideophone=rupax>
12. <http://quechuarealwords.byu.edu/?ideophone=kukuli>
- 13a, 13b. <http://quechuarealwords.byu.edu/?ideophone=tar>
14. <http://quechuarealwords.byu.edu/?ideophone=gyawng>
15. <http://quechuarealwords.byu.edu/?ideophone=pis>
16. <http://quechuarealwords.byu.edu/?ideophone=chik>
17. <http://quechuarealwords.byu.edu/?ideophone=chikwang>
18. <http://quechuarealwords.byu.edu/?ideophone=tay>
19. <http://quechuarealwords.byu.edu/?ideophone=day>
20. <http://quechuarealwords.byu.edu/?ideophone=chun-2>
21. <http://quechuarealwords.byu.edu/?ideophone=chun-2>
22. <http://quechuarealwords.byu.edu/?ideophone=tas>
23. <http://quechuarealwords.byu.edu/?ideophone=tas>
24. <http://quechuarealwords.byu.edu/?ideophone=tas>
25. <http://quechuarealwords.byu.edu/?ideophone=dzas>
26. <http://quechuarealwords.byu.edu/?ideophone=dzas>
27. <http://quechuarealwords.byu.edu/?ideophone=tsuping>
28. <http://quechuarealwords.byu.edu/?ideophone=tsuping>

The power of ‘not saying who’ in Czech onomatopoeia

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This chapter attempts to show how phonosemantic relationships observed in Czech onomatopoeic expressions (OpEs) can motivate processes in discourse and grammar. OpEs not only depict sound-motion, but also function as discourse markers while retaining some aspects of the original phonosemantic relationship. Phonosemantic properties observed in OpEs are also relevant to choice of segments in word formation, especially in verbal suffixation and verbal aspect. These processes in grammar and discourse are akin to the process of grammaticalization in which traces of lexical meaning remain when a lexical item becomes grammaticalized.

OpEs simultaneously serve as a starting point to rethink the Saussurean arbitrariness principle. Phonosemantic relationships and their discourse-grammatical extensions can be seen as ‘emerging’ when only some property (of oral gesture or meaning) is chosen out of a set of all possible properties. Such a selection process, yielding a slightly different meaning-function at every step, is then most likely arbitrary. Saussurean arbitrariness of sign could then be seen as a consequence rather than a principle. Discussions are based on qualitative analysis of samples and quantitative corpus data.

1. Introduction

Existing literature on mimetic expressions tends to stress a divide between the sound/motion/sensory-iconic expressions and the ‘rest’ of the language. Ideophones are sometimes regarded as “a totally different kind of linguistic animal” (Diffloth 1976: 251) and “constitute a part of speech that belongs in an entirely different realm from the familiar nouns, verbs, and particles, and from bound morphemes” (Alpher 1994: 172). Some studies dedicated to sound-iconic expressions attribute primitiveness or naiveté to mimetic expressions either explicitly (Kořínek 1934) or implicitly (Fónagy 1999). This chapter looks at the discourse functions of onomatopoeic expressions (OpEs) used in several genres and their migration into

grammar in an attempt to illuminate one of the fundamental properties of OpEs, which can be used to produce effects that are far from manifestations of ‘naiveté’.

1.1 A short overview¹

Czech belongs to the Western group of Slavic languages. It is the major language of communication in the Czech Republic – a state that emerged after the split of the Czechoslovak Federal Republic in 1993 – and is spoken by approximately 10 million people. There are small groups of Czech speakers outside of the Czech Republic, along the Czech-Polish border and in Romania, Ukraine, the United States and Austria. *Spisovná čeština*, or Standard Czech, is the codified version of Czech. Standard Czech predominates in formal spoken and written communication. *Obecná čeština*, or Common Czech, is the informal spoken variant of Czech, characterized by inflectional endings that are different from Standard Czech. Most spoken communication draws elements from both variants and is called *Mluvená čeština* (Colloquial Czech), with possible regional features. This study considers both written and spoken Czech data from the Czech National Corpus.

In this chapter I use the Czech orthography to represent linguistic forms, as it largely corresponds to the phonemes. The Czech vowels differ in vowel height (front, central and back) and length. Length is marked by a line above a vowel letter (for all vowels) and by a small circle above (only for the high back vowel *u*). Thus, the Czech vowel system consists of the low central vowels (the short *a* and the long *á*), the mid front and back vowels (*e* and *é*, and *o* and *ó*), and the high front and back vowels (*i* or *y* and *í* or *ý*, and *u* and *ú* or *ů*).² The stress always falls on the first syllable of the phonological word. In addition, there are three diphthongs: *ou*, which is indigenous to Czech, and *eu* and *au*, which are much rarer and mostly occur in borrowed words.

The Czech consonant inventory consists of the bilabial stops *p* and *b*, the labial-dental fricatives *f* and *v*, the apico-dental stops *t* and *d*, the apico-dental fricatives *s* and *z*, the apico-alveolar fricatives *š* and *ž*, the lamino-palatal stops *tʃ* and *dʒ*, the dorso-velar stops *k* and *g*, the voiceless velar fricative *ch*, and the voiced glottal fricative *h*. Besides the sonorants (*m*, *n*, *r*, *l*), Czech has the lamino-palatal nasal *ň*, the glide *j*, and the strident trill *ř*.

1. The information here is by no means exhaustive. The purpose of this section is to provide the necessary information to facilitate the understanding of Czech OpEs. An extensive description of Czech based on authentic data can be found in Cvrček et al. (2015).

2. There is no phonemic differences between *í* and *ý* nor between *i* and *y*. Likewise there is no phonemic difference between *ú* and *ů*.

As with most of the Slavic languages, Czech is highly inflected; the nominal declension is normally described in terms of seven grammatical cases and four genders.³ Modifiers agree with the head noun in case, grammatical gender, and grammatical number (singular-plural). Czech verbs can be perfective, imperfective, or bi-aspectual. Perfective aspect verbs tend to report sequentially ordered events and imperfective aspect verbs processes, repeated actions and states.

Onomatopoeic expressions (OpEs) in Czech are those linguistic forms that fit the description of the 'imitative sound symbolism' in Hinton et al. (1994: 2–3), representing environmental sounds and movements.⁴ OpEs in Czech can represent different sound sources, such as an animate entity (e.g., *bé*, a sheep bleating or a child wailing), or an inanimate entity (e.g., *brnk*, the plucking of a string; *cvak*, a short sound of a sharp metallic object (e.g., a stapler punching its needles into sheets of paper, a machine punching a hole)). Motion OpEs can indicate movement and/or sound (e.g., *frnk*, a quick movement accompanied by a fluttering sound, *cák*, liquid spurting out in a straight line). They can also represent a path and speed; compare *houpy* (a slower, roundabout movement) to *hop* (a direct, speedy bouncing movement). OpEs can indicate the nature of contact; compare *křáček* (an object being shattered on contact) to *pink* (a bouncing movement of an object at a small contact point without damage). The nature of the entity's landing site can be indicated: compare *žbluňk* (an entity entering a liquid surface) to *dup* (a loud step on a solid surface).

I argue that one of the the fundamental properties of Czech OpEs is neutrality with respect to agency. This property is used to produce more than one type of effect in discourse. The importance of 'not saying *who*' can be observed in the way in which its traces are retained even when OpEs are integrated into the verb system.⁵ Simultaneously I will show diffused agency allows OpEs to produce various sophisticated discourse effects, thereby challenging the notion of naiveté associated with OpEs. Additionally, OpEs from Czech suggest potential functions of mimetic expressions in genres that have not been extensively studied: journalistic texts and professional literature.

3. Masculine animate, masculine inanimate, feminine, and neuter.

4. Besides onomatopoeia Czech can mark size symbolism (diminutives and augmentatives) morphologically in nouns, adjectives, and (less often) verbs (*dům* 'house' > dim. *domek*, *domeček*; *malý* 'small' > dim. *maličký*, *malinký*, *malilinký*; *chlap* 'guy' > aug. *chlapák*, *velký* 'big' > aug. *velkánský*, *velkátánský*; *spát* 'to sleep' > dim. *spinkat*).

5. This is essentially a more schematic version of what is discussed in Bybee and Pagliuca (1987), who show that traces of earlier lexical meanings are retained in grammaticalized forms.

1.2 Data

This chapter uses monosyllabic OpEs with a closed syllable: C(C)V(C)C, the most frequent OpE types, as illustrations (Fidler 2014: 25).

The data were drawn from the Czech National Corpus: SYN2015 (Křen et al. 2015), SYN v.5 (Křen et al. 2017) and ORAL v.1 (Kopřivová 2017). Table 1 describes each corpus.

Table 1. Corpora used

Corpus	Size	Description
ORAL v.1	5.4 mil. words	Reference corpus of informal spoken Czech (including spoken Czech from Bohemia, Moravia and Silesia)
SYN v.5	3.8 bil. words	Reference synchronic corpus of written texts from 1989–2014
SYN2015	100 mil. words	The most recent representative synchronic written corpus, which primarily consists of texts from 2010–2014 (part of SYN v.5)

SYN v.5 is used to examine the relationship between OpEs and genre, as it is the largest corpus of written Czech in various genres. SYN2015 is used to look at grammaticalization of OpEs and discourse functions of OpEs in the most up-to-date written Czech. Qualitative analysis of OpEs is based on the data from ORAL v.1 and SYN v.5.

I first look at OpEs in discourse story-telling and oral interaction (Sections 2 and 3) to suggest several types of discourse functions of OpEs and one property they are likely to share. Section 4 examines the ‘*nou*-verbs’, the class of verbs with the suffix *nou*- that tend to absorb OpE roots, and discuss what makes it conducive to the integration of OpEs. Section 5 looks at the relationship between genre and OpE use. Section 6 pulls together the results from the preceding sections.

2. OpEs in story-telling

Use of ideophones are often associated specific functions in story-telling, especially in representing dramatic moments (e.g., Kilian-Hatz 2001: 156; Nuckolls 1996). The performative aspect of sound imitation as well as quotations has been discussed in existing literature (Tannen 1983: 366–367) as well as other similar devices (quotations and use of someone’s intonation (Tannen 1984/2005: 113; Clark and Gerrig 1990). O’Reilly characterize quotations and ideophones together as ‘active noising’ (2005).

The approach in this section differs from existing research in its use of keyword analysis (KWA), a corpus linguistic method. KWA examines a text in relation to a specific point of reference: it identifies word forms (‘keyed’ words or ‘keywords’) that occur more frequently in the target text than in another, usually larger, language

corpus (the ‘reference corpus’).⁶ Keywords are expected to point to what the text is about – to words that suggest “aboutness” (Scott and Tribble 2006: 59–60). They are also expected to reflect genre and/or to be connected with the main content of the text. KWA moreover reveals what is likely to stand out (to be prominent) from an average native speaker’s perspective (Fidler and Cvrček 2015) when a text is contrasted with a representative reference corpus of the contemporary language (i.e., a corpus that is sufficiently large and genre-balanced, as is used in this study), since it finds words that diverge from the regular patterns of language use. KWA can thus serve as a pointer to what impresses on the reader.

Keywords in this study were drawn from children’s and adults’ classics by two Czech authors: Jan Werich (1960) and Karel Čapek (1992) (Table 2). The discourse structure of each story is relatively simple because it follows the basic conventions of fairy tales. Čapek’s storyline culminates at the end, building the story towards ‘complicating actions’ that lead to ‘resolution’ (Labov 1972: 354–375). Werich’s text consists of sub-episodes with smaller units of complicating actions to use Labov’s term. The central character who is followed throughout the story is the ‘stingy Barka’ and the most violent moment in the story involves a stingy farmer Kubát hitting her; Barka had been brought into the farmer’s barn after slipping and losing consciousness elsewhere, but the farmer mistook her for a thief stealing from his barn. In both stories OpEs are ‘keyed.’

Table 2. Description of texts

Title of text	Number of words	Synopsis	OpEs (and keywords)
<i>Pohádka vodnická</i> ‘The Water Sprite’s Tale’ (Karel Čapek)	1,747	In a water sprites’ colony a young water sprite falls in love with the water sprite princess. He receives an almost impossible task from the princess as the condition of marriage, despairs, but finds a solution.	<i>kva</i> <i>kvá</i> <i>kvak</i> [OpEs indicating croaking or quacking sound]
<i>Lakomá Barka</i> ‘The Stingy Barka’ (Jan Werich)	2,030	Barka and other characters in Dejvice are envious, stingy, and steal from others. The story is subdivided into smaller episodes to illustrate each character. There is no resolution at the end; no one changes for the better, no one is punished, and people carry on with the same pattern of behavior.	<i>bác</i> [OpE indicating a loud hitting sound with some damage on contact]

6. In this chapter frequency significance is measured by the log-likelihood test, and keyword ranking by DIN (Difference Index) (Fidler and Cvrček 2015).

In order to follow the most significant parts of the texts, I looked at occurrences of keyed finite verb forms that are expected to coincide with the most prominent parts of the story. I separated the verbs from by verbal aspect: perfective and imperfective forms, which are presumed to present foregrounded and backgrounded information respectively (cf. Hopper and Thompson 1980). More specifically, the following criteria were used to select words:

- a. Finite perfective verb forms: e.g., *popadne* '[s/he] (will) seize' *vstal* '[he] got up'⁷
- b. Finite imperfective verb forms: e.g., *povídá* '[s/he] says', *pozoroval* 'he was observing'

Keyword distribution plots (Figures 1–4) show the locations of the OpEs and the foregrounding and backgrounding verbs. The horizontal line from left to right corresponds to the progress of the story from the beginning to the end.

The Water Sprite's Tale contains OpEs imitating the croaking sounds of water sprites: *kvak kvá* and *kva*. They all occur towards the end of the story. The OpEs are marked by a solid box and the key verb forms in the vicinity of OpEs are marked by a dotted box (Figures 1–2).⁸

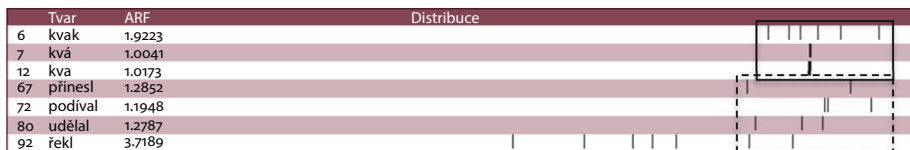


Figure 1. *OpEs and keyed foregrounding (perfective) verb forms: *přinesl* '[he] brought', *podíval* [se] '[he] looked on', *udělal* '[he] did', and *řekl* '[he] said'

*The table shows the ranking (the left-most column) and each key word form (under *Tvar*). ARF stands for Average Reduced Frequency; an adjusted word frequency that factors in multiple occurrences of a word that occurs close to each other (<https://www.sketchengine.eu/documentation/average-reduced-frequency/>). In this KWA the Log-Likelihood test was used for significance (the significance level was set at 0.5) and the minimum word form frequency at 2. All function words and personal pronouns were excluded from the analysis. The analysis extracted all significant keywords.

7. Negated finite forms were not included among the foregrounding verbs, but were included among the backgrounding verbs as negation is said to be low in transitivity and is likely to be used more in backgrounding rather than foregrounding (Hopper and Thompson 1980: 252).

8. The boxes for verb forms were drawn based on a subjective impression of how they cluster.

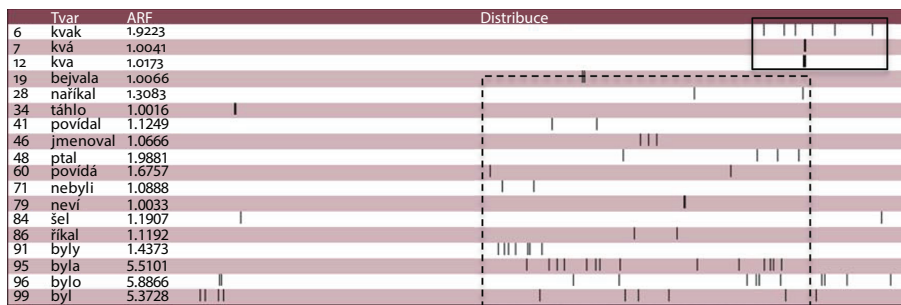


Figure 2. OpEs and keyed backgrounding (imperfective) verbs: *bejvala* ‘she used to be’, *nařikal* ‘he lamented/was lamenting’, *táhlo* ‘[a group of 16 white horses] was pulling’, *povídal* ‘he said/was saying’, *jmenoval* [se] ‘his name was’, *ptal* [se] ‘[he] asked’, *povídá* ‘he/it says’, *nebyli* ‘[they] were not’, *nevi* ‘[nobody] knows’, *šel* ‘[he] went’, *řikal* ‘[he] said/was saying’, *byly* ‘[they-inanimate] were’, *byla* ‘[she/it] was’, *bylo* ‘[it] was’, *byl* ‘[he/it] was’

Both Figures 1 and 2 show *keyed* verb forms: they are not simply perfective and imperfective finite verbs, but are prominent verb forms.⁹ The figures show that the OpEs are ranked much higher in keyness than most of the verb finite forms.

The figures also show that OpEs tend to overlap more with the keyed perfective verb forms than the keyed imperfective verbs. The figures thus suggest that OpEs tend to occur with storyline-building verb forms that are particularly striking to the reader. In fact, the segment containing the OpEs constitutes the climax of the story:

- (1) *Vezmeš-li si mne za muže, řekl jí, přinesu a dám ti, co budeš chtít. A tu ona řekla: Tedy mi přines modré z nebe, kvak^a.*
“A co udělal Kvakvakvokoax?” ptal se Zelinka.
“Nu, co měl dělat? Seděl pod vodou a nařikal: Kva kva kva kvá, kva kva kva kváb. A pak si chtěl vzít život. Proto skočil z vody do vzduchu, aby se v něm utopil, kvak^c. Nikdo před ním ještě do vzduchu neskočil. Kvakvakvokoax byl první.”
“A co udělal ve vzduchu?”
“Nic. Podíval se nahoru, a nad ním bylo modré nebe. Podíval se dolů, a pod ním bylo také modré nebe. Kvakvakvokoax užasl. Tehdy ještě nikdo nevěděl, že se nebe odráží ve vodě. Když Kvakvakvokoax uviděl, že je na vodě modrá obloha, vykřikl podivením kvak^d a spadl zase do vody. A pak vzal Kuakuakunku na záda a vyskočil s ní do vzduchu. Kuakuakunka uviděla ve vodě modré nebe a vykřikla radostí kvakvá^e. Neboť jí Kvakvakvokoax přinesl modré z nebe.”

9. The term ‘prominent’ should by no means be conflated with the property of reporting the main storyline. A word is prominent when the word occurs more often in the target text than expected.

“[...] ‘If you take me as a husband, he said, I will bring and give you whatever you wish.’ And quickly she said, ‘Then bring me the blue from the sky, **kvak**^a.’”

“And what did **Kvakvakvokoax** do?” Zelinka asked.

“Well, what should he have done? He was sitting under the water and was lamenting: **Kva kva kva kvá**, **kva kva kva kvá**^b. And then he wanted to take his own life. Therefore he jumped out of water into the air to drown himself, **kvak**^c. No one had jumped into air before him. **Kvakvakvokoax** was the first.”

“And what did he do in the air?”

“Nothing. He looked up and there was blue sky overhead. He looked down, and there was also blue sky underneath. **Kvakvakvokoax** marveled. At that time no one knew yet that the sky is reflected on the water. When **Kvakvakvokoax** saw that there was a blue sky on the water, he shouted with amazement, **kvak**^d, and fell into the water again. And then he took **Kuakuakunka** on his back and jumped out into the air with her. **Kuakuakunka** saw the blue sky in the water and cried out with joy **kvakvá**^e. For **Kvakvakvokoax** had brought her the blue from the sky.”

In the text each of the three instances of *kvak* marks a dramatic moment: the damning statement made by **Kuakuakunka**, the water sprite princess (*kvak*^a); the poet’s (**Kvakvakvokoax**’s) suicide attempt (*kvak*^c); and his new discovery, which eventually leads to winning the princess’ love (*kvak*^d). The longer OpEs represent emotional cries: the sequence *kva kva kva kvá*, *kva kva kva kvá*^b presents **Kvakvakvokoax**’s despair; *kvakvá*^e represents **Kuakuakunka**’s joy.

The text in (1) shows that OpEs present what the characters sounded like at the critical moment of the story. The keyness of the OpEs and distribution plots corroborate this observation. First, the OpEs themselves are highly keyed. Second, they co-occur with perfective verb forms, i.e., part of the prominent storyline. The prominence of OpEs themselves and their proximity to the prominent storyline-building verb forms indicate that the OpEs present the most dramatic part of the storyline.

The climax of a story may not be always at discourse-final positions. Werich’s *Stingy Barka*, for example, contains a dramatic moment in the midsection of the text (cf. Example 2 below). The OpE *bác* is the highest-ranking keyword. It occurs in a place populated by many keyed perfective finite verb forms, i.e., the storyline-bearing verb forms that are prominent in the text (Figure 3). In contrast, the OpE is situated outside the cluster of keyed imperfective finite verbs (Figure 4).

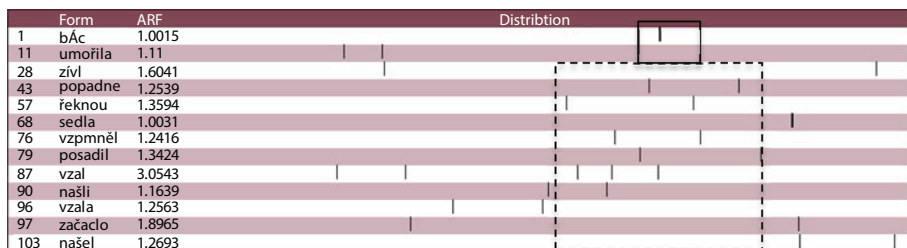


Figure 3. OpEs and foregrounding keyed verb forms: *umořila* [hladem] ‘[she] [starved someone] to death’, *zívl* ‘[he] yawned’, *popadne* ‘[fear] will seize [him]’, *řeknou* ‘[they] will tell’, *sedla* [si] ‘[she sat down], *vzpomněl* ‘[he] recalled’, *posadil* ‘[he] put [someone] in a standing position’, *vzal* ‘[he] took’, *našli* ‘[they] found’, *vzala* ‘[she] took’, *začalo* ‘[it] started’, *našel* ‘[he] found’

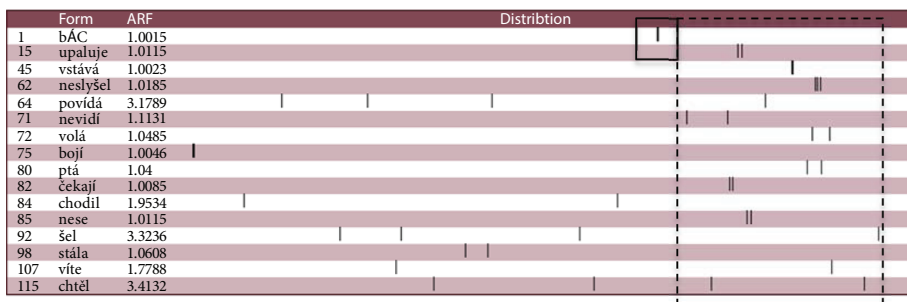


Figure 4. OpEs and backgrounding keyed verbs: *upaluje* ‘[s/he] bolts’, *vstává* ‘[s/he] is getting up’, *neslyšel* ‘[he] didn’t hear’, *povídá* ‘[s/he] says’, *nevidí* ‘[s/he] doesn’t see’, *volá* ‘[s/he] calls’, *bojí* [se] ‘[s/he] is afraid’, *ptá* [se] ‘[s/he] asks/is asking’, *čekají* ‘[they] wait/are waiting’, *chodil* ‘[he] [routinely] went’, *nese* ‘[s/he] is carrying’, *stála* ‘[she] was standing’, *víte* ‘[you] know’, *chtěl* ‘[he] wanted’

The immediate context around the OpE shows that the OpE captures a dramatic moment:

- (2) *Kubát hlídá v chalupě. Asi za půl hodinky ho popadne obvyklý strach o zrní a letí do stodoly. A vida ho! Nachytl zloděje s lopatou, zrovna jak se chystá okrást ubožáka! I ty prevíte! I ty padouchu! Kubát vzal cep a BÁC, BÁC! Zloděj se skácel.* ‘Kubát [who is always worried about someone stealing his grain] is keeping watch in [his] cottage. In about half an hour the usual fear for [his] grain takes over him and [he] flies into the barn. And there it is! He caught a thief with a shovel, just when he was about to rip off a poor man! You scum! You bastard! Kubát took a flail and BÁC, BÁC! The thief was knocked down.’

Kubát takes up the flail and beats whom he thinks is a thief. By virtue of representing what the sound was like, the OpEs present the scene as though it were unfolding in front of the reader, thereby superimposing Kubát's perspective on the perspective of the reader. This is different from a finite verb expression such as 'Kubát beat him up'. The OpEs compactly indicate a loud bursting sound of an object coming into contact with a landing site, causing damage to the latter.

The distribution plots demonstrate that these OpEs are likely to be part of a prominent (striking) storyline (co-occurring with keyed perfective verbs).¹⁰ The results are commensurate with existing literature. Ideophones facilitate experiencing various sensations in Pastaza Quechua (Nuckolls 1996, this volume). They are used for narrative performance in Mam, a Mayan language (England 2009). The dramatic functions of ideophones are discussed in many other studies (e.g., Alpher 2001; Kilian-Hatz 2001: 156; Akita et al. 2012; Szatrowski 2015).

The marked nature of OpEs is also indicated by their much higher ranking in keyness in contrast to most of the keyed verb finite forms. An OpE compresses the nature of sound and motion in one word (Fidler 2014), unlike foregrounding verbs, which report what happened, who was responsible for the event, and who was affected.

The observations drawn from the two texts are consistent with the existing literature about dramatic effects of OpEs. What this section demonstrates, however, is that such a function can be measured and plotted, thereby articulating the observations in the literature. Oral interactions in the following section, however, show that OpEs can produce more complex effects.

10. OpEs in Czech largely end in a closed syllable. OpEs ending in an open syllable, however, do exist. While the former can mark quick termination, the latter can mark continued effect or relevance (Fidler 2014: 55–56). This difference, however, does not preclude the dramatic function of OpEs that can be utilized for climax moments in discourse: *Slaná voda z rybníka [...] na ploténce kuchyňky začala vřít a signálně o tom zapískala. Fíí! Voda zapískala!* 'Salty water from the fishpond [...] on the kitchen stove started boiling and started whistling the signal. Fíí! The water started whistling!' (SYN v.5)

3. OpEs in oral interaction

OpEs in oral interaction reveal other discourse functions as the context includes the reaction of interlocutors, allowing us to interpret their effects. In the following segment the OpE *kva* is embedded in the line (by Svatopluk) about the family duck.

- (3)¹¹ Sylva_281 *a kačku ste pak taky přece nesnědli že jo?*
 ‘but of course you did not eat the duck either, did you?’
- Svatopluk_280 *kačku taky, kačka stojí tam na tý lavičce zase,*
 ‘[we did not eat] the duck either, the duck is standing
 there on that bench now’
- Sylva_281 *no jo to měli,*
 ‘yeah yeah, they had it’
- Svatopluk_280 *kačku ne, to bylo to bylo taky vochočený zvíře, velice,*
 ‘[they ate] not the duck, it was it was also a tamed animal,
 very,’
- Hedvika_220 *hmm,*
- Svatopluk_280 *ta furt kva kva kva kva a furt se tam motala pod nohy,*
 ‘it [the duck] kva kva kva kva all the time and was
 hanging around under [your] feet’
- Bronislav_282 *dneska už sme takový zdeformovaný dneska už jíme i*
ochočená zvířata,
 ‘today we are already so deformed, today we eat even
 tamed animals,’
- Sylva_281 *hmm,*
- Svatopluk_280 *hmm,*

The OpEs *kva kva kva kva* are part of a text where Svatopluk represents the bird’s constant quacking around people to illustrate the degree of its tameness. This also makes part of the most important argument for not eating the bird. Furthermore, use of the OpEs produces a comic effect. The effect is similar to the “ludic” effect discussed in Dressler and Barbaresi (1994) about size sound symbolism (diminutives and augmentatives).

11. The notations (.) and (..) indicate shorter and medium length pauses respectively. A complete description of the notations used in this corpus can be found in <http://wiki.korpus.cz/doku.php/cnk:oral:pravidla>.

A similar effect can also be observed in (4) that concerns school teachers' (Andrea and her colleagues') difficulty in keeping their students under control.

- (4) **Andrea_588** *jo a teď jeden kluk hrál nějakýho pašeráka
kterej utíkal a ty děti ho měly jako dohonit
takže se stalo to, že všechny děti z té školy se
rozprchly do lesa aniž by měly nějaký pokyny
jako že za deset minut*
'yeah, and now one boy was playing some
kinda smuggler who was running away and
these kids were supposed to catch up with
him, so it happened that all the kids from
this school ran in all directions into the for-
est without having some kinda instruction
like ["in ten minutes?"]'
- Andrea_588 + •Tereza_537** *se vrátíte*
'["you will come back?"]'
•¹² *hmm*
- Andrea_588** *nebo nic prostě. Jenom frnk a byly v lese. a
my kantoři sme tam stáli teď my ženský sme
na sebe koukaly jako co teda bude*
'or nothing simply. Just frnk and they were
in the forest. and we teachers were standing
now, we women were looking at one another
like ["what next?"]'
- Andrea_588 + •Tereza_537** *to sme zvědavý jo*
'["yeah we are curious?"]'
• *(smích)* .
'(laughter)'
- Andrea_588** *chlapi nic klidný jak želvy vid'*
'guys [were saying] no problem [lit. nothing]
calm like turtles, right'
- **Tereza_537** • *(smích)*
'(laughter)'
- Andrea_588** *no tak my taky nic*
'well we also like that ["nothing?"]'

The OpE *frnk* in (4) can be paraphrased as 'it was a type of situation that resembles a bird's flight with fluttered wings'. In other words, the OpE represents *a type* of event

12. In all the examples from ORAL the lines marked with a black circle belong to a speaker marked with the same notation (e.g., Tereza_537 in this conversation).

and is neutral with respect to agency or who did what.¹³ This property of the OpE fits into the nature of discourse that stresses the non-seriousness of the situation, as in (3): the teachers were there without any clue about the children’s whereabouts or authority to get them back. The entire context is structured in a way that agency – who fled, who is responsible for supervising the children – is irrelevant.

The OpEs in (5) show more clearly that agency is not the focus of conversation. They bail out the potential culprit (the speaker) who made an object fall.

- (5) Vojtěch_4475 *se pod’ podívat*
‘take a look’
- Ivanka_4809 *zkusíme odstavovač. Odstavovač se di podívat*
‘let us try the juice-maker. The juice-maker take a look’
- Bronislava_4712 *na co?*
‘at what?’
- Ivanka_4809 *jak to nesedí .. jo už si. pod’ se podívat jak to nesedí teda..*
musíme se podívat jak to nesedí (pád předmětu) no bum bác
‘how it does not fit .. yeah already . take a look, how it does not fit .. we have to look at how it does not fit (falling of some object¹⁴) well bum bác.
- Vojtěch_4475 *jenom takle*
‘that’s the only way’
- Ivanka_4809 *no jo vono to je vlasně velký tadydlencty. Hmm tak to není*
ale ve spáře. to je v dlaždičce+
‘yeah really it is actually big, this one here. Hmm so but it is not in a seam. it is in a small piece of tile+
- Vojtěch_4475 *no je no*
‘yeah it is yes’
- Ivanka_4809 *+ vyvrtaný*
‘+ drilled in’
- Bronislava_4712 *aha. no tak to teda nevím*
‘aha. Well then I do not know’

13. The alternative intransitive verbs would specify who ran away (*rozběhly se* ‘they ran away in all directions’) and would not produce the same ludic effect or association with fluttering little birds. The OpE directs the hearer’s attention to *what the situation was like* rather than *what happened*. The observation here is consistent with Kita (1997) and Tsujimura (2014) who propose different semantic models to account for Japanese mimetic words that do not specify causers of eventualities (e.g., *gorogoro* ‘*a heavy person rolling something’) (Kita 1997) and that are flexible with respect to semantic roles (Tsujimura 2014). Dingemanse (2011: 157) also cites the use of an ideophone that suppresses agency (‘it just squirted out’); the interlocutor notes this feature and makes a correction (‘you squeezed it out here’), clarifying the agency.

14. The text in the parenthesis is part of the original transcription that explains the background noise.

- (7) •Antonín_7470
- Tamara_7469
- Antonín_7470
- Tamara_7469
- Antonín_7470
- Antonín_7470 + Tamara_7469
- Antonín_7470
- *datum*
‘date’
hmm.
 - *(nesrozumitelné). platilo.. zaplatila.. potom to teda v rámci. Zrychlení a úspor to už vyříš* vyřešili tak že. (nesrozumitelné) zrušili a. u řidiče byl.. takový poloautomat.*
‘(incomprehensible). paid.. payment was made.. then because of. speed and economy they already solv.. solved it [the issue] in such a way that. (incomprehensible) they abolished [this system] and. There was.. such a semi-vending machine near the driver.
(smích)
‘(laughter)’
 - *(nesrozumitelné) tam skutečně nasypala drobné a pak tam byla páka a udělala si cvak.*
‘(incomprehensible) there really [one] threw small change and then there was a lever and [one] did for yourself *cvak.*’
 - *(nesrozumitelné)*
‘(incomprehensible)’
hmm
 - *ti lísteček ten sis utrhla.. to se nic necvakalo.. to bylo strašně dlouho tady todleto. no a pak přešli na. pak přešli na ty. @ děrovače.*
‘to you, [you] tore the ticket.. nothing was punched.. it existed for a terribly long time this one. Yeah and then they moved to. then they moved to those. Hole-punchers.’

public transportation tickets (the old ‘semi-vending machine’). The exact detail of the mechanism is irrelevant in this discourse: how the small change dropped to a place where the driver could check the amount and how the customer pulled the lever and caused the ticket to come out.

OpEs in oral interactions show that there are more functions of OpEs in addition to enhancing the most dramatic moment in a story. OpEs may represent events as non-serious. They can be used to compress a procedure into a single word, as if abbreviating the forms of more than one event (pulling the lever, making a sound). By virtue of their focus on the properties of sound and motion and their compressed representation, OpEs can be used when identification of event participants is not relevant in discourse. Some OpEs can even neutralize the patient of action, as seen in

(6); they can indicate how a situation affects people, i.e., anyone, without specifying who is affected, with the accompanying pseudo-pronominal form.

OpEs in oral interactions demonstrate that mimetic expressions can produce complex discourse effects, contrary to the argument that OpEs are primitive. This section showed a different way in which OpEs can be used. OpEs simultaneously represent a situation as a type; this property of OpEs can be then used when the identity of participants in the event is not relevant to the context – a text that diffuses explicit references to event participants, especially their agents.

The following section explores what might be central to OpEs from a different angle. The core function of diffusing event participants is so persistent that its trace is consistently found even after OpE roots join the inflectional system.

4. OpEs start migrating into the verbal system

Czech creates new verbs with various suffixes. For example, verbs are often derived from nouns and foreign roots with the suffix *-ova* ⁻¹⁶ (Šlosar 1995: 196–197): e.g., *práce* ‘work’ (native word, noun) > *pracovat* ‘work’, and *to customize* > *kustomizovat* ‘customize’.¹⁷ OpE roots can be clearly observed in the class of verbs with the suffix *-nou-*: *tuk* > *tuknout* pf. ‘knock once’, *mňou*, *mňouk* ‘meowing sound’ > *mňouknout* pf. ‘to meow once’.^{18,19}

16. *-t* is the infinitive suffix.

17. *-ova-* verbs are also derived from other verbs (Šlosar 1995: 197).

18. Closed syllables are predominant among Czech OpEs (Fidler 2014: 24–25), but this syllable structure is not mandatory for suffixation with *-nou-*: cf. *minout* pf ‘to miss.’ The percentage of *nou-*verbs (both perfective and imperfective aspect combined) that are reliably based on OpEs is about 38% (126/334) among this class of verbs (SYN2015). OpE roots can also be found in imperfective verbs with the suffix *-e/-ě* and *-a*. They are not included in the discussion because their relationship to OpEs appears not as direct as *nou-*suffix verbs. The shape of the OpE is not always clearly retained in verbs with the suffix *-e/-ě* (e.g., OpE *bé*, *bek* ‘a bleating sound’ > impf *bečet* ‘to bleat’, *prask* ‘clacking sound’ > *praštět* impf ‘to crack, hit’, *kňou* ‘whining sound’ > *kňučet* ‘to whine’); some verbs with the suffix *-e/-ě* might be only historically based on OpEs, but the source is not found in the contemporary language (*kručet* impf ‘to rumble (in the stomach)’ < **kru?* *kruk?*). Suffixation with *-a* can report sounds-motions that occur multiple times *tuk* ‘a knock’ > *tukat* impf ‘to knock multiple times’. Some of these verbs, however, could be seen as derived from a OpE-based noun (*blekotat* impf ‘to mutter’; cf. *ble* ‘bla ((meaningless) speech)’ and *blekot* n ‘muttering’) or OpEs that are not found in the contemporary language (*žůžlat*, *žmoulat* impf ‘to chew at’; cf. *žůžú* n ‘a marshmallow-type sweet’, OpE **žů?*, *žm?*). In this chapter I only discuss *nou-*suffix verbs because they retain the shape of OpEs the best.

19. This process of integrating OpEs into the verb system parallels the English sound-symbolic words that are used as verbs (Schourup 1993).

In general, prefix-less ‘*nou*-verbs’ can be imperfective or perfective/semelfactive: *bohatnout* impf ‘to get rich’ and *mávnout* pf. ‘to wave once’. As shown in Table 3, however, the proportion of the perfective aspect among the *nou*-verbs is unusually high, compared to that of non-*nou* verbs.²⁰

Table 3. *Nou*-verbs vs. others and their aspect

	<i>nou</i> -verbs (unprefixed)		all other verbs (non- <i>nou</i> -verbs) (unprefixed)	
	number (types)	%	number (types)	%
perfective verbs	88	77.2	242	6.5
imperfective verbs	26	22.8	3108	83.6
bi-aspectual verbs	0	0	369	9.9
Total	114	100	3719	100

Table 4. High-frequency lexemes of *nou*-verbs and non-*nou*-verbs (SYN2015)

Unprefixed <i>nou</i> -verbs (perf. aspect)	Freq, ipm	Unprefixed non- <i>nou</i> - verbs (perf. aspect)	Freq, ipm
1. <i>padnout</i> ‘fall’	81.0	<i>řici</i> ‘tell’	1,495.5
2. <i>klesnout</i> ‘sink’	94.0	<i>dát</i> ‘give, put’	870.0
3. <i>kývnout</i> ‘nod’	26.1	<i>nechat</i> ‘leave’	453.7
4. <i>lehnout</i> [<i>si</i>] ‘lie down’	25.7	<i>koupit</i> ‘buy’	149.4
5. <i>minout</i> ‘miss, pass’	22.3	<i>pustit</i> ‘let go’	132.0
6. <i>klepnout</i> ‘to tap once’ (+acc only in a phrase <i>klepla ho^{acc} pepka</i> ‘he has kicked the bucket’)	18.9	<i>chytit</i> ‘catch’	59.2
7. <i>chytnout</i> ‘to catch’	17.4	<i>půjčit</i> ‘lend, borrow’	22.5
8. <i>mávnout</i> ‘to wave once’	16.3	<i>praštit</i> ‘to crack, smash’	13.8
9. <i>mrknout</i> ‘to take a look’	15.8	<i>chopit</i> ‘to catch’	11.0
10. <i>trhnout</i> ‘to tug at’ (+instr)	13.5	<i>jmout</i> ‘to take, to overtake’	4.6

A *nou*-verb, in addition, can be a special kind of perfective verb: a semelfactive verb reporting a single completed momentary action, e.g., *mávnout* ‘to wave once’, *klovnout* ‘to peck once’. Thus this verb class is semantically compatible with the functions of those OpEs that can mark the striking parts of the major storyline as well as one single action, e.g., *škrť* ‘make a scratchy sound once (e.g., with a pen, with a match)’ > *škrtnout* ‘to light up (a match) with a strike, write up (a piece of text) by one stroke’. Most of the OpEs in this chapter have their *nou*-verb counterparts: e.g.,

20. The comparison was drawn between verbs without prefixes, as the focus is on the suffixes only.

frnk > *frnknout* ‘to make a single complete fast movement from the departure point to some destination’, *kvak* > *kvaknout* ‘to quack or croak once’, *cvak* > *cvaknout* ‘to click’, *flák* > *fláknout* ‘to whack’, *bác* > *bácnout* ‘to bash’, *prásk* > *prásknout* ‘to slam’.²¹

In addition to semelfactiveness and perfectivity, however, *nou*-verbs associated with OpEs differ from the other verbs with respect to event participants. This can be demonstrated by three types of quantitative data: the semantics of the most frequent lemmas, co-occurring grammatical cases, and co-occurring word forms.²²

The semantics of frequently used *nou*-verbs suggests its relationship to intransitivity. The table below shows the ten top-ranking lemmas for *nou*-verbs and others in the perfective aspect. The verbs that can be combined with the accusative objects are marked in boldstyle.

There are few high-ranking perfective verbs with the suffix *-nou-* that are transitive, while all the high-ranking lexemes without the suffix *-nou-* are transitive verbs.

Table 5 provides more information on the syntactic patterns of *nou*-verbs vs. others:

Table 5. *Nou*-verbs vs. other verbs and the co-occurring grammatical cases (SYN2015)

Unprefixed <i>nou</i> -verbs (perf. aspect)		Other unprefixed verbs (perf. aspect)	
case	LogDice	case	LogDice
1. dative	7.1	1. dative	10.0
2. vocative	6.5	2. accusative	8.9
3. instrumental	6.5	3. nominative	8.5
4. accusative	6.4	4. vocative	8.3
5. nominative	6.1	5. instrumental	7.9
6. genitive	5.7	6. –	7.8
7. locative	5.4	7. genitive	7.8
8. –	5.3	8. locative	7.5

The colligational strengths of the relevant grammatical cases for the two groups of verbs can be summarized below:

21. This form was found on the Internet: http://www.tyden.cz/rubriky/zahranici/evropa/k-vyrizeni-politika-staci-sprosty-vtip-u-sklenicky-smutni-sikorski_347809_diskuze.html (accessed August 22, 2017). All the others were found in SYN2015.

22. Co-occurring forms were sought within the range of 3 positions before and after the search word. The minimum frequency of the co-occurring form within the range is set at 3. The strength of co-occurrence was measured with LogDice, which is not oversensitive to either extreme of the frequency scale.

Nou-verbs: INSTR > ACC > NOM

Non-*nou*-verbs: ACC > NOM > INSTR

The instrumental case shows strong colligational strength out of all possible cases for *nou*-verbs, but not so much for non-*nou*-verbs. The focus of *nou*-verbs, then, tends to be on *how* an action was carried out (the instrumental case). The accusative and nominative cases tend to co-occur with non-*nou*-verbs more consistently than *nou*-verbs: the grammatical cases that report who/what is responsible for the action and who/what is affected. The colligation pattern also suggests that *nou*-verbs are more likely to be intransitive than the other verbs, as in the following examples:

- (8) *Poté, co padne rozsudek, se rozhodneme, jak dále postupovat.*
‘After the verdict falls, we will decide how to proceed further.’
- (9) *Seník lehl popelem*
Devítimilionovou škodu si vyžádal požár seníku u Krásna na Sokolovsku.
‘A loft burned down.
A fire of a loft incurred nine million [in] damage near Krásno na Sokolovsku.’

The verbs (*padnout* ‘to fall’ and *lehnout*) ‘lie down’ in both (8) and (9) are intransitive. Moreover, the entire text in (8) suppresses precise information about who passed the verdict. Similarly, (9) does not report the actual cause of the fire. The sentences with the *nou*-verbs in (8–9) represent situations as though they materialized on their own.²³

Table 6 shows the collocation patterns of *nou*-verbs with word forms. We see the strong co-occurrence of explicit subject nouns with non-*nou*-verbs and the strong co-occurrence of explicit references to the means by which an action is carried out (forms in the instrumental case). The nominal forms that are clearly in the nominative or in the instrumental are marked in bold style.

Non-*nou*-verbs tend to attract nominative forms that refer to masculine animate nouns, prototypical individuals in power or with authority (‘father’, ‘director’, ‘daddy’, ‘mayor’, ‘coach’, ‘boss’, ‘god’, and ‘doctor’) or specific references to

23. Transitive *nou*-verbs might still emphasize manner rather than the agent as in the following example with *bodnout* ‘to stab’ with two modifying instrumental nominal phrases: *Halina^{nom} [...] vší silou^{instr} bodla Antkovým nožem^{instr} jeho vlastního vraha^{acc}*. ‘Halina^{nom} [...] with all [her] might^{instr} stabbed with Antek’s knife^{instr} his own murderer^{acc}’. Compare this example with the non-*nou*-verb *padělat* ‘to forge’, which does not report the manner in which the action was carried out: *Na tiskárně padělal mladík^{nom} z Krnova tisícikorunu^{acc}, [...]*. ‘In the printing office a young man^{nom} forged a 1,000 CZK note^{acc}, [...]’. (SYN2015)

Table 6. Word forms that show strong collocation strength for *nou*-verbs and non-*nou*-verbs

Unprefixed <i>nou</i> -verbs		Unprefixed non- <i>nou</i> -verbs	
Collocate candidate	LogDice	Collocate candidate	LogDice
<i>rukou</i> ‘by hand’ (instr)	9.43	“	9.57
<i>sebou</i> ‘by oneself’ (instr, reflexive pronoun)	9.26	<i>mluvčí</i> ‘spokesman, speaker’ (nom voc masc sg & pl; fem all cases in sg and nom acc fem pl)	9.19
<i>hlavou</i> ‘with head’ (instr)	8.71	<i>právu</i> ‘to justice, in justice’ (dat & loc sg)	8.91
<i>tlačítko</i> ‘button’ (nom, acc, voc)	8.45	<i>pan</i> ‘Mr.’ (nom sg)	8.73
<i>do</i> (to, until, preposition)	8.43	<i>otec</i> ‘father’ (nom sg)	8.61
<i>si</i> ‘for oneself’ (dat, reflexive pronoun)	8.43	“	8.53
<i>mě</i> ‘me’ (gen, acc, 1st pers pronoun)	8.23	<i>muž</i> ‘man’ (nom sg)	8.44
<i>ani</i> ‘nor, not even’	8.12	<i>ředitel</i> ‘director’ (nom sg)	8.34
<i>na</i> ‘onto, to’ (preposition)	8.00	<i>člověk</i> ‘man, one’ (nom sg)	8.29
“	7.98	<i>mi</i> ‘to me’ (dat 1st pers pronoun)	8.26
<i>něj</i> ‘him, it’ (gen, acc, 3rd masc pers pronoun, following a preposition)	7.91	<i>táta</i> ‘daddy’ (nom sg)	8.02
!	7.90	<i>starosta</i> ‘mayor’ (nom sg)	8.00
<i>ho</i> ‘him, it’ (gen, acc 3rd non-fem pers pronoun)	7.77	<i>trenér</i> ‘coach, trainer’ (nom sg)	7.98
“	7.73	:	7.92
<i>jsem</i> ‘[I] am’	7.69	<i>šéf</i> ‘boss’ (nom sg)	7.90
<i>pak</i> ‘then’	7.65	<i>petr</i> ‘Petr’ (nom sg)	7.82
<i>mu</i> ‘to him, to it’ (dat 3rd non-fem pers pronoun)	7.63	<i>bůh</i> ‘God’ (nom sg)	7.79
<i>když</i> ‘when, if’	7.59	<i>doktor</i> ‘doctor’ (nom sg)	7.76
<i>zem</i> ‘ground’ (nom, acc sg)	7.56	<i>včera</i> ‘yesterday’	7.72
<i>ni</i> ‘her, it’ (acc, 3rd fem pers pronoun (following a preposition))	7.53	„	7.64

individuals (the first name ‘Petr’ and the title ‘Mr.’). *Nou*-verbs, in contrast, co-occur with body parts such as ‘hand’ or ‘head’, i.e., what was used (in the instrumental case). Agent-like word forms do not show as strong collocate candidates in the vicinity of these verbs.

This section examined *nou*-verbs, the verb class that is closely associated with OpEs. Semantics of frequently used *nou*-verbs as well as colligation and collocation patterns suggest that *nou*-verbs are not strongly associated with agency. They are less likely to show transitivity than non-*nou*-verbs; they co-occur more often with

grammatical forms and lexical items reporting manner than with those reporting the agent of actions. Assuming that traces of OpE features remain in *nou*-verbs, it is possible to suggest that *nou*-verbs and OpEs might share properties of focusing on manner rather than agency. The interpretation of the data in this section is consistent with the existing studies that ideophonic verbs are generally found to be low in transitivity across languages (Akita 2017; Franco 2017).

We have seen how OpEs de-emphasize event participants in Sections 2 and 3. It is conceivable that diffusion of agency common to OpEs and *nou*-verbs is an essential function of OpEs. This hypothesis is commensurate with the results of the following section, which examines the relationship between genres and OpE use.

5. Genres OpEs inhabit

Various scholars deal with the genres that attract mimetic expressions.²⁴ Samarin observes the use of ideophones in ritual insults in Gbaya (1969). Mphande (1992) describes the widespread use of ideophones in African languages in verse, prose narrative, song, and music; similarly Webster (2009) examines Navajo ideophones in poetry. Ideophones are used in riddles (Mous and Sanka 2014), religious chants (Reichard 1950; Lyndall 2000), and greeting exchanges and funeral dirges (Dingemanse 2009, 2011). However, Schaefer’s study suggests that it is still premature to conclude on the universal genre preference of mimetic expressions; Emai ideophones occur in prose but not in conversation (2001: 342).

This section attempts to look at Czech OpEs and genres in the synchronic written corpus of Czech (SYN v.5). The observations in this section will lead us further into the question of the functions of OpEs in different genres, including those that have not been extensively discussed.

Table 7 shows that a larger proportion of OpEs occurs in poetry and (less so) in literary prose in the representative corpus. The relationship between OpEs and artistic literature, especially poetry, is consistent with the observation in the previous sections that the use of OpEs is associated with contexts where agency is not relevant; poetry, other genres, agency is not at the core of its major function (Jakobson and Waugh 1987/2002: 218–220).

However, the functions of OpEs seem to differ in different genres. Compare the following two examples (10) and (11). They contain the OpEs *bum* and *bác* in two different genres: an absurdist poem and an opinion article (which is classified

24. I use mimetic expressions as a cover term for sound-symbolic expressions.

Table 7. OpEs (*bác*, *cvak*, *frnk* and *kvak*) and genres in SYN2015

Text types*	<i>bác</i>		<i>cvak</i>		<i>frnk</i>		<i>kvak</i>	
	ipm (instance per million)	%	ipm	%	ipm	%	ipm	%
poetry	3.27	16.88	12.32	45.56	0.75	40.76	1.01	45.5
literary prose	4.75	24.52	6.63	24.52	0.31	16.85	0.31	13.96
plays	3.33	17.19	1.85	6.84	0	0	0	0
memoirs and autobiographies	2.13	11	1.89	7.00	0.06	3.26	0	0
journalism	0.82	4.23	0.75	2.77	0.09	4.89	0.21	9.46
scientific texts for the general public	0.4	2.07	0.62	2.29	0.05	2.72	0.06	2.7
professional and scholarly literature	0.05	0.26	0.09	0.33	0	0	0.05	2.25
not indicated	4.62	23.85	2.89	10.69	0.58	31.52	0.58	26.13
Total	19.37	100	27.04	100	1.84	100	2.22	100

* Some of the categories in this table combine more than one text type listed in the Czech National Corpus: “Literary prose” combines two text types: novels and shorter prose (*próza* and *kratší próza*); “journalism” combines traditional journalism and leisurely journalism (*tradiční publicistika* and *volnočasová publicistika*); and professional literature and scholarly literature (*profesní literatura* and *odborná literatura*) were merged into one category.

as “professional literature”). They both utilize OpEs’ property to defocus reference to event participants, but this property is used to achieve different effects.

- (10) *BRÉCA Nadá svařila nám čaj volala mě Kde jsi aj A já odsek Berdo dej//Bum*
bác vešel čaroděj ČARODĚJ Dejte chleba dejte nůž horkost cítím v těle už stáří na
mne dosedá Přived jsem vám souseda//SOUSED Nazdar Bréco plesnivej Nazdar
Nadō čaj mi dej Nazdar čaji Nazdar dome

‘BRÉCA: Nadia made tea for us She called me Where are you aye And I snarled, Berda give [me]//**Bum** *bác* entered the wizard WIZARD: Give [me] bread, give [me] a knife old age is already squatting on me I brought to you a neighbor// NEIGHBOR: Hi Bréca [you] senile [guy] Hi Nadia give me tea Hi tea Hi house.’

In (10) the poem obviously flouts normal logic. The explicit identification of event participants is not at the core of this text. The text provides no description of who brought the wizard and why he is relevant to the conversation. The OpEs suggest his appearance was sudden and dramatic, most probably with loud explosive sounds.

The same OpEs appears in (11). This example is part of an opinion article in (*Právo a byznys* ‘Law and Business’). The author criticizes the politics in the Czech Republic for being inconsistent.²⁵

25. <http://zpravy.e15.cz/byznys/pravo-a-byznys/normativni-zaklady-nasi-civilizace-pentateuch-pro-politiky-a-pravniky-968013>, accessed August 24, 2017.

- (11) *Politika osciluje ode zdi ke zdi a otlouká si svou už i tak dost postiženou hlavu o dvě protilehlé zdi, a ještě svůj těžký otrěs mozku vydává za pragmatický přístup. [...] Tak to je ten zmatek, oscilace a nevypočitatelnost české politiky. Zbytečno mluvit o našich politických postojích k Evropské unii. Zeď, bum, druhá zeď, bác!*
 ‘[Czech] politics oscillates from a wall to another wall and is banging its already afflicted head against two opposing walls, and it even presents its grave concussion as a pragmatic approach. [...] So this is this disorder, oscillation and unpredictability of Czech politics. It is useless to talk about our political positions towards the European Union. A wall, **bum**, the second wall, **bác!**’

The author treats ‘Czech politics’ without considering the complexities of debates within the state. There are no references to specific politicians, cabinet ministers, different agendas of various political parties, and varying opinions of interest groups. Czech politics is represented as though it were a single monolithic entity. The OpEs, which deliver a situation intuitively with no specific information about event participants, are used as part of this text to overgeneralize the relationship between the Czech Republic and the EU. The simplistic and metaphorical discourse with little thought for complicated facts appeals to the readers’ emotions rather than their analytic minds. The strategy can be interpreted as calculated demagoguery.

Similar differences can be observed in (12) (a poem) and (13) (a journalistic text). What unites these examples is the clouding of the specifics of the events: their participants and motivations.

- (12) *Na stole leží dva, tři talíře, kávová lžička, miska, popelníček, na chodbě v zámku zasunutý klíček teď cvakl magicky. //Cvak – cvak a dlažba zvoní pod stříbrným párem běloušů. .. vraníků. //Cvak – cvak a vojáci jdou domů do kasáren. //Teď večer potichu.*

‘On the table there lie two, three plates, a coffee spoon, a bowl, an ashtray, in the hallway the key placed in the lock now clicked magically. //Cvak – cvak and the cobblestone pavement rings under a silver pair of white horses ... Andalusians. //Cvak – cvak and the soldiers are going home to the barracks.// Now silence in the evening.’

The OpE *cvak* in (12) occurs in a poem by Ivan Blatný from the Czech modernist group *Skupina 42*. The OpEs are loosely associated with the sounds produced by a key turning in the keyhole, by shoehorses and by soldier’s boots.

The same OpE in (13), in contrast, is used to produce a caricature:²⁶

- (13) *„Mohli bychom se s vámi vyfotit?“ prosí cizinci. Dívky ochotně zapózují, turisté se usmívají. Co na tom, že nemají poněti, s kým se vlastně fotí. Cvak! A na výlet do Prahy budou mít jedinečnou památku.*

26. The text is from the broadsheet newspaper *Mladá Fronta Dnes*.

“‘Could we take a picture with you?’ the foreigners ask. The girls pose willingly, the tourists are smiling. What’s wrong with not having any idea with whom they are actually taking a picture with? *Cvak!* And they will have a unique memory from [lit. on] [their] trip to Prague.’

Example (13) presents the strange behavior of tourists who want to have a picture taken with strangers for no apparent reason. The action of taking a picture is represented by the OpE. By de-focusing on event participants, the OpE reinforces the impression that the action took place for no logical reason. Such simplification does not allow for possible explanations, e.g., any aesthetic effect that the photographers might have wanted to achieve.

Communicating music performance concerns the quality of the sound produced rather than precise information about who did something. Example (14) is classified as ‘leisurely journalism’ (from the semi-tabloid paper *Blesk*), and is about a judge in the TV program *SuperStar*. He comments on an aspiring singer:

- (14) *Tohle dělají žáby u rybníka. Kvak kvak.*
‘Frogs do this at a fishpond. *Kvak kvak.*’

The OpE is not used to represent frogs’ croaking directly. By comparing the contestant’s singing to frog’s croaking, he indicates that it is not music.²⁷

The same OpE is used in ‘traditional journalism’ (the broadsheet paper *Právo*) in (15):

- (15) *S blížícím se referendem stávalo se ze suverenity jakési zaklínadlo. Skloňovalo se tak mocně, až se divím, že nevznikly hospody U suverenity či hudební skupina Suverenita. Oháněli se jí a ohánějí většinou lidé, kteří se bojí, že jejich “kvak” se po našem vstupu do Unie už neponese nad českým rybníčkem tak suverénně jako dosu. Že budou vystaveni konkurenci.* (Právo)

‘With the approaching referendum sovereignty some kind of a magic chant was emerging. It was used in all grammatical cases [lit. declined] so powerfully that I am surprised that bars [by the name of] At Sovereignty or a music band [named] Sovereignty didn’t pop up. [People] were swinging it and it [the word] is being brandished mostly by people who are afraid that their “kvak” will no longer be unwieldy after our joining the [European] Union over the Czech fish pond so sovereignly as until now. That they will face competition.’

27. The OpEs could be interpreted as criticizing the singer’s *performance*. The utterance is not a direct criticism of the individual as a whole. In this regard, the agency of the singer for her poor performance is diffused.

This text criticizes people who are against the Czech Republic’s membership in the EU and overuse the word ‘sovereignty’. The author makes a caricature out of these people by comparing them to frogs in a fishpond (with implicit reference to the metaphor of the ‘frog in a well’ who does not know the outside world). The purpose of the OpE is to dismiss the widespread debates against the EU as meaningless. By doing so, the author simultaneously suppresses all the complexities of joining the EU that some opponents might have brought.

This section first observed that OpEs are most likely in artistic literature (especially poetry). The preference of OpEs by these genres itself suggests the essential property of OpEs that is neutral to event participants: specific references to agency are less relevant in poetry than in journalistic texts and scholarly-professional texts in which the identification of event participants and cause–effect relationships are important. The qualitative analysis of individual examples also support this overarching property of OpEs.

The examples from different genres, however, simultaneously show that dif-fused reference to agency is used for different effects. Freely associative and dramatic effects are more important than identification of agency in poetry. OpEs may also have more practical effects: presenting an intuitively comprehensible account of a musical performance, providing an intentionally simplistic view of a situation to appeal to the reader’s emotions, or dismissing a situation as insignificant. OpEs thus may be used even for demagoguery or propaganda. The ludic effects of OpEs were seen in the earlier examples from oral interactions; the examples from this section show that OpEs can also be used to downgrade and dismiss opinions and performances as ridiculous.

6. Conclusions

This chapter is an attempt to probe one basic properties of OpEs and its relation to discourse and genre. It showed how discourse effects of OpEs in narrative texts can be examined by means of the corpus linguistic method of keyword analysis. OpEs in oral interactions provide information about the discourse effects of OpEs that are not evident in narrative texts. The functions of OpEs in both narrative texts and oral interaction point to an inherent discourse property of OpEs: neutrality with respect to agency. The idea is consistent with the statement in Clark and Gerrig (1990) that onomatopoeia depicts rather than describes: onomatopoeia does not report what happened, but what the situation was like; hence explicit references to the agent of events are not the main focus when OpEs are used.

This possibly basic property of OpEs was further pursued from two angles: from the inflectional systems of the language and from genre. I showed how de-stressing

of agency leaves its traces within the class of verbs with OpE-roots, i.e., even after OpEs are absorbed into the inflectional system. I explored the genres where OpEs are likely. The tendency for OpEs to appear in artistic literature further confirms the associative property of OpEs. Qualitative analysis of OpEs in several genres demonstrated not only the consistent presence of diffused agency, but also the different effects derived from this property. ‘Not saying *who*’ can produce associative poetic effects, ludic effects, and even demagoguery/propaganda.

Existing studies characterize mimetic expressions as phonologically and morphologically marked, thus their image of “a totally different kind of animal” (Diffloth 1976: 251). In Czech where most of the new borrowings are quickly integrated into the existing inflectional types (cf. tendencies in Cvrček et al. 2010: 147–148), the uninflected OpE forms are marked. This feature of OpEs is not a reflection of primitive speech. Instead, it can contribute to discourse in a way that is different from the other inflected parts of speech.

Acknowledgments

This study was partially funded by the Brown University Humanities Research Funds. Many thanks to Andrew Malcovsky for the thorough copy-editing of the text. The author is grateful for the suggestions and constructive criticisms by Kimi Akita. I am of course responsible for all the errors and inconsistencies.

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Mimetics, gaze, and facial expression in a multimodal corpus of Japanese

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Mimetic/ideophonic utterances are often accompanied by expressive prosody and iconic gesture. This chapter reports the speaker's facial expression and eye contact with the hearer as two more possible nonverbal correlates of mimetics on the basis of a multimodal corpus of Japanese interviews. It is shown that, unlike prosody and gesture, these somewhat frequent facial behaviors are not correlated with the morphosyntactic features of mimetics because of their primarily affective and interactional nature. However, a weak correlation with morphosyntax is suggested for the speaker's gaze redirected away from the hearer, which is considered a signal of 'depictive' signification prototypically illustrate.

1. Introduction

Ideophones work multimodally. Their frequent synchronization with iconic gestures has been reported in many languages (Kunene 1965; Kita 1997; Mihas 2012) and discussed as a manual manifestation of their semiotic characteristic as 'depiction' (Dingemanse 2013). This chapter investigates the speaker's facial expression and gaze behavior as two more nonverbal correlates of ideophonic (or 'mimetic') utterances in Japanese.

Pragmatics is arguably one of the least developed areas in ideophone research. Until recently, little had been known about the use of ideophones, apart from some stylistic or sociocultural characteristics, such as rhetorical effects and gender restrictions in some languages (Schourup 1993; Dingemanse 2012; Akita 2017a). This situation is in part attributed to the fact that few researchers had looked at actual speech data, let alone multimodal data that provide rich nonverbal information. Recent studies using such data have proposed some interactional functions of ideophones in terms of some key notions, such as high involvement (Nuckolls 1992, 1996; Baba 2003; Akita 2015), epistemic authority (O'Reilly 2005; Dingemanse 2011; Burch and Kasper 2016), and interactional alignment for the climax (Dingemanse 2011; Akita et al. 2012; Yamamoto 2013; Szatrowski 2018). The present study is

located in this new stream of research, adding some basic findings about the pragmatic functions of ideophones.

To my knowledge, gaze behavior has not been considered an important aspect of ideophonic utterances, and virtually nothing has been reported on it. Similarly, facial expression has received at most sporadic attention in the literature on ideophones. In describing how hard ideophones are to paraphrase with non-ideophonic, prosaic words, Diffloth (1972: 441) notes that “many speakers cannot find exact paraphrases and prefer to repeat the ideophone with a more distinct elocution, accompanied by facial expressions and body gestures if appropriate”. Childs (1994: 196) also finds that “[i]n Kisi the ideophone *kpiini-kpiini* ‘stinky’ is accompanied by a crinkling of the nose, as is the Venda ideophone *thuu* ‘smelling horribly’”. Dingemans (2011: 332) refers to the facial expression of the storyteller to identify the dynamic meaning of the Siwu ideophone *walayayayaya* that, he interprets, “depicts the dramatic scene of the boiling water pouring down on the protagonist[']s skin”.

These observations suggest that facial expression helps ideophones to represent events with additional emotionality or expressiveness (see also Ohala 1994: 332–335 for facial expression as a biological basis of sound symbolism). However, it is not clear to what extent this putative semantic/pragmatic function of facial expression is unique to ideophones and why. In this chapter, therefore, I explore the functional properties of facial expression as well as gaze accompanying mimetic utterances in a multimodal corpus of spoken Japanese.

The organization of this chapter is as follows. Section 2 summarizes some previous findings on the paralinguistic/nonverbal features of ideophonic utterances and on the communicative functions of the speaker’s facial expression and gaze, making some predictions about the facial behavior found with ideophones. Section 3 describes the method of the present quantitative study. Section 4 presents the results and example utterances with facial behavior, which are interpreted from a general perspective in Section 5. Section 6 concludes this chapter with some theoretical and typological implications.

2. Previous studies

2.1 Paralinguistic/nonverbal features of ideophones

The frequent cooccurrence of ideophones and some paralinguistic and nonverbal features, such as prominent intonation (termed ‘intonational foregrounding’), marked phonation (termed ‘phonational foregrounding’; e.g., creaky voice, whisper), and iconic gesture, has been ascribed to the semiotic status of ideophones as ‘depiction’ (Dingemans 2011, 2013, this volume). Depiction is a mode of signification that is illustrated by iconic signs such as pictures, iconic gesture, and

reported discourse as well as ideophones, and it corresponds to what some scholars call ‘expressive mode’ (Diffloth 1972), ‘demonstration’ (Clark and Gerrig 1990), ‘performance’ (Nuckolls 1996; Sadanobu 2015), ‘the affecto-imagistic dimension’ (Kita 1997), ‘reenactment’ (Holt 2000; Sidnell 2006), ‘mimesis’ (Güldemann 2008: Chapter 4), ‘showing’ (Haiman 2018), and ‘theticals’ (Toratani 2018). The depictive mode is contrasted with the other mode called ‘description’ that is illustrated by prosaic words. The two semiotic modes are characterized as follows.

Depictions are typically iconic, representing what they stand for in terms of structural resemblances between form and meaning. They use material gradiently so that certain changes in form imply analogical differences in meaning. [...] To interpret depictions, we imagine what it is like to see the thing depicted.

Descriptions are typically arbitrary, without a motivated link between form and meaning. They encode meaning using strings of symbols with conventional significations [...] These symbols are discrete rather than gradient: small differences in form do not correspond to analogical differences in meaning. To interpret descriptions, we decode such strings of symbols according to a system of conventions. (Dingemanse 2015: 950–951)

According to this semiotic dichotomy, intonational and phonational foregrounding helps ideophones to depict particular scenes in a minute fashion and with enhanced expressiveness. Iconic gesture, on the other hand, is a visual manifestation of the depictive representation of the scenes that is shared with ideophones.

Supportive evidence for this account comes from the gradual disappearance of these paralinguistic/nonverbal features as a function of the lexical and grammatical integration of ideophones. Based on *NHK Great East Japan Earthquake Archive* (NHK 2012–present), a multimodal corpus of spoken Japanese that is also used in the present study, Akita and Dingemanse (2019) report that mimetic words are more often accompanied by intonational and phonational foregrounding and iconic gesture than “quasi-mimetic” words (see Appendix for quantitative details; see also Akita 2016).¹ Quasi-mimetic words, such as those for degree or quantity (e.g., *dondon* ‘one after another’, *sukkari* ‘completely’, *tyokot to* ‘a little bit’) and time or frequency (e.g., *zut to* ‘all the time’, *kikkari* ‘exactly’, *tyoityoi* ‘often’), are assumedly ‘demimeticized’ expressions that morphologically look like mimetics but may be distinctly frequent due to their prosaic-like event-general meaning (see Tamori 1980; Tamori and Schourup 1999; Akita 2017c).² Because of their

1. In this chapter, I use the term ‘mimetics’ to refer specifically to Japanese ideophones.

2. Reflecting the fact that deideophonization is a matter of degree, we cannot draw a clear line between mimetics and quasi-mimetic words. Here is the list of quasi-mimetic words obtained from the earthquake corpus: *zut to* ‘all the time’, *kitin to* ‘neatly’, *dondon* ‘one after another’, *dandan* ‘gradually’, *gungun* ‘remarkably’, *metyakutya* ‘really’, *sukkari* ‘completely’, *tyan to* ‘without fail’, *tyokkura* ‘for a while’.

weakened depictivity, quasi-mimetic words are considered to be semantically and semiotically more integrated into the prosaic part of the Japanese lexicon than prototypical mimetics. Thus, the corpus-based report indicates that lexical integration (mimetics → demimeticized words → non-mimetic words) is associated with the loss of paralinguistic/nonverbal features because of the departure from the depictive mode involved in it.

A similar inverse correlation between paralinguistic/nonverbal features and integration has also been recognized at the grammatical level (Son 2010; Dingemanse 2017). Dingemanse and Akita (2017) demonstrate this, again, with the earthquake corpus. They show that Japanese mimetics are more frequently found with prosodic foregrounding and iconic gesture in non-predicative (i.e., less morphosyntactically integrated) than predicative (i.e., more morphosyntactically integrated) constructions, as illustrated in (1) (see Appendix for the quantitative data).³

- (1) a. Quotative-adverbial (non-predicative):

Hune ga [_G ↑ *guruguruut* ↑] *to mawat-te* ...
 ship NOM MIM QUOT turn.around-GER
 ‘The ship turned *around and around* ...’



(D0007010180)

- b. ‘Do’-verbal (predicative):

... *ie no mawari o guruguru si-te tara...*
 house GEN periphery ACC MIM do-GER when
 ‘... when [I] was *wandering* around the house ...’



(D0007010150)

The mimetics in both examples are based on the root *guru* (rotating or spinning motion). While the mimetic adverbial *guruguruut to* in (1a) involves expressive

3. Dingemanse and Akita (2017) divided non-predicative constructions into two (‘Quotative’ and ‘Collocational’). This further morphosyntactic distinction was not made in the present study, as it did not bring any additional insight about the facial behaviors in question. Moreover, unlike Dingemanse and Akita, this study excluded 13 mimetic tokens that constitute derived words (e.g., *gutyagutya-kan* [MIM-feeling; compounding] ‘the feeling of being squashed’, *zawa-mek-* [MIM-VBL; truncation + suffixation] ‘buzz (of a crowd)’, *baribari toka* [MIM and; conversion] ‘a crunch and’). Note also that Dingemanse and Akita did not distinguish mimetic and quasi-mimetic items, treating both as ‘mimetic’.

morphophonology (i.e., partial reduplication, vowel lengthening; see Nasu 2002 for the expressive strategies in Japanese mimetics) and is accompanied by intonational foregrounding and a manual gesture for the rotating movement, the mimetic verb *guruguru si-* in (1b) has none of these features. This observation reinforces the idea that paralinguistic and nonverbal features help ideophones to depict events multimodally.

Drawing on the same database, the present study examines how the linguistic integration of Japanese mimetics is correlated with gaze behavior and facial expression. The examination in light of the depiction model will clarify the different roles played by different paralinguistic/nonverbal features in mimetic utterances and beyond.

2.2 Facial expression and speaker gaze

Speech act participants' facial behavior has attracted little attention in linguistics proper. In fact, most studies on facial expression and eye gaze come from psychology and conversation analysis, respectively. Here, in preparation for the main investigation, I summarize some relevant findings about the speaker's facial expression and gaze reported in these studies.

Several communicative functions have been noted for the speaker's facial expression, and three of them are of particular relevance to the present study. First, facial expression has an indexical function. This is a traditional view that dates back to Charles Darwin (Darwin 1872; see also Ekman 1977; among others). In this view, "[t]he face is the key to understanding emotion, and emotion is the key to understanding the face" (Russell and Fernández-Dols 1997: 3). Put differently, the speaker's facial expression is an index of his/her emotional feelings.

Second, facial expression has a demonstrative function. Facial expression sometimes demonstrates (or 'depicts') the emotional experience at issue (Bavelas and Chovil 1997: 337; see also Clark and Gerrig 1990). For example, when you tell a sad story, you may automatically make a 'sad face' even if you are not sad. This appears to be a less broadly acknowledged aspect of facial communication. However, the demonstrative function makes facial expression similar to ideophones and iconic gesture in that it is iconically based. The speaker makes a sad face to reproduce the sad event by imitating the sad person in the story. In this connection, it is worth noting that mouth movements often contribute to depictive signification in sign language (Mark Dingemanse, personal communication). For example, in both American Sign Language and British Sign Language, the bilabial trill is iconically associated with movement (Hogue 2010: 38). Ideophonic utterances in spoken language may also involve this type of mouth behavior as part of their articulatorily based sound symbolism (e.g., the association between a rounded vowel and a curvy shape).

Third, facial expression has an interactional function. Studies in conversation analysis have revealed that facial expression is used to preserve mutual affiliation in interaction (Wilkinson and Kitzinger 2006; Ruusuvuori and Peräkylä 2009; Ruusuvuori 2013). One example is the end of a conversational sequence in which the teller and the recipient smile at each other to show their (tentative) agreement.

As for speaker gaze, I focus on eye contact and eye release (i.e., a gaze to and away from the hearer, respectively). A well-known interactional function proposed for eye contact is the turn termination function (Kendon 1967). This idea has recently been updated, and scholars now argue that the speaker makes eye contact with the hearer to ‘signal the intended recipient of the utterance’ (Sacks et al. 1974), to ‘solicit a response’ from him/her (Bavelas et al. 2002), or to ‘mobilize recipient response’ (Stivers and Rossano 2010; see also Rossano 2013 for a review). Moreover, like facial expression, eye contact may have an indexical function to show aggression or intimacy (Argyle and Dean 1965; Eibl-Eibesfeldt 1989).

Eye release (or gaze aversion) is also worth a paragraph. In his discussion on reported discourse and gesture, Sidnell (2006) observes that the speaker often directs his/her gaze away from the recipient when s/he ‘reenacts’ a past event by quoting someone’s speech (cf. Stec et al. 2016). Assuming that ‘reenactment’ is equivalent to ‘depiction’ (see Section 2.1), this observation indicates that eye release may signal a shift to the depictive mode of representation and communication.

These previous insights about the speaker’s facial behavior allow us to make some general predictions about how ideophonic utterances involve facial expression and gaze.

1. *Lexical integration × facial expression/eye contact*: Given that ideophones evoke both sensory and affective experience (Kita 1997; Baba 2003), it is predicted that ideophones are frequently accompanied by some facial expression and eye contact as indexes of the speaker’s emotional attitude. The high frequency of facial expression is also expected from its demonstrative function, which is shared by ideophonic depiction. Moreover, it might be the case that eye release accompanying ideophonic reenactments (Prediction 2) causes eye contact right after it.⁴ It may be predicted that these are not or less true for prosaic and deideophonized words.
2. *Lexical integration × eye release*: The association between reenactments and eye release allows us to predict that, unlike prosaic and deideophonized words, ideophones as word-level reenactments often coincide with the speaker’s eye release.

4. I owe this part of Prediction 1 to Masako Ueda Fidler.

3. *Grammatical integration* × *facial expression/eye contact/eye release*: The demonstrative function of facial expression and the reenacting nature of eye release – both comparable to the depictive mode of signification – might give rise to an inverse correlation between their frequency and the degree of morphosyntactic integration of ideophones, as is the case with prosodic foregrounding and iconic gestures. Eye contact induced by reenacting eye release (Prediction 1) might also exhibit this negative correlation.

The three general predictions lead us to make specific predictions about the way Japanese mimetics cooccur with facial behaviors in the earthquake corpus. Table 1 summarizes the maximum inverse correlations predicted from the present overview: the more integrated, the less frequently found with (synchronized with or immediately followed by) the facial behaviors.

Table 1. Predicted inverse correlations

	Lexical integration (mimetic < quasi-mimetic < non-mimetic)	Grammatical integration (non-predicative < predicative)
Facial expression	Prediction 1	Prediction 3
Eye contact	Prediction 1	Prediction 3
Eye release	Prediction 2	Prediction 3

Note: < = is less integrated than.

3. Method

NHK Great East Japan Earthquake Archive (NHK 2012–present) consists of more than 1,000 edited interviews (as of September 2017) with victims and rescuers in the earthquake disaster in 2011. As in the previous publications from this project (Dingemanse and Akita 2017; Akita and Dingemanse 2019), I limited myself to 214 of them. Both a transcript and a video (mostly 5 to 15 minutes long) are available for each interview.⁵ The total of 10,413 sentences was full of emotional speech by its very nature, which appears to account for the abundance of nonverbal behavior in the videos.

500 mimetics and 179 quasi-mimetic words were obtained. I also chose 70 non-mimetic verbs randomly from the sentences containing mimetics. Mimetics

5. The earthquake corpus is accessible online without charge. To find the example interviews cited in this chapter, replace the asterisks in the following URL with the given interview IDs beginning with D: www9.nhk.or.jp/archives/311shogen/detail/#dasID=***_00000 (last accessed: 26 September 2017).

were also coded for their syntactic status (i.e., predicative vs. non-predicative) in preparation for the examination of the effects of grammatical integration. The quasi-mimetic and non-mimetic expressions were used to examine the effects of lexical integration, assuming that they are more deeply integrated into the prosaic lexicon than prototypical mimetics.

All these expressions – except for those whose users were out of the video frame – were coded for their cooccurrence with the speaker's obvious facial change, eye contact with the hearer, and eye release from the hearer. The latter two were judged from the angle and movement of the speaker's gaze, as the hearer (i.e., the interviewer) was out of the video frame. To compensate for these imperfect coding strategies, an independent coder did the same coding for 10% of the data (70 tokens). The inter-examiner concordance was 'very good' for facial change (85.71%, $\kappa = .74$, $p < .001$) and 'good' for gaze behavior (i.e., eye contact and eye release) (72.86%, $\kappa = .57$, $p < .001$).⁶ The lower concordance rate for gaze behavior is attributed to the fact that the coders guessed the location of the hearer who did not appear in the videos.

4. Results

The results supported part of the above predictions. The frequency of the speaker's facial change and eye contact with the hearer exhibited an inverse correlation with the degree of lexical integration, but not with that of grammatical integration. No clear tendency was found for eye release.

I give some examples of the cooccurrence of mimetics and facial behavior. The emphatically prolonged mimetic adverb *kitiit to* '(sandwiched) very tightly' in (2), pronounced with an emotional breathy voice, is synchronized with the speaker's dramatic facial change from 'painful' to 'extremely painful'.

- (2) Facial change, quotative-adverbial (non-predicative):

Sono hik-kakat-te ugok-are-nai no ne. Itaku-te. Kitiit to
 well be.caught-GER MOVE-POT-NEG SFP SFP be.painful-GER MIM QUOT
hasam-are-te.
 sandwich-PASS-GER

'Well, [the debris] got caught on [my] body, and [I] couldn't move due to the pain. [I] was sandwiched *very tightly* [between the debris].'

6. The relationship between ideophones and facial expression may be easier to observe on social media, such as Twitter, as users' faces are represented by fixed emoji and emoticons in them. I thank Masako Ueda Fidler and Ipppei Kuroda for suggesting this exciting extension of research.

*Itaku-te.*

PAINFUL

Kitiiti to

EXTREMELY PAINFUL

hasam-are-te.

(D0007010036)

The prolonged mimetic adverb *doon to* ‘with a bang’ in (3) is accompanied by an iconic gesture and immediately followed by eye contact. This appears to be an example of eye contact induced by a preceding mimetic reenactment with eye release. However, in this case, the reenactment begins prior to the mimetic part of the utterance.

- (3) Eye contact, quotative-adverbial (non-predicative):

Sosite sono “Nige-ro” to it-ta toki ni, ue ga [_G *doon to*]
 and that run.away-IMP QUOT say-PST when in top NOM MIM QUOT
oti-te ki-ta-n des-u ne
 fall-GER come-PST-NMLZ COP.POL-NPST SFP
 ‘And when [I] said, “Run away,” the roof fell [on us] *with a bang*.’

*ue ga**doon to**oti-te ki-ta-n des-u ne.*

(D0007010005)

The mimetic adjective *bikkuri des-* ‘be surprising’ in (4) coincides with both the speaker’s facial change and eye contact. The speaker lifts his face with a smile when he concludes his utterance with the mimetic predicate.

- (4) Facial change and eye contact, adjectival (predicative):

... *san-mei yon-mei gurai tte-i-u huu na katata de soto ni*
 3-CL 4-CL about QUOT-say-NPST way COP form COP outside in
i-masi-ta ne. De, bikkuri des-u ne, honto
 be-POL-PST SFP and MIM COP.POL-NPST SFP really
 ‘there were about three or four [patients] outside. And ... [it] *was surprising*,
 really.’

*De,*
SAD*bikkuri des-u ne,*
SMILING*honto*

(D0007010039)

The prolonged mimetic adverb *boon to* ‘with a jump’ in (5) is synchronized with an iconic gesture for the tsunami wave. The speaker redirects his gaze away from the hearer to the reenacted tsunami at his feet.

- (5) Eye release, quotative-adverbial (non-predicative):

Tadahonto ni, anoo, kawa kara agat-te ki-ta tsunami

but really COP umm river from rise-GER come-PST tsunami

dakara ... Koko made [_G boon to] motteko-rare-ta keredomo ...

because here to MIM QUOT bring-PASS-PST though

‘But really, umm, because [it] was a tsunami that rose from the river, [it] took me up here *with a jump* ...’



Koko made



boon to



motteko-rare-ta keredomo

(D0007010041)

Figure 1 shows how frequently mimetic, quasi-mimetic, and non-mimetic expressions were accompanied by the three types of facial behavior in the corpus. (All quantitative data presented in this chapter are based on token frequency.)

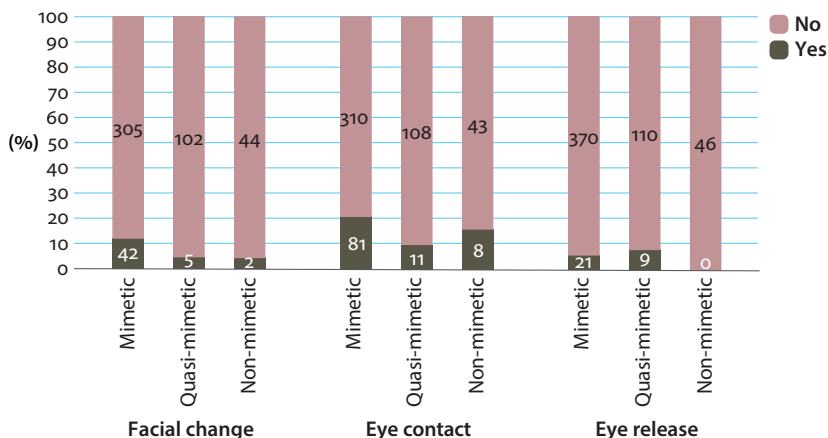


Figure 1. Lexical integration and the speaker’s facial behavior

It was found that, in support of Prediction 1, facial change and eye contact were significantly more frequent with mimetics than quasi- and non-mimetic words (Fisher’s exact test: $ps < .05$). On the other hand, no such difference was obtained for eye release, so Prediction 2 was not supported. Note, however, that

this latter result might be a floor effect that stems from the rarity of eye release across the board.

Mimetics were further analyzed in terms of their grammatical integration. Figure 2 presents the frequency of the three facial features in predicative and non-predicative uses of mimetics. The analysis was limited to the four dominant uses of Japanese mimetics that account for 87.40% of the current data: quotative-adverbial ([MIM-QUOT]), bare-adverbial ([MIM-Ø]), ‘do’-verbal ([MIM-do]), and adjectival mimetics ([MIM-COP]). The former two are non-predicative uses that typically modify verbal predicates. The latter two are either predicative or non-predicative, but I excluded their non-predicative uses (e.g., noun modifier uses), which were quite rare in the present corpus (for the syntactic-categorical properties of Japanese mimetics, see also Akita and Tsujimura 2016; Akita and Usuki 2016; Akita 2017b; Sells 2017; Toratani 2017).

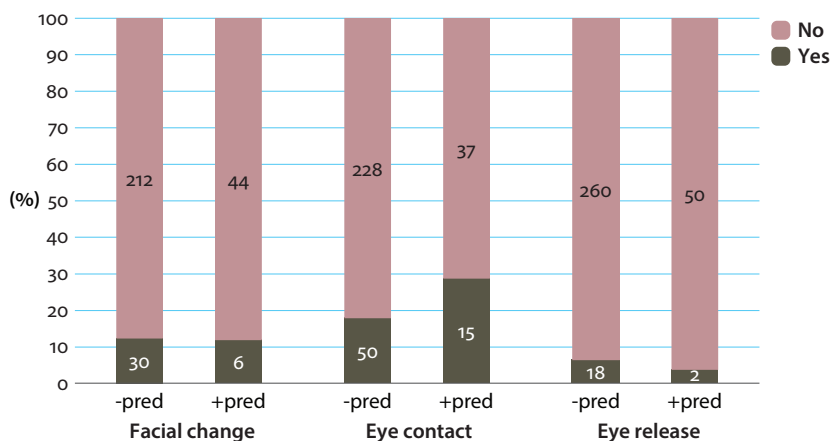


Figure 2. Grammatical integration and the speaker’s facial behavior

The only statistical trend in the results was the slightly higher frequency of eye contact in the predicative uses of mimetics (Fisher’s exact test: $p = .09$), which is contrary to Prediction 3. The minor difference obtained for eye release might also be relevant to Prediction 3. Given that the insignificance of this difference is a floor effect, it may be possible to expect a more systematic cooccurrence of eye release and non-predicative mimetics (e.g., (5)) in more interactive data.

To sum up, the present data make the speaker’s facial expression and gaze behavior look partly similar to but partly different from the previously studied prosodic and gestural behaviors. Table 2 is a summary of the results in terms of the three predictions.

Table 2. The obtained inverse correlations

	Lexical integration (mimetic < quasi-mimetic < non-mimetic)	Grammatical integration (non-predicative < predicative)
Facial expression	✓ (Prediction 1)	✗ (Prediction 3)
Eye contact	✓ (Prediction 1)	✗ (Prediction 3)
Eye release	✗ (Prediction 2)	✗ (Prediction 3)

It was found that mimetics attract more facial change and eye contact, as well as prosodic foregrounding and iconic gesture, than less mimetic expressions. However, these facial features did not show the inverse relation to the grammatical integration of mimetics that may be predicted from previous findings. Moreover, it appears that the present interview corpus is not interactive enough to examine the distribution of eye release in particular. In the next section, I discuss these results with respect to the semantic and semiotic properties of ideophones in general and their interactional correlates.

5. Discussion

Nonverbal behavior tells us a lot about language and communication. This is probably especially true for ideophones, which show striking multimodal activation. Then, what makes Japanese mimetics correlate with facial expression and eye contact at the lexical level, but not at the grammatical level?

As stated in Prediction 1, the observed correlations between the degree of lexical integration and the frequency of the speaker's facial change and eye contact with the hearer may be ascribed to the affective and/or depictive nature of mimetics. As both mimetics and these facial behaviors are more or less emotionally loaded, their typical habitats in discourse may overlap with each other. The demonstrative function of some facial expressions may also make them familiar with mimetics as depictive signs. Needless to say, these interpretations do not exclude alternative accounts. For example, it appears possible that we look at our friend to solicit his/her response to or sympathy with our mimetic performance.

The total absence of an inverse correlation between facial behavior and grammatical integration indicates that, as far as mimetics in interviews are concerned, the depictive/demonstrative/reenacting function of facial expression and eye release, if any, is too limited to show up in a holistic quantification like the present one. In this respect, the obtained correlations between lexical integration and facial change and eye contact might primarily come from the affective, rather than

depictive, side of mimetics. This interpretation is consistent with Baba's (2003) experimental finding that high 'emotive intensity' motivates the occurrence of mimetics, particularly mimetics with expressive morphophonology (e.g., *doon* 'bang' [prolonged]) and mimetics for emotion (e.g., *gakkuri* 'disappointed').⁷

The present discussion leads us to reevaluate the affective semantics of ideophones. Recent studies have shown that the semiotic property of ideophones as depiction decreases as a function of grammatical integration (Section 2.1). However, it might be the case that the affective part of the depicted eventuality survives the grammatical integration. This speculation reminds us of the idea that ideophones should be defined as a lexical class, and their syntactic status – and depictivity – is language-dependent (Newman 1968). If the present discussion is on the right track, the functional definition of ideophones may need to take into account not only their depictive semiotics and sensory semantics (Kita 1997; Dingemanse 2011, 2012; Dingemanse and Majid 2012) but also their access to the extra-sensory perception vaguely called "affect" (Gérard Diffloth, personal communication). To pursue this possibility further, one has to address the fundamental question of what type of affect ideophones evoke.

One promising approach to this issue would be a qualitative analysis of facial behavior. The facial expressions and eye contact illustrated in Section 4 include different types. On the one hand, the painful face found with *kitiit to* '(sandwiched) very tightly' in (2) is indexical of the severe pain the speaker had in the tsunami disaster. It is also interpretable as a demonstration of the speaker's past experience. On the other hand, the smile that accompanied the mimetic predicate *bikkuri des-* 'be surprising' in (4) appears to have a more interactional function. As the speaker talked about an evacuation from the Fukushima Daiichi nuclear disaster, it is unlikely that this smile was an index or demonstration of his or someone else's happiness. The speaker lifted his face and smiled at the hearer to confirm their shared emotional feelings and to preserve their mutual affiliation toward the end of the utterance (Ruusu vuori and Peräkylä 2009; Ruusu vuori 2013).⁸ This interactional function might also account for the relatively high eye contact rate obtained for predicative (often utterance-final) uses of mimetics in Figure 2 (Taro Okahisa and Yukinori Kimoto, personal communication). Extending this type of qualitative

7. It should be noted that most 'psychomimes' (emotion mimetics) in Baba's (2003) list, such as *een* 'boohoo' and *e* 'huh', appear to be better analyzed as interjections. Given that most interjections are indexical of the speaker's emotional state (Feist 2013), their connection to emotive intensity is not surprising.

8. The present dataset involves 13 smiles of this type, 3 of which accompanied predicative mimetics.

analysis to a larger set of data will help us to elucidate the detailed characteristics of the affective semantics of ideophones and their association with certain interactional behaviors.⁹

6. Conclusions

The multimodality of ideophonic utterances has attracted notable attention in the literature. However, almost nothing has been known about the relationship between ideophones and the speaker's facial expression and gaze behavior. The present study has explored the facial correlates of Japanese mimetic utterances in a multimodal corpus, and found that mimetics are more frequently accompanied by the speaker's facial change and eye contact with the hearer than less mimetic words. Unlike prosodic foregrounding and iconic gestures in some previous reports, these facial behaviors did not show an inverse correlation with the grammatical integration of mimetics, suggesting their primarily affective nature.

The present study has some really general theoretical/typological implications. Although this study made a within-language comparison, the semantics and syntax of ideophones also exhibit considerable crosslinguistic differences (Childs 1994; Voeltz and Kilian-Hatz 2001; Akita 2009; Dingemanse 2012, 2017; Akita and Dingemanse 2019). It is more than likely that ideophones with different degrees of depictivity or with different types of affect have different communicative functions. Nonverbal features, including facial behavior, are expected to offer a glimpse of such differences.

More generally, the notable frequency of multimodal activation makes ideophones a fertile ground for communication research. This means that ideophones may be located in the center of the field once we recognize the significance of multimodality in linguistic communication. As Vigliocco et al. (2014) put it, if linguistics had developed from the study of signed language, rather than spoken language, any present-day linguistic theories would consider both multimodality and iconicity crucial properties of language (cf. Newmeyer 1998). In this respect, the increasing attention to multimodality in recent language sciences is a starting signal for the next and most welcome step of ideophone research.

The current project will also proceed to the next step by looking at a multimodal corpus of natural conversation. Natural conversation will allow us to observe more instances of depictive utterances (Bavelas et al. 2014), more types of

9. As Haruo Kubozono pointed out to me, a multimodal comparison between ideophones and adjectives for sensory experience may also help us to understand the affective semantics of ideophones.

multimodal behaviors (e.g., body movement and body posture) on the part of the speaker or the hearer (Sidnell 2006), and more of their interactional functions (Mark Dingemanse and Masato Ohba, personal communication). I hope that this pilot study has successfully constructed the basis of this future direction.

Acknowledgements

Earlier versions of this chapter were presented at Kyoto Linguistics Colloquium (Kyoto University, April 2016) as well as at NINJAL International Symposium 2016 ‘Mimetics in Japanese and Other Languages of the World’ (National Institute for Japanese Language and Linguistics (NINJAL), December 2016). I especially thank Mark Dingemanse, Masako Ueda Fidler, and Taro Okahisa for their insightful comments. I also thank Nahyun Kwon for participating in the current study as an independent coder. My sincere gratitude also goes to the late Professor Irit Meir, whose question about the relationship between ideophones and facial expression at a conference back in September 2015 motivated this project. Any remaining inadequacies are my own. This study was partly supported by three JSPS Grants-in-Aid (15K16741, 3016H01928, 2117K02679) and a Spanish Ministry of Science and Innovation grant (FFI2013-45553-C3).

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Appendix. Prosody, gesture, and linguistic integration

As described in Section 2.1, two previous publications from this project examined the inverse correlations between the frequency of intonational and phonational foregrounding and iconic gesture, on the one hand, and the degree of lexical (semantic, semiotic) and grammatical (morphosyntactic) integration of Japanese mimetics, on the other. However, Akita and Dingemanse (2019) did not present numerical data on the inverse correlation between those paralinguistic/nonverbal features and lexical integration. Moreover, the present dataset is slightly different from the one used in the investigation of the paralinguistic/nonverbal correlates of grammatical integration in Dingemanse and Akita (2017) (see fn. 3). Figures A and B are the results based on the current dataset.

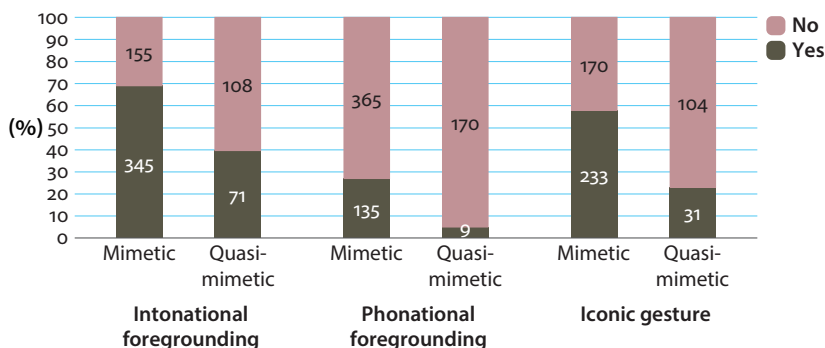


Figure A. Lexical integration, prosody, and gesture

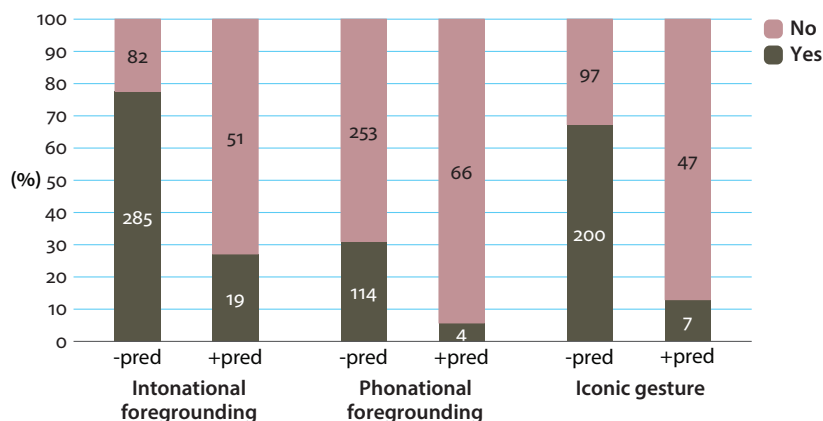


Figure B. Grammatical integration, prosody, and gesture

PART III

Language acquisition and multilingualism

The structure of mimetic verbs in child and adult Japanese

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In this chapter, based on the analysis of Root Infinitive Analogues (Murasugi and Fuji 2011; Murasugi and Nakatani 2013; among others) and the analysis of mimetics (Murasugi 2016, 2017a, b), we present evidence that *-suru* in mimetic verbs is the realization of small *v* in both adult and child Japanese, and argue for the hypothesis that there is no essential discrepancy between mimetic verbs and conventional lexical verbs, as far as syntax and semantics are concerned, and no learnability issue arises in the process of the acquisition of mimetic verbs.

1. Introduction

Child Japanese is characterized by the productive innovation of mimetic verbs. At the earliest observable stage, mimetic expressions appear in the bare form, as shown in (1).

- (1) a. *Poi* (Sumihare, 1;01)
MIM
[context: throwing something]
- b. *Toon* (Sumihare, 1;03)
MIM
[context: throwing a seed of plum to the ground] (Noji 1973–1977)

Later, at around 2, mimetics come to be associated with the light verb *-suru*, as shown in (2).

- (2) a. *Mata ton-sita yo* (Sumihare, 2;00)
again MIM-did SFP
'(It) hit (the box) again.'
- b. *Kei-tyan an'an-sita* (Sumihare, 2;02)
Kei-DIM MIM-did
'Kei cried.' (Noji 1973–1977)

In this chapter, we will analyze the structure of mimetic verbs in Japanese, a typical language with rich mimetic verbs, and discuss the learnability issues. We argue that *-suru* in mimetic verbs is the phonetic realization of small *v* in both adult and child Japanese, and mimetic verbs (mimetic + *-suru*) reflect the onset of the syntactic category of verbs in child Japanese.

2. Acquisition of mimetic verbs in Japanese

Japanese-acquiring children produce a lot of mimetics at a very early stage of language acquisition. Instead of conventional lexical verbs (such as *nageru* ‘to throw’ in (3b)), mimetic expressions (such as *poi* in (3a)) are used at around 18 months of age.

- (3) a. *Poi* (Sumihare, 1;07)
 MIM
 [context: throwing a ball]
- b. *Boku booru nage te kaatyan to* (Sumihare, 2;01)
 I ball throw mommy with
 ‘I will throw a ball with/to Mother.’ (Noji 1973–1977)

Murasugi and Fuji (2011) and Murasugi and Nakatani (2013), among others, based on the longitudinal study of Yuta and the corpus analysis of Sumihare (Noji 1973–1977), argue that mimetic verbs come to be used in a specific order, and there are typically three stages found in the process of the acquisition of mimetic verbs in child Japanese.

- (4) Stage I: the bare mimetic (= MIM) form
 Stage II: MIM-*ta* (past form)
 Stage III: MIM-*suru* (non-past form), MIM-*tyoo* (propositive),
 MIM-*tyee* (imperative)

At stage I, bare mimetics (e.g., *poi* [context: ‘throwing something away’] and *byu byu byu* ‘I want to draw a picture’) frequently appear in natural context, followed by stage II, where mimetic words, just like stems of verbal elements, come to be associated with *-ta* (past-tense form) or sometimes with *-na* (sentence-final particle (SFP)) (e.g., *pai-ta* ‘I want mom to remove the dirt’ and *pai-na* ‘I want to take off my gown’, respectively).

Interestingly enough, as shown in (5), at stage II, a lot of children mark mimetic words with the past-tense form *-ta*.

- (5) a. *Poo syusyupopo ta* (Sumihare, 1;08)
 MIM PST
 ‘The steam locomotive puffs along.’

- b. *Razio tintinpuu ta* (Sumihare, 1;09)
 radio MIM PST
 ‘I heard the time whistle in the radio.’ (Noji 1973–1977)

Murasugi and Fuji (2011) and Murasugi and Nakatani (2013), among others, argue that children at stages I and II are actually in the stage of Root Infinitive Analogues (RIAs),¹ and child mimetic verbal elements are used not only for the description of present/past events, but also for the irrealis meaning, which is termed the Modal Reference Effects, a typical semantic property found in RIAs.

After the stage of RIAs, mimetics come to be associated with *-suru* ‘to do’ as shown in (2), repeated in (6).

- (6) a. *Mata ton-sita yo* (2;00)
 again MIM-did SFP
 ‘(It) hit (the box) again.’
 b. *Kei-tyan an’an-sita* (2;02)
 Kei-DIM MIM-did
 ‘Kei cried.’ (Noji 1973–1977)

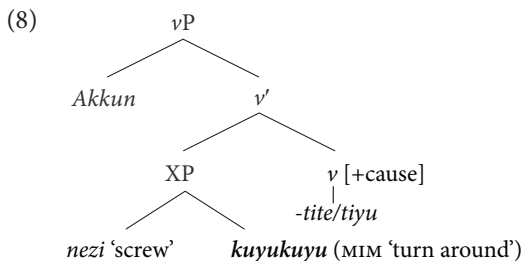
Ton in (6a) and *an’an* in (6b) are both mimetics, and they are followed by *-suru* ‘do’, thereby creating innovative mimetic verbs.

Murasugi and Hashimoto (2004) argue that mimetic verbs found at stage III in language acquisition exemplified in (7) provide direct evidence for the hypothesis of *vP* shell, originally proposed by Larson (1988), the proposal of which hinges on the fact that verbs can be decomposed into a causative part and a remainder whose meaning differs according to the verb in question. Murasugi and Hashimoto (2004) report a longitudinal study of a Japanese-speaking child, Akkun, and argue that the child seems to realize the small *v* as *-tiyu* or *-suru*, *-tita* or *-sita*, and *-tite* or *-site*, meaning ‘do’, ‘did’, and ‘doing’. They argue that this is the stage where the *v-VP* frame shows up directly. In (7), *kuyukuyu* (*kurukuru*) is a mimetic word describing things turning around, and expresses the meaning that the screw turns around.

- (7) Stage III: the analysis of MIM + *-suru* ‘to do’ in child Japanese
Akkun nezi kuyukuyu-tite, konoko syaberu (2;09)
 Akkun screw turn.around (MIM)-do this.one talk.NPST
 ‘When Akkun (/I) winds the screw, it will talk.’
 (Murasugi and Hashimoto 2004: 8)

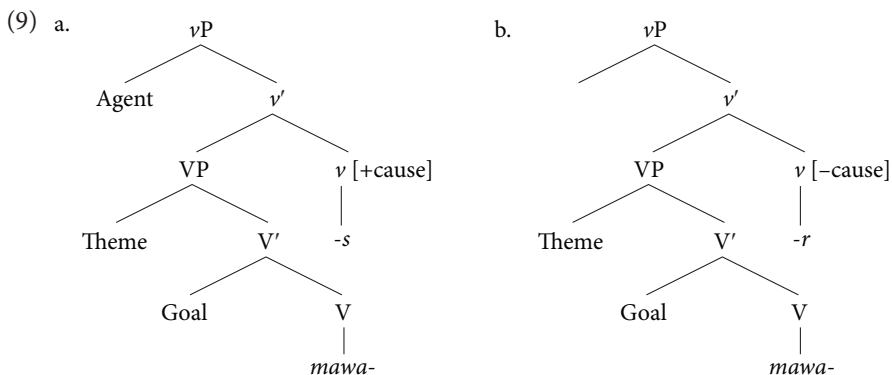
1. Root Infinitives are default verb forms which very young children use in the root clauses, where they are not generally grammatical in the target language. They have been widely observed in the early speech of one- to two-year-old children acquiring a number of languages (Wexler 1994; Rizzi 1994; among others).

Children start producing mimetic verbs quite productively at stage III, and children seem to be using *-suru* to describe an activity that causes a certain event or change of state. Thus, *-tite/tiyu*, just like their adult counterparts *-site/suru*, can assign the agent role, as English *do* does. Further, the rest of the utterance, *nezi kuyukuyu*, seems to describe an event or a change of state. Thus, *-tiyu/tita/tite* in child Japanese or *-suru* 'to do' in mimetic verbs seems to correspond exactly to small *v*. Thus, Murasugi and Hashimoto (2004) propose that the structure in (8) is for (7).



(Murasugi and Hashimoto 2004: 7)

In (8), *-tite* describes an activity that causes a screw to turn around, and *Akkun* is the agent. The complement of the small *v* is indicated not as VP but as XP because it lacks a verb. Thus, Murasugi and Hashimoto's (2004) analysis provides direct evidence for the *vP* shell analysis for agentive verbs. Children, at one point, start using *-suru* as a realization of [+cause] small *v* to express agentivity, and they form agentive transitives based on their grammar at that time. According to this analysis, since *kurukuru-suru* is not a conventional lexical verb in Japanese, children have to learn the adult conventional lexical verb form *mawa-s-u* 'to turn around' at a later stage, as given below.



(Murasugi and Hashimoto 2004: 8–9)

In other words, at stage III, very young children realize the small v as *-suru* phonetically, instead of *-s* or *-r* in the target adult grammar. (See Murasugi and Hashimoto (2004) for a detailed discussion of the v P shell analysis of Japanese transitive/intransitive alternations.)

3. The structure of mimetic verbs in adult Japanese

Given Murasugi and Hashimoto's (2004) analysis briefly summarized above, very young children should know the basic structure of v -VP after the stage of RIAs, and the structure would be something like the one given in (8), which is the onset of the v -VP structure. The proposal suggests that the structure of verbal phrase is acquired in a top-down fashion: v is lexically realized as *-suru* 'to do', and it is only at a later stage that the syntactic status of the complement of v is specified.

Here, an important learnability question arises. If the syntactic structure of child mimetic verbs can be schematized as in (8), then, when is the structure de-learned, and how do children attain the adult grammar given in (9)? In this section, we argue that the structure of mimetic verbs in (8) that Murasugi and Hashimoto (2004) propose does not hold only for child mimetic verbs, but it also holds for adult mimetic verbs in Japanese. We will argue that the structure of mimetic verbs in adult Japanese is also basically schematized as shown in (8).

As is well known, there has been an important debate between Tsujimura (2005) and Kageyama (2007) regarding the syntactic status of mimetic verbs in Japanese. According to Tsujimura (2005: 147), "a specific interpretation of a mimetic words' multiple 'meaning' is determined only when the global information throughout the sentence is taken into consideration". In contrast, Kageyama (2007: 36) states that if we succeed in grasping the precise meanings of mimetic words themselves, "it is entirely feasible to assimilate the semantics of mimetic verbs into standard, compositional semantics without invoking the notion of construction. Mimetic words determine the syntactic constructions they appear in, and not the other way around". According to Kageyama (2007), the meaning of mimetic verbs can be divided into seven types, and the meaning of mimetic verbs is fully represented by a mechanism making use of Lexical Conceptual Structure (LCS), and the syntactic and semantic behavior of mimetic words can be properly assimilated to the standard framework of lexical semantics. That is, the syntactic realization of their arguments in adult grammar is fully predicted by general principles of linking.

The evidence for the argument that mimetic verbs behave just like the conventional lexical verbs can be supported by the accentual patterns. There are words characterized by ambiguity in stress placement in languages, e.g., the contrast between *de*SERT (verb) and *DE*Sert (noun) in English. As Kageyama (2007) points

out, mimetic verbs and mimetic adverbs form a natural class, and they are pronounced as *GAragara*, while mimetic adjectives and mimetic nouns create another natural class, and they are pronounced as *gaRAGARA*. The capital letter indicates high pitch.

- (10) a. verbal:
Nodo ga GARagara-suru.
throat NOM MIM-do
‘My throat feels irritated.’
- b. adverbial:
Iwa ga GARagara to kuzureta.
boulders NOM MIM QUOT came.down
‘Large boulders came.’
- c. adjectival:
Eigakan wa gaRAGARA da.
theater TOP MIM be
‘The theater is almost empty.’
- d. nominal:
Akатыan ni gaRAGARA o ageta.
baby DAT MIM ACC gave
‘I gave the baby a rattle.’ (Kageyama 2007: 31)

Akita and Tsujimura (2016: 134) also note that mimetic words can exercise different syntactic functions when put in phrases, ranging over nouns, adjectives, adverbs, and verbs, as exemplified by *hirahira* (representing ‘fluttering’ or ‘flapping state’). Observe (11).

- (11) a. *Hirahira ga kininaru* (nominal)
MIM NOM be.conscious
‘He is conscious about the flapping object.’
- b. *Hirahira no/na sukaato* (adjectival)
MIM COP skirt
‘fluttering (flare) skirt.’
- c. *Sakura no hanabira ga hirahira to tiru* (adverbial)
cherry GEN petal NOM MIM QUOT fall
‘Cherry petals fall in a fluttering manner.’
- d. *Hata ga hirahira-suru* (verbal)
flag NOM MIM-do
‘A flag flutters.’ (Akita and Tsujimura 2016: 134)

The previous studies introduced above clearly indicate that there are not only mimetic verbs but also mimetic nouns, adjectives, and adverbs in Japanese, and such rich productivity of mimetic expressions features the grammar of the language.

Now, let us go back to the original question. What does the structure of mimetic verbs look like? Kageyama (2005) argues that there are in fact three types of *-suru*, which are all categorized as V, in Japanese: a main verb, a light verb, and *-suru* in mimetic verbs. The difference resides in the mechanism making use of LCS: the main verb *-suru* has LCS content, just like conventional lexical verbs, while the light verb's LCS is null (e.g., *kokyuu-suru* 'to breathe'). The mimetic verb is a composite predicate, and seven LCS templates are associated with the verb *-suru*. The LCS templates are conflated with the LCS content of the mimetic base to derive the meaning of the mimetic verb.

Suppose that mimetic words provide the core meaning of overall syntactic elements and play an important role in the syntactic constructions. Then, the mimetic part of a mimetic verb, which is the head of a mimetic phrase in Kageyama's (2007) analysis, should also be part of such nominal, adverbial, and adjectival elements illustrated in (11). Furthermore, we would expect that the meanings of mimetic words are linked with the arguments that the mimetic verbs take. In fact, Yoshinaga (2018), in line with Kageyama (2007), for instance, argues that *iraira-suru* 'to be irritated' is an instance of unergative verb, while *zukizuki-suru* 'to throb' is an instance of unaccusative verbs.

Note here, however, that it is not always the case that the mimetic word and the arguments that the mimetic verb takes make a one-to-one correspondence. Murasugi (2017a, b) points out, in line with Tsujimura (2014), that there are mimetic verbs whose meaning can be three-way ambiguous, i.e., mimetic words that can form transitive, unaccusative, and unergative verbs.

- (12) a. *Tama o gorogoro-suru*²
 ball ACC roll (MIM)-do.NPST
 '(I) roll the ball(s).' → transitive
- b. *Onaka ga gorogoro-suru*
 stomach NOM growl (MIM)-do.NPST
 'My stomach is growling.' → unaccusative
- c. *Inu ga gorogoro-suru*
 dog NOM roll.over (MIM)-do.NPST
 'The dog is rolling over.' → unergative (Murasugi 2017b: 143)

2. (12a) is not necessarily an expression used in the child-directed speech (see Kageyama 2007). *Booru o gorogoro-suru* '(I) roll the ball(s)' can be used in the context where someone is using balls to give massage to his/her back.

This descriptive finding suggests that the meaning of the mimetic *gorogoro*, which is three-way ambiguous, cannot be considered to be the sole factor to determine the arguments that the verb might take. Rather, as shown in (13), mimetic words can be derivationally selected by other elements, which determine the overall syntactic status of the category containing the mimetics.

- (13) a. *kirakira-tyan* (MIM + DIM) ‘Ms. Kirakira’ (nominal)
 b. *tyara-i* (MIM + (k)i) ‘flashy’ (adjectival)
 c. *hirahira na* (MIM + COP) ‘fluttering’ = (11b) (adjectival)
 d. *hirahira to* (MIM + QUOT) ‘in a fluttering manner’ = (11c) (adverbial)
 e. *hirahira-suru* (MIM + ‘do’) ‘to flutter’ = (11d) (verbal)

If a diminutive element *-tyan* follows the mimetic word *kirakira*, it forms a nominal element as in (13a). If *-(k)i* or *na* follows a mimetic word, an adjective is derived as in (13b) and (13c). If *to* (or *ni*) follows a mimetic form, an adverb is derived as in (13d), and if *-suru* follows a mimetic word, it makes a mimetic verb as shown in (13e). The analysis suggests that mimetics are derivationally selected stem in Japanese.

Note here that the mimetic in a mimetic verb cannot be a full NP, just like the stem of adjectives exemplified in (13b) and (13c) cannot be, and hence, it cannot be the complement of the Verb *suru* (contra the syntactic structure that Kageyama (2007) proposes). As shown in (14), the mimetic word *mogumogu* in the mimetic verb *mogumogu-suru* cannot be Case-marked. That is, *mogumogu o suru*, is out, if the mimetic verb is meant to be ‘to bite’.

- (14) *Yoku mogumogu (*o) suru*
 well MIM (ACC) do
 ‘Lit. Do a lot of biting.’ (‘to bite a lot’, typically found in motherese)

The only possible interpretation of *mogumogu o suru* is that someone plays a game of “*mogumogu*” where “*mogumogu*” refers to a specific game, for example. The accusative Case normally cannot be assigned to the mimetic word *mogumogu*. This would provide a piece of evidence for the claim that the mimetic word cannot be a complement of the verb, nor a full NP. In fact, this point crucially distinguishes mimetic verbs from such verbs containing a borrowed word as *zyanpu (o) suru* ‘to jump’ and a light verb construction such as *kokyuu (o) suru* ‘to breathe’, where the accusative Case marker is optional.

The discussion so far naturally leads us to conjecture that both insights, i.e., Tsujimura’s insight that mimetic words may have multiple meanings, and Kageyama’s insight that there are three types of *-suru* in Japanese and the meaning of mimetic verbs is represented by a mechanism making use of LCS, are both

basically correct. However, unlike their proposals, our analysis indicates that the mimetic word is not the complement of the verb *-suru*, and the meaning of a mimetic word is not the sole factor that determines the syntactic construction it appears in. The notion of construction is not necessary either, and the interpretation of multiple meanings of a mimetic word is not determined when the global information throughout the sentence is taken into consideration. Rather, the mimetic can be (morphological-) derivationally selected by a syntactic head such as *-suru*, *-(k)i*, *na*, *to*, and *ni*, which determines the overall syntactic status of the category containing the mimetic word.

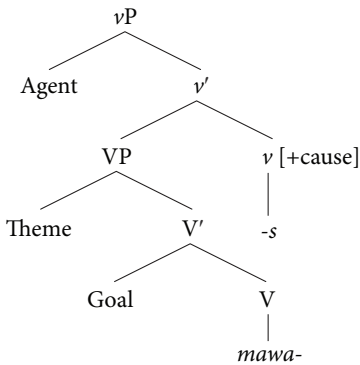
Given the argument so far, then, we have to say that mimetic verbs cannot be essentially different from conventional lexical verbs. In fact, just as the meaning of mimetic verbs can be ambiguous (cf. (12)), such conventional verbs as *toziru* ‘to shut’ and *warau* ‘to laugh’, for example, can be ambiguous, and can also be either transitive or intransitive.

- (15) a. *Doa o toziru*
 door ACC shut
 ‘(Someone) shuts the door.’
 b. *Doa ga toziru*
 door NOM shut
 ‘The door shuts.’
- (16) a. *Sore o warau*
 that ACC laugh.at
 ‘(Someone) laughs at that.’
 b. *Piero ga warau*
 crown NOM laugh
 ‘The crown laughs.’
 c. *Hiza ga warau*
 knee NOM laugh
 ‘My knees tremble.’

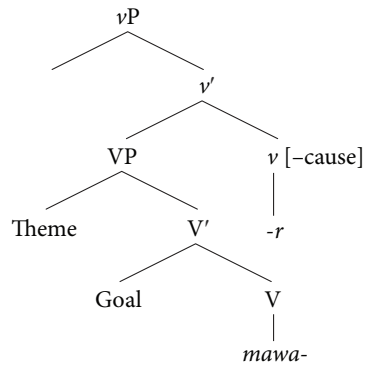
The stem of *toziru* and that of *warau* given in (15) and (16), respectively, are the large V in the *v*-VP framework. The stem constitutes the core meaning of the verbs, and the combination of the stem and the small *v* (which is phonetically realized as null) determines the syntactic construction it appears in.

Here, let us recall the syntactic structure of transitive and intransitive verbs in Japanese schematized in (9), repeated in (17). These are the structures that Murasugi and Hashimoto (2004) propose for the transitive/intransitive alternations in Japanese-type verbs under the *v*P-shell hypothesis.

(17) a.



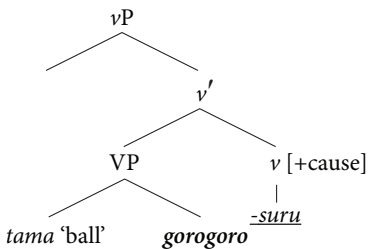
b.



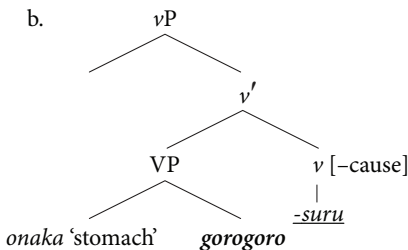
If we assume the vP -shell structure for Japanese conventional lexical verbs with Murasugi and Hashimoto's (2004) line of argument, then the structure of mimetic verbs would also consist of a mimetic word (or stem) and the small v (which is phonetically realized as *-suru*). The core meaning of the mimetic verbs would be determined by the mimetic word, and the mimetic word and the small v would determine the syntactic constructions that the mimetic word appears in.

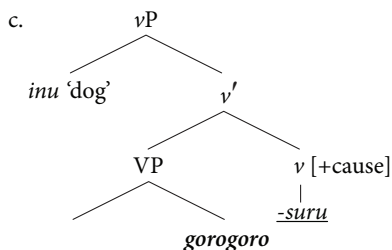
Thus, the structure of adult mimetic verbs and conventional lexical verbs are captured in a parallel way. In this sense, the claim is parallel with Kageyama (2007). However, the structure here is crucially different from the one proposed in Kageyama (2007) in that *-suru* in mimetic verb is not V but v , and the parallelism resides in the role of small v . Murasugi (2017b) suggests that adult mimetic verbs which can be transitive, unaccusative, and unergative shown in (12a), (12b), and (12c) have such structures as those schematized in (18a), (18b), and (18c), respectively.

(18) a.



b.





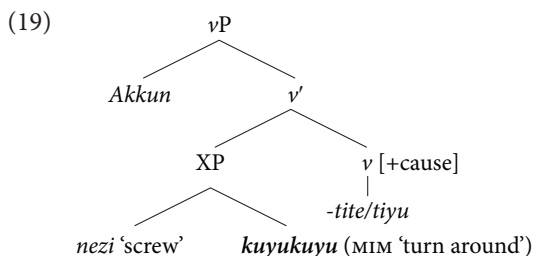
(Murasugi 2017b: 143)

The structure of adult mimetic verbs is, then, essentially identical with that of adult transitive/intransitive verbs, and there is no discrepancy found between them. The only difference resides in the fact that the former has a mimetic word as the root of the mimetic verb, while the latter has large V as the root of the conventional verb. *-Suru* 'to do' in mimetic verbs is the phonetic realization of small *v*, and can be three-way ambiguous depending on the features associated with the small *v*, i.e., [+cause] or [-cause], and the subjects, internal or external.³

Kageyama's insight that mimetic words play an important role in determining the possible argument structure of mimetic verbs that they appear in, should be maintained, because not all the mimetic verbs are three-way ambiguous. For instance, *kirakira-suru* 'to be shiny' can be unaccusative or unergative, but can never be transitive. Although our analysis maintains the essential insight of Kageyama's, our analysis is different from it with respect to the syntactic structure of mimetic verbs. The core meaning of mimetic verbs is determined by mimetic words (just like V in *v*-VP framework), and the mimetic words and the small *v*, not the mimetic words themselves, determine the syntactic constructions that the mimetic verbs appear in.

If so, then an interesting implication for the learnability of mimetic verbs is obtained. That is, the structure of adult mimetic verbs is essentially identical to the structure of child mimetic verbs given in (8), repeated below in (19), although child mimetic words do not get a specific syntactic category yet at this stage. Very young children start with the specification of the feature of transitivity in verb acquisition and one of the first complements of *v* is the mimetic in Japanese, and mimetics help children bootstrap the argument structure of verbs.

3. Note here that, interestingly, there are considerable variations in the phonetic realization of small *v* in Japanese dialects: *sun* in Okinawa-Naha, *tuku* in Akita, Chiba, and Gifu, *iu* in Ehime and Hiroshima, and so on (Takeda 2017). Thanks to Kimi Akita who asked me if the analysis presented here would apply to such verbs as *iu* and *tuku* in *zyuuzyuu-iu* 'to be burned' and *gira-tuku* 'to glitter'. The answer to the question is positive. Just like *-suru*, these verbs can be used both as V and *v*. In other words, those verbs which can be used as *v* would be able to select the mimetic as the root.



Thus, child mimetic verbs, adult mimetic verbs, and adult conventional lexical verbs share the basic syntactic structure, and no learnability issue arises here. Very young children, after the RIA stage, naturally construct a v -VP structure, which is basically identical to the structure of adult mimetic verbs and that of conventional lexical verbs. Our analysis, then, would suggest that the lexical semantic properties upon which the meaning and argument structure of a mimetic verb is built is not essentially different from those of a conventional lexical verb, for example, as proposed in Kageyama (2007). The argument presented here implies, more generally, that child grammar and adult grammar are continuous, thereby supporting the strong continuity hypothesis of language acquisition.

4. Conclusion

In this chapter, based on the analysis of RIAs (Murasugi and Fuji 2011; Murasugi and Nakatani 2013; among others) and the analysis of mimetics (Murasugi 2016, 2017a, b), we presented evidence that *-suru* in mimetic verbs is the realization of small v in both adult and child Japanese. The analysis presented here suggests that the acquisition of the syntax of mimetics proceeds in parallel with that of conventional verbs, and mimetics are the ones that bootstrap the argument structure of verbs. The thesis implies that the lexical semantic properties upon which the meaning and the argument structure of a mimetic verb is built is not different from those of a conventional lexical verb, for example, as proposed in Kageyama (2007). Then, as far as syntax and semantics are concerned, there is no discrepancy between mimetic verbs and conventional lexical verbs, and no learnability issue arises in the process of the acquisition of mimetic verbs.

Acknowledgements

I would like to thank Tomoko Kawamura, Mamoru Saito, and in particular, Kimi Akita, for the precious comments and suggestions for this paper. I also would like to thank Tomoko Hashimoto, Chisato Fuji, Tomomi Nakatani, Koji Sugisaki, Diane Lillo-Martin, William Snyder, Mona Anderson, and a number of colleagues and students for working with me to understand the general nature of the early grammar of child Japanese, although I cannot name them all. This work is in part supported by JSPS Kakenhi Grant Number 17K02752 and Pache Research Subsidy I-A, 2018 of Nanzan University.

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Iconicity in L2 Japanese speakers' multi-modal language use

Mimetics and co-speech gesture in relation to L1 and Japanese proficiency

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Japanese mimetics are often reported to be difficult for speakers of Japanese as a second/foreign language (L2). Recent work examining L2 Japanese learners' comprehension/perception (e.g., Naito-Billen 2013; Nakaishi et al. 2014) found that understanding mimetics is indeed challenging even for advanced learners, but less is known about L2 speakers' spontaneous use of mimetics and gesture, which are known to co-occur (Kita 1997). We examined the use of mimetics and co-speech gesture by L2 Japanese speakers whose first language (L1) is either English or Korean, focusing on narrations of video clips. The aim of this study was to gain a deeper understanding of the role of L2 Japanese speakers' L1 and their L2 proficiency in the use of mimetics (highly iconic phonomimes and less iconic phonomimes) and co-speech gesture. Our analyses show that differences in the availability of mimetics in a speaker's L1 affect the use of L2 mimetics and gesture in a subtle manner. Regardless of L1, L2 Japanese speakers produced iconic co-speech gestures accompanying mimetics, especially for phonomimes. While the frequency of mimetics use does not correlate with the level of proficiency, the pattern of mimetic-gesture synchronization seems to reflect L2 proficiency. The results are discussed in terms of the two modes of representations involved in language use (Kita 1997; Dingemanse and Akita 2017).

1. Introduction

Japanese has a large inventory of mimetics that are used on a daily basis across different registers (e.g., conversation, newspapers, magazines, advertisements, novels), as attested by many scholars (Schourup 1993; Kakehi et al. 1996: xi; Ivanova 2006). Mimetics constitute an integral part of adult spoken and written Japanese; they are therefore of vital importance for students of Japanese as L2 to learn (Makino

and Tsutsui 1986: 50; Tsujimura 2005a; Akimoto 2007; Mikami 2007). However, mimetics are often reported to be difficult for L2 Japanese speakers (e.g., Zhang 1989; Hamano 1998; Yamaguchi 2003). Though many earlier reports are anecdotal, some recent empirical studies have also shown that L2 learners have difficulty in comprehending and producing mimetics (e.g., Nakaishi et al. 2011; Naito-Billen 2013; Nakaishi et al. 2014).

The reported difficulty in acquiring mimetics is at odds with the generally agreed non-arbitrary (canonically iconic) relationship between mimetic words' forms and their meanings. Mimetics may imitate the sounds they refer to (phonomimes), or symbolically represent aspects of non-auditory meaning such as manners/states or emotions (phenomimes; psychomimes). Such iconic form-meaning relationships likely make learning mimetics easier than non-mimetic words, whose form-meaning relationships are non-iconic.¹

Previous studies examined whether or not the non-arbitrary form-meaning relationships indeed facilitate learning Japanese mimetics among children learning Japanese as L1 and among adult learners of Japanese as L2. As reviewed below, the results of previous studies are rather puzzling. Though the form-meaning relationship is found to be facilitative for *linking* the word forms and their meanings, it does not necessarily make *learning* and *using* mimetics easier for L2 Japanese speakers. The current study aims to help to elucidate the puzzle.

A potential key to the puzzle may be the fundamental difference between L1 and L2 Japanese learners; that is, the L2 speakers' L1 is expected to interact with their L2 acquisition and use. Whether or not a learner's L1 has a rich repertoire of mimetics and whether their L1 mimetics share some characteristics with Japanese mimetics may make a difference in their use of the latter. The current study explores L2 Japanese speakers' spontaneous use of mimetics in speaking, focusing on its relation to their L1 (English or Korean) and their Japanese proficiency. Though we do not examine L2 acquisition of mimetics per se, the relation to proficiency levels may be suggestive of L2 developmental stages in learning mimetics, which have been understudied. Moreover, because spontaneous use of mimetics is characteristically linked to co-speech iconic gestures (Kita 1997), it is important to examine L2 speakers' production of co-speech gestures as well.

Below, before presenting the current study, we first review previous studies related to sound symbolism (systematic relationship between sound and meaning), and studies of L1 and L2 learning of Japanese mimetics. In the latter, we pay close attention to two types of mimetics differing in their degree of iconicity: highly iconic phonomimes (referring to sound) and somewhat less iconic phenomimes (referring

1. Some studies suggest that the relationship between non-mimetic words' forms and meanings are not entirely arbitrary (see Nygaard et al. 2009, for example).

to manner/state). We then survey studies in three related areas: studies comparing Japanese mimetics with English sound-symbolic words; studies comparing Japanese and Korean mimetics; and studies related to gesture (the co-production of gesture and mimetics; L2 speakers' gesture). In the current chapter, we use the expression "sound-mimetic words" to refer to mimetic equivalents in English, including both onomatopoeia and other words containing sound symbolism, and the term "mimetics" for their Japanese and Korean counterparts.

2. Previous studies

2.1 Sound-symbolism and mimetics in L1 Japanese acquisition

The sound-meaning relation represented in Japanese mimetics was found to facilitate the learning of verb meaning among children learning Japanese as L1 (Imai et al. 2008). Based on Hamano's (1998) analysis of sound symbolism in Japanese mimetics, Imai et al. created 6 novel verbs (e.g., *batobato suru*, *tokutoku suru*) which include systematic sound-meaning relations such as voiced initial consonants (e.g., /b/) associated with heavy forceful movement, /t/ expressing hitting, and reduplication indicating repetition. Video clips depicting walking differing in fast-slow and heavy-light dimensions were created to match the novel mimetic verbs. Adult L1 English and L1 Japanese speakers evaluated the video clips, and their ratings confirmed that the novel mimetic verbs matched the walking actions depicted in the video clips. It was found that, when provided with an aural presentation of target words and shown two alternative video clips, both 2-year and 3-year-old L1 Japanese children were able to select video clips that matched the mimetic action verb, performing the task better with the target verbs with proposed sound symbolic relationships than with non-sound-symbolic verbs (e.g., *nekeru*, *yatiru*). Kantartzis et al. (2011) showed that, among L1 English-speaking 3-year olds, the same sound-meaning relationship also facilitated the learning of novel word meanings (e.g., *doing batobato*, *doing tokutoku*) as compared to non-sound-symbolic novel verbs (e.g., *bretting*, *truffing*). In fact, mimetics are found to form the basis of infants' and toddlers' language acquisition (see Murasugi 2017, this volume).

With regard to mimetics differing in degree of iconicity, it is reported that phonomimes are used first by children. In longitudinal studies, L1 Japanese children tend to produce creative, innovative phonomimes early on at the age of 1 or 2 years (e.g., *tantantan* produced by 1-year old, Okubo 1967: 55), and only later do they produce conventional, lexicalized mimetic words, including phonomimes in other semantic/sensual domains (e.g., *hurahura suru* 'unsteadily', *sappari suru*

'refreshing' produced by a 2 or 3-year old, reported by Okubo 1967: 51–59; Osaka 1999: 159–161. See also Ishiguro 1993). Children's production of phonomimes before phonomimes was also confirmed by Herlofsky (1998). Herlofsky's data were elicited from 60 L1 Japanese children aged 3 to 6 years old. He specifically examined the production of phonomimes referring to two sound-emitting events (the crowing of a rooster; the ringing of an alarm clock) and that of phonomimes referring to two state/manner descriptions (the brightness of the sun; the fluffiness of clouds) when the children talked about events shown in a picture book. Most children used phonomimes across different age groups, but fewer, older, children used phonomimes. Only 5 children (4 years or older) used conventional mimetics for brightness, and only 3 children (5 or 6 years old) used mimetics for fluffiness.

2.2 Sound symbolism and Japanese mimetics in L2 learning

Sound symbolism is reported to help L2 learners to associate unknown words and their meanings (e.g., Deconinck et al. 2014). Lockwood et al. (2016) showed that sound symbolism facilitates the learning of Japanese mimetics among L1 Dutch speakers in a lab setting. In their experiment, Dutch speakers who had no experience with Japanese could learn the pairings of Japanese mimetics and meanings better when provided with their real meanings (than with false opposite meanings).

Iwasaki et al. (2007a, b) also showed that L1 English speakers with no knowledge of Japanese were capable of guessing some aspects of the meanings of Japanese mimetics. Likewise, Naito-Billen (2013) found that L1 English speakers with no knowledge of Japanese could match novel mimetics containing sound symbolism (palatalized consonants associated with uncontrolledness, e.g., *pasyupasyu*, *nyoren-yore*) and pictures depicting the state of uncontrolledness. Their judgments were similar to those of L1 Japanese speakers. In relation to types of mimetics differing in degree of iconicity, Iwasaki et al. (2007a) Japanese phonomimes and their meaning, specifically words referring to the quality of voice and manner of laughing (e.g., roaring, giggling). This study found that English speakers' judgments examined of the meaning of phonomimes were more similar to L1 Japanese speakers' judgments than their judgments of the meaning of phonomimes referring to manner of walking.

Despite the reported facilitative role of sound symbolism in form-meaning mapping among Dutch and English speakers with no knowledge of Japanese, studies show that L2 learners have difficulty in comprehending and producing Japanese mimetics. Nakaishi and her colleagues experimentally examined both production (Nakaishi et al. 2011) and comprehension (Nakaishi et al. 2014) of Japanese mimetics among L2 Japanese learners with Mandarin Chinese as their L1. They found that

their experimental tasks were difficult even for advanced learners.² Naito-Billen (2013) reported that matching novel mimetic words containing palatalized consonants with uncontrolledness was challenging for intermediate-level learners of Japanese. Naito-Billen speculates that L2 Japanese learners may be inclined to use their knowledge of non-mimetic Japanese words' arbitrary form-meaning relations, which may distract them from intuitions based on sound symbolism. In addition, research on spontaneous production in speaking found that L2 Japanese speakers whose L1 is English or Korean rarely produce mimetics until they are at least mid/upper intermediate-level (Sakurai 2003; Iwasaki 2008, 2017a). Yoshioka (2017) also found that a L1 Dutch-speaking learner of L2 Japanese used mimetics only in the later stages of a longitudinal study, and used more phonomimes than phenomimes.

Part of the contradiction in previous findings may stem from the different tasks used in the studies. Many of the studies showing the facilitative role of iconicity in L1 and L2 word learning (Imai et al. 2008; Kantartzis et al. 2011; Naito-Billen 2013; Lockwood et al. 2016) used a forced-choice alternative task paradigm, with only two options given. Monaghan et al. (2012) pointed out that such tasks involve the learning of a category distinction, rather than the learning of individual words. In their experiments, sound symbolism (i.e. plosives such as /k/, /p/ and front vowels such as /i/, /ei/ associated with angular shapes; continuants such as /n/, /l/ and back vowels such as /ɔ:/, /ɑ:/ associated with rounded shapes) facilitated their participants' word learning only when the target shape was presented with a foil of the contrasting shape category rather than a foil of the same shape category. Such word learning associated with a category distinction would not suffice for Japanese speakers to use mimetics as they need to know individual words that match their intended meanings.

It is also important to consider the influence of L2 learners' L1 when considering mimetics. The habitual use of such words in a speakers' L1 has likely 'trained' them to lexicalize the concepts they are conveying – as proposed in the 'thinking-for-speaking' hypothesis (Slobin 1991). With regard to the description of motion events, based on Talmy's typological framework (Talmy 2000), English speakers are known to typically use manner verbs (e.g., *jump up*) while Japanese speakers often use (mimetic) adverbs (e.g., *pyon to agaru* 'ascend in a manner of *pyon*'), verbal compounds (e.g., *tobi-agaru* 'jump-ascend'), and adverbial adjuncts (e.g., *tonde agaru* 'ascended, jumping') to habitually encode manner of motion. Korean lexicalization is considered to have the same pattern as Japanese (see Choi and Lantolf 2008). In other

2. Nakaishi et al. (2011) had 10 L1 Chinese participants who had passed Level 1 (the highest level) of the Japanese Language Proficiency Test, and Nakaishi et al. (2014) had participants enrolled in university Japanese courses at intermediate and advanced level.

words, while English speakers habitually encode manner of motion in the main verb, both Japanese and Korean speakers often encode manner in (mimetic) adverbs or adjuncts. It has also been found that L2 speakers' L1 affects their construal of motion events (see Jarvis and Pavlenko 2008; Pavlenko 2014 for review of such studies). Pavlenko (2014: 166) states that "cross-linguistic variation in motion and event encoding affects all aspects of the speech planning and execution process, extending Slobin's (1996) notion of 'thinking for speaking' to *thinking, seeing, and gesturing for speaking about motion events*" (emphasis by Pavlenko).

It is now acknowledged that mimetics play an important role in motion event descriptions in some languages (Ibarretxe-Antuñano 2005). Though English has a limited repertoire of sound-symbolic words and does not possess an independent category of such words (e.g., Sugahara 2010), Korean has a greater repertoire of mimetics than Japanese (e.g., Lee 2001). If L2 Japanese speakers' L1 has an established category of mimetics, and if those mimetics play similar roles in lexicalization as in Japanese, then their habitual use of L1 mimetics may facilitate their use of Japanese mimetics.

2.3 Mimetics in English and in Korean

Identifying sound-symbolic words in English is not straightforward (Tamori and Schourup 1999), but in addition to onomatopoeic words referring to sounds, there are other words where sound symbolism is recognized (e.g., word-final voiceless plosive associated with noise or action ending abruptly, e.g., *clap, click, snap, smack*). However, some similarities are found in sound symbolism in Japanese mimetics and English sound-symbolic words (Tamori and Schourup 1999).

Korean is known to have a large number of mimetics (e.g., Lee 2001), but they are reported to contain language-specific sound symbolism that diverges from commonly observed sound symbolism, as discussed by Kim (1977). For example, the vowel /i/, which is typically associated with smallness in other languages, is associated with largeness in Korean. However, recent studies have found that Korean speakers do utilize cross-linguistically common sound symbolism as well. For instance, Shinohara and Kawahara (2016) showed that when presented with novel words, Korean, English and Japanese speakers associate the vowel /i/ with smallness and /a/, /u/, /o/ with larger sizes. With regard to the production of mimetics, Iwasaki et al. (2013) found that Korean speakers produced mimetics similar to those produced by Japanese speakers in response to the same auditory and visual stimuli in terms of types of consonants and vowels. Garrigues (1995) also reports similarities between Japanese and Korean mimetics. Hence, taken together, both English speakers and Korean speakers may utilize similar sound symbolism that is also shared with Japanese, at least to a certain extent.

However, it is clear that the grammatical properties of mimetics diverge between Korean and English. While Korean mimetics are often used as adverbs, similarly to Japanese (Lee 2001), English sound-symbolic words are rarely used as adverbs and are predominantly used as verbs (Schourup 1993; Tamori and Schourup 1999; Sugahara 2010). Examples (1a)–(1c) below show the use of phonomimes referring to the sound that water makes in Japanese (1a), Korean (1b) and English (1c). Examples (2a)–(2c) exemplify the use of phenomimes referring to the manner in which gold shines brightly in Japanese (2a), Korean (2b) and English (2c). Below, the mimetics are shown in bold fonts and simply glossed as MIM without translation.

- (1) a. *Ogawa o zabuzabu to watat-ta.*
 stream ACC MIM QUOT CROSS-PST
 ‘[I] crossed the stream with splash.’
- b. *Sinay lul chelpekhchelpək kenne-ss-ta*
 stream ACC MIM CROSS-PST-DECL
 ‘[I] crossed the stream with splash.’
- c. *I splashed across a stream.*
- (2) a. *Kin ga kirakira hikar-u.*
 gold NOM MIM shine-NPST
- b. *Kum i panccakpanccak pichna-n-ta.*
 gold NOM MIM shine-NPST
- c. *The gold glitters.*

In (1a), (2a), (1b) and (2b), both phonomimes and phenomimes are used as adverbs in Japanese and Korean, while the mimetic counterparts in English are used as verbs in (1c) and (2c). Mimetics can be used as other grammatical categories, but their use as adverbs is common in Japanese and Korean, while their use as verbs is common in English.

Based on the differences between English and Korean above, it is plausible that L1 Korean speakers who have mimetics similar to Japanese in their L1 may have been trained to use mimetics (especially as adverbs), while L1 English speakers have not. This may also lead to a prediction that L1 Korean speakers use more mimetics than English speakers. However, this prediction did not hold when Iwasaki (2008, 2017a) examined a corpus of Japanese oral proficiency interviews (OPI)³ with 30 L1 English speakers and 30 L1 Korean speakers. English speakers were found to use more mimetics in the corpus than Korean speakers. However, topics in these

3. The corpus (KY Corpus) was created by Osamu Kamada and Hiroyuki Yamauchi by compiling interviews assessing oral proficiency, utilizing the protocol of the American Council on Teaching of Foreign Languages (ACTFL).

interviews varied according to the proficiency levels of the interviewees, leading to an inconclusive result.

Furthermore, when Iwasaki (2017b) analyzed a subset of the current study's data, motion event descriptions, L1 Korean speakers used more mimetics than L1 English speakers, but this was mostly due to their use of mimetics referring to a 'rolling' event. Korean speakers did not necessarily use more mimetics in other contexts. It was concluded that in addition to a combination of a rich repertoire of mimetics in L1 and typologically similar lexicalization patterns for motion event descriptions, manner-salient events likely lead to frequent use of mimetics. In order to better understand this speculative conclusion, more contexts need to be analyzed.

When it comes to the semantics of mimetics, English appears to be rich in phonomimes but it has fewer phenomimes (see Tamori and Schourup 1999). On the other hand, Korean has far more phenomimes than phonomimes (Park 2015: 188), as is the case for Japanese. It is plausible that English speakers use more phonomimes than Korean speakers because they may consider mimetics to be primarily sound-related. It is also possible that as they do not possess a recognizable category of mimetics in their L1, they learn mimetics from scratch and that the learning process resembles that of L1 children learning mimetics, starting with phonomimes. Yoshioka's (2017) data from a single Dutch learner of Japanese supports this view. Though Iwasaki (2008) reported that English speakers used slightly more phonomimes than Korean speakers, the topics in the interviews were not targeted to elicit descriptions of sound-emitting events. A study utilizing stimuli including the description of sounds is needed to understand L2 speakers' use of phonomimes and phenomimes in relation to their L1 and to their L2 Japanese proficiency.

2.4 Mimetics and gesture

Thus far, we have only discussed oral production. However, language use is inherently multi-modal. Below, we first discuss how speech, mimetics, and gesture are integrated in language use. We then describe three patterns of mimetic-gesture synchronization, which will be utilized in the current study's analysis.

2.4.1 *Co-speech gesture and mimetics*

The type of gesture that we examine in this study is the co-speech iconic gesture ('gesture' hereafter), which often expresses an object or an event. These gestures, often involving hand and arm movements, are semantically and temporally synchronized with speech and jointly express meaning, reflecting the integrated nature of these two modalities (e.g., McNeill 1992; Kendon 2004). This view is supported by various empirical studies (e.g., Kita and Özyürek 2003; Beattie and Schovelton 2006; Kelly et al. 2010).

Gestures serve different communicative functions. They can emphasize the speaker's communicative intention by conveying redundant or complementary information in a visual manner (Goldin-Meadow 2003). For example, speakers can rotate their fingers or arms while saying 'rolling', emphasizing the verb meaning by using an additional modality. Gesture can also disambiguate information, e.g., by manually demonstrating and situating entities in the space in front of the speaker (McNeill 1992). Speakers also resort to gesture to support the information represented in verbal communication (see Rowbotham et al. 2012, on communicating different aspects of pain). This integrated nature of speech and gesture is observed in both L1 and L2 speech (e.g., Gullberg 1998; Stam and McCafferty 2008; Gullberg et al. 2010).

In order to successfully synchronize the two modes of expression, the timing of the production of a gesture may be manipulated (mostly unconsciously). Within a gesture unit (i.e., from the beginning of a hand movement until it comes back to the resting position), there are considered to be three major phases. These are 'preparation', 'stroke' and 'recovery' (Kendon 2004, 112). In addition, a 'stroke' may be followed by 'post-stroke hold' (Kita 1993). These different phases may be manipulated to synchronize with speech to express the desired integrated imagery. For instance, a hand may be sustained in mid-air as if to wait for the corresponding speech to be made (i.e., preparation with a possible pre-stroke hold). At other times, a hand may be kept in the same position after the stroke until the corresponding imagery is described in speech (i.e., post-stroke hold, e.g., McNeill 1992; Kendon 2004). In the current study, we focus on the synchronization between mimetics and the accompanying gesture.

It was Kita (1997) who first pointed out the co-production of mimetics and gesture. He found that mimetic expressions were accompanied by gesture strokes (i.e. the meaningful phase of a gesture which tends to be most forcefully performed) more often than verbs (94% vs. 40%). Kita distinguished between two different dimensions of semantic representation in language use: the analytic dimension and the affecto-imagistic dimension. He argued that the former is represented by ordinary words, while the latter is represented by mimetics and gesture. He supports this claim with his findings that mimetics are almost always accompanied by gesture strokes.

The co-production of mimetics and gesture has been further investigated by Dingemans (2013), who examined conversation data in Siwu, an African language with a large repertoire of mimetics (typically called ideophones in studies on African languages). He reports a lower rate (38%) of gesture accompaniment for ideophones. Given that Kita's data were narratives, Dingemans's findings suggest a possible influence of data type on the rate of speech and gesture co-production.

Whether mimetics tend to be accompanied by gestures may depend on the type. For instance, Son (2010) compared the rate of gesture accompaniment for

phonomimes and phenomimes using a Japanese television corpus. He found that phonomimes were accompanied by gestures more frequently (60%) than phenomimes (12%). He explains the results via the notion of ‘mimeticity’ originally put forth by Tamori and Schourup (1999). Son measured the degree of mimeticity based on three criteria: whether or not 1) the mimetic expresses a sound, 2) its form is unconventional, and 3) the quotative marker *to* is obligatory (Son 2010: 138–139). He argues that the higher rate of gesture accompaniment among phonomimes is due to their higher degree of ‘mimeticity’.

On the other hand, Dingemanse and Akita (2017) found the opposite trend, with phenomimes more likely to be accompanied by gestures than phonomimes (71.48% vs. 53.62%).⁴ However, this finding was not fully discussed, as the study focused more on the extent to which the accompaniment of gesture was a predictor of the morphosyntactic integration of mimetics. Dingemanse and Akita argue that less grammatically integrated mimetics (e.g., quotative mimetics with a quotative marker *to*) are more expressive and likely to be accompanied by gesture in L1 Japanese than mimetics in other morphosyntactic contexts. The degree of gestural accompaniment was explained by adopting two notions of representation, ‘description’ and ‘depiction’. Similar to Kita’s notion of analytical dimension, ‘description’ is a discrete system represented by ordinary non-mimetic words, whereas ‘depiction’ is an iconic depictive system represented by mimetics. The authors argue that mimetics with a higher degree of morphosyntactic independence are likely to be associated with expressive features (such as gesture) in depicting imagery.

In sum, the previous findings on mimetics and gesture suggest the following points that are pertinent to the current study’s research questions and interpretation of the results. First, gestures tend to accompany mimetic expressions more frequently than verbs, reflecting the tight coupling of mimetics and gesture. Secondly, the types of mimetics, i.e. phonomimes vs. phenomimes, may influence the frequency of gesture accompaniment. Thirdly, the type of discourse, i.e. narratives vs. conversations, may influence the frequency of mimetic-gesture coupling.

2.4.2 *Mimetic-Gesture Synchronization Patterns*

With respect to mimetic-gesture synchronization, Kita (1997) maintains that mimetics are mostly accompanied by a stroke phase. Son (2010) provided two criteria to identify gestures: (1) the gesture begins almost simultaneously with mimetics, and (2) the gesture can be distinguished from the one made beforehand and afterwards. While the examples are provided, explanations are focused mostly on the hand movements. Thus these two studies did not clarify the details of the gestural accompaniment in terms of the unit or phases of gesture.

4. Information about the rates was shared in a personal communication with the authors.

However, we argue that three possible types can be distinguished with regard to the pattern of co-occurrence of mimetic expressions and gesture. In the first type, the gesture stroke co-occurs only with the main part of the mimetic that expresses the core meaning, which we call the 'stem', as in (3) and (4) from the current study's data.

- (3) *Ame mo [zaazaa]⁵ hut-te, hut-te imasu* (E02 L1 English IM, Clip 3)⁶
rain also MIM fall-GER fall-GER is

G

'The rain is falling with manner/sound of *zaazaa* (a strong force)'

G: left hand open palm moving from the shoulder, downward and up, and then retracted before the verb is uttered

- (4) *Ano sorede miti o [guruguru]* (K02 Korean IM, Clip 1)
and then road ACC MIM

G

'And then rotating on the road'

G: both hands in front of the body make circular movement from the wrist, hands facing each other

In (3), the mimetic *zaazaa* is used by an L1 English speaker as an adverb expressing the sound of rainfall. The accompanying gesture expressing the vertical movement of the rainfall only overlaps with the mimetic stem, *zaazaa*. In (4), the mimetic *guruguru* (manner of spinning/rotating) is used by an L1 Korean speaker as if it is the main verb. The accompanying gesture again only overlaps with the mimetic stem.

In the second type of synchronization, the stroke phase of the gesture extends to grammatical elements such as the light verb *suru*, which makes it a mimetic verb, and the quotative marker *to*, which is typically used for adverbial mimetics. In (5), the gesture stroke not only overlaps with the stem but also with the light verb *suru* 'do'.

- (5) *Terebi ga taore-te ano [pikapika si-te-ta]* (E03 AL Clip 4)
television NOM fall-GER uhm MIM do-GER-PST

G

'The television fell and, uhm (it was) flashing on and off'

G: right hand lifted in front of the face with palm facing left side, with relaxed fingers closing and opening repeatedly.

5. [] shows the part that the gesture stroke co-occurs with. The underlining shows the co-occurrence with the post stroke hold. G indicates where the gesture starts.

6. The source of the data is indicated by the participant ID, his/her proficiency level, and the video clip the participant is describing. See Section 4.

In the third type of synchronization, the post-stroke hold overlaps with grammatical elements and the rest of the clause that is semantically related to the mimetic. According to Kendon (2004), the stroke and post-stroke hold phases form the nucleus of the gesture, carrying its meaning. In (6), the quotative *to* and the rest of the clause are accompanied by a post-stroke hold.

- (6) ... *ano* [*kabe*] *ni* [*paaQ to*] *butukaru* *n* *des-u* (K14 KM Clip 2)⁷
 uhm wall to MIM QUOT hit NMLZ COP-NPST
 G

‘(the cat) hit the wall with a manner of *paaQ* (quick motion)’

G: Accompanying *kabe* ‘wall’, the left hand moves down vertically as if to trace the wall. Then, accompanying the mimetic word, the left hand (with the palm facing left) moves toward the location where the hand moved vertically in the previous gesture accompanying *kabe*. The hand is held in the same position until the end of the clause.

These three types are different in terms of how the gesture is integrated with the expressed meaning. In the first type, the meaning of the gesture is limited to the lexical semantics of the mimetic. In the second type, the meaning of the gesture includes the grammatical element, the conjugated *suru* ‘do’, which expresses tense/aspect. In the third case, the meaning expressed by the nucleus (i.e., stroke and post-stroke hold) goes beyond a mimetic and includes other elements (sometimes the rest of the clause). Given that the production of the gesture nucleus is motivated by imagery, the long post-stroke hold reflects the integration of the mimetic expression with the description of the scene as one event.

The distinction of the three synchronization patterns is important, as previous studies on L2 gestures suggest L2 speakers’ proficiency as well as L1 affects how they use gesture in several ways, including the rate of gesture, the category of the gesture produced, the function the gesture plays, and speech-gesture synchronization patterns (e.g., Gullberg 1998; Yoshioka 2005; Brown 2015; Stam 2015; but see Nagpal et al. 2011). Relevant to the present study is the finding that L2 speakers’ speech-gesture synchronization patterns are influenced by their L1 (Yoshioka and Kellerman 2006; Brown and Gullberg 2008; Choi and Lantolf 2008; Brown 2015; Stam 2015), but become more target-like as L2 learners’ proficiency develops (Özyürek 2002; Stam 2015). For instance, Stam (2015) examined the synchronization patterns by a L2 speaker whose L1 (Spanish) is typologically different from her L2 (English). Her speech-gesture synchronization patterns became more target-like as her proficiency developed.

7. Following Hamano (1998), the moraic nasal is romanized as N and the first half of the geminate as Q.

Given that mimetics are not prevalent in all languages, only limited research on the co-production of mimetics and gesture in L2 has been conducted so far. Of relevance is the longitudinal study by Yoshioka (2017) of mimetic-gesture coupling in the speech of a Dutch learner of Japanese. Like English, Dutch does not have a recognized category of mimetics. The results showed that the learner's production of mimetics was frequently accompanied by gestures as in the previous studies of L1 Japanese speakers. In addition, the co-production of mimetics and gesture appeared after the speaker's proficiency level reached the mid/upper intermediate level (as measured by the Japanese Proficiency Test). However, because the study only focused on whether or not gesture strokes co-occurred with mimetic words, detailed patterns of co-occurrence between the two modes of expression were not investigated.

In this study, we investigate L2 Japanese speakers' use of mimetics and mimetic-gesture synchronization patterns, both in relation to their L1 and their Japanese proficiency.

3. Current study: Research questions

We examined the narratives recounted by L1 English and L1 Korean speakers with Japanese as L2 in order to better understand how such speakers use different types of mimetics and produce gestures, and how their production is related to their L1 and Japanese language proficiency.

We have two sets of research questions, one related to the use of mimetics, and the other related to gestures accompanying the use of mimetics. With regard to the use of mimetics, we aim to answer the following two questions:

RQ1: When speaking Japanese as an L2, how often do L1 English and L1 Korean speakers use mimetics (phonomimes and phenomimes)?

RQ2: Is L2 Japanese speakers' use of mimetics (phonomimes and phenomimes) related to their Japanese proficiency?

If familiarity with the use of mimetics in their L1 plays a role, Korean speakers are predicted to use more mimetics across different contexts. Furthermore, considering Iwasaki's (2008) and Yoshioka's (2017) findings, English speakers may use more phonomimes, either because phonomimes are well established as onomatopoeic words in English, or because they are using mimetics without prior 'training'. If their process of learning mimetics resembles L1 Japanese children's acquisition of mimetics, then lower proficiency speakers are expected to use more phonomimes. Moreover, the relationship between L2 speakers' Japanese proficiency and frequency of mimetic use has only been examined by utilizing oral proficiency

interview data (e.g., Iwasaki 2017a), and has not yet been examined by the use of stimuli that aim to elicit mimetics.

As for the production of gestures, we aim to answer the following two questions:

RQ3: When speaking Japanese as L2, how often do L1 English and L1 Korean speakers produce gestures accompanying mimetics?

RQ4: Is the co-production of mimetics and gesture by L2 Japanese speakers' related to their Japanese proficiency?

Regarding the frequency of mimetic-gesture co-production, we speculate that as in L1, mimetics are more likely than verbs to be accompanied by gestures in both groups of L2 Japanese speakers. In other words, we predict that mimetics will show a tighter coupling with gesture than verbs because mimetics and gesture possibly belong to the same modes of communication (i.e. the affect-imagistic mode, depiction) in L2, similarly to L1. As for the possibility of crosslinguistic influence, it is plausible that L1 Korean speakers, with their rich repertoire of mimetics, may have already been conditioned to co-produce mimetics and gesture, unlike their L1 English counterparts.

To determine the role of proficiency, we examine the synchronization patterns among the L2 speakers at different proficiency levels. Due to the lack of baseline data from the L2 speakers' L1 or the target L1 data, we will limit our analysis to the effect of proficiency within the L2 data. It is plausible that if the speaker's proficiency is low, a gesture stroke will be likely to co-occur only with the mimetics due to the high processing load involved. The integration of the gesture nucleus (i.e. 'stroke' and 'post-stroke hold') with the other elements of an utterance will more likely be observed among L2 speakers with higher proficiency.

4. Method

4.1 Participants

Thirty-eight L2 Japanese speakers originally participated in our study (14 English speakers in London and 24 Korean speakers in Seoul), but data from two participants (an English speaker born in Japan who spent her childhood there, and a Korean speaker whose OPI did not elicit sufficient data to determine the level) were later excluded. Participation was voluntary and the participants received modest monetary compensation. The 13 English-speaking participants consisted of 7 women and 6 men, aged from 19 to 33 (average age of 21.5 years). The 23 Korean-speaking participants consisted of 15 women and 8 men, aged from 22 to 27 (average age of 24.7 years).

L2 Japanese speakers' oral proficiency was assessed by OPI conducted by the first author (a certified OPI tester at the time of the data collection) and officially agreed ratings were obtained through ACTFL Language Testing International (LTI).⁸ As shown in Table 1, among the 13 L1 English speakers were 10 Intermediate-level (1 High, 5 Mid, 4 Low) and 3 Advanced-level (2 Mid and 1 Low) speakers of Japanese. The 23 Korean speakers consisted of 1 Novice-High level speaker, 11 Intermediate-level (3 High, 7 Mid, and 1 Low) speakers, 10 Advanced-level (3 High, 5 Mid, and 2 Low) speakers and 1 Superior-level speaker of Japanese. Novice-High, Advanced-High and Superior speakers' data were excluded from the analyses designed to answer RQ1 (the relative frequency of mimetics among English and Korean speakers). However, they were examined for RQ2. This is because the Korean speakers' wider range of proficiency levels helps us explore the effect of different levels of proficiency on their spontaneous use of mimetics.

Table 1. Oral proficiency levels of participants

L2 Japanese proficiency (OPI Ratings)		L1 English speakers	L1 Korean speakers
Novice	High (NH)	–	1
Intermediate	Low (IL)	4	1 (1)
	Mid (IM)	5	7 (7)
	High (IH)	1	3 (2)
Advanced	Low (AL)	1	3 (1)
	Mid (AM)	2	4 (2)
	High (AH)	–	3
Superior	(S)	–	1

For a closer examination of gesture, we examined all 13 English speakers' and 13 Korean speakers' data. The 13 Korean speakers were randomly selected from those in the same proficiency range (therefore excluding Novice-High, Advanced-High and Superior speakers) as English speakers. Though the proficiency range is identical for both groups, Korean speakers at intermediate levels are more proficient than English speakers in terms of their sub-levels. Table 1 shows the participants' proficiency levels. The numbers in parentheses in the Korean speakers' column show the number of speakers chosen for gesture analyses.

The English speakers had studied Japanese from 1 to 10 years (average of 4.5 years) and the Korean speakers from 9 months to 10 years (average of 4.9 years). One of the English speakers spent 1 year studying in Japan and another spent 2 years working there. Four of the Korean speakers spent 6-8 months in Japan, two

8. LTI has sent the OPI data to other certified testers and the ratings agreed were deemed official ratings.

spent 1 year, and three spent 3 years there (mostly to study the language while also working). The rest of the participants had only travelled to Japan for a short period. English speakers spent an average of 13 months in Japan, while Korean speakers spent an average of 11 months there. All the Korean students had studied English as a foreign language, and the average length of study was 9.3 years.

4.2 Stimuli

The participants were shown 4 video clips and asked to provide narration without any time limit. Two clips, 41 seconds each, were extracted and edited from the Canary Row cartoon (also known as Loony Tunes), which is often utilized in gesture research (e.g., Kita and Özyürek 2003). In Clip 1, Sylvester the cat climbs up the inside of a drainpipe to catch Tweety-bird (who is looking out of a window above), but Tweety throws a bowling ball down the pipe that Sylvester swallows, causing him to slide down and exit the pipe. He then rolls down a slope and enters a bowling alley, striking the bowling pins. Clip 2 contains two short episodes. In one, Sylvester stands on one end of a seesaw and throws a heavy weight onto the other end, allowing him to shoot into the air and catch Tweety. The weight, however, falls on him and he is crushed. In the other episode, Sylvester plans to catch Tweety by swinging by rope from one building to another, but instead he crashes into a wall. Both clips have sound-emitting sub-events that potentially elicit phonomimes (e.g., hitting bowling pins, flying up in the air, and crashing into a wall).

The other two clips were 10-second videos of disaster scenes (a hurricane and an earthquake), edited from YouTube video clips. In the hurricane video (Clip 3), strong winds are blowing, with a palm tree being battered and debris flying. In the earthquake video (Clip 4), an office is shown, with desks and shelves moving, objects falling and pieces of papers flying around. Sound-emitting sub-events included the sound of wind and objects moving and falling down.⁹

4.3 Data collection procedure

Korean speakers' data were collected at two universities in Seoul, and English speakers' data were collected at a university in London. After the OPI was conducted, the participants watched the 4 short video clips shown on a computer screen with ear phones and then narrated what they saw in Japanese to a native-speaker

9. If the participants took the protagonists' perspectives, some of the sub-events could have elicited psychomimes to express their emotions, but no psychomimes were used.

interlocutor, a female Japanese speaker in her mid-20s, who had not seen the video clips.¹⁰ The participants were instructed to relate the events to the interlocutor. They each described all video clips in one of four counter-balanced orders. The interlocutor asked clarification questions if the descriptions were too brief. Many speakers were given this opportunity to elaborate, regardless of their L1. In the analysis, the initial description is distinguished from subsequent elaboration. The participants' narratives were all video-recorded.

4.4 Method of analysis

For the analysis, all the narratives were transcribed and each use of mimetics was identified and categorized into phonomimes, phenomimes, or mimetics that appear to refer to both sound and manner (or ambiguously either). Examples (7a)–(7b) below illustrate instances of mimetics that ambiguously refer to both or either.

- (7) a. *nekosan no atama ni batyaaN to* (L1 English, AM, Clip 2)
 cat GEN head LOC MIM QUOT
 '(The weight fell and hit) the cat's head with the sound/manner of batyaaN'
- b. *kabe to buu to si-te* (L1 Korean, IM, Clip 2)
 wall with MIM QUOT do-GER
 '(Sylvester) crashed into a wall with the noise of buu'

In (7a) the speaker was unable to use an adequate verb (e.g., *atar-u* 'hit'), and instead continued, *tootyaku zya nakute, sonna kanzi desu ne* 'not arrival, but it's like that'.¹¹ In essence, he referred to (the sound/manner of) a hitting action by the use of mimetics (with a gesture). In (7b) the speaker used the sound of crashing to refer to the action of crashing. The two authors, both native speakers of Japanese, independently classified the types of mimetics; the interrater reliability was 95.1%. Where the initial classification of mimetics differed, the raters discussed the relevant token to reach agreement. Frequency of mimetic use was tallied considering both type and token frequency. For instance, if a given mimetic was used 3 times by the same speaker, it was tallied 3 times for token frequency but only once for type frequency.

10. The interlocutor was present in the room when the participant watched the video clips, but she could not see the computer screen or hear the sounds.

11. An English expression '(it) landed on his head' might have led him to retrieve the expression *tootyaku* 'arrive'.

To analyze the production of gesture, we first identified gestures whose nucleus (i.e., stroke alone or with stroke-hold) overlapped with the production of mimetics. While Son (2010) only included gestures different from the gestures that occurred right before and after the target gesture, we did not adopt such restrictions. This is because speakers often produce similar gestures before or after the target gestures, as shown in Dingemanse and Akita (2017).

Similar utterances including mimetics or verbs from the four target events (Clips 1 to 4) were selected and coded using ELAN (an annotation tool). The proportions of mimetics and of verbs accompanied by iconic gesture strokes were computed following Kita's (1997) analysis. Patterns of co-occurrence with mimetic expressions were also examined. The two authors independently coded the presence/absence of gesture accompaniment for mimetics and verbs. The inter-rater reliability for mimetics was 100% and 93.8% for L1 English and L1 Korean groups, respectively, while for verbs, it was 86.24% and 89.1% respectively. The instances of differences between the two raters were discussed to reach agreement.

5. Use of mimetics

5.1 RQ1: When speaking Japanese as L2, how often do L1 English and L1 Korean speakers use mimetics?

The 13 English speakers used a total of 52 tokens and 36 types of mimetics, with a mean of 4.0 tokens and 2.8 types respectively. Excluding 1 Korean participant's data,¹² the 17 Korean speakers of the same proficiency range as English speakers used a total of 84 tokens and 30 types, with a mean of 4.9 tokens and 1.7 types, respectively. Thus Korean speakers used fewer types than English speakers but more tokens, indicating that Korean speakers tended to use a smaller number of mimetics repeatedly across participants.

Among Korean speakers, the most often used mimetic was *zuQ to* and lengthened *zuuQ to* 'continuously, all the way'. This mimetic accounted for 21 tokens (by 8 speakers), followed by *guruguru* 'rotating/spinning' with 12 tokens (by 6 speakers), *gorogoro* 'rolling' with 7 tokens (4 speakers), *doNdoN* 'rapidly, briskly' with 7 tokens (3 speakers), and *metyakutya* 'messy' with 6 tokens (4 speakers). Among English speakers, only *zaazaa* 'heavy rain fall' (2 tokens) was used by 2 different speakers,

12. Data from one of the Korean participants were excluded because, of the 29 tokens of mimetics used, 26 were instances of the same mimetic *paaQ*, which may cause possible skewing effects. No other L1 English or L1 Korean participants relied on use of one mimetic to a similar extent.

and all other mimetics used multiple times (5 tokens of *zuQ to*, 4 tokens of *doonN*, 4 tokens of *pikapika*, 3 tokens of *doonN*) were each produced by a single speaker.

If we consider only initial descriptions before any subsequent elaboration, the mean token frequency is much higher among Korean speakers (3.5) than English speakers (1.9), suggesting that Korean speakers were inclined to use mimetics without requests for clarification. Table 2 shows the token frequencies of English and Korean speakers' mimetics in their initial descriptions and elaborations.

Table 2. Token means of English and Korean speakers' use of Japanese mimetics

		Phonomimes	Phenomimes	Both	Total	Means
L1 English (N = 13)	Initial	8	13	4	25	1.9
	Elaboration	11	10	6	27	2.1
	Total	19	23	10	52	4.0
L1 Korean (N = 17)	Initial	2	49	8	59	3.5
	Elaboration	0	23	2	25	1.4
	Total	2	72	10	84	4.9

Table 2 also reveals that Korean speakers produced fewer phonomimes (2.3%; 2/84) than phenomimes or 'both', while English speakers produced phonomimes (36.54%; 19/52) much more often than Korean speakers. As predicted, it was English speakers who willingly used phonomimes. The 2 tokens (2 types) of phonomimes by Korean speakers were produced by one Advanced-Mid speaker; they were *aaa* (cry of Tarzan) and *gotonN*. The 19 tokens (14 types) of English speakers' phonomimes were produced by 4 speakers. They included both innovative (*uuuu* (cry of Tarzan), *gagaga*) and conventional phonomimes (*zaazaa*, *doonN*, *baaN*).

5.2 RQ2: Is L2 use of mimetics related to Japanese proficiency?

RQ2 considers whether English and Korean speakers' frequencies of mimetic use was related to their Japanese proficiency in such a way that higher proficiency speakers used more mimetics. For this, we included the Korean speakers at the lowest and highest Japanese proficiency levels.

To answer this question, we computed the token and type means for each proficiency level in each L1 group, though the number of participants of some sub-levels is very small and the frequency of mimetic use for each level is not representative. Nevertheless, we opted for this presentation showing each sublevel rather than collapsing the participants for major categories in order to explore potential patterns. Figures 1 and 2 illustrate the frequencies of mimetic usage by proficiency levels among English and Korean speakers.

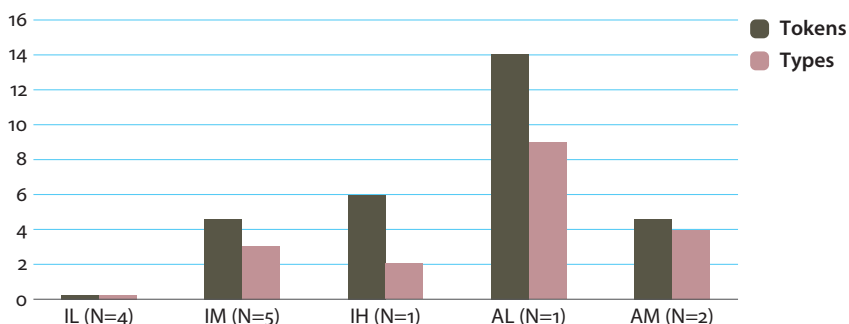


Figure 1. L1 English speakers' Japanese oral proficiency and use of mimetics

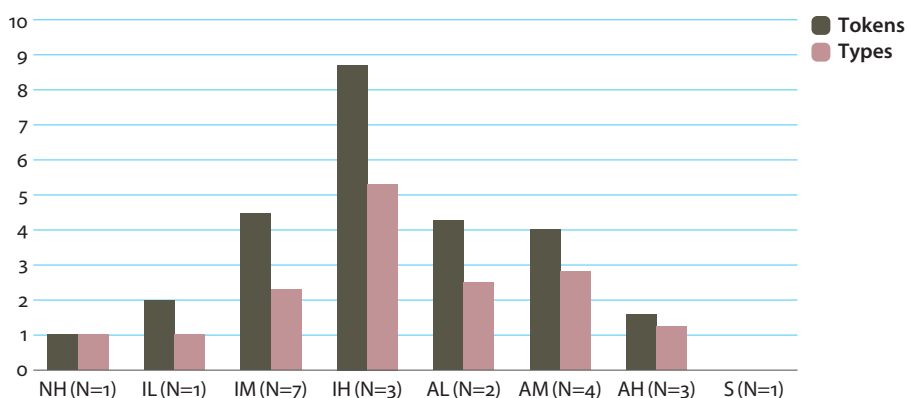


Figure 2. L1 Korean speakers' Japanese oral proficiency and use of mimetics

First, it is evident that beginners (Novice-High or Intermediate-Low) rarely used mimetics, confirming earlier reports (e.g., Iwasaki 2017a; Yoshioka 2017). However, importantly, it is also clear that higher proficiency did not necessarily lead to more frequent use of mimetics.

The relation between English speakers' use of phonomimes and their proficiency levels may shed further light on the reason why they use more phonomimes than Korean speakers. If English speakers' acquisition of mimetics in Japanese follows the sequence of phonomimes before phenomimes, similar to L1 Japanese children's acquisition patterns, then we expect lower proficiency English speakers to use more phonomimes.

Of the 4 lowest proficiency speakers (Intermediate-Low), one speaker (E01) used one mimetic, as seen in (8), which was classified as 'both' for the same reason as Example (7b) above.

- (8) *Utigawa no kabe o dun...* (E01 L1 English IL, Clip 2)
 inside GEN wall ACC MIM
 'Onto the wall, thud ...'

This speaker used an innovative word *duN* (or possibly an English word or sound effect) by which she appeared to be referring to the crash. None of the other Intermediate-Low speakers used mimetics.

The speakers who were Intermediate-Mid or above, shown in Table 3, used both phonomimes and phenomimes, and there is no apparent preference based on their proficiency. Table 4 shows the mimetics used.

Table 3. Types of mimetics used by L1 English speakers and Japanese proficiency

ID	Level	Tokens	Types	Phonomimes	Phenomimes	Both
E02	IM	2	1	2		
E04	IM	0	0			
E09	IM	9	6	2	4	3
E10	IM	6	6	4		2
E11	IM	5	3	4		1
E06	IH	6	2		6	
E03	AL	14	9	3	11	
E05	AM	7	6	2	2	3
E13	AM	2	2	2		

Table 4. Phonomimes used by L1 English speakers and Japanese proficiency

ID	Level	Phonomimes	Phenomimes used
E02	IM	2	<i>paN</i> (or <i>pang</i>), <i>zaazaa</i>
E04	IM		
E09	IM	2	<i>pooN</i> , <i>boN</i>
E10	IM	4	<i>tikuuN</i> , <i>gagagaga</i> , <i>uuuu</i> , <i>biNbiN</i>
E11	IM	4	<i>huu</i> , <i>zaazaa</i> , <i>baaN</i> , <i>baN</i>
E06	IH		
E03	AL	3	<i>dooN</i> (3 tokens)
E05	AM	2	<i>batyaaN</i> , <i>haaaa</i>
E13	AM	2	<i>paaN</i> , <i>hyuu</i>

Beginners like E01 may utilize phonomimes as a strategy to refer to sound-emitting actions when they lack knowledge of target verbs. It appears that Intermediate or Advanced speakers at times continue to use this strategy with the use of innovative mimetics (e.g., *gagagaga*, *huu*) to some extent. At the same time they also use more conventional phonomimes (e.g., *zaazaa* referring to the sound of rain, and *dooN* referring to crashing) as well as phenomimes. Notably, their phonomimes are

mostly what Hamano (1998) regard as highly iconic mimetics based on CV-roots, except for two tokens of CVCV-root mimetics *batyaaN* and *tikuuN* (though use of the latter to refer to sound is unconventional.)

5.3 Discussion on the use of mimetics

With regard to RQ1 (how often English and Korean speakers use mimetics when speaking Japanese as L2), the results were not straightforward. When we consider overall token frequency, Korean speakers used somewhat more tokens ($M = 4.9$) than English speakers ($M = 4.0$). In particular, they used more tokens ($M = 3.5$) for initial descriptions than English speakers ($M = 1.9$), suggesting that Korean speakers are inclined to use mimetics from the outset.

However, Korean speakers used fewer types ($M = 1.7$) than English speakers ($M = 2.8$). They used a smaller number of Japanese mimetics multiple times (e.g., 21 tokens of *zuQ to* by 8 speakers, 12 tokens of *guruguru* ‘spinning’ by 6 speakers). It appears that possessing similar mimetics in their L1 have led them to use the specific L2 items similar to their L1 counterparts. The Japanese mimetic *zuQ to* resembles the Korean *ccwuk* ‘straight, all the way’ and Japanese *guruguru* resembles the Korean *teykwulteykwul* ‘rolling, rumbling’ in their form and meaning. The initial consonants of *zuQ* and *ccwuk* are both affricates followed by the similar vowel /u/¹³ and *guruguru* and *teykwulteykwul* are both reduplicates containing a velar stop¹⁴ followed by the vowel /u/ and the liquid /r/, /l/. The current results suggest that it is not the fact that Korean has a large inventory of mimetics but rather the inventory of similar mimetic entries that may have led to the use of these mimetics.

Hence, a large dictionary inventory of mimetics in L1 did not necessarily lead Korean speakers to use more Japanese mimetics. In fact, Abe (2011) found that having a large inventory does not lead Korean speakers to use many mimetics in their L1 either. Abe gave a questionnaire to L1 Japanese speakers and L1 Korean speakers and asked them to provide as many mimetics and adverbs in their L1 as possible for 9 verbs. She found that Japanese speakers supplied more mimetics than Korean speakers, who tended to supply non-mimetic adverbs.¹⁵

13. Precisely speaking, the Japanese vowel is /u/ without lip rounding, while Korean /u/ involves lip rounding.

14. The Korean plain /k/ becomes voiced between voiced segments; hence, /k/ sounds like [g] in this word.

15. The different formats of the questionnaire for Japanese and Korean speakers may have induced more mimetics from Japanese speakers (as pointed out by Kimi Akita, personal communication). In the Japanese version, the quotative particle *-to* is provided in parentheses (e.g., (*to*))

In terms of the use of phonomimes, one of the 4 English speakers with lower proficiency (Intermediate-Low) used the phonomime *duN* 'thump', shown in (4) above, and a Korean Intermediate-Mid speaker used *buu-to site* 'doing "buu"' in (3b), which we classified as 'both', referring to the sound and the manner in which the sound was emitted. An intermediate Korean speaker grammatically integrated the mimetic into the sentence by making it a verb, with the addition of the light verb *suru* in its gerund *-te* form. Korean phonomimes are often used with such light verbs as *-kelita*, but it is premature to suggest that Korean speakers' use of mimetics with *suru* is due to L1 influence. Such use is also observed among L1 Japanese children, as discussed below. In other words, these speakers used phonomimes not just to refer to the sound, but also to refer to the action causing the sound. They appeared to be compensating for a lack of vocabulary, specifically the Japanese manner verb(s) referring to crashing (e.g., *butukaru*, *ataru*, *syoototu-suru*). Indeed, Choi and Lantolf (2008), who examined English-Korean bilinguals' description of motion events, found that even highly proficient L2 Korean speakers had difficulty producing the Korean manner verb *kwuluta* 'roll'. Imitative phonomimes may thus serve as a compensatory tool among adult L2 learners of Japanese in such cases.

L1 Japanese children are also known to use mimetic verbs in similar ways. Tsujimura (2005b) reports uses of mimetic verbs produced by Sumihare¹⁶ at the age of 1;9 (1 year and 9 months) and 1;10 such as (9a-b) below (Tsujimura 2005b: 376). (The method of Romanization is adjusted to make it consistent with the method in the current chapter, and glosses are added).

- (9) a. *paaN-sita* [1;9]
 MIM-do.PST
 'I broke it' (He hit a bottle against concrete and broke it)
- b. *tooN-sita* [1;10]
 MIM-do.PST
 'I hit (my head)' (after hitting his head against a corner of a box)

While there are only a small number of instances in the L2 data, a similar mechanism for using phonomimes to compensate for a lack of knowledge of verbs for sound-emitting events appears to operate across L1 and L2 learners of different L1 backgrounds.

warau 'laugh'), which implicitly invites the use of mimetics, but in the Korean version, only verbs are provided (e.g., *wusta* 'laugh'). Furthermore, while the Japanese dictionary form is identical to the informal speech style, the Korean dictionary form, used in the questionnaire, cannot be used in speaking/writing. The latter may not readily elicit the actual use of language.

16. The longitudinal records of his utterances are available in Noji (1973–1977).

Beyond the beginner levels, English speakers use both phonomimes and phenomimes to describe sound-emitting events, while Korean speakers appear to disfavor the use of phonomimes. This can be attributed either to the availability and salience of mimetics in different semantic domains in the L2 Japanese speakers' L1s or to differential sociolinguistic constraints (or perceptions thereof) related to semantic types of mimetics and to context. Further research is necessary to understand the use, rather than just inventories, of mimetics in different semantic and pragmatic domains.

Regarding RQ2, more proficient speakers did not necessarily use more mimetics. In fact, highly proficient speakers in both groups used fewer mimetics. Variables other than proficiency appear to play a role in the preference for mimetics. This lack of relation to proficiency distinguishes mimetics from ordinary words. Instead, mimetics may be similar to emotion words and colloquial expressions, whose use by L2 speakers depends on variables such as personality (e.g., extroversion) (Dewaele and Pavlenko 2002). Baba (2003) in fact showed that frequency of mimetics use correlates with emotional intensity involved in role-plays among L1 Japanese speakers.

What is particularly noteworthy is the fact that Korean speakers with the highest proficiency in Japanese (AH and S levels) rarely or never used mimetics. This may be due to prior knowledge regarding the subtlety of mimetic usage in Korean. Korean speakers may be aware of the sociolinguistic constraints (e.g., formal vs. informal) imposed on their use, affecting their judgment as to when Japanese mimetics are appropriate. It is possible that the contexts in which Korean speakers use mimetics may be more constrained than is the case for Japanese.

6. Co-production of mimetics and gesture

6.1 RQ3: When speaking Japanese as L2, how often do L1 English and L1 Korean speakers produce gestures accompanying mimetics?

For RQ3, we analyzed descriptions by 26 participants (13 English and 13 Korean speakers). Table 5 shows the proportion of gesture strokes accompanying mimetics and the accompanying verb phrases. Figure 3 illustrates the participants' use of gesture compared to L1 Japanese speakers' proportions reported by Kita (1997).

Table 5. Proportions of gesture accompaniment for verbs and mimetics

	Gesture accompaniment in L2 Japanese	
	with mimetics	with verbs
L1 English speakers	94.2% (49/52)	65.9% (114/173)
L1 Korean speakers	75.0% (54/72)	58.9% (73/124)

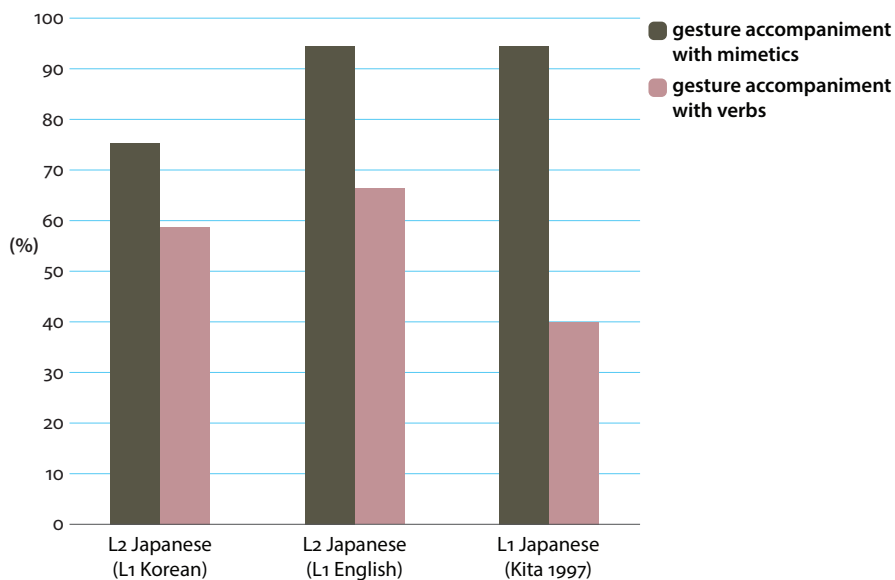


Figure 3. Proportions of gesture accompaniment with verbs and with mimetics

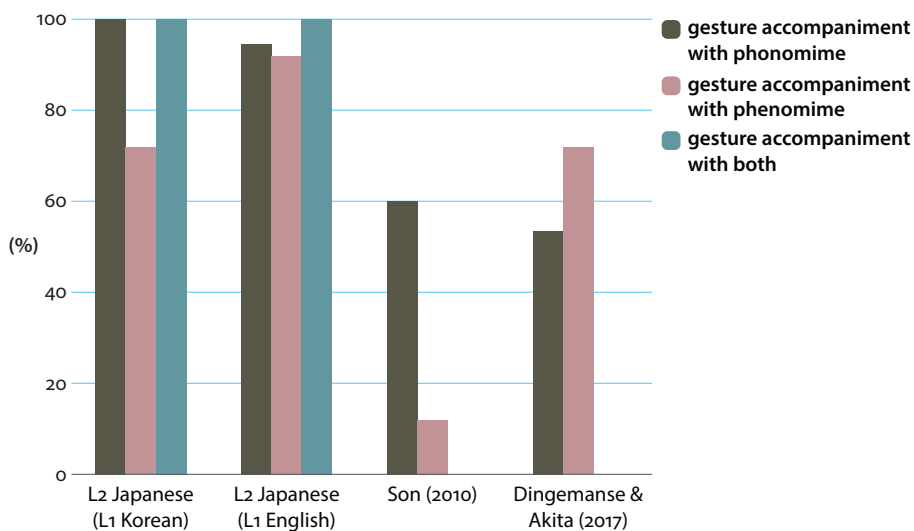


Figure 4. Proportions of gesture accompaniment with phonomime, phenomime and 'both', in comparison to Son (2010) and Dingemans and Akita (2017)

As shown in Figure 3, mimetics and gestures co-occurred in L2 frequently – both among English speakers (94.2% of the time) and Korean speakers (75.0%). In line with Kita (1997), the rate of co-occurrence is higher than the gestural accompaniment for verbs in both language groups. Chi-square tests computed for utterances containing mimetics or verbs show significant differences in both L1 groups ($\chi^2(1, N = 223) = 19.30, p < .01$; $\chi^2(1, N = 234) = 16.6, p < .01$). This suggests a tight coupling between mimetics and gesture in the L2 as well. Interestingly, Korean speakers produce gestures accompanying mimetics at a lower rate than the L1 Japanese speakers in Kita's study (1997).

Table 6 shows the same data according to the types of mimetics, namely, phonomimes, phenomimes or both as compared to the results from the previous two studies by Son (2010) and Dingemanse and Akita (2017).

Table 6. Proportions of gesture accompaniment by types of mimetics

	Gesture accompaniment in L2 Japanese		
	Phonomime	Phenomime	Both
L1 English speakers	94.2% (18/19)	91.3% (21/23)	100% (10/10)
L1 Korean speakers	100% (2/2)	71.4% (45/63)	100% (7/7)

Set against the previous studies of L1 Japanese speakers, the L2 data show higher rates of gesture accompaniment for both phonomimes and phenomimes. In the two groups, the mimetics classified as 'both' were always accompanied by iconic gestures, and gestural accompaniment is higher for phonomimes than for phenomimes (although the difference is small for the English group, and the Korean group only had two data points). Furthermore, phenomimes were accompanied by gestures at a much higher rate among English speakers.

6.2 RQ4: Is L2 Japanese speakers' co-production of mimetics and gesture related to their Japanese proficiency?

The co-occurrence of mimetics and gestures was classified according to the three synchronization patterns discussed in Section 2.4.2. Tables 7 and 8 below show the distribution of three synchronization patterns among English and Korean speakers. To reiterate, in Type 1, the gesture stroke accompanies only the mimetic stem. In Type 2, the gesture stroke accompanies the entire mimetic expression including elements such as *suru* 'do', or *ni naru* 'become'. In Type 3, the gesture stroke accompanies the mimetic with a following hold. The post-stroke hold may overlap with a single grammatical element such as a quotative *to* or the rest of the entire clause. The percentage of the total number of gestures is shown in parentheses.

Table 7. L1 English speakers' patterns of gesture accompaniment in L2 Japanese

Level	Tokens of gesture accompaniment	TYPE 1	TYPE 2	TYPE 3
IL (N = 4)	1 (1)	1 (100%)	0	0
IM (N = 5)	22 (22)	16 (72.7%)	3 (13.6%)	3 (13.6%)
IH (N = 1)	6 (6)	4 (66.7%)	1 (16.7%)	1 (16.7%)
AL (N = 1)	13 (13)	3 (23.1%)	9 (69.2%)	1 (8.3)
AM (N = 2)	7 (9)	2 (28.6%)	2 (28.6%)	3 (42.9%)
Total	49 (52)	26 (53.1%)	15 (30.6%)	8 (16.3%)

Table 8. L1 Korean speakers' patterns of gesture accompaniment in L2 Japanese

Level	Tokens of gesture accompaniment	TYPE 1	TYPE 2	TYPE 3
IL (N = 1)	1 (2)	1 (100%)	0	0
IM (N = 7)	21 (32)	10 (47.6%)	8 (38.1%)	3 (14.3%)
IH (N = 2)	18 (20)	7 (36.8%)	5 (26.3%)	6 (31.6%)
AL (N = 1)	2 (3)	1 (50.0%)	1 (50.0%)	0
AM (N = 2)	12 (15)	2 (16.7%)	5 (41.7%)	5 (41.7%)
Total	54 (72)	21 (38.9%)	19 (35.2%)	14 (25.9%)

The gestures of the two lowest proficiency speakers in both groups (IL), exhibited Type 1 synchronization. This tendency for Type 1 was also observed among Intermediate-Mid speakers of the L1 English group but not among the L1 Korean group. In contrast, gestures by Intermediate-Mid to Advanced-Low Korean speakers are rather equally distributed across the three types. Type 3 mimetic-gesture coupling was mostly observed among Advanced-Mid speakers in both groups. Thus, while both Intermediate and Advanced level speakers produced gestures accompanying mimetics, the influence of proficiency seems to be reflected in the patterns of mimetic-gesture synchronization patterns.

6.3 Discussion on mimetic-gesture co-production

With regard to RQ3, the results revealed that regardless of their L1, the L2 Japanese speakers in the present study produced gestures accompanying mimetics at higher rates than those accompanying verbs, although the tendency was more marked for the English speakers. In addition, it was found that phonomimes were accompanied by gesture at higher rates than phonomimes in both L1 groups (albeit with a small number of phonomimes among Korean speakers).

The difference in the rate of gestural accompaniment for mimetics and verbs in the L2 data illuminates a number of important aspects of L2 gesture. First, the results suggest that not all L2 gestures are motivated by the same reason. While some

L2 gestures are produced to compensate for problems in speech (e.g., Gullberg 1998; Kim and Ahn 2011), the current results show that L2 Japanese speakers' gestures accompanying mimetics are probably not produced for compensatory purposes to 'replace' target words; rather, they 'complement' the meaning expressed by mimetics (cf. Yoshioka and Kellerman 2006, Brown 2015, Stam 2015 for the complementary aspect of L2 gesture).

In fact, gestures accompanying mimetics provide the contextual support for the often innovative L2 mimetics by demonstrating the event visually. By doing so, gestures strengthen the expressive meaning carried by the mimetics (See also Nuckolls, this volume). As discussed above, the imitative phonomimes may serve as a tool for L2 Japanese speakers when they lack knowledge of adequate vocabulary. However, the meaning of an imitative phonomime such as *duN* 'thump' in (8) is not clear on its own, especially when the mimetic appears to serve as a verb. Yet the accompanying gesture, where the right hand with an open palm moves towards the speaker's face as if the hand hits the face, provides the contextual clue for the interpretation that *dun* is a sound emitted when the main character hits the wall head on. Gestures accompanying verbs also complemented the meanings. This seemed to be particularly the case when English speakers resorted to generic path verbs (*iku* 'go') or motion verbs (*ugoku* 'move'), when they might have preferred to use manner verbs. This may at least partly explain why L2 speakers' show higher rate of gestures accompanying verbs than the L1 Japanese speakers reported by Kita (1997).

The higher rate of gestural accompaniment for mimetics as compared to verbs may be best explained as follows: as in the case with L1 Japanese speakers, mimetics in L2 may be linked to a mode of representation that is different from that for ordinary words. Recall that this mode has been termed 'affecto-imagistic' (Kita 1997), or 'depiction' (Dingemanse and Akita 2017). According to this view, using language basically involves two modes of communication; one that is analytical and arbitrary, best represented by the use of ordinary words, while the other is iconic and imagistic, best represented by mimetics and gesture. The strong mimetic-gesture coupling observed in the L2 data suggests that these two modes of communication are at work in the L2. The challenge for L2 speakers is learning to manipulate these two modes of communication in speech production processes where the information needs to be mapped linearly onto the target language within the relevant grammatical constraints, and simultaneously onto gesture. Obviously, this requires demanding processing. For this reason, we believe that the production of mimetics only begins when an L2 speaker's proficiency reaches a certain level, and that mimetic-gesture synchronization patterns reflect the speakers' L2 proficiency level.

One observation made about the rate of co-occurrence of mimetics and gesture was that it was higher for English speakers than Korean speakers. This may

be partially due to the types of mimetics used by Korean speakers. For instance, the phenomime, *metyakutya* 'messy', used 7 times by Korean speakers (but never by English speakers), was never accompanied by gesture. This mimetic is also a nominal-adjective mimetic, which likely involves both the analytical dimension and the affecto-imagistic dimension when tested by the logical negation test suggested by Kita (1997) (see also Baba 2003: 1869). Given that iconic gestures mostly express size, speed and physical relations (Hollar and Beattie 2003), this mimetic may not be suited to gestural accompaniment. It is also possible that the Korean speakers in the current study grammatically integrated mimetics more than English speakers, as found in Iwasaki (2017b); this may have reduced the use of gesture (Dingemans and Akita 2017). One other possible reason is the way L1 Korean speakers generally use Korean mimetics and gesture, but without the relevant L1 Korean baseline data, we cannot draw any conclusions on this point.

The trend of higher gestural accompaniment for phonomimes than phenomimes is in accordance with Son's (2010) study of L1 Japanese speakers. Son explains this finding by using the notion of 'mimeticity' referred to earlier (Tamori and Schourup 1999). The degree of 'mimeticity' may affect gesture accompaniment in L2 as well. However, most of the mimetics used by Korean speakers were phenomimes, including more uses of nominal mimetics mentioned above.¹⁷

Regarding RQ4 on mimetic-gesture synchronization patterns, the results show that when the speaker begins to produce mimetics at Intermediate proficiency levels, the co-occurrence of mimetics and gesture is characterized by the relatively high frequency of Type 1 synchronization, where the gesture temporally and semantically synchronizes only with the mimetic stem. Many of these mimetics were used as if they were verbs, as seen in (8). Similarly, Type 2 synchronization is often observed when the mimetic expression served as a main verb of the clause with the light verb *suru*, as in (5) above. Given that L2 mimetics at a lower proficiency level usually serve as predicates rather than adverbials (Iwasaki 2017a), the data seem to suggest that, at this level, the mimetics (mimetic stem or mimetic verb) are accompanied only by the gesture stroke. In other words, Types 1 and 2 are the dominant mimetic-gesture synchronization patterns. In contrast, when a L2 Japanese speaker with advanced proficiency uses mimetics as adverbs, the mimetic-gesture synchronization patterns seem to change. Gesture is more integrated into the morphosyntactic element or the rest of the clause with the use of post-stroke holds.

17. Dingemans and Akita (2017) found the phenomime was accompanied by iconic gestures more often than phonomimes (personal communication). At the moment, we do not have a satisfactory explanation for the discrepancy between their and our findings, except for the difference in topic and the data type (interview).

Though such morphosyntactic integration led to fewer mimetic-gesture co-occurrences in Dingemanse and Akita's (2017) study, co-occurrence was observed in the L2 Japanese speakers' narratives in the current study. This suggests that at the advanced level, when they do produce gestures, the L2 speakers can better manipulate the two modes of representations, where a single image or idea is expressed by a complex combination of the analytical and descriptive manner and the iconic and depictive manner.

7. General discussion and conclusion

The current study examined L2 Japanese speakers' use of two types of mimetics (phonomimes and phenomimes) and iconic co-speech gestures accompanying mimetics in relation to the L2 speakers' L1 and their levels of L2 proficiency. On the one hand, English does not have a large inventory of sound-symbolic words that are equivalents of Japanese mimetics. The most recognized are sound-mimicking onomatopoeia, and English sound-symbolic words are usually used as verbs (or sometimes as nouns, but rarely as adverbs), as distinct from Japanese mimetics, which are commonly used as adverbs. On the other hand, Korean is reported to have more mimetics than Japanese, especially phenomimes. They are usually used as adverbs, as in Japanese.

We entertained the possibility that similarity in structure and lexicalization patterns (Talmy 2000) between Japanese and Korean mimetics may allow Korean speakers to use more L2 Japanese mimetics than English speakers, on the basis of the 'thinking-for-speaking' hypothesis (see also Iwasaki 2017b), but Korean speakers in the current study did not necessarily use more mimetics than English speakers, except for some mimetics that are similar to Korean equivalents (e.g., *guruguru/gorogoro* and *zuQ to* that resemble their Korean counterparts *teykwulteykwul* 'rolling, rumbling' and *ccwuk* 'all the way'). When Iwasaki (2017b) showed a related finding based on a subset of the current data (a few selected motion event descriptions), she speculated that the 'rolling' event prompted frequent use of mimetics *guruguru/gorogoro* among Korean speakers (and English speakers to a certain extent) possibly because it is a manner-salient event. However, in the current study, Korean speakers' frequent use of *zuQ to* is not directly related to manner-saliency. This implies that the presence of L1 items similar in form and meaning plays an important role, resulting in more item-based L1 influence than system-wide phenomena. Item-based L1-L2 similarity in form and meaning appears to be a robust factor in how L2 Japanese speakers learn and use individual mimetic words, as is the case with the L2 acquisition of non-mimetic words, for which cognateness is greatly facilitative (e.g., de Groot and Keijzer 2000).

Yet, category-based L1 influence is also observed. For instance, despite the fact that participants narrated sound-emitting events, only English speakers willingly used phonomimes. It is plausible that, for English speakers, the representative mimetics are phonomimes because their L1 has a well-recognized inventory of onomatopoeia. Furthermore, it is also possible that their L1 onomatopoeia are more 'onomatopoeic' than Korean phonomimes (Akita 2013), which may have made English speakers more familiar with the use of phonomimes than Korean speakers. Korean has a substantial inventory of phonomimes but has a much richer inventory of mimetics. Korean speakers' preference for using phonomimes may be due to the predominance of phonomimes in their L1.

The fact the Korean speakers who are most proficient in Japanese rarely or never used mimetics suggests another potential variable affecting mimetics use. This variable is possibly linked to sociocultural factors, which may have interacted with the L1 influence discussed above. Having a rich repertoire of mimetics in L1, Korean speakers may be keenly aware of when to and when not to use mimetics and which mimetics to use in Korean. For instance, they may limit their use of phonomimes to highly informal, intimate contexts. L2 Japanese speakers with L1 Korean might have either adopted the Korean norm or avoided the use of Japanese mimetics, being uncertain of the Japanese norm. However, we do not know enough about how native speakers of English or Korean use their L1 mimetics in various sociocultural contexts, and which mimetics they prefer to use in each context. For that matter, we may not know enough about L1 Japanese speakers' use of mimetics, either. More investigations like Baba's (2003), who examined the use of mimetics in role-plays in different contexts, would be needed to deepen our understanding of when and what types of mimetics L1 Japanese speakers use. Baba found that subjectivity (reporting one's direct experience) and involvement (having the audience) significantly affected the frequency of mimetics. L1 and L2 speakers' attitudes towards mimetics may also affect their use. More research on how mimetics are used in L2 speakers' L1s is also needed to advance our understanding of L1 influence on the use of L2 mimetics.

The current study further examined L2 Japanese speakers' mimetic-gesture co-production based on the proposal that mimetics and gesture share the same mode of representation (Kita 1997; Dingemanse and Akita 2017). We enlarged on previous studies by considering different types of mimetics varying in their degree of iconicity (phonomimes and phenomimes), along with the three types of mimetic-gesture synchronization patterns. We found that phonomimes were always accompanied by gesture and that the use of mimetics and the production of gesture are as tightly integrated in L2 as in L1. This supports the idea that the dichotomy of representations, variously called 'analytical' vs. 'affecto-imagistic' (Kita 1997) or 'description' vs. 'depiction' (Dingemanse and Akita 2017), is also likely to be

applicable to the L2 situation. However, as discussed above, L2-specific characteristics such as L2 proficiency and L1 may affect how L2 speakers utilize these two modes in language use.

With respect to the influence of proficiency on mimetic-gesture co-production, the results show that L2 Japanese speakers' mimetic-gesture synchronization patterns differed according to L2 proficiency. While speakers with lower proficiency showed Type 1 patterns, more advanced speakers showed Type 2 and 3 patterns. However, in order to understand the relationship between the synchronization patterns and L2 Japanese proficiency, the analysis of morphosyntactic integration in utterances may be necessary. This is because Type 2 and 3 synchronization patterns require some morphosyntactic integration of mimetics. If intermediate speakers have not integrated mimetics using grammatical elements, then there are fewer opportunities for Types 2 and 3 patterns to occur. Moreover, Iwasaki (2017b) reported that Korean speakers' motion event descriptions in L2 Japanese showed more grammatical integration than English speakers'. If Korean speakers' use of mimetics is generally more grammatically integrated than English speakers', then there are more opportunities for Type 2 and 3 patterns to occur. At the same time, if morphosyntactic integration reduces co-production of mimetics and gesture, as suggested by Dingemanse and Akita (2017), Korean speakers' higher grammatical integration may partially account for their less frequent mimetic-gesture co-production.

While the current study investigated the temporal synchronization between mimetics and gestures, focusing specifically on two gesture phases ('stroke' and 'post-stroke hold'), it is worth noting that some qualitative differences in gesture were also observed between the gestures accompanying mimetics and those accompanying verbs; those accompanying the former were more iconic in that they were more clearly articulated, for instance, in terms of size and movement, and the use of extended fingers and open palm. One such indicator was the ratio for the interrater reliability for the judgment of gesture occurrence accompanying mimetics and verbs. The rate of interrater reliability for coding presence/absence of iconic gestures was higher for mimetics (100% and 93.8% for L1 English and L1 Korean groups, respectively) than those accompanying verbs (86.24% and 89.1%), as reported in Section 4.4. The gestures accompanying mimetics were easily identifiable in comparison to those accompanying verbs which were more ambiguous. The strong coupling between mimetics and gestures in L1 and L2 in both temporal and semantic aspects appears to be a consequence of the universal characteristics of mimetics, namely, iconicity/mimeticity. However, in order to fully understand the nature of mimetic-gesture co-production, further investigation is necessary with an added focus on the qualitative aspects of gesture.

The point of the departure for the current study was the seemingly puzzling situation concerning the reported difficulties in learning and using mimetics in

L2, despite the generally agreed iconic form-meaning relationship which facilitates learning among L1 Japanese children. Based on the results, we argue that three issues should be highlighted in relation to the apparent difficulties in the L2 acquisition of Japanese mimetics: the individual item-based form-meaning relation, socio-cultural constraints, and individuals' attitudes related to the use of mimetics.

As for the form-meaning mapping, the challenge for L2 speakers in learning to use mimetics is two-fold: One is to understand the sound symbolism (e.g., /m/ is associated with murkiness, Hamano 1998), while the other is to understand the subtle variation in the item-level form-meaning mapping (e.g., *mogomogo* vs. *mogumogu* both of which concern the manner of speaking indistinctively, Kakehi et al. 1996). The latter may be more challenging for any L2 speaker unless there is item-based L1-L2 similarity in form and meaning.

The second issue concerns socio-cultural norms, and the third concerns individual traits. Unlike non-mimetic words, when and to what extent the use of mimetics is appropriate, effective, or desirable may be extremely difficult to judge, and the norms possibly vary across different cultures. This pragmatically fuzzy usage may discourage some L2 speakers from actively using mimetics. In addition, some advanced L2 speakers may favor using mimetics for expressivity while others consciously avoid using mimetics, aware of the subtlety of mimetic usage and the sociolinguistic constraints imposed on that usage as mentioned above.

To conclude, using mimetics in L2 involves not only learning the mapping between the form and meaning, but also acquiring how to integrate mimetics structurally and multi-modally. In other words, L2 speakers need to manipulate the two modes of representation in a multi-modal language use. This dynamic of using mimetics in L2 cannot be captured by comprehension studies focusing on the understanding of the form-meaning relationship. Thus we argue that future studies should adopt approaches from both comprehension and production research to gain a fuller understanding of L2 Japanese speakers' use of mimetics.

Acknowledgements

We are extremely grateful to the editors of this volume, Kimi Akita and Prashant Pardeshi, for their dedicated work. The editors' and peer reviewers' thoughtful and constructive comments were also invaluable. We would also like to express our gratitude to Sotaro Kita and David Vinson for their input in the design of the data collection method, and to Deok-Jae Park and Yasunori Kozawa for their help in recruiting Korean participants. We are also thankful to The British Academy (SG-51954) for supporting the data collection, and to Meiji Jingu Japanese Studies Research grant 2013 for facilitating the collaborative work.

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Ideophones as a measure of multilingualism*

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The purpose of the pilot research described here was twofold. The first was to develop a measure for multilingualism, how to characterize what has come to be known in the literature as a linguistic repertoire in a rapid and economical manner. A linguistic repertoire is not a language but the resources and practices of a multilingual in a multilingual community. How this repertoire can be descriptively characterized is problematic. A first pass, as illustrated here, used knowledge of ideophones as the measure of language mastery just because ideophones are so language-specific and deeply embedded in the socio-cultural patterns of the language. The study was limited to one of the three vital languages in the research area but will eventually be extended to the others. The second purpose was to explore the interaction of multilingualism with the mastery of ideophones.

1. Introduction

Expressive language such as ideophones and mimetics has provided an important index of social and cultural features, forming boundaries which do not necessarily coincide with linguistic ones. On the continent of Africa, the widely used term for one such expressive word category is ‘ideophones’, which appear in every major phylum and in most families (Childs 1994a). They appear even in the continent’s pidgins and creoles (as well as urban varieties and slangs), thus representing a language *function* of some considerable areality (Childs 1994b). The one place they do not appear, however, is in the colonizing languages when the exoglossic languages have not been appropriated by local communities. When the European languages become every day varieties, however, ideophones are regularly used just as they would in the substrate or endoglossic varieties. In a complementary way, when African languages are used by urban elites eschewing their local ties, ideophones disappear (Childs 1997). Thus, ideophones form a crucial and even quintessential component of most African languages, one well worthy of investigation in multilingual contexts.

* Online appendixes available from <https://doi.org/10.1075/ill.16.13tuc.video>

As in many other African languages, ideophones are robustly attested in Mende, the focus language of this chapter: Mende has been documented as having some hundreds of ideophones (286 in Byrne 1993 but probably many more). Mende is a widely spoken and growing (shifted-to) language in Sierra Leone spilling over into Liberia (West Africa). Mende has supplanted a number of less widely spoken languages in historical times and has become the regional language of choice in most of southern Sierra Leone, a country of 6 million people where the Mende represent over a third of the population. Moreover, because the Mende are the most highly educated group in Sierra Leone (excluding the numerically smaller group, the Krio, descendants of repatriated slaves, a group in numerical decline), the language is also widely used in the major cities of Bo and Kenema (traditionally Mende-speaking areas) and Freetown, the capital city. Thus, Mende forms part of many multilingual repertoires in much of Sierra Leone, both rural and urban, including the Kagboro Chiefdom where this study was based. Mende and its ideophones provided data for the first test of the larger study.

1.1 Motivation for the study

The motivation for the study is largely descriptive and methodological, but the findings have implications for broader issues in linguistics and sociolinguistics and certainly for the study of ideophones. Multilingualism has now been recognized as the norm rather than as the exception throughout the world (Cook 2009; Aronin and Singleton 2012), and needs to be both adequately described and theorized. Because individual multilingualism is widespread in Africa, languages can be expected to permeate each other and intertwine (Bakker and Muysken 1995). With the recent strife and consequent refugee populations, e.g., the civil war in Sierra Leone (1991–2002), the multilingualism of turmoil can be expected to continue, but multilingualism is more basic and more long-standing than recent conflicts. Words, structures, and functions will be shared across language boundaries and have been shared in the past, e.g., Childs 2002a). In highly multilingual situations, languages may not be the relevant unit but rather ‘repertoires’ (e.g., Gumperz 1964; Baugh 2015) consisting of several languages with possible ‘convergence’ in certain parts of the lexicon and grammar (e.g., Gumperz and Wilson 1971; Mous 2003; Dimmendaal 2011). The challenges to description are considerable.

How to measure and evaluate multilingualism poses a significant problem, particularly in a West African field situation involving considerable logistical challenges. The analyst would crucially be expected to control the linguistic repertoires of the speakers, to know all of the relevant languages used in everyday interactions. This task challenges Western investigators to be sure and may be impossible. Evaluating multilingual competence can be done only in situ, in highly

contextualized situations by the interactants themselves. Linguists rarely possess the multilingual skills to interpret and analyze such data. Often forced to rely on impressionistic or self-report data, previous descriptions are of questionable validity, especially in situations of language shift or unstable multilingualism.¹

This paper proposes a relatively efficient way of overcoming these difficulties, namely, by measuring a speaker's 'knowledge' of ideophones, as described below, to measure language proficiency. It reports on the findings of a pilot study in the town of Shenge (Kagboro Chiefdom), Sierra Leone, where the population is shifting from Sherbro to Mende with several other languages at play (Krio, Temne, and English). Pre-recorded Mende ideophones, pronounced in isolation and in sentences, were presented to subjects of varying degrees of competence in Mende. They were then asked to explain what the ideophone meant in whatever language they felt comfortable using (the interviewer was multilingual). The results suggest that one's knowledge of ideophones may serve as an indicator of linguistic 'competence', the term here used in the broad sense of the multilingualism literature (e.g., Cook and Wei 2015) and in the sense of 'communicative competence' as introduced by Hymes (Hymes 1966, 1972). The measure correlated well with self-report and ethnographic data.

The second major goal was to investigate whether, in highly multilingual situations, ideophones are shared across language boundaries. Although the localness of ideophones has been tested (Samarin 1991; Childs 1998), there has been no explicit consideration of the role (individual) multilingualism might play in localness. Are multilinguals more like monolinguals or non-speakers in their knowledge of ideophones? In addition, the full study may shed light on contact phenomena in general, contributing to our understanding of what can and cannot be transferred across language boundaries (Winford 2003). The test with Mende ideophones will eventually be expanded to include the two other major languages in Shenge, Sherbro and Krio.

1.2 Good's paradox, a brief aside

A problem in characterizing multilingualism or multi-competence, particularly when it's framed as a linguistic repertoire, e.g., Lüpke and Storch 2013), is how the repertoire can be characterized. In this framework 'language' is claimed to be a reification and/or a linguist's construct; repertoire is the relevant term cross-cutting language boundaries. One wonders, however, how a repertoire can be characterized

1. See Lüpke (2008), Childs (2012) and Dobrin (2014) (referencing the 'Ethnic Revitalization Paradox' from Rindstedt and Aronsson 2002) for some discussion of the problems in self-report data in a community involved in language shift.

without reference to language. Jeff Good (2017 personal communication) has characterized the problem as below (with some elaboration by the author).

- ‘How can we describe languages if we don’t know what a language is?’ The problem becomes even more pronounced in multilingual settings ... Logically, ‘multilingualism’ implies more than one language, which, in turn, presupposes discrete languages, and gets us back into the same problem, but even worse.
- How can we admit constructs of language into a characterization of what we don’t want to make into a construct, i.e., either linguistic repertoire or a multilingual variety, and do so without admitting that such constructs exist?

Hopefully we’ll be able to continue using ‘language’ as a heuristic construct. Such is the assumption here.

2. Background

This section begins by looking at multilingualism in the research area, talks about the centrality of ideophones to languages of the area, then turns to what’s known about ideophones in language contact situations. The final section of this background chapter talks about the relevance of Shenge as a site and Mende as a language for the project.

2.1 Multilingualism in Liberia, Sierra Leone, and Guinea

The study area includes the contiguous nations of Liberia, Sierra Leone, and Guinea, an area in which I’ve been long involved (Childs 2018). My first exposure to the multilingualism of the area was in the town of Foya, Liberia, which was a bustling trade town at the intersection of the borders of the three countries. Nearby on the other sides of the borders were two other bustling market towns, Koindu in Sierra Leone, and Guékédou in Guinea. All three had sizeable weekly markets where farmers brought their goods and traders made their purchases, the latter coming from as far away as the capital cities of each country and even Mauretania and Côte d’Ivoire. There was an overlay of Lebanese merchants running the brick-and-mortar stores in town as well as UN missions, NGOs, missionaries, and aid initiatives from Taiwan and Israel.

All three towns were in Kisi-speaking areas but Kisi was not the language people used in the towns. Trade was dominated by non-Kisi and had been for centuries, beginning with the initial wave of the Mande Expansion in the first millennium (e.g., Brooks 1993). Mid-level traders generally spoke ‘Mandingo’ (Malinké in

Guinea, a.k.a., Maninka) and low-level Kisi traders generally controlled the language enough for trade. Transportation was the provenance of the Mandingoes and the Fula, who also controlled the cattle industry. Kisi is typologically the opposite of the Mande languages with which it is contact (Childs 2010) belonging to the Mel subgroup of Niger-Congo distinct from Atlantic (Childs, to appear), the group to which Fula belongs.

Other prominent languages were, of course, the pidgins that had arisen in reaction to, or in defense from, the colonizers. The three countries had their own colonial histories: Sierra Leone and Guinea had distinct and very different colonial experiences, respectively, British and French, while Liberia had a somewhat fraught relationship with the United States. The main colonizers in Liberia were the Firestone Rubber Company and various extractive industries (diamonds, iron ore and timber). Out of those three different contact situations arose three different pidgins: what has been called ‘Guinea French’ (Childs 1999, 2002b), Krio (e.g., Thompson and Koroma 2014), and Liberian English (e.g., Singler 1997). These were the languages featured in the market towns.

This not uncommon scenario points to a central problem in documenting and assessing African multilingualism, the competence of the researcher. The outsider has nowhere near the linguistic competence of the insider, and the insider has nowhere near the research experience and indeed nowhere near the interest as the researcher. Finding a way to accurately document the multilingualism is a primary goal.

Research competence also includes an ability to assess the competence of one’s research assistants and indispensable collaborators. In an earlier project one research assistant parlayed his somewhat imperfect knowledge of the target language into an RA position simply because I was unable to evaluate his competence at the beginning of the project (Childs 2012). Letting him go led to some serious ill will and complications in my relationship with the community.

These stories illustrate some of the challenges. Characterizing multilingualism at the state level is equally problematic. One can use large-scale demographic figures (often with their own problems (e.g., Fasold 1984), but characterizing the competencies of individuals in a multilingual community presents further challenges. Few quantitative, directly comparable, or replicable studies exist. What is available on multilingual competence is mainly anecdotal and self-report data.

As characterized in my description of the Foya market, the challenges to an empirical characterization are formidable. Just capturing the data is difficult enough (see a solution in Connell 2009 and Cukor-Avila and Bailey 1995) – the analysis may pose more difficulties. Measuring multilingualism in a mutually agreed upon quantitative and empirically justified way, except very crudely, presents a considerable challenge.

2.2 Why ideophones?

A not unimportant question is why knowledge of ideophones is a means of uncovering multicultural competence rather than another linguistic measure. One reason is their association with high levels of competency in a language, beyond the instrumental and immediately functional or simply linguistic. This was the consensus of African language coordinators when developing ACTFL guidelines for assessing language competency (1984–1985). Because ideophones form such a crucial component of language, especially one locally grounded (Childs 1994b, 1996), testing how knowledge of their knowledge across speakers seemed a natural choice. Ideophones' perceptual salience means that subjects would be immediately able to recognize the words because of their expressive phonology and would be willing to guess their meaning. Ideophones are found in all of the native languages of the area. The ease of administering such a test, as described below, also highly recommended the approach, especially in a non-literate society. In developing this measure I followed the model of the Rapid and Anonymous Interview pioneered in Labov (1966): minimal intrusion, minimal equipment, minimal time (see also Hamilton 2016).

2.3 African areality and ideophones

Areality is the rule rather than the exception in Africa (Heine and Leyew 2008; Heine and Nurse 2008), but ideophones are highly local. The long history of trade and conquest, especially across a band of Africa known as the Fragmentation Belt (Dalby 1970), has created a broad swath of territory with a mixture of genetic groups. The belt extends from the Atlantic seaboard, where this study is located, all the way over to the Ethiopian Highlands in the east. Because so many genetically unrelated languages abut each other and because there has been such an extensive history of interaction, it is not surprising that many features are shared across genetic boundaries.² On the basis of an analysis of eleven formal features shared broadly across the continent, Heine and Leyew find that “the African continent clearly stands out against the rest of the world”. Other papers in the same volume (Heine and Nurse 2008) make similar though less extensive claims. Clearly Africa stands out in terms of its extensive areality.

Thus we see some diffusion in the area, but such is tellingly not the case for ideophones, in fact, dramatically not so for ideophone forms. Ideophones are quint-essentially local (Childs 1998) as has been shown in other studies, e.g., Samarin (1991). Ideophones themselves rather than the functions they perform are rarely

2. Claims for a ‘Macro-Sudan Belt’ (Güldemann 2008), however, may be overblown, e.g., Childs (2017), Cahill (2015).

shared across language boundaries let alone across greater genetic boundaries. The most extensive study was a detailed thesis on ideophones in the closely related Nguni languages of southern Africa. Lanham found no cross-linguistic commonalities and rare sharing even across dialect boundaries (Lanham 1960: 176).³ Not surprisingly, Lanham was able to reconstruct no ideophones for Nguni. The same is true for the related creoles of Guyana: ideophones are notoriously difficult to document in any historical depth (Huttar 1986). In terms of shared form, ideophones show nothing of a common (genetic/linguistic) origin (see Dingemanse 2017). This is another reason to see them as local or particular to a specific language or even to a particular dialect.

2.4 The research site: Why Shenge and why Mende?

The reason Shenge was chosen as a site was primarily due to its representativeness of a relatively non-urban multilingual site with some colonial history. The last available census of Shenge (Dec 2004) recorded a population of 31,150. I expect the population is lower than that now because of the number of abandoned houses and the plundered offshore fish stocks. Foreign industrial factory boats are anchored offshore, and the locals no longer catch fish in the quantity and of the size that they have done in the past. The town is becoming increasingly Mende as are other towns in the traditionally Sherbro-speaking area. The extent of that shift was revealed on a visit to Yoni, the home of the Paramount Chief of another Sherbro chiefdom, Sittia Chiefdom on Bonthe Island (January 2015). We found no speakers of Sherbro in the town, though we were told many of the villages on the island were in fact all Sherbro speaking. Even in Dema Chiefdom, the smallest and most isolated Sherbro Chiefdom, Mende was widely spoken.

Mende is a language typologically distinct and genetically unrelated to Sherbro, as is the case generally for the larger groups to which the two languages belong (Wilson 1989). Mande and Mel are independent families in Niger-Congo, if indeed Mande belongs to Niger-Congo at all (Dimmendaal 2015). Thus, there is little chance of shared forms between the two languages.

3. Ideophones can be borrowed, but only in highly unusual circumstances. Male speakers of other Bantu languages find that Zulu has great appeal and instrumental value; male speakers of Thonga, for example, are actively shifting to Zulu, at least partially due to gender issues (Webster 1991). These speakers, however, are typically migrants who likely speak an urban variety with few ideophones. Nonetheless when they return home, they use Zulu ideophones in Thonga (Mathumba 1991 p.c.). See Childs (1994a, b, 1996). Kimi Akita pointed out these examples of Sino-Japanese ideophones: *tootoo* 'flowing swiftly', *konkon* 'deeply asleep' and ideophones borrowed into Japanese from English: *tikutaku* 'tick-tack', *ziguzagu* 'zigzag'.

2.5 Research questions

The overall goal is to assess African multilingualism, especially with a satisfying notion of ‘linguistic repertoire’, and at the same time to reconsider the localness and areality of ideophones. A basic question asks if African multilingualism is special in any way. Is it different from multilingualism in other parts of the world? What are the governing ideologies? What is the role of social factors in determining the extent to which an individual is multilingual, particularly gender and age? Is there a non-multiglossic multilingualism in Africa, i.e., multilingualism without multiglossia or ‘monoglossic multilingualism’? In this situation languages are not distributed as to functions or practice but equally distributed (Lüpke 2016).

Knowledge of ideophones is measured by how well a reported multilingual will be able to explain the use and meaning of ideophones in one of the languages forming part of a linguistic repertoire. Will that speaker have reached a level of proficiency sufficient to know and understand ideophones? That measure will then be evaluated across language(s) a speaker knows, specifically Mende, the language from which the ideophones come. Leakage in any one of these predictions will require explanation.

- L1 speakers will have scores of 100%
- Non-speakers will have scores of 0%
- L2 speakers will have scores somewhere in between

Positive scores of non-speakers on non-onomatopoeic or sound-symbolic ideophones could be interpreted as showing that ideophones are becoming less local and more areal like other language phenomena in a multilingual context.

3. Methodology

This section begins by introducing the speech stimuli of the study and characterizing its subjects. The administration of the test is then described, and I say something about the analysis, the results of which are described in the following section.

3.1 The stimuli

Byrne (1993) contains a total of 286 ideophones. I give a representative section of that list in Table 1. In the first column of text is given a phonemic representation. The highly variable prosody characteristic of ideophones is not shown, nor are the

tones. Vowel length is shown by doubling a vowel. The more intractable features include voice quality, register manipulation, speed of ideophone utterance, and amplitude modulation. Expressive lengthening is common and is hinted at by a final double vowel as in number 155, *livaa*.

Table 1. A sample of Mende ideophones from Byrne (1993)

Ideophone	Popular context	Mende sentence	Translation
154. <i>liinj</i>	of being dark, overcast, or dull	pelei bi gbi ^{nding} ɔ <u>liinj</u> .	Inside the house is actually dark.
155. <i>livaa</i>	of seeing something appearing suddenly from a far distance	ngi mɔtui lɔlɔ le i gbiyanga <u>livaa</u> kɔvihu.	I saw the vehicle make a sudden appearance in the curve.
156. <i>legbelegbe</i>	of weakness when an object is ripe	maani kpele yenga <u>legbelegbe</u> .	The plantains have got weak and masticated under the sun.
157. <i>legbulegbu</i>	of being weak and feeble	mangui gbɔwuilɔ i ye <u>legbulegbu</u> .	The mango got ripe, weak, and feeble.
158. <i>lepelepe</i>	of moving or lifting a heavy object slowly	ndakpoi sia ti kɔwui lei lɔ <u>lepelepe</u> kɔ a gula.	The guys mounted the box very carefully so that it does not fall.
159. <i>lome</i>	of walking silently or cautiously	ndopoi sia ti ye a njia <u>lome</u> .	The children were walking cautiously.

Even this small sample illustrates some common features of Mende ideophones, e.g., reduplication and vowel harmony. The inventory and its characteristics are not uncommon for this part of Africa, e.g., Childs (1988).

The native Mende speaker producing the ideophones was linguist Momoh Taziff Koroma, a lecturer at Fourah Bay College and the supervisor of the thesis from which the list of ideophones was drawn (Byrne 1993). The recording took place at Fourah Bay College, using a Zoom H4n and a sampling rate of 48,000 Hz to produce wav files, later edited and compressed into mp3 files. Because the recording session forms part of a larger study of ideophones (and multilingualism as well), Koroma was asked to provide some details about each ideophone beyond what is found in the thesis, useful information for evaluating the responses.

From the total of sixty-six ideophones produced by Koroma, twenty were chosen as stimuli for the study. They were chosen with the following criteria in mind (from Childs 1994a), i.e., to get a range for each criterion and a representative variety. For example, iconicity vs. the arbitrariness of the relationship between sound and meaning.

(1) Criteria for selecting ideophones

- Iconicity. Onomatopoeic ideophones being the most iconic: the bleating of a sheep [bɛɛ], the ringing of a bell [gbelen-gbelen], movement of air (featuring labials and labiodentals, e.g., *fiyofiyɔ*, *fwaɑ*).⁴
- Other formal features: mix of Vs and Cs [galun]; VH [mbimili]; use of reduplication [gaun-gaun].
- Specificity of semantics: narrowness [belen] ‘manner of letting down after an adverse agreement has been reached’ vs. breadth of meaning [bengu-bengu] ‘reference to something soft and weak’.
- Specificity of context of use, situational [bau] ‘used to indicate the manner of people bowing insolently’ and linguistic, e.g., some ideophones can be used only with one verb.

The sensual appeal would ideally have ranged across the five senses but proved to be impossible to implement; the ideophones selected are preponderantly visual; of the 20 selected 11 are visual, 7 are aural, and 2 are tactile or reference one’s personal state. See Nuckolls (this volume), who discusses the multi-sensory semantics of Quechua ideophones and the predominance of MOVEMENT ideophones.

After an introduction to the study and granting consent to being recorded, subjects listened to the recording and responded, explaining the meaning of each ideophone as best they could manage. They were given three ideophones for practice (Appendix A) before the actual test (Appendix B). They heard the ideophone itself first produced at least two times in isolation. They then heard it in context. They could listen to each ideophone as many times as they wanted.

3.2 Subjects

All subjects were currently based in Shenge, Sierra Leone, the headquarters of the paramount chief for the Kagboro Chiefdom, the largest, traditionally Sherbro chiefdom. The Sherbro are now losing speakers to Temne in the north, to Mende in the south, and to Krio everywhere. These are the three glottophagic (pace Calvet 1974) languages of Sierra Leone and represent the major languages respectively of the north, the south, and the young and metropolitan. Subjects were recruited from friends and acquaintances in Shenge and from a local school.

Subjects fall into four categories with regard to speaking Sherbro, the traditional language of the area, and Mende, the language to which many speakers are shifting,

4. Surely there is a continuum between imitation and sound symbolism from the linguist’s perspective but the differences may not be so clear to speakers (Childs 2015; cf. papers in Bolinger 1965).

as represented in (2). The cell which was the hardest to fill was ‘Mende and some Sherbro’; speakers of Mende generally do not learn the local language wherever they have relocated, Mende being a language of broad socio-economic importance, as mentioned above.

(2) The subjects characterized	
1. Speakers of Sherbro and no Mende	5
2. Speakers of Sherbro and some Mende	4
3. Speakers of Mende and no Sherbro	5
4. Speakers of Mende and some Sherbro	1
(All subjects spoke Krio and some spoke English.)	(15)

All of the speakers, nine females and six males, were well educated, as evaluated in a West African context; most had some secondary school education, and ranged in age from 13 to 73.

3.3 The administration

Subjects were generally allowed to use whatever language they felt most comfortable in, Krio being the common choice. A Sherbro speaker administered the questionnaire to the two groups of speakers who had Sherbro as a first language (Sherbro and no Mende, Sherbro and some Mende), and a Mende speaker to the other two groups whose speakers have Mende as a first language (Mende and no Sherbro, Mende and some Sherbro).

3.4 Analysis

The analysis looked primarily at ‘knowledge of ideophones’ in relation to declared languages. ‘Declared’ was as declared and also as evaluated by others. In no case was there a difference between the two assessments. Evaluating knowledge of ideophones was done by the interviewer and research assistants using the following scale (the sessions were recorded).

- 3 Fairly close or accurate
- 2 Partial knowledge, some indication of knowing the meaning
- 1 Unknown / refused to guess

Further analysis compared the scores with stated knowledge of Mende, age, and gender. The larger study will look at: administrator, age, gender, education, residence / rusticity, engagement in local culture, and identity in a multilingual context (cf. Childs 1996, 1998).

4. Findings and discussion

Subjects generally performed as would be expected on the basis of what was reported as to their linguistic competence (recall that ‘competence’ is here used in the general way of Cook and the multicompetence conversation, as well as communicative competence, as introduced by Hymes (Hymes 1966, 1972)). Although more rigorous testing is needed, especially with the other focus languages, ideophone knowledge does represent a plausible measure of linguistic competence.

There was little gradience to subjects’ knowledge of ideophones; typically they either knew the ideophone or they did not. Part of this sharp differentiation may be due to the fact that subjects were sometimes reluctant to even guess an answer. Note that ‘not known’ and ‘refusing to guess’ received the same score of ‘1’. In the display below the percentages of correct answers are shown by individual. The group to the right (Speakers 8–15) are Mende speakers and the ones in the group to the left (1–7) are not.

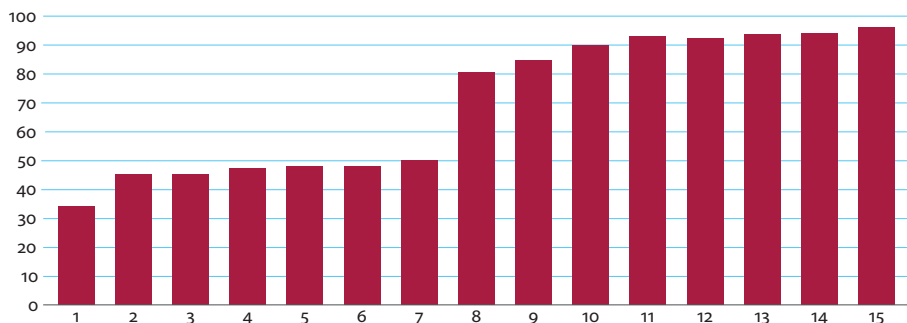


Figure 1. Percentages correct by individual

Speakers of Sherbro who also knew Mende represented a crucial case (Speakers 10 and 15). They were indeed able to understand and explain the ideophones, showing that multilingualism involves a native-speaker knowledge of ideophones. Unfortunately Speakers 10 and 15 were the oldest speakers in the study, respectively 72 and 74 years old. Because of the small sample, age was not a factor that could be evaluated. A robust finding in other work has been that young people don’t know ideophones as well as adults (Childs 1994b, 1996, 1998, 2001), thus age may be a confounding factor in evaluating the two Sherbro-Mende speakers. Being older may have been a factor in why they knew so many ideophones more than their Mende-only and younger counterparts.

There is an incomplete cell in the analysis: the performance of first-language Mende speakers who spoke some Sherbro. It would be expected they would do

just as well as those who spoke only Mende (or Mende and not Sherbro), thus not a crucial loss from the sample. Part of the reason for this absence is that Mende speakers rarely speak Sherbro.

Speakers of only Sherbro (Sherbro and not Mende) were not expected to be able to recognize any ideophones but they did. What ideophones they were able to guess likely represent either universals (onomatopoeia, sound symbolism) or a more local, regional sound symbolism, as is found in the Pacific Northwest (Nichols 1971). Some examples of agreement are given below.

- the sound of a goat or sheep (*bee*) was correctly identified by all (100%)
- falling object ideophones (*biŋ* and *gbai*) were correctly identified by over 90% of the respondents
- the ideophone for an object ringing (*gbeleŋ*) was correctly identified 80% of the time
- the sound of rushing air (*fiyo-fiyo* birds in flight) was correctly identified 78% of the time
- the sound of heavy rain falling (*dɔɔ*) was correctly identified 71% of the time

Onomatopoeic or sound symbolic ideophones were thus overwhelmingly identified correctly, even by non-speakers of the language. Expected was the identification of the bleating of a sheep or goat but not so much the sound of falling objects and of moving air (associated with labials and labiodentals). I expect prosody might have played a greater role than anticipated, especially with regard to the more onomatopoeic ideophones. Nonetheless, there is a hint of areal sound symbolism.

The implications of these findings are several. First of all, we have some idea of what it means to speak a second language when that language is one with ideophones: ideophones are known. Some first-language speakers of Sherbro with Mende had even better scores than (first-language) Mende speakers. Furthermore, onomatopoeic and sound-symbolic ideophones are shared across languages. Other ideophones (non-iconic ones or “secondarily iconic” in the sense of Ahlner and Zlatev 2010) are likely not areal and by implication not transferred in contact situations. Thus ideophone knowledge is still an accurate measure of (local) competency, especially once the onomatopoeic and iconic ideophones, e.g., those exploiting size sound symbolism (Childs 2015), are excluded from consideration.

The jury is still out on what is happening to ideophones in the contact situation of Shenge. There is some evidence that there are no shared sound-symbolic associations or ideophones beyond the purely iconic. Weak and non-speakers of Mende could not guess the meanings of Mende ideophones. That they were able to guess some of the more iconic ideophones shows some commonality but more likely illustrates universal associations rather than anything areal. Ideophones are,

then, likely not areal and by implication not transferred by contact. Nonetheless, it is weakly confirmed that localness breaks down in multilingual communities. This question needs refinement and further investigation.

To improve the study it is important to develop additional metrics for evaluating linguistic or communicative competence independent of the means used here. It is also necessary to ask if competence is indeed monolithic. Do all parts of the language develop in concert and register a single competence? Most people would say no, particularly in contact situations (e.g., Thomason and Kaufman 1988; Winford 2003). As to which methodology is best, the answer is a combination of techniques, adapted to context and resources. A worry is that subjects may have been able to intuit or infer the meanings of the ideophones from the linguistic context in which they appeared. Another factor to take into consideration is that no one is really monolingual in Shenge.

5. Conclusion

Some directions further research could lie beyond the methodological improvements discussed in the preceding section. One weakness with the study was that the ideophones are discussed in a non-naturalistic setting without much context (see, e.g., Dingemanse 2012 for some methods devised to overcome these difficulties). How ideophone knowledge would be assessed in a more naturalistic setting is not clear.

An already stated direction is to develop similar measures for Krio and Sherbro and perhaps Temne. Do the same facts obtain with an extended pidgin (Krio, a second language for many) and an endangered language (Sherbro) being shifted from? Here are some suggested further directions.

- Research socioeconomic asymmetries and see how they affect measures of multicultural competence
- Develop an additional correlative for validating ideophone knowledge as a measure of (socio-)linguistic competence
- How can we represent multilingualism graphically? How can we map it?

If we have gained some insights into what happens to ideophones in contact situations and insights into the grammars of multilinguals, we have done well for neither is a trivial undertaking.

Acknowledgements

My thanks go to the organizers NINJAL Symposium 2016 for their support, especially to Kimi Akita and Prashant Pardeshi for their help throughout the process of arranging things as well as to others who have aided in the gestation and modification of this paper. This work was supported by a Major Language Documentation Grant from the Hans Rausing Endangered Languages Documentation Programme, School of Oriental and African Studies, University of London. My thanks also to Ted Bergman, Theresa Byrne, Jeff Good, Mark Dingemans, Noriko Iwasaki, Momoh Taziff Koroma, Friederike Lüpke, and Suwako Watanabe for inspiration, criticism and advice at various stages of the research.

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Appendices

Sound files for all ideophones are available at <https://doi.org/10.1075/ill.16.13tuc.video>

Appendix A. Practice ideophones

	Idph	Popular context	Mende sentence	Translation
1	a. bafubafu	manner of smoking a pipe	kini yele taavei lala <u>bafubafu</u> .	The man was continuously from his pipe unconsciously.
2	b. bau	sound used to indicate the manner of people bowing insolently	ndopol wailb i wεε nyapoi la <u>bau</u> giti ya.	The child came and bowed insolently in front of the woman outside the compound.
3	c. belen	manner of letting down after an adverse agreement has been reached	makitil wotei lo ha a nge <u>belen</u> ngi ko gbel.	Today the market sales turned out badly for me, I don't know why.

Appendix B. Complete list of ideophones from Byrne (1993) used in study

	Idph	Popular context	Mende sentence	Translation
14	1. bondi-bondi	state of being thin and small	kwa lukui yale <u>bondibondi</u> .	The monkey's arms are very thin and small.
7	2. bæe	sound of animals, esp. bleating of sheep	nbalei a yee gula <u>bæe</u> .	The sheep is bleating.
31	3. dɔmi	underscoring dizzy or weak	haata nya ngahu yale <u>dɔmi</u> .	Today my body feels weak and dizzy.
42	4. fesafesa	of walking swiftly	kina wai ye a njia <u>fesafesa</u> .	The elderly man was walking swift and faster.
30	5. dɔɔ	sound of rain following consistently	njei yejita wa yele <u>dɔɔ</u> .	The rainfall today fell in a consistent and steady manner.
6	6. binj	dropping an object with a thud	kini wanilɔ i kɔti gula mu wɛlei mahu <u>binj</u> kɛ i ya.	The man came and dropped the stone on top of our roof with a thud and left.
51	7. fenge-fenge	of sharp stomach pain	ngi kɔ gbei nya goi hu a yele <u>fengefenge</u> .	I don't know why my stomach is so perturbed.
10	8. bengu-bengu	reference to something soft and weak	maani gbowl ɔ vui i <u>bengubengu</u> .	The plantain got ripe until it became very soft.
59	9. gaun-gaun	of walking proudly with an air of nobility	nyapui a njia hale <u>gaungau</u> mbi tɔa mbe hen wo ɔ na!	The woman is walking proudly as though something is available.
49	10. fiyofiyo	of sound associated with birds when they move around in common	ɲɔni ye a veve tao a gbao <u>fiyofiyo</u> .	The bird was hovering and producing a particular sound.
60	11. gbaa	of bluffing with arms akimbo	biata bi yata gɔ naa le <u>gbaa</u> mba lewe.	You walk about proudly with arms akimbo.
34	12. ndimɔɔ	of objects spinning very fast	ndopoisia ti ye a titii gbeli <u>ndimɔɔ</u> .	The children were spinning the toy very fast.
61	13. gbai	the act of falling with a thud when an object is dropped in a liquid	ndopui ngi mbaa lukpe ni ɔ i guia njei ya <u>gbai</u> .	The child pushed her companion and she fell into the water with a thud.
35	14. ndoe	of sitting with the legs apart	nyapoi heilo i ngi gbaa sia vaya <u>ndoe</u> .	The women sat and kept her legs wide apart.

	Idph	Popular context	Mende sentence	Translation
58	15. galuŋ	how a liquid is gulped suddenly	nya bolohu bengɔ yele, na vaima ngi njei gbɔini <u>galuŋ</u> .	My throat was dry by then that was why I quickly gulped in the water.
46	16. fio	of swiftly moving around an object	li bi pelei na gala <u>fio</u> bi kome.	Go move right around that house quickly.
20	17. mbimili	underscoring stoutness of people	kini woi vui i ye <u>mbimili</u> .	The man grew very fat.
64	18. gbelen-gbelen	of sound of an object rung	ti mbamandi lewei lo <u>gbelengbelen</u> . -09: 40	They rang the bell a number of times so that the people could assemble.
32	19. dɔuŋ	completely quiet	dwɛɛ hu gɔlea <u>dɔuŋ</u> .	The country is completely quiet/cold.
50	20. fɛgbɛ	of lying flat due to fatigue	ndopoi lo lani <u>fɛgbɛ</u> kani ya.	The child is lying flat out of fatigue on the pavement.

(The numbers in the first column represent the reference number from the full set of ideophones.)

Subject index

A

accent 35, 37, 39–40, 44–47,
50–54, 110, 122, 125, 255
acquisition 47, 72, 251–253, 255,
261–262, 266–267, 277, 284,
294, 297
agency 201, 211, 218–219,
222–224
areality 15, 303, 308, 310,
315–316
associative 223–224

B

baby talk 35–36, 45–46, 51, *see*
also child-directed speech,
motherese
bimoraic base 39, 42, 45, 53

C

child-directed speech 257, *see*
also baby talk, motherese
Cognition (*semantic component*)
173, 186–187, 194
Color (*semantic component*)
171–176, 180, 194
compound
attributive compound
106, 111–114, 116–117, 126,
130–131
nominal compound
101–102, 104–106, 111,
116–118, 121, 129–131
subordinate compound
111–113, 117, 122, 131
Configuration (*semantic*
component) 139, 172–173,
177–181, 192, 194, 196
constructional schema 101,
106–107, 115, 121–122, 128, 130
Construction Morphology
101–102, 105, 122, 130

conversation 36, 169, 211–212,
219–220, 233–234, 242, 265,
273–274
corpus 72, 78, 85, 110, 150–151,
162–163, 167, 169, 187, 199–
200, 202–203, 209, 219–220,
223, 229–232, 235, 238–240,
242, 252, 271, 274
crosslinguistic influence 278
cross-modal 27, 85, 95, 183, *see*
also multi(-)modal, multi-
sensory

D

deideophonization 139, 231, 234
depiction 1–2, 13, 15–21, 26–28,
83, 130, 137–138, 140, 152, 162,
167, 171–179, 181–183, 188–193,
199, 223, 229–231, 233–235,
240–242, 267–268, 274, 278,
292, 294–295
diachronic 13, 23, 57–58, 61, 63,
71, 74, 150
discourse 189, 199, 201–203,
208–209, 211–214, 221, 223–
224, 231, 234, 240, 274
disyllabic 35, 45–47, 53, 57–74
double-headed 101–102, 106,
111–113, 129–130

E

Emotion (*semantic component*)
173, 183–186, 194
evolution 2, 57–58, 74
eye contact 229, 234–242
eye release 234–240
expressiveness (*or* expressivity)
20, 196, 230–231, 297

F

facial expression 229–230,
233–236, 239–242

G

gaze 229–230, 233–234, 236,
238–239, 242
genre 199, 201–203, 219–220,
223–224
gesture 2, 19–20, 26–27, 138,
154, 167–169, 172, 174–176,
178–179, 182, 189–190, 192, 197,
199, 229–235, 237–238, 240,
242, 247, 265–267, 272–282,
288–296
giongo 1, 36–37, 45, 47, 50,
53, 171
gitaigo 1, 37, 40, 45, 47, 50, 171
Good's Paradox 305

H

Haptic (*semantic component*)
172–173, 180–181, 192, 194
headedness 101–102, 105–106,
111–113, 129–130

I

iconicity 1–2, 13, 15, 18–19,
21, 25–27, 54, 59, 61, 64–65,
67, 70–73, 78, 81, 89–90,
93, 95–96, 130, 139, 151, 167,
199, 229–233, 235, 237–238,
240, 242, 247, 265–269, 272,
274, 282, 286, 290, 292–297,
311–312, 315
ideophone
as a lexical class 20, 241
definition of 15, 20, 23–24,
241
see also motion ideophone
implicational hierarchy 139–
140, 162, 167, 193
inflection 80, 118, 200, 214,
223–224
inheritance hierarchy 101–102,
105, 115, 120–121, 128, 130

- integration 4, 26, 96, 131, 168, 201–202, 224, 232, 231–236, 238–242, 247, 272–274, 276, 278, 287, 293, 294–296
- intonation 167, 169, 172, 174, 192, 202, 230–231, 233, 247
- L**
- language contact 305–307, 315–316
- language shift 304–305, 309, 312, 316
- learnability 251–252, 255, 261–262
- lexical category 32, 102, 104–107, 113, 115, 117–119
- lexical layer 58, 74
- (linguistic) repertoire 266, 270, 272–273, 278, 295, 303–306, 310
- M**
- markedness 1, 13, 15–18, 20–23, 24, 26, 35–36, 51–52, 54, 109, 137, 167, 178, 200, 204, 208, 210, 216–217, 224, 230, 258, 291
- monosyllabic 42, 45, 47, 57–74, 202
- moraic nasal (*or* /N/) 39–40, 57–58, 61–65, 69, 72, 276, *see also* syllable-final nasal
- morphological structure 38
- motherese 35–42, 45–51, 53–54, 258, *see also* baby talk, child-directed speech
- motion event 137, 146–148, 151, 269–270, 272, 287, 294, 296
- motion ideophone 151, 137, 140, 146, 148–152, 154, 162, 163, 188
- MOVEMENT (*semantic component*) 139–140, 148–149, 151, 158, 172–175, 177–183, 185, 192, 194–196, 312
- multilingualism 303–307, 310–311, 314, 316
- multi(-)modal 229–231, 233, 240, 242–243, 265, 272, 297, *see also* cross-modal, multi-sensory
- multi-sensory (*or* multi-sensorial) 171–172, 312, *see also* cross-modal, multi(-)modal
- N**
- narrative 169, 174, 191, 208, 219, 223, 273–274, 277, 281, 294
- O**
- onomatopoeia 2, 14, 22, 28, 57, 85, 89, 139, 183, 188, 193, 199, 201, 223, 267, 270, 294–295, 310, 312, 314–315
- oral interaction 202, 209, 223
- P**
- Pattern (*semantic component*) 172–178, 180, 194
- phonaestheme 13, 20–21, 77–99
- phonation 230–231, 247
- phonological structure 35–37, 39, 52–54
- production 266–270, 272–273, 276–278, 282, 288, 290–292, 295–297
- prosodic structure 39, 45–48, 52–54
- Q**
- quasi-mimetic 231–232, 235–236, 238, 240
- R**
- reduplication 1, 25–26, 38–42, 45–48, 50, 60, 70, 85, 125, 140, 147, 151–152, 233, 267, 311–312
- RIA (*or* Root Infinitive Analogue) 251, 253, 255, 262
- right-headed 101, 106, 111–113
- Root Infinitive 251, 253
- root type 57–58
- S**
- second language (*or* L2) 265–270, 272–273, 276–279, 282–283, 286–297, 310, 315–316
- semantic grid 137, 146–150, 154, 156–157, 162–163
- sensory 1, 13, 15–18, 20–27, 83, 139–140, 167–176, 179–181, 183, 188–189, 191–196, 199, 234, 241–242, 312
- Sierra Leone 304–307, 312
- sign(ed) language 2, 25–27, 233, 242
- small *v* 251–255, 259–262
- SOUND (*semantic component*) 139, 147–149, 157, 159–161, 172–174, 180, 183–188, 193–196
- sound symbolism 1–3, 15, 54, 57–59, 60–61, 67, 70, 73–74, 80–81, 85–86, 96, 140, 201, 209, 214, 219, 230, 233, 266–271, 294, 297, 310, 312, 315
- substrate 303
- syllable-final nasal (*or* /N/) 57, 61, 63, 65, *see also* moraic nasal
- T**
- typology 1, 3, 13–14, 16, 19–20, 23, 25, 27–28, 73, 78–80, 82, 86, 95–96, 137–138, 146–147, 150, 154, 156, 162, 168, 230, 242, 269
- U**
- unmarked 35–36, 52, 54, *see also* markedness
- V**
- variation 2, 14, 27, 77–78, 80, 150, 261, 270, 297
- VISUAL (*semantic component*) 139–140, 173–181, 188, 192, 194–196
- voiceless fricative (*or* /h/) 57–58, 61, 66–72
- W**
- word length 39–45, 48, 52–53

Language index

A

American Sign Language 26,
233
Aragonese 139
Ashéninkan 146

B

Basque 2, 15, 20, 26, 63, 137,
139, 145, 149–155, 158–159, 162

C

Catalan 145, 154–155, 159, 162
Chichewa 141, 146, 154–155,
157, 160
Czech 63, 199–203, 208, 214,
219–224

E

Emai 137, 219
English 20–21, 38, 41, 45, 63,
77–79, 81–82, 87–96, 106,
112, 139, 150, 214, 254–255,
265–272, 275–288, 290–296,
305, 307, 309, 313
Etulo 138

F

French 139, 150, 307
Fula 307

G

Gbaya 131, 219
German 14, 139–140
G|ui 2, 137

I

Italian 139

J

Jabèm 144, 154–155, 158, 160
Jahai 24
Japanese 1–3, 14–16, 20–21,
26, 35–45, 47–54, 63–73, 83,
95–96, 101–108, 110–113, 116,
121–123, 127–128, 131, 138–140,
143, 146–147, 154–155, 160,
171–172, 211, 229–233, 235,
239–240, 242, 251–255, 257–
262, 265–272, 274, 277–288,
290–297, 309, *see also* Middle
Japanese, Old Japanese
Japhug 131
Japonic 72–73, 143

K

Kamera 138
Kammu 25
Katuenta 137
Kisi 230, 306–307
KiVunjo-Chaga 138
Korean 2, 14, 16, 21, 26, 63,
66, 71–73, 77–79, 82–96, 131,
172, 265–267, 269–272, 275,
277–284, 286–288, 290–296
Krio 304–305, 307, 312–313, 316

M

Maniq 24
Mende 304–306, 309–315,
320–322

Middle Japanese 63–66, 69–70
Mwaghavul 21–23

O

Old Japanese 63–66, 72

P

Pastaza Quichua 138, 141, 152,
167–170, 172, 188, 194

R

Ryukyuan 72–73

S

Semai 2, 20, 23–24, 95–96, 143,
146–147, 155, 162
Sherbro 305, 309, 312–316
Siwu 2, 13–14, 16, 20, 63, 141,
155, 158, 161, 230, 273
Somali 140, 154–155, 157, 161
Spanish 139, 150, 276
Swedish Sign Language 25–26

T

Temne 305, 312, 316
Tuvan 138

U

Upper Necaxa Totonac 141,
146, 154–155, 161

This volume explores new frontiers in the linguistic study of iconic lexemes known as ideophones, mimetics, and expressives. A large part of the literature on this long-neglected word class has been dedicated to the description of its sound symbolism, marked morphophonology, and grammatical status in individual languages. Drawing on data from Asian (especially Japanese), African, American, and European languages, the twelve chapters in this volume aim to establish common grounds for theoretical and crosslinguistic discussions of the phonology, morphology, syntax, semantics, pragmatics, acquisition, and variation of iconic lexemes. Not only researchers who are interested in linguistic iconicity but also theoretical linguists and typologists will benefit from the updated insights presented in each study.

ISBN 978 90 272 0311 3



9 789027 203113

John Benjamins Publishing Company