A Grammar of Sound-Symbolic Words in Japanese:Theoretical Approaches to Iconic and lexical Properties of Mimetics

秋田, 喜美

(Degree)
博士（学術）

(Date of Degree)
2009-03-25

(Date of Publication)
2009-12-22

(Resource Type)
doctoral thesis

(Report Number)
甲4724

(URL)
https://hdl.handle.net/20.500.14094/D1004724

A Grammar of Sound-Symbolic Words in Japanese:

Theoretical Approaches to Iconic and Lexical Properties of Mimetics

by

Kimi Akita

A Dissertation Presented to the Graduate School of Humanities and Social Sciences

Kobe University

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

Committee in charge:

Professor Yo Matsumoto

Professor Hideki Kishimoto

Professor Lawrence C. Schourup

March 2009

【博士論文】

日本語音象徴語文法：
擬音・擬態語の類像的・語彙的特性への理論的アプローチ

秋田 喜美

神戸大学大学院 文化学研究科 文化構造専攻 言語文化論

和文要旨

　本研究は、日本語における音象徴語（擬音・擬態語）の意味・音韻形態・統語の言語理論的分析により、その一般言語学的重要性を探る。全体として、音象徴語における音韻形態レベルおよび統語レベルの類像的写像関係と、それを支える語彙的意味の重要性を主張する。

第 2 章：先行研究

　前世紀における日本語音象徴語の研究は、その特殊性の辞書的記述を第一の目的としていた。例えば、日本語音象徴語には分節音・音韻形態と描写対象の間に有縁的関係が見られるという音象徴現象が体系的に確認されること、重複形や接尾辞形といった特徴的な音韻形態が存在すること、また副詞だけでなく動詞・形容詞等としても実現しうることが記述されている。しかし、今世紀に入り、言語学・心理学においてその理論的重要性も指摘され始めている。本研究は、第 I 部でそうした音韻形態・音象徴的特性に基づく音象徴語の語彙範疇的構図を、第 II 部でその文法機能を決定する意味的条件を考察することで、音象徴語研究から言語理論への貢献を目指す。

第 3 章：理論的枠組

　それらの目標に向け、本研究では幾つかの機能的・認知的枠組を採用する。まず、音韻形態論に関しては、Goldberg (1995)に代表される構文文法の考え方を応用することで、Booij (2004)等により着手されている構文形態論の理論的発展に寄与する。統語論に関しては、Role and Reference Grammar 等の機能主義的統語論が想定する意味・統語間の類像的写像関係に着目する。意味論に関しては、プロトタイプ範疇論の知見を一部導入する他、全体として「認知的」と分類されうる視点を保つ。

第Ⅰ部：音韻形態

第4章：音象徴語の範疇規定

　音象徴語の規定問題は、日本語のみならず他言語においてもしばしば取り沙汰されてきた未解決の課題である。ところが、殆どの日本語音象徴語が「き^らきら」（CV^CV-CVCV）や「ふんわ^り」（CVCCV^ri）のように有限個の音韻形態鋳型の何れかを取るという事実は、当該範疇における音韻形態的条件の強さを示唆する。本章では、まずそうした鋳型の満足を条件として有意味語・無意味語の「擬音・擬態語らしさ」を日本語母語話者に判定させた。その結果、判定には連続的推移が観察され、また鋳型の満足が大きな判定基準であることが判明した。このことから、日本語音象徴語は鋳型条件という強い典型条件を有する境界の不明瞭なプロトタイプ範疇を成すと結論できる。

　次に、同じく鋳型条件を基準に作成した無意味語の大小に関する音象徴の判定実験を行った。結果、子音の清濁についても母音の高低についても、鋳型を満足する語（即ち音象徴語らしい語）の方が有意に大きな大小評定のコントラストを見せた。更に、このコントラストは、既存の語根から作られた無意味語においてとりわけ顕著であった。即ち、音象徴語の音韻意味論的特殊性は、その鮮明な語彙的・指示的意味に支えられていると解釈できる。

第5章：音象徴語の音韻形態の構文的特性

　音象徴語の音韻形態鋳型には、幾つかの構文的特性が見られる。まず、その意味には特筆すべき予測不可能性が指摘できる。例えば、強調副詞「うっと^り」の心理的意味は、同属語の「う^とうと」からも、他の強調副詞「すっか^り」「ずんぐ^り」からも予測し切れない。この高度な非合成性は、例えば *baker* の意味＜パンを焼くことを職業としている人＞が単なる "*bake* の意味＋動作主性" ではないように、ある程度は形態論的構文に一般の特徴と考えられる。同時に、動詞の意味と構文の意味から合成的に全体の意味が得られるとされる項構造構文等との重大な相違点となりうる。

　また、音象徴語の各鋳型には特定の意味との体系的な対応関係が観察される。CV^CV-CVCV と CVCVX（例：ころっ^(と)、ころん^(と)、ころ^り(と)）は、それぞれ継続性・瞬間性というアスペクト特性と類像的に強く結び付く。一方、強調副詞形はそれらの鋳型では表せないような（しばしば一般副詞的な）意味機能と結び付くため、先程の予測不可能性の好例となるケースが多い。更に、これらの音韻形態構文には意味拡張（例：CV^CV-CVCV における＜重複＞ → ＜持続＞）や特殊化（例：CVCVX → CVCV^ri）といった項構造構文と共通のネットワーク性が見られる。逆に見れば、

各音象徴語は、このネットワークを資源として、その語彙的意味に最も合致する構文的意味を有する鋳型を取っているのである。音韻形態鋳型の持つこれらの構文的ステイタスは、日本語の巨大な音象徴語彙システムを支える骨幹と考えられる。

第 II 部：形態統語

第 6 章：日本語音象徴語の文法機能

　日本語音象徴語は副詞・動詞・形容詞・名詞という複数の文法範疇に跨がるが、どの語がどの範疇に属するかに関する妥当な一般化は提出されていない。この問題は、音象徴語の語彙的意味を“語彙的類像性の階層（臨時的擬音語＞擬音語＞擬態語＞擬情語＞一般語）における一般語からの逸脱の程度”として捉えることで解決できる。
　擬音語は副詞となるのが基本であり、動詞・形容詞・名詞といった範疇には入りにくい。結果として、この種の音象徴語は主節の核（述語とその項）としては機能しにくい（例：犬がわんわん｛*した／吠えた｝）。一方、擬情語などは動詞・形容詞・名詞という範疇にアクセスし易く、副詞にはなりにくい。結果として、主節の核への実現はし易いが、周辺（付加詞、間投詞）への実現はやや難しい（例：舞はわくわく｛した／?期待した｝）。この一般化の背後には、図式類像的な意味・統語写像が存在すると考えられる。即ち、音で音を描写する擬音語のように、類像性が高くその分一般語から逸脱した語ほど、統語的にも中心部から逸脱し易い。逆に、音で抽象事象を描写する擬情語のように、類像性が低く一般語に近い語ほど、統語的中心部に実現され易いと言える。この意味・統語間の類像的写像モデルは、機能主義的統語論の原理と共通性を持ち、音象徴語文法と一般文法の共有特性と見ることができる。

第 7 章：音象徴語の文法機能の通言語比較

　前章の写像モデルは、他言語の音象徴語への適用可能性より後ろ盾を得る。音象徴語の文法的特性は言語内のみならず言語間でも様々である。ところが、何れの言語についても、類像性階層上のどこかで文法的区別をしているという点は共通している。例えば、韓国語の音象徴語は、日本語のそれ同様、類像性階層上の擬態語の中間辺りで文法機能的区別を見せる。一方、ダガリ語（ニゲル・コンゴ）やカンベラ語（オーストロネシア）の音象徴語は、常に統語的周辺部への実現となるため、階層における音象徴語と一般語の間に文法的区別が存在すると言える。また、擬音語のみに周辺的実現を許すハンガリー語は、擬音語と擬態語の間で区別を行っている。英語、スウェーデン語、フランス語では、音象徴語は基本的に主節の核として機能しうるが、高度に類像的な臨時擬音語等にはそれがやや難しいという点で、類像性階層の一番高い位

置で文法的区別をしているようである。このように、言語間の音象徴語文法の違いは、類像性階層を（核・周辺への実現それぞれについて）文法的に切り分ける位置の違いとして捉えられる。

　興味深いことに、この記述法は音象徴語文法における含意関係を浮き彫りにする。即ち、以下のような普遍的仮説が導き出される：ある言語において、ある意味タイプの音象徴語が主節の核として実現可能であれば、それより類像性の低い語にもそれが可能である；逆に、ある意味タイプの音象徴語が主節の周辺に実現可能であれば、それより類像性の高い語にもそれが可能である。この含意関係は、本モデルにおける“非典型的な語彙項目は節構造の周辺部へ”という類像的な写像関係に根差している。どれほど類像性の高い語を「非典型」と見なすかが言語により異なるのである。

　このように本研究は、従来辞書的記述への志向が顕著であった音象徴語研究の次のステップとして、音象徴語の形式と意味をより一般的な視点より考察するものである。この視点は、これまで稀だった本研究領域からの一般言語理論への貢献を可能にする。

Preface

This thesis is intended to be the first grammar of sound-symbolic words in Japanese. Unlike the traditional descriptive studies focusing on the peculiar iconic facets of sound-symbolic words, it also makes some theoretical approaches to the semantics, syntax, and morphophonology of these lexical items. The study of Japanese sound-symbolic words written in English has been almost solely represented by Kakehi et al.'s dictionary and Hamano's (1998) monumental work on the sound-symbolic system of mimetics. Hopefully, the current study will be another such important contribution.

This study could be also called *The Grammar of Sound Symbolism: A Theoretical and Empirical Study of the Form and Meaning of Japanese Mimetics*, which was sometimes used around the time of submission. Earlier versions of several parts of this thesis have been or will be published as journal articles or proceedings papers. An investigation related to Section 2.1.2 and Chapter 5 was published as "Two cognitive subsystems of sound symbolism in Japanese" in *KLS* 28: *Proceedings of the Thirty-Second Annual Meeting of Kansai Linguistic Society* (2008, pp. 23-33). Section 4.1 was published as "Onsyootyoogo-no 'hantyuuka-mondai'-e-no hitotu-no kotae: Tamori & Schourup (1999)-e-no ripurai [Defining the mimetic category in the Japanese lexicon: A reply to Tamori and Schourup (1999)]" in *Proceedings of the Eighth Annual Meeting of the Japanese Cognitive Linguistics Association* (2008, pp. 428-438). Section 4.2 will be published as "Phonosemantic evidence for the mimetic stratum in the Japanese lexicon" in *Proceedings of the Thirty-Fourth Annual Meeting*

Acknowledgments

In writing this thesis, I have received a great deal and variety of support from numerous people. First of all, I wish to express my thousands of thanks to Yo Matsumoto, without whom this thesis might have been neither started nor finished. When I was studying English psych-predicates early in the Master's course, his seminar on motion typology turned my attention to mimetics. His advice has always been full of insights and inspirations, which have constantly excited and motivated me.

My deep appreciations also go to the other committee members. Hideki Kishimoto has always cared about my study and future with a calm but trustworthy attitude. The presence of Lawrence Schourup in the committee was very important because this thesis presents some alternative accounts for the traditional issues with which he has been concerned.

I also owe sincere gratitude to other faculty members at the Department of Linguistics, Kobe University. Yoshihiro Nishimitsu has provided me with countless suggestions and rare references and corpora from various academic fields. Haruo Kubozono, mainly as an expert in theoretical phonology, let me notice some important problems involved in a study of sound and meaning. Discussions and everyday conversations with Prashant Pardeshi were also important. I have learned a lot from his pacific character, critical thinking, and witty points of view in linguistics. I am also grateful to Shinobu Mizuguchi and Yoshie Yamamori for their invaluable comments and encouragements. At last but not least, I thank Hideyuki Yamamoto for giving me peace.

I would also like to express my thanks to my colleagues at the department, where I spent five fruitful years. The existence of the three phonologists who wrote a dissertation around the same time—Mikio Giriko, Shinji Ogawa, and Hajime Takeyasu—has always been a strong encouragement. Hajime's enthusiastic tutorials on statistics in particular let me out of an inferiority complex in statistical techniques. The kind senior doctors Kiyoko Eguchi, Miho Mano, Gábor Pintér, Takayuki Tohno, and Yuko Yoshinari offered me practical advice not only while we were studying together, but also every time they came back to Kobe. I also thank Tetsuro Sumida and Akiko Takemura for helping me get important contacts with many cooperative native consultants of Japanese. Moreover, everyday linguistic and nonlinguistic chats with Yuzo Morishita and Kohei Suzuki, with whom I spent many hours in a university study room, made my research smooth. I am also indebted to Ken-Ichi Kadooka for providing me with his precious database of Japanese mimetics, which played some significant roles in this study. Furthermore, I owe the crosslinguistic data in Chapter 7 mainly to Youknow Lee, Andrea Tews, and Jens Östlund.

I also thank the people at the Department of Psychology, next to which our department was located. Tamiko Ogura gave me lots of helpful comments, especially on the lexical acquisition issues. Thanks to her and her students' heartwarming atmosphere, I could refresh my mind every time I visited her office. I would like to send my special thanks to Megumi Shimizu for her generous assistance in some psychological experiments.

I am also thankful to some people at the Department of Language and Information Sciences, the University of Tokyo, which is the main place of my postdoctoral research. My special gratitude goes to Toshio Ohori, whose knowledgeable advice led this thesis to some significant improvements. I thank the iconicity researcher Henrik Voss particularly for his help in an experiment. Also, Hisanori Furumaki kindly offered me opportunities to deliver informal talks in his study group.

K.A.

Kobe, Japan

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Lists of Tables and Figures

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Abbreviations and Symbols

Abbreviations and symbols used in this thesis are as follows:

Glosses, etc.:

ACC	=	accusative
C	=	consonant
©	=	distinctly childish or colloquial
CAUS	=	causative
CL	=	classifier
COMP	=	complementizer
CONJ	=	conjunctive
DAT	=	dative
DEC	=	declarative
DEM	=	demonstrative
F	=	form
FOC	=	focus
FP	=	final particle
GEN	=	genitive
H	=	heavy syllable
IMP	=	imperative

L = light syllable

Lex = lexical

μ = mora

MIM = mimetic (or sound-symbolic word in general)

Morph = morphology

M(orphon) = morphophonology

N = moraic nasal (only for mimetics)

NML = nominalizer

NOM = nominative

NPST = nonpast

PASS = passive

PERF = perfective

PL = plural

POL = polite

PrWd = prosodic word

PST = past

Q = first half of the geminate cluster (only for mimetics)

QUOT = quotative (or complementizer)

red = reduplication

Seg = segment

S(em) = semantics

SG = singular

Syn = syntax

TOP = topic

V = vowel

VBL   = verbalizer

3   = third person

= grammatical only in an atypical reading

-       = reduplicant boundary (in skeletal representations of sound-symbolic words)

---   = meaning not identified at the moment

^   = accent nucleus, pitch fall (basically for sound-symbolic words; the absence of
this symbol indicates a flat, unaccented pattern)

( )   = foot

Languages:

B = Bilkiire

D = Dagaare

E = English

F = French

H = Hungarian

J = (adult) Japanese

Ka = Kambera

Ko = Korean

NAJ = non-adult Japanese

S = Swedish

W = Warekena

Statistics:

$*p < .05, **p < .01, ***p < .001$

Chapter One

Introduction

1.1. Outline

This thesis discusses several fundamental facets of sound-symbolic words (or mimetics) in Japanese (agglutinative, SOV) from multiple theoretical perspectives. Like Korean, Basque, Zulu, Sesotho, Tamil, Nez Perce, etc., Japanese is known for its abundant sound-symbolic vocabulary. Comprehensive dictionaries for this word class, such as Kakehi et al. (1996), give more than 1,600 entries. Japanese mimetics are rich in the variety of meaning as well. It is often compared with the subtle semantic distinctions of English manner verbs (e.g., *flash*, *glimmer*, *glisten*, *glitter*, *sparkle* (light); *loiter*, *plod*, *ramble*, *stagger*, *toddle* (walking)) (Hirose 1981; Shibatani 1990: 156; Hamano 1998: 2). However, it is also sometimes suggested that they depict the world with much greater vividness than English verbs. In fact, they express various kinds of eventualities of nuanced differences, ranging from auditory (e.g., *koN^(-to)* 'conk', *pariQ^(-to)* 'crack') to non-auditory experiences including visual (e.g., *ni^koniko* 'smiling', *pyoN^(-to)* 'hopping') and internal phenomena (e.g., *geNna^ri* 'dispirited', *zu^kizuki* 'feeling one's head/teeth throbbing'). As illustrated below, several characteristic forms, such as reduplicative, "suffixal" (those ending in *-Q^*, *(^)-N(^)*, or *^-ri*), and "emphatic" ones (taking the form of CVCCV^ri), are available to mimetics, and they can be divided into two major types—namely, monomoraic root-based and bimoraic root-based

(mimetic roots are underscored here; Kindaichi 1978; Hamano 1998; cf. Nasu 2002).

(1.1) Japanese mimetics:

a. Monomoraic root-based:

guiQ^(-to) 'jerking', _hoQ(-to)_ 'relieved', _kiNkiN_ 'completely frozen', _nuQ^(-to)_ 'coming out suddenly', _piN^(-to)_ 'ping', _po^ipoi_ 'tossing repeatedly', _to^NtoN_ 'knock-knock', _zyu^uzyuu_ 'fizzling'

b. Bimoraic root-based:

aNgu^ri 'agape', _bura^ri(-to)_ 'going out with no definite destination in mind', _gi-zaQ^(-to)_ 'notched', _huwaN^(-to)_ 'fluffy', _kiQpa^ri_ 'decisive', _pa^tipati_ 'pop-pop, clap-clap'

Specific subjects of interest range over the morphophonological, morphosyntactic, and semantic characteristics of mimetics and their interrelations. These issues will be considered utilizing various linguistic and nonlinguistic methods of analysis, encompassing grammatical, crosslinguistic, statistical, and experimental ones. The broadness of the perspectives with respect to these issues and methodologies will allow us to reach the general conclusion that _mimetics are iconic in nature but fundamentally have a full-fledged lexical and grammatical status as well_. This study demonstrates that mimetics are characterized by their _iconic mapping systems at lexical/morphophonological and syntactic levels, both of which will turn out to be crucially based on their fundamental properties as lexical items._

There have been numerous studies on mimetics in Japanese. The previous literature on mimetics is generally characterized by two skewed situations. First, there has been a strong orientation to descriptive investigations of the phonosemantics (or sound symbolism), morphology, phonology, and rhetoric of mimetics. This tendency is reflected in the remarkable number of dictionaries (e.g., Amanuma 1973; Asano 1978; Chang 1990; Kakehi et al. 1996;

Hida and Asada 2002; Yamaguchi 2003) as well as monographs (e.g., Tamori 1991; Kakehi and Tamori 1993; Hamano 1998; Tamori and Schourup 1999; Kadooka 2007) and articles (e.g., Kobayashi 1935; Izumi 1976; Kindaichi 1978/1982; Tamamura 1984) dedicated to this particular word class. Also, the exclusive concentration on mimetics gave birth to the closed status of the study of mimetics and to what one might call "mimeticists," who absorb themselves in mimetics and appear to ignore the existence of the rest of the language. Conversely, to make matters worse, mimetics have tended to be excluded from general linguistics. Thus, the closedness of the study of mimetics is a bilaterally caused situation. Second, in Japanese linguistics as well as in studies of other languages, there has been a notable tendency to have a viewpoint confined to one language (see Samarin 1971: 132 for a statement about the closed nature of the study of African ideophones). As a consequence, it is sometimes the case that this word class is believed to be a distinctive characteristic of the Japanese language (Asano 1978: 1; Kindaichi 1988, Volume 1: 191-195). These characteristic situations seem to come from the attractiveness of the "peculiar" features this word class possesses in several aspects. In other words, it is likely that the formally and semantically deviant facets of mimetics have driven previous linguists to those descriptive studies within Japanese.

Since around the opening of the twenty-first century, however, this tendency has started to change. Specifically, some linguists and psychologists, often non-mimeticists, have begun to apply some theoretical frameworks to the phonology, syntax, and semantics of mimetics. Nevertheless, the application of general linguistic as well as psychological theories to this particular research area is still at its starting point. This thesis is intended to contribute to the advancement of this fresh view.

The rest of this chapter is organized as follows. Section 1.2 will clarify the overall claims and standpoints of this study. Section 1.3 will define some fundamental notions concerning sound-symbolic phenomena.

1.2. General Claims

This section gives brief introductions of some general claims this study intends to make. Section 1.2.1 outlines the theoretical standpoints taken in this thesis. Section 1.2.2 shows my basic understanding about mimetics. Section 1.2.3 presents a sketch of the entire structure of this thesis.

1.2.1. Theoretical standpoints

This thesis consists of two major sections, each of which discusses a distinct level of iconic form-meaning mappings exhibited by mimetics from a kind of functional-theoretical perspective. Since detailed introductions of the theoretical frameworks are given in Chapter 3, I here describe an overview and upshot of them.

Part I will approach the morphophonology of mimetics from the viewpoint of Construction Grammar (Goldberg 1995; among others). Morphophonological as well as morphological constructions have hardly been investigated in the literature, and a few studies like Booij (2004, 2005) have recently initiated explorations in "Construction Morphology." The present study claims that mimetics can be considered as constructions (i.e., form-meaning pairings) at the morphophonological level. This constructional approach to mimetic morphophonology is expected to make an important contribution to the initial development of this particular area of Construction Grammar.

Part II will take a functional perspective to account for the morphosyntactic realization of mimetics. It will be claimed as a possible universal that grammatical-functional properties of sound-symbolic words are dependent on their degree of iconicity. This view of mimetic syn-

tax will be formulated by means of a pair of hierarchies and an iconic mapping relation between them.

It should be noted here that these two theoretical standpoints do not contradict each other, for I take them for two distinct levels of linguistic representation. Japanese mimetics can be generalized as constructions at the morphophonological level, but are regulated by the iconic mapping model at the morphosyntactic level. In other words, the constructionally established status of mimetic morphophonology is the basis of the distinguishable mimetic category in the Japanese lexicon, but how each mimetic item appears in a sentence is a different story. In addition, there are at least two characteristics common to the two frameworks. First, both approaches make use of a kind of schematization in the treatment of linguistic phenomena. A constructional approach employs various levels of schematic representations of form-meaning pairs. Likewise, a functional approach to syntax enables us to treat two superficially different linguistic structures in parallel by abstraction of certain grammatical relations, grammatical functions, etc.[1] Second, both frameworks utilize some kinds of hierarchies for generalization. Construction Grammar posits inheritance links between constructions to describe the asymmetrical structure of construction networks based on instantiation, semantic extension, etc. Likewise, functional syntax often aims at a crosslinguistic generalization by means of a sort of hierarchical structure, such as the Noun-Phrase Accessibility Hierarchy of grammatical relations (Keenan and Comrie 1977) and the layered structure of the clause (see Section 3.2; Van Valin and LaPolla 1997).

The theoretical importance of this study also resides in its employment of a not fully established framework (i.e., Construction Morphology). Using this growing theory, I intend not only to clarify the full-fledged linguistic status of mimetics but also to contribute to the initial development of the theory. This goal is naturally locatable in the current theory-oriented trend in the study of mimetics.

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[1] I am indebted to Toshio Ohori for pointing out this similarity to me.

1.2.2. Basic view of mimetics

There is also a basic view of mimetics common to Parts I and II. Both parts look at not only special iconic aspects of mimetics but also their regular aspect as lexical items, arguing that the former are based on or a part of the latter. Specifically, mimetic morphophonological constructions (e.g., CV^CV-CVCV), which are proposed in Part I, are special in that their form-meaning relationship is iconic. However, it is not entirely exceptional in that their iconic form-meaning relationship is essentially based on their lexical meanings. Part II will argue that variation in the grammatical status of mimetics or sound-symbolic words in general is based on their degree of iconicity, which crucially depends on what kind of eventuality they refer to as lexical items. Mimetics referring to sound are highly iconic because they represent sound by means of sound, whereas those referring to psychological experiences are much less iconic because they represent abstract non-auditory eventualities by means of sound. The fundamentally lexical meaning-basis of the morphophonology and morphosyntax of mimetics, together with the aforementioned applicability of theoretical frameworks, will confirm that mimetics are locatable within the regular linguistic system of Japanese.

1.2.3. Organization

The organization of this thesis is as follows. Chapter 2 will present a survey of important previous studies. I will first point out some lacunae of the traditional descriptive studies on mimetics and then outline recent theoretical explorations in mimetic grammar, which the rest of this study pursues. Chapter 3 will outline the views of semantics, morphology, and syntax

that this thesis takes and briefly describe the theoretical claims made in those frameworks.

The rest of the thesis consists of two major sections. Part I, consisting of two chapters, mainly discusses the morphophonology of Japanese mimetics. Chapter 4 will introduce the notion of morphophonological templates of Japanese mimetics. Based on a set of existent/novel word-based experiments, I will propose a formal definition of the mimetic category based on morphophonological templates. Also, I will claim that the special phonosemantic properties of mimetics stem from their highly specific lexical meanings. Chapter 5 will go into the depth of the semantics of the mimetic morphophonological templates, mainly bimoraic root-based ones. The mimetic templates will be examined as morphophonological constructions in the framework of Construction Grammar, and their aspectual and non-aspectual properties will be identified on the basis of some grammatical and experimental investigations.

Part II, which again consists of two chapters, treats another linguistic level of mimetics—namely, (morpho)syntax. Chapter 6 will propose a generalization for the morphosyntactic representations of Japanese mimetics with a semantic constraint called "the anti-iconicity constraint." It will be argued that highly iconic mimetics like creative, unconventional mimetics for sound tend to be exclusively realized as adverbs while poorly iconic mimetics like those representing internal experiences tend to be realized as verbs, adjectives, and nouns. Chapter 7 will develop the generalization to a crosslinguistically applicable functional model for the semantics-syntax mapping of sound-symbolic words. This iconicity-mediated model will allow us to account for not only intra- but also cross-linguistic variation in the morphosyntactic properties of sound-symbolic words at the grammatical-functional level, rather than at the grammatical-categorial level. Concretely, it will be claimed that sound-symbolic words with high iconicity are likely to be realized in a periphery of a clause, whereas those with low iconicity are likely to be realized in the core of a main clause. The syntactic isolation of high iconicity (i.e., a property semantically deviated from regular lexical items) from the clause

core can be considered as a product of diagrammatic iconicity. Finally, Chapter 8 will conclude this thesis and point out some important remaining issues that lie beyond the present study.[2]

This study is thus located in the new theory-oriented trend in the research of mimetics, compensating the traditional exclusivity from general linguistic frameworks with serious theoretical and crosslinguistic considerations. In addition, the diversity of analytical methods and techniques taken in this thesis, which range from linguistic to psychological to statistical, is expected to point to the possibilities for subsequent studies from various viewpoints. At the same time, the thesis presents some substantial implications for the two underdeveloped linguistic theories. In this regard, this study can also occupy a significant position in the development of general linguistics. This last point is again important in terms of the closed nature of previous studies on mimetics.

1.3. Basic Terms and Key Concepts

In this section, I define some basic terms and notions concerning mimetics and sound-symbolic phenomena in general. As often noted, terminology in this particular research field shows considerable complexity and inconsistency within as well as across languages. In what follows, I will first define the term "mimetics" employed in this thesis (Section 1.3.1), and then present brief descriptions about their semantic classifications (Section 1.3.2) and their two levels of meaning that the thesis assumes (Section 1.3.3). In Section 1.3.4, I will introduce the general notion of iconicity, which characterizes sound-symbolic words and plays an important part in both parts of this thesis. In Section 1.3.5, I will posit a hierarchy of iconicity of words, whose plausibility will be shown from several perspectives in Sec-

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[2] Although Part II somewhat presupposes Part I, they are basically separately readable. Also, readers familiar with Japanese mimetics might want to skip Chapter 2.

tion 1.3.6. The traditional problem of the definition of "mimetics" will be discussed in detail in Chapter 4. Hence, I here only provide basic information about mimetics.

1.3.1. *Mimetics*

First of all, I will define mimetics. The term "mimetics" (or "mimetic words") is a translation of the Sino-Japanese/Korean terms for subtypes of sound-symbolic words (i.e., *giongo/uyume* (more commonly, *uysenge*) 'phonomime', *gitaigo/uythaye* 'phenomime', *gizyoogo/uycenge* 'psychomime'; see Section 1.3.2 for each subtype), which share the component *gi-* or *uy-* that originally stands for 'mimic' in Chinese. As pointed out by Tamori and Schourup (1999: 6) and experimentally shown in Chapter 4 of this thesis, native Japanese speakers have a certain intuition about whether a word is mimetic or not. In fact, mimetics are generally conceived of as having characteristic morphology and phonology and iconically motivated form-meaning relationships (Kobayashi 1935; Izumi 1976; Kindaichi 1978; Hamano 1998; Nasu 2002). I informally accept the general idea that lexical items of this sort have peculiar "vividness" (Kita 1997; among others) and are "the closest linguistic substitute for a non-verbal, physical act" (Kunene 2001: 183; see also Doke 1935). In Chapter 4, Japanese mimetics will turn out to be primarily definable in terms of their morphophonology and have certain semantic uniqueness. I will use the term "mimetics" as a cover term referring to those imitative words in Japanese and Korean (cf. Chang 1990; Hasada 1998, who use the term limited to mimetics for non-auditory experiences).

In Japanese linguistics, especially studies written in Japanese, there is a terminological convention of using "onomatopoeia" or "onomatopoe(t)ic words" (or sometimes "ono-matopes") as a cover term for sound-symbolic words (Tamori 1988, 1990; Murata 1990; Kakehi and Tamori 1993; Tamori and Schourup 1999; Nasu 2002; see also Hulstaert 1934;

Sanderson 1922). However, following its original meaning in Greek, French, or English, I use the term only for sound-mimicking words (or phonomimes).

What are called "sound-symbolic words" in general have been called by numerous terms (for summaries of previous terminology see Samarin 1971: 131-132; Childs 1994: 178-179; Abelin 1999: 3-9). In modern studies on sound-symbolic words, however, mainly three English cover terms are used for them according to the language(s) at issue: "mimetics" in recent Japanese (and Korean) linguistics (Martin 1975; Mester and Itô 1989; Tsujimura 2002/2006), "ideophones" most frequently in African and Native American linguistics (Doke 1935: 118; Fivaz 1963; Bartens 2000), and "expressives" in Southeast Asian linguistics (Abbi 1994; Wiltshire 1999; Klamer 1999ab, 2001; Chevillard 2004).[3] In this thesis, I will follow these conventions. Here is a summary of the terminology.

Table 1.1. Different terms for sound-symbolic words

	Terms	Target languages
Sound-symbolic words {	Mimetics	Japanese(, Korean)
	Expressives	Southeast Asian languages
	Ideophones	African and Native American languages

Note that the crosslinguistically applicable cover term "sound-symbolic words" refers to "words symbolizing something (audible or inaudible) by means of linguistic sounds," not "words symbolizing sounds (by means of linguistic sounds)" (i.e., onomatopoeic words). Also, regardless of languages concerned, I will refer to ordinary vocabulary items as "non-mimetic" or "regular" words (or simply "nonmimetics").

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[3] The term "expressives" is often used as a broader notion to include certain types of names (e.g., names for persons, places, and animals) and words with negative connotations (Klamer 1999a: 201). In this sense, expressives may correspond to "words with sound symbolism" rather than "sound-symbolic words" (see Section 4.1.2).

1.3.2. Semantic classifications of mimetics

There have been various semantic classifications of mimetics in the literature in Japanese linguistics, and there is a common criterion for them: they have been primarily based on the modalities or sensory organs with which each mimetic is concerned. The most common classification is a dichotomous one: *giongo* 'phonomime' (mimetic for sound, both animate and inanimate; *giseigo* 'voice-mimicking word' used to be preferred) and *gitaigo* to mean 'non-phonomime'. This dichotomy reflects the presence and absence of the mediation of synaesthetic/crossmodal understanding (i.e., understanding of non-auditory experiences in terms of auditory ones). This is reasonable in that onomatopoeia seems to be the prototype of sound-symbolic words (see Section 1.3.6).

In accordance with several studies (e.g., Martin 1975; Makino and Tsutsui 1989; Shibatani 1990; Sohn 1994; Hasada 1998, 2001; Bartens 2000), this thesis makes further classification of non-phonomimes, adopting a three-way semantic classification of sound-symbolic words: phonomimes, phenomimes (or *gitaigo*), and psychomimes (or *gizyoogo*). Phenomimes represent visual or textural experiences, such as manner of motion and roughness of the skin. Psychomimes represent internal experiences—namely, bodily sensation and emotion. I employ this trichotomy because, as discussed in Part II, psychomimes behave differently from the rest of non-phonomimes with respect to some grammatical phenomena and crosslinguistic distribution. Here are some examples from the three subcategories of mimetics.

(1.2) A semantic trichotomy of mimetics:

    a. Phonomimes (adjectival form: phonomimic):

       i. Doa-no   beru-ga *karaN^-to* nat-ta.

         door-GEN bell-NOM MIM-QUOT ring-PST

         'The doorbell rang with a *clang*.'

ii. Neko-ga *nya^anyaa* naki-nagara de-te ki-ta.

   cat-NOM MIM cry-while exit-CONJ come-PST

   'A cat came out crying *meow-meow*.'

iii. *bakiQ^(-to)* 'crack', *bu^ubuu* 'oink-oink', *dosiN^(-to)* 'thud', *go^rogoro* 'thun-der', *kotoN^(-to)* 'plonk', *ku^sukusu* 'chuckle', *putuQ^(-to)* 'snap', *syuQ^(-to)* 'swish', *tyariN^(-to)* 'clink', *wa^NwaN* 'bowwow'

b. Phenomimes (adjectival form: phenomimic):

i. Taiyoo-ga *gi^ragira* kagayai-te i-ru.

   sun-NOM MIM shine-CONJ be-NPST

   'The sun is shining *glaringly*.'

ii. Asufaruto-ga *siQto^ri* nure-te i-ta.

   asphalt-NOM MIM get.wet-CONJ be-PST

   'The asphalt pavement was *pleasantly wet*.'

iii. *debuQ^(-to)* 'flabby', *gaQti^ri* 'solidly built', *koNga^ri* 'toasted lightly brown', *koNmo^ri* 'swelling', *ne^baneba* 'sticky', *niya^ri(-to)* 'grinning', *pikaQ^(-to)* 'shining', *poiQ^(-to)* 'tossing', *su^besube* 'smooth', *suQki^ri* 'clear', *tyo^komaka* 'bustling restlessly', *ziro^ri(-to)* 'staring sharply', *zuraQ^(-to)* 'lined up'

c. Psychomimes (adjectival form: psychomimic):

i. Garasu-no hahen-o hun-de asi-ga *tiku^ri*-to itan-da.

   glass-ACC chip-ACC step.on-CONJ foot-NOM MIM-QUOT hurt-PST

   'Treading on a fragment of glass, [I] felt [my] foot *prickle*.'

ii. Mai-wa situren-ni *ku^yokuyo* nayan-de i-ta.

   M.-TOP lost.love-DAT MIM worry-CONJ be-PST

   'Mai was *worrying* about [her] lost love.'

iii. *biQku^ri* 'astounded', *gaQka^ri* 'disappointed', *haQ^(-to)* 'noticing', *ku^rakura* 'dizzy', *pu^NpuN* 'feeling a reek', *u^kiuki* 'feeling happy and lighthearted', *zoQ(-to)* 'feeling chilly', *zukiQ^(-to)* 'feeling one's head/tooth throb'

The size of the three categories differs considerably, with phenomimes dominant in number at least in dictionaries.

Some studies propose finer-grained classifications of mimetics (for featural classifications see Kakehi 1986; Nakakita 1991; Kakehi and Tamori 1993: iv). For example, Kindaichi (1978/1982) divides phenomimes by animacy to have something *giyoogo* 'mimetic for animate appearance' and *gitaigo* 'mimetic for an external mode of an object' (the same term is also used for phenomimes in general). Moreover, psychomimes are sometimes divided into mimetics for bodily sensation and those for emotion (Shibatani 1990; Kakehi and Tamori 1994). However, as far as the present research is concerned, these subdivisions are irrelevant, for the subtypes behave in parallel at least in the phenomena discussed below.

Yamanashi (1988), on the other hand, proposes a five-sense-based classification. "Auditory mimetics" correspond to our phonomimes. "Visual and tactile mimetics" together constitute the phenomimic category, although a subtype of tactile mimetics, which represent our internal sensation like the prickle on the skin, are categorized with emotion mimetics as psychomimes in the above trichotomy. This five-sense-based view allows us to notice an interesting distributional fact of Japanese mimetics: we find few mimetics for taste and smell in the Japanese lexicon (Izumi 1976: 142-143; Yamanashi 1988: 84). Moreover, not only are these rare, taste/smell mimetics are unlikely to refer to tastes and smells themselves, but instead represent tactile sensation on the tongue or nose (Kindaichi 1978: 18). In this respect, it may not be necessarily useful to posit the five senses as a criterion of classification of Japanese mimetics.

Problematically, Japanese linguistics also suffers from terminological confusions. For ex-

ample, as already seen, *gitaigo* (or *phenomime*) has been used in three ways: 'non-phonomime', 'mimetic for an external mode of an object', and 'mimetic for a visual/textural experience' (see Yamanashi 1988 for an exceptional terminology in which *gitaigo* even includes phonomimes). This thesis adopts the last usage of the term on the basis of the above semantic trichotomy. Also, as suggested by its component *zyoo* 'feeling, affection' (or *psycho-*), *gizyoogo* (*psychomime*) is often used only for emotion mimetics—excluding mimetics for bodily sensation (Kindaichi 1978/1982; Hasada 2005). The present study does not follow this terminology, for mimetics for bodily sensation and those for emotion show parallel behavior in terms of the morphosyntactic properties that will be discussed below.

Finally, it should be noted that any semantic classification of sound-symbolic words can only be a matter of convenience (see Morita 1953). This idea can be drawn from the well-known fact that there are quite a few mimetic items that cannot be classified definitely into one semantic category (Morikawa 2002; Nakao et al. 2003). For example, the mimetic *do^tabata* 'romping around noisily' can be classified not only as a phonomime based on the audibility of its referent activity, but also as a phenomime based on its manner-of-motion meaning component. In a similar way, although the mimetic *to^botobo* 'plodding' is usually regarded as a manner-of-motion phenomime, it has the potential to be classified as a psychomime due to its psychological connotation of low spirits (Hasada 2005: 191-192; Akita 2006a; see also Slobin 1997, 2004 for a similar observation of English motion verbs). In this connection, Kita (1997, 2008) remarks that mimetics in themselves depict various aspects of an eventuality holistically (see also Doke 1935; Samarin 1971). This putative indivisibility of referent eventualities of mimetics or sound-symbolic words in general is suggestive of the impossibility of perfect, clear-cut classification of them based on a semantic criterion.

1.3.3. Two levels of semantic representation of mimetics

This thesis assumes two levels of semantic representation for sound-symbolic words—namely, "sound-symbolic meaning" and "lexical meaning"—which have been neither clearly distinguished nor defined in the literature. Sound-symbolic and lexical meanings, respectively, seem to correspond to "expressive" and "referential" meanings in Herlofsky (1990), or "connotational" and "denotational" meanings in Tsujimura (2008) (cf. Kita's 1997 two semantic dimensions introduced in Section 2.2.1 below).

Previous studies on mimetic semantics have mainly been studies on the sound-symbolic meaning (or the phonosemantics) of mimetics. "Phonosemantics" refers to (a research field treating) iconically motivated relationships between linguistic sounds (or sequences of them called phonaesthemes; Firth 1930; Rhodes 1994; Bergen 2004) and certain abstract images, which are also referred to as sound symbolism (Abelin 1999), phonosymbolism (Malkiel 1994), phonaesthesia (Cornish 2003), etc. Hamano (1998) is the best-known descriptive phonosemantic study of Japanese mimetics, which explicates systematic correspondences between their component phonemes and certain abstract meanings (see Section 2.2 for some details). For example, as discussed in Sections 4.6 and 4.7 below, a pair of mimetics that differ only in voicedness of their first consonant evoke different degrees of intensity or size of some kind, with the voiced one more intense or larger (e.g., *gi^ragira* 'glaring' > *ki^rakira* 'twinkling'; where ">" stands for 'is more intense or larger than'). Similarly, as also considered in Section 4.6, the vowels /a/ and /i/ are linked with largeness and smallness, respectively (e.g., *bariQ^(-to)* 'crash' vs. *biriQ^(-to)* 'rip').

As introduced in Section 2.1 and discussed in detail in Chapter 5, iconic relationships are also observed in the morphophonology of mimetics (Izumi 1976; Hamano 1998). For example, it is crosslinguistically true that reduplicative mimetics are often associated with repetitiveness or continuity. Likewise, Part I of this thesis will reveal that non-reduplicative suffix-

al mimetic forms, such as *kuru^ri(-to)* 'turning', are employed to represent momentary eventualities.

These componential sound-symbolic values of each segmental and morphophonological feature build up the whole sound-symbolic semantic structure of a mimetic. It appears that this sound-symbolically constructed semantic structure is imagistic and "elusive" in nature (see Tsujimura 2005a) and perhaps corresponds to what Kageyama (2007: 35) calls the "perceptual image" of a mimetic. This is what native speakers of Japanese conceive when presented with a coined mimetic with neither a semantic nor a morphosyntactic context.

The other level of semantic representation of mimetics (i.e., lexical meaning) seems to have been discussed with much less seriousness (see Tamori and Schourup 1999: 8; Amemiya and Mizutani 2006ab). Lexical meanings of mimetics are such fully specified referential meanings as nonmimetic, regular lexical items have. The lexical semantic structure of a mimetic contains the sound-symbolic semantic structure of the mimetic as its componential part. This idea is at least to some extent shared in some recent important semantic and syntactic studies on mimetics, including Kageyama (2006, 2007) and Tsujimura and Deguchi (2007) (see Section 2.2.4). In this respect, the present postulation of the two levels of semantic representation for mimetics is not so peculiar as its rarity in the literature might suggest.

Let me illustrate the two levels of mimetic meaning using the total-reduplicative mimetic *pi^tyapitya*. I list the sound-symbolic and lexical meaning components of the mimetic in (1.3a) and (1.3b), respectively.

(1.3) Two levels of meaning of *pi^tyapitya*:

    a. Sound-symbolic meaning:

       i. Segmental (based on Hamano 1998):

          /p/ = tautness of the surface of a light, small object;

          /i/ = tenseness of an object or movement in the first phase;

/t/ = hitting of a surface;

/Cy/ (palatalization) = childishness, uncontrolled energy;

/a/ = largeness of an object or movement in the second phase

ii. Morphophonological:

^ = dynamicity;

total-reduplication = repetitiveness

b. Lexical meaning:

'splashing liquid repetitively'

The sound-symbolic semantic components listed in (1.3a) yield the referentially unspecified meaning of the mimetic *pi^tyapitya*, which is substantiated by its lexical meaning for the specific eventuality in (1.3b). In other words, the segmental and morphophonological properties of the mimetic together constitute the iconic basis of the water splashing meaning of the mimetic. The unspecific nature of sound-symbolic meaning is, for example, illustrated by the fact that (1.3a) does not contain the information that the moving entity involved in the referent event is liquid. This specific content of the mimetic is represented by its lexical meaning (see Tamori and Schourup 1999: 9 for a similar idea). Chapter 5 of this thesis will further investigate the lexical meaning-basis of the iconic system of mimetic items.

1.3.4. Iconicity

Mimetics are generally conceived of as iconic lexical items (see Kakehi et al. 1996; Herlofsky 1998), which at least partially run against linguistic arbitrariness (de Saussure 1916/1959). The notion of iconicity plays a key role in this study, which will be utilized for explanation of some morphophonological and morphosyntactic phenomena concerning mimetics. Iconicity

is usually defined as something like "resemblance between form and meaning" (more precisely, between form and the concept it represents) (see Haiman 1980, 1983, 1985ab; Givón 1983, 1985; Hamano 1998: 9; among others; see Ohori 1987 for a summary of the notion). Iconicity can be summarized at least from two viewpoints.

First, in his influential study in semiotics, Peirce (1932: 2.247, 277-282) divides iconicity (or icons) into two types: "imagic" and "diagrammatic." (He actually posits another type called "metaphor," which seems to be irrelevant to our discussion.) The former is resemblance residing in signs themselves, whereas the latter is resemblance residing in relations among signs. Here I cite the definitions of the two types of iconicity from Haiman (1980: 515).

(1.4) Two types of iconicity:

a. Imagic iconicity:

An iconic IMAGE is a single sign which resembles its referent with respect to some (not necessarily visual) characteristic: commonly cited examples are photographs, statues, program music—and, in language, onomatopoeic words.

b. Diagrammatic iconicity:

An iconic DIAGRAM is a systematic arrangement of signs, none of which necessarily resembles its referent, but whose relationships to each other mirror the relationships of their referents.

In Section 2.1.2, it will be pointed out that, somewhat surprisingly from the description in (1.4a), sound-symbolic words instantiate both types of iconicity.[4]

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[4] The study of iconicity has been rather enthusiastic for the diagrammatic type at the levels of morphology, syntax, and discourse. In the rest of this section, I briefly introduce some important findings in the previous literature on this issue. The remarkable curiosity about diagrammatic iconicity has given birth to several surveys (e.g., Newmeyer 1992; Ungerer and Schmid 1996: Chapter 6; Oda 2000: 28-35; Croft 2003: Chapter 7; Haspelmath 2008a) and some monographs and special issues of journals devoted to this type of iconicity (e.g., Haiman 1985a; Landsberg 1995; Simone 1995; *Cognitive Linguistics* 19, 1 (2008)). Among various subtypes of

Second, as in Oda (2000: 35), "lexical iconicity" (i.e., iconicity at the word level) can be distinguished from iconicity at other levels, such as syntax and discourse. I define this notion clearly as the directness of the relationship between the segmental/morphophonological form and the lexical meaning of a mimetic. In other words, it reflects how similar the sound-symbolic and lexical semantic structures of a mimetic are. The definition of an iconic image in (1.4a) suggests that lexical iconicity is an "imagic" type of iconicity. Based on the discussion in Section 1.3.3, however, mimetics have certain properties as diagrammatic as well as imagic icons. Specifically, as explicated in Section 2.1.2 below, the segmental properties of mimetics instantiate iconic images, whereas its morphophonological properties instantiate iconic diagrams. These two types of iconicity together function as a determinant of the entire iconic status of a mimetic. The following diagram illustrates the idea stated here, encompassing the conception of the two levels of semantic representation of mimetics (the two lines in the diagram indicate motivated relations).

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diagrammatic iconicity, "iconicity of order," "iconicity of complexity," and "iconicity of distance" are discussed most frequently. Since an instance of iconicity of distance will be referred to in Section 3.2, I here only mention the former two.

First, Tai's (1985) findings in Mandarin Chinese word order are often cited as an instance of iconicity of order (or sequence). He proposes a principle called "the principle of temporal sequence," which is stated as "the relative word order between two syntactic units is determined by the temporal order of the states which they represent in the conceptual world" (Tai 1985: 50; see also Haiman 1980: 533). For example, crosslinguistically, the order of clauses in general has to reflect the actual temporal order of events they denote, as illustrated in (i).

(i) *Nǐ zài dǎ diànhuà géi wǒ, wǒ chī-guo fàn.
    you again make telephone to I I eat-PERF meal
    'Call me again after I have finished the dinner.' (intended) (adapted from Tai 1985: 50)

In a similar vein, the sequence of compound verbs is reported to go along that of their referent actions (see also Cooper and Ross 1975; Landsberg 1995).

(ii)   *Zhāngsān shuì-jiào shàng-lóu.
      Zh. sleep-sleep go.up-stairs
      'Zhangsan went upstairs to sleep.' (intended) (Tai 1985: 51)

Second, iconicity of complexity hypothesizes that "[m]ore complex meanings are expressed by more complex forms" (Haspelmath 2008a: 2). Based on Greenberg's (1966) investigations of markedness, Clark and Clark (1977: 523-524) discuss this hypothesis under the rubric of "the complexity principle." They cite two of Greenberg's criteria for complexity of expression as main ones. First, added morphemes are counted as an index of formal complexity. For example, plurality, which is believed to be conceptually more complex than singularity, tends to be expressed by addition of an extra morpheme, such as English -s (e.g., *bagel* vs. *bagels*) and Japanese nominal reduplicants (e.g., *mura* 'village' vs. *muramura* 'villages') (see Haiman 1980: 530, 2008). Likewise, it is often the case that causatives are made by addition of a causative morpheme to non-causatives (e.g., Turkish *düş(-mek)* 'fall' vs. *düş-ür(-mek)* 'make fall, drop'; Haspelmath 2008: 2). In the iconicity-of-complexity view, this phenomenon (i.e., causativization) reflects the conceptual complexity of causative events compared with non-causative ones. Second, contextual neutralization is another kind of index of complexity of expression. For example, an *actor* can be both male and female, whereas an *actress* is necessarily female. The latter is regarded as conceptually more complex due to the absence of semantic neutralization, which causes the occurrence of the added morpheme -*ess*. Greenberg (1966) reports these sorts of phenomena for diverse languages and, in this respect, this subtype of diagrammatic iconicity may be to a certain extent universal (cf. Haspelmath 2008a for a counterargument from a frequency-based perspective).

FORM   **Lexical iconicity**   MEANING

Lexical semantic structure

includes

Segmental/morphophonological structure   Sound-symbolic semantic structure
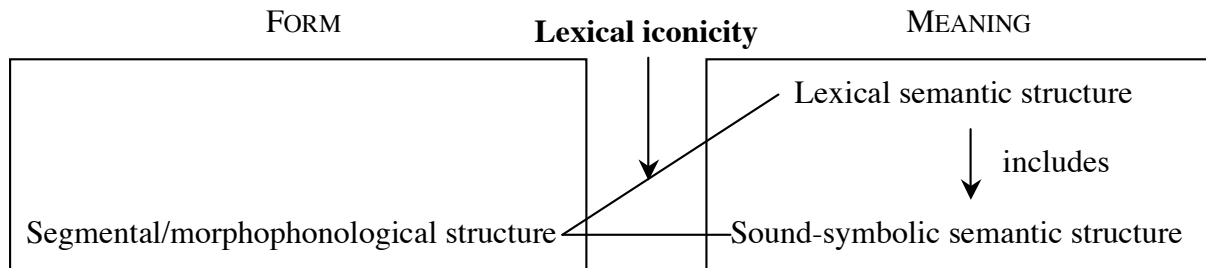
Figure 1.1. Lexical iconicity

1.3.5. *The Lexical Iconicity Hierarchy*

Based on the scalar nature of iconicity (Ohori 1987: 36; Waugh 1994), I posit a hierarchy for lexical iconicity like (1.5), which plays a crucial part in the morphosyntactic discussions in Part II (cf. Hamano 1998: 9, 2006). Henceforth, I will refer to the hierarchy as the LIH.

(1.5) The Lexical Iconicity Hierarchy (LIH):

    (Superexpressives >) Phonomimes > Phenomimes > Psychomimes > Nonmimetics

Since phonomimes represent sound by means of sound, their form and meaning are in quite a direct relationship. This is why they are located at the high end of the LIH. As given in parentheses, in Chapter 7 of this thesis, phonomimes (or mimetics in general) will be further divided into superexpressive/creative (e.g., *gogogogogogooQ^(-to)* 'vroooosh', *splaaaash*) and normal ones (e.g., *gooQ^(-to)* 'vroosh', *splash*), with the former more iconic than the latter. Such superexpressive forms are assumed to be created depending on their iconic correspondences to their referent eventualities rather than on morphophonological conventions discussed in Part I. The form-meaning relationship of phenomimes is more indirect and less iconic because it is mediated by synaesthetic understanding between auditory and

non-auditory (i.e., visual, textural) experiences. I posit psychomimes still closer to the low end of the hierarchy due to the non-physical, abstract nature of their referent eventualities, which is thought to make their form and meaning more difficult to be linked directly. Finally, in accord with the idea of Saussurean arbitrariness of linguistic signs, nonmimetics are not iconic at all. It should be noted that, as William J. Herlofsky pointed out, the present hierarchy is limited to spoken languages. For example, in sign languages, phenomimes should be located higher than phonomimes, for their primary sign vehicle is visual information.

1.3.6. *Linguistic and nonlinguistic correlates of the LIH*

There are several linguistics and nonlinguistic correlates of the LIH that are considered as independent grounds for the ranking. Indeed, each of those pieces of "evidence" alone cannot qualify the hierarchy as an established device, and may appear to be a different, unrelated scale which should not be directly linked with the notion of iconicity. Nevertheless, the fact that those independently motivated scales fit the LIH seems to serve as a sufficient reason for positing it.

The first phenomenon that can be analyzed as a reflection of the LIH is the order of abundance of each type of mimetics within and across languages (Benjamin Bergen, personal communication). As Kindaichi (1978: 9) and Reinelt (1990: 274-275) suggest, crosslinguistically, phonomimes (most notably, animal mimicries) seem to be more commonly found than phenomimes, and psychomimes are often absent or quite rare. If so, it is predicted that there is no single language that does not have highly iconic mimetics but only has poorly iconic ones. In addition, although mimetic dictionaries tend to exclude unconventional phonomimes, and accordingly include more phenomimes than phonomimes, allegedly highly

iconic mimetics seem more frequent than allegedly poorly iconic ones.[5]

The second phenomenon is indirectly correlated with the first one: crosslinguistic similarity in form. Concretely, sounds used for phonomimes tend to be more similar than those used for phenomimes and psychomimes (see Mithun 1982: 55; Reay 1994: 4067-4068). For example, based on her Japanese-Bahasa Indonesian contrastive study, Morikawa (2002) found that segmental properties of phonomimes are more likely to be shared than those of non-phonomimic mimetics between the two languages. Likewise, Bartens (2000: 69) gives a set of phonomimes for coughing in Atlantic creoles (e.g., *kenhengkenheng* in Guadeloupean French Creole and Haitian, an French Creole; *kohokoho* in Ndyuka, an English Creole). Evidently, regarding their phoneme patterns, they are quite similar not only to one another but also to their Japanese counterpart *go^hogoho/ko^hokoho* and even to English *cough*. Furthermore, Noma (2001: 14-15) points out the certain degree of similarity among phonomimes for a dog's bark from several unrelated languages (e.g., *wa^NwaN* in Japanese, *mengmeng* in Korean, *gangan* in Mongolian, *havhav* in Turkish, *wangwang* in Chinese, *bowwow* in English, *wauwau* in German, *ouahouah* in French, *guauguau* in Spanish, *baubau* in Italian, *gavgav* in Russian, *hafhaf* in Czech, *bojboj* in Esperanto). This set of phenomena may serve as a strong piece of evidence for the LIH, for if a form resembles (or has a direct, motivated relationship to) its meaning, it should be more or less similar regardless of the languages in which it appears.[6]

This last point leads to the third presumed iconicity-related phenomenon: ease of acquisition by second language learners. If lexical iconicity makes mimetics sound alike across languages, L2 learners should more readily understand more highly iconic words. In this respect, Iwasaki et al. (2007) conducted an experiment using Japanese mimetics as stimuli and asked

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[5] For example, Ito (2002: 61) counts the mimetic entries in Asano (1978) by their meanings and reports the following results: phonomimes: 61 (8.09%); phenomimes: 623 (82.63%); psychomimes: 70 (9.28%).
[6] The synchronic crosslinguistic similarity mentioned here suggests diachronic similarity within languages: namely, the higher the iconicity of a mimetic is, the more stable its form is over time. However, at the moment, there is no such study in the literature (cf. Yamaguchi 2002). Moreover, diachronic stability can be caused by other factors like conventionality (or anti-creativity), which is more likely to reside in poorly iconic words, the situation may be more complicated than estimated from a single factor.

Japanese and English speakers to evaluate each of them on several semantic scales, like "good-bad" and "graceful-vulgar." As a result, phonomimes for laughing (e.g., *a(^)haha*, *ge^tageta*, *ke^rakera*) received more consistent ratings than phenomimes for walking (e.g., *te^kuteku*, *to^botobo*, *yo^tiyoti*) across languages (see also Oszmianska 2001). In a similar way, Rong (2008) reports that Chinese speakers could understand the meanings of mimetics well along the finer-grained LIH—namely, Phonomimes > Phenomimes > Psychomimes.

The fourth point is creativity or flexibility in form. More flexible imitation will be possible in words whose form and meaning are in a direct relationship. In fact, in his consideration of a child's mimetics, Takiura (1999: 98, 114) observes that phonomimes are more creative and flexible than phenomimes. Akita et al. (2009) also suggest such a difference in creativity between phonomimes and phenomimes through observing that phonomimes take unconventional forms more often and tend to be more expressive than phenomimes in spontaneous motion descriptions (see also Hinata 1986; Echizenya 1989: 47).[7]

We may be able to treat the fifth phenomenon "iconic gestures" in this connection. Kita (1993, 1997, 2000, 2001, 2002ab, 2004) discusses the frequent cooccurrence of mimetic adverbs for spatial motion and gestures (see also Childs 1994: 196; Ibarretxe-Antuñáno 2004: 108-109), which take place with much lower frequency in the use of nonmimetic words, arguing for the iconic form-meaning relationship they have in common. However, mimetics for abstract eventualities like wetness and anxiety are less likely to be accompanied by hand gestures. This suggests that lexical iconicity forms a positive correlation with the likelihood of occurrence of accompanied gestures. This hypothesis should be seriously examined in the future.

The sixth phenomenon is semantic extension. Kakehi (1993) and Yoshimura (2004) propose a directional system parallel to our iconicity hierarchy as a generalization of semantic

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[7] In this connection, difference in colloquiality might be worth examination in terms of the LIH. Highly iconic mimetics are more unlikely to occur in a formal writings (e.g., newspapers) and speech (e.g., news shows) than poorly iconic ones (see Schourup 1993 for a related study).

extension of mimetics. They claim that, in accordance with metaphorical extension in general, the meanings of mimetics extend from concrete to abstract and, consequently, we can obtain a generalization like "Phonomimes > Phenomimes > Psychomimes." For example, the presumed original meaning of the mimetic *ga^tagata*/*gatagata* is a phonomimic one depicting a rattling noise, as in (1.6a) (for the accentuation of reduplicatives see Section 2.1.3 below). It also has some extended meanings, such as what Yoshimura interprets as phenomimic ones in (1.6b, c) and a psychomimic one in (1.6d). Such extensions are understood as mediated by a kind of synaesthetic perception that connects audition and other senses including visual, textural, cutaneous, and psychological experiences (Eve E. Sweetser, personal communication; see also Yamanashi 1988; Takeda 2001).

(1.6) a. Arasi-de to-ga *ga^tagata*. (phonomime)

   storm-because.of door-NOM MIM

   'The door rattles because of the storm.'

  b. *ga^tagata* hurue-ru (phonomime/phenomime)

   MIM   shiver-NPST

   'shiver with cold'

  c. Tukai-hurusi-ta tukue-ga *gatagata*. (phenomime)

   use-make.old-PST desk-NOM MIM

   'The old desk is rickety.'

  d. Situren   si-te mi-mo kokoro-mo *gatagata*. (psychomime)

   disappointed.love do-CONJ body-too heart-too MIM

   'Both [my] body and soul are broken from [my] disappointed love.'

<div align="right">(Kakehi 1993: 44)</div>

The seventh phenomenon is the physical resemblance between a signifier and a signified

based on spectrogram. Although there is no previous study on acoustic properties of mimetics in the present context, it will be technically possible to compare spectral shapes of each semantic type of mimetics and those of their auditory or non-auditory referents (see Kato and Matsumoto 1990; Kotani et al. 1993; Masuda 2007). Lexical iconicity-oriented studies like the present one predict that a signifier and a signified are spectrally more similar in highly iconic mimetics than in poorly iconic ones.

In this regard, Akita and Takeyasu (2008) and Takeyasu and Akita (2008, 2009a) discuss the eighth phenomenon: distribution of phonemes. As Hamano (1998) and Nasu (2004, 2007) suggest, the phoneme distribution of mimetics is in part atypical, particularly in their first consonants (see Klamer 1999a among others for similar descriptions in other languages). For example, it is a striking fact that /p/-initial words, which are ruled out in the (nonmimetic) Native Japanese stratum (see Section 2.1), occupy as much as one sixth of the mimetic lexicon of Japanese (Hamano 1998: 7; see also Shirooka 1998). Also, voiced C_1, which is also rare in the Native stratum, is abundant in mimetics. What is relevant in Takeyasu and Akita's findings in this relation is that the deviation in phonemic statistics is greater in mimetics of higher iconicity. Concretely, the frequency of plosives like /p/ and /d/ at C_1 increases along the LIH: nonmimetics < psychomimes < phenomimes < phonomimes. This fact is suggestive of the idea that high iconicity is linked with "nonlinguisticness," which is a reflection of the fundamental imitative nature of mimetics.

The ninth related phenomenon is a finding in neuropsychology. Morikawa (2002) points out a neuropsychological basis of the continuum from phenomimes/psychomimes to phonomimes in their "wordhood." Concretely, on the basis of the fMRI method, she observed, although the activating regions of the brain (i.e., SMG, BA44, STG, BA46) were identical between the processing of phonomimes and that of non-phonomimic mimetics, the significant activation rate was higher in phenomimes, which made them more alike with non-mimetic words.

When it comes to wordhood of mimetics, orthography seems to be worth mentioning as the tenth relevant phenomenon (see Tamori and Schourup 1999: 211; see also Klamer 1999a: 213 for a related phenomenon in Balinese). Japanese shows a weak orthographical distinction of the degree of lexical iconicity. I conducted a simple comparison of the frequency of orthography of some mimetics from the three semantic categories (phonomimes for laughing: *ge^ragera* 'guffaw', *ke^taketa* 'cackle', *ku^sukusu* 'chuckle'; phenomimes for walking: *to^botobo* 'plodding', *u^rouro* 'loitering', *yo^tiyoti* 'toddling'; psychomimes for emotions: *ku^yokuyo* 'worrying', *u^ziuzi* 'shilly-shallying', *wa^kuwaku* 'exhilarated') on the Internet using Google search engine (date of search: 14 December 2008).[8] Results are given in mean occurrence percentage in Table 1.2.

Table 1.2.   Orthography of Japanese mimetics

	Phonomimes	Phenomimes	Psychomimes
Hiragana (curvy)	23.17%	53.72%	45.81%
Katakana (angular)	76.83%	46.28%	54.19%
Total	100%	100%	100%

The present data suggest that phonomimes are more likely to be written in "katakana" (angular character) than non-phonomimic mimetics. While "hiragana" (curvy character) is mainly used for nonmimetic native items, katakana is mainly used for loanwords (Iwasaki 2002: Chapter 2) and has a hint of alienation. Based on these characteristics, it appears that phonomimes tend to be recognized as something deviant and perhaps less linguistic.

Finally, some previous studies present some data suggesting a relation between lexical iconicity and the order of L1 acquisition (cf. Haiman 1985b: 157; see also Jakobson 1971 for the relevance of language acquisition to markedness, which is often discussed in relation to iconicity; Haiman 2000; Haspelmath 2008a). Specifically, Okubo (1967: 59) (one female

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8 Since the mimetic for chuckling *ku^sukusu* is orthographically indistinguishable from the unaccented non-mimetic loanword *kusukusu* 'couscous', I searched the word with the verb *warau* 'laugh' in its nonpast form.

child; longitudinal: 1;0-5;11; spontaneous speech), Herlofsky (1998) (sixty children; cross-sectional: 3;6-6;4; explanation of pictures expected to elicit expressions for a rooster's crowing, an alarm clock's ringing, the fluffiness of clouds, and the brightness of the sun), and Fukuda (1999) (one female child; cross-sectional: 2;7 and 3;6; spontaneous speech), all suggest that phonomimes are acquired earlier than phenomimes and psychomimes. However, there are at least three obvious lacunae in the developmental studies. First, there is no full-scale quantitative investigation into longitudinal data in the context of the current issue. Second, there is no reliable semantic classification of children's mimetics, for everything has been determined based on one linguist's interpretation and intuition in each study. Since it is always a problem in mimetic semantics that a mimetic is likely to belong to more than one semantic category (Asano 1978; Kita 1997: 381-382; Takiura 1999; Tamori and Schourup 1999; Morikawa 2002; Nakao et al. 2003; Kadooka 2007), we need to at least try to make our classification task as reliable as possible in some way. Third, there was no trichotomous analysis of mimetics, which is suitable for our proposal, in the literature on child Japanese.

In order to fill these gaps, I conducted a fuller investigation of a Japanese-acquiring child's speech data. I used Noji's (1973-1977) daily record of his monolingual male child named Sumihare, which is the largest longitudinal database registered in the Japanese section of Child Language Data Exchange System (CHILDES). As shown in Figure 1.2, it focuses on the boy's first four years of life and provides only a small amount of data for the period of 4;0 through 6;11.
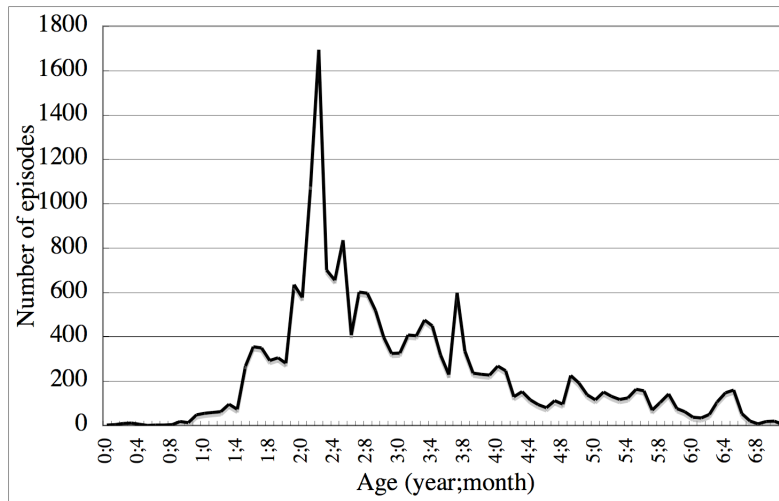
Figure 1.2. The number of episodes in Noji (1973-1977) by ages

Takiura (2005) abstracts Sumihare's mimetics from 15,560 episodes, either monologues or conversations, in his first four years. As a result of exclusion of some miscollections and Sumihare's imitations of adults' immediately preceding utterances, 1,203 tokens and 761 types of mimetics were obtained. These mimetics were classified into our three semantic categories by the author (cf. Takiura 1999). 20% (i.e., 276 tokens) of the mimetics were also examined by a developmental psychologist-evaluator for reliability. The interexaminer concordance rate was 90.37% ($\kappa = .52$, $p < .001$). Disagreements were resolved by discussion.

The results in part support the LIH. First, the first appearance of the three types of mimetics in Sumihare's speech corresponded to the LIH: phonomime (*bu^ubuu* 'zoom-zoom') [0;11]) > phenomime (*pai^* 'tossing a ball') [1;0]) > psychomime (*boo^* 'drowsy' [1;5]).

Second, frequencies of the three types of mimetics were consistent with the LIH. The token and type frequencies are graphed in the following figures.[9]

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[9] Due to the variation in the number of episodes among periods, the present analyses compare tokens or types *per episode*. Therefore, it cannot be denied that variation in the size of episodes influenced the results: if one episode is longer than another, it is more likely to contain more target mimetics.
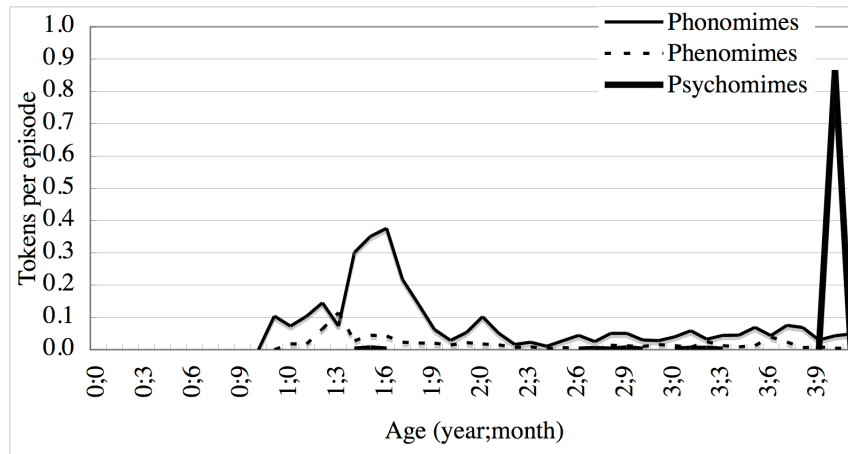
a. Token frequency
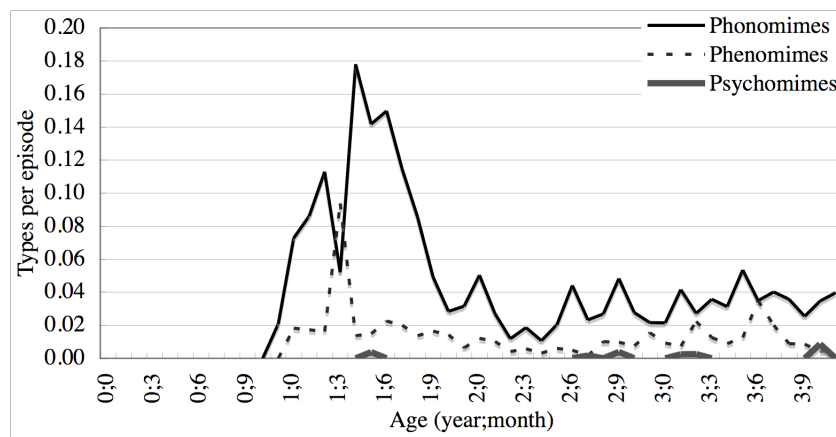
b. Type frequency

Figure 1.3. Sumihare's acquisition of mimetic semantics

Note: The score "0" means 'no occurrence', not 'no data', except before first words.

A two-way non-repeated measures ANOVA yielded a significant main effect of mimetic semantic types in both token (F (2, 138) = 23.71, $p < .001$) and type frequencies (F (2, 138) = 45.80, $p < .001$). The main effect of ages was of approaching significance in tokens (F (47, 96) = 1.38, $p < .10$) but significant in types (F (47, 96) = 1.63, $p < .05$). Post hoc paired t-tests for each two of the three semantic classes revealed that phonomimes were produced significantly more frequently than phenomimes (tokens: t (47) = 4.44, $p < .001$; types: t (47) = 6.90, $p < .001$) and phenomimes more than psychomimes (tokens: t (47) = 4.91, $p < .001$; types: t

$(47) = 6.17$, $p < .001$).[10] Parallel results were obtained even when ages were grouped by years. Thus, the frequency of Sumihare's early mimetics followed the iconicity scale: Phonomimes > Phenomimes > Psychomimes.

Finally, correlations between ages and the frequencies of each type of mimetics were examined by means of Pearson's correlation analysis. The results are summarized in Table 1.3.

*Table 1.3.   Correlations (*r*) between ages and the frequencies of mimetics (N = 48)*

	Phonomimes	Phenomimes	Psychomimes
Token frequency	-.004	.04	.29*
Type frequency	.33*	.48***	.30*

Among the significant positive correlations obtained, the remarkable correlation between Sumihare's age and the type frequencies of phenomimes ($r = .48$, $p < .001$) suggests that phenomimes were not so frequent at first and developed later. Also, the fact that a significant positive correlation in type frequency was only obtained for psychomimes ($r = .29$, $p < .05$) suggests that psychomimes developed latest of the three types of mimetics. This last point is particularly significant in that it can serve as a positive ground to, unlike many dichotomous investigations of mimetics, distinguish psychomimes from the rest of mimetics.

The present correlation data gain reinforcement from Ishibashi (2007). She provides without statistical analyses some percentage data based on her questionnaire that asked 167 mothers to write down mimetics produced by their Japanese acquiring children (2;6-6;5) for a week. Importantly, the data cover the later developmental stages that are out of Noji's main focus. Below are the results (the percentages for the three types of mimetics out of all mimetics) recalculated to fit our purpose.

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[10] Since there are three pairs among the three types of mimetics, the results of the *t*-tests were considered based on adjusted significance levels (α').
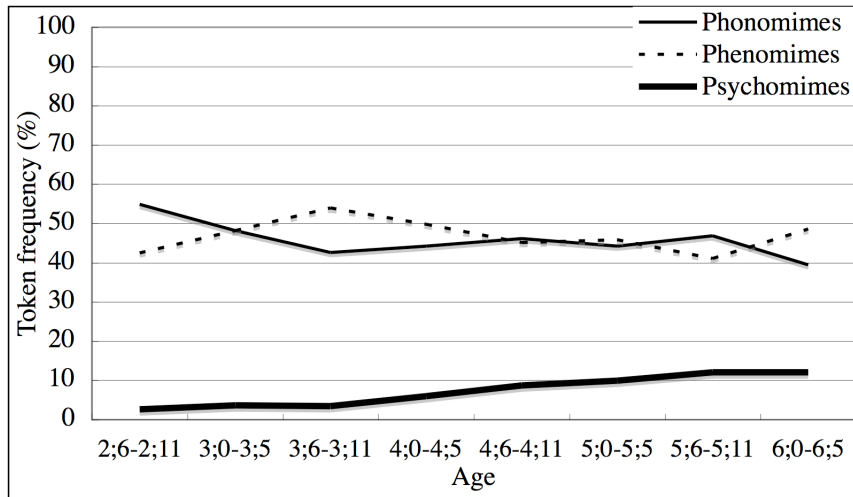
Figure 1.4. Token frequency of children's mimetics (based on Ishibashi 2007: 55)

Correlation analyses for the data (N = 8) revealed that there was a trend of negative correlation between ages of children and the token frequencies of phonomimes (r = -.69, p < .10). In contrast, there was a notable positive correlation between ages and the token frequencies of psychomimes (r = .98, p < .001). No significant correlation was observed for phenomimes (r = .15, p = .72). In sum, Ishibashi's data suggest that the older children grow, the fewer phonomimes and the more psychomimes they use.

Putting this together with the above observation of Sumihare's early mimetics, we can conclude that young children can only use "highly iconic" mimetics relatively freely, and then they make a gradual transition to a stage where both "highly iconic" and "less iconic" mimetics are accessible. This conclusion reinforces the previously suggested developmental ground for the LIH.

Before closing this section, I consider the compatibility of our iconicity hierarchy with Hamano's (1998) idea that monomoraic root-based mimetics (e.g., *paQ^(-to)* 'flaring up, slapping') are more iconic than bimoraic root-based ones (e.g., *pataQ^(-to)* 'flop'). I conducted a semantic classification of mimetics in Kakehi et al. (1996) with some additions for each root type. The following figure gives the result.
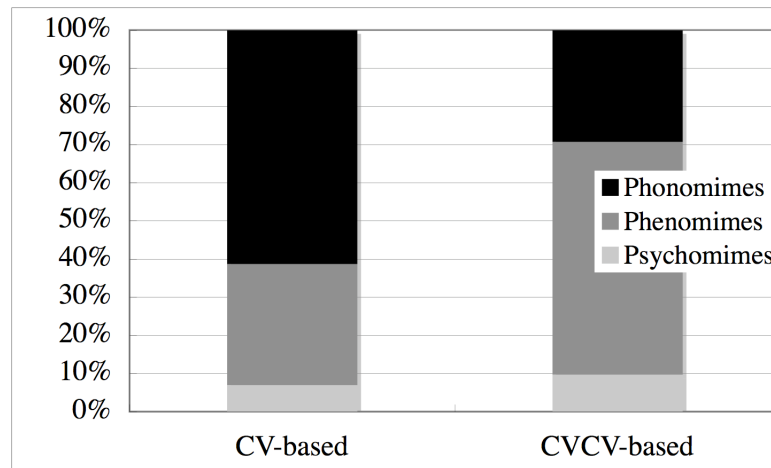
Figure 1.5. Semantic distribution of CV- vs. CVCV-based mimetics

It is obvious that monomoraic root-based mimetics prefer phonomimic meanings. In fact, a chi-square test yielded a significant group difference (χ^2 (2) = 131.34, $p < .001$), and a post hoc residual analysis supported the considerable preference of CV roots for phonomimes (adjusted residual = 11.40, $p < .001$). This result can serve as support evidence for Hamano's claim, of course, provided that our LIH is correct. At the same time, the compatibility of our LIH with her independently achieved conclusion enhances its own reliability.

Chapter Two

Background

As stated in Chapter 1, the numerous studies on sound-symbolic phenomena in the literature of Japanese linguistics can be roughly divided by centuries. The twentieth century mainly saw descriptive studies of distinctive characteristics of mimetics, especially within the realm of kokugogaku (the study of the national language of Japan). On the other hand, this first decade of the twenty-first century has already seen some significant developments in both formal and functional sides of this word class.

The present chapter consists of two sections. In Section 2.1, I will survey important traditional descriptions of the phonosemantics, morphophonology, and categorial status of mimetics and point out some of their crucial weak points. These issues will be discussed with reference to theoretical frameworks in the subsequent chapters. In Section 2.2, I will introduce recent theory-based developments in several areas of the study of mimetics, which is the new trend which will be pursued in the present study.

2.1. Basic Properties of Mimetics

This section looks through the important descriptions of some aspects of Japanese mimetics

mainly provided in the twentieth century. As Nasu (2002: 87-89), Tsujimura (2005a, 2008), and Kageyama (2007) point out, in general, previous descriptions placed a disproportionate focus on peculiar aspects (particularly, morphophonology and phonosemantics) of this word class (see Zondo 1982 for a similar statement for the study of African ideophones). Nevertheless, much of this research can provide a partial basis, not merely for recent theoretical investigations introduced in Section 2.2, but also for the present study. The following subsections will focus on previous noteworthy descriptions in three fundamental issues of mimetics—namely, morphophonology (Section 2.1.1), phonosemantics (Section 2.1.2), and grammatical categories (Section 2.1.3)—whose lacunae pointed out in Section 2.1.4 will be dealt with in the main chapters of this thesis.

2.1.1. *Morphophonology*

Morphological, or more precisely morphophonological, characteristics of mimetics have attracted many linguists' curiosity, and there have been three crucial observations made in the literature.

First, the striking productivity of total-reduplicative forms, such as *ku^NkuN* 'sniff-sniff', *po^ripori* 'munch-munch', and *za^azaa* 'swoosh', is often considered as an important morphological characteristic of mimetics (Kobayashi 1935; Tamori 1993a; Nasu 2002; among others). As Lu (2006: 93-94) and Kadooka (2007: 89) report, reduplicative forms occupy as much as over forty percent of the Japanese mimetic lexicon. It is also noteworthy that mimetics often take a stem-final element or "suffix" (i.e., *-Q^*, *(^)-N(^)*, *^-ri*), as illustrated by *potuQ^(-to)*, *potuN^(-to)*, and *potu^ri(-to)* 'dropping, lonely'. Moreover, due to its remarkable productivity and perhaps to its special semantics (see Chapter 5), the so-called "emphatic"

mimetic form CVCCV^ri has often received a separate treatment (Kuroda 1966, 1979; Hamano 1998; Moriyama 2002).[1] The coda consonant of the first syllable ("intensifier {C}" in Hamano's terminology) is /Q/ or /N/, which shows a complementary distribution. /Q/ and /N/ take place when followed by a voiceless (e.g., *biQku^ri* 'astounded', *kiQpa^ri* 'resolute', *uQto^ri* 'enraptured') and a voiced consonant (e.g., *niNma^ri* 'smiling with satisfaction', *syoNbo^ri* 'downhearted', *zuNgu^ri* 'dumpy'), respectively.

Second, as a fundamental observation, Kindaichi (1978/1982), Hamano (1998), and Tamori and Schourup (1999: Chapter 2) point out the importance of the dichotomy of mimetics based on the number of moras in a mimetic root.[2] Almost all mimetic stems in modern Japanese can be reduced to either one- (i.e., CV) or two-mora (i.e., CVCV) roots.[3] The points of articulation of the first and second consonants of most bimoraic mimetic roots are different, with some forms like *kiQka^ri* 'exact' and *rerorero* 'slurring one's words' being exceptions (see Hamano 1998: 40-45). For this reason, throughout this thesis, I omit the positional information of each phoneme of mimetics: hence, for example, the total-reduplicative C_1V_1^C_2V_2-$C_1V_1C_2V_2$ will be simply notated as CV^CV-CVCV. Also, the first consonant is at least superficially absent in not a few cases like *i^raira* 'irritated' and *u^rouro* 'loitering' (Hamano 1998: 169), and the second consonant is not visible in a few cases like *si^osio* 'dejected' (Hamano 1998: 151). However, I will use general notations like "CV" and "CVCV" for the sake of simplification.

Importantly, bimoraic root-based mimetic forms are more conventional than monomoraic

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[1] This kind of mimetic does not necessarily have an emphatic meaning. Just following the convention, however, I will use this term in this thesis.

[2] Mimetic roots are also called "mimetic bases," especially in Japanese linguistics (Kakehi and Tamori 1993; Tamori and Schourup 1999; Kadoooka 2007), and sometimes called "mimetic stems" (Oda 2000; Nasu 2002). Also, from a phonological standpoint, Nasu (2002) argues for a syllable number-based dichotomy of mimetics instead. In this alternative view, certain monomoraic root-based reduplicatives like *za^azaa* 'raining heavily' are grouped with bimoraic root-based ones like *za^kuzaku* 'crunch'. The present thesis, in particular Chapter 4, discusses the superiority of the root number-based dichotomy in a semantic analysis.

[3] On some phonological-theoretical grounds, Nasu (1995, 2002) posits an accent for bimoraic mimetic roots (e.g., *do^ki*). For the purpose of the present study, however, I do not specify accentual information at the root level, staying away from this phonological discussion.

root-based ones in that they have more clearly definable referential meanings. Also, they are by far more common (at least) in mimetic dictionaries (about six times as frequent as monomoraic root-based ones in Kakehi et al. 1996). These are why the present thesis mainly treats the former type of mimetics. Hamano claims that monomoraic root-based mimetics (e.g., *poQ^(-to)*, *po^NpoN*, *poiQ^(-to)* 'tossing', all based on the root *po*) are more iconic than bimoraic root-based mimetics (e.g., *dokiQ^(-to)*, *dokiN^(-to)*, *doki^ri(-to)*, *doQki^ri*, *do^ki-doki* 'feeling one's heartthrob', all based on the root *doki*), with the former synthetic and the latter analytic (see the next subsection for a detailed story). In fact, monomoraic root-based mimetics tend to be used quite flexibly and creatively across various sorts of eventualities (e.g., *baQ^(-to)* for various sorts of sudden intensive actions including fluttering, falling, spreading a cloth, and darting). Chapter 5 will present additional semantic correlates of the root length-based dichotomy of mimetics (see also Section 1.3.5).

Third, a set of derivational operations for intensification characterize the creative facet of mimetic morphology (Nasu 2002: Chapter 5). For example, the conventional mimetic *pi-kaQ^(-to)* 'flashing' can yield various intensified forms, such as ***pikapika**pikaQ^(-to)* (by partial multiplication; Nasu 1999a, 2002, 2003), *pikaaQ^(-to)* (by vowel lengthening; Nasu 1995, 2002; Hamano 1998: 72-73), and furthermore *piQkaaQ^(-to)* (by gemination; Nasu 1999a, 2002, 2004a; Akashi 2007).[4] These derivative forms will be basically excluded from the main discussions in this thesis due to their unconventionality and high predictability from conventional ones (see Sections 4.3 and 5.3.7).

2.1.2. *Sound symbolism*

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[4] For the purpose of avoiding terminological confusion, I use "emphatic" for the CVCCV^ri form and "intensified" for derivative, unconventional forms.

Sound-symbolic words are generally conceived of as peculiar, due to their apparently special sound-symbolic values as well as their characteristic morphology. This is why studies of sound symbolism are often concerned with sound-symbolic words (see Hinton et al. 1994a). This iconically motivated status of mimetics often allows them to be cited as a counterexample to Saussurean arbitrariness (de Saussure 1959: 69; see also Haiman 1985b: 3). However, as Izumi (1976: 110-111) among others remarks, it should be noted that these iconic words also retain an arbitrary form-meaning relationship: that is, iconicity does not necessarily stand for non-arbitrariness. This idea is illustrated by the fact that even animal cries are mimicked differently, if similarly, across languages (e.g., English *meow* vs. Japanese *nya^o/nya^anyaa* vs. Korean *yaong* vs. Arabic *mowa'a*). Also, sound-symbolic words are largely constrained by general phonological and phonotactic constraints that constrain the rest of the lexicon (Mithun 1982: 55-57; cf. Section 4.1.2). Therefore, crosslinguistic differences in such constraints can yield formal differences. For example, Japanese, which basically does not allow double consonants and coda consonants, does not have mimetics like *crash* and *smack*.[5]

As suggested by the discussions in Kadooka (2002, 2007: Chapter 4) and already introduced in Section 1.3.3 above, we can posit more than one type of sound-symbolic elements in Japanese, including phonetic features, phonemes, moras, morphology, and prosody. These sound-symbolic units can be categorized into two major types: namely, segmental and prosodic/morphophonological (Akita 2008b; cf. Firth 1930; Ivanova 2002, 2006). As William J. Herlofsky pointed out to me, the former type can be considered as an instance of iconic image, and the latter type as an instance of iconic diagram (Section 1.3.4; see also Akita 2008b; Sapir 1921: Chapters 4 and 5).

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[5] In this connection, there are some quasi-phonemes that have been recently introduced to Japanese mimetics, such as /r/ in *raNraNraN^(-to)* 'tra-la-la' and *ruNruN* 'in very high spirits' and /t(u)/ in *tu^ruturu* 'slurping' (less common)) (cf. Ito and Mester 1995, 1999; Hamano 1998; Nasu 2007). As Lawrence C. Schourup pointed out to me, these are considered as cases in which an iconic motivation has overridden a phonotactic constraint.

2.1.2.1. Segmental sound symbolism

The first set of sound-symbolic elements is segmental. Segmental sound-symbolic elements include consonants and vowels constituting mimetic roots and phonetic-featural operations on the consonants (i.e., voicing, palatalization). Sound-symbolic values of consonants and vowels have been widely tested in the long history of experimental psychology in Japanese and many other languages (Köhler 1929; Sapir 1929; Newman 1933; Brown 1958; Haga 1976). For example, it has been discovered in many languages that the low-back vowel /a/ is associated with larger referents than the high-front vowel /i/ (Sapir 1929; Hamano 1998; cf. Rhodes 1994); voiced obstruents are linked to larger, more intense, and more negative entities and eventualities than their voiceless counterparts (e.g., *ko^rokoro* 'a small, light object rolling' vs. *go^rogoro* 'a large, heavy object rolling') (Izumi 1976; Hamano 1998; Tamori 2002). In general, these experimental studies on segmental sound symbolism (or "phonetic symbolism" in Sapir's terminology) have been mainly conducted by directly asking subjects to rate, for example, the magnitude of the image evoked by a sequence of phonemes.

Recently, some researchers have pointed out the possibility that experimental methods of this kind led subjects to be overtly sensitive to sound-symbolic values of stimulus sounds. They have instead introduced some techniques that allow them to observe sound symbolism without asking a leading question. For example, Bergen (2004), Westbury (2005), Haryu and Zhao (2007), Imai et al. (2008), and Hirata (2009) focus on latency for reaction time needed to respond to a question unrelated to sound symbolism. For example, reaction time is expected to be shorter when a nonsense syllable is presented in a frame whose shape sound-symbolically matches the syllable (e.g., an angular frame for a plosive-initial stimulus) and a subject is asked an unrelated question about the syllable (e.g., "What color is the sylla-

ble?"). Moreover, Ramachandran and Hubbard (2001) and Westbury (2005) attempt to find neural correlates of sound symbolism. Thus, phonosemantic phenomena are now beginning to gain additional reliability from reexaminations in those psychological/neurological frameworks.

However, the experimental studies mentioned in the previous paragraph often look at sequences of linguistic sounds in general, not focusing on sound-symbolic words. In this regard, Hamano's (1986, 1998) monumental, full-scale description of phonosemantic values of consonants and vowels (or "sound-symbolic system") in Japanese mimetics is of great significance (for early related investigations in English see Jespersen 1922; Firth 1930; Bloomfield 1933; Crystal 1995: 250-253; among others). Based on actual language use data from novels and other sources, she abstracts out a set of semantic features for each consonant and vowel that constitute mimetics. Importantly, she emphasizes the role of phoneme positions in the phonosemantics of mimetics. Specifically, according to her, both consonants and vowels in bimoraic mimetic roots make positional distinction of functions. Here are the functions of consonants and vowels in each position cited from Hamano (see also Kawahara et al. 2008).

(2.1) Positional distinction of segmental sound symbolism (adapted from Hamano 1998: 104):

C_1: Tactile nature of the object involved.

C_2: Type of the movement involved.

V_1: Initial shape of the object or trajectory of the movement.

V_2: Resultant shape and size of the object or trajectory of the movement.

These positional meanings of consonants in mimetics are instantiated by each consonant, as shown in (2.2).

(2.2) C$_1$ symbolism of CVCV-based mimetics (Hamano 1998: 172):

p	taut surface	light; small; fine
b	taut surface	heavy; large; coarse
t	lack of surface tension; subduedness	light; small; fine
d	lack of surface tension; subduedness	heavy; large; coarse
k	hard surface	light; small; fine
g	hard surface	heavy; large; coarse
s	non-viscous body; quickness	light; small; fine
z	non-viscous body; quickness	heavy; large; coarse
h	weakness; softness; unreliability; indeterminateness	
m	murkiness	
n	viscosity; stickiness; sliminess; sluggishness	
y	leisurely motion; swinging motion; unreliable motion	
w	human noise; emotional upheaval	

(2.3) C$_2$ symbolism of CVCV-based mimetics (Hamano 1998: 173):

p b	explosion; breaking; decisiveness
t	hitting of a surface; coming into close contact; complete agreement
k	opening; breaking up; swelling; expanding; puffing out; emission from inside; surfacing; in-out movement
s	soft contact; friction
h	breath
m	?
n	bending; elasticity; unreliability; lack of force; weakness
y	sound from many sources; haziness; childishness
w	softness; faintness; haziness
r	rolling; fluid movement

Intriguingly enough, the sound-symbolic values of C$_1$ listed in (2.2) suggest that generalizations of sound symbolism are better stated in terms of phonetic features, such as [+plosive, +labial, +oral] (for /p/ and /b/ with the sound-symbolic value "taut surface") and [-voiced] (for /p/, /t/, /k/, /s/ with the sound-symbolic value "light; small; fine"), rather than of phonemes (see Kita 1997: 401-402; Tamori and Schourup 1999: 7-10 for a related description). The possibility of generalizations at more than one level suggested here will lead to a hierarchical sound-symbolic system of mimetics proposed in Chapter 5.

Meanwhile, as shown in (2.4), Hamano posits no specific positional distinction for each

vowel.[6]

(2.4) Vowel symbolism (adapted from Hamano 1998: 172-173):

	protrusiveness	straightness/tenseness	small	large
/i/	-	+	-	-
/u/	+	-	+	-
/o/	-	-	-	-
/a/	-	-	-	+
/e/	Vulgarity.			

Moreover, palatalization of consonants has attracted much attention in the literature, especially in phonology (Mester and Itô 1989; Schourup and Tamori 1992; Hamano 1994, 1998: Chapter 6; Kadooka 2007; Kurisu 2008ab). A general conclusion about the sound-symbolic value of this operation is that it adds a meaning like "childishness" and "uncontrolled energy" to a mimetic (root) (Hamano 1998: 184-187).

2.1.2.2. *Morphophonological sound symbolism*

The other set of sound-symbolic elements is suprasegmental (prosodic) or morphophonological. Morphophonological sound-symbolic elements include reduplicants, stem-final elements (or "suffixes"; i.e., *-Q^, (^)-N(^), ^-ri*), emphatic/intensifying moras, and accent patterns. As outlined in the previous subsection, Japanese mimetics show some productive morphological shapes—namely, reduplicative (CV^CV-CVCV, CV^V-CVV, etc.), suffixal (CVCVX), and emphatic (CVCCV^ri) ones. As discussed in detail in Chapter 5, they are linked to certain aspectual and non-aspectual meanings in quite a systematic manner. For example, it is widely true across languages that reduplication is iconically associated with

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[6] Hamano (1998: Chapter 4) states that consonantal and vowel symbolisms of monomoraic root-based mimetics are mostly a mix of those in the two positions of bimoraic root-based ones.

repetitive and continuative eventualities (Hurch 2005; Inkelas and Zoll 2005; Wang 2005), as exemplified by the mimetics *pa^tipati* 'clapping repeatedly' and *zi^waziwa* 'permeating slowly'. Similarly, mimetics with a stem-final element are largely associated with punctual eventualities, as in *patiQ^(-to)* 'clapping once' and *ziwaQ^(-to)* 'permeating quickly' (cf. Hamano 1998: 67-72, 106-107). Moreover, emphatic mimetics, such as *paQti^ri* 'wide open (of an eye)' and *ziNwa^ri* 'feeling a growing sentiment', which often have no root-based related items, tend to carry a special, unexpected meaning that makes them sound like a regular adverb (see Moriyama 2002). This set of iconic form-meaning correspondences can be considered without difficulty as a kind of sound symbolism at the morphophonological level.

Also, some derivational operators can be counted as sound-symbolic elements larger than segments. Specifically, as touched in the previous subsection, intensified mimetic forms can be created quite easily from conventional mimetics by means of partial multiplication (e.g., ***zabuzabu****zabu^N(-to)* < *zabu^N(-to)* 'splash'), vowel lengthening (e.g., *zabu**uu**^N(-to)* < *zabu^N(-to)*), and gemination (e.g., *za**Q**bu^N(-to)* < *zabu^N(-to)*).[7] These intensifying elements add one or more moras to original mimetics (see Davis and Ueda 2002ab, 2006; Kubozono 2003; Irwin 2004; Akashi 2007 for phonological analyses of this kind of mora augmentation). It is likely that the intensified meanings of these expressions are iconically represented by those augmented moras. Therefore, they can be regarded as instances of morphophonological sound symbolism.

Furthermore, as I will argue in the next subsection, several researchers have pointed out the importance of prosodic information in reduplicative forms based on two moras. Concretely, mimetic stems of a two-mora-based total-reduplicative form have an initial accent (i.e., a pitch fall between the first and second moras) if they are an adverb or a verb (e.g., *nu^runuru*, *sya^asyaa*) and none if they are an adjective or a noun (e.g., *nurunuru*, *syaasyaa*).

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[7] Voiced geminates, which are generally ruled out in Japanese phonology except for loanwords, can stand quite naturally in unconventional forms like this example (Nasu 2002: 46).

Kageyama (2007: 30-31) ascribes this prosodic distinction of categories to the iconicity of accent. That is, mimetic adverbs and verbs in a reduplicative form have an accent—which is a physical change of pitch—because they are semantically dynamic. On the other hand, mimetic adjectives and nouns have no accent because they are semantically static.[8]

Two aspects can be added to this accentuation issue. First, among the "suffixed" types of mimetics mentioned in the previous subsection, the nasal-ending type has two possibilities with respect to accentuation—*^-N* and *-N^*—with the latter more productive (cf. Hamano 1998: 32; Nasu 2002). Only one of the two accent patterns is available to some mimetics (e.g., *doka^N(-to)* vs. **dokaN^(-to)* 'bomb'; **ziwa^N(-to)* vs. *ziwaN^(-to)* 'soaking'), but both to others (e.g., *bata(^)N(^)(-to)* 'slam'). What is of interest in the current context is that some semantic difference is observable between the two accentual types. For example, regarding the mimetic *poka(^)N(^)(-to)*, a beating sense is possible in both accent patterns (i.e., *{poka^N/pokaN^}-to atama-o naguru* 'hit [someone's] head lightly'), but a mouth opening sense is limited to the pattern with an accent nucleus on the moraic nasal (i.e., *{*poka^N/pokaN^}-to kuti-o akeru* 'open one's mouth dumfoundedly'). Similarly, although a physical meaning can be expressed by both accentual types of *pata(^)N(^)(-to)* (i.e., *{pata^N/pataN^}-to simaru* 'shut with a slam'), the accent-on-vowel type is preferred for the metaphorically extended meaning of suddenness (i.e., *{pata^N/?pataN^}-to todaeru* 'cease suddenly'). Based on these cases, a preliminary conclusion about the accentual distinction of nasal-ending mimetics will be that the *^-N* pattern tends to be associated with a dynamic eventuality while the *-N^* pattern tends to be associated with a static one. A possible iconic motivation for these association links is the apparent absence of an accent nucleus in *-N^*-type

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[8] Indeed, bimoraic root-based reduplicative mimetics have a pitch change from low to high in their initial position. However, (if I agree with Kageyama) it is unlikely to be associated with dynamicity because accent is marked by a pitch fall, rather than a pitch rise, in the Tokyo dialect (or standard Japanese). This fact supports the idea that sound symbolism is a part of the grammar of the language. In this connection, it is of interest and significance to ask what the situation is in other dialects, including dialects without accentual distinction in Ibaraki, Miyazaki, etc.

mimetics. The final accent is invisible—or indistinguishable from the unaccented pat-tern—without a following quotative particle *-to*. This pseudo-flat accentuation might be iconically mapped to the static semantics. On the other hand, ^-*N*-type mimetics are clearly accented, and more likely to be linked with dynamicity.

Next, monosyllabic phonomimes with a prolonged vowel also show different accent pat-terns. For example, an oink is mimicked with an accent nucleus on the first mora (i.e., *bu^u(-to)*), but a beep with an accent nucleus on the second mora (i.e., *buu^(-to)*). In a paral-lel manner, a chick tweet is more likely to be expressed by the initially accented phonomime *pi^i(-to)*, whereas a whistle is always expressed by the finally accented phonomime *pii^(-to)*. It is evident that the initial accent is more suitable to animate sounds while the final accent is suitable to inanimate, artificial ones. An iconicity-oriented account is fairly straightforward in this particular case of prosodic differentiation of meaning. Since the pitch of animal cries comes down toward the end, they are translated with a pitch fall. In contrast, since the pitch of usual machinery beeps is constant, they are translated without an "obvious" pitch fall (Shinji Ogawa, personal communication).[9]

Although, of course, these cases of iconic prosody need further examination, these moti-vated form-meaning relationships at the prosodic level can also be safely counted as a kind of sound symbolism in a broad sense (see Childs 1994: 192-193 for tone-related sound-symbolic phenomena in some African languages).[10]

To summarize the present subsection, let me illustrate segmental and morphophonological sound symbolisms with the intensified mimetic *potapotaQ^(-to)* (< *potaQ^(-to)* 'dripping') (see Section 5.3.7). First, the bimoraic mimetic root *pota*, which also yields the mimetic stems *po^tapota*, *pota^ri(-to)*, etc., consists of four segments. The first consonant /p/, which is

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[9] A siren, whose pitch comes down toward the end, can be expressed by an initially accented monosyllabic phonomime with a prolonged vowel (i.e., *u^u(-to)*). This fact reinforces the iconic mapping relation between prosody and meaning discussed here.

[10] In contrast, it seems that the term "phonosemantics," which is basically interchangeable with "sound symbol-ism," should be restricted to the segmental type of sound symbolism.

the most common initial consonant in Japanese mimetics (Hamano 1998: 7), symbolizes the taut surface and smallness of the falling drop represented by the mimetic. The second consonant /t/ represents the contact of the drop with another object. The first vowel depicts the "inconspicuousness" of the initial shape of the drop, which ends up in a spread shape as a result of the contact with another object. That resultant state is symbolized by the second vowel /a/. Next, the mimetic is characterized by two morphophonological features—namely, the stem-final element *-Q^* and partial reduplication, which are associated with punctuality and intensity, respectively. These segmental and morphophonological sound-symbolic elements compositionally give rise to the total sound-symbolic meaning of the mimetic like 'an inconspicuous light, small object with a taut surface spread due to sudden intense contact with another object'. This not fully specified aural image evoked by *potapotaQ^(-to)* is compatible with its lexical meaning 'a few drops of liquid hitting on a surface intensely' (see Section 1.3.3 above).

2.1.3. *Grammatical categories*

As will be separately discussed in Part II, the grammatical-categorial status of sound-symbolic words has been one of the most controversial issues in the literature of sound-symbolic words in Japanese as well as in other languages, particularly those in Africa and South Asia. Some consider them as forming a separate category (Kunene 1965 (Southern Sotho); Samarin 1971 (Bantu); Kulemeka 1997 (Chichewa); Wiltshire 1999 (Tamil); Bartens 2000 (Atlantic creoles); Bodomo 2007 (Dagaare); Kadooka 2007 (Japanese)) and others as subsumed under regular lexical categories like verbs, adverbs, and adjectives (Newman 1968, 2001 (Hausa); cf. Tamori and Schourup 1999 (Japanese)). However, there is a general

agreement about the possible categories of Japanese mimetics in the literature. Concretely, there are four possible categories available to Japanese mimetic stems: namely, adverb, verb (precisely, complex verb), adjective (or nominal-adjective), and noun stems, with the first two dominant (Tamori 1984, 1991, 1993b; Tamori and Schourup 1999; Nitta 2002; Hasada 2005; Lu 2006; among many others). Here are some examples from the four categories.

(2.7) Possible categories of Japanese mimetic stems:

    a. Adverb stems:

       i. *BataN^-to* tonari-no doa-ga   simat-ta. (manner)

         MIM-QUOT next-GEN door-NOM   be.shut-PST

         'The next door was shut *with a slam*.'

       ii. Mai-wa   hoorensoo-o   *zutazuta*-ni kizan-da. (resultative)

         M.-TOP   spinach-ACC   MIM-COP   chop-PST

         'Mai chopped the spinach *into fine pieces*.'

      iii.   Ken-wa *tyo^kutyoku* beeguru-o yai-te   i-ta. (degree)

           K.-TOP   MIM   bagel-ACC bake-CONJ be-PST

           'Ken was *often* baking bagels.'

    b. Complex verb stems:

       i. Mai-no ryukku-wa   *zusiQ^-to*   *si*-te   i-ta.

         M.-NOM rucksack-TOP MIM-QUOT do-CONJ be-PST

         'Mai's rucksack was *heavy*.'

       ii. Soto-wa   *hiNya^ri* *si*-te   i-ta.

         outside-TOP MIM   do-CONJ be-PST

         'It was *pleasantly cool* outside.'

c. (Nominal) adjective stems:

 i. Yopparai-tati-no kaigi-wa   *gudaguda*-dat-ta.

   drunkard-PL-GEN meeting-TOP   MIM-COP-PST

   'Drunkards' meeting was *hopelessly disorganized*.'

 ii. Kura-i   nyuusu-ni   *uNza^ri*-no Ken-wa   terebi-o   kesi-ta.

   dark-NPST   news-DAT   MIM-COP   K.-TOP   TV-ACC switch.off-PST

   'Ken, who *disgusted* with the gloomy news, switched off the TV.'

d. Noun stems:

 i. Seetaa-no   *gowagowa*-ga tore-nakat-ta.

   sweater-GEN   MIM-NOM   come.out-NEG-PST

   'The *stiffness* of the sweater would not come out.'

 ii. Kokoro-ni   *iraira*-ga tumot-te i-ta.

   heart-DAT   MIM-NOM pile-CONJ be-PST

   '*Irritation* was accumulated in [my] heart.'

As exemplified in (2.7a) and (2.8a) below, adverbial mimetic stems are obligatorily or optionally accompanied by the quotative particle *-to* (see Section 2.2.4 for detailed stories of this particle phenomenon). Most mimetic adverbs are manner adverbs, as exemplified in (2.7ai), or resultative adverbs, as exemplified in (2.7aii), but there are a few mimetic adverbs that describe a kind of degree, as exemplified in (2.7aiii). As shown in (2.7b), mimetic verb complexes (conventionally called "mimetic verbs") consist of a mimetic and a semantically skeletal verb *suru* 'do', which will be given close consideration in Chapter 6. As shown in (2.7c) below, mimetic adjectives are formed with the help of a copula (*-da* to function as a predicate and *-no* to modify a noun). (Note that these accent patterns cannot be ascribed to

these additional morphemes.) As illustrated in (2.7d), there are only a few mimetic nouns, almost all of which take what I call an unaccented reduplicative form (i.e., CVCV-CVCV). Based on these facts, Japanese mimetics can be understood to form a phonosemantic/morphophonological word class that extends across the four grammatical word classes (see Chapter 4 for more discussion). This idea can be regarded as consistent with Newman's (1968, 2001) view of Hausa ideophones.

In this connection, I treat mimetic stems themselves (i.e., those without additional elements) as "precategorial," and this is why I use a participial form for the (approximated) meanings of mimetic stems (e.g., *nikoQ^(-to)* 'smiling'), except for onomatopoeic sound mimicries that can be mimicked by an English word (e.g., *gatyaQ^(-to)* 'crash') and some exclusively adverbial mimetics (e.g., *suQka^ri* 'completely').

Next, as referred to in Section 2.1.2.2, the accentual distinction of grammatical categories is observable in two-mora-reduplicative mimetic stems. Below are two rare reduplicative mimetics that illustrate all the four categories.

(2.8) Accentual distinction of categories in two-mora-reduplicative mimetic stems:

    a. Adverb stems (dynamic → accented; except resultative mimetic stems):

       i. Unagi-ga *nu^runuru* subet-te nige-ta.

         eel-NOM MIM slip-CONJ escape-PST

         'An eel slipped away *slimily*.'

      ii. Mai-wa *mo^yamoya*-to kokoro-ga hare-nakat-ta.

         M.-TOP MIM-QUOT heart-NOM clear-NEG-PST

         'Mai's heart did not clear *in gloom*.'

    b. Complex verb stems (dynamic → accented):

i. Sono unagi-wa   *nu^runuru*   *si*-te   i-ta.

that eel-TOP   MIM   do-CONJ be-PST

'The eel felt *slimy*.'

ii. Mai-wa   kokoro-ga   *mo^yamoya si*-te   i-ta.

M.-TOP   heart-NOM   MIM   do-CONJ be-PST

'Mai was *feeling gloomy*.'

c. Adjective stems (static → unaccented; resultative mimetic stems behave in parallel):

i. Sono unagi-wa   *nurunuru*-dat-ta.

that eel-TOP   MIM-COP-PST

'The eel was slimy.'

ii. Kokoro-ga   *moyamoya*-no Mai-wa   kao-o   arat-ta.

heart-NOM   MIM-COP   M.-TOP   face-ACC wash-PST

'Mai, whose heart was *gloomy*, washed [her] face.'

d. Noun stems (static → unaccented):

i. Sono unagi-no *nurunuru*-ga   kimoti-warukat-ta.

that eel-GEN   MIM-NOM   feeling-bad-PST

'[I] was disgusted with the *sliminess* of the eel.'

ii. Mai-wa   kokoro-no   *moyamoya*-ni tukare-te-i-ta.

M.-TOP   heart-GEN   MIM-DAT   be.tired-CONJ-be-PST

'Mai was tired of the *gloom* in [her] heart.'

As Toda (1942), Tamori (1980), Oda (2000: 76-78), and Kageyama (2007: 30-31) among others observe, total-reduplicative mimetic stems are prosodically marked with an iconic initial pitch fall when used in dynamic categories (i.e., adverb, verb), whereas they are unac-

cented or prosodically "flat" when used in static ones (i.e., adjective, noun). This distinctive trait of reduplicatives will play a supportive role in some parts of this thesis.

Despite the existence of the four possible categories, mimetics are by far most likely to be realized as adverbs, and the static sorts of mimetics are much less frequent (Nishio 1988; Osaka 1999: 27-31; Hasada 2005). This situation seems to stem from what Hamano (1998: 12) calls "the movement orientation of the sound-symbolic system in general" (see also Kadooka 1993a; Kita 1997: 402-407) (for related conceptions about African ideophones see Doke 1931: 221, 1938: 352; Kunene 1965: 33; Samarin 1971: 156).

Before closing this subsection, I refer to some peripheral phenomena concerning mimetics and their categories. As summarized in Tamori (1993a), Hamano (1998: 52-61), and Tamori and Schourup (1999: 61-63), there are several types of derivation from mimetic roots, three of which are illustrated here. First, as will be discussed in Chapter 6, the two verbal suffixes *-tuku* 'be attached' and *-meku* are quite productively suffixed to bimoraic roots of accented reduplicative mimetics to yield (largely) negative and positive semantic types of verbs, respectively (see also Tsujimura and Deguchi 2007). Here are some examples.

(2.9) Derivative mimetic verbs with *-tuku/-meku*:

  beto-tuku 'feel sticky' (< *be^tobeto* 'sticky')

  hata-meku 'flutter' (< *hata* 'fluttering' (non-modern mimetic root))

  kira-{tuku/meku} 'twinkle' (< *ki^rakira* 'twinkling')

  yoro-meku 'stagger' (< *yo^royoro* 'staggering')

  zawa-{tuku/meku} 'hum' (< *za^wazawa* 'humming (of a crowd)')

Second, as exemplified below, mimetic roots (and sometimes stems) are often combined with a regular noun, adjective, or an adjectival suffix to yield an expressive word.

(2.10) Compound mimetic nouns and adjectives:

hono-ziroi 'slightly white' (< *?hoNno^ri* 'slight, subtle' + *siroi* 'white')

soyo-kaze 'breeze' (< *so^yosoyo* 'breezing gently' + *kaze* 'wind')

tiNtiN-densya 'ding-dong-train' (< *ti^NtiN* 'ding-dong' + *densya* 'train')

Finally, as illustrated below, there are some verbs and nouns that have a mimetic etymology but are no longer likely to be recognized so due to the poverty of morphophonological cues (Izumi 1976; Kakehi 1986; Hamano 1998: 58-61; see Dingemanse 2009 for similar examples in a Niger-Congo language).

(2.11) Etymologically mimetic verbs and adjectives:

soyogu 'breeze gently' (< *so^yosoyo* 'breezing gently')

koro{garu/geru} 'roll' (< *ko^rokoro* 'rolling')

noro-i 'slow' (< *no^ronoro* 'slow' + -*i* (NPST))

sawagu 'make a noise' (< *sawa* 'noisy' (non-modern mimetic root; cf. *za^wazawa* 'humming (of a crowd)'))

hikaru 'shine' (< *hika* 'shining' (non-modern mimetic root; cf. *pi^kapika* 'shining'))

2.1.4. Remaining issues to pursue

In the previous sections, I have taken a brief look at some basic properties of Japanese mimetics. First, as outlined in Sections 2.1.1 and 2.1.2, studies in the last century have described the morphologically and phonosemantically characteristic features of mimetics. Importantly,

phonosemantic properties of mimetics were reconsidered in terms of Talmy's dichotomy of the linguistic system. The distinction of segmental and prosodic/morphophonological sound-symbolic elements will play a crucial part in the constructional analysis of mimetics in Part I below. Second, as discussed in Section 2.1.3, mimetics have been considered as a cross-categorial phonosemantic/morphophonological word class to which four grammatical categories are available.

These basic descriptions of mimetics leave two major issues unrevealed, which are the subjects of the present thesis. The first remaining issue is how segmental and morphophonological sound-symbolic components constitute the whole sound-symbolic semantic structure of a mimetic, and how its content is related to the lexical semantic structure of the mimetic. This fundamental question about the sound-symbolic mechanism of mimetics will be discussed from a constructional perspective in Part I of this thesis.

The second remaining issue is what regulates the grammatical-categorial possibilities of mimetics. In previous studies, what categories are open to what semantic types of mimetics has not been discussed in detail. In Part II of this thesis, I will discuss this question from a functional standpoint, adopting the notion of diagrammatic iconicity of distance. The growing framework will allow us to have a crosslinguistic perspective on the grammatical status of sound-symbolic words.

Thus, the previous descriptions about the fundamental properties of mimetics lay the groundwork for the present study, which goes a couple of steps further into the linguistic mechanism of mimetics.

2.2. Recent General Linguistic/Psychological Approaches to Mimetics

Since around the beginning of this century, linguists and psychologists have started theoretical, empirical explorations in the semantics, syntax, phonology, and acquisition of mimetics. Those approaches have allowed the researchers to attend to non-peculiar as well as peculiar aspects of this word class. The importance of both of those aspects and their interaction is what the present thesis aims to emphasize, and it is intended to serve as a basis for future investigations. In what follows, I will introduce some important contributions from those relatively new attempts in the study of mimetics. Specifically, each of the following subsections will focus on findings in one (sub)discipline—concretely, psycholinguistics, developmental psychology, cognitive semantics, lexical semantics, and phonology. This overview will present a clear image of the recent theory-oriented trend in mimetics research (or more generally, the inclusion of mimetics in "nonmimetic" frameworks) in which the present thesis is intended to be located.

2.2.1. Psycholinguistics

Kita (1993, 1997) is a well-known psycholinguistic study in mimetic semantics in Japanese. It triggered Tsujimura's (2001, 2003, 2005ab, etc.) series of studies, which in turn induced Kageyama (2006, 2007) to explore the syntax and semantics of mimetics in a theoretical framework (see Section 2.2.4). Starting from the insight of Diffloth (1972), Kita argues that the meaning of mimetics belongs to a dimension called "the affecto-imagistic dimension of meaning," where "language has a direct contact with sensory, motor, and affective information" (Kita 1997: 380; see also Zwicky and Pullum 1987). This semantic dimension is assumed to exist separately from "the analytic dimension of meaning," where regular lexical items are semantically represented. According to him, "the semantics of a mimetic and that of

other parts of a sentence are not fully integrated with each other despite the fact that they are syntactically integrated" (Kita 1997: 386). His evidence for this point of view ranges from linguistic data (i.e., lack of redundancy with regular expressions with a similar meaning, freedom from negation) to paralinguistic ones (i.e., accompanied iconic gestures, expressive intonation) (see also Tsujimura 2001; Kita 2001; Tamori and Schourup 1999: 154-172 for some discussions about the validity of the evidence). For example, he reports the tight coupling of mimetic adverbs and iconic gestures as supportive evidence for the "affecto-imagistic" conceptual property of mimetics (see Childs 1994; cf. Slobin 1997; Schaefer 2001). Specifically, as much as 94% of adverbial mimetics produced in explanation of a scene of a cat going down a building was accurately synchronized with a forceful downward hand gesture. This result is contrasted with the comparatively low frequency (40%) of gesture accompaniment with the same number of verbs randomly selected from the same subjects' speech.

With its concentration on the alleged independent status of mimetics, Kita's two-dimensional hypothesis can be considered to be a substantiated form of the traditionally dominant idea that mimetics are semantically peculiar. Nevertheless, he also notes that mimetic adjectives and verbs are less independent (Kita 1997: 391, 2001: 434). Those remarks suggest that semantic integration or independence he discusses is a matter of degree. This possibility will be pursued on the basis of some crosslinguistic data in Part II of this thesis.

In a somewhat related study, Osaka et al. (2003, 2004) provide some neuropsychological data based on functional Magnetic Resonance Imaging (fMRI) that might serve as evidence for the independency of mimetics. According to their research, mimetics activate the module in the brain that processes our actual experiences of their referent actions. For example, Osaka et al. (2004) report that a mimetic for laughter activated the laughter module in the brain. This report may support Kita's proposal that mimetics are semantically represented in the af-

fecto-imagistic dimension, which allows them to have direct contact with our sensory-motor experiences.

Nevertheless, the neural research has a long way to go before it reaches its final conclusion. Moreover, Morikawa (2002) reports interesting results of an experiment similar to Osaka et al.'s. By means of fMRI, she compared the positions and strength of neural activation in auditory perception of phonomimes, phenomimes, and nonmimetic regular words. According to Morikawa, phonomimes yielded more deviant results from nonmimetic words than phenomimes. The results are again suggestive of the gradient semantic integration of mimetics in language. Also, the data seem to support the lexical iconicity scale from phonomimes to nonmimetics presented in Section 1.2.4 above and used in Part II.

2.2.2. *Developmental psychology*

The importance of mimetics has recently attracted great interest in another subdiscipline of psychology—namely, developmental psychology. Mimetics are often associated with child language, and in fact Toda et al. (1990), Fernald and Morikawa (1993), Nagumo (2006), Ogura (2006a), and Imai and Haryu (2007: Chapter 8) observe that, in comparison with English, both children and their mothers tend to use many mimetics in Japanese (see also Kubozono 2005, 2006 for related phonological studies). Provided that the iconic property of mimetics helps children's understanding of words, it is reasonable to assume that they use these words at early stages of the acquisition process in this particular language, which has a large mimetic lexicon. However, despite the assumed importance of mimetics in language development, the roles of mimetics in language acquisition have hardly been explored.

Nevertheless, some recent studies in developmental psychology have reported initial find-

ings about the special status of mimetics in lexical acquisition. Specifically, Imai and her colleagues pursued the possibility that mimetics facilitate children's acquisition of verbs (Nagumo 2006; Imai and Haryu 2007: Chapter 8; Imai et al. 2008; see also Osaka 1999a: 10-12; Takiura 1999; Sakurai 2000; Yoshida 2003; Yoshida and Linda 2003; Tsujimura 2006: Chapter 8).

It is reported in many languages that nouns are easier to learn than verbs (Gentner 1982; Ogura 2001; Imai et al. 2005; Ogura et al. 2006; cf. Clancy 1985; Choi and Gopnik 1995; Tardif 1996; Choi 2000). One of the reasons postulated for this noun-bias is the referential difference between nouns and verbs. Nouns are conceptually simple because they refer to distinct objects that are consistent across time (Gentner 1982; Gentner and Boroditsky 2001; Poulin-Dubois and Graham 2007). On the other hand, verbs are conceptually more complicated because they refer to relations between objects (or more precisely, they connect NPs). In this sense, noun acquisition is a prerequisite for verb acquisition. In addition, the referent actions of verbs are often indistinct due to their unclear beginning. For example, one cannot readily assert exactly when the action represented by *grasp* starts: when the actor starts to move her/his hand, when the hand comes in contact with an object, when the actor starts to tense up the muscle of her/his hand, etc.

It is assumed in Imai and her colleagues' studies that the referents of mimetics are similar to those of verbs in that they refer to some aspect (precisely, "manner" in many cases) of an action. Accordingly, provided that mimetics are acquired easily because of their lexical iconicity, their acquisition can be expected to be of some help in the growth of children's attention to what verbs refer to.

A large part of the role of mimetics or their iconicity in lexical acquisition still remains to be explicated. For example, the specific mechanism of their facilitation of verb acquisition needs to be made clear in the future. Also, the influence of mimetic acquisition on other

facets of lexical acquisition should be pursued in order to clarify the entire story of the benefits of mimetics (see Tajima et al. 2009; Takeyasu and Akita 2009 for suggestions of the importance of mimetics in phonological acquisition of Japanese). Section 1.3.5 took a brief look at the semantic acquisition of mimetics in the context of the LIH. The observations synchronize with the growing interest in mimetics among those psychologists and psycholinguists.

2.2.3. *Cognitive semantics*

The polysemy of mimetics has long been one of the unexplored fields in the study of mimetics. Indeed, the semantic flexibility of this kind of words has been generally recognized by previous researchers (see Izumi 1976; Kakehi 1993; Kakehi et al. 1996; Kita 2001; Takeda 2001; Tsujimura 2001, 2005a; Nakazato 2002, 2003; Kadooka 2003, 2007; among others). Until recently, however, surprisingly few theoretical attempts have been made to analyze its mechanisms in detail.

The first decade of the twenty-first century, however, has witnessed the emergence of some cognitive semantic studies that discuss mimetic semantics in their general framework (Lu 2003, 2004, 2006; Mikami 2004, 2006, 2007; Yoshimura 2004; Akita 2006ab, to appear; Yu 2008; Inoue 2008, 2009). As I referred to from a somewhat different viewpoint in Section 1.3.5, some studies focus on the productive synaesthetic/crossmodal semantic extension from phonomimes to phenomimes and psychomimes (Yamanashi 1988; Takeda 2001; Ito 2002; Muto 2003). Despite the disagreement with the general directionality of synaesthetic extension discussed by Williams (1976), this common directionality of semantic extension of mimetics is quite natural based on their fundamentally auditory basis of mimetics (see Yamanashi 1988; Kakehi 1993; Ito 2002; Yoshimura 2004: Chapter 12).

Mikami (2006) pursues the high productivity of mimetic semantic extension with special attention to two particular cases based on "vestigial cognition" (cf. Kunihiro 1985, 2006) and "anticipatory cognition" (Nakamoto 2004). Both of these cases seem to be subsumed under what Matsumoto (1996b) calls "subjective change" in that both make reference to some kind of hypothetical change. Concretely, Mikami claims, for example, that the original referent of the reduplicative mimetic *ba^rabara* is the scattering event that actually takes place, as exemplified in (2.12).

(2.12) Gake-no ue-kara koisi-ga   *ba^rabara* oti-te   ki-ta.

        cliff-GEN top-from pebble-NOM MIM   fall-CONJ come-PST

        'Pebbles came falling *scatteringly* from the top of the cliff.' (Mikami 2006: 206)

According to her, this real-time reference meaning is extended to the meaning with vestigial cognition exemplified in (2.13).

(2.13) Vestigial cognition:

        Minna-ga   *barabara*-ni katte-ni   sigoto-o   si-te   i-ru-no-de-wa

        everyone-NOM MIM-COP   selfishly work-ACC   do-CONJ   be-NPST-NML-COP-TOP

        kooritu-ga   waru-i.

        efficiency-NOM   bad-NPST

        'It is inefficient that everyone is working selfishly *in their own way*.' (Mikami 2006: 207)

In this extended meaning, the inconsistency of everyone's work is expressed as if it had been caused by a scattering event that took place sometime before: in fact it is not certain that such a vestigial scattering event has actually taken place (Kunihiro 1985). Note that these two uses

of the mimetic have different semantic properties as well as different accent patterns, as indicated. That is, *ba^rabara* in (2.12) is a manner adverb with an initial accent, whereas *barabara* in (2.13) is a resultative adverb without an accent.

Mikami also argues that the hardness meaning of the mimetic *katikati* in (2.14b) stems from its 'ticktack' meaning illustrated in (2.14a).

(2.14) Anticipatory cognition:

a. Hosi-ta   sentakumono-no botan-ga   mado-garasu-ni   *ka^tikati*

dry-PST   laundry-GEN   button-NOM window-glass-DAT MIM

atat-te   i-ru.

hit-CONJ   be-NPST

'A button of the washed clothes is hitting the window with a *ticktack*.'

b. Yuube-no   samusa-de soto-ni   hosi-te   at-ta sentakumono-ga *katikati*-ni

last.night-GEN cold-due.to outside-DAT dry-CONJ be-PST laundry-NOM   MIM-COP

koot-te-simat-ta.

freeze-CONJ-keep-PST

'Due to the cold last night, the washed clothes hung outside have frozen *hard*.'

(adapted from Mikami 2006: 211-212)

Following Nakamoto's (2004) insight, she points out that there is a kind of anticipatory cognition behind this semantic extension. That is, in the frozen clothes example, the mimetic refers to the anticipatory noise that would be made if the frozen laundry were to hit something. Note again that the accent patterns of the mimetic in the two examples differ depending on their meaning.

Thus, as a part of linguistic system, mimetics show semantic extensions that are mediated

by speakers' subjective construal of the world. They have the potential to express their ideas vividly with mimetics in terms of past or future events.

2.2.4. *Lexical-conceptual semantics*

Mimetic semantics has been explored from a conceptual-semantic perspective as well. At the lexical semantics-syntax interface, Kageyama (2004, 2005, 2006, 2007) classifies mimetic verbs (i.e., [MIM + *suru* 'do']) into seven semantic types, arguing for the Unaccusativity Hypothesis (Perlmutter 1978; Burzio 1986; Levin and Rappaport Hovav 1995). His seven types of mimetic verbs are cited below. He classifies the seven types into two major groups: "unergative" and "unaccsative."

(2.15) Group A (unergative: Agent or Experiencer subjects) (Kageyama 2007: 44):

Type 1 (activity verbs): The subject physically performs a particular manner of action.

Ikka-no   aruzi-wa mainiti   *a^kuseku su*-ru.

one.family-GEN   head-TOP every.day MIM   do-NPST

'The head of a family works hard every day.'

Type 2 (impact verbs): The subject physically acts on an object in a particular manner.

Hahaoya-ga   akatyan-no senaka-o *to^NtoN   su*-ru.

mother-NOM   baby-GEN   back-ACC MIM   do-NPST

'Mother taps her baby on the back.'

Type 3 (manner-of-motion verbs): The subject moves about a place in a particular manner.

Ryokoosya-ga kankooti-o *u^rouro su*-ru.

tourist-NOM   sightseeing.area-ACC   MIM   do-NPST

'Tourists wander about in the sightseeing resort.'

Type 4 (psychological verbs): The subject experiences a particular psychological state.

Watasi-wa siken-no   kekka-ni *gaQka^ri si*-ta.

I-TOP   exam-GEN   result-DAT   MIM   do-PST

'I was disappointed at the results of the exam.'

(2.16) Group B (unaccusative: Theme subjects) (Kageyama 2007: 44):

Type 5 (physiological verbs): The speaker feels that his/her body part moves in a particular manner.

Atama-ga   *zu^kizuki su*-ru.

head-NOM   MIM-do   NPST

'My head throbs with pain.'

Type 6 (physical perception verbs): The subject moves or behaves in a particular manner.

Suwar-u-to,   isu-ga   *gu^ragura su*-ru.

sit-NPST-QUOT chair-NOM   MIM   do-NPST

'The chair wobbles if I sit on it.'

Type 7 (characterizing predication): The subject has a characteristic state or property.

Suupu-no   azi-ga   *aQsa^ri si*-te   i-ru.

soup-GEN   taste-NOM   MIM   do-CONJ be-NPST

'The taste of [this] soup is light.'

Kageyama's explorations are particularly significant in that he empirically showed the full-fledged semantic status of mimetic verbs and perhaps of mimetics themselves, considering the dummy-like semantic schematicity of the verb *suru* 'do'. His discussion strongly suggests that mimetics have determinate lexical meanings similar to nonmimetic vocabulary items, unlike what Tsujimura (2001, 2005a, 2008) claims about the "elusive, flexible semantic properties" of mimetics and mimetic verbs (but see Tsujimura and Deguchi 2007). This view of a full-fledged lexical semantic status for mimetics is what the present thesis shares with Kageyama. Focus on the non-peculiar facets of mimetic semantics is expected to make it possible to introduce general theoretical frameworks into this particular research area, an area that has been largely isolated from the center of general linguistics.

2.2.5. Interplay of phonology, semantics, and syntax

As stated in Section 2.1.3 above, in accord with the general crosslinguistic tendency of sound-symbolic words, Japanese mimetics are most likely to be realized as adverbs. These dynamic categories of mimetics are often accompanied by the quotative particle (or complementizer) *-to* (or *-(Q/N)te* for certain types of mimetics used in colloquial speech; see Hamano 1998: 13-14). Specifically, mimetics less than four moras long (e.g., *poN^(-to)* 'ponk', *kiri^ri(-to)* 'shaping up') and derivative intensified mimetics (e.g., *pipipiQ^(-to)* 'bip-bip-bip') are necessarily followed by the particle. Throughout this thesis, the obligatoriness of the particle is indicated by the addition of *(-to)* to the end of a mimetic. On the other hand, *-to* is optional for total-reduplicative mimetics (e.g., *pi^kapika* 'shining') and emphatic mimetics (e.g., *baQsa^ri* 'slashing').

The question of what regulates the cooccurrence of the quotative particle with Japanese mimetics has been one of the most mysterious puzzles that have attracted linguists' curiosity. It seems that this mystery has remained unsolved because, as shown below, it needs both formal and functional considerations. In this regard, the *-to*-marking phenomenon can be considered as an illustration of a fundamental property of mimetics. In this subsection, summarizing recent findings about this apparently complicated phenomenon, and adding some of my own observations, I will illustrate how the mystery of *-to* can be accounted for by combining some phonological and semantic/syntactic notions.

2.2.5.1.   *The phonological aspect of mimetic quotation*

As pointed out by Tamori (1980, 1983), Nasu (1995, 2000, 2001, 2002), Hamano (1998: Chapter 2), Asano (2003), and Kageyama (2007: 76), the occurrence of *-to* is in some part explainable in phonology. At the same time, the phenomenon at issue is pertinent to several important issues in mimetic phonology. First, based on the fact that the quotative particle is required for mimetics shorter than four moras, Nasu (1995, 2002: Chapter 3) posits the four-mora prosodic template for mimetics, which is skeletally represented as $[\mu\mu\mu\mu]_{PrWd}$. He claims that this template predicts mimetics to be four moras long. In this view, the quotative is not phonologically required for four-mora mimetics due to their satisfaction of the prosodic template, as illustrated in (2.17a-c). In contrast, it is obligatorily attached to three-mora mimetics because they cannot satisfy the template without the particle, as exemplified in (2.17d). In the latter case, the quotative particle is analyzed as being "phonologized" in the sense that

it is already counted as a part of a prosodic word.[11]

(2.17) The four-mora prosodic template (Nasu 2002: 57):

a. [μ μ μ μ]$_{PrWd}$

| | | |

pi   ka   pi   ka   'shining'

b. [μ μ μ μ]$_{PrWd}$

| | | |

po   N   po   N   'plonk-plonk'

c. [μ μ μ μ]$_{PrWd}$

| | | |

ba   Q   sa   ri   'slashing'

d. *[μ μ μ μ]$_{PrWd}$ ⟶ [μ μ μ μ]$_{PrWd}$

| | | | | | |

ba   sa   ri   'slashing'   ba   sa   ri   *to*

The existence of the prosodic template and the formal stability of four-mora mimetics is

supported by the fact that four-mora mimetics occupy more than 40% of the mimetic lexicon

of Japanese (Otsubo 1982, 1989/2006; Oda 2000: 66; Nasu 2002: 51; Kadooka 2007: 41). As

Nasu notes, however, there are some well-formed monomoraic root-based mimetics that are

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[11] The phonologization of *-to* in mimetic stems of less than four moras gains further support from compounding. In colloquial speech and commodity names, mimetic stems of this kind sometimes form compound nouns with the quotative particle remaining, as shown in (i). On the other hand, as exemplified in (ii), mimetic stems of four moras are not followed by *-to* in compounding.
(i) Compound nouns made from a mimetic stem of less than four moras:
    a. *paQ(-to)* 'quick' + *mi* 'sight' ➔ *paQ*(-to)-mi* 'quick glance'
    b. *pitaQ^(-to)* 'fitting' + *hausu* 'house' ➔ *pitaQ*(-to)-hausu* (a company's name)
    c. *sukaQ^(-to)* 'refreshed' + *kan* 'feeling' ➔ *sukaQ*(-to)-kan* 'feeling of refreshment'
(ii)   Compound nouns made from a four-mora mimetic stem:
    a. *bu^rabura* 'strolling' + *aruki* 'walk' ➔ *burabura(*-to)-aruki* 'stroll'
    b. *piQta^ri* 'fitting' + *kan* 'feeling' ➔ *piQtari(*-to)-kan* 'feeling of fitting'

three moras long even when the required quotative particle is counted (e.g., *paQ^(-to)* 'sudden', *poN^(-to)* 'ponk'). Indeed, he tries to solve this problem by pointing out the four-mora orientation of some other forms of monomoraic root-based mimetics like *zaa^(-to)* 'raining heavily' and *pui^(-to)* 'looking away in anger', which are more likely to be pronounced as four-mora mimetics—namely, *zaaQ^(-to)* and *puiQ^(-to)*, respectively (Nasu 2002: 63-64). However, since this kind of gemination is not applicable to the above monomoraic root-based suffixal mimetics (i.e., **paQQ^(-to)*, *??poNQ^(-to)*), it seems still far from a fundamental solution.

To solve this problem, Nasu (2002: Chapter 4, 2003, 2007) turns his attention to accentuation of mimetics (see also Hamano 1998: 32-36), extending the discussion to derivative intensified mimetic forms. He proposes that mimetics require the quotative particle when the final part of a mimetic stem attracts an accent nucleus and violates "the NonFinality constraint," which is widely attested to in Japanese phonology (Kubozono 1997, 2000). This constraint prohibits a phonological head (a foot containing an accent nucleus in the present case) from occurring in the final part of a prosodic word (Prince and Smolensky 1993). Nasu claims that suffixal mimetics call for the help of the quotative particle in order not to have an accented foot in their final position. Specifically, given that foots are constituted by two moras in Japanese (Poser 1990), the phonological head of suffixal mimetics is located in their final position. This violates the NonFinality-foot constraint. In this view, the quotative particle is attached to solve this problem by addition of a light syllable, as shown in (2.18).

(2.18) The NonFinality-foot constraint on suffixal mimetic stems:

    a. *paQ^* (*(H^)) 'sudden'   →   *paQ^-to* ((H^)L)

    b. *guruQ^* (*L(H^)) 'making a circle' → *guruQ^-to* (L(H^)L)

    c. *poN^* (*(H^)) 'ponk'   → *poN^-to* ((H^)L)

d. *powaN^* (*LH(^)) 'looking gentle' ➔ *powaN^-to* (L(H^)L)

e. *pui^* (*(H^)) 'looking away in anger' ➔ *pui^-to* ((H^)L)

f. *kiri^ri* (*L(L^L)) 'shaping up' ➔ *kiri^ri-to* ((LL^)(LL))

Importantly, the same explanation is applicable to derived mimetic forms (see also Akashi 2007). For example, although the partially triplicated mimetic *pipipiQ^(-to)* (< *piQ^(-to)* 'bip') is four moras long without *-to*, it requires the quotative particle *-to*. In terms of Nasu's constraint-based account, this is because, without the quotative, the phonological head would be inappropriately located in the final position of the prosodic word, as is the case for its non-intensified counterpart *piQ^(-to)*.

Thus, the NonFinality constraint can account for a large part of the phonological side of the mimetic *-to*-marking phenomenon. However, it should be noted that the non-obligatoriness of the particle in "emphatic" mimetics like *baQsa^ri* in (2.17c) can only be explained by the prosodic template. Although they share the violation of the NonFinality-foot constraint with *-ri*-ending mimetics like *kiri^ri(-to)* in (2.18f) (i.e., ((H)(L^L))), the quotative particle is optional for them. This seems to stem from their satisfaction of the four-mora template. In sum, it is likely that both of the prosodic template-based and constraint-based accounts are needed for explanation of the phonological obligatoriness of *-to*.

2.2.5.2.   *The semantic and syntactic aspects of mimetic quotation*

The most challenging problem rather resides in the cases where the quotative particle is *optional*. In this subsection, citing Toratani's (2006) discussion as a basis, I take a brief look at some semantic and syntactic factors in the cooccurrence of mimetics with *-to* (see Asano

2003 for a phonological account of the origin of the optionality of *-to*; see also Hamano 1998: 36-38). As scholars have pointed out, non-suffixal mimetics of four moras (specifically, two-mora reduplicative or emphatic mimetics), which are free from the violation of the two phonological conditions, show nonuniform degrees of likelihood of *-to*-marking. This is true even for one mimetic appearing in different syntactic/semantic environments. Thus, we cannot account for these cases with phonological conditions alone.

In this respect, Hamano (1998: 13-14) suggests a semantic aspect in the occurrence of the quotative particle (see also Kamada 2000: 38-39). According to Hamano, "[i]n general, a quotative particle is obligatory with more colloquial, more iconic mimetic adverbs and optional with less colloquial, more conventional mimetic adverbs." This statement suggests that *-to* marks (or bridges) a semantic gap between a mimetic and the rest of the sentence where it belongs (see Kageyama 2007: 76-77 for a related discussion). This idea is reasonable in that the basic or original function of the particle is complementation of direct speech (Kamada 2000; Fujita 2001; see also Klamer 1999a and Güldemann 2008 for related phenomena in Austronesian and African languages, respectively; cf. Zwicky 1971; Mufwene 1987; Kishimoto 2006), as illustrated below.

(2.19) "Kore oisi-i"-*to*   Mai-wa it-ta.

      this   tasty-NPST-QUOT M.-TOP   say-PST

      'Mai said, "This is tasty."'

Similar but more developed ideas are presented in Tamori (1980, 1983) and Toratani (2006). Their proposals can be summarized as follows: the farther mimetics are isolated semantically or syntactically from the predicate they modify, the more likely they are followed by *-to*.

First, let us consider the correlation between syntactic distance and the occurrence of *-to*. (2.20a) illustrates how the mimetic adverb stem *no^konoko* 'appearing nonchalantly' is very likely to appear with the quotative particle when it is isolated away from the verb it modifies (i.e., *mukau* 'leave for'). (Here a question mark indicates that the sentence sounds slightly poetic or literary, if not distinctly unnatural, when the mimetic stems appear without *-to*.) On the other hand, as illustrated in (2.20b), the mimetic stem can appear both with and without *-to* with perfect naturalness when it occurs next to the host predicate.

(2.20) Syntactic distance and the occurrence of *-to*:

a. Watasi-wa *no^konoko*?(-to) omiyage-no   hanataba-o   mot-te

I-TOP   MIM(-QUOT)   souvenir-GEN bouquet-ACC   have-CONJ

Zinguumae-no   mansyon-e   *mukat*-ta.

Z.-GEN   apartment-to leave.for-PST

'Carrying a gift bouquet, I left for [her] apartment in Jingumae nonchalantly.'

(Toratani 2006: 419)

b. Watasi-wa omiyage-no   hanataba-o   mot-te   Zinguumae-no mansyon-e

I-TOP   souvenir-GEN bouquet-ACC have-CONJ Z.-GEN   apartment-to

no^konoko(-to)   *mukat*-ta.

MIM(-QUOT)   leave.for-PST

Although Toratani only discusses total-reduplicative mimetics, her generalization seems to hold for the other type of mimetics (i.e., the emphatic type) that do not violate the phonological conditions stated above. As exemplified in (2.21), the quotative particle is more likely to follow the emphatic mimetic *huNwa^ri* 'fluffy' when it is scrambled to a syntactic position away from the host verb phrase *Mai-no sukaato-o yurasu* 'make Mai's skirt flut-

ter'.[12, 13]

(2.21) Syntactic distance and the occurrence of *-to*:

    a. *HuNwaˆri?*(-to) yowa-i   kaze-ga   *Mai-no   sukaato-o yurasi*-ta.

      MIM(-QUOT)   weak-NPST wind-NOM M.-GEN   skirt-ACC   make.swing-PST

      'A gentle breeze made Mai's skirt flutter fluffily.'

    b. Yowa-i   kaze-ga   *huNwaˆri*(-to) *Mai-no   sukaato-o yurasi*-ta.

      weak-NPST wind-NOM MIM(-QUOT) M.-GEN   skirt-ACC   make.swing-PST

Based on an investigation of 309 mimetics that occurred in a simple sentence from eight literary sources, Toratani presents distributional data of *-to-* and zero-marked mimetics. She classified those mimetics marked in the two ways according to how many phrasal elements occurred between the mimetic and the host predicate. Table 2.1 gives the results, in which "Position 1" means the immediately preverbal position, "Position 2" means the next position to the left, and "Position 3" means the next.

Table 2.1. Zero- and -to-*marked mimetics and their distance from host predicates (adapted from Toratani 2006: 417)*

	Ø	*-to*	Total
Position 1	151 (72.25%)	58 (27.75%)	209 (100%)
Position 2	34 (38.20%)	55 (61.80%)	89 (100%)
Position 3	2 (18.18%)	9 (81.82%)	11 (100%)

A chi-square test for her data yielded a significant group difference ($\chi^2 (2) = 38.84, p < .001$).

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[12] The syntactic distance account seems to be applicable to the obligatory occurrence of *-to* in cleft sentences pointed out by Taro Kageyama (personal communication). In the following example, the mimetic *huNwaˆri* is isolated from the host verb *yureru* by clefting.
(i) Yowa-i   kaze-ga   *Mai-no sukaato-o yurasi*-ta-no-wa   *huNwaˆri*(-to)*-dat-ta. (cf. (2.21b))
   weak-NPST wind-NOM M.-GEN skirt-ACC   make.swing-PST-NML-TOP MIM(-QUOT)-COP-PST
   'It was fluffily that a gentle breeze made Mai's skirt flutter.'
[13] Careful attention needs to be paid to syntactic distance here. Distance between two elements can be measured based on surface linear order as well as dominance in phrase structure. See Shibatani (1975) and Nambu (2007) for two linear order-related case phenomena in Japanese.

A post hoc residual analysis revealed that Position 1 significantly preferred zero-marked mimetics (adjusted residual = 6.10, p < .001) and disliked *-to*-marked ones (adjusted residual = -6.10, p < .001). Meanwhile, Position 2 significantly avoided zero-marked mimetics (adjusted residual = -5.10, p < .001) and preferred *-to*-marked mimetics (adjusted residual = 5.10, p < .001). Finally, Position 3 significantly disfavored zero-marking (adjusted residual = -2.93, p < .01) and favored *-to*-marking (adjusted residual = 2.93, p < .01). Therefore, the results support her claim that the likelihood of occurrence of the quotative particle is positively correlated with the distance between a mimetic and the predicate it modifies.

Next, Toratani (2006) also points out the correlation between the cooccurrence of *-to* with mimetics on one hand and what can be called semantic distance between a mimetic and the predicate it modifies on the other. She argues that mimetics tend to be followed by *-to* when they modify a predicate with which they only have weak association or collocational relation. For example, the reduplicative mimetics *te^kuteku* 'walking with a light step' and *ni^koniko* 'smiling' have a strong collocational relation to the verbs *aruku* 'walk' and *warau* 'laugh' or *hohoemu* 'smile', respectively (see Kunene 2001: 187-188; Schaefer 2001: 347-349 for similar collocational tendencies in other languages). The quotative particle is optional when they occur with these familiar verbs ("typical hosts" in Toratani's terminology), as shown in the (a) sentences below. On the other hand, it is more likely to occur when they appear with unexpected predicates (or "atypical hosts") exemplified in the (b) sentences below.

(2.22) Semantic distance and the occurrence of *-to* (based on Toratani 2006: 418-419):

   a. Kodomo-ga heya-no   naka-ni   *te^kuteku*(-to) *arui*-te   it-ta. (typical host)

      child-NOM   room-GEN   inside-DAT MIM(-QUOT)   walk-CONJ go-PST

      'A child walked into the room with a light step.'

   b. Kodomo-ga heya-no   naka-ni   *te^kuteku*?(-to)*hait*-te   it-ta. (atypical host)

    child-NOM   room-GEN   inside-DAT MIM(-QUOT)   enter-CONJ go-PST

    'A child went into the room with a light step.'

(2.23) Semantic distance and the occurrence of *-to* (based on Toratani 2006: 418-419):

    a. Ken-wa   *ni^koniko*(-to) *hohoen*-de   i-ta. (typical host)

        K.-TOP   MIM(-QUOT)   smile-CONJ be-PST

        'Ken was smiling cheerfully.'

    b. Ken-wa   *ni^koniko*??(-to) *akarukat*-ta. (atypical host)

        K.-TOP   MIM(-QUOT)   bright-PST

        'Ken was lively with a cheerful smile.'

The tendency here is again reminiscent of one of the basic functions of the quotative particle. *-To* makes it possible to quote direct speech that is not directly related to the eventuality denoted by the main clause. In the following example, *-to* quotes a question meaning 'Aren't you coming tomorrow?', which Hanako asked Taro because of her slight expectation that he might come. *-To* here connects the quoted question with the clause denoting the eventuality in which Hanako had such an expectation. Therefore, there is merely an indirect relation between the two components of the sentence.[14]

(2.24) Hanako-ga Taroo-ni "Asita-wa   ko-na-i-no?"-*to*   kasuka-ni

      H.-NOM   T.-DAT   tomorrow-TOP come-NEG-NPST-NML-QUOT   slight-COP

      kitai   si-ta   koto-ga   Taroo-no kessin-o   nibur-ase-ta.

      expectation do-PST matter-NOM T.-GEN   resolution-ACC get.dull-CAUS-PST

---

[14] Kageyama's (2007: 76-78) discussion on the nonuniform possibilities of occurrence of *-to* in two subtypes of mimetic verbs (i.e., "psych-verbs" and "characterizing predication verbs"; see Section 2.2.4) seems to be compatible with the present semantic account. He considers the quotative particle as an element that bridges a semantic gap between a stative mimetic and the fundamentally activity verb *suru* 'do'.

'It weakened Taro's resolution that Hanako had a slight expectation [and said]

to him, "Aren't [you] coming tomorrow?" (Kamada 2000: 43)

These cases of syntactic/semantic distance correlating with the cooccurrence of mimetics with the quotative particle *-to* seem to be explained straightforwardly with the principle of "diagrammatic iconicity of distance" (Haiman 1980, 1983, 1985ab), which will be discussed in Part II of this thesis. This principle expects two distant concepts to be linguistically encoded distantly, with morphemes and phrases intervening between them. Concretely, in the syntactic distance examples, a mimetic isolated from the host predicate results in the neighborhood of a phrase to which it is in a poor collocational relation. In the iconicity-of-distance view, the intervention by the quotative particle is considered to symbolize this semantic gap. Likewise, in the semantic distance examples, *-to* intervenes between a mimetic and a predicate that show a collocational mismatch. Thus, we can here conclude that the quotative particle iconically indicates a conceptual mismatch between a mimetic and its neighboring phrasal element.

However, one might criticize the discussion so far in that it contains ambiguity. That is, it has been indeterminate whether the quotative particle cooccurs with a mimetic when there is no semantic match between the mimetic and the following phrasal element or when there is a semantic mismatch between them. The latter possibility is borne out by Hamano's (1998: 14-15) observation of the verbless construction (for this less conventional construction see Tamori 1988; Tsujimura 2005a; Kageyama 2007). The quotative particle is unlikely to occur in this construction, as illustrated below.

(2.25) The verbless construction (adapted from Hamano 1998: 14):

a. Namae-o   kii-te   *gikuQ*^(*-to).

name-ACC   hear-CONJ   MIM(-QUOT)

'[I was] startled when [I] heard the name.'

b. Tokee-ga   iti-zi-o   *booN^(*-to)*.

clock-NOM   1-o'clock-ACC MIM(-QUOT)

'The clock [struck] one with a bong.'

Since there is no element after a mimetic in the construction, neither semantic match nor mismatch like the ones observed above is involved. Therefore, the ambiguity in question is solved: *-to* cooccurs with a mimetic stem when there is a mismatch between the mimetic and the following phrasal element.

Finally, it is worth questioning which alternative is unmarked and basic in mimetics. Based on the above observations, zero-marking occurs in more restricted environments. Concretely, *-to* can be dropped only when a mimetic does not violate the two phonological conditions and is semantically and syntactically close to the predicate it modifies. In addition, there is an interesting phenomenon that suggests the markedness of bare mimetic forms. Japanese has a small set of highly conventionalized mimetic adverbs. As shown below, despite their satisfaction of the phonological conditions, these "nonmimeticized" adverbs tend to avoid *-to*-marking.[15]

(2.26) "Nonmimeticized" adverbs (Tamori 1980; Tamori and Schourup 1999: 68-69):

do^NdoN(?-to) 'steadily and rapidly', *do^sidosi(??-to)* 'unreservedly', *meQki^ri(??-to)* 'remarkably', *suQka^ri(*-to)* 'completely', *teQki^ri(*-to)* '(believing something) com-

---

[15] Mimetics of this kind seem to correspond to what Bartens (2000: 19) calls "intensifying ideophones" and what do Couto (1995) calls "exclusive particles," which function as if they were non-ideophonic grade adverbs (Martin 1975). As listed below, there are many such examples in monomoraic root-based suffixal mimetics, which phonologically require the *-to*. Most of these adverbs have no accent nucleus.
(i) Monomoraic root-based suffixal nonmimeticized adverbs:
  hyoQ-to (site) 'maybe', *kiQ-to* 'surely', *moQ^-to* 'more', *soQ-to* 'gently', *tyoQ^-to* 'a little bit', *uN-to* 'much', *yaQ-to* 'finally', *zuQ-to* 'for a long time'

pletely (by misunderstanding)', *tyo^ityoi(*-to)/tyo^kutyoku(*-to)* 'from time to time'

These words are highly exceptional in that they seem to have lost most of their sound-symbolic expressiveness and have become near-regular adverbs (see Nitta 2002), which do not need to be marked as a "quotation." It is thus likely to be the case that this semantic exceptionality of nonmimeticized adverbs is reflected by their marked bare forms. Based on these facts, together with the general linguistic tendency that deletion is more common than addition, quotative-marked mimetics can be concluded to be unmarked compared with zero-marked ones. This conclusion is contrary to the previous assumption that *-to* is *attached* to mimetics. Nevertheless, again based on Hamano's (1998: 13-14) idea that *-to*-marked forms are favored by highly iconic mimetics, their unmarkedness seems not so surprising, for iconicity is the most fundamental property of mimetics (see Section 7.1.4 below for a related phenomenon in English).

In summary, the mimetic *-to*-marking phenomenon is no longer a mystery. It is caused by a combination of these phonological, semantic, and syntactic factors (see Akita 2009b for further discussion). The present discussion is very suggestive of the importance of multiple viewpoints in the study of mimetics, whose form and meaning are interrelated in nature. A formal analysis is more appropriate to some facets of mimetics, but a semantic one is more appropriate to others. The following chapters will thus consider multiple factors in several mimetic-related phenomena.

2.2.6. *The standpoint of this study*

In this section, I have introduced some representative studies in the recent theoretical trend in

mimetics research. Those studies have become possible with the theoretical and technical development in general linguistics and (neuro)psychology. Aiming at furthering the progress of the trend, this thesis pursues the possibility of the application of two linguistic frameworks—namely, Construction Grammar and an iconicity of a distance-based model—to the morphophonology and morphosyntax of mimetics, which is aided by some psychological and statistical methodologies as well as linguistic ones. Importantly, as a theoretical study located in the recent trend, the present thesis will focus on the non-peculiar as well as the peculiar side of sound-symbolic words. Specifically, this study emphasizes the roles of their lexical, referential meaning, rather than their sound-symbolic meaning. As summarized in the first half of this chapter, this aspect has been slighted in the previous literature, which has focused almost excessively on the apparent peculiarities of mimetic morphophonology and phonosemantics. The present theory-oriented investigations are thus expected to make up for the defects in previous descriptive studies on mimetics.

Chapter Three

Theoretical Frameworks

This chapter outlines the theoretical frameworks and viewpoints that this study takes and intends to contribute to. The organization of this chapter is as follows. Section 3.1 will introduce the idea of Construction Grammar, focusing on its recent application to morphological studies. This growing framework will be adopted and developed in the analysis of mimetic morphophonology in Part I. Section 3.2 will introduce a functional view of the relationship between semantics and syntax, which I will employ to account for the variation in the grammatical properties of sound-symbolic words in Part II. Section 3.3 will introduce three important facets of semantics (i.e., prototype categories, constructional meaning, grammatically relevant meaning) discussed in those two sections of the thesis. Each section will also outline the specific theoretical contributions I intend to make from the analyses of mimetics.

3.1. Morphophonology: Construction Grammar

3.1.1. Argument structure constructions

This section introduces the idea of "constructions," which will be employed at the morpho-

phonological level in Chapter 5. As a milestone in the history of Construction Grammar, Goldberg (1995) defines constructions as follows.

(3.1) Constructions (Goldberg 1995: 4):

C is a CONSTRUCTION iff$_{def}$ C is a form-meaning pair <F$_i$, S$_i$> such that some aspect of F$_i$ or some aspect of S$_i$ is not strictly predictable from C's component parts or from other previously established constructions.

Constructions are thus understood to be primarily identifiable by the unpredictability of their form or meaning.

The notion of constructions has been mainly developed at the argument structure or clause level (see Goldberg 1995, 1997, 2006; Kay and Fillmore 1999; Croft 2001; see also Lakoff 1987; Nunberg et al. 1994; among others). Let me illustrate argument structure constructions with the following frequently cited example.

(3.2) Fred sneezed the napkin off the table. (Goldberg 1995: 156; originally Talmy 1975)

Goldberg argues that the caused-motion meaning (i.e., 'X CAUSES Y to MOVE Z') of this sentence cannot be ascribed to the one-place verb *sneeze*, which selects neither the object NP *the napkin* nor the oblique PP *off the table*. Her solution is to link the caused-motion meaning with the syntactic frame [SUBJ [V OBJ OBL]] (or [NP [V NP PP$_{obl}$]]) itself, positing a productive argument structure construction called "the caused-motion construction," which is diagrammed as follows (profiled participants, which are realized as a subject and an object, are indicated in **boldface**).

```
┌─────────────────────────────────────────────────────────┐
│  Sem   CAUSE-MOVE      < cause    goal    theme >        │
│             │              │        ┊        ┊           │
│            PRED       <                           >      │
│             ↓              ↓        ↓        ↓           │
│  Syn        V             SUBJ     OBL      OBJ          │
└─────────────────────────────────────────────────────────┘
```
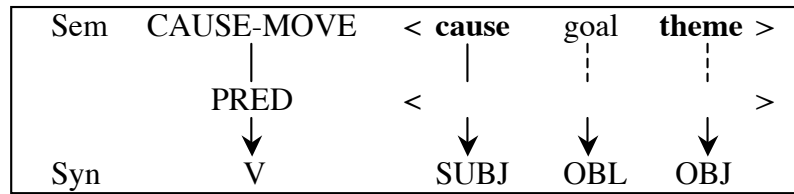
Figure 3.1. The caused-motion construction (Goldberg 1995: 160)

It should be noted here that, despite the meaningfulness of the argument structure construction in her model, she also acknowledges the importance of verb meaning in generation and interpretation of the sentence. The sentence in (3.2) presupposes the world knowledge that "sneezing involves the forceful expulsion of air" (Goldberg 1995: 29), which can blow the napkin off the table.

In this connection, an interesting fact can be pointed out. That is, although the meanings of argument structure constructions are characterized by their presumed non-compositionality (or "gestalt" nature), the meanings of actual sentences are obtained in quite a compositional fashion. For example, in (3.2), the meaning of the verb (i.e., SNEEZE) and that of the construction (i.e., 'X CAUSES Y to MOVE Z') successfully predict the specific caused-motion event represented by the whole sentence. Thus, contrary to its emphasis on unpredictability, this theory of argument structure constructions holds a compositional, unificational point of view (Goldberg 1995: 13-16).

Goldberg (1995: Chapter 3) posits four types of "inheritance" links—namely, polysemy, subpart, instance (or elaboration), and metaphorical extension links—to clarify the network relations among constructions and the hierarchical structure of construction networks. For the purpose of the present study, I only introduce three of them. First, "polysemy links" (I_P) connect different meanings of a polysemous construction. For example, Goldberg (1995: 162) posits an extended meaning (i.e., 'X PREVENTS Y from MOVING Comp(Z)') to capture a less central use of the caused-motion construction illustrated in (3.3).

(3.3) Harry locked Joe into the bathroom. (Goldberg 1995: 162)

The apparent contradiction between this prevented-motion meaning and the basic caused-motion meaning, exemplified in (3.1), is solved by the postulation of constructional polysemy. The following diagram illustrates this semantic extension relation.

Caused-Motion Construction

Sem	CAUSE-MOVE	< cause	path	theme >
	|R			
R:instance,	PRED	<		>
means				
	↓	↓	↓	↓
Syn	V	SUBJ	OBL	OBJ

I_P: cause-prevent

Sem	CAUSE-not-*MOVE*	< *cause*	*path*	*theme* >
	|*R*			
R:instance,	*PRED*	<		>
means				
	↓	↓	↓	↓
Syn	*V*	*SUBJ*	*OBL*	*OBJ*
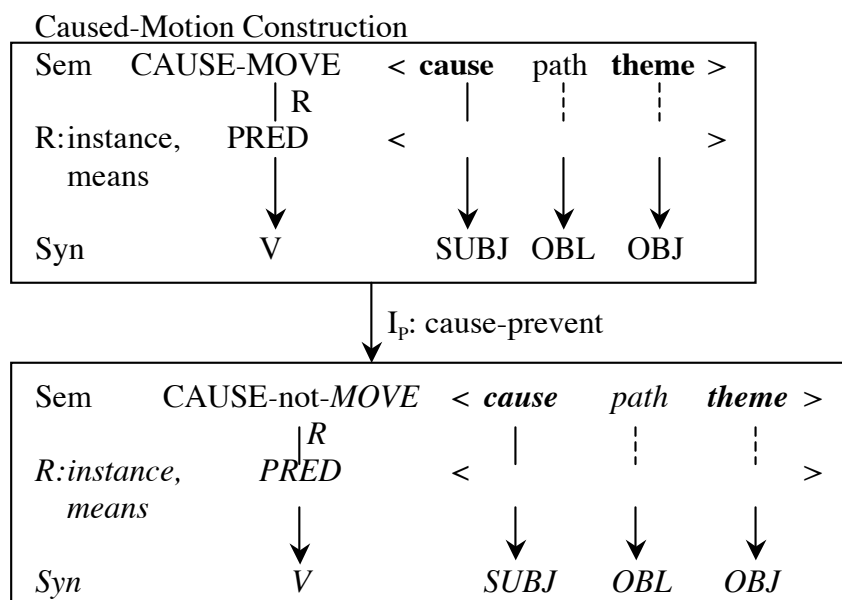
Figure 3.2. A polysemy link (Goldberg 1995: 163)

Importantly, in this view, the specific eventuality expressed by the sentence is again compositionally represented by the verb *lock* and the extended construction. This aspect of argument structure constructions will be further discussed in comparison with morphophonological constructions in Chapter 5. Furthermore, Goldberg (1995: Ch. 2, 7) observes that, just as is the case for lexical items, parallel polysemy is found across constructions, such as between the ditransitive and the caused-motion constructions.

Second, "subpart links" (I_S) are posited between a construction and another construction that is its proper subpart. For example, as diagramed below, "the syntactic and semantic

specifications of the intransitive motion construction [(e.g., *A dog ran around the park*.)] are a subpart of the syntactic and semantic specifications of the caused-motion construction [(e.g., *She ran her dog around the park*.)]" (Goldberg 1995: 78), although the two constructions exist independently.

Caused-Motion Construction

Sem	CAUSE-MOVE		< **cause**	**theme**	goal >
	PRED		<		>
Syn	V		SUBJ	OBJ	OBL

I_S: cause

Intransitive Motion Construction

Sem	*MOVE*	< *theme*	*goal* >
	PRED	<	>
Syn	*V*	SUBJ	*OBL*
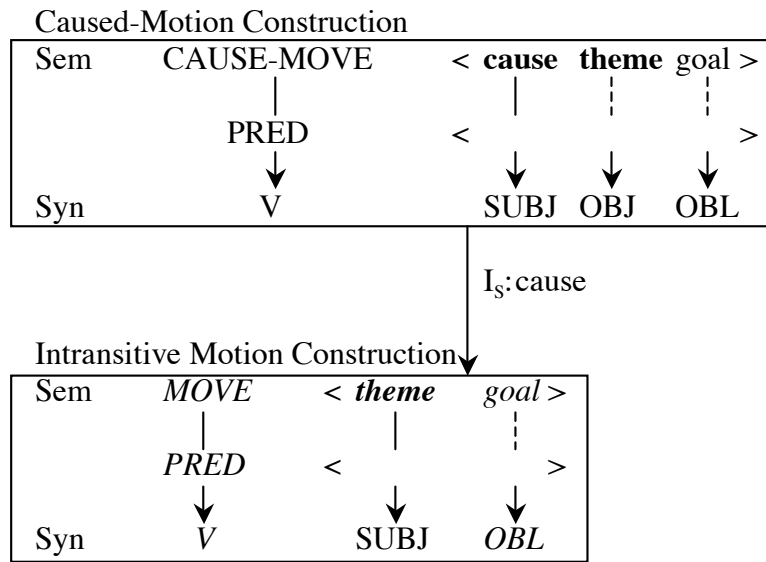
Figure 3.3. A subpart link (Goldberg 1995: 78)

Third, "instance links" (I_I) capture the specificity levels of related constructions. For example, a construction that is partially filled by a lexical item is linked with a schematic construction at the upper level by an instance link. This is exemplified by the resultative construction with its verb and oblique parts specified as *drive* and 'crazy' (e.g., *mad*, *bonkers*, *over the edge*), respectively. See the following figure:

Resultative Construction

Sem	CAUSE-BECOME	< **agt**	result-goal	**pat** >
	PRED	<		>
Syn	V	SUBJ	OBL$_{PP/Adj}$	OBJ

I_I

drive-'crazy'

Sem	*CAUSE-BECOME*	< **agt**	result-goal	**pat** >
	drive	< driver	'crazy'	>
Syn	*V*	*SUBJ*	*OBL$_{PP/Adj}$*	OBJ
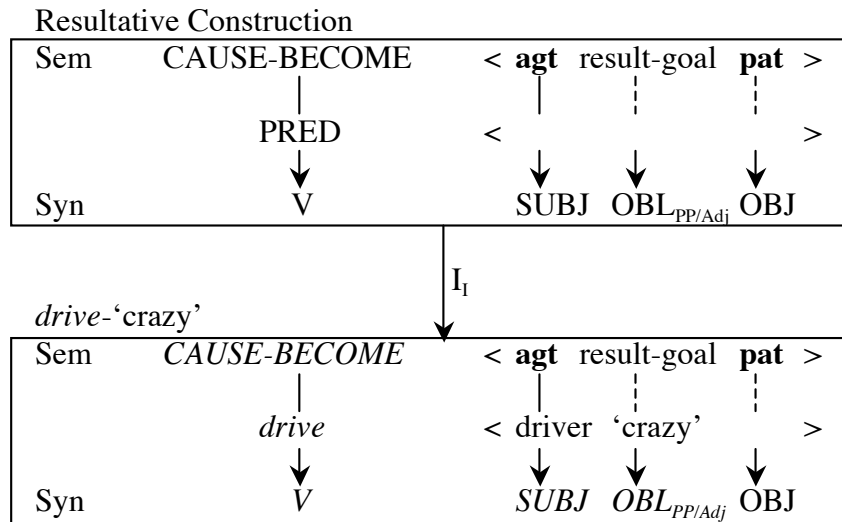
Figure 3.4. An instance link (Goldberg 1995: 80)

In the present study, these types of inheritance links will be identified in networks of mimetic morphophonology.

3.1.2. *Morpho(phono)logical constructions*

As Blevins (2006) summarizes, in general, there are two possible approaches to morphological description as well. One type is called a "constructive" (or compositional, derivational) approach, which is instantiated by root-, stem-, or morph-based models, and the other an "abstractive" approach, which is instantiated by word- or realization-based models (Aronoff 1994). As an instance of the latter type of approach, the constructional way of thinking has recently been applied to the field of morphology (Booij 2004, 2005b, etc.; Asao 2007). For example, Booij (2005a, 2007) discusses the constructional characteristics of $[[x]_V\text{-}er]_N$ in Dutch and English, which is paired with the meaning 'one who Vs habitually, professionally, etc.' (Aronoff 1976: 50). This morphological construction yields *baker* 'one who bakes professionally', *killer* 'one who kills someone habitually', and *runner* 'one who runs profession-

ally/habitually', for example. He states that a "word formation pattern in which use is made of a particular affix can thus be conceived of as a morphological construction in which it is only the affix [(-*er* in the current example)] that is specified whereas the slot for the stem is variable [(i.e., "x")]" (Booij 2007: 34; see also Jackendoff 2002: 172-177).

Also, Tsujimura and Davis (2008) consider the prosodic aspect (precisely, accentuation) of what Booij calls "affix" in their analysis of a word-level construction (see also Giriko and Morishita 2008 for another morphophonological construction in Japanese). Specefically, they analyze innovative verbs in Japanese (e.g., *kopi^ru* 'copy', *sutaba^ru* 'go to Starbucks') as a "morphophonological construction" with a skeletal representation like $[[x]_{N/MIM}{}^{\wedge}\text{-}r\text{-}u]_V$ (adapted from the original to fit Booij's notation), which is linked with the broad sense of "playfulness."

Importantly, Booij (2004) points out the lack of full predictability of the meanings of morphological constructions, taking Dutch and German particle verbs as an example. He states that the meaning of various particle verbs with the polysemous Dutch particle *op* (i.e., $[[op]_P\ [x]_V]_{VP}$) is limited to something like 'activate cognitively by V-ing' (e.g., *op bellen* 'call up', *op-piepen* 'beep up (lit.)'), which is not necessarily predictable from their component words. This piece of semantic unpredictability is one of the motivations that drive him to posit the morphological construction.

Moreover, morphological constructions show inheritance relations parallel with those observed for argument structure constructions. Booij (2005a) points out some inheritance links among morphological constructions again using agent nominals as an example. First, he states that *baker* is a special case of the *-er*-nominal construction, which is in turn a special case of the $[[x]_X\text{-}y]_Y$ construction. Second, he refers to the polysemy of the agent nominal construction, which denotes not only human agents but also instruments (i.e., personified agents; e.g., *computer*, *cutter*, *eraser*, *sequencer*). Third, each *-er*-nominal has its component verb as

a subpart construction. Here I diagram a morphological construction network to which the agent nominal construction belongs, which displays three sorts of inheritance relation (cf. Booij 2005a).

Sem '---'
Morph $[[x]_x\text{-}y]_y$
I_I

Sem 'one who Vs professionally/habitually'
Morph $[[x]_V\text{-}er]_N$
I_P →

Sem 'an instrument that Vs'
Morph $[[x]_V\text{-}er]_N$
I_I

Sem 'one who bakes professionally'
Morph $[[bak]_V\text{-}er]_N$
I_S

Sem 'an instrument that erases something'
Morph $[[eras]_V\text{-}er]_N$
I_S

Sem 'cook in an oven'
Morph $[bake]_V$

Sem 'remove markings or information'
Morph $[erase]_V$
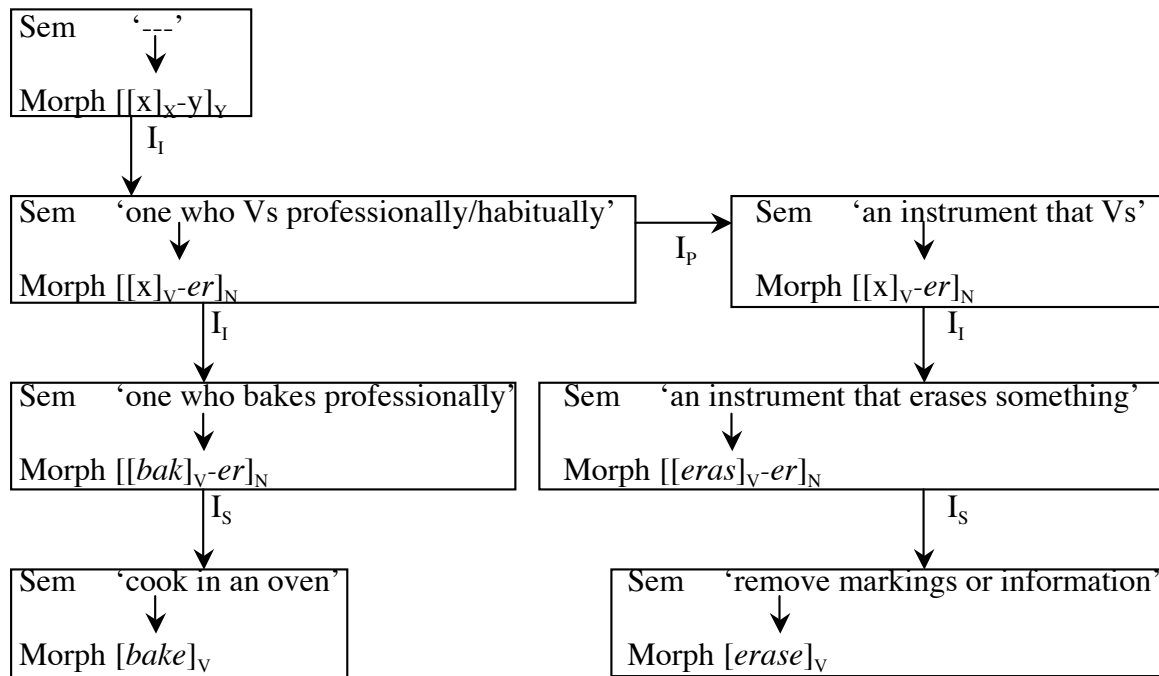
Figure 3.5. A morphological construction network

Thus, there are notable parallelisms between argument structure constructions and morphological constructions: namely, unpredictability, productivity, and inheritance. In Chapter 5, based on the ideas introduced here, I will identify some constructional characteristics of mimetic morphophonological templates to argue for their status as a significant unit in the mimetic lexicon. Moreover, it will be discussed that constructional meaning of mimetic morphophonology (e.g., CVCCV^ri) and the meaning of mimetic roots (e.g., *pita*) cannot totally predict the lexical meaning of each mimetic (e.g., *piQta^ri* 'nicely fit') in a compositional manner. This non-compositionality will turn out to be a characteristic that can distin-

guish morphological/morphophonological constructions from argument structure constructions. Thus, introducing a constructional perspective to mimetic morphophonology, the present study aims at contributing to the research of the three related subjects: morphophonology, Construction Grammar, and mimetics.

3.2. Morphosyntax: Functionalism

In this section, I outline the basic idea of functional syntax that will be adopted to account for the variation in the morphosyntactic properties of sound-symbolic words within and across languages in Part II of this thesis. The fundamental advantage of functionalism resides in its ability to treat superficially distinct linguistic structures in a parallel manner. For example, by positing a semantic, rather than syntactic, definition of relative clauses, Keenan and Comrie (1977) succeed in a comparison of relative clauses in typologically diverse languages (e.g., SVO, SOV, and VSO languages).

The most important functional concept for this particular study is as follows: there is a fundamentally iconic relationship between syntax and semantics (see Silverstein 1976, 1981; Givón 1980, 1985; Haiman 1983, 1985; Van Valin and LaPolla 1997). For example, it has been a well-known fact since Shibatani (1972, 1976) that, if both lexical and periphrastic causative constructions are available in one language, the former represents more direct causation. Haiman (1983: 784, 1985a: 108) gives the following contrast in English as an example of such a difference in meaning.

(3.4) a. I caused the chicken to die. (analytic)

b. I killed the chicken. (synthetic)

The analytic causative in (3.4a) represents an indirect causation, such as a magical power that caused the chicken's death. On the other hand, the synthetic lexical causative in (3.4b) represents a direct causation, such as butchering with a hatchet. Therefore, a semantically closer relationship between the causer (i.e., *I*) and the causee (i.e., *the chicken*)—or between the causing and the caused eventualities—is realized in a tighter syntactic structure. Conversely, a semantically looser relationship is realized in a looser syntactic structure. Haiman counts this contrast as a case of diagrammatic iconicity of distance/cohesion, which expects conceptually distant relationships to be formally distant as well.

Van Valin and LaPolla (1997) discuss this issue in the framework of Role and Reference Grammar. Positing a semantics-syntax mapping model called "the Interclausal Relations Hierarchy," cited in Figure 3.6, they remark that "the closeness of the semantic relationship between the units in a juncture is mirrored in the tightness of the syntactic relationship between them" (Van Valin and LaPolla 1997: 480).

Strongest		*Closest*
Nuclear cosubordination	↑	Causative
Nuclear subordination		Aspectual
Nuclear coordination		Psych-action
		Purposive
Core cosubordination		Jussive
Core subordination		Direct perception
Core coordination		Propositional attitude
		Cognition
Clausal cosubordination		Indirect discourse
Clausal subordination		Conditional
		Simultaneous states of affairs
Clausal coordination	↓	Sequential states of affairs
		Unspecified temporal order
Weakest		*Loosest*
Syntactic relations		Semantic relations

Figure 3.6. Interclausal Relations Hierarchy (Van Valin and LaPolla 1997: 481)

Van Valin and LaPolla posit an implicational relation in the hierarchy, stating that, in a language, if one syntactic relation is available to a semantic relation, weaker syntactic relations are also available to it. They exemplify this hierarchical generalization by means of some grammatical constructions applicable to a causative situation in which Tom died instantly due to Harry's gunshot.

(3.5) a. Harry shot Tom dead. Nuclear cosubordination

b. Harry caused Tom to die. Core coordination

c. Having been shot by Harry, Tom died. Clausal cosubordination

d. Tom died, because Harry shot him. Clausal subordination

e. After Harry shot him, Tom died. Clausal subordination

f. Harry shot Tom, and he died. Clausal coordination

(Van Valin and LaPolla 1997: 481)

As the hierarchy in Figure 3.6 predicts, this direct causative event, in which the cause (i.e., Harry's shooting of Tom) and the result (i.e., Tom's death) are closely related, can be expressed not only by the tightest resultative construction called "nuclear cosubordination" in (3.5a) but also by various looser constructions in (3.5b-f). If there was a week or a month before Tom died, the periphrastic causative in (3.5b) is the tightest construction available, with the looser constructions in (3.5c-f) still available.[1]

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[1] The idea of iconic mapping from semantics to syntax is shared by linguists pursuing iconicity in grammar (Haiman 1980, 1983, 1985, 2008; Givón 1980, 1985, 1991; Bybee 1985ab; Croft 1990: 174-183, 2008; Landsberg 1995; Simone 1995; Ungerer and Schmid 1996: Chapter 6; see Haspelmath 2008ab for a recent counterargument). Among diverse subtypes of diagrammatic iconicity that are considered to motivate certain grammatical asymmetries (see Section 1.3.4), "iconicity of distance (or cohesion, proximity)" seems to be pertinent to the present discussion. Haiman (1983: 782) argues from some sorts of linguistic expressions, including those of causation, coordination, transitivity, and possession, that the formal distance between two elements is determined by the conceptual distance between their referents.

In a similar vein, Part II of this thesis will discuss the grammatical properties of sound-symbolic words as an iconic reflection of their semantics. An inter-hierarchic (or semantics-syntax) mapping model will be constructed. Its source-of-mapping side is the Lexical Iconicity Hierarchy (i.e., Superexpressives > Phonomimes > Phenomimes > Psychomimes > Nonmimetics), and its target-of-mapping side is termed "the Grammatical-Functional Hierarchy" (henceforth GFH). The latter is a hierarchy of grammatical functions and based on what Van Valin and LaPolla call the "layered structure of the clause"—namely, Periphery (i.e., non-arguments: adjuncts, interjections) > Core (i.e., predicate, its arguments). This hierarchy shows how far from the predicate (or core) of a clause a grammatical function is located. Interjections are structurally independent of the predicate. Adjuncts have a modification relationship to the predicate. Arguments are selected by the predicate. Accordingly, relevance to the predicate increases in this order.

It will be claimed that iconic mappings take place between the two hierarchies. Specifically, a crosslinguistically applicable generalization like the following will be proposed: if a mimetic can be realized in the core of the main clause, mimetics of lower iconicity can as well; if a mimetic can be realized in the periphery of the main clause, mimetics of higher iconicity can as well. Put in another way, it will be claimed that highly iconic mimetics are more likely to be realized in the periphery and less likely to be realized in the core, whereas poorly iconic mimetics are more likely to be realized in the core and less likely to be realized in the periphery.

Obviously, a critical difference between my mapping model for sound-symbolic words and the above RRG model is that the present study posits a hierarchical structure for different

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The fundamentally iconic mapping relation between semantics and syntax is also acknowledged at least to some extent by some formalists like Newmeyer (1992). In this connection, Jackendoff (1992: 21) remarks that "the syntactic prominence of an argument is determined (or largely determined) by its thematic prominence" (see also Levin and Rappaport Hovav 2005: 140-145).

grammatical functions themselves.[2] Therefore, success of the present model will point to another facet of functional syntax. Moreover, the semantic side of the model is not a hierarchy of meaning in its strict sense but a hierarchy of iconicity—namely, that of relation between the form and meaning of words. This makes sense because the present model is designed for generalization of syntactic properties of sound-symbolic words with graded degrees of iconicity. In this regard, the model is expected to contribute to general functional linguistics, particularly with respect to its syntactic hierarchy.

3.3. Semantics

In the theoretical explorations in mimetic morphophonology and morphosyntax outlined in the previous two sections, I will take some particular points of view of language meaning as well as the fundamental postulation of the two levels of semantic representation of mimetics introduced in Section 1.3.3 above. Nasu (2002: 1) points out that previous studies on Japanese mimetics have excessively tended to focus on their sound-symbolic properties. This strong tendency has caused the underdevelopment of the study of mimetic semantics from a general perspective. In this section, I will explain my perspective on three general semantic issues—namely, prototype, constructional meaning, and the grammatically relevant semantic subsystem. Those viewpoints build up the semantic basis of the morphophonological and morphosyntactic investigations that I will tackle in the two sections of this study.

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[2] Hierarchic understanding of grammatical functions seems to have some compatibility with Bybee's (1985ab) investigation of linear order of affixes for aspect, modality, etc. A partly related idea is found in the study of Japanese modality (Masuoka 2007). See also Keenan and Comrie (1977) for a crosslinguistic generalization of relativizability of noun phrases (and some other syntactic processes) in terms of a hierarchy of grammatical relations called Accessibility Hierarchy: Subject > Direct Object > Indirect Object > Oblique > Genitive > Object of Comparison. For an early related idea, see Fillmore (1968).

3.3.1. Prototype categories

In Chapter 4, I will use the concept of prototype semantics for the definition of the mimetic category in Japanese. This subsection introduces two subtypes of prototype categories that are related to Japanese mimetics.

Generally speaking, a prototype category is a category whose members show nonuniform goodness as an example of the category. It is defined with respect to prototype conditions, which is neither necessary nor sufficient but contributes to the goodness as an example of the category. Fillmore (1982: 31-34) gives a brief survey of six types of prototype categories (see also Lakoff 1987; Taylor 1989; Matsumoto 2003a: 30-49). For the present purpose, only two of these categories need separate mention.

First, "Type CLIMB" categories have mutually compatible conditions, and the best examples satisfy all of them. For example, based on Matsumoto's (2003a: 38-39) revision, the English verb *climb* can be used if at least one of the two sets of conditions—"Clambering" and "Ascending with effort"—is satisfied. In fact, a monkey can climb down a flagpole (without effortful ascending), and a snail can climb up a wall (without clambering). However, the most prototypical climbing is instantiated by effortful upward clambering events. As Matsumoto (2003a: 48) discusses, contrary to some researchers' assumption (e.g., Taylor 1989), prototype categories of this type do not have a fuzzy boundary. That is, it is clear whether an event can be described by the verb.

Second, "Type RED" categories are defined as a fuzzy range around a target area, on whose focal point the best examples are located. For example, basic color terms like *red* can be used for subtly different colors that form an area without a clear-cut boundary (Berlin and Kay 1969). The adjective can be modified by *sort of* or *more or less* according to the redness

of referent colors.

Thus, the two subtypes of prototype categories can be identified in terms of clearness/fuzziness of their boundary and the nature of their prototype conditions (i.e., conjunction/disjunction, precondition). Here is a summary of the four types.

Table 3.1.   Two subtypes of prototype categories

	Boundary	Nature of prototype conditions
CLIMB	clear	disjunction
RED	fuzzy	target area

In Chapter 4, with the help of some experiments, it will be shown that none of Fillmore's types of prototype categories appropriately captures the mimetic category in Japanese. On the contrary, it will turn out to be the case that Japanese mimetics constitute a mix of the two types of prototype categories introduced here. Concretely, I will show that, like the CLIMB Type category, more than one prototype condition are relevant to mimetics. Moreover, the boundary of the mimetic category, like that of the RED Type category, will turn out to be fuzzy: that is, there is no necessary and sufficient condition that defines mimetics.

3.3.2. *Constructional meaning*

As outlined in Section 3.1, Chapter 5 adopts a constructional view to explicate the systematic form-meaning correspondences of mimetics. In other words, I accept the existence of "constructional meaning" at the morpho(phono)logical level. Those form-meaning pairs in the lexicon are reminiscent of "lexical (formation/redundancy) rules" (Jackendoff 2002: 51-55, 165-187). Lexical rules arrange the lexicon by linking related lexical items (e.g., *semantic*,

semantics, *semanticist*) with one another. They allow for a systematic formulation of a network structure of the lexicon. This view of the lexicon is consistent with the basic conception of Construction Morphophonology explored in the present study.

However, this does not directly suggest approval of constructions of larger size. This study stands apart from the discussion of argument structure constructions themselves—namely, the previous main concern of Construction Grammar (see Section 3.1.1)—leaving it open. The study is instead concerned with similarities and differences between morpho(phono)logy and argument structure in terms of constructions.

I assume that it is possible to take a constructional view at the morphophonological level and a non-constructional one at a different level like argument structure. In fact, Part II of this thesis emphasizes the importance of the lexical meanings of mimetics in the determination of their morphosyntactic realization. This idea seems to be quite compatible with a lexical semantic view of argument structure, which considers verb meaning richer than a constructional view (see Rappaport Hovav and Levin 1998). Thus, the present study will demonstrate the interplay of the two theoretical views in the analysis of mimetics at these two linguistic levels.

3.3.3. Grammatically relevant semantic subsystem

In Chapter 5, I will investigate some aspectual properties that are iconically associated with certain morphophonological types of mimetics. In this subsection, I briefly describe how I view those "grammatically relevant" facets of the semantics of words.

In his discussion of "the Grammatically Relevant Subsystem hypothesis," Pinker (1989: Section 5.5) divides semantic components of verbs into grammatically relevant ones and

grammatically irrelevant ones (see also Levin 1993; Jackendoff 1987, 2002: 138-149; Levin and Rappaport Hovav 2005: 9-15). Grammatically relevant aspects of verb meaning consist of a "small number of recurring privileged elements"—and partially of "idiosyncratic bits of cultural knowledge"—that are visible to grammar and influence syntactic argument structure (Pinker 1989: 167). Grammatically irrelevant aspects of verb meaning are those that are opaque to grammar and enable verbs to make fine-grained semantic distinctions (cf. Taylor 1996).

For example, Pinker (1989: 182) discusses the semantic structure of English verb *roll* in *The ball rolled down the hill*. The argument structure of the verb is dependent on the fact that it denotes an event in which a THING undergoes a directed motion, which is represented by GO and PATH, in a specific MANNER (i.e., rolling). What is important here is that it is the *existence* of a specified manner, not what *particular* manner is denoted, that is grammatically relevant.

In a similar vein, as Pesetsky (1995: 14) remarks, the volume of speech is irrelevant to the argument realization of verbs of manner of speaking (e.g., *holler* and *shout* vs. *murmur* and *whisper*), whereas the distinction between manner of speaking and content of speaking—illustrated by *say* and *propose*—is grammatically relevant. Nevertheless, as Levin and Rappaport Hovav (2005: 11) note, this does not mean that grammatically irrelevant information of verbs is not important. They allow verbs to represent various sorts of subtle distinctions and conceptual idiosyncrasies, such as color, quality of sound, and manner of motion.

My view of grammatically relevant semantic subsystem might be slightly more restricted than Pinker's and others', for I only admit a secondary status for it. For example, aspectual features (e.g., punctuality, telicity) associated with a word are no more than what are abstracted by grammatical tests like temporal adjunct tests. The actual semantic content of the word is much richer and more specific. At the same time, however, this study takes a broader

scope than Pinker and others in that it extends the idea of grammatical relevance from argument structure of verbs to the aspectual semantics of mimetics (see Kageyama 2007). Based on this point of view, Chapter 5 will present a construction-based analysis of mimetic semantics with special attention to its grammatically irrelevant aspects as well as its grammatically relevant ones. The chapter can thus be regarded as an illustration of the plausibility of the Grammatically Relevant Subsystem hypothesis in the semantics of mimetics.

3.4. Summary

In this chapter, I have outlined the theoretical frameworks and viewpoints taken in this thesis. Those approaches will enable this study not merely to clarify the morphophonological, syntactic, and semantic properties of mimetics but also to make some contributions to those general linguistic areas. In particular, Part I is expected to contribute to the initial development of the emerging theory of Construction Morpho(phono)logy. Also, Part II embarks on a large-scale crosslinguistic investigation of mimetic syntax. The present theoretical explorations in the study of sound-symbolic words gain importance from the traditional rarity of studies in a similar standpoint. This study is thus intended to open up a new field of the research on sound-symbolic phenomena.

PART I

MORPHOPHONOLOGY

Chapter Four

Defining Mimetics in Japanese

The aim of this chapter is to provide a proper definition of the mimetic category in Japanese. In general, it appears quite clear to native Japanese speakers whether a word is mimetic or not. However, as some previous studies not only in Japanese but also in other languages discuss, it is not necessarily so easy to qualify mimetics as a distinctive word class. The present study approaches this problem from a prototype-theoretical point of view, which was introduced in Section 3.3.1. It will be revealed, based on morphophonological and phonosemantic experiments, that Japanese mimetics form a prototype category with multiple prototype conditions and a fuzzy boundary.

This chapter is organized as follows. In Section 4.1, I will outline previous attempts to define Japanese mimetics, setting up the problem to be discussed in the present chapter. Based on the overview, the rest of the chapter seeks a reliable definition of the category in question. In Section 4.2, citing some related phenomena, I will argue for the prototype-categorial nature and the fuzziness of the mimetic category. In Sections 4.3 and 4.4, I will identify three prototype conditions of Japanese mimetics (i.e., the morphophonological condition, the segmental condition, and the iconicity condition) based on actual morphophonological distribution data of mimetics and an experiment using existent and novel words, respectively. The discussion here will point out the significant status of productive

morphophonological templates of mimetics, which will be the basis of our constructional analysis of mimetic morphophonology in Chapter 5. In Section 4.5, the iconicity condition will be further discussed based on an experiment that examined the magnitude symbolism of referentially specified mimetic-like words and nonmimetic-like ones. The discussion will clarify the importance of lexical meanings of mimetics in their special sound-symbolic effects.

4.1. Previous Attempts to Define Mimetics

Proper definition of sound-symbolic words is an unsettled issue not merely for Japanese but also for other languages. The categorial status of this class of words has aroused much controversy in the literature on African ideophones in particular. Some studies—including Hulstaert (1962), Samarin (1971), Wolff (1981), Mithun (1982), Alpher (1994), Payne (1997: 363), Wiltshire (1999), Bartens (2000: 20), and Bodomo (2000, 2006)—argue for an independent categorial status of sound-symbolic words with a set of peculiar phonological, morphological, and perhaps semantic characteristics. Other studies—including Rowlands (1970) and Newman (1968, 2000, 2001)—argue against the separate lexical status of ideophones, positing their subordination under "regular" categories like adverbs and verbs (for further discussion see Childs 1994; Abelin 1999; Bartens 2000; Voeltz and Kilian-Hatz 2001; see also Section 2.1.3 and Chapter 6 for grammatical categorial possibilities of Japanese mimetics).

4.1.1. General issues

A similar issue has been discussed in some forms in the study of Japanese mimetics. For example, Tamori and Schourup (henceforth T&S) (1999: 6) remark that "there is a general consensus among native Japanese speakers on what words are mimetic". Similarly, Hamano (1998: 219) assumes the existence of "unambiguously mimetic" words. Furthermore, Imai et al. (2008: 54) state that "[m]any languages of the world have a large grammatically defined word class in which sound symbolism is clear." Despite these native intuitions, previous approaches from various standpoints have all failed to give a sufficient definition to the mimetic category. T&S (1999) term this problem "the categorization problem of mimetics."

Hamano (1998: 6-7) discusses this problem from four specific perspectives. First, the semantic idiosyncrasy of mimetics (i.e., their iconic, imitative property) is too unreliable to use as an objective definition (see also Sections 4.6 and 4.7). Second, indeed, some morphological characteristics like reduplication and emphatic consonant insertion are very frequent in mimetics (e.g., *to^kotoko* 'pitter-patter', *paQku^ri* 'splitting open', *boNya^ri* 'dim') (see Herlofsky 1990: 217; Bartens 2000: 16; among others). However, these characteristics are not common to all mimetics. For example, mimetics like *hura^ri(-to)* 'aimless' and *gunyaQ^(-to)* 'flaccid') have neither of these morphological properties. Also, they are not unique to mimetics but spread to regular lexical items (e.g., *hitobito* 'people' (< *hito* 'person'), *Su{Q/N}gee!* 'Grrreat!' (< *sugoi* 'great'); see Backhouse 1983). Third, as pointed out by Izumi (1976: 138-141) as well, we can see some crosscategorial traffic into (e.g., *simi^zimi* 'sentimental' < *simu* 'soak' (non-modern verb); *noNbi^ri* 'carefree' < *nobu* 'get long' (non-modern verb)) and out of the mimetic category (e.g., *awate-huta-meku* 'be flustered' < *huta* (non-modern mimetic root)) (see also Herlofsky 1990). In this respect, a historical/etymological definition is not likely to be successful. Finally, there is a phonological

and grammatical fact that is specific to mimetics: [p]-initial adverbs that take the quotative particle *-to* are mimetic (e.g., *po^tapota-to* 'dripping', *pita^ri-to* 'fitting perfectly'). As I will mention in the next subsection, [p]-initial words, which occupy as much as one sixth of Japanese mimetics (Hamano 1998: 6), are only observable in loanwords apart from mimetics. Loanword adverbs take the dative *-ni* rather than the quotative, as in *pawahuru-{ni/*to}* 'powerfully' and *parareru-{ni/*to}* 'in parallel'. Therefore, the proposition at issue is accurate. However, we have to say that this peripheral phenomenon is far from defining the entire mimetic category.

At the end of more than 200 pages of discussion, T&S (1999) arrive at a set of formal features that they believe are unique to mimetics.

(4.1) Features "unique to mimetics" (adapted from T&S 1999: 210-211):[1]

a. Free from "rendaku" (sequential voicing) in reduplication

(e.g., **ko^rogoro* 'rolling'; cf. *hito**b**ito* 'people')

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[1] T&S actually provide two more features, which are obviously inappropriate. First, giving the ill-formedness of **ha^kipaki* for the mimetic *ha^kihaki* 'speaking briskly' as an example, they state that mimetics are exceptionally free from the [p]-[h] alternation. However, even in the nonmimetic vocabulary, this consonant alternation only takes place when the consonant is geminated, as illustrated by the regular compound verb *hip-paru* 'pull', which comes from *hiku* 'pull' and *haru* 'spread'. Their example is simply not conditioned in that way. In this connection, some studies (Nasu 1999b, 2002; Kurisu 2006, 2007) instead report alternations of [p] and [b] in some mimetics (e.g., *de^budebu* vs. *deQpu^ri* 'flabby'; *ga^bugabu* vs. *gaQpu^ri* 'gulping'). Interestingly, in these cases, too, [p] only takes place in a geminated environment (e.g., **deNbu^ri*, **gaNbu^ri*).

Next, they claim that many mimetic manner adverbs in the two-mora-reduplicative morphology can be suffixed with *-Q* (e.g., *ko^rokoro* vs. *korokoroQ^(-to)* 'rolling') (see also Kadooka 1993b, 2007) and that this morphological process is not available to nonmimetic reduplicatives (e.g., **hukabukaQ(-to)* '(bowing) deeply'). However, this analysis is apparently incorrect. (Note that some like Hasada (2005) are even insensitive to the difference between the two forms.) As Nasu (2002, 2007) points out, in light of phonological economy, this kind of suffixal reduplicative mimetics should be derived from their short suffixal counterparts (*koroQ^(-to)* in the example here) through partial reduplication of a mimetic root (e.g., *koro*), not from the non-suffixal reduplicatives (e.g., *ko^rokoro*). This is because the accent pattern (and accordingly obligatory *to*-attachment) of suffixal reduplicative forms (e.g., *korokoroQ^(-to)*) is parallel with non-reduplicated suffixal ones (e.g., *koroQ^(-to)*), not with non-siffixal reduplicative ones (e.g., *ko^rokoro*). In fact, it is always the case that suffixal reduplicative mimetics have their non-reduplicated counterparts. Moreover, their roots can be further multiplicated according to the number of repeated segments of their referent events (e.g., *korokorokorokorokoroQ^(-to)*) (see Section 5.3.7 below for the semantics of this highly colloquial mimetic form). Thus, suffixal reduplicative mimetics should be traced back to non-reduplicated suffixal ones. In this relation, furthermore, it is a question worth asking why *(^)-N(^)-* and *^-ri*-ending words cannot be partially reduplicated (e.g., **korokoroN^(-to)*, **korokoro^ri(-to)*).

b. Free from nasalization of C_1 /g/ of a reduplicant

(e.g., *ga^yaŋaya 'hum (of a crowd)'; cf. kamiŋami 'gods')

c. Abundant in [p]-initial words

(e.g., **pariN^(-to)**, **pi^kupiku**, **poQku^ri**)

d. *Q*-inserted into two-mora-reduplicative resultative adverbs

(e.g., he**Q**toheto 'exhausted'; cf. *aQkaaka 'brightly red')

e, f, g. Suffixation of *ri*, *-Q*, and *-N*

(e.g., koro^ri(-to), koroQ^(-to), koroN^(-to) 'rolling')

h. Repetition of reduplicatives

(e.g., ko^rokoro **ko^rokoro** 'rolling'; cf. *hukabuka **hukabuka** '(bowing) deeply')

i. Optionality of the quotative particle *-to* for CVCV-reduplicative manner adverbs

(e.g., ko^rokoro**(-to)** 'rolling'; cf. koNkoN*(-to) '(sleeping) fast' (Sino-Japanese))

j. Initial accent of two-mora-reduplicative manner adverbs

(e.g., ko**^**rokoro 'rolling'; cf. huka**^**buka '(bowing) deeply')

As T&S themselves admit, even these features cannot define the mimetic category. In fact, the unaccented total-reduplicative mimetics *berobero* 'completely drunk' and *dokidoki* 'feeling one's heart throbbing from excitement or nervousness' possess none of the above features (precisely, not sure about (4.1a) because they have a voiced C_1 in themselves). Nevertheless, these words sound unambiguously mimetic to native Japanese speakers (see Section 4.4.3). Thus, the categorization problem of mimetics has been one of the most difficult but most fundamental issues.

4.1.2. Phonology and phonosemantics

Independency of mimetics has been pursued from phonological and phonosemantic perspectives as well, discussed in the context of "lexical stratification." In Japanese linguistics, there have been two major methods of stratifying the lexicon (see Itô and Mester 1999; Tateishi 2003; Kurisu 2006 for other proposals).

First, lexicological and etymological studies have mainly posited the three strata hypothesis (Tokieda et al. 1955: 355; Miyajima 1977). In this view, the Japanese lexicon is stratified into the Native (or Yamato) stratum, the Sino-Japanese stratum, and the Foreign (or Loanword) stratum. This hypothesis reflects where a word originated. Vocabulary items in the Native stratum originated in Japanese (e.g., *kotoba* 'word, language'). Those in Sino-Japanese stratum have a Chinese origin (e.g., *gengo* 'language'). Members in the Foreign stratum are mainly from English (e.g., *rangeezi* 'language' < *language*) and sometimes from other languages, including French, German, and Portuguese.

Current studies in Japanese phonology usually presuppose the four-way stratification of the vocabulary of Japanese (see McCawley 1968: 65; Itô and Mester 1995; Fukazawa et al. 1998). This alternative hypothesis posits another stratum called the Mimetic stratum, which is a subset of the Native stratum in the three strata hypothesis. This view of native Japanese words is based on the phonological differences between mimetics and nonmimetics. Itô and Mester (1995) identify a constraint violation pattern unique to mimetics, which is cited here.

Table 4.1.   Phonological uniqueness of mimetics (adapted from Itô and Mester 1995: 820)

	*[p]	*NT	*DD
Native	√	√	√
Sino-Japanese	√	*	√
Mimetic	*	√	√
Foreign	*	*	*

Mimetics share each of the three constraints with one or two nonmimetic strata. However, they are sole candidates for the membership of the phonological group which allows a singleton [p] (e.g., **pa^tipati** 'pop-pop', **poro^ri** 'dropping') but no voiceless consonant following a nasal within a morpheme (e.g., **koNka^ri* (cf. *koNga^ri* 'toasted lightly brown'), **guNta^ri* (cf. *guQta^ri* 'limp with fatigue')) (i.e., *NT) and no voiced geminate cluster (e.g., **ko**Q**ga^ri* (cf. *koNga^ri*), *??ko**Q**rokoro* (cf. *koroQkoro* 'very chubby')) (i.e., *DD) (see Kurisu 2006; Akashi 2007).

In this relation, Nasu (2004a, 2007) points out that mimetics show a characteristic phoneme distribution pattern (see also Hamano 1998: 38-43). In addition to the abundance of [p]-initial words, it is observed that voiced consonants in the word-initial position, which are basically absent in the Native stratum, are frequent in mimetics (e.g., **doroQ^(-to)** 'thick (of liquid)', **girigiri** 'at the limit', **ziQku^ri** 'slow and careful'). The high type frequency of the voiced C_1 allows mimetics to exhibit diverse voicedness contrasts with their associated meaning contrasts. This additional fragment of phonological deviance strengthens the idea of a separate stratum for mimetics.

Each stratification hypothesis has its own reason and, in this sense, the lexical stratification issue may not be a problem of correct or incorrect. The question concerning the issue is rather quite simple: is there any phonosemantic basis for the separate status of the Mimetic stratum? It is a natural question to ask in terms of the general assumption that sound-symbolic words "display more iconicity and sound-symbolism than other word classes" (Bodomo 2007; see also Hamano 1998; among others). In fact, this assumption is why they are called "sound-symbolic words."

In this respect, phonosemantic studies on nonmimetic regular vocabulary items are worth mentioning. Some previous studies in phonosemantics, such as Kawahara et al. (2005,

2008) and Shinohara et al. (2007), posit the existence of sound-symbolic effects in *non-mimetic* words somewhat in favor of the three strata hypothesis—namely, without distinction between the Native and the Mimetic strata (see also Makino 2007; Slobin 1968). In fact, this cross-stratal characteristic is why sound symbolism is sound symbolism—more explicitly, why "(nonmimetic) words containing sound symbolism" are sometimes distinguished deliberately from "sound-symbolic words" (see also T&S 1999: 6-7). Then, are native Japanese speakers' intuitions that mimetics are semantically special all in their minds? A possible moderate solution to this question can be stated as: sound symbolism is clearest in mimetics. This idea will be experimentally verified in Section 4.5.

The overview of previous attempts in this section suggests that a definition of mimetics cannot be formulated clearly with respect to both form and meaning. In the following sections, I will reconsider the categorization problem from both of these two angles.

4.2. The Prototype-Categorial Nature of the Mimetic Category

This section, together with the subsequent two sections, proposes that Japanese mimetics form a fuzzy prototype category with multiple conditions. As a starter of the discussion, some characteristics of mimetics that suggest the prototype-categorial nature of the category they form will be provided.

Regarding this issue, it is worth noting that some researchers have pointed out the existence of a continuum between mimetic and nonmimetic words on the basis of different but similar notions: iconicity in Hamano (1998, 2006), mimeticity in T&S (1999), motivatedness in Tamamura (2000), and prototype in Lu (2006) as well as Bartens (2000) (see also Hasada 2005: 182-184). For example, Lu (2006) among others suggests that to-

tal-reduplicative mimetics, such as *pi^kapika* 'flashing' and *to^NtoN* 'knocking', serve as a prototype of the mimetic category in Japanese (as well as across languages). This conception is simply based on the overwhelming productivity of this morphophonological type of mimetics, which amount to more than 40% of all mimetics (see also Oda 2000; Nasu 2002). In a similar vein, Hamano (1998: 7) calls /p/-initial mimetics, which occupy about one sixth of the mimetic lexicon of Japanese (see (4.1c)), "mimetics par excellence." This characteristic in phonological distribution in fact turns out to have contributed to mimeticity of words in Experiment 1, which will be reported in Section 4.4.

There are other phenomena that can be considered as being related to the prototype-categorial nature of the mimetic category. First, as touched on in the previous section, and further exemplified here, there are not a few "mimeticized" words (or quasi-mimetics) that can be analyzed as derived from nonmimetic (mainly native but sometimes foreign) lexical items (see Kunene 2001 for similar processes in Niger-Congo languages). Intriguingly, they have somewhat mimetic tones, which are suggestive of the fuzziness of the mimetic category as well as its prototype-categorial nature.[2]

(4.3) Quasi-mimetics derived from nonmimetic ones:

damedame (< *dame* 'useless'), *daNma^ri* (< *damaru* 'be silent'), *hi^yahiya*/ *hiyaQ^(-to)*/*hiya^ri(-to)*/*hiNya^ri* (< *hiyasu* 'cool (something)'), *hoQso^ri* (< *hosoi* 'slender'), *ka^ikai* (< *kaku* 'scratch'), *ke^rikeri* (< *keru* 'kick'), *kizukizu* (< *kizu* 'wound'), *konagona* (< *kona* 'powder'), *ko^nekone* (< *koneru* 'knead'), *mo^mimomi* (< *momu* 'crumple'), *na^denade* (< *naderu* 'stroke'), *ne^rineri* (< *neru* 'knead'), *pa^hupahu* (< *pahu* 'puff'), *raburabu* (< *rabu* 'love'), *simasima* (< *sima* 'stripe'), *si-*

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[2] In a supplementary experiment to Experiment 1 in Section 4.4, moderate mimeticity judgments (.55 on average) were in fact obtained for these words.

wasiwa (< *siwa* 'wrinkle'), *su^risuri* (< *suru* 'rub'), *taNma^ri* (< *tamaru* 'accumulate'),

togetoge (< *toge* 'prickle'), *u^kiuki* (< *uku* 'float')

Second, a set of reduplicative words has not only more or less mimetic tones but also certains accent patterns that are deviant from typical mimetics (see Section 2.1.3). For example, the quasi-mimetic *nu(^)kenu(^)ke* 'impudent' (< *nuku* 'come off' (non-modern verb)) can be accented in its third syllable as well as its first one. Likewise, *iki(^)i(^)ki* 'lively' (< *iku* 'live' (non-modern verb)), *nobi(^)no(^)bi* 'free and easy' (< *nobu* 'extend' (non-modern verb)), and *simi(^)zi(^)mi* 'sentimental' (< *simu* 'soak' (non-modern verb)) have two possible accent patterns, both of which are non-initial—namely, non-canonical as a mimetic. These "deviant" accent patterns are the characteristic of obviously nonmimetic reduplicatives for plurality or intensity, such as *ie^ie* 'houses', *huka(^)bu(^)ka* '(bowing) deeply', *mura^mura* 'villages', and *yama^yama* 'mountains'.[3] Furthermore, those quasi-mimetics and nonmimetic reduplicatives share the phonological property of sequential voicing (e.g., *simi(^)zi(^)mi*, *huka(^)**bu**(^)ka*), which is prohibited in normal mimetics (see (4.1a)). These parallelisms seem to indicate that the quasi-mimetics with deviant phonology are located around the fuzzy boundary of the mimetic category, and perhaps farther from its center (i.e., prototype) than quasi-mimetics with regular mimetic phonology given in (4.3).

Third, the boundary between mimetics and interjections, such as *aQ^* 'oh' (for surprise, etc.), *oo^i* 'hey', and *waa^i* 'yeah' (for pleasure), is also unclear. For example, like mimetics, voice and sound in general can be quoted by means of the quotative particle *-to* (see Section 2.2.5). Also, as discussed in Akita (2006a: Chapter 2), some psychomimes metonymically

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[3] Interestingly enough, *mura^mura* has an initially accented counterpart (i.e., *mu^ramura* 'having sexual desire') that seems to have no etymological relation to the noun *mura* 'village' and is evidently mimetic.

stem from emotional voices (e.g., *geQ^(-to)* 'disgusted', *gyoQ(-to)* 'startled', *haQ(-to)* 'startled, noticing', *hoQ(-to)* 'relieved'). These facts seem not surprising under the assumption that mimetics are fundamentally sound-based vocabulary items.

Thus, as T&S (1999) say, it is perhaps true that the majority of mimetics have distinctly mimetic tones. Nevertheless, there *are* a certain number of words that should be located in a peripheral part of the mimetic category or on its boundary that is fuzzy. This fact leads us to the idea that Japanese mimetics form a prototype category with a fuzzy boundary, like Fillmore's (1982) RED Type. In what follows, I will claim that the mimetic category can be defined with at least three competing prototype conditions: namely, the morphophonological template satisfaction condition, the segmental condition, and the iconicity condition.

4.3. Morphophonological Distribution of Existent Mimetics

The previous section pointed out some characteristics of the mimetic category in Japanese as a fuzzy prototype category. This section, together with experimental considerations in the next two sections, points out three major prototype conditions of mimetics. In Section 4.3.1, I will look at the actual formal distribution of Japanese mimetics, identifying a formal condition of mimetics based on their morphophonological templates. In Section 4.3.2, two advantages of the templatic analysis will be described in comparison with some previous ones. In Section 4.3.3, focusing on the cases violating the template satisfaction condition, I will point out the existence of an iconicity-related condition.

4.3.1. The morphophonological condition

In this subsection, I reconsider the morphophonology of mimetics by introducing the notion of "morphophonological templates," which I claim possess an essential status in the definition of Japanese mimetics. Many scholars have pointed out that Japanese mimetics have a certain set of productive morphophonological or prosodic features, such as total reduplication. However, as discussed in Section 4.1, some of those features are open to nonmimetic words as well (e.g., total reduplication in nonmimetic nouns like *hitobito* 'people'). This problem can be settled by using morphophonological templates as analytical units. That is, when mimetic morphophonology is considered in terms of skeletal templates, such as CV^CV-CVCV (the accented total-reduplicative template) and CVCV^ri (the ^-*ri*-suffixed template), mimetics can be distinguished more clearly from nonmimetics. Morphophonological templates encompass the information of root types (i.e., monomoraic vs. bimoraic) and morphological features (e.g., reduplicative, suffixal), which were separately described in Section 2.1.1 above. Mimetics can be basically classified into one of the fifteen templatic classes listed with examples in (4.4). See Appendix A for lists of possible root-template combinations. (Subscriptions for the position of phonemes are omitted for the reason stated in Section 2.1.1.)

(4.4) Morphophonological templates for Japanese mimetics:

    a. Monomoraic root-based:

      1. CVQ(^):

        guQ^(-to) 'jerking, gulping', *niQ^(-to)* 'grinning', *ziQ(-to)* 'not moving'

      2. CV(^)N(^):

        bo^N(-to) 'bomb', *kiN^(-to)* 'ping, shrill', *tyoN^(-to)* 'flipping', *zuN^(-to)* 'zank'

3. CViQ^:

   kuiQ^(-to) 'twisting', *poiQ^(-to)* 'tossing', *puiQ^(-to)* 'looking away sulkily'

4. CV(^)V(^):

   huu^(-to) 'faint', *ka^a(-to)* 'caw', *pii^(-to)* 'beep', *tuu^(-to)* 'streaming'

5. CV^V-CVV:

   bu^ubuu 'oink-oink', *sya^asyaa* 'insensitive', *zya^azyaa* 'whoosh-whoosh'

6. CVV-CVV:

   booboo 'weedy or scraggly', *suusuu* 'cold', *tuutuu* 'acquainted'

7. CV^N-CVN:

   ku^NkuN 'sniff-sniff', *pu^NpuN* 'reeking', *zya^NzyaN* 'plentiful'

8. CVN-CVN:

   kaNkaN 'furious', *paNpaN* 'bursting', *tuNtuN* 'thorny'

9. CV^i-CVi:

   gu^igui 'jerking', *ho^ihoi* 'willingly', *wa^iwai* 'buzz-buzz'

b. Bimoraic root-based:

   10. CVCVQ^:

   kataQ^(-to) 'clunk', *kuraQ^(-to)* 'dizzy', *pikaQ(-to)* 'flashing'

   11. CVCV(^)N(^):

   doro^N(-to) 'vanishing', *pati(^)N(^)(-to)* 'crash', *turu(^)N(^)(-to)* 'slipping'

   12. CVCV^ri:

   horo^ri(-to) 'dropping', *kiri^ri(-to)* 'shaping up', *niya^ri(-to)* 'grinning'

   13. CVCCV^ri:

   hoQko^ri 'warm', *kiQka^ri* 'exact', *ziNwa^ri* 'warmly moved'

14. CV^CV-CVCV:

  do^kudoku 'flowing (of blood)', *me^ramera* 'blazing up', *si^tosito* 'wet'

15. CVCV-CVCV:

  betobeto 'sticky', *perapera* 'thin, fluent', *zyukuzyuku* 'oozy'

In the framework of morphophonological templates, mimetics are analyzed as combinations of roots and templates. For example, *suQ^(-to)* in (4.4a-1) consists of the monomoraic root *su* and the CVQ^ template, *ku^NkuN* in (4.4a-7) consists of *ku* and CV^N-CVN (cf. Nasu 2002), *kiQka^ri* in (4.4b-13) consists of *kika* and CVCCV^ri, and *zyukuzyuku* in (4.4b-15) consists of *zyuku* and CVCV-CVCV. That is, in this view—as well as in a derivational view (see Section 5.1)—mimetic forms are obtained in quite a compositional manner.

  These morphophonological templates exist in their own right and are not necessarily derivable from another template (see Section 5.2 for a closer look). However, they do yield less productive derivative mimetic forms through some morphological operations. Concretely, most of the mimetics that appear to enter none of the above templates can be related to or derived from template-satisfying mimetics. For instance, *bururu^N(-to)* can be analyzed as derived from *buru^N(-to)* 'shivering' (CVCV^N) through partial reduplication of the second mora *ru*. In a similar manner, *kururiN^(-to)* and *pipipiiQ^(-to)* can be traced back to their origins—*kuru^ri(-to)* 'turning' (CVCV^ri; derived through *-N^*-suffixation) and *piQ^(-to)* 'whistle' (CVQ^; derived through leftward partial reduplication of the root *pi* and vowel lengthening), respectively (see Section 5.3.7 for detailed discussion).[4]

  In order to show the great range of the fifteen templates, I counted how many mimetic

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[4] Many previous studies (e.g., Tamori 1993a; Kakehi et al. 1996; Ono 2007) have not been clearly sensitive to the distinction between derivative (intensified) and non-derivative (conventional) mimetics. This seems to have been another factor in the failure of formal definition of mimetics.

roots satisfy each template based on the entries in Kakehi et al. (1996), one of the largest Japanese mimetic dictionaries, with thirty additions (1,652 in total). Results are presented in the following table. Since accentual information is not provided in the dictionary, accented and unaccented reduplicatives—and what will be discussed as "quasi-mimetic" reduplicatives later in this section—are presented in summary.

Table 4.2.   *The coverage of mimetic morphophonological templates*

a. Mimetics satisfying a template	1,643 (99.46%)
Monomoraic root-based	214 (12.95%)
CVQ(^)	50 (3.03%)
CV(^)N(^)	29 (1.76%)
CViQ^	14 (.85%)
CV(^)V(^)	21 (1.27%)
CV(^)V-CVV	46 (2.78%)
CV(^)N-CVN	45 (2.72%)
CV^i-CVi	9 (.54%)
Bimoraic root-based	1062 (64.29%)
CVCVQ^	213 (12.89%)
CVCV(^)N(^)	101 (6.11%)
CVCV^ri	130 (7.87%)
CVCCV^ri	134 (8.11%)
CV(^)CV-CVCV, etc.	484 (29.30%)
Derivatives	332 (20.10%)
Fossilized templates	35 (2.12%)
b. Mimetics satisfying no template	9 (.54%)

As this table shows, almost all mimetics registered in the dictionary satisfy a mimetic template. Moreover, the existence of "fossilized templates" (e.g., CV^CV, CV^CCV, CVCCV^ra) implies that mimetic templates change over time. In fact, Yamaguchi (2002: 34-35, 39) remarks that, for example, the fossilized template CV^CCV, which is illustrated by mimetics like *ha^Qsi(-to)* 'whack', *mu^Nzu(-to)* 'with all one's strength' (< *mu^zu(-to)*), *su^Qku(-to)* 'erect', and *za^Nbu(-to)* 'splash', was productive from the Medieval to Early Modern ages (see also Morita 1953). In the present-day Japanese, these mimetics sound dis-

tinctly old-fashioned (Kadooka 1993b: 204; T&S 1999: 23).[5]

What is more important here is the nine template-free mimetics in Table 4.2b, which are listed below.

(4.5) Template-free mimetics:[6]

a. Highly iconic phonomimes:

kokekoQko^o(-to) 'cock-a-doodle-doo', *ogya^a(-to)* 'wailing (of baby)', *pi^ihyarara(-to)* 'whistle', *pi^ihyororo(-to)* 'screaming (of kite)', *pi^ipoopi^ipoo/pii^poopii^poo* 'wailing (of ambulance)'

b. Nonmimeticized words:

pi^Nsyako 'lively', *seQka^ti* 'impatient', *si^todo(-ni)* 'soaked to the skin', *teN-yawa^Nya* 'in utter confusion'

As shown in (4.5), these forms can be divided into two groups. One is highly iconic phonomimes, which mimic animal cries or other distinctive sounds. The other is non-mimeticized words, which have lost their mimetic aspect and now reflect old-fashioned tones instead. Both types of mimetics can be regarded as highly conventionalized, and this conventionality seems to allow them to retain these irregular forms.

The striking coverage of the morphophonological templates observed here strongly sug-

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[5] Conversely, there are a few productive derivative forms that might be established as independent templates in the future. For example, CVCV^N-CVCV(^)N, which is analyzed here as a derivative from CVCV(^)N(^), or its unaccented counterpart (i.e., CVCVN-CVCVN) shows high productivity (e.g., *bata^Nbata N* 'falling down, bankrupted', *koroNkoroN* 'chubby'). Likewise, CVQCV^N, which is analyzed as a derivative from CVCV(^)N(^), might be a candidate for such a future template (e.g., *goQku^N (suru)* 'gulping', *puQtu^N (suru)* 'bursting into anger').

[6] Even some of these mimetics may be analyzable in terms of morphophonological templates. For example, *pi^ihyarara(-to)* can be divided into *pii* and *hyarara*, which mimic two different parts of a sequence of pipe whistle. *Pii* seems to be related to the typical phonomime *pi(i)Q^(-to)* 'whistle', and *hyarara* seems to be reduced to the root *hyara*. Likewise, from the irregular mimetic *teNyawa^Nya*, we can abstract minimally alternating mimetic roots (i.e., *teya* and *waya*) and a morphophonological template (i.e., CVNCV-CV^NCV; cf. CVCV-CVCV).

gests the primary status of the template satisfaction condition in the definition of the mimetic category in the Japanese lexicon. The almost complete coverage of the templates even suggests that the condition might be a necessary one. However, based on the exceptions in (4.5) and the flexible derivations from the templates in Table 4.2a, the condition should be considered as a prototype condition. This point will be experimentally clarified in the following two sections. Here I formulate the obtained strong (or privileged) condition.[7]

(4.6) The morphophonological condition of the mimetic category in Japanese:

Satisfaction of one of the fifteen morphophonological templates is a primary prototype condition of the membership of the mimetic category in Japanese.

Importantly, this prototype condition is basically a non-gradable one like that of the CLIMB Type category. There is no lexical item that partially satisfies a mimetic template.

4.3.2. *Two advantages of the present templatic analysis*

It should be noted here that templatic representation itself is not a novel attempt but rather has been a conventional one in the study of sound-symbolic words. For example, many traditional studies within Japan have employed skeletal representations like ABAB for total-reduplicative mimetic forms (e.g., *ti^katika* 'flickering'), ABCB for total-reduplicative variants or blends (e.g., *mu^syakusya* 'vexed'), and ANBri for a subtype of emphatic forms (e.g., *aNgu^ri* 'opening one's mouth wide with astonishment') (see Yamaguchi 2002; Sai

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[7] Fillmore (1982) uses the word "privileged" for a prototype condition of a different type of category (i.e., Type LONG category).

2005; Lu 2006; A and B are replaced by X and Y in some studies). Moreover, notations like CVCV-CVCV and CVCCVri are taken by Kakehi and Tamori (1993), Hamano (1998), and Yamanashi (2000) among others (for similar notations for sound-symbolic words in other languages see Childs 1994; Amha 2001; Roulon-Doko 2001; Rubino 2001; see also Goldsmith 1990 for a similar templatic representation in autosegmental and metrical phonology).

However, two points differentiate the present templatic analysis from the previous ones. First, previous representations have been commonly lacking accentual information (see Tamamura 1984 for an exception). The present *morphophonological* templates include prosodic as well as morphological information. Prosodic distinction is an essential portion of a formal definition of mimetics in Japanese. For example, accentual information (i.e., presence/absence and position of an accent nucleus) must be specified in order to distinguish the following minimal pairs of mimetic and nonmimetic words (see Uwano 2007 for related observations).

(4.6) Accentual distinction between mimetic and nonmimetic words:

Mimetic	Nonmimetic
boki(^)N(^)(-to) 'crunch'	*bokin* 'collection of contributions'
butu^ri(-to) 'snap'	*bu^turi* 'physics'
ka^takoto 'clatter'	*katakoto* 'smattering'
kata(^)N(^)(-to) 'crash'	*katan* 'assistance'
kata^ri(-to) 'clattering'	*katari* 'narration'
koto^ri(-to) 'plunk'	*kotori* 'little bird'
kusu^ri(-to) 'chuckling'	*kusuri* 'medicine'
pata(^)N(^)(-to) 'slam'	*pa^tan* (or *pata^an*) 'pattern'
poro^ri(-to) 'falling'	*Po^rori* 'Porori (a TV character)'

tyoki(^)N(^)(-to) 'snip'   *tyokin* 'saving'

zuki(^)N(^)(-to) 'throbbing (head, tooth)'   *zu^kin* 'hood'

Similarly, in Experiment 1 below, a novel word created by prosodically modifying an existent nonmimetic word to satisfy a mimetic template received a higher mimeticity judgment than the original existent word (e.g., *oNdo^ri* (.48) vs. *ondori* 'rooster' (.19)).

Indeed, a few nonmimetic words appear to take one of the mimetic templates, as illustrated by *hito^ri* 'one (person)' (CVCV^ri) (see Table 4.4b for the relatively low mimeticity of this word). However, those words are divisible into morphemes (e.g., *hito-ri* (1-CL)). This point is sufficient to distinguish these cases from mimetics.

What is especially interesting and remarkable here is that mimetics tend to choose marked accent patterns. For example, in nonmimetic strata of the modern Japanese lexicon, trimoraic-trisyllabic (LLL) words with a medial accent (e.g., *koko^ro* 'heart', *kata^na* 'sword') are limited to exceptional cases, such as legacies from ancient days, and do not amount to 10% of LLL words (Akinaga 2001: Appendix p. 10). Also, as Hamano (1998: 32) notes, an accent nucleus on a special mora like /N/ is prohibited in regular lexical items in Japanese (e.g., *e^n* vs. **en^* 'yen'; *pa^n* vs. **pan^* 'bread'). Furthermore, an accent nucleus on the second syllable in trimoraic-disyllabic (LH) words is ruled out in regular items by the NonFinality constraint (see Section 2.2.5.1). That is, it is likely to be the case that mimetic templates are the results of avoidance of regularity. Interestingly enough, orientation to marked forms is reported for sound-symbolic words in other languages as well (see Klamer 1999a for Austronesian expressives). In this respect, Tsujimura's (2008) remark that the essence of mimetics consists in their unexpectedness or irregularity seems to be within reason.

The importance of accentual information in the definition of mimetics is also demon-

strated by the two types of total-reduplicative mimetics—namely, accented CV^CV-CVCV and unaccented CVCV-CVCV—which were discussed in Section 2.1.3 above. These two types of reduplicatives have distinct functions. Accented reduplicatives function as adverbs or verbs, whereas unaccented reduplicatives function as adjectives or nouns. Nevertheless, it should be also noticed that prosodic information is not as important as morphological information in these reduplicative templates. This point becomes clear when we take another look at "quasi-mimetics." Although reduplicative quasi-mimetics can have atypical accent patterns (e.g., *simi(^)zi(^)mi*), they always take the two-mora-reduplicative shape. In addition, reduplicative mimetics are subject to dialectal variation in prosody. For example, the Kansai dialect, which is spoken in the midwest area of Japan, has a mimetic form like CVN-CV^N (e.g., *toNto^N* 'almost equal') instead of CVN-CVN (see Kageyama 2007: 30). These facts suggest the prior status of morphological contours in the definition of mimetics.

Second, the present study treats the fifteen mimetic templates as a *set* in the formal definition of mimetics. As stated in Section 4.1, previous studies have often paid strong attention to individual morphological characteristics, such as reduplication and suffixation. It seems that such partial, dissociative treatments of the formal properties of mimetics have prevented previous researches from succeeding in a proper definition of mimetics. As the distributional fact presented in this section shows, the nearly entire mimetic category can receive a uniform formal characterization only when various mimetic forms in (4.4) are equivalently counted as morphophonological templates. This templatic approach to mimetic morphophonology will further enable us to capture the whole system of the mimetic lexicon that is fundamentally established on morphophonological grounds. This next step will be explored in Chapter 5.

4.3.3. The iconicity condition

In addition to this morphophonological condition, an iconicity-related condition can be drawn from the present observation. As shown by the unambiguous mimeticity of the template-free highly iconic phonomimes in (4.5a), clear iconicity contributes to mimeticity. Based on the Lexical Iconicity Hierarchy in Section 1.3.5, this iconicity condition should be considered as a gradable prototype one like that of the RED Type category. The plausibility of the iconicity condition also gains support from the template-satisfying nonmimeticized adverbs (e.g., *suQka^ri* 'completely') discussed in Section 2.2.5.2. The mimeticity of those poorly iconic words is quite low. This seems to be an instance of semantic bleaching (Hopper and Traugott 1993). For the same reason, fossilized mimetics like *za^Nbu(-to)* 'splash' are unlikely to qualify as a prototypical mimetic. Furthermore, the apparent exceptions to the template satisfaction condition like *hito^ri* 'one (person)' can be reinterpreted as a case of violation of the iconicity condition.

4.4. Experiment 1: The Psychological Reality of the Mimetic Category

This section reports an experiment that suggests the existence of multiple prototype conditions of the mimetic category and their nonequivalent status. The central aim of the observations here is to clarify what kinds of conditions exist behind Japanese speakers' actual perception of mimeticity and how strong each of them is.

4.4.1. Method

The experiment was designed following previous psychological studies in the prototype theory, such as Rosch (1973) and Barsalou (1985). I randomly selected or created, without taking word length and full segmental properties into account, four types of existent and nonexistent stimuli (200 in total). In addition to the meaningfulness condition (i.e., existent vs. novel), the following two conditions—called the morphophonological and the segmental conditions, respectively—were reflected.

1) The morphophonological condition:

   Whether a word satisfies one of the six bimoraic root-based mimetic morphopho-nological templates in (4.4b) or their intensified counterparts (e.g., those with an in-serted /Q/ like *boQtebote* and *goQto^N*).

2) The segmental condition:

   Whether a word possesses one of the segmental features T&S report as unique to mi-metics in (4.1a-d), which have nothing or little to do with the templates (e.g., lack of sequential voicing, /p/-initial).[8]

Therefore, each of the eight classes contains twenty-five stimuli. The following table sum-marizes the stimuli with actual examples.

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[8] It has to be noted that this segmental condition is heterogeneous. Among the four "mimetic segmental fea-tures," only "the abundance of /p/-initial words" is not a common characteristic but a tendency reported for mimetics. In other words, unlike the other three, not possessing this segmental feature does not mean a viola-tion of the segmental condition. See Akita (to appear, b) for a more strictly conditioned version of the present experiment, which yielded similar results.

Table 4.3.　Stimulus types for Experiment 1

	Morphophonological condition	Segmental condition	Examples Novel	Existent
A.	√	√	*pu^sipusi, paruN^*	*ku^yokuyo, poQki^ri*
B.	√	*	*hemo^ri, se^mozemo*	*sutoN^, konagona*
C.	*	√	*pa^muto, pekiro^iwa*	*pi^rori, piro^siki*
D.	*	*	*me^toa, ponusame*	*ta^nisi, maru*

The male-voice stimuli were recorded on Audacity, an audioeditor-recorder. Auditory rather than visual stimuli were adopted because many of the participants were not linguistically trained and were not expected to be able to read prosodic notations.

Novel words as well as existent ones were used so that judgments were made purely based on how they sounded. This reason can be specifically described in terms of three "limits" of existent words. First, certain kinds of words are not available in the actual lexicon. For example, nonmimetic /p/-initial words are limited to loanwords. Second, due to the poverty of non-derivative adverbs other than mimetics in the Japanese lexicon, we had to choose nouns and verbs, which are basically readily distinguishable from mimetics, as existent word stimuli. Third, subjects might evaluate existent words based on their knowledge of a "correct" definition of mimetics obtained from school education or dictionary description. Also, the novel-word section preceded the existent-word section in case such mimeticity judgments for existent words analogically affected those for novel ones.

Thirty native Japanese speakers from Kansai (midwest Japan) or Tokai (central Japan) area (18 females, 12 males; age: 20-55, $M = 29.57$) were asked to rate the mimeticity of each audiorecorded word. The notion of "mimeticity" ("*giongo/gitaigo-rasisa*" in the actual instruction) was not defined in order not to cause a bias in subjects' judgments by giving examples of mimetics. Stimulus words were presented twice a word at random on Windows Media Player 10 or Apple QuickTime Player 7.4 in a quiet room. Sounds were presented via headphones. Ratings were made on a seven-graded scale—from 1 'not mimetic at all' to

7 'very mimetic' with 4 as moderate—and typed on an answer form on an Excel sheet. The

following is a translation of the instruction presented on the display of a computer:

Japanese is said to be abundant in mimetics. The 30-minute experiment you will ta-

ke is related to mimetics. 1) Please rate **how mimetic 100 sequences of sounds that**

do not exist in Japanese sound. Each word will be pronounced twice. Please type

numbers (from 1 (not mimetic at all) to 7 (very mimetic) with 4 as moderate) in the

"Novel" part of the answer form. 2) Please do the same thing for **100 sequences of**

sounds that do exist in Japanese, and type your ratings in the "Existent" part of the

form.

Not mimetic at all   Very mimetic

  1   2   3   4   5   6   7
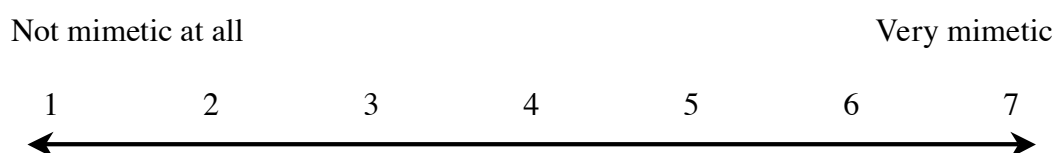
4.4.2. Predictions

Predictions we should make for the present purpose are quite clear. First, if Japanese mi-

metics form a prototype category, there should be a degree of mimeticity among words.

Second, if mimetics form a fuzzy category, mimeticity should gradually decrease from very

mimetic words to not mimetic words. Third, if the morphophonological templates constitute

a privileged condition of the mimetic category, mimeticity judgments should be primarily

divided by the satisfaction of the morphophonological templates. More specifically, the

main effect of the template condition should be especially strong. Fourth, if segmental

properties unique to mimetics enhance their mimeticity, the main effect of the segmental

condition should be significant. Finally, if the iconicity condition is relevant to the definition of mimetics, there should be a significant main effect of the meaningfulness condition, for lexical iconicity by definition (i.e., direct relationship between the form and the lexical meaning of a word) should be clearly recognized when a form is assigned a particular referential meaning.

4.4.3. Results

Tables 4.4a and 4.4b give the full rankings of the mean scores obtained for novel and existent words, respectively. The mean scores are recalculated for clarification, ranging from 0 to 1. In the tables, the cells of the words meeting the morphophonological condition (i.e., A and B) were shaded and the words meeting the segmental condition (i.e., A and C) were gothicized.

Table 4.4.   The results of Experiment 1: Mean score of each word

a. Novel words:

gari-ŋari	.86	teQti^ri	.59	wa^amowamo	.32	koziburaseQ^te	.09
paraaN^	.82	ho^ruhoru	.58	temi^demi	.32	pino^ruki	.09
pu^sipusi	.77	serazera	.58	pugaQ^ka	.31	poteku^muke	.08
pa^roparo	.76	soQpe^ri	.57	sanizani	.30	pumerosi	.08
poNwa^ri	.76	guNmi^ri	.57	po^yu	.28	hieziho	.08
pisuN^	.76	wa^zuwazu	.57	mepe^eN	.24	peQsisito^maku	.07
ka^tekate	.75	hiQpo^N	.57	tuniQ^te	.23	ponoiroraQ^pi	.07
putaQ^	.75	paQtopato	.56	o^sopa	.22	me^toa	.07
ga^na-ŋana	.73	beQsubesu	.56	pa^muto	.22	seroi^suti	.06
kosakosa	.73	hugehuge	.55	posu^Nku	.21	pekiro^iwa	.06
paruN^	.73	kitakita	.54	pu^usa	.21	poQtakarisuke^era	.06
heQpo^ri	.73	sobi^zobi	.54	zimekaka	.19	paabamora^Nko	.05
bato^N	.72	puroQ^	.53	u^yu	.17	pukonsa^reN	.05
puQki^ri	.72	teQkiri	.53	pagusako	.16	poresutaQ^ki	.05
yobayoba	.71	se^mozemo	.52	pe^ruma	.15	sumeru^kiaN	.04
sa^mizami	.71	goruru^N	.51	sa^beke	.13	homutiga^Nto	.04
so^kisoki	.71	oNdo^ri	.48	bonusame	.13	sooyo^Nna	.04
poQse^ri	.68	ri^merime	.47	pimipiro^ita	.12	paruitoka^aya	.04
paQto^ri	.68	pase^ri	.45	kidemo	.12	peedora^Nzi	.03
peQti^ri	.67	gewa^N	.45	ka^mogeN	.12	putararaNki^ano	.03
kupaQ^	.66	peruperu	.44	to^neka	.12	peNbu^wase	.03
zine^ri	.64	pi^isupisu	.43	se^ruso	.11	somoQtokoru^ita	.02
pisopiso	.64	posari^N	.42	piQki^tosi	.09	samabuge^ira	.02
poQsu^N	.63	hemo^ri	.39	piitu^rade	.09	temirie^kosi	.00
satasata	.61	teQti^ri	.37	yumosita	.09	pisemia^koi	.09

b. Existent words:

be^tobeto	.97	puruN^	.86	kata^gata	.48	pa^Ntori	.13
go^rogoro	.97	puQku^ri	.86	koteNpaN	.47	pi^renee	.12
ba^tabata	.96	pokaaN^	.86	deQpari	.44	ma^ui	.12
sa^rasara	.96	piQta^ri	.86	siQka^ri	.44	kuro^Qkasu	.12
katikati	.96	boQtebote	.86	pu^riN	.41	ta^nisi	.11
yu^rayura	.94	paQta^ri	.86	po^mu	.41	parara^ika	.11
karikari	.94	huu^rahura	.85	saki^zaki	.40	purehabu	.11
zitozito	.94	bururu^N	.84	kuregu^re	.39	tumuzi	.09
dokidoki	.94	puQtu^N	.84	hito^bito	.34	penisiriN	.09
perapera	.94	gakugaku	.82	korobiko^robi	.33	poraro^ido	.09
giragira	.93	ku^sukusu	.82	pu^saN	.31	pa^NsiroN	.09
suto^N	.92	ku^yokuyo	.81	hito^ri	.30	ri^muziN	.08
pokapoka	.91	poQki^ri	.81	toQtori	.27	piro^siki	.08
pariN^	.89	puu^kapuka	.80	pi^sutoN	.27	pabi^rioN	.08
pi^tapita	.89	kiri^ri	.79	maru	.25	hanami^zuki	.07
hi^yahiya	.88	pururi^N	.78	mo^NkiQkii	.24	mitinoku	.07
hitahita	.88	poQkipoki	.77	pa^ruQku	.24	purutonyu^umu	.06
kataN^	.88	petoQ^	.76	pe^rii	.23	paNtoma^imu	.06
berobero	.88	aNgu^ri	.74	po^ruko	.23	meraNko^riQku	.06
goQto^N	.88	kuraQ^	.72	pa^buroN	.20	nasigo^reN	.05
poQko^ri	.87	po^rori	.71	oNdori	.19	mararume	.05
poro^ri	.87	poriQ^	.67	suka^Nku	.18	rootaiika^aN	.04
wa^kuwaku	.87	pi^rori	.63	pi^kusii	.14	peru^uzya	.04
dokaa^N	.87	gaQka^ri	.61	kuturo^gu	.13	sa^teraito	.04
goQso^ri	.86	daNma^ri	.53	puriNto	.13	parume^zaN	.03

It is obvious from these two tables that the template satisfaction condition had a great influence on subjects' judgments of mimeticity.

Mean scores of the eight stimulus groups are summarized in the table below.

Table 4.5.   The results of Experiment 1: Mean score of each type of words

	Novel	Existent
A.	.65	.81
B.	.57	.76
C.	.10	.20
D.	.15	.23

A three-way repeated measures analysis of variance revealed that the main effects of the

morphophonological factor (F (1, 5992) = 6232.05, $p < .001$, $\eta_p^2 = .51$) and the segmental factor (F (1, 5992) = 8.59, $p < .01$, $\eta_p^2 = .001$), as well as of the meaningfulness factor (F (1, 5992) = 423.03, $p < .001$, $\eta_p^2 = .07$), were significant.[9] That is, words satisfying a mimetic template, words possessing a mimetic segmental feature, and existent words were judged as more mimetic than words satisfying no mimetic template, words possessing no mimetic segmental feature, and novel words, respectively. The interactions between the morphophonological condition and the segmental condition (F (1, 5992) = 31.29, $p < .001$) and between the morphophonological condition and the meaningfulness condition (F (1, 5992) = 126.57, $p < .001$) were significant, but the interaction between the segmental condition and the meaningfulness condition was not significant (F (1, 5992) = .01, $p = .91$). The interaction among the three conditions was also significant (F (1, 5992) = 6.67, $p < .01$).

The data were further analyzed in terms of which template sounded more mimetic than other templates. A two-way repeated ANOVA for the ratings for template-satisfying words yielded significant main effects of the types of mimetic templates (F (4, 2990) = 15.26, $p < .001$) and the novel/existent condition (F (1, 2990) = 452.78, $p < .001$). The interaction between the two factors was also significant (F (4, 2990) = 17.33, $p < .001$). The template-satisfying words consisted of five types (with CVCVQ^, CVCV(^)N(^), CVCV^ri treated together as CVCVX; see Chapter 5), and their overall mean ratings decreased as follows: CV^CV-CVCV (.78) > CVCV-CVCV (.76) > CVCCV^ri (.70) > CVCVX (.69) > intensified forms (.68). Interestingly, the ranking was different between novel and existent words. On one hand, ratings for novel words showed the following hierarchy: CV^CV-CVCV (.66) > CVCCV^ri (.65) > CVCVX (.61) > CVCV-CVCV (.60) > intensified forms (.52). On the other hand, ratings for existent words showed the following hierar-

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[9] A partial eta square ($SS_{factor}/(SS_{factor} + SS_{error})$), where SS stands for Sum of Squares) is an index of effect size, ranging from 0 to 1.

chy: CVCV-CVCV (.913) > CV^CV-CVCV (.906) > intensified forms (.83) > CVCVX (.77) > CVCCV^ri (.74).

4.4.4. Discussion

The results are considered supportive of our predictions. First, the graded mean scores in Table 4.4 indicate that one word can be more mimetic than another. That is, the mimetic category can be considered as a prototype category. Also, the continuous decrease in mimeticity in the same tables is suggestive of the fuzzy nature of the category boundary of mimetics. The gradience and fuzziness are more clearly illustrated by the following graph version of mimeticity rankings.
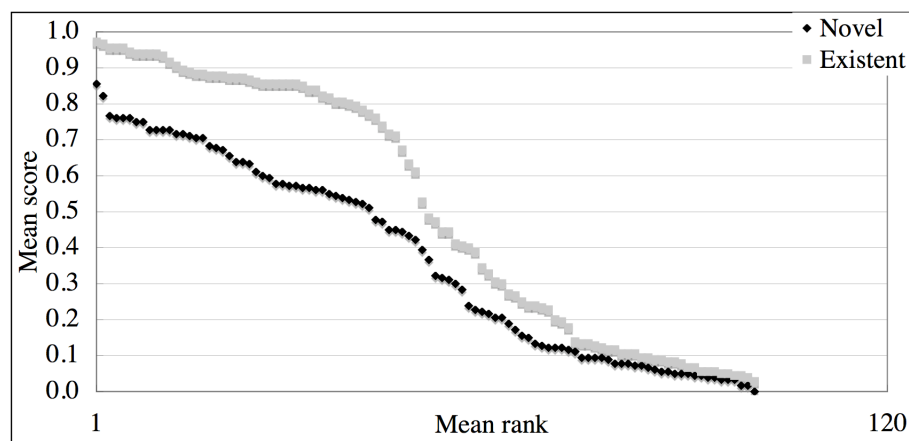
Figure 4.1. The results of Experiment 1: Mean score and rank of each word

In addition, Table 4.5 indicates clear mimeticity contrasts between the template-satisfying groups and the template-free ones. This elegant division is clearly indicated by the notable partial eta square of the morphophonological condition (i.e., .51), which means that more than the half of the ratings was dependent on this condition. Thus, we can conclude that the

morphophonological templates play an essential role in whether a sound sequence sounds mimetic. This conclusion appears reasonable in that mimetics basically use the same inventory of segments as nonmimetic words (Akita and Takeyasu 2008; cf. Nasu 2007).

Third, the significance of the main effects of the segmental and the meaningfulness conditions serves as evidence for the segmental and the iconicity conditions, respectively. The partial eta squares of the two conditions are much lower than that of the morphophonological condition. Nevertheless, they can be understood as at least one of the multiple prototype conditions that together fortify the mimetic category. In this respect, it may be promising to try to discover further conditions of the category along these lines.

Moreover, the difference in mimeticity among mimetic templates has some implications for the discussion on two related topics. First, the commonly high ratings for accented reduplicative words (i.e., CV^CV-CVCV) support Lu's (2006) idea that they constitute the prototype of Japanese mimetics (see Section 4.1). Since her proposal was only based on the striking productivity of this type of mimetic, the present results qualify as a substantiation of the proposal. Second, the relatively low mimeticity of existent words taking the "emphatic" CVCCV^ri form is reminiscent of the highly conventionalized (often nonmimeticized) characteristics of this type of mimetic (see Sections 2.2.5.2 and 4.2). The special functional properties of emphatic mimetics will be further discussed in Section 5.2.1 below.

To sum up, the discussion here provides empirical support to the conclusion reached in Section 4.3: Japanese mimetics constitute a kind of prototype category that is defined with multiple prototype conditions and a fuzzy boundary. Different kinds of prototype conditions were identified. That is, the morphophonological condition is a non-gradable condition that is a major factor in mimeticity. The segmental condition is also a non-gradable condition, but of lesser importance. The iconicity condition also turned out to be significant. The significance of this last condition goes with the general claim of this thesis that the iconic

properties of mimetics are fundamentally based on their lexical status.

Importantly, the obtained prototype category is not identical with any of Fillmore's (1982) types of prototype categories. In this respect, as Fillmore himself acknowledges, his classification of prototype categories is not exhaustive, and the world is likely to be full of mixed types or completely new types.

4.4.5. Some implications

The importance of morphophonological templates gains further support from sound-symbolic lexicons in other languages. As Bartens (2000: 13) remarks, morphophonological peculiarity is one of the most outstanding facets of sound-symbolic words across languages. What is of interest to the current discussion is that there are some formal units that can be analyzed as morphophonological templates reported as unique to the word class at issue in the literature. For example, according to Mithun (1982: 51), reduplicative forms, which characterize sound-symbolic categories of many languages (Hinton et al. 1994b), are limited to ideophones in most Iroquoian languages. Similarly, Wiltshire (1999) reports that, in Tamil (Dravidian), closed syllables (i.e., CVC, CVCVC) are only allowed in expressives (see Klamer 1999a for a similar but more moderate case in Kambera (Austronesian)). Newman (2001) points out the same thing for Hausa (Afro-Asiatic), and states that tonally homogenous reduplicants (i.e., CVCV(V)-CVCV(V), CVCV(V)-CVCV(V)) are also limited to ideophones. Moreover, Bodomo's (2006) observation suggests the existence of similar ideophone-specific constructions (i.e., CVCCV(C)CV(C), CVCCV(C)CV(C)) in Dagaare (Niger-Congo). Thus, the template-based definition of a sound-symbolic category discussed here is expected to have some crosslinguistic applicability.

In addition, the templatic approach may be also applicable to languages that are generally believed to be relatively poor in sound-symbolic words, such as French, German, English, and Chinese. From the present point of view, those languages can be reconsidered as languages without a set of productive morphophonological templates prepared for this particular word class. In fact, as Herlofsky (1983) and T&S (1999) point out, even these languages do show segmental sound symbolism or sequences of them (i.e., phonaesthemes), such as *gl-* in words related to light or eye beam (e.g., *glance*, *glimpse*, *glisten*, and *glitter*) and *-ash* in words related to intensity (e.g., *clash*, *dash*, *flash*, and *smash*) (see Sections 1.3.3 and 2.1.2 above). However, these segmental components are not sufficient to form an independent, readily recognizable category. This underdeveloped categorial nature is also likely to make their sound-symbolic properties less explicit (Imai et al. 2008: 55; cf. Herlofsky 1990: 217). Thus, even languages with a relatively small sound-symbolic lexicon can reinforce our template-based solution to the categorization problem.

4.5. Experiment 2: The Lexical Meaning-Based Phonosemantics of Mimetics

This section presents further characterizations of the morphophonological condition and the iconicity condition of mimetics from the viewpoint of phonosemantics (i.e., segmental sound symbolism). Mimetics are generally assumed to be phonosemantically special. This is why they are called sound-symbolic words. However, as noted in Section 4.1.2, sound symbolism is not unique to this particular word class. The experiment here illustrates that it is the highly specific lexical meanings of mimetics that give them a phonosemantically special status.

4.5.1. Method

For the present paper-based experiment, twenty Japanese-native-speaking students at the University of Tokyo at Komaba from diverse dialectal areas of Japan (2 females, 18 males; age: 18-26, M = 19.65) were asked to make relative evaluations of the size/intensity of the actions or sounds denoted by thirty sets of four sentences on a five-point scale from 1 'very small/weak' to 5 'very large/intense' with 3 as moderate. They rated the 120 sentences in total by writing a number in a box prepared below each sentence.

Each four-sentence set only differed in terms of their predicates, again created on the basis of the morphophonological and the segmental conditions. Two were intended to be full mimetic verbs (e.g., *tekoteko suru*, *zawazawa suru*), which consist of a word satisfying a bimoraic root-based mimetic template (i.e., CV^CV-CVCV, CVCV^ri, CVCV(^)N(^), CVCV^ri, or CVCCV^ri) and the semantically skeletal verb *suru* 'do', and the other two reduced mimetic verbs (e.g., *teko-ru*, *zawa-tuku*), which consist of a bimoraic root and a productive verbal suffix (see Sections 2.1.3 and 6.1). In each pair of "mimetic verbs," one had a voiced initial consonant (e.g., *dekodeko suru*), and the other had a voiceless one (e.g., *tekoteko suru*). This segmental feature was adopted because it is the most striking and most systematic feature in Japanese sound-symbolic system (Hamano 1998; Tamori 2002; Akita, to appear, b). Both existent and novel mimetic roots were used for creation of the stimuli, but all of their lexical meanings were specifically defined by putting them in a sentence frame and specifying for each set what kind of size/intensity was being asked for. I limited my observations to a kind of magnitude symbolism because it has been most enthusiastically investigated and most widely reported in the literature (Jespersen 1922; Sapir 1929; Bentley and Varon 1933; Newman 1933; Brown et al. 1955; Johnson 1967; Huang et al. 1969; Kim 1977; Koriat and Levy 1977; Ultan 1978; Jakobson and Waugh

1969; Kim 1977; Koriat and Levy 1977; Ultan 1978; Jakobson and Waugh 1979; O'Boyle and Tarte 1980; Diffloth 1994; Haryu and Zhao 2007).

Segments of those roots were selected based on an analogy with existent mimetics and on Hamano's (1998) description of the sound-symbolic system of Japanese. This kept the novel words minimally deviant from the established phonosemantic system, which is assumed to assign the most natural segments to a referential meaning. A translation of the instructions printed on paper appears below:

This questionnaire is a part of a study on a linguistic phenomenon called sound symbolism. In what follows, you will see thirty short sentences, each of which contains four semantically similar verbs, both existent and nonexistent in Japanese. It does not matter whether a sentence is natural or unnatural. Please make relative evaluations of the size/intensity specified by each sentence on the following five-graded scale and write a number in the boxes below the sentences.

Very small/weak   Very large/intense

1   2   3   4   5
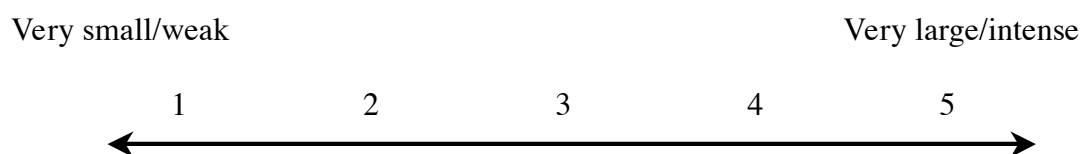
The purpose of this questionnaire is to identify native Japanese speakers' intuitions, and there are no correct or incorrect answers. Also, your answers will never be used outside the research purpose, so please be honest to your intuition.

Example: How much was the iron board bent?

Teppan-o banyaQ-to sita. Teppan-o panyaQ-to sita. Teppan-o banyatta. Teppan-o panyatta.

The thirty pairs of roots used in the experiment are listed below. Each full mimetic verb took the morphophonological template designated in the first row of the table. Words in parentheses roughly denote the intended lexical meanings of the mimetic verbs they form.

Table 4.6.   Stimulus roots used in Experiment 2

	CV^CV-CVCV	CVCVQ^	CVCV(^)N(^)	CVCV^ri	CVCCV^ri
Existent	1. *zawa/sawa* (rustle)	4. *zara/sara* (feel rough)	7. *bati/pati* (slap)	10. *bura/pura* (ramble)	13. *gati/kati* (be sturdy)
	2. *gira/kira* (glitter)	5. *boko/poko* (beat)	8. *guru/kuru* (spin)	11. *bata/pata* (slam down)	14. *zito/sito* (feel moist)
	3. *doku/toku* (glug)	6. *doro/toro* (drip)	9. *gata/kata* (rattle)	12. *bero/pero* (lick)	15. *zaku/saku* (chop)
Novel	16. *deko/teko* (walk)	19. *gusi/kusi* (stub)	22. *guku/kuku* (gulp)	25. *beke/peke* (break)	28. *buko/puko* (expand)
	17. *gasyu/kasyu* (crumple)	20. *zeku/seku* (throb)	23. *deko/teko* (bang)	26. *batyo/patyo* (splash)	29. *buke/puke* (swell)
	18. *giru/kiru* (twinkle)	21. *deru/teru* (slurp)	24. *bite/pite* (shut)	27. *guro/kuro* (go around)	30. *geko/keko* (be dejected)

The order of the thirty sets was randomized, but four sentences in each set were always presented in the order illustrated by the above example (i.e., a full mimetic verb with a voiced C_1—a full mimetic verb with a voiceless C_1—a reduced mimetic verb with a voiced C_1—a reduced mimetic verb with a voiceless C_1). This ordering was expected to facilitate the subjects' comparisons in the intended way.

4.5.2. Predictions

Based on the conclusion in Experiment 1, we can make the following predictions. First, if sound symbolism is clearest and most consistent in mimetics, there should be a significant interaction between the morphophonological condition (i.e., full vs. reduced verb forms)

and the segmental condition (i.e., voiced vs. voiceless C_1). Concretely, size/intensity ratings for voiced stimuli should be particularly high and, conversely, size/intensity ratings for voiceless stimuli should be particularly low when they take a full mimetic verb form, which retains a morphophonological template. Second, if more iconic words are more mimetic than less iconic ones, they should show clearer magnitude symbolism of C_1 voicedness. More specifically, there might be a significant interaction among the three conditions: namely, the two conditions plus the root type condition (i.e., existent vs. novel mimetic roots). That is, mimetic verbs made from an existent mimetic root are expected to facilitate subjects' understanding of their referential eventualities and to yield sharper phonosemantic contrasts between voiced-voiceless pairs.

4.5.3. Results

The predictions were borne out. First of all, viocedness symbolism (i.e., voiced > voiceless) was observed in both full and reduced mimetic verbs. The following table shows the mean ratings for the full and reduced mimetic verbs with voiced and voiceless initial consonants. This table also reflects the existent vs. novel distinction of stimulus roots. For illustrative purposes, the scores were recalculated to range between -1 and 1.

Table 4.7.   The results of Experiment 2: Mean scores

		Full	Reduced
Voiced	Existent	.65	-.36
	Novel	.50	-.42
Voiceless	Existent	.43	-.50
	Novel	.19	-.56

A three-way repeated measures ANOVA revealed significant main effects of C_1 voicedness (F (1, 299) = 161.51, p < .001), verb forms (F (1, 299) = 1769.14, p < .001), and root types (i.e., existent vs. novel) (F (1, 299) = 48.23, p < .001). More importantly, a significant interaction was obtained between C_1 voicedness and verb forms (F (1, 299) = 26.99, p < .001) as well as between verb forms and root types (F (1, 299) = 15.01, p < .001). That is, the size/intensity contrasts as a function of voicedness were sharper in full mimetic verbs than in reduced mimetic verbs. There was an interaction of approaching significance among the three conditions (F (1, 299) = 3.40, p = .07).

For clarification, the following table lists the differences in size/intensity ratings between voiced and voiceless alternants (e.g., the mean score for the sentence predicated by *zawazawa suru* minus the mean score for the sentence predicated by *sawasawa suru* (both full mimetic verbs); the mean score for the sentence predicated by *zawa-tuku* minus the mean score for the sentence predicated by *sawa-tuku* (both reduced mimetic verbs)), which can range from -1 to 1.

Table 4.8.   The results of Experiment 2: Phonosemantic contrasts

Set	Full	Reduced	Set	Full	Reduced	Set	Full	Reduced
1.	.38	.23	11.	.34	.23	21.	.26	.11
2.	-.08	.09	12.	.20	.15	22.	.31	.20
3.	.26	.13	13.	.20	.08	23.	.21	.04
4.	.43	.35	14.	.29	.25	24.	.36	.23
5.	.45	.43	15.	.29	.31	25.	.28	.21
6.	.13	.19	16.	.08	-.03	26.	.23	.20
7.	.31	.10	17.	.24	.21	27.	.13	.01
8.	.23	.14	18.	.08	.06	28.	.06	-.09
9.	.34	.33	19.	.33	.25	29.	-.04	.03
10.	.01	.18	20.	.33	.19	30.	.29	.24
						Average	.23	.17

It was also considered whether there was a difference in ratings among the five mimetic templates. A two-way repeated ANOVA yielded a significant main effect of the template

types (F (4, 50) = 3.13, p < .05) as well as of the verb form (F (1, 50) = 4.20, p < .05). A contrast between full and reduced mimetic verbs was especially sharp in two suffixal templates (i.e., CVCVQ^ and CVCV(^)N(^)). There was no significant interaction between the two factors (F (4, 50) = .28, p = .89).

4.5.4. Discussion

The results can be interpreted as supporting the above observations on the conditions concerning morphophonology and iconicity. First, in accordance with our prediction, full mimetic verbs, which are more likely to look mimetic, yielded sharper contrasts in phonosemantic ratings than reduced ones, which do not take mimetic templates. This suggests that the clearness or consistency of the systematic size/intensity symbolism of voicedness in Japanese increased as a function of mimeticity. Since the present experiment gave a specific lexical meaning and a sentential context to each mimetic verb, we can conclude that the powerful sound-symbolic effects of mimetics come from their specific iconicity-based lexical meanings. The plausibility of this conclusion is reinforced by the fact that the present results were obtained despite the possible intervention of analogical ratings due to the strict minimal pairing of stimuli.

Second, the near-significant interaction among the three relevant conditions suggests that the sound symbolism of voicedness was especially clear in existent mimetic roots (i.e., 1 to 15 in Tables 4.6 and 4.8). Therefore, we can consider the highly specific lexical meanings of mimetics to be what gives rise to their special sound symbolism. Put in another way, clear lexical iconicity enables a sequence of sounds to have this basic semantic characteristic as a mimetic. The present conclusion seems to be also compatible with the general belief

that sound-symbolic words are "vivid" or "expressive" (see Doke 1935; Samarin 1971; among others). In this sense, our experiments can be regarded as an empirical investigation of the belief, which has been impressionistically stated in the literature.

The conclusion gets further support from some related issues in the literature. First, as generally assumed, nonmimetic regular words are basically not fully determinate in the sense that, for example, *book* and *bake* do not label a spatially and temporally specific book and baking activity, respectively. On the other hand, sound-symbolic words in general are more likely to be tied to individual eventualities or scenes. This functional characteristic of sound-symbolic words is reinforced by some phenomena reported for them. 1) Compared with nonmimetic items, sound-symbolic words are limited in usage. For example, they usually do not appear in formal writings (Schourup 1993; Klamer 1999a; Bartens 2000). Also, they are incompatible (or at least in poor affinity) with negation (Kita 1997; Mark Dingemanse, personal communication; Kiyoko Toratani, personal communication). 2) Sound-symbolic words are frequently accompanied by iconic gestures (Samarin 1971; Diffloth 1972; Childs 1994; Kita 1993, 1997). 3) Sound-symbolic vocabulary lacks hyponymy (Watson 2001; Bodomo 2006; Kita 2008). In other words, all canonical sound-symbolic words are highly specific.

Second, Ullmann (1962) and Nishihara (1979) observe that English *baby*, *clock*, *ghost*, and *silly* or French *coquelicot* (flower's name) used to be sound-symbolic (see also Hasada 2005). It is likely that these words have lost their sound-symbolic effects due to their gaining of normal (or analytic) lexical meanings. This process is parallel to Japanese nonmimeticization illustrated by degree adverbs like *suQka^ri* 'completely'. That is, the loss of highly specific lexical meaning seems to have minimized their phonosemantic potentials.

4.6. Conclusion

This chapter has discussed the prototype-categorial status of the mimetic category in Japanese based on rating experiments of mimeticity and phonosemantics. The fuzzy category consists of at least three prototype conditions: the strong morphophonological condition, the segmental condition, and the iconicity condition. The present empirical definition of mimetics can be a solution to the traditional categorization problem, and is expected to serve as a basis not only of the following chapters of this thesis but also of future research on sound-symbolic words. The following figure summarizes the internal structure of the mimetic prototype category.

Prototype:		SEGMENTALLY TYPICAL TEMPLATE-SATISFYING HIGHLY ICONIC
Superexpressives	CV^CV-CVCV	
Phonomimes		
	CVCV-CVCV, CVCVX	
Phenomimes		
Psychomimes	CVCCV^ri	
Periphery or on-boundary:		VS.
Nonmimeticized adverbs (e.g., *suQka^ri* 'completely')		
Fossilized mimetics (e.g., *su^Qku(-to)* 'erect')		
Quasi-mimetics with mimetic prosody (e.g., *mo^mimomi* 'crumpling')		
Quasi-mimetics with nonmimetic prosody (e.g., *simi(^)zi(^)mi* 'sentimental')		SEGMENTALLY ATYPICAL VS. TEMPLATE-FREE NOT ICONIC
Outside:		
Nonmimetic reduplicatives (e.g., *mura^mura* 'villages')		
Non-reduplicative regular words (e.g., *mura* 'village')		

Figure 4.2. The internal structure of the prototype category of Japanese mimetics

What is of particular significance in this chapter is its reference to the highly specific lexical meanings of mimetics, which allow them to have lexical iconicity. The current focus on the lexical facet of mimetics is the ground floor of the central building of this study and will be further pursued in what follows.[10]

The next chapter will have a closer look at the mimetic morphophonological templates identified in this chapter. From a constructional perspective, I will approach the entire structure of the mimetic lexicon, which is fundamentally based on the iconic mappings between the templates and particular meanings. In this regard, the purpose of the chapter can be said to be to analyze the semantic details of the conditions of mimetics identified here.

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[10] A crosslinguistic comparison in terms of the richness of lexical meaning may be successful in some areas of mimetic semantics. For example, in English, one onomatopoeic or sound-emission word refers to diverse kinds of sounds (e.g., *rattle* for a thunder, flutter, shot, clatter, etc., which are expressed by distinct mimetics in Japanese), which are almost amazing in comparison with Japanese phonomimes. This drastic variety in referent sounds suggests the underspecified nature of the lexical meanings of English onomatopoeic words. They are purely "onomatopoeic" (and perhaps more likely to be "isomorphic") in the sense that they mimic real sounds without much specification of sound emitters. This putative characteristic might have some correlation with their morphophonologically indistinguishable onomatopoeic status (Section 4.4.5). Furthermore, the non-rich lexical information might be what gives a strong limitation to the possibility of semantic extensions of English onomatopoeia to non-auditory meanings (cf. Section 2.2.3).

Chapter Five

The Constructional Semantics
of Mimetic Morphophonology

In this chapter, I investigate the semantics of mimetic morphophonological templates. In the framework of Construction Grammar outlined in Section 3.1, an integrated analysis of semantic properties of the templates will be presented. More specifically, it is shown that four bimoraic root-based templates—namely, accented total-reduplicative CV^CV-CVCV, unaccented total-reduplicative CVCV-CVCV, suffixal CVCVX (encompassing CVCVQ^, CVCV(^)N(^), and CVCV^ri), and emphatic CVCCV^ri—have a constructional status, with the unaccented total-reduplicative template as a derivative construction from the accented one.

The organization of this chapter is as follows. Section 5.1 will briefly consider derivational and constructional approaches to mimetic morphophonology in the literature. The remaining portion of this chapter discusses a set of constructional properties of mimetics. With special focus on emphatic mimetics, Section 5.2 will consider the relationship between the sound-symbolic semantic structure and the lexical semantic structure of a mimetic (see Section 1.3.3). It will be argued that the lexical meanings of mimetics are characteristically unpredictable from their component sound-symbolic values, their formally related items, or

their roots. This non-compositionality of meaning will serve as a basic motivation for the present constructional approach, and distinguish morpho(phono)logical constructions from argument structure constructions. Next, as concrete descriptions of constructional semantics of mimetic templates, Section 5.3 will consider some inheritance relations, mainly polysemy and instance links (see Section 3.1). Based on extensive analyses of existent and novel mimetics, it will be claimed that the primary semantic features of the reduplicative and suffixal templates are aspectual, but that of the emphatic template is not. These observations will finally enable us to describe the entire hierarchical system of mimetic morphophonology based on constructional networks in Section 5.4. It will be determined that the construction-based system is crucially dependent on the lexical semantic structure of each mimetic. The conclusion will be qualified as an instance of the lexical meaning basis of mimetics, which this study emphasizes as a whole.

5.1. Derivational vs. Constructional Approaches to Mimetic Morphophonology

As discussed in Section 4.3, the fifteen morphophonological templates repeated here cover as much as 99% of Japanese mimetics, and they can be used as a device to produce innovative mimetics from nonmimetic regular words, as in *mo^mimomi* (< *momu* 'crumple') and *ho-Qso^ri* (< *hosoi* 'slim').

(5.1) Morphophonological templates for Japanese mimetics:

a. Monomoraic root-based:

CVQ(^), CV(^)N(^), CViQ^, CV(^)V(^), CV^V-CVV, CVV-CVV, CV^N-CVN, CVN-CVN, CV^i-CVi

  b. Bimoraic root-based:

  CVCVQ^, CVCV(^)N(^), CVCV^ri, CVCCV^ri, CV^CV-CVCV, CVCV-CVCV

This extensive productivity of the mimetic templates suggests their constructional status at the morphophonological level. In fact, in the previous literature, there have been constructional (or abstractive) as well as derivational (or constructive) approaches to mimetic morphophonology. In this section, in anticipation of the constructional analysis presented below, I outline both types of attempts.

A vast majority of previous studies seem to have taken a derivational point of view. As Kadooka (1993b: 199) notes, this tradition is symbolized by the frequently employed concepts of "mimetic roots (or bases)" and "mimetic markers" ("onomatopoeia markers" in Waida's 1984 terminology) in the word formation of mimetics (see also Kobayashi 1935; Izumi 1976; Tamori and Schourup 1999: Chapter 2; Lu 2006: 87; Kadooka 2007). Based on these notions, the forms and meanings of mimetics are compositionally derived. For example, the mimetics *koroQ^*, *koroN^*, and *koro^ri* are derived by suffixation of the mimetic markers *-Q^*, *(^)-N(^)*, and *^-ri*, respectively, to the mimetic root *koro*. The same root also yields *ko^rokoro* by total reduplication. All these mimetics based on the mimetic root *koro* have a meaning related to a rolling movement of a small object, and each derivational morphological operation is considered to add a certain (often nuanced) meaning to the root (see Section 2.1.2.1 for details).

There are at least two possible weak points in the previous derivational analyses. First, derivational analysts often make no distinction between the two root types of mimetics (i.e., monomoraic and bimoraic), for they share most of the morphological operations. (This tendency does not directly mean that a derivational account is incompatible with the idea of root-based distinction.) Nevertheless, as shown in Table 4.2 in Chapter 4, there is a consid-

erable difference in number of the two types of mimetics: bimoraic root-based mimetics (1062) vastly outnumber monomoraic root-based ones (214). Moreover, as discussed in Section 1.3.6 above, Hamano (1998) claim, from several viewpoints, that monomoraic root-based mimetics are more iconic than bimoraic root-based ones. This chapter will add some support to the root-based dichotomy of mimetics.

In addition, many gaps can be found in the alleged derivational networks of mimetics. For example, emphatic mimetics are often analyzed as derivatives from suffixal mimetics with an intensifier {C} attached as a coda of the first syllable (e.g., *piQta^ri* 'fitting perfectly' < *pita^ri(-to)* 'fitting'; Hamano 1998: 34-35). As Kuroda (1979: 205-206) remarks, however, there are quite a few mimetics that do not have the supposed "originals" (e.g., *geNna^ri* 'being dispirited' < **gena^ri(-to)*; *teQki^ri* 'undoubtedly' < **teki^ri(-to)*) (see also Hamano 1998: 46).

A constructional approach, which allows each of the mimetic templates to have an independent status as such, can proceed without suffering from these problems. Lu (2006: 92-100) considers certain mimetic morphological templates—specifically, reduplicative, suffixal, and emphatic templates—to be constructions in the sense that the mimetic forms are systematically linked to certain aspectual meanings (see also Yamanashi 2000: 244-246) and some other meanings, like "literariness." Moreover, as noted in Section 4.3, templatic representation of mimetic morphophonology itself is not a novel approach, and the correspondences between templates and meaning, especially for reduplicative and suffixal mimetics, seem to have been widely recognized. Nevertheless, their status as a primitive unit and their detailed semantic content have received little serious attention. Even Lu (2006), who, as far as I know, is the only obvious constructionist in this research area, refers to little other than some template-meaning correspondences, offering no specific, decisive ground for her taking a constructional view.

However, there is a set of proposals that seem to be positive to the constructional approach to mimetic morphophonology. Some researchers (Yamanashi 2000: 244-245; Ivanova 2002, 2006; Lu 2006: 102-103; Kow Kuroda, personal communication) suggest the possibility of a network-based description of mimetics. As also noticed by derivationalists, due to their sound-symbolic properties, segmentally or morphophonologically related mimetics are semantically related as well. Accordingly, the abovementioned root-based relations across templates (e.g., *ko^rokoro*, *koroQ^(-to)*, *koroN^(-to)*, *koro^ri(-to)*) can also be illustrated in a network-shaped sound-symbolic system.

Further, inter-mimetic relations of this sort can be postulated at various levels of segmental and morphophonological specification. For example, we can posit mimetic templates that are segmentally only halfway specified, such as CV^tV-CVtV (for *ka^tikati*, *pi^tipiti*, *mo^timoti*, etc.), CVQku^ri (for *biQku^ri*, *yuQku^ri*, *saQku^ri*, etc.), ku^CV-kuCV (for *ku^rakura*, *ku^rukuru*, *ku^tyakutya*, etc.), and pVtiQ^ (for *patiQ^(-to)*, *pitiQ^(-to)*, *putiQ^(-to)*, etc.). Interestingly, in her investigation of universal sound symbolism, Bartens (2000: 124ff) adopts similar halfway specified representations for ideophones in several Atlantic creoles (e.g., /bV(V)/ related to a blow). These ideas seem to have some compatibility with the hierarchical network postulated among constructions (see Section 3.1), which is the foundation of the syntax-lexicon continuum generally assumed in Construction Grammar (see Goldberg 1995: 4-7, 2006: 5; Croft 2001).

Below is a diagram of a small part of the hierarchical iconic system of mimetics taking the form of construction network (cf. Lu 2006; see Reay 1994: 4065 for a similar network-based description of phonaesthemes of English onomatopoeic words). At the moment, the semantic pole of the halfway specified constructions is left open for future investigations (see Ivanova 2002, 2006). The label "I_I" is omitted, because all arrows except those otherwise specified in this diagram indicate instance links.
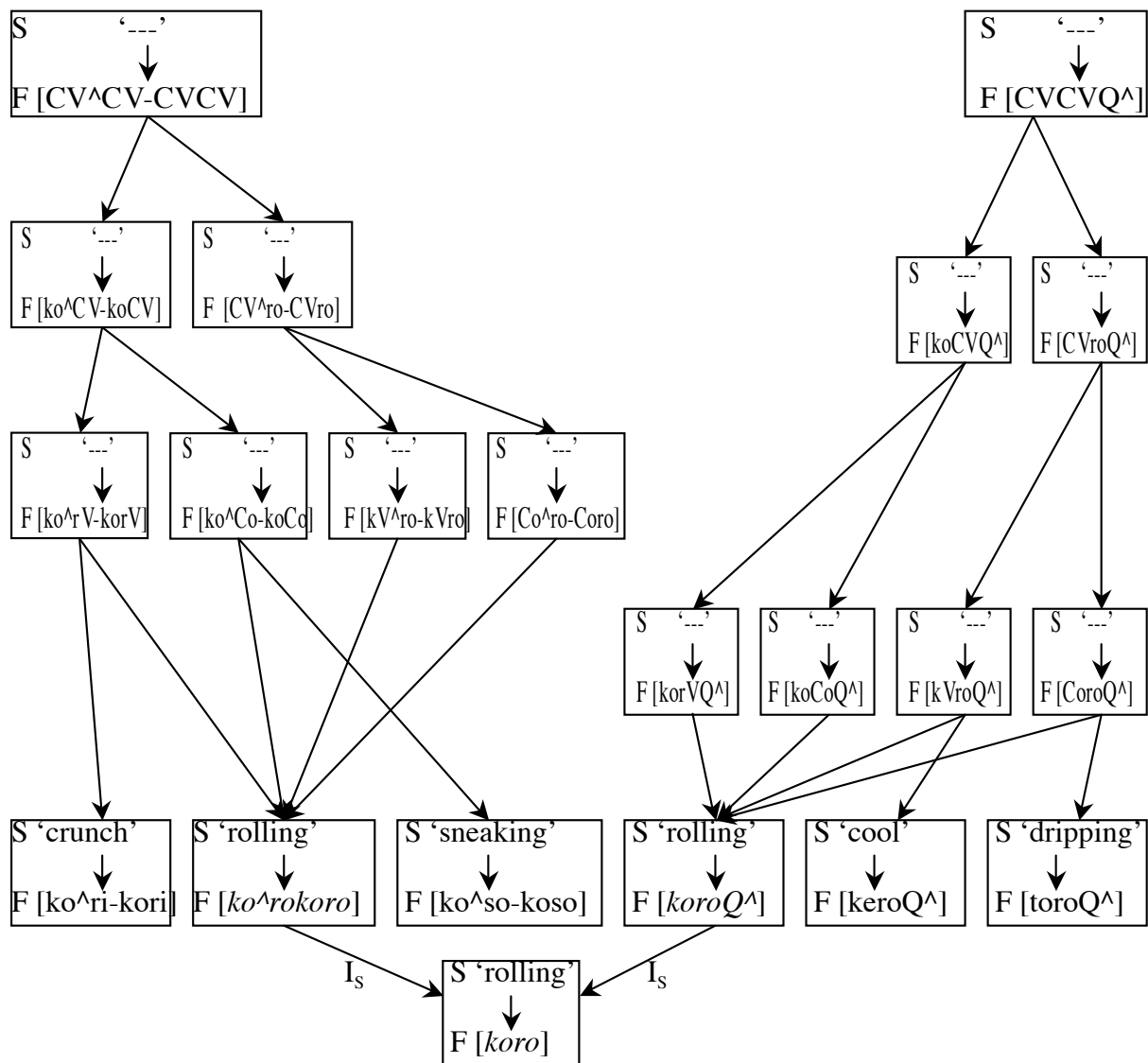
Figure 5.1. A hierarchical mimetic network

Notice that the network allows multiple inheritance relations for one construction (Goldberg 1995: 97-98). For example, [*ko^rokoro*] is an instantiation of [ko^rV-korV] and [ko^Co-koCo] at the same time. Mimetic roots, such as *koro* for *ko^rokoro* and *koroQ^(-to)* here, are also posited as a kind of construction that can be thought of as both a morphological and semantic (or phonosemantic) subpart of the specific mimetics they yield. However, the posited subpart links are slightly different from the ones supposed by Goldberg (1995: 78).

She defines a subpart link as a part-whole link that is posited when a subpart construction "exists independently". As often noted (e.g., Waida 1984; Tamori 1993a; Hamano 1998), in modern Japanese, mimetic roots are basically unable to stand alone, without a morphophonological template (e.g., **koro-to korogaru* 'roll in a light manner', **huwa-to hukuramu* 'swell fluffily', **gu-to hiku* 'pull with a jerk'). Note also that, in contrast with the hierarchical structure of their word formation, actual mimetic tokens (i.e., the line of boxes from *ko^rikori* 'crunch' to *toroQ^* 'dripping') are basically related only horizontally to one another. This is what I mentioned as the lack of hyponymy in Section 4.5.4.

In the following sections, I will argue for the constructional status of mimetic morphophonological templates by focusing on two of their semantic characteristics—namely, unpredictability and inheritance relations among templates.

5.2. Limited Predictability of the Lexical Meaning of Mimetics

Unpredictability of meaning is often a strong motivation for a constructional analysis (Lakoff 1987; Goldberg 1995; Booij 2004). Notably, meanings of mimetics are often unpredictable from their relatives. In this section, special attention will first be given to two particular cases of mimetic gestalt. Section 5.2.1 focuses on emphatic mimetics (i.e., CVCCV^ri), which clearly illustrate semantic unpredictability. Section 5.2.2 deals with pairs of mimetics only differing in terms of voicedness, whose lexical meanings turn out not to constitute perfect minimal pairs with mutual predictability. Then, in Section 5.2.3, I will extend the discussion to the non-compositionality of mimetics in general in terms of the relationship between their two levels of semantic representation.

5.2.1. *Emphatic mimetics*

Emphatic mimetics, which have attracted relatively little semantic attention in the literature, provide some remarkable cases of unpredictability. It is true that, as their name suggests, many emphatic mimetics represent a large amount or high intensity (e.g., *biQsi^ri* 'jam-packed', *paQti^ri* 'wide open (of eye)', *ziQku^ri* 'spending a sufficient amount of time'). However, their specific lexical meanings tend to be hard to generalize. I approach this issue from two angles.

The first set of examples illustrates the lack of full semantic predictability among root-based relatives of mimetics. As the observations of nonmimeticization in Sections 2.2.5.2 and 4.3 suggest, emphatic mimetics often have special functional and formal properties, such as less vivid meanings that make them sound like nonmimetic regular items and impossibility of cooccurrence with the quotative particle, factors which are correlated with each other. What is interesting in the present context is that the special lexical meaning is unlikely to be derived from their segmental (i.e., root-based) or morphophonological (i.e., template-based) relatives (see Kadooka 2007: 179). For example, the psychological meaning, like the one expressed by the emphatic mimetic *uQto^ri* 'enraptured', is absent in the reduplicative mimetic with the same root *u^touto* 'dozing'. Hence, *uQto^ri* but not *u^touto* can modify the psych-verb *mitoreru* 'be fascinated' (i.e., *{uQto^ri/*u^touto} mitoreru* 'be fascinated {in rapture/*in a doze}'). The emotional meaning cannot be straightforwardly attributed to the CVCCV^ri template, either. In fact, *hiNya^ri* 'pleasantly cool' shows the opposite result. This emphatic mimetic does not have a psychological meaning unlike its relatives (i.e., *hi^yahiya*, *hiyaQ^(-to)*, *hiya^ri(-to)* 'thrilled'). Also, it is interesting that, among the mimetics with the root *hiya*, only *hiNya^ri* has a positive meaning, which cannot be derived from other

emphatic mimetics (e.g., *guQta^ri* 'exhausted', *ziQto^ri* 'humid') or its etymological relative *hiyasu* 'cool (something)' (nonmimetic verb), either.

It might seem appropriate to suggest that the function of the emphatic template is to give a metaphorically or metonymically extended meaning to mimetic roots. For example, the regular adverb-like meaning of *poQki^ri* 'exactly' and *tyoQki^ri* 'exactly' can be ascribed to the segmenting image of the breaking of branches or a string that is represented by the relatives *po^kipoki* 'crunch-crunch' and *tyoki(^)N(^)* 'snip'. This kind of metaphorical extension is also observed in nonmimetic words. For instance, the temporal meaning of the deverbal noun *kiri* 'end' comes from the physical meaning of its original verb *kiru* 'cut'. There are some cases of metonymical extension as well. For example, the 'a lot' meaning of *doQsa^ri* can be without difficulty related to the heaviness of luggage represented by other *dosa*-based mimetics. Likewise, the image of completion evoked by *meQki^ri* 'appreciably' can be considered to be the resultant state of the growth of strength represented by *me^kimeki* 'rapidly'. This last example serves as a piece of support to Lu's (2006: 95-96) remark that the emphatic template designates resultativeness or stability. However, as the examples here show, this semantic feature only captures a part of the semantics of the emphatic template. Here are some more example emphatic mimetics that can be analyzed in terms of semantic extension.

(5.2) Emphatic mimetics with semantic extension:

biQku^ri 'astounded' (cf. *bi^kubiku* 'scared'), *goQso^ri* 'wholly' (cf. *go^sogoso* 'rustle'), *noNbi^ri* 'leisurely' (cf. *no(^)bi(^)no(^)bi* 'feeling free', *nobu* 'extend' (non-modern verb)), *taQpu^ri* 'fully' (cf. *ta^putapu* 'plump or full of water'), *zaQku^ri* 'roughly' (cf. *za^kuzaku* 'crunch, chopping roughly')

Furthermore, the root *uto* in *u^touto* has a non-psychological meaning related to a doze,

which can be analyzed as extending to a psychological meaning related to fascination in *uQto^ri*. This analysis is reasonable because there is a similarity that would naturally motivate an extension between the doze meaning and the fascination meaning: both states are a kind of subjection to a comfortable state. However, this explanation encounters a difficulty when it tries to treat the cases like the above *hiya*-based mimetics, for which one has to posit an opposite extension. In this family of mimetics, it is the emphatic form *hiNya^ri* that has a more basic physical meaning that would extend to a psychological one denoted by the reduplicative and suffixal forms (see Lakoff and Johnson 1980; Lakoff 1987).

In sum, a general semantic function of this template is likely to be to give mimetics a special meaning that is more or less related to but not strictly predictable from their formal relatives. This idea might gain further support from the crosslinguistic rarity of this morphophonological template in the sense that sound-symbolic words in reduplicative and closed-syllable forms are found in many languages (Bartens 2000: 12).

The second set of examples instantiate the lack of full formal predictability. As exemplified below, it is often the case that, unlike the above semantic extension cases, an emphatic mimetic has no single segmentally related item.

(5.3) Emphatic mimetics without a root-based relative:

aNgu^ri 'agape' (cf. **a^guagu*, **aguQ^(-to)*, etc.), *kiQpa^ri* 'decisively' (cf. **kipakipa*, **kipa^ri(-to)*, etc.), *oQto^ri* 'gentle' (cf. **o^tooto*, **otoN^(-to)*, etc.), *teQki^ri* 'undoubtedly' (cf. **tekiQ^(-to)*, **teki^ri(-to)*, etc.)

The following graph shows that these kinds of "lonely" mimetics are particularly frequent in the emphatic form. 36.07% of all emphatic mimetics instantiate this formal unpredictability.
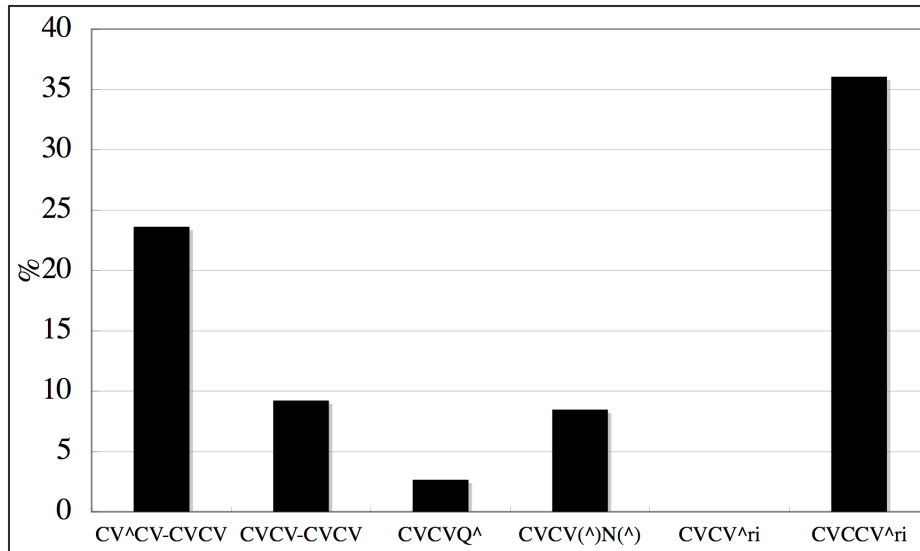
Figure 5.2.   Mimetics without a root-based relative

A chi-square test revealed a significant cross-templatic difference (χ^2 (5) = 155.06, p < .001) with distinguishing superiority of the accented reduplicative template (adjusted residual = 7.65, p < .001) and the emphatic template (adjusted residual = 7.44, p < .001). This supports the unpredictability of emphatic mimetics discussed here.

Thus, emphatic mimetics provide us with clear cases of formal and functional unpredictability. At the same time, the present discussion has demonstrated that unpredictability is the main semantic property of the emphatic template.[1] In the following subsection, I will show that unpredictability is a broader phenomenon in the mimetic category and perhaps in the nonmimetic portion of the lexicon as well.[2]

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[1] As Lawrence C. Schourup pointed out to me, the semantic unpredictability at issue is a kind of negative characteristic, which is not necessarily a direct characterization of the emphatic template. However, as discussed in Section 5.3.3, this semantic property can qualify as a positive characteristic of the template in that those unpredictable meanings are characterized as something that cannot be iconically expressed by the other major mimetic templates (i.e., reduplicative, suffixal). That is, the emphatic template is *positively* linked with semantic unpredictability as a template that enables mimetics to less iconically express regular adverb-like meanings.

[2] As pointed out in Section 2.1.2.1, palatalization reflects a similar unpredictable distribution. For example, the meaning of *kyo^rokyoro* 'looking around' is very unlikely to be predicted from its non-palatalized counterpart *ko^rokoro* 'rolling'. Also, there are not a few palatalized mimetics without non-palatalized counterparts (e.g., *nyo^kinyoki* 'growing taller' cf. **no^kinoki*; *syoNbo^ri* 'dejected' cf. **soNbo^ri*). However, since this segmental feature of mimetic roots lies across morphophonological templates and only yields fifty-seven mimetics in

5.2.2. Absence of strict minimal pairs

The unpredictability of meaning is, to a more modest extent, observable in mimetics other than emphatic ones as well. This is shown by the rarity of minimal pairs in a strict sense at the lexical semantic level. For example, both of the reduplicative mimetics *sa^rasara* 'dry and smooth' and *za^razara* 'rough', which constitute a minimal pair with respect to comfortableness-related connotation accompanying C_1 voicedness, represent a kind of tactile sensation. However, there is a noteworthy referential difference (i.e., difference in lexical meaning) other than difference in comfortableness between this pair of mimetics. That is, *sa^rasara* is most likely to refer to the feel of mobile objects (or mass) like hair and sand, whereas *za^razara* is most likely to refer to the feel of immobile (or less mobile) objects like a table top, a wall, or a floor. Consequently, as illustrated below, objects that are compatible with both of the mimetics are amazingly rare (see Kita 1997, 2001 for a related discussion about the selection restriction of mimetics).

(5.4) a. sa^rasara si-ta   {hada/suna/kami/yuki/?tukue/?kabe/?yuka}

   MIM   do-PST {skin/sand/hair/snow/table/wall/floor}

   'dry and smooth {skin/sand/hair/snow/?table/?wall/?floor}'

  b. za^razara si-ta   {hada/?suna/*kami/*yuki/tukue/kabe/yuka}

   'rough {skin/?sand/*hair/*snow/table/wall/floor}'

Kakehi et al. (1996), I do not posit independent templates that contain the information (cf. Yamanashi 2000).

In contrast, selection restriction of this kind is less likely in a nonmimetic pair with similar meanings.

(5.5) a. Nameraka-na   {hada/suna/kami/yuki/tukue/kabe/yuka}

smooth-COP   {skin/sand/hair/snow/table/wall/floor}

'dry and smooth {skin/sand/hair/snow/table/wall/floor}'

b. Kime-no   ara-i   {hada/suna/kami/yuki/tukue/kabe/yuka}

texture-GEN rough-NPST

'rough {skin/sand/hair/snow/table/wall/floor}'

Likewise, as shown in (5.6), the voicedness pair *ku^rukuru* 'spinning, going around quickly' and *gu^ruguru* 'going around repeatedly' show more than a semantic contrast in intensity. *Ku^rukuru* is very likely to depict spinning events, which have no radius. On the other hand, *gu^ruguru* can depict both spinning and circling events, being open to the presence/absence of a radius.

(5.6) a. Kazamidori-ga   {ku^rukuru/gu^ruguru} mawat-te i-ta.

weathercock-NOM   MIM   spin-CONJbe-PST

'A weathercock was spinning in a {light/intense} manner.'

b. Ken-ga   ike-no   mawari-o {??ku^rukuru/gu^ruguru} mawat-te   i-ta.

K.-NOM   pond-GENaround-ACC MIM   go.around-CONJ be-PST

'Ken was walking around the pond repeatedly.'

Furthermore, as exemplified in (5.7), the phonomimes for crunching sounds *sa^kusaku* and *za^kuzaku* usually differ not only in the volume of sound they mimic or in intensity of their

referent actions but also in (entities involved in) their typical referent eventualities (i.e., crunching of potato chips vs. chopping of vegetables).

(5.7) a. Mai-wa   {sa^kusaku/*za^kuzaku}-to   poteto-tippusu-o tabe-ta.

     M.-TOP   MIM   -QUOT   potato-chips-ACC eat-PST

     'Mai ate potato chips with a crunching sound.'

  b. Mai-wa   {?sa^kusaku/za^kuzaku}   hakusai-o   kit-ta.

     M.-TOP   MIM   Chinese.cabbage-ACC cut-PST

     'Mai chopped a Chinese cabbage with a crunching sound.'

Also, it is noteworthy that *za^kuzaku* but not *sa^kusaku* can be also used for a huge pile of coins (or perhaps their clinking sound). Moreover, recently, *sa^kusaku* but not *za^kuzaku* has obtained an extended meaning related to smoothness of a process, as in *Kono pasokon-wa {sa^kusaku/*za^kuzaku} ugoku* 'This personal computer works {smoothly/*very smoothly}.'

These referential differences can be ascribed to their sound-symbolic differences. For example, *sa^rasara* but not *za^razara* in (5.4) can describe the feels of hair and snow because these entities are unlikely to cause the uncomfortableness that the voiced consonant /z/ evokes sound-symbolically. Similarly, the circular movements represented by *ku^rukuru* in (5.6) are unlikely to have such a radius as those represented by *gu^ruguru* have because the voiceless C_1 /k/ is phonosemantically associated with smallness while /g/ is associated with largeness (see Sections 4.6 and 4.7). A magnitude symbolism-based account is also applicable to the referential contrast between *sa^kusaku* and *za^kuzaku* in (5.7). Since voiceless /s/ is linked with smallness and low intensity, *sa^kusaku* is most likely to refer to small sounds or actions and entities that cause them. Since voiced /z/ is linked with largeness and high intensity, *za^kuzaku* tends to conflict with an eventuality with a small action or sound. Thus, those

referential differences between voicedness pairs of mimetics stem from their sound-symbolic meanings.

In sum, minimal pairs of mimetics in a strict sense are only constituted at the sound-symbolic level. That is, what is minimally different between formally minimal pairs of mimetics is their sound-symbolic values. This is simply because what segmental contrasts cause is in principle sound-symbolic contrasts, not lexical semantic ones.

What is essential in the present discussion is that the lexical meanings of mimetics are not strictly predictable from any other mimetic or their formal features. Concretely, the particular type of references of a mimetic with a voiced C_1 (e.g., large leafy vegetables for *za^kuzaku*) can be exactly predicted neither from its voiceless counterpart (e.g., *sa^kusaku*) nor its component segments (e.g., /z/, /a/) and morphophonology (e.g., CV^CV-CVCV). The fact that even formally minimal pairs fail to make this prediction indicates the high unpredictability of mimetics as a fundamental semantic characteristic.

5.2.3. Relationship between the two levels of semantic representation

The discussion in the last part of the previous subsection leads us to a general issue in mimetic semantics: namely, the relationship between the sound-symbolic meaning and the lexical meaning of a mimetic. Based on the definitions in Section 1.3.3 above, the sound-symbolic semantic structure of a mimetic is a sum of the sound-symbolic values of its componential segments and morphophonological templates, which is incorporated into the lexical semantic structure of the mimetic. That is, in definition, there is a certain gap between the two levels of semantic structures, which results in unpredictability. In this subsection, I will take a closer look at this semantic gap and point out the limits of a compositional analy-

sis of mimetics that would posit meaningful roots and templates for mimetics.[3]

Unlike their meanings, the forms of mimetics are composed quite straightforwardly. They are simple combinations of roots and templates. For example, the mimetic *huwa^ri(-to)* 'fluffy' is the result of the satisfaction of the suffixal template CVCV^ri by the root *huwa*. Similarly, the emphatic mimetic *uQto^ri* 'enraptured' is the combination of the root *uto* and the emphatic template. If the lexical meanings of these mimetics were, like the meanings of caused-motion or ditransitive sentences (see Section 3.1.1), compositionally obtained, both roots and templates should have full semantic representations and be ready for semantic composition. Mimetic templates are considerably limited in number, and their meanings are, as discussed later in this chapter, highly schematic. As a consequence, the rich variety in lexical meaning of mimetics should be attributable to their roots. This position would even allow the existence of polysemy at the mimetic root level (e.g., *uto*$_1$ 'dozing', *uto*$_2$ 'enraptured').

In fact, there are three clues that appear to give partial support to the existence of specific meanings in mimetic roots that can directly yield the lexical meanings of mimetics they belong to. First, there are a few (old-fashioned) bare mimetics (e.g., *ha^ta(-to)* 'suddenly, completely', *so^yo(-to)* 'breezing'). They could be considered as cases in which mimetic roots as such possess lexical meaning. Second, there are some nouns that were derived from mimetic roots (e.g., *bo^ya* 'small fire', *ga^ta* 'decrepitness', *go^ro* 'grounder', *hi^ya* 'cold water', *nyoro^* 'the mark "~"'). They also have full-fledged lexical meanings despite their bare forms. Finally, as mentioned in Section 2.1.3, not a few mimetic roots form verbs and adjectives, which have nonmimetic-like lexical meanings, without taking a mimetic template (e.g., *hira-meku* 'hit upon (an idea)', *tira-tuku* 'snow lightly', *noro-i* 'sluggish'). However, these

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[3] This gap between the sound-symbolic semantic structure and the lexical semantic structure of a mimetic might make one want to draw an instance link between them.

derivatives are analyzed as deriving from bimoraic root-based accented reduplicative mimetics, such as *hi^rahira* and *no^ronoro*. Therefore, their meanings can be ascribed to the lexical meanings of those reduplicatives. In sum, with their limited productivity and (near) loss of mimeticity due to high conventionality in mind, the specific lexical meanings of these template-free words should be understood as exceptions.

Instead of a compositional analysis, this study takes a view that emphasizes the unpredictability of lexical meanings of mimetics mainly on the basis of the cases discussed in the previous two subsections. The sound-symbolic semantic structure of a mimetic, which consists of the abstract sound-symbolic values of its segmental and morphophonological components, cannot fully predict its lexical semantic structure. Based on the above observations of unpredictable semantic extensions in emphatic mimetics and unpredictable selection restrictions of voicedness pairs of mimetics, a certain degree of unpredictability should remain even when the meaning of its mimetic root is added to the sound-symbolic semantic structure. Although the present discussion alone does not specify how meaningful mimetic roots are, the present data suggest that mimetic roots do have a certain amount of meaning that is more specific than the sound-symbolic meaning of the mimetic they constitute, but that the root meaning still does not reach the lexical meaning of the mimetic.

In fact, similar cases of unpredictability may be also observable in regular lexical items (or lexical constructions) referred to in Section 3.1.2. For example, the meanings of English agent nominals are more specific than the simple combination of verb meaning and the agent meaning. A baker is not simply a person who bakes but a person whose profession is baking. In a similar way, the range of meaning of Japanese innovative verbs differs from verb to verb beyond mere tones of "playfulness" (Tsujimura and Davis 2008). For instance, if the context and shared knowledge allow, the innovative verb *sutaba^ru* can stand for not only 'go to Starbucks' but 'chat at Starbucks' or 'study at Starbucks' as well (Tsujimura 2005c).

Provided that argument structure constructions are really compositional in the sense that they complete the meaning of a clause only with a verb (Goldberg 1995: 13-16), the high unpredictability and flexibility in meaning at issue may distinguish word-level constructions from argument structure constructions. This distinction is significant in that the two types of constructions are generally located on the same gradient scale in Construction Grammars (Goldberg 1995: 4-7; among others). Therefore, a further investigation of this characteristic will lead us to an important theoretical implication for Construction Morphology, which is still at the initial stage of development.

In the following sections, I will explore the specific constructional properties of mimetic morphophonological templates. Investigations of different kinds of inheritance relations among mimetic templates in Section 5.3 will enable us to establish a lexical meaning-based construction network model for them in Section 5.4.

5.3. Inheritance Links among Mimetic Templates

This section investigates the inheritance relations—specifically, polysemy and instance links—among mimetic morphophonological templates mainly based on aspectual analyses of existent and novel mimetics. In partial accordance with Lu (2006: 87, 94-96), it will be claimed that aspectuality is the primary semantic feature of reduplicative and suffixal templates, whereas the non-aspectual property discussed in Section 5.2.1 is the main function of the emphatic template.

Perhaps due to their intuitive naturalness, aspectual properties of mimetics—for example, a repetitive form for a repetitive eventuality—have attracted numerous researchers' curiosity not only in Japanese linguistics (Izumi 1976; Tamori 1993b; Kita 1997, 2001; Hamano 1998:

104-106; Tamori and Schourup 1999: 12; Tsujimura 2001; Kageyama 2007) but also in studies of other languages (e.g., Alpher 1994: 163; Bybee et al. 1994: 166-174; Nuckolls 1996: 58-59, Chapter 4, 2001; Hurch 2005). Nevertheless, the aspectual semantics of mimetics might be one of the research areas that have only received superficial observation. Most studies have only paid attention to the long vs. short morphological contrast of mimetics and the respective correspondence to long vs. short eventualities. Among them, Toratani (1999, 2005), Tsujimura (2005b), and Tsujimura and Deguchi (2007) present exceptional analyses that focus on particular aspectual features of particular mimetic forms.

In what follows, starting with a review of those previous studies, I will first analyze the aspectual properties of existent mimetics. Four major types of mimetics will be considered in the following order: accented total-reduplicative templates (Sections 5.3.1.1-5.3.1.3), unaccented total-reduplicative templates (Sections 5.3.1.3 and 5.3.1.4), suffixal templates (Section 5.3.2), and the emphatic template (Section 5.3.3). Section 5.3.4 will provide a summary of mimetic aspectuality. These analyses will be followed by quantitative (Section 5.3.5) and experimental (novel word-based) investigations (Section 5.3.6). In Section 5.3.7, the partial compositionality of mimetic morphophonology will be discussed focusing on the aspectual properties of intensified mimetics. In Section 5.3.8, mimetics with exceptional aspectuality will be discussed in support of constructional polysemy.

5.3.1. *Aspectuality of reduplicative mimetics*

5.3.1.1. *Bimoraic root-based accented reduplicatives: Neutral in telicity*

Bimoraic root-based total-reduplicative accented reduplicatives, which are the most produc-

tive in the Japanese mimetic lexicon, have often been described with their repetitive or continuative meaning. Tsujimura and Deguchi (2007) (henceforth T&D) (see also Tsujimura 2005b; Kita 1997) attempt to identify the telicity of reduplicative mimetics by means of temporal phrases. The sentences in (5.8) are neutral in telicity, and can occur with both 'for'- and 'in'-phrases, which are only compatible with atelic and telic sentences, respectively. T&D claim that, as shown in (5.9), these sentences are disambiguated as atelic (i.e., expressing no inherent endpoint of eventuality) by the existence of reduplicative mimetics.

(5.8) Sentences without a mimetic (neutral in telicity):

   a. Mizu-o   zyuu-byoo-{kan/de}   non-da.

      water-ACC   10-sec-{for/in}   drink-PST

      '[I] drank (the) water {for/in} ten seconds.'

   b. Yasai-o   reisui-de   go-hun-{kan/de} arat-ta.

      veg-ACC cold.water-with 5-min-{for/in}   wash-PST

      '[I] rinsed the vegetables in cold water {for/in} five minutes.'

   c. Kooen-no   mawari-o   iti-zikan-{Ø/de} arui-ta.

      park-GEN   around-ACC 1-hr-{for/in}   walk-PST

      '[I] walked around the park {for/in} an hour.'

   d. Taikin-ga   iti-nen-{kan/de} hait-te   ki-ta.

      big.money-NOM 1-yr-{for/in}   enter-CONJ come-PST

      'A large sum of money was brought in {for/in} a year.'

                              (adapted from T&D 2007: 345)

(5.9) Sentences with a reduplicative mimetic ("atelic"):

   a. Mizu-o   zyuu-byoo-{kan/*?de} *go^kugoku* non-da.[4]

       water-ACC   10-sec-{for/in}   MIM   drink-PST

       '[I] drank (the) water repeatedly {for/*?in} ten seconds.'

   b. Yasai-o   reisui-de   go-hun-{kan/*?de} *za^buzabu* arat-ta.

       veg-ACC   cold.water-with 5-min-{for/in}   MIM   wash-PST

       '[I] rinsed the vegetables repeatedly in cold water {for/*?in} five minutes.'

   c. Kooen-no   mawari-o   iti-zikan-{Ø/*?de} *ku^rukuru* arui-ta.

       park-GEN   around-ACC 1-hr-{for/in}   MIM   walk-PST

       '[I] walked around the park repeatedly {for/*?in} an hour.'

   d. Taikin-ga   iti-nen-{kan/*?de} *ga^QpogaQpo* hait-te   ki-ta.[5]

       big.money-NOM 1-yr-{for/in}   MIM   enter-CONJ come-PST

       'A large sum of money was brought in {for/*?in} a year.'

                                             (adapted from T&D 2007: 345)

As Toratani (2007: 333-334) points out for (5.9ab), however, the ill-formedness in (5.9) (except 5.9c)) disappears by changing their word order to the one with mimetics preceding temporal phrases ((5.9ab) are cited from Toratani 2007: 333-334 with adaptation; see also Toratani 2006 for another set of word order-related phenomena concerning mimetics).[6] The telic reading in (5.9c) above is possible only when the sentence is interpreted as 'I walked all around the park once.' Consequently, the telic reading in (5.9c) is ruled out for a different reason from the one relevant here—namely, the incompatibility between the 'once' reading

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[4] T&D originally use *go-hun* 'five minutes' as duration of the water drinking event. However, it seems to be unrealistic to drink a glass of water so slowly in a vigorous manner the mimetic *go^kugoku* represents.

[5] This is an intensified mimetic derived from the bimoraic root-based mimetic *ga^bogabo*.

[6] Miho Mano also pointed this out to me prior to 2007.

and the 'more often than once' reading of the reduplicative *ku^rukuru*.

(5.10) Sentences with a reduplicative mimetic (appropriately scrambled):

    a. Mizu-o   *go^kugoku* zyuu-byoo-{kan/de}   non-da. (neutral in telicity)

       water-ACC   MIM   10-sec-{for/in}   drink-PST

       '[I] drank (the) water repeatedly {for/in} ten seconds.'

    b. Yasai-o   reisui-de   *za^buzabu*   go-hun-{kan/de} arat-ta. (neutral in telicity)

       veg-ACC cold.water-with   MIM   5-min-{for/in}   wash-PST

       '[I] rinsed the vegetables repeatedly in cold water {for/in} five minutes.'

    c. Kooen-no   mawari-o *ku^rukuru*   iti-zikan-{Ø/*?de} arui-ta. (atelic)

       park-GEN   around-ACC MIM   1-hr-{for/in}   walk-PST

       '[I] walked around the park repeatedly {for/*?in} an hour.'

    d. Taikin-ga   *ga^QpogaQpo* iti-nen-{kan/de} hait-te   ki-ta. (neutral in telicity)

       big.money-NOM MIM   1-yr-{for/in}   enter-CONJ come-PST

       'A large sum of money was brought in {for/in} a year.'

Thus, the alleged atelicity of the sentences in (5.9) can be attributed to a different factor. The inappropriateness of the aspectuality identification in the examples becomes clearer when we notice the wider, if not common, application of this word order restriction. As illustrated below, some kinds of accomplishment sentences are also subject to resistance to the time preceding manner/means order. (The complete explication of this phenomenon is beyond the scope of this paper (cf. Yazawa 1983; Noda 1984; see also Toratani 2007 for an RRG layered approach to Japanese mimetic adverbs).)

(5.11) a. ??Koobe-daigaku-ni   iti-zikan-de *toho-de*   tui-ta.

        Kobe-university-DAT 1-hr-in   walk-by arrive-PST

        '[I] arrived at Kobe University on foot in an hour.'

    b. Koobe-daigaku-ni *toho-de* iti-zikan-de tui-ta.

(5.12) a. ??Beeguru-o   ni-zikan-de *issyookenmei* kone-ta.

        bagel-ACC 2-hr-in   hard   knead-PST

        '[I] kneaded the bagels hard in two hours.'

    b. Beeguru-o *issyookenmei* ni-zikan-de kone-ta.

Indeed, as Toratani (2007) seems to do, one might interpret that these manner adverbials do carry an atelic property ("unboundedness" in Toratani's 2005 terminology, although she attempts to distinguish the two notions) and block 'in'-phrases only when they follow temporal phrases. However, the "atelicity" observed by T&D should instead be ascribed to the word order restriction, for other aspectual properties discussed below (i.e., punctuality/durativity) are retained in the position preceding a temporal phrase. Therefore, the present review allows us to reach a revised conclusion: accented total-reduplicative mimetics are open to telicity.[7]

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[7] There can be two interpretations for this "openness/neutrality." In one interpretation, the reduplicative mimetics carry neither telic nor atelic information. However, it is also possible to interpret that they carry both. Nevertheless, as this question does not seem to be crucial to the present discussion, I leave it open to future discussion.

5.3.1.2.   Bimoraic root-based accented reduplicatives: Durative

In the previous subsection, I argued that the atelic property reported for reduplicative mimet-

ics should be reconsidered from the viewpoint of a word order restriction. The question then

is whether mimetic aspectuality noted in the literature is merely an illusion. This section

provides a negative answer to this question, illustrating the durative property of the redupli-

cative mimetics.

As illustrated below by the same reduplicative mimetics as in (5.10), the punctuality of the

sentences, which is not determined in (5.13), is specified as unambiguously durative in

(5.14).[8] Note that the examples here all adopt the word order that is not subject to the

restriction observed in the previous section.

(5.13)   Sentences without a mimetic (neutral in punctuality):

   a. Mizu-o   {issyun/nizyuu-byoo}-de   non-da.

      water-ACC   {instant/20-sec}-in   drink-PST

      '[I] drank the water in {an instant/twenty seconds}.'

   b. Yasai-o   reisui-de   {issyun/sibaraku-no aida} arat-ta.

      veg-ACC   cold.water-with {for.an.instant/for.a.while} wash-PST

      '[I] rinsed the vegetables in cold water for {an instant/a while}.'

   c. Kooen-no   mawari-o   {issyun/sibaraku-no aida} arui-ta.

      park-GEN   around-ACC {for.an.instant/for.a.while} walk-PST

      '[I] walked (in a part of the area) around the park for {an instant/a while}.'

---

[8] Crucially, I distinguish the two aspectual properties telicity and punctuality. As Van Valin (2005) discusses in terms of Vendler's (1957) Aktionsart (or so-called "lexical aspect") classes, each of the two notions deserves an independent treatment. In fact, an event type called "semelfactivity" (i.e., punctual activity; Smith 1991) is defined as [+punctual] but [-telic].

d. Taikin-ga   {issyun/sibaraku-no aida} hait-te   ki-ta.

   big.money-NOM {for.an.instant/for.a.while} enter-CONJ come-PST

   'A large sum of money was brought in for {an instant/a while}.'

(5.14) Sentences with a reduplicative mimetic (durative):

a. Mizu-o   *go^kugoku* {*?issyun/nizyuu-byoo}-de   non-da.

   water-ACC   MIM   {instant/20-sec}-in   drink-PST

   '[I] drank the water repeatedly in {*?an instant/twenty seconds}.'

b. Yasai-o   reisui-de   *za^buzabu*   {*issyun/sibaraku-no aida}arat-ta.

   veg-ACC cold.water-with MIM   {for.an.instant/for.a.while} wash-PST

   '[I] rinsed the vegetables repeatedly in cold water for {*an instant/a while}.'

c. Kooen-no   mawari-o   *ku^rukuru*   {*issyun/sibaraku-no aida}arui-ta.

   park-GEN   around-ACC MIM   {for.an.instant/for.a.while} walk-PST

   '[I] walked around the park repeatedly for {*an instant/a while}.'

d. Taikin-ga   *ga^QpogaQpo* {*issyun/sibaraku-no aida}hait-te   ki-ta.

   big.money-NOM MIM   {for.an.instant/for.a.while} enter-CONJ come-PST

   'A large sum of money was brought in for {*an instant/a while}.'

   The reduplicative mimetics are thus concluded to have a durative property. This conclusion seems more natural than T&D's in terms of the principle of "diagrammatic iconicity of length, repetition, or complexity," which expects that a temporally long/repetitive/complex experience is expressed by means of a morphologically long/repetitive/complex linguistic form (see Haiman 1983, 1985a; Newmeyer 1992). In the real world, "being long" does not entail "having no endpoint (i.e., being atelic)." Therefore, we can understand that the reduplicated mimetics adopted the more direct, plausible option (i.e., "being long") for their long morphol-

ogy as their sound-symbolic (or constructional) meaning.

Moreover, it is worth pointing out that durativity here is a notion that was adopted to some extent for the purpose of this particular discussion. As conceived by not a few previous scholars like Toratani (2005) and Lu (2006), the aspectual property of reduplicatives summarized here as "durativity" can be further classified into at least two subcategories: repetitiveness/iterativeness and continuity. For example, the accented total-reduplicatives *go^kugoku*, *za^buzabu*, and *ku^rukuru* in (5.10) depict repetitive events that can be analyzed into small segments of action (e.g., one gulp of the repetitive gulping action represented by *go^kugoku*). Meanwhile, there are quite a few accented total-reduplicative mimetics that have continuative semantics (e.g., *hu^wahuwa* 'fluffy', *i^raira* 'irritated', *mo^yamoya* 'hazy'), which is less likely to be segmented into pieces (see Section 6.1.3 for a related observation). The continuation meaning can be analyzed as an extended meaning that derives from the repetitive meaning based on the general conceptualization of collection as mass (Lakoff 1989). This semantic extension does not necessarily take place within particular words: for example, a repetitive meaning is unlikely with the mimetic *mo^yamoya*. Therefore, these meanings should be attributed to the morphophonological construction CV^CV-CVCV.

Importantly, this instantiation relation is crosslinguistically reported for reduplicative morphology (Haiman 1980: 530; Nuckolls 1996, 1999, 2001; papers in Hurch 2005).[9] As diagrammed in Figure 5.3, this type of inter-templatic relation can be well treated by means of inheritance links in a construction network, introduced in Section 3.1. Hereafter, the gram-

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[9] Plurality is another widely attested meaning of reduplicatives (Hurch 2005; Inkelas and Zoll 2005). It is noteworthy in light of the observed consistent durative meaning of the accented reduplicative template that this non-aspectual meaning is also in general associated with durativity. This is a matter of course, for an activity with a series of actors or objects usually takes us more time than an activity with a single actor or object.
(i) Mizu-o   *zo^rozoro* {*issyun/??nizyuu-byoo/nizyup-pun}-de non-da.
   water-ACC MIM   {instant/20-sec/20-min}-in   drink-PST
   '[We] drank the water one after another in {*an instant/??twenty seconds/twenty minutes}.'
This aspectual consistency suggests the possibility that the plural-reduplicative construction is also subordinated by the superschematic durative-redupilcative construction in Figure 5.3.

grammatically relevant specificity level of construction is indicated by a bold box.
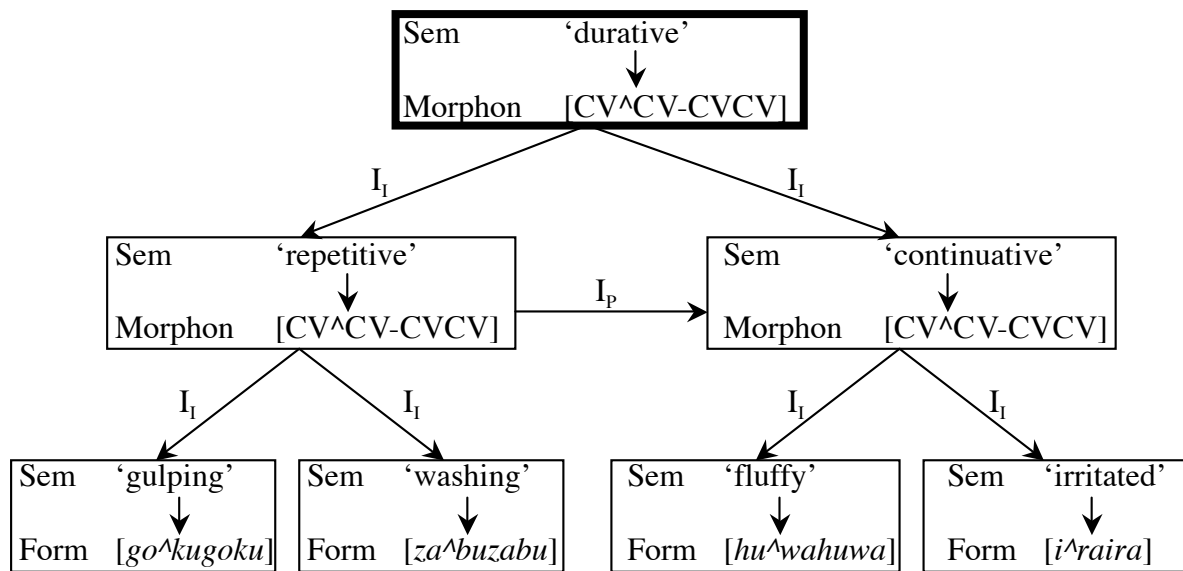
Figure 5.3. The bimoraic root-based accented total-reduplicative construction

In this construction network, a polysemy link connects the repetitive meaning and the continuative meaning, with the durative meaning as a "superschema," which schematizes the two particular semantic instances (Langacker 1988). We can understand that this superschematic meaning corresponds to the "aspectual meaning," which is visible to grammar and is detected (or abstracted) by temporal adjunct-based tests. The merit of the constructional polysemy link resides in the fact that such a relation does not necessarily hold within each lexical item (or lexical construction) at the bottom of the network, which is regarded as an instantiation of one of those reduplicative subconstructions (see Goldberg 1995: 4) (see Figure 5.1 for further possible instance links).

5.3.1.3.   Bimoraic root-based unaccented reduplicatives

This subsection looks at bimoraic root-based unaccented reduplicatives in comparison with accented ones discussed above. First, as seen in Section 2.1.3 and repeated here with different examples, unaccented total-reduplicative mimetics are realized as resultative, adjectives, or nouns. In terms of aspectuality, they are consistently stative (i.e., static, durative, atelic).

(5.15) CVCV-CVCV:

   a. Kono pan-wa *huwahuwa*-da. (predicative adjective)

     this bread-TOP MIM-COP

     'This bread is fluffy.'

   b. Mai-wa   pan-o   *huwahuwa*-ni yai-ta. (resultative)

     M.-TOP   bread-ACC MIM-COP   bake-PST

     'Mai baked the bread fluffy.'

Second, their grammatical-categorial properties cause an interesting semantic tendency. Figure 5.4 gives the result of semantic classification of the mimetics listed in Appendix A, which are mainly from Kakehi et al. (1996).
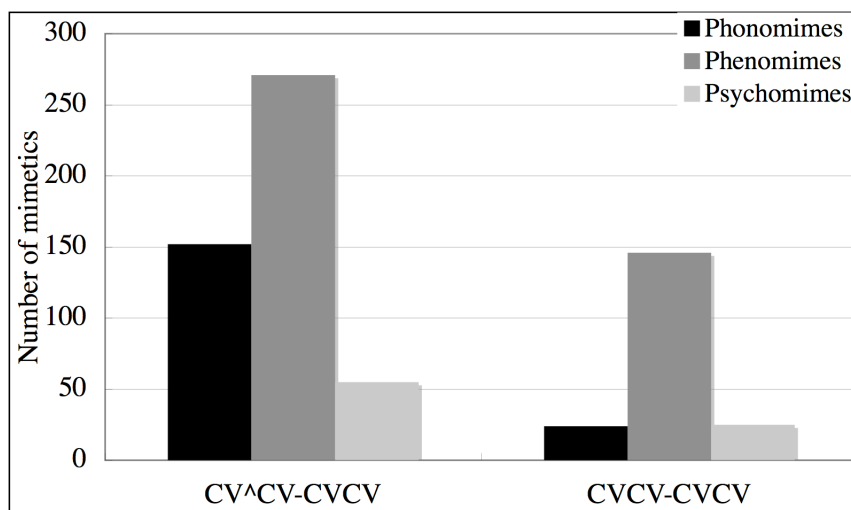
Figure 5.4.   Reduplicative mimetics and accentuation

It is evident from this figure that unaccented reduplicatives are much less productive than accented ones, and, more significantly, the unaccented template is avoided by phonomimes.[10] A chi-square test with a post hoc residual analysis supported this avoidance (χ^2 (2) = 27.71, adjusted residual = -5.22, p < .001). This semantic tendency can be accounted for by the strong anti-iconicity constraint on mimetic adjectives, which I will discuss in Chapter 6. This constraint strictly prevents phonomimes from adjectival realization.

Third, when analyzing the same distributional data differently, we can find a dependency relation between the two types of total-reduplicatives. That is, although only 35.77% (171) of all accented reduplicatives (478) have unaccented (or "flattened") counterparts, as much as 87.69% (171) of all unaccented reduplicative mimetics (195) have accented counterparts. This suggests that the unaccented (static) reduplicative template is a secondary construction that is derived from the accented (dynamic) one. (This derivation is suggested for individual mimetic items, such as *betobeto* 'sticky' (< *be^tobeto* 'smearing thickly') and *kirakira* 'glittery' (< *ki^rakira* 'twinkling'), by Nishio (1988: 229-245).) This suggestion is compatible

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[10] A similar semantic tendency was observed for emphatic mimetics, which can also have a static categorial status (see Figure 5.7).

with what Hamano (1998: 12) points out as "the movement [(or dynamicity)] orientation of the sound-symbolic system in general". Furthermore, unaccented reduplicatives without an accented counterpart often sound markedly colloquial or innovative (e.g., *herohero* 'tired and weak', *meromero* 'having a soft spot in one's heart', *metyametya* 'messed up', *rerorero* 'completely drunk'). These data might act as an additional support to the secondary or peripheral status of this template.

A possible explanation of this constructional derivation is that the unaccented reduplicative template metonymically focuses on the resultant state that is located at the endpoint of the process that the accented reduplicative template typically represents (see Brugman 1982; Lakoff 1987). The change in form (i.e., deaccentuation) can be ascribed to the avoidance of unnatural form-meaning pairing in terms of iconicity.

5.3.1.4. *Monomoraic root-based reduplicatives*

In this subsection, it is shown that the total-reduplicative templates for monomoraic and bimoraic roots behave in an almost parallel manner. At the same time, however, the semantic considerations here will point out certain divergences between the two root types.

Based on the inter-templatic semantic parallels observed in this subsection, the seven reduplicative templates can be grouped into two major classes.

(5.16) Total reduplicative templates in Japanese mimetics:

    a. $\mu^\wedge\mu$-$\mu\mu$: CV^V-CV V, CV^N-CVN, CV^i-CVi; CV^CV-CVCV

    b. $\mu\mu$-$\mu\mu$: CV V-CV V, CVN-CVN; CVCV-CVCV

As illustrated in (5.16), only CV^i-CVi lacks an unaccented counterpart. This fact might stand as another piece of evidence for the secondary status of unaccented reduplicatives discussed in the previous subsection.

Now let us examine the present minimal categorization. First, the three types of monomoraic root-based accented reduplicatives show aspectual properties similar to the bimoraic reduplicatives discussed in Sections 4.3.1.1 and 4.3.1.2. They are in general durative and neutral in telicity. As shown in (5.18), however, their durativity is not necessarily unambiguous.

(5.17) Accented total reduplicative mimetics (neutral in telicity) (cf. (5.8ab)):

　　a. CV^V-CVV:

　　　Yasai-o　reisui-de　　　　*zya^a-zyaa* go-hun-{kan/de} arat-ta. (cf. (5.10b))

　　　veg-ACC　cold.water-with　MIM　　　5-MIN-{for/in}　wash-PST

　　　'[I] rinsed the vegetables in cold water repeatedly {for/in} five minutes.'

　　b. CV^N-CVN:

　　　Mizu-o　　*gu^NguN* zyuu-byoo-{kan/de}　non-da. (cf. (5.10a))

　　　water-ACC　MIM　　10-sec-{for/in}　　　drink-PST

　　　'[I] drank (the) water vigorously repeated {for/in} ten seconds.'

　　c. CV^i-CVi:

　　　Mizu-o　　*gu^igui* zyuu-byoo-{kan/de}　non-da. (cf. (5.10a))

　　　water-ACC　MIM　　10-sec-{for/in}　　　drink-PST

　　　'[I] drank (the) water vigorously repeatedly {for/in} ten seconds.'

(5.18) Accented total reduplicative mimetics (durative) (cf. (5.13ab)):

    a. CV^V-CVV:

        Yasai-o   reisui-de   *zya^a-zyaa* {*issyun/sibaraku-no aida}arat-ta. (cf. (5.14b))

        veg-ACC cold.water-with MIM   {for.an.instant/for.a.while} wash-PST

        '[I] rinsed the vegetables in cold water repeatedly for {*an instant/a while}.'

    b. CV^N-CVN:

        Mizu-o   *gu^NguN* {?issyun/nizyuu-byoo}-de non-da. (cf. (5.14a))

        water-ACC MIM   {instant/20-sec}-in   drink-PST

        '[I] drank the water vigorously repeated in {?an instant/twenty seconds}.'

    c. CV^i-CVi:

        Mizu-o   *gu^igui* {?issyun/nizyuu-byoo}-de non-da. (cf. (5.14a))

        water-ACC MIM   {instant/20-sec}-in   drink-PST

        '[I] drank the water vigorously repeatedly in {?an instant/twenty seconds}.'

Next, let us consider the two unaccented reduplicatives with monomoraic roots. In parallel with bimoraic root-based unaccented reduplicatives discussed in 5.3.1.3, they are much less frequent than their accented counterparts, and their grammatical categories are strictly limited to static ones. The following sets of examples illustrate this static nature.

(5.19) Unaccented reduplicative mimetics (predicative adjective):

    a. CVV-CVV:

        Kono niwa-wa   kusa-de   *booboo*-da.

        this garden-TOP   weed-with   MIM-COP

        'This garden is messed up with weeds.'

b. CVN-CVN:

Kono pan-wa *paNpaN*-da.

this bread-TOP MIM-COP

'This bread is bursting.'

(5.20) Unaccented reduplicative mimetics (resultative):

a. CVV-CVV:

Sono   otoko-wa niwa-o   kusa-de   *booboo*-ni   si-ta.

that   man-TOP garden-ACC weed-with   MIM-COP   do-PST

'The man made [his] garden messed up with weeds.'

b. CVN-CVN:

Ken-wa   pan-o   *paNpaN*-ni yai-ta.

K.-TOP   MIM-ACC MIM-COP   bake-PST

'Ken baked the bread bursting.'

In summary, these remarkable parallelisms between monomoraic root-based and bimoraic root-based reduplicatives strongly suggest the plausibility of the proposed recategorization. This "reductionism" of mimetic templates seems to be partially compatible with the phonological analysis in Nasu (2002). He analyzes CV^N-CVN and CV^i-CVi as bimoraic root-based—namely, based on the roots CVN and CVi, respectively (see also Kadooka 1993b; cf. Hamano 1998). That is, he categorizes these reduplicatives together with CV^CV-CVCV. Thus, the present reduction of mimetic templates has some external support. This emphasized limitedness of templatic resources can be considered to be a motivation for

their semantic extensions discussed later in this section.[11]

However, the incompleteness of the parallelisms also has importance. In addition to the aspectual difference observed here, monomoraic and bimoraic root-based accented reduplicatives show difference in their possibility for semantic extension. As discussed in Section 5.3.1.2, the meaning of CV^CV-CVCV extends from repetition to continuation. Interestingly, semantic extension of this kind is relatively rare in the monomoraic root-based accented reduplicative templates. CV^N-CVN often has a continuative meaning (e.g., *ga^NgaN* 'energetically', *gu^NguN* 'rapidly and steadily') as well as a repetitive one (e.g., *ko^NkoN* 'yelping, knocking', *zi^NziN* 'hurting deep repeatedly'). However, CV^V-CVV is mainly repetitive (e.g., *gu^uguu* 'zzz', *zyu^uzyuu* 'sizzling') and seldom continuative (e.g., *su^usuu* 'cool') or plural (e.g., *bo^oboo*). More strikingly, CV^i-CVi (e.g, *po^ipoi* 'tossing repeatedly', *su^isui* 'swimming with repeated strokes') always has a meaning related to repetition (or semelfactive events) rather than continuation.

This semantic difference may be ascribable to the difference in iconicity between the two classes of accented reduplicative templates. Hamano (1998) claims that monomoraic root-based mimetics are generally more iconic and less linguistic than bimoraic root-based ones. This "less linguistic" nature of monomoraic root-based reduplicatives can be considered to prevent them from following the general semantic tendency. Thus, the lack of parallelism in constructional polysemy here (see Section 3.1) can be accounted for from the semantic difference of the two root types. This observation reinforces the validity of the root-based dichotomy of mimetics in Section 5.1.

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[11] Similar reductions seem to be possible for other templates of both root types, including bimoraic root-based suffixal templates (i.e., CVCVX) discussed in the next subsection. This idea is anticipated to reduce mimetic templates to the following five, although the verification of this refinement is beyond the scope of this study.
(i) Morphophonological templates for Japanese mimetics (refined):
   CVX (encompassing CVQ(^), CV(^)N(^), CViQ^, and perhaps CV(^)V(^)), CVCVX, CVCCV^ri, μ^μ-$\mu\mu$, $\mu\mu$-$\mu\mu$

In conclusion, both similarities and differences between the two types of reduplicative templates have significance. This idea allows us to make the picture of the relevant construction network concrete and precise. The following figure contains those common and individual semantic properties of the reduplicative templates discussed so far. It should be noted that, as the above aspectual analyses have shown, the grammatically relevant level of constructional representation is again the top (i.e., superschematic level). The metonymy-based derivations from the accented to unaccented reduplicative templates are designated by new inheritance links (i.e., I_D) and, just for clarification, by broken lines. Monomoraic root-based reduplicative templates are represented using "X" for suffixal elements. Specific mimetics are given below the constructions that immediately dominate them.

Sem 'durative'
Morphon [uˆu-uu]

Sem 'stative'
Morphon [uu-uu]

Sem 'durative (less iconic)'
Morphon [CVCV-CVCV]
(Fig. 5.3)

Sem 'durative (more iconic)'
Morphon [CVˆX-CVX]

Sem 'durative (more iconic)'
Morphon [CVCV-CVCV]

Sem 'durative (more iconic)'
Morphon [CVX-CVX]

Sem 'durative'
Morphon [CVˆN-CVN]

Sem 'durative'
Morphon [CVˆV-CVV]

Sem 'durative'
Morphon [CVˆi-CVi]

Sem 'statative'
Morphon [CVN-CVN]

Sem 'statative'
Morphon [CVV-CVV]

Sem 'repetitive'
Morphon [CVˆN-CVN]

Sem 'continuative'
Morphon [CVˆN-CVN]

Sem 'repetitive'
Morphon [CVˆV-CVV]

Sem 'continuative'
Morphon [CVˆV-CVV]

goˆkugoku gupling, huˆwahwa 'fluffy'

koˆNkoN 'knocking'

guˆNgaN 'energetically'

huwahuwa 'fluffy'

guˆuguu 'zzz'

poˆpoi 'tossing repeatedly'

paNpaN 'bursting'

booboo 'messed up'

I   I_I   I_P   I_D

Figure 5.5. Total-reduplicative constructions

5.3.2. Aspectuality of suffixal mimetics

Three suffixal mimetics—precisely, bimoraic root-based mimetics ending with -*Q^*, *(^)-N(^)*, or *^-ri*—which constitute the second largest morphophonological class in the mimetic category in Japanese, have also been often described with certain aspectual association.[12] For example, Hamano (1998: 67-72, 106-107) states that they symbolize some kind of ending of an event. Her statement suggests the telic property of suffixal mimetics.[13] However, the following temporal phrase-aided test clarifies their telicity-neutrality.

(5.21) Sentences with a suffixal mimetic (neutral in telicity; cf. (5.8)):[14]

    a. Mizu-o   *gabu{Q^/^ri}*-to iti-byoo-{kan/de}   non-da.

       water-ACC   MIM-QUOT   1-sec-{for/in}   drink-PST

       '[I] drank (the) water vigorously {for/in} a second.'

    b. Yasai-o   reisui-de   *zabu{Q^/^N/^ri}*-to issyun-{Ø/de}   arat-ta.

       veg-ACC cold.water-with MIM-QUOT   instant-{for/in} wash-PST

       '[I] rinsed the vegetables vigorously in cold water {for/in} an instant.'

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[12] Unlike the present study, Toratani (2007) attempts to treat emphatic mimetics as a kind of suffixal mimetics, and notices its limits.

[13] The telic nature of suffixal mimetics is implied but not claimed by T&D (2007). They give examples like the following, in which a -*Q^*-ending mimetic appears to be incompatible with an atelic sentence (in iconic accordance with the phonetic invisibility of /Q/), indicated by a 'for'-phrase.
(i) Inu-ga   doa-o   *gariQ^*-to   (*zyup-pun-kan) kazit-ta.
    dog-NOM   door-ACC   MIM-QUOT   (10-min-for)   scratch-PST
    'The dog scratched the door once (by its teeth) (*for ten minutes).' (T&D 2007: 344)
However, the ill-formedness of this example is not due to a telicity clash but from a punctuality clash between the mimetic and the time adjunct. In fact, the sentence is improved if the temporal phrase is replaced by *issyun* 'for an instant' (see (5.22)).

[14] The possibility of the atelic (more specifically, semelfactive) readings of these sentences becomes clearer when they are followed by a clause meaning 'but I stopped the action' or 'it ceased', which indicates the referent eventualities are inherently repetitive.

c. Taikin-ga   *gaboQ^-to* issyun-{Ø/de}   hait-te   ki-ta.

   big.money-NOM MIM-QUOT   instant-{for/in} enter-CONJ come-PST

   'A large sum of money was brought in {for/in} an instant.'

Meanwhile, as illustrated by the following examples, they refer to punctual eventualities, and are incompatible with durative sentences.

(5.22) Sentences with a suffixal mimetic (punctual) (cf. (5.13)):

   a. Mizu-o   *gabu{Q^/^ri}-to* {issyun/*nizyuu-byoo}-de non-da.

      water-ACC   MIM   {instant/20-sec}-in   drink-PST

      '[I] drank the water vigorously in {an instant/*twenty seconds}.'

   b. Yasai-o   reisui-de   *zabu{Q^/^N/^ri}-to* {issyun/*sibaraku-no aida}arat-ta.

      veg-ACC cold.water-with MIM-QUOT   {for.an.instant/for.a.while} wash-PST

      '[I] rinsed the vegetables vigorously in cold water for {an instant/*a while}.'

   c. Taikin-ga   *gaboQ^-to* {issyun/*sibaraku-no aida}hait-te   ki-ta.

      big.money-NOM MIM-QUOT {for.an.instant/for.a.while} enter-CONJ come-PST

      'A large sum of money was brought in for {an instant/*a while}.'

To sum up, the suffixal mimetics examined here turned out to be punctual and, like accented total-reduplicative mimetics above, unspecified with respect to telicity information. This conclusion is again reasonable in terms of iconicity. The suffixal templates (three moras long) are shorter than any other bimoraic root-based mimetic template (four moras long)—namely, total-reduplicative and emphatic ones. Accordingly, the aspectual association here means that morphologically short forms are employed for description of temporally short eventualities. Moreover, since "being short" does not entail "having an endpoint", as is

the case in semelfactive events like flashing and hitting, the telicity-neutrality here is not surprising.

Furthermore, it is noteworthy that the three types of suffixal mimetics behave in parallel with respect to both aspectual features. These parallels suggest that these three suffixal templates are subsumed as "instances" under one construction, which I call the suffixal construction and skeletally represent as [CVCVX]. Put in another way, it is the case again that the variation in stem-final elements is not significant for grammar, and that the aspectually relevant level of constructional representation is this schematic one. The inter-templatic relations can be again understood as instance links in a construction network (cf. Nuckolls 1996: Chapter 4).

At the same time, grammatically irrelevant parts of meaning are also significant. As Hamano (1998: 106-107) among others suggests, each of the three types of suffixal mimetics has its own nuanced meaning. Those idiosyncrasies are not detected in linguistic tests. That is, what our temporal phrase test has abstracted simply as "punctuality" is in fact more specific at lower-level representations. Concretely, the suffix *-Q^* connotes vigorousness or forcefulness, *(^)-N(^)* connotes reverberation, and *^-ri* connotes quietness (see also Bruch 1986: 5; Kadooka 1993b: 210). In fact, for example, *pokiN^(-to)* is more likely to need an actual emission of a crunching sound of a branch than *pokiQ^(-to)* and *poki^ri(-to)*, which seem slightly more compatible with a silent film. The following figure summarizes the inheritance relations described here.

```
┌─────────────────────────────────────┐
│  Sem          'punctual'            │
│                  ↓                   │
│  Morphon      [CVCVX]               │
└─────────────────────────────────────┘
```

I_I   I_I   I_I

```
┌──────────────────────┐  ┌──────────────────────────┐  ┌──────────────────────┐
│ Sem      'vigorous'  │  │ Sem   'reverberated-swift'│  │ Sem    'quiet-swift' │
│            ↓         │  │            ↓              │  │           ↓          │
│ Morphon  [CVCVQ^]    │  │ Morphon  [CVCV(^)N(^)]    │  │ Morphon  [CVCV^ri]   │
└──────────────────────┘  └──────────────────────────┘  └──────────────────────┘
```
gaboQ^(-to) 'a lot'   *zabu^N(-to)* 'splash'   *gabu^ri(-to)* 'gulping'
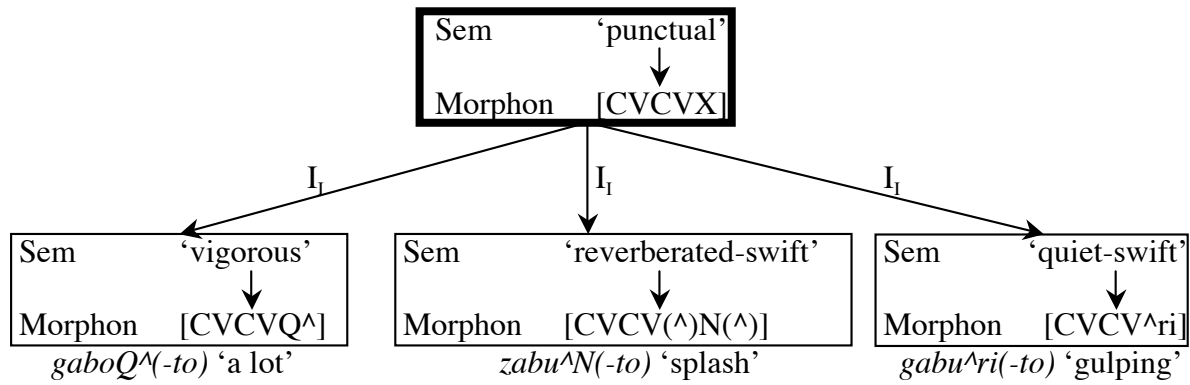
Figure 5.6. The suffixal constructions

The plausibility of this construction network gains further evidence from the semantic distribution data listed in Appendix A. As shown in the following figure, the three subtypes of suffixal templates commonly attract higher iconicity. Specifically, in comparison with the other three templatic types of mimetics (i.e., CV^CV-CVCV, CVCV-CVCV, CVCCV^ri), they are often selected as a form for a phonomime and rarely selected as a form for a psychomime.
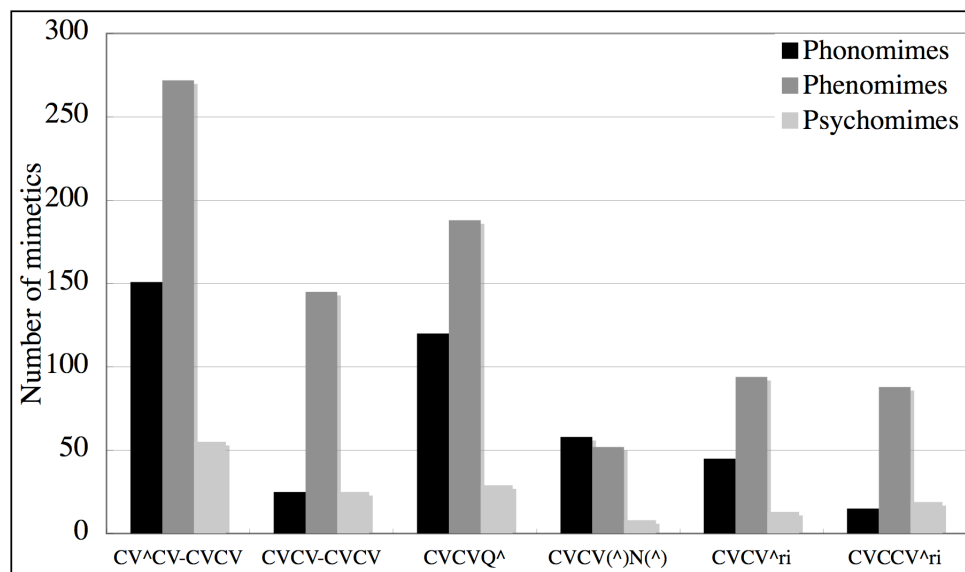
Figure 5.7. Semantic distribution of bimoraic root-based mimetic templates

This semantic tendency might come from the fundamentally dynamic property associated with their punctuality, which is more likely to be compatible with auditory eventualities than internal ones.[15]

A two-way non-repeated measures ANOVA for the scores of CVCVQ^, CVCV(^)N(^), and CVCV^ri in the figure in fact revealed a significant main effect of semantic types of mimetics (F (2, 4) = 7.02, p < .05) but no significant main effect of templates (F (2, 4) = 4.76, p = .09). The non-significance of the template condition is of significance here. The result allows us to conclude that, in accord with the above aspectual investigation, the three suffixal templates possess similar semantic tendencies enough to call them "subtypes" of the same mother template. Thus, the semantic distribution data here can serve as another motivation for the postulation of the schematic construction [CVCVX] and its subordination of the three specific suffixal constructions via instance links. At the same time, however, it should be noted that there are some minor (i.e., statistically insignificant) differences among the semantic distributions of the three suffixal templates. For example, CVCV(^)N(^) displays stronger preference for phonomimes than the other two templates. This result is ascribable to the sound-orientation of the moraic nasal (Izumi 1976; Hamano 1998). Minor semantic differences of this sort are suggestive of the importance of segmental information of each sub-construction that is linked with its semantic idiosyncrasies.[16]

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[15] Among Vendler's (1957) four Aktionsart types of verb phrases, there is no punctual eventuality type that has a static nature (see also Smith 1991; Van Valin 2005).

[16] One might want to posit a similar segmental distinction between the two types of emphatic templates (i.e., CVQCV^ri and CVNCV^ri), which have been in fact sometimes recognized as different types in the literature (Moriyama 2002; Yamaguchi 2002). As described in Section 2.1.1, however, this segmental contrast stems from the voicedness feature of C2. Therefore, even if there is a semantic difference between the two emphatic forms, it should be ascribed to segmental features of mimetic roots, not to those of mimetic templates.

5.3.3. Aspectuality of emphatic mimetics

In Section 5.2.1, I discussed the special, highly unpredictable meaning of emphatic mimetics as a major characteristic of the template. In fact, they do not show such a skewed aspectual property as reduplicative and suffixal mimetics show. As Tamori (1980, 1984) among others describes, emphatic mimetics behave partially in parallel with accented reduplicatives (i.e., as manner and degree adverbs and verbs) and partially in parallel with unaccented reduplicatives (i.e., as resultative adverbs and predicative adjectives). The following sentences illustrate this variety of grammatical categories available to emphatic mimetics.

(5.23) Grammatical categories of emphatic mimetics:

a. Kumo-ga *huNwa^ri* ukan-de i-ta. (manner adverb stem)

cloud-NOM MIM float-CONJ be-PST

'A cloud was floating *fluffily*.'

b. Kaze-ga *suQka^ri* atatakaku nat-ta. (degree adverb)

wind-NOM MIM warm become-PST

'Winds have become *completely* mild.'

c. Yasai-ga *siNna^ri si*-ta. (complex verb stem)

vegetable-NOM MIM do-PST

'The vegetables have *become pliant*.'

d. Pan-o *koNga^ri* yai-ta. (resultative adverb stem)

bread-ACC MIM bake-PST

'[I] baked bread *light brown*.'

e. Hikooki-wa   *uNza^ri-da*. (adjective stem)

   airplane-TOP   MIM-COP

   '[I] *am disgusted* with flights.'

Importantly, as shown below, their manner adverbial uses show no clear aspectual bias. (5.24) and (5.25) illustrate their ambivalent behavior with respect to telicity and punctuality, respectively.

(5.24) Sentences with an emphatic manner adverbial mimetic (neutral in telicity; cf. (5.8)):

   a. Mizu-o   *taQpu^ri* zyuu-byoo-{kan/de} non-da.

     water-ACC MIM   10-sec-{for/in}   drink-PST

     '[I] drank a large amount of water {for/in} ten seconds.'

   b. Yasai-o   reisui-de   *zaNbu^ri* go-hun-{kan/de} arat-ta.

     veg-ACC cold.water-with MIM   5-min-{for/in}   wash-PST

     '[I] rinsed the vegetables in a large amount of cold water {for/in} five minutes.'

   c. Taikin-ga   *gaQpo^ri*   iti-nen-{?kan/de} hait-te   ki-ta.

     big.money-NOM MIM   1-yr-{for/in}   enter-CONJ come-PST

     'A large sum of money was brought in {for/in} a year.'

(5.25) Sentences with an emphatic manner adverbial mimetic (neutral in punctuality) (cf. (5.13)):

   a. Mizu-o   *taQpu^ri* {issyun/nizyuu-byoo}-de non-da.

     water-ACC MIM   {instant/20-sec}-in   drink-PST

     '[I] drank a large amount of water in {an instant/twenty seconds}.'

b. Yasai-o   reisui-de   *zaNbu^ri* {issyun/sibaraku-no aida} arat-ta.

   veg-ACC cold.water-with MIM   {for.an.instant/for.a.while} wash-PST

   '[I] rinsed the vegetables in a large amount of cold water for {an instant/a while}.'

c. Taikin-ga   *gaQpo^ri* {issyun/go-nen}-de hait-te   ki-ta.

   big.money-NOM MIM   {instant/5-yr}-in   enter-CONJ come-PST

   'A large sum of money was brought in in {an instant/five years}.'

The aspectual neutrality of emphatic mimetics can be attributed to their formal characteristics. As phonologists often do (Nasu 1995; Hamano 1998), the emphatic form could be decomposed into a suffixal form (i.e., CVCV^ri) and an inserted consonant (i.e., {C}: /Q/ or /N/). In fact, there are quite a few cases in which an emphatic mimetic has a non-emphasized counterpart (i.e., a ^-ri-suffixed mimetic) (e.g., *huwa^ri(-to)* for *huNwa^ri* 'fluffy', *gusa^ri(-to)* for *guQsa^ri* 'stubbing'). As discussed in the previous subsection, ^ri-suffixed mimetics have a punctual meaning. On the other hand, the mora augmentation by a moraic consonant can imply temporal extension. The resultant aspectual conflict within the template suggests that it could not carry certain aspectual information effectively. This story thus, at least to some extent, supports the fundamentally aspectuality-irrelevant semantic nature of the emphatic template. In this respect, "special" lexical meanings of emphatic mimetics discussed in Section 5.2.1 can be restated as meanings that cannot be effectively expressed by other templates whose function is fundamentally aspectual. This is why their meanings are distinctively unpredictable from other related items and why the template exists in Japanese mimetic category.

5.3.4. Summary of mimetic aspectuality

Based on the discussion so far, as long as the present data are concerned, mimetic aspectuality can be summarized as in the following table.[17] As noted above, at least reduplicative and suffixal templates have some iconic basis of their aspectual semantics.

Table 5.1.   Mimetic aspectuality

	Telicity	Punctuality	Dynamicity
Accented total-reduplicative ($\mu^\wedge\mu$-$\mu\mu$)	neutral	durative	-
Unaccented total-reduplicative ($\mu\mu$-$\mu\mu$)	atelic	durative	static
Suffixal (CVCVX)	neutral	punctual	-
Emphatic manner adverbial (CVCCV^ri)	neutral	neutral	-

These aspectual features of mimetic templates tell us what eventuality type(s) can be described by each morphophonological type of mimetics. First, activity, accomplishment, and state, which are in definition all durative, are potentially open to $\mu^\wedge\mu$-$\mu\mu$. Second, since an atelic-durative-static eventuality is equivalent to a state, the eventuality type that $\mu\mu$-$\mu\mu$ itself can designate is limited to state. Of course, as illustrated above, unaccented total-reduplicatives can occur in a resultative (i.e., accomplishment) sentence (e.g., *Pan-ga huwahuwa-ni hukuranda.* 'Bread swelled fluffy.'). Nevertheless, the ending denoted by the sentence is that of the changing phase of the eventuality (e.g., bread getting fluffy), not of the state expressed by a $\mu\mu$-$\mu\mu$ mimetic (e.g., bread being fluffy). Third, CVCVX can describe an achievement or semelfactive (i.e., punctual activity) type of event. Finally, any eventuality type is available to the form CVCCV^ri. However, it should be noted that this does not ne-

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[17] As Yo Matsumoto pointed out to me, the present discussion of "grammatical relevance" based on adjunct phrases alone is a little bit weak, and needs to be reinforced from, for example, some aspectual verb-aided tests. Also, we have to consider the referential flexibility of the "punctual" expression *issyun* 'for an instant', which can be used not only for really one moment but perhaps for an arbitrarily defined "short time" as well.

cessarily mean that every individual emphatic mimetic can represent every sort of eventuality. As discussed in Section 5.3.3, semantic properties as well as grammatical categories of emphatic mimetics range over various types. This variety causes their variety in aspectuality.

These systematic correspondences between productive morphophonological templates and aspectual features are highly suggestive of their constructional status. However, the limitedness of data in the present discussion makes one wonder how consistent these correspondences are. This possible question will be answered in the next two subsections by means of investigations using actual and novel mimetics.

5.3.5. *Consistency of mimetic aspectuality: Existent mimetics*

The discussion so far has shown that mimetic morphophonological templates are systematically paired with certain aspectual properties. This subsection, together with the next subsection, examines how consistent those aspectual properties of mimetics are. The unclearness of the consistency arises from the difficulty of a full-scale investigation due to the great variety of possible cooccurrence relations between mimetics and predicates (see Section 2.2.5.2). Instead of such an unrealistic examination of countless mimetic sentences, I conducted an aspectual investigation of a limited set of (mostly) typical mimetic sentences again with the help of temporal adjuncts.

5.3.5.1. *Method*

Fifty manner adverbial mimetics from each of the six templatic classes (i.e., CV^CV-CVCV,

CV^X-CVX, CVCVQ^, CVCV(^)N(^), CVCV^ri, CVCCV^ri) were randomly picked up from our enhanced version of Kakehi et al. (1996). Those mimetics were examined one by one by the author with respect to whether or not they can yield any natural telicity- or punctuality-neutral sentence predicated by a regular verb; and, if they cannot, which aspectual property (i.e., telic or atelic; punctual or durative) they have. No degree of acceptance was considered. The aspectual properties of all sentences were tested based on pairs of temporal adjuncts like those used in previous subsections. Not a few test sentences (e.g., *Hookoku-o sita.* '[I] gave a report.') were incompatible with the punctual phrase *issyun* 'for an instant' or *issyun-de* 'in an instant', which I used above, due to the unrealistic shortness for certain events to take place. Therefore, it was instead observed whether a mimetic shows a contrast in naturalness depending on the duration of its referent eventuality (e.g., ten seconds vs. thirty minutes).

5.3.5.2. *Predictions*

If the template-aspectuality correspondences have perfect consistency, the following predictions should be borne out. First, accented total-reduplicative mimetics, both monomoraic and bimoraic root-based, should consistently yield durative readings with no specification of telicity. Second, suffixal mimetics, regardless of their subtypes, should consistently yield punctual readings with no specification of telicity. Third, emphatic mimetics should show no such a clear inclination as is expected for the other tested templates.

5.3.5.3.   Results

The results for all selected mimetics are listed in Appendix B. The following figures summa-rize them.

a. Telicity
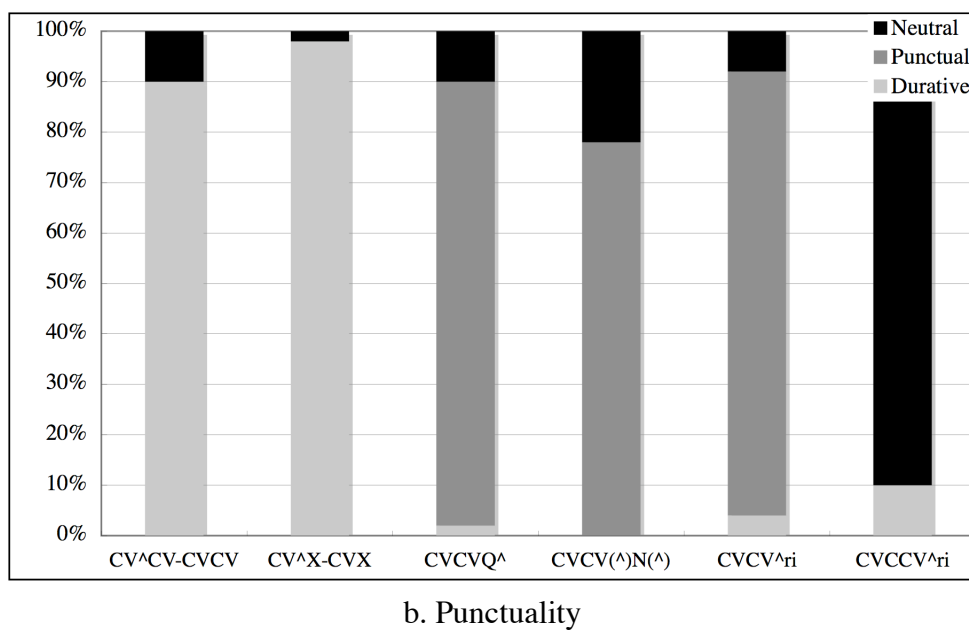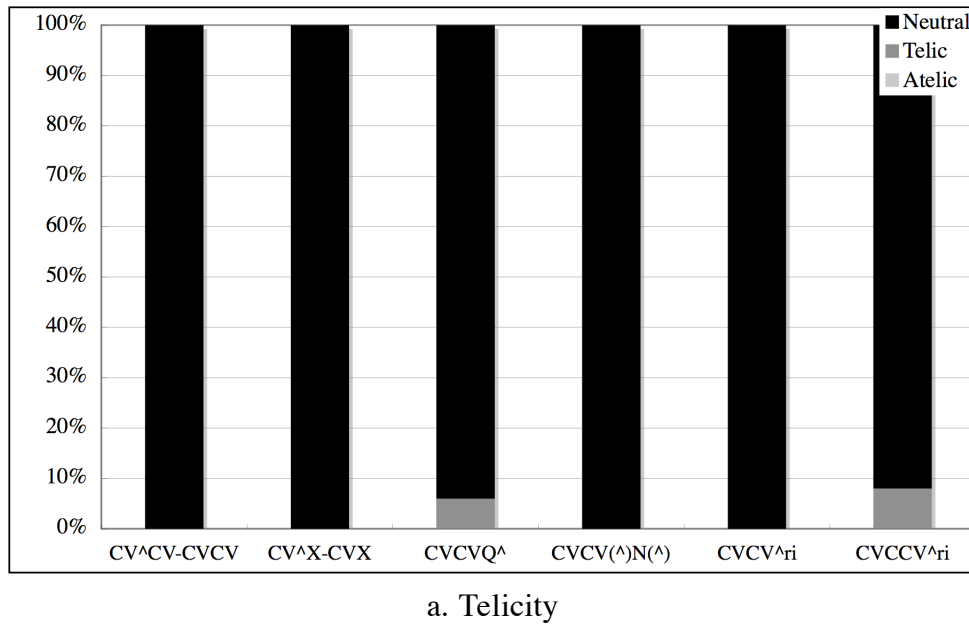
b. Punctuality

Figure 5.8. The results of the aspectual investigation of existent mimetics

As is clear from Figure 5.8a, almost all ambiguous sentences remained ambiguous with respect to telicity even after a mimetic was added.

The results for punctuality in Figure 5.8b were slightly less straightforward. A chi-square test for this latter sets of results yielded a significant group difference (χ^2 (10) = 403.92, p < .001). A post hoc residual analysis revealed the following. On one hand, both types of accented total-reduplicatives were significantly inclined to durative readings (CV^CV-CVCV: adjusted residual = 9.16, p < .001; CV^X-CVX: adjusted residual = 10.47, p < .001). On the other hand, the three suffixal templates showed significant preference for punctual readings (CVCVQ^: adjusted residual = 7.16, p < .001; CVCV(^)N(^): adjusted residual = 5.59, p < .001; CVCV^ri: adjusted residual = 7.16, p < .001). Notably, however, their avoidance of a punctually neutral status differed among the three sub-templates (CVCVQ^: adjusted residual = -2.49, p < .01; CVCV(^)N(^): adjusted residual = -.30, $n.s.$; CVCV^ri: adjusted residual = -2.86, p < .01). Meanwhile, emphatic mimetics were basically neutral in terms of punctuality as well (adjusted residual = 12.09, p < .001).

5.3.5.4.   Discussion

The template-aspectuality correspondences summarized in Section 5.3.4 were beautifully attested for all the six templates. Telicity information was not specified in any of them. In contrast, punctuality information turned out to be quite important in all templates except the emphatic one. These results suggest the psychological reality of those morphophonological constructions.

First, the two accented total reduplicative templates showed great consistency in their cor-

respondence to durative readings.

Second, the three suffixal templates were consistently paired with punctual readings. However, there was a slight difference among them with respect to their infrequency of neutral readings. Specifically, CVCV(^)N(^) was more likely to be unspecified in terms of punctuality than the other suffixal types. This minor variety across sub-templates suggests the semantic importance of the segmental properties of their suffixes that formally characterize those individual templates. Although these particular semantic properties are invisible to grammar (i.e., schematized in aspectual understanding), they guarantee an individual status for each sub-template. That is, the incompleteness of their uniformity in meaning is why the three templates exist with their minimal suffixal difference.

Finally, the aspectual neutrality of the emphatic template was confirmed for punctuality as well as telicity. This result is supportive to the idea developed in Sections 5.2.1 and 5.3.3 that the reason of existence of this template is not aspectual. Emphatic mimetics do not interfere the aspectual understanding of a sentence but carry a certain sort of emphatic or other special meaning that is difficult to express with other templatic types of mimetics.

Thus, the present results offer strong support to our iconic mapping system of mimetic aspectuality. Nevertheless, there is a remaining problem to point out. As stated in Section 5.3.5.1, the current examination tested whether a mimetic *can* participate in an aspectually neutral sentence without specifying its aspectuality. This means that the aspectually sentences I reached in the end of careful discussion might have been special cases that should be rather treated as exceptions. In anticipation of this refutation, I conducted an experiment utilizing novel mimetics whose lexical meanings were not specified. These novel words were expected to elicit aspectual meanings that are evoked by mimetic morphophonological templates themselves.

5.3.6. Consistency of mimetic aspectuality: Novel mimetics

This subsection reports a questionnaire-based experiment that was intended to reinforce the existent mimetic-based investigation in the previous subsection. The results successfully showed that certain morphophonological templates of mimetics are inherently paired with a particular set of aspectual features.

5.3.6.1. Method[18]

One hundred sentences were created in total. Half of them were dummies.

First, ninety sentences were based on the following two carrier sentences that are neutral in terms of telicity or punctuality:

(5.26) Carrier sentences:

    a. X {go-hun-de/go-hun-kan}heya-no   soozi-o   si-ta. (neutral in telicity)

        {5-min-in/5-min-for}   room-GEN   cleaning-ACC do-PST

     '[I] cleaned [my] room X {in/for} five minutes.'

    b. X {issyun/sibaraku-no aida} niku-o   abut-ta. (neutral in punctuality)

        {for.an.instant/for.a.while} meat-ACC broil-PST

     '[I] broiled the meat X for {an instant/a while}.'

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[18] I thank Yasuhiro Shirai for his suggestion of this novel word-aided experiment.

Each "X" position of the two carriers was filled by various types of existent and novel words. Relevant stimuli were twenty-five nonsense words satisfying one of the five bimoraic root-based mimetic templates (i.e., CV^CV-CVCV, CVCVQ^, CVCVN^, CVCV^ri, CVCCV^ri). They are listed here.

Table 5.2.   Novel words satisfying a mimetic template used in the aspectuality experiment

CV^CV-CVCV	CVCVQ^	CVCV(^)N(^)	CVCV^ri	CVCCV^ri
pemapema	*pemaQ*	*pemaN*	*pemari*	*peNmari*
tonitoni	*toniQ*	*toniN*	*toniri*	*toNniri*
kisakisa	*kisaQ*	*kisaN*	*kisari*	*kiQsari*
pitupitu	*pituQ*	*pituN*	*pituri*	*piQturi*
saposapo	*sapoQ*	*sapoN*	*sapori*	*saQpori*

Dummies taking the forms of (5.26) are divided into two types: namely, thirteen dummy regular adverbials (e.g., *kaen-hoosyaki-de* 'with a flamethrower', *koibito-to* 'with [my] lover') and seven novel words without a mimetic template (e.g., *peeman*), both of which appeared twice, in (5.26a) and (5.26b). The novel words free from the mimetic templates shared roots (i.e., *pema*, *toni*, *kisa*, *pitu*, *sapo*) with the above template-satisfying novel words and took one of the five forms (i.e., $C_1V_1V_1C_2V_2N$, $C_1V_1C_1V_1C_2V_2C_2V_2$, $C_1V_1C_2V_2NC_1V_1$, $C_1V_1V_1C_2V_2C_1V_1$, $C_1V_1V_1C_2V_2$). Both types of novel words were followed by the quotative particle *-to* in order to indicate their adjunct status.

Second, again as dummies, ten copulative sentences meaning '[It] was X {in/for} five minutes' or '[It] was X for {an instant/a while}' were created with an unaccented total reduplicative novel words with the above bimoraic roots.

All sentences were presented in Japanese on a Microsoft Excel sheet. Novel words were written in curvy characters called hiragana, which is used for native words and was expected to keep the impression of peculiarity of the novel words minimal (Iwasaki 2002: Chapter 2). Accent nuclei of the stimulus words were not specified in all cases because many subjects

were not phonetically trained. Nevertheless, the quotative marker or a copula after the novel words was expected to specify their accent patterns as well as their syntactic status.

Twenty-one native Japanese speakers (17 females, 4 males; age: 20-55, *M* = 27.90) were asked to choose either or both (i.e., at least one) of the two temporal phrases (i.e., *go-hun-de* 'in five minutes' and *go-hun-kan* 'for five minutes' for telicity judgments; *issyun* 'for an instant' and *sibaraku-no aida* 'for a while' for punctuality judgments) in each sentence, and to type "1" in either/both of the two cells next to the sentence to indicate the naturalness of the expression(s). Judgments did not take the form of forced choice because short events seemed to be subject to a telic interpretation even if an atelic one was also possible. Three randomized versions of questionnaire were used. Subjects were rewarded for their participation with a ballpoint pen.

5.3.6.2.   *Predictions*

Predictions we should make are basically parallel to those in the aspectual investigation of existent mimetics in the previous subsection. Answers should be inclined to durative and punctual readings for accented total-reduplicative and suffixal words, respectively, with no outstanding inclination with respect to telicity. Also, there should be no clear preference for emphatic stimuli in terms of both telicity and punctuality

5.3.6.3.   *Results*

The overall results are given in the following tables in a parallel manner with the above exis-

tent mimetic-based investigation.
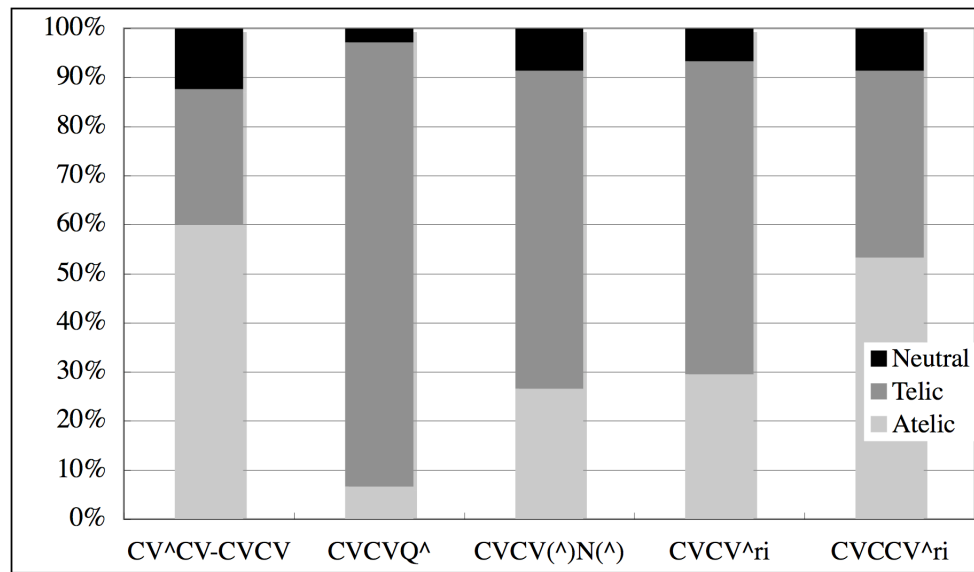
a. Telicity
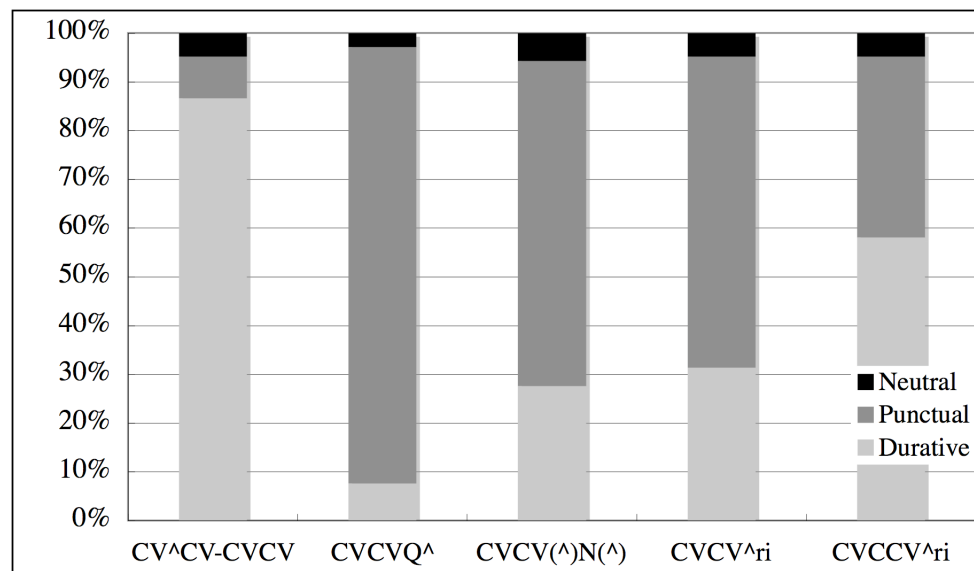
b. Punctuality

Figure 5.9. The results of the aspectual investigation of novel mimetics

A chi-square test for the results for telicity yielded a significant group difference (χ^2 (8) =

107.08, $p < .001$), and a post hoc residual analysis revealed some inclinations. Atelic readings were preferred for CV^CV-CVCV (adjusted residual = 5.94, $p < .001$) and CVCCV^ri words (adjusted residual = 4.34, $p < .001$), whereas telic readings were preferred for CVCVQ^ words (adjusted residual = 7.76, $p < .001$). Novel words in CVCV(^)N(^) and CVCV^ri showed no such striking preference. Subjects selected both telic and atelic phrases only for a few cases. As a result, a significant inclination for neutral answers was not obtained for any stimulus type (CV^CV-CVCV: adjusted residual = 1.95, $p < .01$; CVCVQ^: adjusted residual = -2.11, $p < .05$; CVCV(^)N(^): adjusted residual = .33, $n.s.$; CVCV^ri: adjusted residual = -.49, $n.s.$; CVCCV^ri: adjusted residual = .33, $n.s.$).

A chi-square test for the results for punctuality also yielded a significant group difference (χ^2 (8) = 170.55, $p < .001$). A post hoc residual analysis revealed significant inclinations for all types of stimuli. Answers for reduplicative and emphatic novel words were inclined to durative ones (CV^CV-CVCV: adjusted residual = 10.29, $p < .001$; CVCCV^ri: adjusted residual = 3.67, $p < .001$). On the other hand, those for the three types of suffixal words were inclined to punctual ones (CVCVQ^: adjusted residual = 8.35, $p < .001$; CVCV(^)N(^): adjusted residual = 3.10, $p < .01$; CVCV^ri: adjusted residual = 2.45, $p < .05$).[19]

5.3.6.4.   Discussion

The present results not only reinforce the above discussions on mimetic aspectuality, but also uncover some important properties of individual mimetic templates that could not be noticed

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[19] It can be the case that the durative nature of the temporal phrases adopted (i.e., *go-hun-{de/kan}* '{in/for} five minutes') impaired the grammaticality of the sentences with a suffixal mimetic, which is linked with a punctual meaning. Nevertheless, such an effect had no critical influence on the result, for subjects were forced to choose at least one of the equally impaired choices.

in the above existent word-based analyses.

First, in accord with our predictions, durative and punctual readings were preferred for total-reduplicative and suffixal words.[20]

Second, contrary to our prediction, emphatic stimuli also showed an inclination to durativity. Moreover, beyond—not necessarily *contra*—our prediction, mimetic templates tended to be linked with telicity or atelicity. Nevertheless, these two unexpected results do not seem to influence the core of the above findings, for they do not *contradicts* the proposed template-aspectuality correspondences (i.e., reduplicative-durative, suffixal-punctual).

Third, the degree of inclination to punctuality decreased in the following order: CVCVQ^ > CVCV(^)N(^) > CVCV^ri. This result can support to the abovementioned significance of the segmental information of these sub-templates. It seems to be plausible that the particularly strong correspondence between CVCVQ^ and punctual readings comes from the quickness or intensity iconically evoked by a geminate, which is longer and stronger than a simple consonant. In this regard, it might be possible to say that the most striking aspectual contrast made by this template and the accented total-reduplicative template constitutes the central axis of mimetic aspectuality. Meanwhile, the suffixes *(^)-N(^)* and *^-ri* have a sound-symbolic value that has the potential to link with the concept of delay—i.e., reverberation and quietness, respectively. These phonosemantic properties are likely to blur the aspectual contours of the eventualities drawn by the CVCVX template.

The present data are thus not incompatible with the postulation of the skeletal suffixal template, which is grammatically relevant, and of its instance relation to its three daughters

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[20] Unlike the above existent mimetic-based investigation, there were a few punctual answers for total-reduplicatives. However, they can be ascribed to two particular stimuli—namely, *ki^sakisa, pi^tupitu*—both of which contain /i/ in their first syllable. It is likely that the punctual readings in question come from this high vowel. According to Hamano (1998: 172), /i/ sound-symbolically evokes straightness or tenseness, which may be associated with quickness. In fact, other stimuli made from the roots *kisa* and *pitu* also yielded this inclination.

(Section 5.3.2). At the same time, the relative aspectual inconsistency of CVCV(^)N(^) and CVCV^ri makes us want to think of the existence of multiple meanings, including non-aspectual one, in one mimetic template. The issue of constructional polysemy/homonymy will be separately discussed in Section 5.3.8.

The current experimental approach to mimetic aspectuality has thus succeeded in clarifying the aspectual properties of the mimetic templates and the semantic relevance of their componential segmental features. The aspectual system that is constructed by diverse inheritance links, which has been diagrammed part by part, will be located in the core of the construction network of mimetic morphophonology in Section 5.4.

5.3.7. *Partial compositionality: Aspectuality of peripheral mimetics*

The investigations so far have explicated the systematic correspondences between mimetic templates and aspectual properties. They have demonstrated the effectiveness of a template-based generalization of the semantics of mimetic morphophonology. In this subsection, I focus on the aspectual characteristics of a less central type of mimetics (i.e., intensified mimetics), pointing out the high predictability and compositionality of the meanings of mimetics located in the periphery of the mimetic category. That is, the aspectual considerations here will approach the core-periphery (or prototype) structure of the mimetic category discussed in Chapter 4 from a different point of view.

As already mentioned in some parts of the above chapters (e.g., Section 4.3), mimetics quite flexibly yield intensified, superexpressive forms by means of a certain set of derivational operations (Tamori 1991; Hamano 1998; Nasu 1995, 1999a, 2002, 2004a; Akashi 2007; see also Table 4.2). Here is a summary of such operations.

(5.27) Productive derivational operations of mimetics:

a. Suffixation or insertion of a moraic consonant:

goQku^N(-to) 'gulping intensely' (< *goku^N(-to)* 'gulping'), *ketyoNketyoN* 'criticizing with no restraint at all' (< *ketyoketyo* 'criticizing without restraint'), *kororiN^(-to)* 'rolling lively' (< *koro^ri(-to)* 'rolling'), *zuQtazuta* 'chopping into the finest pieces' (< *zutazuta* 'chopping into fine pieces')

b. Vowel lengthening:

dokaa^N(-to) 'baang' (< *doka^N(-to)*), *huu^rahura* 'very faint and dizzy' (< *hu^rahura* 'faint and dizzy')

c. Partial multiplication (or "prefixation" of reduplicants in Nasu's 1999a terminology):

bururu^N(-to) 'shivering strongly' (< *buru^N(-to)* 'shivering'), *guguguguguQ^(-to)* 'gulping intensely' (< *guQ(-to)* 'gulping'), *patapatapataQ^(-to)* 'slam-slam-slam' (< *pataQ^(-to)* 'slam')

d. Word repetition:[21]

dosu^N dosu^N(-to) 'thud, thud' (< *dosu^N(-to)* 'thud'), *po^tapota po^tapota* 'dripping and dripping' (< *po^tapota* 'dripping')

What is relevant to the present discussion is that these intensified mimetics basically have non-derivative counterparts given in parentheses in (5.27).[22] In other words, their forms are

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[21] Strictly, this is not a morphological operation, for it increases the number of words: for example, *dosu^N dosu^N(-to)* are two words (Kita 1997; Hamano 1998: 65-66; see also Tamori and Schourup 1999: 211). Nevertheless, it is included here based on its intensifying function, which is shared with the other instances.

[22] Notice that its opposite is not true. For example, as shown by the following examples, vowel lengthening is applicable to the go-faint meaning of the mimetic *huraQ^(-to)*, but less likely in its drop-in meaning.

(i) a. *HuraQ^-to* {ki-ga   took-u nat/   udon'ya-ni   tatiyot}-ta.
       MIM-QUOT {feeling-NOM far-NPST become udon.restaurant-DAT drop.in}-PST
       '[I] {felt faint/dropped in at an udon restaurant}.'

  b. *HuraaQ^-to* {ki-ga took-u nat/??udon'ya-ni tatiyot}-ta.

well predictable from template-satisfying mimetics and the above set of derivational opera-tors. More importantly, it is not only their forms but also their meanings that can be predicted from their components. As illustrated in (5.27), these derivatives are commonly characterized as intensified forms of their originals. They carry some kind of enhanced intensity—in terms of the number of strokes, powerfulness of an action, and stability of a state, for example.

In a similar way, the aspectual meanings of intensified mimetics can be predicted in quite a regular, compositional manner. For example, bimoraic root-based partially reduplicated (suf-fixal) mimetics, such as *zabuzabuQ^(-to)* 'splashing vigorously' (< *zabuQ^(-to)* 'splashing') in (5.28a) and (5.29a), have both suffixal and reduplicative morphology. As tested below, their aspectual properties also look like a blend of the aspectual properties of accented to-tal-reduplicative mimetics and suffixal ones—namely, neutral in telicity and short-durational.

(5.28) Sentences with a partially reduplicated mimetic (neutral in telicity) (cf. (5.8)):

    a. Yasai-o   reisui-de   *zabuzabuQ^-to*   go-byoo-{kan/de}   arat-ta.

       veg-ACC cold.water-with MIM-QUOT   5-sec-{for/in}   wash-PST

       '[I] rinsed the vegetables vigorously in cold water {for/in} five seconds.'

    b. Taikin-ga   *gabogaboQ^-to* iti-niti-{Ø/de} hait-te   ki-ta.

       big.money-NOM MIM-QUOT   1-day-{for/in} enter-CONJ come-PST

       'A large sum of money was brought in {for/in} a day.'

This contrast can be accounted for on the basis of their lexical meanings (see Sections 5.3.8 and 5.4). Our con-sciousness can go faint gradually, whereas there is no intermediate state between non-visit and visit.

(5.29) Sentences with a partially reduplicated mimetic (short-durational) (cf. (5.13)):

a. Yasai-o   reisui-de   *zabuzabuQ^*-to   {?issyun/ni-byoo-kan/*sibaraku-no aida}

veg-ACC   cold.water-with   MIM-QUOT   {for.an.instant/2-sec-for/for.a.while}

arat-ta.

wash-PST

'[I] rinsed the vegetables vigorously in cold water for {?an instant/two seconds/*a while}.'

b. Taikin-ga   *gabogaboQ^*-to   {?issyun/ni-san-niti/??sibaraku-no aida}

big.money-NOM   MIM-QUOT   {for.an.instant/for.a.few.days/for.a.while}

hait-te   ki-ta.

enter-CONJ   come-PST

'A large sum of money was brought in for {?an instant/a few days/??a while}.'

In addition, as exemplified below, the punctual readings in (5.29) become harder and harder as the mimetics extend by partial multiplication.

(5.30) Sentences with a partially multiplicated mimetic (increasing duration) (cf. (5.22)):

a. Yasai-o   reisui-de   {??*zabuzabuzabuQ^*/*?*zabuzabuzabuzabuQ^*/

veg-ACC   cold.water-with   MIM

**zabuzabuzabuzabuzabuQ^*}-to   issyun   arat-ta.

                                    -QUOT   for.an.instant   wash-PST

'[I] rinsed the vegetables vigorously in cold water for an instant.'

b. Taikin-ga　　　　　{??*gabogabogaboQ^/*?gabogabogabogaboQ^/*

big.money-NOM　MIM

*gabogabogabogabogaboQ^}-to　　　issyun　　　　　hait-te　　　ki-ta.

　　　　　　　　　　　　　　　　-QUOT　for.an.instant　enter-CONJ　come-PST

'A large sum of money was brought in for an instant.'

Thus, there is obviously an iconic relationship between the morphological length of the mimetics and the temporal length of their referent eventualities. This means that the aspectual properties of this kind of mimetics are readily predictable from their forms or from formally related mimetic items.

Similar predictable cases can be drawn from intensified mimetics with a prolonged vowel illustrated in (5.27b). The longer their referent eventuality is, the longer their vowel is expected to be. As a result, as shown in the following examples, they are more and more likely to be incompatible with the punctual phrase as their vowel duration is extended.

(5.31)　Sentences with a mimetic with a prolonged vowel (increasing duration) (cf. (5.22)):

a. Yasai-o　reisui-de　　　　　{?*zabuuQ^/??*zabuuuQ^/*?*zabuuuuQ^/**zabuuuuuQ^}-to

veg-ACC　cold.water-with　MIM　　　　　　　　　　　　　　　　　　　　　-QUOT

issyun　　　　　arat-ta.

for.an.instant　wash-PST

'[I] rinsed the vegetables vigorously in cold water for an instant.'

b. Taikin-ga   {*?gabooQ^/??gaboooQ^/*?gabooooQ^/*gaboooooQ^*}-to

big.money-NOM MIM   -QUOT

issyun   hait-te   ki-ta.

for.an.instant enter-CONJ come-PST

'A large sum of money was brought in for an instant.'

This iconic form-meaning relationship can be safely regarded as another evident instance of predictable semantics.

Thus, intensified mimetics allow us to predict their aspectual as well as intensified meanings in a straightforward way. Since intensified mimetics are secondary with respect to both of their form and meaning, they should be located in a periphery of the mimetic lexicon. In this regard, it is likely that the exceptional predictability observed here is attributed to their peripheral status. More concretely, it is quite natural that the core of mimetic morphophonology is constructionally structured while its periphery is compositionally structured (see Mithun 1982: 55 for a related statement for ideophones in Iroquoian languages). In general, as exemplified by English [V-*ed*] (e.g., *kiss-kissed-kissed*), if a formal feature is highly productive, the meaning of a new item possessing it is more likely to be predictable; conversely, as exemplified by English irregular verbal paradigm (e.g., *sing-sang-sung*), if a formal feature is of limited productivity, the meaning of a new item possessing it is less likely to be predictable. Based on this principle, the high productivity of mimetic templates qualifies their meanings as highly predictable from their appearances, which allows them to stand on their own—namely, as constructions. On the other hand, the relatively low productivity of intensified forms would make their meanings poorly predictable, which motivates their dependence

on a "meaningful" device—namely, the above set of iconic derivational operations.[23, 24]

Thus, the present cases of partial compositionality tell us how the construction-based category of Japanese mimetics is organized. The core-periphery structure scrutinized by the aspectual analysis offers a grammatical piece of support to the prototype-categorial nature of the mimetic lexicon experimentally discussed in Chapter 4.

5.3.8. *Mimetics with exceptional aspectuality*

Thus far, the present section has mainly demonstrated the prevalence of the aspectual association of the reduplicative and suffixal templates. The CV^CV-CVCV and CVCVQ^ templates turned out to have highly consistent aspectual properties: durativity and punctuality, respectively. However, the CVCV(^)N(^) and CVCV^ri templates showed relatively weak consistency in their link with punctual meanings. In this respect, it is valuable to investigate what semantic properties those aspectually exceptional mimetics have. The present discussion points out the polysemous nature of mimetic templates, which serves as another evidence for their constructional status. At the same time, by considering where those exceptions come, I emphasize the essential role of the lexical meanings of mimetics in their construction-based semantic system, which will be established in the next section.

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[23] In writing this paragraph, a discussion with Toshio Ohori played an important part.

[24] The "suffixes" *-Q^*, *(^)-N(^)*, and *^-ri* might have something to do with partial compositionality of mimetic morphophonology. As shown by the inventory of mimetic templates in (5.1), these suffixes appear in monomoraic root-based templates as well. (Although *^-ri* does not occur in those templates, *-i^*, which is limited to monomoraic root-based mimetics, might qualify as its variant (see Kadooka 2007: 85-89).) This cross-templatic distribution suggests the compositional nature of the suffixes. In fact, many monomoraic root-based suffixal mimetics have punctual (semelfactive) meanings (e.g., *guQ^(-to)* 'gulping, jerking', *hyoi(Q)^(-to)* 'hopping', *poi(Q)^(-to)* 'tossing') (cf. Hamano 1998: 67-72). However, it is also true that they often have an elusive, synthetic meaning. It is perhaps a common characteristic of monomoraic root-based mimetics (Hamano 1998: 28-29), which often gives rise to expressions without specific referential eventualities, such as degree adverbs (e.g, *do^NdoN* 'steadily and rapidly', *zuQ-to* 'for a long time'). At any rate, future research needs to examine how aspectually consistent monomoraic and bimoraic root-based suffixal templates are.

5.3.8.1. Punctual-reduplicative, telic-suffixal, and durative-suffixal mimetics

First of all, there were only a few accented total-reduplicatives that showed a neutral property in terms of punctuality in the existent word-based investigation in Section 5.3.5. Here are two of such exceptional mimetics illustrated.

(5.32) Accented total-reduplicative mimetics with neutral punctuality:

    a. Mai-ga   *ku^rukuru*   {issyun/?zyuu-byoo}-de san-kaiten   si-ta.

       M.-NOM MIM   {instant/10-sec}-in   3-turn   do-PST

       'Mai spun around in three complete circles in {an instant/?ten seconds}.'

       cf.   Mai-ga {issyun/zyuu-byoo}-de san-kaiten si-ta. (neutral in punctuality)

    b. Mai-wa   *kyo^rokyoro*-to {issyun/ip-pun-kan}   syuui-o   kakunin

       M.-TOP MIM-QUOT   {for.an.instant/1-min-for} surrounding-ACC confirmation

       si-ta.

       do-PST

       'Mai looked around [her] surroundings restlessly for {an instant/a minute}.'

       cf.   Mai-wa {issyun/ip-pun-kan} syuui-o kakunin si-ta. (neutral in punctuality)

The accented total-reduplicative mimetics in these examples are compatible not only with a durative but also with a punctual adjunct. The origin of these exceptions seems quite clear. The events described in the present examples (i.e., spinning around in three circles, looking around) can be finished or stopped even in an instant. That is, the possibility of the punctual readings can be directly derived from the lexical meanings of these reduplicatives. These ex-

ceptions are in fact not so problematic. We can treat them only with a minor revision of the above construction network for the accented total-reduplicative template (see Figure 5.3). That is, it is realistically true that repetition does not entail a long duration. The actions denoted by (5.32) instantiate this proposition. In this respect, the instance link between the repetitive-reduplicative and the durative-reduplicative constructions should be considered as fairly strong but not exclusive.[25]

Second, several suffixal mimetics inherently have specific telicity information. For example, the mimetics *gokuQ^(-to)*, *goku^N(-to)*, and *goku^ri(-to)* 'gulping', which share their root with the reduplicative mimetics *go^kugoku* 'gulping (repeatedly)' in (5.8) above, and *guru^ri(-to)* 'drawing a circle' show a telic property, as exemplified in the following sentences. Note that the sentence without a mimetic in "cf." of (5.33b) allows an atelic as well as telic reading when *en* 'circle' is interpreted as *a part* of the circle I intended to complete. However, even this reading is nearly impossible once the suffixal mimetic *guru^ri(-to)* is added (see Appendix B for more examples).

(5.33) Sentences with a telic suffixal mimetic:

a. Mizu-o   *goku{Q^/^N/^ri}*-to {??issyun/issyun-de}   non-da. (cf. (5.8))

    water-ACC   MIM-QUOT   {for.an.instant/in.an.instant} drink-PST

    '[I] drank (the) water in one gulp {??for/in} an instant.'

b. En-o   *guru^ri*-to {*issyun/issyun-de}   kai-ta.

    circle-ACC   MIM-QUOT   {for.an.instant/in.an.instant} draw-PST

    '[I] drew a circle {*for/in} an instant.'

---

[25] It seems better not to change the overall figure of the reduplicative construction network than to posit an additional punctual-reduplicative construction, for such a postulation has to acknowledge one morphophonological form to have two opposite meanings.

cf.   En-o {#issyun/issyun-de} kai-ta. (neutral in telicity)

'[I] drew (a part of) a circle {#for/in} an instant.'

These cases can be again accounted for in terms of the lexical meanings of these mimetics. The telic reading yielded by *goku{Q^/^N/^ri}(-to)* comes from their specific lexical meaning like 'letting something down through one's throat by tensing the muscles'. The swallowing event ends when the swallowed entity comes below one's throat.[26] This inevitability of the end of event is clearly shown by the following sentence, in which the suffixal mimetics clash with an incomplete swallowing event.

(5.34) U-wa   unagi-o totyuu-made (??*goku{Q^/^N/^ri}*-to) nomikon-da.

cormorant-TOP eel-ACC halfway-until MIM-QUOT   swallow-PST

'The cormorant (eel-catching bird) swallowed a half of the eel (??in one gulp).'

In a similar way, the telic meaning of (5.33b) is attributable to the inherent ending represented by *guru^ri(-to)*. The event depicted by the mimetic ends when the extending end of a curvy line reaches its other end. The following examples clarify this point. The circle drawn must be exactly single, neither more nor less.

(5.35) {Han'en/nizyuu-maru}-o   (**guru^ri*-to) kai-ta.

{semicircle/double-circle}-ACC MIM-QUOT   draw-PST

'[I] drew a {semicircle/double circle} (*in one round).'

---

[26] As shown in (5.9a), its reduplicative counterpart *go^kugoku* is interpretable as atelic as well. This is because the mimetic integrates individual swallowing actions into one gulping activity. In this respect, it is notable that only liquid can be swallowed in a *go^kugoku* event while solid can be swallowed as well in a *gokuQ^(-to)* event. It is realistically difficult to swallowing solid objects continuously one after another.

Third, we can also find a couple of cases where a suffixal mimetic shows a durative property. They are direct violations of the template-aspectuality correspondence discussed above. For example, as shown in "cf." of (5.36a), a data deletion event can take a varying amount of time depending on the size of data. Similarly, as shown in "cf." of (5.36b), a lying event is not inherently determined in terms of its duration. However, as illustrated below, when the suffixal mimetics *noro^ri(-to)* 'slow' and *goro{Q^/N^/^ri}(-to)* 'laying [oneself] leisurely' are added, those events are (almost) necessarily durative.[27]

(5.36) Sentences with a durative suffixal mimetic:

   a. Ken-wa   *noro^ri*-to   {*issyun/go-zikan}-de   deeta-o   kesi-ta.

      K.-TOP   MIM-QUOT   {instant/5-hr}-in   data-ACC delete-PST

      'Ken deleted the data slowly in {*an instant/five hours}.'

      cf.   Ken-wa {issyun/go-zikan}-de deeta-o kesi-ta. (neutral in punctuality)

   b. Koro-wa *goro{Q^/N^/^ri}*-to {??issyun/sibaraku-no aida} beddo-ni yoko-ni

      K.-TOP   MIM-QUOT   {for.an.instant/for.a.while}   bed-DAT side-COP

      nat-ta.

      become-PST

      'Koro laid [himself] leisurely on the bed for {??an instant/a while}.'

      cf.   Koro-wa {issyun/sibaraku-no aida} beddo-ni yoko-ni nat-ta.

                                                                    (neutral in punctuality)

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[27] We can find by far more durative or punctuality-neutral suffixal mimetics among monomoraic root-based mimetic vocabulary items. Akita (2008b) gives *ziQ(-to)* 'keeping one's body (part(s)) fixed with patience and strong concentration on something' as an example of such mimetics. Other examples include *siN(-to)* 'being silent', *ziN(-to)* 'having a heavy pang', etc. This difficulty in generalization for CV-based suffixal mimetics can be an additional ground of the root-based dichotomy of Japanese mimetics.

As shown below, these suffixal mimetics are incompatible with an expression meaning 'in haste'.

(5.37) a. Ken-wa   aset-te   (*noro^ri-to) deeta-o   kesi-ta.

       K.-TOP   haste-CONJ   MIM-QUOT   data-ACC delete-PST

       'Ken deleted the data (*slowly) in haste.'

   b. Koro-wa aset-te   (*goro{Q^/N^/^ri}-to) beddo-ni yoko-ni   nat-ta.

       K.-TOP   haste-CONJ   MIM-QUOT   bed-DAT side-COP become-PST

       'Koro laid [himself] (*leisurely) on the bed in haste.'

The semantic conflict here indicates that the two suffixal mimetics have a meaning related to leisure. This common lexical semantic property in turn accounts for the ill-formedness in (5.36). That is, in these cases, too, apparently problematic aspectual properties can be tracked back to the lexical meaning of each mimetic.[28]

The present discussion has turned our attention to the role that the lexical meanings of mimetics play in their aspectual determination. In this view, the exceptional aspectual properties of the minority of mimetics come up secondarily from their lexical meanings (e.g., leisure > durative). This indirect aspectual realization is reminiscent of the instance relations identified for CV^CV-CVCV (or $\mu^\wedge\mu$-$\mu\mu$) and CVCVX in Sections 5.3.1.2 and 5.3.2, respectively. In

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[28] As logical possibilities, there might be also an accented total-reduplicative mimetic with definite telicity or a suffixal mimetic that is lexically specified as atelic. However, the present study has found no such cases. Nevertheless, there *are* some monomoraic root-based suffixal mimetics that are lexically determined as atelic. It is illustrated in the following example, which contains the suffixal mimetic *ziQ(-to)* 'keeping one's body (part(s)) fixed with patience and strong concentration on something'.
(i) *ZiQ*-to   nizyup-pun-{kan/??de} kizi-o   kone-ta. (atelic)
   MIM-QUOT 20-min-{for/in}   dough-ACC knead-PST
    '[I] kneaded (the) dough {for/??in} twenty minutes.'
   cf. Nizyup-pun-{kan/de} kizi-o kone-ta. (neutral in telicity)
The atelicity of this mimetic stems from its 'fixed' meaning. Therefore, the lexical meaning-based accounts here are retained.

the partial construction networks described there, grammatically relevant meanings like "durative" and "punctual" were considered as a kind of side effect. The temporal information represented by individual mimetics is more specific (e.g., repetitive, continuative). This logic straightforwardly holds for the present exceptional cases as well. The "exceptional" status of those mimetics solely comes from the results of linguistic tests. That is, they are "exceptional" in the mere sense that their grammatically relevant semantic structures are different from those of the majority of mimetics. They do not differ from the majority in that their aspectuality stems from their idiosyncratic, grammatically irrelevant level of meaning.

5.3.8.2. *Semantic extensions of mimetic templates*

The present lexical meaning-oriented view of mimetic aspectuality gives rise to one fundamental question: why are these exceptional mimetics taking the particular morphophonological templates at the expense of their aspectual consistency? This question can be answered by postulating multiple meanings for those templates—namely, by drawing another sets of polysemy links within the suffixal construction network. At first glance, addition of new templatic meanings for the minority would look like an uneconomical, ad hoc strategy of explanation. Nevertheless, the limitedness of the mimetic templates seems to be a sufficient motivation for semantic extensions to less central meanings. The validity of this strategy will receive further support in the next section.

First, let us consider the telic mimetics *gokuQ^(-to)*, *goku^N(-to)*, and *goku^ri(-to)* 'gulping' and *guru^ri(-to)* 'drawing a circle' in (5.33). There are two possible solutions to avoid a clash in aspectuality between their templates and lexical meanings. One is to posit a non-aspectual meaning for the suffixal templates. With the general iconic relationship be-

tween the form and meaning of mimetics in mind, a possible non-aspectual meaning that is metaphorically linked with the suffixal forms would be something like "intense." It seems not unnatural to qualify those suffixes as intensifiers, as Hamano (1998) does for the "inserted" moraic consonant in the emphatic form (i.e., CV<u>C</u>CV^ri). In fact, the eventualities represented by the suffixal mimetics in (5.33) sound more or less intense.

The other solution is to posit a telic meaning for the same templates. As stated in Section 5.3.2, it is true that punctuality does not entail telicity. However, as implied by the fact that Vendler's (1957) classification of Aktionsart does not include the semelfactive (i.e., atelic-punctual) type, punctuality has strong association with telicity in the real world. In fact, in the novel word-based experiment reported in Section 5.3.6, we obtained unexpectedly high scores for telic readings of suffixal stimuli. This realistic link seems to be a good motivation for the metonymical extension of the suffixal templates from "punctual" to "telic." Moreover, there is an iconic motivation for the telic meaning of the suffixal templates. It is quite a natural sort of reasoning that the suffixal elements, which are located at the tail of a mimetic stem, imitate endpoints of eventualities, which are located at the tail of an eventuality flow. Importantly, this kind of endpoint imitation by means of closed syllables can be found in other languages as well (Kim 1977; Noma 2001; Garrigues 1995; Bartens 2000). Furthermore, this second solution is consistent with the above idea that the primary function of the suffixal templates is an aspectual one. Although, at the moment, I have no strong evidence to reject the former possibility, the latter one seems more plausible to me.

Second, durative suffixal mimetics like *noro^ri(-to)* 'slow' and *goro{Q^/N^/^ri}(-to)* 'laying [oneself] leisurely' appear to contradict the suffixal-punctual correspondence discussed above. This problem can be solved by positing a non-extended non-aspectual meaning like "leisurely" for the suffixal sub-templates. The softness or calmness phonosemantically evoked by the nasal and sonorant in the suffixes *(^)-N(^)* and *^-ri* is a likely trigger of this con-

structional meaning. The rarity of suffixal mimetics possessing this segment-based meaning is compatible with the observation so far that the grammatically (or aspectually) relevant meaning of a template is primarily determined by its morphophonological contour (e.g., CVCVX), rather than by its component segments.

It is not clear whether the punctual meaning and the leisurely meaning should be connected via a polysemy link, for they are almost the opposites. It seems rather natural to derive the leisurely meaning (with the help of iconicity alone) directly from the meaning of the super-schematic construction that subsumes the punctual-suffixal and the leisurely-suffixal constructions.

The following figure is an extended version of the network of the suffixal constructions whose central part was pictured in Figure 5.6. In the present network, for clarification, newly added constructions are *italicized*. The meaning of the superschematic construction is not specified at the moment, but it should be something purely morphophonologically sound-symbolic. The dotted arrow to the leisurely -*Q^*-suffixed construction reflects its remarkably undeveloped status. Note also that there is no grammatically relevant level of constructional specification for leisurely-suffixal mimetics. This is based on the understanding that what grammar abstracts from their lexical semantic structure (i.e., durativity) is not established as a constructional meaning in the mimetic system of Japanese, and that, as already noted, postulation of such a construction (i.e., the durative-CVCVX construction) over the leisurely-CVCVX construction is subject to the risk of a contradictory semantic extension.
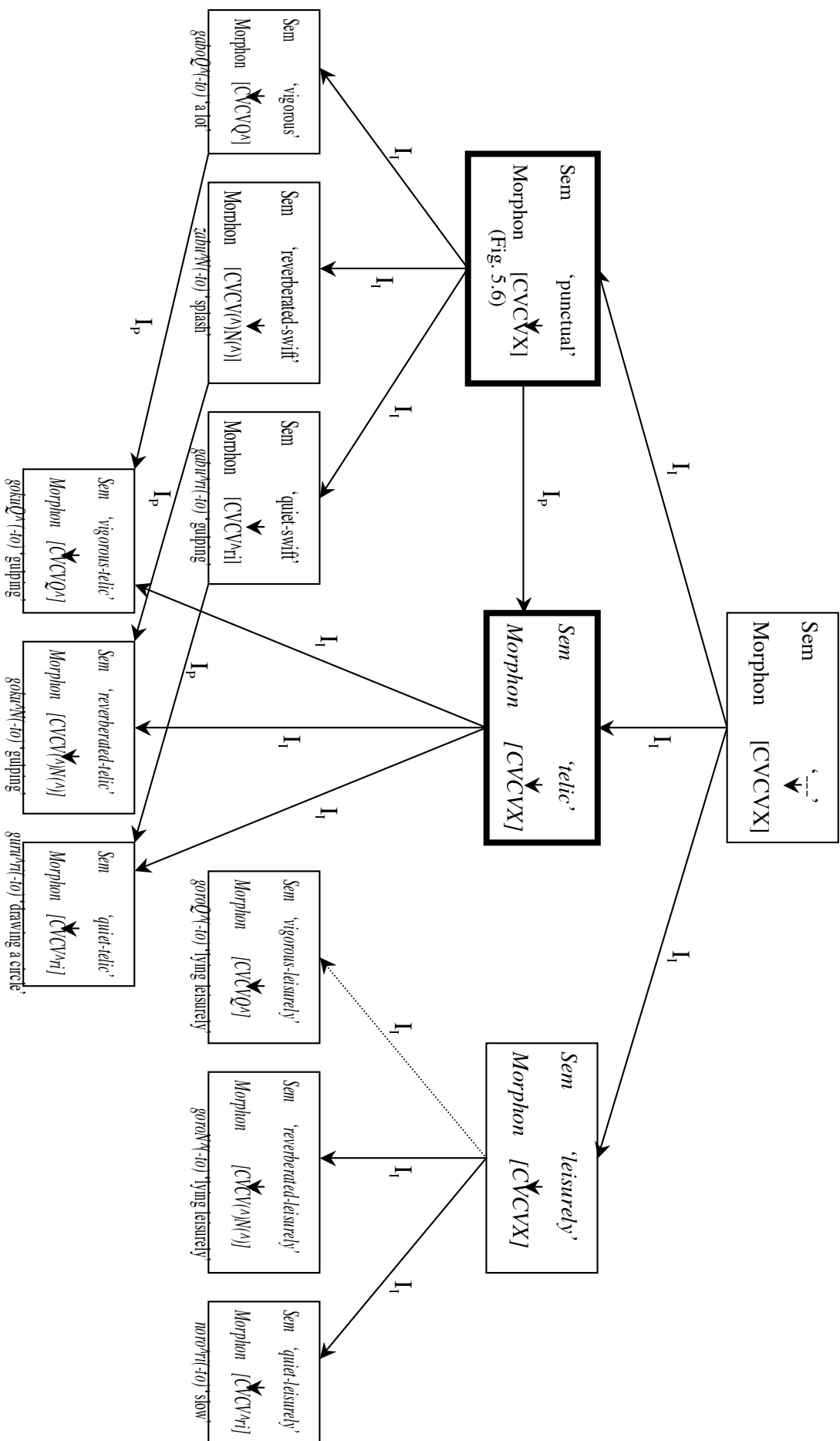
Figure 5.10. The suffixal constructions (extended)

In this long section, I have discussed the primarily aspectual semantics of the to-tal-reduplicative and suffixal templates and the distinctly unpredictable semantics of the emphatic template in a constructional framework. Two types of inheritance relations (i.e., semantic extensions and instantiations) among morphophonological constructions at diverse specificity levels well characterized the entire mimetic system of Japanese. It was also pointed out that the analytical unit of the core of the mimetic system is constructions, but that of the periphery is derivational/compositional operators. The highly systematic organization of the hierarchical construction networks described here can be considered to be what supports the huge sound-symbolic system of mimetic segments and morphophonology of this language.

5.4. Lexical Meaning-Based Constructional Networks

In the previous sections, I have focused on the semantic (mainly aspectual) properties of each mimetic morphophonological template. In the explanation of aspectually exceptional cases in Section 5.3.8, I attributed those exceptions to the lexical meanings of the mimetics concerned. In this section, the lexical meaning-based analysis is extended to non-exceptional major cases. This closer look at the semantics of mimetic lexical items will enable us to clarify the relationship between their two levels of semantic representation (see Section 1.3.3).

In parallel with the mimetics with exceptional aspectuality, the aspectual (or grammatically relevant semantic) properties of mimetics in general can be drawn from their idiosyncratic (or grammatically irrelevant semantic) properties. This idea is quite consistent with the rough definition of the relationship between the two types of semantic structures in Section 1.3.3: that is, "the sound-symbolic semantic structure of a mimetic is a part of the lexical semantic

structure of the mimetic." Seen differently, this definition can be restated that every component of the sound-symbolic semantic structure has its equivalent in the lexical semantic structure, but not vice versa.

Let us make the discussion more concrete. Because mimetics are iconic lexical items, they should have a reason (or motivation) for taking a certain morphophonological form. That reason is their lexical meanings. This idea is clearly represented in the fragments of construction networks described above. Going upward along the relevant instance link(s), the specific meaning of each lexical item at the bottom of a network (e.g., 'splash(ing intensely into a pool of water)' of *zabu^N(-to)* in Figure 5.12) leads it to an appropriate template paired with a specific aspectual feature (e.g., "punctual"). Speaking less theoretically, it is because the mimetic *zabu^N(-to)* is intended to express the event of splashing intensely into a pool of water that it takes a suffixal form with a punctual meaning. Likewise, *go^kugoku* in Figure 5.3 above takes an accented total-reduplicative form with a durative aspectuality because what the mimetic wants to express is an event in which one gulps a large amount of liquid in a vigorous manner.

In this respect, certain classes of mimetics can be cited as clear instances in which the lexical meanings of mimetics determine their morphophonological forms. First, phenomimes for walking and running are most likely to take a total-reduplicative form.

(5.38) Phenomimes of walking and running:

  bu^rabura 'rambling', *no^konoko* 'appearing nonchalantly', *no^sinosi* 'walking heavily', *su^tasuta* 'walking briskly', *syanarisya^nari* 'walking in a graceful manner', *te^kuteku* 'walking with a light step', *to^botobo* 'plodding', *to^kotoko* 'pitter-pattering', *tu^katuka* 'walking without hesitation and restraint', *tyo^komaka* 'running around quickly', *tyo^rotyoro* 'running around', *u^rouro* 'loitering', *yo^tayota* 'totter', *yo^tiyoti* 'toddling'

As Ken-Ichi Kadooka (personal communication) pointed out, this morphophonological pref-erence evidently comes from the lexical meanings of this type of mimetics. The activities of walking and running require at least two steps (cf. Tamori 2002: 48).

Similarly, as given below, mimetics that can be used for a non-repetitive detaching event are very likely to take a suffixal form. This reflects the fact that the starting point of the event is completely or nearly identical with its endpoint.

(5.39) Mimetics for detachment of one object:

bakaQ^(-to) 'taking off the lib of a box', *biriQ^(-to)* 'rip', *gabaQ^(-to)* 'taking off the lib of a box', *gosoQ^(-to)* 'coming off (of a cluster)', *koro(Q^/N^/^ri)(-to)* 'falling off (of a small object)', *pakaQ^(-to)* 'opening (of a kind of container)', *poro(Q^/N^/^ri)(-to)* 'falling off (from lack of care)', *putu(Q^/N^/^ri)(-to)* 'cutting a string'

Thus, it is a general mechanism that the lexical meaning of a mimetic selects the template it takes. This is the case because there is an iconic relationship between the form and meaning of mimetics. In this lexical meaning-based view, moreover, the absence of possible root-based relatives (or "derivational gaps"; e.g., **tekuQ^(-to)* for *te^kuteku*) is not a problem. It simply occurs where a lexical meaning (e.g., 'walking with a light step') does not call for the template (e.g., CVCVQ^).[29]

The present conception can be further extended to the selection of segments by mimetics. For effective realization of sound symbolism, each mimetic (root) possesses an appropriate

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[29] The present conclusion seems to be compatible with what Kita (2001: 432) calls a "mental simulation for the interpretive compatibility." His discussion implies that the sound-symbolic meaning of a mimetic (plus the meaning of its root) is adjusted according to that of the sentence where it appears in order to yield a coherent interpretation, although he presents no concrete mechanism for it. The lexical meaning-based mimetic system can be regarded as a substantiation of his idea from a linguistic standpoint.

set of segments. What qualifies as "an appropriate set of segments" for a mimetic is totally dependent on what it is intended to express. For example, the root of the reduplicative mimetic *sa^rasara* consists of C_1 /s/, C_2 /r/, and /a/ in both vowel positions. Hamano (1998) describes the following sets of abstract pieces of concept for these phonemes (see also Section 2.1.2):

(5.40) Segmental sound symbolism of the mimetic root *sara* (based on Hamano 1998: 172-173):

C_1 /s/: non-viscous body; quickness; light; small; fine

C_2 /r/: rolling; fluid movement

V_1 /a/: largeness of the object or trajectory of the movement in the initial phase

V_2 /a/: largeness of the object or trajectory of the movement in the resultant phase

These schematic semantic components, together with the templatic meaning of CV^CV-CVCV (i.e., durative; more concretely, repetitive or continuative), constitute the sound-symbolic semantic structure of *sa^rasara*. This level of semantic representation seems to fit the concrete lexical meaning of the mimetic like 'rustle, dry and powdery' without a serious conflict.

The present parallel treatment of segments and templates of mimetics assumes a constructional status for mimetic segments. This assumption is plausible in that, as far as mimetics are concerned, segments as well as morphophonological templates are associated with certain (phono)semantic features. Interestingly, Hamano (1998) posits multiple meanings for one segment (e.g., "viscosity," "sluggishness," and "laziness" for C_1 /n/). Postulation of constructions at this granular level (more granular than morphemes) is compatible with the idea of lexical constructions, which regards lexical items as constructions in parallel with larger-size

form-meaning pairs like argument structure constructions (Goldberg 1995; Jackendoff 2002; Croft 2001). Further, constructions of a larger or smaller size might be also possible. First, as referred to in Section 2.1.2 above, Japanese segmental sound symbolism can be reconsidered at the phonological-featural level, relating specific features (e.g., voicedness, coronality) to abstract semantic features. Second, as referred to as "halfway specified mimetics" in Section 5.1, sets of segments and perhaps templates (e.g., CV^ro-CVro) might be called "phonaes-thematic constructions." Third, it is even likely that mimetic roots are constructions. Although it is an unsettled question how much semantic information mimetic roots have (Section 5.2.3), it is no doubt that they have at least more specific semantic information than mere segmental sound symbolism. These smaller kinds of constructions will allow us to posit some subpart links among constructions—for example, between the root *niko* '---' and the mimetic *niko^ri(-to)* 'smiling' and between *niko^ri(-to)* and the halfway specified mimetic niCV^ri '---'. These additional links will further clarify the network structure of the mimetic system.

In summary, every mimetic located in the core of the mimetic system is characterized by diverse inheritance relations that constitute the whole mimetic construction network. Those inter-constructional relations are motivated by the lexical meaning of each mimetic. The fol-lowing diagram illustrates the lexical meaning-based hierarchical constructional system by means of the suffixal mimetic *tiku^ri(-to)* 'prickling'. As is clear, one mimetic is related to various construction networks (designated by broken boxes) at various levels. Note neverthe-less that, for the sake of simplification, the diagram only describes relevant constructions (designated by a solid box) and their networks. Each construction is in fact related to by far more constructions than given here.

The mimetic network

The suffixal construction network

S 'punctual'

F [CVCVX]

I_I

S 'punctual'

F [CVCV^ri]

The phonaesthematic construction network

I_I

S '---'

F [CVku^ri]

The mimetic lexical construction network

I_I

S 'prickling'

F [*tiku^ri(-to)*]

I_I

I_S

The mimetic root construction network

S '---'

F [*tiku*]

The segmental construction network

I_S

The V$_1$ construction network

I_S

S 'straight/tense'

F [/i/]

The C$_2$ construction network

S 'hard surface; light, small, fine'

F [/t/]

The phonological-featural construction network

I_S

The V$_1$ phonological-featural construction network

I_S

S 'straight/tense'

F [high]

The C$_2$ phonological-featural construction network

S 'light, small, fine'

F [voiceless]

Figure 5.11. The lexical meaning-based hierarchical constructional system of mimetics

In this lexical meaning-based system, the specific lexical meaning of the mimetic (i.e., 'prickling') cannot be obtained even if the meanings of all its related constructions described here are summed up. This reflects the unpredictable, gestalt-like nature of mimetics.[30] On the contrary, the lexical meaning determines the meanings of all those constructions.

5.5. Conclusion

In this chapter, I have mainly discussed the constructional properties of four bimoraic root-based morphophonological templates (i.e., CV^CV-CVCV, CVCV-CVCV, CVCVX, CVCCV^ri) of Japanese mimetics. Both existent and novel words showed that the main function of the total-reduplicative and the suffixal templates is an aspectual one, whereas that of the emphatic template is a non-aspectual one characterized by remarkable unpredictability as well as relatively poor mimeticity. The unaccented total-reduplicative template was considered as a derivative construction that is largely based on its accented counterpart (i.e., CV^CV-CVCV). Identification of inter-templatic inheritance relations called polysemy and instance links (and subpart links) made it clear that mimetics constitute a hierarchical network structure. Together with its prototype-categorial property identified in Chapter 4, the systematic organization of the network is likely to support the enormous mimetic lexicon. Also, attention to derivative intensified mimetics led us to notice the structural difference between the core and periphery of the mimetic category. Unlike the constructional organization of the majority of mimetics, the non-central part of the category turned out to be compo-

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[30] The holistic, unanalizable nature of mimetics also seems to account for the impossibility of their clear-cut semantic classification noted in Section 1.3.2.

sitionally structured.

The present constructional analysis of iconic mimetic morphophonology has thus provided a fresh case study for the emerging theory of Construction Morphology. It pointed out not a few similarities between mimetic morphophonological constructions and argument structure constructions (e.g., non-compositional semantics, various kinds of inheritance links). With the "peripheral" status of mimetics in general linguistics in mind, the present investigation can be viewed as another illustration of the equivalent constructional/grammatical status of exotic and nonexotic linguistic entities, which is especially emphasized in "Sign-Based Construction Grammar" (see Kay and Fillmore 1999: 30; Fillmore et al. 1988; Fillmore and Kay 1993). At the same time, notably, certain divergences between the two types of constructions (e.g., degree of unpredictability) were observed. This last point is especially significant in that it can serve as a strong motivation for the exploration in this new area of a theory.

The most essential idea in the current analysis is that the whole network system of mimetics depends on the lexical meaning of each entry. In other words, the sound-symbolic system of mimetics is lexically (or more broadly, linguistically) constrained (see Hamano 1998; Nasu 2002; Kageyama 2007). This conception allows us to have clear understanding of the relationship between the sound-symbolic and the lexical semantic structures of mimetics. Also, the full-fledged lexical semantic status of mimetics emphasized here is the fundamental claim of this thesis, and will be further developed in Part II.

PART II

MORPHOSYNTAX

Chapter Six

Mimetic Morphosyntax in Japanese

This and the next chapters discuss the variation in morphosyntactic characteristics of Japanese mimetics from intra- and crosslinguistic perspectives, respectively. I will take a functional point of view, which was outlined in Section 3.2, utilizing the Lexical Iconicity Hierarchy (LIH) as a fundamental descriptive device. The notion will provide great help in showing that the morphosyntactic variety of mimetics is not random.

Japanese mimetics are often conceived as adverbs (see Section 2.1.3). However, it is also true that they have puzzled a few linguists with their nonuniform syntactic behavior that appears to lack regularity. The present theoretical investigation into this rarely considered aspect of mimetics can be located in the history of the study of mimetics not only as a pioneer of mimetic syntax but also as a bridge over the gulf that has set the study of mimetics far apart from general linguistics. Also, it is noteworthy that, despite the fact that lexical iconicity is a fundamental, distinctive characteristic of mimetics, little attention has been paid to it when their grammatical properties are in question. The present study can therefore be regarded as a fresh investigation that focuses on a case in which a grammatical status of mimetics is dependent on their special lexical status. Thus, Part II shares its emphasis on the importance of lexical meaning of mimetics with Part I.

Specifically, I propose an iconic inter-hierarchic mapping model for mimetic syntax in general. As briefly mentioned in Section 3.2, the mapping model is based on two hierarchies. One is the LIH (i.e., Superexpressives > Phonomimes > Phenomimes > Psychomimes > Nonmimetics), which reflects how strongly the form of a word is motivated by its meaning (Sections 1.3.4 through 1.3.6). In other words, this hierarchy shows how far a mimetic is deviated from regular lexical items in terms of iconicity/arbitrariness. The other is the Grammatical-Functional Hierarchy (GFH): Periphery (non-arguments: adjuncts, interjections) > Core (predicate, its arguments). This is a ranking of how far a grammatical function is deviated from the core of the clause. The present model proposes an iconic mapping relation from the former hierarchy to the latter. Items located higher on the LIH are more likely to be realized in the periphery of the main clause and less likely to be realized in its core. On the other hand, items located lower on the LIH are more likely to be realized in the core of the main clause and less likely to be realized in its periphery.

This functional generalization works better at the grammatical-functional level in the crosslinguistic comparison in Chapter 7. However, as long as only Japanese mimetics are concerned, a grammatical-categorial generalization is possible and looks simpler. Therefore, in this chapter, I will discuss semantic and syntactic conditions on the categorial status of Japanese mimetics (see Section 2.1.3). These conditions will be reunderstood in terms of their grammatical functions in the last part of this chapter and more extensively in Chapter 7.

The organization of this chapter is as follows. In Section 6.1, with some mention of related studies, I will point out a semantic constraint termed "the Anti-Iconicity Constraint" on verb formation of Japanese mimetics. In Section 6.2, I will discuss a syntactic constraint termed "the Anti-Transitivity Constraint" on mimetic verb formation, which turns out to be correlated with the semantic constraint. In Section 6.3, the lexical iconicity-based consideration will be extended to the other three categories of

mimetics (i.e., adjectives, nouns, adverbs) to capture the overall relations between semantic types of mimetics and grammatical categories open to them. It will be found out that all the four grammatical categories of mimetics are constrained by the LIH. This cross-categorial comparison based on one common concept will, in Section 6.4, point to the possibility of reconsideration of mimetic syntax in terms of grammatical functions. Based on the unified treatment of the different grammatical properties of mimetics, I establish the aforementioned inter-hierarchic mapping model for mimetics, which will allow us to proceed smoothly to the crosslinguistic explorations in Chapter 7.

6.1. The Anti-Iconicity Constraint on Mimetic Verb Formation

This section claims that verb formation of Japanese mimetics can be primarily generalized by means of a lexical iconicity-based constraint. This semantic constraint will serve as a basis of Part II as a whole. Specifically, Section 6.1.1 will describe the generalization of verb forming possibility of mimetics in terms of the LIH. Section 6.1.2 will compare it with non-adult mimetic verb formation, which plays a key role in the discussion of this chapter. Sections 6.1.3 and 6.1.4 will solve two essential problems drawn from the previous two subsections.

6.1.1. Mimetic verbs and lexical iconicity

As in Doke (1931, 1938), Kunene (1965), and Kita (1997), it is a general assumption that sound-symbolic words are fundamentally event words. As Samarin (1971: 156) remarks, however, event depicting words are not synonymous to verbs. In fact, in

Japanese, some mimetics can form a complex verb in combination with the semantically skeletal or "dummy" verb *suru* 'do' but others cannot.[1] The nonuniform categorial properties of mimetics have been indeed recognized in some studies. However, due to their concentration on individual cases, no studies have succeeded in identifying regularity in the nonuniformity in a straightforward way. For example, Tamori (1990: 293, 1993b: 45) concludes that there is perhaps no definite generalization available for mimetic verb formation. A similar mention is found in Kageyama (2007: 38) (cf. Kadooka 1993a).

Contrary to these observations, it *is* possible to obtain a generalization when we take a kind of bird's-eye view taking advantage of the general concept of iconicity, which "covers various domains of the structure of language" (Ohori 1987: 44). Concretely, I generalize the possibility of verb formation in terms of what I call "the Anti-Iconicity Constraint" (AIC), formulated below.

(6.1) The Anti-Iconicity Constraint on Japanese mimetic verb formation:

    Highly iconic mimetics cannot form verbs.

As shown below, a three-way classification of mimetics clarifies the situation.[2] As we descend the LIH (or examples in (6.2)), the *suru* mimetic verb form becomes more acceptable.[3] Since the phenomimic category consists of diverse semantic subtypes, I here use manner-of-motion mimetics as a representative type of phenomimes. For the

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[1] Similar sound-symbolic verb formation is observed in other languages in Africa and India. Meanings of dummy verbs used for this purpose vary from 'do' to 'say', 'quote', and 'think' (Childs 1994: 187; Kunene 2001).
[2] Although there are mimetics which can only used in the progressive/stative form V-*te iru* (Akita, to appear, a), all examples here are for the sake of convenience listed as they appear in dictionaries (i.e., simple nonpast form).
[3] Notice that, in a strict sense, not all phonomimes are more iconic than phenomimes. Nevertheless, since poorly iconic phonomimes like *za^wazawa* 'humming' in (6.1aii) is quite exceptional, the ranking of the LIH will go without revision.

purpose of clear comparison, the following lists only show two-mora-reduplicative mimetics ($\mu^\wedge\mu$-$\mu\mu$) or their variants.

(6.2) Mimetic verb formation:

a. Phonomimes:[4]

i. Highly iconic (distinctive sounds):

bu^ubuu suru 'zoom', *©byu^NbyuN suru* 'whirl', ©do^NdoN suru* 'pound', *ge^ragera suru* 'guffaw', ©hu^uhuu suru* 'blow', *©wa^NwaN suru* 'bow-wow'

ii. Poorly iconic (indistinctive, collective sounds):

ga^yagaya suru 'hum (of a crowd)', *za^wazawa suru* 'hum (of a crowd)'

b. Phenomimes for walking and running:

i. Highly iconic:

su^tasuta suru 'walk briskly', *te^kuteku suru* 'walk with a normal/light step', *to^botobo suru* 'plod', ©to^kotoko suru* 'pitter-patter'

ii. Poorly iconic:

bu^rabura suru 'ramble', *no^sonoso suru* 'move sluggishly', *nyo^ronyoro suru* 'wriggle', *tyo^rotyoro suru* 'scutter around', *u^rouro suru* 'loiter', *yo^tayota suru* 'totter', *yo^tiyoti suru* 'toddle'

c. Psychomimes (poorly iconic):

bi^kubiku suru 'be scared', *do^kidoki suru* 'be excited', *hiyaQ^-to suru* 'feel a chill', *i^raira suru* 'be irritated', *ku^rakura suru* 'feel dizzy', *mo^zimozi suru* 'hesitate', *ti^kutiku suru* 'feel prickled', *wa^kuwaku suru* 'be exhilarated', *ya^kimoki suru* 'fret'

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[4] In this chapter, I do not refer to superexpressive mimetics, for, in Japanese, unlike some other languages discussed in Chapter 7, superexpressivity is unlikely to cause a grammatical distinction among mimetics.

As exemplified above, most verbs made from phonomimes (highly iconically mim-icking distinctive sounds) and highly iconic (or phonomime-like) phenomimes are unnatural.[5] In fact, some highly iconic mimetic verbs are not entirely ungrammatical. However, as indicated by "©," they commonly give a characteristically childish or colloquial tone that is indicative of their motherese (non-adult, nursery) status (see Kageyama 2007).[6] Significantly, such a special tone is absent when these mimetics are used as adverbs. Mimetics whose semantic type is ambivalent between a phonomimic and a phenomimic one are often able to form verbs (e.g., *ga^tagata suru* 'rattle, shudder', *go^sogoso suru* 'move restlessly with a rustling noise looking for something'). Meanwhile, almost all psychomimes (which are poorly iconic in nature), poorly iconic phenomimes, and a few (phenomime-like) phonomimes (poorly iconi-cally depicting indistinctive, collective sounds) can successfully form verbs. (The fact that most phonomimes cannot form a verb while almost all psychomimes can has been noted by Nishio (1988: 219), Nakakita (1991: 255), Tamori (1990: 293, 1993: 45, 2002: 60), and Tamori and Schourup (1999: 56) (see also Sumi 1996; Ito 2002).)

There are indeed a few Japanese psychomimes that cannot combine with *suru* (e.g., **guQ-to suru* 'be moved', **piN-to suru* 'be inspired', *??siQku^ri suru* 'have a nice fit'). Nevertheless, those psychomimes can usually form verbs in combination with the verb *kuru* 'come' (e.g., *guQ-to kuru, piN-to kuru, siQku^ri kuru*) or with *naru* 'become' (e.g., *gikuQ^-to naru* 'be startled', *kaQ-to naru* 'get angry') (see Yang

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5 Interestingly, many of these unnatural mimetic verbs (and unnatural mimetic adjectives and nouns in Section 6.3) are based on monomoraic roots. This fact indirectly supports Hamano's claim that monomoraic root-based mimetics are more iconic than bimoraic root-based ones (see Section 1.3.6).
   By contrast, childish verbs are much less likely to be made from emphatic mimetics. This might support their special lexical status discussed in Chapter 5.
6 Laypeople often conceive of mimetics in general as childish and informal (Tokui 2007: 19; cf. Schourup 1993). However, they are not necessarily so, and can even appear in newspapers and novels, which are written with a relatively formal touch (Schourup 1993). By contrast, the ©-marked verbs here give an intuitively different type of childishness, which is expected to fail them to appear in formal writings. This intuition seems somewhat similar to the so-called "bad pun effect" typical of zeugma, which makes us feel a kind of deliberate irregularity or rhetorical flavor (see Levin and Rappapot Hovav 1995).

1993b, 1994). The psychomimes *uhauha (*suru)* 'blessed and joyful', *tazitazi (*suru)* 'faltering', and *o^zuozu (*?suru)* 'scared' seem to be true exceptions. The ungrammaticality of the former two is due to their static nature (see Section 5.3.1.3). The last one seems to be a kind of fossilized adverb, which has been lexicalized as a chunk with the verb *miru* 'look'.

In addition, there are some more mimetic verb forming strategies, including reduced, suffixed forms like *beto-tuku* 'be sticky' (< *be^tobeto*) and *kira-meku* 'twinkle' (< *ki^rakira*) (Sections 2.1.3 and 4.7). Importantly, mimetics that can form these types of verbs constitute a subset of mimetics that can form *suru* mimetic verbs. More specifically, as Himeno (1975: 55) and Tamori (1993b) remark, reduced verbs are basically only made from bimoraic root-based accented reduplicatives (e.g., *be^tobeto suru*, *ki^rakira suru*). The number of mimetics is further reduced by the AIC.[7]

Due to this semantically based distinction of grammatical status, many polysemous mimetics show different verb formation possibilities for their different meanings. For example, the mimetic *go^rogoro* has various related (and perhaps unrelated) meanings (see Kita 1997, 2001; Tsujimura 2001, 2005a). It can form a verb when it represents the presence of many objects (e.g., rocks) or one's lazy attitude of lying about idly. On the other hand, verb formation is not possible when it represents a thunder, a cat's purr, or the rolling movement of a heavy entity. As a consequence, in general, the meanings of mimetic verbs are more restricted or specific than their component mimetics.

To reinforce the validity of the generalization, I examined the verb formation possibility of fifty mimetics randomly picked up from each of the three semantic categories. The database used was Kakehi et al. (1996) with some additions, whose entries

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[7] Tamori (1993b) and Hamano (1998: 56-57) remark that each of these suffixed verb forms has particular semantic characteristics. For example, as the examples here illustrate, *-tuku-* and *-meku-*-suffixed verbs have some kinds of negative and positive meanings, respectively.

were semantically classified by the author. The following figure summarizes the results (see Appendix C for actual mimetic verbs).
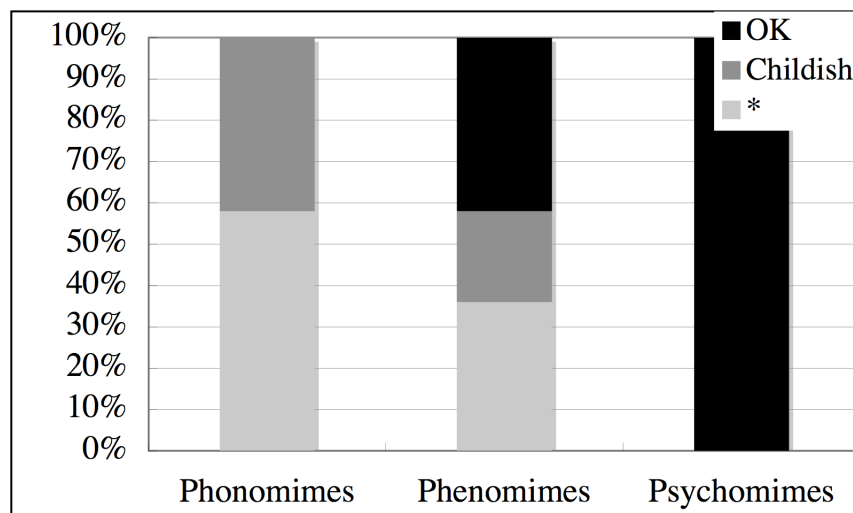
Figure 6.1. Verb formation possibility of the three types of mimetics

The results clearly support the above observation. All of the fifty phonomimes failed to form a natural mimetic verb, although many of them managed to yield a motherese-like mimetic verb. In contrast, psychomimes formed a non-childish mimetic verb without fail. Two of them were incompatible with *suru* but could form a verb with the help of *kuru* 'come' (i.e., *gaaN^-to kuru* 'be shocked', *siQku^ri kuru* 'have a nice fit'). Phenomimes showed an intermediate kind of behavior. Some could form a verb with a normal or childish tone, but others could not at all.

In summary, as visualized in the following diagram, the AIC-based generalization of Japanese mimetic verb formation turned out to be successful.

PSYCHOMIMES   PHENOMIMES   PHONOMIMES
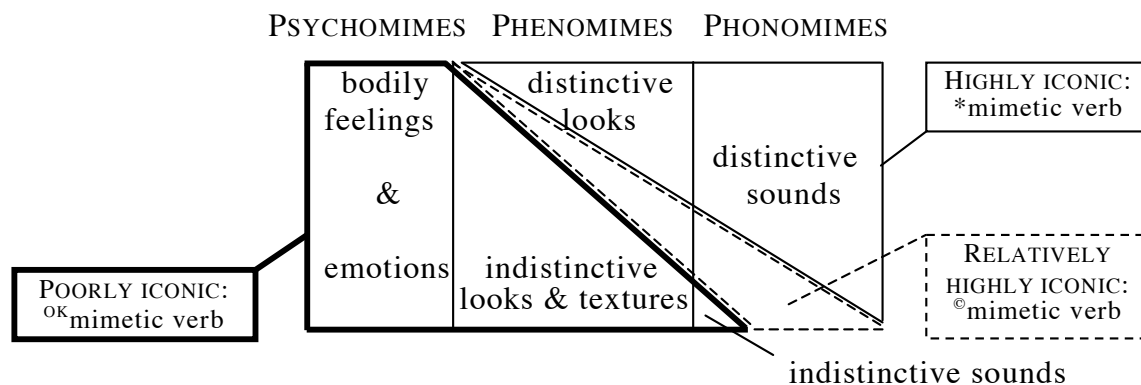
Figure 6.2. Mimetic verb formation and lexical iconicity

From a different point of view, the categorial status of the dynamic types of mimetics is divided into two around the middle of phenomimes on the LIH. On one hand, mimetics on the higher half of the LIH cannot form a natural verb and need to be realized as adverbs instead. On the other hand, mimetics on the lower half of the LIH can form a natural verb and usually obtain an adverbial status as well (but see Section 6.3.3). The idea of grammatical distinction points on the LIH will be utilized as an essential device of crosslinguistic comparison in Chapter 7.[8, 9]

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[8] Haruo Kubozono, Miho Mano, and Kiyoko Eguchi pointed out that a set of more specific semantic constraints (e.g., predicativity of emotion words) might also account for mimetic verb formation. The present study does not deny the possibility. However, the plausibility of such a generalization would not directly reject the iconicity-based account here, either.

[9] Hamano (1988, 1998: 14-25, 214) observes a lexical iconicity-related phenomenon, which seems to have a correlation with the phenomenon I discussed here. According to her, highly iconic mimetics, which cannot form verbs, are the most likely candidates for the prenominal quotative construction [MIM-*to iu* NP] '(NP) in which someone/something says (the content of the mimetic)'. On the other hand, they are less likely to enter other quotative frames: namely, [MIM*(-to) sita* NP] '(NP) that did/is in the state of (the content of the mimetic)', which contains a mimetic verb as a modifying element, and [MIM-*no* NP] '(NP) that is (the content of the mimetic)' (the mimetic is unaccented if it has a two-mora-reduplicative form). For example, the reduplicative mimetic *ko(^)rokoro*, which is ambiguous between a phonomime for merry laughter and a phenomime for chubbiness, shows grammaticality distributions like the following:

(i) a. ko(^)rokoro   {-to   i-u/   *si-ta/   *-no}   warai-goe (phonomime)
        MIM   {QUOT   say-NPST/do-PST/-COP}   laugh-voice
        'a laughter that sounds like *korokoro*'
    b. ko(^)rokoro   {*-to   i-u/   si-ta/   -no}   akatyan (phenomime)
        MIM   {-QUOT say-NPST/do-NPST/-COP}   baby
        'a chubby baby'

6.1.2. Non-adult mimetic verbs

The childish tones yielded by some mimetic verbs in the above discussion allow us to stipulate about mimetic verb formation in non-adult Japanese (cf. Ogura 2006ab; see also Section 2.2.2). As indicated by a broken line in Figure 6.2, it seems that, in child-directed speech, the AIC is weaker and the grammatical-categorial distinction point is located closer to the high end of the LIH. However, it should be also noted that that type of speech is unlikely to contain poorly iconic mimetics like those for mental states. This vocabulary condition might be a factor in the looseness of the AIC in motherese.

The situation is shared by early child speech. As discussed in Section 1.3.6 above, the Japanese acquiring child Sumihare produced few phenomimes and psychomimes in his early developmental stage. Also, until the beginning of his third year of life, his mimetic verbs seem to have been quite free from the AIC. The following figure displays the token frequencies of his three types of mimetic verbs.
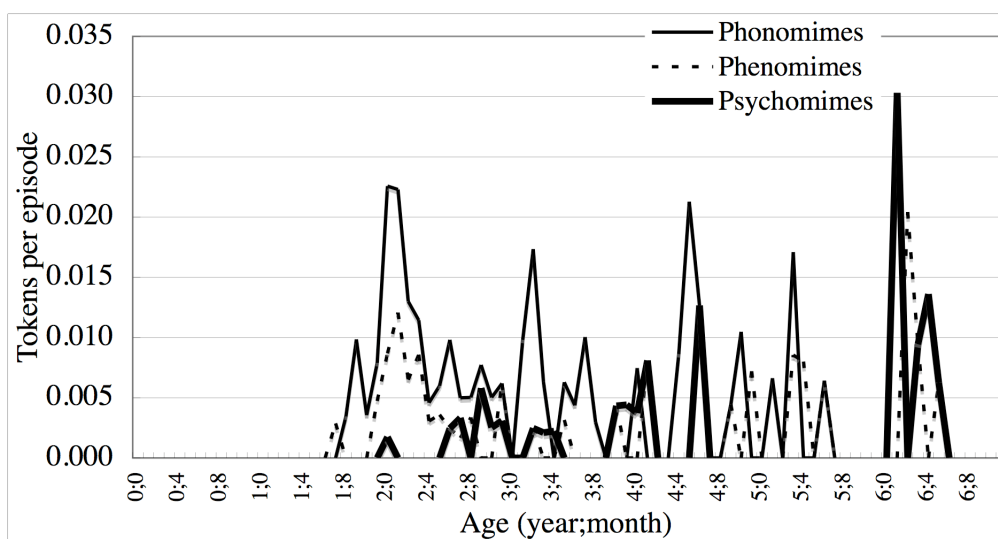
Figure 6.3. Sumihare's acquisition of mimetic verbs

Note: The score "0" means 'no occurrence', not 'no data', except before first words.

The possibility that variation in the grammatical status of mimetics is correlated with the size and content of the mimetic vocabulary will be further discussed in Section 7.2.

6.1.3. *Highly vs. poorly iconic phenomimes*

The observation so far has deliberately left two fundamental issues untouched. The first one is pertinent to the notion of lexical iconicity. In the present analysis, it is the most crucial problem what distinguishes highly iconic phenomimes from poorly iconic ones exemplified in (6.2). Although there may be more than one way of comparing their lexical iconicity (see Section 1.3.6), their correlation with a paralinguistic phenomenon seems to be a particularly useful index in the current case (see Kita 1997: 392-399). I conducted a simple experiment focusing on hand gestures that accompany the utterances of the above manner-of-motion phenomimes. Fifteen native Japanese speakers were asked to make gestures imitating footsteps (i.e., moving their loosely open hands, palms down, up and down one after another in front of their body) while repeatedly pronouncing each of the four selected phenomimes for walking/running. As a result, as the following figure shows, a sharp contrast was observed between the phenomimes that can form a verb and those that cannot with respect to the numbers of subjects who perfectly synchronized one hand 'step' with the utterance of one mimetic root (e.g., *suta* of *su^tasuta*).
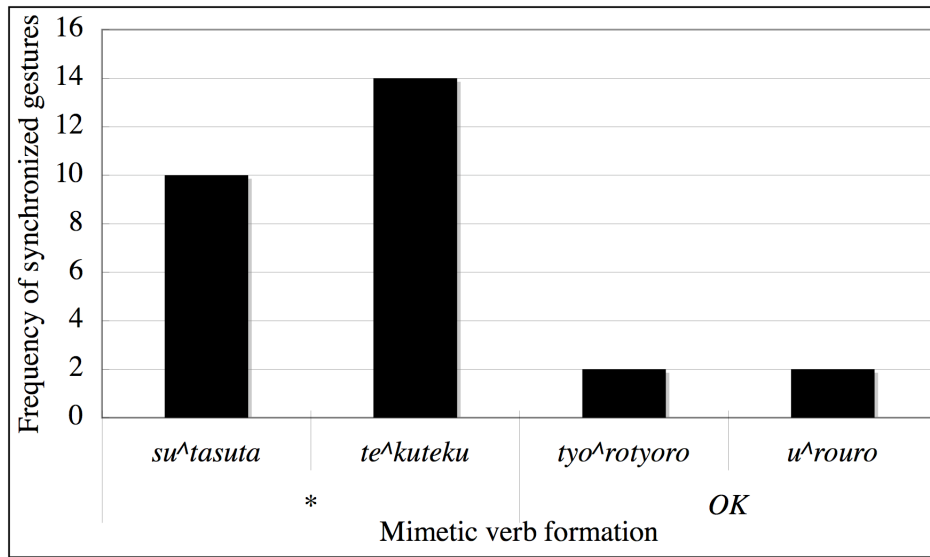
Figure 6.4. The result of the gesture experiment

Note: Frequency of synchronized gestures means the number of subjects who synchronized their hand gesture segments with their utterance segments.

A one-way ANOVA yielded a significant main effect of the possibility of verb formation ($F(1, 2) = 25$, $p < .05$). Based on the idea in Section 1.3.6 that highly iconic words are temporally tied to the eventualities they depict, we can regard *su^tasuta* 'walking briskly' and *te^kuteku* 'walking with a normal/light step' as highly iconic. More specifically, it is likely that the roots of the mimetics *su^tasuta* and *te^kuteku* imitate a distinct segment of walking (i.e., one footstep) while the segments of motion depicted by the roots of *tyo^rotyoro* 'scuttering around' and *u^rouro* 'loitering' are less identifiable. This referential difference leads us to the conclusion that the former phenomimes are highly iconic and the latter poorly iconic. This conclusion serves as a backup of the above lexical iconicity-based generalization.

6.1.4. The morphology of mimetic verbs

The second issue is related to the morphology of mimetic verbs. Here I cite the dicussion in Kageyama (2006, 2007), who discusses the morphological status of mimetic complex verbs with *suru* 'do' in details. They appear to take a modificational structure (i.e., mimetic adverb + verb). However, their components are in a more or less strong relationship. Specifically, the relationship between a mimetic and the verb *suru* in a mimetic verb is at least stronger than that between two words like a mimetic adverb and a verb with a usual semantic content (e.g., *bu^rabura aruku* 'walk in a rambling manner'). This is illustrated by the difficulty of scrambling of mimetics in mimetic verbs, which is illustrated in (6.3). Compare it with the free scrambling of the mimetic adverb modifying an ordinary verb in (6.4).[10]

(6.3)a. Watasi-wa oodoori-o   *bu^rabura* *si*-ta.

  I-TOP   main.street-ACC MIM   do-PST

  'I rambled on the main street.'

 b. *Watasi-wa *bu^rabura* oodoori-o *si*-ta. (scrambled) (Kageyama 2007: 55)

(6.4)a. Watasi-wa oodoori-o   *bu^rabura* *arui*-ta.

  I-TOP   main.street-ACC MIM   walk-PST

  'I walked on the main street in a rambling manner.'

 b. Watasi-wa *bu^rabura* oodoori-o *arui*-ta. (scrambled)

Nevertheless, mimetic verbs cannot be qualified as pure compounds. The following example of coordinated mimetic verbs, in which the first mimetic can appear alone,

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10 Mimetics are more likely to form a prosodic unit with a dummy verb (e.g., *bu^rabura suru*) than a contentful verb (e.g., *bu^rabura aru(^)ku*). This might also suggest the stronger unity of mimetic verbs (see Akita 2009b).

demonstrates the limited lexical integrity of the components of mimetic verbs (Kageyama 2007: 81).

(6.5) Ken-wa *bu^rabura (si)* Mai-wa *tyo^rotyoro si*-ta.

    K.-TOP   MIM   do M.-TOP   MIM   do-PST

    'Ken rambled and Mai scuttled around.'

This weakly fixed status is further illustrated by the possibility of insertion of a focusing/emphatic particle between a mimetic and *suru* (Kageyama 2007: 79; see also Matsumoto 1996a: 40).

(6.6) Watasi-wa oodoori-o   *bu^rabura*-{sae/wa} *si*-ta.

    I-TOP   main.street-ACC MIM-{even/TOP}   do-PST

    'I {even/just} rambled on the main street.'

    In addition to these observations by Kageyama, it should be noted that all these properties are shared by less productive mimetic verb forms with *kuru* 'come' and *naru* 'become'.

(6.7) a. Ken-wa {sono nyuusu-ni *kaQ-to*/*kaQ-to sono nyuusu-ni} {*ki*/*nat*}-ta.

       K.-TOP {that news-DAT MIM-QUOT   (be)come-PST

       'Ken got angry at the news.'

   b. Sono nyuusu-ni Ken-wa *kaQ-to*   *(si)* Mai-wa *iraQ^-to*   {*ki*/*nat*}-ta.

      that   news-DAT K.-TOP MIM-QUOT do M.-TOP MIM-QUOT (be)come-PST

      'Ken got angry and Mai got irritated at the news.'

c. Ken-wa   sono nyuusu-ni   *kaQ-to*-{sae/wa}   {*ki/nat*}-ta.

K.-TOP   that news-DAT   MIM-QUOT-{even/TOP}   (be)come-PST

'Ken {even/only} got angry at the news.'

In conclusion, mimetic verbs with *suru*, *kuru*, and *naru* can be considered as near compounds ("composite verbs" in Kageyama's terminology) (for related discussions see also Kageyama 1991, 1992, 1993, 1997, 2001; Booij 2009). Acknowledging the discussion here, this thesis refers to them (and reduced, suffixed verb forms) simply as "mimetic verbs."

6.2. The Anti-Transitivity Constraint on Mimetic Verb Formation

This section points out the existence of a syntactic constraint on the mimetic verb forms in Japanese, which is correlated with and perhaps derived from the semantic constraint established in the previous section. Specifically, the syntactic constraint is termed "the Anti-Transitivity Constraint" (ATC), which is formulated below.

(6.8) The Anti-Transitivity Constraint on Japanese mimetic verb formation:
    Mimetics depicting a highly transitive event cannot form verbs.

It has scarcely been noticed that mimetic verbs have a heavy inclination in terms of transitivity. The skewing can be clearly recognized with a closer look at a list of mimetic verbs like the one in Kageyama (2007). Among his seven subtypes of mimetic verbs, only one (called "impact verbs") can take accusative-marked NPs (see Section 2.2.4 for the seven types). Mimetic verbs of this type designate an event in which one

acts on (e.g., hits, attacks, rubs) something. Here are some examples of them (see also Kageyama 2007: 47).

(6.9) Mimetic impact verbs:

    a. ©Mai-ga doa-o   *to^NtoN si*-ta.

      M.-NOM door-ACC MIM   do-PST

      'Mai knocked on the door.'

    b. ©*do^NdoN suru* 'pound', ©*go^sigosi suru* 'scrub', ©*gyuQ^-to suru* 'squeeze', ©*hu^uhuu suru* 'blow', ©*ko^nekone suru* 'knead', ©*ko^tyokotyo suru* 'tickle', ©*ku^tyakutya suru* 'chew', ©*ne^rineri suru* 'knead', ©*pe^ropero suru* 'lick', ©*tu^NtuN suru* 'touch with a stick or one's finger'

There is indeed another type of transitive mimetic verbs, which is also mentioned but not classified as an independent subtype in Kageyama (2007) (see also Tsujimura 2001, 2005a). Because they typically describe events in which one moves one's body part(s), I call them "reflexive verbs."

(6.10) Reflexive mimetic verbs:

    a. ©Ken-ga asi-o   *bu^rabura si*-ta.

      K.-NOM leg-ACC   MIM   do-PST

      'Ken swung [his] legs.'

    b. ©*ba^tabata suru* 'flap one's limbs', ©*mo^gumogu suru* 'chew food with one's mouth closed', ©*pa^kupaku suru* 'open and close one's mouth repeatedly', ©*pa^tikuri/pa^tipati suru* 'blink'

There are two things to point out concerning these transitive mimetic verbs. First, I would like to emphasize the rarity of these types of mimetic verbs in this language.

Second, as Kageyama (2007) notices, even these rare examples have an unnatural, distinctly childish tone. The naturalness of the reflexive type of transitive mimetic verbs can be improved by means of the causative morpheme *-(s)ase*—namely, by making the mimetic verbs themselves intransitive.

(6.11) Ken-ga   asi-o   *bu^rabura*   *s*-ase-ta.

      K.-NOM   leg-ACC   MIM   do-CAUS-PST

      'Ken made [his] legs swing.' (adapted from Kageyama 2007: 49)

The idea that mimetic verbs avoid high transitivity receives further reinforcement from the impossibility of passivization of the transitive verbs here, which has been pointed out for mimetic impact verbs in Kageyama (2006).

(6.12) a. Mimetic impact verbs:

      *Doa-ga   Mai-ni   *to^NtoN*   *s*-are-ta.

      door-NOM M.-DAT   MIM   do-PASS-PST

      'The door was knocked on by Mai.'

    b. Reflexive mimetic verbs:

      *Ken-no te-ga   Ken-ni   *bu^rabura s*-are-ta.

      K.-GEN hand-NOM   K.-DAT   MIM   do-PASS-PST

      'Ken's hands were swung by Ken.'

Indeed, there are quite a few mimetics that can be used to describe highly transitive events like direct causation (e.g., *bakyu^uN(-to)* 'bang (of a pistol)', *gusaQ^(-to)* 'stubbing', *tyo^kityoki* 'snip', *zakuQ^(-to)* 'chopping'). As Kageyama (2007: 49) notices, however, they cannot form a verb or, at the best, yield a motherese verb (e.g., *[c]bakyu^uN-to suru* 'shoot', *[c]gusaQ^-to suru* 'stub', *[c]tyo^kityoki suru* 'cut with

scissors', *©zakuQ^-to suru 'chop'). This fact directly supports the plausibility of the ATC.[11]

The existence of the syntactic constraint means that mimetics are not a suitable locus of complex events, which consist of subevents containing two or more participants. One possible explanation for this property can be drawn from a fundamental referential characteristic of mimetics. Mimetics are generally characterized by their simple depiction of eventualities, which enables them to have a direct correspondence to the real world via lexical iconicity.[12] More concretely, they depict the characteristics of sounds, manners, feelings, etc., and can manage to describe causation only so far as it is related to those aspects of events, as in the above transitive cases (see Kageyama and Yumoto 1997: 159).

Finally, I would like to consider the correlation between the semantic and the syntactic constraints identified in these two sections. As Prashant Pardeshi (personal communication) pointed out, it seems to be possible to stipulate that there is only one constraint on mimetic verb formation and that it has a syntactic and a semantic aspect, or one of the above two constraints is epiphenomenal. This alternative view seems reasonable to some extent. In fact, the AIC and the ATC have a considerable overlap in their scope of application. As a quick comparison between the entries in (6.2) and (6.9) reveals, many or most of the mimetics that form impact verbs (e.g., ©do^NdoN suru 'pound') mimic distinctive sounds highly iconically. This overlap is likely to stem from the physical fact that highly transitive events tend to emit salient sounds due to emission of strong energy (see Kageyama 2007: 48 for a related statement). Phenomimic transitive verbs in (6.9) and (6.10) (e.g., ©ko^tyokotyo suru 'tickle',

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[11] The ATC accounts for the case marking pattern of mimetic psych-verbs. As discussed in Akita (2007c), there are two case markers (i.e., accusative and dative) available to nonmimetic psych-verbs. However, most mimetic psych-verbs can only take dative-marked NPs. Based on the observation here, this syntactic behavior can be ascribed to the avoidance of high transitivity (or accusative marking) of mimetic verbs in general.

[12] Kita's (1997, 2008) idea that mimetics cannot refer to a causer ("agent" in his terminology) might be indirectly related to the present syntactic constraint.

©pa^tipati suru 'blink') also seem to be covered by the AIC as well in that their roots are likely to correspond to one segment of their referent activities.

What is significant here is that there seems to be no single bad mimetic verb that can be only accounted for by the ATC, although the ill-formedness of several mimetic verbs (i.e., intransitive ones) can be only accounted for by the AIC (e.g., **bu^ubuu suru* 'zoom'). In addition, it is noteworthy that violation of the AIC can yield a completely ungrammatical mimetic verb (e.g., **ge^ragera suru* 'guffaw') but that of the ATC only gives a less acceptable but possible mimetic verb (e.g., **©bakyu^uN-to suru* 'shoot'). Based on these facts, the ATC is likely to be a secondary constraint that stems from the AIC.[13]

6.3. Lexical Iconicity-Based Generalization beyond Mimetic Verbs

In this section, I discuss the three major grammatical categories of mimetics that remain to be treated (i.e., adjectives, nouns, adverbs) again in terms of lexical iconicity. It will be concluded that static categories (i.e., adjectives, nouns) are also subject to the AIC to different degrees and that mimetic adverbs are free from it but constrained by a weak semantic constraint termed "the Pro-Iconicity Constraint."

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[13] One might suspect that there is a phonological restriction on the Japanese mimetic verb form as well, because the quotative particle *-to* is obligatory when a mimetic has less than four morae (e.g. *haQ*(-to) suru* 'be startled', *pokaN^*(-to) suru* 'be vacant'). As discussed in Section 2.2.5, however, this restriction is not placed on the mimetic verb form but on the mimetics themselves. These mimetics cannot appear in their bare forms when used adverbially, either (e.g., *haQ*(-to) kizuku* 'notice with a startle', *pokaN^*(-to) kuti-o akeru* 'open one's mouth in a vacant manner') (see Nasu 1995, 2002).

6.3.1. Mimetic adjectives

First of all, mimetic adjectives show a partially similar pattern to mimetic verbs, although the category itself is by far smaller than mimetic verbs. They avoid phonomimes to a greater extent than mimetic verbs. This strict avoidance of high iconicity seems to come from the stative semantics of adjectives in general (see Section 5.3.1.3). It is unlikely to be compatible with the dynamic nature of sound imitation. Concerning phenomimic and psychomimic adjectives, there is no striking tendency in preference or avoidance.

(6.13) Mimetic adjective formation (i.e., [MIM-COP]):[14, 15]

    a. Phonomimes:

        i. *Ano   hiyoko-wa   totemo *piyopiyo-da.*

           that   chick-TOP   very   MIM-COP

           'That chick is very *tweety*.'

       ii. *piyopiyo-no   hiyoko

           MIM-COP   chick

           'a *tweety* chick'

      iii. **buubuu-{da/no}*   'zoomy',   ©**byuNbyuN-{da/no}*   'whirly',

           **geragera-{da/no}*   'guffawy',   **waNwaN-{da/no}*   'bowwowy',

           ©**zawazawa-{da/no}* 'noisy'

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[14] Although mimetic adjectives make use of a copula, their adjectival status can be confirmed by the possibility of modification by a degree adverbial like *totemo* 'very' used here (see Uehara 1996, 2003).

[15] Resultative-adverbial mimetics, which also consist of a mimetic and a copula (Section 2.1.3), show a parallel semantic tendency.

b. Phenomimes:

i. Ano ko-wa　totemo {*tekuteku/nikoniko}-da.

that child-TOP very　　MIM　　　　　-COP

'That child is very {*light-walky/smily}.'

ii. {*tekuteku/nikoniko}-no　ko

　MIM　　　　　　-COP　child

'a {light-walky/smily} child'

iii. *pyoNpyoN-{da/no}　'hoppy', *tobotobo-{da/no}　'ploddy'; *bara-bara-{da/no}* 'scattered', *gizagiza-{da/no}* 'notched', *hirahira-{da/no}* 'frilly', *kirakira-{da/no}* 'glittery'

c. Psychomimes:

i. Ano ko-wa　totemo {*kuyokuyo/?ukiuki}-da.

that child-TOP very　　MIM　　　　　-COP

'That child is very {worried/happy}.'

ii. {*kuyokuyo/?ukiuki}-no　ko

　MIM　　　　　　-COP　child

'a {worried/happy} child'

iii. ©*hirihiri-{da/no}　'smarting', *iraira-{da/no}　'irritated', ©*tikutiku-{da/no}　'prickled', *uziuzi-{da/no}　'hesitating'; *deredere-{da/no}* 'slovenly', ©*dokidoki-{da/no}* 'excited, nervous', ©*uhauha-{da/no}* 'blessed and joyful'

It is true that there are some *apparently* phonomimic adjectives. For example, the mimetic *bokiboki* in *bokiboki-no eda* 'crunched branches' appears to mimic the crunching sound of branches. Likewise, *paNpaN* in *Huusen-ga paNpaN-da* 'The balloon is bursting' appears to describe the clapping sound that is made when we hit a

bursting balloon. In a strict sense, however, the two expressions do not represent these sound emission events themselves. They actually describe the state of branches that got broken with a crunching noise like *bokiboki* and that of the balloon that will sound like *paNpaN* if we tap on it, respectively (see Section 2.2.3 for a related discussion). In short, these pseudo-phonomimic adjectives are instances of metonymical extensions from sound emission to state associated with it (see Section 5.3.1.3). Thus, the AIC is at play on mimetic adjectives as well, although it is not so effective as with mimetics verbs.

6.3.2. *Mimetic nouns*

Second, although mimetic nouns are still more limited in productivity, they basically follow the same anti-iconic pattern. Most mimetic nouns take the total-reduplicative form (Tamori 1990: 295). It should be noted that phonomimic nouns (often derivative ones) are somewhat prevalent in child-related vocabulary items, including motherese (e.g., *©(o-)bu^Nbu* 'tea, water', *©bu^ubu* 'car', *©kaQ^ko* 'wooden clogs', *©nya^Nko* 'kitty', *©wa^NwaN* 'doggy') and toy names (e.g., *garagara* 'rattle', *gatyagatya* 'capsule toy', *pa^kapoko* 'can stilts').[16] Other possible phonomimic nouns also have a childish or colloquial nuance of some kind, as in *(©)korokoro* '(self-adhesive cleaning) roller' and *(©)putiputi* 'vinyl buffer' (see Hamano 1998: 52-53; Ogura 2006ab; Kubozono 2005, 2006; Mutsukawa 2006; Tajima et al. 2009; see also Bartens 2000: 166-169 for similar examples from some Atlantic creoles). As was the case in many

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[16] For irregular accentuation of many of these child-related mimetic nouns (i.e., initial accentuation despite their two-mora-reduplicative forms; see Section 2.1.3), see Kubozono (2005, 2006).
  Violation of phonological constraints in non-adult Japanese is also found in mimetic verb formation. For example, motherese mimetic verbs often violate the phonological restriction concerning the obligatory occurrence of the quotative particle *-to* (see Section 2.2.5.1). As illustrated by the following examples, the violation attaches further childishness to those verbs.
(i) a. *©goro(^)N(^)-to suru* vs. *©©goro(^)N(^) suru* 'lay oneself leisurely'
  b. *©pyo(^)N(^)-to suru* vs. *©©pyo(^)N(^) suru* 'hop'

phonomimic verbs, the peculiar tones of those mimetic nouns are suggestive of the presence of the AIC in this grammatical category of mimetics. They are similar to phonomimic adjectives as well. They refer to a certain sound (e.g., splash) to metonymically name an object that is typically accompanied by the sound (e.g., water). As shown in (6.14ai), if we create a phonomimic noun to express a sound emission meaning, it usually results in complete ungrammaticality. Here I illustrate the noun formation possibility of the three semantic types of mimetics.

(6.14) Mimetic noun formation (the nominative case marker *-ga* is added to indicate the nominal status of the mimetics):

    a. Phonomimes:

        i. *Hiyoko-no piyopiyo-ga* kirai.

           chick-GEN MIM-NOM   unfavorite

           '[I] dislike chicks' *tweets*.'

        ii. **batyabatya-ga* 'splash', **byuNbyuN-ga* 'whirl', **katyakatya-ga* 'clink', **patapata-ga* 'pitter-patter', **?zawazawa-ga* 'hum'

    b. Phenomimes:

        i. Ano {**tekuteku/gizagiza*}-ga   kirai.

           that   MIM   -NOM unfavorite

           '[I] dislike that {*light walking/notches*}.'

        ii. ©**nikoniko-ga* 'smile', **poroporo-ga* 'drop', **tobotobo-ga* 'plod', **urouro-ga* 'loitering'; *hirahira-ga* 'frills', ©*kirakira-ga* 'glitter, lamé'

    c. Psychomimes:

        i. Ano {**kuyokuyo/iraira*}-ga   kirai.

           that   MIM   -NOM   unfavorite

           '[I] dislike that {worry/irritation}.'

ii. *deredere-ga* 'slovenliness', [©]**ukiuki-ga* 'happiness', **uziuzi-ga* 'hesitation'; [©]*dokidoki-ga* 'heartbeat, nervousness', *moyamoya-ga* 'gloom', [©]*tiku-tiku-ga* 'prickles'

It is noteworthy that, unlike phonomimes, some phenomimes and psychomimes can form a noun without a peculiar tone. Accordingly, it is likely that mimetic nouns are also under the AIC.

6.3.3. Mimetic adverbs

Finally, I consider mimetic adverbs, which form the by far largest category in the mimetic lexicon of Japanese (Hamano 1998: 12). Interestingly, their semantic tendency is roughly the opposite of the above three cases. They are constrained by a weak semantic constraint, termed "the Pro-Iconicity Constraint" (PIC), which is again based on the LIH. Specifically, as shown in (6.15), phonomimes and phenomimes can quite freely form adverb stems. As Hasada (2005: 189) and Kageyama (2007: 60) notice, however, psychomimes, especially those for emotion, are generally most likely to occur as verbs, and sometimes nearly incompatible with an adverbial status.

(6.15) Mimetic adverb formation (the quotative particle *-to* is added to indicate the adverbial status of the mimetics):

a. Phonomimes:

i. Hiyoko-ga *pi^yopiyo*-to   nai-ta.

chick-NOM MIM-QUOT   cry-PST

'A chick cried *tweet-tweet*.'

  ii. *ba^NbaN-to* 'with bangs', *byu^NbyuN-to* 'with a whirl', *ka^tyakatya-to* 'with a clink', *pa^tapata-to* 'with a pitter-patter', *za^wazawa-to* 'with a hum'

b. Phenomimes:

  i. Ano ko-ga   *te^kuteku*-to   arui-te   it-ta.

   that child-NOM   MIM-QUOT   walk-CONJ   go-PST

   'That child went walking *with a light step*.'

  ii. *hi^rahira-to* 'in a fluttering manner', *ki^rakira-to* 'with a glitter', *ni^koniko-to* 'with a smile', *po^roporo-to* 'in a dropping manner', *to^botobo-to* 'in a plodding manner', *u^rouro-to* 'in a loitering manner'

c. Psychomimes:

  i. Bodily sensation:

   Atama-ga   *zu^kizuki*-to   itan-da.

   head-NOM   MIM-QUOT   hurt-PST

   '[My] head hurt *with a throb*.'

  ii. Emotion:

   Ano ko-ga   {*ku^yokuyo*-to nayan-de/*??o^doodo*-to obie-te}   i-ta.

   that child-NOM{MIM-QUOT   worry-CONJ/MIM-QUOT   be.scared-CONJ}be-PST

   'That child was {worried/scared} *in a {anxious/timid} manner*.'

  iii. *?do^kidoki-to*   'with   a   heartbeat',   *??u^kauka-to*   'carelessly', *??wa^kuwaku-to* 'with excitement'; *de^redere-to* 'in a slovenly face', *mo^yamoya-to* 'in a gloom', *ti^kutiku-to* 'in a prickling manner', *u^kiuki-to* 'in a happy mood', *u^ziuzi-to* 'with hesitation'

Moreover, even if a psychomime has a natural adverbial status, it is usually strictly restricted with respect to the predicate it can modify. For example, the emotion mi-

metic *ku^yokuyo* 'worrying or regretting' in (6.15cii) is strongly paired with the psych-verb *nayamu* 'worry'. Likewise, it is often the case that one cannot find a single predicate other than perception verbs, such as *itamu* 'hurt' in (6.15ci) and *kanziru* 'feel', that can be modified by psychomimes for internal bodily sensation. These facts are suggestive of the existence of the PIC in the category of mimetic adverbs. In other words, concerning the adverbial realization of mimetics, we can posit a grammatical distinction point between phenomimes and psychomimes on the LIH.

Interestingly, as Tamori and Schourup (1999: 84-88) discuss, a similar constraint is applicable to interjectional/exclamatory uses of mimetics, in which mimetics appear in their bare forms (i.e., without a quotative particle or a copula), often with no cooccurring element. This use is basically limited to highly iconic mimetics taking a suffixal form (see Section 5.3.2). Some examples are given here.

(6.16) Mimetic interjections:

　　a. Phonomimes:

　　　　i. Inu-ga　　hoe-ta,　　*wa^N wa^N.*

　　　　　dog-NOM cry-PST　　MIM

　　　　　'A dog cried, *bowwow*.'

　　　　ii. *Bakyu^uN*,　keikan-wa　　　gootoo-o　　ut-ta.

　　　　　MIM　　　　policeman-TOP　burglar-ACC shoot-PST

　　　　　'*Bang*, the policeman shot the burglar.'

　　b. Phenomimes:

　　　　i. ??Hebi-ga　　de-te　　ki-ta,　　*nyoro^ri.*

　　　　　snake-NOM exit-CONJ come-PST MIM

　　　　　'A snake has come out, *nyoro^ri*.'

ii. ?*KiraQ^*, hosi-ga   kagayai-ta.

   MIM   star-NOM shine-PST

   '*Ki^rakira*, a star shone.'

c. Psychomimes:

i. *?Atama-ga   itan-da,   *zukiN^*.

   head-NOM   hurt-PST MIM

   '[I] have a headache, *throb-throb*.'

ii. *?*IraQ^*, otooto-no   kotoba-ni hara-ga   tat-ta.

   MIM   brother-GEN word-DAT stomach-NOM stand-PST

   '*IraQ^*, [I] was irritated at [my] brother's words.'

Although this is a distinctly informal and marginal sort of use of mimetics, which often appears in books for children, its semantic inclination to higher iconicity is significant in the present context.

A possible explanation for the PIC goes in a similar direction to the explanation for the strong AIC on mimetic adjectives. That is, low iconicity is avoided from adverbial and interjectional encodings because these uses of mimetics are most typically associated with manners of action and exclamations (or "sound effects"), respectively, whose dynamic nature seems less compatible with abstract eventualities. It is true that the semantic constraint on mimetic adverbs is not so strong as the ones on the other three categories of mimetics discussed above. Nevertheless, the looseness of the constraint is significant in that if it would be a strict constraint the mimetic adverbial category (or the mimetic lexicon of Japanese as a whole) might be smaller.

6.4. An Iconic Inter-Hierarchic Mapping Model for Mimetic Syntax

The above discussions have identified the relations between the grammatical-categorial properties and lexical iconicity of mimetics. Mimetic verbs, adjectives, and nouns turned out to be subject to the AIC of different degrees. On the other hand, mimetic adverbs have shown their subjection to the weak PIC. The existence of the two opposite constraints makes us want to treat the four categories of mimetics in a dichotomous manner. Indeed, such a dichotomy would make sense when we emphasize the overwhelming productivity (or unmarkedness) of mimetic adverbs. However, I would like to emphasize the similarity of the four categories instead.

It is a noteworthy fact that all the four categories are constrained by the scale of lexical iconicity. This similarity suggests the possibility of a unified treatment of the four categories. In fact, such an integrated account is possible when we take a grammatical-functional consideration of the behavior of mimetics generalized above. In a clause structure, manner adverbs can function as a head of an adjunct but cannot function as a part of a predicate, which is open to verbs and adjectives. Nouns can function as a head of an argument NP selected by a predicate. In this general view, the four categorial types of mimetics can be captured on the Grammatical-Functional Hierarchy (GFH) introduced in Section 3.2. Here I show a ranked representation of the grammatical functions and categories of mimetics, including their interjectional bare uses.

(6.17) The Grammatical-Functional Hierarchy:

        Periphery   Core

    Interjection > Adjunct > Argument > Predicate
         | | | |
     Bare   Adv   N   A/V
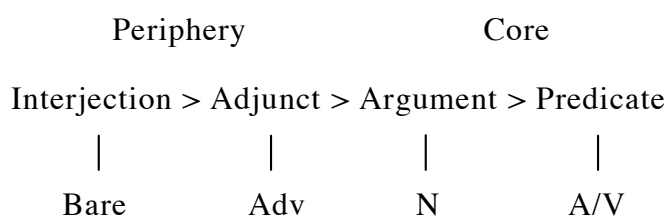
The present hierarchy enables us to understand the two iconicity-based constraints clearly on one scale. The AIC is active in the lower half of the hierarchy (i.e., the core of a clause), whereas the PIC is active in its upper half (i.e., the periphery of a clause). The situation can be restated as follows: grammatical functions that are farther from the center of the clause structure are more likely to be compatible with high iconicity (or incompatible with low iconicity); on the other hand, grammatical functions that are closer to the center of the clause structure are more likely to be incompatible with high iconicity (or compatible with low iconicity).

There seems to lie a diagrammatic iconicity principle behind these iconicity-function mappings in mimetic grammar. Given that nonmimetic lexical items are basically not iconic at all (de Saussure 1916/1959), iconicity puts a mimetic away from them on the LIH. Since a periphery is a part of a clause deviant from its core, we can understand that deviance in iconicity from regular words is linked to deviance in grammatical function. Speaking more informally, words with an atypical lexical status tend to be avoided from the central portion of syntax. The following diagram clearly shows the iconic mapping relation between the LIH and the GFH.[17] It should be noticed that major mappings take place between an upper rank and an upper rank or between a lower rank and a lower rank of the hierarchies.

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[17] Taking the insight in Section 2.2.5.2 into consideration, the GFH node "Adjunct" might be further divided into "Quoted adjunct" and "Non-quoted adjunct" depending on whether a mimetic adjunct takes a kind of quotative construction, such as -to-quotative construction in Japanese and the go-quotative construction in English (see Section 7.1.4).

GFH

Periphery			Core
Interjection > Adjunct > Argument > Predicate			
(Bare)	(Adv)	(N)	(A/V)

(Superexpressives >) Phonomimes > Phenomimes > Psychomimes > Nonmimetics

LIH
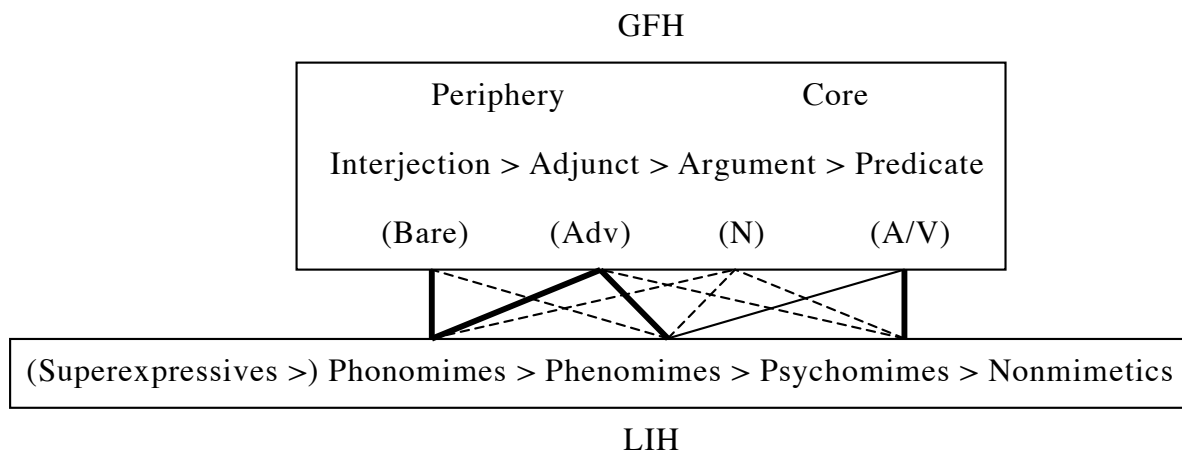
Figure 6.5. The iconic LIH-GFH mapping model for mimetic syntax

Note: Bold, plain, and broken lines indicate systematic, semi-systematic, and non-systematic mapping relations, respectively. Absence of a line stands for absence of a mapping.

The plausibility of this inter-hierarchic mapping model will be further pursued in a crosslinguistic context in the next chapter.

6.5. Conclusion

This chapter has discussed what determines the grammatical status of each semantic type of mimetics in Japanese. It was demonstrated that the diverse grammatical properties of Japanese mimetics can be primarily generalized in terms of their categorial status. The four major grammatical categories of mimetics turned out to be commonly constrained by a semantic constraint (i.e., AIC or PIC) that is crucially based on the LIH. The constraint yields an epiphenomenal syntactic constraint on mimetic verbs. More significantly, the common characteristic has allowed us to reach the general idea that there is a diagrammatically iconic relationship between the lexical iconicity and grammatical properties of mimetics. The proposed inter-hierarchic mapping model

pointed out the utility of a grammatical-functional generalization of mimetic syntax. This point of view will be further pursued in the next chapter from a crosslinguistic perspective.

Chapter Seven

Mimetic Morphosyntax

from a Crosslinguistic Perspective

This chapter presents a preliminary investigation of morphosyntactic variation of sound-symbolic words across languages in terms of the functional inter-hierarchic (or semantics-syntax) mapping model proposed in the previous chapter. With its basis on the general notion of iconicity, the model will enable us to have an intra- and crosslinguistically applicable implicational generalization of mimetic syntax, in particular its major dynamic aspect (i.e., verbal, adverbial, and interjectional uses). At the same time, it will recharacterize the grammatical properties of Japanese mimetics in a crosslinguistic context. As observed in Chapter 6, as far as Japanese mimetics are concerned, a grammatical-categorial generalization—that is, a generalization about whether a mimetic can form a verb, adjective, noun, and adverb stem—works well. As pointed out in Section 6.4, however, a grammatical-functional generalization can allow for a broader theorization about the syntax of sound-symbolic words. The present crosslinguistic explorations will add some support to the validity of that general point of view (see Bodomo 2007 for a related idea; see also Matsumoto 2003bc; Talmy 1991, 2000a: Chapter 1).

The organization of this chapter is as follows. In Section 7.1, I will observe the grammatical properties of sound-symbolic words in eight more languages based on the

iconic inter-hierarchic mapping model. In Section 7.2, I will put those intralinguistic observations together in the same mapping model, proposing an implicational-hierarchical generalization of the grammatical properties of sound-symbolic words. The present functional-theoretical approach to mimetic morphosyntax will clarify the location of Japanese mimetics in a crosslinguistic story of the grammar of sound-symbolic words.

7.1. Crosslinguistic Explorations in Mimetic Syntax

This section adds some intralinguistic investigations of mimetic syntax, presenting data from eight more languages. For the purpose of crosslinguistic comparison in the next section, I will pay special attention to grammatical distinction points of sound-symbolic words in each language. In Section 6.1.1 above, I identified the grammatical distinction point for verbal/predicate realization of Japanese mimetics around the middle of phenomimes on the LIH. On the other hand, in Section 6.3.3, the distinction point for their adverbial/adjunct realization turned out to be lower on the hierarchy (i.e., between phenomimes and psychomimes). Bearing this divergence between core and periphery encodings in mind, I will discuss the two types of dynamic realization of sound-symbolic words separately.

In what follows, I will first look at Korean grammatical distinctions of mimetics, which are basically parallel with Japanese ones. The subsequent observations will proceed basically from the bottom to top of the LIH with respect to the grammatical distinction points for core encoding strategies of the languages.

7.1.1. Korean

Korean is a language that is typologically as well as geographically close to Japanese. The two languages share the agglutinative SOV syntax and the hugeness of a mimetic lexicon (Kim 1977; Aoyama 1986, 1991; Sohn 1994, 1999; Garrigues 1995; Shibasaki 2002). Interestingly, they show a striking parallelism in terms of their mimetic syntax as well. However, there is an important divergence between the two languages. Korean mimetic syntax is better accounted for at the grammatical-functional level.

There are two representative mimetic verb forms in Korean: namely, [MIM + *hata* 'do, be'] and [MIM + *-kelita* (VBL 'keep doing')].[1] As exemplified below with a correspondent Japanese sentence, these mimetic verb forms appear to be subject to the AIC, which prevents mimetics that are close to the high end of the LIH from verb formation.

(7.1) 'A dog bowwowed.':

    a. ©Kay-ka   *mengmeng* *ha*-ess-ta. (Ko)

       dog-NOM   MIM   do-PST-DEC

    b. *©Inu-ga   *wa^NwaN* *si*-ta. (J)

       dog-NOM MIM   do-PST

(7.2) 'A car zoomed.':

    a. *©Cha-ka   *pwungpwung-keli*-ess-ta. (Ko)

       car-NOM   MIM-VBL-PST-DEC

    b. *Kuruma-ga   *bu^ubuu* *si*-ta. (J)

       car-NOM   MIM   do-PST

---

[1] Reduced (non-reduplicative) forms of mimetics are preferred for the [MIM-*kelita*] construction (e.g., *esulleng-kelita* vs. *??esullengesulleng-kelita* 'loiter') (Sohn 1994). This is reminiscent of Japanese reduced mimetic verbs discussed in Section 6.1.1.

In Korean, however, phonomimic verbs are possible under certain circumstances. As exemplified in (7.3a), they can occur without a childishness effect in a nonfinite construction.[2] Note that, as shown in (7.3b), this is impossible in Japanese, which instead employs a separate predicate, such as *oto-o dasu* 'emit a sound' in (7.3b´).

(7.3) 'A car passed away zooming.':

    a. Cha-ka   *pwungpwung-keli*-mie   china-lie   ka-ess-ta. (Ko)

        car-NOM MIM-VBL-while   pass-CONJ go-PST-DEC

    b. *Kuruma-ga   *bu^ubuu* *si*-nagara toot-te   it-ta. (J)

        car-NOM   MIM   do-while pass-CONJ go-PST

    b´. Kuruma-ga *bu^ubuu* oto-o   dasi-nagara toot-te   it-ta. (J)

        car-NOM   MIM   sound-ACC emit-while pass-CONJ go-PST

Here are some more example mimetic verbs from Korean. Grammaticality-related marks here indicate whether each mimetic can function as a part of the tensed predicate of a main clause.[3]

(7.4) Predicative function of mimetic verbs in Korean:

    a. Phonomimes:

        i. Highly iconic (distinctive sounds):

            ssayngssayng {hata/-kelita} 'whirl'

---

[2] I thank Alan Hyun-Oak Kim for suggesting this point to me at the 16th Japanese/Korean Linguistics Conference in 2006.
[3] As Yukinori Takubo commented at the 17th Japanese/Korean Linguistics Conference in 2007, the imperfect behavioral parallelism between [MIM *hata*] and [MIM-*kelita*] suggests the need for separate treatment for each of them.

ii. Poorly iconic (indistinctive, collective sounds):

wakulwakul {hata/-kelita} 'hum'

b. Phenomimes of walking and running:

i. Highly iconic:

©**chongchong {hata/-kelita}* 'walk briskly', **ttwupekttwupek {hata/-kelita}* 'trudge', **thepekthepek {hata/-kelita}* 'plod'

ii. Poorly iconic:

engkumengkum-kelita 'move sluggishly', *kkwumthulkkwumthul {hata/-kelita}* 'wriggle', *chollang-kelita* 'run around', *esulleng {hata/-kelita}* 'loiter', *pithulpithul-kelita* 'totter'

c. Psychomimes (poorly iconic):

humchishumchis {hata/-kelita} 'be scared', *twukuntwukun hata* 'be excited', *semttuk hata* 'feel a chill', *ancelpwucel hata* 'be irritated', *ecilecil {hata/-kelita}* 'feel dizzy', *memwus {hata/-kelita}* 'hesitate', *ttakkumttakkum hata* 'feel prickled'

The divergence between Japanese and Korean mimetic verbs here strongly suggests the superiority of a grammatical-functional generalization of mimetic syntax. That is, the following revised version of the AIC accounts for mimetic predicates in both Korean and Japanese.

(7.5) The Anti-Iconicity Constraint on the predicate function of Japanese and Korean mimetics:

Highly iconic mimetics cannot function as the predicate of a main clause.

The scope limitation by saying "a main clause" is especially important in that it successfully captures what the different situations of the two languages have in common. Also, it can be said that, in Korean as well as in Japanese, the grammatical-functional distinction point for core realization of mimetics is located around the middle of phenomimes on the LIH. Further, based on the discussion in Section 6.3.3, a distinction point for the peripheral realization of Japanese mimetics seems to be located somewhere on psychomimes. These are diagrammed in the following figure, in which lines extending from the grammatical distinction points designate the range of mimetics to which the encoding strategies are available.

LIH: (Superexpressives >) Phonomimes > Phenomimes > Psychomimes > Nonmimetics

CORE REALIZATION

PERIPHERAL REALIZATION (J)
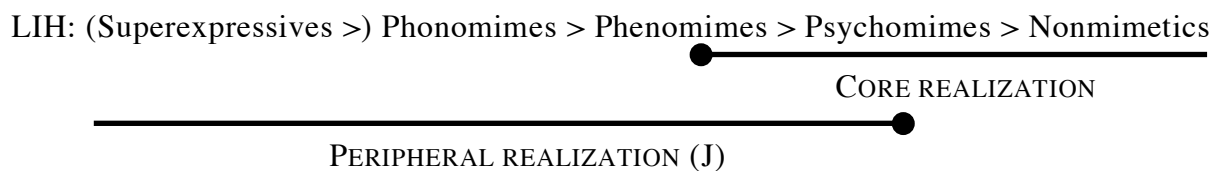
Figure 7.1. Grammatical distinctions of mimetics in Korean and Japanese

In what follows, it will be argued that the AIC and PIC are crosslinguistically applicable constraints. In this view, what is different among languages is what they regard as highly/poorly iconic. The difference is reflected as the difference in location of a grammatical distinction point on the LIH. Thus, the present semantics-syntax mapping model is expected to display an explicit crosslinguistic comparison of mimetic syntax.

7.1.2. Dagaare and Kambera

This subsection looks at two languages that are likely to draw no grammatical distinction within sound-symbolic words.

First, Bodomo's series of studies (2006, 2000-2007) discuss some aspects of the rich ideophonic lexicon in Dagaare (a Niger-Congo language, SVO; see Bodomo 1997). What is relevant to the current discussion in his description is that ideophones in this language function quite differently from regular items. First, as illustrated below, both phonomimes and phenomimes in Dagaare can appear in an independent clause, which is reminiscent of the interjectional use of Japanese mimetics (for similar constructions in other African languages see Ameka 2001; Schaefer 2001).[4]

(7.6) Phonomimes:

    a. À   lánggbáràà dà lè gángέέ lá, *gbàngbàlàng*!

      the hook   past fall lie.down FOC MIM

      'The hook fell down with a loud noise.'

    b. Ò dé lá à   dàngmáá lóó,   *bìlbàlà*.

      3.SG take FOC the log   throw.down MIM

      '(S)he threw down the log.'

(7.7) Phenomimes:

    a. Bíní lá ká   ó   nyὲ bìng, *vàrkpàrà*.

      excreta FOC COMP 3.SG shit put.down MIM

      'It is excreta (s)he has shit.'

    b. À bíé   bàlὲὲ lá, à páà lè gàngè, *gármáná*.

      the child tired   FOC it then fall lie.down MIM

      'The child is tired and then is lying there.'   (Bodomo 2006: 205-206)

---

[4] According to Norman (1988: 158-159), genuine sound-symbolic words in Mandarin Chinese are also realized exclusively as adjuncts or interjections (cf. Kadooka 1993b; Yu 2008 for the grammatical variety of a certain type of sound-symbolic words called the ABB-type).

Interestingly enough, even when used within a clause, they can be separated from the rest of it by means of a pause right before them. This prosodic characteristic seems to indicate their interjectional status. The ideophone in the following example is analyzed as modifying the preceding noun *zú* 'head'.

(7.8) À   dòò zú   (PAUSE) *bònggòlòng* nǎ   wàὲ   lá.

    the   man head   MIM   DEM come   FOC

    'The man with a big/unwieldy head has come.'

<div align="right">(adapted from Bodomo 2006: 206)</div>

Based on these cases, Bodomo claims that Dagaare ideophones cannot participate in a clause structure in an integrated manner.

A similar situation is found in Kambera (Austronesian). According to Klamer (1999a), this language has a relatively rich expressive lexicon containing not only phonomimes (e.g., *ndùru* 'rumbling', *pàka* 'smack') but also phenomimes (e.g., *yidi* 'shivering', *ndiku* 'jerk (to get loose)'). What is important for the present discussion is his remark that "ideophonic roots are exceptional because they can only surface in the position of a quote in a special quotative construction" (Klamer 1999a: 206).

The independent status of ideophones in Dagaare and Kambera suggests that these languages locate a grammatical-functional distinction point for core encoding right between ideophones and non-ideophones on the LIH. On the other hand, their peripheral encoding strategy can be considered to cover all nodes of the LIH, for the two languages consistently treat sound-symbolic words as interjections or quotations. This conclusion is visualized below. Here I put psychomimes in parentheses and the coverage line for them is dotted because, from the provided descriptions alone, it is not clear whether these languages have such items.

LIH: (Superexpressives >) Phonomimes > Phenomimes > (Psychomimes) > Nonmimetics

CORE REALIZATION

PERIPHERAL REALIZATION
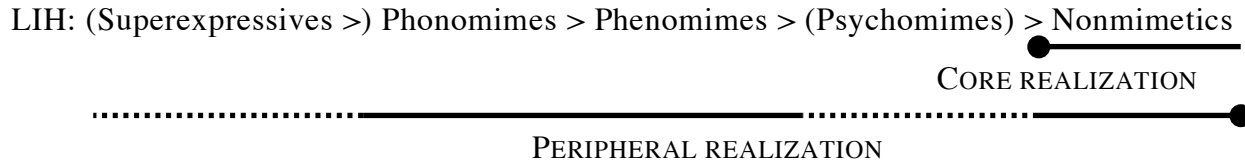
Figure 7.2. Grammatical distinctions of sound-symbolic words in Dagaare and Kambera

Put in another way, in Dagaare and Kambera, the AIC rules out any ideophonic predicate as "highly iconic."

Similar syntactic isolation of ideophones is also reported for other Niger-Congo languages, such as Ibibio (Ekere 1988 cited in Childs 1994: 187) and KiVunjo Chaga (Moshi 1993). In this connection, mainly based on data from Southern Sotho (Niger-Congo), Kunene (1965, 2001) discusses the "aloofness" of ideophones in the sense that they are free from syntactic and morphological processes that regular lexical items undergo. As he notes, however, it is also true that Niger-Congo ideophones often participate in the clause structure with the help of functional morphemes, such as *-re* 'say' in Southern Sotho, which seem to correspond to *suru* 'do', quotative *-to*, copula, etc. in Japanese. Hence, for a more fruitful comparison across languages, serious attention should be paid to not only segregated but also integrated facets of ideophones.

7.1.3. Hungarian

Hungarian, an agglutinative Finno-Ugric language, is also more or less rich in sound-symbolic vocabulary but likely to have no or few psychomimes (Pintér 2003). Unlike the above languages, Hungarian strongly favors core (i.e., verbal) realization for this word class. What is notable is the existence of a peripheral encoding strategy. It is much more restricted than the core encoding strategy. As the following examples

illustrate, this adjunct encoding is exclusive to phonomimic meanings: phenomimic meanings can be only encoded in verbs.[5]

(7.9) Phonomimes:

    a. A méhecske {*zümm-ög*-ött/ *züm(züm)* repked-ett}.

       the bee   MIM-VBL-PST MIM   fly-PST

       'The bee {buzzed/flew buzz}.'

    b. For peripheral vs. core encoding:[6]

       berr vs. *berr-eg* 'zoom'; *durr* vs. *durr-{an/og}* 'slam'; *locc* vs. *loccs-an* 'splash'; *ropp* vs. *ropp-an/rop-og* 'crunch'; *röff* vs. *röff-ent* 'oink'; *vakk* vs. *vakk-ant* 'bowwow'

(7.10) Phenomimes:

    a. A   fény   {*csill-og*-ott/ **csill(csill)* tükröződ-ött} a   viz-en.

       the light MIM-VBL-PST   MIM   reflect-PST   the water-on

       'The light {flashed/*reflected flash} on the water.'

    b. For peripheral vs. core encoding:

       *cam vs. *camm-og* 'walking sluggishly'; **lib* vs. *libb-en/lib-eg* 'fluttering'; **patt* vs. *patt-an* 'bounding'; *??pöcc* vs. *pöcc-int* 'flicking'; **vil* vs. *vill-an* 'glistening'

Therefore, as shown in the following figure, a grammatical-functional distinction point for this peripheral encoding strategy in Hungarian can be posited exactly be-

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[5] Tamil provides a similar case. In this Dravidian language, all expressives that cannot be quoted by the verb *-e<u>n</u>al* 'say' in Chevillard's (2004) lists seem to be phenomimic (see also Samarin 1971; Bartens 2000).

[6] There are two verbal forms for sound-symbolic words in Hungarian. Sound-symbolic verbs ending with *-Vg* (where V stands for a vowel, which is harmonized with the preceding vowel) represent semelfactive eventualities, and those ending with *-Vn(t)* represent repetitive or continuative eventualities.

tween phonomimes and phenomimes (i.e., between absence and presence of synaesthetic understanding), whereas that for the core encoding strategy should be higher on the hierarchy.

LIH: (Superexpressives >) Phonomimes > Phenomimes > (Psychomimes) > Nonmimetics

CORE REALIZATION

PERIPHERAL REALIZATION
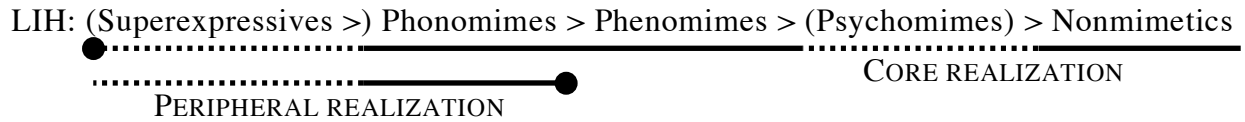
Figure 7.3. Grammatical distinctions of sound-symbolic words in Hungarian

Significantly, the present grammatical distinction is of a different kind from the ones identified for the above three languages (i.e., grammatical distinction for peripheral encoding). Unlike the core encoding strategies discussed above, the range of application of this peripheral encoding strategy extends from the distinction point toward the high end of the LIH. This oppositeness bears much meaning in the proposed semantics-syntax mapping model. It will be accounted for in the context of an implicational-hierarchical generalization across languages in Section 7.2.

7.1.4. *English, Swedish, and French*

Germanic languages are generally conceived of as not rich in non-onomatopoeic sound-symbolic items (i.e., phenomimes and psychomimes) (English: Herlofsky 1990: 217, 1993; Levin 1993; Levin et al. 1997; Kaida 2007; Swedish: Abelin 1999; Flyxe 2002; German: Brochlos 1990; Reinelt 1990). As exemplified below, they are most likely to be realized as a main verb.[7] It is true that the definition of sound-symbolic

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[7] As Janick Wrona pointed out at the 17th Japanese/Korean Linguistics Conference in 2007, in many languages like Germanic ones, sound-symbolic items often occur as a noun in a PP (e.g., *She fell into the water with a splash*). However, this use of sound-symbolic words is unlikely to be central in that sound-symbolic words are fundamentally dynamic (see Sections 5.3.1.3 and 6.4). Also, those nouns do not constitute a head of a phrase. For these reasons, they are excluded from the present discussion.

words does not necessarily go straightforwardly in these languages (see Section 4.4.4 above). Nevertheless, almost all candidates for them are unambiguously verbs, rather than adverbs, as illustrated in the following English and Swedish examples. Notice that, in English, phenomimic adverbs (e.g., *plop* in (7.11ai)) are still less acceptable than phonomimic adverbs (e.g., *twinkle* in (7.11bi)). This tendency is compatible with our LIH-based generalization about peripheral realizations of sound-symbolic words (see Figure 7.4 below).

(7.11) English:

    a. Verbs of sound emission (phonomimes):

       i. She {*plopped*/(?)fell *plop*} into the water.

       ii. A cat is {yowling/??crying *yowl*} outside the house.

       iii. *bang*, *beep*, *buzz*, *clank*, *creak*, *hiss*, *jingle*, *patter*, *rattle*, *ring*, *screech*, *shriek*, *sizzle*, *splash*, *swoosh*, *thud*, *wheeze*, *whistle*

    b. Verbs of light emission (phenomims):

       i. Stars {*twinkled*/*shone *twinkle*} in the sky.

       ii. *blink*, *flash*, *flicker*, *gleam*, *glimmer*, *glisten*, *sparkle*

                              (verbs elicited from Levin 1993: 233, 235)

(7.12) Swedish:

    a. Verbs of sound emission (phonomimes):

       i. Hon {*plaska*-de/*föll   *plask*} i vattnet.

          she MIM-PST   fall.PST MIM   in the.water

          'She {splashed/*fell splash into} the water.'

       ii. *bjällra* 'bell', *fnissa* 'giggle', *gnälla* 'grumble', *klappa* 'pat', *kvida* 'whine', *skallra* 'rattle', *smaska* 'slurp', *spraka* 'crackle', *stampa* 'stamp'

b. Verbs of light emission (phenomimes):

i. Stjärnorna {*blänk*-te/*lys-te *blänk*} i skyn.

the.stars MIM-PST shine-PST MIM in the.sky

'Stars {blinked/*shone blink} in the sky.'

ii. *blossa* 'blaze', *blända* 'dazzle', *glimma* 'glimmer', *glittra* 'glitter', *gnisslar* 'squeak', *prunka* 'be resplendent'

(verbs elicited from Abelin 1999: Appendix 1)

Intriguingly, however, as Tamori and Schourup (1999) point out, there are some exceptional cases. Even in these languages, extremely iconic, superexpressive expressions, such as coined phonomimes and nonlinguistic animal mimicries, are less likely to function as a main verb, and instead prefer an adjunct status.[8] Notice that some of the following onomatopoeic words take an emphatic affix (i.e., *ker-*, *-da-*), which is reminiscent of Japanese derivative operators discussed in Section 5.3.7.

(7.13) English:

a. His wristwatch {*©?kerplopped*/fell *kerplop*} into the swimming pool.

(cf. (7.11ai)) (adapted from Tamori and Schourup 1999: 99, 104)

b. A cat is {*©?rreeeowrling*/crying *rreeeowrl*} outside the house.

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[8] The predicate function in English seems much opener than Tamori and Schourup conceive. According to Luke Fleming (personal communication), it might be fulfilled not only by superexpressive phonomimes and nonlinguistic animal mimicries but also by nonvocal sounds, such as the actual knocking sound in the following sentence.
(i) Tom <<ACTUAL KNOCKING SOUND MADE BY THE SPEAKER>> on the door.
  'Tom knocked on the door.'
Also, Lawrence C. Schourup pointed out that (i) is not perfectly acceptable due to the absence of the inflection. According to him, (ii), which is free from inflection, is much better.
(ii) Be sure you <<ACTUAL KNOCKING SOUND MADE BY THE SPEAKER>> on the door as you pass.
This fact suggests the need for more extensive research taking individual differences into account.

(7.14) Swedish:

   a. Hon {*_pladaska_-de/föll   _pladask_} i vattnet. (cf. (7.12ai))

      she   MIM-PST   fall.PST   MIM   in the.water

      'She {*splaashed/fell splaash} into the water.'

   b. Grodan   {_?plumsa_-de/ dök   _plums_} i vattnet.

      the.frog   MIM-PST   dive.PST MIM   in the.water

      'The frog {?kerplopped/dived kerplop} into the water.'

Likewise, French, which is a Romance language with a notably small sound-symbolic lexicon (Ullmann 1962; Tamamura 1989; Senba 1990; Okamoto 1988, 1991; Matsumura 2004; Hasada 2005: 185; Suzuki 2005), does have some (etymologically) onomatopoeic verbs, such as _coasser_ 'croak'. However, superexpressive words cannot function as a predicate and result in interjectional realization. The nonce phonomime _pongg_ in the following example is a kind of loanword that, like many other similar words, is used in translations of Japanese cartoons (Miyuki Ishibashi, personal communication).

(7.15) French:

   *Il a   _pongg-eué_   sur un   arbre.

    he has MIM-VBL.PST on   a   tree

    'He craashed into a tree.'

Thus, these three languages show similar patterns in their treatment of onomatopoeic words with extraordinary expressiveness.

In connection to the present observation, Akita et al. (2009) point out the possibility that intensification is more difficult in mimetic verbs than in mimetic adverbs. In their video-aided experiment, Japanese and English speakers used onomatopoeic adverbs

and verbs, respectively, with similar frequency in their descriptions of motion events. However, only Japanese speakers often created unconventional expressive onomatopoeic forms like *piiiiiQ^(-te) (< piQ^(-te)* 'whistle'). This difference between the two languages may be ascribable to their different primary encoding strategies for sound-symbolic words. Intuitively, the core encoding is less likely to be resistible to drastic morphological or morphophonological modification, for it has to encode information that plays a crucial role in determining how the entire clause looks like (see Section 3.3.3). This idea seems to be compatible with the present lexical iconicity-based description of mimetic syntax in that both think that expressiveness generally tends to be avoided from a syntactic center, which is basically occupied by non-mimetic regular items.

Next, let us take a brief look at a non-core encoding strategy for sound-symbolic words in English. Some studies discuss the *go*-quotative construction as a syntactic device that introduces an onomatopoeic element as well as other types of auditory information into a sentence (Butters 1980; Schourup 1982; Sakita 2001). This construction allows what Rhodes (1994: 281) calls "wild" onomatopoeic forms to occur in a non-predicate position, as illustrated in (7.16a). (His "wild" forms seem to correspond to all superexpressives and some normal phonomimes in our classification.) More importantly, what Rhodes calls "tame" forms, including less expressive phonomimes as well as phenomimes and psychomimes, cannot be quoted in this construction, as shown in (7.16b).

(7.16) a. "Wild" phonomimes:

  i. It {goes/went} *ping*. (Rhodes 1994: 281)

  ii. Ducks go "*quack, quack, quack.*" (Tamori and Schourup 1999: 107)

 b. "Tame" phonomimes and phenomimes:

  i. go {**rattle*/**groan*/*?*smash*} (Rhodes 1994: 281)

ii. *The gold nugget went *flash*. (Tamori and Schourup 1999: 110)

Note that, as shown in (7.11a), the nonhead encoding strategy using no special device is not available to normal sound-symbolic words in English. In this respect, we should examine for each language whether there is *any* strategy that allows a core/peripheral realization for a semantic type of sound-symbolic words, rather than whether each encoding strategy does so. This is one of the reasons why I call the present study "functional" (see Keenan and Comrie 1977).

The above data lead us to conclude that, in the three languages, grammatical-functional distinction for core encoding is made between normally and extremely expressive phonomimes on the LIH. Meanwhile, at least in English, a grammatical-functional distinction point for peripheral encoding is likely to be located between "wild" and "tame" phonomimes on the same hierarchy. The following figure summarizes these two points.

LIH: Superexpressives > Phonomimes (> Phenomimes > Psychomimes) > Nonmimetics

CORE REALIZATION

PERIPHERAL REALIZATION (E)
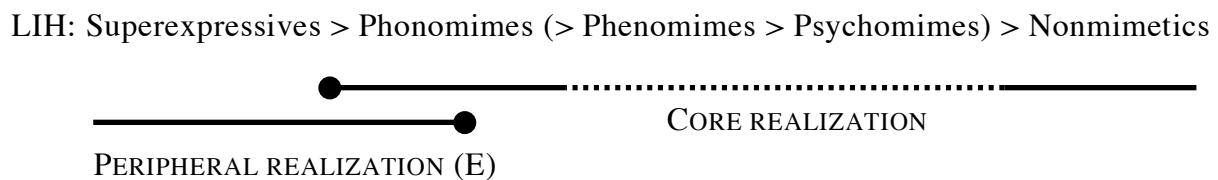
Figure 7.4. Grammatical distinctions of sound-symbolic words in English, Swedish, and French

Thus, the present observations identified two grammatical distinction points for English sound-symbolic words. Notice that, as referred to in the previous subsection, the lines indicating the coverage of the two types of linguistic encoding extend in the opposite directions. This opposition is the same one as what was yielded by the AIC and PIC in Japanese in Section 6.4. As I emphasized there, what is of particular significance is that both encoding strategies, which are under the control of the two constraints, are captured on the scale of lexical iconicity.

7.1.5. *Bilkiire and Warekena*

Finally, Bilkiire (a pidginized Fula, Niger-Congo) and Warekena (Maipurean) represent another type of grammatical distinction of sound-symbolic words. Bilkiire has only a restricted number of ideophones (Noss 1979, 1985; see also Bartens 2000: Appendices 1 and 2), and so does Warekena (Aikhenvald 1998: 420). Notably, both languages are likely to allow ideophones for core as well as peripheral realization. Specifically, Bilkiire ideophones have an adjectival or adverbial status. More remarkably, Warekena has a phonomimic verb (*guwe* 'bark') as well as phonomimic adverbs or interjections. A possible interpretation of the present state of affairs is that, in these languages, the ranges of application of both core and peripheral encodings cover all ideophonic segments of the lexical iconicity scale available to them (i.e., phonomimes and probably superexpressives). The same situation might be interpretable as absence of grammatical distinctions for ideophones. The following figure translates the present idea.

LIH: (Superexpressives >) Phonomimes (> Phenomimes > Psychomimes) > Nonmimetics

CORE REALIZATION

PERIPHERAL REALIZATION
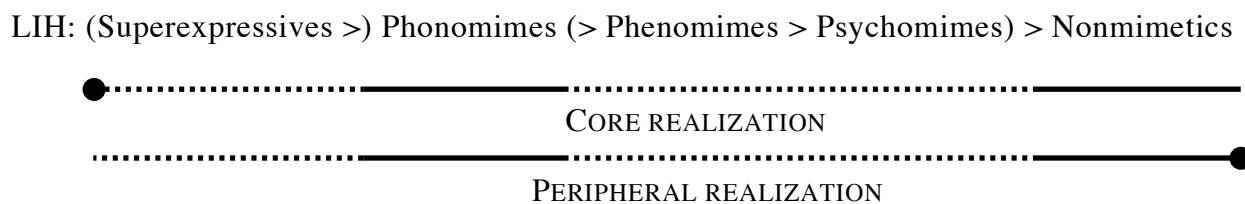
Figure 7.5. Grammatical distinctions of ideophones in Bilkiire and Warekena

7.2. A Functional Generalization of Mimetic Syntax

The previous section observed diverse grammatical-functional distinctions of sound-symbolic words in some languages on the basis of the LIH. In this section, based on the inter-hierarchic mapping model of mimetic syntax designed in Section 6.4, I present a preliminary generalization for the variation in mimetic syntax within and across languages. In Section 7.2.1, it will yield a pair of implicational constraints that are expected to hold universally. In addition, the origin of the variation in mimetic syntax will be considered in terms of the size and content of the mimetic vocabulary of each language. These considerations will make the present model compatible with other theoretical frameworks. Section 7.2.2 will point out its compatibility with a functional framework and a psycholinguistic one. Section 7.2.3 will discuss its relation to another large-scale language typology by Talmy (1991, 2000b).

7.2.1. Possible universals

To begin with, the following figure puts together the situations of the nine languages observed so far. It also includes non-adult Japanese discussed in Section 6.1.2, which shows a pattern similar to Hungarian with respect to its core realization strategy of mimetics: non-adult Japanese mimetics are basically highly iconic (i.e., mostly phonomimic and sometimes phenomimic) and can be readily used as verbs.

LIH: Superexpressives > Phonomimes > Phenomimes > Psychomimes > Nonmimetics

B, W

H, NAJ

E, S, F

J, Ko

D, Ka

CORE REALIZATION

PERIPHERAL REALIZATION

E

H

J

D, Ka

B, W
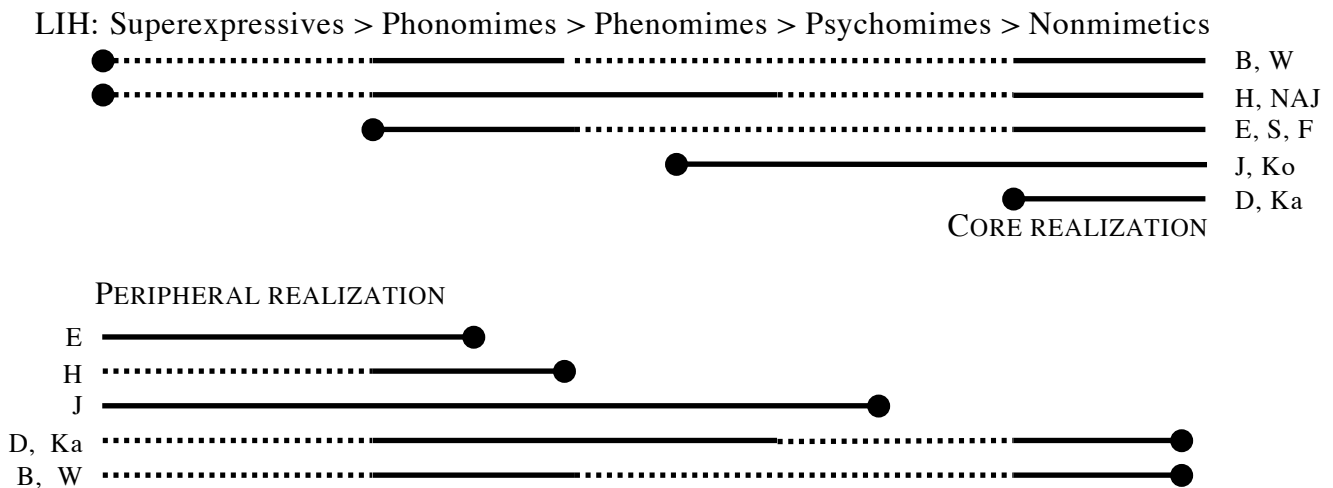
Figure 7.6. Variation in grammatical distinctions of sound-symbolic words

Note: Sound-symbolic words in the ranges covered by a dotted line are likely to be unproductive or not found in the present data.

The present summary brings about three major specific generalizations. First, regarding Japanese, English, Bilkiire, and Warekena, both core and peripheral encoding strategies were observed. Interestingly, in all four languages, a distinction point for a core encoding strategy tuned out to be higher than that for a peripheral encoding strategy. This seems not sheer coincidence. This pattern of disagreement in grammatical distinction between the two types of encoding strategies allows certain types of sound-symbolic words to use both of the strategies. In other words, it is the case that all types of sound-symbolic words have access to at least one encoding strategy. This situation is natural in that if a word could not appear in either core or periphery of a clause it would not exist in the world. Therefore, it is hypothesized as a universal that a grammatical-functional distinction point for core encoding is located together with or higher than that for peripheral encoding.[9] This hypothesis presupposes the existence of both core and peripheral encoding strategies in a given language. However, it does not have to be a necessary condition. Hence, the hypothesis can be for-

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[9] The "universality" here is limited to spoken languages. To identify true universals, we also need to explore non-spoken languages using an LIH appropriate for each language type (Section 1.3.4).

mulated in a weakened version like this: if a language has sound-symbolic words, it also has one or more encoding strategies that together cover all of them. This "hypothesis" never fails, and what should be really examined will be how many strategies a language can have and whether there is some difference in priority among them (cf. Keenan and Comrie 1977).

Second, as already pointed out, coverage lines for the two types of encoding strategies in Figure 7.6 go in opposite directions. On one hand, a line indicating the coverage of a core encoding strategy extends downwards from the high end of the LIH. On the other hand, a line indicating the coverage of a peripheral encoding strategy extends upwards from the low end of the hierarchy. What is more important for the purpose of a crosslinguistic generalization is that, regarding both types of encoding strategies, implicational relations hold among the nodes of the hierarchy. That is, the coverage lines are never broken as long as the language has relevant sound-symbolic items. The present fact can be explicitly described in terms of the following crosslinguistic constraints.

(7.17) A crosslinguistic generalization for mimetic syntax:

    a. Core realization:

        i. If one semantic type of sound-symbolic words can be realized in the core of a main clause, then sound-symbolic words of lower iconicity, if present, can as well.

        ii. Conversely, if one semantic type of sound-symbolic words cannot be realized in the core of a main clause, then sound-symbolic words of higher iconicity cannot, either.

b. Peripheral realization:

    i. If one semantic type of sound-symbolic words can be realized in the periphery of a clause, then sound-symbolic words of higher iconicity can as well.

    ii. Conversely, one semantic type of sound-symbolic words cannot be realized in the periphery of a clause, then sound-symbolic words of lower iconicity, if present, cannot, either.

(i) statements describe the coverage lines in the above figures, whereas (ii) statements describe the rest of the LIH. In this generalization, grammatical-functional distinction points discussed above are reinterpreted as "cutoff points" on the implicational hierarchy of lexical iconicity. By the proviso "if present" in (7.17ai, bii), the generalization acknowledges vocabulary gaps on the hierarchy (i.e., dotted parts of the coverage lines in Figure 7.6). Note that no such proviso is necessary for (7.17aii, bi), for, referred to in Section 1.3.6 above, there is perhaps an implicational relation among the nodes of the hierarchy with respect to their presence as well.

The present generalization is intended to have the potential of universal application. Therefore, it is a hypothesis for untested languages as well as a generalization for the tested languages. For example, it hypothesizes as a universal that, if a language has psychomimes and they cannot function as a predicate, then phenomimes and phonomimes cannot, either. Likewise, it is predicted that there is no language with a rich number and variety of sound-symbolic words that allows phenomimic and psychomimic adjuncts but disallows phonomimic ones. In summary, the generalized conception here enables us to capture the mimetic syntax of a language in terms of the following set of criteria:

(7.18) Criteria of the mimetic syntax of a language:

    a. What semantic types of sound-symbolic words it has.

    b. What types of encoding strategies it has for sound-symbolic words.

    c. How high iconicity it allows for core encoding.

    d. How low iconicity it allows for peripheral encoding.

Third, as partially referred to above, a weak negative correlation seems to hold between the grammatical-functional cutoff point and the size/variety of sound-symbolic vocabulary of a language. Concretely, it is almost true that the smaller the sound-symbolic lexicon of a language is, the higher on the iconicity continuum its grammatical-functional cutoff point for sound-symbolic words is located. This tendency implies that how sound-symbolic words of a language are realized syntactically is to some extent dependent on the size and content of its sound-symbolic lexicon. The correlation is natural in that distinction by form is unlikely to be useful in languages with a handful of sound-symbolic items like Bilkiire and Warekena. Similar but more moderate cases are found in languages that are poor in poorly iconic sound-symbolic words, such as English and Swedish, in which grammatical distinction points are located quite high on the LIH. Sound-symbolic words in such languages are more likely to need a grammatical distinction. The demand for grammatical distinction is much stronger in languages like Japanese and Korean, which are full of sound-symbolic items of a considerable semantic variety. In the two languages, grammatical distinction is made at a lower point on the hierarchy. In sum, the most effective points for grammatical division of labor differ depending on the number and types of members. If Japanese and Korean grammatically divide the LIH between superexpressive and normal phonomimes, the larger half of their mimetic lexicon (i.e., from normal phonomimes to psychomimes) might demand further formal distinction. The present reasoning has the potential to qualify as a fundamental explanation for the origin of

the AIC and PIC. This view is therefore worth pursuing from extensive investigations of diverse languages.

7.2.2. *Compatibility with other theoretical frameworks*

The previous subsection formulated some crucial generalizations and constraints in mimetic syntax. Then, why do they all work on the basis of the LIH? This fundamental question can be answered in terms of the functional semantics-syntax mapping model proposed in Section 6.4. The essence of the proposed universal in (7.17) is as follows: the more iconic a mimetic is, the less likely it is realized in the core of a main clause and the more likely it is realized in the periphery of the clause. Based on the LIH, high iconicity means great isolation from regular lexical items in terms of the relationship between form and meaning. Meanwhile, in the idea of the layered clause structure, a periphery of a clause is a position functionally isolated from its core. That is, an iconic mapping relation with respect to some kind of isolation (cf. "distance/cohesion" in Haiman 1983, etc. and Haspelmath 2008a) holds between the LIH and the GFH. The idea of diagrammatic-iconic mappings from semantics to syntax is crucially compatible with some other functional-theoretical constructs, such as Van Valin and LaPolla's (1997) Interclausal Relations Hierarchy introduced in Section 3.2.

In addition, the present inter-hierarchic mapping model seems to have at least partial compatibility with Kita's (1997, 2001) "two-dimensional" model for Japanese mimetics, which was briefly mentioned in Section 2.2.1 above. On (psycho)linguistic and paralinguistic grounds, Kita insists that mimetic manner adverbs belong to a distinct semantic dimension from regular items and are semantically not fully integrated with them. Interestingly, however, he acknowledges that mimetic adjectives and verbs are not so distinctly separated from nonmimetic parts of a sentence (Kita 1997: 391,

2001: 434). Although his definition of "semantic integration" is not as clear as that of "syntactic integration" (i.e., cooccurrence in a sentence) (cf. Tsujimura and Deguchi 2007), we may be able to offer some support to his semantic integration account of mimetics from the above functional viewpoint.

Concretely, Kita's "syntactic integration" can be replaced by a finer-grained syntactic scale like our GFH. Moreover, it seems to be possible to recapture his "semantic integration" linguistically (or semiotically) in terms of our LIH. More specifically, the degree of semantic integration of a mimetic with nonmimetic regular items can be construed as its closeness to them on the LIH. These reformulations of the basic components of Kita's model make it look like our inter-hierarchic mapping model. In this specified view, the high semantic independency of mimetic adverbs that he claims can be justified in terms of the observed mapping relation between highly iconic mimetics and the adjunct function in Japanese. Mimetic adverbs are relatively distant from nonmimetics on the LIH because they are more likely to be made from highly iconic mimetics. On the other hand, mimetic verbs and adjectives, which he notes are semantically halfway integrated with nonmimetics, are in fact closer to them because they are made from relatively poorly iconic mimetics.

Thus, Kita's two-dimensional analysis can be a linguistically appropriate model if it is interpreted in favor of our LIH-GFH mapping model. At the same time, however, it should be noticed that our model is critically different from Kita's in that it emphasizes the hierarchical (or gradient) nature of both sides of the mappings. Also, the present model is more readily extendable to crosslinguistic investigations, for it locates each grammatical status of mimetics within the clause structure, rather than it treats their (language-specific) grammatical categories in isolation.

The compatibility with other theoretical models viewed here is one of the most important facets of the present theoretical approach to mimetic syntax, for, as stated in Section 2.1, the study of sound-symbolic words has been more or less isolated from

general linguistic theories and, more crucially, made little contribution to them. The present fresh eye on the grammatical aspect of sound-symbolic words is thus expected to be extended to other areas of this research field.

7.2.3. Correlation with the framing typology

At last but not least, I make some notes on the relation of the present model to Talmy's (1991, 2000b) framing typology. Talmy and many subsequent scholars have extensively discussed the two major types of languages in terms of linguistic encodings of motion events. On one hand, languages that prefer encoding path of motion in head verbs, such as Basque, Japanese, Korean, Romance and Semitic languages, are called "verb-framed languages" (or V-languages). On the other hand, languages that prefer encoding path in nonhead elements (e.g., adpositions, affixes), such as Finno-Ugric, Germanic, and Slavic languages, are called "satellite-framed languages" (or S-languages).

Wienold (1995) proposes the existence of a correlation between the framing typology and the presence of a productive word class specialized for manner. Specifically, he hypothesizes that V-languages, whose clause head is usually occupied by path verbs (e.g., *hairu* 'enter' (J)), have a special manner vocabulary like the mimetic lexicons in Korean, Japanese, Thai, and Vietnamese (see also Tsujimura 2005b). He argues that such a rich manner lexicon compensates for the scarcity of manner verbs in those languages. This alleged situation is contrasted with the abundance of manner verbs (e.g., *ramble*, *saunter*, *stagger*) in S-languages.

As Matsumoto (2003bc) argues, however, such a correlation does not necessarily hold. For example, as Matsumoto points out, French is classified as a V-language but lacks a rich sound-symbolic lexicon (see Section 7.1.4). Based on some additional

pieces of evidence from several languages, he suggests the existence of a different parameter called "the manner categorization parameter" for encodings of manner (see also Ohara 2002; Sugiyama 2005; Akita et al. 2009).

The present study has the potential to contribute to this discussion. As pointed out in Section 7.2.1, there seems to be a weak correlation between the richness of sound-symbolic items in both number and variety and the variation in their grammatical properties. Importantly, this presumed correlation basically has nothing to do with how those languages encode path of motion. It is simply a matter within the manner category. In this regard, the present study on mimetic syntax stands by Matsumoto's manner categorization parameter. It may be the case that there are indeed a certain degree of correlations among the framing typology, the abundance of sound-symbolic words, and their grammatical properties (i.e., mimetic syntax). However, it is unlikely to be the case that the three stand in such a perfect correlation as Wienold expects. In fact, in our data, French behaves in parallel with English and Swedish, which are typical S-languages (Tohno 2006). Future research is expected to unveil the whole image of this inter-typological relation. It will for sure lead the present crosslinguistic generalization/hypothesis for mimetic syntax toward its right place.

7.3. Conclusion

This chapter took a preliminary look at crosslinguistic variation in grammatical properties of sound-symbolic words, focusing on where on the LIH each language posits distinction points for its core and peripheral encoding strategies for sound-symbolic words. It has been demonstrated that the iconic LIH-GFH mapping model, which was drawn from the analysis of Japanese mimetics in Chapter 6, well describes the variation in mimetic syntax not only within but also across languages.

tion in mimetic syntax not only within but also across languages. This achievement is especially significant in terms of the previous studies' strong inclination toward intralinguistic descriptions. More importantly, locating Japanese in a crosslinguistic map, the present crosslinguistic explorations succeeded in contributing back to the LIH-based grammatical-functional analysis of Japanese mimetics in that chapter.

Also, the crosslinguistic observations crucially pointed out the implicational relations among the nodes on the LIH in the inter-hierarchic mapping model. The implicational relations stem from the diagrammatically iconic nature of the inter-hierarchic mappings, in which the farther on the LIH a mimetic is isolated from nonmimetics the more likely it is isolated syntactically from the core of a main clause. This finding, at the same time, reinforces the validity of the LIH itself at least as a descriptive device. Its status as an explanatory device needs to be carefully pursued in the future (Section 1.3.6).

More fundamentally, the inter-hierarchic model reflects a functional view of the relationship between semantics and syntax. Its compatibility with other functional or psycholinguistic models successfully qualified the present investigation as a pilot study that breaks the traditional massive wall between the study of mimetics and that of the rest of the lexicon. This exploratory, theoretical standpoint is shared by the current trend in the study of mimetics outlined in Section 2.2.

This study has furthermore presented an instance of interplay of imagic and diagrammatic types of iconicity. The two types of iconicity are generally discussed with quite different sets of linguistic and nonlinguistic phenomena. As referred to in Section 1.3.4, imagic iconicity in language is usually limited to sound-symbolic words, whereas diagrammatic iconicity in language is most frequently discussed at the morphosyntactic and discourse levels. In this respect, the diagrammatically iconic mapping model between the LIH and the GFH discussed here is a remarkable example that instantiates both of them. This doubly iconic nature of sound-symbolic words seems to

be what guarantees their fundamental status as a highly effective communicative device.

Finally, as is obvious, there lie many things to do in front of us. In order to develop the present partial crosslinguistic comparison to a full-scale typological investigation, we need to take a careful look at the situations of individual languages from diverse parts of the world. Reference grammars are often crucially insufficient for that purpose. It is true that many grammars, monographs, and articles contain a separate description of the sound-symbolic lexicon of their languages. In most cases, however, such a description provides only partial information, which does not specify what syntactic property is available to what kind of sound-symbolic word. For example, Crass (2007: 99) mentions the extensive use of ideophones in K'abeena and Amharic (Afro-Asiatic) and the possibility of their verb formation with a dummy verb meaning 'say' (*yu* in K'abeena, *alä* in Amharic). His data also contains some psychomimic verbs (e.g., *sillimm yu* (K'abeena), *sɘllɘmm alä* (Amharic) 'fall into a swoon, be in a coma'). However, we cannot draw a generalization from the data, for there is no description about what types of ideophones *cannot* form verbs. Similarly, Bartens (2000: Appendices 1 and 2) offers lists of languages from diverse typological groups. They contain information about the syntactic or categorial classes open to sound-symbolic words in each language and sometimes about the size of its sound-symbolic lexicon. However, she does not specify what *semantic* classes of sound-symbolic words have access to those grammatical properties. Future investigations should be conducted on the basis of a common set of specific criteria like (7.18).

The present pilot study on the crosslinguistic variation in mimetic morphosyntax thus succeeded in opening up a new research field of the study of sound-symbolic words and in building up its foundation. Hopefully, it has the potential to lead to the essential discovery of some universals of language. At the same time, the farther the

crosslinguistic investigations proceed, the further the mimetic syntax of Japanese will be clarified.

Chapter Eight

Conclusions

This thesis has made some theoretical approaches to iconic/special and lexical/regular properties of Japanese mimetics. Parts I and II, respectively, explored iconic mapping systems in the morphophonology and morphosyntax of mimetics. These investigations can be naturally located in the growing theory-oriented trend in the study of mimetics that is breaking through the long-time tradition of description-orientation in this research area.

This final chapter consists of two parts. In Section 8.1, I will briefly recapitulate the essential points I made in the above chapters in terms of the interplay between the lexical and iconic facets of mimetics. Based on those insights, in Section 8.2, I will suggest some future directions that can be envisaged beyond the current linguistic explorations in the grammar of sound symbolism.

8.1. Lexical and Iconic Facets of Mimetics

Generally speaking, the present study has demonstrated that some linguistic principles applied to the "core" of the grammar are more or less inherited to mimetics, which are believed to be "peripheral" items due to their exotic form-meaning linkage. More specifically, this

study has unveiled the essential roles of lexical meanings and lexical iconicity of mimetics in their lexical-categorial, morphophonological, and syntactic statuses. It has been clarified that iconic form-meaning relationships at the morphophonological and morphosyntactic levels of mimetics as well as their categorial organization are dependent on their highly specific lexical meanings. The high referential specificity of mimetics has two faces. On one hand, it characterizes mimetics as constituting a morphophonologically and phonosemantically special class, as shown in Chapter 4. On the other hand, it guarantees their full-fledged lexical status that allows us to treat them in general linguistic frameworks like those taken in Chapters 5, 6, and 7. This overall conclusion is diagrammed below.

```
┌─────────────┐        ┌──────────────────────────────────────────────┐
│   Highly    │ ─────► │ Phonosemantic peculiarity (Ch. 4)            │
│  specific   │        ├──────────────────────────────────────────────┤
│   lexical   │ ─────► │ Morphophonological construction networks (Ch. 5) │
│   meaning   │        ├──────────────────────────────────────────────┤
│             │ ─────► │ Iconic LIH-GFH mappings (Ch. 6-7)            │
└─────────────┘        └──────────────────────────────────────────────┘
```
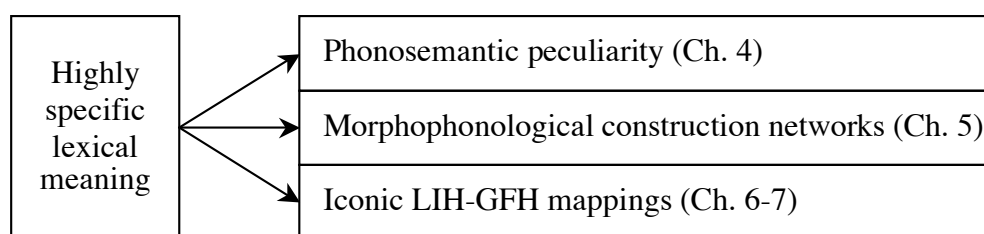
Figure 8.1. A lexically based iconic system of mimetics

In Chapter 4, mainly on experimental grounds, I explicated two fundamental traits of the mimetic category in Japanese. First, I identified the primary status of morphophonological templates in the definition of Japanese mimetics. This finding led to the conclusion that Japanese mimetics form a fuzzy prototype category with the template condition as a privileged condition. Second, a set of novel word-based experiments succeeded in attributing the generally believed phonosemantic peculiarity of mimetics to their highly determinate lexical meanings that are linked with their morphophonological and segmental features via lexical iconicity. Thus, the chapter as a whole proposed a solution to the traditional problem in categorization of mimetics from both formal and functional points of view.

In Chapter 5, in the framework of Construction Morphology, the semantics of three major

mimetic morphophonological templates (i.e., CV^CV-CVCV, CVCVX, CVCCV^ri) was deeply discussed. Those templates turned out to exhibit certain sets of constructional characteristics. First, a high degree of semantic unpredictability was pointed out for the templates, the emphatic template in particular. This characteristic is likely to be what differentiates morpho(phono)logical and argument structure constructions, which are generally captured on the same continuum. Second, some inheritance links—mainly polysemy links and instance links—were identified among the mimetic templates at various levels of specification. These observations clarified the primary nature of the aspectual meanings of the reduplicative and suffixal templates and that of the non-aspectual, special meaning of the emphatic template. It was generally claimed that those abstract templatic meanings are mere schemata of the lexical meanings of mimetics. In other words, it crucially depends on the lexical meaning of each mimetic what constructional meaning its template represents. This second set of constructional properties can be considered as what morphophonological and argument structure constructions have in common.

In Part II of this thesis, based on a functionalist view of syntax, I proposed a kind of semantics-syntax mapping model for grammatical properties of Japanese mimetics. First, in Chapter 6, the model was drawn from a generalization of the grammatical categories of Japanese mimetics. Second, in Chapter 7, its validity was examined from a crosslinguistic comparison of mimetic syntax. The observations there shed light on the implicational relation in mappings from the LIH to the GFH. This lexical iconicity-based generalization opened a new door of the study of sound-symbolic words in general. The door is expected to allow us to reach some important language universals. Also, the present applicability of the general linguistic framework can be regarded as another piece of evidence for the full-fledged lexical status of this word class.

In summary, this thesis instantiated the usefulness of linguistic theories in this apparently

irregular, deviant word class. It can be restated that the present study made successful contributions to prototype semantics, Construction Grammar, and functional syntax. The latter two theoretical contributions are especially significant in that they contribute to the initial development of a new framework (i.e., Construction Morphology, a crosslinguistic investigation of mimetic syntax). Moreover, the present study has been conducted with the general idea that the iconic aspect of mimetics (i.e., sound symbolism of segments and templates, LIH-GFH mappings) is based on their lexical aspect (i.e., lexical meanings, lexical iconicity). This conception is suggestive of the possibility of further application of linguistic (and perhaps nonlinguistic) frameworks, including those referred to in the next section, to sound-symbolic phenomena.

8.2. Future Directions

As the closing section of this thesis, this section points out both specific and general issues beyond the present study, encompassing the roles of mimetics and their lexical iconicity in lexical acquisition, the importance of peripheral types of mimetic expressions, and the need of methodological flexibility.

8.2.1. *Roles of lexical iconicity in lexical acquisition*

First, as touched in Section 1.3.6, roles of mimetics and sound symbolism in children's language acquisition have recently been attracting curiosity of some psychologists (Fukuda 1999; Oda 2000; Yoshida 2003; Nagumo 2006; Ogura 2006a; Imai and Haryu 2007: Chapter

8; Imai et al. 2008) and linguists (Sakurai 2000; Tsujimura 2005, 2007: 448-453; Fukada 2007; Takeyasu and Akita 2009; Akita 2009a). However, those scholars often pay too strong (almost exclusive) attention to the acquisition of this particular word class. Needless to say, it should not be until sufficient comparisons are made between the acquisition of mimetics and that of regular lexical items (e.g., nouns, verbs, adjectives) that the special developmental status of mimetics is emphasized. In this respect, a series of experimental studies progressed by Imai and her colleagues, who focus on the possibility that mimetics facilitate verb acquisition, should be acknowledged with great significance and promise.

The idea that mimetics play an important part in the acquisition of Japanese is intuitively correct. This intuition seems to come from the remarkable frequency of these words by Japanese-speaking mothers (Fernald and Morikawa 1993; Nagumo 2006; Ogura 2006a; Tajima et al. 2009). It is a natural reasoning that mothers use mimetics frequently from their belief that mimetics help children's understanding. However, it seems to be the case that these pieces of "naturalness" have kept this research topic away from serious investigations.

Part II of this thesis utilized the notion of childishness in the discussion of mimetic verb formation. It is an interesting fact that certain types of mimetic expressions (e.g., ©*tyo^kityoki suru* 'cut with scissors') are limited to non-adult speech. In this respect, it is possible that, as the present study suggested, the grammar of non-adult mimetics is more or less different from that of adult mimetics.

A close look at mimetics to as well as by children in terms of general lexical acquisition might thus reveal some fundamental characteristics of language development, non-adult mimetic grammar, and probably adult mimetic grammar.

8.2.2. *Peripheral parts of a mimetic lexicon*

Second, this thesis has mainly discussed conventional sorts of mimetics. However, as emphasized by the presenters in a symposium on mimetics at the 33rd Annual Meeting of Kansai Linguistic Society (Nasu 2008; Tsujimura 2008), it will be meaningful to expand the scope of investigation to unconventional mimetics. As I pointed out in Chapter 5, the mimetic lexicon of Japanese is likely to have a core-periphery structure. The discussion there revealed that its core is structured by a limited set of morphophonological constructions. However, the presumed compositional structure of its periphery was not fully scrutinized.

The unconventional sort of mimetics is not limited to intensified forms discussed in Section 5.3.7. For example, static categories of mimetics, which are represented by unaccented total-reduplicatives and certain emphatic mimetics, constitute such a minor group. Due to the general biased enthusiasm for the major (i.e., dynamic) aspect of mimetics, almost nothing more specific than the stative (or resultative) property has been uncovered for those static uses of mimetics (see Chapter 5).

A similar situation holds for monomoraic root-based mimetics. Although Chapter 5 of this thesis pointed out some fundamental semantic traits of this minor formal type of mimetics, many interesting things seem to remain to be fount out. Based on their relatively high iconicity and frequency in child-directed speech (Hamano 1998; Tajima et al. 2009), these mimetics are expected to have greater importance in L1 acquisition featured in the previous subsection. This possibility can be further put forward by the high proportion of monomoraic root-based mimetics in the vocabulary of non-adult mimetic verbs (e.g., [©]*to^NtoN suru* 'knock') discussed in Section 6.1.2.

These peripheral parts of the mimetic lexicon are surely worth serious attention. This idea can be drawn without difficulty from the following fundamental characteristics of

sound-symbolic words in general. First, as referred to in Section 1.3.6, this word class is generally characterized by their dramatic creativity. Second, as discussed in Section 4.3, mimetics have a remarkable orientation to marked features with respect to syntax and semantics as well as morphophonology. These basic facets of mimetics are sufficient for us to believe in some essential future discoveries in the minorities.

8.2.3. *Theoretical contributions with methodological flexibility*

The above possible future directions at least range from linguistic to psychological fields. In this respect, flexible methodological standpoints, like the various grammatical, crosslinguistic, experimental, and statistical techniques employed in the present study, will be necessary for effective and efficient investigations. Such flexibility is particularly significant in that the study of sound-symbolic phenomena in general almost inevitably steps into the area of psycholinguistics or psychology, as instantiated by the reference to perceptual images by theoretical grammarians like Kageyama (2007). Diversity of analytical methods is also useful in terms of our theoretical contributions. Introduction of new techniques to linguistic theories can make the study of mimetics more fruitful than mere confirmation of the validity of those frameworks. In this last sentence of this thesis, I wish that the present theoretical investigations with multiple exploratory viewpoints would not only awaken traditional mimeticists but also serve as a basis of future research in the grammar of sound symbolism.

Appendix A
Root-Template-Based Lists of Bimoraic Root-Based Mimetics in Japanese

This appendix lists bimoraic root-based mimetics in Japanese based on three parameters: roots, morphophonological templates, and semantic types. The entries are basically based on Kakehi et al. (1996) but some additions and deletions were made. "OK" indicates that the root-template combination exists in the Japanese mimetic lexicon, and "?" indicates that it is less common.

	CV^CV-CVCV	CVCV-CVCV	CVCVQ^	CVCV(^)N(^)	CVCV^ri	CVCCV^ri	Others
Example (doki)	*do^kidoki*	*dokidoki*	*dokiQ^*	*dokiN^*	*doki^ri*	*doQki^ri*	
PHONOMIMES							
apu							aQpuaQ^pu
baka	OK		OK		?	# 'only'	
baki	OK	OK	OK				
bari	OK	OK	OK	?			
basa (cutting sound)	OK		OK		OK	OK	
basi	OK		OK		?		
basya	OK		OK	?	?	?	
bata (fluttering)	OK		OK				
bata (falling)	OK		OK	OK	OK	?	
bati (whap)	OK		OK	?			
batya	OK		OK	?	?		
beko	OK	OK	OK	?	OK	?	
beri	OK		OK				
biri (rip)	OK	OK	OK				
bisi (snap)	OK		OK		?		
biti (sound of loose bowels)	OK	OK	OK				
boki	OK	OK	OK		OK	OK	
bori	OK		OK				
boso (murmuring)	OK		OK		OK		
bosya	OK		OK	?	?		
bota	OK		OK	?	?		

boto	OK	OK	OK		OK	OK
botya	OK		OK	OK	OK	?
buku (bubble)	OK	OK	OK	?	?	
buri (blap)	OK		OK			
busu (blap)	OK		OK			
dobo	OK	OK	OK	OK		
dobu	OK		OK	OK	?	OK > doQpu^ri/cf. N
dode				OK		
doka (bomb)				OK		
doka (thud)	OK		OK			
dopu			?			OK < dobu
dosa (thud)	OK		OK		OK	OK
dosi	OK		OK	OK	OK	OK
dosu	?		OK	OK		
dosya	?		OK			
dota	OK/ (dotabata)		OK	OK	?	?
dote			OK	OK		
doya	OK					
esa						eQ^saeQ^sa/ eQ^sahoi^sa (chant)
gami	OK					
gara (rattle)	OK	cf. N	OK		OK	
gari (crunch)	OK		OK			
gasa (rustle)	OK		OK		OK	
gasya	OK		OK	OK		
gata (trembling)	OK	OK	OK	OK	OK	?
gati	OK	OK	OK	OK	OK	OK
gatya	OK	cf. N	OK	OK	OK	
gaya	OK					
gebo	OK		OK			
gera	OK					
goro (croak)	OK		OK		OK	
gero (barf)	OK	?				
geta	OK					
giko	OK					
giku (breaking sound)	OK/ (gikusyaku)		OK		OK	OK
gisi (creak)	OK	OK	OK		OK	
gobo	OK	OK	OK			

goho	OK		OK	OK			
goku	OK		OK	OK	OK	OK	
gonyo	OK						
gori	OK	OK	OK				
goro (thunder)	OK		?				
gosi	OK						
goso (rustle)	OK		OK				
goto	OK		OK	OK			
gotu (bumping)	OK		OK	OK			
guda (complaining)	OK						
gusu (snuffle)	OK		OK	OK	?		
gutu	OK		OK		?		
hiku	OK		?				
hiso (cf. hisomu 'hide', hisoka 'secret')	OK					OK	
hiyo	OK						
humu	OK						hu^mu
hyuru	OK				OK		
kapo	OK		OK	?			
kara (clang)	OK			OK			
kari (crisp)	OK	OK	OK	?	?		
kasa (rustle)	OK		OK				
kasya	OK		OK	?	OK		
kata	OK		OK	OK			
kati (click)	OK		OK	OK	?		
katya	OK		OK	OK	OK		
kera	OK						
kero (croak)	OK		OK		?		
keta	OK						
kiko	OK						
kisi	OK						
kori	OK	OK	OK				
koti (tick)	OK		OK				
koto	OK		OK	OK	?		
kotu (tick)	OK		OK	OK	OK		
kusu	OK		OK	?	OK		
kusyo							ha^kusyoN
kutu	OK						
meri	OK		OK				
misi	OK		OK				

mogo	OK						
moso	OK		OK				
munya	OK		OK				
ogya				OK			ogya^a
o(y)i	OK						
paka (clip-clap)	OK		?				
paki	OK	?	OK	OK			
para	OK	OK	OK	OK			
pari (crisp)	OK	OK	OK				
pari (sound of glass broken)				OK			
pasi	OK		OK	OK	OK		
pasya (click of camera)	OK		OK		OK		
pasya (splash, sound of glass broken)	OK		OK	OK			
pata (fluttering, falling)	OK		OK	OK	OK	?	
pati (crackle)	OK		OK	OK	OK		
patya	OK		OK	OK	OK		
peko (being dented)	OK	?	OK		?	?	
piki	OK		OK				
pisi (crack, snap)	OK		OK		OK		
pisya			OK	OK	OK		
pitya	OK		OK	OK	OK		
piyo	OK						pi^yo
poki (crunch)	OK	?	OK	OK	OK	OK	
poku (sound of hitting wood)	OK		OK		?		
pori	OK		OK				
poso (muttering)	OK		OK				
posya	OK		OK	OK	?		
pota	OK		OK	OK	OK		
pote	OK		OK	OK		?	
poto	OK		OK	OK	OK	?	
potya (splash)	OK		OK	OK	OK		
pusu (hiss)	OK		OK				

Word	C1	C2	C3	C4	C5	C6	C7
pusu (sticking)	OK	?	OK		OK		
puti	OK	N	OK	OK	?		
putu (sticking, breaking of string)	OK		OK	OK/puQtu^N (newish)	OK		
saku (crisp)	OK	OK	OK			OK	
siko	OK	OK	OK				
siku (whimper)	OK						
suya	OK						
syaki (crisp)	OK	OK	OK				
syaku							syaQ^kuri
syari	OK	OK	OK				cf. N (syari)
syuru	OK		OK		OK		
tapu	OK	OK	OK		?	OK	
tiri (jingle)	OK			OK			
toku	OK					cf. N (unacc)	
topu	OK			?		OK	
tuku	tukutukuboo^si/ #tuku^zuku						
turu (slurping)	OK		OK				
tyabu			??	??			
tyaka (quicktempo noise)	OK						
tyapo	OK		OK	OK		?	
tyapu	OK		OK	OK			
tyara (jingle)	OK			OK	?		
tyari			?	OK			
tyobo	?						
tyoki (scissoring)	OK		OK	OK	OK	?	
uda	OK						
wa(y)i	OK						waa^i
zabu	OK		OK	OK	OK	OK	za^Nbu (non-modern)
zaku (chopping sound)	OK		OK		OK	OK	
zawa (humming)	OK		OK				
ziri (jingle)	OK		?	OK	OK		
zori	OK		OK				

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zuba (cutting noise)	OK		OK		
zude				OK	
zudo				OK	
zuru (slipperi ness)	OK		OK	OK	OK
zyabo	OK	OK	OK	OK	
zyabu	OK		OK	OK	OK
zyaka	OK				
zyaki	?		?		
zyara	OK		OK	OK	OK
zyari	OK	OK	OK		
zyoki	OK		OK	OK	
zyori	OK		OK		

PHENOMIMES

abe							abekobe
agu						OK	
ake						aQke**ra**-ka^N	
asa (< asai 'shallow'?)						OK	
bara	OK	OK	OK		?		
basa (dryness)	OK	OK	?				
bata (hurrying)	OK						
bata (running into)						OK	
bati (perfectly)						OK	
bera	OK	?					
bero (licking)	OK		OK	?	OK		
bero (drunken)		OK					beroNberonN
beta	OK	OK	OK	?	?	OK	
beto	OK	OK	OK		OK	OK	
betyo	OK	OK	OK		?	?	
bira	OK	OK	OK	?	OK		
bisi (jam-packed)			OK			OK	
bisya	OK	?	OK		?		
bisyo	OK	OK	OK			OK	
bita	OK	OK	OK	?	?	?	bi^ta-iti-moN; cf. bi^Nta
biti (jam-packed)			OK			OK	
bitya	OK	OK	OK		?		
bityo	OK	OK	OK			?	
boka (hitting)	OK	OK	OK		?		
boka (hole)					?	?	
boko (hitting)	OK	OK	OK				
boko (hole)	OK		OK		?		
boro (crumbling)	OK		OK	OK	OK		
boro (raggedness)		OK					
bosa (frazzled	OK	OK	OK				

ness)							
boso (dryness)	OK	OK	?				
bote	OK	OK	OK			?	
boti (pushing a button)	OK		OK				
botu (dots)	OK	OK	OK	?	OK		
buka	OK	OK					
buku (fatness)	OK	OK	OK		?	?	
bura (rambling)	OK		OK	OK	OK		
bura (swaying)	OK	?	OK	OK	OK		
buri (complaining)	OK						
buru	OK	OK	OK	OK	OK		
busu (sticking)	OK	OK	OK		OK	?	
butu (dots)	OK	OK	OK	?	OK	OK	
butu (muttering)	OK/ (bu^tukusa)						
buwa	OK	OK	OK	OK	?		
buyo	OK	OK	OK				
dabo	?	OK					
dabu	OK	OK	OK		?		
daku		OK					
dara	OK	OK	OK	OK	OK		
debu	OK	OK	OK	?	OK	OK > deQpu^ri	cf. de^bu
deka	OK						
deko	??/ (de^koboko)	(dekoboko)					cf. ode^ko
depu						OK < debu	
doro (muddiness)	OK	OK	OK		OK		
doro (vanishing)				OK			
dosa (large amount)						OK	
doyo	?		?	?		OK	
gaba (gulp)	OK						
gaba (covering)			OK				
gabo	OK					OK > gaQpo^ri	
gabu	OK		OK		OK		
gaku			OK	OK	OK		

(buckled ness)							
gaku (shivering)	OK	OK					
gapo	OK		OK			OK < gabo	
gapu	??		??			?	
gara (emptiness)		OK		OK	?		
gari (skinniness)		OK					
gasa (roughness)	OK	OK	?				
gasi			OK			OK	
gatu	OK			OK		OK	
geso		?				OK	
gira (glaring)	OK		OK	?	OK		
gira (oiliness)	OK	OK					
giri		OK					
giro			OK				
gisi (jam-packed)						OK	
gisu	OK						
giti	OK	OK	OK			OK	
gito	OK	OK	OK			OK	
giza	OK	OK	OK				
goro (rolling)	OK		OK	OK	OK		
goso (completely)					OK	OK	
gosya	OK	OK					
gota		OK					
gote	OK	OK	OK			?	
goti	OK	OK					
gotu (ruggedness)	OK	OK				?	cf. goQ^tu (Kansai)
gotya	OK	OK	OK				
gowa	OK	OK					
gozya	?	?	?				
gubi	OK		OK				
guda (messiness, tiredness)		OK					
gunya	OK	OK	OK	?	OK	OK	
gura	OK	OK	OK		OK		
guri	OK						
guru	OK	OK	OK	OK	OK		
gusa	OK		OK		OK	OK	

gusu (sleeping fast)						OK
gusya	OK	OK	OK		OK	OK
gusyo	OK	OK	OK		OK	OK
guta	OK	OK	OK	?	OK	OK
gutya	OK	OK	OK		OK	?
guwa			?			
guzi	OK	?				
guzu	OK					
gyahu				OK		
gyoro	OK		OK		OK	
haki	OK					OK
hana (< 'flower' ?; cf. hana-yaka, hana-yagu)		A (hanabana-si^i)				Kyoto dialect
hara (fluttering)	OK				OK	
hasi						haQ^si (old)
hata					N (unacc)	ha^ta (non-modern)
hena	OK	OK	OK			
hera	OK					
hero		OK			??	
heta	OK		OK		OK	
heto	OK	OK	?			
hira	OK	OK	OK		OK	
hita	OK	OK				
hono (cf. honoka 'faint')	hono^bono/ honobo^no					OK
horo	OK		OK		OK	
hoso (< hosoi 'thin, skinny')	hoso^boso/ hosobo^so					OK
hoya		OK (dekitate-, etc.)	?			
huga	OK					
huka	OK	OK	OK			
huku (cf. huku-ramu/reru 'swell', hukuyoka 'plump')	OK		OK			?/huQk^u**ra**
hunya	OK	OK	OK		OK	OK
hura (staggering)	OK	OK	OK		OK	

husa (< N?)	OK	OK	OK			OK	
hutu	OK						hu^tu (old)
huwa	OK	OK	OK	OK	OK	OK	huNwa^ka
hyoko	OK		OK	?	OK	OK	
hyoku						?	
hyoro	OK	OK	OK	OK	OK		
itya	OK						
kaku (being folded)	OK		?	OK			
kaku (angularity)	OK	OK					
kapi		OK					
kara (thirst)	?	OK	OK		OK		
kasa (roughness)	OK	OK	OK				
kasu	?	OK					
kati (hardness)	OK	OK	?			?	katiNkatiN
katu	OK	OK					
keba	OK	?					
kero (blankness)	OK		OK		OK		
ketyo		OK					ketyoNketyoN
kibi	OK		?				
kipa						OK	
kira	OK	OK	OK	OK	OK		
kiri	OK		OK		OK		
kiti	OK	OK	OK	kiti^N	OK	OK	
koga (cf. kogasu 'burn')						OK	
koku			?	OK	OK	OK (cf. koQ^kuri-san)	
komo (cf. komoru 'hide')						OK	
koro	OK	OK	OK	OK	OK		
kose	OK						
koso	OK		OK		?	OK	
kote (tumbling)			OK	OK			
kote (thickness of taste)	OK	OK	?			OK	
koti (hardness)	OK	OK					
kotu (steadily	OK						

)							
kotyo	OK		OK				
kuda	?						
kudo	OK						
kuki						OK	
kune	OK	OK	OK				
kunya	OK	OK	OK		OK		
kuri	OK	OK	OK	?			
kuru	OK	OK	OK	OK	OK		
kusa (sticking)	OK		OK		OK		
kusya	OK	OK	OK	OK	OK		
kuta	OK	OK	OK	OK	?		
kutya	OK	OK	OK	?	?		
kuwa			OK				
kyapi	OK						
kyoro	OK		OK				
kyoto	OK			OK			
maru (< 'circle')	maru^maru	'all' (not N/Adj)	OK				
mata						OK	
mati		OK/matima^ti					
maza	mazama^za					maNza**ra**	
mazi	OK/ mazi^mazi					OK	
meki	OK		OK			OK	
mera	OK	OK	OK				
meso	OK	?					
meta		OK					cf. meQ^ta
metya		OK					
miti						OK	
mogu	OK						
moko	??					OK	cf. mokori^ N-peN
moku	OK	?					
mori (< moru 'heap up'?)	OK	OK					
mosa	OK	OK	OK		?	?	
mosya	OK	OK	OK				
mota	OK		OK				
mowa	OK	?	OK				
moya (haze)	OK	OK	OK		?		N (mo^ya)
mozo	OK		?				
mozya	OK	OK	OK				
muku	OK		OK		?	OK	
musya (devouring)	OK						
muti	OK	OK	OK			OK	
nami (<	nami^nami	OK					

'wave')						
nayo	OK	?	OK			
neba	OK	OK	OK		?	
neti	OK	OK	OK		?	OK
neto	OK	OK	OK			OK
netya	OK	OK	OK			?
niko	OK	OK	OK		OK	OK
nima	?				?	OK
nita	OK		OK		?	
nitya	OK					
niya	OK		OK		OK	
nobi (< nobiru 'extend')	OK/ nobi^nobi	#				OK
nope						OK/noQpera
noro	OK	OK	OK		OK	
nosi	OK		OK		OK	OK
noso	OK		OK		OK	OK
nota	OK	?	OK		?	OK
nuke (< nukeru 'get out of'?)	OK/ nukenu^ke					
nuku (getting up) (cf. nukui 'warm')			OK			
nume	OK		OK		?	
nura	OK	?	OK		OK	
nuru	OK	OK	OK		OK	
nyoki	OK		OK			?
nyoro	OK	?	OK		?	
nyuru	OK	OK	OK		OK	
ome	OK					
oto						OK
paka (opening)	OK/#Nagoyan		OK		?	?
paku	OK		OK	OK	OK	OK
pasa	OK	OK	OK		?	
pata (stopping)			OK	OK	OK	OK
pati (blink)	OK		OK		OK	OK
peka	?					
peko (bowing)	OK		OK	?	OK	
peko (hunger)		OK				
pera (thinness)	OK	OK	OK			
pera (fluency)	OK	OK				

pero	OK		OK	OK	OK		
pesya				OK	OK		pesyaNko
peta	OK	?	OK	OK	OK	OK	petaNko
petya	OK	?	OK	OK	OK	?	petyaNko
pika (cf. hikari 'light')	OK	OK	OK	OK	OK	?	
piku	OK		OK	OK	OK		
pira	?	?	OK	OK			
pisi (smartness)			OK				
pita	OK		OK	OK	OK	OK	
piti (freshness)	OK	OK					
piti (tightness)	OK	OK	OK		?	OK	
poka (hitting)	OK		OK	OK	OK		
poka (opening)	OK		OK	OK	OK	OK	
poki (exactly)						OK	
poko	OK		OK	OK	OK	OK	
poku (dying suddenly)						OK	
poro	OK	?	OK	OK	OK		
poso (dryness of food)	OK	OK					
poti	OK		OK				
potu (dripping)	OK		OK		OK		
potu (dots)	OK	?	OK	OK	OK	OK	
potya (plumpness)	OK	?	OK			OK	
puka	OK		OK (pukaaQ^)	?	OK	OK	
puku (floating)	OK		OK		?	?	
puku (plumpness)	OK	OK	OK		OK	OK	
pura	OK		OK	OK	OK		
puri (plumpness)	OK	OK	OK	OK			
puru (gelatinosity)	OK	OK	OK	OK			
puru (trembling)	OK	OK	OK				

putu (dots)	OK	N	OK	OK	OK		
pyoko	OK		OK	OK	?	?	
rero	?	OK					
saba	OK		?				
saku (quickness, simpleness)	?		OK			OK	
same (< sameru 'get colder')	same^zame						
sapa (simply aweful)						OK	
sara	OK	OK	OK		OK		
sawa	OK						
saya	OK						
seka (cf. seku 'haste')	OK						
si(f)o (cf. sioreru 'be withered')	OK	?	OK				
sige	OK						
siku (have a nice fit)						OK	
sina (cf. sinau 'bend')	OK		OK			OK	
sipo						OK (non-modern)	
sito	OK	OK	OK			OK	
soro (going quietly)	OK				OK		
soro (by now)	OK						
sowa	OK		?				
soyo	OK		?				so^yo (-to-mo hukazu; old)
sube (cf. suberu 'slip')	OK	OK	OK				
sugo	OK						
suka (pithiness)	OK	OK					
suka (completely)						OK	
suki (vacancy < suku 'become vacant')	??	OK				OK	

suku (cf. sukuyoka 'healthy')	OK		OK			??	suQ^ku (non-modern)
suna						OK	
supa (cutting)	OK		OK	OK		OK	
supa (puffing away)	OK						
supo	OK	OK	OK	OK	OK	OK	
sura (fluency)	OK		OK				
sura (slenderness)			OK		?		
sure		OK					
suru	OK		OK		OK		
suta	OK		?				
sute				OK/ suQte^N-koro^riN			
suto						OK	
syabu	OK	N					
syaki (briskness)	OK		OK			?	
syana				syanarisya^nari (non-modern)			
syobo (breariness)	OK	OK					
tado	?						
tama (cf. tamaru 'accumulate')		#				OK	
tara (cf. tarasu 'drip')	OK	OK	OK	OK	OK		
teka	OK	OK	OK		OK		
teki (briskness)	te^kipaki						
teki (conviction)						OK	
teku	OK						
tera	OK	OK	OK				
tibi	OK		OK				N (ti^bi)
tika	OK	OK	OK				
tima	OK						
tira	OK		OK		OK		
tiri (frizziness)	OK	OK/tiriziri (< tiru 'be scattered')					
tiro	OK						cf. ti^roriN
tobo	OK						
toge (< 'prickle')	OK	OK					

toko	OK						
toro	OK	OK	OK	OK	OK		
tube							tu^beko be
tuka	OK						
tuke	OK						
tura	OK				?		cf. N (turara)
turu (slipperiness)	OK	OK	OK	OK	OK		
tuya	OK	OK	OK				
tyaka (restlessness)	OK					OK	
tyaki	OK		?				
tyara (frivolousness)	OK						
tyoko (toddling)	OK/ tyo^komaka		?	OK			
tyoku	OK					tyoQku^**ra**	
tyopi						OK < tyobi	
tyoro (trickling)	OK		OK	?	OK		
tyoro (scuttling)	OK						
uma (< umai 'tasty')	OK						
une (cf. uneru 'twist')	OK	OK	OK				
ura							cf. ura^ra**ka**
uro	OK		OK				
usu (< usui 'thin, light')		OK (adv)				uQsu^**ra**	
uto (sleepiness)	OK						
utu							utu**rau**^t**ura**
uyo	OK		?				
uzya	OK	?					
wasa	OK	?	?				wa^Nsa**ka**
yawa (cf. yawara 'soft')	??					OK	cf. A (ya^wa-na)
yobo	OK	OK	?				
yore	OK	OK	?				
yoro	OK	OK	OK				
yota	OK	?	OK		?		
yoti	OK						
yuku		#				OK	

yura	OK	?/N	OK		OK	
yuru	OK	OK			OK	
yusa (cf. yusaburu 'swing')	OK					
zaku (piles of money)	OK	OK	OK			OK
zara	OK	OK	OK		OK	
ziku (oozing)	OK	OK	OK	?		
ziku (slowly, steadily)						OK
ziri (scorching)	OK	?	?		?	
ziro	OK		OK		OK	
ziwa	OK		OK	?	OK	OK
zoro	OK		OK			
zuba (speaking frankly)	OK		OK		OK	
zubo	OK	OK	OK	?	OK	OK > zuQpo^ri
zubu	OK	OK				
zugu						OK
zuka	OK					
zuke	OK	?				
zuku	Western					Western
zupo	?		?			OK
zupu	?					?
zura	OK		OK		OK	
zuru (lingering)	OK	?				
zusi			OK	OK	?	OK
zuta	OK	OK				
zyuku	OK	OK	OK			

PSYCHOMIMES							
baku	OK	OK					
biku	OK	OK	OK	OK	OK	OK	bi^ku(-to-mo sinai)
biri (electric shock)	OK	OK	OK				
boke	OK	OK	OK				
bosa (absent minded)	OK		OK				
boya (cf. boya-keru 'blur')	OK		OK	??	OK	OK	
busu (sullenness)	OK		OK		OK		
dere	OK	OK	OK				
doki	OK	OK	OK	OK	OK	OK	
doku	OK			OK			
gaka						OK	
gaku (disappointment)			OK	OK	OK	OK	
gata (nervousness)	OK	OK					
gena						OK	
giku (startle)	OK		OK		OK		
guna						OK	
hara (being thrilled)	OK						
hari	Kansai						
hiri	OK	?	OK		OK		
hisi	OK						
hiya (< hiyasu 'cool'?)	OK	OK	OK		OK	OK	
hoka	OK	OK					?
hoko	?	?	?			OK	
hoku	OK	OK	?				?
howa				?			hoNwa^ka
hura (feeling dizzy)	OK	OK	OK		OK		
ira	OK	OK	OK				
iso (cf. isogu 'hurry')	OK						
izi	OK						
kari (nervousness)	OK						
kura	OK	OK	OK		OK		
kusa	OK						

(being frustrated)						
kuyo	OK					
mago	OK					
mero	?	OK				
moya (feeling gloomy)	OK	OK	OK			
mozi	OK					
muka	OK	OK	OK			
mura	OK	OK	OK			
musu			OK		?	
musya (frustration)	OK/ (mu^syakusya)					
mutu						OK
muzu	OK		?			
nuku (warmth) (cf. nukui 'warm')	OK	OK	?			?
odo	OK		OK			
oro	OK	?	?			
ota	OK		?			
oti	OK					
ozu	OK					
piri (pungency)	OK		OK		OK	
piri (nervousness)	OK	?	?			
poka (warmth)	OK	OK				
puri (anger)	OK		?			
sapa (refreshedness)						OK
simi (< simu 'soak')	simi^zimi					OK
sizu (cf. sizuka 'quiet')	OK					
suka (refreshedness)			OK			
suki (refreshedness)			OK			OK
syobo (dispiritedness)	OK			OK		OK
tazi	?	OK				
tiku	OK	OK	OK	OK	OK	?
uha	OK	OK	??			
uka (< uku	OK		OK			OK

'float'?)						
uki (< uku 'float')	OK	OK				
uto (rapture)					OK	
uza	?				OK	cf. uza^i
uzi	OK		?			
uzu	OK					
waku (< 'spring up')	OK	?				
wana	OK (non-modern)					
yuta					OK	
zawa (feeling restless)	OK		?			
zime (< simeru 'get wet'?)	OK		OK			
zito	OK	OK	OK		OK	OK
zoku	OK	?	OK	OK		
zuki	OK	OK	OK	OK		

NONMIMETICIZED MIMETICS					
boti (by now)	OK				
botu (by now)	OK				
kaki				?	
kika				OK	
sika (cf. sikari 'exactly so')			#?	OK	
soku				OK	
tyobi	OK	OK		OK > tyoQpi^ri	cf. tyobi-hi ge
tyoki (exactly)				OK	
tyoko (a little bit)	OK	OK			
zoko					zoQkoN

Appendix B
Aspectuality of Existent Mimetics in Japanese

The appendix gives all results obtained in the aspectual investigation of existent mimetics in Section 5.3.5. The results are summarized for each templatic type. Temporal phrases actually employed for each sentence are omitted. The following symbols are adopted:

N = neutral
T = telic
A = atelic
P = punctual
D = durative

CV^CV-CVCV	Aspectually ambiguous sentence	Telicity	Punctuality
ba^sabasa	Kami-o kitta '[I] cut [my] hair.'	N	D
be^rabera	Hookoku-o sita. '[I] gave a report.'	N	D
bi^rabira	Posutaa-ga yabureta. 'A poster broke.'	N	D
bo^kaboka	Teki-o nagurikorosita. '[I] beat [my] enemies dead.'	N	D
bo^tebote	Omoku natta. '[It] got weight.'	N	D
bu^rabura	Yuuhodoo-o aruita. '[I] walk on/through a promenade.'	N	D
da^budabu	Okazu-ni soosu-o kaketa. '[I] poured sauce over the side dish.'	N	D
do^budobu	Koppu-ni sake-o tuida. '[I] poured sake into the cup.'	N	D
do^syadosya	Hitotukibun-no ame-ga hutta. '[We] had rain for one month.'	N	D
ga^kugaku	Otokotati-ga kogoesinda. 'The men froze to death.'	N	D
ga^tagoto	Biru-ga kuzureta. 'The building collapsed.'	N	D
ge^rogero	Tabeta mono-o haita. '[I] vomited what [I] ate.'	N	D
gi^sugisu	Hutari-no kankei-wa kozireta. 'The relationship between the two got entangled.'	N	D

go^sigosi	Huro-o aratta. '[I] washed the bathtub.'	N	D
go^tyagotya	Otoko-wa zizyoo-o setumei sita. 'The man explained reasons.'	N	D
gu^ruguru	Tera-o mawatta. '[I] made a tour of temples.'	N	D
gu^ziguzi	Otoko-wa zizyoo-o setumei sita. 'The man explained reasons.'	N	D
he^taheta	Taorekonda. '[I] fell down.'	N	D
hu^kuhuku	Pan-ga hukuranda. 'The bread swelled.'	N	D
hyo^rohyoro	Nobita. '[It] became taller.'	N	D
ka^sakasa	Takusan-no ha-ga otita. 'Many leaves fell.'	N	D
ka^tyakatya	Doa-o aketa. '[I] opened (the) doors.'	N	D
ki^sikisi	Doa-ga hiraita. 'The doors opened.'	N	D
ko^tokoto	Suupu-o nikonda. '[I] simmered the soup.'	N	D
ku^rukuru	Mai-ga sankaiten sita. 'Mai spun three times.'	N	N
kyo^rokyoro	Mai-wa syuui-o kakunin sita. 'Mai looked around [her] surroundings.'	N	N
me^rimeri	Siiru-o hagasita. '[I] peeled the sticker.'	N	D
mo^zomozo	Takusan-no neko-ga detekita. 'Many cats came out.'	N	D
mu^timuti	Kanozyo-no hoho-ga hukuranda. 'Her cheeks swelled.'	N	D
ni^tanita	Kawaii ko-o tyekku sita. '[I] checked out cute girls.'	N	D
nu^kenuke	Oozei-ga waribiki-no sina-o te-ni ireta. 'Many people obtained the discounted item.'	N	N
o^meome	Doroboo-wa nusumi-o hataraita. 'The thief did his/her job.'	N	N
o^zuozu	Husinbutu-o kakunin sita. '[I] checked the suspicious item.'	N	D
pa^rapara	Sukosi-no ame-ga hutta. '[We] had a small amount of rain.'	N	N
pi^kapika	Asahi-ga Tookyoo 23-ku-o terasita. 'The rising sun shone over the 23 wards of Tokyo.'	N	D
pi^kupiku	Toranpu-no ie-o tukutta. '[I] built the house of cards.'	N	D
po^kapoka	Teki-o nagurikorosita. '[I] beat [my] enemies dead.'	N	D
pu^rupuru	Toranpu-no ie-o tukutta. '[I] built the house of cards.'	N	D
si^osio	Hurareta otoko-wa hamabe-o tootta. 'The man with a broken heart passed the beach.'	N	D

su^yasuya	Tukare-o totta. '[I] healed [my] tire.'	N	D
ta^putapu	Biniirupuuru-ni mizu-o sosoida. '[I] poured water into the plastic pool.'	N	D
ti^kutiku	Hati-ga zenkooseito-o sasita. 'The bee stung all students.'	N	D
to^botobo	Hurareta otoko-wa hamabe-o tootta. 'The man with a broken heart passed the beach.'	N	D
tu^ruturu	Udon-o tabeta. '[I] ate (the) udon.'	N	D
u^touto	Syoosetu-o yonda. '[I] read the novel.'	N	D
ya^kimoki	Sigoto-o sita. '[I] did [my] job.'	N	D
yu^sayusa	Ki-kara kemusi-o otosita. '[I] made (the) caterpillar drop off the tree.'	N	D
zi^tabata	Gakkai-no zyunbi-o sita. '[I] prepared for the conference.'	N	D
zu^buzubu	Mizuabi-o sita. '[I] went bathing.'	N	D
zu^tazuta	Yasai-o kitta. '[I] chopped (the) vegetables.'	N	D

CV^V-CVV, CV^N-CVN, CV^i-CVi	Aspectually ambiguous sentence	Telicity	Punctuality
be^NbeN	Sono kyoku-o hiita. '[I] played the tune (with shamisen).'	N	D
bi^ibii	Sono ko-wa ironna nakigoto-o itta. 'The child made many complaints.'	N	D
bo^oboo	Ronbun-ga moeta. 'The paper burned.'	N	D
bu^ubuu	Ironna monku-o itta. '[I] made many complaints.'	N	D
byu^ubyuu	Taihuu-ga mati-o hakai sita. 'A typhoon ruined the town.'	N	D
do^NdeN	Sono kyoku-o tataita. '[I] drummed the tune.'	N	D
do^odoo	Tairyoo-no mizu-ga umi-ni sosoida. 'A flood of water poured into the sea.'	N	D
ga^NgaN	Sigoto-o sita. '[I] did [my] job.'	N	D
ge^egee	Tabeta mono-o haita. '[I] vomited what [I] ate.'	N	D
go^ogoo	Tairyoo-no mizu-ga umi-ni sosoida. 'A flood of water poured into the sea.'	N	D
gu^NguN	Kiroku-ga nobita. 'The record was renewed.'	N	D
gya^agyaa	Sono ko-wa ironna nakigoto-o itta. 'The child made many complaints.'	N	D
ha^ahaa	Iki-o kirasita. '[I] lost [my] breath.'	N	D
hi^ihii	Sono ko-wa ironna nakigoto-o itta. 'The child made many complaints.'	N	D

ho^ohoo	Hukuroo-ga nakama-o yonda. 'An owl called its companions.'	N	D
hu^uhuu	Roosoku-no hi-o hukikesita. '[I] blew out the candles.'	N	D
hyu^NhyuN	Kaze-ga syoozi-o yabutta. 'Winds broke the paper sliding door.'	N	D
ka^akaa	Karasu-ga nakama-o yonda. 'A crow called its companions.'	N	D
ki^NkiN	Aisukuriimu-ga atusa-o yawarageta. 'Ice cream made [my] heat milder.'	N	N
ko^NkoN	Tubo-o tatakiwatta. '[I] hit and broke the pots.'	N	D
ku^ukuu	Kuuhukukan-ga masita. '[My] hunger grew greater.'	N	D
kya^akyaa	Kinensyasin-o totta. '[We] took commemorative pictures.'	N	D
me^emee	Hituzi-ga esa-o tabeta. 'The sheep had its food.'	N	D
mu^NmuN	Heya-ga musita. 'The room got humid.'	N	D
o^ioi	Wakare-no kotoba-o nobeta. '[I] gave parting words.'	N	D
pa^apaa	Hiryoo-o maita. '[I] scattered (the) fertilizer.'	N	D
pe^NpeN	Yoninkyoodai-no osiri-o tataita. '[I] slapped the four brothers' hips.'	N	D
pi^NpoN	Takusan-no tama-o utta. '[I] hit many balls.'	N	D
po^ipoi	Takusan-no gomi-o hootta. '[I] threw much trash away.'	N	D
po^opoo	Takusan-no hune-ga toorisugita. 'Many ships went past.'	N	D
pu^upuu	Ippai onara-o sita. '[I] passed much gas.'	N	D
pyo^NpyoN	Haadoru-o tonda. '[I] jumped over (the) hardles.'	N	D
pyu^NpyuN	Ya-o hanatta. '[I] shot (the) arrows.'	N	D
ri^NriN	Hokoosya-o dokasita. '[I] rang (the) pedestrians aside.'	N	D
si^isii	Osikko-o sita. '[I] pissed.'	N	D
su^isui	Kawa-o oyoida. '[I] swam in/across the river.'	N	D
sya^asyaa	Iyami-o itta. '[I] told (the) sarcasm.'	N	D
sya^NsyaN	Yuuhodoo-o aruita. '[I] walked on/through a promenade.'	N	D
syu^usyuu	Sattyuuzai-o maita. '[I] sprayed insecticides.'	N	D
ti^NtiN	Toraianguru-no ensoo-o sita. '[I] played the triangle.'	N	D
to^NtoN	Gakuseitati-no heya-no doa-o tataita. '[I] knocked on the students' doors.'	N	D

tu^utuu	Takusan-no namida-ga kanozyo-no hoho-o nagareta. 'Many tears streamed down her cheeks.'	N	D
tyo^NtyoN	Ikutuka-no ten-o utta. '[I] put some dots.'	N	D
tyu^utyuu	Nezumi-ga kabe-ni ana-o hotta. 'Mice dug a hole on the wall.'	N	D
wa^awaa	Takusan-no kodomotati-ga gakkoo-kara detekita. 'Many children came out of the school.'	N	D
wa^iwai	Kinensyasin-o totta. '[We] took commemorative pictures.'	N	D
ze^ezee	Marasonkoosu-o hasitta. '[I] ran in/through the marathon course.'	N	D
zi^izii	Daiyaru-o mawasita. '[I] dialed (the) numbers.'	N	D
zya^NzyaN	Okane-o tukatta. '[I] spent (the) money.'	N	D
zyu^uzyuu	Niku-o yaita. '[I] grilled (the) meat.'	N	D

CVCVQ^	Aspectually ambiguous sentence	Telicity	Punctuality
bakaQ^	Hako-no huta-o aketa. '[I] took off the lib(s) of the box(es).'	T	P
basyaQ^	Syasin-o totta. '[I] took (a) picture(s).'	N	P
beriQ^	Siiru-o hagasita. '[I] peeled the sticker.'	N	P
bikuQ^	Koorituita. '[I] was/got frozen.'	N	P
bityaQ^	Miti-ni mizumaki-o sita. '[I] sprinkled water on the street.'	N	P
boriQ^	Senbei-o tabeta. '[I] ate (a) rice cracker(s).'	N	P
bosyaQ^	Mizutamari-ni isi-o otosita. '[I] dropped (a) stone(s) into the puddle.'	N	P
boyaQ^	Kesiki-ga kasunda. 'The scenery got misty.'	N	N
buruQ^	Kogoeta. '[I] felt freezing cold.'	N	P
dereQ^	Hana-no sita-o nobasita. '[I] let [myself] look slack.'	N	N
dosaQ^	Kaban-o orosita. '[I] let down [my] bag(s).'	N	P
gabuQ^	Mizu-o nonda. '[I] drank (the) water.'	N	P
gasiQ^	Buuke-o tukanda. '[I] gripped/caught the bouque.'	N	P
gatuQ^	Gohan-o tabeta. '[I] ate a meal.'	N	P
goboQ^	Haisuikoo-ga tumatta. 'The drain was stopped up.'	N	P
gotoQ^	Hako-o tunda. '[I] piled (the) boxes.'	N	P
gusaQ^	Samurai-wa katana-de teki-o sasita. 'The samurai stung [his] enemies with a sword.'	N	P

gyoroQ^	Samurai-wa teki-o niramikorosita. 'The samurai glared [his] enemies dead.'	N	P
hiyaQ^	Kuruma-no sokudo-o sageta. '[I] slowed down the car.'	N	P
huwaQ^	Kumo-ga hirogatta. 'A cloud expanded.'	N	P
kariQ^	Senbei-o tabeta. '[I] ate (a) rice cracker(s).'	N	P
katiQ^	Tokei-o tyoosetu sita. '[I] adjusted the clock.'	N	P
kiriQ^	Minari-o totonoeta. '[I] tidied [myself] up.'	T	N
kotoQ^	Domino-o taosita. '[I] put (the) dominoes down.'	N	P
kuruQ^	Kaiten sita. '[I] spun.'	N	P
kuwaQ^	Kaeru-ga ame-o yonda. 'A frog prayed rain down.'	N	P
mukaQ^	Hara-ga tatta. '[I] was/got angry.'	N	P
nitaQ^	Ii koto-o kangaeta. '[I] thought of something good.'	N	N
nyokiQ^	Takenoko-ga nobita. 'A bamboo spout grew taller.'	N	P
pakuQ^	Huraidopoteto-o tabeta. '[I] ate (a) French frie(s).'	N	P
pasyaQ^	Kinensyasin-o totta. '[We] took (a) commemorative picture(s).'	N	P
pekoQ^	Karuku ozigi-o sita. '[I] bowed lightly.'	N	P
pikaQ^	Kaminari-ga mati-o terasita. 'A thunder flashed over the city.'	N	P
pisyaQ^	Mai-wa buin-no hoo-o butta. 'Mai slapped the club member(')s(') cheek(s).'	N	P
pokoQ^	Mogura-o tataita. '[I] hit (a) mole(s) (in a game).'	N	P
posyaQ^	Kaki-ga ike-ni otita. '(A) persimmon(s) dropped into the pond.'	N	P
potuQ^	Ame-ga sentakumono-o nurasita. 'Rain made the laundry wet.'	N	P
puruQ^	Kogoeta. '[I] felt freezing cold.'	N	P
sakuQ^	Yasai-o kitta. '[I] cut (the) vegetables.'	N	P
sukaQ^	Hareta. 'It was/got clear.'	N	N
suraQ^	Muzukasii tango-o yonda. '[I] read (a) difficult word(s).'	N	P
taraQ^	Hatimitu-ga tareta. '(The drop of) honey dripped down.'	N	P
toroQ^	Aisukuriimu-ga toketa. 'Ice cream melted.'	N	P
tyokoQ^	Kosi-o orosita. '[I] was seated.'	N	P
zabuQ^	Yasai-o aratta. '[I] washed the vegetables.'	N	P
zitoQ^	Sentakumono-ga ame-ni nureta. 'The laundry got	T	D

wet with rain.'

		Telicity	Punctuality
zoroQ^	Kurasu-no zen'in-ga naranda. 'All the class members became a line.'	N	P
zukiQ^	Ha-ni gekituu-ga hasitta. 'A smart pain ran in the tooth.'	N	P
zuruQ^	Soba-o tabeta. '[I] ate buckwheat noodles.'	N	P
zusiQ^	OED-o tana-ni noseta. '[I] put (the/a) volume(s) of OED on the shelf.'	N	P

CVCV(^)N(^)	Aspectually ambiguous sentence	Telicity	Punctuality
bata(^)N(^)	Aiteiru rokkaa-o simeta. '[I] shut (the/an) open locker(s).'	N	P
batya(^)N(^)	Mado-o watta. '[I] broke (the/a) window(s).'	N	P
beroN^	Kabegami-o hagasita. '[I] peeled the wallpaper.'	N	N
biku(^)N(^)	Koorituita. '[I] was/got frozen.'	N	P
boki(^)N(^)	Eda-o otta. '[I] broke (the/a) branch(es).'	N	P
botyaN^	Isi-o ike-ni nagekonda. '[I] threw (the/a) stone(s) into the pond.'	N	P
buru^N	Kogoeta. '[I] felt freezing cold.'	N	P
daraN^	Taremaku-o tarasita. '[I] hung the/a banner.'	N	N
dobu(^)N(^)	Gakusei-ga puuru-ni tobikonda. '(The/a) student(s) dove into the pool.'	N	P
doka^N	Bakudan-ga bakuhatu sita. '(A) bomb(s) exploded.'	N	P
dosa^N	Kaban-o tana-ni noseta. '[I] put (the/a) bag(s) on the shelf.'	N	P
dosu^N	Ukemi-no rensyuu-o sita. '[I] practiced a defensive fall(s).'	N	P
dota^N	Aiteiru rokkaa-o simeta. '[I] shut (the/an) open locker(s).'	N	P
gaku(^)N(^)	Otikonda. '[I] was/got depressed.'	N	N
gata(^)N(^)	Takuhaiya-wa nimotu-o orosita. 'The home delivery service unloaded (the) luggage.'	N	P
gatu^N	Kodomo-o sikatta. '[I] scolded [my] child.'	N	P
gatya(^)N(^)	Mado-o watta. '[I] broke (the/a) window(s).'	N	P
gikuN^	Koorituita. '[I] was/got frozen.'	N	P
goho^N	Tyoosyuu-o sizumeta. '[I] calmed down the audience.'	N	P
goro(^)N(^)	Iwa-ga korogatta. 'A rock rolled.'	N	P
guru(^)N(^)	En-o kaita. '[I] drew the/a circle.'	N	P
kakuN^	Hiza-o mageta. '[I] bent [my] legs.'	N	P

karaN^	Kissaten-ni kyaku-ga haittekita. '(A) customer(s) came into the cafe.'	N	P
katiN^	Katana-o utta. '[We] hit the/a sword (for casting).'	N	P
katya(^)N(^)	Kanpai-o sita. '[We] drank to a toast.'	N	P
koroN^	Akatyan-ga negaeri-o utta. 'A baby turned over in bed.'	N	P
kotoN^	To-ga hazureta. 'A door got off its track.'	N	P
kotu(^)N(^)	Kodomo-o korasimeta. '[I] punished [my] child.'	N	P
kusu^N	Hana-o susutta. '[I] sniffed.'	N	P
kyotoN^	Mai-wa tomodati-o miokutta. 'Mai saw off [her] friend.'	N	N
pasi(^)N(^)	Sumassyu-o utta. '[I] hit (a) smash(es).'	N	P
pata(^)N(^)	Tyuumon-ga todaeta. 'Orders ceased.'	N	N
pati(^)N(^)	Eda-o kitta. '[I] chopped (the/a) branch(es).'	N	P
pekoN^	Akikan-o hekomaseta. '[I] dented the empty can.'	N	N
pesya(^)N(^)	Neguse-o taosita. '[I] pressed [my] wrongly curled hair down.'	N	N
pikuN^	Ude-ga keiren sita. '[My] arm was convulsed.'	N	P
pitaN^	Kami-ga ase-o kaita hitai-ni kuttuita. '[My] hair clung to the sweaty forehead.'	N	N
pokaN^	Akke-ni torareta. '[I] was dumfounded.'	N	N
pokoN^	Kodomo-o damaraseta. '[I] made [my] child silent.'	N	P
poto(^)N(^)	Kaki-ga ki-kara otita. '(A) persimmon(s) dropped from the tree.'	N	P
puku(^)N(^)	Moti-ga hukuranda. 'A rice cake swelled.'	N	P
putu(^)N(^)	Ito-o kitta. '[I] cut (the/a) string(s).'	N	P
pyokoN^	Haadoru-o tonda. '[I] jumped over (the/a) hardle(s).'	N	P
sute(^)N(^)	Sumootori-wa tibikko-o taosita. 'The sumo wrestler pushed (the/a) child(ren) down.'	N	P
syoboN^	Otikonda. '[I] was/got depressed.'	N	N
tyapoN^	Ike-ni isi-o nageireta. '[I] threw (the/a) stone(s) into the pond.'	N	P
tyokiN^	Kami-o kitta. '[I] cut (the) paper.'	N	P
tyokoN^	Kosi-o orosita. '[I] was seated.'	N	N
zude(^)N(^)	Kosi-o orosita. '[I] was seated.'	N	P
zuki(^)N(^)	Ha-ni gekituu-ga hasitta. 'A smart pain ran in the tooth.'	N	P

CVCV^ri	Aspectually ambiguous sentence	Telicity	Punctuality
basa^ri	Kami-o kitta. '[I] cut [my] hair.'	N	P
bata^ri	Husyoo sita heisi-ga taoreta. 'The injured soldier fell down.'	N	P
bero^ri	Ame-o nameta. '[I] licked the lollipop.'	N	P
boki^ri	Eda-o otta. '[I] broke (the/a) branch(es).'	N	P
boso^ri	Setumei sita. '[I] explained.'	N	P
bote^ri	Kaki-ga ki-kara otita. '(A) persimmon(s) dropped from the tree.'	N	P
busu^ri	Niku-ni kusi-o sasita. '[I] stubbed a broach into the meat.'	N	P
dara^ri	Taremaku-o tarasita. '[I] hung the/a banner.'	N	N
doki^ri	Kintyoo sita. '[I] was/got nervous.'	N	P
gabu^ri	Ookami-ga niku-o tabeta. 'A wolf ate meat.'	N	P
gara^ri	Gamen-no eizoo-ga kawatta. 'The images on the screen changed.'	N	P
gata^ri	Tukue-ga zureta. 'The desks slanted.'	N	P
gira^ri	Kumo-ni kakurete ita taiyoo-ga kagayaita. 'The sun, which had been behind a cloud, shone.'	N	P
goku^ri	Mizu-o nonda. '[I] drank (the) water.'	N	P
gubi^ri	Biiru-o nonda. '[I] drank (the) beer.'	N	P
gusa^ri	Niku-ni kusi-o sasita. '[I] stubbed a broach into the meat.'	N	P
guta^ri	Hetarikonda. '[I] was worn out.'	N	N
gyoro^ri	Kodomo-o kowagaraseta. '[I] scared the child.'	N	N
hiya^ri	Hiyaase-o kaita. '[I] broke into a cold sweat.'	N	P
hura^ri	Ki-o usinatta. '[I] got faint.'	N	P
hyoro^ri	Tatiagatta. '[I] stood up.'	N	P
kata^ri	Syasintate-ga zureta. 'The photo stand slanted.'	N	P
katya^ri	Kagi-o mawasita. '[I] turned the key.'	N	P
kira^ri	Kumo-ni kakurete ita hosi-ga kagayaita. 'The star that had been behind a cloud shone.'	N	P
koto^ri	Tyesu-no koma-o taosita. '[I] pushed down a piece of chess.'	N	P
kuru^ri	Kaiten sita. '[I] turned.'	N	P
kyoro^ri	Mesen-o kaeta. '[I] turned [my] eyes.'	N	P
noso^ri	Hasigo-o nobotta. '[I] climbed the ladder.'	N	D
paku^ri	Pan-o tabeta. '[I] ate (the) bread.'	N	P
pasa^ri	Pan-ga kuzureta. 'The bread crumbled.'	N	P
patya^ri	Kao-o aratta. '[I] washed [my] face.'	N	P
pero^ri	Namakuriimu-o nameta. '[I] licked (the) fresh	N	P

cream.'

peta^ri	Siiru-o hatta. '[I] stuck the/a sticker.'	N	P
pisi^ri	Zyuusyoku-wa kodomo-no kata-o tataita. 'The chief priest slapped the child(ren)'s shoulder(s).'	N	P
pita^ri	Siiru-o hatta. '[I] stuck the/a sticker.'	N	P
poka^ri	Kodomo-o nakaseta. '[I] made the child(ren) cry.'	N	P
pota^ri	Susi-ni syooyu-o kaketa. '[I] dropped soy source on sushi.'	N	P
potu^ri	Hottokeeki-ni tiisana ana-ga aita. '(A) hole(s) appeared on the hot cake.'	N	P
puka^ri	Tenpuku sita hune-ga ukanda. 'The wrecked boat floated up.'	N	P
saku^ri	Tamanegi-o kitta. '[I] cut (the/an) onion.'	N	P
soro^ri	Kita miti-o modotta. '[I] returned [my] way.'	N	N
supo^ri	Ana-ni hamatta. '[I] gpt stuck in the hole.'	N	P
tika^ri	Moorususingoo-o okutta. '[I] signaled in Morse code.'	N	P
tira^ri	Hinto-o miseta. '[I] showed (the/a) hint(s).'	N	P
turu^ri	Tamanegi-o muita. '[I] peeled the onion.'	N	P
zabu^ri	Tamanegi-o aratta. '[I] washed the onion.'	N	P
ziro^ri	Kodomo-o kowagaraseta. '[I] scared the child.'	N	P
zoku^ri	Kogoeta. '[I] got frozen.'	N	P
zuba^ri	Teki-o kitta. '[I] cut the enemie(s).'	N	P
zura^ri	Udon'ya-no mae-ni kyaku-ga naranda. 'Customers stood in a line to an udon restaurant.'	N	D

CVCCV^ri	Aspectually ambiguous sentence	Telicity	Punctuality
aNgu^ri	Kuti-o aketa. '[I] opened [my] mouth.'	N	N
baQku^ri	Kizuguti-ga hiraita. 'The wound opened.'	N	N
baQta^ri	Ki-o usinatta. '[I] was/got faint.'	N	N
biQku^ri	Atama-ga massiro-ni natta. '[I] went blank.'	N	N
biQsyo^ri	Huku-ga nureta. '[My] clothes got wet.'	N	N
boNya^ri	Eiga-o mita. '[I] saw a movie.'	N	N
deQpu^ri	Onaka-ga hukuranda. '[My] stomach swelled.'	N	D
doQka^ri	Kosi-o orosita. '[I] was seated.'	N	N
doQpu^ri	Huro-ni haitta. '[I] took a bath.'	N	N
gaQku^ri	Ki-o otosita. '[I] was depressed.'	N	N
gaQpu^ri	Mizu-o nonda. '[I] drank (the) water.'	N	N
gaQti^ri	Sukuramu-o kunda. '[We] formed a scrum.'	N	N
giQsi^ri	Hako-ni hon-o tumeta. '[I] crummed books into	N	N

	the box.'		
goQso^ri	Kinko-kara okane-o nusumidasita. '[I] stole money from the safe.'	T	N
guNnya^ri	Mazisyan-ga supuun-o mageta. 'The magician bent the spoon.'	N	N
haQki^ri	Hontoo-no koto-o nobeta. '[I] told the truth.'	N	N
hiQso^ri	Mati-ga sizumarikaetta. 'The town got quiet.'	N	N
huNwa^ri	Pan-ga hukuranda. 'The bread swelled.'	N	N
hyoQko^ri	Neko-ga arawareta. 'A cat appeared.'	N	N
kaQki^ri	Gonin-to hanasi-o sita. '[I] talked with five people,'	N	N
kiQka^ri	Gonin-to hanasi-o sita. '[I] talked with five people,'	N	N
koNmo^ri	Pan-ga hukuranda. 'The bread swelled.'	N	N
koQso^ri	Enkai-o nukedasita. '[I] slipped out of the party.'	N	N
kuQki^ri	Huzisan-ga mieta. '[I] saw Mt. Fuji.'	N	N
miQsi^ri	Tetyoo-ni sukezyuuru-o kakikonda. '[I] wrote [my] schedules in [my] pocket notebook.'	N	D
moQsa^ri	BBS-ni messeezi-o tookoo sita. '[I] posted (a) message(s) on the BBS.'	N	D
muQti^ri	Akusyu-o sita. '[We] shook hands.'	N	N
niQko^ri	Egao-o tukutta. '[I] put on a feigned smile.'	N	N
noQpe^ri	Kesyoo-o sita. '[I] put on makeup.'	N	N
nyoQki^ri	Tuno-ga haeta. 'Horns came up.'	N	N
paQti^ri	Me-o aketa. '[I] opened [my] eyes.'	N	N
piQta^ri	Kappuru-ga kuttuita. 'A couple got close to each other.'	N	N
poQka^ri	Kizuguti-ga hiraita. 'A cut opened.'	N	N
poQti^ri	Hottokeeki-ni ten-ga dekita. 'A dot appeared on a hot cake.'	N	N
poQtya^ri	Yasai-o siomizu-ni hitasita. '[I] soaked vegetables in sault water.'	N	N
puQtu^ri	Hottokeeki-ni ten-ga dekita. 'A dot appeared on a hot cake.'	N	N
siNna^ri	Yasai-o itameta. '[I] fried vegetables.'	T	N
siQku^ri	Yuuyake-ga yama-no iro-ni atta. 'The evening glow matched the color of the mountain.'	N	N
siQto^ri	Kami-ga uruotta. '[My] hair got moist.'	N	N
suQki^ri	Sora-ga hareta. 'The sky got clear.'	N	N
suQpo^ri	Taihuu-ga tookyoo 23-ku-o ootta. 'A typhoon covered the 23 wards of Tokyo.'	N	N
syoNbo^ri	Genki-o nakusita. '[I] lost [my] liveliness.'	N	N

tiNma^ri	Seki-ni tuita. '[I] was seated.'	N	N
toQpu^ri	Udon-ni syooyu-o kaketa. '[I] dripped soy source over udon.'	N	N
tyoQki^ri	Nawa-o kitta. '[I] cut the rope.'	T	N
uQto^ri	Sono e-ni miryoo sareta. '[I] was fascinated with the picture.'	N	N
yaNwa^ri	Kodomo-o sikatta. '[I] scolded [my] child.'	N	N
yuQta^ri	Kosi-o orosita. '[I] was seated.'	N	D
ziQku^ri	Sono e-o mita. '[I] enjoyed the picture.'	N	D
zuNgu^ri	Pan-no kizi-o marumeta. '[I] made a ball of bread dough.'	T	N

Appendix C
Mimetic Verb Formation in Japanese

The following lists give mimetic verbs used in Section 6.1.1 with their (intended) meanings. These verbs were made from 150 mimetics randomly collected from Kakehi et al. (1996) and some additions. They are presented in the order of acceptability for each semantic category: namely, perfectly acceptable mimetic verbs (without marking) > less acceptable, motherese-like mimetic verbs (marked "©") > unacceptable mimetic verbs (marked "*").

Mimetic verb	(Intended) verb meaning
Phonomimic	
©ba^syabasya suru	splash
©batiiN^-to suru	crackle
©bi^ribiri suru	rip
©bokiN^-to suru	crunch
©byu^ubyuu suru	whirl
©gatya^NgatyaN suru	crash
©go^sigosi suru	scrub
©huuQ^-to suru	puff
©ka^tyakatya suru	clinck
©ki^kokiko suru	saw away
©pakaQ^-to suru	open (a box)
©pasyaN^-to suru	crash
©pi^sipisi suru	crack
©po^ripori suru	scratch
©putu^ri-to suru	prick
©saku^ri saku^ri suru	chop
©syuQ^-to suru	hiss, spray
©to^NtoN suru	knock
©tyo^kityoki suru	clip
©zabuQ^-to suru	flop
©zyo^kizyoki suru	snip
*a^haha-to suru	laugh
*baQ^sabaQsa suru	chop
*boso^ri boso^ri suru	mutter
*bu^ubuu suru	oink
*doka^N-to suru	bang
*dosi^N-to suru	thud
*dotaaQ^-to suru	thump
*ga^tabisi suru	rattle
*gaN^-to suru	clang

*gii^-to suru	creak
*gya^agyaa suru	scream
*hihi^iN-to suru	whinny
*ihihi^-to suru	titter
*ka^takoto	clatter
*kara^NkoroN suru	clatter
*ko^tikoti	tap
*kukuQ^-to suru	giggle
*kuwaQ^-to suru	croak
*kya^a-to suru	scream
*nya^a-to suru	meaow
*pati^ri-to suru	snap (a picture)
*pi^ipii suru	whistle
*pi^yopiyo suru	tweet
*potya^ri-to suru	plop
*tiQ tiQ^-to suru	twitter
*uee^N-to suru	bawl
*waaN^-to suru	bawl
*zudo^N-to suru	bang
*zyara^N-to suru	clang

Phenomimic	
buraQ^-to suru	ramble
de^kodeko suru	be decorated
doNyo^ri suru	be gloomy
gi^togito suru	be oily
gunya^ri-to suru	bend
haQki^ri suru	become clear
hu^kahuka suru	become fluffy
karaQ^-to suru	clear up
ki^rakira suru	twinkle
koQte^ri suru	be heavily fat
mo^yamoya suru	be hazy
ne^toneto suru	be sticky
noQpe^ri suru	be flat (of a face)
pa^rapara suru	sprinkle (of rain)
pi^kapika suru	shine
pu^kupuku suru	be chubby
soQ-to suru	let (someone) alone
taQpu^ri suru	be flowing (of clothes)
ti^yahoya suru	flatter
tya^kityaki suru	be vigorous
u^rotyoro suru	hang around
©be^kobeko suru	dent
©gu^syagusya suru	crumple
©hikuQ^-to suru	sniff
©hyoiQ^-to suru	jump lightly
©ko^tyokotyo suru	tickle
©ku^syakusya suru	crumple

©pesyaN^-to suru	crush
©pyoN^-to suru	hop
©su^rusuru suru	slide
©yuQ^sayuQsa suru	sway
©zo^rizori suru	shave
*biQsyo^ri suru	be soaked
*boroQ^-to suru	crumple
*daQ daQ^-to suru	tramp
*ga^bagaba suru	guzzle
*gatuN^-to suru	speak without hesitation
*gotu^NgotuN suru	bump
*guiQ^-to suru	jerk
*meramera suru	flame
*nyuuQ^-to suru	appear
*pita^ri pita^ri suru	cling
*po^topoto suru	drop
*pokoQ^-to suru	dent
*seQ^se-to suru	work ernestly
*ti^bitibi suru	sip
*tu^katuka suru	walk boldly
*tyo^ityoi suru	be frequent
*ziNwa^ri suru	be soaked
*zu^NzuN suru	go boldly

Psychomimic

a^tahuta suru	haste
bi^kubiku suru	be scared
biku^ri-to suru	be startled
bokeeQ^-to suru	be idle
boyaQ^-to suru	be careless
de^redere suru	have a slack-jawed smile
do^gimagi suru	be flurried
do^kudoku suru	feel (one's) heart beat
doki^NdokiN suru	feel (one's) heart throb
doQki^N-to suru	be startled
gaaN^-to kuru	be shocked
gaku^ri-to suru	be disappointed
gi^kugiku suru	be scared, startled
gikuN^-to suru	be startled
guNna^ri suru	be dispirited
ha^rahara suru	be thrilled
hi^yahiya suru	be thrilled
hiriQ^-to suru	smart
hiya^ri-to suru	be thrilled
ho^kahoka suru	glow with warmth
horo^ri-to suru	be moved to tears
huraQ^-to suru	be dizzy
i^raira suru	be irritated
kaQ^ka suru	burn with anger
ki^rikiri suru	gripe

ku^yokuyo suru	worry
kyuN^-to suru	be impressed
ma^gomago suru	hesitate
mu^zumuzu suru	be impatient
mukaQ^-to suru	get angry
muQ-to suru	get sullen
musuQ^-to suru	get sullen
o^taota suru	get into a state
pi^ripiri suru	be on edge
po^kapoka suru	feel pleasantly warm
saQpa^ri suru	be refleshed
siQku^ri kuru	have a nice fit
su^usuu suru	feel cool
syoNbo^ri suru	be dejected
syuN^-to suru	be depressed
tikuQ^-to suru	feel prickled
tuuN^-to suru	feel pungency in (one's) nose
u^kauka suru	be careless
u^kiuki suru	be buoyant and cheerful
u^ziuzi suru	hesitate
wa^nawana suru	tremble with fear
ziiN^-to suru	be deeply moved
zo^kuzoku suru	feel freezing cold
zoQ-to suru	be chilled
zukiN^-to suru	throb (of head, tooth)

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Style and Formatting

Style: The Chicago Style (http://www.chicagomanualofstyle.org/home.html)

Margins: 1" margins for each of the left, the right, the top, and the bottom of the paper

Font: Times (except chapter titles: Optima)

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