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Iconic Semantics in Phonology: A Corpus Study of Japanese Mimetics

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A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of

Master of Arts

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ABSTRACT

Iconic Semantics in Phonology: A Corpus Study of Japanese Mimetics

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Recent research on Japanese mimetics examines which part of speech the mimetic occurs as. An individual mimetic can appear as a noun, an adjective, an adverb, or a verb (Tsujimura & Deguchi 2007, 340). It is assumed by many scholars that mimetic words essentially function as adverbs (Inose 2007, 98). Few data-based studies exist that quantify the relative frequency of mimetic words in different word categories. Akita (2009) and Caldwell (2009a) have performed small scale or preliminary studies of this aspect of Japanese mimetics.

The use of mimetics in other grammatical function categories has been attributed to the polysemous nature of Japanese mimetics (Key 1997). The common explanation is that the flexibility of mimetics is probably due to their iconicity (Sugiyama 2005, 307; Akita 2009; among others). Yet the definition of "iconicity" is often incomplete or cursory in nature.

Newmeyer, Nuckolls, Kohn, and Key all accept or suggest the philosophies of C.S. Peirce as a possible explanation or source for understanding the iconicity of mimetic words. The purpose of this thesis is twofold: first, examine the prominent semantic theories regarding Japanese mimetics and show how the philosophies of Peirce can add clarity; second, examine overall occurrence of 1700+ mimetics per parts of speech using the data from the Kotonoha (http://www.kotonoha.gr.jp) and JpWaC (http://corpus.leeds.ac.uk/) Corpora.

Peirce identified three distinct icon types: icons of abstract quality (1-1-1), icons of physical instantiation (1-1-2), and icons of abstract relation (1-1-3). These three types correspond to three distinct types of mimetic word: phonomimes (abstract sound qualities), typically predicate modifiers, phenomimes (physical actions), more often nouns or noun modifiers, and psychomimes, (relational), more often verbs or parts of verbs.

Corpus data validates the observation that mimetics are usually functioning as predicate modifiers, but also supports Akita's hypothesis that psychomimes are incorporated into verbs more readily than other mimetics, which in turn is explained by the Peircean analysis.

Keywords: Japanese, Mimetics, Semiotics, Peirce, Corpus Linguistics

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Chapter 1 - Introduction

Japanese is commonly cited as a language filled with onomatopoeia, "sound symbolic" words and mimetics. Even as far back as 1894, Aston observed that even with a supposedly impoverished phonetic system, "the Japanese language is rich in onomatopes" (Aston, 333). In this Japanese follows patterns found in other languages, although English, comparatively, has fewer of these types of words. Terminology for describing mimetic phonology varies. In this thesis the term **phonomime** (onomatopoeia) will describe words representative of non-verbal sounds e.g. in English: swoosh, clank, and bang. **Phenomimes** are words which suggest physical actions, e.g. *pell-mell, shillyshally, lickety-split*. Finally, **psychomimes** are representative of relationships or mental states as opposed to imitating non-verbal sounds or suggesting physical actions, e.g., *wishy-washy, topsy-turvy,* and *bling*. Although, "sound symbolic" words are not the focus of this thesis, they are often used to describe mimetics. These are words in which a cluster of phonemes are representative of a certain quality, e.g. *glow*, *glisten, glimmer*, etc. Thus the 'gl-' cluster represents something to do with light.

Phonomimes, phenomimes, and psychomimes will be collectively described as sound iconic, meaning that there is some qualitative similarity between the phonetic form of a word and what the word represents. Japanese words with sound-iconic properties have been commented on for centuries, until recently (e.g. Kita 1997, 2001, 2008; Tsujimura 2001, 2005a, 2005b; Akita 2006, 2009; Toratani 2005, 2006; etc.) very little analysis beyond description has taken place. Many early scholars, like Weitz, mention almost in passing that sound iconic "words are common in Japanese, and a large number of them are used adverbially" (1904, 67). As early as 1632, Collado states that, "The adverbs of sound (*adverbia sonus*) are many" (57). In 1604, Rodrigues explains, "The Japanese have a great number of adverbs which serve not only to

express the manner of an event, but which also indicate the sound, the noise, the position of the thing" (Landresse 1825, 87). Other scholars like Lange & Noss provide a decent definition, "either imitating a sound, or at least voicing a feeling produced by an action" (1907, 330). However, they also perpetuate the belief that while mimetics "form a large group of adverbs in Japanese. . . [it is just] a language within a language, as expressive as it is unique" (ibid, 330).

Iconic relationships between sound and meaning are not limited to Japanese. Such phenomena, variously described as mimetic, onomatopoetic, or sound "symbolic," have been identified in such languages as Quechua, Basque, Nez Perce, Turkish, Korean, Zulu, Siwu, Sesotho, Tamil, etc. (see table 1.1 for examples).

Language	Sound Iconic form	Meaning
Turkish (Ido 1999, 70)	*paril-paril*	ablaze, very brightly
	dangil-dungul	Boorish
Quechua (Nuckolls 1992, 68-69)	*polang*	a floating movement across the surface of water or the moment of emergence from underwater
	ton	to be completely realized
Siwu (Dingemanse 2009, 6)	*gbigbiigbi*	Trembling
	dzɔlɔlɔ	tediously long
English	*flim-flam*	Nonsense, a deception, to deceive, to beguile

Table 1.1 - Examples of mimetics

The examples in table 1.1 show that the sound iconicity can be primarily diagrammatic rather than imitative. Mimetics in this case are representative of relationships. The Turkish mimetic *paril-paril* contains the vowels /i/ and /a/ where /i/ is considered diminutive to /a/, whereas the Turkish mimetic *piril-piril*, containing no contrast in vowel sounds, means "very brightly, brilliantly flashing" compared to "ablaze, very brightly" (Ido 1999, 70). Both are similar diagrams (stop-liquid-liquid expressing a pattern of undulating movement) but the variation of vowels changes the meaning in terms of specific imagery: bright sparks vs. a bonfire.

As might be expected, much of this type of research tends to be language specific. Perhaps because the research is generally language specific and indeed investigator specific, there is no standard set of terminology used by all researchers. Many terms have been used in the past (see Samarin 1971, 131-132; Childs 1994, 178-179; Abelin 1999, 3-9 for previous terms), e.g. onomatopes (Aston 1894). "Sound symbolism", "sound symbolic words", and "lexical iconicity" have emerged as general terms for the overall phenomenon. In the English literature, three other terms are commonly used for specific language area(s): "ideophones" in South American and African linguistic (Bartens 2000, Nuckolls 2010); "expressives" in Southeast Asian linguistics (Abbi 1994; Chevillard 2004); "mimetics" in Japanese/Korean linguistics (Tsujimura 2005a, Kakehi, et al 1996, Atoda & Hoshino 1993, Garrigues 1995, Akita 2009). These terms have all been used to describe the same general phenomenon.

I will use the term "mimetics" in this thesis in the following instances: for words where phonetic sounds themselves are similar in some way to a direct perception (phonomime), relate in some way to the depiction of action (phenomime) or relational understanding of whatever the words represent (psychomime); and "non-mimetics" or "regular" words for ordinary vocabulary where sound-meaning correspondences are apparently arbitrary or opaque, e.g. *cat, dog*. It is

worth noting that in the Japanese literature on mimetics, onomatopoeia is often used as a general term for mimetic or sound iconic words.

The general terms "sound symbolic words" or "sound symbolism" in this thesis will be used for only words with some recognizable similarity between their phonological units and the direct perception of whatever the words represent, i.e. phonesthemes. Examples of "sound symbolic" words include *flash, flare, flame, flicker, flimmer* where "fl-" represents moving light (Bloomfield, 1933, 245). Phonesthemes are generally considered to be the basic unit in sound symbolism, which lies between phonemes and morphemes (Amemiya & Mizutani 2006).

However, even though these terms are the most commonly used terms in the literature, they are overly broad and problematic for a Peircean analysis. Therefore, the terms "sound iconic words" or "sound iconism" will be the preferred terms in this thesis. The term phonomime (onomatopoeia) will be used for words representing sounds via linguistic means. Examples of phonomimes are *crash, clap, flomp, zap, bang*, etc. Chapter 3 will discuss in more detail the relationship and differentiation between the types of mimetic words and onomatopoetic words as a special case of mimesis.

Mimetics form an essential part of the Japanese language. "The popular literature abounds with them, and the speech of the people has many more which rarely find their way into books" (Aston 1894, 333). Mimetics "are indispensable for enriching colloquial as well as literary expression in both spoken and written Japanese" (Baba 2003, 1862), and "used very frequently in all levels of Japanese—from conversation to the quality newspaper" (Inose 2007, 97). They are often considered "the most important part of any sentence and they greatly enhance its effectiveness (Tsunoda 1978, 158)" (Yang 1984, 85). The effectiveness can be seen in that

"when a mimetic is used, Japanese speakers have a more concrete idea of what … is being referred to" (Sugiyama 2005, 302). Examples of this can be seen in the following sample sentences. Each of these sentences comes from the JpWaC online corpus of Japanese.

(1.1)

a)	**torotoro**	aruku	nowa	kirai	na	node,	tokei	o	mi	nagara	**saQsa**	to	arukeru
b)	**Gently**	Walk	TOP	hate	COP	because	watch	OBJ	look	while	**quickly**	mimetic marker	can walk

c) I hate walking **gently**, I'd rather walk **quickly** while looking at my watch.

(1.2)

a)	Kono	shashin	o	toru	tame ni	higata	o	**tobotobo**	arukimashita
b)	This	picture	OBJ	take	for	tide waters	OBJ	**trudgingly**	walked

c) To take this picture, we **trudged** through the tide waters.

(1.3)

a)	futari	de	**daradara**	to	aruki	Nagara	kaidan	he	mukau
b)	Pair	INSTR	**lazily/ meanderingly**	mimetic marker	walking	While	stairs	to	to go towards

c) The pair **meanders** towards the stairs

In each of these sentences the verb *aruku* (to walk) is modified by a different mimetic. Each mimetic changes the method or type of walking; from gently walking *(torotoro*) to quickly walking *(saQsa*) to trudging *(tobotobo*) or meandering (*daradara*). Mimetics clarify the type of walking, and add a visceral understanding. For most native speakers mimetics are not only "referential but also evoke a vivid at-the-scene feeling. Native speakers feel that hearing and reading these words are in some sense equivalent to sensory input or affect arousal" (Kita 1997, 381). However, mimetics tend to defy attempts to classify and categorize them semantically

(Millington 1993, 11). While this causes some discussion as to the "true nature of their meaning," mimetics are an important area of research for Japanese linguistics due to their frequent use, often the apparent focus of sentences.

Cross-linguistically, mimetic words (or words with sound iconic properties) are often considered anomalous, and thus treated as a separate class of words within a language.

> "Given ample cross linguistic and language internal surveys, mimetics do exhibit different sets of properties, whether they be phonological, morphological, semantic, or syntactic, and Japanese mimetics certainly fit that profile" (Tsujimura & Deguchi 2007, 341).

Within the context of "lexical stratification," Japanese linguists have posited separate classes of words within Japanese based on lexicological and etymological studies. It is generally accepted that there are three major classes or stratums with Japanese (Tokieda, et al 1955, 355 and Miyajima 1977, among others): first, the native Japanese (or Yamato) words, second, words of Sino-Japanese origin, and third, words of other foreign origin. These classifications generally reflect the etymological origin of a word. The native stratum originated in Japanese, e.g. *kotoba* "word, language". The Sino-Japanese stratum has a Chinese origin, e.g. *gengo* "language". The foreign or other loanword stratum consists of words borrowed mainly from English, and other languages like Dutch, Portuguese, French, etc., e.g. *rangeeji* "language" (Akita 2009, 101). When mimetic words are considered, they generally form a fourth stratum. However, the exact boundaries of this stratum tend to be rather fuzzy. There is a significant amount of phonological, phonosemantic, morphological, and semantic evidence for a separate stratum. Most important, however, is the fact that native Japanese can intuitively identify mimetics. Japanese mimetics are,

thus, typically treated as a separate stratum within the Japanese lexicon. Chapter 3 will contain a detailed discussion on the nature of the mimetic stratum.

The exact number of mimetic words in Japanese is unknown (Baba 2003, 1862) various sources place the number around 1,600–1,700. Oda (2000, 65) works with 1,630 mimetics that he compiled from various sources including dictionaries to dedicated mimetics, novels, Japanese textbooks, newspapers, magazines and so on (Oda, 61–62); Toratani (2005, 335) cites Atoda & Hoshino (1993) with 738 headwords and approximately 1,700 mimetics; Baba (2003, 1862) cites Asano (1978) and Kakehi, et al. (1996) for about 1,600 mimetics. Key (1997, 3) cites Ono (1984) for about 1,500 mimetics. Noma (1998, 30) states that Japanese has second highest number, following Korean with 2,000 words. Figuring out the exact count may be a purely academic exercise, for as Tsujimura notes, the coinage of mimetics and mimetic verbs is frequently observed (2005a, 150). Although this phenomenon is by no means unique to Japanese (Ido 1997, 27), it has not yet been fully examined (Key 1997, 93).

Japanese mimetics are not limited to imitating sounds or motions as in other languages, but they also can “represent sounds, shapes, texture, or something more abstract such as feelings ” (Tsujimura 2005a, 137) as well as symbolizing ”manners or psychological conditions” (Hamano 1998, 2) as can be seen in Figure 1.1.

gosogoso

Mimetic – rustling/searching sound

… are

What …

kyorokyoro

Mimetic – to look around, spin

Nee…

It's gone …

Figure 1.1 - Example from manga (Tsutsumi & Takemura 2008, 51)

The use of mimetics is common in everyday Japanese (Millington 1993, 11-13), especially in manga (Japanese comics). The mimetic *gosogoso* usually is used to describe a rustling sound. Here the rustling noise is being made by the character searching an empty pocket. The mimetic *kyorokyoro* is used to emphasize and reinforce the drawing that after discovering her pocket empty, the character is now frantically looking around. Other examples come from Japanese Haiku poets Saito Sanki & Buson.

Mizu-makura	A water pillow
Gabari to	**Sloshing/punctured** becomes
Samui umi ga aru	A frozen sea

Saito Sanki

Haru no umi	The spring sea

Hinemosu	The whole day long
Notari-notari kana	**Gently rising and falling**

Buson

Table 1.2 - Example from haiku

The mimetic *gabari* is not common. It is either a variation on the root *gaba* more commonly seen in the mimetic *gabagaba* (large, oversized or baggy) and generally conveys a feeling of largeness. Or that same word may be specifically phonomimic, conveying the sound of sloshing water. Thus, the mimetic meaning of *gabari* is somewhat polysemous, having different but obviously related senses. Either the water pillow bursts from being too large and becomes a cold sea or the sound of the water in the pillow reminds the sleeper of a frozen sea. The mimetic *notari-notari* is more common. It indicates rolling, gently swelling.

Further, many aspects of mimetics have yet to be fully researched. Japanese mimetics tend to appear in two types of literature: a subset of Japanese linguistics, or in iconicity/semiotic literature. Linguistic research in Japanese mimetics has, on the whole, been largely focused on phonosemantics, morphology and rhetoric. Numerous dictionaries/books are dedicated to listing and explaining Japanese mimetics (e.g. Kakehi, et al 1996; Atoda & Hoshino 1993; Asano 1978; Millington 1993; Fukuda 1993; Ono 1984, Gomi 1989 among others). Even a group of scholars spend part to all of their time exclusively researching Japanese mimetics.

Kimi Akita has published a list of articles, books, dictionaries, and monograms with more than 200 entries (see http://sites.google.com/site/akitambo/). Aston (1894) provides a good example of the mimetic phonosemantic research: the sound “symbolic” nature of certain sounds, words which are directly imitative of sounds and grouping phonomimes semantically. For

example, palatal sounds are used to express closeness or stickiness (ibid. 344), and the sound of frogs croaking is *giu-giu* (ibid. 354), etc. Unfortunately, some researchers become so focused on Japanese mimetics that they ignore the larger system of the language and linguistic research in general. More general Japanese linguistic research tends to briefly mention mimetics and move on. Either approach tends to create a viewpoint that mimetics are somehow unique to Japanese (Asano 1978, 1, Oda 2000, 101). These tendencies have decreased since the turn of the century, but many aspects of mimetics remain unexamined.

Recent research has focused on the translatability, semantics and acquisition of mimetics. Of particular interest is the flexibility seen in the syntactic use of mimetics. A mimetic can change which part of speech it occurs as. "A single mimetic word can appear as a noun, an adjective, an adverb, or a verb" (Tsujimura & Deguchi 2007, 340). The favorite example of this phenomenon is *iraira*, as seen below in Table 1.3.

Part of Speech	Sample Sentence
Noun	Kodomo-no seiseki-ga waruku **iraira-** ga tamatta. Child GEN grades SUB bad **irritation** SUB accumulated Since my child's grades have been bad, my **irritation** has accumulated.
Adverb	Ano hito- wa itsumo **iraira**(-to) hanasu. That person TOP always **irritation** (mimetic marker) speak That person always speaks in an **irritated** manner.
Verb	Otto no kudaranai hanasi-ni **iraira** shita. Husband GEN silly talk by **irritation** did I got **irritated** by my husband's silly talk.

Table 1.3 - Various forms of iraira (Tsujimura 2005b, 374-375, Tsujimura 2005a, 144)

However, other mimetics can sometimes only appear as a single category. Examples of this include *seisei suru* (to feel refreshed), *utouto suru* (to doze), *saQpari*[1] *suru* (to feel refreshed) (Tamori 1980, 167) and *surasura na/no* (smooth). Some mimetics are even more

[1] Note, that /Q/ is used to represent the first half a Japanese geminate cluster, usually realized a glottal stop at the end of a word.

interesting in that mimetic verbs seem to have different subcategorization requirements (see below in Table 1.4).

Verb type	Sample Sentence
Inanimate Stative	Doa no totte ga **burabura** suru. Door GEN knob SUB **swing/sway** do The door knob is **loose**.
Animate Stative	Tarō ga uchi de **burabura** shiteiru. Tarō SUB house LOC **swing/loaf** is doing Tarō is **being lazy** at home.
Atelic	Tarō ga kōen o **burabura** shita. Tarō SUB park OBJ **swing/stroll idly/loaf** did Tarō **strolled leisurely** in the park.
Causative	Tarō ga ashi o **burabura** suru. Tarō SUB leg OBJ **swing/sway** do Tarō **swings** his legs.

Table 1.4 - Subcategorizations of burabura (Tsujimura 2005a, 147, Tsujimura 2001, 415)

Even with the recent surge of mimetic research, there has been so far no extensive survey of mimetic part of speech usage in Japanese. Akita (2009) performs an analysis of one hundred fifty mimetics to measure their ability to be used as a verb (224-228). Caldwell (2009a/forthcoming) performed a preliminary analysis of 313 mimetics but there has been to date no comprehensive analysis. Thus, one of the purposes of this thesis is to provide a comprehensive analysis in a follow up to the 2009 study.

Various theories have been proposed to explain the various properties of mimetic words. The most controversial of all relate to the exact nature of the sound iconicity of mimetics. Kita (1997, 2001) proposed that the mimetics do not work in the normal analytic semantic space, but in an affecto-imagistic (i.e. a mimetic) semantic space. Note that this reinforces the view that mimetics are different from normal language systems. Even though sentences with mimetics are syntactically unified, the mimetics are semantically differentiated. Tsujimura strongly disagrees with Kita's semantic analysis and takes a constructionalist approach arguing, that

> "mimetic words lack distinctive categories and as a natural consequence, the semantic characteristics that are often associated with categories are missing as well" (2005a, 145),

and she further claims that

> "the meaning of mimetic verbs cannot be found in the mimetic words themselves or not even from the mimetic verbs as a whole; rather, it is a property of the construction in which they appear" (2005a, 150).

Akita (2009) takes a possible third route by theorizing that the less iconic a mimetic word is the more likely it will be to appear in the core of a sentence. The more iconic a mimetic word is the more likely it will be to appear in the periphery of a sentence. So, for example, the mimetic *botoboto*, representative of a dripping sound and therefore highly iconic, will rarely if ever appear as a predicate but will most likely appear as an adverb. All the above theories tend to agree that iconicity is at the root of mimetic words' unique characteristics.

> "The flexibility of mimetics is probably due to their iconicity. Even if they are not used in their conventional sense, they still serve their function as long as the speaker/writer and the listener/reader can relate the sound (signifier) to what it describes (signified)" (Sugiyama 2005, 307).

Unfortunately, the concept of iconicity is itself poorly articulated in the literature, as evidenced by the frequent confusion of the terms "iconic" and "symbolic". These terms when originally coined by C. S. Peirce (1935) referred to totally different concepts, but his precise definitions have largely been forgotten or ignored. Thus, the typical explanation of the iconic/symbolic nature of mimetics has proven unsatisfying in the current literature.

This vague reliance on iconicity to explain mimetic phenomena causes some scholars, like Newmeyer (1992), to state that iconicity, in general, is irrelevant to, poses no challenge to, or is already taken into account by standard linguistic theories. Newmeyer does reject the extended use of "iconicity" to mean "functionally motivated" (1992, 758).

However, even Newmeyer (1992) agrees that Peirce's diagrammatic iconicity is applicable to many facets of linguistic phenomenon, and several other researchers (Nuckolls 1999, Kohn 2005, Key 1997, Akita 2009) suggest an examination via the philosophies of Charles Sanders Peirce as a possible source for a better understanding of sound iconicity and mimetic words.

This thesis will use the philosophies of Peirce to explain the nature of sound iconicity and mimetic words. This thesis will also report the results of a comprehensive examination of the cross-categoriality of Japanese mimetics, and conclude by showing how this evidence supports an argument for the integration of sound iconcity and mimetic as core elements of a larger linguistic system rather than epiphenomenal.

Chapter 2 will be a discussion of Peirce's theory of semiotics. Chapter 3 will start with a brief review of "sound symbolism", lexical iconicity and mimesis, and conclude with an application of Peircean semiotics to outline a complete linguistic system with mimetic iconicity in its proper place. Chapter 4 will examine the corpus data revealing the cross-categoriality of Japanese mimetics. The results will generally support the results of Akita (2009, 224-228). The Peircean system of sound iconicity will clarify the results and be used to create a more precise and integrated analysis of Japanese mimetics.

Chapter 2 - Peirce's Semiotics

Peirce's system of semiotics has been used in many different disciplines, such as quantum physics (Beil & Ketner 2002), anthropology (Lele 2006), mathematics (Kauffman 2001), Ethics (Manning & Amare 2006), computer science (Keeler 2003), musicology (Turino 1999), folklore (Lommel 2010) and particularly in linguistics. Good examples of linguistic applications of Peirce's system of semiotics are Robertson's analysis of English inflectional morphemes (1994), Robertson & Turley's analysis of American Spanish clitic pronouns (2003), Clarito's analysis of the Tagalog ma- prefix (2000), Corradini's analysis of Hiligaynon causatives (2009), and relating to this thesis Midgley's cross-linguistic lexico-semantic iconicity analysis (1996). So as Key (1997, 53) suggests, it is useful to introduce a Peircean interpretation.

The basis of Peirce's semiotic analysis is a triadic system of categories or signs. Peirce names these categories: firstness, secondness and thirdness. These base categories are unique non-derivable units, which he defines thus: "The first is that whose being is simply in itself, not referring to anything nor lying behind anything" (CP 1.356). Or as Peirce further clarifies,

> "Imagine the magenta color. Now imagine that all the rest of your consciousness—memory, thought, everything except this feeling of magenta—is utterly wiped out, and with that is erased all possibility of comparing the magenta with anything else or of estimating it as more or less bright. That is what you must think the pure sense-quality to be. Such a definite potentiality can emerge from the indefinite potentiality only by its own vital Firstness and spontaneity. Here is this magenta color. What originally made such a quality of feeling possible? Evidently nothing but itself. It is a First" (CP 6.198).

Thus, firstness is the abstraction of perceived qualities from actual objects. These qualities or potentialities can represent objects, ideas, feelings, etc., similar to the original perception. A specific instance of firstness is periodically called an icon.

"The second is that which is what it is by force of something to which it is second" (CP 1.356). Again as Peirce clarifies,

> "The type of an idea of Secondness is the experience of effort, prescinded from the idea of a purpose.… The experience of effort cannot exist without the experience of resistance. Effort only is effort by virtue of its being opposed; and no third element enters. Note that I speak of the experience, not of the feeling, of effort. Imagine yourself to be seated alone at night in the basket of a balloon, far above earth, calmly enjoying the absolute calm and stillness. Suddenly the piercing shriek of a steam-whistle breaks upon you, and continues for a good while. The impression of stillness was an idea of Firstness, a quality of feeling. The piercing whistle does not allow you to think or do anything but suffer. So that too is absolutely simple. Another Firstness. But the breaking of the silence by the noise was an experience. The person in his inertness identifies himself with the precedent state of feeling, and the new feeling which comes in spite of him is the non-ego. He has a two-sided consciousness of an ego and a non-ego. That consciousness of the action of a new feeling in destroying the old feeling is what I call an experience. … Generally speaking genuine secondness consists in one thing acting upon another, -- brute action. I say brute, because so far as the idea of any law or reason comes in, Thirdness comes in" (CP 8.330).

Thus, secondness is an experience, "brute" reality, action versus re-action, what something is in opposition to what it is not, or anything that rooted in the physical. A specific instance of secondness is periodically called an index.

"The third is that which is what it is owing to things between which it mediates and which it brings into relation to each other" (CP 1.356). As Peirce explicates:

> "When a stone falls to the ground, the law of gravitation does not act to make it fall. The law of gravitation is the judge upon the bench who may pronounce the law till doomsday, but unless the strong arm of the law, the brutal sheriff, gives effect to the law, it amounts to nothing. True, the judge can create a sheriff if need be; but he must have one. The stone's actually falling is purely the affair of the stone and the earth at the time" (CP 8.330).

"Now Thirdness is nothing but the character of an object which embodies Betweenness or Mediation in its simplest and most rudimentary form" (CP 5.104). Thirdness is not just a combination of firstness and secondness. Thirdness is law, recurring, predictable action, repeated patterns, a mediation between past events and potential futures, or a mediation between representation and meaning. A specific thirdness is called periodically a symbol.

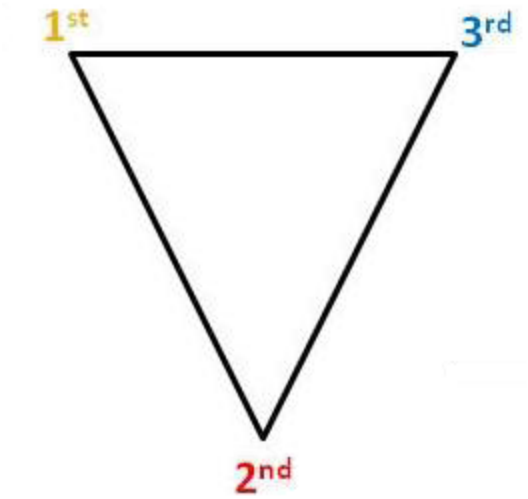

Figure 2.1 - Peirce's three place system

In other words firstness is quality, unrelated and separate from everything, pure perception. Secondness is the essence of action, the actualization of potential, physical, material, or "gross" instantiation of reality. Thirdness is an order, structure, relationship, or mediation between other signs. It is important to understand that this triadic system of signs is not limited to just linguistic systems, but applicable to anything that can be understood to have meaning (Lommel 2010: 63).

As seen in figure 2.1, Peirce traditionally organizes his semiotic categories in an inverted pyramid. Firstness (icon) is placed in the upper left corner, thirdness (symbol) in the upper right, secondness (index) at the bottom. Peirce's system of signs is fundamentally recursive and can be re-applied to any sub-sign. Based on this basic triadic system Peirce explicated multiple multi-level systems. The most common of which are six-place and ten-place systems. "Peircean logic deals in threes and these three have unique relations to one another. But this does not mean that the three basic categories cannot form the basis for larger systems structured on an internal valency of three" (Young 2003:39). Peirce created and explored ten place systems; a pertinent system is depicted in figure 2.2.

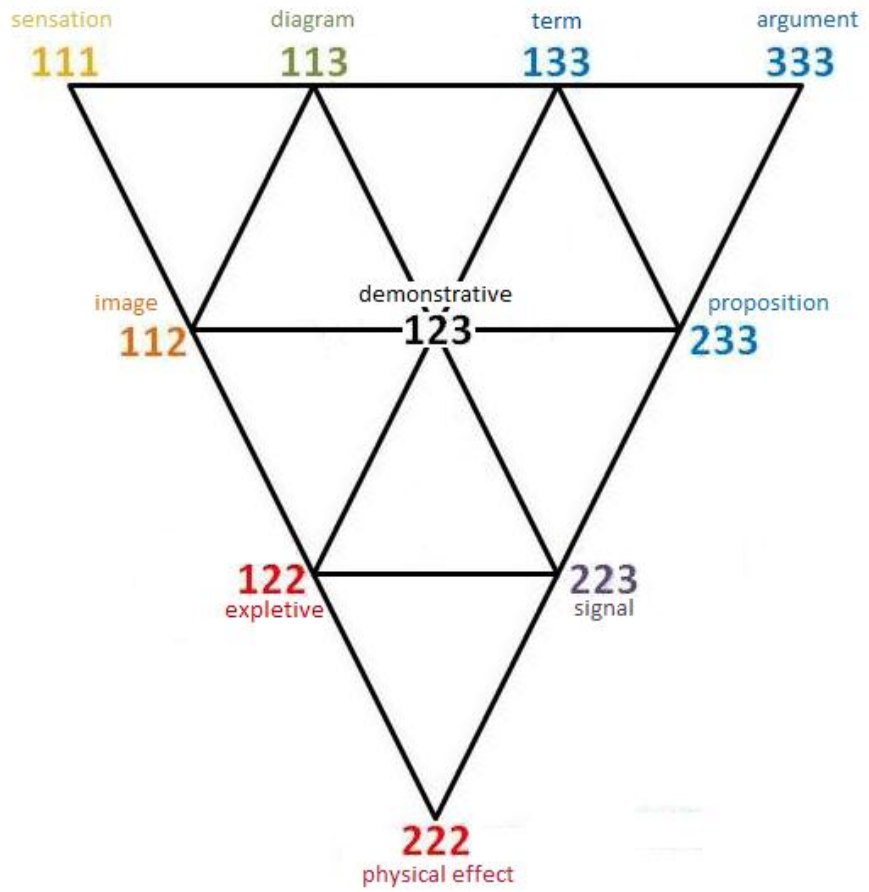

Figure 2.2 - Peirce's ten place system (CP 2:258)

This system is useful in understanding any number of problems (CP 2:254-264), including Japanese mimetics. A ten place system, such as depicted in figure 2.2, is an expansion of the three place system as depicted in figure 2.1. Therefore, the category Peirce uses in the ten-place system for sensation is called first of first of firstness; for image the category is first of first of secondness, and so forth. It is common practice to use a shorthand with Peirce's terminology; first of first of thirdness (or diagram) becomes 1-1-3, and so on.

It is useful to use more specific terminology when applying this system to a specific area of study. A good example is Manning & Amare's application of Peirce to visual information design:

1-1-1 is decorative icons (borders, font shapes, color, etc.).
1-1-2 is image icons (photographs, realistic illustrations).
1-2-2 is signaling indices (bullet points, arrows, flashing banners, etc.).
2-2-2 is action indices (web links, buttons, page tabs, etc.).
1-1-3 is informative icons (diagrams, charts, graphs).
1-2-3 is reference indices (tables, figure labels, etc.).
2-2-3 is social-code indices (ritualized signals, step-by-step procedures, etc.).
1-3-3 is word-symbols.
2-3-3 is sentence-symbols.
3-3-3 is whole-text-symbols. (2007a, 63)

This ten place system as described by Manning & Amare contains three icon categories, three symbols and four indexes. Several important relationships are graphically encoded in the inverted pyramid. The left side of the triangle from 1-1-1 to 2-2-2 is the axis of feeling to action. The right side of the triangle from 2-2-2 to 3-3-3 is the axis of action to information. The top of the triangle from 1-1-1 to 3-3-3 is the axis of feeling to information. The points closer to the top are more abstract, and the points closer to the bottom point are more concrete. Firstnesses are abstractions from experience, while thirdnesses are abstractions from relationships. The level of abstraction varies from sign to sign and is highly dependent on the function of the sign: generation of a feeling (firstness), action (secondness) or information (thirdness).

> "A critical point, easily overlooked, is that, while an icon [firstness] always creates meaning by resemblance, that resemblance might be to pure feeling (as in Munch's abstract painting The Scream), or that resemblance might be to a physical object (as in a photograph of an airplane), or that resemblance might be to informational relationships (bars on a graph analogous to relative piles of steel produced by Canada and the US in a year)" (Amare & Manning 2007b, 3).

Resemblances to pure feeling are 1-1-1, while resemblances to physical objects are 1-1-2 and resemblances to informational relationships are 1-1-3. All of which are abstractions. It is important to understand that secondness is the most concrete while both firstness and thirdness are abstractions. Even when dealing with subtypes such as 1-1-1, 1-1-2, and 1-1-3.

A relevant example of these relations comes from McCloud (1993:51-54). He discusses what he calls the picture plane, as can be seen in figure 2.3.

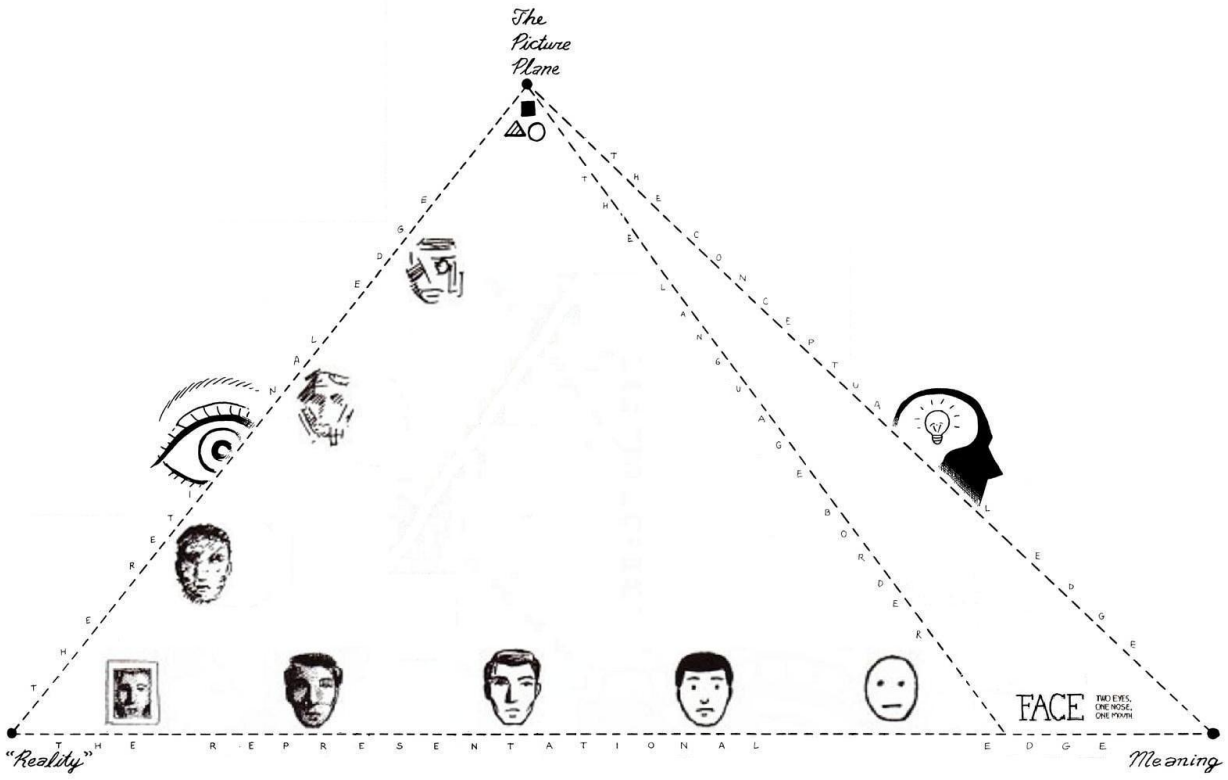

Figure 2.3 - McCloud's Picture Plane (1993, 51-54)

Unfortunately McCloud does not follow Peirce's traditional inverted triangle. In his picture plane, firstness is at the top of the triangle, secondness at the lower left and thirdness the lower right. This is truly just a zoomed in view of the upper left corner of figure 2.2. Figure 2.4 is a remapping of figure 2.3 onto figure 2.2.

In this example an abstract painting would be 1-1-1, since it's a qualitative representation of reality with no correlation between form, quality and reality. A photograph would be 1-1-2, since there is exact one to one correlation between form and reality. A comic/cartoon/diagram,

however, is 1-1-3, as it abstracts away from reality to show a relationship. A photograph, meanwhile, shows every detail that is visible and it is difficult to filter out irrelevant data.

An example of this is how a circle, two dots and a curved line be arranged to represent a variety of different emotions, i.e. a smiley or frowny face. The circle would represent a head, though people's heads in reality are not perfect circles, the dots eyes, and the curved line either a smile or a frown depending which way the line curves. Meaning is conveyed by the relation between the components. A Rembrandt painting would also be 1-1-2. Though such a painting may not directly represent physical reality, it has qualities of reality. 1-1-2 is a representation of a reality.

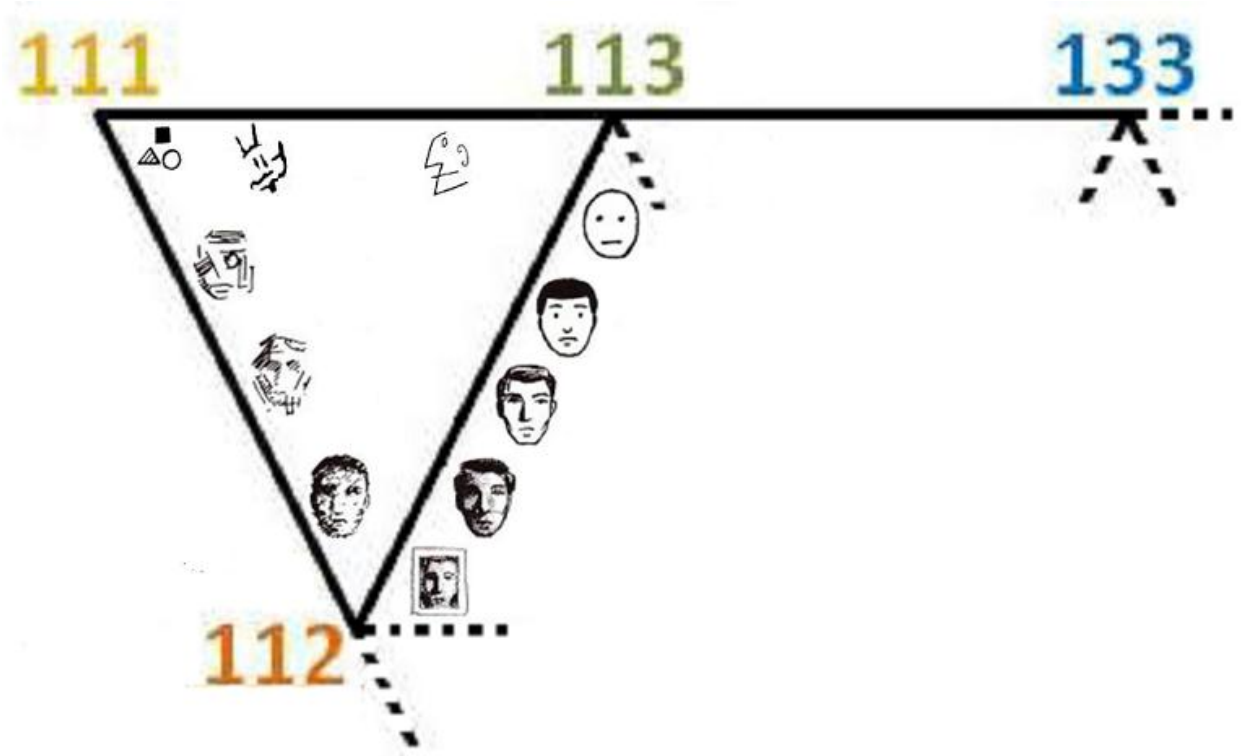

Figure 2.4 - McCloud's Triangle on Peirce's Triangle

As briefly suggested in chapter 1, many mimetics are relational or in other words diagrammatic in nature, hence a 1-1-3. The status and relationship of mimetics within a Peircean system will be discussed in detail in chapter 3.

Chapter 3 - Semantics of Sound Iconicity

This chapter will be divided into three sections the first will be an overview of past and current theories of "sound symbolism", the second a review of Japanese mimetic research, and finally an analysis of Japanese mimetics via Peircean semiotics.

3.1 "Sound Symbolism", Onomatopoeia, Lexical Iconicity

"Sound symbolism" is the idea that the intrinsic qualities of sounds (phonemes) go beyond the linguistic function as contrastive, non-meaning-bearing units and express meaning (Nuckolls 1999, 226-228). Empirical examination of this concept was first introduced by Sapir (1929). While the concept has been discussed and debated since at least Plato's Cratylus, most of the arguments for and against had been philosophical and the evidence haphazard. Examples of the pro-sound iconism argument can be seen in Aston (1894) and Bloomfield (1933). Aston states that the verb *tatsu* 'to stand' has sound iconic qualities, specifically that

> "there is no other motion of the organs of speech so well adapted to render the rising to an erect posture as the straightening out [of] the tongue with its tip touching the teeth or gums, as is done in pronouncing *t*" (1894, 359).

This line of argumentation is based more on the researcher's intuition than empirical data. When data has been presented it is of the type presented by Bloomfield (1933), a list of words with a semantic meaning for the shared phoneme, e.g. [sl-] 'smoothly wet': *slime, sluch, slop, slobber, slip, slide,* etc. (245). However lists of this sort are easily rebutted with lists of words where the semantic meaning of phoneme seems not to apply, e.g. *slat, slam, slave, slink, slow, sleep,* etc., none of which have anything to do with 'smoothly wet'.

Much of the debate since Sapir has focused on the universal versus non-universal nature of sound iconism. Researchers since Tsuru & Fries (1934) have attempted to test if certain sound

iconic patterns are the same across multiple languages. The issues that arise from these types of studies have led many researchers to focus instead on individual languages. While some scholars deny the existence of sound iconicity in any form, many agree that any sound iconicity that exists is likely to be language specific (Marttila 2009, 94), or in other words the meanings that phonemes suggest vary across languages. It is also generally accepted that the degree to which a particular language employs sound iconism varies greatly (Ikegami & Zlatev 2007, 223), e.g. English is generally considered to have little sound iconism while other languages like Bantu or Quechua are rich in sound iconism

Recent research in sound iconism has expanded from examining specific languages for sound iconism to exploring its effect on word learning (Parault &Schwanenflugel 2006, Imai, et al, 2008), its existence in irregular verbs (Nyikos 1994), the relationship to the origins of language (Kita 2008), and its relationship with animacy (Nuckolls 2010) (see Magnus 2001, Fordyce 1988, among others for a detailed history of sound iconism research).

Other researchers (Midgely 1996, Ciccotosto 1991, Magnus 2001, Marttila 2009) have attempted to show that sound iconism is a universal property of all languages. Ciccotosto (1991) acquired language samples from 229 languages from across 10 of the 17 language phyla, and discovered evidence of sound iconism in almost all of the languages he examined. Magnus (2001) performs 14 experiments for English, mainly statistical analyses correlating phonemes to meanings and the use of nonsense words to extract people's intuitions about phoneme meaning. She discovered statistically significant phoneme-semantic patterns. Marttila (2009) analyzed 70 languages and found sound iconic similarities cross-linguistically, and that the majority of Eurasian names for the common cuckoo and the world-wide names for the crow and raven are phonomimes. She also performs an in depth analysis of Finnish bird names and determines that

half of them have onomatopoeic origins. Midgely (1996) examines eight words in 40 languages, and discovers that classes of phonemes tend to be associated with specific classes of concepts.

The use of Peircean semiotics to analyze sound iconic phenomena is also becoming more frequent. Midgley (1996), Magnus (2001) and Marttila (2009) all cite Peirce with differing degrees of precision. Magnus though not explicitly using Peirce's terms, states, "Like Peirce, I find it easiest to describe what I have observed in terms of three levels of semantics -- the iconic, the classificatory and referential, although I am as yet unprepared to say exactly how my levels relate to those of Peirce" (2001, 32). She asserts that the phoneme - semantics relationship is iconic. Marttila uses Peirce as a basis for her analyses, and states that "onomatopoeic words are icons" (2009, 38). Midgley is able to deploy Peirce's categories with more precision, his main results shown in Figure 3.1.

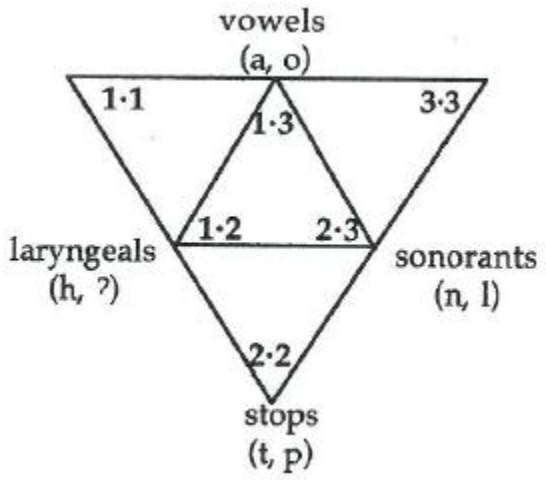

Figure 3.1 - Midgley's Peircean Phoneme chart (1996, 70)

Midgley's analysis showed that expressive words, such as hitting, tended to involve stops. "Since, stops are strongly suggestive of force, words in this semantic domain with stops will have an evolutionary advantage over those that do not" (1996, 66). He also finds that sonorants,

especially nasals, are related to negatives and sleep. Jakobson has also noted that nasals are associated with words for mother (1962). Since these semantic areas are propositional or signaling they have 2-3 characteristics. Through extrapolation, Midgley places vowels at 1-3 and laryngeals at 1-2. The diagrammatic nature of vowels can be seen in Sapir's early studies on the difference between the nonsense words for tables: mil and mal. The vowels indicate the relative size of the table: mal for large tables, and mil for small tables. The vowel contains key diagrammatic or relational information within the possible sizes of tables. Thus vowels placed at 1-3 in Midgley's chart (figure 3.1).

Phonomimes are sometimes confused with other types of sound iconism which have distinct properties. However though related, these concepts are different.

> "In onomatopoeia, sound is imitated whereas in sound symbolism a connotation is attached to a phoneme or a string of phonemes without any obvious imitation, or various non-acoustic features are symbolized by acoustic means. Thus, imitation is not symbolic and symbolism is not mimicry" (Marttila 2009, 49).

So words that are phonomimes may be sound iconic, and sound iconic words are not necessarily phonomimes.

Sound iconism and phonomimes are also different in that phonomimes can be considered a global phenomenon, and sound iconism a local phenomenon.

> "Speakers of different languages hear the surrounding sounds in the same way and then reproduce the sound with phonemes belonging to the phonemic inventory of their language. The universality of onomatopoeia depends on whether speakers of different languages choose to create lexical items on the basis of sound imitation or not" (Marttila 2009, 94).

Thus, the differences in phonomimes are based on the phonemic inventory of a language. For example in Japanese a rooster's call is *kokekoQko* and in English, cock-a-doodle-do. Yet the rooster's call sounds the same in both locales. The differences are due to phonemic inventories of

the language. Thus, phonomimes are a “global” phenomenon constrained by “local” language factors, whereas sound iconism is generally determined purely by “local” language factors, and can be considered a “local” phenomenon, though occurring universally.

Lexical iconicity is a more general phenomenon. It includes both sound iconism and phonomimes. Thus, it is also a universal phenomenon but again takes different forms in particular languages (Marttila 2009, 40). Lexical iconicity occurs whenever there is a perceived similarity of any kind between the form of the word(s) and whatever the word(s) refer to. This concept is directly opposed to the standard Saussurian theory on the relationship between form, meaning and referent. Lexical iconicity can often be a factor in the formation of certain kinds of words, but overextending this phenomenon to all words can lead to faulty conclusions (Midgley 1996, 72).

Lexical iconicity may best be understood by comparison to another Peircean system. As explained by Manning (1998), McCloud (1993), and Midgley (1996), the letter ‘A’ originally was a depiction of a bull. Figure 3.2 shows the gradual transformation from bull to letter. The initial image is commonly said to be more iconic and the letter ‘A’ is symbolic. A Peircean view of this process places the initial bull drawing at 1-1-2, an approximate physical reflection of the bull. As it morphs into a symbol it moves up the line from 1-1-2 to 1-1-3 and then moves to 1-3-3 (see figure 3.3). It's important to remember that these processes are all taking place just in the upper left area of the larger Peircean (10-place) system. The significance of node 1-1-1 in the Peircean system is worth emphasizing here as it relates to the problem of phonomimes. 1-1-1 is purely abstract elements arranged to give a qualitative impression in this case the impression of a bull, for example Lichtenstein’s Bull III and Bull IV as depicted in figure 3.3. A bull really does

not look like Bull IV. But the use of basic shapes and color capture qualities of a bull and the impression of a bull create by the resemblance.

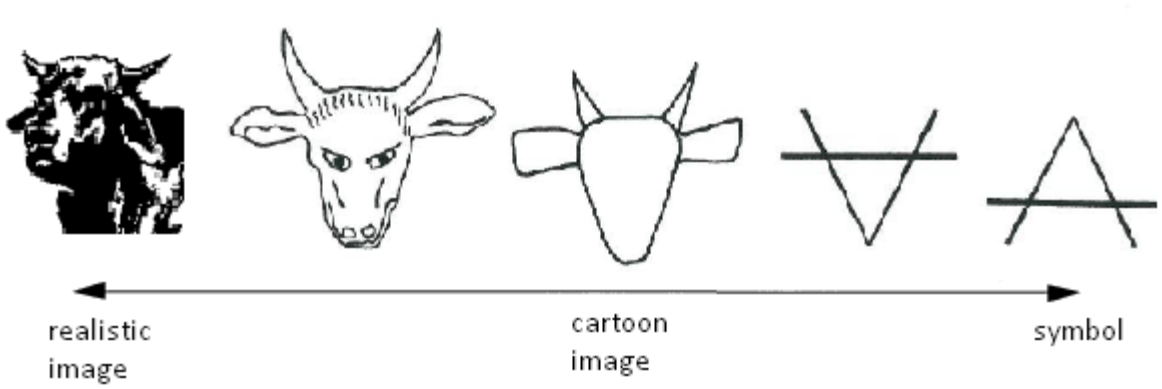

Figure 3.2 - Development of 'A'

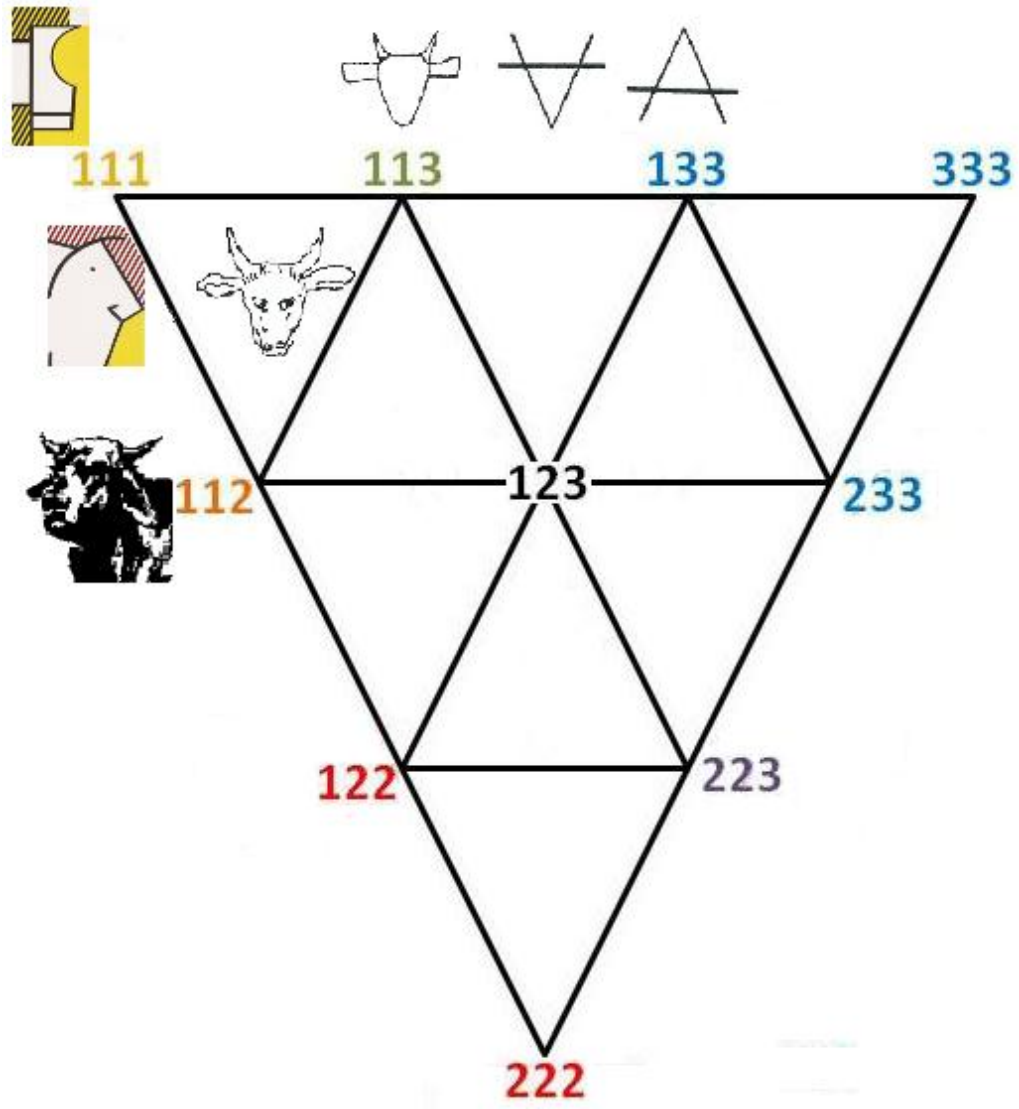

Figure 3.3 - Development of 'A' via Peirce and abstract representations of a bull

In this analogy phonomimes (onomatopoeia) corresponds to the abstract depiction of the bull, and phenomimes to the physical reflection image and psychomimes to the more cartoonish form, and traditional Saussurian words to the letter ‘A’. Phonomimes are 1-1-1, mimetics are the continuum between 1-1-1, 1-1-2 and 1-1-3, and Saussurian words are 1-3-3. Thus phonomimes are abstract constructions of basic phonemes used to represent the actual nonlinguistic sounds heard.

3.2 Japanese Mimetics

As previously mentioned Japanese mimetics are a separate stratum in the Japanese lexicon. However the exact boundaries of this stratum are somewhat fuzzy. The unique semantic, phonological and morphological features of Japanese mimetics have been commented on in the earliest linguistic records of Japanese.

Collado in 1632 writes about Japanese mimetic morphosyntax:

> "the particle to is added to them; e.g., *va va to xite* 'vociferously saying *wa wa*,' and if they add *meqi,u*, it means to make even a louder noise; e.g., *va meqi,u* 'to shout saying wa'" (57).

While the orthography is a little dated, essentially Collado is noting that mimetics often appear with the marker *to*, to use his example *wa wa to shite* 'to go or say wa-wa'. He also discusses the *-meki* or *–meku* verbal suffix. Monomoraic roots no longer combine the *–meku* suffix, making *wameku* a fossilized construct. However, modern words like *kirameku* 'to twinkle' from *kirakira* 'twinkle' and *yoromeku* 'to stagger' from *yoroyoro* 'unsteady, tottering' do exist.

In 1604 Rodrigues discusses Japanese mimetic morphology: "A great number of these adverbs are formed by repetition of the same word, to express the manner in which a thing is done, or the sound of the thing: like *farafara*, 'sound of rain or of falling tears'" (Landresse 1825, 87). This is a common feature of Japanese mimetics. About 40% of the mimetics examined in chapter 4 have reduplication.

In 1904 Griffis mentions in passing that, "probably no pure word begins with p except onomatopee or children words." (Griffis 1903, 688) Indeed, the uniqueness of the use of the /p/ phoneme in Japanese has been a source some of discussion (see Hamano 1998, Kakehi, et al 1996 for a detailed discussion). The /p/ phoneme rarely occurs at the start of a word in the

Natural or Sino-Japanese strata of the lexicon. While almost 300 mimetics start with the /p/ phoneme; the most common initial consonant among the mimetics examined in chapter 4.

Another distinguishing feature of many mimetics is change of tone (sometimes referred to as accent). In Japanese words typically the tone falls from a high tone to a low tone, e.g. *kankan* 'clanging noise, anger' has the following pitch HLLL[2]. Sometimes the only difference between a mimetic and non-mimetic word is where this change in tone takes place, as can be seen in table 3.1 (note I use the symbol '^' to mark where the change in tone takes place). In the examples where multiple pitch changes are marked in two places, this is an either or scenario, e.g. *pata^Nto* or *pataN^to*, not a two changes in pitch. Tone is not encoded in the Japanese writing system: katakana, hiragana, and kanji. Thus the examples below would appear exactly the same when written in katakana or hiragana. Only context allows the differentiation of mimetic from non-mimetic.

Mimetic	**Non-mimetic**
boki(^)N(^) (-to) 'crunch'	*bokin* 'collection of contributions'
butsu^ri (-to) 'snap'	*bu^tsuri* 'physics'
ka^tokoto (-to) 'clatter'	*katokoto* 'smattering'
kata^ri (-to) 'clattering'	*katari* 'narration'
kata(^)N(^) (-to) 'crash	*katan* 'assistance'
kusu^ri (-to) 'chuckling'	*kusuri* 'medicine'
mu^ramura (-to) 'irresistibly'	*mura^mura* 'villages'
pata(^)N(^) (-to) 'slam'	*pa^tan* 'pattern'

Table 3.1 - Tone difference in mimetics vs. non-mimetics (adapted from Akita 2009, 113-114)

[2] Occhi & Akita point out the sometimes the tone pattern is LHHH, and mimetics can have HLLL or LHHH tone patterns. The HLLL pattern occurs when the mimetic is used an adverb or verb. The LHHH occurs when the mimetic is used as a noun or adjective (Occhi 1999, 154-155; Akita 2006, 6-7).

Bimoraic reduplicative mimetics are generally shift tone after the first mora. Where a bimoraic reduplicative mimetic does not shift tone, there is often a version with a shift in tone, e.g. *bosabosa, bo^sabosa* 'frazzled, messy'. Bimoraic reduplicative mimetics without any tone shift do exist, though much less common, e.g. *gudaguda* 'messiness, tiredness'.

Yet despite these common features of phonology, morphology, semantics, and syntax there is no common agreed upon definition of what is a mimetic. Having a clear definition for Japanese mimetics has been one of the most difficult but most fundamental issues in Japanese mimetic research (Akita 2009, 100). The most extensive definition is a list of ten morphophonological features provided by Tamori & Schourup (1999). Even though, they admit that the features they list cannot define the mimetic category completely. Below are the eight[3] most relevant features:

(3.1) Features "unique to mimetics" (adapted from Tamori & Schourup 1999, 210-211):

a. Free from sequential voicing (*rendaku*) in reduplication (e.g. *toro**t**oro* 'gently'; **toro**d**oro*; *toki**d**oki* 'sometimes')
b. Free from nasalization of C_1 /g/ of a reduplicant (e.g. *gito**g**ito* 'greasy'; **gito**ŋ**ito*; *kami**ŋ**ami* 'gods')
c. [p] – initial words plentiful (***p**otepote* 'stodgy', ***p**iyopiyo* 'tweet tweet', ***p**eQtari* 'closely, plastered on')
d. Glottal stop inserted into two-mora-reduplicative resultative adverbs (e.g. *he**Q**toheto* 'exhausted'; *akaaka* 'brightly red'; **a**Q**kaaka*)
e. Suffixation of glottal stop, *-ri*, and *–N* (e.g. *koro**ri** (-to), koro**Q**(-to), koro**N**(-to)* 'rolling')
f. Repetition of reduplicatives (e.g. *korokoro* ***korokoro*** 'rolling'; **fukabuka* ***fukabuka*** '(bowing) deeply') Note this is an example of the diagrammatic nature of Japanese mimetics.
g. Optionality of the particle *–to* for CVCV-reduplicative manner adverbs (e.g. *jirojiro**(-to)*** 'stare'; *fukabuka***(-to)*** '(bowing) deeply')

[3] The first ignored condition is that mimetics are exceptionally free from [p]-[h] alternation. However, even in non-mimetic Japanese this alternation rarely occurs, only in specific compounding situations. Second, the suffixing of bimoraic reduplicated mimetics with a glottal stop (e.g. *ko^rokoro* vs. *korokoro**Q^*** 'rolling'). The shift in accent pattern makes it more likely that *korokoro'^* is a partial reduplication of the mimetic root suffixed with a glottal stop, e.g. *koroQ^* 'rolling'.

h. Initial accent of two-mora-reduplicative manner adverbs (e.g. *ko^rokoro* ‘rolling’; *fuka^buka* ‘(bowing) deeply’)

Exceptions to this list include common mimetics like *berobero* ‘completely drunk’ and *dokidoki* ‘feeling one’s heart throbbing from excitement or nervousness’; they possess none of the above features[4]. Yet they are unambiguously recognized as mimetics by native speakers (Akita 2009, 99-100).

Even though there is no agreed upon definition, Japanese mimetics are often divided into sub-classes. Japanese has three divisions: *giongo, gitaigo,* and *gijōgo*. *Giongo* are phonomimes or onomatopoeia a direct mimicry of sounds, and *gitaigo* are phenomimes—they represent the manner in which someone acts or something occurs, and *gijōgo* are psychomimes that represent the speaker’s internal feelings (Yamaguchi 2007, 63). The boundaries between these three classifications are not clear-cut. Some portions of *giongo* and *gijōgo* enter the domain of *gitaigo,* while *giongo* and *gijōgo* rarely overlap (Yamaguchi 2007, 70), as can be seen in figure 3.4. In fact, I know of only one mimetic that can be classified in all three divisions, *busubusu*. This is a polysemous mimetic. The psychomime meaning is sullenness. The phenomime meaning is sticking. The phonomime meaning is to sputter/smolder. Two other terms are sometimes used with Japanese mimetics, *giseigo* and superexpressives. *Giseigo* is usually a subset of *giongo,* specifically sounds made by animals. Superexpressives are phonomimes that emphasize a certain quality of their referent eventualities rather than conform to morphological conventions, e.g. ‘splaaaaaaat’ versus ‘splat’ (Akita 2009, 20).

[4] It is uncertain if 3.1a applies since the C_1 is voiced already in these examples.

Figure 3.4 - Japanese terminology overlap.

Many researchers have posited a continuum between mimetic and non-mimetics Japanese words based on a variety of notions: iconicity in Hamano (1998), mimeticity in Tamori & Schourup (1999), motivatedness in Tamamura (2000), prototype in Lu (2006), Bartens (2000), and Akita (2009).

The prototype conditions proposed by Akita (2009) subsume many of the notions proposed by previous researchers. He uses the first four of the features proposed by Tamori and Schourup (1999), i.e. (3.1) a-d, as his segmental condition. He also defines a set of morphophonogical templates as a morphological condition. Iconicity is the final condition he uses. The closer a word is to meeting all three conditions the more mimetic a word is. The continuum begins with the most mimetic words to the least mimetic: superexpressives, phonomime, phenomime, psychomime, nonmimetized adverbs, fossilized mimetics, quasi-mimetics, and non-mimetics (see figure 3.5 Akita's summary of the mimetic prototype category).

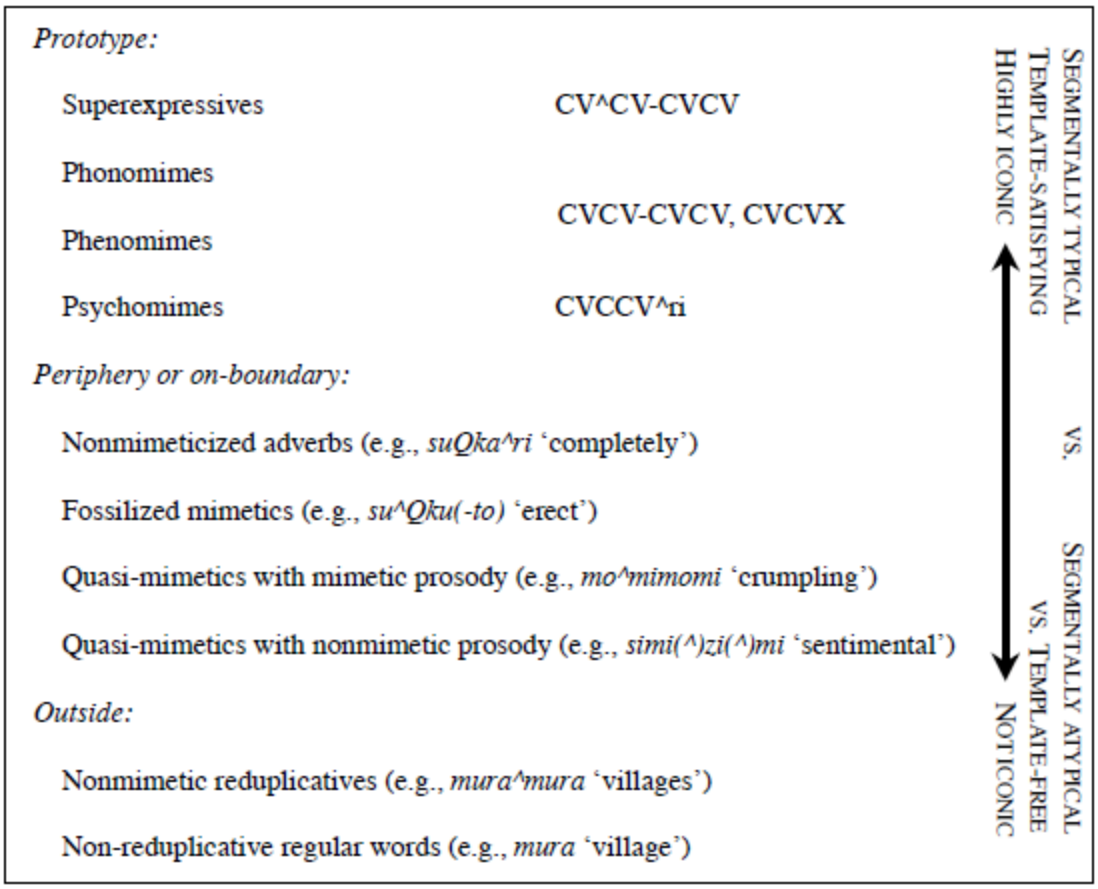

Figure 3.5 - The internal structure of the prototype category of Japanese mimetics (Akita 2009, 135)

Nonmimetiziced adverbs are mimetics that have become so conventionalized that seem to have become normal grade adverbs, e.g. *dondon* 'steadily, rapidly' *teQkiri* 'beyond doubt', *chokuchoku* 'from time to time', *yaQ-to* 'finally, *zuQ-to* 'for a long time' (Tamori & Schourup 1999: 68-69). Quasi-mimetics or pseudo-mimetics are words that fit the morphophonological templates of mimetics but are derived from non-mimetic words, e.g. *damedame* (< *dame* 'useless'), *daNmari* (< *damaru* 'be silent'), *nerineri* (< *neru* 'knead'), *tanmari* (< *tamaru* 'accumulate'), *momimomi* (< *momu* 'crumple') (Akita 2009, 104-105). Often these quasi-mimetics have nonstandard accent patterns for mimetics.

The morphological templates used by Akita are listed in table 3.2. Through a series of experiments Akita was able to show that closeness to these morphophonological templates plays

a vital role in whether a sound sequence sounds mimetic to native speakers (2009, 129). In fact he was able to discover that some templates seem to be more mimetic than others. The bimoraic reduplicated form (CVCV-CVCV) was the most mimetic of the templates examined. This fact is collaborated in that this template is the most common form for mimetics. Akita finds 484 mimetics of this form (2009, 110), and my count is 493.

	Template	Examples
Monomoraic roots based	CVQ	*niQ* (*-to*) ‘grinning’
		guQ (*-to*) ‘gulping’
	CVN	*bon* (*-to*) ‘bomb’
		kin (*-to*) ‘ping, shrill’
	CViQ	*kuiQ* (*-to*) ‘twisting’
		poiQ (*-to*) ‘tossing’
	CVV	*tsuu* (*-to*) ‘streaming’
		kaa (*-to*) ‘caw’
	CVV-CVV	*suusuu* ‘cold’
		jaajaa ‘whoosh-whoosh’
	CVN-CVN	*kankan* ‘furious’
		tsuntsun ‘thorny’
	CVi-CVi	*hoihoi* ‘willingly’
		waiwai ‘buzz-buzz’
Bimoraic root-based	CVCVQ	*kataQ* (*-to*) ‘clunk’
		kuraQ (*-to*) ‘dizzy’
	CVCVN	*doron* (*-to*) ‘vanishing’
		tsurun (*-to*) ‘slipping’

CVCVri	*horori* (*-to*) ‘dropping’
	kiriri (*-to*) ‘shaping up’
CVCCVri	*hoQkori* ‘warm’
	jiNwari ‘warmly moved’
CVCV-CVCV	*betobeto* ‘sticky’
	jukujuku ‘oozy’

Table 3.2 - Morphophonological Templates for Japanese Mimetics (Akita 2009, 107-109)

However these templates seem to have little or no effect on which grammatical category mimetics appear as. In fact Tamori, among others, concludes that there is no common characteristic among mimetics that determines verb incorporation (Tamori 1980, 293). There seems to be two extremes of explanation for Japanese mimetics, Kita’s affecto-imagistic dimension and Tsujimura’s constructionalist approach, as mentioned in chapter 1. Others tend either to implicitly agree with one or the other or to avoid the issue altogether by using the vague terms symbolism or iconicity. First, let’s review Kita’s proposal.

According to Kita, there are two levels of representation of semantics involved in any sentence containing a mimetic, an analytic dimension and an affecto-imagistic dimension. The analytic dimension is where normal semantics applies. In other words, it is the decompositional and hierarchical representation in terms of decontextualized semantic parts. The affecto-imagistic dimension is the interface between language and other forms of information in the mind, e.g. smell, kinesthesia, etc. In particular co-auditory iconic gestures originate from the affecto-imagistic dimension (Kita 1997, 409). Kita bases his proposals on data that show a high concomitance of gesture production and mimetic verbalization (Kita 1993, 1997, 2001). Figure 3.6 shows the essence of Kita’s proposals.

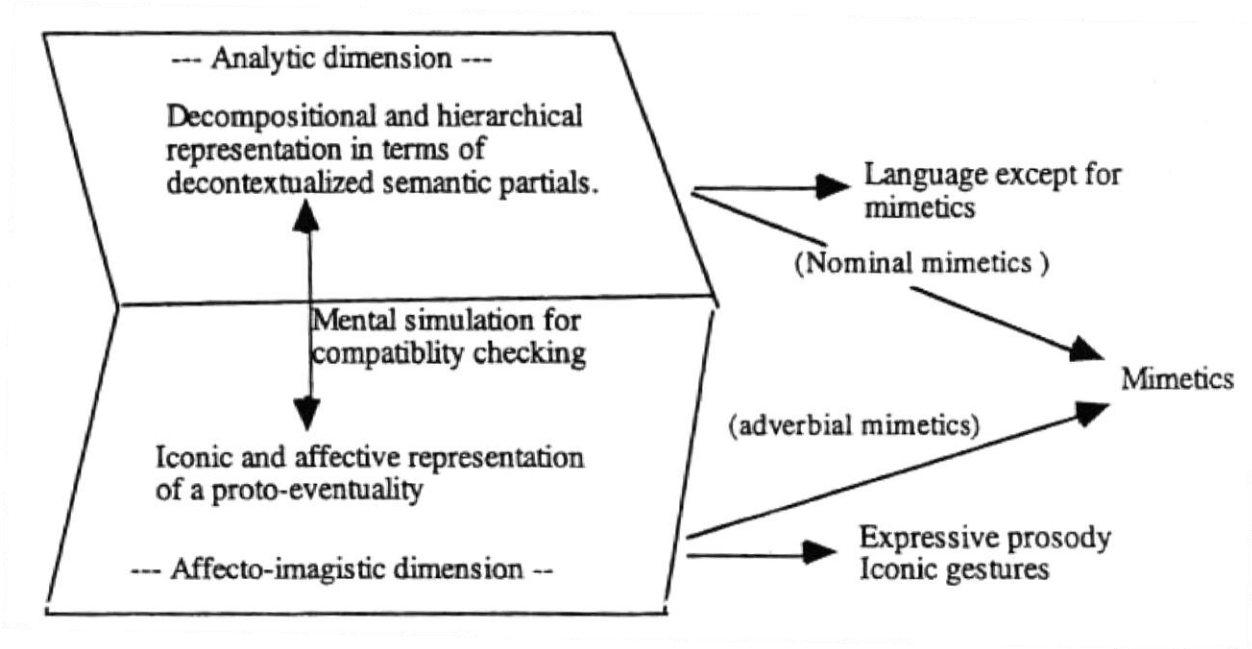

Figure 3.6 - Analytic & affecto-imagistic dimensions (Kita 1997, 409)

Kita proposes that all non-mimetic language resides only in the analytic dimension. Mimetics are divided into two categories: nominal and adverbial. Nominal mimetics are similar to the Japanese *keiyōdōshi* 'nominal adjectives' (e.g. *shizuka* 'quiet'), which have noun-like morphology and adjective-like semantics (Kita 1997, 385-386). Adverbial mimetics are the common adverb-type mimetic. Nominal mimetics start from the analytic dimension and merge into the affecto-imagistic dimension. Adverbial mimetics exist only in the affecto-imagistic dimension (Kita 1993, 391). As Kita explains:

> Mimetics are spontaneously produced in tight synchrony with a co-expressive iconic gesture in speaking. An utterance with a mimetic can only have the peak of expressive prosody on the mimetic. Also, negative affect is a meaning element that figures in the sound symbolism of mimetics. Mimetics' high association with phenomena that are traditionally characterized as "paralanguage" suggests that mimetics' meaning is beyond that of "language proper." I maintain that mimetics, spontaneous iconic gestures, and expressive prosody share meaning representation in the affecto-imagistic dimension, which is qualitatively different from the analytic dimension, the dimension of "language proper" in the Saussurian tradition. (1997, 399)

Thus, mimetics are not within the standard realm of what is commonly considered linguistic inquiry.

Tsujimura's proposal is based mainly on the cross categoriality and differing subcategorization frames of mimetics (see table 1.3 and table 1.4 for examples). Since many (if not all) mimetics can be used in multiple contexts with variations in specific meaning per context, Tsujimura proposes that the subcategorization requirements also vary with context, and these requirements determine the specific interpretation. Native Japanese and Sino-Japanese verbs all have specific and predicable subcategorization requirements while mimetics do not (Tsujimura 2005a, 150-151).

These facts lead Tsujimura to state that mimetics do not have "specific meanings, and that global information contributed by a whole sentence including the number of NPs and their grammatical functions, animacy of the subject, and verbal morphology together give rise to an explicit meaning" (Tsujimura 2005a, 153). She also rejects the concept that these differences can be explained away by polysemy, since mimetics of supposedly similar meanings have different subcategorization requirements (Tsujimura 2005a, 152-153). Tsujimura's concern is not so much with the core meaning of the mimetic but with how the mimetic interacts with other elements in a sentence.

3.3 Peirce and Japanese Mimetics

Thus, three major threads of study exist for Japanese mimetics, Kita's affecto-imagistic dimension, Tsujimura's constructionalist approach, and Akita's prototype category. In this section I will discuss how a Peircean approach is able to reconcile these differing views.

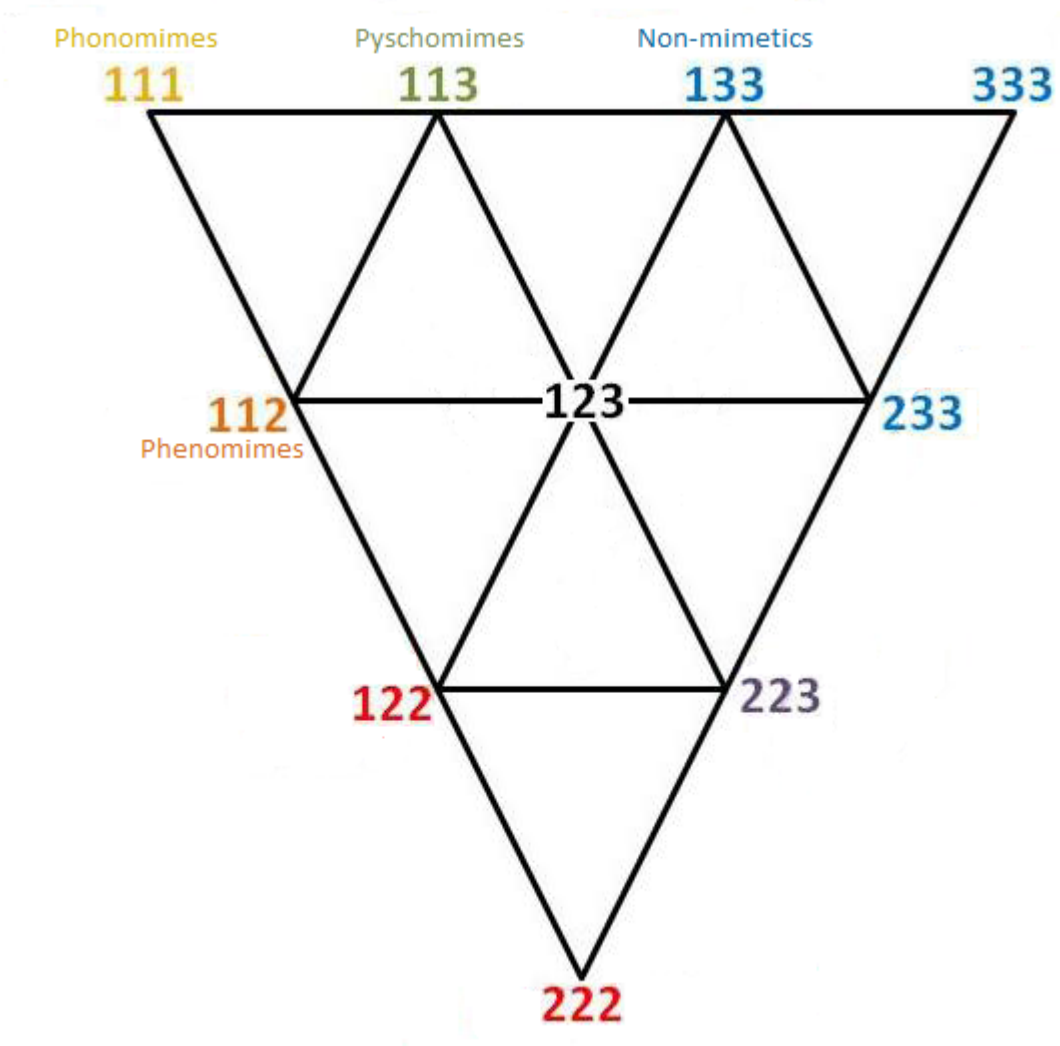

Figure 3.7 - Peircean relationships of mimesis and sound iconicty

First, I will review how phonomimes, phenomimes, psychomimes and sound iconism relate to each other in a Peircean system. It is important to remember that, as stated in chapter 2, iconicity is a form of firstness is, indexicality is a form of secondness, and symbolism is a form of thirdness. So in a Peircean triangle (see figure 3.7), iconicity is in the upper left, and symbolism is in the upper right. Firstness derives meaning through resemblance, whether it is a resemblance to an actual physical action or object (images), a resemblance to a relationship (diagram), or a resemblance to a quality or feeling (abstract art). It is important to note that 1-1-1,

1-1-2 and 1-1-3 are all icons. Thirdness gains meaning from habitual association, rule based systems, or pure arbitrariness.

This difference between firstness and thirdness is what makes the term "sound symbolism" so problematic for a Peircean analysis. For much of the literature on "sound symbolism" the phonemes gain meaning through a resemblance to a quality[5]. A good example of this type of reasoning is Aston's analysis of the verb *tatsu* (to stand). Symbolism implies a rule based, habitual or arbitrary relationship to meaning. The shape or position of the tongue is irrelevant to a Peircean symbol.

Onomatopoeia (phonomimes) gain meaning through resemblance to physical sounds in reality. This is an iconic (firstness) semantic relationship. Phonomimes are the equivalent to sound as abstract art is to reality. Abstract art is a construction of shapes that give an impression of something. Qualities are emphasized over imitation. Just as *cock-a-doodle-do* and *kokekoQko* are both the crow of a rooster (in English and Japanese respectively), neither one actually sounds exactly like a rooster. They are an abstract construction of phonemes built to resemble a rooster's crow. They are 1-1-1.

Phenomimes gain meaning through resemblance to actions in physical reality. Phenomimes generally refer to some action or aspect of an action, e.g. *kyorokyoro* 'to spin' or *gowagowa* 'stiff, starchy'. The mimetic *gowagowa* is often used as a gerundial modifier, e.g. *gowagowa shita ke* 'the stiff hair'. 1-1-2 need not relate directly to action but can resemble the manner of an action. Phenomimes are images of action reflecting some detail of that action. Thus, phenomimes are 1-1-2.

[5] Martilla (2009) seems to be an exception to this tendency. Her focus is mainly on onomatopoeia; she clearly states the onomatopoeia are iconic, while sound symbolism is not. She does not clarify if the sound symbolic relationship is habitual, rule based or arbitrary.

Psychomimes gain meaning through diagrammatic resemblance. This is also an iconic (firstness) semantic relationship. A diagram is any visual which represents by similarity but which is interpreted in terms of conceptual, conventionalized similarities rather than terms of feeling or resemblance to reality. In other words diagrams resemble objects or ideas in their basic part-to-part correspondences instead of regular every day appearance (Alton, 2010, 38). An example of this would be *korokoro korokoro*, the repetition of the mimetic changes the meaning to be continuously rolling. The reduplication of the mimetic increases the duration. Much like doubling the size of a bar in a bar graph increases the quantity of whatever the bar represents. This is a diagrammatic relationship. Psychomimes are 1-1-3.

It should be noted that just because a word is mimetic does not preclude it from having segmental sound iconic qualities (phonesthemes), just that those qualities are not dominate. The mimetic *gorogoro* is not particularly onomatopoeic and certainly not purely sound iconic but the difference from *korokoro* is sound iconic. The phoneme /g/ is often considered heavier than /k/. There are many mimetics where the semantic difference is the heaviness of the object doing the action or loudness of the sound create; inevitably the difference is /k/ for lightness and /g/ for heaviness. An example of this is *katakata* ‘clattering’ versus *gatagata* ‘loud clattering’. The mimetic *gatagata* is heavier than *katakata* due to the difference in /g/ versus /k/. The semantic difference from /k/ and /g/ is a common pattern in Japanese mimetics and has been extensively examined (see Hamano 1998, Bruch 1993, among others).

Past researchers provide examples of constructing a mimetic from its segmental sound iconic parts. For example the mimetic *sarasara* ‘rustle, dry, powdery’ consists of C1 /s/, C2 /r/ and /a/ for both vowels. Hamano (1998) describes the sound iconic meaning as seen in table 3.3.

Phoneme	Meaning

C_1	/s/	Non-viscous body; quickness, light, small, fine
V_1	/a/	Largeness of the object or trajectory of the movement of the initial phase
C_2	/r/	Rolling; fluid movement
V_2	/a/	Largeness of the object or trajectory of the movement of the resultant phase

Table 3.3 - Segmental sound iconism for the mimetic root *sara* (based on Hamano 1998: 172-173)

These segmental components with the templatic meaning of CVCV-CVCV (i.e. durative, more concretely, repetitive or continuative), constitute the sound iconic semantic structure of *sarasara*. This semantic structure seems to correlate nicely with the standard meaning of 'rustle, dry, powdery' (Akita 2009, 212), but not the polysemous meanings of smooth or fluent.

In some instances the sound iconic segments provides only some of the meaning, e.g. *pichapicha* 'splashing water, dabble in water'. Table 3.4 contains the segmental sound iconic explanation.

	Phoneme	Meaning
C_1	/p/	Tautness of the surface of a light, small object
V_1	/i/	Tenseness of an object or movement in the initial phase
C_2	/t/	Hitting of a surface
	/j/	Childishness, uncontrolled energy
V_2	/a/	Largeness of the object or trajectory of the movement of the resultant phase

Table 3.4 - Segmental sound iconism for the mimetic root *picha* (based on Hamano 1998)

The resultant meaning from segmental sound iconism is the uncontrolled repeated hitting of some type of surface, what is missing is the fact that the surface is water. So while the segmental sound iconic components do affect the meaning the whole context of a mimetic is not

contained purely in the sound iconic properties. This shows that even though mimetics are iconic in nature they are not just a combination of pure icons, but more diagrammatic in nature.

In the remainder of this section I will analyze each of the three major approaches via this Peircean system.

Kita's affect-imagistic theory can be understood to be the difference between firstness and thirdness. The analytic dimension is a thirdness. As a decompositional and hierarchical representation in terms of decontextualized semantic partials, the analytic dimension certainly could be described as recurring predictable patterns, and a means to mediate between different elements. In Manning & Amare's Peircean visual design, words and sentences are types of thirdness (2007, 2006). The affecto-imagistic dimension is described as an iconic and affective representation of a proto-eventuality. Remember that icons are firstness. Also, that firstness is the essence of potentials or of qualities. Thus the affecto-imagistic dimension is a first.

While Kita places these two dimensions into opposition to each other, Peirce places them in a system together, where they are related but separate. Notice how using a Peircean paradigm allows both mimetics and non-mimetics to function within a system and mimetics are no longer non-linguistic or epiphenomenal. Mimetics may be "somewhat different from prosaic words, but they are not 'outre-systeme', i.e. they usually stretch the system of some language a bit, but they do not totally disregard it" (Newman 2001:251).

In Tsujimura's constructional grammar approach, mimetics have no specific meanings but that which is assigned to them from the environment in which they occur (Tsujimura 2005a, 153). This is similar to saying that colors do not have any particular meaning outside of specific contexts. However, as can be seen in recent research (Amare & Manning 2009, among others), there is empirical evidence of consistent emotional responses to color across a variety of contexts

and cultures. Though the meaning of a color may be adapted to a specific context the meaning comes from the color itself not from the context. Mimetics are similar in that there is a core meaning in all contexts. Mimetics may be understood in the same way as clothing wash care glyphs or safety icons are understood. Most of these glyphs are diagrammatic in nature, 1-1-3, but are used as 1-2-2, signaling indices, they represent actions to be avoided or performed (Caldwell 2009b, 4; Amare & Manning, 2008, 8). However in isolation separate from the context they may be completely meaningless. In the same way mimetics are diagrammatic sound icons, 1-1-3, being used as word symbols, 1-3-3.

Akita's continuum between mimetic and non-mimetic words can be understood as the line betwee1 1-1-1 and 1-1-2, the line between 1-1-2 and 1-1-3 and the line between 1-1-3 and 1-3-3 (see figure 3.8, highlighted in red). This is a zoomed in look at the area in question.

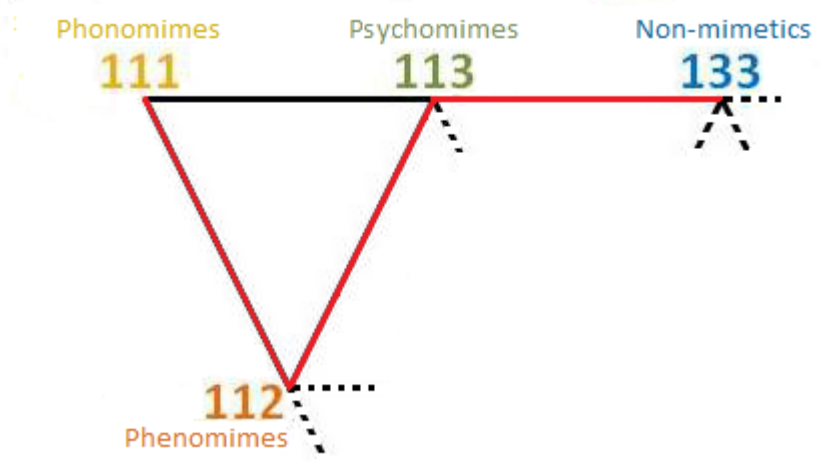

Figure 3.8 - Akita's continuum on a Peircean Triangle

The only true concern with Akita's continuum is that he posits that phenomimes are more iconic than psychomimes, and phonomimes more iconic than phenomimes and psychomimes. However in Peircean theory 1-1-2 is not more iconic than 1-1-3. The difference between is what each category resembles. 1-1-2 gains meaning via perception of reality/action, while 1-1-3 gains

meaning via perception of relationships. Both phenomimes and psychomimes are iconic, just iconic differently.

Chapter 4 - Corpus Analysis

In this chapter I will review previous data based analyses of mimetic cross-categoriality, and how my analysis in this thesis differs from previous efforts. The corpora used to gather the data, methodologies of classification and the actual data examined will be discussed. Finally, the results of this analysis will be presented and explained.

4.1 Past Studies

Unfortunately, to the best of my knowledge, only two data based analyses of mimetic cross-categoriality exist: Akita (2009, 224-228), and Caldwell (2009a/forthcoming).

Akita (2009, 224-228) performed a small analysis of one hundred fifty mimetics: fifty phonomimes, fifty phenomimes, and fifty psychomimes. He studied the possibility of verb formation[6] of these one hundred fifty mimetics. He discovered that all the psychomimes and about 40% of the phenomimes could be used as normal verbs. About 25% of phenomimes and 40% of phonomimes could be used as childish verbs. The remaining mimetics could not be used as a verb. According to Akita this shows that phonomimes are less likely to be used as verbs, while psychomimes are more likely to be used as verbs. While this study is small, it provides a basis for further research. Especially since, it fails to examine noun, adjective and adverb forms.

After discussing mimetic use in other grammatical categories, Akita hypothesizes that the less iconic a mimetic word is the more likely it will be to appear in the core of a sentence, where the core of a sentence is the predicate. The more iconic a mimetic word is the more likely it will

[6] Mimetics become verbs by joining with the verb *suru* 'to do', often referred to as a 'dummy' or 'skeletal' verb. Similar verb formations have been observed in other languages. Meanings of dummy verbs used for this purpose vary from 'do' to 'say', 'quote', and 'think' (Childs 1994: 187).
As noted earlier by Collado there is a secondary process by which mimetics can become verbs. The root of the mimetic is joined with the verbal suffixes *–meku* or *–tsuku*, e.g. *ichatsuku* 'to flirt with' < *ichaicha* 'flirt, make out', *kasatsuku* 'to be dry' < *kasakasa* 'dry, bone dry', *giratsuku*, 'to glare, to dazzle' < *giragira* 'glare dazzle, glitter'.

be to appear in the periphery of a sentence, where the periphery is the arguments and adjuncts of the predicate. He posits a hierarchy of lexical iconicity, e.g. Superexpressives > Phonomimes > Phenomimes > Psychomimes > Non-mimetics. Thus phonomimes rarely become verbs, while psychomimes frequently become verbs, as depicted in figure 4.1.

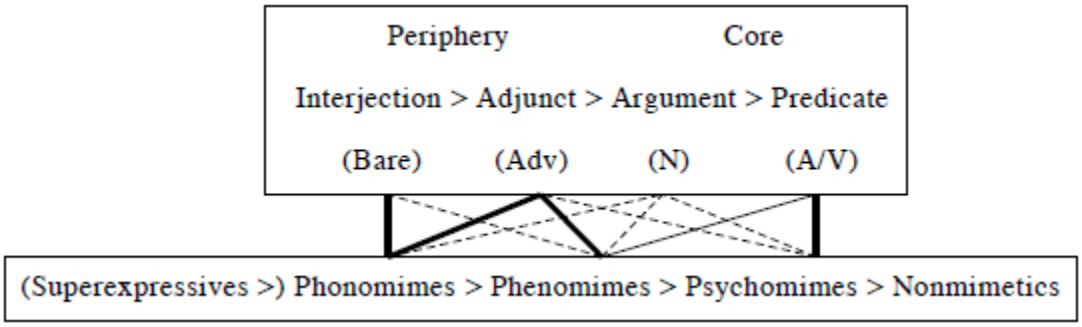

Figure 4.1 - Akita's mimetic parts of speech mapping (2009, 247)

The bold solid lines indicate a systematic mapping, a solid line indicates semi-systematic mapping, and a dashed line indicates non-systematic mappings. Akita admits that not all mimetics perfectly fit this hypothesis. Some phonomimes can combine to form verbal forms, e.g. *gayagaya suru* 'hum (of a crowd)', *zawazawa suru* 'hum (of a crowd)'. Many phenomimes combine to form verbal forms, e.g. *nosonoso suru* 'move sluggishly', *urouro suru* 'loiter', *yochiyochi suru* 'toddle'. There are also a few psychomimes that cannot combine to become a verb, e.g. *uhauha* (**suru*) 'blessed and joyful', *tajitaji* (**suru*) 'faltering'. In other words, Akita's hypothesis covers the majority of Japanese mimetics but not all.

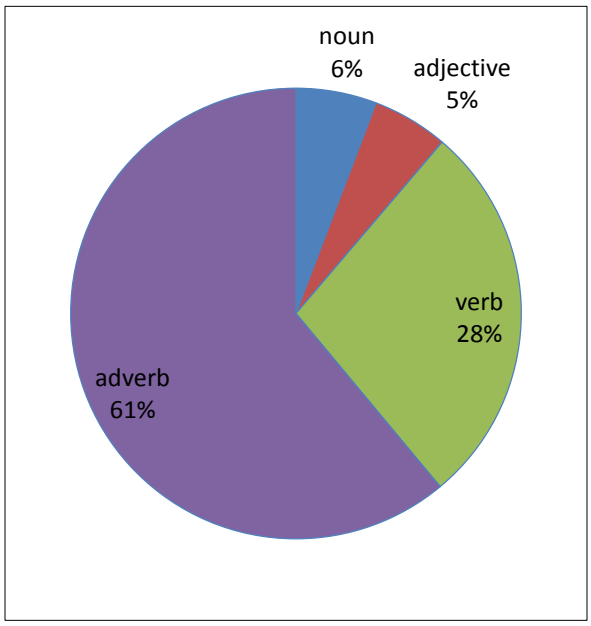

Chart 4.1 - Percent occurrence per category (Caldwell 2009a/forthcoming)

Caldwell (2009a/forthcoming) performed a preliminary examination of three hundred and thirteen mimetics for nearly forty-nine thousand instances of mimetic use. These were chosen mostly at random from Kakehi, et al (1996). Two online corpora, JpWaC and Kotonoha, were used to gather the data. Caldwell briefly analyzed this data to show that indeed native speaker intuition was correct, most mimetics are used adverbially. Adverbial and Verbal use of mimetics accounted for 89% of mimetic usage, see chart 4.1.

However individual mimetics varied greatly. Some mimetics such as *biQkuri* 'surprise' and *iraira* 'irritation' are used most often as verbs. While others like *saQpari* 'refreshed' and *barabara* 'scattered' appear as adverbs. Rare mimetics like *botebote* 'thick, bulky' appeared most often as nouns. These patterns were not noticed but not fully examined.

4.2 Current Study

This current study follows Caldwell (2009a/forthcoming) in using both the JpWaC corpus and Kotonoha corpus. These corpora were chosen for being easily accessible via the web, and being considered an acceptable representation of the Japanese language.

JpWaC is a Japanese web corpus developed by Erjavec, et al (2008). JpWaC has 400 million words lemmatized and tagged via ChaSen, a Japanese parts of speech tagger. When compared with the data from the 2002 Mainichi Shinbun newspaper, the JpWaC contained more informal and interactional material and more diverse content. The Mainichi Shinbun data was more specific in terms of form, e.g. mainly written in the past tense, as well as content, e.g. high proportion of new specific nouns. This suggests that JpWaC gives a fuller picture of Japanese than do newspaper corpora (Erjavec, et al 2008, 535-537). JpWaC is available at http://corpus1.leeds.ac.uk/internet.html.

Kotonoha is actually a cover term a group of corpora being organized by the National Institute for Japanese Language. Plans exist for a fully balanced corpus of spoken and written Japanese, ranging from the late 1800s to present day (Maekawa 2006). Unfortunately due to the fact that this is an ongoing effort, Kotonoha is not yet complete or fully available. However, there is an "online public trial" website. The website contains data from books: 1971-2005, government white papers: 1976-2005, Diet (Japanese Parliament) proceedings: 1976-2005, textbooks: 2005-2007, Yahoo! Answers: 2004-2005, and Yahoo! Journals: 2008-2009. Currently, there is no spoken data available. The "online public trial" can be found at http://www.kotonoha.gr.jp/cgi-bin/search_form.cgi?viaTopPage=1.

I used a list of 1984 mimetics gathered from Kakehi, et al (1996), Atoda & Hoshino (1995), and various articles on Japanese mimetics. However due the spontaneous nature of mimetics, some mimetics in the list did not appear in the JpWaC or Kotonoha corpora. Only 1742 mimetics were actually in either corpus. Mimetic roots were classified as either phonomimes, phenomimes, psychomimes or nonmimeticized. This classification is based largely on Kakehi, et al (1996) and Akita (2009). Mimetics were then classified according to root and morphophonological template. Compound mimetics, e.g. mimetics with more than one root like: *mechakucha* 'disorder, confusion' or *chiyahoya* 'pamper', were classified by the first mimetic root, e.g. *mecha* for *mechakucha* and *chiya* for *chiyahoya*. A set of twenty-eight morphophonological templates were used. These were divided into monomoraic and bimoraic templates. The templates used and number of mimetics per template are seen table 4.1.

template		Number of mimetics
Bimoraic	CVCV-CVCV	487
	CVCVQ	245
	CVCVri	155
	CVCCVri	152
	CVCVN	123

	Compound	67
	Others	46
	CVCVN-CVCVN	43
	CVCVri-CVCVri	21
	CVCVVQ	18
	CVCVVN	16
	CVQCVN	16
	CVQCV-CVQCV	10
	CVQCVN-CVQCVN	7
	CVCCV-Ca	6
	CVCV	6
	CVNCV	4
	CVQCV	4
Monomoraic	CVVQ	47
	CVQ	45
	CVN-CVN	44
	CVV-CVV	44
	Others	32
	CVQ-CVQ	27
	CVVN	27
	CVN	21
	CViQ	10
	CVVN-CVVN	9
	CVi-CVi	8
	CVV	8

Table 4.1 - Morphophonological templates

As can be seen the most common template is CVCV-CVCV, the fully reduplicated bimoraic root template. The other category includes all morphophonological templates that occurred thrice or less. The mimetics which use these templates were often highly onomatopoeic, e.g. *kokekoQko* ‘a rooster’s call’. The collected data was stored a relational data base. This allowed me to analyze multiple features easily and discover how these features relate to each other.

Due the limitations of the corpora search interfaces certain issues occurred while gathering data. JpWaC is a lemmatized corpus. Unfortunately this means that some mimetics may very well have occurred in the corpus but may not have been considered a valid search

string and not shown up in the query. For example the mimetic *notari* ‘roll’ does not appear in JpWaC, however *notarinotari* ‘gently roll’ does.

Kotonoha has almost the exact opposite issue. Kotonoha is not lemmatized and the search interface will return all results for a string even if that string is part of another word. For example a search for the phonomime *bon* ‘bang’ in Kotonoha would return not only non-mimetics like *bonbei* ‘Bombay’ and bonsai ‘bonsai tree’ but also mimetics like *bonyari* ‘dimly, vaguely, aimlessly, carelessly’ and *bonbon* ‘fiercely; with repeated bangs’. In fact of the 4080 sentences returned only 47 actually contained the mimetic bon.

And there is always the issue of homographs. As mentioned in chapter 3, there are instances where the only difference a mimetic and non-mimetic is accent. Neither corpus contains any accent information. Therefore filtering out the non-mimetics was a necessary part of the data gathering process. Even with these limitations 261,150 sentences with valid mimetics were gathered and analyzed.

Three methods of evaluation were used. A Java program designed to evaluate grammatical category. A second Java program using the Sen[7] morphological part of speech analyzer, and finally a visual inspection of ambiguous items and a random set of items analyzed by the previous two methods to validate classification. The classification used is as follows, part of verb, predicate modifier, noun modifier, case marked and pro-predicate. These are functional categories used because as discussed in chapter 3, mimetics do not actually become nouns, verbs, or adverbs but merely fulfill the function of a noun, verb or adverb in a sentence. Much as clothing care glyphs are typically diagrams but function as indices.

[7] Information about and example applications based on Sen can found at http://www.mlab.im.dendai.ac.jp/~yamada/ir/MorphologicalAnalyzer/Sen.html

The pro-predicate functional classification follows Watabe's description (forthcoming, 14-15). Though *da* (and all variations thereof) is usually considered to be a copula, i.e. be-verbs like 'is', 'am' or 'are'. There is the theory that *da* operates as a substitute for the predicate much like pronouns are substitutes for nouns. As can be seen in (4.1) and (4.2) *da* often can be substitute for a predicate: (Kajikawa 1971, 9-10; Okutsu 1978)

(4.1)

a)	boku	ga	unagi	o	taberu
b)	I	SUB	eel	OBJ	eat

c) I will eat the eel.

(4.2)

a)	boku	wa	unagi	da
b)	I	TOP	eel	COP

c) *I am an eel

d) I will eat the eel

Both (4.1) and (4.2) have the same essential meaning. In this instance, *da* substitutes for *taberu* 'to eat'. One function of *da* is to replace an understood predicate. This is similar to the way an English pronoun replaces a noun. In this way, *da* may be considered a pro-predicate.

There is a relation between grammatical category and functional category, e.g. verb: part of verb; adverb: predicate modifier, etc. The use of functional categories actually eased the classification process. There are multiple sentences where a mimetic could be classified as either a noun or noun modifier, see (4.3) and (4.4) for examples. These sentences were taken from the collected data.

(4.3)

a)	**biQkuri**	shita	toki	mo,	shinzō	**dokidoki**	da	yo.
b)	**surprise**	do (PAST)	when	also	heart	**beat rapidly**	COP (PAST)	exclamation

c) When **surprised** my heart **beats rapidly**!

(4.4)

a)	e	ni	kaeru	to	shaberu	koto	mo	deki	Na	kurai	**hetoheto**.
b)	house	to	return	CONJ	talk	thing	also	able	Not	even	**tired**.

c) When I come home, I am so **tired;** I cannot even speak.

As can be seen in (4.3) there are two mimetics *biQkuri* ‘surprise’ and *dokidoki* ‘throb, beat rapidly’. The first *biQkuri* is clearly part of verb, while *dokidoki* is ambiguous. Could *dokidoki* be a noun modifier? Yes. Could *dokidoki* be a noun? Yes. Either way however, it is followed by *da*. Thus following the earlier discussion it classified as a pro-predicate. The example in (4.4) shows a different but also common ambiguity. The mimetic *hetoheto* ‘tired, exhausted’ is the final word of the sentence. There is no explicit predicate. The predicate has been dropped. The mimetic hetoheto is being used as a predicate substitute. Thus this instance is also classified as the pro-predicate grammatical function. It is tempting to classify this as a part of verb, however since there is no explicit predicate I classify it as a pro-predicate instead.

Mimetics were classified according the following criteria:

(1) Any mimetic followed by the *wa* (topic marker), *ga* (subject marker), *o* (object marker), *mo* (additive topic marker, ‘also’), *ni* (dative marker), etc. are classified as case marked.

(2) Any mimetic followed by any variation of the copula *desu* (e.g. *da*, *de*, *daro*, *daQta*, etc.), by a period, the phrase *na no (ni/de/da)* ‘of that/which’ is classified as a pro-predicate.

(3) Any mimetic followed by a *na* (*keiyōdōshi* marker), no (genitive marker), *–i* (*keiyōshi* suffix), or when in a compound is classified as noun modifier.

(4) Any mimetic followed by any form of *suru* ‘to do’ or *yaru* ‘to do’ is classified as part of verb.

(5) Any mimetic followed by *to* or otherwise modifies the predicate is classified as predicate modifier.

It should be noted that some researchers consider form: mimetic+ *to suru* as a verbal form. However I consider any use of the *-to* marker to be a predicate modifier even if the predicate is the "dummy verb" *suru* 'to do'.

Each of these classifications can be seen in examples (4.5) through (4.17). These examples were all selected from the data from the corpora. Example (4.5) is an example of a mimetic with *suru* forming a verb, as is the first mimetic in example (4.3). The two types of predicate modifiers can be seen examples (4.6) and (4.7). The *-to* marking is optional with mimetics and occurs with predicate modification.

Examples (4.8), (4.9) and (4.10) show each of the three noun modifier types, with *na*, with *no*, or no marking. The *na* marker is typically used with *keiyōdōshi* (nominal adjectives). Within Japanese *keiyōdōshi* are common noun modifiers and frequently can be used as predicate modifiers when marked with *ni* or *de* instrumental/dative case markers. The genitive *no* marker is used to show possession but also when nouns modify other nouns. This marker is commonly translated as the English 'of'. Noun modifiers without *na* or *no* tend to be names like *biQkuri donki* 'surprise donkey' (name of a Japanese restaurant) or *wakuwaku rando* 'excitement land' (name of a Japanese amusement park) or compounds like *chinchin densha* 'trolley'.

Examples (4.11), (4.12), (4.13), (4.14) are examples of pro-predicate. Pro-predicates, as discussed earlier, are the words that indicate predicates without being predicates, such as the Japanese copula *da*. Example (4.11) is an example a mimetic followed by *da* forming a pro-predicate. In (4.12) the mimetic by itself forms a pro-predicate. Examples (4.13) and (4.14) are examples of the common phrase *na no (de/da/ni)* where is any variation of the Japanese copula *da*. The phrase *na no (de/da/ni)* is syntactic complementizer which acts as a predicate. The *na* is again the *keiyōdōshi na* marker, but the *no* is dummy noun, not the genitive case marker. So

while, this phrase could be considered a type of noun modifier, the whole phrase acts as a conjunction or complement.

Examples (4.15), (4.16), (4.17) are examples of case marked mimetics. In these examples the mimetics are typically considered to be acting as nouns. In examples (4.15) and (4.16) the mimetic is marked with the topic marker *wa* and subject marker *ga* respectively. In example (4.17) the mimetic is marked with the object marker *o*. All of which typically mark nouns.

(4.5) part of verb – mimetic + *suru*

a) kore kara takusan no yume jitsugen ni mukeru **wakuwaku** shite imasu
b) here from many GEN dream realization to look **be excited** be doing
c) From now on, I am **excited** for the realization of many of my dreams

(4.6) predicate modifier – mimetic + *to* predicate

a) atari niwa hōkō ga hyōi, hanabira ga **hirahira** to maiochite emoiwarenu kōkei de aru.
b) vicinity within fragrance SUB drifting petals SUB **flutter** mimetic marker dance down indescribable scene COP
c) It was an indescribable scene with flower petals **fluttering** down with their fragrance in the air.

(4.7) predicate modifier – mimetic + predicate

a) hitsuyō nai bubun wa **baQsari** kiru.
b) necessary not parts TOP **resolutely** cut
c) Cut out the unnecessary parts **with a single stroke**

(4.8) noun modifier – mimetic + *no* noun

a) **shikoshiko** no oishii udon ni naru to iu koto desu
b) **chewy** GEN delicious noodles to become QUOT say thing COP
c) These are rather delicious **chewy** noodles.

(4.9) noun modifier – mimetic + *na* noun

a) hachikire sō ni **taQpuri** na jikoai o moQte shitemo nuguisaru koto no dekinai
b) bursting appear to **ample** ADJ narcissism OBJ have even though erase thing of can't
c) You can't erase even appearing to be bursting with **heaps of** narcissism

(4.10) noun modifier – mimetic + noun

a) eki made takushī de mukae ni iQta tokini **nikoniko** kao no sobo ga ita.

b) train station to taxi by that way to going when **smiling** face GEN grandmother SUB existed.

c) When going to the train station by taxi, there was a grandmother with a **smiling** face.

(4.11) pro-predicate – mimetic + *da*

a)	「mushi」	to	iu	imēji	wa	**piQtari**	desu	ne.
b)	"insect"	QUOT	say	image	TOP	**exactly**	COP	right?

c) It's the **exact** image of a bug, isn't it?

(4.12) pro-predicate – mimetic + period

a)	taijū	ga	hachi-kiro	heQta	to	ii	kao	wa	zuibun	**hoQsori.**
b)	weight	SUB	8 Kg	lose	QUOT	say	face	TOP	surprisingly	**thin.**

c) Your face is surprisingly **thin** after you lose 8 Kg.

(4.13) pro-predicate – mimetic + *na no (ni/de/da)*

a)	mukashi	no	baito	nakama	no	Y-kun	ni	**soQkuri**	na no	deshita
b)	ancient	GEN	part-time job	co-worker	GEN	Mr. Y	DAT	**just like / spitting image of**	that	COP-past

c) He was the **spitting image of** Y from my old part-time job.

(4.14) pro-predicate – mimetic + *na no (ni/de/da)*

a)	nihongo	ga	**perapera**	na no ni mo	Odorokasaremashita
b)	Japanese	SUB	**fluent**	that	surprised CAUS PASS

c) It was a surprise that he was **fluent** in Japanese

(4.15) case marked – mimetic + TOP

a)	suki da	toka	kirai da	toka	danjo	no	**gotagota**	wa	maQtaku	kiita	koto	ga	nai	
b)	like COP	such as	hate	COP such as	men / women	GEN	**confusion**	TOP	completely	heard	thing	SUB	COP NEG	

c) The **confusion** about man-woman likes and dislikes has been completely heard

(4.16) case marked – mimetic + SUB

a)	**dokidoki**	ga	tanoshii	wake	desu
b)	**heart beat / throb**	SUB	fun	reason	COP

c) This **feeling of excitement** is fun

(4.17) case marked – mimetic + OBJ

a)	are	dake	no	**dorodoro**	o	yoku	kaita	naa	to	omoimasu
b)	that	only	GEN	**muddled**	OBJ	well	drew	haven't	QUOT	think

c) I think that you have drawn that only that **muddleness** well, haven't you?

The examples (4.5), (4.6) and (4.7) are clear examples of part of verb, predicate modifier with *-to* and predicate modifier without *-to* respectively. Predicate modifiers without *–to* are about 70% more common than predicate modifiers with *-to*.

4.3 Results

As chart 4.2 shows there is very little difference between the corpora, and slightly more predicate modifiers in Kotonoha and slightly more pro-predicate in JpWaC. In fact there is no significant statistical difference between the corpora. Using a one-way ANOVA analysis, the P-value is 1 and F_{crit} is greater than F_{obs}. Thus for the remainder of this analysis, I will no longer differentiate between the corpora and treat data from either equally.

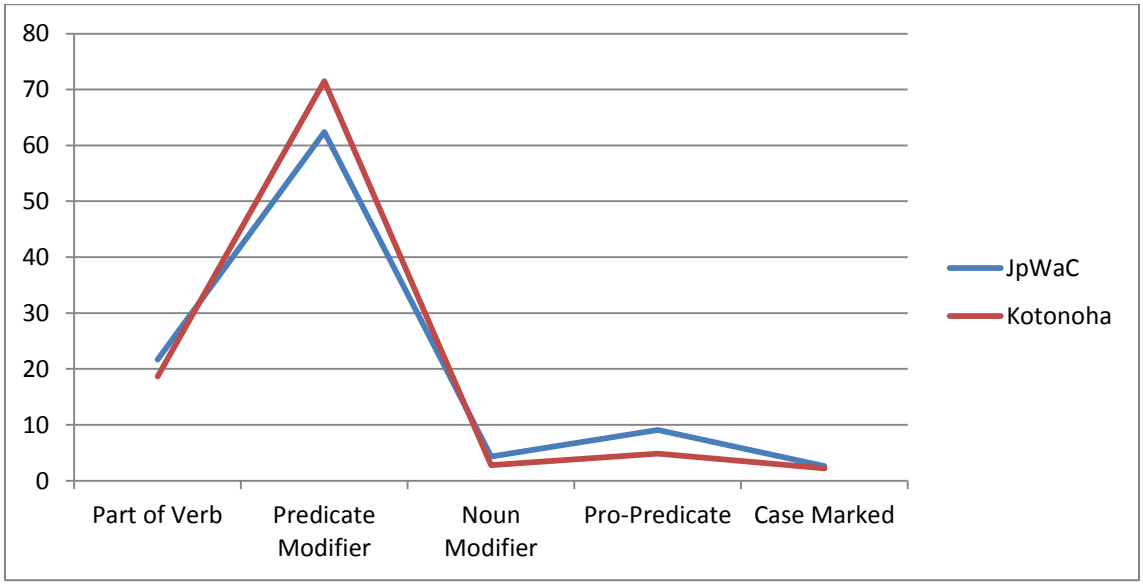

Chart 4.2 - Percent occurrence per category per corpus

Chart 4.3 shows the overall percent occurrence by functional category. Notice this compares well Caldwell's (2009a/forthcoming) preliminary analysis.

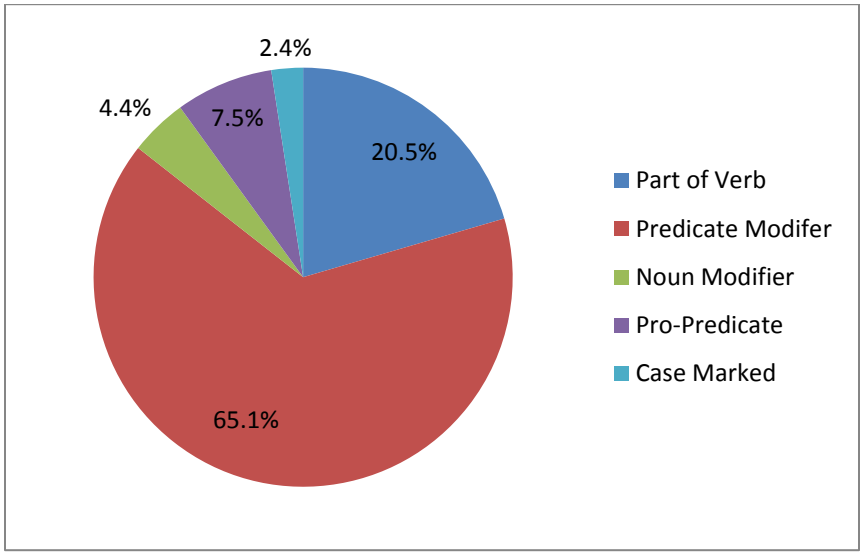

Chart 4.3 - Overall percent occurence per category

Chart 4.4 shows the breakout of the subcategories of noun modifiers, i.e. noun modifier with *na* (see example (4.9)), noun modifier with no (see example (4.8)), and the noun modifier without a marker (see example (4.10)). It is interesting to note that highest frequency of noun modification is with the no genitive marker, followed by the *keiyōdōshi na* marker, and finally non-marked noun modifiers. It is not a surprise the non-marked noun modification is the least frequent. Mimetics compounds are much less frequent than general noun modification.

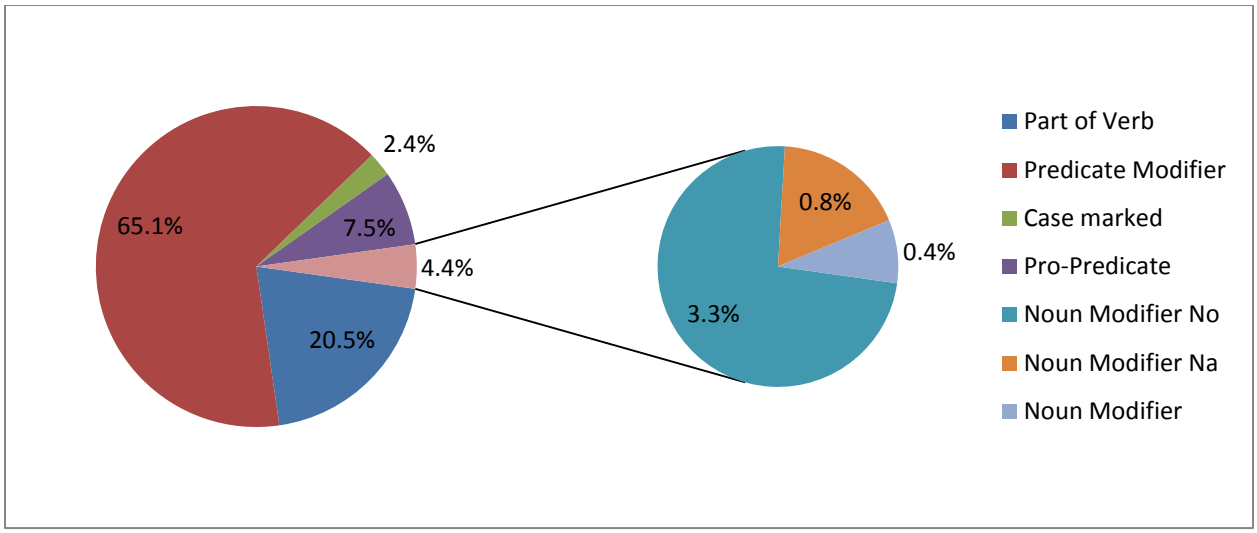

Chart 4.4 - Overall occurence with noun modifier detail

The question remains however, how does Akita's (2009) hypothesis hold up under data analysis. Based Kakehi, et al's classification system, and notes from Akita's (2009) appendix supplemented by my own classification, of the mimetics that returned data there are 768 phonomimes, 1166 phenomimes, 171 psychomimes and 21 nonmimeticized mimetics, and polysemous mimetics are count for each classification they appear in. Based on this classification, the percent occurrence by functional category is seen in chart 4.5.

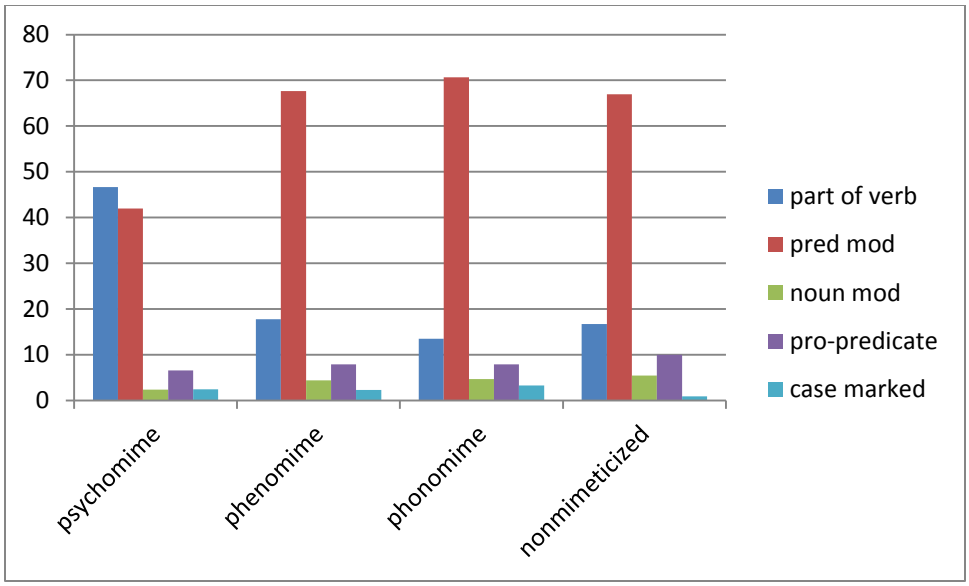

Chart 4.5 - Percent occurence by Mimetic Type

Akita's general hypothesis that psychomimes have a higher percentage of verbal use is validated by this data. However, there is no evidence for any other preference by mimetic type. An analysis of the case marked, pro-predicate and noun modifiers show no statistically significant interaction between mimetic type and these functional categories (P-value is 0.83 and F_{crit} is greater than F_{obs}). Even though statistically insignificant, it is important to note that functional categories do vary across mimetic classification. Case marked mimetics are the least common mimetic classification.

There seems to be an inverse relation between the part of verb and predicate modifier functional categories, i.e. the higher percentage of predicate modifier the lower the part of verb. This can be seen in various other classification schemes beside mimetic classification. Chart 4.6 shows the morphophonological templates, chart 4.7 shows the initial consonant, and chart 4.8 shows the initial mora all versus the functional categories.

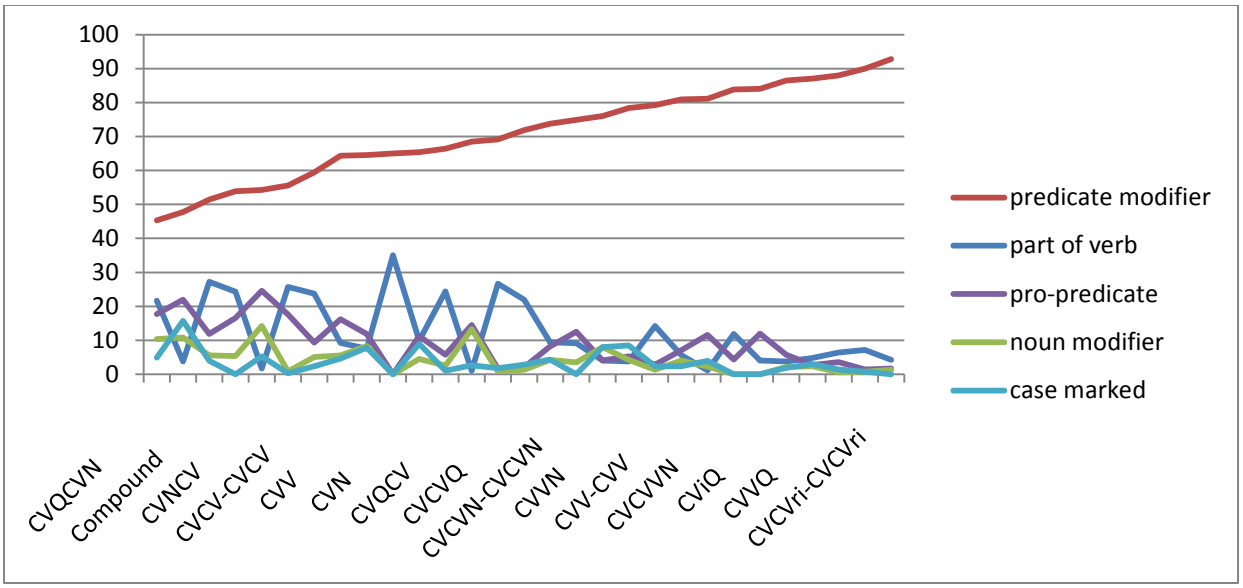

Chart 4.6 - Functional Categories via Morphophonological Templates

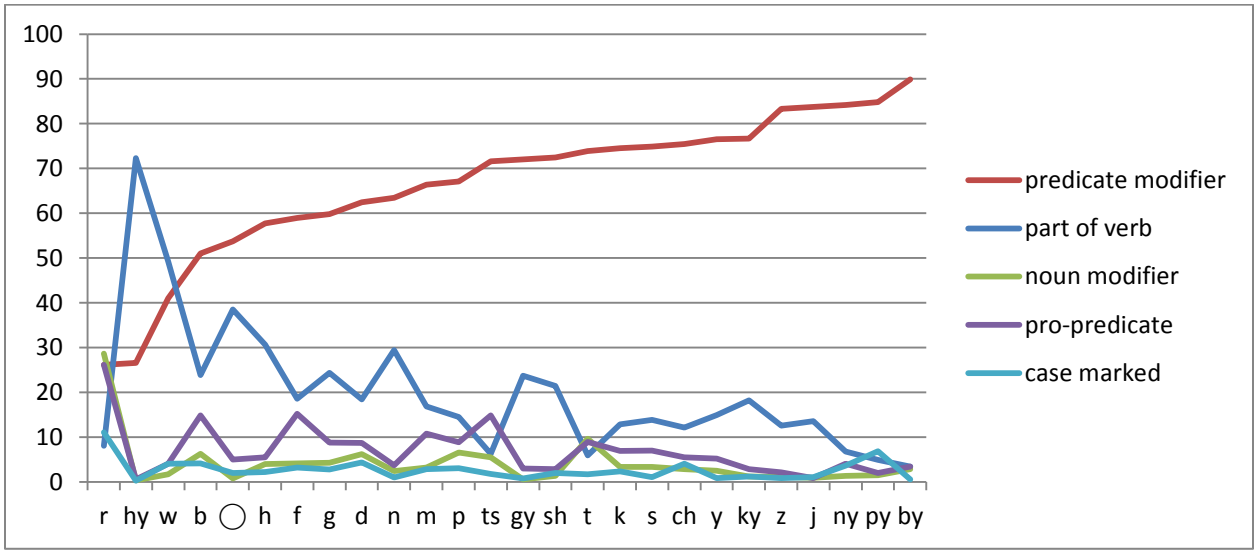

Chart 4.7 - Functional Categories via initial consonant

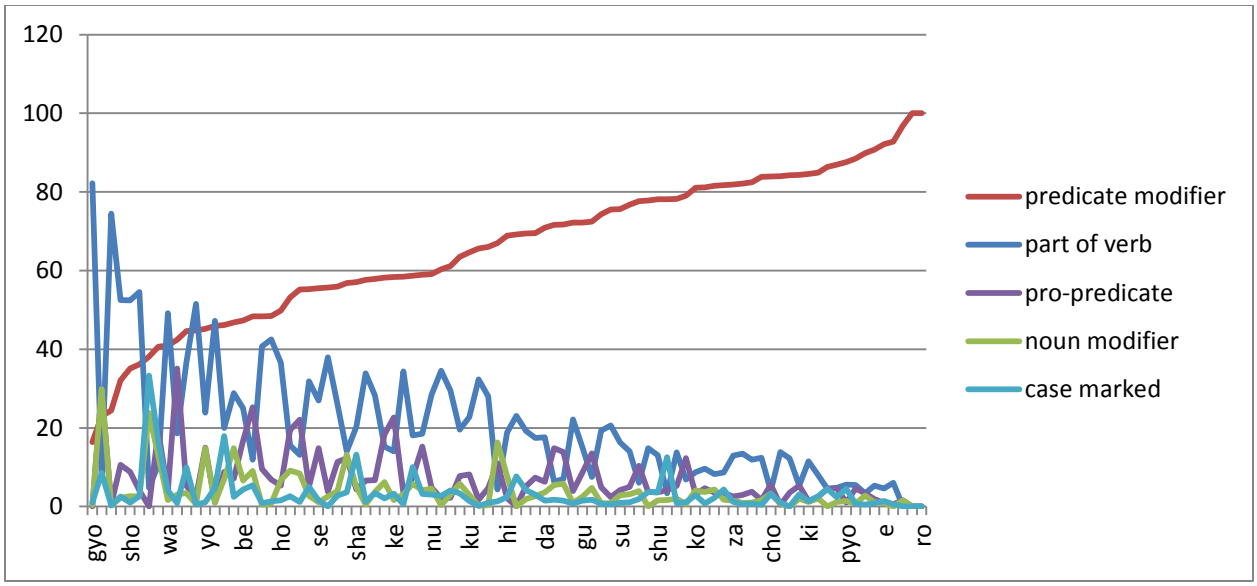

Chart 4.8 - Functional Categories via initial mora

Note in that predicate modifiers in each chart start as less frequent and then increase. This parallels chart 4.5, where psychomimes are less often predicate modifiers than parts of verbs. However there seems to be little correlation between psychomimes and these other classifications. The relationship between morphophonological templates and mimetic classification is shown in table 4.2. As before polysemous mimetics are counted in both classifications.

Template	psychomime	phenomime	phonomime	nonmimeticized
Compound	9	57	26	3
CVQCVN	4	13	10	2
CVQCV-CVQCV	2	12	7	0
CVCV	2	4	1	0
CVNCV	1	2	1	0

Table 4.2 - Mimetic Classification by Morphophonological Template

The templates listed here are the top five templates least likely to be predicate modifiers. Interestingly these templates tend to be phenomimes and phonomimes. A percent occurrence chart by function category by mimetic classification of only these morphophonotemplate looks almost exactly like chart 4.5. The initial mora seems to have fewer psychomimes, as seen in table

4.3. But a percent occurrence chart by function category by mimetic classification of only these initial mora looks vastly different, as depicted in chart 4.9.

mora	psychomime	phenomime	phonomime	nonmimeticized
bi	7	27	13	0
gyo	0	5	0	0
hyo	0	14	0	0
run	0	1	0	0
sho	3	3	0	0

Table 4.3 - Initial mora by mimetic classification

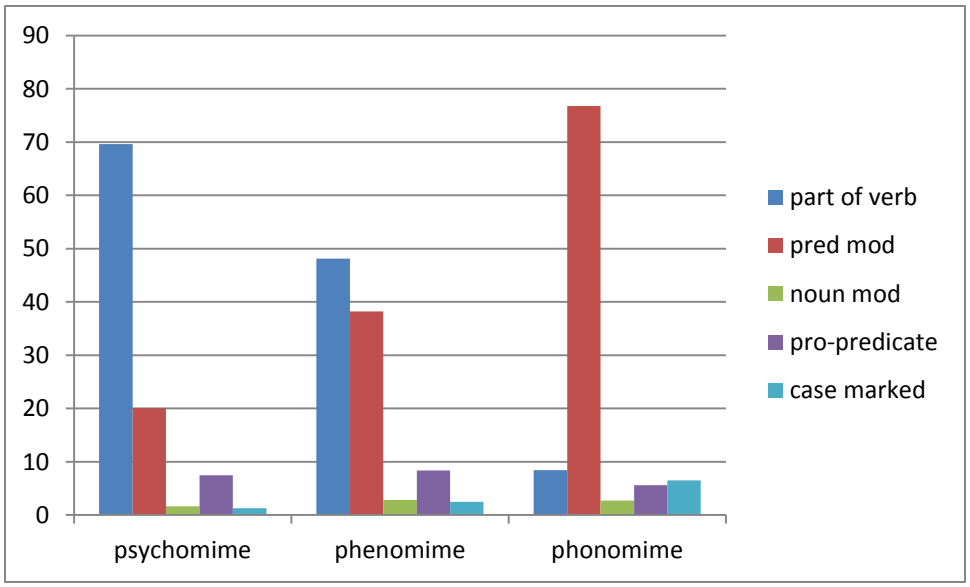

Chart 4.9 - Percent occurence by mimetic classification

Further investigation will be required to fully explicate this phenomenon. However, it seems that a few select mimetics might be the source of this effect. All cases so far show the general pattern that predicate modifiers and part of verbs are inversely related.

Overall the results of this study do support the semiotic analysis described in chapter 3. As mimetics exist on the triangle between 1-1-1, 1-1-2 and 1-1-3, it is no surprise that, in general, mimetics tend to be used to describe qualities or modify aspects. Firstness is often associated with predicate and noun modifiers, while thirdness is associated with verbs, and secondness with nouns. Thus the more thirdness like a mimetic is the more likely it will be part of verb.

Psychomimes are certainly diagrammatic in nature, and thus 1-1-3. Phenomimes appear more often as pro-predicate or cased marked than psychomimes, reinforcing their classification as 1-1-2.

Chapter 5 - Conclusion

This thesis has presented a Peircean semiotic analysis of Japanese mimetics. This analysis allows for a more complete understanding of the nature of Japanese mimetics and mimetics in general. The key relationship is that mimetics are iconic in a Peircean sense. Phonomimes (onomatopoeia) are 1-1-1. Phenomimes are 1-1-2. Psychomimes are 1-1-3. While non-mimetic words are 1-3-3. This relationship is depicted in figure 5.1.

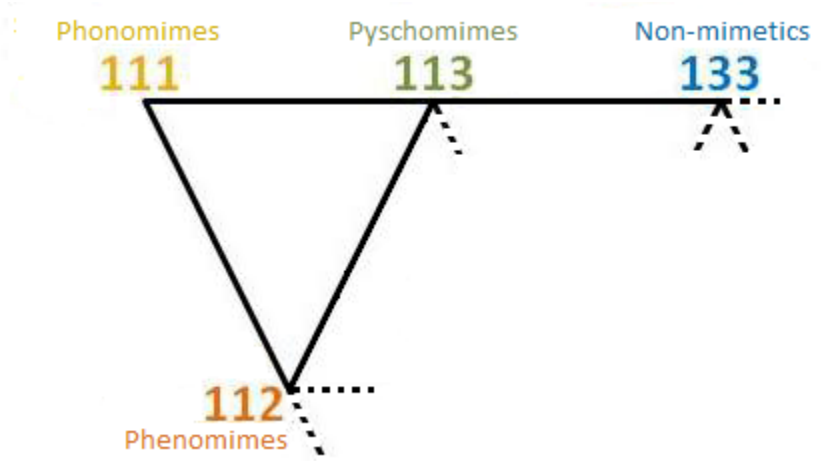

Figure 5.1 - Mimetic and non-mimetic word relationships

Phonomimes are sound equivalent of abstract art, and they are abstract constructions of phonemes built to represent sounds or qualities of sounds. The individual phonemes are equivalent to basic shapes, e.g. squares, triangles, etc. Phenomimes are sound depictions of actions or aspects of an action. Psychomimes are diagrammatic depictions.

While many researchers consider mimetics to be outside of standard linguistic systems, this Peircean analysis allows mimetics to be considered part of a linguistic system, and not epiphenomenal. This semiotic analysis has also been to explain the various contradictory aspects explored by previous researchers.

The analysis presented shows that despite the general presumption that Japanese mimetics are iconic on a linear scale from highly mimetic to not mimetic at, i.e. phonomime, phenomime, psychomime, and non-mimetic. Mimetics actually vary from sound images to sound diagrams. These sound images can be equivalent of an abstract painting where resemblance is constructed from base units or via resemblance of action. None of which are less or more iconic but iconic differently. Sound diagrams are iconic via relationships.

This analysis also introduced a set of terms which are expansive enough to describe mimetics, yet clear enough to avoid the ambiguous and contradictory terminology currently in use.

This thesis has also presented data from a corpus study that shows quantitatively the functional category usage patterns of Japanese mimetics. Following previous studies (Akita 2009, Caldwell 2009a/forthcoming) the cross-categorial nature of Japanese mimetics was examined. Sentences containing Japanese mimetics were gathered from the corpora Kotonoha and JpWaC for a total 261,150 sentences. These mimetics in these sentences were categorized according to grammatical function usage of the mimetic within the sentence.

The corpus analysis has validated the assumption that mimetics generally act as predicate modifiers or adverbs. It also validated Akita's hypothesis that psychomimes tend to be parts of verbs more readily than other mimetics. However, it did not find explicit proof for Akita's expanded correlation between his iconicity hierarchy and grammar functions, i.e. the more iconic a mimetic the more likely it will appear in the periphery of a sentence.

Other attributes of the mimetics (morphophonological templates, initial consonant, initial mora, etc.) were also examined but no systematic relationships with grammatical function were discovered. An inverse relationship between occurrence as a predicate modifier and as part of a

verb was discovered across many of the attributes examined. Further research is needed to discover the source of this pattern.

The results of this corpus analysis have provided evidence which supports the Peircean analysis presented in chapter 3. Since Japanese mimetics are essentially iconic in nature it is no surprise that overall they occur most frequently as predicate modifiers. Phonomimes do have a slightly higher occurrence as noun modifiers, showing their essential firstness. Psychomimes most frequently occur as predicate modifiers showing their diagrammatic nature. Phenomimes have a slightly higher occurrence as pro-predicates showing the indicative nature of 1-2. These results reinforce the Peircean analysis.

Limitations of the corpus analysis include that corpora used may not be truly representative of the Japanese language, though this seems unlikely. Also, there could be errors in the classification of individual mimetic instances, which in turn could lead to statistical errors and faulty conclusions.

Future directions include an examination of the initial mora, initial consonant and morphophonological templates of mimetics versus the functional categories. Possibilities of interdependencies between these items and the psychomime classification exist and need to be explored.

A frequency analysis of mimetics and a cross comparison to validate the classification of mimetic subtype would be interesting. A follow-up survey of native speakers where discrepancies in the frequency analysis and classification used would provide better classification and differentiation of mimetics.

The use of *–to* marker has been topic of recent research (Tamori 1980; Toratani 2005, Akita 2009; among others) but again I have been unable to do a rigorous data base analysis. A

data base analysis would provide support for the theories presented. In this thesis there was no correlation of *–to* usage in any of the analyses performed.

Akita's category of quasi-mimetics needs to be examined. A follow-up study similar to Akita's (2009) studies of creating pseudo-mimetics and validating native speakers' mimetic intuitions would be intriguing. Kita (1993, 1997) documented the frequency of the gestures and mimetic co-occurrence. A Peircean analysis of this data would probably add further clarification and possibly find new connections.

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Appendix A – Percent Occurrence of Mimetic data

This list is only of the mimetics which were found in the corpora. It should be noted that where a mimetic occurs 100% as a specific grammatical function, this is generally due to only a single occurrence was found in the corpora.

mimetic	root	morphophonologic template	phonomime	phenomime	psychomime	nonmimeticized	PartofVerb	Predicate Modifier	Noun Modifier	Pro-Predicate	Case Marked
aaQ	a	CVQ	✓				3.6	85.7	0	7.1	3.6
aan	a	CVVN	✓				21.9	65.6	0	3.1	9.4
abekobe	abe	Compound		✓			3.9	53.9	7.9	34.2	0
ahaaha	aha	CVCV-CVCV	✓				0	100	0	0	0
aQhaaQha	aha	CVQCV-CVQCV	✓				0	100	0	0	0
aQhaha	aha	Others	✓				0	0	0	0	100
aQhaQhaQha	aha	Others	✓				0	100	0	0	0
aQkerakan	ake	Others		✓			0	94.0	3.0	3.0	0
akuseku	aku	Compound		✓			40.7	56.6	0	0.7	2.1
anguri	agu	CVCCVri		✓			14.0	66.3	1.2	18.6	0
apuapu	apu	CVCV-CVCV	✓				0	100	0	0	0
aQpuaQpu	apu	CVQCV-CVQCV	✓				45.3	12.0	10.7	32.0	0
aQsari	asa	CVCCVri		✓			12.6	84.9	0.2	2.0	0.3
atafuta	ata	Compound		✓			55.2	42.2	0	2.2	0.4
baaQ	ba	CVQ	✓				0	64.3	0	33.9	1.8
baan	ba	CVN	✓				1.9	58.1	14.3	6.5	19.3
bachabacha	bacha	CVCV-CVCV	✓				23.1	76.9	0	0	0
bachan	bacha	CVCVN	✓				0.9	45.5	14.5	10.9	28.2
bachiQ	bachi	CVCVQ	✓	✓			0	78.9	0	0	21.1
bachibachi	bachi	CVCV-CVCV	✓	✓			9.5	78.6	2.4	9.5	0
bachin	bachi	CVCVN	✓	✓			0	100	0	0	0
bachiri	bachi	CVCVri	✓	✓			0	50	50	0	0
baQchiri	bachi	CVCCVri	✓	✓			10	49.5	3.5	32.7	4.3

bakaQ	baka	CVCVQ	✓			8.3	54.2	4.2	16.7	16.7
bakabaka	baka	CVCV-CVCV	✓			97.9	2.1	0	0	0
bakiQ	baki	CVCVQ	✓			2.8	91.7	0	5.6	0
bakibaki	baki	CVCV-CVCV	✓			16.0	80	0	4.0	0
bakin	baki	CVCVN	✓			25.0	75.0	0	0	0
bakuQ	baku	CVCVQ			✓	0	100	0	0	0
bakubaku	baku	CVCV-CVCV			✓	9.1	72.7	9.1	9.1	0
banban	ba	CVN-CVN	✓			4.6	88.4	1.3	4.1	1.6
baraQ	bara	CVCVQ		✓		0	100	0	0	0
barabara	bara	CVCV-CVCV		✓		9.3	30	15.9	44.2	0.6
barari	bara	CVCVri		✓		0	100	0	0	0
bariQ	bari	CVCVQ	✓			20	60	0	5.0	15.0
baribari	bari	CVCV-CVCV	✓			5.1	58.1	27.1	9.0	0.6
barin	bari	CVCVN	✓			0	100	0	0	0
basaQ	basa	CVCVQ	✓	✓		0	97.1	0	0	2.9
basaaQ	basa	CVCVVQ	✓	✓		0	100	0	0	0
basabasa	basa	CVCV-CVCV	✓	✓		8.1	71.6	4.1	13.5	2.7
baQsabaQsa	basa	CVQCV-CVQCV	✓	✓		12.0	76.0	0	12.0	0
basari	basa	CVCVri	✓	✓		0	76.9	7.7	7.7	7.7
baQsari	basa	CVCCVri	✓	✓		4.9	89.9	0.3	4.9	0
basaribasari	basa	CVCVri-CVCVri	✓	✓		100	0	0	0	0
bashaQ	basha	CVCVQ	✓			0	100	0	0	0
bashabasha	basha	CVCV-CVCV	✓			13.9	86.1	0	0	0
bashan	basha	CVCVN	✓			0	100	0	0	0
bashari	basha	CVCVri	✓			0	100	0	0	0
bashiQ	bashi	CVCVQ	✓			6.8	73.0	0	9.5	10.8
bashibashi	bashi	CVCV-CVCV	✓			2.4	93.5	0	2.4	1.6
bashin	bashi	CVCVN	✓			11.1	88.9	0	0	0
bataQ	bata	CVCVQ	✓	✓		20	80	0	0	0

batabata	bata	CVCV-CVCV	✓	✓	47.8	41.4	3.6	5.2	2.0
baQtabaQta	bata	CVQCV-CVQCV	✓	✓	0	100	0	0	0
batan	bata	CVCVN	✓	✓	5.0	90	0	0	5.0
baQtan	bata	CVQCVN	✓	✓	0	64.3	0	28.6	7.1
batanbatan	bata	CVCVN-CVCVN	✓	✓	0	100	0	0	0
baQtanbaQtan	bata	CVQCVN-CVQCVN	✓	✓	0	100	0	0	0
batari	bata	CVCVri	✓	✓	0	100	0	0	0
baQtari	bata	CVCCVri	✓	✓	3.9	63.1	13.6	18.5	0.9
bechaQ	becha	CVCVQ	✓		12.5	37.5	0	12.5	37.5
bechabecha	becha	CVCV-CVCV	✓		0	40	0	60	0
bechakucha	becha	Compound	✓		20	80	0	0	0
bechan	becha	CVCVN	✓		0	100	0	0	0
bechari	becha	CVCVri	✓		0	100	0	0	0
bechobecho	becho	CVCV-CVCV		✓	14.3	42.9	0	42.9	0
bekobeko	beko	CVCV-CVCV	✓		14.3	42.9	14.3	28.6	0
benben	be	CVN-CVN	✓		0	100	0	0	0
berabera	bera	CVCV-CVCV		✓	32.1	64.3	1.2	2.4	0
beriQ	beri	CVCVQ	✓		20	80	0	0	0
beriberi	beri	CVCV-CVCV	✓		0	100	0	0	0
beroQ	bero	CVCVQ		✓	0	50	0	50	0
berobero	bero	CVCV-CVCV		✓	9.6	55.4	4.8	27.7	2.4
beron	bero	CVCVN		✓	0	38.6	20.5	4.5	36.4
beronberon	bero	CVCVN-CVCVN		✓	0	41.7	4.2	54.2	0
berori	bero	CVCVri		✓	0	100	0	0	0
beshabesha	besha	CVCV-CVCV	✓		25.0	0	0	75.0	0
beshari	besha	CVCVri	✓		0	0	0	0	100
betaQ	beta	CVCVQ		✓	21.4	67.9	0	0	10.7

betabeta	beta	CVCV-CVCV		✓		39.1	33.2	15.0	10.3	2.5
betan	beta	CVCVN		✓		0	9.1	0	90.9	0
betari	beta	CVCVri		✓		34.2	57.1	0	2.7	5.9
beQtari	beta	CVCCVri		✓		10.9	52.0	14.4	19.8	2.9
betoQ	beto	CVCVQ		✓		100	0	0	0	0
betobeto	beto	CVCV-CVCV		✓		38.1	17.1	7.6	32.4	4.8
beQtori	beto	CVCCVri		✓		10.9	76.6	3.1	7.8	1.6
bichaQ	bicha	CVCVQ		✓		0	0	100	0	0
bichabicha	bicha	CVCV-CVCV		✓		5.3	26.3	5.3	63.2	0
bichan	bicha	CVCVN		✓		0	100	0	0	0
bichibichi	bichi	CVCVQ	✓	✓		0	50	0	50	0
biQchiri	bichi	CVCCVri	✓	✓		8.2	82.5	1.0	8.2	0
bichobicho	bicho	CVCV-CVCV		✓		22.2	11.1	0	55.6	11.1
bii	bi	CVV	✓	✓		18.2	45.5	9.1	9.1	18.2
biiQ	bi	CVQ	✓	✓		0	88.9	0	0	11.1
biibii	bi	CVV-CVV	✓	✓		0	92.9	7.1	0	0
biin	bi	CVVN	✓	✓		0.6	37.6	10.9	7.9	43.0
bikkuri	biku	CVCCVri			✓	83.7	6.4	1.3	8.1	0.6
biku(Q)	biku	CVCVQ			✓	12.9	70.2	3.1	8.7	5.1
bikubiku	biku	CVCV-CVCV			✓	78.8	12.7	4.5	3.2	0.8
bikun	biku	CVCVN			✓	4.3	95.7	0	0	0
binbin	bi	CVN-CVN	✓	✓		4.1	75.3	4.1	14.4	2.1
birabira	bira	CVCV-CVCV		✓		0	75.0	0	0	25.0
biriQ	biri	CVCVQ	✓		✓	25.0	65.0	0	0	10
biribiri	biri	CVCV-CVCV	✓		✓	14.3	79.2	1.3	1.9	3.2
biriri	biri	CVCVri	✓		✓	0	100	0	0	0
bishaQ	bisha	CVCVQ		✓		0	100	0	0	0
bishabisha	bisha	CVCV-CVCV		✓		18.2	9.1	9.1	63.6	0
bishari	bisha	CVCVri		✓		0	0	0	100	0
bishiQ	bishi	CVCVQ	✓	✓		16.1	83.9	0	0	0

bishibishi	bishi	CVCV-CVCV	✓	✓			9.5	85.7	0	3.8	1.0
biQshiri	bishi	CVCCVri	✓	✓			7.1	84.3	1.8	6.3	0.6
bishobisho	bisho	CVCV-CVCV		✓			12.4	14.2	8.8	63.7	0.9
biQshori	bisho	CVCCVri		✓			4.5	25.3	5.6	64.6	0
bitaQ	bita	CVCVQ		✓			33.3	66.7	0	0	0
bitabita	bita	CVCV-CVCV		✓			0	66.7	0	33.3	0
biQtari	bita	CVCCVri		✓			0	100	0	0	0
bochaQ	bocha	CVCVQ	✓				0	0	0	100	0
bochabocha	bocha	CVCV-CVCV	✓				50	50	0	0	0
bochan	bocha	CVCVN	✓				0	50	0	50	0
bochibochi	bochi	CVCV-CVCV		✓		✓	10.5	79.6	1.5	6.2	2.2
boin	bo	Others	✓	✓			4.5	27.3	18.2	22.7	27.3
bokaQ	boka	CVCVQ		✓			0	100	0	0	0
bokaan	boka	CVCVVN		✓			0	100	0	0	0
bokaboka	boka	CVCV-CVCV		✓			33.3	66.7	0	0	0
bokan	boka	CVCVN		✓			0	100	0	0	0
bokeQ	boke	CVCVQ			✓		53.6	46.4	0	0	0
bokeboke	boke	CVCV-CVCV			✓		22.2	11.1	22.2	44.4	0
bokeeQ	boke	CVCVVQ			✓		57.6	42.4	0	0	0
bokiQ	boki	CVCVQ	✓				0	90	0	0	10
bokiboki	boki	CVCV-CVCV	✓				8.3	83.3	8.3	0	0
bokin	boki	CVCVN	✓				0	100	0	0	0
bokiri	boki	CVCVri	✓				0	0	0	100	0
boQkiri	boki	CVCCVri	✓				0	100	0	0	0
bokoQ	boko	CVCVQ		✓			30.8	69.2	0	0	0
bokoboko	boko	CVCV-CVCV		✓			42.9	41.3	4.9	10.3	0.6
bokon	boko	CVCVN		✓			0	80	20	0	0
bokori	boko	CVCVri		✓			0	33.3	7.4	11.1	48.1
bon	bo	CVN	✓	✓			2.8	88.9	2.8	5.6	0
bonbon	bo	CVN-CVN	✓	✓			1.6	50.3	9.3	19.2	19.7
bonyari	boya	CVCCVri			✓		26.9	71.4	0.2	1.1	0.4

boo	bo	CVV	✓	✓			0.2	99.5	0.2	0	0
booboo	bo	CVV-CVV	✓	✓			4.5	51.7	19.1	24.7	0
boon	bo	CVVN	✓	✓			12.5	79.2	0	0	8.3
boriQ	bori	CVCVQ	✓				0	100	0	0	0
boribori	bori	CVCV-CVCV	✓				8.5	85.1	0	6.4	0
boroQ	boro	CVCVQ		✓			10	70	0	0	20
boroboro	boro	CVCV-CVCV		✓			6.6	22.3	16.5	54.3	0.3
boronboron	boro	CVCVN-CVCVN		✓			0	100	0	0	0
borori	boro	CVCVri		✓			0	100	0	0	0
bosaQ	bosa	CVCVQ		✓	✓		25.0	75.0	0	0	0
bosabosa	bosa	CVCV-CVCV		✓	✓		6.1	35.0	27.6	29.4	1.8
boshan	bosha	CVCVN	✓				0	100	0	0	0
bosoQ	boso	CVCVQ	✓	✓			5.7	81.4	2.9	2.9	7.1
bosoboso	boso	CVCV-CVCV	✓	✓			11.8	84.6	1.4	1.8	0.5
bosori	boso	CVCVri	✓	✓			0	92.9	0	7.1	0
botaQ	bota	CVCVQ	✓				0	100	0	0	0
botabota	bota	CVCV-CVCV	✓				5.6	88.9	5.6	0	0
boteQ	bote	CVCVQ		✓			20	80	0	0	0
botebote	bote	CVCV-CVCV		✓			0	16.7	66.7	8.3	8.3
boQteri	bote	CVCCVri		✓			37.0	63.0	0	0	0
botoQ	boto	CVCVQ	✓				0	100	0	0	0
botoboto	boto	CVCV-CVCV	✓				0	97.9	0	2.1	0
boton	boto	CVCVN	✓				0	100	0	0	0
botori	boto	CVCVri	✓				0	100	0	0	0
botsuQ	botsu	CVCVQ		✓		✓	0	100	0	0	0
botsubotsu	botsu	CVCV-CVCV		✓		✓	7.6	81.7	0.8	4.6	5.3
botsuri	botsu	CVCVri		✓		✓	0	100	0	0	0
boyaQ	boya	CVCVQ			✓		43.8	50	0	0	6.3
boyaaQ	boya	CVCVVQ			✓		80	20	0	0	0
boyaboya	boya	CVCV-CVCV			✓		90.6	6.3	0	3.1	0

buQ	bu	CVQ	✓	✓		23.4	58.5	0	13.1	5.1
buQbuQ	bu	CVQ-CVQ	✓	✓		0	0	100	0	0
bukabuka	buka	CVCV-CVCV		✓		11.0	20.5	32.9	35.6	0
bukuQ	buku	CVCVQ	✓	✓		0	100	0	0	0
bukubuku	buku	CVCV-CVCV	✓	✓		9.5	80	1.9	5.7	2.9
bun	bu	CVN	✓	✓		3.1	47.1	11.9	12.5	25.5
bunbun	bu	CVN-CVN	✓	✓		4.1	84.3	4.1	4.6	3.0
buraQ	bura	CVCVQ		✓		0	100	0	0	0
burabura	bura	CVCV-CVCV		✓		48.8	49.2	0.2	1.3	0.6
buran	bura	CVCVN		✓		1.5	52.9	13.2	7.4	25.0
buranburan	bura	CVCVN-CVCVN		✓		20	60	0	20	0
burari	bura	CVCVri		✓		3.2	86.2	4.2	2.6	3.7
burariburari	bura	CVCVri-CVCVri		✓		0	100	0	0	0
buriQ	buri	CVCVQ	✓	✓		7.4	66.7	0	13.0	13.0
buriburi	buri	CVCV-CVCV	✓	✓		21.4	50	14.3	14.3	0
buruQ	buru	CVCVQ		✓		6.9	86.2	0	0	6.9
buruburu	buru	CVCV-CVCV		✓		13.3	71.9	1.6	9.4	3.9
burun	buru	CVCVN		✓		4.0	68.0	0	12.0	16.0
burunburun	buru	CVCVN-CVCVN		✓		0	100	0	0	0
bururi	buru	CVCVri		✓		0	100	0	0	0
bururu	buru	Others		✓		0	100	0	0	0
bururuQ	buru	CVCVVQ		✓		0	100	0	0	0
busuQ	busu	CVCVQ	✓	✓	✓	48.5	51.5	0	0	0
busubusu	busu	CVCV-CVCV	✓	✓	✓	0	78.9	5.3	10.5	5.3
busuri	busu	CVCVri	✓	✓	✓	0	87.5	0	12.5	0
butsuQ	butsu	CVCVQ		✓		14.3	71.4	0	0	14.3
butsubutsu	butsu	CVCV-CVCV		✓		10.9	75.6	1.4	4.3	7.8
butsukusa	butsu	Compound		✓		7.0	84.2	1.8	1.8	5.3
butsun	butsu	CVCVN		✓		0	0	0	100	0

butsuri	butsu	CVCVri		✓	0	100	0	0	0
buQtsuri	butsu	CVCCVri		✓	0	100	0	0	0
buuQ	bu	CVVQ	✓	✓	0	85.7	0	14.3	0
buubuu	bu	CVV-CVV	✓	✓	2.2	78.5	2.2	15.1	2.2
buun	bu	CVVN	✓	✓	7.0	76.7	7.0	2.3	7.0
buunbuun	bu	CVVN-CVVN	✓	✓	0	100	0	0	0
buwabuwa	buwa	CVCV-CVCV		✓	0	100	0	0	0
buwan	buwa	CVCVN		✓	0	100	0	0	0
buyobuyo	buyo	CVCV-CVCV		✓	32.1	26.8	12.5	23.2	5.4
byuQ	byu	CVQ		✓	0	100	0	0	0
byun	byu	CVN		✓	4.5	95.5	0	0	0
byunbyun	byu	CVN-CVN		✓	4.0	92.0	2.7	1.3	0
byuu(Q)	byu	CVVQ		✓	0	100	0	0	0
byuubyuu	byu	CVV-CVV		✓	0	87.5	5.0	7.5	0
byuun	byu	CVVN		✓	6.7	80	3.3	6.7	3.3
chaan	cha	CVVN		✓	0.6	89.2	1.3	8.3	0.6
chakachaka	chaka	CVCV-CVCV	✓	✓	22.2	72.2	0	0	5.6
chaQkari	chaka	CVCCVri	✓	✓	10.9	87.2	0.4	0.4	1.1
chakichaki	chaki	CVCV-CVCV		✓	5.4	54.1	35.1	5.4	0
chanchanbarabara	bara	Compound		✓	100	0	0	0	0
chapochapo	chapo	CVCV-CVCV	✓		0	75.0	0	0	25.0
chapon	chapo	CVCVN	✓		0	87.5	12.5	0	0
chaponchapon	chapo	CVCVN-CVCVN	✓		0	100	0	0	0
chapuchapu	chapu	CVCV-CVCV	✓		36.4	63.6	0	0	0
chapun	chapu	CVCVN	✓		0	100	0	0	0
charachara	chara	CVCV-CVCV	✓	✓	69.1	30.9	0	0	0
charan	chara	CVCVN	✓	✓	0	100	0	0	0
charancharan	chara	CVCVN-CVCVN	✓	✓	50	50	0	0	0

charanporan	chara	Compound	✓	✓		3.0	24.2	33.3	36.4	3.0
charichari	chari	CVCV-CVCV	✓			0	88.9	0	11.1	0
chariin	chari	CVCVVN	✓			0	77.8	0	22.2	0
charin	chari	CVCVN	✓			5.3	84.2	0	10.5	0
charincharin	chari	CVCVN-CVCVN	✓			0	80	20	0	0
chibichibi	chibi	CVCV-CVCV		✓		14.6	75.9	2.0	2.5	5.0
chibirichibiri	chibi	CVCVri-CVCVri		✓		14.3	82.1	3.6	0	0
chiQchiQ	chi	CVQ	✓	✓		0	100	0	0	0
chichichichi	chi	Others	✓	✓		0	100	0	0	0
chiguhagu	chigu	Compound		✓		4.0	10	51.6	33.2	1.2
chiin	chi	CVVN	✓	✓		37.5	62.5	0	0	0
chiinchiin	chi	CVVN-CVVN	✓	✓		0	0	0	100	0
chikaQ	chika	CVCVQ		✓		3.1	84.4	0	12.5	0
chikachika	chika	CVCV-CVCV		✓		53.1	42.7	0	2.8	1.4
chikari	chika	CVCVri		✓		0	100	0	0	0
chikuQ	chiku	CVCVQ			✓	62.5	33.3	0	0	4.2
chikuchiku	chiku	CVCV-CVCV			✓	35.9	53.5	1.4	2.8	6.5
chikun	chiku	CVCVN			✓	0	100	0	0	0
chikuri	chiku	CVCVri			✓	22.7	60.9	1.8	9.1	5.5
chikurichikuri	chiku	CVCVri-CVCVri			✓	0	100	0	0	0
chikutaku	chiku	Compound			✓	0	96.7	0	0	3.3
chimachima	chima	CVCV-CVCV		✓		19.9	79.2	0	0.9	0
chinchin	chi	CVN-CVN	✓	✓		1.5	37.4	15.0	3.4	42.7
chinchirorin	chiro	Others		✓		0	50	30	10	10
chindon	noroot	Compound		✓		0	14.3	0	85.7	0
chinmari	chima	CVCCVri		✓		7.7	89.7	2.6	0	0
chiraQ	chira	CVCVQ		✓		0.9	89.7	0.2	5.7	3.4
chirachira	chira	CVCV-CVCV		✓		13.5	84.7	0.6	0.2	1.0
chirahora	chira	Compound		✓		25.4	69.4	0.9	3.7	0.6
chirari	chira	CVCVri		✓		3.3	93.7	0.5	1.0	1.5

chirarichirari	chira	CVCVri-CVCVri		✓		0	100	0	0	0
chirarihorari	chira	Compound		✓		12.5	87.5	0	0	0
chiriQ	chiri	CVCVQ	✓	✓		100	0	0	0	0
chirichiri	chiri	CVCV-CVCV	✓	✓		24.4	50	2.3	19.8	3.5
chirijiri	chiri	CVCV-CVCV	✓	✓		0	37.5	0	62.5	0
chirin	chiri	CVCVN	✓	✓		0	100	0	0	0
chirinchirin	chiri	CVCVN-CVCVN	✓	✓		15.4	84.6	0	0	0
chirochiro	chiro	CVCV-CVCV		✓		3.3	93.3	3.3	0	0
chirorin	chiro	Others		✓		0	70	30	0	0
chiyahoya	chiya	Compound		✓		94.2	4.5	0.6	0	0.6
chobiQ	chobi	CVCVQ			✓	0	61.9	0	19.0	19.0
chobichobi	chobi	CVCV-CVCV			✓	13.6	81.8	0	0	4.5
chobihige	chobi	Compound			✓	5.9	29.4	23.5	0	41.2
choQbiri	chobi	CVCCVri			✓	0	100	0	0	0
chobochobo	chobo	CVCV-CVCV	✓			12.5	62.5	0	20.8	4.2
choi	cho	CViQ		✓		0.6	82.2	4.5	10.5	2.2
choichoi	cho	CVi-CVi		✓		6.6	90.6	0	1.9	0.9
chokichoki	choki	CVCV-CVCV	✓		✓	29.4	70.6	0	0	0
chokin	choki	CVCVN	✓		✓	0	100	0	0	0
choQkin	choki	CVQCVN	✓		✓	0	66.7	33.3	0	0
choQkiri	choki	CVCCVri	✓		✓	0	0	0	100	0
chokoQ	choko	CVCVQ		✓	✓	4.1	77.6	2.0	12.2	4.1
chokochoko	choko	CVCV-CVCV		✓	✓	5.9	92.7	0.6	0.6	0.2
chokomaka	choko	Compound		✓	✓	11.5	88.5	0	0	0
chokon	choko	CVCVN		✓	✓	3.0	97.0	0	0	0
chokuchoku	choku	CVCV-CVCV		✓		1.8	95.2	1.4	0	1.6
choQkura	choku	CVCCVri		✓		10	90	0	0	0
chon	cho	CVN		✓		3.0	63.2	12.6	7.0	14.2
chonchon	cho	CVN-CVN		✓		8.3	83.3	0	4.2	4.2

choQpiri	chopi	CVCCVri		✓	2.6	87.3	2.2	6.1	1.8
choQpori	chopo	CVCCVri		✓	0	100	0	0	0
choroQ	choro	CVCVQ		✓	0	87.5	0	6.3	6.3
chorochoro	choro	CVCV-CVCV		✓	21.7	72.9	1.4	1.4	2.4
chorori	choro	CVCVri		✓	0	100	0	0	0
chuQ	chu	CVQ	✓		30.6	55.6	0	11.1	2.8
chuQchuQ	chu	CVQ-CVQ	✓		66.7	33.3	0	0	0
chunchun	chu	CVN-CVN	✓		12.5	87.5	0	0	0
chuu	chu	CVV	✓		18.9	37.4	11.0	10.2	22.4
chuuchuu	chu	CVV-CVV	✓		15.6	78.1	0	0	6.3
daaQ	da	CVVQ	✓		4.5	77.3	13.6	4.5	0
daan	da	CVVN	✓		0	54.5	18.2	0	27.3
dabodabo	dabo	CVCV-CVCV		✓	0	14.3	81.0	4.8	0
dabuQ	dabu	CVCVQ		✓	30.8	66.7	0	0	2.6
dabudabu	dabu	CVCV-CVCV		✓	9.4	12.5	57.8	18.8	1.6
dadaQ	da	Others	✓		6.9	34.5	3.4	51.7	3.4
daQdaQ	da	CVQ-CVQ	✓		50	50	0	0	0
dadadadaQ	da	Others	✓		0	100	0	0	0
dakudaku	daku	CVCV-CVCV		✓	0	38.5	15.4	42.3	3.8
daraQ	dara	CVCVQ		✓	33.3	50	0	0	16.7
daraaQ	dara	CVCVVQ		✓	25.0	75.0	0	0	0
daraan	dara	CVCVVN		✓	0	100	0	0	0
daradara	dara	CVCV-CVCV		✓	19.9	73.1	0.6	5.2	1.2
daran	dara	CVCVN		✓	0	87.3	0	5.5	7.3
darari	dara	CVCVri		✓	0	97.6	2.4	0	0
debu	debu	CVCV		✓	4.4	37.9	15.6	26.4	15.6
debuQ	debu	CVCVQ		✓	75.0	25.0	0	0	0
debudebu	debu	CVCV-CVCV		✓	7.7	46.2	7.7	23.1	15.4
deen	de	CVVN		✓	0	87.5	0	6.3	6.3
dekadeka	deka	CVCV-CVCV		✓	0	100	0	0	0

dekoboko	deko	Compound		✓		16.2	25.8	19.0	15.1	24.0
dekodeko	deko	CVCV-CVCV		✓		33.3	66.7	0	0	0
denden	de	CVN-CVN		✓		3.0	27.3	9.1	60.6	0
deQpuri	depu	CVCCVri		✓		21.3	77.0	1.6	0	0
dereQ	dere	CVCVQ			✓	100	0	0	0	0
deredere	dere	CVCV-CVCV			✓	35.3	41.2	0	23.5	0
dereeQ	dere	CVCVVQ			✓	0	100	0	0	0
doQ	do	CVQ	✓			0	97.5	0	2.5	0
dobodobo	dobo	CVCV-CVCV	✓			0	100	0	0	0
dobon	dobo	CVCVN	✓			7.7	69.2	0	23.1	0
dobun	dobu	CVCVN	✓			0	100	0	0	0
doQburi	dobu	CVCCVri	✓			0	100	0	0	0
doden	dode	CVCVN	✓			0	100	0	0	0
dodoQ	do	Others	✓			0	100	0	0	0
dodooQ	do	Others	✓			0	100	0	0	0
dodoon	do	Others	✓			0	100	0	0	0
dogimagi	dogi	Compound			✓	93.6	5.7	0	0	0.7
dokaQ	doka	CVCVQ	✓			7.1	92.9	0	0	0
doQka	doka	CVQCV	✓			0.8	36.9	27.7	30.7	3.9
dokaan	doka	CVCVVN	✓			0	88.9	0	11.1	0
dokadoka	doka	CVCV-CVCV	✓			6.0	92.0	0	1.0	1.0
dokan	doka	CVCVN	✓			1.4	87.8	2.7	3.4	4.8
dokari	doka	CVCVri	✓			0	100	0	0	0
doQkari	doka	CVCCVri	✓			4.0	96.0	0	0	0
dokiQ	doki	CVCVQ			✓	75.0	18.8	0	1.3	5.0
dokidoki	doki	CVCV-CVCV			✓	67.1	11.9	3.6	11.7	5.8
dokin	doki	CVCVN			✓	5.0	95.0	0	0	0
dokindokin	doki	CVCVN-CVCVN			✓	33.3	66.7	0	0	0
doQkindoQkin	doki	CVQCVN-CVQCVN			✓	0	100	0	0	0
dokiri	doki	CVCVri			✓	0	94.9	2.6	0	2.6
doQkiri	doki	CVCCVri			✓	29.4	27.9	10.3	17.6	14.7

dokudoku	doku	CVCV-CVCV			✓	4.9	86.9	3.3	4.9	0
dokun	doku	CVCVN			✓	24.0	68.0	0	8.0	0
donchan	don	Compound	✓	✓		0	14.3	85.7	0	0
donden	don	Compound	✓	✓		0	13.6	86.4	0	0
dondon	don	CVCV-CVCV	✓	✓		1.9	94.9	0.7	2.0	0.6
donpachi	don	Compound	✓	✓		0	0	20	20	60
donpishari	don	Compound	✓	✓		5.3	42.1	21.1	31.6	0
donyori	doyo	CVCCVri		✓		31.0	66.0	1.0	0.7	1.2
dooQ	do	CVVQ	✓			3.3	90	0	0	6.7
doodoo	do	CVV-CVV	✓			4.0	85.0	4.0	1.0	6.0
doon	do	CVVN	✓			2.7	84.5	4.0	5.1	3.7
doondoon	do	CVVN-CVVN	✓			0	100	0	0	0
doQpuri	dopu	CVCCVri	✓			1.9	85.6	3.2	2.6	6.8
doroQ	doro	CVCVQ		✓		89.5	7.9	0	0	2.6
dorodoro	doro	CVCV-CVCV		✓		31.3	32.2	15.7	16.2	4.5
doron	doro	CVCVN		✓		8.2	26.5	6.1	51.0	8.2
dorori	doro	CVCVri		✓		0	97.2	0	2.8	0
dosaQ	dosa	CVCVQ	✓	✓		9.1	86.4	0	0	4.5
dosadosa	dosa	CVCV-CVCV	✓	✓		0	100	0	0	0
dosan	dosa	CVCVN	✓	✓		14.3	71.4	0	0	14.3
dosari	dosa	CVCVri	✓	✓		0	100	0	0	0
doQsari	dosa	CVCCVri	✓	✓		7.8	84.0	3.9	1.5	2.9
doshiQ	doshi	CVCVQ	✓			0	100	0	0	0
doshidoshi	doshi	CVCV-CVCV	✓			4.6	94.7	0	0.7	0
doshin	doshi	CVCVN	✓			0	100	0	0	0
doshindoshin	doshi	CVCVN-CVCVN	✓			0	100	0	0	0
doQshiri	doshi	CVCCVri	✓			23.2	75.5	0.3	0.9	0
dosuQ	dosu	CVCVQ	✓			0	100	0	0	0
dosudosu	dosu	CVCV-CVCV	✓			25.0	75.0	0	0	0
dosun	dosu	CVCVN	✓			1.8	92.7	1.8	1.8	1.8
dosundosun	dosu	CVCVN-CVCVN	✓			0	100	0	0	0

dosuun	dosu	CVCVVN	✓		0	100	0	0	0
dotaQ	dota	CVCVQ	✓		0	100	0	0	0
dotabata	dota	Compound	✓		21.5	44.7	12.8	9.8	11.2
dotadota	dota	CVCV-CVCV	✓		2.7	94.6	0	2.7	0
dotan	dota	CVCVN	✓		0	100	0	0	0
dotanbatan	dota	CVCVN-CVCVN	✓		0	100	0	0	0
dotari	dota	CVCVri	✓		0	100	0	0	0
doteQ	dote	CVCVQ	✓		0	88.9	11.1	0	0
doten	dote	CVCVN	✓		0	0	0	0	100
doyadoya	doya	CVCV-CVCV	✓		0	100	0	0	0
doyodoyo	doya	CVCV-CVCV	✓		0	100	0	0	0
eQchiraoQchira	chira	Others		✓	7.9	89.5	0	0	2.6
eeneen	e	CVVN-CVVN		✓	0	100	0	0	0
ehehe	ehe	Others	✓		17.1	65.7	5.7	5.7	5.7
eheraehera	ehe	Others	✓		0	100	0	0	0
enen	e	CVN-CVN		✓	0.7	98.6	0.7	0	0
eQsahoisa	esa	Compound	✓		0	100	0	0	0
fuQfuQ	fu	CVQ-CVQ	✓		0	100	0	0	0
fufu(Q)	fu	CVVQ	✓		7.3	80.5	0	12.2	0
fufufu	fu	Others	✓		8.5	56.0	0.6	34.6	0.2
fufun	fu	Others	✓		5.0	90	0	5.0	0
fugafuga	fuga	CVCV-CVCV		✓	44.4	44.4	11.1	0	0
fui(Q)	fu	CViQ	✓		6.5	87.1	1.1	2.7	2.6
fukafuka	fuka	CVCV-CVCV		✓	15.1	17.0	42.5	25.5	0
fukufuku	fuku	CVCV-CVCV		✓	0	100	0	0	0
fuQkura	fuku	CVCCV-Ca		✓	39.8	58.6	0.3	1.1	0.3
fuQkuri	fuku	CVCCVri		✓	25.0	75.0	0	0	0
fumufumu	fumu	CVCV-CVCV	✓		6.7	62.8	0.3	29.2	1.0
fun	fu	CVN	✓		7.7	41.0	3.9	31.7	15.8

funfun	fu	CVN-CVN	✓			7.8	86.1	0	6.1	0
funwaka	fuwa	CVCCV-Ca		✓		0	0	0	100	0
funwari	fuwa	CVCCVri		✓		25.3	69.1	1.9	2.2	1.5
funyaQ	funya	CVCVQ		✓		0	100	0	0	0
funyafunya	funya	CVCV-CVCV		✓		26.6	27.3	14.1	31.3	0.8
funyan	funya	CVCVN		✓		0	0	0	100	0
funyari	funya	CVCVri		✓		0	100	0	0	0
furaQ	fura	CVCVQ		✓	✓	11.4	86.4	0	2.3	0
furafura	fura	CVCV-CVCV		✓	✓	31.1	50.7	2.0	15.5	0.7
furari	fura	CVCVri		✓	✓	3.3	95.6	1.1	0	0
furarifurari	fura	CVCVri-CVCVri		✓	✓	0	100	0	0	0
furifuri	furi	CVCV-CVCV	✓	✓		25.0	33.3	20.8	12.5	8.3
fusafusa	fusa	CVCV-CVCV		✓		34.9	34.9	11.6	11.6	7.0
fuQsari	fusa	CVCCVri		✓		0	100	0	0	0
futsufutsu	futsu	CVCV-CVCV		✓		0	99.2	0	0.8	0
futsuri	futsu	CVCVri		✓		0	100	0	0	0
fuQtsuri	futsu	CVCCVri		✓		0	100	0	0	0
fuuQ	fu	CVVQ	✓			0	92.3	0	3.8	3.8
fuufuu	fu	CVV-CVV	✓			17.9	76.9	2.6	2.6	0
fuwaQ	fuwa	CVCVQ		✓		35.7	64.3	0	0	0
fuwaaQ	fuwa	CVCVVQ		✓		0	100	0	0	0
fuwafuwa	fuwa	CVCV-CVCV		✓		29.2	43.1	17.2	9.2	1.4
fuwari	fuwa	CVCVri		✓		0.8	98.4	0	0.8	0
fuwarifuwari	fuwa	CVCVri-CVCVri		✓		0	100	0	0	0
gaa	ga	CVV	✓	✓		11.4	75.0	2.3	4.5	6.8
gaaQ	ga	CVVQ	✓	✓		11.4	82.9	0	2.9	2.9
gaagaa	ga	CVV-CVV	✓	✓		5.4	86.5	0	2.7	5.4
gaan	ga	CVVN	✓	✓		6.0	56.7	6.7	18.7	11.9
gaba	gaba	CVCV		✓		0	100	0	0	0

gabaQ	gaba	CVCVQ		✓		1.5	97.0	0	0	1.5
gabaaQ	gaba	CVCVVQ		✓		0	100	0	0	0
gabagaba	gaba	CVCV-CVCV		✓		4.1	69.4	4.1	22.4	0
gaboQ	gabo	CVCVQ		✓		0	100	0	0	0
gabogabo	gabo	CVCV-CVCV		✓		16.7	16.7	0	66.7	0
gabuQ	gabu	CVCVQ		✓		13.3	73.3	0	6.7	6.7
gabugabu	gabu	CVCV-CVCV		✓		7.5	79.2	2.8	8.5	1.9
gaburi	gabu	CVCVri		✓		5.6	77.8	0	0	16.7
gachaQ	gacha	CVCVQ	✓			30.8	61.5	0	0	7.7
gachagacha	gacha	CVCV-CVCV	✓			20.7	52.1	3.6	8.3	15.4
gachan	gacha	CVCVN	✓			0	95.7	0	0	4.3
gachari	gacha	CVCVri	✓			0	100	0	0	0
gachiQ	gachi	CVCVQ	✓			23.1	69.2	0	7.7	0
gachigachi	gachi	CVCV-CVCV	✓			3.6	48.0	30.9	16.8	0.7
gachin	gachi	CVCVN	✓			0	100	0	0	0
gaQchingaQchin	gachi	CVQCVN-CVQCVN	✓			0	100	0	0	0
gachiri	gachi	CVCVri	✓			0	100	0	0	0
gaQchiri	gachi	CVCCVri	✓			20.9	76.6	0	2.1	0.4
gaQgaQ	ga	CVQ-CVQ	✓	✓		0	100	0	0	0
gaQkari	gaka	CVCCVri			✓	76.6	6.6	1.2	13.9	1.7
gakuQ	gaku	CVCVQ		✓	✓	7.7	90.4	0	1.9	0
gakugaku	gaku	CVCV-CVCV		✓	✓	18.6	44.1	0	6.8	30.5
gakun	gaku	CVCVN		✓	✓	0	93.6	0	2.1	4.3
gaQkun	gaku	CVQCVN		✓	✓	5.6	50	27.8	0	16.7
gakuri	gaku	CVCVri		✓	✓	0	100	0	0	0
gaQkuri	gaku	CVCCVri		✓	✓	39.1	40.7	0.8	18.9	0.6
gakuun	gaku	CVCVVN		✓	✓	0	100	0	0	0
gamigami	gami	CVCV-CVCV	✓			3.3	84.8	2.2	3.3	6.5
gangan	ga	CVN-CVN	✓	✓		7.4	88.0	1.3	1.8	1.5

gaQpogaQpo	gapo	CVQCV-CVQCV		✓		0	93.8	0	6.3	0
gaQpori	gapo	CVCCVri		✓		1.1	91.6	0	2.1	5.3
gapugapu	gapu	CVCV-CVCV		✓		0	100	0	0	0
gaQpuri	gapu	CVCCVri		✓		0	95.5	0	4.5	0
garaQ	gara	CVCVQ	✓	✓		0	98.6	0	0	1.4
garaan	gara	CVCVVN	✓	✓		0	100	0	0	0
garagara	gara	CVCV-CVCV	✓	✓		10.7	31.3	16.4	37.6	4.0
garan	gara	CVCVN	✓	✓		0	97.2	0	0.9	1.9
garangaran	gara	CVCVN-CVCVN	✓	✓		28.6	71.4	0	0	0
garari	gara	CVCVri	✓	✓		0	90.5	2.9	2.9	3.8
gariQ	gari	CVCVQ	✓	✓		30.8	69.2	0	0	0
garigari	gari	CVCV-CVCV	✓	✓		8.6	70	8.9	10.6	1.9
gasaQ	gasa	CVCVQ	✓	✓		0	100	0	0	0
gasagasa	gasa	CVCV-CVCV	✓	✓		18.0	61.7	3.8	13.5	3.0
gasagoso	gasa	Compound	✓	✓		13.8	75.9	3.4	0	6.9
gasari	gasa	CVCVri	✓	✓		0	100	0	0	0
gashaQ	gasha	CVCVQ	✓			0	100	0	0	0
gashaan	gasha	CVCVVN	✓			0	0	0	100	0
gashagasha	gasha	CVCV-CVCV	✓			0	100	0	0	0
gashan	gasha	CVCVN	✓			0	100	0	0	0
gashari	gasha	CVCVri	✓			25.0	75.0	0	0	0
gashiQ	gashi	CVCVQ		✓		10.5	89.5	0	0	0
gaQshiri	gashi	CVCCVri		✓		46.9	53.1	0	0	0
gataQ	gata	CVCVQ	✓		✓	10.5	78.9	0	0	10.5
gatabishi	gata	Compound	✓		✓	0	100	0	0	0
gatagata	gata	CVCV-CVCV	✓		✓	14.9	51.3	5.1	25.1	3.7
gatagoto	gata	Compound	✓		✓	7.1	89.3	3.6	0	0
gatakuri	gata	Compound	✓		✓	0	100	0	0	0
gatan	gata	CVCVN	✓		✓	2.1	95.7	0	2.1	0
gaQtan	gata	CVQCVN	✓		✓	0	100	0	0	0
gaQtangoQtan	gata	CVQCVN-CVQCVN	✓		✓	0	57.1	14.3	0	28.6

gatapishi	gata	Compound	✓		✓	21.1	68.4	0	10.5	0
gatari	gata	CVCVri	✓		✓	0	52.2	32.6	0	15.2
gatsuQ	gatsu	CVCVQ		✓		0	100	0	0	0
gatsugatsu	gatsu	CVCV-CVCV		✓		24.7	71.2	0.5	0.9	2.8
gatsun	gatsu	CVCVN		✓		0	91.7	0	8.3	0
gaQtsun	gatsu	CVQCVN		✓		50	50	0	0	0
gaQtsuri	gatsu	CVCCVri		✓		2.3	95.5	0	2.3	0
gatsuun	gatsu	CVCVVN		✓		10	90	0	0	0
gayagaya	gaya	CVCV-CVCV	✓			19.0	73.8	2.4	3.2	1.6
geQ	ge	CVQ	✓			16.9	61.0	0	16.9	5.1
gebogebo	gebo	CVCV-CVCV	✓			0	0	0	100	0
geeQ	ge	CVVQ	✓			66.7	33.3	0	0	0
geegee	ge	CVV-CVV	✓			44.4	55.6	0	0	0
gennari	gena	CVCCVri			✓	87.4	2.4	0	10.2	0
geragera	gera	CVCV-CVCV	✓			1.3	96.7	0	2.0	0
geroQ	gero	CVCVQ	✓			0	0	0	100	0
gerogero	gero	CVCV-CVCV	✓			8.3	45.8	0	41.7	4.2
geQsori	geso	CVCCVri		✓		49.0	41.2	2.0	7.8	0
getageta	geta	CVCV-CVCV	✓			0	100	0	0	0
giQ	gi	CVQ	✓			0	100	0	0	0
gichigichi	gichi	CVCV-CVCV		✓		3.8	50	19.2	26.9	0
giQchiri	gichi	CVCCVri		✓		12.5	87.5	0	0	0
gii(Q)	gi	CVVQ	✓			34.7	49.0	2.0	6.1	8.2
giigii	gi	CVV-CVV	✓			0	100	0	0	0
gikogiko	giko	CVCV-CVCV	✓			9.1	81.8	0	9.1	0
gikuQ	giku	CVCVQ	✓		✓	76.3	18.4	2.6	0	2.6
gikun	giku	CVCVN	✓		✓	0	100	0	0	0
gikuri	giku	CVCVri	✓		✓	0	100	0	0	0
giQkuri	giku	CVCCVri	✓		✓	3.2	6.5	87.1	1.6	1.6
gikushaku	giku	Compound	✓		✓	82.2	13.3	1.3	0.8	2.4
gingiragin	gira	Compound		✓		4.8	52.4	38.1	4.8	0

giraQ	gira	CVCVQ		✓	16.7	83.3	0	0	0
giragira	gira	CVCV-CVCV		✓	43.2	47.9	4.6	3.0	1.3
girari	gira	CVCVri		✓	0	97.6	0	0	2.4
girarigirari	gira	CVCVri-CVCVri		✓	0	100	0	0	0
giriQ	giri	CVCVQ		✓	0	100	0	0	0
girigiri	giri	CVCV-CVCV		✓	1.1	27.7	50.1	19.7	1.3
giriri	giri	CVCVri		✓	0	100	0	0	0
girori	giro	CVCVri		✓	0	100	0	0	0
gishiQ	gishi	CVCVQ	✓	✓	33.3	66.7	0	0	0
gishigishi	gishi	CVCV-CVCV	✓	✓	9.5	88.1	0	2.4	0
gishiri	gishi	CVCVri	✓	✓	0	100	0	0	0
giQshiri	gishi	CVCCVri	✓	✓	7.2	80.8	4.9	7.0	0
gisugisu	gisu	CVCV-CVCV		✓	81.0	16.4	0	0.9	1.7
gitogito	gito	CVCV-CVCV		✓	15.8	36.8	26.3	21.1	0
giQtori	gito	CVCCVri		✓	100	0	0	0	0
gizagiza	giza	CVCV-CVCV		✓	16.3	20	26.7	14.8	22.2
go(Q)tongo(Q)ton	goto	CVQCVN-CVQCVN	✓		0	88.9	0	11.1	0
goboQ	gobo	CVCVQ	✓		0	66.7	0	0	33.3
gobogobo	gobo	CVCV-CVCV	✓		6.7	93.3	0	0	0
gochagocha	gocha	CVCV-CVCV		✓	35.8	44.5	1.8	15.0	2.9
gochigochi	gochi	CVCV-CVCV		✓	20	60	20	0	0
gochin	gochi	CVCVN		✓	33.3	66.7	0	0	0
gochogocho	gocho	CVCV-CVCV		✓	66.7	33.3	0	0	0
gohon	goho	CVCVN	✓		12.5	81.3	0	6.3	0
gohongohon	goho	CVCVN-CVCVN	✓		60	40	0	0	0
gojagoja	goja	CVCV-CVCV		✓	0	100	0	0	0

gokuQ	goku	CVCVQ	✓		7.1	85.7	7.1	0	0
gokugoku	goku	CVCV-CVCV	✓		1.6	96.8	0.5	0.7	0.4
gokun	goku	CVCVN	✓		8.3	83.3	0	0	8.3
goQkun	goku	CVQCVN	✓		38.5	30.8	7.7	7.7	15.4
gokuri	goku	CVCVri	✓		26.3	69.7	0	1.3	2.6
gokurigokuri	goku	CVCVri-CVCVri	✓		0	100	0	0	0
gongon	go	CVN-CVN	✓		4.8	85.7	9.5	0	0
gonyogonyo	gonyo	CVCV-CVCV	✓		38.5	53.8	0	7.7	0
goo(Q)	go	CVVQ	✓		6.5	80.6	0	3.2	9.7
googoo	go	CVV-CVV	✓		2.4	78.6	4.8	9.5	4.8
goon	go	CVVN	✓		0	75.0	0	0	25.0
goongoon	go	CVVN-CVVN	✓		0	100	0	0	0
goriQ	gori	CVCVQ	✓		16.7	83.3	0	0	0
gorigori	gori	CVCV-CVCV	✓		14.9	62.6	20	2.6	0
goroQ	goro	CVCVQ	✓	✓	9.1	90.9	0	0	0
gorogoro	goro	CVCV-CVCV	✓	✓	55.7	38.6	0.9	3.1	1.7
goron	goro	CVCVN	✓	✓	0	100	0	0	0
gorongoron	goro	CVCVN-CVCVN	✓	✓	0	100	0	0	0
gorori	goro	CVCVri	✓	✓	0	100	0	0	0
goshagosha	gosha	CVCV-CVCV		✓	20	80	0	0	0
goshigoshi	goshi	CVCV-CVCV	✓		27.3	66.1	2.2	2.7	1.6
gosoQ	goso	CVCVQ	✓	✓	11.8	88.2	0	0	0
gosogoso	goso	CVCV-CVCV	✓	✓	31.8	64.9	0	2.9	0.4
gosori	goso	CVCVri	✓	✓	0	100	0	0	0
goQsori	goso	CVCCVri	✓	✓	1.1	94.0	0.5	0.5	3.8
gotagota	gota	CVCV-CVCV		✓	28.2	24.4	6.4	7.3	33.7
gotegote	gote	CVCV-CVCV		✓	40.5	50	8.3	1.2	0

goQteri	gote	CVCCVri		✓	33.3	66.7	0	0	0
gotoQ	goto	CVCVQ	✓		0	100	0	0	0
gotogoto	goto	CVCV-CVCV	✓		8.3	88.9	0	0	2.8
goton	goto	CVCVN	✓		0	100	0	0	0
gotori	goto	CVCVri	✓		0	100	0	0	0
gotsuQ	gotsu	CVCVQ	✓	✓	0	0	0	100	0
gotsugotsu	gotsu	CVCV-CVCV	✓	✓	65.4	28.3	3.8	1.3	1.3
gotsun	gotsu	CVCVN	✓	✓	12.0	88.0	0	0	0
goQtsun	gotsu	CVQCVN	✓	✓	40	20	20	20	0
gotsungotsun	gotsu	CVCVN-CVCVN	✓	✓	100	0	0	0	0
gowagowa	gowa	CVCV-CVCV		✓	48.6	13.9	9.7	25.0	2.8
guQ	gu	CVQ		✓	0.4	96.8	0.6	1.1	1.1
gubiQ	gubi	CVCVQ		✓	0	100	0	0	0
gubigubi	gubi	CVCV-CVCV		✓	14.9	74.3	2.7	6.8	1.4
gubiri	gubi	CVCVri		✓	20	80	0	0	0
guchaQ	gucha	CVCVQ		✓	0	100	0	0	0
guchagucha	gucha	CVCV-CVCV		✓	15.9	28.2	11.3	42.5	2.0
guchari	gucha	CVCVri		✓	0	66.7	0	33.3	0
guchogucho	gucho	CVCV-CVCV		✓	11.1	22.2	11.1	55.6	0
gudaguda	guda	CVCV-CVCV	✓	✓	9.2	41.2	14.0	34.8	0.8
gudenguden	gude	CVCVN-CVCVN		✓	8.3	29.2	8.3	54.2	0
guQguQ	gu	CVQ-CVQ		✓	0	100	0	0	0
gugugu Q	gu	Others		✓	0	100	0	0	0
guiQ	gu	CViQ		✓	8.9	91.1	0	0	0
guigui	gu	CVi-CVi		✓	3.2	95.8	0.4	0	0.7
gujiguji	guji	CVCV-CVCV		✓	12.5	87.5	0	0	0
gun	gu	CVN		✓	0	99.4	0	0	0.6
gungun	gu	CVN-CVN		✓	1.1	97.2	1.7	0	0

gunnari	guna	CVCCVri			✓	0	0	0	100	0
gunnyari	gunya	CVCCVri		✓		33.3	66.7	0	0	0
gunyaQ	gunya	CVCVQ		✓		40	60	0	0	0
gunyagunya	gunya	CVCV-CVCV		✓		29.8	41.5	12.8	13.8	2.1
gunyari	gunya	CVCVri		✓		0	100	0	0	0
guraQ	gura	CVCVQ		✓		6.7	93.3	0	0	0
guragura	gura	CVCV-CVCV		✓		46.4	44.1	4.9	4.6	0
gurari	gura	CVCVri		✓		4.0	96.0	0	0	0
guriQ	guri	CVCVQ		✓		0	100	0	0	0
guriguri	guri	CVCV-CVCV		✓		27.2	65.6	2.6	1.3	3.3
guruQ	guru	CVCVQ		✓		1.4	98.6	0	0	0
guruguru	guru	CVCV-CVCV		✓		8.2	88.5	0.6	2.0	0.7
gurun	guru	CVCVN		✓		0	55.6	22.2	0	22.2
gurungurun	guru	CVCVN-CVCVN		✓		11.1	88.9	0	0	0
gururi	guru	CVCVri		✓		1.7	91.0	1.2	0.2	5.9
gusaQ	gusa	CVCVQ		✓		5.6	88.9	0	5.6	0
gusagusa	gusa	CVCV-CVCV		✓		0	81.8	0	18.2	0
gusari	gusa	CVCVri		✓		5.1	92.3	2.6	0	0
guQsari	gusa	CVCCVri		✓		0	100	0	0	0
gusha(Q)	gusha	CVCVQ		✓		3.4	93.1	0	3.4	0
gushagusha	gusha	CVCV-CVCV		✓		15.1	30.2	10.5	44.2	0
gushari	gusha	CVCVri		✓		0	100	0	0	0
gushogusho	gusho	CVCV-CVCV		✓		3.7	25.9	3.7	66.7	0
guQshori	gusho	CVCCVri		✓		9.7	74.2	0	16.1	0
gusugusu	gusu	CVCV-CVCV	✓	✓		27.3	72.7	0	0	0
gusun	gutsu	CVCVN	✓			10.7	60.7	0	25.0	3.6
guQsuri	gusu	CVCCVri	✓	✓		2.6	94.0	0.6	2.4	0.4
gutaQ	guta	CVCVQ		✓		100	0	0	0	0
gutaguta	guta	CVCV-CVCV		✓		17.1	34.3	25.7	22.9	0
gutari	guta	CVCVri		✓		0	100	0	0	0
guQtari	guta	CVCCVri		✓		55.2	33.5	1.3	9.6	0.4

gutsugutsu	gutsu	CVCV-CVCV	✓		7.4	91.5	0	1.1	0
guu	gu	CVV		✓	14.2	22.2	19.7	33.1	10.9
guuQ	gu	CVVQ		✓	0	100	0	0	0
guuguu	gu	CVV-CVV		✓	3.2	90.3	0	3.2	3.2
guun	gu	CVVQ		✓	0	94.0	4.0	0	2.0
guusuka	gutsu	Others	✓		0	100	0	0	0
guwaQ	guwa	CVCVQ		✓	0	100	0	0	0
guzuguzu	guzu	CVCV-CVCV		✓	59.6	31.6	1.5	5.2	2.2
gyaQ	gya	CVQ	✓		0	95.0	0	5.0	0
gyaa(Q)	gya	CVVQ	✓		6.5	93.5	0	0	0
gyaagyaa	gya	CVV-CVV	✓		7.4	91.5	0	0	1.1
gyafun	gyafu	CVCVN		✓	0	100	0	0	0
gyaQgyaQ	gya	CVQ-CVQ	✓		0	100	0	0	0
gyoQ	gyo	CVQ		✓	91.0	8.2	0	0	0.8
gyoroQ	gyoro	CVCVQ		✓	85.7	14.3	0	0	0
gyorogyoro	gyoro	CVCV-CVCV		✓	50	35.7	7.1	0	7.1
gyoron	gyoro	CVCVN		✓	0	100	0	0	0
gyorori	gyoro	CVCVri		✓	0	100	0	0	0
gyuQ	gyu	CVQ	✓		5.7	93.2	0	0.4	0.6
gyuQgyuQ	gyu	CVQ-CVQ	✓		0	100	0	0	0
gyuuQ	gyu	CVVQ	✓		10.1	88.4	0	0	1.4
gyuugyuu	gyu	CVV-CVV	✓		3.4	75.4	3.9	16.9	0.5
haQ	ha	CVQ	✓	✓	51.7	46.6	0	0.6	1.1
haa(Q)	ha	CVVQ	✓	✓	7.2	75.7	0	15.5	1.6
haahaa	ha	CVV-CVV	✓	✓	11.7	72.5	0.8	9.2	5.8
haQhaQ	ha	CVQ-CVQ	✓	✓	0	80	0	20	0
hahaha	ha	Others	✓	✓	15.2	46.5	0.2	13.2	24.8
haQhaQhaQ	ha	Others	✓	✓	4.8	28.6	0	0	66.7
hakihaki	haki	CVCV-CVCV		✓	39.8	58.6	0	0	1.6
haQkiri	haki	CVCCVri		✓	34.6	64.4	0	0.3	0.6

hakushon	kusho	Others	✓			0	100	0	0	0
hannari	hana	CVCCVri		✓		17.6	73.5	2.9	0	5.9
haraQ	hara	CVCVQ		✓	✓	0	100	0	0	0
harahara	guta	CVCV-CVCV		✓		68.8	24.7	1.3	2.6	2.6
harari	hara	CVCVri		✓	✓	0	97.4	0	0	2.6
harihari	hari	CVCV-CVCV			✓	4.2	95.8	0	0	0
haQshi	hashi	CVQCV		✓		0	61.1	27.8	0	11.1
hatahata	hata	CVCV-CVCV		✓		10	38.3	16.7	5.0	30
hebereke	hebe	Compound		✓		2.6	47.4	5.3	39.5	5.3
hedomodo	hedo	Compound		✓		62.5	37.5	0	0	0
heQheQ	he	CVQ-CVQ	✓			0	50	0	50	0
hehehe	he	Others	✓			5.6	83.3	0	5.6	5.6
heQheQheQ	he	Others	✓			0	100	0	0	0
henahena	hena	CVCV-CVCV		✓		13.9	64.6	3.8	16.5	1.3
herahera	hera	CVCV-CVCV		✓		40.6	55.6	0.6	3.1	0
herohero	hero	CVCV-CVCV		✓		7.1	26.7	11.3	53.7	1.3
hetaheta	heta	CVCV-CVCV		✓		20	80	0	0	0
hetari	heta	CVCVri		✓		0	96.4	0	3.6	0
hetoheto	heto	CVCV-CVCV		✓		3.9	12.7	4.7	78.2	0.6
hihihi	hi	Others	✓			5.3	57.9	0	36.8	0
hihiin	hi	Others	✓			0	75.0	25.0	0	0
hii(Q)	hi	CVVQ	✓			0	100	0	0	0
hiihii	hi	CVV-CVV	✓			4.8	91.6	0	3.6	0
hikuQ	hiku	CVCVQ	✓			50	50	0	0	0
hikuhiku	hiku	CVCV-CVCV	✓			35.4	63.1	0	1.5	0
hinhin	hi	CVN-CVN	✓			0	85.7	0	14.3	0
hinyari	hiya	CVCCVri			✓	35.0	63.0	0.5	1.0	0.5
hiraQ	hira	CVCVQ		✓		0	100	0	0	0

hirahira	hira	CVCV-CVCV		✓		27.0	58.7	10.9	1.2	2.3
hirari	hira	CVCVri		✓		1.3	58.4	3.9	6.5	29.9
hirarihirari	hira	CVCVri-CVCVri		✓		0	100	0	0	0
hirihiri	hiri	CVCV-CVCV			✓	62.1	33.5	0.5	2.9	1.0
hiriri	hiri	CVCVri			✓	0	100	0	0	0
hishi	hishi	CVCV			✓	0	74.8	4.7	1.9	18.7
hishihishi	hishi	CVCV-CVCV			✓	0.8	98.7	0	0.4	0
hisohiso	hiso	CVCV-CVCV	✓			2.1	51.4	45.1	0.4	1.1
hiQsori	hiso	CVCCVri	✓			5.2	94.6	0	0.1	0.2
hiQsorikan	hiso	Others	✓			0	100	0	0	0
hita(Q)	hita	CVCVQ		✓		4.2	91.7	0	0	4.2
hitahita	hita	CVCV-CVCV		✓		3.0	72.0	8.3	16.7	0
hiyaQ	hiya	CVCVQ			✓	88.2	9.8	0	0	2.0
hiyaaQ	hiya	CVCVVQ			✓	50	50	0	0	0
hiyahiya	hiya	CVCV-CVCV			✓	73.4	6.0	3.6	7.7	9.3
hiyari	hiya	CVCVri			✓	5.2	88.3	2.6	1.3	2.6
hiyohiyo	hiyo	CVCV-CVCV	✓			50	50	0	0	0
hoQ	ho	CVQ	✓	✓		75.4	22.1	0.2	1.8	0.5
hodohodo	hodo	CVCV-CVCV		✓		19.3	53.3	13.8	8.5	5.1
hohoho	ho	Others	✓	✓		11.9	73.8	0	11.9	2.4
hoihoi	ho	CVi-CVi	✓	✓		1.6	74.0	7.1	5.5	11.8
hokahoka	hoka	CVCV-CVCV			✓	25.6	32.2	28.9	12.2	1.1
hokohoko	hoko	CVCV-CVCV			✓	40	60	0	0	0
hoQkori	hoko	CVCCVri			✓	45.7	50	0.9	3.4	0
hokuhoku	hoku	CVCV-CVCV			✓	30.7	26.4	24.8	17.3	0.8
honnori	hono	CVCCVri		✓		6.5	92.2	0.4	0.2	0.7
honobono	hono	CVCV-CVCV		✓		28.3	68.2	0.2	2.7	0.6

honwaka	howa	CVCCV-Ca			✓	45.7	50	4.3	0	0
hoo(Q)	ho	CVVQ	✓	✓		0	85.7	0	14.3	0
hoohokekyo	noroot	Others	✓			6.9	86.2	0	3.4	3.4
hoohoo	ho	CVV-CVV	✓	✓		0.9	41.8	21.8	31.8	3.6
horoQ	horo	CVCVQ		✓		64.1	35.9	0	0	0
horohoro	horo	CVCV-CVCV		✓		4.3	84.1	4.3	5.8	1.4
horori	horo	CVCVri		✓		10.7	67.9	0	17.9	3.6
hosoboso	hoso	CVCV-CVCV		✓		9.4	88.0	0.5	1.6	0.6
hoQsori	hoso	CVCCVri		✓		44.4	54.4	0	1.2	0
howaaQ	howa	CVCVVQ			✓	100	0	0	0	0
hoyahoya	hoya	CVCV-CVCV		✓		3.3	17.8	61.2	15.1	2.6
hyoQ	hyo	CVQ		✓		96.9	3.1	0	0	0
hyoi	hyo	CViQ		✓		1.2	98.2	0	0	0.6
hyoihyoi	hyo	CVi-CVi		✓		5.9	90.2	2.0	0	2.0
hyokoQ	hyoko	CVCVQ		✓		0	90.9	0	0	9.1
hyokohyoko	hyoko	CVCV-CVCV		✓		5.1	89.7	0	2.6	2.6
hyokon	hyoko	CVCVN		✓		0	100	0	0	0
hyokori	hyoko	CVCVri		✓		0	100	0	0	0
hyoQkori	hyoko	CVCCVri		✓		5.2	93.0	0	1.2	0.6
hyoroQ	hyoro	CVCVQ		✓		44.4	55.6	0	0	0
hyorohyoro	hyoro	CVCV-CVCV		✓		16.9	55.9	10.2	15.3	1.7
hyorori	hyoro	CVCVri		✓		0	100	0	0	0
hyuQ	hyu	CVQ	✓			0	95.0	0	5.0	0
hyuQhyuQ	hyu	CVQ-CVQ	✓			0	100	0	0	0
hyun	hyu	CVN	✓			0	80	20	0	0
hyunhyun	hyu	CVN-CVN	✓			0	100	0	0	0
hyuu(Q)	hyu	CVVQ	✓			0	100	0	0	0
hyuuhyuu	hyu	CVV-CVV	✓			0	95.5	4.5	0	0
hyuun	hyu	CVVN	✓			0	100	0	0	0

ichaicha	icha	CVCV-CVCV		✓		84.5	8.5	0	5.6	1.4
ihihi	ko	Others	✓			16.7	66.7	0	16.7	0
ijiiji	iji	CVCV-CVCV			✓	40	45.0	0	15.0	0
ikiiki	iki	CVCV-CVCV		✓		20.5	78.6	0.1	0.5	0.3
iraira	ira	CVCV-CVCV			✓	77.8	9.0	2.0	1.3	9.9
isoiso	iso	CVCV-CVCV			✓	2.3	97.7	0	0	0
jaQ	ja	CVQ	✓	✓		16.7	83.3	0	0	0
jaaQ	ja	CVVQ	✓	✓		20	80	0	0	0
jaajaa	ja	CVV-CVV	✓	✓		6.7	93.3	0	0	0
jaan	ja	CVVN	✓	✓		0	100	0	0	0
jabojabo	jabo	CVCV-CVCV	✓			25.0	75.0	0	0	0
jabujabu	jabu	CVCV-CVCV	✓			6.9	81.2	7.9	4.0	0
jabun	zabu	CVCVN	✓			0	100	0	0	0
jakajaka	jaka	CVCV-CVCV	✓			10	90	0	0	0
jakijaki	jaki	CVCV-CVCV	✓			50	50	0	0	0
janjan	ja	CVN-CVN	✓	✓		2.7	89.6	1.2	5.8	0.8
jarajara	jara	CVCV-CVCV	✓			29.9	59.8	3.4	4.6	2.3
jaran	jara	CVCVN	✓			0	14.3	85.7	0	0
jaranjaran	jara	CVCVN-CVCVN	✓			0	100	0	0	0
jarijari	jari	CVCV-CVCV	✓			33.3	33.3	0	33.3	0
jiQ	ji	CVQ	✓	✓		19.9	79.7	0	0.1	0.3
jiiQ	ji	CVVQ	✓	✓		7.1	92.9	0	0	0
jiijii	ji	CVV-CVV	✓	✓		0	80	6.7	0	13.3
jiin	ji	CVVN	✓	✓		3.5	85.6	3.9	2.7	4.3
jikujiku	jiku	CVCV-CVCV		✓		27.9	60.5	2.3	0	9.3

jiQkuri	jiku	CVCCVri		✓		1.2	98.2	0.1	0.2	0.4
jimeQ	jime	CVCVQ			✓	66.7	33.3	0	0	0
jimejime	jime	CVCV-CVCV			✓	67.2	24.5	3.1	2.2	3.1
jinjin	ji	CVN-CVN	✓	✓		27.8	72.2	0	0	0
jinwari	jiwa	CVCCVri		✓		6.1	93.9	0	0	0
jiriQ	jiri	CVCVQ	✓	✓		0	100	0	0	0
jirijiri	jiri	CVCV-CVCV	✓	✓		12.7	85.4	0.7	0	1.2
jirin	jiri	CVCVN	✓	✓		0	100	0	0	0
jiriri	jiri	CVCVri	✓	✓		0	100	0	0	0
jiroQ	jiro	CVCVQ		✓		0	100	0	0	0
jirojiro	jiro	CVCV-CVCV		✓		0.5	98.6	0	0.9	0
jirori	jiro	CVCVri		✓		0	97.6	1.2	1.2	0
jitabata	jita	Compound		✓		78.5	17.9	1.0	0	2.6
jitoQ	jito	CVCVQ			✓	20	60	0	0	20
jitojito	jito	CVCV-CVCV			✓	28.6	52.4	4.8	4.8	9.5
jiQtori	jito	CVCCVri			✓	8.1	90.9	0	1.0	0
jiwaQ	jiwa	CVCVQ		✓		6.3	93.7	0	0	0
jiwaaQ	jiwa	CVCVVQ		✓		16.7	83.3	0	0	0
jiwajiwa	jiwa	CVCV-CVCV		✓		1.0	98.5	0	0.4	0.1
jiwari	jiwa	CVCVri		✓		0	91.8	0	0	8.2
jokijoki	joki	CVCV-CVCV	✓			12.5	75.0	0	0	12.5
jorijori	jori	CVCV-CVCV	✓			40	60	0	0	0
juQ	ju	CVQ	✓			6.3	87.5	0	6.3	0
jukujuku	juku	CVCV-CVCV		✓		45.5	27.3	0	9.1	18.2
juuQ	ju	CVVQ	✓			0	100	0	0	0
juujuu	ju	CVV-CVV	✓			7.7	92.3	0	0	0
kaQ	ka	CVQ	✓	✓		22.4	77.6	0	0	0
kaaQ	ka	CVVQ	✓	✓		2.7	91.9	2.7	2.7	0
kaakaa	ka	CVV-CVV	✓	✓		0	100	0	0	0
kaan	ka	CVVN	✓	✓		0	100	0	0	0

kachaQ	kacha	CVCVQ	✓			0	87.5	12.5	0	0
kachakacha	kacha	CVCV-CVCV	✓			28.3	65.0	1.7	5.0	0
kachan	kacha	CVCVN	✓			11.1	77.8	0	0	11.1
kachari	kacha	CVCVri	✓			14.3	71.4	0	0	14.3
kachiQ	kachi	CVCVQ	✓	✓		15.5	80.3	0	0	4.2
kachiin	kachi	CVCVVN	✓	✓		0	100	0	0	0
kachikachi	kachi	CVCV-CVCV	✓	✓		7.9	65.9	7.9	16.2	2.2
kachin	kachi	CVCVN	✓	✓		1.2	97.7	0.6	0	0.6
kaQchin	kachi	CVQCVN	✓	✓		8.3	58.3	8.3	16.7	8.3
kachinkachin	kachi	CVCVN-CVCVN	✓	✓		2.4	80.5	4.9	12.2	0
kaQchinkaQchin	kachi	CVQCVN-CVQCVN	✓	✓		0	0	100	0	0
kachinkochin	kachi	Compound	✓	✓		0	35.7	28.6	35.7	0
kachiri	kachi	CVCVri	✓	✓		0	93.6	0	6.4	0
kaQchiri	kachi	CVCCVri	✓	✓		32.0	68.0	0	0	0
kaQka	ka	Others	✓	✓		38.4	41.1	8.0	8.0	4.5
kaQkaQ	ka	CVQ-CVQ	✓	✓		0	100	0	0	0
kaQkiri	kaki	CVCCVri			✓	0	94.7	0	5.3	0
kakukaku	kaku	CVCV-CVCV		✓		5.4	14.6	17.7	6.2	56.2
kakun	kaku	CVCVN		✓		0	40	10	50	0
kaQkun	kaku	CVQCVN		✓		0	66.7	0	0	33.3
kankan	ka	CVN-CVN	✓	✓		4.4	61.1	4.4	22.3	7.9
kapikapi	kapi	CVCV-CVCV		✓		10	20	10	50	10
kapoQ	kapo	CVCVQ	✓			0	100	0	0	0
kapokapo	kapo	CVCV-CVCV	✓			0	100	0	0	0
karaQ	kara	CVCVQ	✓	✓		47.7	52.3	0	0	0
karakara	kara	CVCV-CVCV	✓	✓		3.4	74.2	5.1	17.1	0.3
karakoro	kara	Compound	✓	✓		0	54.5	9.1	0	36.4
karan	kara	CVCVN	✓	✓		0	13.5	4.0	72.9	9.5
karankaran	kara	CVCVN-CVCVN	✓	✓		0	90.9	9.1	0	0

karankoron	kara	CVCVN-CVCVN	✓	✓		0	78.6	0	21.4	0
karaQpo	kara	Others	✓	✓		19.1	10.7	28.1	41.6	0.4
karari	kara	CVCVri	✓	✓		0	85.5	9.1	0	5.5
kariQ	kari	CVCVQ	✓		✓	30.9	68.1	0	0	1.1
karikari	kari	CVCV-CVCV	✓		✓	23.3	51.0	9.1	8.8	7.7
kasaQ	kasa	CVCVQ	✓	✓		0	100	0	0	0
kasakasa	kasa	CVCV-CVCV	✓	✓		22.9	38.6	5.2	28.8	4.6
kasakoso	kasa	Compound	✓	✓		0	100	0	0	0
kasari	kasa	CVCVri	✓	✓		0	100	0	0	0
kashaQ	kasha	CVCVQ	✓			25.0	75.0	0	0	0
kashakasha	kasha	CVCV-CVCV	✓			0	100	0	0	0
kashan	kasha	CVCVN	✓			0	88.9	11.1	0	0
kashari	kasha	CVCVri	✓			0	100	0	0	0
kasukasu	kasu	CVCV-CVCV		✓		22.2	0	55.6	22.2	0
kata	kata	CVCV	✓			0	100	0	0	0
kataQ	kata	CVCVQ	✓			0	100	0	0	0
katakata	kata	CVCV-CVCV	✓			5.7	85.4	3.3	4.9	0.8
katakoto	kata	Compound	✓			0	26.8	40.2	27.8	5.2
katan	kata	CVCVN	✓			0	54.2	0	25.0	20.8
katankatan	kata	CVCVN-CVCVN	✓			33.3	66.7	0	0	0
katankoton	kata	Compound	✓			0	100	0	0	0
katari	kata	CVCVri	✓			0	66.7	33.3	0	0
katsuQ	katsu	CVCVQ		✓		0	0	50	0	50
katsukatsu	katsu	CVCV-CVCV		✓		2.7	48.6	27.0	18.9	2.7
katsun	katsu	CVCVN		✓		0	70	10	0	20
katsuun	katsu	CVCVVN		✓		0	100	0	0	0
kebakeba	keba	CVCV-CVCV		✓		8.2	30.9	2.7	52.7	5.5
kechokecho	kecho	CVCV-CVCV		✓		100	0	0	0	0
kechonkechon	kecho	CVCVN-CVCVN		✓		18.9	70.3	2.7	8.1	0
keen	ke	CVVN	✓			0	100	0	0	0

keQke	ke	Others	✓			0	50	0	0	50
keQkeQkeQ	ke	Others	✓			0	100	0	0	0
kerakera	kera	CVCV-CVCV	✓			9.1	81.8	0	4.5	4.5
keroQ	kero	CVCVQ	✓	✓		70	26.7	0	3.3	0
kerokero	kero	CVCV-CVCV	✓	✓		0	52.9	11.8	23.5	11.8
kerori	kero	CVCVri	✓	✓		2.8	95.8	0	1.4	0
ketaketa	keta	CVCV-CVCV	✓			0	100	0	0	0
kiQ	ki	CVQ	✓			6.2	90.2	0.1	1.7	1.8
kibikibi	kibi	CVCV-CVCV		✓		36.4	62.4	0.4	0.4	0.4
kichiQ	kichi	CVCVQ		✓		28.9	69.4	0	1.5	0.2
kichikichi	kichi	CVCV-CVCV		✓		10.3	69.0	0	20.7	0
kichin	kichi	CVCVN		✓		0.1	99.6	0.1	0.1	0.2
kichinkichin	kichi	CVCVN-CVCVN		✓		0	100	0	0	0
kiQchiri	kichi	CVCCVri		✓		10.5	87.8	0.1	0.6	0.9
kiiQ	ki	CVVQ	✓			25.0	62.5	0	0	12.5
kiikii	ki	CVV-CVV	✓			6.3	68.8	25.0	0	0
kiin	ki	CVVN	✓			4.2	90.3	4.2	0	1.4
kiQkari	kika	CVCCVri			✓	2.5	77.1	5.9	12.7	1.7
kikokiko	kiko	CVCV-CVCV	✓			0	0	0	100	0
kinkin	ki	CVN-CVN	✓			17.6	59.2	17.6	3.2	2.4
kinkira	kira	Compound		✓		18.8	25.0	43.8	12.5	0
kinkirakin	kira	Compound		✓		5.6	0	61.1	33.3	0
kiQpari	kipa	CVCCVri		✓		7.2	88.5	0	4.0	0.3
kiraQ	kira	CVCVQ		✓		7.4	90.7	0	0	1.9
kirakira	kira	CVCV-CVCV		✓		29.6	62.4	4.0	1.6	2.3
kiran	kira	CVCVN		✓		0	100	0	0	0
kirankiran	kira	CVCVN-CVCVN		✓		0	50	0	50	0
kirari	kira	CVCVri		✓		2.8	73.3	7.9	3.9	12.1
kiriQ	kiri	CVCVQ		✓		56.3	43.1	0	0	0.7

kirikiri	kiri	CVCV-CVCV		✓	19.2	72.8	6.0	2.0	0
kiriri	kiri	CVCVri		✓	0	100	0	0	0
kishiQ	kishi	CVCVQ	✓		0	100	0	0	0
kishikishi	kishi	CVCV-CVCV	✓		40	60	0	0	0
kochakocha	kocha	CVCV-CVCV		✓	0	100	0	0	0
kochikochi	kochi	CVCV-CVCV	✓	✓	1.6	54.0	20.6	22.2	1.6
kochin	kochi	CVCVN	✓	✓	0	100	0	0	0
koQchin	kochi	CVQCVN	✓	✓	100	0	0	0	0
kochinkochin	kochi	CVCVN-CVCVN	✓	✓	0	0	100	0	0
kochokocho	kocho	CVCV-CVCV		✓	33.3	54.8	7.1	2.4	2.4
kokekoQko	noroot	Others	✓		0	33.3	33.3	33.3	0
koQkoQ	ko	CVQ-CVQ	✓		0	100	0	0	0
kokuQ	koku	CVCVQ		✓	0	100	0	0	0
kokukoku	koku	CVCV-CVCV		✓	0	90.5	7.0	1.0	1.5
kokun	koku	CVCVN		✓	13.0	87.0	0	0	0
kokunkokun	koku	CVCVN-CVCVN		✓	0	100	0	0	0
kokuri	koku	CVCVri		✓	0	100	0	0	0
koQkuri	koku	CVCCVri		✓	26.2	68.9	1.6	0	3.3
koQkurikoQkuri	koku	Others		✓	36.4	63.6	0	0	0
konagona	kona	CVCV-CVCV		✓	10.4	68.7	0	20.9	0
konchikichin	noroot	Others	✓		7.1	71.4	21.4	0	0
kongari	koga	CVCCVri		✓	3.8	94.7	0.8	0.8	0
konkon	ko	CVN-CVN	✓		4.1	75.1	6.5	3.0	11.2
konmori	komo	CVCCVri		✓	17.7	79.2	0	0.8	2.3
koriQ	kori	CVCVQ	✓		30	70	0	0	0
korikori	kori	CVCV-CVCV	✓		29.1	58.3	7.1	3.9	1.6
koroQ	koro	CVCVQ		✓	4.5	94.7	0	0.8	0
korokoro	koro	CVCV-CVCV		✓	7.2	83.7	2.3	2.6	4.3

koron	koro	CVCVN		✓	0.7	37.1	17.1	22.5	22.5
koronkoron	koro	CVCVN-CVCVN		✓	0	100	0	0	0
korori	koro	CVCVri		✓	0	84.9	8.6	2.2	4.3
kororikorori	koro	CVCVri-CVCVri		✓	0	100	0	0	0
kosekose	kose	CVCV-CVCV		✓	65.2	30.4	0	0	4.3
kosoQ	koso	CVCVQ		✓	0	100	0	0	0
kosokoso	koso	CVCV-CVCV		✓	17.9	81.0	0	0	1.1
koQsori	koso	CVCCVri		✓	2.3	95.4	1.2	0.8	0.3
kotekote	kote	CVCV-CVCV		✓	7.5	26.7	56.2	8.2	1.4
koten	kote	CVCVN		✓	7.1	92.9	0	0	0
kotenkoten	kote	CVCVN-CVCVN		✓	16.7	50	33.3	0	0
kotenpan	kote	Others		✓	47.3	41.8	1.8	9.1	0
koQteri	kote	CVCCVri		✓	27.8	56.8	5.4	6.2	3.7
kotoQ	koto	CVCVQ	✓		0	100	0	0	0
kotokoto	koto	CVCV-CVCV	✓		12.1	86.8	0	0	1.1
koton	koto	CVCVN	✓		2.8	77.8	2.8	8.3	8.3
kotori	koto	CVCVri	✓		0	100	0	0	0
kotsuQ	kotsu	CVCVQ	✓	✓	0	100	0	0	0
kotsukotsu	kotsu	CVCV-CVCV	✓	✓	7.6	90.7	0.1	0.5	1.1
kotsun	kotsu	CVCVN	✓	✓	5.9	88.2	5.9	0	0
koQtsun	kotsu	CVQCVN	✓	✓	0	100	0	0	0
kotsunkotsun	kotsu	CVCVN-CVCVN	✓	✓	0	100	0	0	0
kotsuri	kotsu	CVCVri	✓	✓	0	100	0	0	0
kuchaQ	kucha	CVCVQ		✓	100	0	0	0	0
kuchakucha	kucha	CVCV-CVCV		✓	11.9	61.0	6.8	20.3	0
kudakuda	kuda	CVCV-CVCV		✓	31.8	68.2	0	0	0
kudokudo	kudo	CVCV-CVCV		✓	7.1	91.7	0	0	1.2
kuQkiri	kuki	CVCCVri		✓	13.9	81.7	0.5	1.5	2.4
kuQku	ku	Others	✓		0	87.5	0	0	12.5

kuQkuQ	ku	CVQ-CVQ	✓			5.3	94.7	0	0	0
kukukuQ	ku	Others	✓			0	100	0	0	0
kunekune	kune	CVCV-CVCV		✓		26.7	65.6	4.5	2.0	1.2
kunkun	ku	CVN-CVN	✓			17.1	80.5	0	2.4	0
kunyaQ	kunya	CVCVQ		✓		20	80	0	0	0
kunyakunya	kunya	CVCV-CVCV		✓		44.4	33.3	22.2	0	0
kunyan	kunya	CVCVN		✓		0	100	0	0	0
kuraQ	kura	CVCVQ			✓	53.6	46.4	0	0	0
kurakura	kura	CVCV-CVCV			✓	77.6	16.3	0.5	3.6	1.9
kuriQ	kuri	CVCVQ		✓		86.4	13.6	0	0	0
kurikuri	kuri	CVCV-CVCV		✓		44.1	41.2	10.3	4.4	0
kuruQ	kuru	CVCVQ		✓		4.8	95.2	0	0	0
kurukuru	kuru	CVCV-CVCV		✓		8.8	86.7	1.7	1.4	1.4
kurun	kuru	CVCVN		✓		0	100	0	0	0
kururi	kuru	CVCVri		✓		0.9	76.6	14.5	3.0	5.1
kusakusa	kusa	CVCV-CVCV		✓	✓	94.7	5.3	0	0	0
kushaQ	kusha	CVCVQ		✓		20	80	0	0	0
kushakusha	kusha	CVCV-CVCV		✓		32.9	26.6	15.6	24.9	0
kusuQ	kusu	CVCVQ	✓			3.5	95.3	0	0	1.2
kusukusu	kusu	CVCV-CVCV	✓			1.3	96.9	0.9	0.4	0.4
kusuri	kusu	CVCVri	✓			0	100	0	0	0
kutaQ	kuta	CVCVQ		✓		66.7	33.3	0	0	0
kutakuta	kuta	CVCV-CVCV		✓		5.7	21.9	9.1	63.0	0.3
kutari	kuta	CVCVri		✓		0	100	0	0	0
kutsukutsu	kutsu	CVCV-CVCV	✓			13.3	86.7	0	0	0
kuukuu	ku	CVV-CVV	✓			0	100	0	0	0
kuwaQ	kuwa	CVCVQ		✓		0	100	0	0	0

kuyokuyo	kuyo	CVCV-CVCV			✓	69.0	28.9	0.4	0.4	1.4
kyaQ	kya	CVQ	✓			0	100	0	0	0
kyaa(Q)	kya	CVVQ	✓			6.2	79.4	1.0	10.3	3.1
kyaakyaa	kya	CVV-CVV	✓			2.3	94.7	1.5	0	1.5
kyaQkyaQ	kya	CVQ-CVQ	✓			5.6	94.4	0	0	0
kyan	kya	CVN	✓			0	56.3	0	18.8	25.0
kyankyan	kya	CVN-CVN	✓			3.9	90.2	3.9	2.0	0
kyapikyapi	kyapi	CVCV-CVCV		✓		38.9	27.8	22.2	0	11.1
kyorokyoro	kyoro	CVCV-CVCV		✓		51.6	45.6	0.3	2.3	0.3
kyotokyoto	kyoto	CVCV-CVCV		✓		54.5	45.5	0	0	0
kyoton	kyoto	CVCVN		✓		1.3	97.8	0	0.9	0
kyuQ	kyu	CVQ	✓	✓		14.0	83.7	0	1.7	0.6
kyuQkyuQ	kyu	CVQ-CVQ	✓	✓		0	93.8	6.3	0	0
kyun	kyu	CVN	✓	✓		7.9	89.5	1.8	0.9	0
kyunkyun	kyu	CVN-CVN	✓	✓		33.3	61.9	0	4.8	0
kyuuQ	kyu	CVVQ	✓	✓		28.6	64.3	0	0	7.1
kyuukyuu	kyu	CVV-CVV	✓	✓		12.8	78.7	2.1	6.4	0
kyuun	kyu	CVVN	✓	✓		3.3	90	6.7	0	0
machimachi	machi	CVCV-CVCV		✓		4.5	6.6	12.4	76.0	0.4
magomago	mago	CVCV-CVCV			✓	81.8	9.1	4.5	0	4.5
majimaji	maji	CVCV-CVCV		✓		0	99.5	0	0.5	0
manjiri	maji	CVCCVri		✓		0	100	0	0	0
manma	mama	CVNCV		✓		1.7	51.2	16.0	25.7	5.4
manzara	maza	CVCCV-Ca		✓		0	50.4	0.8	48.5	0.4
marumaru	maru	CVCV-CVCV		✓		0.9	94.1	1.2	0.3	3.5

masumasu	masu	CVCV-CVCV		✓		0.3	95.0	3.7	0	0.9
maQtari	mata	CVCCVri		✓		32.9	58.4	2.2	4.5	1.9
mazamaza	maza	CVCV-CVCV		✓		0	100	0	0	0
mechakucha	mecha	Compound		✓		7.9	58.4	12.5	20	1.1
mechamecha	mecha	CVCV-CVCV		✓		4.2	83.3	3.6	8.6	0.4
meemee	me	CVV-CVV		✓		0	100	0	0	0
mekimeki	meki	CVCV-CVCV		✓		1.0	96.9	0	1.0	1.0
meQkiri	meki	CVCCVri		✓		0.8	98.7	0.3	0.3	0
meramera	mera	CVCV-CVCV		✓		5.1	85.9	4.0	4.0	1.0
meriQ	meri	CVCVQ	✓			0	50	0	50	0
merimeri	meri	CVCV-CVCV	✓			11.8	76.5	0	0	11.8
meromero	mero	CVCV-CVCV			✓	16.2	18.2	16.2	49.0	0.5
mesomeso	meso	CVCV-CVCV		✓		64.8	29.7	0	3.3	2.2
meQta	meta	CVQCV		✓		1.2	86.1	10.5	0.7	1.4
metameta	meta	CVCV-CVCV		✓		0	66.7	0	33.3	0
miQchiri	michi	CVCCVri		✓		15.6	81.8	0	2.2	0.4
miinmiin	mi	CVVN-CVVN	✓			0	100	0	0	0
mishiQ	mishi	CVCVQ	✓			0	83.3	16.7	0	0
mishimishi	mishi	CVCV-CVCV	✓			0	100	0	0	0
mishiri	mishi	CVCVri	✓			0	50	16.7	25.0	8.3
miQshiri	mishi	CVCCVri	✓			11.8	82.4	0	5.9	0
mishirimishiri	mishi	CVCVri-CVCVri	✓			0	100	0	0	0
mogomogo	mogo	CVCV-CVCV	✓			33.3	60.8	0	3.9	2.0
mogumogu	mogu	CVCV-CVCV		✓		31.6	56.4	0.8	7.5	3.8
mojamoja	moja	CVCV-CVCV		✓		20.5	24.7	27.4	20.5	6.8

mojimoji	moji	CVCV-CVCV			✓	75.9	19.9	0	0.7	3.5
mokomoko	moko	CVCV-CVCV		✓		29.8	42.1	12.3	14.0	1.8
moQkori	moko	CVCCVri		✓		27.8	27.8	11.1	13.9	19.4
mokumoku	moku	CVCV-CVCV		✓		4.3	81.4	5.0	5.0	4.3
momimomi	momi	CVCV-CVCV		✓		33.3	50	0	16.7	0
moomoo	mo	CVV-CVV	✓			2.2	80.4	6.5	2.2	8.7
morimori	mori	CVCV-CVCV		✓		1.4	69.8	7.5	15.6	5.7
mosaQ	mosa	CVCVQ		✓		100	0	0	0	0
mosamosa	mosa	CVCV-CVCV		✓		38.5	34.6	7.7	19.2	0
moQsari	mosa	CVCCVri		✓		45.7	44.4	3.7	3.7	2.5
moshamosha	mosha	CVCV-CVCV		✓		21.1	68.4	5.3	5.3	0
mosoQ	moso	CVCVQ	✓			15.0	85.0	0	0	0
mosomoso	moso	CVCV-CVCV	✓			18.5	80	0	1.5	0
motamota	mota	CVCV-CVCV		✓		86.2	12.3	0	1.0	0.5
mowaQ	mowa	CVCVQ		✓		45.5	54.5	0	0	0
mowaaQ	mowa	CVCVVQ		✓		66.7	33.3	0	0	0
mowamowa	mowa	CVCV-CVCV		✓		60	20	20	0	0
moyaQ	moya	CVCVQ		✓	✓	41.7	50	0	0	8.3
moyamoya	moya	CVCV-CVCV		✓	✓	41.4	28.8	2.0	2.2	25.5
mozomozo	mozo	CVCV-CVCV		✓		32.9	62.9	0	2.9	1.4
muQ	mu	CVQ		✓		85.3	14.1	0	0.4	0.2
muchiQ	muchi	CVCVQ		✓		50	50	0	0	0
muchimuchi	muchi	CVCV-CVCV		✓		14.3	28.6	14.3	42.9	0
muQchiri	muchi	CVCCVri		✓		37.0	61.1	1.9	0	0
mukaQ	muka	CVCVQ			✓	51.2	41.5	0	0	7.3
mukamuka	musu	CVCV-CVCV			✓	71.2	9.4	3.1	5.8	10.5

mukuQ	muku	CVCVQ		✓		0	100	0	0	0
mukumuku	muku	CVCV-CVCV		✓		5.3	91.5	1.1	1.1	1.1
muQkuri	muku	CVCCVri		✓		8.2	71.4	12.2	4.1	4.1
munmun	mu	CVN-CVN		✓		26.4	21.6	21.6	30.4	0
munyamunya	munya	CVCV-CVCV	✓			18.6	72.1	0	4.7	4.7
munzu	muzu	CVNCV			✓	0	100	0	0	0
muramura	mura	CVCV-CVCV			✓	37.1	55.6	1.6	4.0	1.6
mushakusha	musha	Compound		✓	✓	98.1	0	0	0	1.9
mushamusha	musha	CVCV-CVCV		✓	✓	12.7	85.3	0	1.0	1.0
musuQ	musu	CVCVQ			✓	82.8	17.2	0	0	0
mutsuQ	mutsu	CVCVQ			✓	100	0	0	0	0
muQtsuri	mutsu	CVCCVri			✓	32.9	62.4	2.4	1.2	1.2
muuQ	mu	CVVQ		✓		66.7	33.3	0	0	0
muzu	muzu	CVCV			✓	6.3	56.3	0	31.3	6.3
muzumuzu	muzu	CVCV-CVCV			✓	70.7	22.2	0.6	0.6	6.0
naminami	nami	CVCV-CVCV		✓		3.2	77.4	9.7	9.7	0
nayonayo	nayo	CVCV-CVCV		✓		58.0	40	2.0	0	0
nebaneba	neba	CVCV-CVCV		✓		40.4	32.1	8.3	5.5	13.8
nechanecha	necha	CVCV-CVCV		✓		80	20	0	0	0
nechiQ	nechi	CVCVQ		✓		75.0	25.0	0	0	0
nechinechi	nechi	CVCV-CVCV		✓		19.1	77.9	1.5	1.5	0
neQchiri	nechi	CVCCVri		✓		33.3	55.6	11.1	0	0
netoQ	neto	CVCVQ		✓		50	50	0	0	0
netoneto	neto	CVCV-CVCV		✓		33.3	53.3	6.7	6.7	0
neQtori	neto	CVCCVri		✓		22.4	77.6	0	0	0
niQ	ni	CVQ		✓		5.7	92.5	0	0	1.9
nichanicha	nicha	CVCV-CVCV		✓		50	50	0	0	0
niiQ	ni	CVVQ		✓		12.5	87.5	0	0	0

nikoQ	niko	CVCVQ	✓		16.8	77.6	1.4	3.5	0.7
nikoniko	niko	CVCV-CVCV	✓		46.6	41.2	7.7	3.9	0.6
nikori	niko	CVCVri	✓		2.4	95.2	0	1.6	0.8
niQkori	niko	CVCCVri	✓		21.8	73.4	0.9	3.8	0.1
ninmari	nima	CVCCVri	✓		44.1	41.4	2.2	10.8	1.6
nitaQ	nita	CVCVQ	✓		0	100	0	0	0
nitanita	nita	CVCV-CVCV	✓		45.8	54.2	0	0	0
nitari	nita	CVCVri	✓		10.5	86.8	2.6	0	0
niyaQ	niya	CVCVQ	✓		20.8	77.5	0.8	0	0.8
niyaaQ	niya	CVCVVQ	✓		0	100	0	0	0
niyaniya	niya	CVCV-CVCV	✓		61.9	33.7	0.7	2.4	1.3
niyari	niya	CVCVri	✓		3.9	92.6	0.2	3.0	0.3
nobinobi	nobi	CVCV-CVCV	✓		16.2	76.5	0.2	6.7	0.4
nohohon	noho	Others		✓	3.3	85.9	7.6	1.1	2.2
nokonoko	noko	CVCV-CVCV	✓		7.5	90	0	2.0	0.5
nonbendarari	nobe	Compound	✓		0	56.3	18.8	25.0	0
nonbiri	nobi	CVCCVri	✓		32.1	61.5	1.0	4.5	1.0
noonoo	no	CVV-CVV	✓		0	100	0	0	0
noQpera	nope	CVCCV-Ca	✓		0	100	0	0	0
noQperi	nope	CVCCVri	✓		50.6	49.4	0	0	0
norakura	nora	Compound	✓		38.5	53.8	7.7	0	0
norarikurari	nora	Compound	✓		14.7	75.2	4.6	4.6	0.9
noronoro	noro	CVCV-CVCV	✓		11.8	84.5	0.6	2.2	0.9
norori	noro	CVCVri	✓		0	100	0	0	0
noshinoshi	noshi	CVCV-CVCV	✓		0	100	0	0	0
noQshinoQshi	noshi	CVQCV-CVQCV	✓		0	100	0	0	0
nosoQ	noso	CVCVQ	✓		0	100	0	0	0
nosonoso	noso	CVCV-CVCV	✓		3.9	92.2	2.0	2.0	0
nosori	noso	CVCVri	✓		0	100	0	0	0
noQsori	noso	CVCCVri	✓		2.1	91.5	6.4	0	0

nosorinosori	noso	CVCVri-CVCVri		✓		0	100	0	0	0
notanota	nota	CVCV-CVCV		✓		33.3	66.7	0	0	0
noQtari	nota	CVCCVri		✓		33.3	55.6	0	0	11.1
notarinotari	nota	CVCVri-CVCVri		✓		11.1	77.8	11.1	0	0
nukenuke	nuke	CVCV-CVCV		✓		0	100	0	0	0
nukunuku	nuku	CVCV-CVCV		✓	✓	21.6	70.7	4.8	1.2	1.8
numeQ	nume	CVCVQ		✓		66.7	25.0	0	0	8.3
numenume	nume	CVCV-CVCV		✓		42.4	51.5	3.0	0	3.0
nuranura	nura	CVCV-CVCV		✓		36.4	54.5	0	9.1	0
nurari	nura	CVCVri		✓		0	100	0	0	0
nurarikurari	nura	Compound		✓		0	66.7	33.3	0	0
nuruQ	nuru	CVCVQ		✓		73.3	26.7	0	0	0
nurunuru	nuru	CVCV-CVCV		✓		39.8	34.0	8.4	11.5	6.3
nururi	nuru	CVCVri		✓		0	92.9	0	7.1	0
nuuQ	nu	CVVQ		✓		0	96.8	1.6	1.6	0
nyaa	nya	CVV	✓			4.5	88.1	0	4.5	3.0
nyaanyaa	nya	CVV-CVV	✓			5.9	82.4	5.9	5.9	0
nyokiQ	nyoki	CVCVQ		✓		0	100	0	0	0
nyokinyoki	nyoki	CVCV-CVCV		✓		4.0	89.3	0	4.0	2.7
nyoQkiri	nyoki	CVCCVri		✓		20	80	0	0	0
nyoroQ	nyoro	CVCVQ		✓		0	0	100	0	0
nyoronyoro	nyoro	CVCV-CVCV		✓		21.4	57.1	7.1	3.6	10.7
nyorori	nyoro	CVCVri		✓		0	100	0	0	0
nyuQ	nyu	CVQ		✓		0	100	0	0	0
nyuruQ	nyuru	CVCVQ		✓		0	100	0	0	0
nyurunyuru	nyuru	CVCV-CVCV		✓		25.0	25.0	0	25.0	25.0
nyururi	nyuru	CVCVri		✓		0	100	0	0	0
nyuuQ	nyu	CVVQ		✓		0	100	0	0	0

ochiochi	ochi	CVCV-CVCV			✓	6.3	90	0	3.8	0
odoodo	odo	CVCV-CVCV			✓	78.5	20.5	0	0	0.9
ogyaa	ogya	Others	✓			4.7	86.0	2.3	4.7	2.3
ogyaaogyaa	ogya	Others	✓			0	100	0	0	0
ohoho	oho	Others	✓			17.6	52.9	0	23.5	5.9
ohon	oho	Others	✓			0	75.0	0	25.0	0
oioi	oi	CVCV-CVCV	✓			5.6	86.3	0	7.8	0.3
omeome	ome	CVCV-CVCV		✓		0	76.1	2.2	4.3	17.4
onon	o	CVN-CVN	✓			0	100	0	0	0
orooro	oro	CVCV-CVCV			✓	73.4	22.0	1.2	3.1	0.4
otaota	ota	CVCV-CVCV			✓	87.0	6.5	2.2	4.3	0
oQtori	oto	CVCCVri		✓		47.4	49.4	1.2	0.8	1.2
ozuozu	ozu	CVCV-CVCV			✓	4.6	94.8	0	0.5	0
paQ	pa	CVQ	✓	✓		22.7	76.2	0.1	0.3	0.8
paa	pa	CVV	✓	✓		3.0	73.7	2.2	17.2	3.9
paaQ	pa	CVVQ	✓	✓		7.2	91.3	0	0	1.4
paan	pa	CVVN	✓	✓		5.0	85.0	5.0	0	5.0
pachan	pacha	CVCVN	✓			0	100	0	0	0
pachapacha	pacha	CVCV-CVCV	✓			0	100	0	0	0
pachiQ	pachi	CVCVQ	✓	✓		7.4	85.2	0	0	7.4
pachikuri	pachi	Compound	✓	✓		89.6	10.4	0	0	0
pachin	pachi	CVCVN	✓	✓		17.2	82.8	0	0	0
pachipachi	pachi	CVCV-CVCV	✓	✓		19.0	69.8	0.4	6.2	4.7
pachiri	pachi	CVCVri	✓	✓		46.2	53.8	0	0	0
paQchiri	pachi	CVCCVri	✓	✓		26.7	61.4	2.0	9.9	0
pakaQ	paka	CVCVQ	✓	✓		0	75.0	0	0	25.0
pakapaka	paka	CVCV-CVCV	✓	✓		17.2	79.3	3.4	0	0
paQkapaQka	paka	CVQCV-CVQCV	✓	✓		0	100	0	0	0
pakiQ	paki	CVCVQ	✓			16.7	83.3	0	0	0

pakin	paki	CVCVN	✓		0	100	0	0	0
pakipaki	paki	CVCV-CVCV	✓		38.9	44.4	5.6	11.1	0
pakuQ	paku	CVCVQ		✓	9.3	77.8	1.9	5.6	5.6
paQkun	paku	CVQCVN		✓	0	100	0	0	0
pakupaku	paku	CVCV-CVCV		✓	31.4	62.4	0	4.9	1.2
pakuri	paku	CVCVri		✓	11.1	38.9	6.7	27.8	15.6
paQkuri	paku	CVCCVri		✓	1.7	98.3	0	0	0
panpan	pa	CVN-CVN	✓	✓	5.1	46.2	7.8	36.9	3.9
paQpa	pa	Others	✓	✓	5.9	94.1	0	0	0
paQpaQ	pa	CVQ-CVQ	✓	✓	0	100	0	0	0
paraQ	para	CVCVQ	✓		7.7	69.2	0	0	23.1
parapara	para	CVCV-CVCV	✓		5.1	87.3	2.9	1.7	2.9
parari	para	CVCVri	✓		0	93.3	6.7	0	0
pariQ	pari	CVCVQ	✓		57.8	37.1	0	1.7	3.4
parin	pari	CVCVN	✓		0	100	0	0	0
paripari	pari	CVCV-CVCV	✓		12.6	52.2	14.5	19.5	1.3
pasaQ	pasa	CVCVQ		✓	0	100	0	0	0
pasapasa	pasa	CVCV-CVCV		✓	44.1	17.4	8.7	28.6	1.2
pasari	pasa	CVCVri		✓	0	100	0	0	0
pasaripasari	pasa	CVCVri-CVCVri		✓	0	100	0	0	0
pashaQ	pasha	CVCVQ	✓		0	100	0	0	0
pashapasha	pasha	CVCV-CVCV	✓		16.3	83.7	0	0	0
pashari	pasha	CVCVri	✓		66.7	28.6	0	4.8	0
pashiQ	pashi	CVCVQ	✓		0	100	0	0	0
pashin	pashi	CVCVN	✓		0	100	0	0	0
pashipashi	pashi	CVCV-CVCV	✓		100	0	0	0	0
pashiri	pashi	CVCVri	✓		0	83.3	0	16.7	0
pataQ	pata	CVCVQ	✓	✓	0	97.1	0	2.9	0
patan	pata	CVCVN	✓	✓	0	43.7	17.6	7.0	31.7
patanpatan	pata	CVCVN-CVCVN	✓	✓	0	100	0	0	0

patapata	pata	CVCV-CVCV	✓	✓	24.0	72.0	0.7	2.7	0.7
patari	pata	CVCVri	✓	✓	0	100	0	0	0
paQtari	pata	CVCCVri	✓	✓	6.0	94.0	0	0	0
peQ	pe	CVQ	✓		6.1	87.9	0	0	6.1
pechaQ	pecha	CVCVQ		✓	0	100	0	0	0
pechakucha	pecha	Compound		✓	23.1	71.8	0	5.1	0
pechanko	pecha	Others		✓	12.0	16.0	16.0	56.0	0
pechapecha	pecha	CVCV-CVCV		✓	25.0	75.0	0	0	0
pekapeka	peka	CVCV-CVCV		✓	0	75.0	25.0	0	0
pekoQ	peko	CVCVQ	✓	✓	0	85.0	0	5.0	10
pekon	peko	CVCVN	✓	✓	0	100	0	0	0
pekopeko	peko	CVCV-CVCV	✓	✓	31.4	42.0	5.3	20.1	1.2
pekori	peko	CVCVri	✓	✓	2.8	57.9	0	39.3	0
penpen	pe	CVN-CVN	✓		11.1	83.3	5.6	0	0
peQpeQ	pe	CVQ-CVQ	✓		0	100	0	0	0
peraQ	pera	CVCVQ		✓	33.3	66.7	0	0	0
perapera	pera	CVCV-CVCV		✓	10.7	38.7	19.6	29.8	1.1
periQ	peri	CVCVQ	✓		0	100	0	0	0
periperi	peri	CVCV-CVCV	✓		0	100	0	0	0
peroQ	pero	CVCVQ		✓	4.3	93.5	0	0	2.2
peron	pero	CVCVN		✓	0	100	0	0	0
peropero	pero	CVCV-CVCV		✓	13.5	83.8	0	2.7	0
perori	pero	CVCVri		✓	15.4	76.9	0	5.8	1.9
peshan	pesha	CVCVN		✓	0	100	0	0	0
peshanko	pesha	Others		✓	6.1	18.4	12.2	63.3	0
peshapesha	pesha	CVCV-CVCV		✓	0	100	0	0	0
peshari	pesha	CVCVri		✓	0	100	0	0	0
petaQ	peta	CVCVQ		✓	27.8	72.2	0	0	0
petan	peta	CVCVN		✓	0	100	0	0	0
peQtan	peta	CVQCVN		✓	50	50	0	0	0
peQtanko	peta	Others		✓	6.5	28.3	28.3	37.0	0

peQtanpeQtan	peta	CVQCVN-CVQCVN		✓	20	80	0	0	0
petapeta	peta	CVCV-CVCV		✓	12.4	81.9	0	3.8	1.9
petari	peta	CVCVri		✓	17.4	82.6	0	0	0
peQtari	peta	CVCCVri		✓	19.0	81.0	0	0	0
piQ	pi	CVQ	✓	✓	15.1	83.7	0	1.2	0
pichaQ	picha	CVCVQ	✓		50	50	0	0	0
pichan	picha	CVCVN	✓		0	100	0	0	0
pichapicha	picha	CVCV-CVCV	✓		4.0	92.0	0	0	4.0
pichari	picha	CVCVri	✓		0	100	0	0	0
pichiQ	pichi	CVCVQ		✓	40	55.0	0	0	5.0
pichipichi	pichi	CVCV-CVCV		✓	20.6	27.7	31.9	17.7	2.1
piQchiri	pichi	CVCCVri		✓	30.2	66.0	1.9	1.9	0
piiQ	pi	CVVQ	✓	✓	0	92.9	0	7.1	0
piichiku	noroot	Others	✓		0	100	0	0	0
piichikupaachiku	noroot	Others	✓		16.7	83.3	0	0	0
piihyara	noroot	Others	✓		0	60	20	20	0
piihyarara	noroot	Others	✓		0	0	0	0	100
piihyororo	noroot	Compound	✓		0	100	0	0	0
piin	pi	CVVN	✓	✓	1.5	98.5	0	0	0
piinpoon	noroot	Others	✓		0	100	0	0	0
piipii	pi	CVV-CVV	✓	✓	5.4	82.8	6.5	1.1	4.3
piipoopiipoo	noroot	Others	✓		0	100	0	0	0
pikaQ	pika	CVCVQ		✓	2.1	97.9	0	0	0
pikaaQ	pika	CVCVVQ		✓	50	50	0	0	0
pikan	pika	CVCVN		✓	0	100	0	0	0
pikapika	pika	CVCV-CVCV		✓	13.0	38.1	29.9	17.3	1.7
pikari	pika	CVCVri		✓	0	100	0	0	0
pikipiki	piki	CVCV-CVCV	✓		25.0	75.0	0	0	0
pikuQ	piku	CVCVQ		✓	30	60	0	0	10
pikun	piku	CVCVN		✓	0	100	0	0	0
pikunpikun	piku	CVCVN-CVCVN		✓	0	100	0	0	0

pikupiku	piku	CVCV-CVCV		✓		44.9	52.2	1.5	0	1.5
pikuri	piku	CVCVri		✓		0	99.4	0	0	0.6
pin	pi	CVN	✓	✓		0.4	82.9	2.1	4.3	10.2
pinpin	pi	CVN-CVN	✓	✓		59.6	24.0	6.8	2.7	6.8
pinpo(o)n	noroot	Others	✓			3.1	45.9	15.3	12.2	23.5
pinshan	pisha	CVCVVN	✓			100	0	0	0	0
piQpiQ	pi	CVQ-CVQ	✓	✓		25.0	75.0	0	0	0
pirapira	pira	CVCV-CVCV		✓		11.8	41.2	41.2	0	5.9
piriQ	piri	CVCVQ			✓	56.4	41.7	0	0.6	1.3
piripiri	piri	CVCV-CVCV			✓	69.6	28.0	0.3	0.9	1.2
piriri	piri	CVCVri			✓	0	93.6	2.1	4.3	0
pishaQ	pisha	CVCVQ	✓			8.3	91.7	0	0	0
pishan	pisha	CVCVN	✓			0	100	0	0	0
pishapisha	pisha	CVCV-CVCV	✓			0	100	0	0	0
pishari	pisha	CVCVri	✓			4.2	85.6	4.2	5.9	0
pishiQ	pishi	CVCVQ	✓	✓		26.9	69.4	0	1.5	2.2
pishipishi	pishi	CVCV-CVCV	✓	✓		18.8	68.8	0	0	12.5
pishiri	pishi	CVCVri	✓	✓		2.6	97.4	0	0	0
pitaQ	pita	CVCVQ		✓		5.1	88.9	0	0	6.0
pitapita	pita	CVCV-CVCV		✓		4.3	73.9	17.4	4.3	0
pitari	pita	CVCVri		✓		1.1	94.8	1.8	1.8	0.4
piQtari	pita	CVCCVri		✓		9.0	34.2	28.8	26.4	1.5
pitaripitari	pita	CVCVri-CVCVri		✓		0	100	0	0	0
piyopiyo	piyo	CVCV-CVCV	✓			4.3	65.2	17.4	8.7	4.3
poQ	po	CVQ	✓	✓		2.9	90.1	3.5	1.2	2.3
pochaQ	pocha	CVCVQ	✓	✓		50	50	0	0	0
pochan	pocha	CVCVN	✓	✓		0	60	10	10	20
pochapocha	pocha	CVCV-CVCV	✓	✓		12.5	62.5	0	25.0	0
pochari	pocha	CVCVri	✓	✓		0	100	0	0	0
poQchari	pocha	CVCCVri	✓	✓		34.2	52.1	0	5.5	8.2

pochiQ	pochi	CVCVQ		✓		27.8	71.0	0	0	1.2
pochipochi	pochi	CVCV-CVCV		✓		20	60	0	0	20
poQchiri	pochi	CVCCVri		✓		0	75.0	12.5	12.5	0
poi(Q)	po	CViQ	✓	✓		18.3	76.8	0	4.2	0.7
poipoi	po	CVi-CVi	✓	✓		0	100	0	0	0
pokaQ	poka	CVCVQ		✓	✓	0	100	0	0	0
pokan	poka	CVCVN		✓	✓	0.6	98.8	0	0	0.6
pokapoka	poka	CVCV-CVCV		✓	✓	24.5	65.0	3.0	6.9	0.6
pokari	poka	CVCVri		✓	✓	11.1	66.7	5.6	0	16.7
poQkari	poka	CVCCVri		✓	✓	0.9	98.6	0	0.3	0.3
pokiQ	poki	CVCVQ	✓	✓		0	100	0	0	0
pokin	chara	CVCVN	✓	✓		0	100	0	0	0
pokipoki	poki	CVCV-CVCV	✓	✓		17.2	79.3	0	3.4	0
pokiri	poki	CVCVri	✓	✓		0	100	0	0	0
poQkiri	poki	CVCCVri	✓	✓		9.3	60	12.0	17.3	1.3
pokoQ	poko	CVCVQ		✓		0	100	0	0	0
pokon	poko	CVCVN		✓		0	100	0	0	0
pokopoko	poko	CVCV-CVCV		✓		13.5	78.4	2.7	2.7	2.7
pokori	poko	CVCVri		✓		0	100	0	0	0
poQkori	poko	CVCCVri		✓		15.0	57.5	5.0	7.5	15.0
pokupoku	poku	CVCV-CVCV	✓	✓		40	60	0	0	0
poQkuri	poku	CVCCVri	✓	✓		3.7	86.6	4.9	1.2	3.7
pon	po	CVN	✓	✓		3.9	79.3	7.7	2.5	6.7
ponpon	po	CVN-CVN	✓	✓		3.8	86.5	1.9	3.1	4.7
pooQ	po	CVVQ	✓	✓		34.4	65.6	0	0	0
poopoo	po	CVV-CVV	✓	✓		0	100	0	0	0
poQpo	po	Others	✓	✓		1.7	51.7	20.7	8.6	17.2
poQpoQ	po	CVQ-CVQ	✓	✓		0	83.3	0	0	16.7
poriQ	pori	CVCVQ	✓			0	100	0	0	0
poripori	pori	CVCV-CVCV	✓			14.3	66.7	0	14.3	4.8
poroQ	poro	CVCVQ		✓		0	95.8	0	0	4.2

poron	poro	CVCVN		✓	0	100	0	0	0
poronporon	poro	CVCVN-CVCVN		✓	0	100	0	0	0
poroporo	poro	CVCV-CVCV		✓	6.2	79.6	5.3	7.5	1.3
porori	poro	CVCVri		✓	9.9	71.1	3.3	3.3	12.4
poshaQ	posha	CVCVQ	✓		37.5	50	0	0	12.5
poshari	posha	CVCVri	✓		0	0	0	100	0
posoQ	poso	CVCVQ	✓	✓	0	100	0	0	0
potaQ	pota	CVCVQ	✓		0	100	0	0	0
potan	pota	CVCVN	✓		0	100	0	0	0
potapota	pota	CVCV-CVCV	✓		8.2	90.8	0	0	1.0
potari	pota	CVCVri	✓		0	100	0	0	0
potaripotari	pota	CVCVri-CVCVri	✓		0	100	0	0	0
poteQ	pote	CVCVQ	✓		33.3	66.7	0	0	0
potepote	pote	CVCV-CVCV	✓		0	100	0	0	0
poQteri	pote	CVCCVri	✓		10	90	0	0	0
potoQ	poto	CVCVQ	✓		0	100	0	0	0
poton	poto	CVCVN	✓		0	100	0	0	0
potonpoton	poto	CVCVN-CVCVN	✓		0	100	0	0	0
potopoto	poto	CVCV-CVCV	✓		5.6	94.4	0	0	0
potori	poto	CVCVri	✓		9.3	90.7	0	0	0
potsuQ	potsu	CVCVQ		✓	0	75.0	0	0	25.0
potsun	potsu	CVCVN		✓	1.0	98.6	0	0.2	0.2
potsunen	potsu	Others		✓	2.5	97.5	0	0	0
potsunpotsun	potsu	CVCVN-CVCVN		✓	0	100	0	0	0
potsupotsu	potsu	CVCV-CVCV		✓	3.9	91.4	0	0.8	3.9
potsuri	potsu	CVCVri		✓	4.9	93.8	0	1.0	0.3
poQtsuri	potsu	CVCCVri		✓	0	100	0	0	0
potsuripotsuri	potsu	CVCVri-CVCVri		✓	3.4	93.3	0.8	2.5	0
puQ	pu	CVQ	✓	✓	4.5	86.5	1.1	2.2	5.6
puchin	puchi	CVCVri	✓		9.1	90.9	0	0	0

puchipuchi	puchi	CVCV-CVCV	✓			6.6	37.7	4.9	24.6	26.2
pui(Q)	pu	CViQ	✓	✓		2.4	91.5	0	3.7	2.4
pukaaQ	puka	CVCVVQ		✓		0	100	0	0	0
pukapuka	puka	CVCV-CVCV		✓		12.7	83.6	0.9	0.9	1.8
pukari	puka	CVCVri		✓		0	100	0	0	0
puQkari	puku	CVCCVri		✓		0	100	0	0	0
pukuQ	puku	CVCVQ		✓		20	40	0	0	40
pukun	puku	CVCVN		✓		0	100	0	0	0
pukupuku	puku	CVCV-CVCV		✓		35.9	30.8	7.7	20.5	5.1
puQkuri	puku	CVCCVri		✓		42.1	50.9	1.8	1.8	3.5
pukuuQ	puku	CVCVVQ		✓		0	100	0	0	0
pun	pu	CVN	✓	✓		3.1	84.4	0	6.3	6.3
punipuni	puni	CVCV-CVCV		✓		52.6	21.1	15.8	10.5	0
punpun	pu	CVN-CVN	✓	✓		57.0	28.5	3.5	10.1	0.9
puQpuQ	pu	CVQ-CVQ	✓	✓		66.7	33.3	0	0	0
puraQ	pura	CVCVQ		✓		0	100	0	0	0
purapura	pura	CVCV-CVCV		✓		54.5	45.5	0	0	0
purari	pura	CVCVri		✓		0	100	0	0	0
purinpurin	puri	CVCVN-CVCVN		✓	✓	0	50	0	50	0
puripuri	puri	CVCV-CVCV		✓	✓	36.0	32.6	18.0	12.9	0.6
puruQ	puru	CVCVQ		✓		33.3	66.7	0	0	0
purun	puru	CVCVN		✓		0	100	0	0	0
purunpurun	puru	CVCVN-CVCVN		✓		33.3	50	16.7	0	0
purupuru	puru	CVCV-CVCV		✓		22.4	56.1	7.5	12.1	1.9
pururu	puru	Others		✓		16.7	66.7	0	0	16.7
pusuQ	pusu	CVCVQ	✓			0	100	0	0	0
pusupusu	pusu	CVCV-CVCV	✓			7.1	71.4	14.3	0	7.1
pusuri	pusu	CVCVri	✓			0	100	0	0	0
putsuQ	putsu	CVCVQ	✓	✓		14.3	85.7	0	0	0

putsun	putsu	CVCVN	✓	✓	3.1	96.9	0	0	0
puQtsun	pusu	CVQCVN	✓		53.8	46.2	0	0	0
putsuputsu	putsu	CVCV-CVCV	✓	✓	13.8	55.2	0	0	31.0
putsuri	putsu	CVCVri	✓	✓	0	100	0	0	0
puQtsuri	putsu	CVCCVri	✓	✓	0	100	0	0	0
puuQ	pu	CVVQ	✓	✓	0	100	0	0	0
puun	pu	CVVN	✓	✓	2.7	91.9	0	0	5.4
puupuu	pu	CVV-CVV	✓	✓	0	85.7	7.1	7.1	0
pyokoQ	pyoko	CVCVQ		✓	0	100	0	0	0
pyokon	pyoko	CVCVN		✓	0	100	0	0	0
pyokonpyokon	pyoko	CVCVN-CVCVN		✓	0	100	0	0	0
pyokopyoko	pyoko	CVCV-CVCV		✓	0	100	0	0	0
pyokori	pyoko	CVCVri		✓	0	100	0	0	0
pyon	pyo	CVN		✓	1.4	95.8	2.8	0	0
pyonpyon	pyo	CVN-CVN		✓	7.8	81.3	1.2	1.8	7.8
pyoon	pyo	CVVN		✓	33.3	66.7	0	0	0
pyuQ	pyu	CVQ	✓		9.1	90.9	0	0	0
pyun	pyu	CVN	✓		0	100	0	0	0
pyunpyun	pyu	CVN-CVN	✓		20	80	0	0	0
pyuQpyuQ	pyu	CVQ-CVQ	✓		33.3	33.3	0	33.3	0
pyuu(Q)	pyu	CVVQ	✓		2.7	71.6	2.7	2.7	20.3
pyuun	pyu	CVVN	✓		0	100	0	0	0
pyuupyuu	pyu	CVVN-CVVN	✓		0	76.9	0	23.1	0
rerorero	rero	CVCV-CVCV		✓	0	100	0	0	0
riinriin	ri	CVVN-CVVN	✓	✓	0	100	0	0	0
rinrin	ri	CVN-CVN	✓	✓	5.0	35.0	25.0	0	35.0
rooroo	ro	CVV-CVV	✓		0	100	0	0	0
runrun	ru	CVN-CVN		✓	8.6	22.9	30.3	29.7	8.6

saaQ	sa	CVVQ		✓		0	100	0	0	0
sabasaba	saba	CVCV-CVCV		✓		80	18.9	0	0	1.1
sakuQ	saku	CVCVQ	✓	✓		10.6	87.6	0	1.1	0.7
sakuri	saku	CVCVri	✓	✓		0	100	0	0	0
saQkuri	saku	CVCCVri	✓	✓		12.5	83.3	4.2	0	0
sakusaku	saku	CVCV-CVCV	✓	✓		10.5	71.7	8.1	7.9	1.8
samezame	same	CVCV-CVCV		✓		0	100	0	0	0
saQpari	sapa	CVCCVri		✓	✓	23.3	64.8	0.8	10.4	0.6
saraQ	sara	CVCVQ		✓		25.5	70.7	0	1.9	1.9
sarari	sara	CVCVri		✓		2.4	96.8	0	0	0.8
sarasara	sara	CVCV-CVCV		✓		15.1	60.3	11.5	11.9	1.3
sasaQ	sa	Others		✓		2.1	93.6	0	0	4.3
saQsa	sa	Others		✓		0.1	99.7	0	0.2	0.1
sawasawa	sawa	CVCV-CVCV		✓		10	90	0	0	0
sayasaya	saya	CVCV-CVCV		✓		0	100	0	0	0
seisei	se	CVi-CVi		✓		87.7	11.5	0	0	0.8
seQkachi	seka	Others		✓		0.4	17.7	44.2	34.9	2.8
sekaseka	seka	CVCV-CVCV		✓		42.2	56.7	0	0	1.1
seQse	se	Others		✓		0	99.0	1.0	0	0
shaQ	sha	CVQ	✓	✓		66.7	33.3	0	0	0
shaaQ	sha	CVVQ	✓	✓		16.7	75.0	0	0	8.3
shaashaa	sha	CVV-CVV	✓	✓		0	96.6	0	3.4	0
shabushabu	shabu	CVCV-CVCV		✓		8.9	48.8	9.6	8.9	23.8
shakiQ	shaki	CVCVQ	✓	✓		63.6	33.6	0	2.8	0
shaQkiri	shaki	CVCCVri	✓	✓		54.5	36.4	4.5	4.5	0
shakishaki	shaki	CVCV-CVCV	✓	✓		31.2	57.6	8.0	2.4	0.8
shaQkuri	shaku	CVCCVri	✓			12.4	18.0	6.7	3.4	59.6
shan	sha	CVN	✓	✓		1.3	93.7	0	1.3	3.8
shanarishanari	shana	CVCVri-CVCVri		✓		0	100	0	0	0

shanshan	sha	CVN-CVN	✓	✓			10.6	80.9	0	8.5	0
shariQ	shari	CVCVQ	✓				57.1	28.6	0	0	14.3
sharishari	shari	CVCV-CVCV	✓				32.5	57.5	7.5	0	2.5
shiQ	shi	CVQ		✓			25.0	75.0	0	0	0
shiQchakameQchaka	shi	Compound		✓			28.6	28.6	0	42.9	0
shidoromodoro	shi	Compound		✓			11.3	21.4	18.2	49.1	0
shigeshige	shige	CVCV-CVCV		✓			1.4	98.6	0	0	0
shiiQ	shi	CVVQ		✓			0	100	0	0	0
shiin	shi	CVVN		✓			0	100	0	0	0
shiishii	shi	CVV-CVV		✓			0	100	0	0	0
shiQkari	shika	CVCCVri				✓	24.1	74.7	0.3	0.5	0.5
shikoQ	shiko	CVCVQ	✓				100	0	0	0	0
shikoshiko	shiko	CVCV-CVCV	✓				14.9	77.7	4.1	2.5	0.8
shiQkuri	shiku	CVCCVri	✓	✓			18.2	80.7	0	0.6	0.6
shikushiku	shiku	CVCV-CVCV	✓	✓			26.4	48.1	0	25.6	0
shimijimi	shimi	CVCV-CVCV			✓		5.7	92.0	0.4	1.8	0.1
shin	shi	CVN		✓			0	88.9	3.5	0	7.6
shinaQ	shina	CVCVQ		✓			61.5	38.5	0	0	0
shinashina	shina	CVCV-CVCV		✓			50	16.7	0	33.3	0
shinmiri	shimi	CVCCVri			✓		29.2	70.8	0	0	0
shinnari	shina	CVCCVri		✓			74.7	22.9	0	0	2.4
shinneri	shine	CVCCVri		✓			14.3	85.7	0	0	0
shinnerimuQtsuri	shine	Compound		✓			66.7	33.3	0	0	0
shinshin	shi	CVN-CVN		✓			5.8	81.0	1.7	9.9	1.7
shioshio	shio	CVCV-CVCV		✓			6.9	62.1	17.2	13.8	0
shiQpori	shipo	CVCCVri		✓			13.3	73.3	0	13.3	0
shiQshi	shi	Others		✓			0	100	0	0	0
shiQshiQ	shi	CVQ-CVQ		✓			25.0	75.0	0	0	0
shitoQ	shito	CVCVQ		✓			0	100	0	0	0

shitodo	shito	Others		✓			0	66.7	25.0	8.3	0
shiQtori	shito	CVCCVri		✓			28.7	68.7	1.1	1.1	0.5
shitoshito	shito	CVCV-CVCV		✓			8.5	87.2	0	4.3	0
shizushizu	shizu	CVCV-CVCV			✓		0	100	0	0	0
shobon	shobo	CVCVN		✓	✓		15.6	59.4	6.3	15.6	3.1
shoboshobo	shobo	CVCV-CVCV		✓	✓		56.8	28.8	7.2	7.2	0
shonbori	shobo	CVCCVri		✓	✓		55.1	33.5	1.8	8.4	1.2
shuQ	shu	CVQ	✓				27.5	67.5	2.5	2.5	0
shun	shu	CVN	✓				7.1	79.8	1.2	7.1	4.8
shunshun	shu	CVN-CVN	✓				5.0	95.0	0	0	0
shurushuru	shuru	CVCV-CVCV	✓				15.0	75.0	10	0	0
shuQshuQ	shu	CVQ-CVQ	✓				12.5	87.5	0	0	0
shuuQ	shu	CVVQ	✓				33.3	66.7	0	0	0
shuushuu	shu	CVV-CVV	✓				7.1	64.3	7.1	0	21.4
soQ	so	CVQ		✓			6.5	85.5	0.7	2.7	4.6
soQkuri	soku	CVCCVri				✓	3.4	23.7	26.5	45.9	0.6
sooQ	so	CVVQ		✓			11.4	81.8	0	6.8	0
soroQ	soro	CVCVQ		✓			0	100	0	0	0
sorori	soro	CVCVri		✓			1.9	94.3	0	0	3.8
sorosoro	soro	CVCV-CVCV		✓			0.7	97.7	0.2	0.8	0.6
sosokusa	soso	Compound		✓			0	100	0	0	0
sowasowa	sowa	CVCV-CVCV		✓			70.7	27.0	0.3	1.3	0.7
soyo	soyo	CVCV		✓			0	100	0	0	0
soyosoyo	soyo	CVCV-CVCV		✓			0	100	0	0	0
suQ	su	CVQ		✓			7.6	90.9	0	0.5	1.0
subesube	sube	CVCV-CVCV		✓			35.1	17.0	13.5	32.7	1.8
sugosugo	sugo	CVCV-CVCV		✓			0	100	0	0	0
suiQ	su	CViQ		✓			0	100	0	0	0
suiiQ	su	Others		✓			0	100	0	0	0

suisui	su	CVi-CVi	✓		4.0	87.3	0.9	6.2	1.5
sukaQ	suka	CVCVQ	✓	✓	64.0	36.0	0	0	0
suQkarakan	suka	Others	✓	✓	11.9	14.9	11.9	59.7	1.5
suQkari	suka	CVCCVri	✓	✓	0.5	98.3	0.3	0.3	0.6
sukasuka	suka	CVCV-CVCV	✓	✓	17.7	14.4	23.0	45.0	0
sukiQ	suki	CVCVQ	✓	✓	61.9	33.3	0	0	4.8
suQkiri	suki	CVCCVri	✓	✓	64.2	31.7	0.3	3.4	0.4
sukisuki	suki	CVCV-CVCV	✓	✓	0	75.0	0	0	25.0
sukuQ	suku	CVCVQ	✓		2.9	97.1	0	0	0
suQku	suku	CVQCV	✓		0	100	0	0	0
sukusuku	suku	CVCV-CVCV	✓		0.9	80.2	17.9	0.9	0
sukuyoka	suku	Compound	✓		0	75.0	0	0	25.0
sunnari	suna	CVCCVri	✓		1.2	96.9	0	1.3	0.7
supaQ	supa	CVCVQ	✓		11.1	85.2	0	0	3.7
suQpari	supa	CVCCVri	✓		1.4	97.9	0	0.7	0
supasupa	supa	CVCV-CVCV	✓		5.2	87.9	1.7	5.2	0
suQpasuQpa	supa	CVQCV-CVQCV	✓		0	100	0	0	0
supoQ	supo	CVCVQ	✓		5.6	77.8	5.6	5.6	5.6
supon	supo	CVCVN	✓		0	100	0	0	0
supori	supo	CVCVri	✓		0	100	0	0	0
suQpori	supo	CVCCVri	✓		0.2	97.5	0.2	0.2	1.8
suposupo	supo	CVCV-CVCV	✓		16.7	83.3	0	0	0
suraQ	sura	CVCVQ	✓		66.7	33.3	0	0	0
suraaQ	sura	CVCVVQ	✓		100	0	0	0	0
surari	sura	CVCVri	✓		0	100	0	0	0
surasura	sura	CVCV-CVCV	✓		0.7	97.0	0	2.0	0.4
suresure	sure	CVCV-CVCV	✓		1.3	25.1	46.7	18.4	8.5
suruQ	suru	CVCVQ	✓		5.9	94.1	0	0	0
sururi	suru	CVCVri	✓		1.4	97.3	0	1.4	0
surusuru	suru	CVCV-CVCV	✓		1.8	95.2	0	2.6	0.4

suQsuQ	su	CVQ-CVQ		✓		0	100	0	0	0
sutakora	suta	Compound		✓		0	100	0	0	0
sutasuta	suta	CVCV-CVCV		✓		2.1	97.1	0	0.7	0
suten	sute	CVCVN		✓		0	66.7	0	33.3	0
suQten	sute	CVQCVN		✓		0	66.7	16.7	16.7	0
suQtenkorori	sute	Compound		✓		12.5	75.0	0	12.5	0
suQtenkororin	sute	Compound		✓		28.6	42.9	14.3	0	14.3
suQtenten	sute	Others		✓		7.1	7.1	10.7	75.0	0
suton	suto	CVCVN		✓		0	84.2	0	15.8	0
sutoon	suto	CVCVVN		✓		33.3	66.7	0	0	0
suuQ	su	CVVQ		✓		8.6	90.9	0	0.3	0.3
suusuu	su	CVV-CVV		✓		38.7	54.8	0	0	6.5
suyasuya	suya	CVCV-CVCV	✓			2.3	96.2	0	1.5	0
taaQ	ta	CVVQ	✓			0	0	0	100	0
tadotado	tado	CVCV-CVCV		✓		50	50	0	0	0
tajitaji	taji	CVCV-CVCV			✓	14.1	38.0	14.1	32.6	1.1
tanmari	tama	CVCCVri		✓		3.2	85.1	2.1	2.1	7.4
taQpuri	tapu	CVCCVri	✓			3.4	67.2	19.6	8.9	0.8
taputapu	tapu	CVCV-CVCV	✓			43.8	25.0	0	25.0	6.3
taraQ	tara	CVCVQ		✓		0	100	0	0	0
taran	tara	CVCVN		✓		0	90.9	9.1	0	0
tarari	tara	CVCVri		✓		8.3	83.3	8.3	0	0
tararitarari	tara	CVCVri-CVCVri		✓		0	100	0	0	0
taratara	tara	CVCV-CVCV		✓		5.0	58.6	8.3	25.4	2.8
taQtaQ	ta	CVQ-CVQ	✓			0	100	0	0	0
tekaQ	teka	CVCVQ		✓		0	100	0	0	0
tekari	teka	CVCVri		✓		0	27.8	11.1	5.6	55.6
tekateka	teka	CVCV-CVCV		✓		28.6	35.1	22.1	11.7	2.6
tekipaki	teki	Compound		✓		12.5	84.7	0	2.0	0.8
teQkiri	teki	CVCCVri		✓		0.7	97.3	0	0	2.0

tekuteku	teku	CVCV-CVCV		✓	2.5	96.0	1.5	0	0
tenyawanya	noroot	Compound		✓	22.4	10.2	38.8	25.5	3.1
teratera	tera	CVCV-CVCV		✓	11.1	81.5	0	3.7	3.7
tobotobo	tobo	CVCV-CVCV		✓	1.6	97.6	0	0.4	0.4
togetoge	toge	CVCV-CVCV		✓	2.9	2.9	13.2	72.1	8.8
tokotoko	toko	CVCV-CVCV		✓	3.1	96.9	0	0	0
toQkuri	toku	CVCCVri	✓		0	78.7	8.5	4.3	8.5
tokutoku	toku	CVCV-CVCV	✓		0	96.9	1.0	1.0	1.0
tonton	to	CVN-CVN	✓		8.0	72.6	3.4	13.3	2.7
toQpuri	topu	CVCCVri	✓		1.2	98.8	0	0	0
toputopu	topu	CVCV-CVCV	✓		0	100	0	0	0
toroQ	toro	CVCVQ		✓	81.5	18.5	0	0	0
toron	toro	CVCVN		✓	2.0	72.0	14.0	4.0	8.0
torori	toro	CVCVri		✓	0.8	96.9	0	0.8	1.6
torotoro	toro	CVCV-CVCV		✓	11.7	54.0	11.3	22.3	0.8
toQtoQ	to	CVQ-CVQ	✓		0	100	0	0	0
tsuQ	tsu	CVQ		✓	0	87.5	0	0	12.5
tsubekobe	tsube	Compound		✓	0	100	0	0	0
tsui	tsu	CViQ		✓	2.0	98.0	0	0	0
tsukatsuka	tsuka	CVCV-CVCV		✓	1.3	98.7	0	0	0
tsuketsuke	tsuke	CVCV-CVCV		✓	0	100	0	0	0
tsukunen	tsuku	Compound	✓		0	100	0	0	0
tsukutsuku	tsuku	CVCV-CVCV	✓		0.2	98.9	0.3	0.3	0.3
tsun	tsu	CVN		✓	0.6	34.8	9.9	50.2	4.5
tsunken	tsuke	Others		✓	100	0	0	0	0
tsuntsun	tsu	CVN-CVN		✓	28.9	63.2	5.3	2.6	0
tsuntsuruten	noroot	Compound		✓	14.3	0	57.1	28.6	0

tsuratsura	tsura	CVCV-CVCV		✓		0.8	97.8	0	0.3	1.1
tsuruQ	tsuru	CVCVQ	✓	✓		55.6	33.3	0	11.1	0
tsurun	tsuru	CVCVN	✓	✓		1.1	11.2	0	87.2	0.5
tsururi	tsuru	CVCVri	✓	✓		0	100	0	0	0
tsurutsuru	tsuru	CVCV-CVCV	✓	✓		24.3	33.9	14.5	25.4	1.9
tsutsuuraura	noroot	Compound		✓		0.6	64.6	17.1	9.9	7.7
tsuu	tsu	CVV		✓		3.0	47.4	33.1	9.8	6.8
tsuuQ	tsu	CVVQ		✓		0	100	0	0	0
tsuukaa	tsuka	Others		✓		0	38.5	30.8	0	30.8
tsuun	tsu	CVVN		✓		1.9	94.2	0	3.8	0
tsuutsuu	tsu	CVV-CVV		✓		10	60	0	30	0
tsuyatsuya	tsuya	CVCV-CVCV		✓		32.5	40.4	9.3	17.2	0.7
uQ	u	CVQ	✓			8.3	86.1	0	3.7	1.9
udauda	uda	CVCV-CVCV	✓			33.6	63.0	0.4	2.6	0.4
ueen	noroot	Others	✓			0	100	0	0	0
ufuQ	ufu	CVCVQ	✓			11.5	61.5	3.8	0	23.1
ufufu(Q)	ufu	Others	✓			14.9	49.0	4.3	29.3	2.4
uhauha	uha	CVCV-CVCV			✓	17.9	37.2	9.7	33.1	2.1
ujauja	uja	CVCV-CVCV		✓		13.8	68.8	6.3	10	1.3
ujiuji	uji	CVCV-CVCV			✓	52.5	47.5	0	0	0
uQkari	uka	CVCCVri			✓	25.9	72.1	0	0.7	1.4
ukauka	uka	CVCV-CVCV			✓	68.5	28.7	0	1.4	1.4
ukiuki	uki	CVCV-CVCV			✓	54.7	30.3	3.3	10.8	0.9
umauma	uma	CVCV-CVCV		✓		5.3	63.2	5.3	26.3	0
un	u	CVN	✓			24.4	69.4	0.2	5.4	0.6
uneune	une	CVCV-CVCV		✓		26.4	70.1	1.1	0	2.3
unun	u	CVN-CVN	✓			9.8	83.6	0	6.6	0
unzari	uza	CVCCVri			✓	78.4	6.2	1.2	13.3	0.9

uoo(Q)	noroot	Others	✓			15.4	84.6	0	0	0
uraraka	ura	CVCV-CVCV		✓		0	21.7	60.9	8.7	8.7
uraura	ura	CVCV-CVCV		✓		0	100	0	0	0
urochoro	uro	Compound		✓		86.9	11.1	0	2.0	0
urouro	uro	CVCV-CVCV		✓		80.6	16.9	0.3	1.9	0.3
uruuru	uru	CVCV-CVCV		✓		55.6	26.9	0.9	13.0	3.7
uQsura	usu	CVCCVri		✓		0.3	98.0	0	1.0	0.7
uQsuri	usu	CVCCVri		✓		0	100	0	0	0
usuusu	usu	CVCV-CVCV		✓		0	87.7	1.3	1.6	9.4
uQtori	uto	CVCCVri		✓	✓	54.7	36.2	0.9	7.7	0.5
utouto	uto	CVCV-CVCV		✓	✓	64.0	29.8	0	3.9	2.3
utsurautsura	utsu	Others		✓		61.7	31.8	2.8	0.9	2.8
uuQ	u	CVVQ	✓			3.4	93.1	0	0	3.4
uwaan	noroot	Others	✓			16.7	83.3	0	0	0
uyouyo	uyo	CVCV-CVCV		✓		67.9	28.4	0	2.5	1.2
uzauza	uza	CVCV-CVCV			✓	100	0	0	0	0
uzuuzu	uzu	CVCV-CVCV			✓	93.4	5.2	0	1.4	0
waQ	wa	CVQ	✓			2.7	95.9	0	0.7	0.7
waaQ	wa	CVVQ	✓			2.7	94.5	1.4	0	1.4
waan	wa	CVVN	✓			20	80	0	0	0
waanwaan	wa	CVVN-CVVN	✓			33.3	66.7	0	0	0
waawaa	wa	CVV-CVV	✓			8.8	87.3	1.0	1.0	2.0
waQhaQha(Q)	ha	Others	✓	✓		14.3	85.7	0	0	0
waiwai	wai	CVCV-CVCV	✓			21.2	69.4	0.7	1.1	7.5
wakuwaku	waku	CVCV-CVCV			✓	73.1	17.7	1.7	4.8	2.7
wan	wa	CVN	✓			9.3	38.3	17.8	19.6	15.0
wanawana	wana	CVCV-CVCV			✓	13.0	87.0	0	0	0

wansa	wasa	CVNCV		✓		0	100	0	0	0
wansaka	wasa	CVCCV-Ca		✓		6.3	87.5	0	6.3	0
wanwan	wa	CVN-CVN	✓			5.6	80.4	2.8	4.5	6.7
wasawasa	wasa	CVCV-CVCV		✓		26.1	56.5	4.3	8.7	4.3
yakimoki	yaki	Compound		✓		93.4	3.6	1.0	0.5	1.5
yanwari	yawa	CVCCVri		✓		1.4	97.2	0	0	1.4
yawaraka	yawa	Compound		✓		0.3	27.5	61.9	10	0.3
yawayawa	yawa	CVCV-CVCV		✓		0	100	0	0	0
yoboyobo	yobo	CVCV-CVCV		✓		8.8	21.1	52.6	17.5	0
yochiyochi	yochi	CVCV-CVCV		✓		59.6	35.2	0.5	2.1	2.6
yoreQ	yore	CVCVQ		✓		100	0	0	0	0
yoreyore	yore	CVCV-CVCV		✓		5.2	12.9	37.1	43.3	1.4
yoroQ	yoro	CVCVQ		✓		66.7	33.3	0	0	0
yorori	yoro	CVCVri		✓		0	100	0	0	0
yoroyoro	yoro	CVCV-CVCV		✓		10.5	86.2	0.6	2.8	0
yotayota	yota	CVCV-CVCV		✓		24.3	69.9	2.9	2.9	0
yuQkuri	yuku	CVCCVri		✓		7.7	86.7	0.8	4.1	0.7
yuraQ	yura	CVCVQ		✓		0	100	0	0	0
yurari	yura	CVCVri		✓		3.4	96.6	0	0	0
yurariyurari	yura	CVCVri-CVCVri		✓		0	90.9	0	9.1	0
yurayura	yura	CVCV-CVCV		✓		15.9	80.7	0.8	0.6	2.0
yururi	yuru	CVCVri		✓		1.8	89.5	3.5	1.8	3.5
yuruyuru	yuru	CVCV-CVCV		✓		5.0	58.2	14.2	21.1	1.5
yusayusa	yusa	CVCV-CVCV		✓		12.5	87.5	0	0	0
yuQsayuQsa	yusa	CVQCV-CVQCV		✓		57.1	42.9	0	0	0
yuQtari	yuta	CVCCVri			✓	24.1	74.2	0.6	0.7	0.3
zaQ	za	CVQ	✓			2.9	94.9	0.3	1.2	0.7

zaaQ	za	CVVQ	✓				2.1	97.9	0	0	0
zaazaa	za	CVV-CVV	✓				0	86.5	5.4	8.1	0
zabuQ	zabu	CVCVQ	✓				0	100	0	0	0
zabun	zabu	CVCVN	✓				5.6	88.9	0	5.6	0
zabunzabun	zabu	CVCVN-CVCVN	✓				50	50	0	0	0
zaburi	zabu	CVCVri	✓				0	100	0	0	0
zabuun	zabu	CVCVVN	✓				0	100	0	0	0
zabuzabu	zabu	CVCV-CVCV	✓				10	90	0	0	0
zakuQ	zaku	CVCVQ	✓	✓			15.0	85.0	0	0	0
zaQkubaran	zaku	Compound	✓	✓			0	65.4	24.8	8.9	0.8
zakuri	zaku	CVCVri	✓	✓			0	100	0	0	0
zaQkuri	zaku	CVCCVri	✓	✓			11.7	85.6	1.6	1.2	0
zakuzaku	zaku	CVCV-CVCV	✓	✓			6.7	86.6	2.6	2.1	2.1
zaQkuzaQku	zaku	CVQCV-CVQCV	✓	✓			0	50	50	0	0
zanbu	zabu	CVNCV	✓				0	100	0	0	0
zaraQ	zara	CVCVQ		✓			100	0	0	0	0
zarari	zara	CVCVri		✓			0	100	0	0	0
zarazara	zara	CVCV-CVCV		✓			53.0	28.7	7.8	5.7	4.8
zawazawa	zawa	CVCV-CVCV	✓		✓		42.2	56.9	0	0	0.9
zazaQ	za	Others	✓				0	100	0	0	0
zeezee	ze	CVV-CVV	✓				18.5	77.8	0	3.7	0
zeizei	ze	CVi-CVi	✓				6.7	90	0	3.3	0
zoQ	zo	CVQ		✓			92.7	6.9	0	0	0.3
zoQkon	zoko	CVQCVN				✓	6.0	34.3	16.4	43.3	0
zokuQ	zoku	CVCVQ			✓		69.6	30.4	0	0	0
zokuri	zoku	CVCVri			✓		0	100	0	0	0
zokuzoku	zoku	CVCV-CVCV			✓		49.3	48.7	0	1.1	0.9
zooQ	zo	CVVQ		✓			59.1	40.9	0	0	0
zorizori	zori	CVCV-CVCV	✓				0	100	0	0	0
zoroQ	zoro	CVCVQ		✓			50	50	0	0	0

zorori	zoro	CVCVri		✓		0	100	0	0	0
zorozoro	zoro	CVCV-CVCV		✓		3.9	93.5	0	2.2	0.5
zuQ	zu	CVQ		✓		2.2	96.8	0.1	0.4	0.6
zubaQ	zuba	CVCVQ	✓	✓		6.0	89.3	0	1.2	3.6
zubari	zuba	CVCVri	✓	✓		2.0	88.6	4.9	3.1	1.4
zubazuba	zuba	CVCV-CVCV	✓	✓		0	91.7	0	1.7	6.7
zuboQ	zubo	CVCVQ		✓		0	81.8	0	9.1	9.1
zubori	zubo	CVCVri		✓		0	100	0	0	0
zubozubo	zubo	CVCV-CVCV		✓		25.0	75.0	0	0	0
zubuQ	zubu	CVCVQ		✓		0	100	0	0	0
zuburi	zubu	CVCVri		✓		0	92.9	0	0	7.1
zubuzubu	zubu	CVCV-CVCV		✓		0	56.0	26.0	14.0	4.0
zudon	zudo	CVCVN	✓			12.8	84.6	0	2.6	0
zudoon	zudo	CVCVVN	✓			27.3	63.6	0	9.1	0
zui	zu	CViQ		✓		0	100	0	0	0
zuiQ	zu	CViQ		✓		0	100	0	0	0
zukazuka	zuka	CVCV-CVCV		✓		0	100	0	0	0
zukezuke	zuke	CVCV-CVCV		✓		0	91.8	0	0	8.2
zukiQ	zuki	CVCVQ			✓	0	100	0	0	0
zukin	zuki	CVCVN			✓	6.0	76.0	6.0	0	12.0
zukinzukin	zuki	CVCVN-CVCVN			✓	22.2	77.8	0	0	0
zukizuki	zuki	CVCV-CVCV			✓	35.4	63.6	0	0	1.0
zukuzuku	zuku	CVCV-CVCV		✓		0	100	0	0	0
zunguri	zugu	CVCCVri		✓		61.4	29.7	3.0	5.9	0
zunzun	zu	CVN-CVN		✓		0.7	98.0	0.7	0	0.7
zuQpori	zupo	CVCCVri		✓		0	72.7	0	18.2	9.1
zuQpuri	zupu	CVCCVri		✓		0	50	0	50	0
zuraQ	zura	CVCVQ		✓		0	96.7	0	3.3	0
zuraaQ	zura	CVCVVQ		✓		7.7	92.3	0	0	0
zurari	zura	CVCVri		✓		22.2	75.4	0.7	1.7	0

zurazura	zura	CVCV-CVCV		✓		3.2	90.3	0	6.5	0
zuruQ	zuru	CVCVQ	✓	✓		6.3	93.8	0	0	0
zurun	zuru	CVCVN	✓	✓		50	50	0	0	0
zururi	zuru	CVCVri	✓	✓		0	100	0	0	0
zuruzuru	zuru	CVCV-CVCV	✓	✓		5.5	89.8	1.2	2.3	1.2
zushiQ	zushi	CVCVQ		✓		0	100	0	0	0
zushiin	zushi	CVCVVN		✓		12.5	87.5	0	0	0
zushin	zushi	CVCVN		✓		0	100	0	0	0
zushinzushin	zushi	CVCVN-CVCVN		✓		0	100	0	0	0
zushiri	zushi	CVCVri		✓		0	100	0	0	0
zuQshiri	zushi	CVCCVri		✓		11.1	88.5	0	0	0.4
zushizushi	zushi	CVCV-CVCV		✓		0	100	0	0	0
zutazuta	zuta	CVCV-CVCV		✓		25.9	45.2	1.3	27.6	0
zuuQ	zu	CVVQ		✓		2.2	96.9	0	0.7	0.1