Accepted final version of the following publication:
Kita, S. (1997). Two-dimensional semantic analysis of Japanese mimetics. *Linguistics, 35(2)*, 379-415. doi:10.1515/ling.1997.35.2.379

Two-dimensional semantic analysis of Japanese mimetics[1]

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Abstract

This paper argues that two-dimensional semantic representation is necessary to account for the semantics of Japanese mimetics (*giongo* /*gitaigo*), following the insight of Diffloth (1972). One dimension is called the analytic dimension, the dimension of "ordinary semantics", where meaning is represented as a hierarchical structure of decontextualized semantic primitives. The other is called the affecto-imagistic dimension, where meaning is represented in terms of affect and various kinds of imagery (auditory, visual, tactile, motoric, etc). It subsumes what is traditionally called the expressive function of language due to its affective character, but it has far greater referential capability. I will argue that the semantics of mimetics crucially involves the affecto-imagistic dimension. The evidence includes seeming referential redundancy of a mimetic in a clause, impossibility of logical negation, high association with expressive intonation and spontaneous iconic gestures, and iconism in the morphology of mimetics. Positing the two dimensions leads to an alternative to Jackendoff's (1983)

Conceptual Structure Hypothesis, which states that the analytic dimension is the only level of representation where language and other kinds of cognitive information are compatible.

1. Introduction

Mimetics, ideophones, onomatopoeias and such have not been given a fair share of attention in linguistics despite the fact that a number of unrelated languages have a variety such words, and they are used very frequently in everyday verbal interactions. This may be because people associate research interest in them with the "Dingdong Theory" of language genesis; or more likely, because they do not conform to Saussurean research paradigms in linguistics. Language-external, experience-based motivations seem to be at play in their form-meaning relationships. In this realm of mimetic forms, phonemes seem to have meanings of their own; that is, the duality of patterning does not hold. The linguistic phenomena inherent in such words have been marginalized and backgrounded since *Cours de Linguistique Générale*. De Sassure (1983(1916): 69), in his famous section on the arbitrariness of linguistic signs, states that, "[Onomatopoeic words] are never organic elements of a linguistic system. Moreover, they are far fewer than is generally believed" and concluded that onomatopoeic words are a "marginal phenomen[on]". More recently, in his paper on iconicity, Newmeyer (1993: 758) cites Whitney 1874[2] and notes that, "the number of pictorial, imitative, or onomatopoetic nonderived words in any language is vanishingly small". When they are discussed from theoretical perspectives, the analysis often focuses on morphology and phonology, as in the cases of Mester and Itô (1989) and Zwicky and Pullum (1987). The semantics of these words is said to be very elusive. Descriptive linguists have had difficulty in pinning down the meaning of such words since native speakers often cannot

paraphrase them and end up repeating the word in question with elocution, gesture, and facial expressions (Diffloth 1972, Samarin 1967, Samarin 1971).

By investigating the semantics of Japanese *giongo/gitaigo* 'sound mimetics / manner mimetics', this paper aims to take a step toward deeper understanding of the semantics of such words. More specifically, I will argue that the semantic representation of Japanese mimetics belongs to the AFFECTO-IMAGISTIC DIMENSION[3] of meaning, in which language has direct contact with sensory, motor, and affective information. This is distinct from the ANALYTIC DIMENSION, the dimension of decontextualized predication. This conclusion sheds new light on the issues of how language and cognition are linked. Since we can talk about what we see, what we touch, and so on, language and various kinds of cognitive information have to meet and be made compatible. Positing the two dimensions is an alternative to Jackendoff's (1983) proposal that the analytic dimension is the only level of representation where language and various kinds of cognitive information are compatible.

The rest of this paper consists of seven sections. In Section 2 and 3, Japanese mimetics are introduced, and their formal characteristics are described. In Section 4, the affecto-imagistic dimension and the analytic dimension are characterized. The arguments for positing the affecto-imagistic dimension are presented in Section 5. The kinds of information that are represented, and that are never represented in the affecto-imagistic dimension are discussed in Section 6. I will discuss how the two dimensions are coordinated in Section 7. In the last section, the issue of language-cognition linkage is discussed.

2. Introduction to Japanese mimetics

Japanese mimetics are a class of words that 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. In most cases, a mimetic evokes some complex combination of sensory inputs and affect, which can be described more accurately as impression than as sensation. Native speakers have the intuition that the sound-meaning relationship is direct, immediate, and non-arbitrary. When mimetics refer to sound itself, there seems to be a certain degree of mimicry in the forms of mimetics. For example, one of the noises a cat makes is *nyaa,* and the noise a dog makes is *wanwan*. However, this type is rather small in number. The majority of mimetics refers to other types of an event or state, where sound may be produced but not as a significant part of the event, or where no sound is produced at all. For example, they can refer to perceptual events in different sensory modalities, as in ($1abc). ($1def) represent events that could generate sound. However, it is possible to use those words even when there is no sound produced since sound is not an essential part of the described events. ($1ghi) refer to events where there is no sound involved. There are many mimetics that refer to psycho-physiological states, such as ($1hi).

($N1)

--- uni-modal perceptual ---

a. nurununu 'tactile sensation caused by a slimy object'

b. kaki:n 'intensive collision of metallic objects, or its sound'

c. pika 'a flash of light'

--- possibly with a sound ---

d. ba:n 'intensive collision of heavy objects'

e. pyon 'a swift jump'

f. gorogoro 'movement of a heavy object with continuous rotation '

--- No sound involved ---

g. surasura 'a sequence of actions without hesitations'

h. sowasowa 'restlessness due to anxiety before an important event'

i. kutakuta 'being very tired'

Mimetics are by no means extra-linguistic "sound effects". They have standard forms and the association between form and meaning is socially constituted, as evidenced by the availability of mimetics dictionaries (e.g. Asano 1978, Ono 1984, Chang 1990, Atoda and Hoshino 1995). People usually do not create a new mimetic on the spot. They are highly integrated into the grammar of Japanese, as I will demonstrate in the following sections.

3. Formal characteristics of mimetics

3.1 Phonology of mimetics

The Japanese lexicon can be categorized into the following four strata with regard to the phonological characteristics: Yamato words (native Japanese words), Sino-Japanese words, mimetics, and modern loan words (McCawley 1968). Among the four strata, Yamato words have the most restricted

phonotactics, and modern loan words have the least restricted phonotactics. Sino-Japanese words and mimetics are in the middle, and cannot be ranked with respect to each other in terms of phonotactic freedom. What is important is the fact that mimetics are not phonologically eccentric. All the phonemes and their combinations found in mimetics are found elsewhere in the Japanese lexicon. Mimetics are not free from phonological processes that affect words in other strata. For example, mimetics undergo Vowel Devoicing, in which high vowels are devoiced between voiceless obstruents[4]. For example, /i/ in ($1c), /u/ in ($1i) are realized as voiceless vowels.

3.2 Morphophonology of mimetics

Morphophonologically, mimetics can be divided into two groups. One is MONOSYLLABIC MIMETICS and the other is BISYLLABIC MIMETICS. Monosyllabic mimetics are either in the form of CV(:), CV(:)Q, or CV(:)N, where C stands for a consonant, V stands for a vowel, (:) indicates optional lengthening of the preceding vowel, Q stands for the first half of geminate cluster, and N stands for a nasal stop. N and Q are the only consonants that can appear in coda in Japanese phonology, and they are both moraic. Bisyllabic mimetics are in the form of $C_1V_1(:)C_2V_2(:)$, $C_1V_1C_2V_2(:)N$, $C_1V_1C_2V_2(:)Q$, $C_1V_1(:)C_2V_2$ri, $C_1V_1(:)NC_2V_2$ri, or $C_1V_1(:)QC_2V_2$ri. C_1 and C_2 can be the same consonants, V_1 and V_2 can be the same vowels. Four kinds of derivational processes apply to both monosyllabic and bisyllabic mimetics to create a longer mimetic. They are two kinds of partial reduplications, reduplication, and repetition, which will be discussed in detail later.

3.3 Syntax of mimetics

Mimetics participate in sentential syntax. They can be grouped into two mutually exclusive grammatical categories according to their syntactic distributions as pointed out by Hamano (1986) and Kindaichi (1978). The first kind of mimetics are optionally accompanied by a complementizer *to* (in some cases, by another complementizer *te*)[5]. The mimetic-complementizer combination serves as an adverbial, as in ($2). I will refer to this type of mimetics as ADVERBIAL MIMETICS. The preferred position of a mimetic phrase is immediately before the verb, but they can be scrambled with other PPs (postpositional phrases) and appear in any preverbal position in a clause. Note also that the mimetic phrase in ($2) is not a paratactic or extra-syntactic expression. Namely, the mimetic phrase and other parts of the sentence in ($2) are all dominated by a single S node. Thus, ($2a) can be embedded into another clause, as in ($2b).

($N2) [6]

a. [PP jitensya ga] [PP kabe ni] [ba:n to] butukat -ta.

a bicycle Nom wall Dat Mimetic Comp run-into Past

ba:n = 'intensive collision of heavy objects'

'A bicycle ran into the wall really hard.'

b.[S [PP jitensya ga] [PP kabe ni] [ba:n to] butukat -ta] no o mi -ta

bicycle Nom wall Dat Mimetic Comp run-into Past Comp Acc see Past

' (Unspecified) saw a bicycle run into the wall REALLY HARD.'

The distribution of the other type of mimetics, which I call NOMINAL MIMETICS, is not as simple. Kindaichi (1978) and Hamano (1986) stated that the distribution of this second type is similar to nominal adjectives 'keiyoodoshi' (e.g. *sizuka* 'quiet'), which have noun-like morphology and adjective-like semantics. In this section, I will point out that the syntactic distribution of nominal mimetics differs from that of nominal adjectives and nouns in important ways. However, it is not a straightforward task to illustrate the distribution of nominal mimetics by comparing it with the distributions of other nominal lexemes. Japanese nominals constitute numerous syntactic categories, far more than the traditional three-way classification: noun 'meishi', nominal adjective 'keiyodoshi', and formal noun 'keisiki meisi'. Even fairly detailed classification such as that of Martin (1975) has to allow "defective" members, which do not meet one or more membership criteria, and lexemes that belong to more than one category. In the following illustration of the distribution of nominal mimetics, however, I will limit my discussion to the prototypical exemplars of nominal adjectives and, what Martin (1975) calls, pure nouns (henceforth I call them just nouns).

One of the unique characteristics of nominal mimetics is the way they modify a noun. First, let me explain how nominal adjectives and nouns modify a noun. A nominal adjective, which cannot be inflected, is followed by the copula in the *na*-prenominal form to constitute a relative clause, which then modifies a noun, as in ($3a). Neither the copula in the *no*-prenominal form nor the Genitive postposition *no* can be used between an adjectival nominal and a noun, as in

($3b). In contrast, a noun modifies another noun either with the genitive postposition or with the *no*-form of the copula as in ($3cd), depending on the semantic relationship between the two[7].

($N3)

a. sizuka na hito

quiet (Adj. Nominal) Copula (prenominal form 1) person

'a quiet person'

b.* sizuka no hito

Gen/Copula (prenominal form 2)

'a quiet person'

c. isha no musume

doctor Copula daughter

'a daughter who is a doctor'

d. isha no musume

doctor Gen daughter

'a doctor's daughter'

Nominal mimetics behave differently from nominal adjectives and nouns, as shown in ($4). Unlike nominal adjectives (see ($3b)), they take the *no*-form copula to modify a noun. Unlike nouns (see ($3d)), the acceptability of the *na*-form is variable on the positive side[8] though it never reaches the acceptability level of the *no*-form.

($N4)

a. betabeta {?? na / * de aru / no } te
sticky (Mimetic) Copula Copula (pre-verbal form) exist Copula hand
'sticky (or filthy) hand '

b. gutyagutya { ?na / * de aru / no } hikidasi
messy (Mimetic) Copula Copula exist Copula drawer
'A messy drawer.'

Another characteristic of nominal mimetics that is considerably different from that of nominal adjectives is their capability of forming a PP. The distribution of nominal adjectives is restricted to pre-copula positions as in ($5a). Thus, unlike NPs and nominal mimetics, they cannot be accompanied by a postposition to form a PP as shown in ($5b).

($N5)

a. ano otoko wa sizuka -da.
that man Top quiet(Adj. Nominal) Copula.Pres
'That man is quiet.'

b. * otoko wa sizuka ga yo -i.
man Top quiet (Adj. Nominal) Nom good Pres
'As for men, being quiet is good.'

In contrast, a nominal mimetic can be accompanied by the nominative postposition to form a PP, as in ($6ab).

($N6)

a. kami wa [PP sarasara ga] yo -i.

hair Top smooth (Mimetic) Nom good Pres

'As for hair, smooth (not greasy) hair is good.'

b. [PP betyabetya ga] iya nara,

mushy (Mimetic) Nom undesirable if

mizu o sukuname ni ire-nasai.

water Acc relatively-little Dat put-Imperative

'(With regard to rice cooking,) if you don't like (the rice) to be mushy, put relatively little water.'

A nominal mimetic followed by the preverbal form of the copula can serve as an adverbial, as in ($7). The resulting adverbial can be scrambled with other PPs. It is not paratactic or extra-syntactic phrase since a clause such as ($7a) can be embedded in a framing clause such as *no o sitte iru* 'I know that . . . '.

($N7)

kono heya wa gutyagutya ni tirakat -te -i -ru.

this room Top Mimetic Cop (preverbal form)become.cluttered Comp exist Pres

gutyagutya = 'messy'

' This room is messy. '

In summary, there are two syntactically distinct classes of mimetics. Adverbial mimetics, which is followed by an optional complementizer, can serve only as an adverbial in a clause. Nominal mimetics are either followed by the copula to serve as the predicative element of a clause, or followed by a postposition to form a postpositional phrase.

4. Two-dimensional analysis of the semantics of mimetics.

Japanese mimetics have a unique psychological effect. They evoke vivid "images" of an experience, full of affect. This imagery is not only visual, but can also be based on other perceptual modalities and physiological states. The meaning is felt, by native speakers, to be direct and real, as if one is at the scene. The question is how to characterize this feeling.

In his ground-breaking paper in 1972, Diffloth analyzed the mimetics of Semai, a Mon Khmer language, and Korean, and concluded that the semantics of their mimetics is qualitatively different from that of the rest of the lexicon of those languages. He proposed that mimetics' semantics belongs to the "expressive mode of meaning", which is distinct from the predicative mode of meaning. Here I pursue this dual mode approach further by illustrating that the semantics of a mimetic and that of other parts of a sentence are not fully integrated with each other despite the fact that they are syntactically integrated. In order to represent this heterogeneity, I will adapt the spatial metaphor employed by grammatical theories such as Autosegmental Phonology (Goldsmith 1976) and Autolexical Syntax (Sadock 1991). I will argue that the semantics of

mimetics and that of other parts of a sentence belong to different dimensions, as illustrated in Figure 1.

--- Figure 1 about here ----

The two dimensions have different characteristics. I will call the dimension of quantification and predication the ANALYTIC DIMENSION. It has been the main focus of formal semantic theories. I will call the dimension where the semantics of mimetics belong, the AFFECTO-IMAGISTIC DIMENSION.

The analytic dimension includes what Lyons called descriptive information, which can be "explicitly asserted or denied and, in the most favourable instances at least, it can be objectively verified" (Lyons 1977: 52). The architecture of analytic representation is characterized by decomposition and hierarchy. A thought or experience is represented as a proposition; that is, it is decomposed into semantic partials. Examples of such semantic partials include quantifiers, bound variables, logical operators, semantic categories such as Agent, Patient, and Action. A certain set of combinatoric recursive rules organize these semantic partials into a hierarchical structure. One of the basic building blocks for analytic representation is function-argument schema, such as 'Action (Agent, Patient)', and 'Motion (Theme)'. The analytic representation is amodal in that its format of information is not specific to any cognitive modality (e.g. vision, olfaction, kinaesthesia, etc.). It is decontextualized in the sense that it is removed from subjective experience. It is "about" a certain experience, but not a rendition

of an experience itself. Thus, one may conceptualize unpleasantness in the analytic dimension without actually feeling any unpleasantness.

The affecto-imagistic dimension differs from the analytic dimension in that it consists of different units and architectural principles of representation. In the affecto-imagistic dimension, different facets of an experience are represented. These include the affective, emotive, and perceptual activation in an experience, but do not include the rational construal of it based on such things as agentivity and causality. Iconicity is an important architectural principle in this dimension, and thus various facets of an experience do not stand in syntagmatic relationships. Rather, they are merely spatiotemporally contiguous. In the affecto-imagistic dimension, various kinds of information from different cognitive modalities remain modality-specific, creating the subjective effect of evoking an image or "re-experience".

What some authors (Jakobson 1956, Lyons 1977) called the "expressive function" of language is subsumed in the affecto-imagistic dimension. According to Jakobson, the expressive function is "a direct expression of the speaker's attitude toward what he is speaking about" (1956: 82). Lyons cites Brown (1958), who defines it as the aspect of meaning that, "covaries with characteristics of the speaker" (1977: 307). The difference between the traditional notion of the expressive mode of meaning and the affecto-imagistic dimension is that the latter can contain information not only about a speaker's affective attitudinal state, but also about outside events or states that are perceived by a speaker such as, for instance, a motion event.

5. Evidence for a separate dimension for mimetics

5.1 Seeming redundancy of mimetics

In general, a semantically redundant and syntactically optional element, such as *a male rooster,* creates "wordiness" . Neither adverbial nor nominal mimetics are subject to this constraint. I will claim that seemingly redundant mimetics are not really redundant since they are encoding the message in a different dimension from the rest of a sentence, namely in the affecto-imagistic dimension.

First, I will demonstrate this with an adverbial mimetic. ($8a) and ($8b) can be used to describe the same situation. The difference is that ($8a) has a regular adverbial and ($8b) has an adverbial mimetic. Note that both the adverbial in ($8a) and the mimetic in ($8b) are syntactically optional. If you replace the verb *arui-* 'to walk' with an expression *haya aruki o si-* 'to do fast-walk', the adverbial and mimetic become referentially redundant. The one with a regular adverbial becomes wordy as indicated by (*) in ($8c). By contrast, the one with a mimetic does not become wordy, as shown in ($8d).

($N8)

a. [Taro wa] [isogi -asi de] arui -ta.
Top hurried feet with walk Past
'Taro walked hurriedly. (Taro walked with hurried feet.)'

b. [Taro wa] [sutasuta to] arui -ta.
Top Mimetic walk Past

sutasuta = hurried walk of a human

'Taro walked hurriedly.'

(*) c. [Taro wa] [isogi -asi de] [haya -aruki o] si -ta.

Top hurried feet with haste walk Acc do Past

'Taro walked hastily hurriedly. (Taro did haste-walk with hurried feet.)'

d. [Taro wa] [sutasuta to] [haya-aruki o] si -ta.

Top Mimetic haste walk Acc do Past

'Taro walked hurriedly.'

I take this lack of redundancy effect of mimetics as evidence that a mimetic has its semantic representation in a different dimension from that of the rest of the sentence[9]. According to the two-dimensional analysis, the contrast between ($8c) and ($8d) is explained as follows. In ($8c), the information 'hastiness' is encoded by both the adverb and the verb in the analytic dimension. The adverb creates wordiness since it is syntactically optional and semantically redundant, i.e. the same piece of information is present somewhere else in the same dimension. Whereas, in ($8d), the information encoded by the adverbial mimetic belongs to the affecto-imagistic dimension, and the one encoded by the verb belongs to the analytic dimension. Thus, the seemingly redundant second encoding of "hastiness" is not in fact redundant. Consequently, the adverbial mimetic does not create wordiness. The effect of adding the adverbial mimetics has nothing to do with the referential potential of the sentence. Rather, it makes the description more vivid and experience in tone.

The lack of redundancy effect can also be observed in nominal mimetics. ($7a) illustrates this point. Its literal translation is *this room is cluttered into a mess,* which sounds wordy. *Into a mess* is syntactically optional and referentially redundant, which is exactly the status of the mimetic phrase in the Japanese version. ($9a) and ($9b) can be used to describe the same situation, that is, the referential potential of *gutyagutya da* and *tirakat-te-i-ru* are virtually the same. However, the two predicates can be combined into one sentence without creating wordiness as shown in ($7a).

($N9)

a. kono heya wa gutyagutya da.
this room Top Mimetic (messy) Copula
' This room is messy.'

b. kono heya wa tirakat -te -i -ru.
this room Top become.clutter Comp exist Pres
' This room is messy. '

5.2 Negation and mimetics

The second piece of evidence for a separate dimension for the semantics of mimetics concerns the peculiarity of a negative clause with a mimetic. Diffloth (1972) observed that in Korean, if a clause with a mimetic is negated, metalinguistic negation is the only possible interpretation.

Let's first look at a sentence with an adverbial mimetic. Adverbial mimetics and negation are not compatible. Consider the contrast between ($10ab).

With neutral intonation, ($10a) allows the focus of negation to be any of the major constituents of the embedded clause (i-v). With the same intonation, ($10b) is quite an awkward sentence, no matter what the intended focus is[10]. With an intonation that puts focus on the subject NP or the verb in the embedded clause, the acceptability ($10b) improves slightly but is still worse than the counterpart in ($10a). If intonation puts focus on *gorogoro*, ($10b) is an acceptable sentence with the interpretation of metalinguistic negation, implying a better alternative, for example, *korokoro*, which is the same as *gorogoro* except that a light object is moving. The awkwardness of ($10b) is not due to the embedded clause itself nor its nominalization, as demonstrated by the perfect acceptability of ($10c).

($N10)

a.[PP[S tama ga sizukani korogat -ta] no] de wa na -i[11]

ball Nom quietly roll Past Nominalizer Cop Focus Neg Pres

(i) 'it was not the case that a ball rolled quietly.'

(ii) 'it was not a ball that rolled quietly.'

(iii) 'it was not quietly that a ball rolled.'

(iv) 'it was not rolling that a ball did quietly.'

(v) 'it was not rolling quietly that a ball did.'

b.[PP[S tama ga gorogoro to korogat -ta] no] de wa na -i

ball Nom Mimetic roll Past

gorogoro = movement of a heavy round object with continuous rotation

* (i) 'it was not the case that a ball rolled *gorogoro*.'

??(ii) 'it was not a ball that rolled *gorogoro*.'

??(iii) 'it was not *gorogoro* that a ball rolled.'

* (iv) 'it was not rolling that a ball did *gorogoro*.'

* (v) 'it was not rolling *gorogoro* that a ball did.'

c. [tama ga gorogoro to korogat-ta] no o mi-ta

ball Nom Mimetic roll Past Nominalizer Acc see Past

'(One) saw a ball rolled *gorogoro*'

I propose that logical negation, which I claim to be an operation in the analytic dimension, is not possible in ($10b) because the embedded sentence is semantically a hybrid. The mimetic, *gorogoro*, encodes information in the affecto-imagistic dimension, and the rest encodes the information in the analytic dimension. There is no level of representation where all the semantic elements of the embedded clause of ($10b) are organized as a monolithic structure, over which a negative operator can have a scope. The only level where the embedded clause constitutes a unity is the surface utterance level. Thus, metalinguistic negation is the only possibility in ($10b).

Unlike adverbial mimetics, nominal mimetics allow logical negation. In ($11), any constituent within the domain of the focus postposition can be a focus of logical negation.

($N11)

a. [S Naomi ga [PP ano [gutyagutya no] heya o] katazuke- ta] no

Nom that Mimetic Cop room Acc organize Past Nominalizer

de wa na-i.

Cop Focus Neg Pres

gutyagutya = messy

' Naomi did not organize that messy room.'

b. [S Naomi ga ano heya o [gutygutya ni] tirakasi -ta] no de wa na-i.

Nom that room Acc Mimetic Cop clutter Past

' Naomi did not clutter that room into a mess. '

c. [S ano heya ga gutyagutya da] to i-u wake de wa na-i[12]

that room Nom Mimetic Cop Comp say Pres Comp Cop Focus Neg Pres

'It is not the case that that room is messy.'

This implies that unlike adverbial mimetics, nominal mimetics participate in analytic representations as well as in affecto-imagistic representations. Therefore, nominal mimetics have dual status[13].

5.3 Summary and additional evidence

I demonstrated that both adverbial and nominal mimetics can be used even when they are seemingly redundant, i.e. when they do not add any referential potential to the sentence. I concluded that the meaning of both nominal and adverbial mimetics exist in the affecto-imagistic dimension. I have demonstrated that adverbial mimetics do not allow logical negation, whereas nominal mimetics do.

From these, I concluded that adverbial mimetics do not exist in the analytic dimension, but nominal mimetics do. Thus, nominal mimetics have dual status.

The fact that nominal mimetics participate in the analytic dimension is consistent with the fact that they can serve as an argument of certain predicates. The verb *naru* 'become' takes two arguments, Theme and Goal. In ($12a), the Theme is *Taro*, and the Goal is *lawyer*. In ($12b), the Theme is *Taro*, and the Goal is *big*. Nominal mimetics can fill the Goal argument, as in ($12c).

($N12)

a. Taro ga bengosi ni nat -ta.
Nom lawyer Cop become Past
' Taro became a lawyer.'

b. Taro ga ookik -u nat -ta
Nom big Pres become past
' Taro became big.'

c. Taro ga kutakuta ni nat -ta.
Nom Mimetic Copula become Past
kutakuta = very tired
' Taro became very tired.'

In contrast, adverbial mimetics cannot be used in any argument position, including the Goal argument of *naru*. This is consistent with my claim that adverbial mimetics do not exist in the analytic dimension.

5.4. Tight coupling of mimetics and paralinguistic phenomena

In the following two sections, I will demonstrate that mimetics are tightly coupled with so-called para-linguistic phenomena, namely, spontaneous iconic gestures, and expressive prosody. I will argue that the extremely tight coupling is compatible with the idea that the meaning of mimetics resides in the same dimension as the meaning of spontaneous iconic gestures and expressive prosody, namely the affecto-imagistic dimension.

5.4.1. Iconic gesture and mimetics

When uttered in natural settings, mimetics are tightly coupled with spontaneous iconic gestures [14]. These gestures unwittingly accompany speech and they depict motion or action with different body parts, most notably, hands and arms.

Utterances with mimetics were collected in the following task. The speakers were told that they would participate in a story telling study. They were not told that gesture and mimetics were of interest. Seven native speakers of Japanese watched a six-minute cartoon (for the details of the story line see the appendix of McNeill 1992), and narrated a story to a person who had not watched the cartoon. The narration was video taped (for more details of the procedure see Kita 1993).

The seven native speakers produced 83 mimetics, an average 11.9, ranging from 3 to 32 per speaker. It was found that mimetics are almost always accompanied by a stroke (i.e. the meaningful phase of a gesture, which tends to be most forcefully performed) of a co-expressive gesture. It is not very likely that a

mimetic is accompanied by no gesture or other parts of a gesture (such as preparatory phase, retraction to the rest position, or stasis of a limb in the air), as shown in Figure 2.[15] As a baseline for comparison, the same analysis was carried out for verbs that were randomly selected from each subject's narration. For each subject, the same number of verbs as the number of mimetics he/she produced were selected. The difference in the percentage of gesture accompaniment between mimetics and verbs is highly significant, chi-square (1) = 55.061, p < .0005.

---- Figure 2 about here ----

When mimetics are accompanied by a stroke, the mimetic and stroke tend to be accurately synchronized, that is, they tend to start together as in ($13). It is relatively infrequent that a mimetic is not the first word in a stroke as in ($14). In ($13) and ($14), the bold faced portion of speech was accompanied by a stroke, and the underlined portion was accompanied by holding an arm in the air. Square brackets indicate the onset and offset of a gesture.

($N13)

[biru o **baa** to] sagat- te

building Acc Mimetic Comp go-down and

baa = movement with great momentum

'(the cat) goes down the building with great momentum, and'

Gesture = Right hand, with index finger extended, moves forcefully downward .

($N14)

[furiko mitai ni si te **sono kondo wa pyon tte** it te]

pendulum like Dat do and well this.time Top Mimetic Comp go and

pyon = a swift jump

' (the cat) goes swiftly like a pendulum, and'

Gesture = Left hand, with index finger extended, moves with an arc to the right.

Figure 3 shows how many of the mimetics and verbs that were accompanied by a gesture stroke were the first word in the stroke, as in ($13). The difference between the mimetics and the baseline data of the verbs is also highly significant, chi-square (1) = 12.164, $p < .0005$.

Figure 3 about here

It has been claimed that iconic gesture reveals the imagistic nature of the message underlying an utterance. McNeill (1985, 1992), in his psycholinguistic theory of utterance generation, argues that the underlying mental representation of an utterance involves not only linguistic categories and their combinations (this corresponds to the analytic dimension), but also imagery. The linguistic aspect manifests itself as speech, and the imagistic aspect manifests itself as an accompanying spontaneous gesture. McNeill points out that unlike language and conventionalized gestures (e.g. OK sign), spontaneous gestures are relatively free from socially constituted conventions on form-meaning pairing, and can represent

underlying imagery in a relatively undistorted way. The form of a mimetic is bound by conventions and lacks imagisticity except in the marking of temporal structures, which I will discuss later. However, the fact that mimetics are tightly coupled with iconic gestures in speaking suggests the possibility that a mimetic and the accompanying iconic gesture originate from a single underlying mental representation, namely an affecto-imagistic representation of an experience. In other words, what McNeill called the imagistic aspect manifests itself not only as an iconic gesture, but also as a mimetic in speech. Note that this is consistent with native speakers' intuition that mimetics evoke vivid imagery.

5.4.2. Expressive prosody and mimetics

There is a close temporal coupling between mimetics and prosodic peaks, which suggests their common source in the microgensis of an utterance. Here, it has to be noted that the literature has been in agreement that there are two aspects of meaning carried by prosodic movements: one is "linguistic" or "grammatical" and the other is "expressive" or "emotional"(Ladd 1978). Mimetics often accompany a prosodic peak, so let us narrow our discussion to prosodic peaks. It has been proposed that prosodic peaks are associated not only with the discursive informational structure (such as the "focus" structure) of an utterance (Cruttenden 1986), but also with its affective structure. Bolinger (1964) states that prosodic peaks often carry "emotional overtones" : "An accent [prosodic peak] to show the importance of a word inescapably shows its importance to *us*.; it is as if we meant to say 'This excites me', and left our hearer to infer ' It's worth getting excited about'" (Bolinger 1972: 24, [emphasis in the original]). As I have

discussed in section 5.2, mimetics cannot be the focus of logical negation; namely, they are outside the scope of normal structuring of discursive information in an utterance. Thus, the tight coupling of prosodic peaks and mimetics is likely to be due to the affective aspect of prosody.

The relationship between mimetics and prosodic peaks can be formulated as follows. A mimetic is not only often timed with a prosodic peak, but also if an utterance contains a mimetic and an prosodic peak, then the prosodic peak have to be on the mimetic. ($15) through ($18) illustrate this point. In ($15), both *tukare* and *ta* can be synchronized with a peak of affectively-loaded expressive prosody. The two prosodic movements are schematically diagrammed in ($16b) and ($16c).

($N15) tukare ta.
be-tired Past
'(I am) tired'

($N16) ----- the example is attached at the end of the paper with Figures. -----

However, the placement of emphasis by expressive prosody is limited in ($17), which is referentially equivalent to ($15). The mimetic is the only possible locus of the emphasis, and the emphasis is an affective emphasis. The last part, *tukare ta,* must have plain prosody ($16a), and may never have the pattern of ($16bc). It is as if all the affective energy is trapped in the mimetics, and has no chance to

be distributed to other elements in an utterance. Possible prosodic movements of ($17) are shown in ($18).

($N17) kutakuta ni tukare ta.
Mimetic Cop be-tired Past
kutakuta = 'tired'
' (I am) tired.'

($N18) ----- the example is attached at the end of the paper with Figures. -----

In sum, if a prosody has a localized peak in an utterance that contains a mimetic, it has to be localized on the mimetic. Furthermore, the nature of emphasis is affective, rather than discursive informational. This suggests that mimetics and expressive prosody are two manifestations of the same underlying representation, which resides in the affecto-imagistic dimension. Some researchers of intonation, such as Liberman (1978) and Ladd (1978), also have maintained that "intonational and ideophonic meaning share some fundamental characteristics" (Ladd 1978, pp.202)

It is also noteworthy that there is a systematic sound symbolism of affect. Kindaichi (1978) and Hamano (1986) point out that /e/ often indicates negative affect, described as vulgarity (by Kindaichi and Hamano), inappropriateness (by Hamano) or unpleasantness of an event or state. Observe the contrast between ($19a) and ($19b), in which /e/ adds the meaning of unpleasant affect.

($N19)

a. bita 'a wet two-dimensional object sticking'

b. beta 'a wet two-dimensional object sticking, which is unpleasant'

Also note the following mimetics, which indicates negative affect toward the described event or state.

($N20)

a. geragera 'laughing loudly in vulgar manner'

b. kosekose 'exerting energy on trivial or minute things'

c. dere 'untidy and inappropriate'

Kindaichi and Hamano point out that palatalization also sometimes indicate negative affect. Hamano points out that palatalization indicates, among other things, "instability", "unreliability", "lack of elegance" (Hamano 1986: 238), and provides examples of phonological minimal pairs as in ($21).

($N21) from Hamano (1986), with some modifications in the glosses.

a. hyorohyoro 'being thin and weak'

a'. horohoro 'noble weeping'

b. tyorotyoro 'unreliable, unpredictable movement'

b'. torotoro 'slightly thick liquid moving'

c. tyaratyara 'flashy, cheap'

c'. taratara 'dripping liquid'

5.4.3. Summary

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 "para-language" 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 Saussurean tradition[16].

5.5. Morphophonological peculiarities and the nature of affecto-imagistic representation.

It has been noted that mimetics have peculiar morphophonological characteristics. Zwicky and Pullum (1987) point out that the principles under which mimetic morphology operates are different from the principles of "plain morphology". For example, mimetic morphophonology is characterized by iconic representation of time, sound symbolism, and recurrent sub-phonemic meaningful elements. These facts at least indicate the discrepancy in semiotic characteristics between mimetics and other lexical items. Furthermore, it is possible to argue, with an additional assumption, that the semiotic peculiarities of mimetics are indicative of the nature of meaning representation. The assumption

is that the semiotic characteristics of lexical items (i.e. the characteristics of mapping between the form of a lexical item and its meaning) reflect the semiotic nature of the meaning representation itself, namely, how the meaning representation can be mapped to other cognitive information such as the perceptual representation. With this assumption, the above mentioned morphological peculiarities become supporting evidence for a separate dimension for the mimetics' semantics.

5.5.1 Reduplication and repetition.

Iconism is apparent in derivational processes that mark different Aktionsarten, or the temporal structure of an eventuality (a notion that subsumes both event and state), in adverbial mimetics. The linearity of linguistic encoding is iconically used to represent the passing of time. Thus, Japanese is a clear counter-example to the claim that the number of non-derived imitative words "in any language is vanishingly small" (Newmeyer 1993: 758). I propose that the iconicity of mimetics suggests that affecto-imagistic representation is iconic to other mental information. An open class of mimetics can undergo these derivational processes.

Hamano (1986) makes an important distinction between two processes, repetition and reduplication[17], and she points out their distinct contributions to the aspect of mimetics. Bisyllabic adverbial mimetics such as *goro* 'heavy object rolling once' have LH (Low High) tone. Such a mimetic represents an event that occurred once, as in ($22a). Reduplication duplicates the base form, and marks the first mora with H and the rest of the moras with L[18]. The reduplicated form of

($22a) is ($22b). A reduplicated mimetic is a phonological word since it is impossible to put a pause between the two base forms. It is also impossible to concatenate base segments more than twice, as in ($22cd). Reduplication signifies iterativity.

($N22)

a. goro (LH) 'heavy object rolling once'

b. gorogoro (HLLL) 'heavy object rolling iteratively'

c. * gorogorogoro (HLLLLL) 'heavy object rolling iteratively for a long time.'

d. * gorogorogorogoro (HLLLLLLL) 'heavy object rolling iteratively for a very long time.'

Repetition simply concatenates the base form as many times as is wished. The tone pattern is retained, and there can be a pause between each repetition. These two facts indicate that each repetition is a phonological word[19], as Hamano points out. The most striking thing about this process is that when applied to a non-reduplicated mimetic, the number of mimetic repetitions signifies the number of event repetitions. ($23b) means the event was repeated exactly twice, and ($23c) means it was repeated exactly three times. Note the contrast between ($22b) and ($23b). A reduplicated mimetic can also be repeated, as in ($23d). In this case, more repetition signifies longer iteration of the event that the base form represents.

($N23)

a. goro (LH)

'heavy object rolling once'

b. goro goro (LH LH)

'heavy object rolling twice'

c. goro goro goro (LH LH LH)

' heavy object rolling three times'

d. gorogoro gorogoro (HLLL HLLL)

'heavy object rolling iteratively for a long time.'

5.5.2 Sound symbolism and sub-phonemic recurrent meaningful elements.

In mimetics, the size of recurrent meaningful units is smaller than other parts of the Japanese lexicon. Hamano (1986) demonstrates that phonemes in mimetics are consistently meaningful. Furthermore, sound-meaning relationships are systematic at the level of phonological features. For consonants, [+- voiced], palatalization, and [+- continuent] can be assigned meaning. For vowels, [+- front] and height can be assigned meaning. For example, Hamano argues that the semantic contribution of the first consonant of an adverbial mimetic is predictable from its phonological features, as shown in ($24)

($N24) (Hamano 1996)

[-voice] = small/light/fine

[+voice] = big/heavy/coarse

palatalization = childishness, excessive energy

[-continuent] = abrupt movement, surface

[continuent] = continuous movement, shapelessness

In other parts of the Japanese lexicon, a recurrent meaningful element is at least as big as a phoneme.

There are two characteristics of affecto-imagistic representation that might be reflected in this peculiarity of mimetics. One possibility is that the iconicity of affecto-imagistic representation is reflected on the phonological encoding of mimetics via articulatory iconism. It is possible that the articulation of a sound, which itself can be conceived as an eventuality (i.e. event or state), is iconically mapped onto a mental representation of certain kinds of eventualities. Hamano (1986: vi-vii) implies this possibility by noting, " there indeed are systematic ties between semantic and phonological components of these mimetic words". She gives the following example of the tie. The semantics of /p/ in adverbial mimetics is "broken down to 'abrupt movement, stretched-out surface or line, light/small/fine' corresponding to its phonological feature of 'explosive, bilabial, voiceless' " (Hamano 1986: vii)[20].

Another factor causing the meaningful units to be smaller in mimetics may be the heavy informational load placed on a mimetic[21]. A mimetic encodes many features of an eventuality and associated affect. Consider *beta* 'a big thing sticking on a two-dimensional surface, which is unpleasant'. There are two ways to encode more of this rich information in a word by means of limited sound material. One way is to make a word longer. The other is to make the unit of encoding smaller. The former strategy is used to a limited extent since the sequence of phonemes is already heavily used for iconic representation of time.

The latter strategy is taken to pack rich information into a small space. This hypothesis is consistent with the full utilization of phonemic resources in sound symbolism. That is to say, mimetics contain very little "idle" sound material that does not add meaning by means of sound symbolism[22].

5.5.3. Summary

Morphology of mimetics have characteristics that are markedly different from the rest of the lexicon. Undeniable iconism is at play in the representation of Aktionsarten. Articulatory iconism might also be at play, which would cause the recurrent subphonemic meaningful units in mimetics. I proposed that these may be the reflection of iconism in the affecto-imagistic representation itself. Recurrent subphonemic meaningful units may reflect dense packaging of information in the affecto-imagistic dimension. These conclusions are consistent with the idea of a separate semantic dimension for mimetics, if we assume that semiotic characteristics of lexical items are indicative of the nature of their meaning representation.

6. Types of eventualities allowed in the affecto-imagistic dimension.

In the previous sections, I argued for a separate semantic dimension for mimetics, the affecto-imagistic dimension. It subsumes what has been called the "expressive function" of language. However, the affecto-imagistic dimension goes far beyond the expressive function since mimetics not only signify affect but also mental representation of an event of state that is external to a speaker. A

question arises as to how far the affecto-imagistic dimension can go. Are there any classes of information that are never represented in the affecto-imagistic dimension?

6.1 Selectional restrictions and event representation

I will claim that in the affecto-imagistic dimension some limited facets of an eventuality (event or state) are represented. The argumentation will be based on the following two assumptions. First, the information from the two dimensions have to be compatible with each other in order for an utterance with a mimetic to be coherently meaningful. Second, an incompatibility between two dimensions results in a selectional restriction violation. I will infer the pieces of information that a mimetic signifies by examining the parts of a sentence on which the mimetic imposes selectional restrictions.

A mimetic imposes selectional restrictions on different facets of the described eventuality. For example, an adverbial mimetic *gorogoro* must be used in a clause which refers to an event that involves a continuous rolling of a heavy object. It imposes a selectional restriction on the manner, as in ($25a). The motion has to involve rotation. It requires the described eventuality to be iterative, as in ($25b). It imposes restrictions requiring that the theme of the motion be heavy, as in ($25c).

($N25)

a. [tetu no tama] ga gorogoro to {*subet/ korogat} -ta
iron Gen ball Nom Mimetic Comp slide roll Past

gorogoro = movement of a heavy round object with continuous rotation

'An iron ball {*slid / rolled on}.'

b. tetu no tama ga gorogoro to {* ik -kaiten -si / korogat} -ta.

iron Gen ball Nom Mimetic Comp one rotation do / roll Past

'An iron ball {* made one rotation/ rolled on}'

c. {*hitotubu no sinjyu/ tetu no tama} ga gorogoro to korogat -ta.

one-piece Gen pearl iron Gen ball Nom Mimetic Comp roll Past

' {*A pearl / an iron ball} rolled on'

Note that the selectional restrictions are imposed on the basis of semantic roles, rather than grammatical relations. ($26a) differs from ($25c) in that it has a lexicalized causative verb where the patient/theme NP appears as the surface object. Unlike ($25c), the theme is realized as a surface object in ($26a). However, the "mass" restriction of *gorogoro* is still imposed on the theme, rather than the agent. By the same token, the "mass" restriction is on the theme in the cases with a non-causative verb such as ($26bc).

($N26)

a. dareka ga tama o gorogoro to korogasi -ta.

somebody Nom ball Acc Mimetic Comp make-roll Past

'Somebody rolled a heavy ball.'

*'Somebody heavy rolled a ball.'

b. dareka ga mizu o ba tto mai -ta.

somebody Nom water Acc Mimetic Comp sprinkle Past

'Somebody sprinkled a large amount of water.'

* 'Somebody heavy sprinkled water.'

c. dareka ga mizu o pa tto mai -ta.

somebody Nom water Acc Mimetic Comp sprinkle Past

'Somebody sprinkled a small amount of water.'

* 'Somebody light sprinkled water.'

In general, mimetics never impose restrictions on agent and the time or place in which the described eventuality takes place. From this pattern of selectional restrictions, it can be inferred that a mimetic signifies an eventuality representation in the affecto-imagistic dimension, which includes the manner and theme of the motion, and the temporal structure internal to the eventuality. This representation does not include agentivity and the spatio-temporal specification external to the eventuality.

Mimetics differ as to what type of temporal internal structure of an eventuality they select. Adverbial mimetics select some combination of Vendler's (1967) categories: State, Activity, Accomplishment, or Achievement. Iterative events selected by reduplicated adverbial mimetics such as *gorogoro* is a subordinate category of Activity (a sustained event without culmination) or Accomplishment (a sustained event with culmination). Non-reduplicated forms such as *goro* select Accomplishment or Achievement (a punctual event). A mimetic such as *bitya* 'a liquidy object hitting a flat surface, splashing the liquid' selects only Achievement. Adverbial mimetics such as *ki* 'being determined and defensive' select State.

A nominal mimetic represents only State. For example, ($27b) can only mean that a lamp is in the state of *pikapika* 'shiny'. It cannot mean that a lamp is flashing, even though an adverbial mimetic with the same sequence of segmental materials (with a different tone pattern[23]) can signify flashing, as shown in ($27a). Note the two different functions of *te-ir-u* in ($27ab). In ($27a), it marks progressive aspect. In ($27b), it changes an Activity predicate into a State predicate. A bare Activity verb is not permissible, as shown in ($27c).

($N27)

a. rampu ga pikapika(HLLL) to hikat -te -ir -u
lam Nom Adverbial Mimetic glow Comp exist Pres
* ' A lamp is shiny. '
' A lamp is flashing.'

b. rampu ga pikapika(LHHH) ni hikat -te -ir -u.
lamp Nom Nominal Mimetic Copula glow Comp exist Pres
' A lamp is shiny. '
* ' A lamp is flashing.'

c. * rampu ga pikapika(LHHH) ni hikar -u.
lamp Nom Nominal Mimetic Copula glow Pres
' A lamp is shiny. '

In addition to State predicates, inchoative predicates, which encode a change of state, can be used with a nominal mimetic. In this case, a nominal mimetic represents the end state. In ($28a), *kutu o migaku* 'polish shoes' is an inchoative

predicate, and the nominal mimetic represents the end state of polishing a shoe. ($28b) is not acceptable because *kutu o kosuru* 'rub a shoe' is not an inchoative predicate.

($N28)

a. Taro wa kutu o pikapika ni migai ta
Top shoe Acc Mimetic Dat polish Past
' Taro polished a shoe shiny.'

b. * Taro wa kutu o pikapika ni kosut ta
Top shoe Acc Mimetic Dat rub Past
'Taro rubbed a shoe shiny.'

Only one mimetic adverbial is usually allowed in a clause. This supports the claim that a mimetic is not simply a manner adverb or noun, but it represents a certain eventuality all by itself. Since a clause typically denotes only one eventuality, only one co-expressive mimetic can appear in a clause. Thus, ($29ab) are acceptable, but ($29c) is not acceptable.

($N29)

a. Taro wa manjyuu o musyamusya to tabe -ta.
Top bean-paste-bun Acc Mimetic Comp eat Past
musyamusya = carelessly eating with one's mouth full
' Taro carelessly ate bean-paste buns with his mouth full.'

b. Taro wa manjyuu o pakupaku to tabe -ta.

Top bean-paste-bun Acc Mimetic Comp eat Past

pakupaku = frequent mouth opening and closing; eating vigorously

' Taro vigorously ate bean-paste buns. '

c. * Taro wa musyamusya to pakupaku to tabe -ta.

' Taro vigorously and carelessly ate bean-paste buns with his mouth full.'

The exception to this rule also supports the above claim. The exception is a clause with an inchoative predicate, which denotes an action as well as the resulting change of state. In this case, two mimetics can appear in a clause: an adverbial mimetic representing the action, and a nominal mimetic representing the end state, as in ($30).

($N30)

Taro wa kutu o gosigosi to pikapika ni migai - ta.[24]

Top shoe Acc Adv. Mimetic Comp Nom. Mimetic Dat polish Past

gosigosi = rubbing a hard surface, involving friction.

pikapika = shiny

' Taro rubbed the surface of the shoe, which involved friction, and made it shiny.'

6.2. What is affecto-imagistic eventuality representation?

In sections 5.4 and 5.5, I argued that affecto-imagistic representation includes imagery and affect. In section 6.1, I argued that a mimetic signifies an eventuality in the affecto-imagistic dimension. I also argued that the affecto-imagistic eventuality representation has its limitation. It signifies the manner,

theme, and Aktionsart of an eventuality, but it does not include the agent and the spatio-temporal location in which the described eventuality takes place.

An affecto-imagistic representation is an eventuality representation in which perceptual-motor information is temporally organized with contingent affective information. I conjecture that this is the minimal inner code for an experience. I will call this mental informational unit a PROTO-EVENTUALITY. Proto-eventualities can also be evoked internally without actual input from the perceptual-motor or affective systems. This typically happens when a native speaker hears or speaks a mimetic. The effect of this evocation is the re-experiencing of the signified eventuality, which leads to the subjective experience of vivid emotive imagery.

Neither agentivity, in which intentionality is attributed to a proto-eventuality, nor the locating of an eventuality in a eventuality-external spatio-temporal array belongs to the affecto-imagistic dimension. They are products of cognitive processes that operate in the analytic dimension. The separation of agentivity from spatio-temporal features of an eventuality has been claimed by some linguists. Talmy (1985) argues that the semantic representation of motion/location is basic, and agentivity can be added to the basic representation. Jackendoff (1990) adopts Talmy's dissociation of motion/location and agentivity. He further claims that they belong to different dimensions, the "thematic tier" and "action tier". Note that the notion of a proto-eventuality covers not only motion-events but also any other eventuality that perceptual-motor systems can detect, with contingent affect.

In the literature of developmental psychology, concepts similar to proto-eventuality have been proposed as one of the primordial forms of mental representation[25]. For example, Piaget (1940/1968) argues that perceptual-motor schemata, which have been used in the interaction with the physical world, get "internalized" in a later stage of the development and becomes available for thought processes. These internalized schemata "are pictures or imitations of reality midway between actual experience and 'mental experience.' " (pp.32). Thought in terms of perceptual-motor schema is a transitional stage in the development, which is eventually incorporated into the system of rational thought. Werner and Kaplan (1964) argues that "an organismic state (comprised of interwoven affective, postural, imaginal, and sensory components)" (pp.22) is a type of mental representation developmentally primordial to more abstract representation. They maintain that the meaning of an (adult) utterance at its deepest level is such an organismic state.[26]

It is conceivable that meaning in terms of proto-eventuality appear at a relative early stage of language development. It may be the stage where there is not yet clear separation of ego from others, in other words, the stage where a child has not discovered recurrent agentive beings in the world. The stage may also be the period where the child's thinking is largely restricted to here-and-now, namely, the period where an eventuality cannot be place in an larger the temporal-spatial array spanning beyond here-and-now. Even after the emergence of analytic meaning, the affecto-imagistic dimension remains to be an essential part of meaning of an utterance and some lexical items such as mimetics provides a conventionalized link to a certain proto-eventuality.

7. Coordination between affecto-imagistic and analytic dimensions

In order for an utterance with a mimetic to be coherently meaningful, the information from the two dimensions have to be compatible with each other. This brings up the following question. How are two dimensions coordinated? In section 6.1, I conjectured that compatibility checking underlies the selectional restriction that a mimetic imposes. In this section, I will further investigate the nature of such coordination by examining the characteristics of selectional restrictions mimetics impose, and then discuss the coordination of the two dimensions in utterances without a mimetic.

Compatibility checking is a kind of mental simulation which requires access to a speaker's knowledge of the world. Observe the gradation of acceptability in ($31). The difference between ($31a), ($31b) and ($31c) is the height from which the bean curd is dropped.

($N31)

* a. tofu o [1cm no takasa] kara yuka ni bitya to otosi -ta.
bean curd Acc Gen height from floor Dat Mimetic drop Past
bitya = a liquidy object hitting a flat surface, splashing the liquid
'(Somebody) dropped bean curd to the floor from a height of 1cm.'

? b. tofu o 10cm no takasa kara yuka ni bitya to otosita.
'(Somebody) dropped bean curd to the floor from a height of 10cm.'

c. Tofu o 100cm no takasa kara yuka ni bitya to otosita.

'(Somebody) dropped bean curd to the floor from a height of 100cm.'

The acceptability, namely, the compatibility of the two dimensions, is judged on the basis of a kind of mental simulation, in which it is decided if typical liquidity of bean curd and the estimated impact of bean curd's hitting the floor would result in the appropriate "splashing effect". The kind of surface the bean curd hits has to be flat. The estimated impact depends on the height of dropping, and the manner of release (e.g. hurling or dropping).

At this point, let me turn to the question of utterances without a mimetic. I maintain that the two dimensions underlie almost all utterances in Japanese or any other languages, including languages like English, which has less developed mimetic inventory (See Rhodes and Lawler 1981, Rhodes 1994 for the discussion of English mimetic elements). How much content each dimension has can vary from utterance to utterance. Affective interjections such as English *wow!, ouch!,* and *gee!* and utterances with an iconic gestures and/or a mimetic are rich in the affecto-imagistic content, as well as in the analytic content[27]. An utterance that consists only of an adverbial mimetic, which is rare in normal conversation but could be used by a skilled story teller, would have affecto-imagistic content withtout any analytic content. An example with a full analytic content and a minimal affecto-imagistic content may include, for example, routine utterances by telephone operators such as *NTT 104-ban, Kita de gozai masu* "This is NTT (Nippon Telephone and Telegram) directory service, Kita speaking".

In an utterance with contents in the two dimensions, the information in the two dimensions have to be coordinated for the utterance to be coherently

meaningful. I conjecture that they are coordinated in a similar fashion as in the case of utterances with an mimetic. When the imagistic dimension is externalized as a gesture or expressive prosody, one should observe that it is compatible with the externalization of the analytic dimension, namely the segmental aspect of the speech.

8. Conclusions and discussion.

I have argued that the semantic analysis of mimetics reveals the two-dimensional structure of semantic representation. One is a dimension of decontextualized predication, or the analytic dimension. The other is a dimension of proto-eventuality representation, which is imagistic and affective. The latter subsumes the traditional notion of expressive function of language. Nominal mimetics signify analytic and affecto-imagistic representation simultaneously, whereas adverbial mimetics signify only affecto-imagistic representation[28]. The affecto-imagistic dimension also underlies expressive prosody and iconic gesture, both of which are highly associated with mimetics. The compatibility of the two dimensions is ensured by mental simulation. Figure 4 summarizes the above points.

---- Figure 4 about here -----

The above conclusions lead to the question of the function of the affecto-imagistic dimension. Why is this part of our cognitive makeup? I propose that the affecto-imagistic dimension is the interface between language and other forms

of information in the mind. Jackendoff (1983: 16) proposes the Cognitive Constraint of semantic theory: "There must be levels of mental representation at which information conveyed by language is compatible with information from other peripheral systems such as vision, nonverbal audition, smell, kinaesthesia, and so forth". Jackendoff is correct in asserting that the Cognitive Constraint is an important theoretical issue. However, the number of such levels remains speculative. Jackendoff conjectures that *conceptual structure*, which is equivalent to the analytic dimension, is the only such level. He states, " There is a *single* level of mental representation, *conceptual structure*, at which linguistic, sensory, and motor information are compatible " (Jackendoff 1983: 17)

I propose that there are two levels of representations, the analytic dimension and the affecto-imagistic dimension, in which language and various kinds of mental information are compatible. The kinds of compatibility in two dimensions are different. In the analytic dimension, the compatibility among all the different kinds of mental information is achieved by translating modality-specific information into amodal symbols. Then, amodal symbols can be combined to represent a coherent idea such as, "I ate brown sticky things with unpleasant smell". In the affecto-imagistic dimension, information stays modality-specific. Information is bundled and given a unified temporal contour to become a unit, which I called a proto-eventuality. It is a unit of recurring experience, for which we could make use of a linguistic label, and it can be denoted by a Japanese mimetic. That is to say, it is compatible with language. The same eventuality can be dually represented in the two dimensions, the compatibility of which is ensured by a "thought-experiment".

A further question arises;that is, which levels of representation that are linguistically accessible come into direct contact with various kinds of mental information? Let us call this the Interface Question. Since modality-specific information is already part of the affecto-imagistic dimension, I would like to propose that sensory, motor, and affective informations have to go through the affecto-imagistic dimension to reach the analytic dimension, making the affecto-imagistic dimension is the only interface to language for information of that kind, ($32).

($N32) The Affecto-imagistic Dimension Hypothesis
There is a single level of mental representation, the affecto-imagistic dimension, where linguistic information comes into direct contact with sensory, motor and affective information.

There is no logical necessity for positing only one interface level. This proposal is rather a means to a more constrained theory of the structure of the mind.

To conclude, Japanese mimetics tell us that what is traditionally called the expressive mode of meaning has far more powerful representational capacity than has been supposed. Also, mimetics reveal important aspects of the link between language and cognition. I hope that this paper will contribute to the elevation of the status of mimetics from "a marginal phenomenon" to the focus of attention in the investigation of functions of language and the language-cognition interface.

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[1] An earlier version of this paper was presented at ESCOL at State University of New York at Buffalo, USA in 1992, Belgian Linguistic Society Meeting in Antwerp, Belgium in 1992, workshop "Gesture Crosslinguistically" in Albuquerque, USA in 1995 and appeared as a chapter in Kita (1993). I have benefited from the feedback from conference participants. I would also like to thank the following people who have commented on earlier versions of this paper: all the anonymous reviewers, Amy Dahlstrom, Susan Dancan, Michele Emanatian, Shoko Hamano, James D. McCawley, David McNeill, Debra Occhi. I would also like to thank Martha Tyrone and Debbie Long proofreading the paper. Of course, all the remaining errors are mine.

[2] This 1874 paper and Klima and Bellugi's (1979) book on ASL are the only literature he cites in this regard. None of the mimetics, ideophone, and onomatopoeia literature is cited.

[3] In Kita (1993), this was called "synthetic" dimension.

[4] Exact formulation of Vowel Devoicing is controversial and complex. See Vance (1987) for further discussions.

[5] *Te* and *to* are used to introduce a compliment S for verbs such as *omou* 'think' and *iu* 'say'. Hamano (1986) points out that adverbial mimetics consists of three groups. The first group is obligatorily accompanied by either *to* or *te* .

According to Hamano, this group is the most iconic. The second group is obligatorily accompanied by *to*. The third group is optionally accompanied by *to*. I will use the complementizer *to* , which is more general, throughout this paper.

[6] The abbreviations used for the inter-linear gloss in this paper are the following.

Acc = Accusative

Dat = Dative

Comp = Complementizer

Cop = Copula

Gen = Genitive

Nom = Nominative

Pres = Present

Top = Topic

[7] I would like to thank an anonymous reviewer for providing me with the examples ($3cd).

[8] Words such as *gutyagutya* may be in the middle of historical change toward a de-mimetic adjectival nominal.

[9] This semantic redundancy effect is different from what Diffloth (1972) called "syntactic redundancy" of Semai ideophones. In Semai, an ideophone can be followed by a sentence which is referentially equivalent. This is a redundancy at discourse level, since in Semai, ideophones are extra-syntactic as shown in

Diffloth (1976).

[10] The adverbial mimetics are different from a so-called super positive polarity item (Hinds 1974, McCawley 1988) in that they can be used in "non-assertive" contexts such as in relative clauses (i), or in a conditional clause (ii).

(i) Ken wa sono [gorogoro to korogat te ki -ta] tama o tomet -a.

Top that Mimetic roll Comp come Past ball Acc stop Past

'Ken stopped that (heavy) ball that was rolling continuously (towards him)'

(ii) moshi tama ga gorogoro korogat te ki ta ra, tome te kudasa -i

if ball Nom Mimetic roll Comp come Past if stop Comp I.ask Pres

'If a ball comes rolling *gorogoro*, then please stop it.'

[11] This form of negative sentence is used instead of simpler (i) for the following reasons.

(i) tama ga korogara -nakat -ta

ball Nom roll Neg Past

'Balls did not rotate.'

As Kuno (1980) points out, a good number of native speakers cannot interpret the negation of (i) as a negation of the proposition. It is often interpreted as the focus being only on the verb *korogara*.

[12] The structure parallel to ($10), ($11a) and ($11b), namely (i) is not used. This is because when the embedded predicate is a copula, an adjective, or a nominal adjective, the structure induces the preference that the focus of negation to be on the subject NP, as shown in (ii).

(i) [ano heya ga gutyagutya na] no de wa na-i.
that room Nom Mimetic Cop Nominalizer Cop Focus Neg Pres
'It is not that room that is messy'

(ii) [ano heya ga kaisootyuu na] no de wa na-i.
under.renovation Cop
'It is not that room that is being renovated.'

The adverbial mimetic *gorogoro* in the same matrix clause as ($11c) has the same acceptability pattern as ($10b). With (iii), it is easier to get the metalinguistic negation reading (c) than ($10b).

(iii) [tama ga gorogoro to korogat ta] to i-u wake de wa na-i
ball Nom Mimetic roll Past Comp say Pres Comp Cop Focus Neg Pres
gorogoro = movement of a heavy object with continuous rotation
* (a) 'it was not the case that a ball rolled *gorogoro*.'

??(b) 'it was not a ball that rolled *gorogoro*.'

? (c) 'it was not *gorogoro* that a ball rolled.'

* (d) 'it was not rolling that a ball did *gorogoro*.'

* (e) 'it was not rolling *gorogoro* that a ball did.'

[13] Diffloth (1972) conjectured that Japanese mimetics have dual status. I claim that his conjecture is right for nominal mimetics, but wrong for adverbial mimetics.

[14] The association of iconic gestures and mimetics have been reported by linguists working on mimetics in various languages. Samarin had Bantu speakers define mimetics in an attempt to specify their meaning. "It turned out that some of the meanings I isolated were based almost exclusively on gestures. On the assumption that informants were leaning too heavily on their gestures to convey the meanings, I have tried, unsuccessfully, to get them to verbalize without gestures." (Samarin 1971: 153). Diffloth notes the same phenomenon, in describing mimetics (*ideophones* in his terminology) in Semai, a Mon-Khmer language, and Korean. "Many speakers cannot find exact paraphrases and prefer to repeat the ideophones with a more distinct elocution, accompanied by facial expressions and body gestures if appropriate." (Diffloth 1972: 441) Kunene (1978) reports that an iconic gesture synchronizes with a Southern Sotho ideophone in a similar manner to ($13).

[15] For more details of different phases of a gesture see Kendon (1972) and Kita

(1993).

[16] Bolinger (1985) holds a converging view on the relationship between intonation and gesture: "intonation is part of a gestural complex whose primitive and still surviving function is the signaling of emotion" (Bolinger 1985: 195).

[17] I will restrict the discussion to full reduplication. Hamano also discusses partial reduplication such as *pipin*, *pappa*.

[18] When Q, the first half of a geminate consonant, is suffixed to the reduplicated adverbial mimetics as in /gorogoroQ/, the tone will be LHHHH, as pointed out by Hirose (1981). Note that tone is assigned to every mora, i.e. every onset plus nucleus, and every coda.

[19] The retention of the tone pattern is relevant. In Japanese, there is only one H to L transition allowed within a phonological word.

[20] The examples of the sound symbolism in /p/ are the following: *piQ* 'a quick movment of a small object', *piin* 'a streched state of a thin one or two dimensional object'.

[21] Iconism may be responsible for deciding which phonological features map onto which features in the affecto-imagistic dimension.

[22] I would like to thank David McNeill for helping me clarifying the argument.

[23] Most of the nominal mimetics have reduplicated form $C_1V_2C_1V_2$ and the tone pattern is always L(ow)HHH. In contrast, the tone pattern of most reduplicated adverbial mimetics is H(igh)LLL.

[24] I owe this example to Yoshio Ueno.

[25] I would like thank an anonymous reviewer, who pointed out to me the developmental literature.

[26] According to Werner and Kaplan, abstract words also have the potential to create meaning in terms of organismic state ("physiognomic apprehension of language form"). I agree with Werner and Kaplan that affecto-imagistic meaning underlies every utterance in any language. Contrary to Werner and Kaplan, I maintain that there is a fundamental qualitative difference between the meaning in terms of organismic states (the affecto-imagistic meaning) and abstract meaning (the analytic meaning).

[27] Interjections have more elaborate analytic specifications than it may seem at first sight. See Wilkins (1992) for the analysis of interjections as highly context sensitive, nevertheless analytically elaborate indexicals.

[28] One might wonder why we have the split between nominal and adverbial mimetics. An answer may be that two different functional demands create such a split. One demand is to be able to express affecto-imagistic contents freely, and the other is to save the effort of coordination of the two dimensions. It is may be the case that in adverbial mimetics affecto-imagistic information is packaged into a lexical representation according to its own organizational principles, without extra constraints from the principles of the analytic dimension. It is a topic of future study exactly what the organizational principles are in the two dimensions.

In nominal mimetics, the coordination between the two dimensions is already packaged into the lexical representation, but in adverbial mimetics the coordination has to be done from the scratch every time they are used.

---------- Figure 1--------

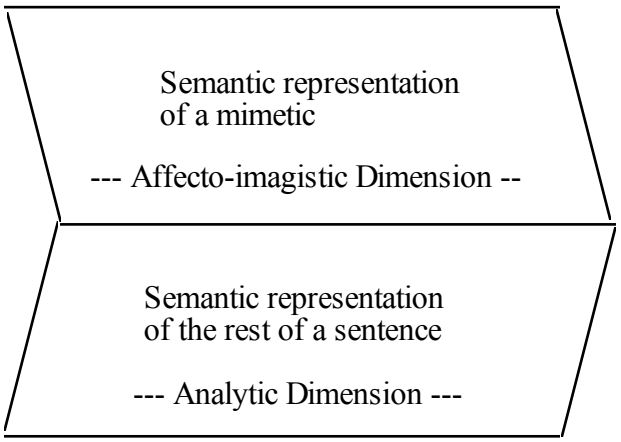


Figure 1. Two dimensions of meaning.

---------- Figure 2 ----------

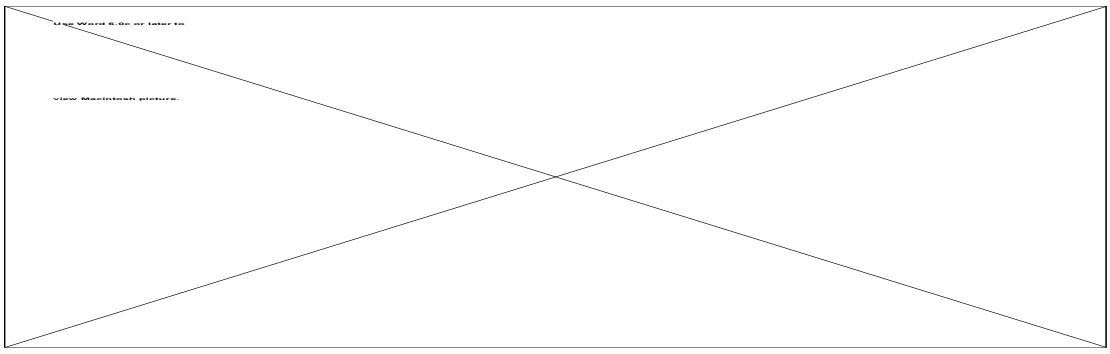


Figure 2. Japanese mimetics and verbs' synchronization with a co-expressive gesture stroke.

----- Figure 3 -------

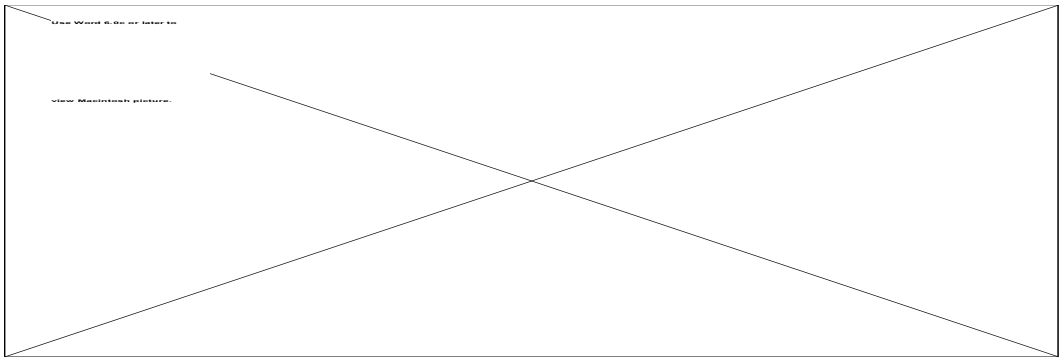
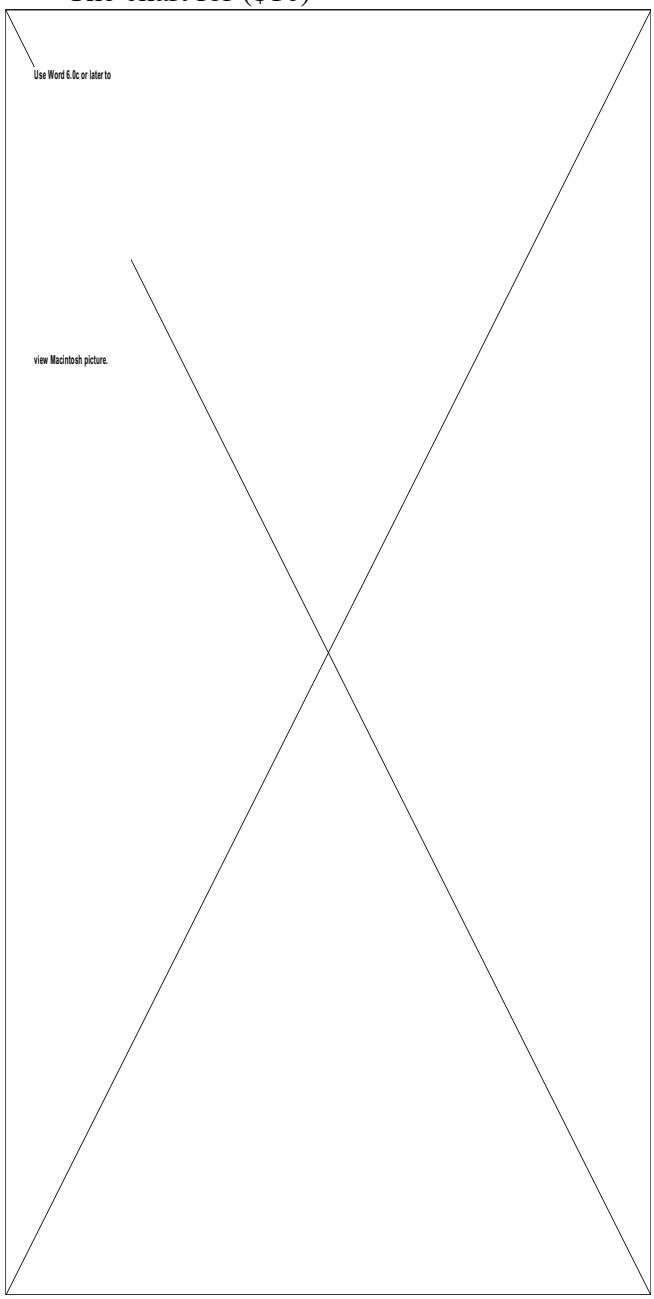
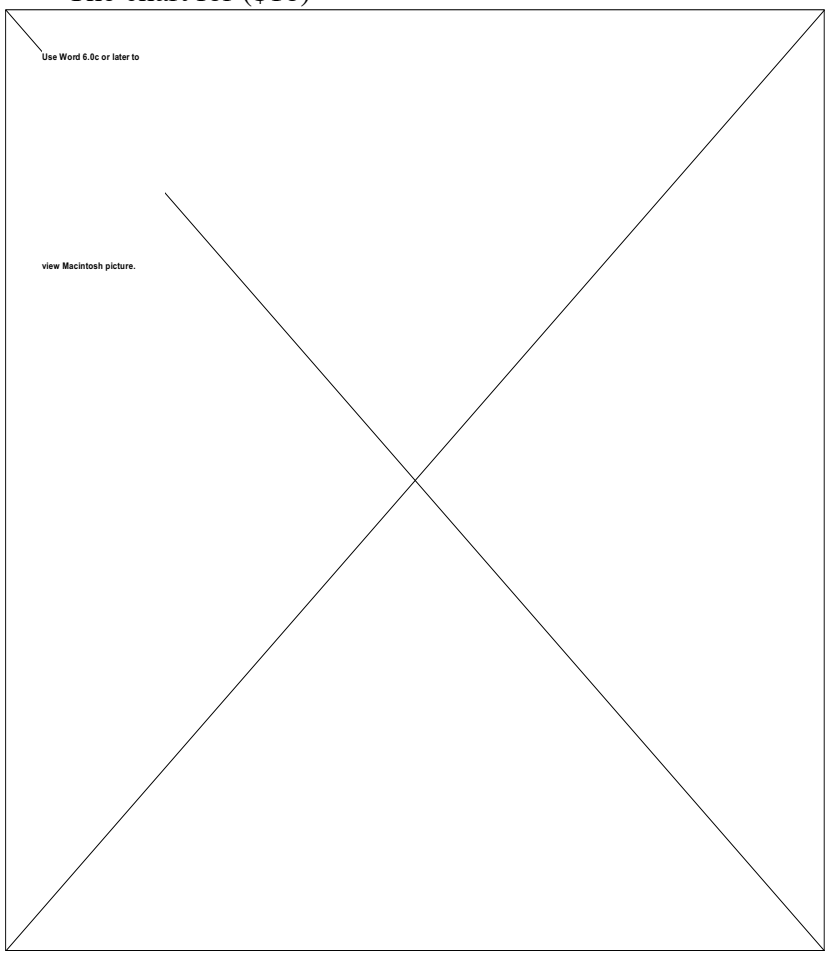


Figure 3. Japanese mimetics and verbs' synchronization with the onset of a co-expressive gesture stroke.

----- The chart for ($16) -----



----- The chart for ($18) ----



---- Figure 4. ----

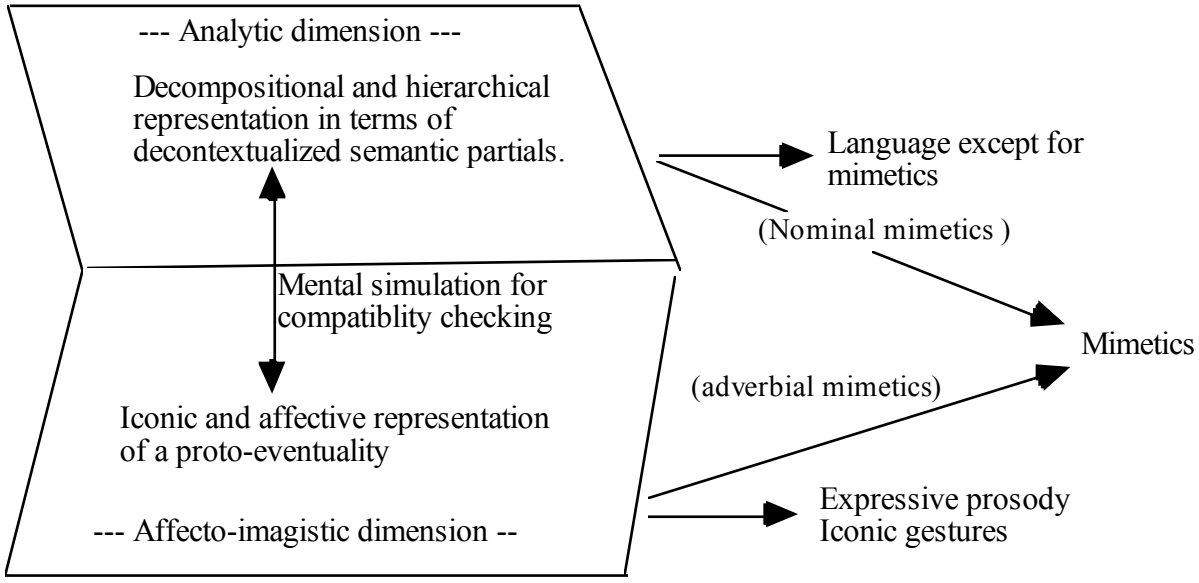


Figure 4. Summary.

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Figure 1. Two dimensions of meaning

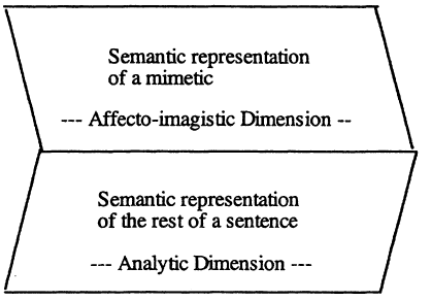
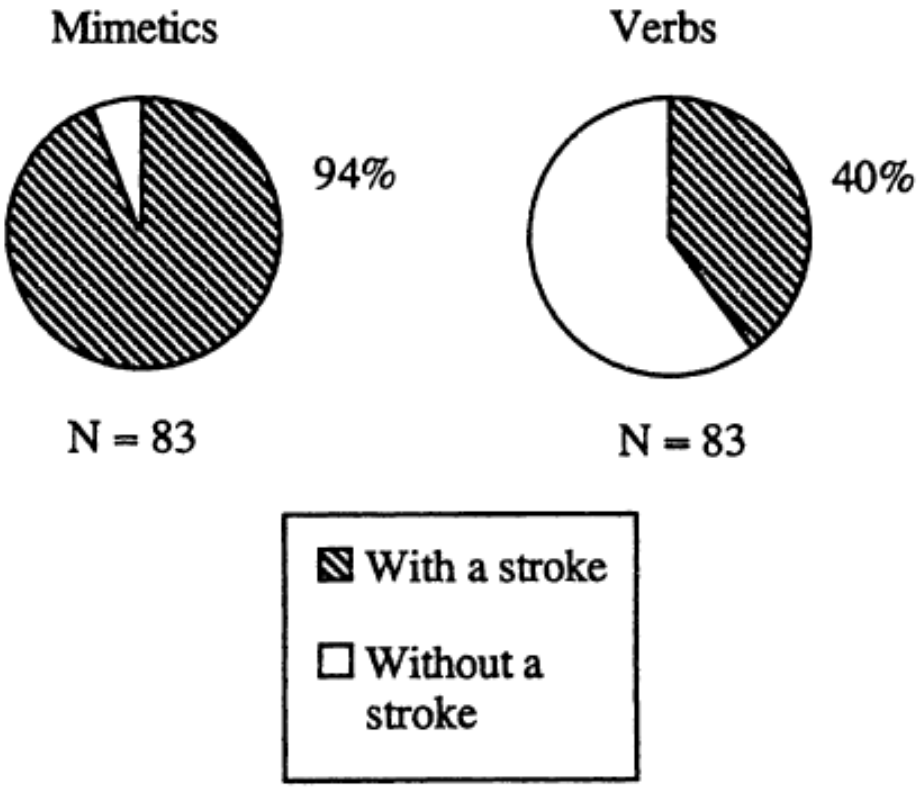


Figure 2. Japanese mimetics and verbs' synchronization with a coexpressive gesture stroke.



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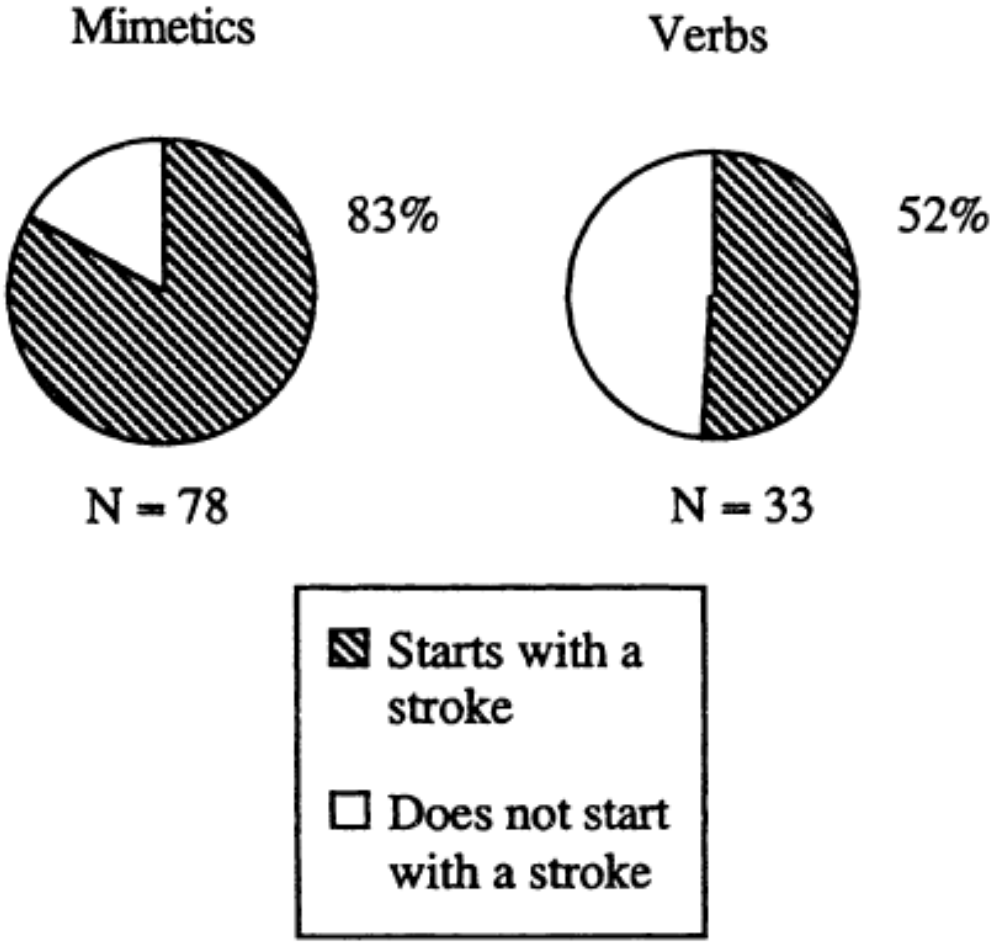
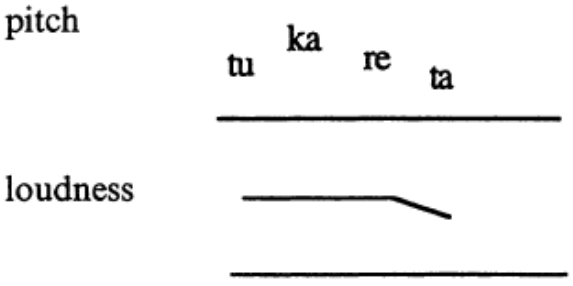
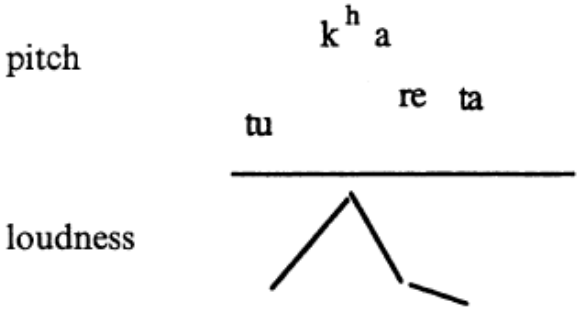


Example (16)

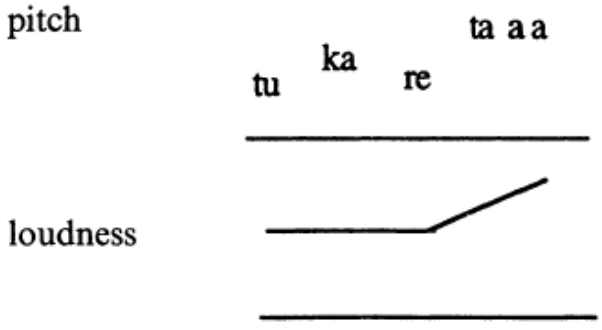
(16) (a) (plain prosody)
'I am tired.'



(b) (Expressively prosody on *tukare*)
'I am SO tired.'

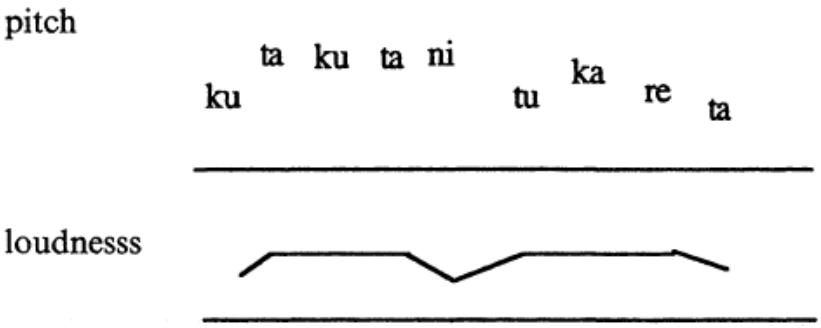


(c) (Expressively prosody on *-ta*)
'It's been a LONG day. I am tired.'



(18)

(18) (a) (plain prosody)
'I am SO tired.'



(b) (expressively prosody on *kutakuta*)
'I am SO TIRED.'

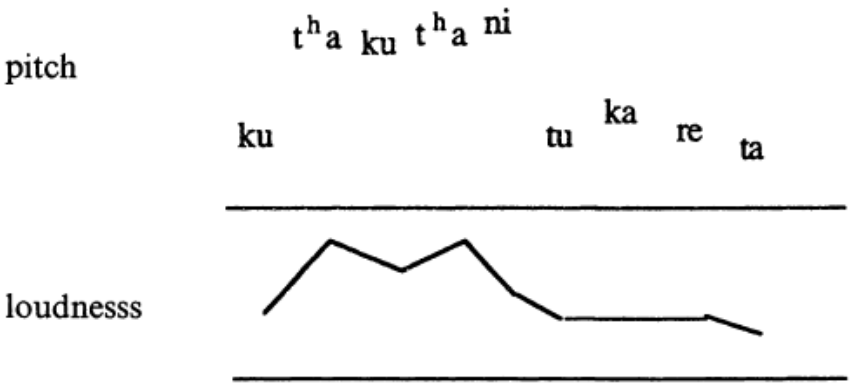


Figure 4. Summary