

THE JAPANESE SYLLABLE DEBATE: A SKEPTICAL LOOK AT SOME ANTI-SYLLABLE ARGUMENTS*

TIMOTHY J. VANCE

National Institute for Japanese Language and Linguistics

1 Introduction

Most linguists would agree that syllables seem to be basic units of speech production and perception (Abercrombie 1967:37, Lieberman 1977:120–121), although syllables are notoriously difficult to define either articulatorily or auditorily (Laver 1994:113–114, Rogers 2000:267–268, Zec 2007:161). Most researchers today who would identify themselves as phonologists analyze Japanese (i.e., modern Tokyo “standard” Japanese) as having both moras and syllables: one-mora light syllables (short syllables), two-mora heavy syllables (long syllables), and even three-mora superheavy syllables (extra-long syllables), although this last category is marginal (Vance 2008:131–132). There is, however, no colloquial Japanese word that denotes a Japanese syllable in this sense, and ordinary native speakers know how to count moras but not how to count syllables (Vance 2008:115–116, Labrune 2012:116).

2 Moras as Syllables

The psychological reality of moras in Japanese is beyond dispute (Labrune 2012:116–117). Native speakers learn to count moras as small children, and moras are the metrical units of traditional Japanese poetry (Vance 2008:121–122). Also, since Japanese has quite restrictive phonotactics, there is no uncertainty about the boundaries between moras in the sense that every phoneme in a traditional linear transcription is unambiguously a member of one particular mora.

A prototypical Japanese mora consists of a single consonant followed by a short vowel, as in the three moras of /_μna_μmi_μda/ 涙 ‘tear’. There are also moras consisting entirely of a vowel, as in

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the first and last moras of / μ i μ ri μ e/ 入江 ‘inlet’. Departing even more from the CV prototype are the two moraic consonants, /N/ and /Q/. The moraic nasal /N/ has a wide range of phonetic realizations, but its place of articulation and aperture (stop or approximant) are determined by the immediately following segment (Vance 2008:96–105), as in (1).

- (1) a. / μ ko μ N μ bu/ [kōm:bu] 昆布 ‘kelp’
 b. / μ hi μ N μ do/ [çĩn:do] 頻度 ‘frequency’
 c. / μ ge μ N μ so/ [gẽũ:so] 元素 ‘element’
 d. / μ ke μ N μ o/ [kẽũ:o] 嫌惡 ‘hatred’

The moraic obstruent /Q/ usually occurs immediately preceding a non-moraic obstruent and assimilates totally to that following obstruent (Vance 2008:105–107), as in (2).

- (2) a. / μ ši μ Q μ po/ [çip::o] 尻尾 ‘tail’
 b. / μ ke μ Q μ ka/ [kek::a] 結果 ‘result’
 c. / μ re μ Q μ ša/ [reç::a] 列車 ‘train’

There is also an intuitive boundary between moras within a long vowel, although there is no auditory division. For example, using /H/ to represent moraic vowel length, the boundary between /ko/ and /H/ in / μ ko μ H μ ri/ [ko:ri] 氷 ‘ice’ is somewhere within [o:].

In traditional Japanese language research, the term *onsetsu* 音節 was used to denote the units described here as moras (McCawley 1968:131, Kubozono and Honma 2002:18). Influential American Descriptivists followed this tradition and used the English word *syllable* to denote these same units (Bloch 1950:90–92, Martin 1952:12, Hockett 1955:59). These syllables/moras do not correspond exactly to the weight units of many models, because the traditional Japanese units incorporate onsets, as in (3).

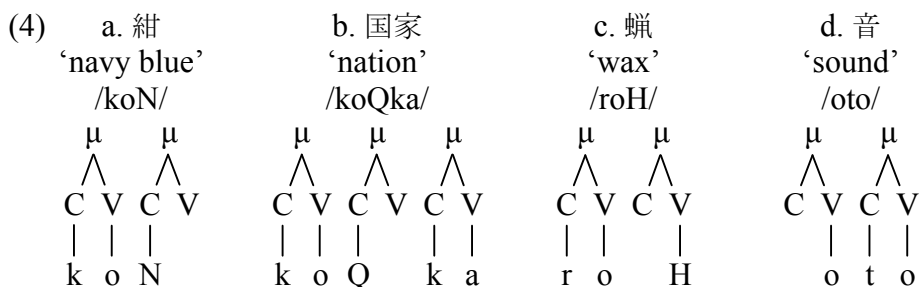
- | | | | | |
|-----|---|--|--|--|
| (3) | a. 油
‘oil’
/abura/
σ σ σ
 ^ ^
a b u r a | b. 喧嘩
‘fight’
/keNka/
σ σ σ
^ ^
k e N k a | c. 取っ手
‘handle’
/toQte/
σ σ σ
^ ^
t o Q t e | d. 昨日
‘yesterday’
/kinoH/
σ σ σ
^ ^
k i n o H |
|-----|---|--|--|--|

The mora-as-syllable diagrams in (3) are not quite faithful to the now standard version of the traditional analysis, since all the syllables/moras have equal status. In the traditional analysis, the moraic nasal /N/, the moraic obstruent /Q/, the vowel-length phoneme /H/, and (for some researchers) the second vowel in some V₁V₂ sequences are categorized as “special” moras. One characteristic that makes special moras special is that they are less independent than “ordinary” moras.

In a provocative article, Labrune (2012:139–140) advocates an analysis very similar to the one just described, but she calls the units in (3) moras and rejects the idea that moras are the syllables of Japanese. Although Labrune does not make this point, treating Japanese special moras as syllables is at odds with the notion that syllables correspond fundamentally to a “sonority cycle” (Clements 1990:299), that is, the “wave-like recurrence of peaks of sonority”

(Goldsmith 2011:194). If Japanese moras are syllables, all special moras are anomalous syllables, and many are highly anomalous.

Labrune (2012:135) treats special moras as “deficient prosodemes,” that is, as CV moras with either the C or the V position empty. It follows from Labrune’s definition that all onsetless V moras are deficient prosodemes, as shown in (4).

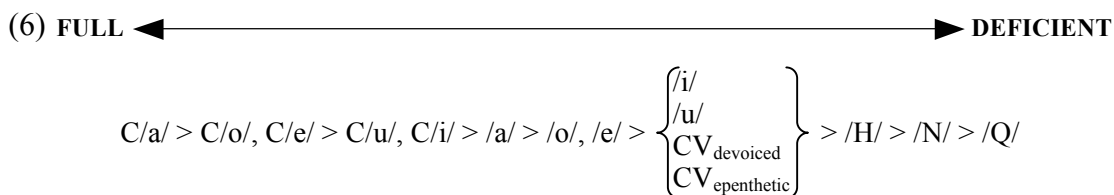


3 Accentability

According to Labrune (2012:137), the property shared by all the moras she analyzes as deficient prosodemes is that “they are not readily accentable.” This characterization is clearly correct for the traditional special moras, /Q/, /N/, and /H/, but not for onsetless vowel moras. Many onsetless vowel moras do carry accent, as shown in (5), using a downward-pointing arrow to mark the location of the distinctive pitch fall in an accented word.

- (5) a. $/\mu o \mu i^\downarrow \mu ru/$ 老いる ‘grow old’
 b. $/\mu i^\downarrow \mu no \mu \check{c}i/$ 命 ‘life’
 c. $/\mu na \mu o^\downarrow \mu ru/$ 治る ‘get well’
 d. $/\mu o^\downarrow \mu \check{c}i \mu ba/$ 落ち葉 ‘fallen leaf’

Labrune (2012:141–142) therefore proposes that the distinction between full and deficient prosodemes is gradient rather than categorical and that onsetless vowel moras are closer than other deficient prosodemes to the full end of a full-to-deficient continuum, as in (6).¹



The basis for the scale in (6) is “relative capacity to work as [accent]-bearing units,” and this capacity supposedly reflects the degree of “acoustic prominence” (i.e., sonority) of the different moras (Labrune 2012:141). The idea is not that accent is somehow assigned to deficient prosodemes probabilistically, with a different probability at each point on the continuum. Rather, Labrune (2012:141) says that “any deficient mora except /Q/ can, under certain specific conditions, bear accent.” It is not clear what these specific conditions are, and they presumably differ

¹ The diagram in (6) is adapted from diagram (20) in the article by Labrune (2012:141).

for different mora types, but the likelihood of fulfilling the relevant conditions should decrease from left to right along the continuum. In fact, however, there seems to be an abrupt discontinuity between the ordinary moras and special moras of traditional accounts. These accounts treat most onsetless vowel moras as ordinary moras. Before considering the status of onsetless vowel moras in more detail, however, some other problematic aspects of Labrune's continuum should be pointed out.

Needless to say, a CV mora with an epenthetic vowel does not differ in sonority from an otherwise identical mora with a non-epenthetic vowel. Thus, the position of CV_{epenthetic} in (6) must be based on something else. The epenthetic vowels in question are those that appear in loanwords and do not correspond to vowels in the source language. This paper will have nothing more to say about the dubious notion that ordinary native speakers of Japanese somehow know which vowels are epenthetic in this sense and treat moras containing such vowels as deficient prosodemes.

Vowel devoicing is normally confined to short high vowels surrounded by voiceless consonants (Vance 2008:206–214). Since a CV mora with a devoiced vowel has markedly lower sonority than an onsetless high-vowel mora, sonority does not provide a plausible reason for positioning these two mora types at the same point on the scale in (6). Many older descriptions report two common responses to the obvious difficulty posed by vowel devoicing in a syllable/mora that carries accent. One response is to maintain the voicing of the vowel despite the fact that it is surrounded by voiceless consonants (Han 1962:81). The other response is to devoice the vowel but shift the accent to a different syllable (Haraguchi 1977:40–41, McCawley 1977:266). For most speakers today, however, the co-occurrence of accent and vowel devoicing is unproblematic (Nihon Onsei Gakkai 1976:748, Kitahara 1998, Hibiya 1999:120).

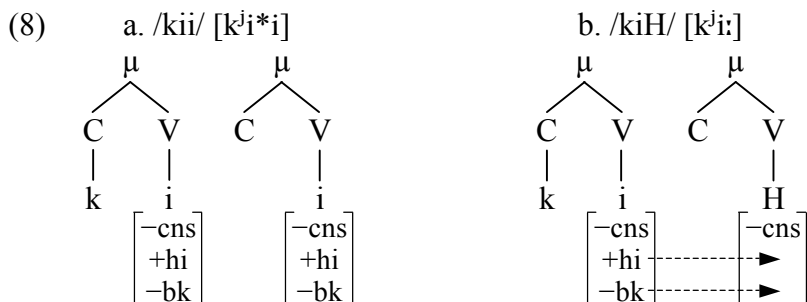
The positions of /N/ and /H/ in (6) should be reversed. It is true that /N/ can bear accent in some rare cases, but /H/ cannot. The example of accented /H/ that Labrune (2012:125) cites is problematic. Two alternative accent patterns for a loanword meaning ‘chain store’ are listed in accent dictionaries (NHK Hōsō Bunka Kenkyūjo 1998, Kindaichi and Akinaga 2001): /če^lHN+teN/~ /čeH^lN+teN/ チェーン店. The representations in both dictionaries imply accent-bearing /H/ in the latter, but closer scrutiny (Vance 2017:sec. 5.2) indicates that /čee^lN+teN/, with a syllable boundary following /če/, is a more accurate representation of the second pronunciation (see §4 below for details on the phonetic distinction between a long vowel and a sequence of two identical short vowels). If the moraic nasal /N/ can bear accent while the moraic obstruent /Q/ and the vowel-length phoneme /H/ cannot, their relative ability to bear accent does not reflect their relative sonority. Most realizations of /N/ and all realizations of /Q/ have lower sonority than any realization of /H/.

4 Independence of Onsetless V Moras

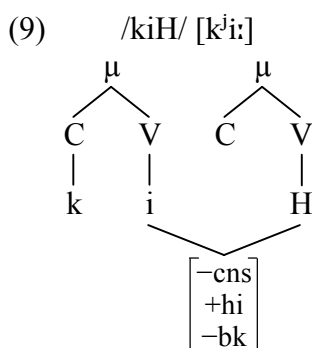
A long vowel is phonetically distinct from a sequence of two identical short vowels in careful pronunciation. Two identical short vowels are separated by a brief dip in intensity known as vowel rearticulation (Bloch 1950:105–106, Martin 1952:13), as in (7a) below. There is no IPA symbol for vowel rearticulation, and it is represented by an asterisk in this paper, following Ladefoged and Maddieson (1996:76–77).

- (7) a. /_μki_μi/ [kⁱ*i] 奇異 ‘strange’
 b. /_μki_μH/ [kⁱi:] キー ‘key’

Labrune (2012:136) represents /H/ as just [-cns] and would presumably represent a short vowel as a feature bundle that also includes specifications for vowel quality, as in (8a). In the case of /H/, the quality features of the preceding vowel (assumed here to be [+hi, -bk] for /i/) are simply prolonged, as indicated by the dotted arrows in (8b).



As a result, /ii/ and /iH/ would be indistinguishable. The expectation is that the OCP (Odden 2011:22) would apply in both cases, resulting in (9):



The problem is that /kii/ is not pronounced with a long vowel; the two adjacent feature matrices in (8a) are identical, but they are not merged into a single matrix associated with both vowel slots. Intuitively, the second mora of /kiH/ (8b) behaves like a special (i.e., dependent) mora, but the second mora of /kii/ (8a) behaves like an ordinary (i.e., independent) mora. This difference casts doubt on Labrune's decision to treat all V moras as deficient prosodemes, and traditional accounts in Japan treat most or all V moras as ordinary moras. For example, in commentaries included in successive editions of the pronunciation dictionary issued by Japan's public broadcasting corporation (NHK), Kindaichi (1966:17–18, 1985:20–21, 1998:105–106) consistently recognizes only three special moras: /N/, /Q/, and /H/.

5 Quasi-Diphthongs

As noted above in §3, onsetless V moras do not show the resistance to bearing accent that the continuum in (6) predicts. On the other hand, some onsetless high-vowel moras do seem to be dependent (i.e., “special”). V₁V₂ sequences ending in a high vowel (/i/ or /u/) are problematic

because some behave like diphthongs while others do not. The term *quasi-diphthong* is used here to avoid any suggestion that Japanese diphthongs are single phonemes.²

In a model with both moras and syllables, it is often hard to tell whether or not the two vowels in a V/i/ or V/u/ sequence are in the same syllable. In an analysis with no distinction between moras and syllables, a quasi-diphthong can be defined as a V/i/ or V/u/ sequence in which the second vowel behaves like a dependent (i.e., “special”) mora, and the corresponding challenge is deciding whether or not there is such dependence. In Labrune’s (2012) analysis, of course, all onsetless V moras are deficient prosodemes, as in (4d), and if dependence necessarily follows from deficiency, then all V₁V₂ sequences would have to be quasi-diphthongs. The position adopted here is that there is a distinction between dependent and ordinary V moras, although some instances of /i/ in V/i/ and /u/ in V/u/ are not readily categorizable. The basis for this distinction is accentual behavior.

In principle, a noun consisting of *n* ordinary moras (or, equivalently, *n* light syllables) can have any of *n*+1 accent patterns: it can have an accent on any one of its *n* moras or it can be unaccented. Special moras, however, cannot ordinarily bear accent, as explained above in §3. Consequently, in an analysis with syllables, the number of possible accent patterns for a noun is one more than the number of syllables, regardless of whether the syllables are heavy or light. This relationship between the number of accent patterns and the number syllables is the basis for saying that syllables, not moras, are the accent bearing units in Japanese (McCawley 1968:59, Kubozono and Honma 2002:37–38).

As noted above in §3, a downward-pointing arrow is used here to mark the location of the distinctive pitch fall in an accented word. This arrow appears between the two moras of an accented heavy syllable in the examples in (10) because, according to traditional descriptions, the first mora of such a syllable is high-pitched and the second mora is low-pitched. Phonetically, however, the pitch just falls smoothly from the beginning to the end of an accented heavy syllable.

- (10) a. /_σno_μ[↓]H_σka/ 農家 ‘farm family’
 b. /_σbu_μ[↓]N_σka/ 文化 ‘culture’
 c. /_σmo_μ[↓]Q_σka/ 目下 ‘at present’

It is resistance to bearing accent that has led researchers to treat some V/i/ and V/u/ sequences as quasi-diphthongs. If onsetless high-vowel moras repelled accent consistently (or at least nearly consistently), they could simply be categorized as special moras, always dependent on an immediately preceding ordinary mora. In fact, however, there is no such consistency. The second vowel in many V/i/ sequences does bear accent, as in /hi_σro_σ[↓]zu_σmu/ ヒロイズム ‘heroism’. Comparable V/u/ examples are rare, primarily because V/u/ is much less frequent than V/i/ overall. Even in an analysis without syllables, an onsetless /i/ or /u/ that carries accent is clearly not dependent on a preceding ordinary mora, but the status of an onsetless /i/ or /u/ that does not carry accent (as in V[↓]/i/ or V/i/) is often uncertain. There are, however, examples that support the claim that some V/i/ and V/u/ sequences are quasi-diphthongs.

One line of argument involves the default accent pattern for loanwords and foreign names. The default location for accent is the syllable containing the antepenultimate mora (or the first

² The term *quasi-diphthong* is adopted from a presentation by Rei Fukui at a symposium (“Japanese and Korean Accent: Diachrony, Reconstruction and Typology”) hosted by the Tokyo University of Foreign Studies (July 2, 2016).

When an accented verb citation form has a devoiced vowel in the penultimate mora, conservative speakers sometimes shift the accent. For example, instead of /cu[↓]k-u/ 着く ‘arrive’, final-accented /cu[↓]k-u[↓]/ is also possible. There are no comparable examples of accent shifting off an onsetless /e/ or /o/ mora. The examples in (14) are representative.

- (14) a. /e[↓]-ru/ 得る ‘obtain’ (* /e[↓]-ru[↓]/)
 b. /o[↓]r-u/ 折る ‘fold’ (* /or-u[↓]/)

Moras with devoiced vowels are, of course, closer than onsetless /e/ and /o/ to the deficient end of Labrune’s proposed continuum in (6).

As for onsetless /a/, the most sonorous of Labrune’s deficient prosodemes, there is no reason to believe that it repels accent. Consider compounds in which the second element (E2) begins with /a/. According to well-known patterns of compound accentuation, many such compounds should have E2-initial accent. For example, the deverbal noun /a_σso_σbi/ 遊び ‘pastime’ (cf. the unaccented verb /asob-u/ ‘play’) is unaccented, and since it is longer than two moras, the expected accent on a compound ending with this element is E1+/a[↓]sobi/ (Akinaga 1998:181, Tanaka and Kubozono 1999:71–73). When the first mora of E2 in a comparable compound has a devoiced vowel, conservative speakers typically shift the accent to the right. For example, since three-mora /h_ɨcu_ɨji/ ‘sheep’ is unaccented, the predicted accent on the compound meaning ‘lamb’ is /ko+h_ɨcu_ɨji/ 子羊, but since the high vowel /i/ in the first mora of E2 is surrounded by voiceless consonants, it is normally devoiced. Accent dictionaries (NHK Hōsō Bunka Kenkyūjo 1998, Kindaichi and Akinaga 2001) give both shifted /ko+h_ɨcu_ɨji/ and unshifted /ko+h_ɨcu_ɨji/ as possible pronunciations. There does not seem to be any similar tendency to shift accent in compounds like /hi+a[↓]sobi/ 火遊び ‘playing with fire’.

7 An Empirical Test

As a rudimentary test of accent repulsion by onsetless /a/, compounds with E2s of the form /a/CVCV were compared to compounds with E2s of the form /na/CVCV. The CV mora /na/ differs minimally from /a/, and the number of relevant compounds is reasonably small. The two samples were restricted to compounds that are listed in both of two relatively small dictionaries (Kondō and Takano 1986, Kitahara 1990). This restriction limits the sample to words are likely to be in the active vocabulary of an ordinary speaker and likely to be listed in the accent dictionary consulted (NHK Hōsō Bunka Kenkyūjo 1998). Compound nouns that could be analyzed as derived from a verb+verb compound verb were excluded because such compounds are likely to follow a different accent pattern. For example, the noun related to the verb /iki+noko[↓]r-u/~ /iki+nokor-u/ 生き残る ‘survive’ is unaccented /iki+nokori/ 生き残り ‘survival’ (not */iki+no[↓]kori/). Finally, compounds with an E2 that has initial accent as an independent word were excluded.³ For example, /ji+ki+a[↓]raši/ 磁気嵐 ‘magnetic storm’ was excluded because

³ For some deverbal E2s, there is no independent noun with the relevant meaning, but the “underlying” accent of the E2 can reasonably be inferred. The E2 /naraši/, for example, is derived from the verb /nara[↓]s-u/ 馴らす ‘to train’ but is not listed as an independent word in the accent dictionary consulted (NHK Hōsō Bunka Kenkyūjo 1998). The inflectional form that is segmentally identical to the E2 (the adverbial form) is /nara[↓]ši/, and if there were a deverbal noun, final-accented /naraši[↓]/ would be the expected form (Martin 1975: 883–885). In any case, it seems reasonable to say that this E2 does not have initial accent underlyingly.

/a¹raši/ ‘storm’ has initial accent. This last restriction was probably unnecessary, but one could argue that faithfulness protects an E2-initial accent in such a compound from disappearing or appearing somewhere else.

The resulting small sample contains a total of 46 compounds, 18 with /na/CVCV E2s and 28 with /a/CVCV E2s, and almost all have E2-initial accent, as in /kuni+na¹mari/ 国訛り ‘provincial accent’ (cf. /namari¹/ ‘accent’) and /cubaki+a¹bura/ 椿油 ‘camellia oil’ (cf. /abura/ ‘oil’). The only exception in the /a/ set is unaccented /ne+agari/ 値上がり ‘price rise’. There are two exceptions in the /na/ set: /yoko+nagare/~yoko+nagare¹/ 横流れ ‘flowing into illegal channels’ and /yoko+nagaši/~yoko+nagaši¹/ 横流し ‘diversion into illegal channels’. For two other words in the /na/ set, the expected form is one of two alternatives: /kao+na¹jimi/~kao+na¹jimi/ 顔馴染み ‘face familiarity’ and /kuči+naraši/~kuči+na¹raši/ 口慣らし ‘speaking exercise’. The point, of course, is that /a/ does not appear to be more likely to repel accent than /na/.⁴

8 Conclusion

This paper has scrutinized some of the specific details of Labrune’s (2012) no-syllable analysis of Japanese, and many are problematic. In particular, Labrune is almost certainly overreaching in her attempt to extend the notion of deficient prosodeme beyond the traditional class of special moras to moras with devoiced vowels, moras with epenthetic vowels, and all onsetless vowel moras. Despite these problems, however, Labrune is certainly correct that “the patterns previously analyzed with syllables *can* be analyzed without syllables . . .” (Kawahara 2016:17).

Nonetheless, if syllables are basic units of speech production and perception in all languages, as suggested above in §1, then Japanese must have syllables, regardless of whether ordinary native speakers have a name for them. If so, it must be possible for language-particular factors to prevent syllables from becoming psychologically salient units for speakers of some languages. The most likely factor in the case of Japanese is the essentially moraic character of *hiragana* and *katakana*—the *kana* subsystems of the Japanese writing system that children learn first (Vance 2017:sec. 6). It is quite plausible that learning to read and write *kana* causes or at least enhances the strong moraic intuitions that adult speakers undeniably have (Kubozono 1999:57). There is also experimental evidence that pre-literate children find it natural to treat syllables as units instead of or in addition to moras, and that their behavior becomes more mora-based as they learn *kana* (Inagaki, Giyoo, and Otake 2000).

⁴ The 18 words in the /na/ set are: /yuki+na¹dare/ 雪傾れ; /kata+na¹gare/ 片流れ; /šiči+na¹gare/ 質流れ; /tei+toH+na¹gare/ 抵挡流れ; /yoko+nagare/~yoko+nagare¹/ 横流れ; /ikada+na¹gaši/ 筏流し; /šima+na¹gaši/ 島流し; /šoH+ryoH+na¹gaši/ 精霊流し; /toH+roH+na¹gaši/ 灯籠流し; /yoko+nagaši/~yoko+nagaši¹/ 横流し; /kao+na¹jimi/~kao+na¹jimi/ 顔馴染み; /mukaši+na¹jimi/ 昔馴染み; /kuni+na¹mari/ 国訛り; /ha+na¹rabi/ 歯並び; /aši+na¹raši/ 足慣らし; /kata+na¹raši/ 肩慣らし; /kuči+naraši/~kuči+na¹raši/ 口慣らし; /te+na¹raši/ 手慣らし. The 28 words in the /a/ set are: /age+a¹bura/ 揚げ油; /biN+cuke+a¹bura/ 鬢付け油; /cubaki+a¹bura/ 椿油; /na+tane+a¹bura/ 菜種油; /go+ma+a¹bura/ 胡麻油; /ki+kai+a¹bura/ 器械油; /nuka+a¹bura/ 糠油; /ame+a¹gari/ 雨上がり; /mae+a¹gari/ 前上がり; /ne+a¹gari/ 根上がり; /ne+agari/ 値上がり; /saka+a¹gari/ 逆上がり; /širi+a¹gari/ 尻上がり; /yu+a¹gari/ 湯上がり; /ji+a¹mari/ 字余り; /ča+ya+a¹sobi/ 茶屋遊び; /funa+a¹sobi/ 船遊び; /hi+a¹sobi/ 火遊び; /hina+a¹sobi/ 雛遊び; /kawa+a¹sobi/ 川遊び; /mizu+a¹sobi/ 水遊び; /suna+a¹sobi/ 砂遊び; /yo+a¹sobi/ 夜遊び; /boH+zu+a¹tama/ 坊主頭; /hage+a¹tama/ 禿げ頭; /iga+guri+a¹tama/ 毬栗頭; /iši+a¹tama/ 石栗頭; /kana+zuči+a¹tama/ 金槌頭. (English glosses are omitted.)

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