The Diachronic Shift of Japanese Transitive/Unaccusative Verb Pairs

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Abstract
This study explores how Japanese transitive/unaccusative verb pairs have transformed from being a substantive verb to the various forms they fulfill in Modern Japanese (i.e., an aspectual verb, a noun, an adjective, an adverb, a quantifier and a suffix) and how grammaticalization and lexicalisation play an essential role during the processes. A working definition of ‘grammaticalisation’ and ‘lexicalisation’ that applies to Japanese is put forward, followed by a corpus-based investigation as well as a case study. The finding reveals that (a) the process by which a lexeme develops into a noun is a case of lexicalisation; the process by which a lexeme develops into an aspectual verb, an adverb, an adjective, a suffix or a quantifier is a case of grammaticalisation; (b) transitive verbs are more likely to convey ASPECT than unaccusatives are. The shift into a quantifier is limited to unaccusative verbs. Grammaticalisation (affixation) and lexicalisation in Japanese both require syntactic reduction and morphological alternation. The two differ in that lexicalisation does not require an alternation in writing, i.e., a lexicalised item can remain being written in Chinese characters (Note 1) whilst a grammaticalised item can only appear in kana script. Phonological alternation is obligatory in grammaticalisation but not required by lexicalisation. Lexicalisation appears to occur before grammaticalisation.

Keywords: Japanese, transitive/unaccusative alternation, grammaticalisation, lexicalisation

1. The Point of Departure
Japanese is phonologically a mora and morphologically an agglutinative language (tabe-sase-rase-mashi-ta-ka. [eat (stem)-causative-passive voice-honorification-past tense-question marker]). Free morphemes (particles, e.g., ga (nominative), o (accusative), ni (dative); nouns, e.g., ki ‘tree’, me ‘eye’) and bound morphemes (auxiliaries, prefixes) are both employed, and three lexical strata coexist, i.e., native (Wago), Sino-Japanese and loanwords. The Japanese language is further featured with transitive/intransitive verb alternation; about 462 pairs of transitive/unaccusative verb are realised by three patterns of morpheme alternation: (I) vt and vi derive from the same adjective stem; (II) transitive/intransitive verbs share the same word form; (III) develop from one root to another through the addition of a morpheme that indicates transitive/unaccusative properties.

(I) vt and vi derive from the same adjective stem (1).
(1) HIROi (Adj) → unaccusative V HIROM-ar-u
                 → transitive V HIROM-e-ru

(II) transitive/intransitive verbs share the same word form (2).
(2) MA-ku
e.g., asakao ga tsuru o maku ‘Ipomoea hederacea rolls up the tendril’;
asakao no tsutu ga maku ‘The tendrils of ipomoea hederacea rolls up’

(III) develop from one root to another through the addition of a morpheme that indicates transitive/unaccusative properties (3).
(3) KOWA-s-(r)u/KOWA-re-ru; TAT-θ(r)u/TAT-e-ru; KIR-θ(r)u/KIR-e-ru
The first alternation pattern (type I), i.e., where vt/vi derive from the same adjective stem, is limited to adjectives and presents the following variations: [mu/eru]- based (26 pairs); [eru/su]-based (two pairs); [geru]-based (one pair). An illustration is provided in (4).

(4) Adjective-based vt/vi alternation (Note 3)
Adjective root | Suffix [mu] | Suffix [ru/eru] | Suffix [su] | Suffix [geru]
--- | --- | --- | --- | ---
広い | hiroi ‘wide’ |  |  | hirogeru (enlarge)
甘い | amai ‘sweet’ | amaeruintran. (behave like a spoiled child) | amayakaru (pamper) |  
怪しい | ayashii ‘doubtful’ | ayashimeruintran. (suspect in) |  |  

The second alternation pattern (type II), i.e., where transitive/intransitive verbs share the same word form, cf. (5).

(5) Transitive/intransitive verbs that share the same word form (Note 4)
tojiru; tomonau; hakobu; hadakeru; haru; hiraku; fureru; maku; masu; moyoosu; musubu; hataraku; hiku; fuku; motsu

Our research target is the third pattern (type III), i.e., where vt/vi pairs develop from one root to another through the addition of a morpheme that indicates transitive/unaccusative properties. A total of 400 pairs are confirmed from the corpus. It should be noted that Hayatsu (1987b, 1995) discovers 220 pairs of transitive/intransitive verbs out of 740 verbs. That is 59.46%. Shimada (1979) found 290 pairs out of 1,040 verbs (55.77%). Considering this, our data (400 pairs), can be considered solid.

The purpose of this study is two-fold. First, it seeks to establish which form is the original base, and which is the derived form.

Second, transitive/unaccusative verbs have both derived new categories and meanings over the evolution of the language. For instance, in Old Japanese corpus, motsu was transitive in origin, meaning ‘to carry something’ (6a) and got lexicalised in 1707, fulfilling a noun function (6b). It further derived an unergative verb function in 1821 (6c). The shift from a VP (object + transitive verb) to a compound noun is an issue of lexicalisation due to the omission of the accusative case particle o and the morphological transition (motsu (conclusive form) → moti (continuous form)).

(6) a. nimotsu o motsu.  
luggage ACC carry.CONCL
b. okane moti.  
money have.CONT
c. karada ga motsu.  
body NOM hold.CONCL

In (6b), moti is the continuous form of transitive verb motsu (carry). Syntactically, the compound noun okanemochi derives from the VP: okane o motsu [money ACC have]. When the accusative case particle ‘o’ is omitted, the VP turns into a compound noun. Semantically, the compound noun okane-mochi refers to a person who has lots of money, i.e., ‘okane-o-motteiru-hito’ [money-acc-possess.PROG-person].

(6c) is a case where the transitive verb motsu shifting into an unergative verb. The unergative motsu rather renders a state whilst the transitive motsu conveys an action, which inspires us to deduce that the agentivity of mostu has been weakened.

It occurs that the boundary of grammaticalisation and lexicalisation is fluid. This raises the second question as to how the two transition processes are distinct yet interrelated. For example, whether it is reasonable to postulate that the paths might be predictable for the two roots, in that a transitive root may be favoured for lexicalisation while an unaccusative root facilitates grammaticalisation, or the other way around.

1.1 Functions and Meanings of Transitive/Unaccusative Pairs in Modern Japanese

A search in the dictionary Koojien reveals that quite a few transitive verbs in Modern Japanese are multi-faced, i.e., function as a substantive transitive verb, a noun, an aspectual verb, an adverb, and a suffix. Consider kirutran. ‘cut’, a typical action verb, for an instance.

(7) a. Substantive transitive verb
Nagasa go cenchi ni kiru.  
Length five centimetre DAT cut
‘Cut it five centimetres short.’
b. Substantive transitive verb with meaning lexicalised
   (i) punch
      kippu-o-**kiru** [ticket-ACC-punch] ‘punch ticket’
   (ii) turn off; hang up
      denki-o-**kiru** [electricity-ACC-turn off] ‘turn off the electricity’
      denwa-o-**kiru** [phone-ACC-hang up] ‘hang up the phone’
   (iii) cut relationship/ties
      en-o-**kiru** [ties-ACC-cut] ‘cut ties’
   (iv) interrupt
      kotoba-o-**kiru** [talking-ACC-stop] ‘stop talking’
   (v) abort
      kigen-o-**kiru** [deadline-ACC-set] ‘set a deadline’

c. Noun (lexicalised)
   kiri ga nai [limit-NOM-no] ‘no limit’,
   kiri o tsuketu [end-ACC-put] ‘put an end to’

d. Aspectual verb
   ii-**kiru** [say-assert] ‘declare’; nori-**kiru** [mount-finish] ‘hold up’ (Note 5)

e. Adverb (Note 6)
   omoi-**kitte** [think-stop] ‘drastically’

f. Prefix
   kiri-kyoogen [end-kyoogen play] ‘the last kyoogen play of a day’

g. Suffix
   futari-**kiri** [two persons-finish] ‘two persons only’

(Koojien Dictionary)

In the corpus of BCCWJ, **kiru** is found 5034 times, fulfilling seven categories. A total of 300 words were randomly selected and show that following distribution of **kiru**’s multiple characters. The most frequent option is the transitive verb use (88 tokens). A total of 76 tokens had an aspectual function. 67 tokens were attributed to the transitive verb use with a lexicalised meaning. 58 went to the noun use. Six tokens showed an adverb use and three showed an adjective use. Finally, only two tokens were used as a suffix.

Table 1. **Kiru**’s multiple functions in Modern Japanese corpus

| Category                      | Types | Token |
|-------------------------------|-------|-------|
| Substantive transitive        | 53    | 88    |
| Transitive with lexicalised   | 46    | 67    |
| Noun                          | 3     | 58    |
| Aspectual                     | 22    | 76    |
| Adverb                        | 1     | 6     |
| Adjective                     | 2     | 3     |
| Suffix                        | 2     | 2     |

Turning to the counterpart of **kiru**, i.e., the unaccusative **kireru** ‘cut unaccus.’. The Koojien Dictionary indicates that **kireru** conveys five categories in Modern Japanese: an unaccusative verb, unaccusative verb with meaning lexicalised, a suffix, a noun, an aspectual verb, and a quantifier. Illustrations are provided in (8).

(8) a. unaccusative verb
   ito ga **kireta**.
   string NOM break-PERF
b. unaccusative verb with lexicalised meaning

(i) to be cut off

En ga kireta.

(ii) to be disconnected

Denwa ga kireta.

(iii) to run out

Abura ga kireta.

(iv) to be sharp, bright

Atama ga kireru ‘be bright’

c. Suffix

kigen-kire [deadline-expire] ‘expire’; zaiko-kire [stock-run short] ‘sold out’

d. Noun

gijutsu no kire [technology GEN run out] ‘endpoint of technology’;
amata no kire [head GEN clever] ‘sharp’

e. Aspectual verb (Note 7)

uri-kireru [sell-sold out] ‘be sold out’

f. Quantifier

hito-kire [one-cut] ‘a slice’

(Kooijen Dictionary)

The nominal compounds in (8c) kigen-kire [deadline-expire] ‘expire’; zaiko-kire [stock-run short] ‘out of stock’ derive from verb phrases (cf. 9), where the nominal case marker ga has been dropped and the noun has fused to the verb to form a compound. This omission inspires us to deduce that the process of VP zaiko ga kireru [stock NOM run out] into the lexeme kigen-kire is perhaps an outcome of lexicalisation.

(9) a. kigen ga kireru. → kigen-kire

deadline NOM expire

b. zaiko ga kireru. → zaiko-kire

stock NOM run short

Furthermore, kire in a compound noun is written in the kana instead of the character ‘切れる’. The alternation of writing raises the question whether kire is a a semi-suffix (Note 8), thus ought to be deemed because of grammaticalisation.

(10) Kireru form a VP the VP is nominalised into N the N shifts into semi-suffix

Stage I lexicalisation Stage II grammaticalisation

Another example from (8) is worth noting, namely (8e) uri-kireru [sell-sold out] ‘be out of stock’. Kireru forms a compound verb with the action verb uru ‘sell’; kireru conveys the ASPECT of the action, i.e., ‘out of stock’. The formation of [ACTION verb + kireru] is productive. Kireru may combine with many other action verbs, e.g., nori-kireru [get on-ASPECT] ‘get over’, tabe-kireru [eat-ASPECT] ‘eat up’, tae-kireru [bear-ASPECT] ‘bear’, wari-kireru [divide-ASPECT] ‘divisible’. Crucially, these verb compounds all bear a metaphorical reading, as illustrated in (11).
In the BCCWJ corpus, there are 1214 tokens of the intransitive verb kireru ‘cut intran.’ This study took 500 tokens at random and summarises the distribution of kireru’s categories as follows.

Table 2. Distribution of kireru’s multiple functions

| Category                        | Types | Tokens |
|---------------------------------|-------|--------|
| Substantive unaccusative        | 33    | 41     |
| Unaccusative V with meaning lexicalised | 90    | 164    |
| Noun                            | 4     | 8      |
| Aspectual V                      | 30    | 168    |
| Suffix                          | 2     | 20     |
| Quantifier                       | 3     | 11     |

Based on the previous discussion, we can draw a comparison of the pair transitive kiru and unaccusative kireru as follows.

Table 3. A comparison of multiple functions in kireru and kiru

| Category                        | Kireru | Kiru |
|---------------------------------|--------|------|
| Substantive V                   | 33 (41)| 53 (90)|
| Verb use with meaning lexicalised| 90 (164)| 46 (68)|
| Noun                            | 4 (8)  | 3 (58)|
| Aspectual V                     | 30 (168)| 22 (77)|
| Suffix                          | 2 (20) | 2 (7) |
| Quantifier                      | 3 (11) | 0     |
| Adverb                          | 0      | 1 (6) |
| Adjective                       | 0      | 2 (3) |

Table 3 suggests that:

(i) There are more types and tokens of kiru than kireru with a substantive verb function.
(ii) Kireru is detected as a quantifier but there is no data confirming kiru as a quantifier.
(iii) The aspectual use in kireru has more tokens than the aspectual use in kiru.
(iv) There are more tokens of kiru (59 tokens) with a noun use than kireru (8 tokens).
(v) Kireru appears to be more likely to have meanings lexicalised (90 types, 164 tokens).
(vi) Both kiru and kireru has a suffix function.
(vii) Kiru bears two additional functions, as an adverb and an adjective.

The process by which a lexeme develops into an aspectual verb, a quantifier, a suffix is a case of grammaticalisation; the process by which lexeme develops into a noun is a case of lexicalisation. Building on this, we see that both transitives and unaccusatives are involved with grammaticalisation as well as lexicalisation. This study looks at the evolution of transitive/unaccusative verb pairs, exploring their base and, how they have transformed from being a substantive transitive/unaccusative verb to the various forms them fulfil in Modern Japanese, namely an aspectual verb, a noun, an adjective, a suffix, a quantifier and an adverb.
1.2 Transitive Verb and Unaccusative Verbs in Old Japanese

Old Japanese (the Asuka and Nara periods: 700-800) is a dead language. The pure phonetic kana script had not been developed yet and thus Chinese characters were employed to represent the vernacular on paper. Three writing systems existed: *Junsei-kanbun* ‘purely classical Chinese’ (official documents), *hentai-kanbun* ‘variant Chinese’ (poems and tales) and *man’yōgana* (poems). The following illustration comes from *Man’yōshū*, vol.5, completed in the Nara Period (710 -794 A.D.), when the Japanese language is recorded for the first time.

(12) 短物乎端伎流等云之....
Mijikaki mono o hashi kiru to ieru
‘We may say that we can cut one end of the short thing.’

(*MYS.5*)

*Kiru* 伎流 is in a conclusive form, written in *man’yōgana*, meaning ‘to cut’. In the Heian Period (794−1185), the phonetic script was invented, morphology plays a crucial role in derivation, conjugation and inflection. *Kiru* is written in ‘切る’. Four types (five tokens) are confirmed in the Heian period database, where *kiru* is found being employed for transitive use. With regard to *kireru*, its first appearance is in Early Modern Japanese (1832 A.D.). We can thus deduce that transitive *kiru* is the root and unaccusative *kireru* is the derived lexeme (Note 9).

(13) 加夫-都久 kabu-tuku
so no naka tu ni wo kabu-tuku
‘wrap the (three chestnuts) with earth.’

(*KK.42*)

加夫-都久 *kabu-tuku* is a serial verb construction (Li 2019 draws an assumption that multiple verb constructions in the Early Nara Period is a case of verb serialising). Three tokens of unaccusative *tsuku* is detected in *Bussokuseki-ka* (after AD 753).

(14) 衣尓著 成, 目 尻 都久和我勢.
kinu ni tuku nasu, me ni tuku wa ga se
clothes DAT stick to burrs eye DAT noticeable I GEN back
‘the tree’s burrs stick onto the clothes; my back is noticeable.’

(*MYS.1.19*)

*Tsuku* is seen outside the *Bussokuseki-ka*. In *Man’yōshū* (Note 11) (759 A.D.), it occurs six times.

(15) 伊波爾恵利都久, 多麻爾恵利都久.
ipa ni werituku tama ni werituku
stone DAT engrave-stick, gemstone DAT engrave-stick
‘engrave stone and gemstone.’

(*BS.3*)

The transitive form *tsukeru* ‘attach’ derived decades later. 13 tokens are detected, all coming from *Man’yōshū*. An illustration is provided in (16).

(16) 白縫 (Note 12) 筑紫乃綿者身著面.
Siranu pi tukusi no wata pa mwi ni tukete
Siranu pi Tsukushi GEN clothes PROV body DAT put on.GER
imada は着ねど, 暖けく見ゆ
imada wa kenedo atate koku miyu
now FOCL put on.CONC warm.CONT appears
‘The clothes that is made in Tsukushi is marvellous. Even now, when I put it on, it looks gorgeous.’

(MYS.3.336)

2. Grammaticalisation and Lexicalisation

Before a corpus-based investigation, it is necessary to introduce two concepts that play an essential role in the evolution of a language, viz. grammaticalisation and lexicalisation.

Grammaticalisation refers to the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions, and, once grammaticalised, continue to develop new grammatical functions (Hopper & Traugott, 2003). The study of grammaticalisation has undergone for centuries. Bopp (1816), Schlegel (1818) and Humboldt’s (1825) pilot research links it with evolutionary change for the first time. Meillet (1912) paid attention to the transformation instead of the grammatical forms and came up with the terminology ‘grammaticalisation’. About a half century later, German linguist Lehmann (1982) measured grammaticality both synchronically and diachronically. Heine and Reh’s (1984) work introduce the term into typological study on African languages, which kicked out the boom of the study on grammaticalisation in linguistic typological work.

One crucial issue on the topic lies in that, it is rather difficult to capture all the grammaticalisation phenomena in diverse language families with one definition. Jerzy Kurylowicz (1965) paid attention to transition of morpheme, referring to grammaticalisation as consisting in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status. Christian Lehmann (1982) in his Thoughts on Grammaticalization and New Reflections on Grammaticalisation and Lexicalisation, broaden the scope, i.e., grammaticalization is a process leading from lexemes to grammatical formatives. A number of semantic, syntactic and phonological processes interact in the grammaticalisation of morphemes and of whole constructions.

The transformation of content word into a function word takes place by a gradual series of shifts. This very shift follows a certain pattern, known as ‘unidirectionality’ (Heine & Kuteva, 2002), i.e., grammaticalisation always leads from less grammatical to more grammatical forms and constructions. This pattern represents human cognition and is cross-linguistically applied. A more specific evolution path is put forward by Hopper and Traugott (2003).

(17) content item > grammatical word > clitic > inflectional affix

Another pathway may come from lexical semanticists who contend that grammaticalisation is perhaps a subtype of metaphor after searching on the shift of semantic meaning. A different view on grammaticalisation comes from Himmelmann (2004, p. 31) and Traugott (2003, p. 6) who asks for the role of context on grammaticalisation.

Japanese, is an agglutinative language, featured with phono-morphologically, sequential voicing. Morpho-syntactically, verb compounding. The Indo-European language-oriented notions do not seem to apply to Japanese, given the typological distinctions between Indo-European languages and Altaic languages. First, the meaning bleaching is not enough for identifying the degree of grammaticalisation regarding Japanese. In the case of change-of-state verbs, when grammaticalised, it is the morphological change as well as the syntactic shift (decategorisation) that occurs; the semantic meanings retain. Second, as a moraic language, it is not phonological reduction as European languages display but sequential voicing (Note 13) that is an effect of lexicalisation. Sequential voicing accompanies morphological change ([{-voiced}] consonants shift into [+voiced]), but not morphological reduction. Third, Japanese aspectual verbs and potential verbs are an outcome of diachronic change.

Another concept involved in language evolution is lexicalisation, which refers to an item with a concrete semantic meaning that evolves into an item with an abstract or metaphorical reading.

Grammaticalisation and lexicalisation deal with different parts of transition: the former covers the syntactic function domain, and the latter covers the process of meaning extension. It appears that the development of Japanese compound nouns is a combination of grammaticalisation and lexicalisation.

For instance, shime-kiri ‘deadline’ derives from the compound verb shime-kiru ‘to close’. Shime-kiru is a transitive compound verb, carrying two meanings: a concrete meaning ‘to shut’ and an abstract meaning ‘to expire/to cut off’. The second constituent kiru of the compound verb shime-kiru initially appeared in Old Japanese (A.D. 759), behaving as a transitive verb and meaning ‘to cut’. In shime-kiru, kiru conveys an ASPECT of the first constituent, i.e., shimeru ‘close’, which indicates the ACTION and is not grammaticalised. Kiru’s transition from a substantive transitive verb into an aspectual verb in a compound verb can be argued to be the result of grammaticalisation.
Moreover, the conjunctive form of the verb compound is also noun form, i.e., *shimekiri* ‘to expire/to cut off’ (e.g., Gakkai wa boshū o shimekitta [The academic conference cut off the submission period]). CHJ brings us to the point that the first appearance of the nominal form, *shimekiri* was in 1888. This time, it is the whole compound verb *shimekiru* that turns into the noun form *shimekiri* and renders an extended meaning, i.e., ‘deadline’. Since *shimekiri* involves morphological alternation (from conclusive form into conjunctive form), the noun *shimekiri* ‘deadline’ turns out to be lexicalisation. The process is described in (18).

(18) Stage I: content word (transitive V–V)  
Stage II: V2 being grammaticalised  
Stage III: V–V being lexicalised into a noun,  
rendering an extended meaning

This invites the question whether the two processes (grammaticalisation and lexicalisation) is a constant change leading from grammaticalisation to lexicalisation?

A good deal of effort in the past has been devoted to addressing the relationship between grammaticalisation and lexicalisation. Previous work falls into two positions. One position alleges that lexicalisation is the reverse process of grammaticalisation (cf. Kuryłowicz, 1965). The other position conceives the two processes as a constant change leading from lexicalisation to grammaticalisation and vice versa. The two processes are in an orthogonal relationship (Lehmann, 2002; Himmelmann, 2004). The transition process of the above-mentioned *shimekiri* appears to support this view. Moreno Cabrera (1998) takes a cognitive approach, arguing that grammaticalisation is a metaphorical process while lexicalisation is a metonymical process; the two are assigned to a complementary relation. These demonstrations on the relationship between the two processes are summarised in Figure 1.

The purpose of this study is three-fold:

(a) To establish the original verb root as well as when a transitive or an unaccusative form is derived.

(b) How transitive/unaccusative verbs transformed from being a substantive verb to the various forms they fulfil in Modern Japanese.

(c) To investigate how the constantly changing journey of languages is accompanied by grammaticalisation and lexicalisation and, in essence, the fluid nature of the boundary between grammaticalisation and lexicalisation. For instance, the unaccusative verb *kireru* can either appear in a noun compound with the consonant *ki* being voiced, e.g., 幕切れ maku-gire [curtain-cut] ‘end’; 燃料切れ nenryoo-gire [fuel-cut] ‘out of fuel’, etc., or can appear in a noun compound without the consonant *ki* being voiced, e.g., 板切れ ita-kire [wood-cut] ‘a piece of wood’; 紙切れ kami-kire [paper-cut] ‘a piece of paper’.

The question thus is whether the unaccusative verb *kireru* ought to be treated as a suffix (a process of grammaticalisation), semi-suffix or a lexicalised noun?

To answer these inquiries, this study starts by providing a working definition of ‘grammaticalisation’ and ‘lexicalisation’ that apply to Japanese data. Then it turns to diachronic issues: the development of other categories. With this in place, it aims to pin down the distinctions and interrelationship between grammaticalisation and lexicalisation.

This paper is structured as follows. Section 3 presents quantitative data on the occurrence of the different uses of
Japanese transitive/unaccusative word pairs and their derived forms in the various subperiods of the historical text corpus. Building on this, a hypothesis about their grammaticalisation- and/or lexicalisation processes is proposed. To further confirm the findings from Section 3, a case study on the categorial and semantic shift of the Japanese verb pair kiru/kireru (cut tran./cutintran.) is outlined in Section 4. Section 5 highlights the results and concludes the paper.

The data for Modern Japanese comes from the corpus of BCCWJ (Balanced Corpus of Modern Written Japanese) by the National Institute for Japanese language and linguistics. The data of Old Japanese is extracted from the CHJ (Japanese historical linguistic corpus) 2.5.0 by National Institute for Japanese language and linguistics. The data of for compound verbs are extracted from the compound verb corpus https://db4.ninjal.ac.jp/vvlexicon/db/ (last access 29 August 2020). The glossing follows the Leipzig Glossing Rules (https://www.eva.mpg.de/lingua/resources/glossing-rules.php last access 29 August 2020).

The categorisation of the development of the Japanese language is as follows:

(a) **Old Japanese** (approximately 700–800 A.D.)
   - Asuka Period and Nara Period (710–794 A.D.)

(b) **Early Middle Japanese** (800–1200 A.D.)
   - Heian Period (794–1185 A.D.)

(c) **Late Middle Japanese** (1200–1600 A.D.)
   - Kamakura Period (1185–1333 A.D.), Muromachi (1336–1573 A.D.) and
     - Adachimomoyama Period (1573–1603 A.D.)

(d) **Early Modern Japanese** (1600–1868 A.D.)
   - Edo Period (1603–1868 A.D.)

(e) **Modern Japanese** (1868–Present)
   - Meiji Period (1868–1912 A.D.), Taishoo Period (1912–1926 A.D.),
     - Shooowa (1926–1989 A.D.), Heisei (1989–2019 A.D.) and Reiwa Period (2019–).

3. Grammaticalisation and Lexicalisation Regarding Transitive/Unaccusative Verb Pairs

Drawing on the concepts highlighted above, this section focuses on the original root of vt/vi pairs. Building on this, we delve into how vt/vi transforms from a substantive verb to the various categories in the present days. To start, we set diagnoses for grammaticalisation regarding Japanese verb as follows:

(a) **Diagnoses of grammaticalisation in Japanese verb**

   (a) The alternation of category is obligatory (either partially or fully)
   
   e.g., verb shifting into an affix (prefixation or suffixation, cf. (21)) or verb shifting into an auxiliary (22) or an aspectual verb (23), rendering RESULT, or, verb shifting into an adverb (24).

(b) **Suffixation (verb → suffix)**
   
   muku ‘to face’ → minami muki [south-face] ‘a house/room facing south’

(c) **Verb → auxiliary**

   a. **ageru** as a verb: to give
   
   watashi wa Taroo ni hon o ageru.
   
   I TOP Taroo DAT book ACC give
   
   ‘I give a book to Taroo.’

   b. **ageru** turns into an auxiliary:
   
   watashi wa Taroo ni tetsudatte ageru.
   
   I TOP Taroo DAT help AUX
   
   ‘I help Taroo.’

(d) **Verb → ASPECTUAL verb**
agaru ‘to rise’ → yaki-agaru [bake-rise] ‘bake-complete’
iku ‘to go’ → samuku-natte-iku [cold-become-go] ‘become colder’

(24) Verb → adverb

shiru ‘force’ → Shiite, nemutteiru [force-sleep-try] ‘try to sleep forcibly’

(b) The grammaticalisation of a content verb into a (semi) suffix can be diagnosed via phonological alternation.
e.g., tsuki derives from the intransitive verb tsuku ‘stick to’. When it attaches to the conjunctive form of
unergative verb umareru ‘bear’, tsuki’s initial consonant /-t-/ turns voiced, i.e., /-d-/ (umare duki [born-stick] ‘be
born with sth’).

Crucially, X-duki is highly productive. A search in the BCCWJ reveals about 201 types (2001 tokens) of X-duki.
With this in place, the productivity and the consonant alternation (Note 14) can be deemed as a criterion of
grammaticalisation.

(c) The fourth diagnosis of grammaticalisation is the alter of writing.
The lexeme that is fully grammaticalised would no longer appear in Chinese character in written form, but in
kana script. See for instance, nuku. In Modern Japanese, it has two renderings: (i) when behaving as a
substantive verb, it is written in the Chinese characters抜く nuku, e.g., ha o nuku ‘tooth-ACC-pull out’; (ii) when
fulfilling the function of a suffix, it appears in kana script instead of抜き nuki, e.g. asagohan nuki
‘breakfast-without’.

Lexicalisation requires the following conditions.

(25) Diagnoses of lexicalisation in Japanese verb

(a) Syntactic reduction, specifically,

- VP [object + verb] has its accusative case particle omitted, e.g.,
gohan o tsukuru [meal ACC cook] ‘cook meal’
→ gohan-zukuri ‘meal cooking’ (Note 15)
- VP [subject + verb] has its nominal case particle ga lost, e.g.,
zaiko ga kireru [stock NOM run short] ‘breakfast is not eaten’
→ ziko-kire

(b) Morphological alternation
The verb appears in a continuative form, e.g., atsumaru ‘gather’ → atsumari (gather NOUN.)

(c) Phonological alternation
The initial consonant of the non-initial portion of a compound or prefixed word becomes voiced, e.g.,
gohan o tsukuru [meal ACC cook] ‘cook meal’ → gohan-zukuri ‘meal cooking’.

3.1 Original Root and Derivation
In this section ten pairs are discussed. Given below is a table, presenting the first appearance of each verb pair.
The upper lexeme is vi; the lower lexeme is vt. The original root is marked in bold.
Table 4. A timeline of the appearance of various functions (Note 16)

| Lexeme | Transitivity | Origin/Derived |
|--------|--------------|----------------|
| tsuku  | intransitive ‘stick to’ | origin (OJ, 712) |
| tsukeru| transitive ‘attach’ | derived in OJ (759) |
| kiru   | transitive ‘cut’ | origin (OJ, 759) |
| kikeru | intransitive ‘cut’ | derived in EMDJ (1708) |
| hatasu | transitive ‘carry out’ | origin (LMJ, 1306) |
| hateru | intransitive ‘perish’ | derived in MJ (1895) |
| deru   | intransitive ‘exit’ | origin (OJ, 759; MYS.12) |
| dasu   | transitive ‘take out’ | derived in OJ (759) |
| waru   | intransitive ‘break’ | origin (EMJ, 1010) |
| wareru | transitive ‘break’ | derived in MJ (1895) |
| agaru  | intransitive ‘rise’ | origin (OJ, 759) |
| ageru  | transitive ‘raise’ | derived in EMDJ (1826) |
| komu   | intransitive ‘to be crowded’ | origin (MJ, 1887) |
| komeru | transitive ‘to load’ | derived in MJ (1895) |
| tatsu  | intransitive ‘stand’ | origin (OJ, 759) |
| tateru | transitive ‘raise’ | derived in EMDJ (1821) |
| todoku | Intransitive ‘arrive’ | origin (EMD, 1826) |
| todokeru| Transitive ‘deliver’ | derived in EMDJ (1838) |
| nuku   | Transitive ‘pull’ | origin (OJ, 759) |
| nukeru | Intransitive ‘pass’ | derived in MJ (1925) |

Table 4 allows us to propose that most of the tokens arise from unaccusative root, and developed the transitive use in Early Middle, Early Modern and Modern Japanese, viz.

(I) Unaccusative root-base

a. tsuk- was initially unaccusative (tsuku ‘stick to’ 712 A.D.) and its transitive function tsukeru ‘attach’ was derived in 759 A.D.

b. agar- was initially unaccusative (agaru ‘rise’ 759 A.D.) and its transitive function ageru ‘raise’ was derived in 1826.

c. tat- was initially unaccusative (tatsu ‘stand up’ 759 A.D.) and its transitive function tateru ‘set up’ was derived in 1821.

d. nuk- was initially unaccusative (nuku ‘omit’ 759 A.D.) and its transitive function nukeru ‘break through’ was derived in 1925.

e. kom- was initially unaccusative (komu ‘be crowded’ 1887) and its transitive form komeru ‘count something in’ was derived in 1895.

f. todok- was initially unaccusative (todoku ‘arrive’ 1826) and its transitive form todokeru ‘deliver’ was derived in 1838.

(II) Transitive root-based

a. kir- was initially transitive (kiru ‘cut’ 759 A.D.) and its unaccusative form kikeru was derived in 1832.

b. hat- was initially transitive (hatasu ‘carry out’ 1306) and its unaccusative form hateru ‘perish’ was derived in 1895.

c. war- was initially transitive (waru ‘break’ 1010) and its unaccusative form wareru was derived in 1895.

(III) Derived at the same time

For one pair, both transitive and unaccusative form, appeared at the same time: deru ‘come out’/dasu ‘take out’ (759 A.D.).

Having examined the base root, we are now in a position to engage with an analysis of vt/vi pairs’ derivation of other functions. The following discussion starts with verb weakening. A search in the compound corpus brought us the following distribution of vt/vi pairs’ derivation into an ASPECTUAL VERB.
Table 5. Distribution of transitives/unaccusatives appearing as an aspectual verb

| Verb     | Transitivity | Total samples | Aspentual types (percentage) |
|----------|--------------|---------------|------------------------------|
| tsuku    | Unacc.       | 51            | 19 (37%)                     |
| tsukeru  | Tran.        | 100           | 48 (48%)                     |
| kireru   | Unacc.       | 3             | 1 (33%)                      |
| kiri     | Tran.        | 28            | 15 (54%)                     |
| hateru   | Unacc.       | 10            | 10 (100%)                    |
| haturu   | Tran.        | 2             | 1 (50%)                      |
| deru     | Unacc.       | 51            | 0                            |
| dasu     | Tran.        | 132           | 26 (20%)                     |
| wareru   | Unacc.       | 0             | 0                            |
| waru     | Tran.        | 2             | 0                            |
| agaru    | Unacc.       | 79            | 41 (52%)                     |
| ageru    | Tran.        | 135           | 73 (54%)                     |
| komu     | Unacc.       | 250           | 86 (34%)                     |
| komeru   | Tran.        | 15            | 4 (27%)                      |
| tatsu    | Unacc.       | 38            | 24 (63%)                     |
| tateru   | Tran.        | 51            | 39 (76%)                     |
| nukeru   | Unacc.       | 23            | 7 (30%)                      |
| nuku     | Tran.        | 8             | 0                            |

It appears that,

(a) Transitive verbs are more likely to convey ASPECT than unaccusatives are (the only exception is komu/komeru)

(b) One verb pair, i.e., waru/wareru, never appears as V2 in a compound verb. This is probably down to the AGENTIVITY: waru and wareru bear high agentivity. As a result, they are unlikely to be grammaticalised into a RESULTATIVE complement, a duty that V2 usually undertakes. The finding on transitive/unaccusative pairs’ derivation into ASPECTUAL VERB/RESULTATIVE complements indicates that verbs with less agentivity are likely to get grammaticalised as aspectual verbs.

(c). Although both transitives and unaccusatives can serve as V2, the roles fulfilled by the two are different.

Recall the compound verb shimekiru. Shimekiru falls into the [predicate-complement] type of compound verb, where V1 shim eru renders the ACTION and V2 kiri denotes the RESULT. Here, kiri is grammaticalised. The conjunctive form of shimekiru, i.e., shimekiri renders a metaphorical reading: deadline. In BCCWJ, the V-V shimekiru has merely eight types. It is its conjunctive form, shimekiri ‘deadline’, that appears to be mostly used (563 tokens).

(26) Grammaticalisation: kiri renders an aspect in V₁-kiri (e.g., shimekiri).

Lexicalisation: V-V shimekiru shifts into conjunctive form shimekiri, conveying an extended meaning ‘deadline’.

This leads to a hypothesis that grammaticalisation and lexicalisation are perhaps assigned to an orthogonal relationship. To confirm this idea, the following sections draws a statistical analysis of vt/vi pairs’ derivation into other categories: noun, suffix and quantifier as well as their lexicalisation possibilities.

3.2 vt/vi’s Shift into Noun/Suffix/Quantifier (Grammaticalisation)

This study took 100 tokens of the targeted verb pairs at random and calculated the distribution of them behaving as noun, suffix and quantifier from the corpus CHJ. The findings are summarised in Table 6.
Table 6. The distribution of transitives/unaccusatives shifting into other categories (Note 17)

| Verb  | Transitivity | Nominalisation | Suffix | Quantifier |
|-------|--------------|----------------|--------|------------|
| tsuku | Unacc.       | 36 (41)        | 0 (0)  | 0 (0)      |
| tsukeru | Tran.        | 15 (22)        | 5 (6)  | 0 (0)      |
| kireru | Unacc.       | 16 (20)        | 0 (0)  | 3 (3)      |
| kiru  | Tran.        | 14 (15)        | 1 (3)  | 0 (0)      |
| kateru | Unacc.      | 24 (27)        | 0 (0)  | 0 (0)      |
| hatasu| Tran.        | 0 (0)          | 0 (0)  | 0 (0)      |
| deru  | Unacc.       | 2 (20)         | 0 (0)  | 0 (0)      |
| dasu  | Tran.        | 3 (4)          | 0 (0)  | 0 (0)      |
| wareru| Unacc.       | 21 (28)        | 0 (0)  | 0 (0)      |
| waru  | Tran.        | 11 (16)        | 0 (0)  | 1 (1)      |
| agaru | Unacc.       | 30 (36)        | 0 (0)  | 0 (0)      |
| ageru | Tran.        | 1 (1)          | 0 (0)  | 0 (0)      |
| komu  | Unacc.       | 15 (15)        | 49 (51)| 0 (0)      |
| komeru| Tran.        | 2 (2)          | 0 (0)  | 0 (0)      |
| tatsu | Unacc.       | 1 (1)          | 0 (0)  | 0 (0)      |
| tateru| Tran.        | 0 (0)          | 0 (0)  | 0 (0)      |
| todeku| Unacc.       | 0 (0)          | 0 (0)  | 0 (0)      |
| todeskur| Tran.    | 4 (4)          | 0 (0)  | 0 (0)      |
| nuku  | Unacc.       | 2 (2)          | 4 (6)  | 1 (1)      |
| nukeru| Tran.        | 5 (5)          | 0 (0)  | 0 (0)      |

As shown in Table 6,

(a) The shift into a quantifier is limited to unaccusative verbs, e.g., kireru → hito kire [one-cut] ‘a slice’.

(b) Both transitives and unaccusatives may shift into a suffix, as illustrated in (27).

(27) Transitive: kiru → hitori kiri [one person-cut] ‘all on one’s own’;

Unaccusative: nuku → gohan nuki [meal-pull] ‘without eating’

Among them, the suffixation of komu has the largest tokens, which suggests that the degree of grammaticalisation of komu is extremely high.

(c) Both unaccusative and transitive are subject to nominalisation.

There are two ways of nominalising a verb: (a) with the verb’s continuative form; e.g., atsumaru → atsumari, as shown in (28a); (b) with N + the verb’s continuative form, e.g., gomi-dashi [rubbish-throw out noun] ‘throw out the rubbish’. The second type, i.e. [N + the verb’s continuative form] has three variations (28b).

(28) Variations in nominalisation

a. The nominalised vt/vi appears by itself, e.g., atsumari ‘gather’

b. N + the verb’s continuative form

- N (dative case) + unaccusative verb, e.g., kawa-zoi ‘rive side’;

- N (nominative case) + unaccusative verb, e.g., gohan-taki ‘rice cooking’

- N (accusative case) + transitive verb, e.g., gohan-taki ‘rice cooking’

In light of the criterion for lexicalisation, we suggest that nominalisation is an effect of lexicalisation. However, the nominalised form by unaccusatives and transitives can both render a lexicalised meaning. Statistically, the nouns derived from unaccusatives seem to render a concrete reading (29). The nouns derived from transitives, tend to convey a metaphorical meaning (30).

(29) a. Tsure no yoi secchakuzai ‘the glue that is sticky’

   b. Taki ga nutteite, tsuki ga warui ‘The firewood is wet, so it’s hard to get burnt’

(30) a. Tsuke de kaimonosuru ‘shopping via charging to an account’

   b. Kono mise wa tsuke ga kiku ‘you may charge to an account in this shop’

This study searched CHJ and arrived at the following picture for the period when different functions were derived:
Table 7. The period of deriving multiple functions

| Lexeme | Transitivity | Noun | Aspectual V | Adverb | Adjective | Suffix | quantifier |
|--------|--------------|------|-------------|--------|-----------|--------|------------|
| tsuku  | Unacc.       | ×    | 759         | ×      | ×         | ×      | 1712       |
| tsukeru| Tran.        | 1888 | 1100        | ×      | ×         | ×      | 1821       |
| kieru  | Unacc.       | 1100 | 1252        | ×      | ×         | ×      | 1901       |
| kiri   | Tran.        | 1711 | 1220        | 1894   | ×         | ×      | 1894       |
| hateru | Unacc.       | 974  | 974         | 1874   | ×         | ×      | ×          |
| hatasu | Tran.        | ×    | 1592        | 1887   | ×         | ×      | ×          |
| deru   | Unacc.       | 759  | 1100        | ×      | ×         | ×      | ×          |
| dasu   | Tran.        | 1793 | 905         | ×      | ×         | ×      | 1703       |
| wareru | Unacc.       | 1100 | ×           | ×      | ×         | ×      | ×          |
| waru   | Tran.        | 1887 | ×           | ×      | ×         | ×      | 1909       |
| agaru  | Unacc.       | ×    | ×           | ×      | ×         | ×      | 1925       |
| ageru  | Tran.        | 1001 | 1059        | ×      | ×         | ×      | ×          |
| komu   | Unacc.       | 1894 | 1864        | ×      | ×         | ×      | 1718       |
| komeru | Tran.        | 1895 | 1909        | ×      | ×         | ×      | ×          |
| tatsu  | Unacc.       | ×    | ×           | ×      | ×         | ×      | ×          |
| tetera | Tran.        | ×    | ×           | ×      | ×         | ×      | ×          |
| todo   | Unacc.       | ×    | ×           | ×      | ×         | ×      | ×          |
| todokeru| Tran.      | 1711 | ×           | ×      | ×         | ×      | ×          |
| nuku   | Unacc.       | 1925 | 1910        | ×      | ×         | ×      | ×          |
| nokeru | Tran.        | ×    | 1832        | ×      | ×         | ×      | ×          |

The above can be generalised as:
- Three unaccusative verbs are grammaticalised.
- Four transitive verbs underwent lexicalisation-grammaticalisation.
- Six unaccusative verbs underwent lexicalisation-grammaticalisation.
- Three transitive verbs underwent grammaticalisation
- One unaccusative verb underwent lexicalisation
- One transitive verb underwent lexicalisation.

All unaccusatives and transitives are capable of being lexicalised and grammaticalised. However, lexicalisation appears to occur before grammaticalisation. Furthermore, the process by which a lexeme develops into a noun is a case of lexicalisation; the process by which a lexeme develops into an aspectual verb, an adverb, and an adjective, a suffix and a quantifier is a case of grammaticalisation.

4. A Case Study on the Category and Meaning Shift

The previous section (31) has drawn an overall picture of the original root of *vt/vi* pairs and, the likelihood of *vt/vi* pairs’ evolving into other grammatical categories. The findings support our hypothesis that grammaticalization and lexicalisation are assigned to an orthogonal relationship.

To confirm this hypothesis, a case study of the transition now becomes appropriate. This study selects the *kiri/kireru* pair, one of the most typical change-of-state verbs, as the suitable candidate. It was shown above that *kiri/kireru* originates in transitive root, i.e., *kiri*. This study therefore begins by looking at the diachronic shift of *kiri*. Table 8 shows the derivation period of the various categories.

Table 8. *Kiri*’s functions in different periods (Note 18)

| Category | Old Japanese (700–800 A.D) | Early Middle Japanese (800–1200 A.D.) | Late Middle Japanese (1200–1600 A.D.) | Early Modern Japanese (1600–1868 A.D.) | Modern Japanese (1868–1947) (Note 19) |
|----------|---------------------------|----------------------------------------|---------------------------------------|----------------------------------------|--------------------------------------|
| Substantive V | 1                          | 53                                     | 83                                    | 48                                     | 373                                  |
| Noun     | 1                          | **8**                                  |                                       |                                       | **97**                               |
| Adverb   | 4                          |                                       |                                       |                                       | **39**                               |
| Suffix   |                           |                                       |                                       |                                       | **29**                               |
| Aspectual| 7                          | 1                                      |                                        |                                       | 7                                    |
4.1 Kiru (transitive)

4.1.1 Kiru in Old Japanese

Kiru appeared only once in Old Japanese (Man’yōshū, vol.5), written as伎流. It behaves as a substantive transitive verb.

(32) 短物乎端伎流等云之….
Mijikaki mono o hashi kiru to ieru
‘We may say that we can cut one end of the short thing.’
(MYS.5)

The substantive transitive function remained as the main function in every period.

4.1.2 Kiru in Early Middle Japanese

There are 54 tokens of kiru in Early Middle Japanese, 53 behaving as a transitive verb and one token as an aspectual verb.

4.1.2.1 Kiru as a Transitive Verb

Two forms of kiru, as a transitive verb, are observed: (a) as a single verb, e.g., (33); (b) as V1 in a compound verb, e.g., (34).

(33) Kiru as a single verb

たむけ には つづりの袖も切るべきに
Takemu ni wa tsuzuri no sode mo kiru beki ni
红葉に あげる神やかへさむ。
kooyoo ni akeru kami ya kaesa mu.
‘We offer paper streamers to the God. However, the God who has got tired of the red leaves might have turned down the offer.’
(KW 906)

(34) Kiru as V1 in a compound

身ひとつをのみ切り砕くここちす。
Mi hitotsu o nomi kiri-kudaku kokochi su
‘It feels like my body was cut and smashed into pieces.’
(KN 974)

In Kageroo Nikki (EMJ, 974), kiru forms a compound verb with another action verb, i.e., kudaku ‘smash’. The two constituents render a substantive transitive function and syntactically weigh equally. There are 18 tokens in total of kiru’s transitive verb use in compound verbs. Early Middle Japanese is a significant period in Japanese linguistics, as kana script was developed; the lexical integrity of the compounds becomes tighter. Each verb in multiple verb combinations is assigned to a coordinate or a successive relation and receive equal syntactic and semantic weight. Thus, the combined patterning may be a way of verb compounding.

This said, we cannot say that kiru merely bears substantive function. In the following compound verbs, it seems to render an aspect.

4.1.2.2 Kiru as an Aspectual Verb

In the work Genjimonogatari (Early Middle Japanese, 1008 A.D.), kiru fulfills an aspectual function.

(35) 右近は、言ひ切りつるよし言ひたるに。
Ukon wa iikiritsuru yoshiiuru taru ni
‘We offer paper streamers to the God. However, the God who has got tired of the red leaves might have turned down the offer.’

‘Ukon has already expressed his rejected feeling.’

(Genjimonogatari 1008)

There is only one token of this aspectual use. The next data of kiru appearing as V2 in a compound verb is from Ujijyuuimonogatari (1220): 荒巻の繩を押切りて、刀して藁を押し開く, where kiru functions as a substantive transitive verb.

4.1.3 Kiru in Late Middle Japanese

In Late Middle Japanese, there are 90 tokens of kiru. Apart from 83 tokens as a transitive verb, 7 tokens are as an aspectual verb.

Example (36) is an illustration from Heekemonogatari (the Kamakura Period: 1185−1333 A.D.), where kiru renders an ASPECT.

(36) 入道、 院がた の 奉公 おもひきったり (Note 20) …

Nyuudoo ingata no hookoo omo-ki.tari

‘Taira no Kiyomori abandons the idea of serving the monk emperor.’

(Heekemonogatari before 1309)

Further illustration of kiru’s aspectual use is found in the Aduchimomoyama Period (1573−1603 A.D.), i.e., the work Amakusabanheekemonogatari (1592), cf. (37).

(37) 私 が 為 に 深い 罪 と 成り まらせうずれば，

Watashi ga tame ni fukai tsumi to nari maraseureba

唯 返らせられい と 言えども 思い切る と。

tada kaeraserarei to iedomo omoikiru to

‘If it was for my sake, you were accused of deep sin, I shall then resign to fate and not respond.’

(Amakusabanheekemonogatari 1592)

The grammaticalisation of kiru into an aspectual verb is seen outside of change-of-state expressions. The following data comes from Late Middle Japanese and provides illustrations of a case where kiru plays the role of an aspectual verb in a motion event.

(38) 本郷 新花 町 の 塵芥 坂 を 下り 切る。

Hongo Shinhana choo no Chiriakuta saka o ori kiru

Hongo Shinhana street GEN Chiriakuta slope ACC go down completely

‘Go down the Chiriakuta slope of Hongo Shinhana.’

(Heike Monogatari 1592)

In the compound ori-kiru ‘go down- completely’, V1 oriru ‘go down’ denotes the MANNER of action and V2 conveys the ASPECT of the action, i.e., ‘completely’. A similar formation is found in 這入り切る haihairikiru ‘completely entre’.

Building on this, it seems sound to propose that the grammaticalisation of kiru started in the Kamakura Period, the beginning of Late Middle Japanese and becomes more solidified towards the end ofLate Middle Japanese, i.e., the Aduchimomoyama Period.

4.1.4 Kiru in Early Modern Japanese

This section analyses Early Modern Japanese data, a period when kiru derived two new functions: adverb (four tokens) and noun (eight tokens). The transitive verb use is retained as the main function (48 tokens are confirmed).

4.1.4.1 Kiru Derives an Adverb (kiri)

Below is an illustration from 丹波与作待夜のこむろぶし, a work completed in 1707, where kiru displays an adverb function and is written as kiri ni.
Kiri is followed by a dative case particle, i.e., に. There are only two tokens of adverb use; all in Tanbayosakumatsuyonokomurobushi (1707).

4.1.4.2 Kiri Derives a Noun (kiri)

Another intriguing finding is that *kiru* derives a noun function in Early Modern Japanese. The illustration comes from 冥途の飛脚 Meidonohikyaku (1711).

There are three tokens of *kiru* being a noun in (30), i.e., 巾着切り kinchakukiri ‘pickpocket-cutting’, 家尻切り yajirikiri ‘house wall-cutting’, 首切り kubikiri ‘neck-cutting’. Essentially, no sequential voicing is detected. Another noun use of *kiru* includes:

4.1.4.3 *kiru* as an aspectual verb

Furthermore, one token of aspectual use is detected, i.e., 春色江戸紫 Shunshokuedomurasaki, a work completed in 1864.

4.1.5 *Kiru* in Modern Japanese

In Modern Japanese (specifically, 1868–1941) the most frequent function of *kiru* is the transitive verb (373 tokens). The second largest number of tokens was attributed to the noun use (97 tokens). The adverb use had the third largest number (39 tokens), while 29 tokens had the suffix function. The aspectual function accounts for 7 tokens.

4.1.5.1 Kiri Derives a Suffix: kiri

It is in 1888, when *kiru* is seen to have been grammaticalised into a suffix, cf. (43).
Another illustration of the suffix function is in (44).

(44) 只 二人 切り の 生活 なん です が…
  tada futari kiri no seikatsu nan desu ga
  only two persons cut GEN life PART predicate.HON PART
  ‘The couple life…’
  (Jogakusekai 1909)

4.1.5.2 kiri as an Adverb

A total of 39 tokens have been detected as an adverb. An illustration is provided in (45).

(45) 隋唐 の 制度 を 切り 模倣 した
  SuiTang no seido o kiri mohoo shita
  ‘Completely imitate the system of the Sui and Tang Dynasty.’
  (Taiyoo 1895)

切り kiri is the continuative form of transitive verb kiru. Here, it modifies the degree of 模倣 mohoo ‘imitate’, meaning ‘completely’.

4.1.5.3 kiru as an Aspectual Verb

In Taiyoo (1909), eight types (20 tokens) of kiru are found rendering an ASPECT: kiru is not bound; the semantic meaning of kiru is not completely lost; it renderings how an action, event, or state, denoted by the first verb. Illustrations are provided in (46).

(46) Kiru in change-of-state compound verb
  a. 絶ち切る tachikiru ‘cut out’ (describe an action)
  b. 無くなり切る nakunarikiru ‘completely disappear’ (describe a state)
  c. 疲れ切る tsukarekiru ‘extremely exhausted’ (describe a state)
  d. 灼き切る yakikiru ‘burn off’ (describe an action)
  e. 閉じ切る tojikiru ‘totally close’ (describe an action)
  f. 悩え切る modaekiru ‘worry a lot’ (describe a state)
  g. 成長し切る seichooshikiru ‘completely grown up’ (describe an event)
  h. 苦り切る nigarikiru ‘disgusted’ (describe a state)

Later, in the Taishoo Period (1912–1926), kiru’s aspectual use is seen. The composition tends to be [unaccusative + kiru]. Illustrations are:

(47) 下り切る kudari-kiru ‘descend-completely’; 立て切る tate-kiru ‘close up’.

Another striking finding in this period is that kiru begins to form a V-V with an unergative verb, i.e., 疲れ切る tsukare-kiru ‘worn out-extremely’. The pattern of kiru’s aspectualisation can be summarised as follows:

Stage I  Early Middle Japanese

V-V kiru-kudaku, ‘cut-crush’, both V1 kiru and V2 kudaku are transitive. They render the MANNER of action and involve strong agentivity; no ASPECT is indicated. The two constituents are morphologically and syntactically equalled. The substantive function, i.e., ‘to cut’, is obtained in Early Middle Japanese.

Stage II  Early Modern Japanese

The V-V omoi-kiru ‘despair’, and komari-kiru ‘extremely distressed’, the agentivity of kiru is reduced; kiru
behaves as an ASPECTUAL verb, rendering the RESULT of an action that is conveyed by V1, i.e. omou ‘think’ and komaru ‘distress’.

Stage III  Modern Japanese

tsukure-kiru ‘extremely exhausted’, V1 tsukareru is an unergative V, meaning ‘being exhausted’. V2 kiru conveys the degree of exhaustion. The V-V bears the meaning ‘extremely exhausted’.

The foregoing discussion is summarised in Figure 2.

| Stage | Timetable                | Path A: Grammaticalisation                      |
|-------|--------------------------|-------------------------------------------------|
| I. OJ  | Retained                 | Transitive use                                  |
| II. EMJ | Retained                 | ↓                                               |
| III. LMEJ | Retained              | → aspectual use                                 |
| IV. EMJ | Retained                 | → aspectual use; adverb; noun                   |
| V. MEJ  | Retained                 | → Noun                                          |

So far, discussions have focused on the shift of category (transitive verb → ASPECTUAL verb) and semantic alternation (from concrete meaning ‘cut’ → rendering the degree of V1’s state). The finding brought us to the point that the transitive function is preserved in every period. The aspectual use was derived during Late Middle Japanese; the adverb and noun use are first detected in Early Modern Japanese period; the suffix use is derived in Modern Japanese. Table 9 summarises the grammaticalisation path of kiru.

Table 9. Summary of kiru’s journey from a substantive transitive verb into various functions

4.1.6 Lexicalisation of kiru

Drawing on the category shift highlighted above, this section proceeds to another path: semantic extension. The following data comes from Uijjyuimonogatari (1220); Shinjuuyogooshin (1722) and Taiyoo (MJ, 1895), where kiru conveys a metaphorical reading.

(48) さて 頑悩 を 切り 捨つ。
sate bonnou o kiri sutsu
now passion ACC cut throw away
‘Now, it is time to throw away the passions.’
(Uijjyuimonogatari 1220)

(49) さてこそ 絆 を 切り に 来た。
satekoso en o kiri ni kita
as expected relationship ACC cut DAT come.PAST
‘I come to end the relationship.’
(Shinjuuyogooshin 1722)
It is such a sad thing that the relationship between the father and his own son has been cut.

(Taiyoo 1895)

Another instance of transitive use with a metaphorical reading is:

Hit the Emperor’s morale.

(Taiyoo 1901)

We cannot say that the above data is a matter of lexicalisation, as there is no syntactic reduction nor morphological alternation. Given this, it appears that the transitive root of kiru/kireru pair is not subject to lexicalisation. The following sections turn to the unaccusative verb kireru, seeing if it is subject to lexicalisation.

4.2 Kireru (cut/unaccusative)

Having drawn a picture of kiru’s evolution, this section analyses its unaccusative pair, kireru, by posing three question: (a) when it was derived from the transitive root (4.2.1); (b) how it derived other syntactic functions (4.2.2); (c) whether the process involved lexicalisation (4.2.3).

To begin with, Table 10 summarises the periods during which kireru derives other functions:

| Category | Old Japanese (700–800 A.D) | Early Middle Japanese (800–1200 A.D) | Late Middle Japanese (1200–1600 A.D) | Early Modern Japanese (1600–1868 A.D) | Modern Japanese (1868–1947) |
|----------|-----------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------|
| Substantive V | 0                           | 14                                  | 9                                   | 60                                  | 199                         |
| Noun      | 0                           | 1                                   | 1                                   | 9                                   | 22                          |
| Aspectual | 0                           | 0                                   | 0                                   | 0                                   | 90                          |

4.2.1 Kireru’s Grammaticalisation

The first appearance of kireru is in Early Middle Japanese, therefore, our investigation starts from this period.

4.2.1.1 Kireru Derived from the Transitive Root kiru

Kireru is derived in 951, in the work Oowamonogatari, Early Middle Japanese, cf. (52).

The hair that is cut in a very fragrant paper.

(Oowamonogatari 951)

There are in total 14 tokens of kireru in Early Middle Japanese, all behaving as an unaccusative verb.

4.2.1.2 Kireru as a Noun

One hundred years after Oowamonogatari, kireru appeared in 今昔物語集 (Konjyakumonogatarishuu 1100), as a quantifier.
(53) ぞく 三 切れ に 咲切て …
   kaku san kire ni kui-kite
   ‘Bite it into three pieces like this.’

(54) 徳川 侍 の なまくら刀 に も
   Tokugawa samurai no Namakuragatana ni mo
   ‘There is a slight nick in the Namakuragatana-Tokugawa warrior.’

(55) unaccusative, metaphorical reading

   視覚 と 外界 と の 縁 は 切れる.
   Shikaku to gaikai to no en wa kireu
   ‘No longer care for the exterior’.

(56) （56） Kireru Deserves an Aspectual Use

   The aspectual function has been very extensively employed in this period. A total of 90 tokens are confirmed, cf. (56). The reason of treating kireru as an aspectual verb rather than a suffix is due to the followings: kireru is not bound; the semantic meaning of kireru is not completely lost; it renderings RESULT of the action that is carried out by the first verb.

   (56) Kireru as an ASPECTUAL verb

   やり切れる yarikireru ‘carry out-throughout’ (describe an action)
   捨て切れる sutekikeru ‘give up-completely’ (describe an action)
   耐え切れる taekikeru ‘bear-throughout’ (describe an action)
   数え切れる kazoekikeru ‘cuculable’ (describe an action)
   張り切れ harikireru ‘burst’ (describe an action)

   It ought to be noted that kireu can also be treated as the potential form of transitive verb kiru. In this regard, the original compound verb of (56) would be (57):

   (57) yarikiru; sutekiru; taekiru; kazoekiru, harikiru. The compound verbs in (57) differ from the compound verbs in (56) in that (56) describes an event that happens spontaneously. On the other hand, (57) involves an intention of carrying out an action thoroughly. The context of kireru in the corpus suggests a spontaneous event rather than an intended action. Therefore, kireru is treated as the unaccusative verb, functioning as an aspectual verb, rather than the potential form of transitive verb kiru. Building on this, we propose that unaccusative verbs can be
subject to grammaticalisation, rendering an aspect for the action verb (V1).

4.2.4 Kireru’s Lexicalisation

Recall that lexicalisation regarding Japanese requires the following conditions.

(a) **Syntactic reduction**

- VP [object + verb] has its accusative case particle omitted,
- VP [subject + verb] has its nominal case particle *ga* lost

(b) **Morphological alternation**

The verb transits to a continuative form, conveying a noun function.

(c) **Phonological alternation**: the initial consonant of the non-initial portion of a compound or prefixed word becomes voiced

An illustration is extracted from a work in Early Modern Japanese: *心中刃は氷の朔日* (*Shinjyuuyaiba wa koori no tsuitachi* 1709), where, *en-kireru* involves syntactic reduction, i.e., VP [subject + verb] has its nominal case particle *ga* lost (cf. the original form was: *en ga kireru*).

(58) 縁切れ romance end.CONJ 床離れ floor leave.CONJ 行く go.CONCL

‘ended the relationship and left.’

(*Shinjyuuyaiba wa koori no tsuitachi* 1709)

This character of *kire* is productive. There are four tokens in *Shinjyuuyaiba wa koori no tsuitachi* (1709). A further search in the historical corpus reveals that there are 200 tokens of *kireru* (Table 11), where,

- Syntactically, the VP [subject + verb] lost the nominal case particle *ga*;
- Morphologically, The verb transits to a continuative form;
- Phonologically, the initial consonant of the non-initial portion of a compound or prefixed word becomes voiced. Among the 18 types (34 tokens) in Table 11, 14 types (26 tokens) are subject to sequential voicing (Note 23).

| Lexicalised kireru | Types | Tokens | Sequential voicing | First appearance |
|--------------------|-------|--------|--------------------|-----------------|
| 肥料切れ | 1 | 1 | ひろぎれ | 1991 |
| 手切れ | 1 | 2 | てぎれ | 1996 |
| 弾切れ | 1 | 1 | たまぎれ | 2001 |
| 賞味期限切れ | 1 | 7 | しょうみきげんぎれ | 1998 |
| 品切れ | 1 | 4 | しなぎれ | 2008 |
| 電池切れ | 1 | 1 | でんちぎれ | 2005 |
| 紙切れ | 1 | 3 | かみきれ | 2004 |
| 端切れ | 1 | 1 | はぎれ | 2005 |
| 幕切れ | 1 | 3 | まくぎれ | 2002 |
| 屍切れ | 1 | 1 | しりきれ | 2005 |
| 身切れ | 1 | 1 | みぎれ | 2002 |
| 検査切れ | 1 | 1 | けんさぎれ | 2005 |
| 板切れ | 1 | 1 | いたきれ | 2000 |
| 燃料切れ | 1 | 1 | ねんりょうぎれ | 2004 |
| 布切れ | 1 | 1 | ぬのきれ | 2002 |
| 棒切れ | 1 | 1 | ぼうきれ | 1996 |
| 息切れ | 1 | 1 | いきぎれ | 2005 |
| 電球切れ | 1 | 1 | でんきゅうぎれ | 2005 |

The nominalised use of *kireru* in the above data undergo the following transitions:

(a) The nominal case particle *ga* omitted, e.g.

検査が切れる→検査切れ; 燃料が切れる→燃料切れ; 電球が切れる→電球切れ, etc.
(b) The verb transits to noun form, e.g., *kireru* → *kire*

(c) Though voicing occurs in the first consonant which is a criterion of grammaticalisation, 切れ cannot be treated as a suffix yet, because, most essentially, a suffix is written in kana rather than in Chinese characters.

With this in place, the evolution of *kireru* in Modern Japanese can be claimed to be a case of lexicalisation rather than affixation (i.e., grammaticalisation).

### 4.3 Summary

This section has tackled with *kireru*’s decategorisation: how *kireru* is derived from its transitive pair *kiru* and, how it itself derived an aspect, a noun and a semi-suffix function. The finding suggests that *kireru* emerged in Early Middle Japanese, specifically in 951. In 1100, it derived a noun use. In Early Middle Japanese, the unaccusative use derived an aspectual function and the noun use began to render a metaphorical reading. *Kireru*’s lexicalisation appears to begin in Modern Japanese. The lengthy journey of grammaticalisation and lexicalisation is provided in Table 12.

#### Table 12. A timetable of *kireru*’s grammaticalisation and lexicalisation

| Timetable                  | Transition                                                                 |
|----------------------------|-----------------------------------------------------------------------------|
| I. Early Middle Japanese   | derived from *kiru* (951)                                                   |
|                            | 150 years later, the noun use is derived                                    |
| II. Late Middle Japanese   | unaccusative use & noun use coexist                                         |
| III. Early Modern Japanese | unaccusative use → aspectual use; noun use → metaphorical reading           |
| IV. Modern Japanese        | lexicalisation                                                              |

Comparing the evolutions of *kireru* and *kiru*, we arrive at the following:

(I) *kiru* emerged in Old Japanese and *kireru* was derived in Early Middle Japanese;

(II) The noun use of *kireru* was derived in Late middle Japanese and the noun use of *kiru* emerged in Early Modern Japanese;

(III) The aspectual use of *kireru* emerged in Early Modern Japanese and the aspectual use of *kiru* is born in Late Middle Japanese;

(IV) *Kiru* derived an adverb use in Early Modern Japanese and the adverb use is missing in *kireru*;

(V) During Modern Japanese, *kiru* derived an apparent suffix function. *Kireru* got lexicalised.

The foregoing discussions are summarised in Table 13.

#### Table 13. A comparison of the evolutionary paths of *kiru* and *kireru*

|                | *kiru*          | *kireru*       |
|----------------|-----------------|----------------|
| I. Old Japanese| emerged         |                |
| II. Early Middle Japanese |                | derived        |
| III. Late Middle Japanese | aspectual use derived | noun use derived |
| IV. Early Modern Japanese | noun use, adverb use derived | aspectual use derived |
| V. Modern Japanese     | suffix          | lexicalised    |

Pulling these strands together, it seems that the degree of grammaticalisation in *kiru* is higher than that in *kireru*, as evidenced by the fact that *kiru* derived the aspectual function earlier than *kireru*: *kiru* derived the adverb use whilst *kireru* did not; *kiru* derived a suffix function in Modern Japanese whilst *kireru* underwent lexicalisation in the meantime. A proposal is thus put forward that: it is the transitive function that is likely to be subject to grammaticalisation and it is the intransitive function that tends to be subject to lexicalisation.

### 5. Conclusion

This study seeks an answer to the relationship between two evolution processes, grammaticalisation and lexicalisation, by examining data from Japanese transitive/unaccusative verb pairs’ paths from a substantive verb to the various forms they fulfil in Modern Japanese, i.e., an aspectual verb, a noun, an adjective, an adverb, a quantifier and a suffix. A corpus-based investigation and a case study was carried out. This study further
provided a working definition of ‘grammaticalisation’ and ‘lexicalisation’ that applies to Japanese. The findings brought us to the following main points:

(a). Transitive verbs are more likely to convey ASPECT than unaccusatives do. The shift into a quantifier is limited to unaccusative verbs. Both transitives and unaccusatives appear to be capable of deriving a suffix function. However, the nominalised form by unaccusatives and transitives can both render a lexicalised meaning. A statistical analysis indicates that the nouns derived from an unaccusative verb are likely to render a concrete reading; the nouns derived from a transitive verb tend to convey a metaphorical meaning. Furthermore, both unaccusatives and transitives are subject to nominalisation. Three ways are confirmed, namely,

- **N (dative case) + unaccusative verb**, e.g., *kawa-zoi* ‘rive side’;
- **N (nominative case) + unaccusative verb**, e.g., *gohan-taki* ‘rice cooking’
- **N (accusative case) + transitive verb**, e.g., *gohan-taki* ‘rice cooking’

By tracing the evolution of how *vit/vi* develop into various categories in different periods, this study has pinned down the distinctions between grammaticalisation and lexicalisation, as shown in Table 14.

Table 14. Distinctions between affixation and lexicalisation

| Diagnoses       | Grammaticalisation | Lexicalisation |
|-----------------|--------------------|----------------|
| Category        | alter              | alter          |
| Phonologically  | change             | no change      |
| Syntactic reduction | obligatory      | obligatory      |
| Morphological alternation | obligatory | obligatory |
| Writing         | alter (from characters to kana script) | no change |

Grammaticalisation (affixation) and lexicalisation in Japanese both require syntactic reduction and morphological alternation. The two differ in that lexicalisation does not require an alternation in writing, i.e., a lexicalised item can remain being written in Chinese characters whilst a grammaticalised item can only appear in kana script. Phonological alternation is obligatory in grammaticalisation but not required by lexicalisation. Lexicalisation appears to occur before grammaticalisation.

**Illustrations of transitive/intransitive verbs that share the same word form**

- a. *mado o tojiru* ‘close the window’
- b. *mado ga tojiru* ‘the window is closed’
- a. *zaisan ga takusan morau koto ha shinpai ga tomonau* ‘inheriting lots of money brings with axientiry’
- b. *kiken o tomonau* ‘accompany dangers’
- a. *nimotsu o hakobu* ‘carry a load’
- b. *koto ga hakobu* ‘(project, etc.) go smoothly’
- a. *mizu ga haru* ‘water froze’
- b. *ne o haru* ‘spread root’
- a. *doa o hiraku* ‘open a door’
- b. *do aga hiraku* ‘the door opens’
- a. *ibunka ni fureru* ‘to know about the interculture’
- b. *te o fureru* ‘touch with hand’
- a. *tokee o maku* ‘wind up a clock’
- b. *kiri ga maku* ‘be shrouded in mist’
- a. *ryoo ga masu* ‘grow in numbers’
- b. *ninki ga masu* ‘gain in popularity’
- a. *kai o moyoosu* ‘hold a meeting’
- b. *arashi ga moyoosu* ‘there is a storm brewing’
- a. *himo o musubu* ‘tie a string’
b. *mi ga musubu* ‘bear fruit’
   a. *kaisha de hataraku* ‘work in a company’
   b. *nusumi o hataraku* ‘commit a theft’
   a. *sen o hiku* ‘draw a line’
   b. *mizu ga hiku* ‘water flow out’
   a. *kaze ga fuku* ‘the wind blow’
   b. *fue o fuku* ‘blow a flute’
   a. *hon o motsu* ‘carry a book’
   b. *karada ga motsu* ‘bear’

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The illustrations in (4) are drawn from Masahiko Satoo. (2020). Retrieved August 29, 2020, from http://jgrammar.life.coocan.jp/ja/index.htm

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**Dictionaries**

Kooijen Dictionary

**Abbreviations**

| Abbreviation | Description               |
|--------------|---------------------------|
| ACC          | accusative                |
| ACOP         | adjectival copula         |
| AND          | adnominal                 |
| ADV          | adverb                    |
| CONC         | concession                |
| CONCL        | conclusive                |
| COND         | conditional               |
| CONJ         | conjectural               |
| CONT         | continuous                |
| COP          | copula                    |
| COS          | change-of-state           |
| DAT          | dative                    |
| DEM          | demonstrative             |
| EMPH         | emphatic                  |
| ETOP         | emphatic topic            |
| EXCL         | exclamatory               |
| FOC          | focus                     |
| GER          | gerund                    |
| HON          | honorific                 |
| IMP          | imperative                |
| INF          | infinitive                |
| IJP          | interjectional particle   |
| MPST         | modal past                |
| NEG          | negative                  |
| OPT          | optative                  |
| PASS         | passive                   |
The Balanced Corpus of Modern Written Japanese (by National Institute for Japanese language and linguistics): http://www.kotonoha.gr.jp/shonagon/
The Japanese historical linguistic corpus 2.5.0 (by National Institute for Japanese Language and Linguistics): https://chunagon.ninjal.ac.jp/

Notes

Note 1. Lexemes that can appear both in kana and Chinese characters are ‘semi-affixed’ (in that they are still undergoing the process of grammaticalisation).

Note 2. Intransitive verbs have two subtypes: unergative verbs and unaccusative verbs. In this introduction section, I use the term ‘intransitive’ to cover all possible ways of intransitive verbs.

Note 3. The illustrations are drawn from Masahiko Satoo (2020) retrieved August 29, 2020, from http://jgrammar.life.coocan.jp/ja/index.htm

Note 4. Illustrations are provided at the end of the text.

Note 5. An aspectual verb is usually rendered by the second constituent in a compound verb. It construes STATE or RESULT of the action conveyed by the first constituent. Such verb compound in Kageyama’s (1993, 1996) regard, is ‘syntactically formed V-V’.

Note 6. It ought to be noted that おもいきて ‘drastically’ is the gerund form of the compound verb おもいくる. A search in the BCCWJ found 756 tokens of おもいきて as an adverb. This study alleges the process of a compounding verb turning into an adverb use is an outcome of grammaticalisation (the criteria of grammaticalisation in Japanese is provided in Section 3). Although X-くる is a highly productive ‘syntactically formed V-V’, not all compound verbs can be grammaticalised into an adverb, e.g., 乗りくる ‘overcome’, ぶみくる ‘make a bold start’, たべくろ ‘eat everything’ are not derived into 乗りきて, ぶみきて, たべきて.

Note 7. Whether it is the vt or vi, it always appears as the second constituent of the compound verb when it acts as an aspectual verb. Crucially, these verbs no longer indicate a substantive MANNER of action, but convey a STATE. Such verb compound in Kageyama’s (1993, 1996) regard, is ‘syntactically formed V-V’.

Note 8. Some verbs undergo a phonological change (voicing) when suffixed, e.g., つ売る – つく (cf. つう).

Note 9. We will get back to the derivation process of きる in Section 4.

Note 10. 今昔 is written in the はんじ ‘variant Chinese’ script and is considered the oldest extant chronicle in Japan, recording myths as well as the history of Mikado, the Emperor of Japan.

Note 11. 閑 significantly is written in man’yōgana. It was employed in Late Old Japanese and inspired the invention of the kana script in the Heian Period (794–1185, Early Middle Japanese).

Note 12. 白縫 (siranupi) is a ‘makurakotoba’ for the place name 筑紫 (tukushi). Makurakotoba (枕詞), literally pillow words, are figures of speech used in Japanese waka poetry, where epithets are used in association with certain words. The set phrase can be thought of as a “pillow” for the noun or verb it describes.

Note 13. Sequential voicing is a striking phonological feature of nominal compounding in Japanese: when two
nouns are combined, the first consonant of N2 is voiced, e.g., kiri is voiced in uragiri ‘betray’ and usugiri ‘thin slice’. Sequential voicing has two variations: [N\textsc{modifier} = N_2] and [N\textsc{object} = N_{\textsc{trans}}].

Note 14. Consonant alternation refers to the initial [-voiced] consonants /k/, /s/, /ɕ/, /t/, /ʨ/, /ts/, /h/, /ç/, /ɸ/ become [+voiced] consonant /g/, /z/, /(d)ʑ/, /d/, /b/.

Note 15. English verb’s nominalisation is realised by turning the verb into gerund form.

Note 16. Old Japanese: OJ, Early Middle Japanese: EMJ, Late Middle Japanese: LMJ, Early Modern Japanese: EMDJ, Modern Japanese: MJ.

Note 17. The number in ( ) refers to the tokens; the number outside ( ) is the types. The diagnosis of nominalisation and suffixation lies in the writings: nominalised lexemes are written in Chinese characters whilst suffixes appear in kana script.

Note 18. The numbers in Table 8 refers to tokens.

Note 19. The period of Modern Japanese begins with 1868 and extends to the present days. The scope of the CHJ corpus has been confined to 1947. Therefore, this study calculates the data till 1947. The data for the present-day would be drawn from the BCCWJ corpus.

Note 20. 「ひ」 is 歴史的仮名遣, it corresponds to い in Modern Japanese.

Note 21. 貫 was a sort of currency used before the Edo Period.

Note 22. The period of Modern Japanese begins with 1868 and extends to present days. The scope of CHJ corpus has been confined to 1947. Therefore, this study calculates the data up until 1947. The data for present-day would be drawn from the BCCWJ corpus.

Note 23. 端切れ has two pronunciations: hagire and hashikire. Among the two, hagire appears to be favoured. There are two pronunciations in 板切れ: itakire and itagire. It is the itakire that is used more often. 布切れ has two pronunciations: nunokire and nunogire. Nunokire is used more often.

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