Macrothink Institute™

International Journal of Linguistics
ISSN 1948-5425
2017, Vol. 9, No. 5

A Distributed Morphology-Based Study on Verb Derivation in Japanese

Wenchao Li

School of International Studies, Zhejiang University, Yuhangtang Road # 866, 310058, Hangzhou, China

E-mail: widelia@zju.edu.cn

Received: August 28, 2017 Accepted: September 4, 2017 Published: September 5, 2017

doi:10.5296/ijl.v9i5.11769 URL: https://doi.org/10.5296/ijl.v9i5.11769

This paper is based on work that was supported by the National Foundation of Social Sciences (15CYY002) to Wenchao Li.

Abstract

This study uncovers Japanese verb derivation based upon the approach 'distributed morphology', conveying three ways of deriving a transitive (vt) or an intransitive verb (vi) in Japanese: (a) derived from the same adjective stem; (b) adding a morpheme that indicates *vt* or *vi* properties to a stem; and (c) verbalising a loanword or a Japanese-originated lexicon. In terms of deriving *vt* and *vi* from the same adjective stem, there is a semantic compositionality between the stem and the later added morphemes. Syntactically, the category of the derived *vt* and *vi* is established after the merger. In the second method of verb derivation, four pairs of *vt*/*vi* morphemes are confirmed: '-ø- (-u)'; '-e-'/ '-ar-'; '-ø-(-u)' / '-e-'; '-ø-(-u)'; '-os-(-osu)'; '-as-(-asu)' / '-i-'; '-as-(-asu)'; '-s- (-su)' / '-e-'. Furthermore, three verbalisers, 'る', 'する' and aspect 'ってる', participate in the third type of verbalisation and, most essentially, the category of the base is not limited to nouns, but extends to mimetics and phrases. A proposal to treat these variations is put forward: the syntactic category of Japanese *vt* and vi are not predetermined. Verb derivation is a completely syntactic operation. The derivations, however, split into two paths: the process by which *vt* and *vi* derive from the same adjective stem is a case of 'word-derivation', and the process by which a verb is derived by adding a morpheme that indicates *vt* or *vi* properties to a stem and verbalising a loanword or a Japanese-originated lexicon is a manipulation of 'root-derivation'.

Keywords: distributed morphology, word formation, verb derivation

1. Introduction

There are three ways of deriving a transitive (vt) or an intransitive verb (vi) in Japanese. First, *vt* and *vi* derive from the same adjective stem, as illustrated in (1).

(1) Intransitive and transitive verbs derive from the same adjective stems

e.g. *fukai* (Adj)	→ intransitive V	FUKAM-ar-u
	→ transitive V	FUKAM-e-ru
takai (Adj)	→ intransitive V	ATATAM-ar-u
	→ transitive V	ATATAM-e-ru

Second, a morpheme that indicates *vt* or *vi* properties is added to the verb stem, as in (2).

(2) A morpheme that indicates transitive/intransitive properties is added to the verb stem, for example:

KOWA-s-(r)u/KOWA-re-ru; TAT-∅-(r)u/TAT-e-ru; KIR-∅-(r)u/KIR-e-ru

These two ways of deriving a verb represent transitive/intransitive verb alternation.[1] More illustrations of alternation are provided in Table 1.

Table 1. Intransitive/transitive verb pairs in Japanese

Intransitive verb	Transitive verb
kir-e-ru (cut.$_{intr}$)	kir-ø-(r)u (cut.$_{tran}$)
-i-/-os- ot-i-ru (fall)	ot-os-u (drop)
-e-/-akas- obi-e-ru (become frightened at)	obiy-akas-u (frighten)

As an agglutinative language, morphology plays an essential role. *vt* and *vi* alternation appears systemic, except for the morpheme '-e-', which may indicate an intransitive verb (e.g. 折れる 'or-e-ru') or a transitive verb (e.g. 集める 'atsum-e-ru'). The multi-function of -e- inspires us to ponder the question of whether there is no 'base' transitive or 'base' intransitive verb in the first place. Maybe all verbs are derived at a syntactic level.

A third way of building a verb is 'verbalisation', which contains two variations:

(3) a. verbalising a *gairaigo*[2] (the category of the base can be any part of speech: nouns, adjectives, adverbs, etc.)

b. verbalising a Japanese-originated lexicon

[1] There is a third method of transitive/intransitive verb alternation, in which transitive/intransitive verbs share the same word form, as shown below.

(i). HIRA-ku (doa –o-**hiraku** 'open the door' / doa-ga-**hiraku** 'the door opens')

(ii). MA-ku (asakao-ga-tsuru-o-**maku** 'The morning glory rolled up the tendril' / asakao—no-tsutu-ga-**maku** 'The tendrils of the morning glory rolled up')

[2] The term *gairaigo* literally means 'words that came from outside'. Linguistically, it refers to loanwords that are originated in languages other than Chinese. They are written in 'katakana'.

When adopting a *gairaigo*, Japanese tends to re-shape it. (4) provides an illustration of verbalising a *gairaigo*.

(4) Verbalising a *gairaigo*

a. original lexicon: サボタージュ (French) 'sabotage' (noun)

b. verbalised lexicon: サボる 'to cut class' (verb)

The French-origin noun サボタージュ's verbalisation into the verb サボる includes two steps. First, the original lexicon サボタージュ is abbreviated into a two-syllable lexicon, サボ. Second, the two-syllable lexicon is combined with a verbaliser る.

Verbalisation can also take place for Japanese-originated lexicons, as exemplified by (5).

(5) Verbalising a Japanese-originated lexicon

a. original lexicon: 神 'God' (noun)

b. verbalised lexicon: 神ってる 'behaving like God' (verb)

The Japanese noun 神 is combined with a PROGRESSIVE aspect, 'ってる', transiting into '神ってる'. The new verb indicates a state and a means: '(somebody) always performs splendidly, like God'.

Previous research on word formations in Japanese have focused on transitive/intransitive verb alternation, tackling the question of which is the base and which is derived. Remarkable approaches include 'morphological perspective' (Okutsu 1967, Nishiyama 2000); 'subject's animacy' (Morita 1994); and 'lexical conceptual structure' (Suga 1993; Kageyama 1993, 1996, 1999). Kageyama's (1996) proposal of a two-way derivation of an intransitive verb is influential, i.e. decausativisation and anticausativisation. Deriving an intransitive verb from a transitive verb is a manipulation of 'decausativisation', for example //kim-e-ru// → //kim-ar-u//, cf. (6).

(6) *x* CONTROL [*y* BECOME [*y* BE AT-*z*]]]

x = *y* CONTROL [*y* BECOME [*y* BE AT-*z*]]]

'Anticausativisation' refers to the morpheme '-e-' identifying the agent and the object, giving rise to the identification of the internal and external arguments; this in turn leads to the derivation of transitive verbs into intransitive verbs (Kageyama 1996), for example //kir-ø-(r)u// → //kir-e-ru//, cf. (7).

(7) *x* CONTROL [*y* BECOME [*y* BE AT -*z*]]

↓

Ø

Two issues, however, remain to be explored. First, the double functions of the morpheme '-e-' pose the question of whether there is no 'base' *vt* or 'base' *vi* in the first place. Second, the verbalisation of loanwords as well as the Japanese-originated lexicon are neglected. They

ought to be taken into consideration, for more and more new lexicons are being created. Their composition patterns and category transition need to be tackled in more depth.

This paper is organised as follows. Section 2 sheds light on the 'distributed morphology' framework adopted in this study. Section 3 considers two issues: verbs derived from the same adjective stem, and verbs derived via a morpheme. Section 4 turns to verbalisation regarding *gairaigo* and Japanese-originated lexicons. Particular attention is placed on how different lexical categories might transit into verbs. Section 5 highlights the results and concludes the paper.

The data is extracted using the Balanced Corpus of Modern Written Japanese, compiled by the National Institute for the Japanese Language and Linguistics (2011).

2. The 'Distributed Morphology' Framework

The distributed morphology framework was initially put forward by Halle and Marantz (1993), (1994). Three relevant lists are involved:

(a). Formative List

(b). Exponent List

(c). Encyclopaedia

The 'Formative List' contains no grammatical categories in and of themselves. The 'Exponent List' is also known as 'vocabulary items', associating phonological content. 'Encyclopaedia' associates syntactic units with special, non-compositional aspects of meaning. Figure 1 provides a grammatical model of the framework.

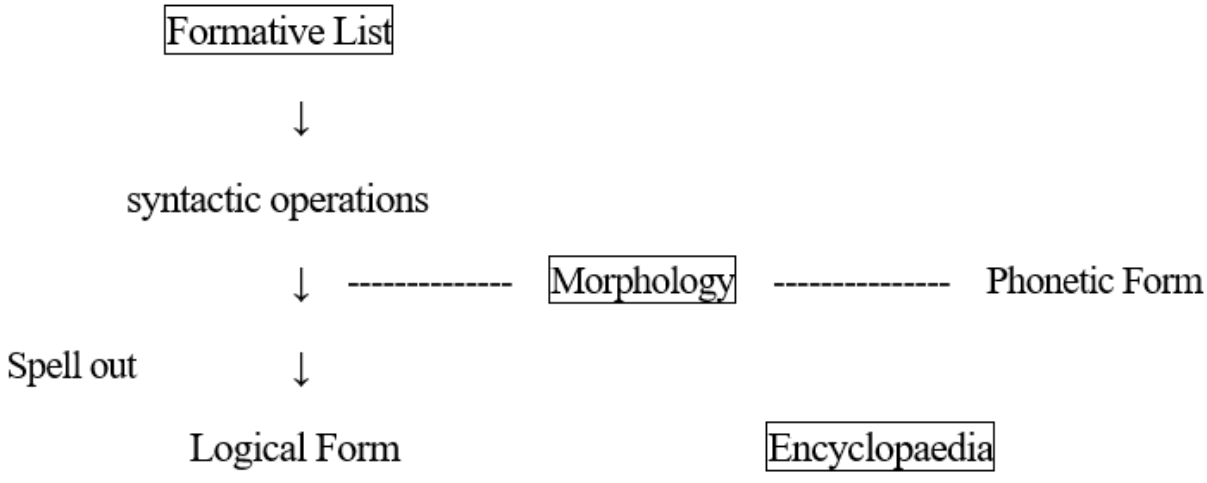


Figure 1. Model of distributed morphology

The central claim of distributed morphology lies in that there is a single generative engine for the formation of both complex words and complex phrases. This is named the 'Single Engine Hypothesis' (Marantz 1997, Arad 2003, Embick and Noyer 2007).

(8) The Single Engine Hypothesis

The formation (forming a new lexicon by combining two constituents) is a completely syntactic manipulation.

Distributed morphology has been adopted intensively in linguistic typological work since its initial application to Hebrew in 1990s: see, for instance, English inflection and resultative construction (Embick 2004; 2010); Japanese nominalisations (Volpe 2005); Japanese adjective inflection (Nishiyama 1999, Takawa 2013); and Hindi Noun Inflection (Singh and Sarma 2010). The framework appears particularly efficient for languages with vague word classes due to the lack of inflectional morphology, such as Chinese (cf. Cheng 2015, 2016; Hu 2017, etc.).

The framework's most significant application is 'word formation'. A crucial proposal, known as the 'Root Hypothesis', has been put forward by Marantz (2001), Arad (2003), and Embick and Noyer (2007).

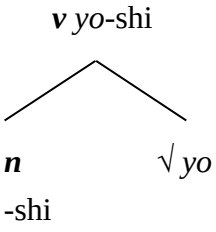
(9) The Root Hypothesis

The syntactic categories (V, N, A) are not predetermined, but are determined by an unspecified '√ *root*' plus syntactic environment.

According to the 'Root Hypothesis', verbs and adjectives are not syntactic atoms, but are shaped afterwards. Marantz (2001: 6–7) demonstrates two places for building words. One is in the domain of a root, attaching a morpheme to the root before attaching a functional head that determines the syntactic category of the word (N, V, Adj). The second place is outside the domain of functional head that determines the syntactic category. We will use Japanese data (the adjective 良い *yoi* 'good') to illustrate the theory.

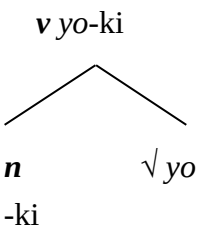
√*yoi* in a local relation with *n* is a noun: よし *yoshi*, cf. (10).

(10)



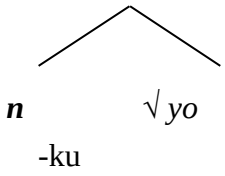
√*yoi* in a local relation with *ki* is an adnominal adjective: よき *yoki*, cf. (11).

(11)



√*yoi* in a local relation with *ku* is an adverbial, with 'ku' being a copula (Nishiyama 2000): よく *yoku*, cf. (12).

(12) ***v*** *yo*-ku



Distributed morphology asks the significance of syntax in word formation. There are, however, two ways of forming a lexicon (Arad 2003 and Embick 2010), i.e. root-derived and word-derived. Root-derived formation refers to a word directly derived from the root; the original lexicon has little to do with the derived lexicon. In word-derived, a word derives from a specified constituent and retains its phonetic and semantic features. Having highlighted the framework, the analysis will now follow distributed morphology as a point of departure and incorporate the 'root-derived' and 'word-derived' insights to account for Japanese verb derivation.

3. Verb Derivation in Terms of the *vt* and *vi* Pair

This section proceeds to exploring how a transitive or an intransitive verb can be shaped. Our starting point is a transitive/intransitive verb pair derived from the same adjective stem (3.1). We then move on to deriving *vt* or vi by adding a morpheme that indicates *vt*/*vi* properties to a stem (3.2).

3.1 Verbs Deriving from the Same Adjective Stem

One way to build a *vt* or *vi* is to derive from the same adjective stem (13).

(13)

(a). FUKAM-

FUKAM-e-ru (Transitive)

FUKAM-ar-u (Intransitive)

(b). HIROM-

HIROM-e-ru (Transitive)

HIROM-ar-u (Intransitive)

(c). TAKAM-

TAKAM-e-ru (Transitive)

TAKAM-ar-u (Intransitive)

TSUYOM-e-ru (Transitive)

(d). TSUYOM-

TSUYOM-ar-u (Intransitive)

YOWAM-e-ru (Transitive)

(e). YOWAM-

YOWAM-ar-u (Intransitive)

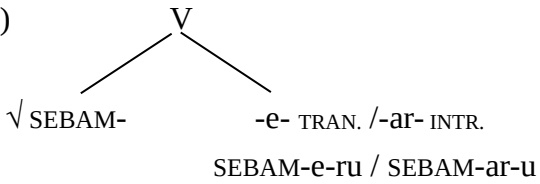
SEBAM-e-ru (Transitive)

(f). SEBAM-

SEBAM-ar-u (Intransitive)

Take (13f) as a representative instance. SEBAM-e-ru is transitive, meaning 'to narrow down'; SEBAM-ar-u is intransitive, meaning 'become narrow'. Crucially, the stem SEBAM- established the semantic interpretation (i.e. narrow) in the initial stage. The stem's original meaning is retained by later added morphemes, either *vt* or *vi*. With this in place, we may assume that there is a semantic compositionality between the stem and the added morphemes. The category of the derived *vt* and *vi* is established after the merger. The derivation process is described in (14).

(14)

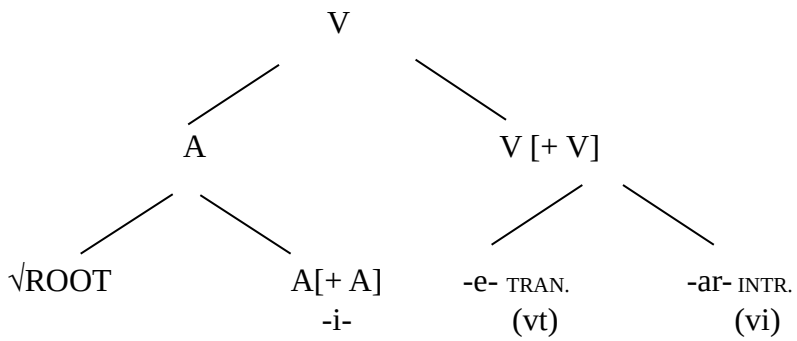


a. [[√sebam] -e-ru] (*vt*: narrow down)

b. [[√sebam] -ar-u] (*vi*: become narrow)

The stem SEBA- may also form an adjective, for example [[√seba] -i-] (*adj*: narrow). Perhaps we may generalise the derivation of transitive verb, intransitive verb and adjective from the same stem in (15).

(15) Derivation of a transitive verb, intransitive verb and adjective from an adjective stem



(15) brings us to the point that the later added morphemes ('-i-', '-e-ru' or '-ar-u') determine the lexicon's category, i.e. adjective, transitive verb, intransitive verb. This inspires us to contend that deriving a *vt* or *vi* from the same adjective stem is a manipulation of 'word-derivation'.

3.2 Verb Derivation by Adding a Morpheme to a Stem

The second way of deriving a *vt* or a *vi* is to add a morpheme that indicates transitive/intransitive properties to a stem. Four variations are confirmed (Table 2).

Table 2. Verb derivation by adding a morpheme to a stem

No.	**Transitive**	**Intransitive**
(a).	'-e-', '-ø-(-u)'	'-ar-'
(b).	'-ø-(-u)'	'-e-'
(c).	'-ø-(-u)', '-os- (-osu)', '-as-(-asu)'	'-i-'
(d).	'-as-(-asu)', '-s- (-su)'	'-e-'

In Table 2:

(I). The morphemes '-ø- (-u)' and '-e-' form transitive verbs; the morpheme '-ar-' forms intransitive verbs.

(II). The morpheme '-ø-(-u)' forms transitive verbs; the morpheme '-e-' forms intransitive verbs.

(III). The morphemes '-ø-(-u)', '-os-(-osu)' and '-as-(-asu)' form transitive verbs; the morpheme '-i-' forms intransitive verbs.

(IV). The morphemes '-as-(-asu)' and '-s- (-su)' form transitive verbs; the morpheme '-e-' forms intransitive verbs.

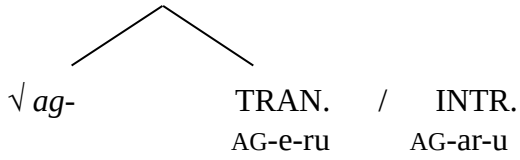
The first morpheme pair, i.e. '-ø- (-u)'or '-e-' / '-ar-', is extremely productive. Illustrations are provided in (16).

		Transitive	**Intransitive**
(16)	a.	決める //kim-e-ru//	決まる //kim-ar-u//
	b.	集める //atsum-e-ru//	集まる //atsum-ar-u//
	c.	掛ける //kak-e-ru//	掛かる //kak-ar-u//
	d.	植える //u-e-ru//	植わる //uw-ar-u//
	e.	詰める //tsum-e-ru//	詰まる //tsum-ar-u//
	f.	まぜる //maz-e-ru//	まざる //maz-ar-u//
	g.	いためる //itam-e-ru//	いたまる //itam-ar-u//
	h.	儲ける //mouk-e-ru//	儲かる //mouk-ar-u//
	i.	助ける //tasuk-e-ru//	助かる //tasuk-ar-u//
	g.	上げる //ag-e-ru//	上がる //ag-ar-u//

If we take (16g), i.e. 上げる ag-e-ru / 上がる ag-ar-u, as an instance, we have the following derivation process.

(17) **Derivation process** (上げる ag-e-ru / 上がるag-ar-u)

TRAN. INTR.



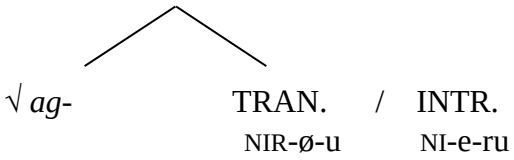
The second morpheme pair in Table 2, '-ø-(-u)'/'-e-', is also productive. Illustrations are given in (18).

		Transitive	**Intransitive**
(18)	a.	切る //kir-ø-(r)u//	切れる //kir-e-ru//
	b.	折る //or-ø-(r)u//	折れる //or-e-ru//
	c.	割る //war-ø-(r)u//	割れる //war-e-ru//
	d.	破る //yabur-ø-(r)u//	破れる //yabur-e-ru//
	e.	解く //hodok-ø-(r)u//	解ける //hodok-e-ru//
	f.	取る //tor-ø-(r)u//	取れる //tor-e-ru//
	g.	抜く //nuk-ø-(r)u//	抜ける //nuk-e-ru//
	h.	砕く //kudak-ø-(r)u//	砕ける //kudak-e-ru//
	i.	煮る //nir-ø-(r)u//	煮える //ni-e-ru//

(19) presents the derivation process of above verb pairs, taking (18i), 煮る nir-ø-(r)u /煮える ni-e-ru, as a representative.

(19) **Derivation process** (煮る nir-ø-(r)u /煮える ni-e-ru)

TRAN. INTR.



The third morpheme pair, '-ø-(-u)' or '-os- (-osu)'/ '-as-(-asu)'/'-i-', is less productive. Illustrations are provided in (20).

		Transitive	**Intransitive**
(20)	a.	起こす //ok-o-su//	起きる //ok-i-ru//
	b.	落とす //ot-o-su//	落ちる //och-i-ru//

(21) describes the formation process of *vt*/*vi* in (20).

(21) **Derivation process** (17a: 起こす ok-o-su /起きる ok-i-ru)

TRAN. INTR.

√ *ok-* TRAN. / INTR.
OK-o-su OK-i-ru

The fourth morpheme pair, '-as-(-asu)' or '-s- (-su)'/ '-e-', can be illustrated as in (22).

	Transitive	**Intransitive**
(22) a.	返す //ka-e-su//	返る //ka-e-ru//
b.	消す //k-e-su//	消える //ki-e-ru//
c.	汚す //yog-o-su//	汚れる //yogor-e-ru//
d.	出す //d-a-su//	出る //d-e-ru//

The formation of verbs in (22) is shown in (23).

(23) **Derivation process** (cf. 19a: 返す ka-e-su / 返る ka-e-ru)

TRAN. INTR.

√ *ka-e-* TRAN. / INTR.
KA-e-su KA-e-ru

The four variations of 'adding a morpheme that indicates *vt*/*vi* properties to a stem' operate similarly, i.e. *vt*/*vi* pairs are formed by merging a root with functional morphemes. Syntactically, √Root and the morphemes added later form the new lexicon's category. Semantically, √Root and the morphemes added later are not assigned to a compositional relation. This touches on the idea that there is no 'base' *vt* or 'base' *vi*'; all *vt* and *vi* are 'root-derived'. This is different from the pre-existing viewpoint that intransitive verbs are derived from transitive verbs via two devices, i.e. decausativisation or anticausativisation (cf. Okutsu 1967; Kageyama 1996).

To summarise Section 3, there are two ways of deriving a *vt* and a *vi*: by deriving from the same adjective stem, or by adding a morpheme that indicates vt/vi properties to a stem. The derivation features of the two types are summarised in Table 3.

Table 3. Derivation of a transitive or an intransitive verb

Derivation of *vt* / *vi*	**Semantic compositionality**	**Syntactic category**
(i). Derived from the same adjective stem	Yes	Established after the merger
(ii). Morpheme added indicating	No	
vt/*vi* properties to a stem		Established after the merger

It is proposed that deriving a *vt* or a *vi* from the same adjective stem is 'word-derivation'.

Deriving a *vt* or a *vi* by adding a morpheme that indicates *vt*/*vi* properties to a stem is root-derivation.

4. Verb Derivation and Loanwords

Having drawn a picture of deriving a transitive/intransitive verb pair, this section analyses the derivation of a verb from loanwords and Japanese lexicons. Intriguingly, re-shaping a loanword can be arbitrary: see (24).

(24) **Re-shaping a loanword**

(a) Foreign lexicons are borrowed purely for their phonetic value.

Loan words	**Original lexicon**	**Part of speech**
クラス	class	noun → noun
天ぷら	temperar (Portuguese)	verb → noun

(b) Foreign lexicons are combined with Japanese; no category transition.

Loan words	**Original lexicon**	**Part of speech**
消しゴム	消す＋gum	noun → noun
省エネ	省く＋Energie (German)	noun → noun

(c) Foreign lexicons are abbreviated; no category transition.

Loan words	**Original lexicon**	**Part of speech**
ハイテク	high + technology	noun → noun
リモコン	remote + controller	noun → noun

(d) Foreign lexicons are localised.

Two ways of localising a loanword are observed:

(a). adjective/adverb-lisation via「＋な」 or 「＋に」

(b). ‘do’ support, i.e.「loan word ＋する」

(25) Foreign lexicons are localised; no category transition

	Loan words	**Composition**	**Category**
(a).	リアルな; リアルに	real + な/に	not changed
(b).	ドライブする	drive + する	not changed
	キスする	kiss + する	not changed
	ノックする	knock + する	not changed

Although the above loanwords are reformed, their categories do not change. The following reshaping (26) displays a different picture.

(26) Reshaping a loanword; category changed

	New lexicon	Composition	Category
(a).	エレベる	エレベーター + る	noun → verb
(b).	チンする	チン + する	mimetic → verb
(c).	メモる	メモ + る	noun → verb
(d).	トラブる	トラブ + る	noun → verb
(e).	ANA る	ANA + る	letter → verb

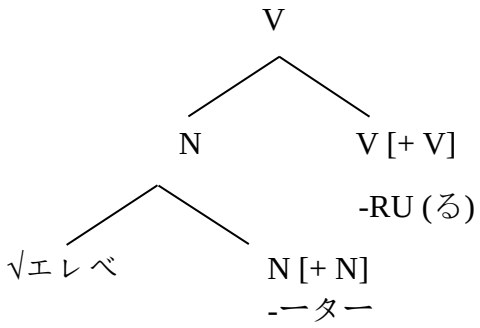
Loanwords are no longer merely borrowed, but derived into new lexical categories, for example from noun to verb (エレベる 'go up/ down by elevator') or from mimetic word to verb (チンする 'heat' [cf. チン refers to the sound made when using a microwave oven]). There are two verbalisers, 'る-support' and 'する-support' ('る-support' is preferred). This study took a random 200 tokens of verbs from the corpus and found the following transitions.

(27) Category transition (verbalising loanwords)

The category of the base		The category of the new lexicon	Percentage of tokens
Noun	→	verb	94%
Mimetics	→	verb	1%
Adjective	→	verb	3%
Letter[3]	→	verb	2%

We now examine the derivation process of reforming a loanword. Take (26a) エレベる *ereberu* 'go up/down by elevator' for instance. The procedure is as follows. First, エレベーター is abbreviated into a three-syllable lexicon, エレベ. Second, the abbreviated lexicon エレベ is verbalised by combining it with the verbaliser る. The process is described in (28).

(28)



[3] Letter is hardly an independent category; rather, it belongs to noun group. In the database, we found ANA → ANA る; CHANGE → CHANGE る; ASKA → ASKA る, etc.

Apart from loanwords, verbalising takes place on Japanese-originated lexicons. Illustrations are provided in (29).

(29) Verbalising Japanese-originated lexicons

	New lexicon	**Composition**	**Category**
(a).	神ってる ‘like a God’	神＋ってる	noun → verb
(b).	もふる ‘cuddly’	もふもふ	mimetics → verb
(c).	事故る ‘have an accident’	事故＋る	noun → verb
(d).	皮肉る ‘mock’	皮肉＋る	noun → verb
(e).	駄弁る ‘buy a station bento’	駄弁＋る	noun → verb

The category of the base is not limited to nouns, but extends to mimetics and phrases. The category transition, like the loanwords, varies. It can go from noun to verb (神ってる ‘being like a God’), or from mimetic word to verb (もふる ‘cuddly’). Again, this study took at random 200 tokens of verbs from the corpus and the results are summarised in (30).

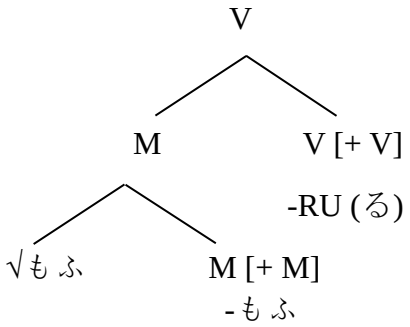
(30) Category transition (verbalising Japanese-originated lexicon)

The category of the base		**The category of the new lexicon**	**Percentage of tokens**
Noun	→	verb	94%
Mimetics	→	verb	6%

The transitivity of the new lexicon depends on the verbaliser. If the verbaliser is aspect ‘って る’, the derived verb is unergative. If the verbaliser is ‘る’, the derived verb is transitive.

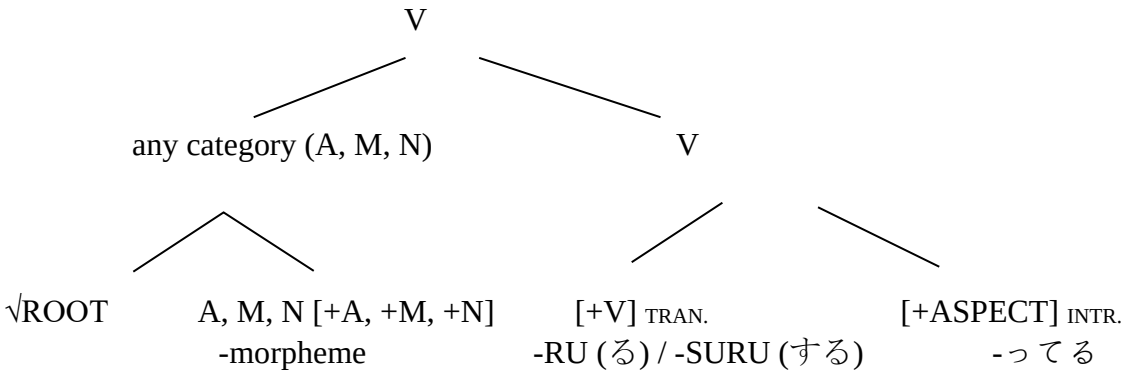
As in the verbalisation of a loanword, the derivation process consists of two stages: abbreviation and combination. Take (29b) もふる *mofuru* ‘cuddly’ for instance. First, the mimetic word もふもふ is abbreviated into a two-syllable lexicon, もふ. Second, the abbreviated lexicon is verbalised by combining it with the verbaliser る. The process is shown in (31).

(31)



By pulling these strands together, we arrive at the conclusion that the verbalisation of loanwords and Japanese lexicons operate at a syntactic level. Below is a model of forming an adjective and a verb (32).

(32)



Semantically, √Root and the transitive verbalisers 'する'/'る' and the intransitive verbaliser 'ってる' are not related. Syntactically, the new lexicon's category is established by √Root and verbalisers. One conclusion that can be drawn is that verbs from loanwords and Japanese-originated lexicons are 'root-derived'.

5. Conclusion

This paper has discussed three ways of deriving a transitive or an intransitive verb, i.e.

(a). Intransitive and transitive verbs derived from the same adjective stem;

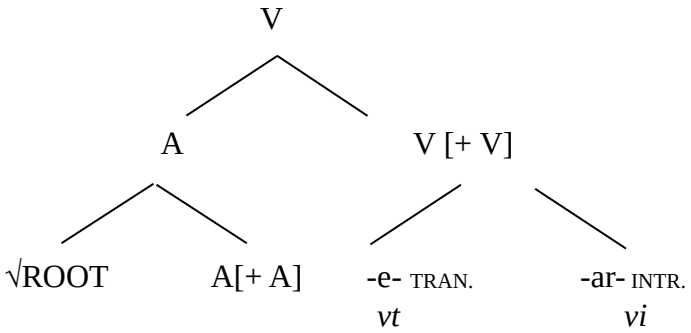
(b). Deriving *vt* or *vi* by adding a morpheme that indicates *vt*/*vi* properties to a stem; and

(c). Verbalising loanwords/Japanese-originated lexicons into verbs.

The findings can be summarised as follows.

(I). In terms of deriving *vt* and *vi* from the same adjective stem, there is a semantic compositionality between the stem and the later added morphemes. Syntactically, the category of the derived *vt* and *vi* is established after the merger. A model is given as follows.

Derivation of a transitive verb, intransitive verb and adjective from adjective stem



(II). In terms of the second method of verb derivation (by adding a morpheme that indicates transitive/ intransitive properties to a stem), four pairs of *vt*/*vi* morphemes are confirmed:

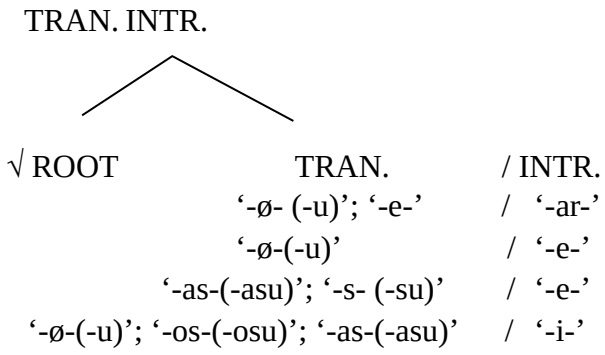
'-ø- (-u)'; '-e-'/ '-ar-'

'-ø-(-u)' / '-e-'

‘-ø-(-u)’; ‘-os-(-osu)’; ‘-as-(-asu)’ / ‘-i-’

‘-as-(-asu)’; ‘-s- (-su)’ / ‘-e-’

Despite these variations, *vt*/*vi* pairs are formed in exactly the same way (by merging a root with functional morphemes). Syntactically, √Root and morphemes added later combine to form the new lexicon’s category. Semantically, √Root and morphemes added later are not assigned to a compositional relation. This confirms the idea that there is no ‘base’ *vt* or ‘base’ *vi*’; all *vt* and *vi* are ‘root-derived’. A model is provided below.

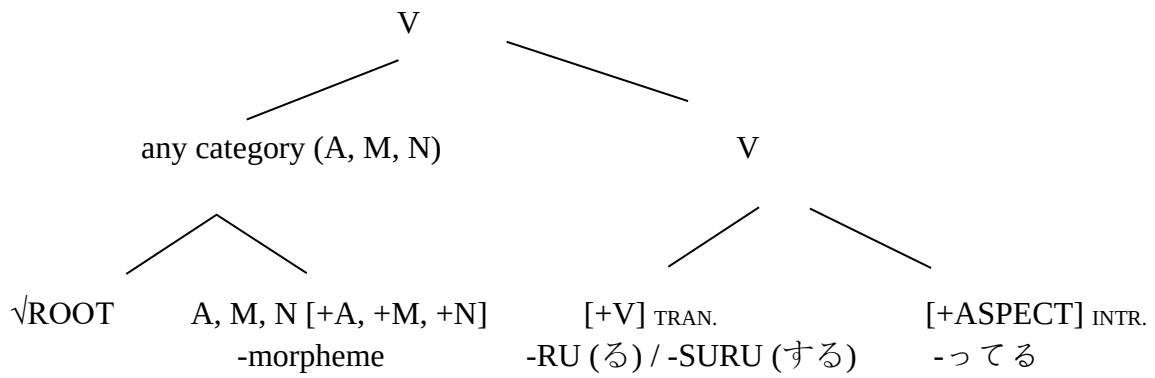


(III). A third way to form a verb is via verbalisation, which contains two variations:

a. verbalising a *gairaigo;* and

b. verbalising a Japanese-originated lexicon

Three verbalisers, ‘る’, ‘する’ and aspect ‘ってる’, participate in the verbalisation. The category of the base is not limited to nouns, but extends to mimetics and phrases. The transitivity of the new lexicon depends on the verbaliser. If the verbaliser is aspect ‘ってる’, the derived verb is unergative. If the verbaliser is ‘る’ or ‘する’, the derived verb is transitive. Crucially, verbalisation of loanwords and Japanese lexicons are operated at a syntactic level. Semantically, √Root and the transitive verbalisers ‘する’/‘る and the intransitive verbaliser ‘ってる’ are not related. Syntactically, the new lexicon’s category is established by √Root and verbalisers. A conclusion one may draw is that verbs from loanwords and Japanese-originated lexicons are ‘root-derived’. Below is a model of forming an adjective and a verb.



The features of the three derivation methods are summarised in Table 4.

Table 4. Features of the three derivation methods

Derivation	Semantic compositionality	Syntactic category
(i). Derived from the same adjective stem	Yes	Formed by √Root +
		added morphemes
(ii). Morpheme added that indicates	No	Formed by √Root +
vt/ *vi* properties to a stem		added morphemes
(ii). Loanwords and	No	Formed by √Root +
Japanese lexicons added		added morphemes

A proposal to treat the variations is put forward: there is no 'base' transitive or 'base 'intransitive verb. Japanese verb derivation is a completely syntactic operation. The derivations split into two paths: the process by which *vt* and *vi* derive from the same adjective stem is a case of 'word-derivation', and the process by which a verb is derived by adding a morpheme that indicates *vt* or *vi* properties to a stem and verbalising a loanword or a Japanese-originated lexicon is a manipulation of 'root-derivation'.

It is hoped that the Japanese data may help to clarify the distinctions between root-derived formation and word-derived formation.

References

Arad, M. (2003). Locality constraints on the interpretation of roots. *Natural Language and*

Cheng, G. (2016). Study on content words: a generative grammar perspective. *Journal of Anhui Normal University - Humanities and Social sciences*, (4), 416-419.

Cheng, G., Xiong, J. G., & Zhou, G. L. (2015). A distributed morphology-based study on Chinese relative clause. *Language Science*, (3), 225-236.

Embick, D. (2004). On the Structure of Resultative Participles in English, *Linguistic Inquiry*, 35, 355-392.

Embick, D. (2010). *Localism versus Globalism in Morphology in Morphology and Phonology*. MIT Press.

Embick, D., & Rolf, N. (2007). Distributed Morphology and the syntax/morphology interface. In Gillian Ramchand and Charles Reiss(eds.) *The Oxford Handbook of Linguistic Interfaces*, 289–324, Oxford University Press.

Halle, M., & Alec, M. (1993). Distributed Morphology and the Pieces of Inflection. *The View from Building 20*, Cambridge, MA: MIT Press: 111–176.

Halle, M., & Alec, M. (1994). Some key features of Distributed Morphology. Papers on Phonology and Morphology, MITWPL 21, Cambridge, MA: MIT Working Papers in Linguistics: 275–288.

Hu, X. H. (2017). On the V-*qilai* Middle Construction in Chinese. Workshop on the Spine of Language. Zhejiang University, Hangzhou.

Kageyama, T. (1993). *Bunpou to gokeisei* [Grammar and word formation]. Hitsuji Syobo Publishing.

Kageyama, T. (1996). *Doushiimiron-gengo to ninchi no setten-* [Verb meaning: language and cognition interfacce]. Kuroshio.

Kageyama, T. (1999). Word formation. In Natsuko Tsujumura (eds.), *The Handbook of Japanese Linguistics*. Malden, MA: Blackwell Publishers.

Kunio, N. (2000). Predicative and Attributive Forms in Classical Japanese. *MIT Working Papers in Linguistics, 36*, 263-275.

Linguistic Theory 21:736-778.

Marantz, A. (1997). *No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of Your Own Lexicon*. University of Pennsylvania Working Papers in Linguistics, 4.2, 201-225.

Marantz, A. (2001). *Words and Things*. Ms., MIT.

Morita, Y. (1994). *Dooshi no Imironteki Bunpo Kenkyu* [Verbs: Semantics and Syntax]. Meiji Shoin.

Nishiyama, K. (1999). Adjectives and the Copulas in Japanese. *Journal of East Asian Linguistics, 8*, 183-222.

Nishiyama, K. (2000). Zita-koutai to keitairon [Transitivity alternation and morphology], In Tadao Maruta and Kazuyoshi Suga (eds.), *Niti-ei-go no zita no koutai* [Transitivity alternationin Japanese and English], 145-165. Tokyo: Hituzi Syobo.

Okutsu, K. (1967). Transitivisation, Intrasitivisation and Polarisation of Japanese Verbs. *Studies on national language*, (70), 46-66.

Smriti, S., & Vaijayanthi, M. S. (2010). Hindi Noun Inflection and Distributed Morphology. *Proceedings of the 17th International Conference on Head-Driven Phrase Structure Grammar*. Universite Paris Diderot, Paris 7, France. CSLI Publications, 307–321.

Suga, K. (1993). Jita Dookei no Dooshi ni Tsuite **[**transitive/intransitive verbs, which share the same word form]. *Proceedings of the Memorial Workshop Devoted to Komatsu Hideo,* 321-336.Sanseido.

Tagawa, T. (2013). Deverbal or Root-derived: A Distributed Morphology Approach to Japanese Ren'yoo-form Nominals. *Studies in Language and Literature,* 64, 59-74.

Volpe, M. (2005). *Japanese Morphology and its Theoretical Consequences: Derivational Morphology in Distributed Morphology*. Ph.D. dissertation, Stony Brook University.