Two types of Japanese nominalizations in Distributed Morphology's Single Engine hypothesis

Abstract

Recent DISTRIBUTED MORPHOLOGY (DM), the SINGLE ENGINE HYPOTHESIS (Marantz, 2001 and 2002 and Arad, 2003), claims that the formation of lexical category is a syntactic operation. Nouns, verbs and adjectives do not exist as such, but are formed by merger of a root with the functional heads *n*, *v*, and *a*. These are ROOT-BASED DERIVATIONS and differ in several important ways from the formation of words from preexisting categories, e.g., deverbal and denominal derivations. This article argues that Japanese contains examples of both types, root-based derivations and category change from preexisting words. The Japanese data, therefore, provides an opportunity to clarify the differences between root-based and lexical category-derived word formation. There is a catch, however. The Japanese nominalizations I refer to as root-based are morphologically complex and therefore not roots in the technical sense, but RADICALS (Sapir, 1921, and Harbour, 2000), subsuming roots and stems. The analysis I argue for therefore is in conflict with the extant analyses of Japanese alternating verbs proposed by Harley, (1995, 1996); Miyagawa, (1998); and Pylkkänen, (2000). The RADICAL DECOMPOSITION OF ROOTS (Harbour, 2000 and Marantz, 2001) is employed to resolve this paradox.

Keywords: Distributed Morphology, Phase, The Single Engine Hypothesis, roots, derivational morphology

1. Introduction: Roots and Phases

In this paper I propose analyses for two common Japanese nominalizations within DISTRIBUTED MORPHOLOGY (DM)'s recent SINGLE ENGINE HYPOTHESIS (Marantz, 2001 and 2002 and Arad, 2003). The analysis I propose for Japanese ROOT-BASED NOMINALIZATIONS is crucially based on the claim that lexical formation creates a PHASE in the sense of Chomsky (2001). Phases are points in the derivation of a linguistic computation where information is semantically and phonologically interpreted. One phase occurs at the formation of lexical category created by simply merging roots with the functional category-defining heads *v*, *n* and *a* (Marantz, 2001 and Arad, 2003):

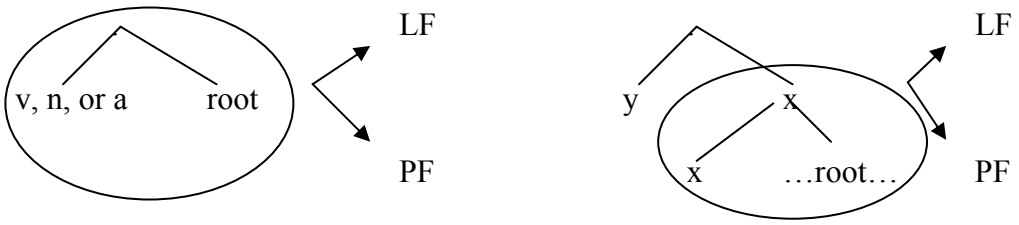
> The first category head merging with the root defines a PHASE (Chomsky, 1999), that is, a stage in the derivation where the element built by the computational system is spelled out both semantically and phonologically (Arad, 2003: 747-8)… Once the root has merged with a head, its interpretation has been decided and is carried upward in the derivation. (ibid: 775).

A simple example that demonstrates the plausibility that phases exist at the point of lexical category-formation is the root √*digest* in English. When this root merges with the functional head *n* the phonology and semantics is notably different from the semantics and phonology of its merger with the head *v*. Phonologically the noun stresses the first syllable, i.e., *dígest* and it semantically refers to a type of written manuscript; the verb, by contrast, accents the second syllable, i.e., *digést* and semantically refers to a bodily function. This is exactly what one would expect from phase formation at the category-defining level of spell-out. (See Arad, 2003 and Marantz, 2001 and 2002 for detailed arguments)

2. Root-derived derivation vs. lexical-derived derivations

Marantz (2001: 6-7) writes that:

> One place to build words 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). A second place to build words is outside the domain of functional head that determines syntactic category – the little v's, n's, and a's… Structurally, when a head attaches outside of little x, it sees the features of x locally, not the features, properties, or identity of the root merged with x. So its selectional properties are satisfied by the features of x …When a head attaches to a root, its selectional requirements must be satisfied by the idiosyncratic properties of the root…



The elimination of the generative lexicon and claim that all generative operations are syntactic is known as the SINGLE ENGINE HYPOTHESIS (Marantz, 2001, Arad, 2003). This is a claim that DERIVATIONAL MORPHOLOGY, like INFLECTIONAL MORPHOLOGY, is syntactic.

3. Special properties of Japanese root-based nominalizations

One common type of nominalization is zero-related to the verb, or more specifically, to the verbal stem, called *renyōkei* in Japanese. An example is the nominalization *oyogi* 'swimming', etymologically-related to the verb *oyog-u* 'swim-NON-PAST'.

Martin (1975: 883) calls this type of nominalization INFINITIVE-DERIVED NOUNS and they are typically considered deverbal (Kageyama, 1999 and Nishio, 1977, among many). In a footnote, Martin (1975: 883) notes:

> In a few instances the derivation may have gone the other way historically [i.e., *N>V, author*]; …from the viewpoint of synchronic description, it would appear not to matter, in fact, to be undecidable.

Based on the semantic relation of many such nominalizations with the verbs they are putatively derived from, I claim these are examples of root-based derivations[1]; there is no derivational relation between the two in either direction, but both noun and verb are formed by merger of a root with a category-defining functional head, *n* or *v*.

Japanese verbs involved in transitivity-alternations typically contain morphology additional to the root. Nominalizations etymologically-related to such verbs contain the identical morphology. These morphologically-complex nominalizations, root plus non-root morphology, are frequently associated with non-compositional meanings and provide an opportunity to understand the relation between nouns and verbs. This is desirable since there is still unclarity on their relationship. (See Martin, 1975, above) A corollary of my analysis is that the commonly held view that there are overt transitivity-markers in Japanese is not correct.

Pace Harley (1995 and 1996), Miyagawa (1998) and Pylkkänen (2002), who argue that the non-root morphology contained in transitivity-alternations are the spell-outs of the

[1] The nominalizations I refer to as root-based nominalizations do not consist of roots alone in the technical sense. I adopt the view of Marantz (2001 and 2002) and Harbour (2000), RADICAL DECOMPOSITION. As recognized by Marantz (2001) the root √ *destroy* is in fact bi-morphemic consisting of a root √ *stroy* plus a particle *de*. The Japanese root-based nominalizations discussed in this article have a similar bi-morphemic structure, a root plus a particle. I argue that such non-root morphology is in the domain of the root, below the phase-defining heads. Since it is not phase-defining Japanese nominalizations conform with the locality domain that allows for reference to the root for semantic interpretation.

abstract morphemes CAUSE and BECOME and define the phase *v*, I argue the morphology cannot be phase-defining, but occurs lower than the first category-defining head.

Nominalizations with non-root morphology are not productive, but are usually found in tandem with a lexical causative derived from the same root. A nominalization which contains the morpheme -(*s)ase* or its allomorph -(*s*)*as* is not a nominalization formed from the homophonous syntactically-productive causative morpheme[2] (Kuroda, 1993, Miyagawa, 1989 and Harley, 1995).

Similarly, nominalizations that contain a morpheme homophonous with the productive passive morpheme –(*r)are*- are not nominalizations of passives, but are non-productive, often related to unaccusative verbs that also contain the same morpheme or an allomorph[3]. If there are morphemes which mark verbal adicity at the category-forming phase-defining level, homophones of the causative and passive morphemes would certainly be the best potential candidates.

An example of a nominalization using the causative-related morphology is *aw-ase* 'a lined kimono'; its verbal relative *aw-ase-(ru-*$_{\textbf{NON-PAST}}$*)* has the meaning 'to join (things) together, introduce'.

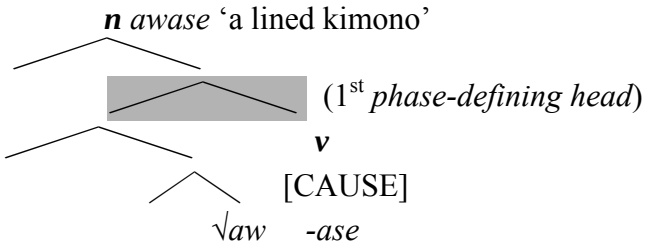
Harley (1995 and 1996), Miyagawa (1998), and Pylkkänen (2002)'s analysis claims that the non-root morphology is spelled-out in the phase-defining head *v*. This approach

[2] It is uncontroversial to claim that there are lexical causatives which, unlike the more common and morphologically idiosyncratic Japanese lexical causatives, are formed with the morpheme –(*s)ase*-, a morphological default (Miyagawa, 1989 and 1998, Kuroda, 1993 and Harley, 1995, among many). Nouns that contain the morpheme –(*s)ase*- include *shir-ase* 'a notice' (cf. *shir-ase-ru* 'to inform'), *yar-ase* 'a staged event' (cf. *yar-ase-ru* 'to make (X) do (something)') and *maniaw-ase* 'a shoddy piece of work (cf. *maniaw-ase-ru* 'to make do with').

[3] Examples of verbs and nominalizations containing the passive-like morpheme are *mid-are* 'disorder' (cf. *mid-are-ru* 'become disordered'), *nag-are* 'a flow' (cf. *nag-are-ru* 'to flow') and *yog-ore* 'a stain' (cf. *yog-ore-ru* 'to become dirty).

entails a deverbal analysis for nominalizations; this would require a nominalizing *n* along the following syntactic lines:

(1)



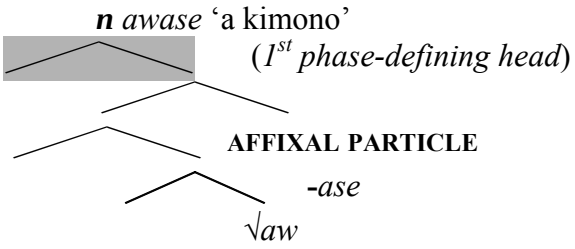
Harley (1995 and 1996), Miyagawa (1998), and Pylkkänen (2002) assume a phonological spell-out of the ABSTRACT MORPHEME CAUSE in *v* is responsible for the causative force in lexical causatives. The non-cyclicity of nominalizations is, however, crucial evidence for the analysis I propose in this piece; that is, there is no true marking of adicity and there is no bi-unique relation between the meaning and morphology.

CYCLICITY, the equivalent of phase (Marantz, 2001), is the ability of a morphologically-complex 'word' to derive its semantics from its constituent morphemes via categorial bracketing (Brame, 1973 and Aronoff, 1976). Since the morphology is found in the head of *v*, creating a phase by hypothesis, such nominalizations should be cyclic, but note: √*aw* 'meet' + CAUSE ≠ 'a lined kimono'. Further, post-phase the meaning should be carried upward by hypothesis (Marantz, 2001 and 2002 and Arad, 2003), but it is not the case that the root √*aw*- 'meet' plus a marker of transitivity, the spell-out of CAUSE, carries the semantics upward to its nominalization therefore the conditions for deverbal nominalizations are not met.

A derivational relation between the noun and the verb would amount to the claim that the nominal semantics are derivable from the verbal semantics or vice versa. However, this is not so; how does one get from 'join' to 'kimono' or vice versa? So the *v*-derived analysis seems to be on the wrong track.

The analysis I advocate makes use of AFFIXAL PARTICLES (den Dikken, 1995). (See this author, 2005 and forthcoming):

(2)

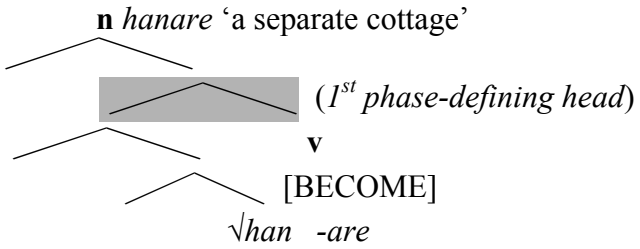


This provides the correct non-phase-defining/ non-cyclic result: √*aw* 'meet' + CAUSE ≠ 'a lined kimono'. The morpheme *–ase* as an affixal particle is not directly associated with a fixed meaning, adicity or with the category-defining head *v*. This justifies the claim that such nominalizations are root-based or more precisely RADICAL-BASED. Radical is the term Harbour (2000) employs for a root plus morphology in the root's domain[4]. Semantics of the nominalizations derive from the semantically-underspecified root rather than the verb. Note that the nominalization *aw-ase* 'a kimono' is an artifact lacking any of the causative force one might expect if causative semantics are an inalienable property of the morpheme.

Similar to nominalizations which contain the causative-like morpheme are those containing homophones of the passive morpheme *–(r)are*. This morpheme and its allomorph *(r)ar-* are frequently found in unaccusative verbs paired with lexical causatives. The verb *han-are(-ru-*$_{\text{NON-PAST}}$*)* 'to be separate from' has the associated nominalization *han-are* 'a cottage (separate from the main house)'. Again for Harley (1995 and 1996), Miyagawa (1998), and Pylkkänen (2002), placement of the passive-like morpheme in *v* entails a deverbal nominalization:

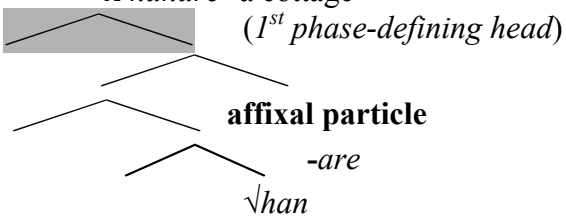
[4] The term radical is from Sapir (1921). A radical subsumes both roots and stems.

(3)



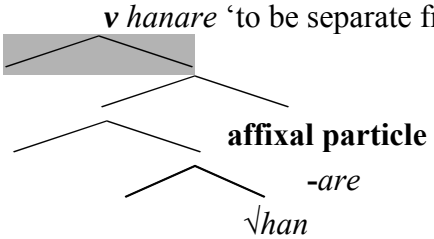
However the noun *hanare* 'a cottage' is not semantically derivable from the verb *han-are-(ru-*$_{\text{NON-PAST}}$*)* 'to be separate from' and therefore the morpheme *–are-* in this context is non-cyclic/non-phase-defining; √*han-* 'be separate from' + BECOME ≠ 'a cottage'. This failure to find the meanings attributed to causative/passive morphemes in nominalizations leads to the conclusion that there is no derivational relation between these verbs and nouns. Moreover, there is no bi-unique relation between the morphemes and semantics. This type of nominalization, like that with the causative-like morpheme in examples 1 and 2, is derived from the semantics of the root rather than a semantic relation between the verb and noun. Again, an affixal particle analysis provides the correct result:

(4)



The verb, as well, has a proper analysis with an affixal particle rather than a morpheme in the phase-defining head *v*:

(5)



Such semantic non-compositionality is a frequent property of nominalizations from these bi-morphemic combinations of root plus non-root morphology in Japanese. This leads to the conclusion that the semantics of the nominalization derive from the under-specification of root semantics.

4. Non-root morphology = affixal particles

To eliminate accidental homophony in Dutch, among several other languages, den Dikken (1995: 227-268) poses his affixal particle analysis; where apparent transitivity-markers have several functional roles in the transitivity system, yet are phonologically homophonous, a PARTICLE analysis is the most economical. den Dikken notes that particles fall into two broad classes, ARGUMENT-CHANGING PARTICLES and ASPECTUAL PARTICLES (ibid: 33).

For den Dikken (1995) argument-changing morphemes which are associated with the marking of multiple valences are affixal particles. An example from Dutch is the morpheme *ver-* (den Dikken, 1995: 229-230):

(6) a. Jan stuurde uitnodigen voor het feest aan zijn vrienden.

'Jan sent invitations for the party to his friends.'

b. Jan ***ver***-stuurde zijn vrienden uitnodigen voor het feest.

'Jan sent his friends invitations for the party.'

(7) a. Jan maakte zijn positie op de arbeidsmarkt beter.

'Jan made his position in the job market better.

b. Jan ***ver***-beterde zijn positie op de arbeidsmarkt.

'Jan bettered his position in the job market.'

(8) a. Zijn positie op de arbeidsmarkt ***ver***-beterde.

'His position on the job market bettered.'

(9) a. *ver*-$_1$ = applicative affix

b. *ver*-$_2$ = causative affix

c. *ver*-$_3$ = unaccusative affix (den Dikken, 1995: 229-230)

To assign *ver-* a fixed meaning would unnecessarily multiply "accidental homophony" in Dutch. The same reasoning applies to Japanese. The Japanese morpheme *–e* functions quite similarly to the affixal particle *ver-*:

Table 1: *-e-* as marker of intransitivity

Root	Intransitive	Transitive	Morphological Class
√*ama*	*ama-**e**-ru* 'be dependant on'	*ama-(y)akas-u* 'spoil (a child, e.g.)'	Class 13[5]
√*bar*	*bar-**e**-ru* 'come to light'	*bar-as-u* 'expose'	Class 8
√*tok*	*tok-**e**-ru* 'dissolve'	*tok-Ø-u* 'dissolve'	Class 1

Table 2: *-e-* as marker of transitivity

Root	Intransitive	Transitive	Morphological Class
√*ag*	*ag-ar-u* 'rise'	*ag-**e**-ru* 'raise'	Class 3
√*ak*	*ak-Ø-u* 'open'	*ak-**e**-ru* 'open'	Class 2
√*wak*	*wak-are-ru* 'become separated'	*wak-**e**-ru* 'divide'	Class 15

Table 3: *-e-* as applicative marker

Root	Transitive	Di-transitive	Morphological Class
√*sazuk*	*sazuk-ar-*(*u*) 'receive'	*sazuk-**e**-*(*ru*) 'grant'	Class 3
√*azuk*	*azuk-ar-*(*u*) 'keep'	*azuk-**e**-*(*ru*) 'entrust'	Class 3
√*os*(V)	*osow-ar-*(*u*) 'learn'	*oshi-**e**-*(*ru*) 'teach'	Class 16

[5] I use the morphological classes of Jacobsen (1992) as a convenient and recognized point of reference without implying that they are correct or complete.

Non-cyclicity is often a property of nominalizations that contain morphology additional to the root. The nominalizations in Table 4 are non-cyclic; their meanings are semantically non-compositional:

Table 4

Root	Verb-$_{\text{INTRANS}}$	Verb-$_{\text{TRANS}}$	Nominalization
√*ko*(*y*)-	*ko*-***e***-(*ru*-$_{\text{NON-PAST}}$) 'to become fat'	*koy*-*as*-(*u*-$_{\text{NON-PAST}}$) 'to fatten'	*ko*-***e*** 'manure'
√*nag*-	*nag*-***e***-(*ru*) 'to flow'	*nag*-*as*-(*u*) 'to make flow'	*nag*-*ashi* 'a sink'
√*d*-	*d*-***e***-(*ru*) 'to exit'	*d*-***as***-(*u*) 'to expel'	*d*-***ash****i* 'soup stock'
√*sag*-	*sag*-***ar***-(*u*) 'to be lowered'	*sag*-***e***-(r*u*) 'to lower'	*(o)sag*-*ari* 'hand-me-downs'
√*mag*-	*mag*-*ar(-u)* 'to bend'	*mag*-***e***-*(ru)* 'to bend'	*mag*-***e*** 'a topknot, chignon'

Note that morphological-marking of adicity in Japanese is not a necessary feature of causative force in transitivity-alternations. Table 5 shows this for lexical causatives:

Table 5

Root	Intransitive	Transitive
√*war*	*war*-*e*-(*ru*-$_{\text{NON-PAST}}$) 'break'	*war*-(*u*-$_{\text{NON-PAST}}$) 'break'
√*tok*	*tok*-*e*-(*ru*) 'dissolve'	*tok*-*(u)* 'dissolve, melt'
√*hag*	*hag*-*e*-(ru) 'be peeled	*hag*-(*u*) 'peel'
√*nuk*	*nuk*-*e*-(*ru*) 'fall out'	*nuk*-(*u*) 'pull out'

These facts, taken together with the roles of non-root morphology in the nominalization data, raises questions for the standard view exemplified by Harley, Miyagawa, and Pylkkänen, that there is morphology occurring in *v* that spells-out the abstract morpheme CAUSE.

LATINATE ROOTS in English (Aronoff, 1976), e.g., *ceive* and *mit*, cannot form lexical categories without affixal particles, e.g., *per*, *re*-, *con*- and *de*-. (See Harbour (2000) who notes the argument-changing function of the affixal particle *de*- in English) Japanese affixal particles allow roots that would not otherwise lexicalize to project lexical

categories. Again, this is the same as the Dutch affixal particle, *ver*-, and justifies the claim that the non-root morphology in Japanese represents affixal particles. Concerning Dutch affixal particles:

> The overwhelming majority of *ver*- prefixed verbs whose roots are adjectival or nominal don't exist as verbs with *ver*- chopped off … *ver-nietigen* [*is*, author] 'destroy', but **nietigen* doesn't exist as a verb (Marcel den Dikken, personal communication).

The non-root morphology in Japanese verbal alternations therefore plays a more fundamental role in the language than as exponents of verbal adicity. Ten of the fifteen regular morphological classes identified in Jacobsen (1992) contain roots that do not lexicalize without the additional non-root morphology; remaining classes are cases where either the lexical causative or unaccusative is morphologically-marked with a Ø-morpheme.

An analysis as an affixal particle is consistent with the properties of the Japanese morphology. Additionally, for den Dikken affixal particles are of the category P, i.e., preposition/ postposition. This means they do not belong to the phase-defining heads *v*, *n*, and *a*, and this explains the ability of nominalizations which contain them to be semantically non-compositional; the locality domain between the root and the category-defining head *n* is not disrupted

Aronoff, in an observation about English latinate roots and their particles, notes:

> Though it is more likely that one could attribute more commonality of meaning to occurrences of some of these prefixes [*affixal particles, author*] …there is no general meaning which can be assigned to them. Thus one might try to assign *re*-

> a meaning 'back' and a large number of the verbs of the form *re=X* have something to do with back. What about *receive*, though? (1976: 14).

There is logic behind the attribution of meaning to affixal particles. A morpheme, we are told, is the smallest meaningful linguistic unit. (See Aronoff, 1976, for discussion) Attribution of meaning to affixal particles seems to be related to their meaning when attached outside of a lexical category. For example *re-* in English, when attached to a verb consistently has the meaning of 'again', e.g., *re-apply*. In the same way that *de-* outside a category often has the meaning 'of, from', e.g., *de-verbal*. But assigning regular meaning to these pieces when they function as the means to lexicalize a non-lexicalizing root, e.g., *re-ceive* or *de-ceive,* seems to be an exercise in futility.

In the same way, the Japanese morphemes –(*s)ase* 'causative' and (*r)are-* 'passive' attached to the category verb have consistent meaning and therefore the tendency is to give similar meanings to their affixal particle 'cousins'[6]. In fact, despite the difficulty in assigning a fixed meaning to the particles Japanese root-derived nominalizations show a strong preference for affixal particles.

Simple transitive roots, which are neither unaccusative nor lexical causatives and therefore do not have the same syntactic structure as nominalizations and verbs with affixal particles, prefer morphologically-complex nominalizations where available; without affixal particles, nominalizations of two morae or less seem generally not to occur. (See Kageyama, 1999: 109, for some discussion):

[6]Roberts and Roussou (2003), a study of the syntactic path of GRAMMATICALIZATIONS conclude that the path of grammaticalizations is consistently from lower to higher functional nodes. If this is the case, then the Japanese affixal particles are not borrowed from causative- or passive-like morphemes to form transitive and intransitivizing morphemes (Shibatani, 1990: 236), but are the reverse; the causative and passive morphemes are grammaticalizations of affixal particles.

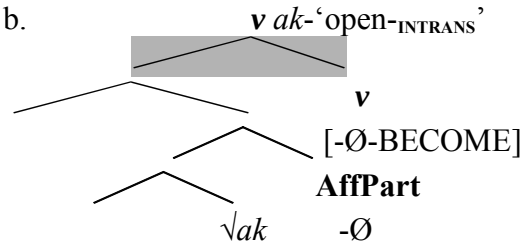
Table 6

Root	Intransitive	Transitive (simple roots)	Di-transitive	Nominalization
√*a(w)*	Ø	*a-(u-*$_{\text{NON-PAST}}$) 'meet'	*aw-ase-(ru-*$_{\text{NON-PAST}}$) 'join, introduce'	*aw-ase* 'a lined kimono'
√*mi*	*mi-**e**-ru* 'can see'	*mi-ru* 'see, look at, watch'	*mi-**se**-ru* 'show'	*mi-e* 'a display'
√*kik*	*kik-**oe**-ru* 'can hear'	*kik-u* 'listen to, ask'	*kik-**ase**-ru* 'tell'	*kik-oe* 'reputation'
√*shir*	Ø	*shir-u* 'know'	*shir-**ase**-ru* 'inform'	*shir-ase* 'a notice'
√*yar*	Ø	*yar-u* 'do'	*yar-ase-ru* 'make Y do'	*yar-ase* 'a staged event'

I assume that roots with no overt morphology, but participants in causative alternations contain Ø-morphemes which occupy a position in the syntax; causative force is provided by the presence of a zero-morpheme CAUSE in *v* (den Dikken, 1995 and Pesetsky, 1995). Likewise, unaccusatives are the result of a zero-morpheme BECOME in *v*:

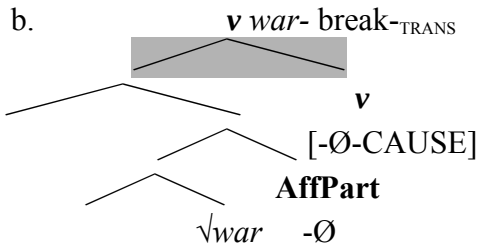
(10)a. *ak-u* 'open-$_{\textbf{INTRANS}}$' /*ak-e-ru* 'open-$_{\textbf{TRANS}}$'

b.



(11)a. *war-e-ru* 'break-$_{\textbf{INTRANS}}$' /*war-u-*$_{\textbf{TRANS}}$ 'break'

b.



This explains the abundance of two morae nominalizations from alternating-verbs pace Kageyama (1999) which this author has discussed at some length (2005). The extra

structure provided by the affixal particle seems to be required by two morae nominalizations.

According to this approach, the nominalizations *mogi* 'a ticket taker' (cf. *mog-e-ru* 'to fall off/ *mog-Ø-u* 'to pick off' and *uri* 'sales' (cf. *ur-e-ru* 'to sell'/ *ur-Ø-u* to sell') would contain zero-morphemes, i.e., *mog-Ø-i* and *ur-Ø-i*[7], conforming with the tendency of Japanese nominalizations to seek a functional category discussed above.

5. Japanese verb-derived nominalizations

A second type of common nominalization in Japanese is deverbal. It crucially depends on a specific verbal argument structure for its legitimacy as a nominalization. These deverbal nouns consist of a verb-stem plus an overt nominalizing suffix *–mono*.

The morpheme *mono* has several uses which need to be distinguished. First, it exists as a free morpheme with two basic meanings, 'a concrete object' 物, and 'a person' 者. Making use of these two meanings, it is frequently found in compounds other than the deverbal nominalization I am concerned with.

One common compound is based on the 'concrete object' meaning; another makes use of its meaning as 'a person'. Examples of the first type are *Kurosawa-mono* 'something produced by the movie director, Kurosawa', *kankoku-mono* 'a product of South Korea' and *sentaku-mono* 'laundry (lit. something that is washed)'. Examples of the second type are *inaka-mono* 'a country bumpkin', *baka-mono* 'a fool' and *waka-mono* 'a youngster'.

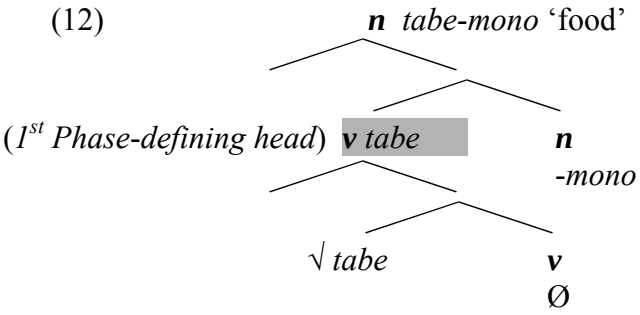
[7] The *-i* found in nominalizations is an example of PHONOLOGICAL EPENTHESIS (Poser, 1983), used to conform to the Japanese ban on moraic codas other than nasals. The *-i* seems to be the default for consonant-final roots, seen also in the polite form, *ur-i-mas-u* 'to sell' and the desiderative *ur-i-ta-i* 'I want to sell', as well as the nominalization *uri-i*. The root is √*ur*.

Note that the function common to such compounds is the modification of *mono*, either the 'person' or 'concrete object' meaning of the noun; *waka-mono* is 'a person who is young', *Kurosawa-mono* is 'a product of Kurosawa'.

The nominalizing use of *mono* I want to focus on derives its meaning compositionally from the verb stem it is paired with: "something/someone that is V-*en*" A common deverbal noun *tabe-mono* 'food', for example, is derived from the verb stem *tabe* 'eat'; it takes an internal argument in its Argument Structure and concreteness is a semantic requirement on the internal argument[8]. Literally, *tabe-mono* means 'something that is eaten' or 'food'. Slightly more formally:

$[N_i\ V_j]_{VP} \rightarrow [\text{V-stem}_j + \textit{mono}_i]_N$ *iff* N is VP internal and concrete. Derivationally:

(12)



The derivation shows the noun *tabe-mono* 'food' is formed from the categorically unspecified root √*tabe* merging with the phase-defining head *v*. The verbal meaning is now necessarily carried upward in the derivation according to the hypothesis (Marantz, 2001 and Arad, 2003). Further merger with *n* results in an overt morpheme *–mono*, a phonological spell-out of the head *n* for such nominalizations.

[8] In addition to *mono* 'concrete thing', there is a morpheme *koto* 'abstract thing' used for deverbal nominalizations where the internal argument is not concrete, e.g., *negai-koto* 'a wish' from the verb *nega-u* 'to wish for' and *narai-koto* 'things studied' from the verb *nara-u* 'to learn'. Interestingly, the verb *kangae-ru* 'to think, ponder' allows both: *kangae-koto* 'thoughts, *kangae-mono* 'a puzzle'. The *n* in these deverbal nominalizations is sensitive to the concreteness of the verbs internal argument.

Note that the semantics for deverbal nominalizations in which an internal argument is required entails that unergative deverbal nominalizations do not exist. This is borne out by the fact that **nakimono* (cf. *nak-u* 'to cry'), **hashirimono* (cf. *hashir-u* 'to run'), **arukimono* (cf. *aruk-u* to walk) and the like, are indeed not possible.

There are two apparent exceptions worth mentioning here: *hatarakimono* 'a hard working person' (cf. *hatarak-u* 'work') and *waraimono* 'the butt of a joke' (cf. *wara-u* 'laugh'). Recall the modifying relation of compounds other than deverbal nominalizations. The compound *hatarakimono* can be understood as the modification of *mono*'s use as a person, i.e., 'a person who works'. It is therefore a compound rather than deverbal nominalization despite its use of a verb stem.

The nominalization *waraimono*, however does not fit the modifying compound pattern; it is not 'a person who laughs', but a 'person who is laughed at', conforming to the deverbal pattern. Hiroaki Tada (pc) suggests that the verb 'laugh' allows an internal argument in Japanese, i.e., 'laugh at'. This view seems correct explaining the apparent paradox.

While root-based semantics may be semantically non-compositional when merged with the first category head as the examples of Table 2 show, derivation from a preexisting category sees only as far as its complement, a lexical category. In the deverbal Japanese case, the nominalization sees the argument structure of *v*, its complement, and if syntactic-semantic requirements are satisfied, a legitimate nominalization is formed.

Examples of this type of Japanese deverbal derivations are shown below in Table 7:

Table 7

Stem	Verb	Deverbal Nominalization
nomi	*nom-u* 'to drink'	*nomi-mono* 'a drink'
tabe	*tabe-ru* 'to eat'	*tabe-mono* 'food'
nise	*nise-ru* 'to imitate'	*nise-mono* 'a fake'
iki	*iki-ru* 'to be alive'	*iki-mono* 'a living thing'

Interesting to note in these cases, there are no root-based nominalizations extant. Kageyama (1999) has argued that it is a phonological restriction crucially related to the number of mora.

6. Root-based nominalizations and their interaction with deverbal nominalizations

Cases where root-based derivations and deverbal nominalizations are the source of doublets from a common root are of interest and allow some insight into the crucial differences between the two. In many cases there are dramatic non-compositional semantic differences between the verbs and the root-based nominalizations while deverbal nominalizations always remain semantically predictable.

Not all roots meet the argument structure and semantic requirements of the deverbal morpheme *–mono* while forming root-derived nominalizations so doublets of the type shown in Table 8 are scarce:

Table 8

Verb	Root-derived nominalization	Deverbal nominalization
aw-ase-(ru)-NON-PAST 'to join'	*aw-ase* 'a lined kimono'	*awase-mono* 'a joined thing'
kabur-(u) 'to wear on the head'	*kaburi* 'a head'	*kaburi-mono* 'a thing worn on the head'
nor-(u) 'to ride in'	*nori* 'enthusiasm'	*nori-mono* 'a vehicle'
hara-u 'to pay'	*harai* 'payment'	*harai-mono* 'things to be disposed of'

In these cases, there are semantic distinctions between the root-based nominalizations and deverbal nominalizations; the first often semantically non-compositional and unpredictable, the second compositional and predictable from the verbal meaning.

The final example seems to deviate from the pattern, non-compositional root-based nominalization vs. compositional deverbal nominalizations, but in fact, the verb *hara-u* has as its core meaning 'to take care of necessary matters' although by semantic extension has come to mean 'to pay' in contemporary Japanese.

Additionally, there is no requirement that root-based nominalizations be semantically idiosyncratic; the hypothesis merely posits 'special meaning' as a possibility for roots (Marantz, 2001). On the other hand, derivation from preexisting lexical categories, by hypothesis, can never be non-compositional (ibid.).

An example from Japanese that makes this point is the root-based nominalization *uri* 'sales' (cf. *ur-Ø-u* 'to sell'). Its deverbal nominalization *uri-mono* means 'something that is sold, goods for sale'. The root-based nominalization, *uri,* refers to the sales of a company, a store, etc. This close relation between verb and root-based nominalizations should not be unexpected since they are derived from a common root. The deverbal

nominalization semantics, on the other hand, is mandated by the syntactic-semantics requirements of deverbal nominalizations in Japanese.

7. Summary

In this piece I have made use of data from two common types of Japanese nominalizations to test certain fundamental predictions of derivational morphology in the DM single engine hypothesis. I have argued that the infinitive-derived nominalizations of Martin (1975) are, in fact, derivationally-unrelated to verbs; neither the verb nor noun is basic, but a non-categorical root is their source.

In order to reach this conclusion, I have argued for a new approach to the morphology of alternating verbs; that homophonous morphemes with multiple functions in the transitivity system such as the Japanese morpheme *–e-* are better analyzed as affixal particles. This leads to the view that all apparent markers of adicity in Japanese are affixal particles. This provides the non-root morphology with the non-phase-defining analysis necessary to explain the non-compositional semantics found in many of these nominalizations. Additionally, I have provided a preliminary analysis of the deverbal nominalizing morpheme *-mono*.

More generally, I have tried to show that derivational morphology is wholly the product of syntax, in line with the tenets of the single engine hypothesis. The single engine hypothesis (Marantz, 2001 and 2002 and Arad, 2003) claims that there is only one generative operation in human language. That is NARROW SYNTAX. Assuming this view, there is no need to postulate a lexicon as an additional generative component devoted

specifically to word-formation. This should be a desirable result in a theory of grammar that pursues minimalism as its guiding principle.

One of the main conclusions is that root-based nominalizations need not be roots in the technical sense; that is, "what remains when all morphological information has been stripped from a form" (Aronoff, 1994: 34). The non-root morphology is affixal particles in the sense of den Dikken, (1995) rather than transitivity-markers, therefore non-category defining. I maintain there is no true morphological marking of valency in Japanese verbs.

The crucial point for this type of nominalization is semantic non-compositionality, which by hypothesis, can only occur at the first category-defining head. Non-root morphology in Japanese verbal alternations allows for non-compositional semantic relations between verb and noun. If such non-root morphology in Japanese were truly phase-defining, there could not be non-compositional relations between verb and noun as demonstrated above. (See Table 2) Assuming the non-root morphology is non-phase-defining, together with the compositionality found in the deverbal nominalization data, the predictions of the DM single engine hypothesis concerning derivational morphology in the syntax are borne out by the Japanese data.

References

Arad, Maya (2003). "Locality Constraints on the Interpretation of Roots: The Case of Hebrew Denominal Verbs." *Natural Language and Linguistic Theory* 21: 737- 778.

Aronoff, Mark (1976). *Word Formation in Generative Grammar*. MIT Press, Cambridge, MA.

Aronoff, Mark (1994). *Morphology by Itself*. MIT Press, Cambridge, MA.

Brame, Michael (Ed) (1972). *Contributions to Generative Phonology*. University of Texas Press, Austin Texas.

Brame, Michael (1972). "The Segmental Cycle." Brame, Michael (Ed) (1972). *Contributions to Generative Phonology*. University of Texas Press, Austin Texas.

Chomsky, Noam (2001). "Derivation by Phase." Kenstowicz, Micheal (Ed) (2001). *Ken Hale: A life in language*. MIT Press, Cambridge, MA.

den Dikken, Marcel (1995). *Particles: On the syntax of verb-particle, triadic, and causative constructions*. Oxford University Press, Oxford and New York.

Harbour, Daniel (2000). "Radical Decomposition." manuscript, MIT.

Harley, Heidi (1995). *Subjects, Events, and Licensing*. Ph.D. Dissertation, MIT.

Harley, Heidi (1996). "*Sase* Bizarre: The Structure of Japanese Causatives." Koskinen, P. (Ed) Proceedings of the 1995 Canadian Linguistics Society meeting, *University of Toronto Working Papers in Linguistics*.

Jacobsen, Wesley (1992). *The Transitive Structure of Events in Japanese*. Kuroshio, Tokyo.

Kageyama, Taro (1999). *Keitairon to Imi* ('Morphology and Meaning'). Kuroshio, Tokyo.

Kenstowicz, Micheal (Ed) (2001). *Ken Hale: A life in language*. MIT Press, Cambridge, MA.

Kuroda, Shige-Yuki (1993). "Lexical and Productive Causatives in Japanese: An Examination of the Theory of Paradigmatic Structure." *Journal of Japanese Linguistics* 15: 1- 81.

Marantz, Alec (2001). "Words." *West Coast Conference on Formal Linguistics*, Santa

Barbara.

Marantz, Alec (2002). "Words and Things." handout, *Australian Linguistics Institute*, Canberra.

Martin, Samuel E. (1975). *A Reference Grammar of Japanese*. Yale University Press, New Haven, CO.

Miyagawa, Shigeru (1989). *Syntax and Semantics 21: Structure and Case-Marking in Japanese*. Academic Press, San Diego, CA.

Miyagawa, Shigeru (1998). "(s)ase as an Elsewhere Causative and the Syntactic Nature of Words." *Journal of Japanese Linguistics:* Volume 18, pgs. 67 -110.

Nishio, Tatsuji (1977). "*Dōshi renyōkei no meishi-ka-ni kansuru ichi kosatsu*" ('Concerning nominalizations of Japanese verb stems'). manuscript, Meiji Gakuin, Tokyo.

Pesetsky, David (1995). *Zero Syntax: Experiencers and Cascades.* MIT Press, Cambridge, MA.

Poser, William (1983). *The Phonetics and Phonology of Tone in Japanese.* Ph.D. dissertation, MIT.

Pylkkänen, Liina (2002). *Introducing Arguments*. Ph.D. dissertation, MIT.

Roberts, Ian and Anna Roussou (2003) *Syntactic Change: A Minimalist Approach to Grammaticalization*, Cambridge University Press, Cambridge and New York.

Sapir, Edward, (1921). *Language*. Harcourt, Brace, Jovanovich, New York.

Shibatani, Masayoshi (1990). *The languages of Japan.* Cambridge University Press, Cambridge and New York.