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Stump Words in English*

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1. Introduction

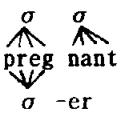
In this paper, we propose a systematic account of the formation of so-called stump words in English. Some examples of stump words are illustrated on the right side of the arrows in (1-2):

(1) dormitory → dorm naturally → natch
facsimile → fax gasoline → gas
margarine → marge

(2) pregnant → preg(ger) Bolshevik → Bolshy
comfortable → comfy lollipop → lolly
premature → pre(e)mie private → privy
composition → comp(o) combination → combo

As we can easily notice, we can get the shortened words in (1) by cutting out a part of their "base" words on the left side. Those in (2) are formed by a further operation of attaching such suffixes as -er, -y, -ie, and -o.

One question that will be addressed in this paper in connection with stump word formation is what part of a base word must be cut out as a stump word. One resolution proposed by Mester (1989) is that stump words are formed by cutting out the first syllable of their base words. Thus a stump word such as preg(ger) is formed in the following way:

(3)


In the case of preg(ger), the first syllable preg is maximally cut out and map-

ped to the template for stump words that serves as a mapping target. Then the suffix -er is attached to the tailored syllable.

In what follows, we will examine more instances of stump words in English and claim i) that the template for English stump words must function as a delimitor, rather than as a mapping target as Mester proposes, and ii) that the template for English stump words consists of a foot, as opposed to a syllable.

2. Templatic Morphology: Two Functions of Templates

Before beginning our discussion, we first introduce two functions of truncation templates: as mapping targets and as delimitors. These functions have been originally pointed out by Mester (1989), as in (4):

(4) a. as prosodic targets to which strings of segments are mapped;
b. as prosodic delimitors, reducing base forms to their operative subdomains. (Mester (1989: 86))

In this study, we argue that the latter function, i.e., a template as a delimitor, plays a crucial role in the formation of English stump words.

First, let us see how a template works as a mapping target. Observe the following examples of Japanese hypocoristic formation:

(5) a. Šinsuke → Šin-čan Takeru → Take-čan
Yukiko → Yuki-čan Šin-ici → Šin-čan
b. Hiromi → Romi-čan
c. Masao → Maa-čan
d. Yooko → Yoko-čan
e. Akiko → Ako-čan
f. Kanako → Kan-čan Saćiko → Sać-čan

As we see in (5), the hypocoristic forms are produced by attaching -čan to truncated versions of personal names, which always consist of two morae. An important characteristic of this process is that derived versions can deviate from their original forms. Thus, we can find instances of lengthening as in (5c) (Maa < Ma), shortening as in (5d) (Yo < Yoo), skipping as in (5e) (Ako < Akiko)

and even rather strange cutting of syllable onset as in (5f) (Kan < Kanako).

Following Poser (1988), Hester assumes a template in order to explain the above facts:

(6) F -čan
    μ μ

This template requires -čan to be preceded by a bimoraic foot. The following examples in (7) illustrate Hester's claim that the template works as a mapping target: [1]

(7) a. [μ μ] -čan
    Ta ke ru
    Take-čan

    b. [μ μ] -čan
    Hi ro mi
    Romi-čan

    c. [μ μ] -čan
    Ma sa o
    Maa-čan

    d. [μ μ] -čan
    Yo o ko
    Yoko-čan

    e. [μ μ] -čan
    A ki ko
    Ako-čan

    f. [μ μ] -čan
    Ka na ko
    Kan-čan

In each case, melodic materials of the base forms are mapped to the target, satisfying the bimoraic requirement. Notice here that this formation permits various possibilities of the choice of melodies to be mapped to the target; from Masao, Masa-čan and Maa-čan can be formed.

Next, consider the second type of truncation in which a template is utilized. This is exemplified by Japanese rustic girls' name formation as shown below:

(8) Yuuko → o-Yuu (*o-Yuko)
    Hanako → o-Hana (*o-Haa, *o-Han)
    Yukiko → o-Yuki (*o-Yuu)
    Kinue → o-Kinu

This process is explained by means of a bimoraic template similar to that of hypocoristic forms:

(9) o- F
       μ μ

What is important here is its function as a delimitor, not as a mapping target. Since this delimiting template simply limits the domain of truncation, no mapping is involved here. Thus, as observed just above, this type of truncation tolerates no deviation with respect to the original names.

(10) a. [μ μ] → [μ μ]
Yu u ko o- Yu u

b. [μ μ] [μ μ]
Ha na ko o- Ha na

As illustrated in (10), the template is used in order to determine which part, or more precisely, what constituent, of the base form should be cut out. Since the left-hand bracket of the template always corresponds to the left-hand boundary of the base form, the truncated forms naturally coincide with the first two morae of the bases.

There is one more point to be noted: the foot in this context is not the same as is required in Japanese accent assignment or musicians' language formation in Japanese (Tateishi (1990)). Whereas the former is constructed from left to right, the latter types of feet are generally claimed to be constructed from right to left. In Japanese, then, an independent foot is required for the template as a delimitor. As will be shown, that holds true for stump word formation in English. That is, the process needs its own feet apart from the stress assignment process in English.

In this section, we have reviewed two template functions. It should be stressed that templates as a mapping target permit variation in truncation whereas those as a delimitor do not. In the following section, we will show that stump words in English are derived by truncation in which a foot-sized template is used as a delimitor.

3. Stump Words in English

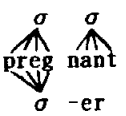
In this section, we propose an alternative analysis for English stump words. Mester's (1989) suggestion is introduced in 3.1. In 3.2, we give counterexamples to his suggestion. In 3.3, we will provide an account of the counterexamples to Mester as well as the data that he deals with.

3.1. Mester's (1989) Suggestion

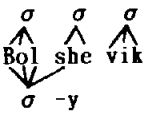
In the introductory part of his study, Mester (1989) has suggested a) that stump word formation in English involves mapping of base melodies to a prosodic template, and b) that this template is a stressed monosyllable. For example, the process shown in (11) can be analyzed as illustrated in (12):

(11) a. pregnant → preg(ger) b. Bolshevik → Bolsh(y)

(12) a.



b.



(12) shows that the melodic material of the base form is first mapped to the syllable-sized target, and then, a kind of suffix attaches to the truncated form. Taking into account the phonotactic constraints of English, Mester provides an explanation for the facts about intervocalic consonant clusters: the second intervocalic consonant of pregnant /n/ is not incorporated into its stump word, while that of Bolshevik /š/ is. He explains, "[w]hereas *[pregn] is not a possible English syllable, [bolš] is" (Mester (1989: 85)).

3.2. Counterexamples to Mester's (1989) Suggestion

In the preceding section, we have reviewed Mester's suggestion that stump word formation in English should be explained in terms of a syllable-sized template which functions as a mapping target. This holds true to the extent that all the examples of English stump words are monosyllabic. In fact, there also exist many stump words which contain two syllables. Observe the following cases:

(13)

congràtulátions	→ congráts	exàmináti̇on	→ exám
Kentúcky	→ Kentúck	legítimate	→ legít
matrìculátion	→ matríc	prefábricate	→ prefáb (préfab (n))
phenómenon	→ phenóm	incógnita	→ incóg
resídual (oil)	→ resíd	recónnaissance	→ recón

The forms given in (13) are produced through truncation of the first and second syllables of the base forms. These bisyllabic stump words inarguably constitute counterexamples to Mester's account in terms of a syllable-sized template, strongly suggesting that the template required for the forms in (13) can be larger than a single syllable. Moreover, Mester's account is also falsified in that he argues that the truncation template for stump words is a mapping target. Since it is invariably the initial part of the base words that is truncated and the truncated forms exactly correspond to the part, it is much more reasonable to consider that in stump word formation a template serves as a delimitor rather than as a mapping target.

In the following section, we will present an alternative analysis for stump word formation in English.

3.3. An Alternative: A Biplanar Approach

We have adduced evidence against an approach based on a syllable as a mapping target and suggested that stump words are formed by delimiting a certain part of a word, which is either monosyllabic or bisyllabic. A question that arises next is what constituent serves as this delimiting template if the template for stump word formation is a delimitor and not a mapping target.

Before providing our answer to this question, let us scrutinize common characteristics of delimited items. First, it is always the initial part of a word that is cut out as a stump word. This holds true of both monosyllabic and bisyllabic items:

(14) a. còmbinátion: cómb-o / *bi / *nat / *tion
b. exàminátion: exám / *xámi / *minát / *nátion

Second, what is cut out inherits the stress location of the original word, or more strictly, the delimiting process stops when its left-to-right scansion reaches the first stress of an original word. For example, <u>combi</u> is not well-formed in (14a) because the word-initial syllable bears stress and the delimiting process stops there; but in (14b) it proceeds up to the second syllable since the initial syllable does not bear stress. Therefore, all stump words consequently respect the original stress, the delimiting process stops at the

stressed syllable, and there are no stump words without noticeable stress. Third, stump words contain maximal coda consonants that English phonotactics allows; thus, comb, exam, and preg (from pregnant) are acceptable, but *com, *exa, and *pregn are not. [2]

These three characteristics naturally lead us to conclude that stump word formation has something to do with feet for the following three reasons. First, it is possible for foot assignment to scan a phonological string from left to right. Second, a foot includes one and only one stress. Third, resyllabification depends upon stress location or foot formation. In other words, feet are related to directionality, stresshood, and resyllabification. It naturally follows from this reasoning that the delimiting template for stump word formation should be a certain foot that is located word-initially and causes resyllabification.

Then, do the feet for English stress assignment function as a delimitor? The answer is negative, since they are scanned from right to left within the framework of Halle and Vergnaud (1987):

(15) English Cyclic Stress Rule (on the Stress Plane)

a. Accent Rule: assign line 1 asterisks to heavy syllables.

b. Extrametricality: mark the final syllable extrametrical (nouns).

c. Line 0 parameter settings: [+ BND, + HT, left-headed, right-to-left].

d. Line 1 parameter settings: [- BND, + HT, right-headed].

e. Stress Deletion:

*	*			*		
*	*	→		*	*	

(16) a. (15a, b)

*	.	*	.		*	.	.	*	.		*	.	.		*	.		line 1
*	*	*	.		*	*	*	*	.		*	*	.		*	.		line 0
combi		na<tion>		e	x	a	m	i		na<tion>		Bolshe<vik>		preg<nant>				
				[gz]															

b. (15c, d)

. . * .	. . . * .	* . .	* .	line 2
(* . *) .	(* * . *) .	(*) . .	(*) .	line 1
(* *)(*) .	(*)(* *)(*) .	(* *) .	(*) .	line 0
combi na<tion>	e xami na<tion>	Bolshe<vik>	preg<nant>	

c. (15e)

	. . . *			line 2
	(. * . *)			line 1
	* (* *)(*) .			line 0
n/a	e xami na<tion>	n/a	n/a	

As is clear from the above representations, each initial foot does not serve as the delimiting template, since it would derive erroneous outputs such as *combi, *e, and *Bolshe. We therefore propose that the feet for stump word formation are constructed on a plane distinct from the stress plane and that the delimiting process cuts out the initial foot on the plane for stump words, i.e., truncation plane:

(17) Foot Construction for Stump Words (on the Truncation Plane)

a. Copying Rule: copy line 1 asterisks of the stress plane onto the truncation plane.

b. Line 0 parameter settings: [+ BND, + HT, right-headed, left-to-right]

(18) a. (17a)

	. . * .	. . . * .	* . .	* .	line 2
Stress	(* . *) .	(. * . *) .	(*) . .	(*) .	line 1
Plane	(* *)(*) .	* (* *)(*) .	(* *) .	(*) .	line 0
	combi na<tion>	e xami na<tion>	Bolshe<vik>	preg<nant>	
Truncation	* * * *	* * * * *	* * *	* *	line 0
Plane	* . * .	. * . * .	* . .	* .	line 1

b. (17b)

	. . * .	. . . * .	* . .	* .	line 2
Stress	(* . *) .	(. * . *) .	(*) . .	(*) .	line 1
Plane	(* *)(*) .	* (* *)(*) .	(* *) .	(*) .	line 0
	combi na<tion>	e xa mi na<tion>	Bolshe<vik>	preg<nant>	
Truncation	(*)(* *)(*)	(* *)(* *)(*)	(*) (* *)	(*) (*)	line 0
Plane	* . * *	. * . * *	* . *	* *	line 1

(19) Stump Word Formation

Chop the phonological material that is dominated by the initial foot on the truncation plane.

The initial feet below the central line of phonemes might at first appear to delimit incomplete strings such as *com, *exa, and *Bol, but this delimiting process (= (19)) is preceded by resyllabification, which maximally resyllabifies consonants into the preceding stressed syllable as long as English phonotactics licenses it (cf. Selkirk (1982; 1984), Borowsky (1986), Myers (1987), Cairns (1988), Honma (1990; 1992)):

(20) a. còmb-i-nát-ion b. e-xàm-i-nát-ion
c. Bólsh-e-vik d. prég-nant (*pregn-ant)

Thus correct outputs are derived by the above procedure, which is illustrated below:

(21) a. comb	b. exam	c. Bolsh	d. preg	
(*)	(* *)	(*)	(*)	
*	. *	*	*	

Finally, Stump Word Formation (19) is followed by optional suffixation which attaches -y, -er, or -o to derived outputs (e.g., comb-o, Bolsh-y, and preg--ger). To sum up, the following ordering relation obtains among rules deriving stump words:

(22) a. English Cyclic Stress Rule (15)
b. Foot Construction for Stump Words (17)
c. Resyllabification Rule
d. Stump Word Formation (19)
e. Suffixation

The three characteristics we mentioned above (left-to-right scansion, stresshood, and resyllabification) are accounted for by foot construction (17b), copying rule (17a), and the resyllabification rule, respectively. The proposal we have provided makes it possible to account for all the examples that remain unresolved in the Hester's framework, especially bisyllabic cases pointed out in section 3.2.

In Present-day English, we do not find other pieces of evidence for the metrical structures constructed by (17), but in Old English there is a process which motivates a biplanar approach. Old English is considered to have a high vowel deletion plane besides the stress plane; the former plane contains something equal to (17) (cf. Keyser and O'Neil (1985)):

(23) a. wordu → wordu 'words (nom/acc, pl)'
x x (x)(x)
x . x x
b. monigu → moni gu 'many (nom, sg, fem)'
x x x (x x)(x)
. x x

In either case, the word-final vowel is said to be deleted by rule, which we can explain in our framework by saying that a (nonbranching) high vowel is deleted after the initial foot on the second metrical plane. We therefore claim that the second metrical plane, which was employed to delete a certain high vowel in Old English, has survived up to the present as something of a relic, which in turn is utilized now for stump word formation.

4. Stump Word Formation and Infixation

In the discussion so far, we have come to a conclusion that stump word formation involves the foot template as a delimitor which cuts the first foot (for stump words) out of the base forms. It is now necessary to determine at what stage in the Lexicon stump word formation takes place. In fact, there are an interesting set of examples to discuss the point. For example, we have bi-syllabic stump words with prefixes such as in- (im-, il-, ir- ...), and con- (com-, col-, cor- ...), while we cannot find any stump word with prefixes like un- and non-:

(24) Class 1 prefix

a. impregnate → Impreg (trademark)
b. collaborator → collab-o
c. confabulate → confab

(25) Class 2 prefix

a. unhappy → *unhap
b. nonnatural → *nonnatch

It has been noticed that stress-neutral prefixes like un- and non- and stress-determining prefixes like in- and con- belong to different lexical classes. In terms of the so-called boundary theory (Chomsky and Halle (1968), Siegel (1974), Allen (1978) and others), un- is followed by the stress-neutral juncture indicated by a single word boundary #, while in- is followed by the stress-determining juncture indicated by a morpheme boundary +. In terms of the theory of Lexical Phonology (hereafter LP) (Mohanan (1982), Halle and Mohanan (1985), Ewen and Anderson (1985), Borowsky (1986) and others) all the Class 1 affixes (e.g., -ic, -ion, -ity, and in-) attach at (lexical) Stratum 1, while Class 2 affixes (e.g., -ness, adjectival -ed, -hood, and un-) attach at Stratum 2. In what follows, we will adopt LP without further justification for convenience.

If we adopt LP, we can explain the asymmetry between examples in (24) and (25) by saying that the process of stump word formation probably takes place at the later stage of Stratum 1. This account is not ad-hoc since there are some

other phenomena which can be better accounted for in terms of the distinction between Class 1 morphology and Class 2 morphology.

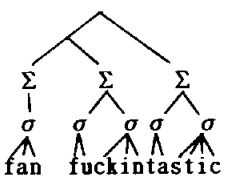
First, consider the case of expletive infixation discussed in McCarthy (1982). He argues that the process of expletive infixation is sensitive to the distinction between Class 1 and Class 2 prefixes. He claims that an expletive infix can be inserted in any position unless foot-internal. The examples in (26) exemplify the claim and (27) depicts the way how the expletive infix lodges in the host word:

(26) a. fantastic → fan-fuckin-tastic
*fant-fuckin-astic
*fa-fuckin-ntastic

b. Dubrovnik → Du-fuckin-brovnik
*Dubr-fuckin-ovnik
*Dub-fuckin-rovnik

c. instantiate → in-fuckin-stantiate
*inst-fuckin-antiate
*i-fuckin-nstantiate
?ins-fuckin-tantiate

(27)



Σ = foot
σ = syllable

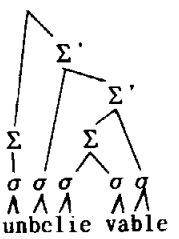
Consider now the forms in (28) and (29): [3]

(28) a. un-fuckin-believable
b. un-fuckin-derivable
c. un-fuckin-collectable
d. un-fuckin-dissuaded

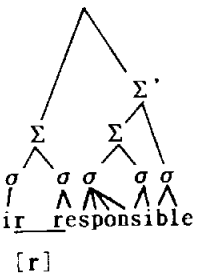
(29) a. *in-fuckin-dependent indc-fuckin-pendent
b. *i(r)-fuckin-responsible irre-fuckin-sponsible
c. *i(m)-fuckin-material imma-fuckin material

The base forms for the forms in (28) and (29) have the same stress pattern, and then, it would be reasonable to suppose that they have the same foot structure. However, the infixation fact shown in (28) and (29) suggests that the base forms for (28) and the ones for (29) have different foot structures as illustrated in (30):

(30) a.



b.



Σ' = superfoot

As we can observe in (30), the prefix un- forms a single foot in and of itself, whereas the prefix in- together with the second syllable constitutes a foot. Note, however, that if the prefix in- is followed by a stressed syllable as in irregular, then the prefix can form a single foot for itself, and then an expletive infix is permitted to occur after it: ir-fuckin-regular. Thus, the expletive infixation process is sensitive to foot structure, and foot formation is, in turn, sensitive to morphological information. This holds true for stump word formation.

Kiparsky (1979) points out some independent phenomena which are governed by foot structure. He claims that assimilation of nasal consonants to following velar articulation is governed directly by foot structure. Assimilation is obligatory foot-internally, as in í[ŋ]cubàte, but optional and highly dependent on speech rate and style at the boundaries of feet, as the two possibilities i[ŋ]créase and i[n]créase show. We can observe a similar asymmetry when in- and un- are followed by an unstressed syllable: ì[ŋ]compátible (assimilation is obligatory vs. ù[ŋ]commércial/ù[n]commércial (assimilation is optional).

We can treat three other foot-based phonological phenomena similarly.

First, consider the aspiration on the /t/'s in dè-tobóggan and rè-tobóggan. It is well-established that /t/ is aspirated if it occurs stressed-syllable-initially. However, aspiration on the /t/'s in the forms above suggests that they occur at foot-initial position, although the second syllables are unstressed. Second, the diphthongs [ay] and [aw] are raised and shortened before voiceless consonants in the same foot; hence we have b[ʌy]son and n[ʌy]ghty. However, the nuclei of the prefixes in bicentennial and trisyllabic remain intact: a fact suggesting that foot boundaries exist after bi- and tri-. Last, the devoicing of /l/ after /s/ is also governed by foot structure. The /l/'s in Mars[L]en, Hass[L]er and whist[L]er are voiceless, since [s] and [L] are in the same foot in each form, while devoicing of /l/ never occurs in forms like mis-legitimize and cis-Levant, since the Class 2 prefixes mis- and cis- form feet for themselves.

Summarizing the discussion so far, the absence of stump words with Class 2 prefixes can be accounted for if we assume that stump word formation takes place at the later stage of Stratum 1. This assumption is not an ad-hoc one, since we have independent processes which are sensitive to the Class 1/Class 2 distinction.

5. Exceptions

We must admit that there are two kinds of exceptions to rule (19) proposed in section 3.3. We therefore need a more explicit explanation for these exceptions.

5.1. Lexical Blocking

The first kind of exception involves the stump word derived from the noun professor, which is given in (31):

(31) próf < profésSor

This kind of stump word formation is quite exceptional and cannot be explained by rule (19). The rule predicts that the string profés, which forms a metrical constituent on the truncation plane, is truncated as a unit as shown in (32):

(32)
```
    . *  .      line 2
    . *  .      line 1
    *(*  *)     line 0    Stress Plane
professor
    (* *)(*)    line 0
    . *  *      line 1    Truncation Plane
```

Contrary to the prediction, however, a part of the string prof, is truncated and surfaces. There naturally arises the question why the string profess, which is the only legitimate candidate for the truncation by rule (19), cannot be truncated.

We argue that the fact in (31) can be explained by the notion lexical blocking: there actually exists a word phonologically and graphically identical to, but semantically different from, the stump word *profess. The verb profess 'to state or declare openly' is such a word. If the stump word *profess were derived from the noun professor, there would arise a confusion. To avoid the confusion, *profess is further reduced to the monosyllable prof, on which stress is shifted.

It is therefore not unreasonable to say that the following principle is operative in English stump word formation:

(33) If a derived stump word is phonologically and graphically identical to an already existent word, the stump word is further reduced to avoid an expected confusion.

5.2. The Peculiarity of the Suffix -o

The second type of exception comes from the following type of stump word formation:

(34) a. appro < approval
b. porno < pornography
c. rhino < rhinoceros

The three stump words in (34) are peculiar in the following two respects. First, they exhibit the trochaic stress pattern, which in these cases cannot be expected by rule (17). It predicts that they exhibit the iambic stress pattern on the grounds that their sources all have primary stress on the second syllable, which, as indicated in (35), also serves as the head of an iambic metrical constituent on the truncation plane.

(35)

a.	b.	c.		
. * .	. * . .	. * . .	line 2	
. * .	. * . .	. * . .	line 1	
* (* *)	* (*) * *	*(*) * *	line 0	Stress Plane
approv al	pornography	rhinoc eros		
(* *)(*)	(* *)(* *)	(* *)(* *)	line 0	Truncation
. * *	. * . *	. * . *	line 1	Plane

Second, the stump words in (34) have not undergone resyllabification, which our analysis in section 3.3 draws upon. The rule requires that stump words like *appróv, *pornóg, and *rhínoc be derived because the second syllable of each source bears stress. In fact, however, the derived stump words in (34) all end in a vowel, not in a consonant.

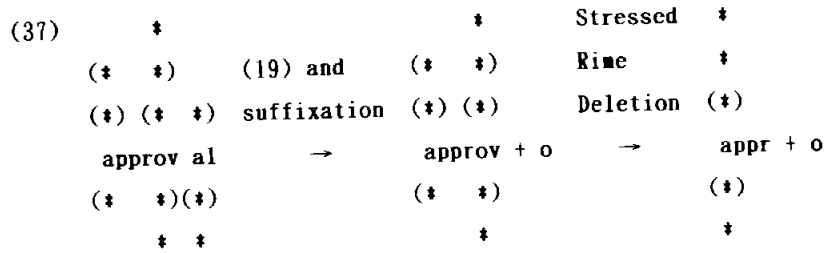
We argue here that the process of stump word formation in (34) is not so straightforward as it seems to be. Specifically, as illustrated in (36), the stump words in (34) are formed through truncation, o-Attachment, and the application of the rule called here Stressed Rime Deletion.

(36)

		truncation by rule (19)	o-Attachment		Stressed Rime Deletion	
a.	appróval	→	appróv	→	appróv-o	→	ápp**r**o
b.	pornógraphy	→	pornóg	→	pornóg-o	→	pórno
c.	rhinóceros	→	rhinóc	→	rhinóc-o	→	rhíno

At the first stage, the first iambic metrical constituent on the truncation plane is truncated in accordance with rule (19) and resyllabification. At the second stage, the suffix -o is attached to a derived stump word. At the final stage, the stressed rime in an iambic foot is deleted by Stressed Rime Deletion in an environment where the rime contains o, and primary stress is shifted to

the first syllable of the word automatically as illustrated in (37):



The above-mentioned analysis prima facie might seem to be arbitrary, for it introduces two new operations: o-Attachment and Stressed Rime Deletion. Notice, however, that the two newly introduced operations receive support from the following facts:

(38) a. Próvo < Provísional
b. próviso < provísional
c. collábo < colláborator

Provo in (38a), which is derived from the noun Provisional 'a member of the Provisional wing of the Irish Republican Army (cf. RHD),' provides evidence for both operations. Given rule (19) and resyllabification, the stump word must be derived as illustrated in (39) through application of the two operations. This is because there is no evidence indicating that the source of -o is found in the noun Provisional. Since its underlying form is /prəvīdəntəl/, none of the segments in it can be a source of -o (/ow/).

(39)

	truncation by rule (19)	o-Attachment	Stressed Rime Deletion	
Provísional	→	Provís	→ Provís-o	→ Próvo

Proviso in (38b), which is derived from the adjective provisional 'conditional,' also provides support for o-attachment. That is because the source of -o (/ow/) cannot be found in the underlying form of provisional. Thus, proviso is derived in a similar way to provo, the difference being that Stressed Rime Deletion does not apply to proviso. [4]

The stump word collabo, which is the only example where -o is attached to a word exhibiting the iambic stress pattern, also provides evidence for the existence of o-Attachment. There is no evidence to postulate the source of -o in the noun collaborator. Its underlying form is /kɔNɪæbVr+ɚtɪVr/, so that none of its segments have the status of the source of /ow/.

The above arguments suggest that the derivations in (36) are not at all arbitrary. Rather, they have a substantial basis.

6. Conclusion

So far we have proposed a systematic account of stump words and an optimal treatment of some apparent exceptions to the account. The exceptions are considered to be two-fold; one involves lexical blocking and the other lies in peculiarities seen in suffixed forms. Although these exceptions exist, our fundamental claim concerning stump word formation is basically correct: the template for stump words must function as a delimitor rather than a mapping target and it consists of a foot on the plane distinct from the stress plane and not of a syllable.

Our analysis in which a foot is utilized to specify the environment of such a word formation process as stump word formation brings about considerable implications to current phonological theory. One of the significant implications is that a prosodic category foot proves to be crucial in the phonological process or in other words, that a foot has phonological (or psychological) reality. This point has often been demonstrated since the first half of the 1980's. Another implication consists in the fact that phonological representation is fundamentally multi-dimensional, or specifically, can have more than one metrical plane. Evidence for metrical planes which are used for operations other than stress are presented by Archangeli (1984), Keyser and O'Neil (1985), Halle and Vergnaud (1987), Tanaka (1988), Haraguchi (1991), among others.

NOTES

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Following Hester (1989), we will use the term "stump words" for shortened forms to be discussed in this paper, because they correspond to an initial part of an original word. In fact, there is a process called "clipping" in English, in which a middle or final part of an original word can be cut out as well as an initial one. However, "stump word" formation is much more productive than "clipping" and is more likely to exhibit a generalization. Thus, we will investigate "stump word" formation here.

[1] In Japanese, n itself counts as a mora as in hon 'book'. Thus, kan in (7f) can be mapped to the bimoraic template satisfying its requirement, although n in the base form does not count as a mora.

[2] Honma (1990; 1992) argues that mb is permitted as a word-final coda at least at the underlying level: bomb / bombard, and that the ill-formedness of word-final mb at the surface level is due to other factors.

[3] The right-hand form in (29c) is not mistyped. McCarthy (1982) suggests in his note 10 (p. 585) that "this ad-hoc reduplication apparently serves the purpose of keeping the infix at foot boundary, while preserving morphemes intact."

[4] The fact that Stressed Rime Deletion applies only to provo is explained from the viewpoint of lexical blocking. Notice that the word proviso is much older than provo, which began to be used during the years from 1970 to 1975 (cf. RHD). Thus, principle (33) works in forming the stump word for the noun Provisional, and the reduced form is coined.

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