A Typology of Conversion: An OT Perspective*

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Kang, Seok-keun. 2010. A Typology of Conversion: An OT Perspective. *The Linguistic Association of Korea Journal.* 18(3). 37-55. The goal of this paper is to present a typology of conversion from an OT perspective. To this end, I assume after Pater (2000) that a single constraint can be multiply instantiated in a constraint hierarchy, and each instantiation may be indexed to apply to a particular set of lexical items. I argue that, given the above generalizations, the right set of parameters of conversion can be established through the interaction between faithfulness and markedness constraints. I further show that the typology sets the range of all and only possible language types, and also that each of the logical possibilities is well attested.

Key Words: conversion, OT, constraint, parameters, faithfulness, markedness, typology

1. Introduction

Conversion is usually defined as a derivational process which forms words without modifying the input word that serves as the base (Jespersen, 1924; Kiparsky, 1982; Myers, 1984; Quirk et al., 1985; Neef, 1999; Don, 2003). There has been much discussion as to whether conversion is subject to constraints or not (Bauer, 1983; Cannon, 1985; Lieber, 1992; Neef, 1999; Don, 2003 among others). It is generally assumed that there are two different types of constraints on conversion. On the one hand, constraints can apply to the input, referring to some property of the base. This is the focus of derivational theory. On the other

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hand, constraints can apply to the output, restricting the possible shape of words. This is the focus of output-oriented approach.

The aim of this paper is to establish a set of parameters within the framework of Optimality Theory (hereafter, OT; Prince & Smolenksy 1993; McCarthy & Prince 1995), which would lead to a universal inventory of conversion, as well as to implicational relations that might hold between them. To this end, I will assume after Pater (2000) that a single constraint can be multiply instantiated in a constraint hierarchy, and each instantiation may be indexed to apply to a particular set of lexical items. I will show that, given the above generalizations, the right set of parameters is established through the interaction between faithfulness and markedness constraints. It will be further shown that the typology sets the range of all and only possible language types, and also that each of the logical possibilities is well attested.

In section 2, after addressing the typology of conversion in terms of OT, I discuss each of the proposed types, pointing to a number of actual cases that illustrate them. Finally, section 3 summarizes the paper.

2. Conversion: faithfulness vs. markedness

Conversion can be classified according to the properties of its output. The properties of the output are determined by the interaction between faithfulness constraints, requiring identity between the base and the derivative, and markedness constraints, restricting the possible shape of the output. That is, faithfulness constraints are in conflict with markedness constraints on the output. Given that a single constraint can be multiply instantiated in a constraint hierarchy, and each instantiation may be indexed to apply to a particular set of lexical items (cf. Fukuzawa, 1999; Ito & Mester, 2001; Pater, 2000), the above generalizations set the range of possible language types. From them, we obtain the following typology, with four logical possibilities:

(1) <u>Typology of conversion</u>:
  Type One: Faithfulness Cs ≫ Markedness Cs
  Type Two: Markedness Cs ≫ Faithfulness Cs

Type Three: lexically indexed markedness Cs ≫
        faithfulness Cs ≫ general markedness Cs
Type Four: lexically indexed faithfulness Cs ≫
        markedness Cs ≫ general faithfulness Cs

The above typology makes the following predictions:

(2) Type One: The output of conversion preserves its original paradigm.
    Type Two: The output of conversion has the full paradigm of the new
        class it goes into.
    Type Three: Only a restricted subset of words are subject to the
        markedness constraints on the output.
    Type Four: Only a restricted subset of words retain the original
        paradigm.

In what follows, I will argue that the predictions in (2) are correct; that is, that the typology in (1) sets the range of all and only possible language types. It will be shown that each of the four logical possibilities is reasonably well attested.

2.1 Type One: Faithfulness Cs ≫ Markedness Cs

Type One languages have been given a fair amount of attention in the literature. This type, where the output of conversion preserves its original paradigm, is represented by noun to verb conversion in Dutch. The phonological form of verbs in Dutch is far more restricted than that of nouns. According to Trommelen (1986), Dutch verbs are subject to the following phonological constraints: (i) Dutch 'true' verbs are restricted to a phonological template consisting in a single syllable, of which the rhyme consists of no more than three elements (either a short vowel followed by two consonants, or a long vowel followed by a single consonant); (ii) If the verb is bisyllabic, the second syllable contains a schwa as its nucleus; (iii) Verbs do not end in a stressless vowel. Denominal verbs, however, do not obey any of the above restrictions. In other words, Dutch nouns that do not conform to the above constraints can be converted into verbs without any restriction, as exemplified below (Trommelen,

1986; Don, 2003; Don, 2005):

(3)		Noun	Gloss	Verb	Gloss
	a.	oogst	'harvest'	oogst-en	'to harvest'
		feest	'party'	feest-en	'to party'
		stukadoor	'plasterer'	stukadoor	'to plasterer'
	b.	domino	'domino'	domino-en	'to play domino'
		olie	'oil'	olie-en	'to oil'
		samba	'samba'	samba-en	'to dance a samba'

The data above clearly reveal that the phonological restrictions on the type and number of syllables for Dutch underived verbs do not hold for the converted forms. For example, the phonological make-up of the noun *feest* does not meet the first constraint above because its rhyme consists of a long vowel followed by two consonants. The examples in (3b) show that nouns ending in a stressless vowel can undergo conversion too, although the resulting forms do not conform to the third phonological constraint above banning verbs from ending in a stressless vowel. In addition, the word *samba* further shows that the constraint on bisyllabic verbs is also violated in conversion.

As has been shown above, although Dutch underived verbs conform to a very limited phonological template, converted verbs are not subject to those templatic restrictions. Expressed in our terms, this means that faithfulness constraints should outrank markedness constraints on verbs. The relevant constraints are as follows (cf. Kang 2008):

(4) Rhyme-Con: If the verb is monosyllabic, its rhyme contains no more than three elements.

(5) Schwa-Con: If the verb is bisyllabic, the second syllable a schwa as its nucleus.

(6) $*\bar{V}]_{verb}$: Verbs do not end in a stressless vowel.

(7) Base-Identity: Given an input structure [X Y], output candidates are evaluated for how well they match [X] and [Y] if the latter occur as independent words (Kenstowicz, 1995).

The required constraint ranking is given in (8).

(8) Base-Identity $\gg$ Rhyme-Con, Schwa-Con, $*\tilde{V}]_{verb}$

In (8), the faithfulness constraint Base-Identity outranks all the markedness constraints, suggesting that the base should be parsed as it is, even though it would go against the constraints on verbs, as illustrated in the following tableaux:

(9) oogst $\rightarrow$ oogst-en

/oogst/	Base-Identity	Rhyme-C	Schwa-Con	$*\tilde{V}]_{verb}$
a. oog-en	*!			
☞ b. oogst-en		*		

(10) samba $\rightarrow$ samba-en

/samba/	Base-Identity	Rhyme-C	Schwa-Con	$*\tilde{V}]_{verb}$
☞ a. samba-en			*	*
b. samb-en	*!			

In (9), candidate (b) violates Rhyme-Con because its rhyme consists of a long vowel and three consonants.[1] Deletion of the consonant cluster /st/ to comply with the constraint as in (a), however, would result in a critical violation of the top-ranked constraint Base-Identity. Therefore, candidate (b) is chosen as the optimal output. Tableau (10) can also be accounted for in a similar way. Candidate (a) violates both Schwa-Con and $*\tilde{V}]_{verb}$ because of its unstressed full vowel [a], but it still emerges as optimal because its contender critically violates Base-Identity.

To sum up, Dutch nouns can be converted into verbs without any restriction because the faithfulness constraint Base-Identity ranks higher than the relevant markedness constraints on verbs. Any modification of the base to meet the markedness constraints would cause a serious

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1) Note here that the infinitival suffix -*en* is not counted in evaluation of the constraints; the scope of application of the constraints is confined to the verbs which have been converted from nouns (i.e. the parts except suffixes or prefixes).

violation of the top-ranked faithfulness constraint. Thus noun to verb conversion in Dutch provides evidence for Typology One.

2.2 Type Two: Markedness Cs ≫ Faithfulness Cs

In Type Two languages, the output of conversion has the full paradigm of the new class it goes into. This type is represented by languages like German, Russian, and Bulgarian; in all these cases, markedness constraints play a crucial role in deciding the output of conversion.

In this section, considering noun to verb conversion in German, I will show that it is allowed only if the resulting form conforms to the following constraints on the phonological form of verbs (cf. Neef 1999, 2005; Don 2003, 2005; Kang 2008):

(11) N]$_{infinitive}$: The infinitive should end in a [N].
(12) ŏ₁]$_{infinitive}$: The infinitive must end in exactly one reduced syllable.
(13) *Və: The syllable peak of a reduced syllable must not be right-adjacent to the syllable peak of an unstressed syllable.
(14) Potential-Rhyme: Beginning with the last full vowel, the segments in the grammatical word that precede a schwa must form one potential syllable rhyme.

For example, the nouns in (15) can be converted into verbs, since they conform to all the above constraints.

(15)
Noun	Gloss	Verb	Gloss
Bagger	'excavator'	bagger-n	'to excavate'
Haus	'house'	haus-en	'to live'
Öl	'oil'	öl-en	'to oil'

If any of the constraints is violated in the output, however, conversion is blocked, as exemplified below:

(16) Noun   Converted infinitive   Gloss
    a. Kirmes   *kirmesen [kɪɐ.mə.sən]   'unfair'
    b. Kanu   *kanu-en   'canoe'
    c. Witwe   *witwen   'widow'

The putative infinitive in (16a) ends in a nasal, satisfying constraint (11), but it crucially violates constraint (12) because of its two consecutive reduced syllables; hence, conversion is blocked. Constraint (13) rules out the potential conversion from the vowel-final noun in (16b), because the unstressed final vowel of the base is immediately followed by a reduced syllable [ən]. Nor can the noun in (16c) be converted to a verb because of constraint (14). Note that [i, t, w] preceding the schwa cannot be parsed into one syllable rhyme ([w] being more sonorous than [t]).

From an OT perspective, noun to verb conversion in German can be accounted for straightforwardly by the interaction between the faithfulness constraint M-Parse in (17) and the markedness constraints on verbs in (11)-(14).

(17) M-Parse: Assign morphological structure.

(Prince & Smolensky, 1993)

Noun to verb conversion in German is subject to the markedness constraints on verbs such that nouns which are not in conformity with the constraints cannot be converted into verbs. Thus, the required constraint ranking is as follows:

(18) N]$_{infinitive}$, ŏ$_1$]$_{infinitive}$, *V̆ə, P-Rhyme ≫ M-Parse

Tableau (19), for example, illustrates how the markedness constraints conspire with the faithfulness constraint M-Parse to produce the correct output in conversion of *Haus* 'house'.

(19) Haus → Hausen

/haus/	N]$_{infintivie}$	ŏ$_1$]$_{infinitive}$	M-Parse
☞ a. hausen			
b. haus	*!	*	
c. ∅			*!

In (19), candidate (a) satisfies all the relevant constraints, emerging as optimal. Candidate (b) violates both N]$_{\text{infintivie}}$ and $\breve{\sigma}_1$]$_{\text{infinitive}}$ because it does not end in [ən]. Candidate (c) incurs a violation of M-Parse since its base is unparsed.

Given the ranking in (18), however, conversion of nouns into verbs that would result in any violation of the markedness constraints in (11)-(14) would be blocked. First, observe the following tableau:

(20) Kiremes [kɪɐ.məs] → ø (No conversion)

/kiremes/	N]$_{\text{infinitive}}$	$\breve{\sigma}_1$]$_{\text{infinitive}}$	M-Parse
a. kiremes	*!		
b. kirmesen		*!	
☞ c. ø			*

Candidate (20a) does not end in a nasal, violating N]$_{\text{infinitive}}$. In order to comply with the constraint, we might add [en] as in (20b), but this would lead to a critical violation of another top-ranked constraint $\breve{\sigma}_1$]$_{\text{infinitive}}$ requiring verbs to end in only one reduced syllable. (20c) is selected as optimal because a violation of M-Parse is less critical than that of the markedness constraints.

In the case of *Kanu* 'canoe', on the other hand, constraint *V̆ə, militating against an unstressed vowel which immediately precedes a schwa, also plays a crucial role in deciding the optimal output, as shown below:

(21) Kanu → ø (No conversion)

/kanu/	N]$_{\text{inf}}$	$\breve{\sigma}_1$]$_{\text{inf}}$	*V̆ə	P-Rhyme	M-Parse
a. kanu	*!	*			
b. kanun		*!			
c. kanuen			*!		
☞ d. ø					*

In (21), the first three candidates incur critical violations of the top-ranked constraints. First, *kanu*, ending in an unreduced vowel [u], violates both N]$_{\text{infinitive}}$ and $\breve{\sigma}_1$]$_{\text{infinitive}}$. Second, *kanun* also violates $\breve{\sigma}_1$]$_{\text{inf}}$ since its final syllable *nun* is unreduced. Finally, *kanuen* does not satisfy *V̆ə because of its final reduced vowel being right-adjacent to the unstressed vowel [u]. In spite of its violation

of M-Parse, candidate (d) carries the day because, its input being unparsed, it vacuously satisfies all the markedness constraints.

Finally, the following tableau shows why the noun *Witwe* 'widow' cannot be converted into a verb:

(22) Witwe → ø (No conversion)

/witwe/	N]$_{inf}$	ŏ$_1$]$_{inf}$	*∀ə	P-Rhyme	M-Parse
a. witwe	*!			*	
b. witwen			*!		
☞ c. ø					*

In the above tableau, the first two candidates critically violate Potential-Rhyme because /itw/ is not a possible rhyme. Besides, candidate (a) ending in a vowel further incurs a violation of N]$_{inf}$. Violating M-Parse due to unparsing of the input, candidate (c) is still favored over its contenders because it satisfies all the high-ranking markedness constraints.

To summarize, noun to verb conversion in German is allowed only if the resulting forms conform to the constraints on the phonological form of verbs, which follows from the ranking of the relevant markedness constraints on verbs above the faithfulness constraint M-Parse.

2.3 Type Three: lexically indexed Markedness Cs ≫ Faithfulness Cs ≫ general Markedness Cs

This is a controversial type. The characteristic trait of Type Three languages is that they devide up markedness constraints into those that generally apply to words and those that only apply to the lexically indexed words. To take an example, English depicts precisely the situation predicted by Type Three of our typology: in this language, only a limited set of deverbal nouns are subject to the markedness constraints on stress in nouns, while most deverbal nouns and denominal verbs retain the stress patterns of their base.

According to Kang (2007,) conversion in English can be accounted for in a natural way under the assumption that only some of the converted words are subject to the markedness constraints on the outputs, whereas other general

converted forms are exempt from them. He points out that no stress shift occurs in the majority of English converted words, regardless of the directionality of conversion, the stress pattern and the number of syllables of the base. Some relevant examples are given below:

(23) a. páttern$_N$ → páttern$_v$ clímax$_N$ → clímax$_v$
       dócument$_N$ → dócument$_v$ trímax$_N$ → trímax$_v$
    b. accórd$_v$ → accórd$_N$ accóunt$_v$ → accóunt$_N$
       appróach$_v$ → appróach$_N$ assént$_v$ → assént$_N$
    c. campáign$_N$ → campáign$_v$ canóe$_N$ → canóe$_v$
       cartóon$_N$ → cartóon$_v$ cascáde$_N$ → cascáde$_v$

The verbs in (23a) are derived from the corresponding nouns, while the nouns in (23b) are derived from the verbs. In both cases, however, the stress pattern of the base is retained in the derivative. This is also the case with all kinds of stress patterns, as shown in (23c) compared with (23a). Note that, having nouns as the base in common, (23a) and (23c) differ in the stress pattern of their base: the stress is on the first syllable in (23a), but on the second syllable in (23c). Here, it is worth noting that the different stress patterns of the base are retained in the derivative.[2]

Stress shift only occurs in the nominals derived from a restricted set of verbs of French and/or Latin origin which are monemes in English, but are etymologically analysable as 'prefix + verb' in Latin or French (Marchand 1969; Myers 1984). Consider the following data:

(24)   tormént$_v$ → tórment$_N$ protést$_v$ → prótest$_N$
       digést$_v$ → dígest$_N$ progréss$_v$ → prógress$_N$
       survéy$_v$ → súrvey$_N$ convíct$_v$ → cónvict$_N$

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2) Note that preservation of the underlying stress pattern is not confined to disyllabic words; polysyllabic words are also subject to the same principle. For example, the multisyllabic words below undergo N → V conversion, but their stress pattern does not change as is expected.

(i) chrónicle, commíssion, cómplement, condítion, díscipline

Allen (1978) asserts that being unproductive, the stress shift in (24) is an exception that should be "noted in the lexicon." In order to account for English conversion discussed above, Kang (2007) proposes two different versions of the markedness constraint Word Stress: Word Stress that generally applies to words and Word Stress$_L$ that applies only to those lexical items indexed for its application. Only the exceptional items with stress shift are targeted by Word Stress$_L$. In order to produce correct outputs, these markedness constraints conspire with the faithfulness constraint Base-Identity requiring the stress pattern of the base to be retained in the derived form. The required constraint ranking is given in (27).

(25) Word Stress: In disyllabic nouns and verbs, the main stress is placed on the first syllable of a noun, but on the second syllable of a verb.

(26) Word Stress$_L$: In lexically indexed disyllabic nouns and verbs, the main stress is placed on the first syllable of a noun, but on the second syllable of a verb.

(27) Grammar: Word Stress$_L$ ≫ Base-Identity ≫ Word Stress
      Lexicon: torment$_L$ protest$_L$ survey$_L$ accord pattern

In the above constraint ranking, Base-Identity outranks Word Stress, giving priority to the preservation of the underlying stress pattern, as illustrated in the following tableaux:

(28) páttern$_N$ → páttern$_v$

páttern$_N$	Base-Identity	Word Stress
a. pattérn$_v$	*!	
☞ b. páttern$_v$		*

(29) campáign$_N$ → campáign$_v$

campáign$_N$	Base-Identity	Word Stress
a. cámpaign$_v$	*!	*
☞ b. campáign$_v$		

(30) accórd$_v$ → accórd$_N$

accórd$_v$	Base-Identity	Word Stress
a. áccord$_N$	*!	
☞ b. accórd$_N$		*

The above tableaux show that it is important to retain the stress pattern of the base regardless of which syllable of the base is stressed.

In the case of lexically indexed words, however, the observance of Word Stress$_L$ has priority over that of Base-Identity, causing stress shift in the derivative. Consider, for example, the conversion of *survéy$_v$* into *súrvey$_N$* in (31). In the optimal candidate (b), stress shift occurs, satisfying the top-ranked constraint Word Stress$_L$ as well as Word Stress. Note that the preservation of the stress pattern of the base in (a) would result in a critical violation of the lexically indexed markedness constraint Word Stress$_L$ as well as Word Stress.

(31) survéy$_v$ → súrvey$_N$

survéy$_L$	Word Stress$_L$	Base-Identity	Word Stress
a. survéy$_N$	*!		*
☞ b. súrvey$_N$		*	

To sum up, it has been shown that, in English, the derivative is generally required by the faithfulness constraint Base-Identity to retain the stress pattern of the base, regardless of the directionality of conversion. In the case of a few exceptional words, however, stress shift occurs in order to satisfy the high ranking Word Stress$_L$, which demands lexically indexed words to be stressed according to the principles of stress assignment. That is, English constitutes evidence for Type Three.

2.4 Type Four: lexically indexed Faithfulness Cs ≫ Markedness Cs ≫ general Faithfulness Cs

Like Type Three, Type Four is also controversial, but for a different reason: this type assumes that faithfulness constraints can be classified into two groups: general faithfulness constraints and lexically indexed faithfulness constraints.

Papiamentu[3] is of particular interest in the present context because its faithfulness constraints clearly fall into two classes — those that generally apply to words and those that apply only to lexically indexed words. In what follows, inspecting conversion in Papiamentu, I will show that Type Four is within the range of attestable types.

Papianentu has verb to noun conversion, which can be classified into two types depending on whether or not the output obeys the markedness constraints on stress and tone in nouns. Note that, with few exceptions, the placement of main stress and H tone in Papiamentu words can essentially be predicted from categorial class membership and syllable weight (cf. Kouwenberg 1995). In bisyllabic verbs, that is, H is assigned to the final syllable, but stress to the penultimate syllable. In polysyllabic verbs, however, both H and stress are assigned to the final syllable. Unlike verbs, on the other hand, tone and stress assignment in nouns is quantity sensitive. That is, if the final syllable is heavy, then both main stress and H are assigned to the final syllable. If the final syllable is light, however, they are both assigned to the penultimate. For detailed discussion, see Kouwenberg (1995).

Turning now to the issue under discussion, deverbal nouns in Papiamentu essentially behave like underived nouns with respect to tone and stress assignment; they are subject to the same constraints on tone and stress assignment as underived nouns. Relevant examples are given below:

(32) Conversion of bisyllabic verbs:

peña	'comb' (v/n)	blancha	'whitewash' (v/n)
kaska	'peel' (v/n)	huma	'smoke' (v/n)
bende	'sell/sale'	pousa	'pause, break' (v/n)
gagu	'stutter/stuttere'	rama	'twine (of plant)/wine'

(33)[4] Conversion of polysyllabic verbs:

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3) Papiamentu vocabulary is etymologically divided into two groups: Iberian and non-Iberian. While the latter is mostly of Dutch origin, there is also a growing number of words borrowed from English (Römer 1991; Kouwenberg 1995).

4) In some of these pairs, the verb and the noun end in a different vowel (/a/ for the verb, /o/ or /u/, sometimes /e/ or /i/ for the noun).

Verb			Noun	
vakuná	'vaccinate'	vakúna	'vaccination'
fakturá	'invoice'	faktúra	'invoice'
venená	'poision'	venénu	'poison'

(stressed syllable = underlined; ' = H tone)

In conversion of bisyllabic and polysyllabic verbs, that is, stress and tone shift, as illustrated in (34).

(34)   Verb   Noun
    a. LH melody   HL melody
      kàská 'peel'   káskà 'peel'
    b. LLH melody   LHL melody
      vàkùná 'vaccinate'   vàkúnà 'vaccination'

In bisyllabic deverbal nouns (34a), the H tone shifts from the final to the penultimate, though the stress remains unchanged. In the case of polysyllabic deverbal nouns (34b), both the H tone and stress shift to the penultimate, in conformity with the constraints on tone and stress assignment in nouns.

It has been shown above that deverbal nouns in Papiamentu have the same tone and stress patterns as underived nouns. There are, however, some bisyllabic deverbal nouns which retain the stress and tonal melody of their corresponding verbs. Note that those nouns are homophonous with the participles of verbs, as shown in (35).

(35)   Participle   Noun
    bistí   'dress, wear (clothes)'   bistí   'dress'
    habrí   'open'   habrí   'opening'
    huña   'scratch'   huña   'scratch'

The deverbal nouns above are assumed to derive from the participle rather than the verbal base.[5] The deverbal nouns in (35) differ from the deverbal nouns

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5) Note that the participle differs from the verbal base in stress placement: penultimate in bisyllabic verbs, but final in the corresponding participle forms.

discussed above in that they do not follow the tone and stress patterns in underived nouns. Instead, they retain the tone and stress patterns of the participle: H and stress in the final syllable.

Turning now to an OT account of the verb to noun conversion in Papiamentu, we need to invoke two different versions of Base-Idendity: Base-Identity and Base-Identity$_P$. Base-Identity generally applies to words, whereas Base-Identity$_P$ applies only to those lexical items derived from participles. In the case at hand, only the exceptional deverbal nouns in (35) are targeted by Base-Identity$_P$, and others by Base-Identity. The two faithfulness constraints are in conflict with the markedness constraint in (36) regulating the placement of H and stress in Papiamentu nouns, giving the ranking in (37).

(36) Tone & Stress in nouns (T & S): If the final syllable is heavy, main stress and a H are assigned to the final syllable; otherwise, they are assigned to the penultimate syllable.

(37) Base-Identity$_P$ ≫ T & S ≫ Base-Identity

The following tableaux exemplify how the above ranking works:

(38) kàská 'peel$_V$' → káskà 'peel$_N$'

kàská	Base-Identity$_P$	T & S	Base-Identity
a. kàská		*!	
☞ b. káskà			*

(39) vàkùná 'vaccinate' → vàkúnà 'vaccination'

vàkùná	Base-Identity$_P$	T & S	Base-Identity
a. vàkùná		*!	
☞ b. vàkúnà			*

(40) hàrí 'laugh$_V$' → hàrí 'laugh$_N$'

hàrí$_P$	Base-Identity$_P$	T & S	Base-Identity
☞ a. hàrí		*	
b. hárì	*!		*

In (38), candidate kàská critically violates Tone & Stress because H is assigned to

the final light syllable. Candidate _káskà_ is selected as optimal although it incurs a violation of Base-Identity due to the H shift from the final to the penultimate. In (39), candidate _vàkúnà_ wins, since it crucially satisfies Tone & Stress, which its competitor violates. Note that the forms in both (38) and (39) are not subject to Base-Identity_P because they are not lexically indexed to it. When it comes to deverbal nouns derived from participles, however, the constraint Base-Identity_P plays a crucial role. In (40), that is, candidate (b) loses to candidate (a), since it critically violates the lexically indexed faithfulness constraint Base-Identity_P due to the stress and tone shift.

To summarize, it has been shown that Type Four is attested by Papiamentu, whose verb to noun conversion can be accounted for in a natural way under the assumption that the lexically indexed faithfulness constraint Base-Identity_P outranks the markedness constraint Tone & Stress, which in turn ranks higher than Base-Identity.

3. Conclusion

To sum up, I have shown that the typology in (1), repeated in (48), makes correct predictions.

(48) <u>Typology of conversion:</u>
    Type One: Faithfulness Cs ≫ Markedness Cs
    Type Two: Markedness Cs ≫ Faithfulness Cs
    Type Three: lexically indexed markedness Cs ≫
            faithfulness Cs ≫ general markedness Cs
    Type Four: lexically indexed faithfulness Cs ≫
            markedness Cs ≫ general faithfulness Cs

It has been shown that each of the logical possibilities is well attested. Type One is represented by Dutch, in which the output of noun to verb conversion preserves its base paradigm. Type Two is also attested by noun to verb conversion in German, which is allowed only if the resulting form conforms to the markedness constraints on verbs. Type Three is controversial in that it

divides up markedness constraints into general and lexically indexed markedness constraints. I have shown that English precisely depicts the situation predicted by this type. Type Four is also controversial because it assumes that faithfulness constraints can be classified into two groups: general and lexically indexed faithfulness constraints. As has been shown, evidence of Type Four can be found in Papiamentu, whose verb to noun conversion is classified into two types based on whether or not the output is subject to the markedness constraints on stress and tone in nouns. That is, the typology in (48) sets the range of all and only possible language types.

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