

A Constraint on Constraints

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Kang, Yongsoon. 1999. A Constraint on Constraints. *Studies in Phonetics, Phonology and Morphology* 5.2, 309-321. The purpose of this paper is to suggest a constraint on constraints in the Optimality Theory. To be specific, I claim that OT constraints should not reflect the fact or generalization which is not based on the native speaker's knowledge of a language. I show this by giving three examples: two from English and one from Korean. The first English example is the Latin root *-mit* and their distributional property and the second one deals with the so-called strong verbs in the Old English. Korean example comes from the causative morpheme *-wu*. The examples can be nicely explained with the help of their etymological information. In spite of the advantage, I argue that this must not be used as a constraint because the knowledge is not present in the native speaker's mind. (Sungkyunkwan University)

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1. Introduction

Since the appearance of the Optimality Theory (OT hereafter), new constraints are emerging everyday. The power of these constraints is so strong that there seems to be nothing we cannot explain as long as we can make use of new constraints as many as we can. Before long we would be flooded with too many constraints and somehow we should stop somewhere. Moreover, the idea of infinite number of constraints doesn't seem to be appealing. It is not only too powerful but also counter-intuitive.

Generative Grammar assumes that we are creating infinite number of output on the basis of finite number of devices and it is generally agreed. Now the only criterion for a new constraint is the notion of universality. However, universality is determined after we apply a new constraint to many of world languages and there is no way of preventing the invention of new constraint. Besides, a new constraint can avoid the universality criterion by saying that the constraint is language-specific even when the constraint doesn't apply to other languages.

This paper aims at suggesting a way of limiting the content of new constraints in the OT framework. I suggest that when we make a new constraint to explain the linguistic data we should make it sure that the constraint reflects the synchronic state of a native speaker, not the diachronic knowledge or change of the language. To be specific, I will cite the example in the next chapter from an English morpheme *-mit* and then the so-called 'strong' verbs in English. Another example is from Korean passive/causative constraint (Bak 1982, Kang 1999). I suggest that the constraint like [Recover] be removed from the OT constraints on the basis of experimental survey from Korean native speakers.

2. Native speaker's intuition on constraints

2.1 Latinate Morpheme *-mit*

Since Ferdinand de Saussure linguistic researches have been directed to explore the synchronic state of a language. Noam Chomsky limited the object of linguistic study to that of native speaker's competence. In the earlier generative phonology, the phonological rules were supposed to be present in the intuition of a native speaker. Under the OT framework, constraints are taking over those rules. The constraints and their hierarchical ranking are assumed to belong to the unconscious knowledge of a speaker. However, as Kiparsky (1968) once pointed out, abstractness cannot be justified under the name of 'unconscious knowledge.' So there should be a criterion for the constraints on OT and I believe the criterion should be native speaker's intuition.

For instance, let's look at the case of Latinate morpheme *-mit*. It came into English from Latin normally via French (Katamba 1993:42-43). The words with the morpheme *-mit* shares some properties: (1) [t] in *-mit* becomes [ʃ] before *-ion*. (2) [t] becomes [s] when the morphemes like *-ive* or *-ory* follow.

(1) permit	permission	permissive
submit	submission	submissive
admit	admission	admissive
remit	remission	remissory
omit	omission	omissive

The phonological distribution only affects the Latin originated words in (1) and not the other words.¹ For example, the word 'vomit' (<Lat. *vomere*) does not undergo the same process. So it becomes 'vomit[t]ory, vomit[t]ive' instead of '*vomissory, *vomissive.'

In order to explain the alternate difference, we can hypothesize that there is a constraint called 'Latin *-mit*' which says that only Latin-originated roots follow the morphophonological alternation shown in (1). The tableau would be like this.

(2) Latin *-mit* : Latinate *-mit* has the allomorph [-mis-] or [-mif-].

(3) Latin *-mit* » [t] → [s]

/vomit+ory/	Latin <i>-mit</i>	[t] → [s]
vomitory		*
vomissory	*!	

The constraint (2) correctly rules out the more phonologically plausible candidate 'vomissory' by saying that the phonological alternation applies only to latinate roots, to which 'vomit' does not belong. At first glance, the constraint appears to make sense. With it, we can explain why the some words show the phonological alternation between [t] and [s] while the others do not in spite of the fact that they have the same string *-mit*.

This sort of constraint, however, is wrong in that the native speakers of English do not have this information in their brain. As we have said above, the constraints are supposed to reflect the linguistic knowledge of a native speaker. By this criterion we should rule out the constraint 'Latin *-mit*.'

Other way of dealing with this data would be to use the morpheme boundary difference between the two. Unlike the Latinate words in (1),

¹ The *-mit* in (1) is Latin-originated.
 permit [ME *permitten* < Lat. *permittere*]
 submit [ME *submitten* < Lat. *submittere*]
 admit [ME *admitten* < Lat. *admittere*]
 remit [ME *remitten* < Lat. *remittere*]
 omit [ME *omitten* < Lat. *omittere*]

in which '-mit' constitutes a bound morpheme, the word 'vomit' has the morpheme boundary between 'vom-' and '-it.' Naturally the alternation between [t] and [s] does not take place. However, this sort of knowledge is not available to the native speaker, either. Most native speakers do not know the morpheme boundary without looking into the dictionary. Especially when the lexical item was stored and fossilized in the lexicon as one word, the knowledge of morpheme boundary is difficult to find in their knowledge of a language.² Thus the morpheme boundary difference also can not be used as a constraint.

2.2 Strong Verbs in English

The second example for our argument comes from the so-called 'strong' verbs in English. Under the lexical phonology framework, irregular suffixes belong to the level 1 thereby blocking the attachment of the regular suffixes. Thus the irregular suffix *-t* is attached level 1 and 'conditions shortening....'(Borrowsky 1986:137), which is understood as the effort to preserve the structure, i.e. the number of mora (Myers, S. 1987). The verbs in (4) receive the past-tense suffix *-t* at level 1.

(4) /i:/	~	/e/
leave	~	left
mean	~	meant
sleep	~	slept
keep	~	kept
feel	~	felt
dream	~	dreamt

What is interesting is that the phonological environment alone is not enough to undergo the phonological processes (i.e. vowel shortening) at the same level. For instance, the verbs like 'peel, keel' do not show

² For instance, many of Korean speakers don't realize that the word *kachi* 'together' was derived from the verb *kat* (+i) 'be the same.' The word is one of the difficult words to dictate for elementary students because the orthography is different from the real pronunciation as a result of palatalization. If they had a knowledge of morpheme boundary of the word, it wouldn't make much trouble for them.

the vowel shortening but receive the regular past suffix (i.e. not **pelt*, **kelt* but *peeled*, *keeled*). If the vowel alternation is the result of the effort to preserve the number of mora, then there is no reason for the verbs like 'peel, keel' to be regularly inflected at the level 2. What motivates the difference?

In order for us to answer the question we should look into their etymology. The irregularity of the strong verbs in English, as the name indicates, dates back to Old English (OE).³ In the Old English, these verbs belonged to the so-called strong verbs undergoing the irregular inflection, remains of which are still found in Modern English. On the other hand, the other verbs, 'peel' and 'keel,' were not present in OE. We find their first appearances in the Middle English from other languages.⁴ Thus they were not influenced by the strong verb inflection in the OE.

Another similar example is found in the case of the strong verbs, 'sing' and 'ring'.⁵ They belonged to the class III strong verbs in OE and show the vowel alternation for their past form (i.e. sang, rang). Under the lexical phonology framework, the phonological process takes place at level 1 and avoid the application of affixation of the regular past suffix *-ed*.

However, the verbs like 'ding,' 'ping', which are minimal pairs of 'sing' and 'ding', do not show the same alternation. Rather they somehow escape the lowering of the vowel and receive the regular past suffix at level 2. Again what triggers the difference between the minimal pairs?

The answer lies in the etymological difference between the verbs. While the former ones are the descendents of the OE strong verbs, the latter are not. The latter two verbs are later introduced into English after Middle English period (1100 ~ 1500 AD) and are believed to be the onomatopoeias (Webster's II).

³ leave [< OE læfan], mean [< OE mǣnan]

sleep [< OE slǣp], keep [< OE cēpan], dream [< OE drēam]

⁴ keel [< ME kele < Old Norse kjölr], peel [< ME pelen < Old French peler < Lat. pilare]

⁵ sing [< ME singen < OE singan]

ring [< ME ringen < OE hringan]

So far we have seen two cases of OE strong verbs. They undergo the phonological alternation at level 1 for their past form while the other minimal pair verbs do the regular inflection at level 2. Their phonological environment is the same, and so phonologically or morphologically there is no way to distinguish them. The only way to explain them would be to assume a constraint which says that only the so-called strong verbs undergo the level 1 phonological process.

- (5) Strong Verbs: Only the strong verbs undergo the level 1 phonological processes.

The constraint (5) dominates the other constraints at level 1 so that we can prevent other verbs from experiencing the phonological alternation like shortening and lowering at level 1. The tableau and the ranking would be like (6)

- (6) Strong Verbs \succ Preserve (μ)

/peel+PAST/	Strong Verbs	Preserve (μ)
pelt	*!	
☞peeled		*

The regularity of the verbs like 'ping' can be explained by the same constraint as shown in (7).

- (7) Strong Verbs \succ Lowering

/ping+PAST/	Strong Verbs	Lowering
pang	*!	
☞pinged		*

Given the result like that, the constraint, Strong Verbs, appears to be a nice one which can explain the irregularity of the strong verbs. In fact, without the history of each verb we cannot understand their asymmetrical distribution.

However, here we should be able to discern the true constraint from the historical facts or the etymological knowledge of the linguists. What we as generative linguists are interested in is the native

speaker's knowledge on his/her language, not a individual history of individual word. And most of native speakers do not have this sort of knowledge and thus it should not be available to the candidates for constraints in OT.

Some might claim that this sort of knowledge is underlying (unconsciously) present in the native speaker's mind. However, we have no way of knowing its existence unless it surfaces. Phonological knowledge reveals itself through slips of the tongue and language game as well as many phonological processes. One of them would be the experiment with the hypothetical word.⁶

An interesting experiment supports the idea that most of native speakers of English do not have the knowledge of Strong Verb constraint. When asked to answer the question, 'What would be the past form of the hypothetical verb 'teel'?', about one third of subjects (11 out of 35) replied with the 'telt,' while two thirds (24/35) suffixed the regular form (i.e. teeled).

After the survey, when I asked what was the criteria of their choice most of them said that it was analogy.⁷ Those who remembered the minimal pair verb 'feel' answered with 'telt,' while the others just thought of the regular past form. Nobody thought of the idea of 'strong verbs,' even though many of them had the knowledge of them. which means that their knowledge of linguistic facts does not much influence the way they speak.

In this section, I have illustrated the examples of constraints that should be ruled out in the OT framework. While these constraints can explain the idiosyncratic morphophonological properties of Latin roots and OE strong verbs, it was argued that they are not proper constraints. In the next section, I will present a more concrete case in which a seemingly plausible constraint turns out to be an inappropriate one.

⁶ The typical one is the case of plural in English. When asked 'how many?', after given a name of an imaginary animal as 'wug,' the children answered 'two wugs' even though they never heard of the name of the animal, which implies that they have a knowledge of plural formation in English.

⁷ As for the role of 'analogy,' refer to Myers, J. (1999)

3. Causative Morpheme in Korean

Most of Korean causatives are formed by suffixing one of the causative morphemes (i.e. *-i*, *-hi*, *-ki*, *-li*, *-wu*)⁸ to verb root. The selection of the morpheme is dependent on the phonological condition of the stem final segment. For instance, when the front vowel finishes the stem, *-wu* is suffixed to make a causative.

- (8) cci + wu 'fatten'
 kki + wu 'insert'
 me + wu 'load'
 kkay + wu 'wake up'

In general, after vowels the morpheme *-i* was used to make a causative construction (e.g. *po+i* 'show'), so insertion of the back vowel can be understood as an example of OCP to avoid front vowel clash (Kang 1999).

What interests us is a double causative constructions which have two causative suffixes as in (9).

- (9) caywu 'get to sleep' (← ca + i + wu)
 seywu 'to stand' (← se + i + wu)
 chaywu 'fill up' (← cha + i + wu)

The causative forms in (9) are assumed to have two causative suffixes. Bak (1982) finds the reason for this from the semantic ambiguity which is resulted when only one causative suffix *-i* is attached to the stem. For instance, the double causative verbs in (9) would have the other meaning like the following when only one suffix is added to the stem.

- (10) cay (< ca + i) 'measure'
 sey (< se + i) 'count'
 chay (< cha + i) 'kick'⁹

⁸ Yale Romanization is adopted for Korean transcription.

In order to explain the double causative construction within the OT framework, we can make use of the constraint Recoverability suggested in Kang (1999: 246).

(11) Recover(ability)

Recover: Semantic ambiguity of the output is avoided.

The motivation for the constraint is plausibly clear. From the hearer's point of view, ambiguous output, which can confuse the hearer's decoding, is not desirable and it should be avoided as much as we can. Given the constraint (11), we can rule out the undesirable candidates like 'caki' and 'cay' as follows.

(12) caywu 'get to sleep'¹⁰

/ca + ki /	Recover	MAX-IO	IDENT-IO
caki	*!		
cay	*!	*	
ㄱ어 caywu		*	*

The first candidate 'caki' is ruled out because it has another meaning '-self' and as a result violates the constraint 'Recover.' The second candidate 'cay' also violates the constraint 'Recover' since it can mean 'measure' in Korean.¹¹

Thus the tableau (12) appears to be a nice solution to the double causative construction because they can explain the optimality of the

⁹ As for the more detailed discussion and the data, refer to Bak (1982: 335-336).

¹⁰ As for the definition and ranking hierarchy of constraints, refer to Kang (1999), in which the underlying form of causative and passive suffix in Korean is assumed as /-ki/. As for the reason for this refer to Kang (1991, 1999). It is also possible in the case of double causative construction to assume that the underlying representation is /cay+ki+wu/. But this can cause more trouble. For one thing, we should assume that underlyingly two different morphemes (-ki and -kiwu) exist for causative/passive construction. In that case, the argument that the second morpheme -wu was inserted to avoid lexical ambiguity undermines its ground.

¹¹ As a reviewer points out, 'cay'(Verb) and 'caki'(Noun) have different part of speech. But the constraint Recover does not seem to show any difference between parts of speech as long as the output shows the semantic ambiguity.

candidate 'caywu.' However, what about the validity of the constraint Recover? Does the constraint still work for the formation of causative construction? Unfortunately, it doesn't seem so.

I asked about 84 Korean students to make the causative forms for the hypothetical verbs, 'pe' and 'me.' These verbs are similar to the double causative construction verbs in that addition of one causative suffix *-i* would result in the semantically ambiguous word like 'pey' and 'mey,' meaning 'cut' and 'load,' respectively. If the same constraints were used for the derivation of causative forms of these verbs, we would expect the double causative forms 'peywu' and 'meywu' as the following tableau shows.

(13) /pe + i + wu/

/pe + ki/	Recover	MAX-IO	IDENT-IO
pey	*!		
☞peywu		*	*

However, none of the students asked out of 84 answered with the expected form 'peywu.' About quarter of students (20) used the other causative morpheme '-ke hata,' while the rest of students returned the survey forms with nonsense words or blanks. What does this result mean? It would mean that the constraint is not present in the current native speaker's mind and so doesn't work for the production of new causative construction. I strongly believe that if the constraint exists in the unconscious mind of a native speaker it should work for the formation of hypothetical double causative construction.

I understand that the constraint Recover is not an unthinkable constraint which works only for the abstract theory. And I also understand that it still works for the coinage of new words. And I agree that the constraint can appropriately explain the motivation for the double causative construction in Korean. Probably the constraint did work when the double causative verbs were first formed. However, it doesn't seem to be working any more at least for the formation of double causatives in Korean and thus should not be used to explain the double causative construction in Korean.

4. Conclusion

In this paper, I suggest a way of constraining the constraints in the OT framework. I argue the point with three examples; two from English and one from Korean. First, I presented idiosyncratic cases which can be nicely explained with the help of etymological information and I suggested a possible OT solution using the information as constraints. Then I argued that this sort of constraint should be banned from the OT because the knowledge is beyond the realm of native speakers of a language.

Since the main concern of the generative phonology is the native speaker's knowledge of a language, we should be careful not to include the historical or etymological information as a constraint. This sort of knowledge is only available to a handful of erudite linguists not to common people. We might think this might be present in our unconscious mind.¹² But I believe the concept 'unconscious' can be justified only when it is realized in the real speech. We can find those examples from many linguistic phenomena like the slip of the tongue, overgeneralization of language learners, the productivity, the fast speech, etc. If there is no outward evidence for the constraint, then it should not be used as a constraint.

In this paper, I just dealt with the case of diachronic information. But this sort of constraint is not limited to historical ones. I suggest that the constraints reflecting the nonlinguistic factors like 'frequency' or 'social class' also belong to this category. For instance, it is evident that the frequency of vocabulary influences the application of phonological processes like 'schwa deletion' (Bybee 1994). However, I believe the frequency cannot be a part of linguistic knowledge in the lexicon of native speaker.

Rather it would be more natural to say that the more frequent are

¹² I agree with an anonymous reviewer in that the so-called Strong Verbs constitute a sublexicon in the native speaker's lexicon. I believe this sort of sublexicon has something to do with the similarity shown in their alternation, not the diachronic knowledge which I don't think common native speakers have. Detailed discussion on the organization of lexicon would go beyond the scope of this paper.

more apt to be applied by the constraint hierarchy in the native speaker's mind. Thus it is not likely that the constraints like 'IO-rare' or 'IO-common.' (Hammond 1997) are part of constraints in the lexicon of native speakers. Like frequency, social class factor also influences the selective application of phonological processes. But I doubt that there is constraint like 'social class' in the native speaker's mind. Of course, this is my personal impression and the more research is needed to support the claim.

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