'Irregular' Verbs in Korean Revisited

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0. Introduction.

A number of Korean verbs[1] do not follow the general phonological rules in their conjugation. However, the patternedness of their "irregularity" has long been noted by most grammarians. Thus even the earliest analyses set up different "classes" of "irregular" verbs (Choy 1937-1971, Martin 1954, He 1965-1972, C-W Kim 1967)[2]. Furthermore it was well known that many of the irregularities were due to some earlier historical processes.

More recently in applying the generative theory, many linguists(C-W Kim 1970, Chagyun Kim 1971, Lee 1973, Cook 1973) have come to believe that most, if not all, of these "anomalous" verbs are not really exceptions to some fixed rules but that they behave differently because they have different underlying forms. Thus superficially identical forms of "regular" and "irregular" verbs are thought to be a direct result of certain phonological rules which neutralize them in a well-defined environment.

This paper purports to review some of the "regular" solutions thus far given and to present my own claim on the underlying representations of the "irregular" verbs and the phonlogical rules required to derive their phonetic representations.[3]

Choy(1937-71) gives twelve classes of verbs which show anomaly either in the shape of

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[1] In this paper, the term "verbs" is used to include what has traditionally been called "verbs" and "adjectives".

[2] Even though C-W Kim(1967) used rule features, calling them "Special Phonological Rules," they are still considered as exceptions. Many of Martin(1954)'s "rules" are of the same nature.

[3] For transliteration of Korean, Yale romanization is used, except for the linguists' names for which their own spelling is given, when known. I shall not be concerned in this paper with the nature of underlying representations of Korean vowels, even though a complete description must include vowels. The underlying representation of the Korean vowels may be deeper than the ones presented in this paper. For an interesting analysis of the Korean vowel system, Cf. C-W Kim(1968).

their stems or in the affixes that are attached to them. I shall group them into five sections in each of which related processes will be discussed.

1. *u*- and *wu*-anomalies.

These verbs were called irregular because the stem final vowels were deleted when followed by a vowel-initial affix, as in

(1) (a) khɨ-da 'to be big' (b) phu-da 'to bail out'
kh-ə 'being big' ph-ə 'Bail out!'

ɨ-deletion is a very general rule in the language, which escaped Choy's attention, such that/ɨ/ is truncated when meeting another vowel. Thus

(2) *ɨ*-deletion

(a) $ɨ \rightarrow \phi / \text{vb}\left[\ldots\ldots + \text{V}\ldots\ldots\right]\text{vb} *$ (obligatory)

(b)

X	V	ɨ	Y*	
1	2	3	4	
				⇒
1	$\left[\begin{smallmatrix}2\\+\text{long}\end{smallmatrix}\right]$	ϕ	4	

(optional)

(where * indicates a mirror image environment)

ɨ-deletion is obligatory in a verb conjugation, as we have *khə* but never **khiə* for /khɨ+ə/ 'being big...' However, the other *ɨ*-deletion rule, which also shows the weak nature of the vowel /ɨ/, is optional. Thus we have coexisting forms *kaɨl*~ka:l 'autumn', *cəɨy*~*ce:* (<*cə:y*) 'my' *kiæ*~*kæ:* 'that child', etc. Notice that here the loss of /ɨ/ leaves a compensatory lengthening in the remaining vowel. The coexisting form like *iɨni*~*i:ni* for /i:s+ɨni/ 'As he connects it.....' shows that (2a) precedes *s*-deletion (Cf.10a), but (2b) follows (10a).

C-W Kim(1970:6-7) tries to explain the dropping of *u* in *phə*(</phu+ə/) by the Morpheme Structure Constraint that in Korean there is no labial sound after a labial consonant especially in initial postion. However, as Wanjin Kim(1971 : 141) pointed out, there are forms like *pwa*(<*poa*) 'Look!', *pwə*(<*puə*) 'Pour!', etc. C-W Kim then is forced to give a qualification to the constraint such that only *w*'s resulting from non-*u*(C-W Kim's /wɨ/) element are permitted in this position.

However, if we regard *u* in *phu*- as originating from /ɨ/(which is moreover historically true) by a simple assimilation rule like:

(3) Labial assimilation

ɨ→u/ # [+labial]_____

we can derive the correct surface forms like *phuda*(</phɨ+ta/) 'to bail out'(for t→d, Cf. (10b)). *phə*(/phi+ə/) can be simply explained by rule (2a), which should be crdered before rule(3).

There is another aspect that Choy and others have overlooked, that is, *cuəsə* and *cwəsə* are both acceptable for /cu+əsə/ 'to give and'....., but only *pæwəsə* and not **pæuəsə* is acceptable for /pæu+əsə/ 'to learn and.....' This fact can be explained by the following rule:

(4) Glide formation

$$\begin{bmatrix} \text{V} \\ -\text{low} \\ \text{n high} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{syll} \\ \text{3 high} \end{bmatrix} /\text{X}\text{——} \begin{bmatrix} \text{V} \\ \text{m high} \end{bmatrix}$$

Condition: 1. $n \geq m$

2. obligatory if X=V, optional if X=C.

A nonlow vowel becomes a glide when followed by a vowel of the same or lower height. This glide formation is obligatory in intervocalic position. Thus we have *ssayəsə* but never **ssaiəsə* for /ssai+əsə/ 'to be stacked and'....., However the glide formtion is only optional when preceded by a consonant, as forms like *kiəsə* and *kyəsə* for /ki+əsə/ 'crawling' coexist. It goes without saying that VVV is a more favorable environment for glide formation than CVV.

2. *h*-anomaly.

These verbs lose the stem final *h* when followed by a vowel inital affix. Thus /norah-/ 'be yellow' has the following forms:

(5) nora-tha 'It is yellow.'

nora-myən 'if it is yellow, ...'

This is another regular phenomenon, which escaped many grammarians' attention, such that /h/ is deleted in voiced surroundings, as in the next rule:

(6) *h*-deletion

h→ϕ/[+voice]__[+voice]

noramyən from /norah+imyən/ 'if it is yellow.....' is derivable by rule (6) followed by rule (2a).

This intervocalic *h*-deletion was not readily capturable, because many linguists regard

initial *i*-'s in the affixes as epenthesized rather than existing in the underlying forms. C-W Kim(1970) posits basically the same rule of *h*- deletion as rule(6), but since he also inserts i-'s rather than having them in the underlying representation, he cannot explain the different surface forms found in *norani*(</norah+ini/) 'since it is yellow...' and *noratni* </norah+ni/) 'Is it yellow?',

It is worth noting here that for some lects, *h*-deletion is not applicable to certain lexical items like /coh-/ 'be good' and /silh-/ 'hate', etc. For example, we have three possible variants, *cohimyən*~*coimyən*~*co:myən* for /coh+imyən/ 'if it is good,.....', where rule(6) and rule (2a) are optionally applied. These forms seem to correspond to age levels and might be an evidence to a historical change in process, A sociolinguistic study will certainly give a better picture for various conditioning factors.

3. *p*-, *t*-, *s*- anomalies.

This group of verbs, unlike regular *-p*, *-t*, *-s* final verbs manifest quite different shapes before a vowel-initial affix, Thus

(7) (i)	ku:p-tta 'roast, bake'	Cf. kup-tta 'be bent'
	kuw-ə	kup-ə
	kuu-na	kub-ina
(ii)	kə:t-tta 'walk'	Cf. kət-tta 'roll up'
	kər-ə	kəd-ə
	kər-ina	kəd-ina
(iii)	i:t-tta 'connect'	Cf. it-tta 'exist'
	i-ə	iss-ə
	i-na	iss-ina

Cho(1967) postulates underlying final /p/,/ṭ/, and /ʔ/ for *p*-, *t*-, and *s*- "irregular" verbs respectively, but his rules are extremely ad hoc.[4] His /ṭ/ anp /ʔ/ not only comlicate the phonemic inventory but also historically and otherwise unsupported.

Martin(1954) sets up underlying final /w/, /l/ and /s/ for *p*-, *t*-, and *s*- "irregular" verbs respectively, but his /l/ and /s/ bases are thought to be morpheme-specific(i.e. not general), and no cogent explanation for the change of /w/ to [p] is given.

C-W Kim(1970) postulates /w/, /r/ and /s_2/(distinct from /s_1/ which emerges on the

[4] To give an example, Cho says that /p/ becomes [w] between [u] and [ə] and between [o] and [a], but counterexamples are numerous, e.g. *coba* 'It is narrow.', *kubə* 'bending,.....' etc.

surface) for *p-*, *t-*, *s-* "anomalies" respectively, and explains the change of /*w*/→[*p*],/*r*/→[*t*] by what he calls 'the principle of close articulation" (Cf. C-W Kim 1971).

C-W Kim claims that the /s_1/ should be included in the aspirated series while the disappearing /s_2/ should be of the lax series. He gives as crucial evidence the fact that /s_1/ is peculiar in its breathiness character and in that it is never voiced intervocalically while other lax consonants are.[5] The /s_2/ in /*is*$_2$-/ 'connect' is postulated to be voiced intervocalically like other lax consonants, but the resulting *z* is subsequently dropped by the Surface Phonetic Constraint that there cannot be any [z] on the phonetic level in Korean.

Though C-W Kim's analysis also complicates the phonemic inventory by adding extra underlying forms, his phonological rules are supported by a strong theoretical and explanatory arguments.

Now, if we stop at describing the central dialect, where for some speakers vowel length may no longer be distinctive, there may be less objection to C-W Kim's analysis.

However, it is a well-known fact that in certain dialects we find the following forms:

(8) (i) ki:p-tta 'mend'(Kyengsang)
ki:p-kko
kib-əsə
kib-əra

(ii) tit-tta 'listen'(Hwanghay, Phyengan)
tit-kko
tid-əsə
tid-əra

(iii) i:t-tta 'connect'(Kyengsang)
i:t-kko
is-əsə
is-əra

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[5] Inspite of this most insightful observation, one can equally ask other questions concerning the surface s_1. For example, if it is an aspirated series, i.e. already [+ tense], then there would be no tensification in certain compounding cases.

Cf. mun+thim→munthim(never *munttim) 'an opening in the doorway'
mun+ka→munkka(never *muŋga) 'vicinity of the door'
but mun+soli→munssori(never *munsori) 'sound of the door'.

It is true that s_1 is peculiar in its breathy impression, but the aspiration found in s_1 is probably not any greater than that found in other lax stop series in Korean. Nevertheless, it remains a mystery why the voicing of the intervocalic *s*, common in so many languages of the world, is not existent in Korean.

If we want to say that different dialects of relatively easy mutual comprehensibility have similar underlying representations, differing only in some minor rule applications, C-W Kim has a cumbersome task of explaining how /w/ changed to [b] and /r/ to [d] in intervocalic position in the above dialects.

Chagyun Kim(1971) postulates /β/, /ð/, and /z/(my interpretation for his ㅸ, ㅿ, and △)for *p*-, *t*- and *s*- "irregular" verbs. He claims that, even though they never emerge on the surface, positing them in the underlying forms explains neatly the alternation, and furthermore that it is supported by historical evidence.

However, /β/, /ð/ and /z/ are also extra phonemes set up solely for the purpose of explaining the above anomalies. Even though his analysis explains the dialectal variation slightly better than C-W Kim's, it still cannot be claimed to represent the psychological reality of speakers of Korean. Furthermere, the existence of vowel length before a consonant initial affix and its disappearance before a vowel initial affix is not easily explainable when this analysis is chosen.

Recently, Lee(1973) has made an invaluable observation about some peculiarity in the words that show alternating forms, by pointing out that at least the *t*- and *s*- "irregular" verbs always involved a long vowel; therefore, he claims that length is the triggering element for the consonant alternation. However, no attempt at explaining why it should be so seems to have been made as yet.

Cook(1973) also noted the vowel length in *p*-, *t*- "irregular" verbs, The vowel length, however, is attributed to the loss of one of the two consonants posited for the base, i.e. /-wp/ for the *p*- anomalous and /-lt/ for the *t*- anomalous.

The deletion of /w/ in /-wpC/ sequence and that of /l/ in /-ltC/ sequence is explained by C-W Kim's "principle of close articulation." However, Cook regretfully does not attempt to give any explanation for the loss of /p/ before a vowel initial affix; and the loss of /t/ before a vowel initial affix has received an unsatisfactory explanation that almost amounts to saying that "l-clusters are anomalous in these cases, because they are so elsewhere." Nothing is said about *s*- anomalous verbs, which apparently are considered as an unrelated process,

The real motivation for the double consonant analysis came from the existence of such forms as *toup-tta* 'to help', where both /w/ and /p/ emerge on the surface before a consonant initial affix. It seems to me, however, that this is a clear case where restructuring is just taking place by analogy(i.e. sort of combining the forms *toːp-tta* and *tou-ni*), and

that it is probably a mistake to try to derive this form from the same underlying representation as that of the other regular forms in the conjugation. How we should incorporate this kind of analogical process into our grammar, however, remains a big question.

Pursuing the insightful observation on vowel length made by Lee and Cook, I would like to present the following analysis. I posit /p/, /t/, and /s/ for the final consonants of *p*-, *t*-, and *s*- "anomalous" verbs respectively. That is, the underlying forms of these consonants are claimed to be idential in "regular" and "irregular" verbs. I will assume that the alternation occurs not because of different nature of the underlying consonants but because of the environment in which they occur and that vowel length plays a crucial role here.[6]

If we think of consonants as having some relative degree of phonological strength, based on historical changes and/or synchronic phonological rules, as discussed in Foley(1970), Lass(1971), and Vennemann(1972), we can envisage the following scale(supposedly universal, but tentative, not complete):

(9) Phonological Strength Scale

6	p^+	t^+, s^+	c^+	k^+
5	p	t	c	k
4	ϕ,f	s	ç	x
3	b	d,(l)	j	g
2	β,v	z		γ
1	w	r	y	$\underline{\gamma}$
0	ϕ	ϕ	ϕ	ϕ

(p^+=realized as pp, ph, pf depending on languages. In Korean p^+=pp or ph)

Lax consonants are weakened in intervocalic position; we formalize this fact tentatively as:

(10) Obstruent Weakening[7]

$$\text{Strength } n \rightarrow \text{Strength } n\text{-}4 / \left[\ldots V{:}\_\right] \text{ Vb-Stem } \left[V\ldots\right] \text{ Af} \cdots\cdots\cdots (a)$$

$$\rightarrow \text{Strength } n\text{-}2 / V\_V \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots (b)$$

(where n=4, 5)

Rule (10b) says that lax obstruents are weakened by two degrees intervocalically(to be called the "weakening" rule henceforth); thus we have *cop-tta*'It is narrow.' but *cob-ado* 'though it is narrow,.....' Rule (10a) says that lax obstruents are weakened even further in an intensified environment(to be called the "extreme weakening" rule hereafter). Here, the term "intensified" begs clarification. It has been argued that stress intensifies all para-

[6] I am not directly concerned here about whether a long vowel is decomposable as V_iV_i in underlying representation, though it is a possibility. Whatever its underlying form may be, it does not affect our analyses presented here.

[7] The environment of Rule (10b) should be/[+voice]—[+voice] more specifically.

meters(e.g. nasalization is heavier on stressed vowels than on unstressed ones (Schourup 1972). Here I would like to claim that length can have the same effect. This may be supported by Japanese vowel devoicing which is inversely proportional to duration, which in turn is related to sonority(Howard, University of Hawaii lecture 1973).

If we think of this weakening as a kind of assimilation in degree of sonority, we can say that an intensified environment is favorable to even further weakening. Thus we have *koːp-tta* 'It is pretty'" but *kow-ara*(</koːp+əla/) 'How pretty it is!'(for the loss of vowel length, Cf. (11), and for /l/→[r], Cf. (15)).

In the case of /s/, the weakening rule is blocked by the Surface Phonetic Constraint that [z] cannot occur on the surface in Korean.[8]

One may ask now, how about *c*-and *k*-final verbs? We do not seem to have any case where /c/ and /k/ alternate with a highly weakened version as [w], [r], or *ϕ*. In all verbs involving final /c/ and /k/ that I have checked in H. I's dictionary (I 1961-71), only one verb has been found to contain a long vowel, i.e. *caːk-tta* 'It is small' (for some lects, *cək-tta* 'There is not much' may also contain a long vowel, though it does not in I's dictionary.) Thus in all cases except /caːk-/, the extreme weakening rule cannot apply anyway.

In the lexicon, /caːk-/ and other verbs to which the extreme weakening rule does not apply in spite of the right environment, for example, /uːs-/ 'laugh', /əːt-/ 'get', must be marked with a rule feature [-Rule (10a)], so that we could avoid deriving ungrammatical *caɣasə *'being small,....., *uːni(<*uini<*uːini</uːs+ini/) *'as he is laughing...' *ərədo (<*ərəto<*əːrəto</əːt+əto/) *'even if he gets it.' It is interesting to note that at least the exceptions mentioned above would have created homonyms with other verbs if the rule applied. (Cf. *caːsə* 'being asleep,.....' *uːni* 'as he is crying,' *ərədo* 'even if it is frozen,...')

There are also cases where extreme weakening takes place in spite of the normal intervocalic environment(i.e. where no vowel length is noticeable on any conjugated form, for example, *mip-tta* 'be hateful' and *miw-ərə* 'How I hate him' and *tit-tta* 'listen' and *tir-ədo* 'though he hears,.....' etc.) These exceptions will have to be expressed by a minor rule, which involves an absolute neutralization: that is, vowel length is posited in the underlying representations of these verbs, and after the application of the weakening rule, the vowel length will be deleted in this limited number of cases. Note that in the dialects mentioned in(8ii), restructuring has occurred, and there is no length in the underlying representation

[8] Note that in this case the Surface Phonetic Constraint is not used to delete an abstract phoneme.

of /tɨt-/ 'hear, listen to'—hence no extreme weakening in this case, although verbs like /siːt-/ 'load' do undergo extreme weakening.

There is another important question we should ask, that is, why the weakening rule does not apply to Scale 6 in (9), when there are languages like Finnish where this kind of weakening does occur in intervocalic position.

One explanation for this is that our series 6 is stronger than the Finnish series, hence resists weakening. Another possible explanation is that we have two different realizations for the same strength, i.e. /pp/ and /ph/ for p^+, and weakening may not apply in order to avoid the neutralization. It is not clear, however, why neutralization should be avoided in this case, when neutralizations of so many consonants are allowed in other cases, for instance, neutralization of /t/, /th/, /tt/, /c/, /ch/, /s/ etc. as [t̚] in a syllable final position.

It is interesting to ncte how the vowel length surfaces actually. It seems that only the word initial syllable can maintain the vowel length, and even that disappears when a vowel initial affix follows, as shown in (11):

(11) Vowel shortening

$$v \rightarrow [-\text{long}] / \ \# \ (C_0V\ C_0)_1 \ \text{——} \ (a)$$

$$/\_X+V \qquad (b)$$

(where $(C_0VC_0)_1$ indicates any number of (C_0VC_0), i.e. more than one syllable)

Thus, we have *muːt-tta*(</muːt+ta/) 'to ask', but *mur-ə*(</muːt+ə/) 'Ask!,' *arimdap-t ta*(</alimtaːp+ta/) 'It is beautiful,' etc.

The fact that only the word initial syllable can maintain the vowel length may be attributable to a language specific rhythmic character of Korean. The loss of vowel length efore a vowel initial affix can be explained as follows. Consonant weakening, which is basically a process by which aperture increases, is a kind of assimilation in degree of sonority, as noted above. Vowel shortening, on the other hand, must be regarded as a form of compensatory phenomenon; that is, once the consonant is weakened, too much sonority is felt, and to keep the balance, the vowel length is lost.

I would like to claim that the /-p/, /-t/, and /-s/ base analysis is compatible with the native speaker's intuition, as they were so named by native grammarians, and that the phonological rules posited here are natural, explanatory ones, because such weakening is common in historical processes of many other languages as well as in Korean. While other analyses treat /-p/, /-t/, and /-s/ alternations as separate processes, in our analysis these

seemingly divergent processes have been proved to be one general phenomenon (i.e. intervocalic weakening). Thus a significant generalization has been captured.

4. Where do *r*'s come from?

In Korean we have the following surface *r*'s:

(12) (i) ttari-da 'to follow'
(ii) ur-ədo 'though he cries,...'
(iii) nar-ado(~nall-ado) 'though it flies,...'
(iv) puri-da(~pulli-da) 'to call'
(v) kər-ə 'Walk!'
(vi) iri-da 'to reach'

Traditional analyses group the above classes under the following names:

(1) *i*-anomaly, because /-i/ drops when followed by a vowel initial affix. Thus *ttarida* 'to follow', but *ttar-asə* 'following,...'

(ii) *l*-anomaly, because /-l/ drops before certain classes of morphemes, namely, affixes beginning with /n-/, /s-/, /p-/ and /o-/. Thus

(13) u:l-da 'cry'	Cf. yəllyə (<yəl-nyə) 'faithful woman'
u:-ni	
u:-mnida(<u:-pnita)	il-myən 'oneside'
u-o	sur-in (<sul-in) 'As for the liquor,...
u:-se	kil-sson(<kil-son) 'traveller'

Most grammarians did not realize that (12ii) and (12iii) do not behave entirely the same way in that in (12iii) *nall-ado* 'though it flies,...' is not only possible but more common, while in (12ii) **ull-ədo* 'though he cries,...' is not possible.

(iv) *lu*-anomaly, becuase /-li/ is changed to[ll] before a vowel initial affix, as in *puri-da* 'to call' but *pull-ədo* 'though you call...'

(v) *t*-anomaly, because /-t/ is realized as [r] before a vowel-initial affix as mentioned above; thus *kəɪt-tta* 'to walk,' but *kər-ə* 'Walk!'.

(vi) *le*-anomaly, because an affix beginning with /ə-/ inserts [r] before it, when following this group of verbs; thus *iri-da* 'to reach, to arrive at' but *irir-ədo* 'though one reaches,...'

(12i)—(12vi) are examples of an area where no cogent solution claiming the overall regularity has yet been presented.

Cho(1967) tries to set up some arbitrary underlying forms; yet, neither is his analysis

exhaustive nor are his arguments supported by factually accurate data in descrifing the "Standard Korean".

Partial solutions to this are given by Martin(1954), C-W Kim(1970), Chagyun Kim (1971) and Cook(1973). They will be discussed in the following sections where pertinent.

I would like to hypothesize the following underlying representations for the base forms of (12):

(14) (i) ttali- 'follow' (ii) u:l- 'cry'
(iii) nall- 'fly' (iv) pulli- 'call'
(v) kə:t- 'walk' (vi) ilili- 'reach, arrive at'

The following phonological rules are necessary to derive the forms in (12) from those in (14).

(i) *i*-deletion has already been discussed as a general rule in the language and begs no further discussion(Cf. (2)). Derivation of *ttari-da* from /ttali+ta/ 'to follow' requires another very general rule in the language(in addition to *i*-deletion and lax obstruent weakening rules), i.e.

(15) *l*-weakening

$l \rightarrow r \ / V\_V$

(ii), (iii) The following rules are posited in order to derive the surface forms from the underlying forms:

(16) (a) $i \rightarrow \phi \ / \left[\ldots V\ l \right]$ Vb-Stem $\left[\_\ldots \right]$ Af

(b) $l \rightarrow \phi \ / \left[\ldots V\_ \right]$ Vb-Stem $\left[\left\{ \begin{matrix} n \\ s \\ p \\ o \end{matrix} \right\} \ldots \right]$ Af

(17) $ll \rightarrow l / \ V\_i+$ (optional)

(18) $l_1 \rightarrow l \ /\_ \left\{ \begin{matrix} c \\ \# \end{matrix} \right\}$

Rule (16a) expresses the dropping of initial /i/ in affixes when following a stem final /l/. This rule is optional in some lects: thus we have varying forms *u:na~urina* for /u:l+ina/ 'though he cries,...' and *ki:ni~kirini* for /ki:l+ini/ 'as it is long,...' etc.

Rule (16b) shows the verb stem final /-l/(NB not /-ll/) dropping when it precedes/n/, /s/, /p/ or /o/, whether these result from Rule(16a) or otherwise.

The following derivation shows the application of (16a) and (16b).

(19) u:l+ini 'as he is crying,...'

u:l+ni (16a)

u: ni (16b)

Notice here that *ɨ*-dropping rule (16a) precedes the vowel shortening rule (11); otherwise we would derive a wrong surface form **uni*.

Rule (17), to be ordered after (2a), expresses the neutralization of /l/ and /ll/ as [r] in the specified position. Thus, we have *purɨda* or *pullɨda* optionally for /pullɨ+ta/ 'to call' but only *pullə*, and never **purə* for /pullɨ+ə/ 'Call!'. Notice also that *chirə*(never **chillə*) 'Pay!', which was considered as an exception by Martin(1973: 4), is just a result of a different underlying representation, i.e., /chilɨ+ə/, where rules (2a) and (15) are applied.

Rule (18) expresses the fact that in syllable final position any number of *l*'s is neutralized to one *l*, as shown in (20).

(20) sa:l+ɨl 'to survive, to live(fut.)'

sa:l l (16a)

sa:l (18)

Cook rightly noticed the different behavior of *nal-da* 'to fly' from other /-l/ final verbs, but this time he sets up an underlying form as if it belonged to my class (iv). Thus he has difficulty in explaining the different surface forms in *nalda* 'tofly' and *marɨda* 'to dry', which according to his anayslis share identical underlying parts /...llɨ+ta/, and does so only through some arbitrary "local" ordering. As for the form *nala* 'flying,...' that Cook discusses, I would like to claim as a Surface Phonetic Constraint that, in Korean, [l] can never occur in syllable initial position on the phonetic level except in a fast speech. *nala* seems to be best explained by a late rule that converts [ll] to [l] as a stylistic(or some other) variant.

If we set up

(21)

V	l	l	+	V
1	2	3	4	5
$\begin{bmatrix} l \\ +\text{long} \end{bmatrix}$	ϕ	3	4	5

as an optional minor rule, we can explain the various surface forms of group (iii) simply as consequences of regular rules posited here, even though it is overly specific, lacking generality. This is a similar problem we would encounter to explain two variant pronunciations of *economics* in English. The varying forms *nallɨni*(<*nall+ɨni*) and *na:ni*(<*na:l+ɨni*) 'as it flies,...' are derivable in the following manner:

(22) (a) nall+ini
nall ini(no rule applying)

(b) nall+ini
na:l+ini (21)
na:l+ni (16a)
na: ni (16b)

nal-da 'to fly' is simply derivable by applying very general rules as follows:

(23) nall+ta
nal ta (18)
nal da (10b)

Going back to Rule (16b), I share with C-W Kim a dissatisfaction(1970 : 9) with the unnatural grouping of the conditioning factors. There is no way to express /n/, /s/, /p/ and /o/ by some common phonological features, and moreover we must not be able to do so. In the following, I will regard each of them as an independent process.

/-l/ dropping before *p* is well explained by C-W Kim as a consequence of the general consonant cluster reduction by the "principle of close articulation," as this *p* is always followed by a consonant. Thus,

(24) ki:l+ipnikka 'Is it long?'
ki:l pnikka (16a)
ki: pnikka (consonant cluster reduction)
ki: mnikka (nasal assimilation)

/-l/ dropping before *s* is regular. C-W Kim considers *u:lssonva*(</u:l+ilsonya/) 'How could one cry?' and *u:lssu* (</u:l+ilsu/) 'able to cry' as morphologically conditioned, involving minor rules, but I consider them as morphophonemically conditioned, as the following derivation shows:

(25) (a) u:l+ilsonya
u:l lsonya
u:l sonya
u:l ssonya

(b) u:l+ilsu
u:l lsu (16a)
u:l su (18)
u:l ssu (tensing, not dealt with in this paper)

Notice that Rule (16b) applies before Rule (18). Thus the *l* does not drop at the end of the above derivation, even though it is followed by $[s...]_{At}$.

Another example shown as morphologically conditioned by C-W Kim(1970 : 10) is the fact that *ki:l-* 'be long' cannot drop *l* when used as transitive, but can delete it when intransitive. However, they clearly have different underlying representations, i.e. the transitive verb has the underlying form /killi/ 'raise', while the intransitive(descriptive) verb has

the underlying form /kiːl-/ 'be long'. Thus the former does not meet the condition for /-l/ deletion while the latter does.

/-l/ deletion before *n* is also regular. Again C-W Kim(1970:11) suspects that this may involve some morphological features, because even though we can have *urɨni* or *uːni* for the verb meaning 'since he cries,...', we cannot have **urɨni* for the verb meaning 'Are you crying?' However, it seems to me that this again is a misanalysis of the affix, because the affix for 'since' is /-ini/ as shown in *məg-ini*(</mək+ini/) 'since he eats,...' but the affix for question is /-ni/ as shown in *məŋni*(</*mək+ni*/) 'Are you eating?' Thus, we do not need any minor rules for these lexical items.

The verb final /-l/ deletion before *o* is also regular. Thus we have *sao* but never **saro* for /saːl+io/'(it is the fact that) he lives,...' in the cases where i-deletion (16a) applied.

Thus far, the behavior of /-l/ and /-ll/ verbs have been described in an observationally and descriptively adequate manner, but many questions are still to be asked. Why does *l* drop before certain segments? Why does it delete before *n* but not before *m*? Why does it drop before *o* but not before *ə*? Why does it delete before *s* but not before stops?

/-l/ deletion before *n* may be due to the desire to avoid the endangered communication, because if *n* assimilated to the preceding *l* in /uːl+ni/ 'Is he crying?', according to the general rule in the language, it would create a homonym with *uːlli*(</uːl+ili/) '(I predict) he will cry.'[9] It is possible that this phenomenon was generalized to any *n* following an /-l/ final verb.

/-l/ deletion before *s* may be explainable as follows. It is possible that *uːso*(</uːl+so/ 'Are you crying?', etc. were formed by analogy to *uːsosə* (</uːl+isosə/) 'Please cry!' and *uːsini*(</uːl+isini/) 'since he (honored) is crying,...' etc., where the verb final /-l/ was lost before the affix initial *i*.

I cannot think of any plausible explanation for the conditioning factor *o* for the final /-l/ deletion, which must be included among other conditioning factors if this analysis is chosen.

Here I would like to present as a possible alternative solution for the deletion of the verb final /-l/. It is interesting to note that most /-l/ final verbs also contain long vowels. I am tempted to say that /*l*/ weakens just like lax obstruents in intervocalic position; thus, it weakens to [r] between short vowels and weakens further(i.e. lost when preceded by a long vowel).[10] But some counterexamples are noticeable. There seem to be some, albeit a

[9] This was also suggested as a possibility by C-W Kim (1970:11)

[10] This could be an evidence for the "obstruent" character of Korean /l/(Cf. Chomsky and Halle 1968:302).

very few, verbs that have short vowels on all conjugated forms, e.g. *phal-da* 'to sell' *pha-ni* 'as one sells,...' etc. Even if we consider verbs like *phal-* as exceptions, there are other cumbersome facts as *urəra*(</u:l+əla/) 'Cry!' where only regular weakening occurred in spite of the long vowel. Thus the *l*-extreme weakening rule would have to be restricted to the cases where /l/ is followed by an *i*-initial affix as in:

(16') *l*-extreme weakening

$$l \rightarrow \phi \ / \ [\ldots V{:}\_\_] \text{ Vb-Stem } [\text{i}\ldots] \text{ Af}$$

This rule is optional for some lects. Thus, there exist forms like *curini* as well as *cu:ni* for /cu:l+ini/ 'as it diminishes,' and *kirina* as well as *ki:na* for /ki:l+ina/ 'though it is long,...', etc., depending on lects. This optionality should be further studied through research on variation. Note that we can never have **urine* for the verb meaning '(I see) you are crying,' because its underlying form is /u:l+ne/.)

Some derivatins showing the *l*-extreme weakening are given delow.

(26)	(a)	u:l+ipnikka	'Is he crying?'
		u: +ipnikka	(16')
		u: pnikka	(2a)
		u: mnikka	(nasal assim.)
	(b)	u:l+ini	'since he is crying,...'
		u: +ini	(16')
		u: ni	(2a)
	(c)	u:l+isosə	'May you cry!'
		u:+isose	(16')
		u: sosə	(2a)

Note here again that *l*- extreme weakening(16') precedes the vowel shortening rule(11); otherwise, we would only get the less common *urini* and never the more common *u:ni* for (26b), and so forth.

The affix -*imyən* shows some peculiarity in that the verb stem final *l* does not undergo extreme weakening, though it starts with i-. Thus we have coexisting forms *ki:rimyən*~ *ki:lmyən*, but almost never ?**ki:myən* (there are a very few speakers who do accept this form.) for /ki:l +imyən/ 'if it is long,' These variant forms are much easier to generate, if we adopt the analysis of(16), because *l* does not drop before *m*. However, if we choose (16') for the reasons of simplicity, explanatory power, and generality of the whole grammar, we have to have a special rule of dropping the initial i- in *imyən* following a verb

final *l*, to apply before the extreme weakening rule.

Even if the *l*- extreme weakening rule is claimed to be a correct one, we still need another rule to explain the cases like *u:ni*(</u:l+ni/) 'Are you crying?' and *u:se*(</u:l+se/) 'Let us cry!', etc. which are obvious cases resulting from analogy as discussed above. Thus

(27) *l*- dropping

$$l \rightarrow \phi \ / \left[\ldots \_\_ \right] \text{Vb-stem} \left[\left\{ \begin{matrix} n \\ s \end{matrix} \right\} \ldots \right] \text{Af}$$

Notice, however, that this rule does not explain the unnatural grouping of *s* and *n* by expressing the fact of analogy. Avoidance of undesired homonyms and analogical levelling are among the common causes for irregular language changes. Once an allomorph is created, it will often spread through the paradigm. But when the allomorph is not completely regularized we will have alternating forms which are not neatly expressible, given the notational conventions available at present.

(iv) Coexisting forms like *purida*~*pullida* for /pulli+ta/ 'to call' are explainable by Rule(17) as mentioned above.

Chagyun Kim(1971:109-110) posits /mor^{a}r+ta/ as the underlying form of *mollida* 'to be unaware of', By setting up an abstract elevated /^{a}/, he can explain the different behaviors of superficially similar verbs. As it turns out, however, his phonlogical rules not only complicate the underlying phonemic inventory by adding another abstract phoneme, but they are rather ad hoc, and not well-motivated.

(v) Derivation of *kərə* from /kə:t+ə/ 'Walk!' was already discussed in the previous section.

(vi) To derive *irida* from /ilili+ta/ 'to reach', we need in addition to other rules already posited the following rule:

$$(28)\ C_iV_j \rightarrow \phi \ / \left[\_\_C_iV_j + \ldots \right] \text{Vb}$$

This rule is not existent in certain dialects, e.g. Kyengsang, where one finds forms like *iririda*. *iririni*, etc. Notice that Rule(2a) must apply before this rule, to prevent the dropping of li in cases where a vowel initial affix follows. Thus we have forms like *irirədo* (</ilili+əto/) 'though one reaches,...' *irirəttta*(</ilili+əssta/) 'he reached...' Notice also that this rule applies only to a verb, because many words expressing sound symbolism involve reduplicated syllables as in *sariri* 'softly, gently,' which is a perfectly acceptable form.

5. *ye*-anomaly.

The verb *ha*- 'do' has been considered to be anomalous in that *y* is appended when an

ə- initial affix follows. Thus *hago*(</ha+ko/) 'doing,...' but *hayəra*(</ha+əla/) 'Do!' Chagyun Kim(1971:112-3) suggests /hay-/ as the underlying form of the verb, by saying that *y* is dropped before the morpheme boundary except when followed by *ə*-. I suspect, however, that this rule would lack generality, because in words like *kæːda*(</kay+ta/) 'to clear up' one can never have **kada* *'even if it clears up,...'

It is possible to speculate that the original *ə*-initial affixes were kept; hence, instead of applying the Vowel Harmony Rule which would collapse it with the preceding vowel, the glide *y* was inserted.

There is a common variant form *hæːra* along with *hayəra* for an imperative. There are at least two plausible explanations that have been given. C-W Kim (1968:521) says that *hæːra* is derivable from *hayara*(where Vowel Harmony Rule has applied before *y*-epenthesis) by a metathesis rule which is a general rule in Korean. Thus

(29)	ha + əla	'Do!'
	ha ala	(Vowel Harmony)
	ha y ala	(*y*-epenthesis)
	ha a yla	(Metathesis)
	haː yla	(Collapsing)
	hæː la	(Monophthongization)
	hæː ra	(15)

Chagyun Kim(1971) tries to explain the *hæːra*~*hayəra* alternation by different syllabification from *hayəra*. At first glance this seems to support the claim made by some linguists like Vennemann(1972) that different syllabification is a possible dialect difference; that re-syllabification is a possible form of phonological change. Even though this claim is correct, the actual suggestions for syllabification such as "Law of Initials"(that is, medial syllable initial clusters should be possible word-initial clusters) do not really help in Korean syllabification problem, if we follow analyses that posit some vowels as derived from underlying V+glides, allowing glides in syllable-initial position as well as in syllable-final position.

In any case, even if different syllabification were responsible for these two different surface forms, Chagyun Kim still has to set up a rule to drop *ə* only for this purpose, because we can have *kæəttta* 'It cleared up,' but we cannot have **hæəttta* *'(He) did.'

Since C-W Kim explains the resulting vowel length in a more cogent way, I would like to support his analysis involving metathesis.

6. *nela-*, *kela-* anomalies.

The imperative affix /-əla/ is optionally realized as *-nəra* after the verb /o-/ 'come' and compound verbs occurring with /o-/, and as *-kəra* after verbs like /ka-/ 'go' and /ca-/ 'sleep', etc. Thus we have

(30) (a) wara~onəra for /o+əla/ 'Come!'

(b) cara~cagəra for /ca+əla/ 'Sleep!'

There is nothing irregular about these verbs, yet we need minor rules of *-k-* and *-n-* epentheses specifying the fact that they are inserted only between certain verbs and affixes. *-nəra* occurs only after the stem /o-/ 'come' and compound verbs with /-o-/, but *-kəra* seems to be applicable to many more verbs. I suspect that for some speakers it is already applicable to any verb. I would like to hypothesize here that this change is in the direction of lexicalization of /-kəla/ with a slight change of meaning already noticeable in *onəra* and *cagəra*, which have some added meaning of affection(toward children or much younger people).

7. Conclusion.

In this paper, so called "irregular" verbs in Korean are reexamined, following the assumption first made by C-W Kim that if they are consistent enough to be grouped into some clear "classes", some apparent homonymy with "regular" verbs was due to their different nature(i.e. different underlying forms). By positing different but phonologically justifiable underlying representations and rules(some of which are morphologically conditioned), we were able to confirm that most of the "irregular" verbs are not really exceptions but subject to other rules because they have different underlying representations. Furthermore, our analysis seems to meet the explanatory adequacy, which was often lacking in the previous analyses.

The behavior of lax obstruents and liquid, which is a controversial issue these days, is explained by a general rule of weakening in intervocalic position, i.e. normal weakening in normal intervocalic position(between short vowels) and further weakening in intensified intervocalic position(between a long vowel and any vowel in the case of obstruents, and between a long vowel and i- in the case of liquid).

Some apparent exceptions to the rules posited in this paper are taken care of by adopting rule features and/or absolute neutralizations. Many of these cases are probably due to

analogy, but the current formalism does not allow us to express the often obvious phenomenon in a natural, explanatory manner.

There are several rules which are supposed to be optional. However, we all know that these "optionalities" are never really optional in its literal sense, but are always governed by some linguistic and socio-linguistic factors.(Cf. Labov(1970)). Many of the phonological phenomena discussed in this paper can be more realistically studied through further research on variation.

There are also questions concerning the dialectal variations, for which we have to consider the formal nature of the grammar. Do dialects of sufficient or close mutual comprehensibility have the same underlying representations in spite of the fact that in some dialects an apparent restructuring has taken place? What would be then the form of the gramma rincorporating variation?

Some other important questions that can be asked are: what analysis is to be considered as better explaining the psychological reality of a speaker?; how much cf it actually corresponds to the actual historical processes?

I have not attempted to try to solve these often-asked but thus far unsatisfactorily answered questions in this paper. I only hope to have shown where these issues are of crucial importance in describing the phonological behavior of Korean.

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