

Hangul — A hybrid orthography

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Hangul is widely categorized as a classic example of a morphophonemic orthography, in which each morpheme receives a single spelling, even if its pronunciation varies from context to context. This paper makes the case that Hangul is in fact a hybrid orthography that adheres to a morphophonemic strategy for spelling consonants but adopts the conventions of a phonetic writing system for representing vowels. Various explanations for this arrangement are considered.

Keywords: Hangul, morphophonemic orthography, phonetic orthography, hybrid writing system

1. Introduction

Hangul is arguably the most widely acclaimed writing system in the world, praised for its beauty and efficiency. Surprisingly, despite this generous attention, a curious feature of the system has been largely ignored: vowels and consonants follow very different types of spelling practices. The result, I will argue, is a highly unusual hybrid orthography, with morphophonemic spelling conventions for consonants and phonetic conventions for vowels.

I will begin by summarizing the key properties of the two types of spelling, drawing on comparisons between Spanish and Korean. I will then turn to a more detailed examination of Hangul, gradually developing the central thesis on which this paper is built.

2. Two orthographies

Alphabetic orthographies can be divided into two broad categories.

- i. A 'shallow' or 'phonetic' orthography focuses on pronunciation, which it represents by establishing regular (often one-to-one) correspondences between individual sounds and letters.¹
- ii. A 'deep' or 'morphophonemic' orthography aims to provide a single spelling for each morpheme, even if its pronunciation varies from one context to another.

Let us begin by considering examples of each system.

2.1 A phonetic orthography

The orthography of Spanish reflects a strong commitment to phonetic spelling. The word for 'book', pronounced /libro/, is spelled *libro*; the word for 'high', pronounced /alto/, is written as *alto*; and so on. Moreover, differences in the pronunciation of a morpheme are directly captured in the way it is spelled. As illustrated below, the shared root in the Spanish words for 'creative' and 'creation' have distinct spellings that reflect the difference in their pronunciations. (Dots in phonemic transcriptions indicate morpheme boundaries, where relevant.)

Variation in the root-final consonant

	'creative'	'creation'
Pronunciation:	/kreat.ivo/	/kreas.ion/
Spelling:	creat-ivo	creac-ión

Consistent with the spelling conventions of Spanish, the letter *t* is used for the version of the root that ends in /t/, whereas *c* is employed for the version whose pronunciation ends in /s/.

A similar practice is followed for vowels, as illustrated in the spelling of the two verb forms below.

Variation in the root-internal vowel

	'to think'	'I think'
Pronunciation:	/pens.ar/	/pjens.o/
Spelling:	pens-ar	piens-o

Here, the change in the pronunciation of the verb's root is directly captured in the spelling, with the letter *e* representing /e/ and *ie* indicating /je/.

Another case in point involves the plural suffix, which has two allomorphs — /s/ after a stem ending in a vowel and /es/ after a stem ending in a consonant.

1. Although the term 'phonetic' is often used for this sort of spelling, the letters actually represent phonemes. Nonetheless, I will retain the traditional term here.

Plural marking

	‘books’	‘papers’
Pronunciation:	/libro.s/	/papel.es/
Spelling:	libro-s	papel-es

Once again, changes in pronunciation are straightforwardly captured in the spelling – a defining feature of a phonetic orthography.

2.2 A morphophonemic orthography

In contrast to phonetic orthographies, a morphophonemic writing system seeks a single spelling for each morpheme, regardless of changes in how it is pronounced from one context to another. Hangul is typically treated as this type of writing system (Lee 1963, Sampson 1985, King 1996, Kim-Renaud 1997, Martin 1997, Sohn 1999, Ramsay 2006, Lee & Ramsay 2011, Cho & Whitman 2020, among many others).

[Modern Hangul] represents every morpheme by a single form of writing, choosing the root form as a representative shape ...

(Lee 1963: 23, cited by Sampson 1985: 142)

A morphophonemic writing convention is one in which allomorphs are minimized. The only exception to this convention in Korean concerns irregular conjugations ...

(Kim-Renaud 1997: 179)

[The overriding] principle of Korean orthography is that a word or morpheme should always be spelled the same way, no matter how its actual pronunciation might change... This is what linguists call “morphophonemic writing.”

(Ramsay 2006: 28)

A simple example involves **날** (*nal*) ‘day,’ whose initial consonant, normally pronounced /n/, becomes /l/ when immediately preceded by an /l/. (For the sake of convenience, I’ll refer to changes of this sort as ‘modified pronunciations.’)

날 (*day*) Key letter: ㄴ

Default pronunciation: /n/

봄날 /pom.nal/ /n/

‘spring day’

Modified pronunciation:

가을날 /kail.lal/ /n/ > /l/ because of preceding /l/

‘autumn day’

Despite the variation in the pronunciation of its initial consonant, **날** has a single spelling, as expected in a morphophonemic orthography.

A somewhat more complex example involves the sentence-ending suffix **다** (-*ta*), which has three allomorphs depending on the final phoneme of the preceding morpheme. (The subscript _↓ indicates a tense consonant; the superscript ^h indicates aspiration; /tʃ/ is an alveo-palatal affricate.)

다 (-*ta*) Key letter: **ㄷ**

Default pronunciation: /t/

길다 /kil.ta/ /t/

‘It’s long.’

Modified pronunciations:

맵다 /mɛp.tʃa/ /t/ > /tʃ/ because of immediately preceding obstruent

‘It’s spicy.’

좋다 /tʃo.t^ha/ /t/ > /t^h/ because of immediately preceding ‘silent’ /h/

‘It’s good.’

Crucially, the spelling of the consonant (**ㄷ**) does not change despite the differences in pronunciation.

Another example, involving a different set of phonological adjustments, comes from the word *kkoch* (**꽃**) ‘flower,’ whose final consonant has at least three different pronunciations — but only one spelling.

꽃 (*kkoch*) Key letter: **ㅈ**

Default pronunciation: /tʃ^h/

꽃이 /kʷotʃ^h.i/ /tʃ^h/

‘flower + NOM’

Modified pronunciations:

꽃 /kʷot/ /tʃ^h/ > /t/ because of its final position

‘flower’

꽃나무 /kʷon.namu/ /tʃ^h/ > (/t/) > /n/ because of immediately

‘flower tree’ following nasal

These and countless other examples bear witness to a strong morphophonemic component in the design of Hangul orthography. However, as we will see next, matters are not so straightforward.

3. The hybrid character of Hangul

Although the orthographies of Spanish and Korean appear to be at opposite ends of the phonetic–morphophonemic spectrum, Hangul is systematically morphophonemic only in its spelling of consonants. When writing vowels, a Spanish-like phonetic orthography is employed. This dual practice — indicative of a hybrid system — can be seen in numerous places.

3.1 Vowel harmony

A straightforward example of phonetic spelling involves the sentence ender -아/-어, whose two allomorphs reflect vowel harmony: /a/ if the vowel in the root is /a/ or /o/, and /ə/ elsewhere. As the examples below illustrate, the two allomorphs are spelled differently, despite being instances of the same morpheme.

놀아 'play'	/nol.a/	/a/ allomorph because of /o/ in the root
먹어 'eat'	/mæk.ə/	/ə/ allomorph because the vowel in the root is neither /a/ nor /o/
믿어 'believe'	/mit.ə/	/ə/ allomorph because the vowel in the root is neither /a/ nor /o/

This practice is a clear instantiation of phonetic spelling.

We see the same approach in the writing of other morphemes whose pronunciation is sensitive to vowel harmony.

Linking vowel in serial verb construction

Spelled 아 when pronounced /a/	Spelled 어 when pronounced /ə/
알아듣다 /al.a.tit.ɬa/	일어나다 /il.ə.na.ta/
'understand'	'get up'
(lit. know-hear)	(lit. rise-come out)

Perfective suffix

Spelled 았 when pronounced /aʃ/	Spelled 었 when pronounced /əʃ/
놀았어 /nol.aʃ.ə/	먹엸어 /mæk.əʃ.ə/
'played'	'ate'

The spelling of the vowels in these examples contrasts sharply with the treatment of the consonantal component of the perfective suffix (ㅁ), which does not vary despite differences in its pronunciation.

였 (-ess) Key letter: ㅙ

Default pronunciation: /ɕ/

먹였어 /mæk.əɕ.ə/ /ɕ/
'ate'

Modified pronunciations:

먹였고 /mæk.ət.ko/ /ɕ/ > /t/ because of immediately following
'ate and ...' obstruent

먹였니 /mæk.ən.ni/ /ɕ/ > (/t/) > /n/ because of immediately
'Did you eat?' following nasal

This handling of the vocalic and consonantal segments of the perfective suffix reflects the hybrid character of Hangul, with its very different approaches to spelling vowels and consonants.

3.2 Epenthesis

Various verb-associated suffixes call for the epenthetic vowel /i/ (으) when the preceding morpheme ends in a consonant.

<i>Preceding consonant</i> <i>(epenthetic vowel required)</i>	<i>Preceding vowel</i> <i>(no epenthesis)</i>
먹으면서 /mæk.imjənsə/ 'While eating ...'	가면서 /ka.mjənsə/ 'While going ...'
먹을까 /mæk.ilɕa/ 'Shall we eat?'	갈까 /ka.lɕa/ 'Shall we go?'
먹읍시다 /mæk.ipɕita/ 'Let's eat.'	갑시다 /ka.pɕita/ 'Let's go.'

The suffixal allomorphs in each of these pairs (e.g., -을까 and -르까) have exactly the same meaning — 'shall we?' A purely morphophonemic orthography should therefore spell them in the same way (먹을까 and 가을까), with the epenthetic vowel unpronounced in the second case. But this is not what happens. Rather, each allomorph calls for a spelling that captures the presence or absence of the vowel.

In contrast, when suffixes manifest allomorphic variation involving *consonants*, the principles of morphophonemic spelling are respected. The connective morpheme 고 (-ko) 'and' is a case in point.

고 (-ko) Key letter: ㄱ

Default pronunciation: /k/

길고 /kil.ko/ /k/

‘It’s long and ...’

Modified pronunciations:

듣고 /tit.ᵑko/ /k/ > /ᵑ/ because of immediately preceding obstruent

‘hear and ...’

좋고 /tɕo.kʰo/ /k/ > /kʰ/ because of immediately preceding ‘silent’ /h/

‘It’s good and ...’

Despite the presence of three allomorphs, a single spelling is used, consistent with the fact that the variation involves consonants rather than vowels.

3.3 ‘Silent’ sounds

Yet another sign of Hangul’s commitment to a phonetic orthography for vocalic segments lies in the prohibition against writing ‘silent’ vowels. Take for instance the verb 쓰다 (*ssu-ta*) ‘write.’ Although every verb root in Korean has a vowel in its basic ‘dictionary’ form, that sound is not heard (for example) in the perfective form of 쓰다.

<i>Basic form of the root</i>	<i>Root followed by perfective suffix</i>
쓰다 /ʃi.ta/	썼다 /ʃ.ət.ᵑta/ (not *쓰.었.다)
‘write’	‘wrote’

In contrast, silent consonants are routinely written. In the following familiar examples, a consonant that is pronounced in one variant of a word (but not in another) is written in the same way in both.

Both consonants are pronounced and written	Unpronounced consonants are nonetheless written
없어 /əpɕ.ə/	없다 /əp.ᵑta/ /s/ is not pronounced
‘not exist’	
값이 /kapɕ-i/	값 /kap/ /s/ is not pronounced
‘price + NOM’	
읽어 /ilk.ə/	읽다 /ik.ᵑta/ /l/ is not pronounced ²
‘read’	

2. Some speakers may pronounce only /l/ in the coda position (/il.ᵑta), but the spelling remains the same.

In compliance with the principles of a morphophonemic orthography, ㅅ appears in both 읊어 and 읊다 even though it is pronounced only in the first word. A similar practice is responsible for the ㅅ in 갯 and for the ㄹ in 읊. There is no parallel in the case of vowels.

3.4 Contraction

Yet another class of cases involves contraction, which can arise when side-by-side vowels merge to form a diphthong, which is then spelled as such. Consider the three cases below.

i. /o/ + /a/	Pronunciation	Spelling
와요 'come'	/wa.jo/	The sole permitted spelling aligns with the word's only pronunciation.
보아요	/po.a.jo/	Two possible spellings and two parallel pronunciations
봐요 'see'	/pwa.jo/	
ii. /u/ + /ə/	Pronunciation	Spelling
뭐	/mwə/ (common)	Two possible spellings and two parallel pronunciations
무어 'what'	/muə/ (less common)	
iii. /i/ + /ə/	Pronunciation	Spelling
먹여 'feed'	/mæk.jə/	The word's only pronunciation aligns with its spelling.
가셔	/ka.sjə/	Two possible pronunciations and two parallel spellings
가시어 'go' (honorific)	/ka.si.ə/	
먹혀	/mæk.hjə/	Two possible pronunciations and two parallel spellings
먹히어 'be eaten'	/mæk.hi.ə/	

This is exactly what one expects in a phonetic orthography. If /o/ + /a/ can be pronounced /wa/, if /u/ + /ə/ can be pronounced /wə/, and if /i/ + /ə/ can be

pronounced /jə/, then it should be possible to write them that way in a phonetic orthography, as indeed it is.

Matters are different when two consonants merge. Take for example the passive form of 먹다 (*mek-ta*) ‘eat.’

먹히다 (*mek.hi.ta*) ‘be eaten’

In natural speech, the /k/ in the root and the /h/ in the passive suffix fuse, to yield the phoneme /k^h/. Crucially, though, the word is not written as it is pronounced – which would be 머키다. Instead, it is written as 먹히다, ensuring that the consonants in the root (먹) and the suffix (히) have a uniform spelling – the hallmark of a morphophonemic orthography. Once again, the treatment of vowels is exactly what one would expect in a phonetic orthography and the treatment of consonants is just what one would expect in a morphophonemic system.

3.5 Exceptions and irregularities

There are few, if any, perfectly regular orthographies. Spanish is a fine example of a phonetic orthography, but sound change and dialectal variation have contributed to various irregularities in the contemporary system. In Mexican Spanish, for instance, the letters *s*, *c*, and *z* are all pronounced as /s/; both *x* and *j* are used to represent the phoneme /h/; and the letter *h* appears in various words (e.g., *haber* ‘have’) but is not pronounced.

Although Korean is largely consistent in its commitment to phonetic spelling for vowels and morphophonemic spelling for consonants, there are various departures from the norm. In the case of vowels, for instance, historical change has undermined certain symbol-to-sound associations. The digraph *의* can be used in contemporary Korean to spell /ij/ in 의사 ‘doctor’, /i/ in 전문의 ‘specialist doctor’ and /e/ in 선물의 집 ‘gift store.’ Similarly, for many Korean speakers, *ㄱ* and *ㄴ* represent the same sound, as do *ㄴ*, *ㄷ* and *ㄹ*.

In the case of consonants, inconsistencies of a different type arise, leading to the occasional abandonment of morphophonemic spelling. This is most obvious in the case of irregular verb conjugations. A well-known example involves verbs with a root-final /l/, which is dropped when immediately followed by /n/.

Default	/l/ deletion preceding /n/
알다 /al.ta/	아니? /a.ni/
‘know’	‘Do you know it?’
길다 /kil.ta/	기니? /ki.ni/
‘It’s long.’	‘Is it long?’

As these examples illustrate, /l/ deletion triggers recourse to phonetic spelling, resulting in distinct forms for the same root.

A more restricted process arises in verbs in which a root-final /t/ is converted to /l/ when immediately followed by a vowel, leading to the phonetic spellings depicted below.

Default		Intervocalic context	
듣다	/tit.ɬa/	들어	/tiɭ.ə/
'hear'			
걸다	/kət.ɬa/	걸어	/kəl.ə/
'walk'			

Not all verbs with a /t/-final root permit this alternation, however; it does not occur with 받다 'receive,' 믿다 'believe,' or 닫다 'close,' to take just three examples.

Other root-final idiosyncrasies include /s/ deletion and the conversion of /p/ to /w/ immediately in front of a vowel.

Default		/s/ deletion preceding a vowel	
짓다	/tɕit.ɬa/	지어	/tɕi.ə /
'build'			
Default		/p/ > /w/ preceding a vowel	
덥다	/təp.ɬa/	더워	/tə.wə/
'It's warm.'			

Neither aberration reflects a general practice, however, as the relevant root-final consonants are retained in various other cases, including 벗다 /벗어 'take off (clothes)' and 입다/입어 'put on (clothes)'.

As these and other examples illustrate, departures from morphophonemic spelling in the case of consonants are ultimately triggered by irregularities in the language's morphology, not by erratic inconsistencies in the spelling system. The overall architecture of Hangul orthography remains intact, including its general commitment to morphophonemic spelling for consonants and phonetic spelling for vowels.

4. Concluding remarks

In sum, there is good reason to propose a reclassification of Hangul in the global typology of orthographies. Contrary to what is often claimed by linguists, Hangul is not a morphophonemic orthography per se. Rather, setting aside the exceptions

just reviewed, it exemplifies an unusual hybrid system in which a morphophonemic strategy is favored for consonants and a phonetic strategy for vowels.

The differential treatment of consonants and vowels is not in itself particularly rare in the world's languages. In some writing systems, only consonants need be represented, and in others vowels are written only as diacritics. (These are called abjads and abugidas, respectively; see Daniels & Bright 1996.) However, to my knowledge the sort of split system manifested in Hangul is unique, raising an obvious question as to what the underlying motivation might be.

One possibility, raised briefly by Kim-Renaud (1997:179), is that speakers might be more aware of the phonological alternations involving vowels than those involving consonants. This view predicts (for instance) that the contrast between /a/ and /ə/ in a perfective suffix should be more perceptible than the difference between the accompanying consonants (/ʃ/ and /n/) in the examples below.

보았어	/po.aʃ.ə/	먹었니?	/mæk.ən.ni/
'saw'		'Did you eat?'	

Predictions of this sort call for experimental investigation, along with a metric for measuring awareness.

Another possibility, suggested by an anonymous reviewer, is that vowels and consonants differ in the type of phonological alternations that they exhibit. On the one hand, vowel alternations tend to reflect the effect of roots on suffixes. Vowel harmony is an obvious example since the root determines the choice of allomorph that follows. In contrast, consonant alternations tend to involve changes to roots, as happens when the first consonant of 날 (*nal*) 'day' is converted to /l/ when preceded by 가을 (*kaul*) 'autumn.' As the reviewer goes on to note, however, this tendency does not apply across the board. In words such as 좋다 (*coh.ta*) 'It's good' and 작다 (*cak.ta*) 'It's small,' properties of the root's final consonant triggers allomorphic variation in the suffix (/tɕo.tʰa/ versus /tɕak.tʰa/).

For what it is worth, I suspect that an 'economy factor' may be responsible for the hybrid character of Hangul. Vowel-related allomorphy is manifested in a relatively small number of morphemes – mostly suffixes that are sensitive to vowel harmony, epenthesis and diphthongization, as previously exemplified. In contrast, consonant-related allomorphy affects a very large number of roots (as well as quite a few suffixes) and manifests a much broader range of effects (e.g., aspiration, nasalization, tensing, assimilation in place of articulation, and syllable-final consonant neutralization; see Appendix 1). The interaction of those effects could easily create an unmanageable number of phonetic spellings for many morphemes. To take just one example, the morpheme 겹 (-*keyss*) 'will' would require nine separate spellings if Hangul was a purely phonetic orthography; see Appendix 2. Under these circumstances, a morphophonemic approach is able to

circumvent what would otherwise be a complex maze of sound-letter correspondences.

Other factors are no doubt worthy of consideration as well, but regardless of the reasoning and/or intuitions that have made the contemporary writing system what it is, a key point must be accepted. Hangul is a hybrid orthography, with phonetic spelling conventions for vowels and morphophonemic conventions for consonants. Herein lies an intriguing irony, with which I will conclude.

In the days after the Korean War, as the Republic of Korea tried to rebuild its cultural and educational infrastructure, controversy arose over the choice of an orthography. The 'unified' Hangul developed in the 1930s by the Korean Language Society came under fire for its morphophonemic character, which many felt was too abstract. In its place, a 'simplified' phonetic orthography was proposed, based on the spelling system developed under Japanese influence in the 1920s: ㅅ 'price' was to be written as ㅅ , ㅅ 'together' as ㅅ , and so on (King 1997: 121). Proponents included the then president, Syngman Rhee, and (for a time) the prominent linguist, Lee Ki Moon.³

... if only the stubborn, regressive Korean language scholars would abandon the unnecessarily complex orthography, Korea might enjoy one of the highest literacy rates in the world ... a simplified spelling system would "make it easier for foreigners to learn our language."

(King 1997: 120, paraphrasing the 1954 views of President Syngman Rhee)

[Modern Hangul] is contrary ... to the principles of phone[t]ic orthography ... As a result it has become a very difficult one to learn, to read and to write.

(Lee Ki Moon 1963: 23, cited by Sampson 1985: 142)

The Hangul that we have today won out. But hidden beneath that victory was an unnoticed compromise that might have given comfort to both sides — a largely phonetic orthography for vowels and a systematically morphophonemic orthography for consonants.

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3. For a detailed summary of the debate and its resolution in favor of the contemporary system, see King (1997) and Kim (2017).

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Appendix 1. Some examples of the effect of consonant-related allomorphy (based on Choo & O'Grady 2003)

Aspiration	많다 'numerous'	/t/ > /t ^h /	/mant ^h a/
	급히 'hurriedly'	/p/ > /p ^h /	/kip ^h i/
/h/ deletion	영화 'movie'	/h/ > Ø	/jəŋwa/
Nasalization	작년 'last year'	/k/ > /ŋ/	/tɕaŋnɕən/
	믿니? 'Do you believe it?'	/t/ > /n/	/minni/
Tensing	곧장 'straight'	/tɕ/ > /tɕ/	/kottɕaŋ/
	앞길 'road ahead'	/k/ > /k̚/	/ap̚kil/
Assimilation in place of articulation	한국 'Korea'	/n/ > /ŋ/	/haŋkuk/

Consonant weakening	꽃을 'flower + Acc.'	/t ^h / > /s/	/k ^h osil/
Consonant neutralization	잎 'leaf'	/p ^h / > /p/	/ip/
	밖 'outside'	/k̚/ > /k/	/pak/
	빛 'light'	/t ^h / > /t/	/pit/
	빚 'debt'	/t̚/ > /t/	/pit/
	빚 'comb'	/s/ > /t/	/pit/

Appendix 2. Nine hypothetical phonetic spellings of 겹

1. 가겹어요 /ka.keʃ.əjo/ 'basic' pronunciation
2. 가켹기에 /ka.ket.kie/ /ʃ/ > /t/ when immediately followed by an obstruent
3. 가켹니 /ka.ken.ni/ /ʃ/ > /n/ when immediately followed by a nasal
4. 받겹어요 /pat.keʃ.əjo/ /k/ > /k̚/ when immediately preceded by an obstruent
5. 받켹기에 /pat.ket.kie/ /k/ > /k̚/ when immediately preceded by an obstruent
/ʃ/ > /t/ when immediately followed by an obstruent
6. 받켹니 /pat.ken.ni/ /k/ > /k̚/ when immediately followed by an obstruent
/ʃ/ > /n/ when immediately followed by a nasal
7. 종겹어요 /t̚o.k^hes.əjo/ /k/ > /k^h/ when immediately preceded by silent /h/
8. 종켹기에 /t̚o.k^het.kie/ /k/ > /k^h/ when immediately preceded by silent /h/
/ʃ/ > /t/ when immediately followed by an obstruent
9. 종켹니 /t̚o.k^hen.ni/ /k/ > /k^h/ when immediately preceded by silent /h/
/ʃ/ > /n/ when immediately followed by a nasal

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