Morphemic Fission: The case of Korean *sai-siot*

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An Introduction to the problem

What is *sai-siot*?

Sai-siot is a linking morpheme that marks some noun compound boundaries in Korean.

It is realized on the initial consonant following a morpheme boundary as:
1) post-vocalic nasal gemination
2) post-sonorant lax obstruent tensification (tense consonants are marked with *)

1) Post-vocalic nasal gemination:
a) /pi/ (rain) + /mul/ (water) = [pi.m:ul] (rainwater)
b) /twi/ (back) + /mun/ (door) = [twi.m:un] (back door)
c) /kʰo/ (nose) + /nal/ (edge) = [kʰo.n:al] (bridge of the nose)
d) /wi/ (above) + /(ŋ)i/ (tooth) = [wi.ŋ:i] (upper tooth)
e) /jaksu/ (medicine water) + /mul/ (water) = [jaksu.m:ul] (mineral water)

2) Post-sonorant tensification:
a) /hwɛ/ (raw fish) + /t͡ʃip/ (house) = [hwɛ.t͡ʃ*ip] (raw fish restaurant)
b) /kʰo/ (nose) + /kumәŋ/ (hole) = [kʰo.k*umәŋ] (nostril)
c) /oɾɛ/ (a long time) + /toŋan/ (period of time) = [oɾɛ.t*oŋan] (for a long time)
d) /pi/ (rain) + /sok/ (inside) = [pi.s*ok] (in rain)
e) /koki/ (meat/fish) + /pɛ/ (boat) = [koki.p*ɛ] (fishing boat)
f) /san/ (mountain) + /pul/ (fire) = [san.p*ul] (forest fire)
g) /t͡ʃul/ (going out) + /san/ (giving birth) = [tʃul.s*an] (childbirth)

3) Compounds lacking sai-siot
a) [hwa.san] (volcano)
b) [pi.guɾim] (rain and clouds)
c) [swɛ.galbi] (beef ribs)
d) [sɛ.d͡ʒaŋ] (birdcage)
e) [pɛt͡ʃu.gimt͡ʃi] (cabbage kimchi)

Why is *sai-siot* so unpredictable?

(And how we can predict it)

Like linking morphemes in many other languages, *sai-siot* has seemingly unpredictable distribution. However, by understanding its history and limitations, we can tease out cases where *sai-siot* has been lexicalized and find patterns in the remaining compounds.

What links tensification and gemination?

The genetive /s/ in Middle Korean.

In Middle Korean, what ultimately developed into *sai-siot* was a genitive morpheme used for inanimate or honorific possession.

(possessor) + /s/ + (possessee)

Allophones of the Middle Korean phoneme /s/.

/s/ → [s] / _[-voice]

/s/ => [s]	
tolk	-s pstay
chicken	-GEN time
'the rooster's hour'	

/s/ → [z] / _[+voice]

/s/ => [z]	
nimkum	-z mozoi
king	-GEN mind
'the king's mind'	

Relevant diachronic phonological changes.

1. The loss of [s]-clusters in favor of tense consonants
2. The loss of [z] + nasal clusters in favor of geminate nasals
3. The elision of intervocalic [z]

From inflectional case marking to derivational noun linking.

- Having lost its means of exponence, genitive /s/ lost its inflectional status and was loosely reinterpreted as a marker of noun compounds.
- Then, it spread to new compounds, contributing to the larger trend of "sporadic tensification".

(Lee and Ramsey, 2011), (Martin, 1996)

The State of *sai-siot*

Sai-siot can occur in non-coordinate nominal compounds where at least one element is a native Korean word, but it does not always apply in this environment.

Where can *sai-siot occur*?

4) Noun + Noun Compounds:
a) /nɛ/ (creek) + /ka/ (edge) = [nɛ.k*a] (creek's edge)
b) /pe/ (boat) + /məlmi/ (motion sickness) = [pe.məlmi] (sea sickness)

5) Adjective + Noun Compounds:
a) /poɾim/ (fortnight) + /tal/ (moon) = [poɾim.t*al] (full moon)
b) /pan/ (half) + /tal/ (moon) = [pan.dal] (half moon)

6) Number + Noun Compounds:
a) /pʰal/ (eight) + /to/ (degree) = [pʰal.t*o] (eight degrees)
b) /pʰal/ (eight) + /pun/ (minute) = [pʰal.bun] (one minute)

Where does *sai-siot* rarely occur?

(Ahn 1998)

7) Compounds where the first element specifies the shape, material, species, name, or status of the second:
a) /komu/ (rubber) + /d͡ʒul/ (string) = [komu.d͡ʒ*ul] (rubber band)
b) /komu/ (rubber) + /koŋ/ (ball) = [komu.goŋ] (rubber ball)

8) Compounds where the second element is a part of the first:
a) /saŋ/ (table) + /taɾi/ (leg) = [saŋ.t*aɾi] (table leg)
b) /kɛ/ (dog) + /taɾi/ (leg) = [kɛ.daɾi] (dog's leg)

9) Compounds where the second noun is derived from a native Korean verb:
a) /ton/ (money) + /pәɾi/ (earning) = [ton.p*әɾi] (earning money)
b) /hɛ/ (sun) + /tod͡ʒi/ (rising) = [hɛ.dod͡ʒi] (sunrise)

Where does sai-siot never occur?

10) Compounds where no modification occurs (i.e coordinate compounds):
a) /pom/ (spring) + /kaɨl/ (fall) = [pom.gaɨl] (spring and fall)

Looking for Patterns

The unpredictability of sai-siot suggests lexicalization, but if we set aside words that appear in compounds with and without sai-siot, we can tease out the fosilized relics and look for patterns in the remaining compounds.

Step 1: Find a word that appears in a lot of compounds.
Step 2: Set aside compounds where we don't predict sai-siot to occur.
Step 3: Look for patterns in the remaining compounds

11) Compounds containing /pi/ (rain):
a) [sil.bi] (thread-like rain) } /pi/ is the second element
b) [isɨl.bi] (misty rain) }
c) [pi.m:ul] (rainwater) } /pi/ is the first element
d) [pi.s*oɾi] (the sound of rain) }
e) [pi.d͡ʒ*ulki] (streaks of rain) }
f) [pi.ot] (rain clothes) }
g) [pi.k*il] (rainy road) }
h) [pi.baɾam] (rain and wind) } coordinate compounds
i) [pi.guɾim] (rain and clouds) }
j) [pi.ga] (rain-NOMINATIVE) } inflectional morpheme boundary

If /pi/ appears as the first element of a non-coordinate noun compound, it triggers sai-siot.

The Split: Predicting sai-siot

Two Questions:

- Are there other words like /pi/?
- Can the second element of a compound also trigger sai-siot?

First element triggers sai-siot	Second element triggers sai-siot
12) /twi/ (behind):	**13) /mul/ (water):**
a) [ki.dwi] (after that)	a) [mul.gogi] (fish "water meat")
b) [twi.m:jәn] (back side)	b) [mul.bada] (sea of water)
c) [twi.t*aɾi] (back leg)	c) [pada.m:ul] (ocean water)
d) [twi.d͡ʒ*aɾi] (back seat)	d) [jaksu.m:ul] (mineral water)
e) [twi.k*әɾimd͡ʒil] (back step)	e) [sudo.m:ul] (tap water)
f) [twi.p*aŋ] (back room)	f) [kʰo.m:ul] (mucus "nose water")
g) [twi.s*omun] (after-gossip)	g) [pinu.m:ul] (soapy water)
h) [twi.ŋ:im:at] (aftertaste)	h) [pi.m:ul] (rainwater)
i) [twi.t*ɛmun] (back gate)	i) [naksu.m:ul] (rain drops from eaves)
j) [twi.d͡ʒ*umәni] (back pocket)	j) [sesu.m:ul] (face washing water)
Other words in this category:	**Other words in this category:**
/aɾɛ/ (below)	**/kil/ (road)**
/wi/ (above)	**/ka/ (edge)**
	/sok/ (inside)

How sai-siot triggering works (a typical case)

14) /pata/ (sea) has no triggering rule, so many cases are lexicalized:
a) [pada.gәbuk] (sea of water)
b) [pada.naks*i] (ocean fishing)
c) [pada.k*ogi] (ocean fish "sea meat")
d) [pada.s*e] (sea bird)

15) When it comes in contact with a word that has a sai-siot triggering rule:
a) [pada.m:ul] (ocean water)
b) [pada.k*il] (sea road)
c) [pada.k*a] (seashore)
d) [pada.s*ok] (underwater)

Question: What do you get when you split an inflectional morpheme?

(Answer: Two types of morphophonology)

- This process may only have created effects based on how frequently a word appears in a certain position within compounds. For example, above, below and behind form lots of compounds.
- There appear to be more /mul/ type words, maybe because genitive /s/ got its phonetic content depending on the word that followed it.
- Applying this type of analysis to linking morphemes in other languages may shed some light on their unpredictability.

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