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# Multifaceted gustation

## Systematicity and productivity of taste terms in Korean

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Korean has a large number of taste terms and the paradigm is continuously expanding since the lexicalization operates systematically on a few robust principles. Based on the taste terms collected from lexicons, dictionaries, web-postings, and elsewhere, we classified the terms and analyzed the lexicalization patterns. In addition to the widely-known five classes of tastes, i.e., SWEET, SALTY, SOUR, BITTER and UMAMI, Korean has three more classes in the basic category, i.e., PUNGENT, FISHY and BLAND. A large number of tactile sensory words to describe the touch sensations in the mouth at the tasting event and expressions denoting characteristic food texture and mastication also join in creating a rich taste vocabulary. The Korean taste lexicalization system is equipped with the means to signal diverse aspects of gustatory sensation, i.e., intensity, depth, purity and duration. Among such means are vowel polarity, consonantal sound symbolism, reduplication and onomatopoeia. The systematicity of taste lexicalization contributes to the plasticity of the paradigm, making the Korean taste vocabulary one of the most productive and elaborate paradigms.

**Keywords:** taste terms, sound symbolism, vowel polarity, onomatopoeia, synesthesia

### 1. Introduction

Since food ingestion is among the most basic human desires and carries life-supporting functions, gustation is expected to surface as a physiological, experiential and cognitive primitive. It is thus expected that taste terms would form a prominent linguistic category in individual languages. Given the commonality of human physiological makeup such as taste buds, neural structures, and the functions

of gustatory organs, we would expect that languages would exhibit a reasonable degree of commonalities with respect to food, eating, and taste.

Despite such presumed universality, however, it is also apparent from studies of individual languages that the levels of specialization of gustatory lexicalization widely differ across languages. For instance, the language of the Sereer Ndut of Senegal has as few as three (*sen* 'sweet', *kɔb* 'sour' and *hay* 'piquant'; Dupire 1987, 10).<sup>1</sup>Enfield (2011), in his study of Lao and Kri of Laos, lists 12 and 13 taste/flavor terms for each language. In contrast, Backhouse (1994) presents a list of 26 taste terms in Japanese. From these observations, it is evident that the degrees of lexical elaborateness for taste terms form a continuum with languages with three or four taste terms on one end of the continuum and those with as many as several dozen on the other. Korean seems to represent an extreme case on this continuum of richness, as evidenced by the fact a thematic lexicon of native Korean by Park (1989, 350–353) lists 105 adjectival taste terms. Furthermore, another lexicon by Nam (1989, 44–59) lists 83 taste adjectives and Nam (1992, 217–221) lists 137 adverbs denoting taste and/or smell. Impressive as they are, these lists are not exhaustive since the lexical paradigm is not self-contained but systematically extendable, as shall be shown in the following discussion. This state of affairs does not seem to be paralleled by any taste term inventories reported thus far.

Overwhelmingly large in size, the paradigm of Korean taste terms exhibits a considerable degree of internal systematicity which enables the speakers of the language to create and understand new terms with ease. For this reason, the vocabulary of Korean gustatory terms is expandable without the risk of misunderstanding. This is also the case with other sensory categories, e.g. color vision (Rhee 2016) and olfaction (note that the lexicon by Nam (1989) noted above places taste and smell in the same category). It is largely due to the fact that they resort to similar linguistic mechanisms, notably sound symbolism, that are robust in this language. Korean literature, web postings, and TV cuisine programs are indeed replete with neologisms in these semantic domains.

The semantic domain of gustatory terms in Korean has received much attention. Most studies address semantic extension patterns, often via metaphorical transfer to subjective domains such as personality, morality, etc. (Kim 1999; Jeong 2005; Lim 2015; Moon 2015; Park 2016), rather than the paradigm-internal structures. Three studies stand out in terms of their focus on such internal structures. Maeda (1978), noting the richness of taste perception vocabulary in Korean, presents about 90 terms largely derivable from suffixation and phonological processes in seven major taste categories, i.e., SWEET, SOUR, SALTY, MILDLY-SALTY,

1. Classen et al. (1994, 110), however, state that Sereer Ndut has four taste terms, adding *sob* 'insipid, cool'. They also note that *hay* 'piquant' designates salty and bitter tastes as well.

BITTER, PUNGENT, and ASTRINGENT.<sup>2</sup> Lee (1986) analyzes 70 taste terms in five major categories (SWEET, SOUR, BITTER, SALTY and SPICY), many of which denoting combined tastes, 22 synesthetic taste terms associated with touch, vision and hearing, and 31 taste expressions that involve nominal compounding with nouns that denote food items representative of particular tastes. Jeong (1989) discusses taste terms in six major categories plus one category of combined tastes, and presents the distributive pattern hinging on five different levels of taste intensity. More recently, comparative and contrastive studies in two or more languages including Korean have been presented, e.g. Li (2013), Kim (2015), with Chinese; Shon (2007) and Eun (2014) with Japanese; Yoon (2012) with German. These studies without doubt shed light on the nature of Korean taste terms from various perspectives. However, the systematic nature of the Korean gustatory lexicon as a whole has not been fully addressed, which is due in part to scholars' limited attention to particular taste(s) only or the limitedness of the inventory of the target expressions. This research intends to fill this gap.

We collected data from the lexicons, dictionaries, and web postings. The two major lexicons listing native-Korean terms only, i.e., Nam (1989) and Park (1989), contain about 18,000 thematically-arranged headwords, respectively. The dictionary by Hankulhakhoy (The Korean Language Society), *Wulimal Khunsacen*, contains about 450,000 headwords. Web-posting searches are made via search engines provided by Google and Naver, Korea's largest Internet gateway. Most of these online sources are blogs describing the poster's gustatory experiences. From these sources we formed a list of 268 adjectival taste terms in total that are monolexic in form (though allowing derivations), intuitively acceptable as taste descriptors, and attested in actual use contemporarily, thus, excluding adverbs, nominal compounding (e.g., 'orange taste', 'honey taste', etc.), and syntactic constructions (e.g. 'taste of fat', 'taste of candy', 'sweet and sour', etc.).<sup>3</sup> Also, in order to investigate

2. Establishing MILDLY-SALTY (*kankanha-*) as a category separate from SALTY (*cca-*) is unusual. It seems that the author categorized the taste terms based on the linguistic forms rather than taste classes.

3. Note that this listing of adjectives is by no means exhaustive due to the productivity of systematic neologism as discussed in 4.4. Also noteworthy is that regular dictionaries list these terms, if included, according to the alphabetical order, whereas lexicons list them according to broader conceptual and grammatical categories, such as culinary-taste (Park 1989), adjectives-gustation, adverbs-gustation, etc. (Nam 1989). Therefore, the taste terms in the dictionary *Wulimalkhunsacen* could not be collected exhaustively. The total number is expected to far exceed 268 (see 4.4 for more discussion). Also notable is that some of the terms listed in the lexicons are no longer in use, which suggests ongoing renewal of the inventory. However, largely due to the space limitation, we could not extend the study to ascertain the life cycle of individual terms, which, as a reviewer suggests, should constitute an important line of research.

the productivity of gustatory lexicalization patterns and neologisms, we collected data from TV culinary art programs. The dataset showed many more novel taste descriptors that were not included in our list of 268 terms (see 4.4 for more detail).

The objectives of this paper are threefold: to present the Korean taste terms by categories; to describe the overall internal structure of the gustatory lexicon; and to highlight the systematicity in linguistic realization of diverse aspects involved in gustatory experience, which leads to productivity and extensibility of the lexicon. In order to achieve these objectives, this paper is organized in the following way: Section 2 addresses preliminary issues such as general organization of the gustatory lexicon, vowel polarity, consonant sound symbolism, ideophones and reduplication; Section 3 illustrates the lexicalization patterns within the gustatory domain and across sensory and evaluative domains; Section 4 discusses the theoretical issues involved in lexicalization such as iconicity, synesthesia, attitudinal stance, and productivity; and Section 5 summarizes the discussion and concludes the paper.

## 2. Preliminaries

In order to better understand the systematic nature of gustatory lexicon in Korean, it is necessary to look at the prominent linguistic feature involved in its lexicalization, i.e., sound symbolism. Sound symbolism has received much attention from Korean linguists since the pioneering study on onomatopoeic words by Jung (1938). Korean has been known to have a very elaborate system of sound symbolism (Martin 1962; Lee 1955, 1978; Kim 1976; Kim-Renaud 1976, *inter alia*). More recently, Koo (2007) analyzes sound symbolism as a variational factor with respect to force dynamics, and Rhee (2016) addresses sound symbolism as one of the determinants of color naming. We will take a cursory look into the sound symbolism since it plays a crucial role in taste naming.

### 2.1 Vowel polarity

Embedded in Korean is the notion of vowel polarity, i.e., all vowels fall into one of the three categories of 'positive', 'negative' and 'neutral' vowels, as illustrated in Figure 1.

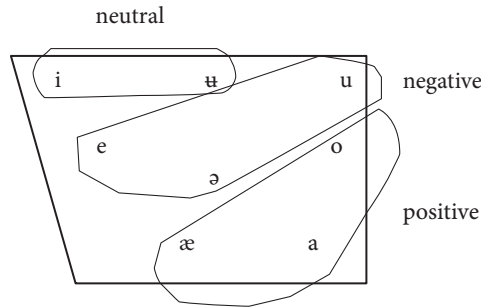


Figure 1. Vowel polarity in Korean

In purely linguistic terms, the motivation of this tripartite categorization is not clear even though the grouping clearly has to do with front-back and high-low dimensions. The absence of clear motivation notwithstanding, the symbolism associated with it is robust. The polarity membership of the vowels and the semantics associated with them are shown in part as in (1) (adapted from Rhee 2016) and exemplified in (2):<sup>4</sup>

- (1)
  - a. ‘positive’ vowels: [a], [o], [æ] and diphthongs involving them; describing small, delicate, and bright objects, and movements arousing such sensations
  - b. ‘negative’ vowels: [ə], [e], [u], and diphthongs involving them; describing big, crude, and dark objects, and movements arousing such sensations
  - c. ‘neutral’ vowels: [i] and [ɯ]; neutral with respect to size, refinement, brightness, etc.
  
- (2) positive vs. negative ([a] vs. [ə])
  - a. *nolah-* [norat-]: bright yellow arousing positive feeling, e.g. yellow flowers such as marigold, freesia, etc.
  - b. *nwuleh-* [nurət-]: dark yellow arousing negative feeling, e.g. yellowed filthy teeth

The polarity distinction, as illustrated above, is based on the perception of the size, refinement, brightness, among others, and subjective evaluative judgment of the object being described. This is directly relevant to the evaluation of taste as we shall see in the following discussion.

4. Terms in Korean are represented in italics following the Yale Romanization System (Martin 1992) and the sound values (either phonemic or phonetic) are presented in square brackets largely following the IPA with minor modifications, e.g., the tensed stops are marked with an apostrophe instead of a diacritic for typographical ease, e.g. [p'] for [p̚].

## 2.2 Consonantal sound symbolism

Not only vowels but also consonants carry symbolism. One type of consonantal sound symbolism is built on a tripartite distinction, comprising the regular vs. aspirated vs. tensed forms of the stops and affricates, thus creating three-way contrasts, i.e., p-ph-pp [b-p<sup>h</sup>-p'], t-th-tt [d-t<sup>h</sup>-t'], k-kh-kk [g-k<sup>h</sup>-k'], c-ch-cc [dʒ-tʃ<sup>h</sup>-tʃ'], etc. These distinctions carry semantic contrasts in terms of the strength and distribution of force involved in the event denoted by the lexemes. For instance, in contrast with regular consonants, tensed consonants invoke the semantic nuance that the event involves 'more localized and intensified force,' and aspirated consonants 'more strongly exerted, but diffused, force' (Koo 2007, 201–202), as exemplified in the following onomatopoeic words:

- (3) Non-tensed vs. tensed
- a. *pokulpokul* [bɔgʌɪbɔgʌɪ]: e.g. plain water boiling in a pot
  - b. *ppokulppokul* [p'ɔgʌɪp'ɔgʌɪ]: e.g. thick stew boiling (suggesting friction among ingredients)
- (4) Non-aspirated vs. aspirated
- a. *collangcollang* [dʒollanɕdʒollanɕ]: e.g. a colt walking behind its mother
  - b. *chollongchollang* [tʃ<sup>h</sup>ollanɕtʃ<sup>h</sup>ollanɕ]: e.g. a colt trotting along behind its mother (suggesting its movement extending outside the controlled operational space)

## 2.3 Ideophones and reduplication

Korean ideophones often involve reduplication either in full (as in (3) and (4) above) or in part (as in (5c) and (5d) below). Since ideophones are motivated by the desire to imitate the appearances of a moving object or the sound emanated from the event, recruiting reduplication seems well motivated in ideophones since the features of motion and the sounds tend to be repeated or extended in reality. This is exemplified in the following (adapted from Rhee 2016):

- (5) Full reduplication vs. partial reduplication
- a. *phwungteng* [p<sup>h</sup>ʌŋdɛŋ]: e.g. a big object falling straight into deep water in a single event
  - b. *phwungtengphwungteng* [p<sup>h</sup>ʌŋdɛŋp<sup>h</sup>ʌŋdɛŋ]: e.g. big objects falling into deep water in succession
  - c. *phwungteteng* [p<sup>h</sup>ʌŋdɛdɛŋ]: e.g. a big object with irregular surface falling into deep water, thus creating multiple splashes
  - d. *phwungteteteng* [p<sup>h</sup>ʌŋdɛdɛdɛŋ]: e.g. a big object with irregular surface falling into deep water in a more extended duration of event than (c)

Consonantal sound symbolism, as shown in (5), involves the extent of duration and multiplicity of events. This very property is systematically exploited in taste naming in Korean as shall be made clear in the following discussion.

### 3. Lexicalization patterns of taste terms

#### 3.1 Primary taste category

Gustation involves more than simple stimulation of taste buds but various stimuli. Noted as early as Beidler (1958), as cited in Delwiche (2004, 137), overall human perception of flavor is influenced by smell, texture, pain and temperature (see also Spence 2002; Stillman 2002; Zampini et al. 2007; Suvray and Spence 2008, 1024). The gustatory lexicon in Korean indeed involves multisensory perception which is reflected in systematic ways. Even though scientific literature typically makes use of five major classes of tastes, i.e., SWEET, SALTY, SOUR, BITTER and UMAMI (*Britannica Academic* 2016, “Taste” and “Flavour”), Koreans typically add a few more categories to the primary taste category, i.e., PUNGENT (SPICY), FISHY, and BLAND, resulting in eight classes in total.<sup>5</sup> The terms in the primary taste category in our data amount to 146 terms as shown in (6) (the primary forms in each class are in bold, and the number in the parentheses indicates the number of terms in our data):

- (6) a. SWEET: **tal-**, *taltital-*, *talkomha-* *talkumha-* *talkhomha-*, *talkhumha-*, *talkunha-*, *talkuntalkunha-*, *taltalha-*, *taltalumha-*, *talpotuleyha-*, *tulpwutuleyha-*, *talchakcikunha-*, *talchakccikunha-*, *talccakcikunha-*, *talccakccikunha-*, *tulkhumha-*, *tulccekcikunha-*, *tulchekcikunha-*, *kammilop-* (*n* = 20)
- b. SALTY: **cca-**, *ccaticca-*, *ccapcolomha-*, *ccapccolomha-*, *ccapccalha-*, *ccapccalayha-*, *ccapccalumha-*, *ccapccolumha-*, *ccipccilha-*, *ccipcilumha-*, *ccipccilumha-*, *ccipccileyha-*, *kankanha-*, *kenkenha-*, *cimcimha-*, *kankanccapccalha-*, *kenkenccipccilha-* (*n* = 17)
- c. SOUR: **si-**, *sitisi-*, *saykhomha-*, *saykhumha-*, *saykomha-*, *saykumha-*, *saykhomsaykhomha-*, *saykhumsaykhumha-*, *saykomsaykomha-*, *saykumsaykumha-*, *saykumwuleyha-*, *saychekcikunha-*, *ssaykhomha-*, *ssaykhumha-*, *sikumwuleyha-*, *sikumha-*, *sikwumha-*, *sikhumha-*,

5. Establishing “primary” categories admittedly involves arbitrary decision. Our decisions are based, in addition to our native-speaker intuition, on assignability of the collected terms to established taste categories and the strength of the base form in terms of productivity and extendibility. Those terms that are closely related to other perceptual domains (tactile, olfactory, etc.) and those that denote combined tastes are excluded from the primary categories.



- sikumsikumha-*, *sikhumsikhumha-*, *sichekcikunha-*, *sikumttelttelha-*,  
*sikumthelthelha-*, *sicikunha-*, *sichikunha-*, *sikhwumha-* (*n* = 26)
- d. BITTER: *ssu-*, *ssutissu-*, *ssupssulha-*, *ssupssuleyha-*, *ssupssulumha-*,  
*ssapssalayha-*, *ssapssalha-*, *ssapssalumha-*, *ssapssalomha-*, *sothaykath-*  
(*n* = 10)
- e. UMAMI: *kosoha-*, *kkosoha-*, *kosolomha-*, *kkosolomha-*, *noli-*, *nwuli-*,  
*nolisha-*, *nwulisha-*, *nukkiha-kwuswuha-*, *kkwuswuha-*, *eskwuswuha-*,  
*kwuttulha-*, *eskwuttulha-*, *koli-*, *kolisha-*, *kkoyliha-*, *kolithapwunha-*,  
*kkolikkoliha-*, *kamchilmas (i)iss-* (*n* = 20)
- f. PUNGENT: *mayp-*, *maptimap-*, *maywumha-*, *maykhomha-*,  
*maykhumha-*, *mayomha-*, *maypsaha-*, *maykhommaykhomha-*,  
*elkunha-*, *elkhunha-*, *alkhunha-*, *alkunha-*, *ali-*, *alisha-*, *elisha-*, *alalha-*,  
*alccakcikunha-*, *alisalisha-*, *elccekcikunha-*, *elalha-*, *alssaha-*, *hwakkunha-*,  
*khalkhalha-*, *khelkhelha-*, *hwanha-*, *ssaha-* (*n* = 26)
- g. FISHY: *pili-*, *pilisha-*, *payli-*, *paylisha-*, *pilichekcikunha-*, *pilichikunha-*,  
*pichekcikunha-*, *paylichikunha-*, *paylichakcikunha-*, *paylispaylisha-*,  
*molumha-*, *paythulha-*, *pithulha-* (*n* = 13)
- h. BLAND: *singkep-*, *mingmingha-*, *mingkunha-*, *mayngmayngha-*,  
*tamtamha-*, *temtemha-*, *simsimha-*, *kaysimsimha-*, *samsamha-*, *cimcimha-*,  
*sumsumha-*, *mingtingkululuha-*, *tampaykha-*, *tampakha-* (*n* = 14)

The taste vocabulary in the primary category has the following characteristics. First of all, the terms are predominantly of native Korean origin rather than of Sino-Korean origin, the latter class amounting to only three (1.1%), i.e., *kammilop-* (< *kammi* ‘sweet taste’) ‘sweet’, *tampaykha-* (< *tampayk* ‘clean and pure’) ‘bland’ and *tampakha-* (< *tampak* ‘clean and pure’) ‘bland’. Considering that the Korean lexicon contains a large number of Sino-Korean words which account for about 57 percent (*Phyocwunkwuketaysacen*, 1999), this state of affairs strongly suggests that taste terms are experientially salient primary terms.<sup>6</sup>

As shown in (6), among the eight major classes of primary tastes, SOUR and PUNGENT are the largest classes in terms of number of the member terms, followed by SWEET and UMAMI. The UMAMI taste is a noteworthy taste class for Koreans. This taste, much prized among Koreans and Japanese but not well recognized elsewhere (note the absence of its counterpart term in English), has two major closely-related strands, i.e., fatty and fermented tastes. One strand is most commonly derivable from fat, such as lard and bacon, as well as nuts and grains that produce cooking oil such as bean, peanut, sesame, sunflower seeds, etc., which also contain a high percentage of vegetable fat. Scientific literature often uses the terms ‘nutty’

6. The percentage of Sino-Korean words is based on dictionary entries, and it is much lower in actual usage, accounting for about 35 percent (NIKL 2002).

and ‘grainy’ in addition to ‘fatty’ to describe the taste. Unlike the English *fatty* and *oily*, which normally carry a negative connotation, this taste is among the most preferred tastes among Koreans, and is the most frequently used term in advertisements of cookies and other grain-based confectionery. The other strand is known to be caused by various chemical agents including glutamic and amino acids, typically found in MSGs, Korean *dwenjang* soup (fermented soybean), Japanese *miso* soup (fermented soybean) and *katsubushi* (fermented tuna). Even though there is a term *kamchilmas (i)iss-*, which, unlike other taste terms, originates from syntactic construction which means ‘savory taste exists’, Koreans normally name the UMAMI taste as *kosoha-* (or its variants) for the first strand and *kwuswuha-* (or its variants) for the other. Koreans describe the taste *kosoha-* as a ‘shallow’ taste and *kwuswuha-*, a ‘deep’ taste, and feel that the depth is largely attributable to fermentation.<sup>7</sup> Since fermented soybean, in the form of soybean paste (*twencang/dwenjang*) and soy sauce (*kancang/ganjang*), constitutes the major flavoring base for stock preparation in Korean cuisine, most Korean dishes containing broth have this savor.

The PUNGENT taste is often considered a pain sensation rather than a taste sensation. However, since Koreans enjoy notoriously hot and spicy food, PUNGENT is indeed among the most preferred flavors, as indicated by the number of terms in the list above.

The FISHY taste is associated with fish, more strongly with uncooked than cooked fish. Even though the term ‘fishy’ is more frequently used for olfaction in English-speaking cultures, the terms for the FISHY class in Korean are used as taste terms as well as smell terms (see 3.5 below). A twist in this class is that Koreans also attribute this taste (and smell) to uncooked beans, especially when they are soaked in water. This term is also used to describe the smell or taste of somewhat unrelated things such as blood and even stagnant water.

The BLAND taste is peculiar in that it is characterized by the absence or insufficiency of flavor normally expected to make food palatable. The main flavor with this regard is salinity, thus food not sufficiently salty is *singkep-*, *mingmingha-*, etc. If a BLAND term is used with respect to a particular food that is normally expected to be, say, sweet, it simply means that the sugary content is less than desirable. However, the Sino-Korean BLAND terms, e.g., *tampaykha-* and *tampakha-*, carry positive evaluation. They also denote simplicity of flavors in the food, and the taster finds the purity to be pleasurable (see 3.3 below).

7. An interesting phenomenon suggesting the relation between *kwuswuha-* and *kosoha-* is that a food of the *kosoha-* taste acquires the *kwuswuha-* taste when it is deep-boiled, e.g. crispy parched rice (*nwulwungci*) of the *kosoha-* taste and the tea from boiling it (*swungnyung*) of the *kwuswuha-* taste. In this case the *kwuswuha-* does not involve fermentation.

### 3.2 Extended taste category

Korean taste terms are not always based on single taste class, but may combine two (or more) classes. In our data we have 41 terms for combined tastes, as shown in part in the following (not all terms or classes from the collected data are listed, but the number in the parentheses indicates the total number of terms in each category in the data):

- (7) a. SWEET + SOUR: *talkhomsaykhomha-*, *talkomsaykomha-*... (n = 6)  
 b. SWEET + BITTER: *talkomssapssalha-*, *talkomssupssulha-*... (n = 7)  
 c. SOUR + SWEET: *saykhomtalkhomha-*, *sikhumtalkhumha-*... (n = 6)  
 d. SOUR + BITTER: *saykhomssapssalha-*, *sikumssupssulha-*... (n = 5)  
 e. PUNGENT + SWEET: *elkuntelkunha-*, *elkhuntelkhunha-*... (n = 4)  
 f. PUNGENT + BITTER: *elkhunssapssalha-*, *elkhunssupssulha-*... (n = 4)  
 g. PUNGENT + SALTY: *maypcca-*, *maykhomccapccalha-*... (n = 4)

Since combinations of food ingredients can be infinitely varied, the terms describing multiple flavors present in the food accordingly can also be large in number. The ordering of the tastes follows the primacy of sensation of the describer, thus *talkhomsaykhomha-* ‘sweet-sour’ and *saykhomtalkhomha-* ‘sour-sweet’, both combining SWEET and SOUR, are perceptually different.

The multiplicity of terms can also be increased when other related features are also encoded, such as intensity of flavor, duration of stimulation, texture of the food, etc. (see discussion below). A notable aspect is that the lexicalization pattern of multiple-taste terms in Korean is unlike the enumeration method such as ‘sweet and sour’, ‘salty and bitter’, ‘sweet but salty’, etc. in that such Korean taste terms are monolexemic as shown in (7). Korean syntax also enables deriving phrases of enumeration with coordinators. Therefore, *talkhomsaykhomha-* ‘sweet-sour’ in the list above is a single word, whereas *talkhomha-ko saykhomha-* ‘sweet and sour’ is a syntactic construction. Unlike other cases of combining adjectives, in which the use of coordinators is mandatory, taste term derivation for multiple tastes allows asyndetic combination. This peculiarity is also among the contributing factors of enriching the gustatory lexicon.

Furthermore, Korean taste terms are not strictly associated with the gustatory sensation mediated by the taste buds. The sensation that actively participates in taste lexicalization is the tactile sensation in the oral cavity caused by the food during mastication. We found 61 terms in the collected data, and some of the examples that are frequently used are listed in (8) (the number in the parentheses indicates the number of terms in our data):

- (8) Tactility-based common taste terms
- a. ASTRINGENT: negative; causing puckery sensation on oral tissues as from unripe persimmon or acorn: *ttelp-*, *ttelttelha-*, *ttelttelumha-* ... ( $n = 8$ )
  - b. BURNING: largely negative; causing burning or prickly sensation as from hot pepper and garlic, many overlapping with the PUNGENT class (see (6f) above): *elha-*, *elkhunha-*, *alkhunha-*, *alalha-*, *alssaha-*, *hwakkunha-* ... ( $n = 11$ )
  - c. REFRESHING: positive; large in number and productive; causing clean and cool sensation normally from cool/cold food but hot food as well: *kaywunha-*, *kkalkkumha-*, *ssampakha-*, *sangkhumha-*, *siwenha-*, *sinsenha-* ... ( $n = 8$ )
  - d. SLIPPERY: negative; causing excessively creamy sensation or providing insufficient stimulation of refreshment; typically from too much fattiness: *nukkiha-*, *nukulnukulha-*, *mikkulmikkulha-* ... ( $n = 6$ )
  - e. SHARP; largely positive; causing sharp and stimulating sensation as from carbonated soda; some overlapping with the PUNGENT class (see (6f) above): *ssaha-*, *thokso-*, *khalkhalha-* ... ( $n = 6$ )
  - f. LACKING-STIMULATION; negative; causing insufficient stimulation from weakness of flavor as from watery soup; many overlapping with the BLAND terms (see (6h) above): *mingmingha-*, *ningningha-*, *mingkunha-*, *mayngmayngha-*, *simsimha-*, *cimcimha-* ... ( $n = 15$ )
  - g. LACKING-PURITY; negative; causing overwhelmingly thick, dull and muddy taste for the lack of purity as from excessively thick broth: *thepthepha-*, *thepwunha-*, *thepthelumha-*, *kelccekcikunha-* ... ( $n = 7$ )

As shown above, taste is indeed a multisensory perception. Thus, the list of the tactility-based extended taste terms is extensive in number. It is also noteworthy, however, that the list is expandable due to the presence of unique lexicalization mechanisms in Korean. These mechanisms operative in lexical extension are discussed in the following section.

### 3.3 Intensity, depth, purity & duration of gustatory sensation

The most common taste term in Korean is *masiss-* ‘tasty’, which originates from a syntactic construction literally meaning ‘taste exists,’ with its opposite, also common, being *maseps-* ‘tasteless’, from ‘taste does not exist.’<sup>8</sup> The displeasure from the tastelessness of a food may be expressed as *mastaykalieps-* (cf. the plain form

8. Note that this is a general description of taste term usage and these taste terms are not included in the list of target terms by virtue of their being syntactic constructions rather than monolexic terms.

*maseps-*), in which the noun *mas* ‘taste’ is compounded with *taykali*, a pejorative word for ‘head’, one of the common nominals encoding the pejorative attitude (Koo 2004; Koo and Rhee 2016). These terms do not make reference to any specific taste class but express general evaluation of the speaker about the food concerned. The word *mas* ‘taste’ in this case refers to the good rather than neutral taste, just as the English words *taste*, *tasty* and *tasteless* suggest. When the word meaning is neutral, it can accompany *cohun* ‘good’ or *nappun* ‘bad’, just as the English *taste* can have comparable expressions *good taste* and *bad taste*.

Apart from this, lexicalization of most Korean taste terms is subject to modulation of intensity, depth and duration. When the terms are phrasal, the most common way of lexicalization to indicate the intensity of a particular taste is to use such modifiers as *kanghan* ‘strong’, *kanglyelhan* ‘strong’, *cithun* ‘thick’, *cinhan* ‘thick’, *swunhan* ‘mild’, *pwutulewun* ‘soft’, *yelpun-* ‘thin’, *yenhan* ‘thin’, *yakhan* ‘weak’, etc. (or their adverbial forms depending on the syntactic structure). These intensity adjectives are so closely related to taste description that they are used as taste terms themselves without specified taste classes. Taste terms may be modified by depth modifiers such as *kiphun* ‘deep’ and *yathun* ‘shallow’. As is the case with the intensity modifiers, these terms often occur as taste terms themselves without any specified taste classes. Purity of savor is another dimension that plays a role. For instance, among the common modifiers of taste are *kkaykkushan* ‘clean’, *cengkalhan* ‘neat and clean’, and four Sino-Korean terms *swunswuhan*, *tamtamhan*, *tampaykhan* and *tampakhan*, all denoting ‘clean and pure’. Just as the previous cases of intensity and depth, the purity terms are often used as taste terms themselves.

In comparison with this lexical modification at the level of individual instances, a far more intriguing aspect of taste lexicalization in Korean is the systematic use of linguistic features for encoding such dimensions. The mechanisms involved in this lexicalization process involve sound symbolism and reduplication (see Section 2 above). We first address the consonantal sound symbolism in lexicalization.

We briefly noted in 2.2 that some consonants in Korean form a tripartite contrast with regular, aspirated and tensed pairs and that these distinctions carry semantic contrasts in terms of the degree of force involved in the event denoted by the lexemes, i.e., tensed consonants invoke the semantic nuance that the event involves ‘more localized and intensified force,’ while aspirated consonants involve ‘more strongly exerted, but diffused, force.’ This is applicable to a large number of taste terms in Korean, as shown in the following contrasts of terms, taken from (6) above:

- (9) A. SWEET: plain vs. aspirated  
 a. plain [g]: *talkomha-* [dalgomha], *talkumha-* [dalgumha]...  
 b. aspirated [k<sup>h</sup>]: *talkhomha-* [dalk<sup>h</sup>omha], *talkhumha-* [dalk<sup>h</sup>umha]...

- B. SOUR: plain vs. aspirated
- plain [g]: *saykomha-* [sægomha], *saykumha-* [sægumha]...
  - aspirated [k<sup>h</sup>]: *saykhomha-* [sæk<sup>h</sup>omha], *saykhumha-* [sæk<sup>h</sup>umha]...
- C. SALTY: plain vs. tensed
- plain [dʒ]: *ccapcalha-* [tʃ<sup>o</sup>apdʒarha], *ccapcolumha-* [tʃ<sup>o</sup>apdʒorumha]...
  - tensed [tʃ<sup>o</sup>]: *ccapccalha-* [tʃ<sup>o</sup>apʃ<sup>o</sup>arha], *ccapccolumha-* [tʃ<sup>o</sup>apʃ<sup>o</sup>orumha]...
- D. UMAMI: plain vs. tensed
- plain [g]: *kosoha-* [gosoha], *kosolomha-* [gosoromha]...
  - tensed [k<sup>o</sup>]: *kkosoha-* [k<sup>o</sup>osoha], *kkosolomha-* [k<sup>o</sup>osoromha]...

The phonetic contrast shown in taste terms in (9) signifies semantic differences. For instance, the SWEET terms in (9A) are minimal pairs contrasting between (a) and (b). The (b) examples with aspirated [k<sup>h</sup>] encode that there is a fast spreading force of the sweetness in the mouth, as contrasted with the plain [g] terms which encode that the stimulation occurs gently and quietly. Likewise in (9B), the SOUR taste terms with aspirated [k<sup>h</sup>] in (b) encode the sensation that the sourness spreads across the mouth with some force. This encoding of gustatory sensation is iconic in that aspiration as an articulatory gesture involves fast emission of puff that travels through the pulmonary tract.

Similarly, the plain vs. tensed contrast in the SALTY terms in (9C) encodes different gustatory sensation. For instance, the tensed SALTY terms in (b), involving [tʃ<sup>o</sup>], encode the sensation that the salinity is stimulating the receptors in the mouth with some focal points, i.e., not stimulating the mouth evenly in its entirety. Likewise, the UMAMI taste terms in (9D) with tensed variants in (b), involving [k<sup>o</sup>], signal that the fatty/nutty taste of meat or nuts is localized, i.e., felt with particular strength at certain points of the mouth. This encoding of gustatory sensation is also iconic in that tensing as an articulatory gesture involves some friction of articulators at a particular point of the vocal tract as a result of application of localized force.

Another notable mechanism of encoding diverse aspects of gustation in taste terms in Korean is reduplication. One of the ways of coining new taste words with intensity through reduplication is that of repeating the taste term with a derivational affix. This derivational process makes use of a general intensifying affix *-ti*, as shown in contrasts of: *tal-* 'sweet' vs. *taltital-* 'very sweet', *cca-* 'salty' vs. *ccaticca-* 'very salty', *si-* 'sour' vs. *sitisi-* 'very sour', *mayp-* 'spicy' vs. *mayptimayp-* 'very spicy', etc.

The more common and productive way of reduplication involves partial or full reduplication of taste terms, as shown in the following list:

## (10) Reduplicative forms:

- a. SWEET (*tal-*): *taltalha-*, *taltalumha-*...
- b. SALTY (*cca-*): *ccapccalha-*, *ccapcalha-*, *ccapccalumha-*...
- c. SOUR (*si-*): *sikhumsikhumha-*, *sikumsikumha-*...
- d. BITTER (*ssu-*): *ssupssulha-*, *ssupssuleyha-*, *ssapssalha-*...

In (10) above, the reduplicative forms have additional semantic features as compared to the non-reduplicative base forms. For instance, in (a), the SWEET term *taltalha-*, as compared with *tal-*, encodes the sensation that the sweetness of the food is spreading across the mouth and the aftertaste is lingering. Similarly, the reduplicative SALTY terms in (b), SOUR terms in (c), and BITTER terms in (d) signal, among others, that the saltiness, sourness and bitterness are perceived for an extended period of time. Reduplication in these cases is a signal of longer duration. The notion that the gustatory sensation is extended in time and space is represented with reduplication of linguistic material. Thus, the use of reduplication in taste term lexicalization constitutes an example *par excellence* of iconicity.

Still another intriguing aspect of taste term lexicalization in Korean is the use of onomatopoeia, the terms that imitate the sounds, appearance or manner, as exemplified in (5) above. Taste lexicalization in Korean productively makes use of onomatopoeia, as shown, in part, in the following:

- (11) a. *thelthel* [t<sup>h</sup>ɛlt<sup>h</sup>ɛl]: about something traveling over an uneven surface thus producing clattering sound  
*sikumthelthel* [sigʌmt<sup>h</sup>ɛlt<sup>h</sup>ɛl] (SOUR); *sikumteltha-* [sigʌmdɛldɛl] (SOUR)...
- b. *-ccekkikun* [tʃ<sup>ʰ</sup>ɛktʃigʌn]: about something stricken with an impact which leaves trailing, lingering effect on it  
*tulccekkikunha-* [dʌltʃ<sup>ʰ</sup>ɛkdʒigʌnha] (SWEET); *saychekkikunha-* [sæʃ<sup>h</sup>ɛktʃ<sup>ʰ</sup>igʌnha] (SOUR); *sichikunha-* [sitʃ<sup>h</sup>igʌnha] (SOUR); *sicikunha-* [sidʒigʌnha] (SOUR); *alccakcikunha-* [altʃ<sup>ʰ</sup>akdʒigʌnha] (PUNGENT); *elccekkikunha-* [ɛltʃ<sup>ʰ</sup>ɛkdʒigʌnha] (PUNGENT); *pichekkikunha-* [bitʃ<sup>h</sup>ɛkdʒigʌnha] (FISHY); *pilichekkikunha-* [biritʃ<sup>h</sup>ɛkdʒigʌnha] (FISHY); *pilichikunha-* [biritʃ<sup>h</sup>igʌnha] (FISHY)...
- c. *-ulum* [ʌrʌm]: about some sound or state extended in space or time with gradation *ccapccolumha-* [tʃ<sup>ʰ</sup>apʃ<sup>ʰ</sup>orʌmha] (SALTY); *ccipccilumha-* [tʃ<sup>ʰ</sup>ipʃ<sup>ʰ</sup>irʌmha] (SALTY); *ssupssulumha-* [s<sup>ʰ</sup>ʌps<sup>ʰ</sup>ʌrʌmha] (BITTER); *ssupssuleyha-* [s<sup>ʰ</sup>ʌps<sup>ʰ</sup>ʌrɛha] (BITTER); *ssapssalumha-* [s<sup>ʰ</sup>aps<sup>ʰ</sup>arʌmha] (BITTER); *mingtingkululuha-* [minʒingʌrʌrʌ] (BLAND)...
- d. *-tuley* [dʌrɛ]: about something rolling on a smooth surface  
*talpotuleyha-* [dalbodʌrɛha] (SWEET); *ssupssuleyha-* [s<sup>ʰ</sup>ʌps<sup>ʰ</sup>ʌrɛha] (BITTER)...

- e. *ssa* [s'a]: about something light that travels in a fast and sweeping manner  
*ssaha-* [s'aha] (PUNGENT); *alssaha-* [als'aha] (PUNGENT)...

As indicated in (11a), the onomatopoeia *thelthel* [t<sup>h</sup>ɛlt<sup>h</sup>ɛl] is a common expression to describe something traveling over an uneven surface thus producing clattering sound, e.g. a vehicle on a bumpy unpaved road. Since Korean onomatopoeic words typically incorporate such dimensions as size, intensity, expanse, duration, etc., they have variants that are systematically modulated, as shown in [t<sup>h</sup>ɛlt<sup>h</sup>ɛl] (aspirated) and [dɔldɔl] (plain) in the examples. When the plain SOUR term *si-* is modulated with incorporation of this onomatopoeic expression, i.e., [sigumt<sup>h</sup>ɛlt<sup>h</sup>ɛl] and [sigumdɔldɔl], these terms signal that the sensation of sourness is perceived as 'bumpy'. In other words, the taste-arousing agent serves to stimulate here and there and the aftertaste is reverberating unevenly throughout the mouth. The gustatory sensation is likened to visual, auditory and/or motor sensations.

The onomatopoeic word *-ccekccikun* [tʃɛktʃiɡʌn] in (11b), as noted above, is typically used to describe an event in which something sustains an impact which leaves trailing, lingering effect. The most common examples that come to the mind of a native speaker are a tree, struck by lightning, breaking down with its limbs splitting apart at the moment of impact (cf. *wucikkun* [udʒikʷʌn]), and, on a more bodily level, muscles cramped as a result of excessive labor giving the sensation (and imaginary sound) of splitting into threads at muscle movement (cf. *ppekccekcikun* [p'ɛktʃ'ɛkdʒikʷʌn]). The initial part of the onomatopoeia, i.e., *ccek* [tʃɛk], is associated with the splitting sound, and the remainder with the progression of the splitting event. This onomatopoeic word is most productively used in taste term lexicalization. The typical conceptualization of this component in taste is 'one big impact with its force trailing off slowly.' Therefore, a taste term involving it, e.g., *tulccekcikunha-* [dʌltʃ'ɛkdʒiɡʌnha] (SWEET), describes a graphic imagery of a gustation event in which the sweetness hits the receptor with an impact and its aftertaste is lingering for some time, then gradually trailing off.

The examples in (11c) and (11d) are closely related, as expected from the common element [-tʌrʌ]- in them. This onomatopoeic component describes some event extending over space or time. The most common onomatopoeic word involving it is *tululu* [dʌrʌrʌ] that imitates the sound coming from a round or lubricated object rolling on a smooth surface, e.g. of a bead rolling on a platter, or a sliding door on a roller traveling along a guiding channel. If the initial sound is softer, the event is describable with *sululu* [sʌrʌrʌ], e.g. a snake slithering in the bush, or a thief silently slipping away. The role of this onomatopoeia in taste lexicalization is evident: the chemical agent arousing the gustatory sensation is conceptualized as smoothly gliding through the tongue.



The final example *ssa* [s'a] is used to describe something light that travels in a fast and sweeping manner. The imagery that comes to mind with this onomatopoeia is a gust of wind suddenly blowing into a person's face and then swiftly passing away. The event is typically conceptualized as inflicting a sharp, stinging sensation at the initial contact. For this reason, this term, apart from describing taste, is productively used when describing acute stomach or chest pain. When it is used in lexicalization of taste terms, e.g., *alssaha*- [als'aha] (PUNGENT), the spiciness in the food is described as suddenly hitting (almost causing pain) and swiftly disappearing or subsiding in intensity.

As shown above, the involvement of onomatopoeia in taste lexicalization strongly suggests that tastes in Korean are described as having such dimensions as intensity and duration. Since onomatopoeia involves visual, auditory and tactile sensory dimensions, taste lexicalization in Korean is an apt example of sensory synesthesia (see 4.2 for more discussion).

### 3.4 Food texture & mastication

We have seen that taste term lexicalization in Korean incorporates dimensions that crosscut various sensory domains. The general picture becomes even more complex and complicated (or elegant and elaborate, depending on one's viewpoint) by still other aspects involved in the event of food ingestion, i.e., the texture of the food and composition of ingredients that lead to differential tactile sensation in the mouth, and the features of mastication characteristic of particular food.

We have already seen the tactility-based common taste terms in 3.2 as part of discussion of the extended taste domains. In broad terms, food texture is inextricably related with the tactile sensation in the mouth. However, in the present subsection we will address the characteristics that are more inherent in the food rather than with an associated tactile sensation. We found 32 such terms in our data. It is important to note that these terms are among the most common taste terms used by Koreans regarding a daily dietary experience. Some of these terms are listed in (12) (the numbers in parentheses indicate the number of terms in our data):

- (12) a. DRYNESS: *phakphakha-*, *phekphekha-*, *ppakppakha-*... (*n* = 7)  
 b. SUBSTANTIVENESS: *pattalaci-*, *thopthopha-*, *khalangkhalangha-*, *hungtenghungtengha-*... (*n* = 7)  
 c. RESILIENCE: *cilki-*, *ccolkisccolkisha-*, *ccilkiscilkisha-*, *cilkiscilkisha-*... (*n* = 6)  
 d. CRUNCHINESS: *asakasakha-*, *selkengselkengha-*, *phesekphesekha-*, *pasakpasakha-*, *phasakphasakha-*... (*n* = 12)

The taste terms under the DRYNESS class describe the food when it lacks juice or oil and thus causes difficulty in chewing and/or swallowing. As the onomatopoeic principles are also operative in these terms, they have slightly different nuances. For instance, *phakphakha-* suggests that the dryness is small and potentially good (see 3.6 below for vowel polarity), e.g., unseasoned steamed potato eaten alone; *phekphekha-* is similar to the first but the dryness is greater and deeper (and negative), thus typically suggesting larger bites of unsavory food, e.g., the sawdust-like taste of roasted chicken breast; and *ppakppakha-* signals that the dryness is more localized, thus typically suggesting smaller bites, e.g., steamed egg yolk eaten alone.

The taste terms under the SUBSTANTIVENESS class make reference to the water-substance proportion. The terms are based on whether the food has enough substance for nutrition and enjoyment. The taste terms *pattalaci-* and *thopthopha-* indicate that the food has considerable substance to it, is not too watery, e.g., soup or casserole containing much vegetable or meat content, whereas *khalangkhalangha-* and *hungtenghungtengha-* signal that the food lacks a desirable density of solid substance. This is especially true of the latter term, also of onomatopoeic origin, which suggests that the food is so watery that the thin broth breaks into ripples even at a slight touch of the container.

The terms under the RESILIENCE class are also used very frequently. They refer to the toughness of the food, typically meat and noodles. Even though *ccolkisccolisha-* conveys a positive attitude of the taster especially toward cold noodles or cake made of potato starchy, all the other terms are used in negative contexts (see 3.6 for vowel polarity).

The terms under the CRUNCHINESS class, all onomatopoeic words, encode the sensation at the moment of mastication. For instance, *asakasakha-* is used to describe the sound that comes from chewing of some fresh vegetables with much juice and fiber, such as celery or cucumber. Since this sensation is pleasant, this term is used to describe the highly prized sensation of biting into fresh vegetables. The two other terms *selkengselkengha-* and *phesekphesekha-* also suggest a crunchy sound and taste but these are used negatively: *selkengselkengha-* suggests insufficient cooking that results in uneven tenderness of the foodstuff, hence the irregular sound coming from the teeth biting into hard, uncooked parts of the food; and *phesekphesekha-* also suggests uneven cooking as well as the absence of any other taste that is pleasurable. The other terms *pasakpasakha-* and *phasakphasakha-* also express crunchy sounds, especially when one eats crisp chips. Since they have the positive vowel [a], as opposed to the negative vowel of [ə] in *phesekphesekha-* [p<sup>h</sup>əsək<sup>h</sup>əsəkha] above, they signify a pleasant sensation (see 3.6 for vowel polarity).

### 3.5 Extension to olfactory sensations

We have seen in the previous discussion that Korean taste term lexicalization incorporates not only gustatory but also visual, auditory, tactile and motor dimensions. Also, note that there are strong connections of taste terms to olfactory terms.

When a taste term is used predicatively, it takes the adjectival form, which is capable of inflection for tense, aspect and modality. When it is a modifier of a noun, it takes the adnominalizing suffix *-n*, e.g., *cca-n kwuk* 'salty soup', *ssu-n namwul* 'bitter vegetable', *si-n sikcho* 'sour vinegar', etc. Therefore, when taste terms need to be in nominal form, they take the adnominalizer and the word *mas* 'taste' to form a taste nominal. The words thus formed have undergone a considerable level of 'univerbation' (Lehmann 1995[1982]) and are now considered single words, e.g., *ccanmas* 'saltiness', *ssunmas* 'bitterness', *sinmas* 'sourness', etc.<sup>9</sup> Interestingly, many taste terms presented above are found in our data sources to modify the noun *naymsay* 'smell', e.g. *talkhomhan naymsay* 'sweet smell', *taltalhan naymsay* 'sweet smell', *maywun naymsay* 'spicy smell', *maykhomhan naymsay* 'spicy smell', *ccan naymsay* 'salty smell', *pilin naymsay* 'fishy smell', etc. It seems that the taste terms in the BLAND class in the primary category and TACTILITY-based extended category are exceptional in this regard. This seems reasonable in view of the fact that the foodstuff that can be described with such taste terms in the BLAND and TACTILE classes normally does not accompany a characteristic odor. Advancing even further, our data sources show that some of them take the defective noun *nay* 'smell' and form single words, e.g. *tannay* 'sweetness (smell)', *pilinnay* 'fishiness (smell)', *ccannay* 'saltiness (smell)', *ssunnay* 'bitterness (smell)', *sinnay* 'sourness (smell)', etc., the monolexemic status officially recognized for the first two (cf. *Wulimalkhunsacen* 1996). This state of affairs strongly suggests that gustatory and olfactory sensations are closely intertwined in lexicalization.<sup>10</sup>

9. Unlike other northeastern Asian languages, such as Chinese and Japanese, Korean orthographic rules mandate that periphrastic forms must be written with interlexical spaces. This often serves as a clue of the degree of univerbation, i.e., if a certain form is registered in dictionaries without interlexical spacing, the form is officially considered a single word, though its internal structure may be still analyzable. At the level of individual speakers, the degree of perceived univerbation is variable, and thus spacing practice is not uniform across individuals. Spacing variability is also observed across dictionaries.

10. Also recall that, as we noted in the introduction, taste and smell terms are often indistinguishable and thus they are listed in the same thematic category in Nam (1989).

### 3.6 Evaluative viewpoints

One of the most interesting aspects of Korean taste lexicalization is that it incorporates the viewpoint of the speaker who describes the taste. To do so, the speaker resorts to sound symbolism again. We will address the issue with the following examples taken from (6) above:

- (13) A. SWEET: base form *tal-* [dal] (positive [a])  
 a. *tal-*, *talkhomha-*, *talkomha-*, *talkhumha-*, *talccakcikunha-*...  
 b. *tulkhumha-*, *tulccekcikunha-*, *tulchekcikunha-*... (containing neutral [ʧ])
- B. SALTY: base form *cca-* [tʃa] (positive [a])  
 a. *cca-*, *ccapcolomha-*, *ccapccalha-*, *ccapccalumha-*...  
 b. *ccipccilha-*, *ccipccilumha-*, *ccipcilumha-*, *ccipccileyha-*... (containing neutral [i], [ʧ])
- C. SOUR: base form *si-* [si] (neutral [i])  
 a. *si-*, *sikumha-*, *sikhwumha-*, *sikumwuleyha-*, *sicikunha-*...  
 b. *saykhomha-*, *saykomha-*, *saykumha-*, *saykomsaykomha-*... (containing positive [æ], [o])
- D. BITTER: base form *ssu-* [sʰʧ] (neutral [ʧ])  
 a. *ssu-*, *ssupssulha-*, *ssumssuleyha-*, *ssupssulumha-*...  
 b. *ssapssalha-*, *ssapssalayha-*, *ssapssalomha-*... (containing positive [a], [o])
- E. FISHY: base form *pili-* [biri] (negative [i])  
 a. *pili-*, *pilisha-*, *pilichekcikunha-*...  
 b. *payli-*, *paylisha-*, *paylichekcikunha-*... (containing positive [æ])

In case of SWEET and SALTY, the base forms *tal-* and *cca-* contain [a], a vowel of positive polarity. As noted in 2.1, positive vowels are used to describe small, delicate, and bright objects and movements arousing such sensations. Therefore, it is likely that these taste classes were conceptualized as agreeable at the outset, even though saltiness is often denounced in modern times when a low sodium diet is recommended.<sup>11</sup>

The SOUR, BITTER and FISHY class terms contain neutral vowels [i] and [ʧ] in their basic forms, *si-* [si], *ssu-* [sʰʧ], and *pili-* [biri]. In the same line of thought, it is possible that these terms started out as lacking positive connotation.<sup>12</sup> However,

11. A piece of evidence that seems to support this idea is that *ccapccalha-* 'salty' is still commonly used to mean 'profitable' and 'enjoyable'.

12. One problematic case with this reasoning is *kwusuwuha-* [gusuha] 'UMAMI', which is largely considered a positive taste but contains the negative vowel [u]. The determinant of the sound symbolism in this case is the contrast of 'depth': *kosoha-* for 'shallow' and *kwusuwuha-* for 'deeper' taste (see 3.1 above).

partly due to the human desire for variety (indeed we do like sour or bitter food like grapefruit and coffee) and partly due to the complexity of chemical structure of foodstuff (indeed sweet chocolates often contain bitter taste), even the same or similar taste may be perceived with a different evaluative attitude. In Korean this pleasurability can be easily modulated in lexicalization by means of vowel polarity. For instance, *kimchi*, one of the most widely-known types of Korean pickled cabbage, may have pleasurable sour taste when the level of fermentation is just right, thus *saykhomha-* [sæk<sup>h</sup>omha] (note the positive vowels [æ] and [o]) or its variants in (b); whereas, if the fermentation has proceeded too far or has been spoiled by contamination, the unpleasant sourness is described with *sikhumha-* [sik<sup>h</sup>umha] or *sikhwumha-* [sik<sup>h</sup>umha] (note the neutral vowels [i] and [ɯ] and the negative vowel [u]) or its variants in (a). Similarly, black coffee is thought to be too bitter and tasteless by some, thus *ssupssulha-* [s'ʌps'ʌlha] (note the neutral vowel [ɯ]) and its variants in (a), or pleasurable bitter by others, thus *ssapsalha-* [s'aps'alha] (note the positive vowel [a]) and its variants in (b). Likewise, there are instances when the fishiness may be found appetizing. This is particularly true in Korea, where salted seafood (salted shrimp, salted clam, etc.) is among the common condiments or side-dishes. In such cases, the taste is described as *payli-* [bæri], *paylisha-* [bæriθa], etc. (note the positive vowel [æ]), in contrast with the negative taste *pilisha-* [biritha], etc., retaining the original neutral vowel [i].

In addition to the cases illustrated above, there are other instances in which vowel polarity contrasts signal taste differences such as one between positive [a] vs. negative [ə], e.g., [aralha] vs. [əɾalha] 'pungent', [sagakha] vs. [səgəkha] 'crunchy', etc., in which the one with a positive vowel encodes a pleasurable taste, whereas the one with a negative vowel encodes a non-pleasurable taste. The change in degree of pleasurability by modulation of the vowel polarity can be diagrammatically presented as in Figure 2.

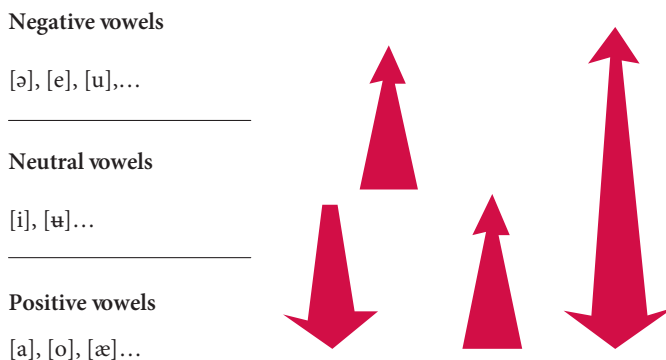


Figure 2. Change in degree of pleasurability by vowel polarity modulation

## 4. Discussion

In the preceding section, we have described diverse aspects of taste lexicalization in Korean. Based on the exposition, we now turn to a brief discussion of some of the significant theoretical issues, such as iconicity, synesthesia, attitudinal stance, productivity and novel coinage.

### 4.1 Iconicity

The general lexicalization patterns of Korean taste terms show that many of them exploit iconicity. The most common dimensions of iconicity are intensity and duration. For instance, the sweetness encoded by the reduplicative *taltital-* is perceived as stronger than one derivable from the basic form *tal-* ‘sweet’, and the sweetness encoded by the form containing onomatopoeia *taltalumha-* ‘sweet’ is perceived as of longer duration as compared to the basic form *tal-* ‘sweet’.

The mapping between physical gustatory sensation and linguistic lexicalization with reduplication is based on an iconicity principle that may be stated as ‘if strongly felt, then repeat the linguistic form.’ In case of onomatopoeia, the iconicity mapping can be between ‘the appearance of an object undergoing an event’ and ‘the appearance of stimulating gustatory agent’, as shown with the onomatopoeia *thelthel* [tʰɛltʰɛl] (for the motion/sound of a vehicle on a bumpy road) in the taste word [sigʌmtʰɛltʰɛlha] ‘sour’ suggesting that the taste-arousing agent is stimulating here and there in the mouth and the aftertaste is reverberating unevenly (see (11a) above). Other aspects of events are also involved (e.g., recall the onomatopoeic *ccek-* of *ccekcikun* imitating the sound of an impact in (11b)) and they all have iconic mappings between gustation and non-gustatory events.

### 4.2 Synesthesia

Much of the exposition in the foregoing discussion bears relevance to synesthetic perception whereby certain non-gustatory perceptual dimensions come into play in gustatory lexicalization. Certain perceptual domains, such as olfactory or tactile perceptions, are nearly inseparable from gustatory perception, as shown in (6) and (8). There are other non-gustatory dimensions, e.g. visual (reduplication) and auditory (onomatopoeia) dimensions, which have become involved in taste term lexicalization. What synesthesia contributes to the gustatory domain is that the inclusion of these dimensions has made the paradigm of taste terms extraordinarily rich.

There are instances of synesthetic lexicalization “from” the gustatory domain, as well, a phenomenon widely attested across languages (cf. *sweet voice*, *bitter experience*, etc. in English). Korean taste terms have a wide range of cases to which

‘from-gustatory’ synesthesia is applicable. For example, a cursory web search turns up innumerable synesthetic instances in which non-food nominals are modified by taste adjectives. Some of such nouns translated into English are presented below:

- (14) a. SWEET: memory, lips, melody, name, voice, smile, vacation...
- b. SALTY: salary, relationship, night, sorrow, memory...
- c. SOUR: smile, personality, sound, bus, jacket...
- d. BITTER: experience, sound, advice, life, understanding...
- e. PUNGENT: fist, wind, smoke, thirst, winter-weather, pain, wound...

### 4.3 Attitudinal stance

As we discussed in 3.6, the speaker’s evaluative judgment also surfaces prominently in lexicalization patterns of taste terms in Korean. Even the base forms may carry such evaluative judgment with vowel polarity, but they are more likely to be used in neutral contexts. However, when derivative taste terms are made, especially when a reduplicative or onomatopoeic derivational process is involved, the vowel polarity effect is so strong that the derived taste term is bound to belong to one side of the binary contrast: pleasurable vs. displeasing. The UMAMI class is exceptional in that the positive-negative vowel contrast results in shallow-deep contrast, both of which are positive.

### 4.4 Productivity and novel coinage

One of the most salient aspects of gustatory lexicon in the foregoing exposition is the productivity of Korean taste lexicalization. It is literally true that the exact number of taste terms in Korean cannot be established since the paradigm is continuously expanding.<sup>13</sup> When multiple taste classes are present in foodstuff, the speaker may simply combine appropriate taste terms to create a new taste term. In a more important way, the plasticity of the category largely comes from the fact that native speakers who have an internalized system of lexicalization principles can freely coin new terms. The addressee, also equipped with the same principles,

13. As an anonymous reviewer points out, this state-of-affairs raises an important question of “termhood” in Korean. Lexicographers exhibit a degree of variations. In addition to the obvious physical limitations from variable dictionary sizes, variability exists especially with respect to whether certain derived forms (via vowel harmony alternation, suffixation of onomatopoeic morphemes, etc.) are to be listed as separate headwords or as derived terms under the primary terms. In terms of mental representation, it seems that speakers of Korean have basic taste terms and the diverse means of derivation (e.g. affixes, roots, consonantal tensing, vowel polarity modification, etc.) in the lexicon and produce neologisms through these systematic derivational processes. This topic warrants future in-depth research.

has no way of misunderstanding the intended meaning of the newly coined taste terms. Among such principles, as discussed previously, are (i) vowel polarity of negative-positive contrast for pleasurability, (ii) consonantal symbolism of plain-aspirated-tensed contrast for intensity of stimulation, distribution and duration of the sensation, and tactile characteristics, (iii) reduplication for manner, distribution and duration of the sensation, and (iv) ideophones for detailed manner of stimulation akin to other non-gustatory events describable with onomatopoeic expressions.

For these reasons, the speakers of Korean, already having perhaps the largest inventory of taste terms, continue to coin new ones expanding the paradigm. It is certain that any diachronic survey would support the hypothesis that the taste vocabulary in Korean has been continuously expanding over time, due to the systematicity of lexicalization principles and human's inherent desire for novelty. The expandability can be easily tested. The following expressions are nonce taste terms, and thus have not yet been found in our data sources at the time of this writing, even though they may appear at any moment:

- (15) a. *pilikkoyliha*- [birik'øriha]: with reference to roasted mackerel  
(*pilikkoylihan kotunge kwui*)  
 b. *simsimwuleyha*- [simsimureha]: with reference to daikon radish soup  
(*simsimwuleyhan mwuwu kwuk*)  
 c. *saykhumtulccekcikunha*- [sæk<sup>h</sup>ʌmdʌlʃækdʒigʌnha]: with reference to salad (*saykhumtulccekcikunhan saylletu*)

The nonce taste term in (15a) has two base taste classes *pili*- (FISHY) and *kkoyli*- (UMAMI) combined. One can easily identify from the compounding-like word formation the complex taste in the roasted mackerel. The fishy taste is not agreeable (neutral vowel [i]) but it is savory with the UMAMI taste that is strong (tensed consonant [k']) and pleasurable (positive vowel [ø]).

In the preceding example (15b), the taste term has its base *simsim* in the BLAND class which is followed by the onomatopoeic element [-ure-]. One can easily identify the taste designation that the daikon radish soup is too bland and the sensation of the bland taste is expanding across the tongue lasting for some time.

The novel taste term in (15c) has two base taste classes *si*- (SOUR) and *tal*- (SWEET) which are combined and followed by the onomatopoeic element [ʃækdʒigʌn]. From these combinations one can easily identify the taste as having sourness and sweetness combined; sourness being primary (first named), occurring in an agreeable way (the positive vowel [æ]) while the sweetness in an unpleasant way (the neutral vowel [ʌ] in contrast with the positive vowel [a] in the base form *tal*-); the taste hitting the receptor with some intensity at the initial sensing event (the onomatopoeic [ʃæk]) but the sensation is spreading with



diminishing force (the onomatopoeic [dʒigʌn]). These novel expressions are only a few taken from a set of innumerable possible taste terms.

In an investigation of food-tasting programs on TV, the tasters are found to resort to new word coinage as one of the major strategies.<sup>14</sup> In addition, they tend to resort to the adjectives describing the texture of the ingredients, such as *pwutulewun* ‘soft’, *chokchokhan* ‘moist and juicy’; and tactile and onomatopoeic words *thayngkulthaynkul* ‘pleasantly solid containing fresh juice’, *ccolkisccolkis*, *ccontukccontuk* and *cconccon*, all denoting ‘pleasantly resilient’ for noodles, dumplings, etc., *ccwaak* ‘pouring of liquid’, with reference to squirting of juice from meat inside the mouth, *pasakpasak* and *asakasak* for the crunchiness of fried dumplings, *pwutulpwutul* for soft noodles, etc. As we have seen in the previous discussion, these are common strategies in taste term lexicalization, even though some of these descriptors are not included in our initial list of 268 taste terms.

## 5. Summary and conclusion

Korean has a large number of taste terms and the paradigm is continuously expanding since the lexicalization operates systematically on a few robust principles. In addition to the widely-known five classes of tastes, i.e., SWEET, SALTY, SOUR, BITTER and UMAMI, Korean adds three more basic classes, i.e., PUNGENT, FISHY and BLAND.

Multiple tastes may be lexicalized into single taste terms. A large number of tactile sensory words to describe the touch sensations in the mouth at the tasting event, such as astringent, burning, refreshing, slippery, sharp, lacking stimulation and lacking purity, all join in creating a rich taste vocabulary. Korean also recruits the expressions denoting food texture and mastication for taste lexicalization. Thus, Korean taste lexicalization goes beyond the gustatory domain, and it exhibits synesthesia “to” and “from” the gustatory domain.

Most prominently, the Korean taste lexicalization system is equipped with the means to signal diverse aspects of intensity, depth, purity and duration of gustatory sensation. Among such means are vowel polarity, consonantal sound symbolism, reduplication and onomatopoeia. The systematicity of taste lexicalization

14. For this part of research four culinary art programs were monitored, *Swuyomisikhoy* (aired on June 29, 2016; 73 minutes), *Paykongwenyuysamtaychenwang* (aired on May 14, 2016; 92 minutes), *Onulmwemekci?* (aired on July 11, 2016; 28 minutes; aired on July 14, 2016; 30 minutes), and *Nayngcangkolulpwuthakhay* (aired on July 25, 2016; 54 minutes). We thank our assistants, named in the acknowledgment, for collecting data from these programs.

contributes to the plasticity of the paradigm, making the Korean taste vocabulary one of the most productive and elaborate paradigms.

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