

Where flexion encroaches on agglutination in Turkish and Korean

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1. Morphological typology

There are many ways in which the exponents of terms realizing morphological categories — inflectional as well as derivational, though for present purposes we are limiting ourselves to the former — can differ from each other.¹⁾ To name but a few:

- an exponent may separately express two or more (of the terms) of the categories which a given word inflects for, or it may cumulate them in a single form that is not further segmentable;
- an exponent may express a term (or term-bundle, in the case of cumulation) on its own, or the expression of that term (or

1) While the notion of an "exponent" is self-explanatory, we refer to number, case, tense, mood, person, etc. as "categories", and to categories such as singular and plural, nominative and accusative, present and past, indicative and subjunctive, 1st, 2nd, and 3rd, etc. as their "terms".

egrated; separatist, variant, well-integrated; cumulative, invariant, loosely-integrated; cumulative, invariant, well-integrated, cumulative, variant, well-integrated; etc., with equally random combinatorics for any further parameters. But then, a priori, there is nothing to rule out the other extreme either, complete homogeneity of entire inflectional systems and therefore maximal predictability. The generalization for the most orderly of all possible morphological worlds would be that for any language, any exponent of any term of any category (or category-bundle) will only have one or the other of two diametrically opposed repertoires of properties — say, either separatist, invariant, loosely-integrated (etc.) or cumulative, variant, well-integrated (etc.) — so that knowing one you'll know all others.

The real morphological world, so far as can currently be discerned, is neither completely orderly nor completely disorderly. It would therefore be as futile to attempt a wholesale categorization of languages as agglutinative and flexive as it would be rash to abandon the search for generalizations. The obvious research programme to pursue is to establish just how orderly and how disorderly types of exponents, defined through properties like those named above, are assembled in real inflectional systems. The subsequent task, then, is to make sense of one's empirical findings. This can be done in two ways. One is to explain patterns of orderliness in terms of general principles, of a functional or a formal nature, constraining the diversity of exponents and the combination of permissible types in inflectional systems. The other is to

explain the patterns observed through how they have been created in the course of time, in terms of the historical sources of exponents and of the mechanisms of their reanalysis: what co-exists has co-evolved, and what appear to be constraints on co-existence within inflectional systems may turn out to be but the synchronic reflection of constraints on co-evolution.

Given the prominent position of inflection in typological schemes of old, it is surprising how little has been done over the centuries to set this research programme in action. The temptation to characterize whole languages as “predominantly agglutinative” or “predominantly flexive”, however apologetic, has remained as irresistible as ever. The real challenge, which lies in elaborating on “predominance”, has largely remained unanswered, or indeed unrecognized.

In the present paper, following up on earlier exploratory work of our own along these lines (especially Plank 1999), we would like to take this programme a little further and look at only a very few properties of inflectional exponents in only two languages. The parameters chosen — loose/tight phonological cohesion (Section 2) and separation/cumulation and invariance/variance (Section 3) — have always been top of the list in setting agglutination against flexion. The two languages in focus — Turkish and Korean — have been among the most popular illustrations of strong agglutinative predominance. The purpose is to shed more light on the question of what minimal deviations from the agglutinative prototype can be like.

2. Phonological cohesion

Languages differ in the way they integrate morphological exponents less or more tightly, among each other and with their stems, depending on the type of phonological processes they employ at or across morphological boundaries. Flexive languages are expected to exhibit tighter phonological cohesion compared to agglutinating languages, where cohesion is due to phonological processes such as vowel harmony supposedly specific to agglutination and to consonantal sandhi assimilations as found just about everywhere. Meeting this expectation, Turkish and Korean make extensive use of such processes, but allomorphic variation due to them is generally very transparent. The vowel alternations in affixes which depend on the quality of the root vowel in Turkish do not pose any difficulty for speakers seeking to identify underlying forms of morphemes. Similarly, Hangul spelling conventions can be taken to suggest that phonological alternations are only a surface phenomenon for Korean speakers since Hangul only represents morphophonemic forms.

Both in Korean and Turkish allomorphic variation is typically a matter of affixes and other bound elements rather than stems. For instance, Ko (2002) observes that the forms of inflectional exponents in Korean alternate depending on the phonological context of the base, but the noun base almost never changes. Similarly, it is the phonological disposition of the stem in Turkish that typically triggers the different surface variants of affixes. In the following

examples, the surface variants of the Korean case endings (1), and the Turkish passive and the causative endings (2) are phonologically conditioned by stem-final vowels or consonants.³⁾

(1)	a.	/salam-i/	'person (NOM)'
		person-NOM	
	b.	/so-ka/	'cow (NOM)'
		cow-NOM	
	c.	/salam-il/	'person (ACC)'
		person-ACC	
	d.	/so-lil/	'cow (ACC)'
		cow-ACC	
(2)	a.	yap-il-di.	'It was done.'
		do-PASS-PAST	
	b.	boya-n-di.	'It was painted.'
		paint-PASS-PAST	
	c.	yap-tır-di-m.	'I had (it) made.'
		do-CAUS-PAST-1SG	
	d.	boya-t-ti-m.	'I had (it) painted.'
		paint-CAUS-PAST-1SG.	

3) For Korean examples, we employ phonetic transcription as much as possible. Korean voiceless and voiced alveo-palatal affricate consonants are transcribed with /c/ in order to be consistent with the way these sounds are traditionally transcribed in the Korean linguistics literature. Obstruent consonant with no diacritic marker are plain consonants, as opposed to tense (e.g., /c'/) and aspirated (e.g., /c^h/). Turkish examples are given according to the conventions of Turkish orthography. Accordingly, *i* and *ı* represent the high front unrounded and high back unrounded vowel, respectively. *ü* indicates the high front rounded vowel, *ö* the non-high front rounded vowel. *ş* represents the voiceless palato-alveolar fricative; *ç* and *c* indicate voiceless and voiced palato-alveolar affricates, respectively. Capital letters indicate phonemes that undergo assimilation processes. Accordingly, /A/ and /I/ represent vowels that undergo harmony for backness and rounding, respectively.

One of the very rare instances of an alternation not really in style for agglutinative inflection is nominative *-i/-ka* in Korean: unlike *-il/-lil*, though equally phonologically conditioned, this alternation is not itself the doing of phonology. (Old Korean only had *-i* as a nominative suffix, and its non-phonological alternant is a later innovation, rather than the result of phonological differentiation with the ties between former phonological alternants eventually severed.) There are also instances in Korean where the selection of affix alternants (usually ones phonologically related) is conditioned semantically: for example, dative is *-ey* for inanimates and *-eykey/-hanthey* for animates (*-kkey* honorific); semantic conditioning again seems more characteristic of agglutinative than of flexive systems.

There are several instances where bases in both Korean and Turkish show unpredictable allomorphic alternation in derived environments, something typically attributed to flexive languages. Personal pronouns in Korean constitute one such case. Ko (2002) observes that the addition of the nominative alters the form of the 1st and 2nd person singular personal pronouns (3).

(3)	ACCUSATIVE	NOMINATIVE	
a.	[na] (나)-lul	[nɛ] (나) -ka	'I'
b.	[nə] (너)-lul	[ne] (너) -ka	'you'
c.	[cə] (제)-lul	[ce] (제) -ka	'I'

Stem alternations are also very rare in Turkish. Just like in Korean, however, vowels in pronouns change depending on the type of case ending they receive. Strikingly, it is also the 1st and 2nd

person singular pronouns that undergo such change. As illustrated in (4), the nominative (without suffix, this being the citation form) and the accusative are without stem-vowel change. With the addition of the dative suffix, however, the vowel in the pronouns obligatorily becomes a low back vowel.

(4)	NOMINATIVE	ACCUSATIVE	DATIVE		
a.	ben	ben-i	ban-a	(*ben-e)	'I'
b.	sen	sen-i	san-a	(*sen-e)	'you'

One might expect that if phonological operations tighten the cohesion between word parts, there should also be some correlate on the side of morphological bonding. Morphologically speaking, bound morphemes can be said to be loose if they can be omitted when multiple words within the same phrase would carry the same exponent. Based on suspended affixation patterns in Turkish, where one grammatical ending serves two or more parallel words in coordinate constructions (e.g., Lewis 1967: 35), Kabak (to appear) shows that the dative suffix cannot be omitted from the non-final conjunct with the 1st and 2nd person singular pronouns, while the omission of the same suffix on other pronouns creates more acceptable structures. This is illustrated in (5), where the dative suffix is omitted from the first conjunct of the coordinate construction.

- (5) a. *İlk önce [sen ve ben]-a bak-tı, (İlk önce sen-a ve
ben-a baktı.)
first [you and I]-DAT look
Intended meaning: 'S/he first looked at you and me.'

- b. İzin sadece [biz ve siz]-e ver-il-ecek.
 permission only [we and you(PL)]-DAT give-PASS-FUT
 'The permison will be granted only to you (PL) and us.'

We can take this to suggest that the dative suffix, which can be freely suspended in other contexts, coheres more tightly with the 1st and 2nd person singular pronouns than with other pronouns, both phonologically (indicated by the vowel alternation) and morphologically (indicated by the impossibility of suspending affixation).

Unlike nouns, some verbs also show stem alternations in Korean. For instance, verb-final consonants change before vowels. Table 1 shows the patterns of alternation and provides some example verbs that undergo the change. Examples (6), (7), and (8) illustrate the context where these changes take place (examples from Sohn 1999: 187-189).

Table 1: Irregular verbs in Korean

p-irregular verbs: /p/ → [w]		
/chup/ 'be cold', /ko:p/ 'be pretty', /nu:p/ 'lie down', etc.		
t-irregular verbs: /t/ → [ɭ] ([r.])		
/tit/ 'hear', /mu:t/ 'ask', /kə:t/ 'walk', etc.		
s-irregular verbs: /s/ → zero		
/i:s/ 'join, connect', /na:s/ 'get well', /ci:s/ 'build/make', etc.		

- (6) a. /təp-ta/ [tə:p.t'a] 'is hot'
 b. /təp-əsə/ [təwəsə] 'as (it) is hot'
 c. /təp-ini/ [təwini] 'as (it) is hot'
- (7) a. /tit-ko/ [tit.k'o] 'hears and'

	b. /tit-ini/	[tirini]	'as (he) hears'
	c. /tit-əla/	[tirəra]	'Listen!'
(8)	a. /is-ko/	[i:s.k'o]	'joins (them) and'
	b. /is-ini/	[i.i.ni]	'as (he) joins (them)'
	c. /is-əla/	[i.ə.ra]	'Join (them)!'

Turkish also has variable stems. This is typically the result of assimilations and elisions that apply to stem-final vowels in derived environments. However, only verbal stems show such vowel alternations. For instance, the raising of low vowels before a morpheme-initial palatal glide⁴) (indicated here in bold) is almost always obligatory in monosyllabic verbs (9, 10).

(9)	a. ye	'Eat!'
	eat	
	b. ye-di	'S/he ate.'
	eat-PAST	
	c. yi-yecek (*ye-yecek)	'S/he will eat.'
	eat-FUT	
	d. yi-yen (*ye-yen)	's/he who eats'
	eat-REL	
(10)	a. de	'Say (it)!'
	say	
	b. de-di	'S/he said.'
	say-PAST	
	c. di-yecek (*de-yecek)	'S/he will say.'
	say-FUT	
	d. di-yen (*de-yen)	's/he who says'
	say-REL	

4) A number of nominal and verbal suffixes take their palatal glide-initial variants to avoid vowel hiatus in Turkish (see Kabak 2005 for details).

With polysyllabic stems, however, the raising of the stem-final vowel is optional; it is more common in colloquial forms of the Istanbul variety. The raising of verb-final vowels results in opacity in the context of polysyllabic words. When final vowels become high, they lose the specification for place and rounding features. As such, the stem-internal vowel harmony⁵⁾ of the verb root resumes, and the place and rounding specification of the preceding vowel spread to the underspecified vowel, as well as to any subsequent vowels external to the stem (11).

- | (11) | <u>Underlying</u> | <u>Non-Colloquial</u> | <u>Colloquial</u> | |
|------|-------------------|-----------------------|-------------------|-----------------------|
| a. | /boya-(y)AcAk/ | → [boya-yacak] | [boyu-y(a)cak] | 'S/he will
paint.' |
| | paint-FUT | | | |
| b. | /söyle-(y)ArAk/ | → [söyle-yerek] | [söylü-yerek] | 'by saying' |
| | say-by | | | |
| c. | /tara-(y)IncA/ | → [tara-yınca] | [tarı-yınca] | 'when
combing' |
| | comb-while | | | |

Nominal inflectional morphemes also surface as having an initial palatal glide due to the same phonological constraint that disallows adjacent vowels. Furthermore, the bound forms of the copular verb *i-* and the postposition *ile* 'with' also begin with a palatal glide. However, unlike in verbs, the raising is impermissible in nomi-

5) Turkish vowel harmony requires that the vowels of a particular string should all be either front or back (palatal harmony), and, only in the case of high vowels, also share the same value for rounding (labial harmony). There are also roots and affixes that do not obey the palatal and labial harmony patterns (see Clements & Sezer 1982; Kabak & Vogel 2001, to appear for further details).

nal-final vowels when such morphemes follow them (12).

- (12) a. /para-(y)I/ → [para-yı] * [parı-yı] 'money (ACC)'
 money-ACC
 b. /kita-(y)A/ → [kita-ya] * [kitı-ya] 'to a continent'
 continent-DAT
 c. /tepe-y-mış/ → [tepe-ymiş] * [tepi-ymiş] 'It was a hill.'
 hill-COP-EVID
 d. /koro-(y)la/ → [koro-yla] * [koru-yla] 'with the choir'
 choir-with
 e. /boya-(y)I/ → [boya-yı] * [boyu-yu] (cf. 11a) 'paint (ACC)'
 paint-ACC

In Korean, phonological changes that affect stem vowels seem to be related to verbs, too. Korean has developed tendencies toward umlauting, especially observed in casual speech, and obligatory in the Kyengsang and Cenla dialects (Sohn 1999; Ahn 1987; Hume 1999). Roughly, a back vowel becomes front and unround when followed by a high front vowel within words (e.g., Hume 1990).⁶⁾

- (13) a. /aki/ → [ɛgi] 'child'
 b. /koki/ → [kegi] 'meat'
 c. /mək-hi-ta/ → [mek^h-i-da] 'to feed'
 d. /cuk-i-ta/ → [cig-i-da] 'to kill'

As can be seen from (13), umlauting takes place in morphologically simple as well as in complex forms. When the trigger /i/ is part of a suffix, it must be either the nominalizer or the passive/causative

6) For completeness, it should be noted that umlauting does not take place if there is a geminate (e.g., /mak-ki/ → * [mek,ki]) or a palatal consonant intervening (e.g., əpfi → * [epfi]). It does not occur across word boundaries, either.

marker. Therefore only verb stems show umlauting in derived environments.

Vowel-shortening provides yet another example where we see a differential behavior between parts of speech with respect to stem alternations. Sohn (1999: 193) notes that a long vowel in the final syllable of a verb is shortened before a suffix-initial vowel (14) and before the causative or the passive suffix (15).

- | | | | | |
|---------|-----------------|---|-----------|-----------------|
| (14) a. | /ku:lm-ə/ | → | [kulum-ə] | 'by starving' |
| | b. /cə:s-ini/ | → | [cə-ini] | 'as (he) stirs' |
| (15) a. | /cu:l-i-ta/ | → | [curida] | 'reduce' |
| | b. /ka:m-ki-ta/ | → | [kamgida] | 'be wound' |

In both languages, the shape of bound morphemes can further change depending on adjacent phonological segments in another bound morpheme in the environment, tightening the cohesion between the two even further. For instance, the raising of low vowels in the context of a palatal glide in Turkish can also apply to suffix-final vowels in colloquial varieties (16a-b). Strikingly, again, the raising of vowels in these cases can only be triggered by verb-bound morphemes. This is evinced by the fact that palatal-initial non-verbal bound morphemes, such as case endings, do not raise the vowels of preceding suffixes (16c-d).

- | | | | | |
|---------|-----------------------|---|-----------------------------------|------------------------|
| (16) a. | /yap-mA-(y)An/ | → | *[yap-ma-yan][yap-mi-yan] | 's/he who doesn't do' |
| | | | come-NEG-REL | |
| | b. /kilit-lA-(y)IncA/ | → | *[kilit-le-yince][kilit-li-yince] | 'when s/he locks (it)' |
| | | | lock-DER-'while' | |
| | c. /koş-mA-(y)A/ | → | *[koş-ma-ya][koş-mi-ya] | 'to running' |

koş-DRVBL-DAT
 d./Alman-cA-(y)I/→*[Alman-ca-yı]*[Alman-cı-yı]'the German language'
 German-DER-ACC

Likewise, tight phonological cohesion is also observed with certain pre-final and final endings in Korean. The optional simplification of two adjacent vowels takes place with the subject honorific suffix and the polite sentence ender (17), as well as when a stem-final vowel is followed by a vowel of a verbal suffix (18). Yet again, the fusion that arises from the simplification of vowel clusters is crucially a matter of verbal morphemes.

- (17) a. /-(i)si/ + /-əjo/ → [-(i)se]
 SH POL
 b. /ka-si-əjo/ → [ka-sejo] '(He) goes.' (from Sohn 1999: 183)
 go-SH-POL
 (18) a. /ponɛ-əla/ → [ponɛ-ra] 'Send (it)!' (from Sohn 1999: 193)
 b. /ka-as'-ta/ → [kat-t'a] 'went'

So far, we have observed that both languages exhibit alternations of stems and affixes which are conditioned phonologically and which are themselves (with the exception of nominative *-i/-ka* in Korean) of a phonological kind. We have shown, however, that the fusional tendencies manifesting themselves in such phonological variation are split by word class, as verbs and personal pronouns (especially of 1st and 2nd person) tend towards variance while nouns tend towards invariance.

Such variance in stems and bound forms raises an interesting question as to the status of allomorphic variation in agglutinative

systems, where morpho-phonemic alternations usually result from structure-preserving phonological processes. The Derived Environment Constraint (Kiparsky 1973) holds that rules that neutralize contrasts may not affect basic lexical items; otherwise the recovery of the underlying structure of the morpheme would be confounded. Accordingly, phonological operations that neutralize phonological contrasts are structure-preserving and they may apply only to configurations which constitute environments that are derived, for instance, through processes of affixation. Thus, in both Turkish and Korean, the optional or speech-style-determined phonological alternations that affect the integrity of lexical items by changing the quality of verb-final vowels are not structure preserving, as they neutralize vowel contrast within roots. This may be taken to suggest that the alternations in stems need to be specified in the lexicon. Accordingly, for instance, the Korean and Turkish 1st and 2nd person singular pronouns should either be specified in the lexicon as being subject to vowel changes or be listed along with their back vowel counterparts. Similarly, the final segments of verbs which undergo phonological change in both languages and the vowel-shortening in Korean verbs somehow also need to be specified in the lexicon so as to allow speakers to recover the underlying forms of morphemes that contain these changes on the surface.

What should be specially emphasized is that the phonologies of Korean and Turkish make crucial reference to morphological category information. In particular, most phonological operations effectuating cohesion are sensitive to the distinction between verbs

(plus 1st and 2nd person pronouns) and nouns. As such, the origin, restructuring, and loss of morphology will arguably show split behavior insofar as phonology plays a major role in the development of morphological systems. The emergence of phonological processes selecting different morphological categories — why verbs and personal pronouns appear to be more vulnerable to phonological change — remains a fruitful area of investigation. Perhaps verbs and personal pronouns in general are morphologically more complex than nouns, and are therefore more liable to create conditions conducive to processes of phonological cohesion. Psycholinguistic research more specifically focused on lexical classes might reveal differences in representation and processing of forms differing in structural complexity. Another potentially relevant consideration is that verbal and pronominal inflection is probably older than noun inflection, with phonological integration progressing in the course of time.

3. Variance/invariance and separation/cumulation

Agglutinative morphological systems typically employ morphological exponents that are invariant for all bases in their domain. By morphological variance, we do not mean surface variation which results from purely phonological operations. Variance in the strictest morphological sense is concerned with alternations which are lexically or morphologically conditioned and which are themselves

not of a phonological nature (see Plank 1999: 306 and 2000 for further discussion and examples). Another prominent trait of agglutinative systems is their strive for expressing morphological categories separately, rather than inextricably cumulating them. Again, we want to emphasize that phonological fusion is different from morphological cumulation, though in the course of time the former may eventually result in the latter. Both Turkish and Korean inflection are extensively separatist and overwhelmingly morphologically invariant; though sometimes they are infiltrated by the opposite flexional tendencies. In the following, we will illustrate where Turkish and Korean deviate from strict invariance and separation, and along which lines splits run between variance and invariance and separation and cumulation.

Consider the morphological categories given in Table 2 below, all of which potentially inflect a verb root in Korean main clauses. We adopt Sohn's (1999: 231–238) classification of verbal inflectional morphemes, where verbal inflectional categories are initially divided into two groups, non-terminal vs. terminal (sentence-enders).⁷⁾ All Korean verbs must take an ender, which, among other things, relates the verb to a main clause or discourse. Non-terminal morphemes, which come after derivational morphemes as well as the passive marker, however, are optional, and they strictly come before sentence-enders.

7) See, for example, Chang (1996) and Martin (1992) for other classifications.

Table 2: Korean Inflectional Morphology (Main Clauses)

	Categories	Terms
Non- Terminal	Honorific	<i>a. Subject Honorific (SH)</i> <i>(b. Addressee Honorific (AH))</i>
	Tense/Aspect	<i>a. Past/Present Perfect</i> <i>b. Past Past/Past Perfect</i>
	Modality	<i>a. Intention/Conjecture</i> <i>b. Prospective</i>
Sentence – enders	Honorific	<i>b. Addressee Honorific (AH)</i>
	Mood	<i>a. Indicative</i> <i>b. Retrospective</i> <i>c. Requestive</i>
	Sentence Type	<i>a. Declarative</i> <i>b. Interrogative</i> <i>c. Propositional</i> <i>d. Imperative</i>
	Speech Level	<i>a. Plain</i> <i>b. Intimate</i> <i>c. Familiar</i> <i>d. Blunt</i> <i>e. Polite</i> <i>f. Deferential</i>

Mastering Korean verbal inflectional morphology would pose no great challenge for a learner if it possessed clearly separatist exponents for each inflectional category, with one invariant exponent for each of them. As such, the learner would only need to tackle, for instance, three terms realizing mood, four realizing sentence type, and six realizing speech level, yielding seventy-two different possible combinations of verbal inflections in main clauses. This is, however, not the state of affairs for at least three reasons. First,

there are restrictions on the co-occurrence of certain terms. Second, there are cases where the exponents of certain terms are not marked, or they vary depending on what other terms follow. Third, not every term is realized independently from terms realizing other categories. The first restriction follows from the semantic-pragmatic incompatibility of certain terms realizing inflectional categories with one another. For example, the indicative and retrospective mood endings only apply to declarative and interrogative sentence types while the requestive mood ending only goes with the propositive and imperative sentence types. The second and the third restrictions are truly morphological, following from morphologically conditioned variance and the cumulation of inflectional categories, respectively. As we will see below, morphological variance and cumulation are not necessarily interdependent: each can be combined with one another. While the cumulation of different terms realizing categories ultimately results in variance, variant morphological exponents do not necessarily fall from cumulation.

In Korean, we do not encounter any variance (except for predictable phonologically alternation) when we look at non-terminal inflections. In particular, subject honorific is invariably expressed by /-(i)si/.⁸⁾ As to tense/aspect, the past/present perfect is expressed by /-(A)s'/. where the initial vowel deletes after a vowel, or it is realized as [a] following /a, o/, otherwise [e]. The past perfect is expressed via the repetition of the past tense marker

8) Phonemes in parentheses indicate those segments that alternate depending on the phonological context.

/-(A)s'/, yielding /-(A)s'-es'/ . As for terms realizing modality, intention/conjecture and prospective are invariably expressed as /-kes'/ and /-(i)l/ (/-(i)li/ in relative clauses), respectively.

In striking contrast to non-terminal morphemes, those exponents expressing categories that belong to sentence-enders show a great deal of variance, motivated by other categories that they co-occur with. For instance, addressee honorific is expressed either as /-(si)p/ or /-(i)p/, depending on the type of speech level: the /-(si)p/ variant is used with the deferential ending, while /-(i)p/ goes with the blunt level of speech. As for mood, the exponents of the indicative, the retrospective, and the requestive may vary depending on the various possibilities in which sentence type and speech level markers can be combined. For instance, indicative mood can only be used in declarative and interrogative sentences. The ending is /-ni/ in declarative sentences with deferential speech level. It becomes /-n(in)/ with plain speech level. In interrogative sentences, however, it loses the final nasal part of the morpheme when the speech level is plain or familiar, being expressed as /ni-nya/ and /ni-nka/, respectively.⁹⁾ Elsewhere, the indicative mood is expressed by a zero exponent. Likewise, the requestive mood, which is reserved for propositive and imperative sentences, is usually unmarked (i.e., expressed by a null exponent), except for blunt

9) Sohn (1999) analyses the second nasal consonant as part of the plain and familiar speech level markers (i.e., *-nya* and *-nka*, respectively). The fact that the nasal also emerges with the retrospective mood /-tə/, which does not contain a nasal, in the same speech levels (i.e., /-tə-nja/ and /tə-nka/) can be claimed as evidence for this assumption.

and deferential speech levels, where there is an overt suffix /-si/. Finally, the retrospective mood is /-tə/, which either becomes /-ti/ in the deferential declarative (/ -ti-ta/) and in the interrogative deferential (/ -ti-k'a/), or cumulates with the plain speech level marker in the interrogative (/ -t-i/).

As for sentence type and speech level, we observe that the two categories cumulate extensively, making it difficult to associate the terms realizing these categories with a single invariant exponent. While with addressee honorific and mood categories variance is mostly due to which other categories co-exist in the same word, the cumulation of morphological terms are responsible for variance with the sentence type and speech level categories. It is instructive here to note that cumulated terms can also vary due to morphological conditioning, suggesting that cumulation and variance are two logically independent poles of parameters defining morphological systems. For instance, the plain speech level and the declarative sentence type marking is cumulated in /-ta/ when mood is indicative (19a); however, the same cumulated categories are expressed as /-la/ with the retrospective (19b).

(19) a. /mæk-nin-ta/
eat-IND-DEC.PLN

b. /mæk-tə-la/
eat-RET-DEC.PLN

Likewise, the familiar speech level is /j/ in the declarative sentences regardless of the type of mood (20a). When cumulated with the interrogative, the exponent becomes /-nka/, phonologically distant

to /j/ (20b).

- (20) a. /mæk-tə-j/
eat-RET-DEC.FML
b. /mæk-tə-nka/
eat-RET-INTR.FML

The interrogative sentence type fuses with other terms realizing speech level, yielding several other variants, as shown in (21).

- (21) a. mæk-tə-nja
eat-RET-INTR (Plain)
b. mæk-ni-nja
eat-IND-INTR (Plain)
c. mæk-sip-ti-k'a
eat-AH-RETR-INTR (Deferential)
d. mæk-sip-ni-k'a
eat-AH-IND-INTR (Deferential)
e. mæk-tə-nka
eat-RETR-INTR (Familiar)
f. mæk-ni-nka
eat-IND-INTR (Familiar)

This does not necessarily mean that there is always variance when terms cumulate in Korean. For instance, /-ta/ can invariably express both the plain and deferential speech levels in declarative sentences, as illustrated in (22).

- (22) a. mæk-nin-ta
eat-IND-DECL (Plain)
b. mæk-sip-ni-ta
eat-AH-IND-DECL (Deferential)

- c. mək-sip-ti-ta
eat-AH-RETR-DECL (Deferential)

It seems that deferential speech level is expressed when the addressee honorific marker co-occurs with the declarative ending /-ta/ (or with the interrogative /-k'a/). In the absence of addressee honorific, the default interpretation of /-ta/ is the plain declarative.¹⁰⁾ It should be also noted that the terms realizing Sentence Type (e.g., the interrogative morphemes in 21) vary depending on whether there is an addressee honorific marker earlier in the verb, suggesting that variance and cumulation are not only conditioned by adjacent categories.

As for Turkish inflectional morphology, we see that a number of verbal inflectional categories can attach to a verb. Like in the discussion of Korean, our focus is on main clauses. Person-number marking, which can be phonologically null (3SG), is obligatory to terminate a verb. That is, like in Korean, Turkish verbs need to be closed by a terminal category such as the person-number agreement marker to gain morphological word status. The scheme in (23), adopted from Göksel (2001), shows the linear line-up of verbal inflectional categories in main clauses. The examples in (24) illustrate such inflectional categories in main clauses.

- (23) Verb-NEG-ABIL-TENSE/ASPECT/MOOD-COND-AGR

- (24) a. gel-me-yebil-ir-di-ler.

10) However, the removal of the marker /-sip/ does not always end in such a default plain interpretation. This is indicated by (21a, b) above, where plain interrogative is /-nja/.

come-NEG-ABIL-AOR-PAST-3PL

'They might have not come'

b. gid-iyor-muş-sun-uz.

go-PROG-EVID-2PL-PL

'You (PL) were going (I heard).'

Naturally, not every category can occur at the same time because of semantic conditions. For instance, those terms belonging to a category slot in (23), such as future and progressive, cannot co-occur for semantic reasons (see Göksel 1998 and 2001 for morpho-syntactic constraints on word size in Turkish). Apart from the phonologically motivated allomorphs of terms realizing inflectional categories, none of the inflectional categories in Turkish, except for person-number, exhibits variance in its true morphological sense. Plank (1999) observes that person-number marking on Turkish nouns to indicate possessors is less invariant than person-number marking on verbs. While there is only one paradigm for nouns, verbs can take up to four different person-number paradigms depending on which other categories they inflect for. Paradigm 1 consists of diachronically cliticized forms of the predicate final pronouns, which started to appear around the thirteenth century (Adamovic 1985). This paradigm obligatorily appears with aspect markers, such as the aorist and the progressive. Paradigm 2 inflects a limited number of markers, namely the past tense marker and conditionals. The origin of this paradigm is not very transparent although there is some indication that Old Turkic preterite forms were constructed via the person-number markers on nouns, also evinced by the similarity between the nominal per-

son-number paradigm and Paradigm 2, especially with regard to 1st and 2nd person singular and 2nd person plural (see Adamovic 1985; Timurtaş, 1994). Paradigm 3 and 4 are obligatorily restricted to the subjunctive and the imperative.¹¹⁾ Table 3 illustrates the nominal person-number paradigm. Table 4 provides four different person-number inflectional paradigms on the verb *yap* 'do/make'.

Table 3: Nominal person-number inflections in Turkish

1SG	<i>araba-m</i>	'my car'
2SG	<i>araba-n</i>	'your car'
3SG	<i>araba-sı</i>	'his car'
1PL	<i>araba-m-ız</i>	'our car'
2PL	<i>araba-n-ız</i>	'your (PL) car'
3PL	<i>araba-lar-ı</i>	'their car'

Table 4: Verbal person-number inflections in Turkish

	<u>Paradigm 1</u>	<u>Paradigm 2</u>	<u>Paradigm 3</u>	<u>Paradigm 4</u>
1SG	<i>yap-ar-ım</i>	<i>yap-tı-m</i>	<i>yap-a-yım</i>	—
2SG	<i>yap-ar-sın</i>	<i>yap-tı-n</i>	<i>yap-a-sın</i>	<i>yap-0</i>
3SG	<i>yap-ar-0</i>	<i>yap-tı-0</i>	<i>yap-a-0</i>	<i>yap-sın</i>
1PL	<i>yap-ar-ız</i>	<i>yap-tı-k</i>	<i>yap-a-lım</i>	—
2PL	<i>yap-ar-sın-ız</i>	<i>yap-tı-n-ız</i>	<i>yap-a-sın-ız</i>	<i>yap-ın-ız</i>
3PL	<i>yap-ar-lar</i>	<i>yap-tı-lar</i>	<i>yap-a-lar</i>	<i>yap-sın-lar</i>
	do-AOR-PERS.NMB	do-PAST-PERS.NMB	do-SUBJ-PERS.NMB	do-PERS.NMB

11) It should be noted that the imperative mood is not expressed with an overt exponent, unlike, for instance, the subjunctive. If no null morphemes are assumed, it could also be suggested that Paradigm 4 cumulates the imperative mood with person and number.

Apart from the lack of invariance that arises in person-number inflection due to the existence of several different paradigms, there is another morpheme that exhibits variance. Turkish plural is invariably expressed by /-lar/ (e.g., *araba-lar* 'cars'). However, as can be seen in paradigms, the plural is /-lar/ for the 1st and 2nd person (/-lar/ also exists in the 1st and 2nd person plural pronouns, *biz* 'we' and *siz* 'you (PL)'). Apart from these two cases, Turkish inflectional morphology has consistently invariant and separatist expression of its morphological terms.

Overall, it is instructive to consider the variant and cumulative exponents of inflectional categories in both languages in question. Person-number marking, which syntactically projects an Agreement Phrase (AGRP) in Turkish, is a peripheral element, and it is obligatory for verbs in Turkish. This coincides with where we also find a great deal of variance and cumulation in Korean. Namely, it is only sentence-enders that show variation and sentence-enders are the obligatory elements of a verb in Turkish, and they are crucially peripheral to other (non-terminal) categories.

In sum, then, both Turkish and Korean inflectional systems exhibit invariant exponence to a great extent. Where variance is observed, however, this seems to be split by either word class, as verbs are more dominantly variant than nouns (just as verbs were seen in Section 2 above to be phonologically more cohesive than nouns), or by inflectional categories, as evidenced by person-number in Turkish and several other categories (such as sentence type and speech level) that are known to be sentence-enders in Korean.

Abbreviations

ABIL	Abilitative
ACC	Accusative
AH	Addressee Honorific
AOR	Aorist
COND	Conditional
DAT	Dative
DEC	Declarative
DER	Derivational
DVRBL	Deverbalizer
EVID	Evidential
FML	Familiar
FUT	Future
IND	Indicative
INTR	Interrogative
NEG	Negative
NMB	Number
SG	Singular
PASS	Passive
PAST	Past
PERS	Person
PL	Plural
PLN	Plain
PROG	Progressive
RETR	Retrospective
REL	Relativizer
SUBJ	Subjunctive

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