

Morphological Expression and Ordering in Korean and Japanese*

Peter Sells

This paper is concerned with three areas of Korean and Japanese morpho-syntax in which an account based on Optimality Theory seems to provide certain advantages of explanation and simplicity over previous accounts. The areas discussed are : the interaction of the copula and genitive marker with structural case markers and other 'final' nominal suffixes, such as the topic marker; the Japanese prenominal morpheme *-no*, in its alternations with *-na* and \emptyset ; and the competition between words and small syntactic constructions, such as those involving adjectival nouns. The general approach here leads to a view of the notion of 'economy of expression' which is directly linked to the morphological forms of the language, as opposed to some larger and perhaps less clearly motivated syntactic constructs.

0. Introduction

In this paper I will discuss some aspects of the expression of inflectional suffixes in Korean and Japanese, presenting an account based on recent work in Optimality Theory (OT) as applied to morphology and syntax. We can treat the grammar as a system that gives expression to grammatical and semantic information, expressed either as extended argument structures (Grimshaw 1995) or skeletal f-structures (Bresnan 1996). This

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enables the prediction of certain aspects of morphological ordering that were presented as stipulations in Cho and Sells (1995) and Sells (1995), and can incorporate some of the suggestions in Yoon (1995), once we link constraints to particular morphemes. As OT puts the emphasis on partial morpho-syntactic information carried by each element, and on the actual surface expressions of the language, it provides an interesting framework to explore what properties of the language can be derived directly from the surface forms. The paper explores three different areas where an OT analysis provides an explanation for certain descriptive generalizations.

In OT, constraints are violable and ranked (see Prince and Smolensky 1993). Different languages have different rankings of the constraints. For a given input—in this paper, abstract grammatical and semantic information—the optimal output is the morpho-syntactic expression which best satisfies the constraints in their ranking, even if some constraints are violated. For instance, in the transformational model of Grimshaw (1995), in order to express a constituent question in English, a *wh*-phrase must be moved to an operator position, such as Specifier of CP. This motivates a constraint OP-SPEC ('operator must be in specifier position'). On the other hand, elements normally do not move unless forced to (expressed by the constraint STAY). By ranking OP-SPEC as a higher constraint than STAY, those structures in which a *wh*-phrase has moved will be preferred as expressions for an input involving a constituent question meaning, even though those structures will violate STAY. This is illustrated for the embedded question 'what Max bought' in (1).

(1)

| | OP-SPEC | STAY |
|--------------------------------------|---------|------|
| [_{IP} Max bought what] | *! | |
| ☞ [_{CP} what [Max bought]] | | * |

Here, both candidate expressions violate one constraint, but the second candidate satisfies a higher ranked constraint, and hence is preferred. The '!' notation indicates the point at which a given candidate is ruled out relative to a better candidate.

In contrast to English, in a language like Korean, '*wh*-in-situ' could be accounted for in the grammar by ranking the constraints in the opposite order.

1. Korean Positional Morphology

The system of nominal suffixes in Korean as analyzed by Cho and Sells (1995) is as follows. There are 4 types of morpheme, which appear in the order as determined by the templates in (4).

| | | | |
|-------------------------------|---------------|--------------------|---------------------------------|
| (2) Postpositions | | Conjunctives | |
| <i>eykey(se), hanthey(se)</i> | dative | <i>hako, (k)wa</i> | conjunctor |
| <i>ey, eyse</i> | locative | <i>poŋa</i> | comparator |
| <i>ey, (u)lo</i> | directive | <i>(i)na</i> | disjunctor/ 'something like' |
| <i>(u)lo</i> | instrumental | | |
| <i>kkaci</i> | goal | <i>pwuthe</i> | 'from' |
| <i>hako, (k)wa</i> | comitative | <i>chelem</i> | 'like' |
| <i>kkey</i> | dative (hon.) | | |
| <i>kkeyse</i> | hon. subj. | | |

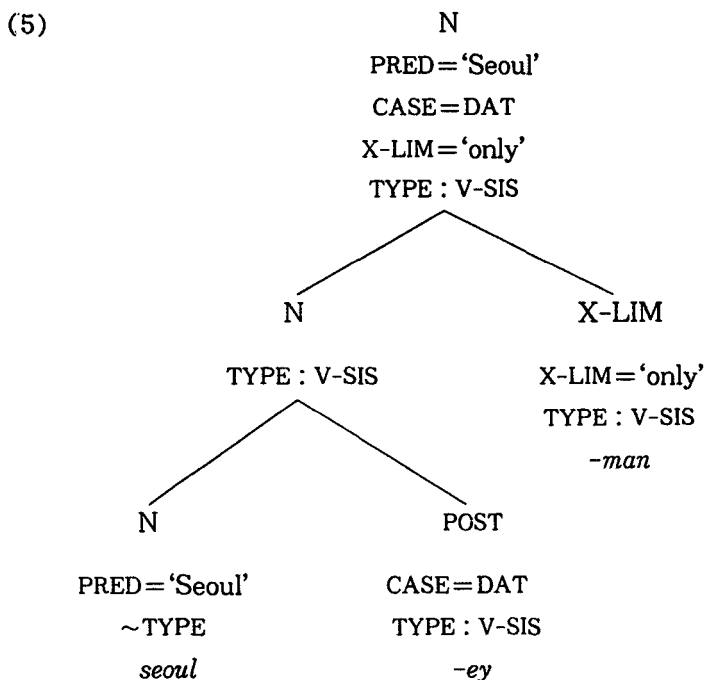
(3) Delimiters

| | | | |
|---------------|--------|----------------|-------------|
| 'X-LIM' | | 'Z-LIM' | |
| <i>man</i> | 'only' | <i>(n)un</i> | TOPIC/FOCUS |
| <i>kkaci</i> | 'even' | <i>to</i> | 'also' |
| <i>mace</i> | 'even' | <i>(i)lato</i> | 'even' |
| <i>cocha</i> | 'even' | <i>i/ka</i> | NOM |
| <i>pakkey</i> | 'only' | <i>(l)ul</i> | ACC |
| | | <i>uy</i> | GEN |

- (4) a. Nominal template : Nroot – POST – CONJ⁻
 b. Xdim : <[TYPE : V-SIS]> – X-LIM – Z-LIM

The Nominal template in (4a) provides a frame for part of the nominal morphology, and the 'Xdim' template in (4b) provides the rest. That template refers to the TYPE specification in the system proposed in Cho and Sells (1995), which determines the syntactic environment in which a given word can appear. As stated, the template in principle allows the delimiters to be attached to any element, nominal or verbal, which has the TYPE value V-SIS—roughly speaking, any word that would appear as a non-head in a verbal projection.

The function of these templates is illustrated in (5), a simplified structure of the word *seoul-ey-man* 'only to Seoul'.



The postpositional affix *-ey* is licensed on the noun root by (4a), and provides the information that the immediately dominating structure has a TYPE value of V-SIS, and adds the information about CASE. The left sister of the next affix, *-man*, has the V-SIS specification, and so (4b) licenses the X-LIM element *-man*.

The templatic approach has been criticized in Yoon (1995). These are criticisms that I broadly agree with, and so I hope that future work can successfully derive the morpheme ordering restrictions in a more principled way.¹ In this section of the paper, though, I want to look at morphemic interactions within the descriptive framework of (2)-(4).

First, consider the Korean copula *-i* and the genitive *-uy*. Both morphemes exclude the simultaneous presence of the final 'delimiters' (Z-LIMs) such as the structural case markers, *-(n)un*, and so on (see (6)), but there is no ready explanation for this fact in the case of the copula (see Sells 1996b for more complete discussion). In Sells (1995) these facts were presented as evidence of morphological combination of the copula and genitive,

¹ Yoon (1995) also presents different factual generalizations about all of the 'nominal suffixes', a matter I do not take up here.

though without any real analysis.²

- (6) a. umakka-i-ta ('is a musician')
 b. *umakka-to-i-ta ('is also a musician')
 c. na-uy cha ('my car')
 d. *na-to-uy cha ('a car belonging also to me')

We can force the complementarity with the genitive by listing it in the Z-LIM category, but, this is itself a stipulation, as there is no independent reason to treat the genitive as a Z-LIM. In fact, as observed in Cho and Sells (1995), there is positive evidence that the genitive does not belong in the Z-LIMs, as it is not cross-categorial like the other Z-LIMs: it can only attach to pure nouns. On the other hand, true 'delimiting' elements would be expected to allow hosts of any kind (subject to semantic compatibility), and for the other Z-LIM elements in Korean, this is true (as embodied in (4b)). Additionally, there seem to be strong parallels in Japanese and Korean between the behavior of the copula and that of the genitive, so a more general solution is preferable.

An explanation for the complementarity can be found, if we adopt a theory in which the best candidate surface expression is chosen, based on a ranking of simple constraints. We can account for much of Korean nominal morphology by positing constraints linked to the morphemes themselves, such as:

- (7) a. Post attaches to N-root.
 b. Conj attaches to N.
 c. XLIM attaches to X.

² A reviewer asks why the unacceptable examples in (6) are deemed to be so by the OT analysis, if all that is required is that there is a best candidate output, regardless of how many constraints it violates. For (6b), a better expression of the input is (i):

- (i) umakka-i-ki-to ha-ta
 musician-COP-NOMIN-also do-DECL

Though more complex, this violates the ranked constraints less than (6b), and hence is the preferred (and acceptable) output.

For (6d), there is no acceptable output, as far as I know. This raises the question of how OT deals with cases where there is no acceptable output at all; I will not attempt to address that here.

- d. ZLIM attaches to X, and is last.
- e. Copula attaches to N.
- f. Genitive attaches to N.

The constraints in (7a-c) establish some ordering constraints, and the rest are perhaps semantic in nature (as discussed in Yoon (1995)). The constraints (7d-f) capture the facts relevant to my discussion here in a very simple way. (7d) will force Z-LIMs to be word-final, and we can see that as a result (7d-f) are in potential competition. For example, attachment of a copula after a Z-LIM will violate constraint (7d), and hence, the copula must block the presence of a Z-LIM particle. Hence (6b) is ungrammatical because the Z-LIM suffix *-to* is not last (as seen in footnote 2, the actual surface form has *-to* in the final position in its host word). The constraints (7e-f) also embody the correct generalization that the Korean copula and genitive only attach to pure Ns (in contrast to their Japanese counterparts; see section 2). This fact will come up again in section 3.

I will not formalize the discussion so far, but, rather, move to another similar and direct application of OT. This involves the analysis of morphological forms that contain Z-LIMs, but which for independent reasons we probably want to consider case-marked. Consider (8).

- (8) *pap-un cal mek-supni-ta*
 rice-FOC well eat-LEVEL-DECL
 '(Someone) eats rice well.'

Here, intuitively, *pap* is both focussed and accusative, being the object of a transitive verb, yet only the focus marker can appear. As seen in (9), other elements in the clause can display accusative case, even though the focussed object itself cannot. This follows as a positional constraint in the templatic approach given above—structural case markers and *-(n)un* truly compete for the same position.

- (9) *nay-ka chayk-un sey kwen-ul ilk-ess-ciman ...*
 I-NOM book-FOC three volume-ACC read-PAST-but ...
 'I read three BOOKS, but ...'

Abandoning the template, but applying constraint (7d) to any Z-LIM element, we can set up an OT tableau to account for this. We have the follow-

ing natural constraints, and place greater weight on the expression of semantic features over case features. Finally, the constraint *AFFIX ('Avoid Affix') prefers the fewest affixes possible; there is a penalty for each affix used. However, in order to parse the input information, affixes will be necessary.

- (10) Constraints relevant to the expression of Z-LIMs :
- a. POSITION : morphemes must obey their intrinsic positional constraints (those in (7)).
 - b. PARSE-SEM : parse semantic features (semantic information in the input must be expressed by overt morphemes in the output form(s)).
 - c. PARSE-CASE : parse (structural) case features (case information in the input must be expressed by overt morphemes in the output form(s)).
 - d. *AFFIX : avoid affix.

The tableau in (11) shows the optimal morpho-syntactic expression of the input information, enclosed in the brackets, namely that there is a word 'rice' which is accusative and focussed. There are various candidate output expressions for this input.

(11)

| [rice-ACC-FOC] | PARSE-SEM | POSITION | PARSE-CASE | *AFFIX |
|----------------|-----------|----------|------------|--------|
| pap | *! | | * | |
| ☞ pap-un | | | * | * |
| pap-ul | *! | | | * |
| pap-un-ul | | *! | | ** |
| pap-ul-un | | *! | | ** |

Here the first and third candidates do not express the semantic focus information, and so violate PARSE-SEM. The second candidate violates PARSE-CASE, but that is a more acceptable violation than that which arises with the fourth or fifth candidates, in which one affix violates POSITION. Hence, the second candidate is the best; it satisfies more higher-ranking constraints than any other candidate. The last 4 candidates all violate *AFFIX, which, as I will discuss below, is a general 'economy' condition, preferring the fewest number of affixes possible (the constraint plays no direct role in

this tableau).

With perhaps a slightly different meaning, the form *pap-UL* is acceptable in an example like (8); this is because the Korean structural case markers can have certain kinds of focus interpretations when stressed. In such a circumstance, *-ul* could satisfy PARSE-SEM. For recent discussion of the various types of topic and focus in Korean (though not directly relating to the data here), see Choi (1996). Hence, in more complete work, the nature of focus in the input should be more carefully specified.

I will assume here that PARSE-SEM is inviolable; it seems reasonable that it must be obeyed. The other constraints are demonstrably violable. Even the positional constraints can be violated in certain specific contexts, as shown in (12) (cf. (6b)), which is restricted in usage but possible.³

- (12) *yeki-eyse-to-i-ta!*
 here-at-also-COP.NPAST-DECL
 'It is also here!'

Note that (6b) will still be bad, as there is a better expression of that particular input, as discussed in footnote 2.

2. Japanese Prenominal Forms

This part of the paper is focussed around the Japanese prenominal particle *-no*. The properties of this morpheme are discussed in some detail in Sells (1996a), and I will presuppose some of the analysis in that paper here. The relevant claims that I make are two : first, that *-no* can attach in principle to items of any category and second, that sometimes *-no* is not a genitive but an expression of the copula, which is a derivational suffix in Japanese like the Korean copula exemplified above. In all the examples, I gloss *-no* as LNK for 'linker'.

These properties can be illustrated by the following example.

³ Examples such as this came up in the discussion after my oral presentation. My understanding is that violations of the morphological conditions are heavily influenced by specific kinds of contexts which call for emphatic uses, and also by the referentiality of the noun in construction with the copula.

- (13) *kotira-de o-mesiagari-no kata-wa san-ban rezi-o*
 here-at HON-eat-LNK person-TOP third register-ACC
go-riyoo kudasai
 HON-use please
 'Persons who will eat here, please use the third register.'

The usual analysis of such a form as *mesiagari* in this example is that it is a (zero-derived) nominalized verb stem, linked to the head noun by the genitive *-no*. However, this example shows clearly that this analysis is incorrect. This is because the locative adjunct *kotira-de* is in the form that combines only with a verb, not with a noun. Ignoring the honorific prefix *o-*, there are only two options for analysis: (i) that *mesiagari* is a verb (uninflected), and that *-no* is attaching to a verb, or (ii) regardless of the category of *mesiagari*, *-no* is a form of the copula producing a derived verb form (These two options are not mutually exclusive). For my present purposes, the relevant point is that *-no* in (13) could not be a genitive marker in anything like the usual sense.

The analysis that I will develop below is based on the idea that the wide range of uses of the morpheme *-no* can be explained by taking it to be the default linker to a following head noun, regardless of the semantic relationship it expresses. This makes it look quite similar to the Chinese linker *de* (see Kitagawa and Ross (1982)). It is not a genitive marker as such, but is the only way the language has to express whatever semantic relationships the 'genitive' can express. That is, if there is a genitive meaning in the input, it can be expressed by the morpheme *-no*. Similarly, if there is an uninflected copula in the input, that information can also be expressed by *-no*; and there may be other relations that *-no* can express, which I do not explore here. On the other hand, for example if the input contains the information that there is a copula and it is past tense, only the 'true' copular form *-datta* can express it.

There is just one surface restriction on *-no*: it cannot be attached to a word inflected for tense. The combinatoric morphology, however, can allow *-no* to attach to any host whatsoever, and a natural ranking of constraints places greater (positive) value on using a tense-inflected form over one using *-no*, or one using both tense and *-no*, if there is an option.

Here I will concentrate on fairly unambiguous copular and genitive uses of this morpheme. The idea that *-no* expresses the copula has been suggest-

ed or argued for by Bloch (1946), Martin (1975), and Poser (1985), and the two interpretations of an example like (14) suggest this conclusion.

- (14) *isya-no musume*
 doctor-LNK daughter
 ‘my daughter who is a doctor’ (copular)
 ‘the doctor’s daughter’ (genitive)

We now need to look at what other forms Japanese can use in a prenominal context. In fact, there are only a few (see Kitagawa and Ross (1982)); the relevant morphemes are underlined.

- (15) Generalizations about Japanese prenominal modification :
- a. Verb or adjective forms which can inflect, do inflect :

| | | | | | |
|--------------------------|--------------------|-------------|----------------|----------------------|---------------|
| <i>tabe-te</i> | <i>i-<u>ru</u></i> | <i>hito</i> | <i>se-ga</i> | <i>taka-<u>i</u></i> | <i>kodomo</i> |
| eat-GER | be-NPAST | person | height-NOM | tall-NPAST | child |
| ‘a person who is eating’ | | | ‘a tall child’ | | |
 - b. Adjectival Nouns take the prenominal copula *-na* :

| | |
|------------------------|---------------|
| <i>benri-<u>na</u></i> | <i>hoteru</i> |
| convenient-COP.NPAST | hotel |
| ‘a convenient hotel’ | |
 - c. Everything else takes *-no* :

| | | | | | | | | | |
|---|---------------|--------------------------------|-------------|---------------------------|---------------|-------------|-----|---------------------|--|
| <i>asita-<u>no</u></i> | <i>paatii</i> | <i>hataraki-sugi-<u>no</u></i> | <i>hito</i> | | | | | | |
| tomorrow-LNK | party | work-excess-LNK | person | | | | | | |
| ‘tomorrow’s party’ | | ‘a person who overworks’ | | | | | | | |
| <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><i>pikapika-<u>no</u></i></td> <td style="text-align: center;"><i>kuruma</i></td> </tr> <tr> <td style="text-align: center;">twinkle-LNK</td> <td style="text-align: center;">car</td> </tr> <tr> <td colspan="2" style="text-align: center;">‘a shiny (new) car’</td> </tr> </table> | | | | <i>pikapika-<u>no</u></i> | <i>kuruma</i> | twinkle-LNK | car | ‘a shiny (new) car’ | |
| <i>pikapika-<u>no</u></i> | <i>kuruma</i> | | | | | | | | |
| twinkle-LNK | car | | | | | | | | |
| ‘a shiny (new) car’ | | | | | | | | | |

It is clear that *-no* is a kind of default, and we can ask the following question about the analysis : How can we predict the behavior of *-no* without writing a lexical entry for it that explicitly excludes (15a-b)?

The initial alternation that I will consider is that seen in (16)-(17). The presence of the copula in these examples seems uncontroversial; (16) involves a regular noun, while (17) involves an adjectival noun with the prenominal copula *-na*.⁴

⁴ (17) is semantically a little odd, as one cannot normally play a role in a movie that corresponds to a long-term property, but its grammaticality is clear, and it forms a minimal contrast with (16) in terms of its morphology.

- (16) taroo-ga akuyaku-no eiga
 Taroo-NOM villain-LNK movie
 'the movie in which Taroo is a villain' (from Endo (1994))
- (17) taroo-ga genki-na eiga
 Taroo-NOM healthy-COP movie
 'the movie in which Taroo is healthy'

The constraints that will be relevant for the data presented here are given in (18). The first favors non-inflected forms, and the second was introduced above. The third requires the right specification for syntactic context : in the syntax of Cho and Sells (1995), the morphology must specify the TYPE value as N-SIS. This constraint governs the well-formedness of syntactic structures, and never seems to be violated.

- (18) Constraints relevant to the expression of prenominal forms :
- a. *INFL : avoid an inflected form.
 - b. *AFFIX.
 - c. 'N-MOD' : take a form appropriate for a nominal modifier (one of the forms in (15)).

We can now state the lexical information as broadly as possible, generalizing the entries for *-no* and the copula. Effectively, these state properties of the generative morphological system, which generates the candidate set that the OT analysis will evaluate.

- (19) Lexical entries/requirements :
- a. Inflectional endings attach only to morphologically bound forms (verb and adjective roots).
 - b. ANs require an inflected form of copula to be attached (this includes *-na*).
 - c. The copula attaches to any form that cannot inflect (a free form). This includes a form that is already inflected.
 - d. The linker *-no* attaches to anything that cannot inflect (any morphologically free form). This includes a form that is already inflected. It instantiates any relation *REL* which can connect its host to a following head noun, but it can not express tense. The 'genitive relation', which I schematize here as '*R*', ranges over a subset of those relations schematized by *REL*.

e. *-no* : satisfies 'N-MOD', expresses any relation *REL*.

A key assumption that I make here is that tense need not be in the input for modifier forms, and this will allow the correct forms to be chosen in (20)–(21) below; if the output need not contain an inflected form, it will not. The tableau in (20) shows the relevant candidates for (16). As just observed, the input may or may not contain tense, as shown in the input cell. Assuming that *REL* can include a copular meaning, this will allow the untensed copula to be expressed by *-no*, even though *-no* is not a form of the copula as such. Of the viable candidates, the one with *-na* loses as it violates *INFL.

| (20) | [Taroo-NOM villain be (-NPAST) movie] | PARSE-SEM | 'N-MOD' | *INFL | *AFFIX |
|--------|--|-----------|---------|-------|--------|
| ☞ (16) | taroo-ga akuyaku- no eiga | | | | * |
| | taroo-ga akuyaku-na eiga | | | *! | * |
| | taroo-ga akuyaku-da eiga | | *! | * | |
| | taroo-ga akuyaku eiga | *! | * | | |

The last two rows here show forms which are not appropriate for the noun-modification environment,⁵ and which may also fail to express all the semantic information, such as the copular 'be'. I will henceforth generally suppress such non-starter candidates.

The facts are different with an adjectival noun as the predicate. In (21) *-no* is not possible as ANs are required to be followed by an inflected copula. Hence **genki-no* is not a good candidate, as it does not express the tense (here I am treating (18b) as a constraint on output forms, though it could also be interpreted as part of the generative morphology, ruling out this form as a possible candidate in the first place). The form in *-na-no* loses to one without *-no* as the *-no* has no function (in the OT analysis, this is the part which derives the effect of *-no* deletion after *-na* in, say, the analysis of Miyagawa (1987)).

⁵ In the TYPE system of Cho and Sells (1995), the copular form *-da* would give the wrong TYPE value for a noun-modifying construction.

| (21) | [Taroo-NOM healthy be-NPAST) movie] | PARSE-SEM | 'N-MOD' | *INFL | *AFFIX |
|------|-------------------------------------|-----------|---------|-------|--------|
| | taroo-ga genki-na-no eiga | | | * | **! |
| | ☞ (17) taroo-ga genki-na eiga | | | * | * |
| | taroo-ga genki-no eiga | *! | | | * |

When past tense is present in the input, the distinction seen here is neutralized in the past tense copular form *-datta* and, as far as I know, with all other tensed forms of the copula.⁶ If the example has a verb in the input, it seems that tense must always be present, so we will have a tableau such as (22), for the input meaning 'the fact that Taroo eats (something)'.

| (22) | [Taroo-NOM eat-NPAST fact] | PARSE-SEM | 'N-MOD' | *INFL | *AFFIX |
|------|----------------------------|-----------|---------|-------|--------|
| | taroo-ga tabe-ru-no koto | | | * | **! |
| | ☞ taroo-ga tabe-ru koto | | | * | * |
| | taroo-ga tabe-no koto | *! | | | * |

We allow *-no* to be generated after tensed V, as this is a string that children can produce (see Murasugi (1991)), but in the adult grammar these forms are disfavored relative to ones without *-no*.

Let us now extend the data to include the pronominal *-no*, meaning 'one', which is itself affixal. I follow Murasugi (1991) in taking this to be a separate pronominal form, rather than the linker *-no* followed by a null pronominal. The affixal nature of the pronominal becomes important in the next examples, where the expected sequence *-no-no* is actually just *-no*. Consider (23).

- (23) watasi-no kuruma-wa, huru-i kedo [sensei-no-wa]
 I-LNK car-FOC old-NPAST however [teacher-one-FOC]
 atarasi-i-desu
 new-NPAST-LEVEL
 'My car is old, but the teacher's one is new.'

⁶ Output forms of NPAST tense such *-de ar-u* must be expressions of different inputs from those discussed here, involving different values for tense and perhaps register or style. Hence, they do not compete as output expressions for the examples considered in the various tableaux here.

My assumptions about this pronominal *-no* are given in (24), and I underline it in all the examples.

- (24) The morpheme *-no* which means ‘one’ is affixal, and the affixation relation itself can express the semantic relationship *R*.

The input corresponding to the bracketed part of (23) is shown in the abbreviated tableau in (25).

| | | | |
|------|------------------------------------|---------|--------|
| (25) | [teacher <i>R</i> <u>one</u> -FOC] | ‘N-MOD’ | *AFFIX |
| | sensei-no- <u>no</u> -wa | | ***! |
| | sensei- <u>no</u> -no-wa | | ***! |
| | ☞ (24) sensei- <u>no</u> -wa | | ** |

Strictly speaking, in this example, the constraint ‘N-MOD’ is not relevant, as the head noun is not an independent noun, but is the affixal pronominal *-no*. In this case, the relation *R* can be expressed by the morphological affixation process; the linker *-no* has no function, and so cannot be used.

If we look at more complex data, the same patterns hold. Consider what will happen if we pronominalize *kuruma* in (26).

- (26) sensei-no kuruma-no iro
 teacher-LNK car-LNK color
 ‘the color of the teacher’s car’

The correct output in this case has two morphemes *-no* in it, the pronominal and a linker, in that order. As the following noun *iro* is an independent word, the linker *-no* is necessary here to satisfy ‘N-MOD’.

- (27) watasi-no kuruma-wa aka-i kedo sensei-no-no
 I-LNK car-FOC red-NPAST however teacher-one-LNK
 iro-wa siro-i-desu
 color-FOC white-NPAST-LEVEL
 ‘My car is red, but the color of the teacher’s is white.’

In (28), the first *-no* in the first candidate is redundant as the affixation relation itself can express *R*; hence the second candidate is preferred. In the third candidate, the noun modification requirement cannot be satisfied without a linker *-no*, so it is the second candidate which is the output.

| | | | |
|------|--|---------|--------|
| (28) | [teacher <i>R</i> <u>one</u> <i>R</i> color] | 'N-MOD' | *AFFIX |
| | sensei-no- <u>no</u> -no iro | | ***! |
| | ☞ (27) sensei-no-no iro | | ** |
| | sensei- <u>no</u> -iro | *! | * |

3. Morphology Competing with Syntax

Finally, let us look at some cases where different structures compete. In general we find that morphological combination is favored over syntactic combination, in other words that the idea 'minimal projection' extends into the morphology, effectively as 'no projection'. The fact that morphology competes with syntax in this way is embodied in the constraint DON'T-PROJECT (Bresnan 1996), which requires the least amount of syntactic structure possible be projected from the lexical preterminal items. Here, I will consider the constraint to be 'Avoid X^0 ', a constraint preferring the fewest syntactic preterminals possible.

This can be used to predict certain aspects of morpho-syntactic expression, for example with Verbal Nouns (VNs) and Adjectival Nouns (ANs, such as *kkaykkus* in Korean or *genki* in Japanese). In Japanese, the copula is available for ANs, and so it combines with them; the borrowed word 'is handsome' is *hansamu-da* (see (29)). The copula, however, has a purely stative meaning and is incompatible with VNs, which therefore take syntactic combinations with *su-ru*.⁷

(29) *hansamu-da*/**hansamu su-ru*

In Korean, on the other hand, the copula is clearly restricted to fully nominal hosts, and so it cannot combine with the ANs.⁸ Instead, like the

⁷ An alternative, which I do not adopt here, would be to assume that *su-ru* in Japanese has to be active, as suggested by Urushibara (1993). This would prevent AN+*su-ru* in Japanese. Urushibara also assumes an economy constraint whereby use of the copula is less 'costly' than use of the 'do' verb.

⁸ Han (1996) questions whether this is right characterization of the restriction on what the copula may combine with, observing that the ANs show many apparent nominal properties. Strictly, for my purposes here, it does not matter what the nature of the restriction on the copula in Korean is; whatever it is, it blocks **hanysem-i-ta* and forces some other expression of that meaning.

VNs, the ANs combine with *ha-ta* syntactically, this being the next best option:

(30) *haynsem-i-ta/haynsem ha-ta

These Korean examples are indeed small syntactic combinations, evidenced by the fact that the left-hand members can support Z-LIM particles, as seen in (31). The structures are involved X^0 formations (see Sells (1996b)).⁹

(31) a. pwuncwu-to ha-ta b. kkaykkus-un ha-ta
 busy-also do-DECL clean-FOC do-DECL
 ‘is also busy’ ‘is CLEAN’

(32)

```

      V0
     /  \
  AN0  V0
   |     |
  kkaykkus  ha-ta
  
```

Now, it is not the case that the Korean copula can never be used to derive stative predicates, as seen in the examples in (33), with the pure noun predicate *akhan*. Crucially, as (33a) is available, (33b) is blocked by Avoid X^0 .

(33) a. thayenal-ttay-pwuthe akhan-i-n salam-un eps-ta
 be.born-time-from villain-COP-NPAST person-FOC not.be-DECL
 ‘There is no one who is a villain from birth.’
 b. *thayenal-ttay-pwuthe akhan ha-n salam-un eps-ta
 be.born-time-from villain-do-NPAST person-FOC not.be-DECL
 ‘There is no one who is a villain from birth.’

Hence, we see that if lexical formation with the copula is available, it is used in preference to syntactic formations with the ‘do’ verb. Let us contrast a Korean pure N as in the abbreviated tableau in (34) with a verbal noun ‘study’ as in (35). I include the idea that the semantic information about stativity must be correctly matched under the constraint PARSE-SEM.

⁹ Structural case markers are not allowed on the ANs, for at least two reasons: one is that the ANs are not of the right category to host case (though see Han (1996)), and the other is that case forces an X^0 to project to X' , which is inconsistent with the X^0 structure in (32).

| | | | |
|------|--------------------|-----------|-----------------|
| (34) | [villain be NPAST] | PARSE-SEM | *X ⁰ |
| | ☞ (33a) akhan-i-n | | |
| | akhan ha-n | | *! |

Here the copular formation wins, due to *X⁰. However, with a verbal noun, the copula is semantically unavailable, and so *ha-ta* is used.¹⁰

| | | | |
|------|----------------|-----------|-----------------|
| (35) | [study NPAST] | PARSE-SEM | *X ⁰ |
| | kongpwu-i-n | *! | |
| | ☞ kongpwu ha-n | | * |

All together, the order of constraints seems to be: PARSE-SEM, N-MOD, POSITION, PARSE-CASE, *X⁰, *INFL, *AFFIX.

Note that where Japanese uses a copular *-no*, Korean cannot use *-uy*. This would be the best form, as it does not use an inflected form, but Korean morphology cannot allow a copular meaning for *-uy*.¹¹

- (36) *an seng ki-ka akhan-uy yenghwa
 Ahn Sung Ki-NOM villain-GEN movie
 'the movie in which Ahn Sung Ki is a villain'

Rather, a regular modifier clause with the copula is used as follows, as this is the next best expression.

- (37) an seng ki-ka akhan-i-n yenghwa
 Ahn Sung Ki-NOM villain-COP-NPAST movie
 'the movie in which Ahn Sung Ki is a villain'

¹⁰ There are examples such as (i) in both Japanese and Korean, as originally pointed out to me by Yo Matsumoto, where a verbal noun does combine with the copula :

- (i) bokutati-wa asita tookyoo-e syuppatu-da!
 we-TOP tomorrow Tokyo-to departure-COP.NPAST
 'Tomorrow we leave for Tokyo!'

Here the copula seems to truly have no function except to support tense, suggesting perhaps that if these languages have any kind of 'dummy verb' like English 'do', it is in fact the copula, and not *su-ru/ha-ta*.

¹¹ Compounding in Korean (dropping of affixes altogether) seems more prevalent than in Japanese.

The kind of blocking seen here only applies within the domain of X^0 .¹² In all of the examples here, the lexical formations just use one X^0 , while the syntactic formations use three. Positing a constraint 'Avoid X^0 ' correctly accounts for the examples in this section, as well as several other cases where 'small' syntactic structures are blocked by lexical items (see Poser (1992) and Sells (1996b)).

4. Conclusion

In these domains at least, an account based on OT seems to provide a natural account of cooccurrence restrictions between morphemes, and also an account of what we might call 'economy of expression,' where the language chooses the least complex morphological and syntactic structure that it can. These economy constraints are simply stated:

- (38) a. Avoid Inflection.
 b. Avoid Affix.
 c. Avoid X^0 .

This leads to a view of the notion of 'economy of expression' that provides a direct link to the morphological forms of the language, as opposed to some larger and perhaps less clearly motivated syntactic constructs.

References

- Bloch, Bernard (1946) 'Studies in Colloquial Japanese I : Inflection,' *Journal of the American Oriental Society* 66, 97-109.
 Bresnan, Joan (1996) 'Optimal Syntax: Notes on Projection, Heads, and Optimality,' ms., Stanford University (Available at <http://csli-www.stanford.edu/users/bresnan/>).
 Cho, Young-mee Yu and Peter Sells (1995) 'A Lexical Account of Inflec-

¹² What is left unexplained is the contrast in (i) – (ii); both are phrasal projections, though (ii) perhaps contains one extra phrasal projection.

- (i) papo-ka ani-ta
 fool-NOM NEG.COP-DECL 'is not a fool'
 (ii) ??papo-i-ci anh-ta
 fool-COP-COMP NEG-DECL 'is not a fool'

- tional Suffixes in Korean,' *Journal of East Asian Linguistics* 4, 119-174.
- Choi, Hye-Won (1996) *Optimizing Structure in Context : Scrambling in German and Korean*, Doctoral dissertation, Stanford University.
- Endo, Yoshio (1994) 'Stage/Individual-level Nouns,' In M. Koizumi and H. Ura (eds.), *Formal Approaches to Japanese Linguistics* 1, MIT Working Papers in Linguistics 24, 83-99, Cambridge, Dept. of Linguistics, MIT.
- Grimshaw, Jane (1995) 'Projection, Heads, and Optimality,' ms., Rutgers University (available via anonymous FTP to rucss.rutgers.edu).
- Han, Hak-Sung (1996) 'Syntactic Affixation and the Structure of Korean,' In Hee-Don Ahn, Myung-Yoon Kang, Yong-Suck Kim, and Sookhee Lee (eds.), *Morphosyntax in Generative Grammar (Proceedings of 1996 Seoul International Conference on Generative Grammar)*, 23-37, Seoul, The Korean Generative Grammar Circle, Hankwuk Publishing Co.
- Kitagawa, Chisato, and Claudia Ross (1982) 'Prenominal Modification in Chinese and Japanese,' *Linguistic Analysis* 9, 19-53.
- Martin, Samuel (1975) *A Reference Grammar of Japanese*, New Haven, Yale University Press.
- Miyagawa, Shigeru (1987) 'Lexical Categories in Japanese,' *Lingua* 73, 29-51.
- Murasugi, Keiko (1991) *Noun Phrases in English and Japanese: A Study in Syntax, Learnability and Acquisition*, Doctoral dissertation, University of Connecticut.
- Poser, William (1985) *The Phonetics and Phonology of Tone and Intonation in Japanese*, Doctoral dissertation, MIT.
- Poser, William (1992) 'Blocking of Phrasal Constructions by Lexical Items,' In Ivan Sag and Anna Szabolcsi (eds.), *Lexical Matters*, 111-130, Stanford, CSLI Publications.
- Prince, Alan, and Paul Smolensky (1993) 'Optimality Theory: Constraint Interaction in Generative Grammar,' ms., Rutgers University (available via anonymous FTP to rucss.rutgers.edu).
- Sells, Peter (1995) 'Korean and Japanese Morphology from a Lexical perspective,' *Linguistic Inquiry* 26, 277-325.
- Sells, Peter (1996a) 'The Opacity of Japanese Derivational Morphology,' ms., Stanford University.
- Sells, Peter (1996b) 'Case, Categories, and Projection in Korean and Japa-

nese,' In Hee-Don Ahn, Myung-Yoon Kang, Yong-Suck Kim, and Sookhee Lee (eds.), *Morphosyntax in Generative Grammar (Proceedings of 1996 Seoul International Conference on Generative Grammar)*, 47-62, Seoul, The Korean Generative Grammar Circle, Hankwuk Publishing Co.

Urushibara, Saeko (1993) 'Nonagentive Light Verb Constructions: Korean vs. Japanese,' In S. Kuno et al. (ed.), *Harvard Studies in Korean Linguistics*, Vol. 5, 423-435.

Yoon, James Hye-Suk (1995) 'Nominal, Verbal, and Cross-categorical Affixation in Korean,' *Journal of East Asian Linguistics* 4, 325-356.

Department of Linguistics
Stanford University
Stanford, CA 94305-2150
E-mail : sells@csl.stanford.edu