

Lexical Integrity and the Morphosyntax of Verbal Inflection in Korean Coordination

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1 Introduction

Chomsky (1992) entertains two options regarding the manner in which a verb and its inflections are combined. On one account, verbs are assumed to be inserted in the syntax in their bare uninflected forms, while verbal inflectional morphemes such as Tense and Agr affixes are projected as heads of functional categories dominating the VP projection. Word formation takes place in the syntax as syntactic head movement (partially) builds the inflected form of the word. Let us call such a theory the *Building Theory* of verbal inflection. The building-theoretic approach to inflection permits words to be built syntactically and consequently denies the correctness of the lexicalist hypothesis and the Lexical Integrity Principle (Lapointe 1980, Selkirk 1982, DiSciullo and Williams 1987), which expressly prohibit syntax from building or manipulating word-internal structure.

In the second alternative, only the fully inflected verb is assumed to be a formative (or a *syntactic atom*, in the sense of DiSciullo and Williams 1987) in the syntax, in accordance with lexicalist assumptions and the Lexical Integrity Principle. However, the inflectional features borne by affixes on the verb must be licensed in the syntax, since these features become "relevant" (Anderson 1982) only at phrasal levels.

In the analysis outlined in Chomsky (1992), such licensing is assumed to be achieved when a verb raises and adjoins, overtly or at LF, to various functional heads above the VP, "checking off" its inflectional features until none remains. In this alternative, the functional elements such as Tense and Agr in syntax do not dominate actual bits of affixes, but are constituted of feature complexes (Chomsky 1965, Anderson 1992, Halle and Marantz 1993). The feature complex on a functional element must match the inflectional features of the verb when the verb adjoins to it. If the feature complex on the functional head and those specified by verbal affixes should fail to match, the complex cannot be rewritten as lexical material, and the derivation "crashes", since there will now be a feature complex which fails to receive proper interpretation at PF.¹ This alternative is the *Checking Theory* of inflection outlined in Chomsky (1992).

Checking theory is, on the one hand, a particular instantiation of the lexicalist approach to the morphosyntax of inflection (Chomsky 1965, Lapointe 1980, Selkirk 1982, DiSciullo and Williams 1987, Miller and Halpern 1992, inter alia). On the other hand, the technical aspects of the theory, which capitalize on the idea that morphological information specified lexically must be "matched" by corresponding information higher up at phrasal levels, bear a close resemblance to the notion of *Morphological Control* of Lefebvre and Muysken (1988); to Abney's (1987) analysis of various types of gerunds in English, and, to the intuition underlying Edge Feature theories of inflection-cliticization

(Zwicky 1987, Lapointe 1990, Miller and Halpern 1992. See section 4.2.3 for discussion).

Chomsky (1992) adopts the second, lexicalist alternative, thus turning the tide not only against his earlier work (such as Chomsky 1989), but the vast majority of recent work on functional categories within the Principles-and-Parameters framework which has assumed some form of the syntactic, building theoretic approach to inflection.

It is important to realize, however, that the reason that guides him to the choice of the lexicalist alternative over the syntactic one has to do primarily with the fact that the former approach allows him to provide a plausible account of facts such as the French vs. English contrast in verb-raising (cf. Pollock 1987 and much related work) without the need to invoke S-structure as the crucial locus of parametric variation. The choice is understandable given that the elimination of S-structure is one of the stated goals of the minimalist program. What is notably lacking are specific morphosyntactic arguments for or against either alternative.

In this paper, I examine the generality of lexicalist approaches like the checking theory on the basis of a detailed investigation of the morphosyntax of Korean verbal inflection, as it manifests itself in affixal coordinate structures. I argue in sections 2 and 3, on the basis of variety of morphosyntactic evidence, that there are strong morphosyntactic arguments indicating that verbs are inserted in the syntax in their bare uninflected forms in languages like Korean, so that syntax puts together ("builds") the inflection, rather than simply "checking" it. Korean thus stands in contrast to languages like English where evidence contravening the lexicalist position is difficult, if not impossible, to come by in the domain of inflectional morphology.

However, it will be argued that verbal affixes in Korean combine with roots not by verb raising, as assumed in most recent work, but by *Phrasal Affixation*, a process that is distinct from head movement in the sense of Baker (1988), and fundamentally akin to cliticization in its properties (Yoon and Yoon 1990, Yoon 1993). This is so despite the fact that the phonology associated with such affixation is lexical, in the sense of Lexical Phonology, unlike the late, postlexical phonology that is typical of clitic-host combinations.²

Alternative analyses of the evidence presented in sections 2 and 3 are evaluated in section 4, where it is first argued that the peculiar distribution of morphosyntactic marking in Korean verbal coordination cannot be explained away by denying that coordinate structures as such exists in Korean. The adequacy of various types of lexicalist analyses is also evaluated. It is argued that these alternatives face descriptive and conceptual problems when compared to the syntactic analysis proposed in this paper. Section 5 closes the paper with some speculative remarks concerning what may set apart languages like Korean, possessing robust evidence of syntactic atomicity of bound affixes, and languages like English, where lexicalist assumptions appear not to be contradicted.

2 Korean Verbal Morphology and Patterns of Verbal Coordination

Let us begin with a quick background in the relevant facts. Korean verbal roots are bound morphemes. In matrix contexts, all verbal roots must be supported obligatorily by two classes of suffixes - tense/aspect suffixes followed by suffixes indicating clause type.

While the former may be null, the latter is always overt. In this paper, I call the former *Tense suffixes* and the latter *Mood suffixes* and assume that they are the heads of IP and CP respectively.³

(1a) below is ill-formed morphologically due to the lack of the relevant suffixes which support the verbal root, while (1b), with the suffixes, is grammatical.

(1) *mek-* ('eat')

a. *John-i ecey pap-ul mek-
 J-NOM yesterday meal-ACC eat
 'John ate the meal yesterday.'

b. John-i ecey pap-ul mek-ess-ta.
 J-NOM yesterday meal-ACC eat-PST-DECL
 'John ate the meal yesterday.'

Yu-Cho and Sells (to appear) demonstrate that the affixation of Tense and Mood affixes shows lexical, rather than, postlexical behavior in the sense of Lexical Phonology. Phonological rules whose domain is restricted to the *lexical word* treat the combination of verbs and affixes as a single lexical word. This is shown by the interaction of *Lexical Syllabification* (LS) and *Coda Neutralization* (CN). CN neutralizes a coda continuant to a stop, a palatal to a dental, and a laryngeal to a plain stop in syllable coda position. However, when the continuant is syllabified lexically as the onset of the following suffix, it escapes CN. LS does not apply across two lexical words, as shown by its failure to apply between members of a compound in (2a). In lexically derived nouns such as *wus-um* (laughter) the prior application of LS blocks CN, as shown in (2b):

(2) a. /wus+os/ ----> *wusos vs. wudot
 out cloth
 'overcoat'

b. /wus-um/ ----> wusum vs. *wudum
 laugh-NML
 'laughter'

CN also fails to apply between a verbal root and affixes, implying that for the purposes of LS, the verb root and inflectional affixes act as a lexical word:

(3) /wus-ess-ta/ ----> wusetta vs. *wudetta
 laugh-PST-DECL
 'laughed'

In addition, the very fact that verbal roots are bound morphemes appears to lend additional credence to the supposition that affixation of tense and mood affixes may be required on purely morphological grounds - i.e., their affixation is required to complete an inflectional template that is provided by morphology independently of syntax. On the basis of the evidence from phonology and morphology, one might propose a lexicalist

analysis of Korean in which verbs are inserted in the syntax in their fully inflected form, the relative positioning of the affixes being determined by templatic requirements that are independent of syntactic considerations.

However, I shall argue that when we examine a broader range of data, this sort of analysis runs into problems. Instead, I propose that tense and mood affixes are syntactically separate from the verb, projecting as independent syntactic atoms on a par with the verbal root. Morphologically, these affixes combine with their hosts in a manner similar to cliticization, despite their "lexical" phonology.

The argument that tense is independent from the verb root, and hence, that only the uninflected verbal root is inserted as the head of a verbal projection⁴ in syntax comes from patterns of affixal coordination. Coordination data has figured importantly in strongly lexicalist analyses of inflection-cliticization such as those of Bresnan and Mchombo (to appear), Miller (1992), and Miller and Halpern (1992) as arguments *against* treating inflectional affixes/clitics as independent syntactic atoms. We shall see that coordination data can be used to construct positive arguments for the conclusion that verbal affixes are syntactic atoms in Korean.

2.1. The Distribution of Tense in Coordinate Structures

As argued in Yoon (1993), following Cho and Morgan (1986, 1987) who first pointed out the relevance of this fact to the analysis of Korean inflection⁵, verbal coordination in Korean is governed by the generalization that when tense is overtly specified on all verbs in a conjoined structure, the structures obligatorily instantiate *clausal* coordination (in this paper, 'clausal' means IP or CP), while in *sub-clausal* coordination (involving VP* or smaller constituents), only the final conjunct verb is specified for Tense and Mood. Let us name this generalization *One Tensed V per Clause* restriction. The effects of this generalization remain hidden in independent clauses such as (1a), since an independent clause cannot surface as a VP* (headed by a verbal root) for independent reasons, as a stranded verb root will inevitably lead to a derivational crash (at PF), being a morphologically bound element.

The verbs in initial conjuncts in (4), an example of affixal verbal coordination, uniformly lack tense inflection, so that the conjunctive suffix, *-ko*, is attached directly to the verbal root. In (5), *-ko* is attached to verbs inflected for tense (*-ess*, 'past/perfect'). The affixal conjunctor *-ko* cannot be suffixed to a verb inflected all the way to mood, so that in (6), a word conjunction, *kuliko*, is used, yielding non-affixal, analytic coordination.

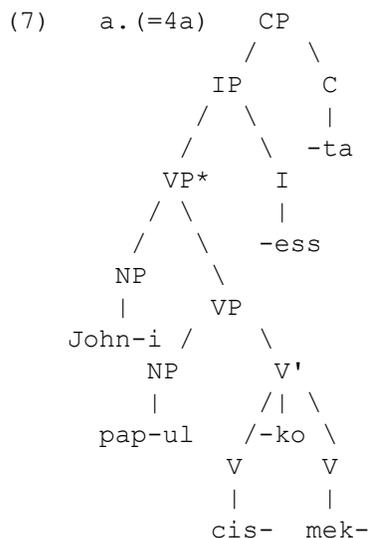
- (4) a. John-i pap-ul *cis-ko* mek-ess-ta
 J-NOM meal-ACC cook-CONJ eat-PST-DECL
 'John cooked and ate the rice.'
- b. John-i pap-ul *cis-ko* kwuk-ul kkulhi-ess-ta.
 J-NOM rice-ACC cook-CONJ soup-ACC boil-PST-DECL
 'John cooked the rice and made the soup.'

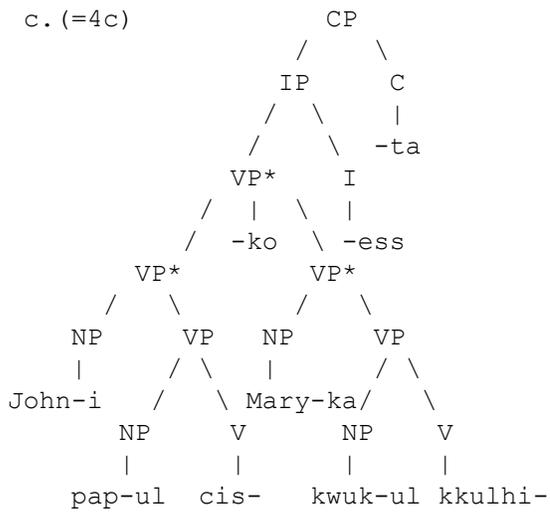
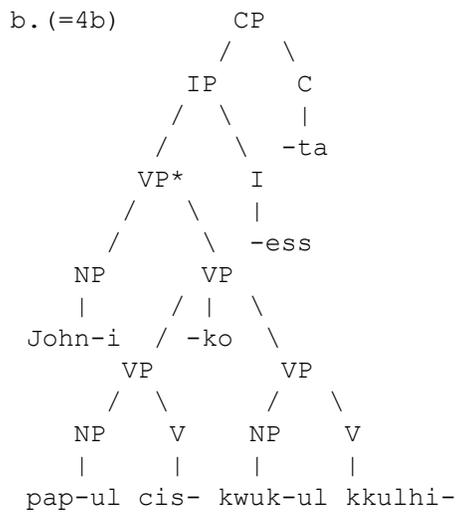
- c. John-i pap-ul *cis-ko* Mary-ka kwuk-ul kkulhi-ess-ta.
 J-NOM rice-ACC cook-CONJ Mary-NOM soup-ACC heat-PST-DECL
 'John cooked the rice and Mary made the soup.'
- (5) a. John-i pap-ul *ci-ess-ko* mek-ess-ta.
 J-NOM meal-ACC cook-PST-CONJ eat-PST-DECL
 'John cooked and ate the rice.'
- b. John-i pap-ul *ci-ess-ko* kwuk-ul kkulhi-ess-ta.
 J-NOM rice-ACC cook-PST-CONJ soup-ACC boil-PST-DECL
 'John cooked the rice and made the soup.'
- c. John-i pap-ul *ci-ess-ko* Mary-ka kwuk-ul kkulhi-ess-ta.
 J-NOM rice-ACC cook-PST-CONJ Mary-NOM soup-ACC heat-PST-DECL
 'John cooked the rice and Mary made the soup.'
- (6) John-i pap-ul *ci-ess-ta* *kuliko* Mary-ka kwuk-ul kkulhi-ess-ta.
 J-NOM rice-ACC cook-PST-DECL and Mary-NOM soup-ACC heat-PST-DECL
 'John cooked the rice and Mary made the soup.'

Based on the One Tensed V per Clause generalization, Yoon (1993) proposes that (4a) instantiates *V-coordination*, (4b) *VP-coordination*, and, (4c) *VP*-coordination*. In contrast, (5a-c) are argued to be examples of *IP-coordination*, while (6) is taken to represent *CP-coordination*.⁶

Following earlier work, I will assume that subjects in Korean are generated internal to VP* and that they may stay inside VP* in overt syntax (= S-structure). As should be obvious, this assumption is directly justified by the facts of coordination, if the analysis attributed to them is correct.⁷

With this background, I propose the following as the representations of (4) - (6).⁸





Tense affix. This is what gives rise to the appearance that Tense and Mood elements are suffixed, in that order, on the verbal root.

Importantly, the affixation of Tense and Mood elements is not due to a requirement to fill in positions in some morphological template. Instead, it is the syntax which calls for the affixes and places them where they are. Tense is required as the head of an IP with independent temporal reference, and Mood as the head of a CP marked independently for illocutionary type. When syntax does not require them, these affixes do not appear, as in the case of tenseless initial conjunct VP*s, which are clause-like in the sense of being a minimal domain containing a subject - i.e., a *Complete Functional Complex* (CFC), but do not carry specifications for Tense and Mood.

Following earlier work, I will analyze verbal affixes in Korean as *Phrasal Affixes*.⁹ Phrasal affixes, like clitics, are syntactic atoms which subcategorize for phrases and are subject to syntactic distributional restrictions. However, they appear morphologically as affixes on the periphery/head of the constituents they subcategorize for. In this regard, they are like (simple) clitics, except that, unlike most clitics, they exhibit "lexical" phonology, as we have seen. Importantly, I do not assume that verbs and their affixes are combined syntactically via *Head Movement*, as assumed in much recent work. Difficulties that arise in supposing that head movement combines verbs and their inflections are addressed in section 4.1.1 and 4.1.3.

Note that the proposed analysis naturally derives the One Tensed V per Clause restriction - whenever tense is specified, we have an IP (or CP). When it is not, we have VP* or smaller constituents. Therefore, a tensed verb will never be inserted as the head of a sub-IP level constituent in Korean. As we have seen, tense may be specified on initial conjuncts, but tense specification is not simply an option - it is a means to differentiate clausal and subclausal coordination. A variety of syntactic processes treat initial conjuncts with and without tense in systematically different ways. The One Tensed V per Clause generalization and its corollaries for the syntactic autonomy of verbal inflectional affixes receives independent confirmation from a variety of syntactic phenomena.

For each of the phenomena to be examined, alternative accounts may be developed, designed specifically for the phenomenon under investigation. It should be recognized, however, that on such parochial accounts the underlying generalization that sets apart tensed and untensed coordinations remains hidden.

3 Distinguishing Clausal And Subclausal Coordinations

The strongest arguments supporting the proposed analysis come from various clause-bounded processes which invariably treat coordinate structures with two inflected verbs as constituting two separate clauses (i.e., IPs or CPs) as dictated by the One Tensed V per Clause generalization. It is to these we now turn.

3.1. Negative Polarity Licensing

Negative Polarity Items (NPIs)¹⁰ in Korean occur in both subject and object positions and must be licensed by a clause-mate negation. NPI distribution is clause-bounded in the sense that a tensed clause boundary or an intervening c-commanding subject blocks the licensing of NPI by a negative element.¹¹

As such, NPI distribution constitutes a diagnostic tool to differentiate clausal from subclausal coordinations. If one finds that negation in one conjunct can license an NPI in another, they could be clause-mates, whereas if such licensing fails, one may conclude that the two elements are in different clauses. If the overt marking of Tense differentiates clausal from subclausal coordinations in Korean, we expect NPI in one conjunct never to be licensed by negation in another when both conjuncts are tensed, and for such licensing to be possible when the conjuncts have a shared tense. This is exactly what we find.

The generalization that emerges from the following data is this: in coordinate structures where the initial conjunct contains an untensed V, NPI may occur in subject or object position of the initial conjunct, even when negation appears only on the second conjunct. However, if the verb of the initial conjunct is tensed, NPI cannot occur in initial conjuncts in similar configurations (unless of course, Negation is expressed overtly within the first conjunct).

I provide below examples of NPIs occurring in subject and object positions in tenseless initial conjuncts in coordinate structures analyzed above as V'-coordination (8a, b), VP-coordination (8c,d), and VP*-coordination (8e,f), contrasting them with minimally different IP coordinations (8a' - f'):¹²

(8)

V'-coordination + NPI subject

- a. *amwuto* pap-ul cis-kena mek-ci *anh-ass-ta*
 anyone meal-ACC cook-OR eat-COMP not-PST-DECL
 'No one cooked or ate the meal.'

IP coordination

- a'. **amwuto* pap-ul cis-*ess*-kena mek-ci *anh-ass-ta*
 anyone meal-ACC cook-PST-OR eat-COMP Neg-PST-DECL
 'No one cooked or ate the meal.'

V'-coordination + NPI object

- b. John-i *amwukesto* manci-kena mangkattuli-ci *anh-ass-ta*
 J-NOM anything touch-OR break-COMP Neg-PST-DECL
 'John did not touch or break anything.'

IP coordination

- b'. *John-i *amwukesto* manci-*ess*-kena mangkattuli-ci *anh-ass-ta*
 J-NOM anything touch-PST-OR break-COMP Neg-PST-DECL
 'John did not touch or break anything.'

VP coordination + NPI subject

- c. *amwuto* pap-ul cis-kena selkeci-lul ha-ci *anh-ass-ta*
 anyone meal-ACC cook-OR dish-ACC do -COMP Neg-PST-DECL
 'No one cooked the meal or washed the dishes.'

IP coordination

- c'. **amwuto* pap-ul cis-*ess*-kena selkeci-lul ha-ci *anh-ass-ta*
 anyone meal-ACC cook-PST-OR dish-ACC do-COMP Neg-PST-DECL
 'No one cooked the meal or washed the dishes.'

VP coordination + NPI object

- d. John-un *amwukesto* pala-kena *amwuto* wonmangha-ci *anh-ass-ta*
J-TOP anything hope-OR anyone blaim-COMP Neg-PST-DECL
'John didn't hope for anything or blame anyone.'

IP coordination

- d'. *John-un *amwukesto* pala-ss-kena *amwuto* wonmangha-ci *anh-ass-ta*
J-TOP anything hope-PST-OR anyone blame-COMP Neg-PST-DECL
'John didn't hope for anything and blame anyone.'

VP coordination + NPI subject*

- e. *amwuto* nathana-kena *amwu isanghan cingco-to* poi-ci *anh-ass-ta*
anyone appear-OR any strange sign-EVEN seen-COMP Neg-PST-DECL
'No one appeared, nor were there any strange signs to be seen.'

IP coordination

- e'. **amwuto* nathana-ss-kena *amwu isanghan cingco-to* poi-ci
anyone appear-PST-OR any strange sign-EVEN seen-COMP
anh-ass-ta
Neg-PST-DECL
'No one appeared, nor were there any strange signs to be seen.'

VP coordination + NPI object*

- f. John-i *amwu-eykey-to* ku sasil-eytayhay malha-kena Mary-ka
J-NOM anyone-TO-EVEN that fact-ABOUT talk-OR M-NOM
ku-lul *simmwunha-nun nwuku-eykey-to* celtay pimil-ul *nwuselha-ci*
she-ACC interrogate-ADN anyone-TO-EVEN ever secret-ACC reveal-COMP
anh-ulkesi-ta
Neg-FUT-DECL
'John will not talk to anyone about that matter. Nor will Mary ever reveal the secret to anyone who is interrogating her.'

IP coordination

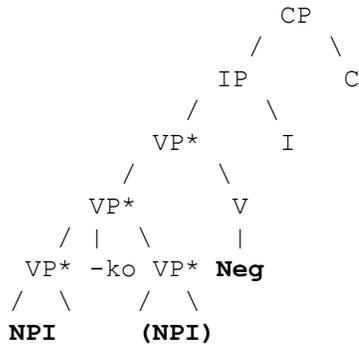
- f'. *John-i *amwu-eykey-to* ku sasil-eytayhay malhay-ss-kena Mary-ka
J-NOM anyone-TO-EVEN that fact-ABOUT talk-PST-OR M-NOM
ku-lul *simmwunha-nun nwuku-eykey-to* celtay pimil-ul *nwuselha-ci*
she-ACC interrogate-ADN anyone-TO-EVEN ever secret-ACC reveal-COMP
anh-ulkesi-ta
Neg-FUT-DECL
'John will not talk to anyone about that matter. Nor will Mary ever reveal the secret to anyone who is interrogating her.'

In accordance with the assumptions laid out previously, the above paradigm may be analyzed in the following manner. Negation in the above examples is expressed by a Negative Auxiliary¹⁴ (*anh-*) which subcategorizes for an untensed verb ending in *-ci* Comp form. Let us take this to mean that *anh-* combines with a VP* and projects to another VP*, which then combines with Tense and Mood elements to form IP and CP.

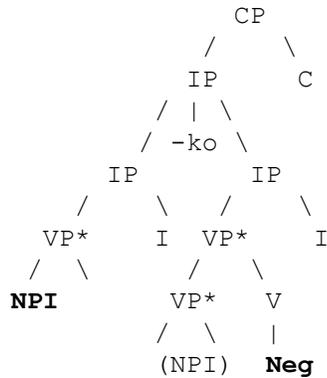
Now, when the initial conjunct lacks tense, by hypothesis, it is *at most* a VP*. Therefore, when it is conjoined with the second conjunct VP*, the coordinated VP* may in turn combine with, and come under the scope of, the Negative Auxiliary. In this configuration, the Negative Auxiliary c-commands the NPI in the first conjunct. Neither is there an intervening subject or a tensed clausal boundary separating the auxiliary and the NPI.

In contrast, when the initial conjunct contains a tensed verb, it is *at least* an IP. Given that the Negative auxiliary heads VP*, when it is present in the final conjunct, it will fail to c-command the NPI in the first. Furthermore, the Negative auxiliary is separated from the NPI in the first conjunct by a tensed clausal boundary. NPI in the first conjunct is not licensed and the structure is correctly predicted to be ungrammatical. The difference between tensed and untensed initial conjuncts is illustrated schematically below:

(9) Untensed 1st conjunct (= 8e)



Tensed 1st conjunct (=8e')



Thus, the distribution of NPI provides a straightforward confirmation of the One Tensed V per Clause restriction and its corollaries for the syntactic independence of verbal inflectional morphemes in Korean. If, in accordance with lexicalist assumptions, a verb inflected for Tense (and Mood) could be inserted as the head of VP*, clausal and subclausal coordinations may still be distinguishable, but that distinction could never be made on the basis of absence or presence of affixal tense-marking.

3.2. *Symmetric vs. Asymmetric Conjunction and Tense Specification*

In this section, we shall examine extraction out of coordinate structures, especially regarding its interaction with tense specification and observance of the CSC/ATB generalization. We shall see that while certain sub-clausal coordinate structures disrespect CSC/ATB in both English and Korean, behaving as *Asymmetric Coordinations* (Schmerling 1975), fully clausal (IP) coordinations in either language may never be interpreted as asymmetric, but only as symmetric coordinations.¹⁵

However, English and Korean differ in the way in which the difference between clausal and sub-clausal coordinations is realized on the surface. Again, clausal and subclausal coordinations as differentiated by the diagnostic tool of CSC/ATB violations are distinguished by the presence vs. absence of tense-marking in Korean, while tense-marking is mandatory even in subclausal coordinations in English. The differences between the two languages constitutes an argument for the syntactic independence of verbal inflectional morphemes in Korean, and for the lack of any evidence for the syntactic atomicity of verbal affixes in English.

Movement out of coordinate structures is thought to be disallowed (by CSC) unless it is Across-the-Board (ATB, Ross 1967). This is illustrated in (11) below which are ill-formed due to violation of the ATB constraint:

- (11)a. *Who_i does John like Mary and hate t_i ?
a'. John likes Mary and hates Jane.
- b. *What_i does John read t_i and like apples ?
b'. John reads Shakespeare and likes apples.
- c. *Who_i did Bill call Jane or write to t_i ?
c'. Bill called Jane or wrote to Mary.

However, that there are structures in violation of the CSC/ATB has been known for quite some time (Ross 1967, Schmerling 1975, Goldsmith 1985, Lakoff 1986, inter alia). In the following types of coordinate structures¹⁶, extraction can take place from a single conjunct alone, without resulting in ungrammaticality:

- (12)a. What_i did you go to the store and buy t_i?
a'. I went to the store and bought some whisky.
- b. Which dress_i has she gone and ruined t_i now?
b'. She's gone and ruined her dress.
- c. Which tree_i did Lizzie take an axe and chop down t_i ?
c'. Lizzie took an axe and chopped down the sick tree in her yard.
- d. How much wine_i can John drink t_i and stay sober?
d'. John can drank twenty bottles of wine and stay sober.

The difference between coordinate structures which disallow violations of CSC/ATB (cf. 11) and those that do (cf. 12) has been characterized as the difference between *symmetric* vs. *asymmetric* coordinations. The difference appears *prima facie* to be an interpretive one, since in asymmetric coordinations the conjuncts stand in a particular semantic relationship unlike the simple listing interpretation associated with symmetric coordinations. For example, with respect to the event denoted by the first conjunct, the second conjunct appears to express a purposive sense in (12a,a'), and a concessive sense in (12d,d').

In symmetric coordinations, no such relationship between the conjuncts is inferred, so that permuting the order of conjuncts does not make a difference in truth conditions. Thus, (13) has the same truth value as (11a'), and (14) is equivalent to (11c'):

(13) John hates Jane and likes Mary.

(14) Bill wrote to Mary or called Jane.

However, as surmised by Schmerling (1975), the distinction between the two types of coordinate structures is not entirely a matter of interpretation. There is an important grammatical generalization which sets apart asymmetric and symmetric coordinate structures:

(14) Asymmetric coordination must be subclausal.

That is, coordination of clauses (IPs or CPs) in English cannot be asymmetric. This is shown by the failure to violate CSC/ATB in extracting from them:

(15)a. John went to the store on the corner of 6th and Broadway and he bought some whisky.

a'. *This whisky_i, John went to the store on the corner of 6th and Broadway and he bought t_i.

b. Lizzie took an axe and she chopped down the sick tree.

b'.*The sick sycamore in her yard_i, Lizzie took an axe and she chopped down t_i.

When we turn to Korean, we find a similar array of facts. Symmetric coordinations which allow conjuncts to be permuted *salve veritate* (16, permutability shown in 17) disallow violations of CSC/ATB. Non-ATB extraction (Scrambling) from symmetric coordination is ungrammatical whether it takes place from conjoined *VPs* (16a vs. a'), *VP*s* (16b vs. b'), or *IPs* (16c vs. c'):

(16)a. Nwuku-lul_i John-i t_i miweha-ko nul t_i mwusihay-ss-ni?
 Who-ACC J-NOM hate-CONJ always ignore-PST-Q
 'Who did John hate and always ignore?'

- b. Nwuku-lul_i John-i t_i miweha-ko Mary-ka t_i nul
 Who-ACC J-NOM hate-CONJ M-NOM always
 mwusihay-ss-ni?
 ignore-PST-Q
 'Who did John hate and Mary always ignore?'
- c. Nwukwu-lul_i John-i t_i miwehay-ss-ko t_i nul mwusihay-ss-ni?
 Who-ACC J-NOM hate-PST-CONJ always ignore-PST-Q
 'Who did John hate and always ignore?'
- a'. *Nwuku-lul_i John-i Paul-ul miweha-ko t_i nul mwusihay-ss-ni?
 Who-ACC J-NOM P-ACC hate-CONJ always ignore-PST-Q
 '*Who did John hate Paul and always ignore?'
- b'. *Nwuku-lul_i John-i Paul-ul miweha-ko Mary-ka t_i nul
 Who-ACC J-NOM P-ACC hate-CONJ M-NOM always
 mwusihay-ss-ni?
 ignore-PST-Q
 '*Who did John hate Paul and Mary always ignore?'
- c'. *Nwuku-lul_i John-i Paul-ul miwehay-ss-ko t_i nul mwusihay-ss-ni?
 Who-ACC J-NOM P-ACC hate-PST-CONJ always ignore-PST-Q
 '*Who did John hate Paul and always ignore?'
- (17)a. John-i Paul-ul miweha-ko Mary-lul nul mwusihay-ss-ta
 J-NOM P-ACC hate-CONJ Mary-ACC always ignore-PST-DECL
 'John hated Paul and always ignored Mary' (= 17b)
- b. John-i Mary-lul nul mwusihay-ko Paul-ul miwehay-ss-ta
 J-NOM Mary-ACC always ignore-PST-CONJ P-ACC hate-PST-DECL
 'John always ignored Mary and hated Paul.' (= 17a)

In contrast, extraction in violation of CSC/ATB is possible when the coordinate structures are asymmetric. Asymmetric coordinations in Korean may express senses such as temporal sequence (18a,b,19a), simultaneity (18c,19b,c), and concession (18d):

(18) *Non-ATB extraction out of coordinated VP*

- a. Mwues-ul_i John-i chayk-ul ilk-ko t_i mek-ess-ni ?
 What-ACC J-NOM book-ACC read-CONJ eat-PST-Q
 'What did John eat after reading a book?'

- b. Mwues-ul_i, John-i chayk-ul ilk-ko, swukcey-lul kkutnay-ko, t_i
 What-ACC J-NOM book-ACC read-CONJ homework-ACC finish-CONJ
 po-ass-ni ?
 watch-PST-Q
 'What did John watch after reading a book and finishing his homework?'
- c. Pap-ul_i, emeni-ka aki-lul tung-ey ep-ko t_i hay-ss-ta
 Meal-ACC, mother-NOM baby-ACC back-ON carry-CONJ do-PST-DECL
 'As for the meal, the mother made it while carrying her baby on her back.'
- d. I tokhan swul-ul_i, na-nun [ku nyesehtul-ikulehkhey manhi t_i
 This strong liquor-ACC, I-TOP those bums-NOM so much
 masi-ko melccengha-ss-ta-ko] sayngkakha-ci anh-nun-ta
 drink-CONJ sober-PST-DECL-COMP think-COMP Neg-PRS-DECL
 'As for this strong liquor, I do not believe that those bums could drink so much of
 it and still stayed sober.'

(19) *Non-ATB extraction out of coordinated VP**

- a. Mwues-ul_i, John-i chayk-ul ilk-ko Mary-ka t_i mek-ess-ni ?
 What-ACC J-NOM book-ACC read-CONJ M-NOM eat-PST-Q
 'What did Mary eat after John read a book?'
- b. Kocangna-n muffler-lul_i, John-i cha-lul tuleolli-ko, Bill-i t_i
 Break-ADNOM muffler-ACC, J-NOM car-ACC lift-CONJ B-NOM
 kochi-ess-ta
 fix-PST-DECL
 'As for the broken muffler, Bill fixed it while John was lifting the car up.'
- c. Etten cha-lul_i, ce salamtul-i John-i t_i tuleolli-ko Bill-i
 Which car-ACC those people-NOM J-NOM lift-CONJ B-NOM
 kocangna-n muffler-lul kochi-ess-ta-te-nya?
 break-ADNOM muffler-ACC fix-PST-DECL-HEARSAY-Q
 'Which car did those people say that John lifted up while Bill was fixing
 the broken muffler?'

Importantly, the generalization (14) holds in Korean as well. When (18) and (19) are turned into minimally different clausal (IP) coordinations, asymmetric extraction in violation of the ATB restriction becomes systematically impossible:

(20) *Non-ATB extraction out of coordinated IP*

- a. *Mwues-ul_i, John-i chayk-ul ilk-ess-ko t_i mek-ess-ni ?
 What-ACC J-NOM book-ACC read-PST-CONJ eat-PST-Q
 'What did John eat after reading a book?'

- b. *Mwues-ul_i, John-i chayk-ul ilk-*ess*-ko Mary-ka t_i mek-*ess*-ni ?
 What-ACC J-NOM book-ACC read-PST-CONJ M-NOM eat-PST-Q
 'What did Mary ate after John read a book?'
- c. *Pap-ul_i, emeni-ka aki-lul tung-ey ep-*ess*-ko, t_i hay-ss-ta
 Meal-ACC mother-NOM baby-ACC back-AT carry-PST-CONJ do-PST-DECL
 'As for the meal, the mother made it while carrying her baby on the back.'
- d. *Hayntul-ul_i, John-i cha-lul mil-*ess*-ko Bill-i t_i
 Steering wheel-ACC J-NOM car-ACC push-PST-CONJ B-NOM
 cocenghay-ss-ta
 operate-PST-DECL
 'As for the steering wheel, Bill operated it while John was pushing the car from behind.'
- e. *I tokhan swul-ul_i, na-nun [ku nyese_{ss}utul-ikulehkey manhi t_i
 This strong liquor-ACC I-TOP those bums-NOM so much
 masi-*ess*-ko melccenghay-ss-ta-ko] sayngkakha-ci anh-nun-ta
 drink-PST-DECL sober-PST-DECL-COMP think-COMP Neg-PRS-DECL
 'As for this strong liquor, I do not believe that those bums drank so much of it and still stayed sober.'

Since (14) holds for both Korean and English, the difference between symmetric and asymmetric coordinations constitutes a (partial) diagnostic of sub-clausal coordination in both languages.

However, when we examine the data from the two languages, a difference emerges as to how (14) is manifested on the surface. In Korean, subclausal status, a prerequisite for asymmetric coordinations, manifests itself as the systematic *absence* of tense-marking in nonfinal conjuncts. That is, the One Tensed V per Clause restriction receives confirmation by yet another diagnostic of clausal vs. subclausal status. In English, on the other hand, even examples of asymmetric conjunction must contain inflected verbs in each conjunct:

- (21)a. I *went* to the store and *bought*/**buy* some whisky.
 b. She's gone and *ruined*/**ruin* her dress.
 c. Lizzie Borden *took* an axe and *gave*/**give* her mother forty whacks.
 (Schmerling 1975:217)

Now, the fact that verbs in each conjunct must be individually inflected even when they are under the scope of a single tense formative (as in sub-clausal VP, V' coordination) in English is exactly what one would expect if lexicalist (checking-theoretic) assumptions were correct for English (Yoon 1993).

Under lexicalist assumptions, coordinated VPs lie under the scope of a shared tense operator in the minimally c-commanding Infl, which dominates a feature complex, rather

than a dismembered affix. The verbs in each conjunct are tense-bound (Enç 1987, Stowell 1993, Thompson 1994) by the shared Infl. Given lexicalist assumptions, the verbs must be inserted *fully inflected*. This is illustrated schematically below, where coindexation indicates tense-binding:

(22) [IP John [I' **past_i** [VP*[VP [VP **went_i** to the store] and [VP **bought_i** whisky]]]]

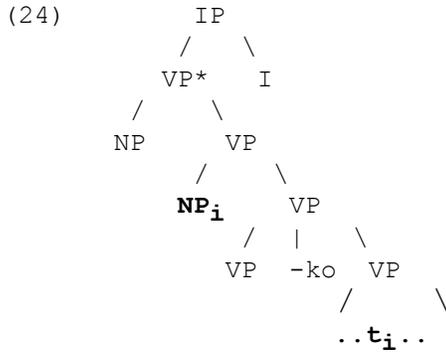
By parity of reasoning, we must take the fact that verbs must be tenseless in sub-clausal coordination in Korean to imply that lexicalist assumptions cannot hold, and that the tense affix combines with a coordinated VP (or VP*) in the manner of analytic auxiliaries in English, a position argued for in this paper.

3.3. Local Scrambling

We have seen that extraction in violation of CSC/ATB is possible only from asymmetric, subclausal coordinations. In the previous section, we have examined extractions where the extracted phrase occupies the clause-initial position, c-commanding its extraction site. Let us now turn to paradigms showing a more local extraction, where the extracted element occupies a position following the first conjunct subject but preceding the object:

- (23)a. John-i mwues-ul_j, chayk-ul ilk-ko t_j mek-ess-ni ?
 J-NOM what-ACC book-ACC read-CONJ eat-PST-Q
 'What did John eat after reading a book?'
- b. *John-i mwues-ul_j, chayk-ul ilk-ko Mary-ka t_j mek-ess-ni ?
 J-NOM what-ACC book-ACC read-CONJ M-NOM eat-PST-Q
 'What did Mary eat after John read a book?'
- c. *John-i mwues-ul_j, chayk-ul ilk-ess-ko t_j mek-ess-ni ?
 J-NOM what-ACC book-ACC read-PST-CONJ eat-PST-Q
 'What did John eat after reading a book?'
- d. *John-i mwues-ul_j, chayk-ul ilk-ess-ko Mary-ka t_j mek-ess-ni ?
 J-NOM what-ACC book-ACC read-PST-CONJ M-NOM eat-PST-Q
 'What did Mary eat after John read a book?'

Only (23a) is grammatical, and this is expected. (23a) exemplifies VP conjunction. In such a structure, the second conjunct object can scramble/adjoin to the the coordinate VP. The extraction violates CSC/ATB, but is sanctioned since the structure is an asymmetric coordination (expressing temporal sequence). In addition, the extracted phrase c-commands/binds its extraction site, as desired (Saito 1985):



In (23b), we have an asymmetric (tenseless) coordination of VP*s, which should in principle allow non-ATB extractions. However, extracting the second conjunct object to the indicated position is ill-formed because the positioning indicates that the second conjunct object has scrambled *into* the first conjunct VP*, adjoining to VP. In this position, the extracted element does not c-command its extraction site. Given that scrambling observes the *Proper Binding Condition* (Saito 1985), the ill-formedness is expected.

(23c,d) are tensed IP coordinations. Extraction out of the second conjunct in violation of CSC/ATB is expected to be ill-formed because tensed coordinate structures are not asymmetric. In addition, the scrambling would also violate the c-command condition, since the object NP has scrambled into the first conjunct IP.

The explanation for the contrast between (23a) and (23c) depended on the assumption that VP status in Korean is signalled by the absence of tense-marking, as mandated by the One Tensed V per Clause generalization. If on the other hand tense is lexically affixed, there is no way to distinguish VP from IP in this manner.¹⁷

3.4. Interaction of Negation-Auxiliary Scope and Tense Specification

The interaction of tense-specification and negation scope provides another argument for the proposed structures, and thus for the syntactic independence of inflectional elements in Korean (Yoon 1993, 1994, Yoon and Yoon 1990).

When the initial conjunct is untensed, the negative auxiliary *anh-* on the final conjunct (i) may take distributive scope into each conjunct, or (ii) negate the entire coordinate structure externally.¹⁸ In the former case, the negation is understood in its logical sense, i.e., *descriptively* (Horn 1985, 1989). In such cases, as is well-known, a disjunction must be used instead of conjunction (De Morgan's Law).

In the latter case, negation is understood externally, or metalinguistically (Horn 1985, 1989). As noted in Schmerling (1975), metalinguistic negation is the only type of negation allowed in asymmetric coordinations. When descriptive negation triggering the *and-or* alternation is used, asymmetric readings simply disappear. Symmetric coordinations, on the other hand, allow either logical, descriptive negation or external, metalinguistic negation (the latter requiring appropriate discourse contexts). Illustrative examples and their interpretations are given below:

(25) *Untensed Ist Conjunct (symmetric) + Logical Negation*

- a. John-i pap-ul cis-kena mek-ci anh-ass-ta
J-NOM meal-ACC cook-OR eat-COMP Neg-PST-DECL
'John didn't cook or eat the meal.'
- b. John-i pap-ul mek-kena selkeci-lul ha-ci anh-ass-ta
J-NOM meal-ACC eat-OR dish-ACC do-COMP Neg-PST-DECL
'John didn't eat the meal or do the dishes'
- c. John-i Mary-lul manna-kena Mary-ka John-ul chacaka-ci
J-NOM M-ACC meet-OR M-NOM J-ACC go and see-COMP
anh-ass-ta
Neg-PST-DECL
'John didn't meet Mary. Nor did Mary go and see John.'

(26) *Untensed Ist Conjunct (symmetric) + External Negation*¹⁹

- a. John-i Bill-ul coaha-ko Paul-ul miweha-ci anh-nun-ta
J-NOM B-ACC like-CONJ P-ACC hate-COMP Neg-PRS-DECL
'It is not that John likes Bill and hates Paul. (In fact, he hates both of them.)'
- b. John-i Bill-man coaha-ko Mary-ka Paul-man coaha-ci anh-nun-ta
J-NOM B-ONLY like-CONJ M-NOM P-ONLY like-COMP Neg-PRS-DECL
'It is not the case that John only likes Bill and Mary only likes Paul. (John likes Paul too.)'

(27) *Untensed Ist Conjunct (asymmetric) + External Negation*

- a. John-i pap-ul mek-ko ca-ci anh-ass-ta
J-NOM meal-ACC eat-CONJ sleep-COMP Neg-PST-DECL
'It is not that John slept after eating. (He slept after doing his homework.)'
- b. Emeni-ka John-ul ep-ko ilha-ci anh-ass-ta
Mother-NOM John-ACC carry-CONJ work-COMP Neg-PST-DECL
'It is not that mother worked carrying John on the back. (She was carrying his baby brother.)'
- c. John-i cha-lul tulleolli-ko Bill-i muffler-lul kochi-ci anh-ass-ta
J-NOM car-ACC lift up-CONJ B-NOM muffler-ACC fix-COMP Neg-PST-DECL
'It is not that Bill fixed the muffler while John was lifting up the car. (It was Bill who was holding the car up.)'
- d. John-i naka-ko Mary-ka tuleo-ci anh-ass-ta
J-NOM exit-CONJ M-NOM enter-COMP Neg-PST-DECL
'It is not that Mary came as John was going out. (Susan came in.)'

In contrast, when tense is specified on initial conjuncts, the scope of negation, descriptive or metalinguistic, is limited to the second conjunct without exception.

(28) *Tensed 1st Conjunct + Logical Negation*

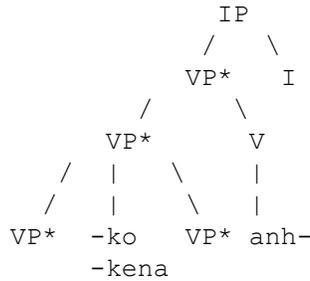
- a. John-i pap-ul mek-ess-kena kulus-ul chiu-ci anh-ass-ta
J-NOM meal-ACC eat-PST-OR dish-ACC clean-COMP Neg-PST-DECL
-/-> J didn't eat the meal or clean the dishes.
-> Either John ate the meal or (he) didn't clean the dishes
- b. John-i Mary-lul coahay-ss-kena Mary-ka John-ul coaha-ci anh-ass-ta
J-NOM M-ACC like-PST-OR M-NOM J-ACC like-COMP Neg-PST-DECL
-/-> John didn't like Mary. Nor did Mary like John
-> Either John liked Mary or Mary didn't like John

(29) *Tensed 1st Conjunct + External Negation*

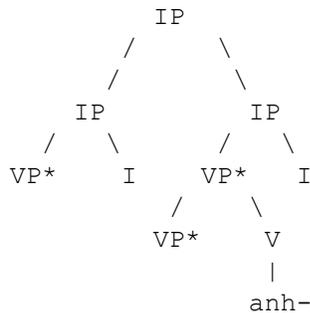
- c. John-i pap-ul mek-ess-ko kulus-ul chiu-ci anh-ass-ta
J-NOM meal-ACC eat-PST-CONJ dishes-ACC clean-COMP Neg-PST-DECL
-/-> It is not the case that John ate the meal and cleaned the dishes. (He left them there.)
-> John ate the meal and did not clean the dishes.
- d. John-i Mary-lul coahay-ss-ko Mary-ka John-ul coaha-ci anh-ass-ta
J-NOM M-ACC like-PST-CONJ M-NOM J-ACC like-COMP Neg-PST-DECL
-/-> It is not the case that John liked Mary and Mary like John. (In fact, Mary liked Bill.)
-> John liked Mary. And Mary did not like John.

The explanation for the above paradigms is rather straightforward. The Negative Auxiliary *anh-* selects a VP* to form another VP*. As such, it may not combine with and take scope over, a tensed initial conjunct IP. It is only when the initial conjunct is untensed that the auxiliary has the option of combining with conjoined VP*s, taking both conjuncts in its scope, yielding descriptive (when Negation distributes into each conjunct, expressed as disjunction) or external, metalinguistic readings (when Negation scopes over the entire coordinate structure, expressed as conjunction).²⁰

(30) Untensed 1st Conjunct:



Tensed 1st Conjunct:



Again, subclausal (VP*) and clausal (IP) constituents were differentiated by the absence vs. presence of affixal tense-marking.

Now, taken in isolation, the effect of tense specification on limiting Negation scope may be accounted for differently. However, any analysis that takes the above paradigm to reflect something specific about the interaction of Tense and Negation (for example, Joh and Park 1993) is missing a fundamental generalization.

The restrictions observed here are part of the larger generalization that when the final conjunct contains an auxiliary which combines with an untensed verb (Type A auxiliary of Yoon 1993, subcategorizing for VP*), such an auxiliary may not have scope over a tensed initial conjunct. This is demonstrated by Type A auxiliaries *V-e po-* (V-COMP try, 'try doing X'), and *V-e poi-* (V-COMP appear, 'appears to be X'). The 'scope' of these auxiliaries varies systematically depending on tense specification on initial conjuncts:

- (31)a. Na-nun chayk-to ilk-ko sephyeng-to ilk-e po-ass-ta
 I-TOP book-ALSO read-CONJ review-ALSO read-COMP try-PST-DECL
 'I tried both reading the book and reading the review.'
- b. Na-nun chayk-ul ilk-ess-ko sephyeng-to ilk-e po-ass-ta
 I-TOP book-ACC read-PST-CONJ review-ALSO read-COMP try-PST-DECL
 'I read the book. And I tried reading the review, too.'

- c. Chayk-ul ilk-kena sephyeng-ul ilk-e poa-Ø-la
 Book-ACC read-CONJ review-ACC read-COMP try-PRS-IMP
 'Try reading the book or the review.'
- d. Ne-nun chayk-ul ilk-ess-kena sephyeng-ul ilk-e po-n
 You-TOP book-ACC read-PST-CONJ review-ACC read-COMP try-ADNOM
 kes kat-Ø-ta
 thing seem-PRS-DECL
 'It seems like you read the book or tried reading the review.'
- e. Mary-nun yeppu-ko ttokttokhay-e poi-n-ta
 M-TOP pretty-CONJ smart-COMP appear-PRS-DECL
 'Mary appears to be both pretty and smart.'
- f. Mary-nun yeppu-ess-ko ttokttokhay-e poi-ess-ta
 M-TOP pretty-PST-CONJ smart-COMP appear-PST-DECL
 'Mary was pretty. And she also appeared to be smart.'

In contrast, when the auxiliary on the final conjunct is one that combines with a tensed verb form (Type B auxiliary, subcategorizing IPs), the initial conjunct falls within its scope regardless of specified tense (Yoon 1993). This is shown by the auxiliary *V-Tense-na po-* (V-TENSE-COMP seem, 'seems as if'), which subcategorizes an IP. The first conjunct in (32b), a tensed IP, falls under its scope, as illustrated by the translation.²¹ However, as we can predict, Type B auxiliaries fail to take scope over initial conjuncts in CP coordination (cf. 32c).

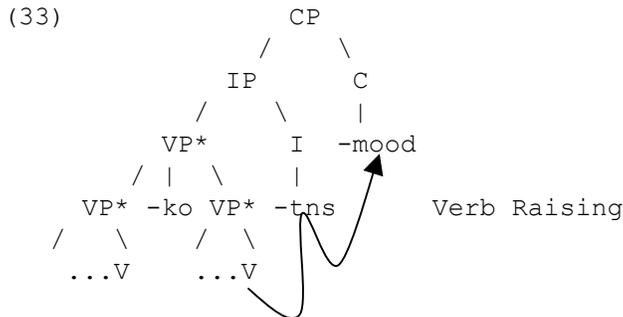
- (32)a. John-i pap-ul mek-ko Mary-ka selkeci-lul hay-ss-na
 J-NOM meal-ACC eat-CONJ M-NOM dish-ACC do-PST-COMP
po-ta
 seem-DECL
 'It seems that John ate the meal and Mary did the dishes'
- b. John-i pap-ul mek-ess-ko Mary-ka selkeci-lul ha-Ø-na
 J-NOM meal-ACC eat-PST-CONJ M-NOM dish-ACC do-PRS-COMP
po-ta
 seem-DECL
 'It seems that John ate the meal and Mary is doing the dishes'
- c. John-i pap-ul mek-ess-ta kuliko Mary-ka selkeci-lul ha-Ø-na
 J-NOM meal-ACC eat-PST-DECL and M-NOM dish-ACC do-PRS-COMP
po-ta
 seem-DECL
 'John ate the meal and it seems that Mary is doing the dishes'
 -/> 'It seems that John ate the meal and Mary is doing the dishes.'

4 Some Alternatives

In this section, I will consider some alternative interpretations of the patterns of coordination and of the theoretical implications regarding Korean morphosyntax that were drawn from them. I shall first examine (section 4.1) analyses that take coordinate structures to be something else than coordination, i.e., as adjoined structures, in part as a means to explicate the asymmetric distribution of morphosyntactic marking in affixal coordinate structures. I then (section 4.2) turn to analyses which share the intuition with the text proposal that these are coordinate structures, but seek to analyze the asymmetric information marking based on lexicalist assumptions.

4.1. Conjunction or Adjunction?

4.1.1. *Conjuncts as Adjuncts and Asymmetric Verb Raising*: The fact that morphosyntactic marking of tense and mood is distributed asymmetrically in affixal coordinate structures in Korean is troublesome for derivational approaches relying on overt head-movement as the mechanism for combining verb roots and affixes (i.e., *building-theoretic* analyses). The reason is evident. If verb raising is responsible for combining the verb root and affixes, it must take place only from final conjuncts. This is obvious when non-final conjuncts are untensed. Even when non-final conjuncts are tensed (in IP coordination), the information marking is still asymmetric, since only the final conjunct may be specified for Mood. Verb raising must still be asymmetric. It is only in analytic, CP coordination (employing the cross-categorial word conjunction *kuliko*) that the conjuncts are fully symmetric with respect to the marking of morphosyntactic information. Therefore a verb raising analysis must come to grips with the question of why, in coordination of IP or smaller constituents, verb raising *always* operates asymmetrically, taking place only from the final conjunct in violation of CSC/ATB, as illustrated below:



For reasons such as this, E-Y Yi (1994) puts forth the thesis that affixal coordinate structures as such do not exist in Korean. Instead, she argues that all such structures are syntactically *adjunct-head* structures. The 'conjunctive' *-ko* is for her a participial suffix. Non-final conjuncts, tensed or untensed, are adjuncts CPs (with or without lexical subject and/or tense) adjoined to VP or IP. Since adjuncts precede main clauses in Korean, this opens the way to treat asymmetric information marking in coordinate structures on a par with other adjunct-head structures. Overt verb raising is restricted to what appears to be the final conjunct since it is really the main clause. She claims additional support for her conjunct-as-adjunct analysis from other syntactic phenomena.

Extraction from coordinate structures in violation of CSC/ATB is taken to be evidence for the adjunct analysis. Noting that XP-extraction from certain coordinate structures may violate CSC/ATB, she then argues that since CSC/ATB constrains coordinate structures, the structures which violate CSC/ATB cannot be syntactically coordinate.

The fact that CSC/ATB is strictly observed in extraction out of tensed coordinations should prove problematic for E-Y Yi (1994), since she makes no distinction between tensed and untensed conjuncts, both necessarily being adjuncts for her. In order to sustain her claim, she rejects widely held judgments reported in works such as Yoon (1993), S-Y Cho (1994), J-B Kim (1994), and B-K Kim (in preparation) concerning the impossibility of extraction in violation of CSC/ATB when the initial conjunct is tensed.

E-Y Yi's (1994) additional arguments against the coordination analysis come from supposed violations of the Conjunct Condition which dictates that a conjunct cannot be separated from other conjuncts in a coordinate structure. She argues that such separation is attested in Korean (via Scrambling and Right Dislocation), and takes this to be evidence against a coordinate analysis.²²

4.1.2. Evaluation: I shall now turn to an evaluation of this analysis. Can the asymmetry of morphosyntactic marking in coordinate structures be resolved by adopting an adjunct analysis, as suggested by E-Y Yi (1994)? The answer seems to be negative, for the simple reason that there are affixal coordinate structures in Korean which cannot, on any reasonable grounds, be considered adjunct-head structures but which nevertheless exhibit asymmetric marking of inflection, with the final conjunct always carrying more information than non-final conjuncts. These are the symmetric coordinations, tensed *or* untensed. We have seen that affixal coordinations with tensed non-final conjuncts (exemplified by 34a below) are always symmetric. The same is true for untensed coordinations containing stative predicates, shown in (34b):

- (34)a. John-i pap-ul mek-ess-ko cam-ul ca-ss-ta
 J-NOM meal-ACC eat-PST-CONJ sleep-ACC sleep-PST-DECL
 'John ate and slept.'
- b. John-i Mary-lul salangha-ko Jane-ul miweha-n-ta
 J-NOM M-ACC love-CONJ J-ACC hate-PRS-DECL
 'John loves Mary and hates Jane.'

Anyone claiming that symmetric coordinations are anything but true coordinate structures faces insurmountable difficulties.

First, as we have seen, the conjuncts in such structures may be permuted without any change in truth conditions. Thus, the sentences in (35) may be used to describe the same situation as those in (34). Needless to say, this is not the case with genuine adjunct-head structures shown in (36).

(35) *Symmetric Coordination* :

- a. John-i cam-ul ca-ss-ko pap-ul mek-ess-ta (= 34a)
 J-NOM sleep-ACC sleep-PST-CONJ meal-ACC eat-PST-DECL
 'John slept and ate.'
- b. John-i Jane-ul miweha-ko Mary-lul salangha-n-ta (= 34b)
 J-NOM J-ACC hate-CONJ M-ACC love-PRS-DECL
 'John hates Jane and loves Mary.'

(36) *Adjunct-Head structure*:

- a. John-i ca-n taumey pap-ul mek-ess-ta (≠/≠36b)
 J-NOM sleep-ADNOM afterwards meal-ACC eat-PST-DECL
 'John ate after sleeping.'
- b. John-i pap-ul mek-un taumey ca-ss-ta (≠/≠ 36a)
 J-NOM meal-ACC eat-ADNOM afterwards sleep-PST-DECL
 'John slept after eating.'

Secondly, symmetric coordinations display another prerogative of coordinate structures - that of *iteration*. Identical adjuncts may not be so iterated.²³

- (37)a. John-i Mary-lul coaha-ko, Jane-ul silheha-ko, Ruth-lul conkyengha-n-ta
 J-NOM M-ACC like-CONJ J-ACC hate-CONJ R-ACC respect-PRS-DECL
 'John likes Mary, hates Jane, and respects Ruth.'
- b. *John-i, Mary-lul coaha-ki ttamwun-ey Jane-ul silheha-ki
 J-NOM M-ACC like-COMP reason-LOC J-ACC hate-NML
 ttamwun-ey, Ruth-lul conkyengha-n-ta
 reason-LOC R-ACC respect-PRS-DECL
 '*Because he hates Jane because he likes Mary, John respects Ruth.'

Thirdly, Gapping, another prerogative of coordinate structures, is possible with symmetric coordinations but not with adjunct-head structures:

- (38)a. John-i Mary-lul Ø, Bill-i Jane-ul coaha-n-ta
 J-NOM M-ACC B-NOM J-ACC like-PRS-DECL
 'John likes Mary and Bill likes Jane.'
- b. *John-i Mary-lul Ø (ttaymwun-ey), Bill-i Jane-ul coaha-n-ta
 J-NOM M-ACC reason-LOC B-NOM J-ACC like-PRS-DECL
 'Because John likes Mary, Bill likes Jane.'

Fourth, conjuncts may be concatenated by an overt, cross-categorial word conjunction, *kuliko*. Subordinate adjuncts and heads (=main clauses) cannot be so concatenated:

- (39)a. John-i Mary-lul coaha-ko kuliko Jane-ul silheha-n-ta
 J-NOM M-ACC like-CONJ and J-ACC hate-PRS-DECL
 'John likes Mary and hates Jane.'
- b. *John-i, Mary-lul coaha-ki ttaymwun-ey, kuliko Jane-ul silheha-n-ta
 J-NOM M-ACC like-CONJ reason-LOC and J-ACC hate-PRS-DECL
 'Because he likes Mary, John hates Jane.'

The same holds true for affixal disjunction. Disjuncts ending in *V-kena* ('V-or') can be followed by a word disjunction *ttonun*:

- (40) John-i ca-kena ttonun pap-ul mek-ko iss-keyss-ta
 J-NOM sleep-OR or meal-ACC eat-COMP be-SUPPOSE-DECL
 'I presume John is either sleeping or eating.'

Fifth, as we have seen, the conjunction in symmetric coordinations displays an alternation due to De Morgan's Law (section 3.4). When Negation distributes into conjuncts, the conjunctive is expressed as a disjunctive. This is a prerogative of conjoined structures crosslinguistically.

Sixth, asymmetric marking of morphosyntactic information is found with disjunctive coordination. Disjunctive coordinations are unambiguously coordinate structures on anyone's account.

Seventh, extraction out of symmetric coordinations obeys the CSC/ATB without exception for the great majority of native speakers of Korean. CSC/ATB is not a constraint on adjunct-head structures.

Finally, E-Y Yi claims that a conjunct can break out of a coordinate structure in violation of the Conjunct Condition, a subcase of Ross's CSC. She cites the following examples of Scrambling in violation of the Conjunct Condition to support her contention that these are adjunct-head structures:

- (41)a. [Nolay-lul pwulu-ko]_i, na-nun Chelswu-ka [[t_i] [chwum-ul
 Song-ACC sing-CONJ I-TOP C-NOM dance-ACC
 chwu]]-ess-ta-ko sayngkakha-n-ta
 dance-PST-DECL-COMP think-PRS-DECL
 'After Chelswu sang, I think he also danced.' (Yi's translation)
- b. [Chelswu-ka nolay-lul pwul-ess-ko]_i, na-nun [[t_i] [Yongho-ka
 C-NOM song-ACC sing-PST-CONJ I-TOP Y-NOM
 chwum-ul chwu-ess]-ta-ko sayngkakha-n-ta
 dance-ACC dance-PST-DECL-COMP think-PRS-DECL
 'After Chelswu sang, I think Yongho danced.' (Yi's translation)

Even though she marks both as acceptable, I do not find either of them particularly well-formed. (41a) is slightly more acceptable than (41b), but then note that (41a) is interpretable as asymmetric coordination expressing temporal sequence, which did not

care about violations of CSC/ATB regarding the Element Condition (extraction out of conjuncts).

(41b), to the extent that it is acceptable at all, might be because the topic phrase *na-nun* is being used parenthetically. As Saito (1985) suggests, topic phrases may be used parenthetically ('downgrading' of topics).

At any rate, we can readily construct examples of symmetric (42a), disjunctive (42b), or iterative asymmetric (42c) coordinations that prohibit such Scrambling altogether. To rule out the parenthetical usage of the topic phrase, I have inserted an additional adverbial following the topic phrase. These examples are uniformly unacceptable for all speakers.

- (42)a. *[Sakwa-to coaha-ko]_i, Yenghi-nun mikwuk-ey sa-l ttay
 Apple-ALSO like-CONJ Y-TOP America-LOC live-ADNOM time
 [[t_i] [orange-to coahay]]-ss-ta
 orange-ALSO like-PST-DECL
 'When she was living in America, Yenghi used to like both apples and oranges.'
- b. *[Sakwa-lul coaha-kena]_i, Yenghi-ka mikwuk-ey sa-l ttay
 Apples-ACC like-OR Y-NOM America-LOC live-ADNOM time
 [[t_i] [orange-lul coahay]]-ss-ta
 orange-ACC like-PST-DECL
 'When she was living in America, Yenghi used to like either apples or oranges (but not both).'
- c. *[Pap-ul mek-ko]_i, Yenghi-ka [[chengso-lul ha-ko], [t_i],
 Meal-ACC eat-CONJ Y-NOM cleanup-ACC do-CONJ
 [swukcey-lul hay]]-ss-ta
 homework-ACC do-PST-DECL
 'Yenghi cleaned up the house, had her meal, and did her homework.'

As further counterexamples to the Conjunct Condition, E-Y Yi cites the following example of Right Dislocation (// indicates a pause typical of Dislocation):

- (43) t_i Yongho-ka chwum-ul chwu-ess-ta. // [Chelswu-ka nolay-lul
 Y-NOM dance-ACC dance-PST-DECL C-NOM song-ACC
 pwulu-ess-ko]_i
 sing-PST-CONJ
 'Yongho danced after Chelswu sang a song.' (Yi's translation)

This sentence is acceptable, but this time, the assumption that Right Dislocation should obey CSC/ATB which is questionable, even for English. Both *and* and *or* allow violations of the Conjunct Condition in Right Dislocation:

- (44)a. John danced. // And Mary, too

- b. I heard that Mary works out at the gym these days. // And/Or runs a mile everyday, too/maybe.
- c. Mary went to the park, I think. // Or to her friend's house, maybe.

It is not surprising then that such violations are allowed in Korean as well. The fact that tense specification and disjuncts are possible in Right Dislocation indicates that we are dealing with true coordinate structures:

- (45)a. Yongho-nun chwum-ul chwu-ess-ta. // Chelswu-nun nolay-lul
 Y-TOP dance-ACC dance-PST-DECL C-TOP song-ACC
 pwulu-ess-ko
 sing-PST-CONJ
 'Yongho danced. But/And Chelswu sang a song.'
- b. Yongho-ka chwum-ul chwu-ess-ta. // Animyen Chelswu-ka
 Y-NOM dance-ACC dance-PST-DECL if not C-NOM
 nolay-lul pwul-ess-kena.
 song-ACC sing-PST-OR
 'Yongho danced. Or maybe Chelswu sang a song.'

On the basis of the above data, I will conclude that the argument for conjunct-as-adjunct analysis based on supposed violations of the Conjunct Condition is without force.

In sum, we must recognize that (i) there are genuine affixal coordinate structures in Korean; and (ii) because they exist, the asymmetry of marking (the asymmetric verb raising) cannot be explained away by adopting an adjunct analysis.

4.1.3. Non-ATB Verb Raising in Coordinate Structures: At this point one might argue, granting now that there are coordinate structures in Korean, that even if verb raising violates CSC/ATB in coordinate structures, since there are attested examples of XP-extraction which violate CSC/ATB (in asymmetric coordinations), the violation cannot be held against verb raising.

The flaw in this counterargument is this: Crosslinguistically, XP-extraction may violate CSC/ATB only when the coordinations are asymmetric, but not when they are symmetric. However, it is quite clear that verb raising, if it were to exist in Korean, must *systematically* violate CSC/ATB in all types of coordinate structures, symmetric or asymmetric.

The difficulty of maintaining that it is verb raising which puts inflections on the verb in Korean becomes confounded when one considers the fact that in English, verb raising (subject auxiliary inversion) is systematically ATB *even when* the coordinate structure is interpreted as asymmetric (allowing XP extraction in violation of CSC/ATB):

- (46)a. What can_j John [t_j [go to store]] and [t_j [buy e]]?
- b. *What can_j John [t_j [go to the store]] and [has [bought e]]?

Since verb raising in languages/structures where it can be identified robustly is always ATB, and since it must necessarily be non-ATB in Korean, we are faced with a contradiction. The evidence on balance forces one to conclude that there is no verb raising in Korean in coordinate structures, and *ceteris paribus*, in Korean syntax.

The conservative conclusion that can be drawn at this point is that conjuncts-as-adjuncts analysis is unworkable as a general alternative theory of affixal coordinate structures in Korean and is thus incapable of explaining away the asymmetric distribution of morphosyntactic marking in coordinate structures.

4.2. *Lexicalist Alternatives*

To the best of my knowledge, Cho and Morgan (1986, 1987) were the first to suggest that the asymmetric distribution of tense and mood in Korean verbal coordination might be accounted for by assuming that the grammar of coordinate structures in Korean is different from that of English in that coordinate structures in Korean are not symmetric (multiply headed, à la Gazdar, Klein, Pullum, and Sag 1985, GKPS), but asymmetric, in the sense that only the final conjunct may be the head of the coordinate structure. Unlike the proposal of E-Y Yi (1994), this is not a claim that affixal coordinate structures are adjunct-head structures. As such, it is immune from the objections raised in the previous sections against the adjunct analysis.

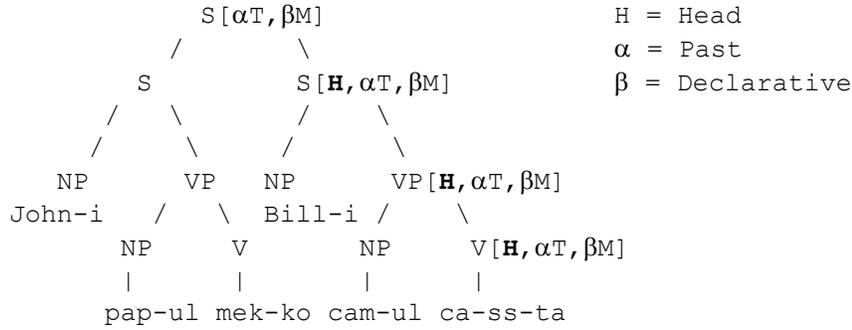
However, their analysis rests on lexicalist assumptions. The main thesis of this paper will be significantly weakened if the asymmetric distribution of morphosyntactic marking can be accounted for without recourse to the supposition that affixes are syntactic atoms - that is, if an account in keeping with the Lexicalist Integrity Principle, such as that of Cho and Morgan, proves itself to be an adequate alternative. Let us therefore turn to an evaluation.

4.2.1. *Final Conjunct as Head and the Head Feature Convention:*

I shall refer to this type of analysis as the *Head Final Analysis* (HFA) of affixal coordinate structures, for obvious reasons.

The HFA assumes that only the *final* conjunct is the head of a coordinate structure in Korean, perhaps because Korean is a head-final language.²⁴ Assuming that features of the head determine the features of the entire coordinate structure (i.e., *Head Feature Convention* of GKPS), this analysis is able to explain the fact that Tense and other inflectional categories of information (Mood) appear to distribute from final to non-final conjuncts:

- (47) John-i pap-ul mek-ko Bill-i cam-ul ca-ss-ta
 J-NOM meal-ACC eat-CONJ B-NOM sleep-ACC sleep-PST-DECL
 'John ate and Bill slept.'



Since the final conjunct is the head, the values for T(ense) and M(ood) for the entire coordinate structure are determined by those specified on the final conjunct, in the manner indicated above.

While the analysis is designed to describe the asymmetric distribution of inflectional marking in coordinations with tenseless nonfinal conjuncts without attributing syntactic atomicity to verb suffixes, other aspects of coordination are difficult to handle.

The first problem arises when nonfinal conjuncts carry a different tense than that specified on the final conjunct. In such a case, the tense on the final conjunct cannot be distributed interpretively over nonfinal conjuncts. The conjuncts are interpreted as temporally independent of each other. On the other hand, Mood on the final conjunct is still interpreted as having scope over nonfinal conjuncts:

- (48) John-i pap-ul mek-*ess*-ko Bill-i cam-ul ca-*n*-ta
 J-NOM meal-ACC eat-PST-CONJ B-NOM sleep-ACC sleep-PRS-DECL
 'John ate and Bill is sleeping.'

In order to accommodate structures such as (48), HFA must resort to a principle like (49), which in effect relativizes the headship of the final conjunct (DiSciullo and Williams 1987):

- (49) The final conjunct is the head *relative to* some feature F iff non-final conjuncts cannot be/are not marked with respect to F.

Since Mood cannot be marked on non-final conjuncts in affixal coordination, it follows that the Mood of the final conjunct will always distribute into nonfinal conjuncts. In the notation of the relativized head theory of DiSciullo and Williams (1987), in (48), the final conjunct is H_{Mood} for the entire coordinate structure, but not H_{Tense} . However, Tense and other categories of inflection are distributed over nonfinal conjuncts only when they are not (cannot be) marked for them (as in 47).

It is apparent that relativizing the headship of the final conjunct in this manner undermines the proposal that the unusual properties of Korean coordination are due to the headship of the conjunct on the righthand edge. On the technical side, such an adjustment to the HFC, even if it could be made, would turn out to be *ad hoc*, serving no other purpose than to allow the particular distribution of information in coordinate structures such as (47) and (48).

Let us now consider how the HFA might deal with other evidence provided in support of the text analysis in section 3. In order to account for the the distribution of NPIs, for example, the HFA must crucially rely on the One Tensed V per Clause generalization - i.e., it must assume that a concatenation of tenseless verb with a tensed verb constitutes subclausal conjunction but a sequence of two tensed verbs always signals conjoined clauses.

Of course, the problem is that given the lexicalist basis of the HFA, this generalization itself remains unexplained. Why should a sequence of tensed verbs always project to separate clauses? Especially given the absence of such a generalization for languages like English? No ready answers seem available if one adopts lexicalist assumptions.

The blocking effect of specified Tense on the scope of Negative and other Type A auxiliaries in the final conjunct would also prove problematic for the HFA. If only the final conjunct S is the head, the requirement that the Negative auxiliary subcategorize a tenseless form of the verb is satisfied in the final conjunct. Marking (or the absence of marking) in nonfinal conjuncts should not interfere with a local subcategorizational requirement within the final conjunct.

4.2.2. A Possible Edge Feature Analysis:

Edge Feature theories represent perhaps the most extreme form of lexicalism in that even clitics are analyzed in such theories as being lexically attached. The phrase-level 'scope' of clitics is accounted for by assuming that the morphosyntactic features introduced by them behave as EDGE features (with values FIRST and LAST), which distribute along the left and right margins of a syntactic constituent, just as there are features which are distributed along the head path (HEAD features), and those which are distributed just about anywhere (FOOT features).

The notion of EDGE features leaves one with a certain feeling of uneasiness, as what ought to be treated as constituent structure information (left and right margins of constituents) has been 'reworked' as features. Regardless, let us explore how such an analysis might fare. As is obvious, an Edge Feature analysis of coordinate structures in Korean, if it turns out to be successful, undermines the theoretical conclusions for the syntactic atomicity of verbal suffixes in Korean.

Let us start by assuming that verbal elements inserted under the preterminal V-node in Korean need not be specified obligatorily for Tense and Mood. Any verbal form may be inserted as long as it is phonologically free-standing and matches the preterminal in terms of features. This would allow *V-ko* to be inserted under the V preterminal in nonfinal conjuncts, as *V-ko* is a free form. Assume also that Tense, Mood and other verbal suffixes which distribute interpretively from final to non-final conjuncts behave as EDGE features, specifically, as LAST features in Korean, perhaps because they are suffixes, or perhaps because Korean is a head-final language.

LAST features are constrained to appear on the right edge of constituents they occur in by the *Edge Feature Principle* (EFP, Miller and Halpern 1992), given below. In (50), T represents a *Triggering* feature, introduced via meta-rules on ID-rules in a GPSG-style analysis. E is the (*morphosyntactic*) *Edge* feature borne by lexical items, which is 'matched' by the relevant T-feature higher up in a tree. Clauses (ii) and (iii) govern the upward and downward percolation of E-features, respectively. In the tree diagrams,

uppercase letters represent T-features, while matching lowercase letters represent E-features.

(50) *Edge Feature Principle*

- (i) If a node has T, then one of its daughters has E;
- (ii) If a node has E, then its mother has T or E;
- (iii) If a node has E, then one of its daughters has E.

There are some initially attractive consequences of this type of analysis. If Tense in Korean is an Edge feature, it is predicted to occur either on the right edge of the entire conjoined structure (cf. 51a, affixal coordination with tenseless initial conjuncts), or on the right edge of all of the conjuncts (cf. 51b, affixal coordination with tensed initial conjunct), but not on the initial conjunct to the exclusion of the final conjunct (cf. 51c), because Tense could not be LAST in such a configuration. (51d) would be the analysis of CP conjunction, employing the word conjunctive *kuliko*, where both Tense and Mood are LAST in each conjunct. In terms of ID-rules, the following distribution is predicted:

- (51)a. S[TNS, MOOD] -> S, S[*tns, mood*]
- b. S[TNS, MOOD] -> S[*tns*], S[*tns, mood*]
- c. *S[TNS, MOOD] -> S[*tns, mood*], S
- d. S[TNS, MOOD] -> S[*tns, mood*], *kuliko*, S[*tns, mood*]

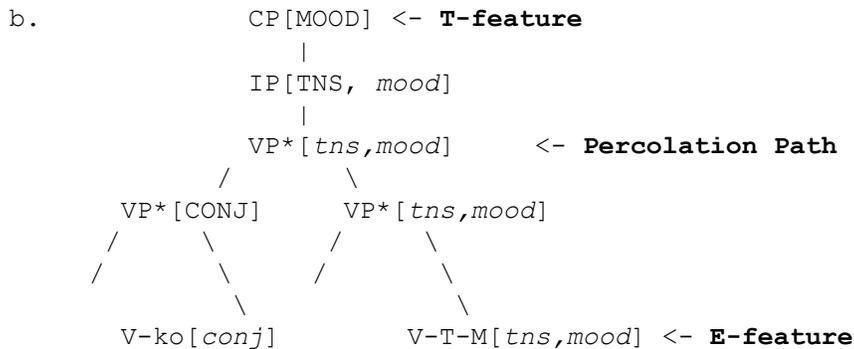
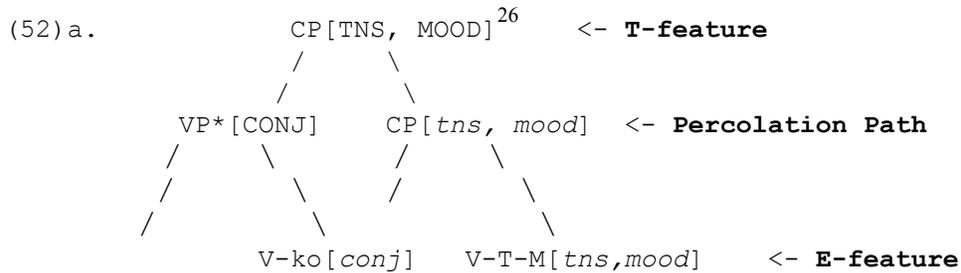
An Edge Feature account can explain why it is only the specified tense on a final conjunct that can distribute interpretively over nonfinal conjuncts. In this it fares better than the HFA in that it need not stipulate that the final conjunct is the head. The presumption that *tense* and *mood* are LAST features achieves this result without any need to parameterize headship in coordinate structures across languages.²⁵ It is also noteworthy that the effect of 'relativized headship' described in (49) automatically follows as a consequence.

While it appears to be an improvement, it is not without its own problems. For one, just as with the HFA, additional differences between tensed and tenseless nonfinal conjuncts are not as easy to account for. The distribution of NPIs, the blocking effect of specified tense on Negative/auxiliary scope may be accounted for only by adopting a generalization like the One Tensed V per Clause restriction, which remains unexplained under lexicalist assumptions.

As an attempt to derive this generalization within an EDGE feature framework, Steve Lapointe and Sam Bayer (p.c.) have suggested that an EDGE feature analysis be buttressed with certain elements of the checking theory of Chomsky (1992).

The idea seems to be this - keeping other assumptions intact, import the categories CP, IP, and VP* into the analysis such as the one shown in (51). This would mean, for example, that verbs project to VP* iff they are not specified for Tense. Otherwise, they project to IP or CP. The One Tensed V per Clause restriction and its effect follows as in the syntactic account.

However, doing so introduces other problems. In the proposed alternative, (51a) would be analyzed as either (52a) or (52b):



An analysis like (52a) violates the generalization that conjuncts must be like categories (*Law of Coordination of Likes*, LCL).²⁷ An alternative interpretation of (52a) would be as an adjunct-head structure, but we have already seen that such an analysis is unworkable in general.

The analysis sketched in (52b) satisfies LCL. Notice, however, that it relies on the following set of ID-schemas:

- (53)a. CP[MOOD] -> IP
 b. IP[TNS] -> VP*
 c. VP* -> NP, VP
 d. VP[2] -> NP, V[tns, mood]
 e. V[2, tns, mood] -> {mek-ess-ta, ...}

By EFP, the E-feature *tns* specified on the verb migrates to VP*, the daughter of IP which contains the matching T-feature TNS. Likewise, the E-feature *mood* migrates up to IP, the daughter of CP which is specified with the T-feature MOOD.

Against such an analysis one may hold that the ID schemas (53a,b) violate restrictive assumptions of current theories which view phrasal projections as projections of heads (the Lexicality requirement of X-bar theory).

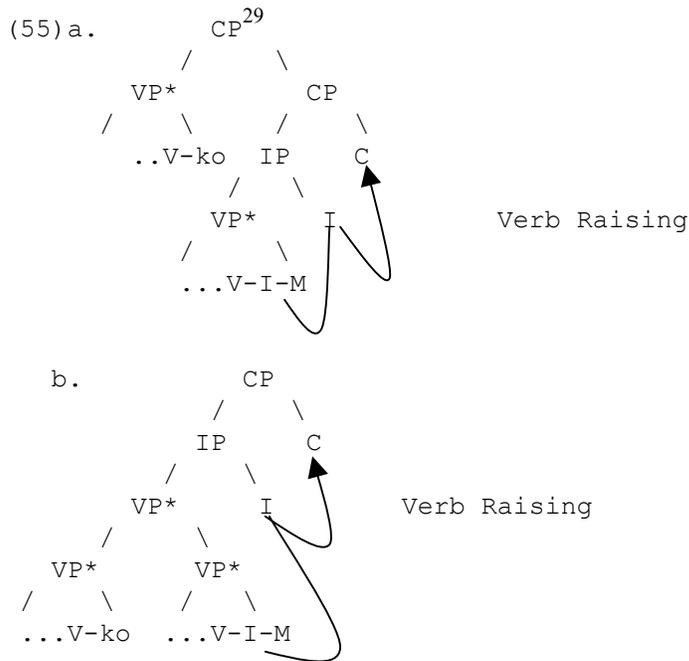
A variant of (53) in which IP and CP are made to conform to X-bar theory may posit the following set of ID-schemas:

- (54)a. CP[MOOD] -> IP[TNS], C
 b. IP[TNS] -> VP*, I
 c. VP* -> NP, VP
 d. VP[2] -> NP, V[tns, mood]

e. $V[2, tns, mood] \rightarrow \{mek-ess-ta, \dots\}$

As before, the lexically specified E-features *tns* and *mood* migrate to VP* and IP respectively by the EFP. However, while the CP and IP schemas are now headed, their heads perform no other function than to ensure that the schemas conform to X-bar theory. They are null phonologically (as affixes are lexically attached) and featurally (since E-features are introduced by affixes lexically attached to V).

4.2.4. *A Possible Checking Theoretic Analysis:* Let us consider finally what a checking theoretic analysis might have to look like in order to deal with the facts of Korean coordination. As noted at the outset of the paper, a checking theoretic analysis will look very much like the EDGE analysis sketched above, except that it would employ head-movement as a means to express the connecting dependency (percolation path) between T-features and E-feature²⁸ which was captured through percolation principles in the former analysis. Again, let us consider two possible analyses:



The problems with potential checking-theoretic analyses are in part similar to those encountered above. As a coordinate structure, (55a) violates LCL. The problem with (55b) is that verb raising, whether it takes place overtly or covertly, systematically violates CSC/ATB, although, as we have seen, we have no reason to believe that XP-extraction shows such behavior.

5 Conclusion and Remaining Questions

A question that naturally emerges at this point is this: Why is it that Korean inflection exhibits such robust evidence of syntactic atomicity while the inflectional morphology of languages like English appears fully consistent with lexicalist analyses?

I cannot give an adequate answer to this question in this paper. But I suspect that an answer may be formulable given certain leading ideas of Kayne's (1994) work, where he

speculates, on the basis of predictions that follow from his theoretical proposal, that the mode in which verbs and inflections are combined may be fundamentally different in head-initial and head-final languages. Specifically, he predicts, for reasons internal to his theoretical framework, that head-movement as such may be missing in head-final languages and that V, I, and C are concatenated only loosely. It is interesting, to say to least, that I have come to a similar conclusion by approaching the coordination data from the empirical angle.

A systematic investigation of affixal nominal coordination, which parallels verbal coordination in key respects and would strengthen the conclusion for the syntactic atomicity of inflectional affixes in Korean, also remains to be explored.

Footnotes

¹ Concretely, Chomsky (1992) assumes that the feature complex on a functional node disappears when a verb with matching affixes adjoins to it.

² While this paper is restricted to the analysis of verbal inflection, nominal inflection in Korean shows similar robust evidence of syntactic atomicity. For reasons of space, I cannot go into a detailed discussion of nominal inflection.

³ This is an extreme simplification. But the simplification does not affect the argument in this paper. When verbs are coordinated or subordinated, a class of linking affixes, which Yu-Cho and Sells (to appear) call *Comps*, are attached to verbal roots in place of, or sometimes in addition to, Tense and Mood affixes.

In addition to the obligatory suffixes, optional suffixes may also occur in the verbal complex. For a detailed discussion of Korean inflection, see the above-cited work and Sells (to appear), *inter alia*. Nominal roots, in contrast to verbal roots, are always free-standing forms.

⁴ This is the VP Small Clause. In this paper, I adopt the version of VP Internal Subject Hypothesis proposed in Koopman and Sportiche (1991), where the traditional VP is distinguished from a VP Small Clause, largely for reasons of expository ease. I will notate the latter as VP* throughout the paper.

⁵ While they are to be credited with discovering this generalization, it remained a puzzle for them, since they were attempting to defend a lexicalist account of verbal coordination in Korean.

⁶ Since Korean is a pro-drop language, there is an analysis of putative examples of V and VP coordination as VP* coordination with subject and/or object arguments pro-dropped in the second conjunct. Additionally, there is a possibility that V-coordination may be VP-coordination with the shared object(s) extracted across-the-board by Scrambling. I do not take this possibility to imply that Korean lacks coordination of constituents smaller than VP*, as suggested by E-Y Lee (1994), for example. In subsequent discussion, I shall abstract away from these complications, unless it becomes necessary.

⁷ The VP*-internal position of subjects in Korean can also be given a theoretical justification. Within classical versions of the VP Internal Subject Hypothesis, the force that drives movement to SpIP is Case-theoretic. Since Nominative Case in many languages is possible only in the local domain of (finite) inflection, it is assumed that Case is not available to the subject inside the VP*. This forces the subject to raise to a Case-position, SpIP, in order to be Case-marked (Kitagawa 1986).

More recent variations of this hypothesis assume that in certain languages, subjects need not move out of VP, since there may be a means to assign Case to subjects internal to VP*. Koopman and Sportiche (1991) propose that Nominative may be assigned under *government* to the base position of subjects in certain languages, in which case there is no reason for the subject to move out of VP*. They propose, as a

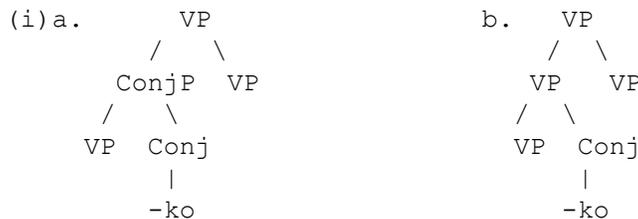
parametric option available in UG, two ways of assigning Case, Case under Government and Case under Spec-Head agreement.

The reason for the failure of subjects to raise overtly in Korean may be different, however. The two mechanisms of Nominative assignment introduced above assume that there is a distributional correlation between the appearance of Nominative Case and the presence of (finite) Infl elements. However, this correlation does not exist in Korean, so that it would be misleading to propose that Nominative is assigned or checked in the presence of Infl. In contexts where overt expression of Infl components is clearly impossible, Nominative is nevertheless available to subjects. A number of verbal suffixes (such as *-myense* 'while') precludes the overt expression of Tense/Aspect, i.e., Infl elements, and yet Nominative subjects are possible in such clauses:

- (i) [John-i cip-ey o-(*ass)-myense] Mary-ka kyothongsako-lul
 John-NOM home-TO come-(*PST)-COMP Mary-NOM accident-ACC
 tanghay-ss-ta
 suffer-PST-DECL
 'It was while John was on his way home that Mary had an accident'

For reasons such as this, a number of researchers (Y-S Kang 1986, Y-J Kim 1990, J-M Yoon 1990) propose that the mechanism of Nominative assignment is independent of Infl elements. This implies that there is no Case-driven raising of the subject NP to SpIP, and hence, that subjects may remain internal to VP. (or, in current MS parlance, raising to SpIP is covert rather than overt.)

⁸ Instead of being interposed between conjuncts, the conjunctive *-ko* might form a constituent with the first conjunct, attaching as a phrasal suffix to its right edge. In such a view, the structure of, say, VP coordination would be as (ia) or (ib), depending on whether *-ko* projects to a ConjP (Benmamoun 1992, Munn 1993):



It should be emphasized that the arguments in section 3 are not effected by these alternative representations, since the crux of the argument turns on whether a verb inflected for tense and mood can be inserted as the head of VP - it cannot be in Korean, while it must be in English.

⁹ Anderson (1992) uses this term to describe clitics. In this sense the two usages are similar. However, Anderson crucially assumes that affixes are not 'things', but 'processes'. The lack of allomorphy and the paucity of violations from the one-to-one pattern for Korean does not necessitate treating affixes as a spell-out of some feature complex (Halle & Marantz 1993). A morpheme-as-thing approach like Lieber (1992) is well-suited for the facts of Korean inflection.

The dual subcategorization of certain affixes is exploited to account for various types of morphosyntactic mismatches in Sadock (1990). The affixes that are "autolexical" in his framework correspond to phrasal affixes as understood here.

¹⁰ There are different types of NPIs in Korean, but their distribution is similar. I examine below the distribution of *amwu (X)-to ... Neg* ('any X ... Neg'). *Amwu*, which will be glossed as 'any', may function as a demonstrative element or a nominal stem. *-To* by itself means 'also', but when it is combined (in a potentially discontinuous manner) with *amwu*, it yields an NPI expression. The X slot may be empty, in

which case we have an NPI meaning 'anyone'. It may be filled by a variety of nominal elements, functioning as arguments as well as adjuncts.

¹¹ The distribution of NPIs in Korean is subject to some variation. For instance, the tensed clause restriction (TSC) and the intervening subject restriction (SSC) may be violated in complements to certain bridge verbs for certain speakers, who may find both (ia) and (ib) acceptable.

- (i) a. John-un [Mary-ka *amwuto* manna-ss-ta-ko] sayngkakha-ci
 J-TOP M-NOM anyone meet-PST-DECL-COMP think-COMP
anh-nun-ta
 Neg-PRS-DECL
 'John does not think that Mary meet anyone.'
- b. John-un [Mary-ka *amwuto* manna-ci *anh-ass-ta-ko*]
 J-TOP M-NOM anyone meet-COMP Neg-PST-DECL-COMP
 sayngkakha-n-ta
 think-PRS-DECL
 'John does not think that Mary met anyone.'

However, if we abstract away from bridge verb contexts, the two restrictions hold by and large for the majority of speakers.

For example, the role of specified tense as the opacity inducing element is exemplified by the contrast between (iia) and (iib), where the former has a tensed complement clause.

- (ii) a. *John-un [*amwu-to* wa-ss-um-ul] pwuin-ha-ci *anh-ass-ta*
 John-TOP anyone come-PST-NML-ACC deny-COMP Neg-PST-DECL
 '*John did not deny the fact that anyone came.'
- b. John-un [(pro) *amukes-to* mek-ko] siph-e-ha-ci *anh-ass-ta*
 J-TOP (he) anything eat-COMP want--COMP Neg-PST-DECL
 'John did not want to eat anything.'

The independent role of an intervening subject in non-bridge verb contexts is observed below. The embedded verb in a causative structure cannot be inflected for tense, even though the Causee can be expressed as a Nominative subject. However, the lower subject blocks the licensing of NPI within the embedded constituent when negation is in the higher clause. This is shown by the following sentence containing the exceptive NPI, *NP-pakkey...* *Neg* ('only NP').

- (iii)a. *John-un [Mary-ka *Paul-pakkey* manna-key] ha-ci *anh-ass-ta*
 J-TOP M-NOM P-ONLY meet-COMP do-COMP Neg-PST-DECL
 'John allowed Mary to meet only Paul.'
- b. John-un [Mary-ka *Paul-pakkey* manna-ci *mos-ha-key*] hay-ss-ta
 J-TOP M-NOM P-ONLY meet-COMP Neg-COMP do-PST-DECL
 'John allowed Mary to meet only Paul.'

¹² The reader may observe that the example sentences containing NPIs in the text all contain the verbal disjunctive (*-kena*, 'or'), which parallels the behavior of conjunctive *-ko* in all relevant respects. This ensures that Negation has distributive scope into each conjunct, rather than over the coordinate structure as a whole (but see below for exceptions). As is well-known, logical conjunction *and* under the scope of negation is expressed as *or*, an effect of De Morgan's Law:

- (i) a. *John didn't want anything and blame anyone.
 b. John didn't want anything or blame anyone.

In addition, the examples have also been constructed in such a way that NPIs have an "across-the-board" (ATB) distribution. The rationale is similar - to make it evident that Negation has distributive scope into each conjunct. When these conditions are not met, the structures may become unacceptable.

NPIs in V'-coordination, sharing objects and subjects, are fine either as subjects or objects. In VP-coordination, when the shared subject is the NPI, the NPI is associated in an ATB manner with both conjuncts. However, when the object is the NPI in VP-coordination, both conjuncts should contain NPI objects if NPI is to be distributed ATB (cf. 8d). As expected, overt ATB extraction of a shared object NPI serves this purpose as well (Park and Han 1994):

- (ii) John-i *amwukesto*_i, [VP [VP Mary-eykey t_i cwu]-kena [VP Jane-eykey t_i
 J-NOM anything Mary-TO give-OR Jane-TO
 pillyecwu-ci]] *anh-ass-ta*
 lend-COMP Neg-PST-DECL
 'There isn't anything that John gave to Mary or lent to Jane.'

With VP* coordination, which do not have shared subjects or objects, the ATB effect can be obtained (i) if each conjunct contains NPI, bearing parallel grammatical functions (as in. 8e,f), or (ii) if overt ATB extraction of a shared object NPI takes place:

- (iii) *Amwukesto*_i, [VP* [VP* John-i t_i mek]-kena [VP* Mary-ka t_i pelli-ci]]
 Anything J-NOM eat-OR M-NOM discard-COMP
anh-ass-ta
 Neg-PST-DECL
 'There is nothing that John ate or Mary threw away.'

It should be noted, however, that there are instances where conjunction is acceptable in the presence of an NPI expression. These are the cases where the NPI expression has been extracted out of the scope of conjunction (as in iva, b, where object NPI is extracted out of the scope of conjunction), or is generated outside the scope of conjunction, as subject NPI combining with coordinated VP (ivc). These facts appear to support the claim that NPIs must be licensed in overt syntax in Korean (Park and Han 1994):

- (iv)a. John-i *amwukesto*_i, [VP [VP t_i mek-ko] [VP t_i thohaynay-ci]] *anh-ass-ta*
 J-NOM anything eat-CONJ throw up-COMP Neg-PST-DECL
 'There is nothing that John ate and threw up.'
- b. *Amwuto*_i, [VP* [VP* emma-ka t_i salangha-ko] [VP* appa-ka t_i miweha-ci]]
 Anyone mother-NOM love-CONJ father-NOM hate-COMP
anh-nun-ta
 Neg-PST-DECL
 'There is no one who (his) mother loves and (his) father hates.'
- c. *Amwuto* [VP [VP pap-ul mek-ko] [VP thal-i na]]-ci
 Anyone meal-ACC eat-CONJ upset stomach-NOM come-COMP
anh-ass-ta
 Neg-PST-DECL
 'No one ate and got an upset stomach.'

The extensive data examined in the text and in this note reveals that the claims made by E-Y Yi (1994) and J-B Kim (1994) regarding the distribution of NPIs in coordinate structures are inadequate.

¹³ *Nwuku-eykey-to*, an NPI expression equivalent to *amwu-eykey-to*, is used here to avoid any awkwardness arising from repetition.

¹⁴ The Negation that is used in these examples is the so-called Long Form Negation, which is analyzed in pedagogical grammars as consisting of the string *ani ha-Tense-Mood* ('Neg do-Tense-Mood'). In spoken Korean, it has been reanalyzed as *anh-Tense-Mood*, with the Negative adverb and the root of the dummy verb *ha-* ('do') fusing to form a Negative verb root *anh-*. In the terminology of Yoon (1993), *anh-* is a Type A auxiliary, as it combines with an untensed verb.

¹⁵ Symmetric coordinations express the meaning of the logical connective *and*. Therefore, inverting the order of conjuncts does not make a difference in interpretation, while in asymmetric coordinations, it does. Other labels may be attached to this distinction, but I shall use the terms symmetric vs. asymmetric in part for the sake of continuity with earlier scholarship.

¹⁶ See Lakoff (1986) for arguments that these are syntactically coordinate structures, and not head-adjunct structures.

¹⁷ Scrambling the subject of the second conjunct shows similar restrictions. It is possible in untensed coordinations if it is asymmetric, but not if it is symmetric (the data are drawn from J-B Kim 1994):

- (i) a. John-_i, Mary-ka pap-ul mek-ko, _{t_i} kulus-ul chiu-ess-ta
 J-NOM, M-NOM meal-ACC eat-CONJ dishes-ACC clear-PST-DECL
 'John cleared the dishes after Mary ate her meal.'
- b. *John-_i, Mary-ka pwuca-i-ko, _{t_i} kananhay-ss-ta
 J-NOM M-NOM rich-be-CONJ poor-PST-DECL
 'Mary was rich and John was poor.'

And scrambling is prohibited when the first conjunct is tensed:

- (ii)a. *John-_i, Mary-ka pap-ul mek-ess-ko, _{t_i} kulus-ul chiu-ess-ta
 J-NOM, M-NOM meal-ACC eat-PST-CONJ dishes-ACC clear-PST-DECL
 'John cleared the dishes after Mary ate her meal.'
- b. *John-_i, Mary-ka pwuca-i-ess-ko, _{t_i} kananhay-ss-ta
 J-NOM M-NOM rich-be-PST-CONJ poor-PST-DECL
 'Mary was rich and John was poor.'

¹⁸ The first conjunct in untensed coordinations may be interpreted as lying outside the scope of negation in the second conjunct, but as sharing temporal interpretation with it. E.g.,

- (i) a. John-i pap-ul mek-kena Mary-ka kwuk-ul kkulhi-ci anh-ass-ta
 J-NOM meal-ACC eat-OR M-NOM soup-ACC boil-COMP Neg-PST-DECL
 -> Either John ate the meal or Mary did not make the soup.
- b. John-i pap-ul mek-ko Mary-ka kwuk-ul kkulhi-ci anh-ass-ta
 J-NOM meal-ACC eat-CONJ M-NOM soup-ACC boil-COMP Neg-PST-DECL
 -> John ate the meal and Mary didn't make the soup

This reading is predicted in our account, since the Negative auxiliary selects a VP* and projects VP*. As such, it may combine only with the second conjunct VP*. In such a case, Negative scope is limited to the

second conjunct, while Tense, which is higher than VP*, scopes over both conjuncts. This paradigm would be problematic if Negation projects a separate NegP over VP* (see J-B Kim 1994 for arguments against positing NegP above VP* in Korean).

The reading whereby the first conjunct is completely outside the scope of Negation may require a pause between the conjuncts for some people. In subsequent examples of untensed coordination, I will abstract away from this reading, concentrating on readings where Negation scopes over the entire structure or distributes into each conjunct interpretively.

¹⁹ Some speakers may find the external, metalinguistic readings indicated in the translations hard to get, the reason being that although the Long-form Negation shown here may be used to express metalinguistic negation (S-J Choi 1985, Horn 1985), there is a more perspicuous way to do so using another periphrastic expression, *V-n kes-i ani-ta* ('V-ADNOM kes-NOM Neg-DECL'), commonly used in colloquial styles (McClanahan 1991), though it can also be used to express logical negation. (i) below has a primary interpretation as metalinguistic negation for most people:

- (i) John-i pap-ul mek-ko ca-n kes-i ani-ta
 J-NOM meal-ACC eat-CONJ sleep-ADNOM thing-NOM Neg.Cop-DECL
 'It is not that John slept after eating. (He slept after doing his homework.)'

The examples of negation examined in the text show conclusively that E-Y Yi's (1994) claim that Negation in coordinate structures (adjuncts, for her) never distributes into each conjunct is mistaken, and that it was made on the basis of a limited understanding of factors responsible for different types of readings.

²⁰ In making this claim, I am assuming that external, metalinguistic negation is no different from logical negation in being restricted in scope to its c-command domain. This is a position consistent with Horn (1989), who does not take the 'ambiguity' of logical vs. metalinguistic negation to be semantic, but due to pragmatics. This would explain, among others, why there is no form of negation devoted exclusively to the expression of metalinguistic senses.

²¹ Type B auxiliaries may be *affixal*. For example, the post-tense, pre-mood suffix *-tate-* ('hearsay') may take conjoined VP*s (ia) or IPs (iia) in its scope, like the auxiliary *-na po-* shown above:

- (i) a. [[John-i ttena-ko] [Bill-i o]]-ass-tate-la
 J-NOM leave-CONJ B-NOM come-PST-hearsay-DECL
 'They say that John left and Bill came.'
- b. [[John-un ttena-ss-ko] [Bill-un kos o-n]]-tate-nya ?
 J-TOP leave-PST-CONJ B-TOP soon come-PRS-hearsay-Q
 'Did they say that John left and that Bill will come soon.'

Affixal Type B auxiliaries are just one of the many obligatorily bound elements which display evidence of syntactic atomicity in taking scope over conjoined structures. In addition to the tense/aspect and mood affixes we have seen thus far, in the realm of derivational morphology, bound denominal verb suffixes such as *-i-* ('be X'), and *-tap-* ('like X'), and deverbal nominalizing suffixes *-um* and *-ki*, among others, exhibit similar evidence of syntactic atomicity as diagnosed by the ability to take scope over syntactically coordinated constituents (*-wa* is a nominal affixal conjunctive):

- (ii) a. John-un [[coh-un apeci]-wa [hwulyungha-n namphyen]]-i-ess-ta
 J-TOP good-ADNOM father-CONJ model-ADNOM husband-be-PST-DECL
 'John was a good father and a model husband.'
- b. John-un, [[coh-un apeci]-wa [hwulyungha-n namphyen]]-tap-key
 J-TOP good-ADNOM father-CONJ model-ADNOM husband-like-COMP

nul ilccik thoykunha-n-ta
 always early come home-PRS-DECL
 'Like the good father and model husband that he is, John always comes home early.'

- c. [[[John-i pahk-eyse nol]-ko [Mary-ka pap-ul hay]]-ss]-um-i
 J-NOM outside-AT play-CONJ M-NOM meal-ACC make-PST-NML-NOM
 pwunmyenha-Ø-ta
 evident-PRS-DECL
 'The fact that John played outside while Mary made the meal is evident.'

In order to give a lexical account of the distribution of these suffixes, significant changes in assumptions regarding the syntax of coordinate structures are required as will become clear in section 4.2.

²² She also adduces arguments against the coordination analysis based on; (i) the supposed failure of NPI licensing in certain positions inside initial conjuncts, and (ii) the failure of Negation to distribute into the first conjunct. I have already shown these conclusions to be erroneous.

Finally, E-Y Yi suggests that the non-ATB distribution of WH-in situ in coordinate structures argues against the coordination analysis if we assume that LF WH-raising always obeys the CSC/ATB.

I find the assumption that LF-raising always obeys the CSC/ATB questionable, however. Her argument is based on the following sentence taken from May (1985):

- (i) Some professor admires every student and despises the dean.

In (i), 'every student' may not take wide scope over the entire coordinate structure (yielding the reading: 'For every student there is a professor such that s/he admires that student and despise the dean.').

This may be so in (i). However, we can construct sentences in which wide scope is possible quite readily:

- (ii) Someone from Wal-Mart went to every department store and bought out the inventory

(ii) can mean; 'For every department store (say, K-Mart, Service Merchandise, and Target), there is some representative from Wal-Mart who went there and bought out the entire inventory (as part of a hostile takeover scheme).'

In general, whether or not WH or other operators in-situ observes the CSC/ATB seems dependent, not surprisingly, on the interpretive relationship between the conjuncts. Asymmetric coordinations (as in (ii) above, where the second conjunct is interpreted to mean '*for the purpose of* buying out the inventory') allow violations of CSC/ATB, while symmetric coordinations (as in (i)) do not.

Likewise, E-Y Yi's (1994) claim that WH in-situ in Korean can always violate CSC/ATB cannot be substantiated - it can be violated only when the coordinate structure is asymmetric. Otherwise, an ATB distribution is needed:

- (iii)a. * John-i nwuku-lul coaha-ko chayk-ul silhehay-ss-ni? (non-ATB symmetric)
 J-NOM who-ACC like-CONJ book-ACC hate-PST-Q
 '*Who did John like and hate books?'
 b. John-i nwuku-lul coaha-ko nwuku-lul silhehay-ss-ni? (ATB symmetric)
 J-NOM who-ACC like-CONJ who-ACC hate-PST-Q
 'Who did John like and who did he hate?'
 c. John-i pap-ul mek-ko mwues-ul hay-ss-ni? (non-ATB asymmetric)

J-NOM meal-ACC eat-CONJ what-ACC do-PST-Q
'What did John do after eating his meal?'

On the basis of the above considerations, we assume CSC/ATB to be applicable in the same way in overt syntax and LF - it is strictly observed in symmetric coordinations and may be violated in asymmetric coordinations. (Add stuff about weak QPs vs. strong QPs and how they differ wrt island sensitivity, including CSC).

²³ Unless of course, the iterated adjuncts are themselves coordinated, connected by zero or *kuliko* conjunction and read with a comma intonation. The reading corresponding to this analysis of (37b) would be something like, 'Because he likes Mary and because he hates Jane, John respects Ruth (who shares his feelings about them)'. I am not interested in this reading.

²⁴ This reasoning would imply that in head-initial languages, coordinate structures should be head-initial. While Cho and Morgan do not explore this consequence of their analysis, it should be noted that head-initial analyses of coordination have been proposed for languages like English by Benmamoun (1992), and Munn (1993), inter alia, though not on the basis of asymmetric morphosyntactic marking.

²⁵ However, one can ask if there is a way to predict whether a feature will be FIRST or LAST, i.e., whether it is the pre vs. suffixal status of affixes or the syntactic headedness of a language which determines it. Nothing in the exposition of EDGE feature analyses suggests a principled answer to this question. As such, it is silent on the question of why, as noted by Cho and Morgan (1986), there are no *prefixes* in Korean which display evidence of syntactic atomicity that would warrant treating them as contributing EDGE (FIRST) features. (Actually, in Halpern's latest work, Halpern (1994), neither the affixal character nor the syntactic headedness is an issue -- if this is the case, maybe we can say that in Korean, the case for an Edge analysis is significantly weakened, because of the correlation mentioned above).

²⁶ I am treating the information introduced by the *-ko* also as an E(LAST)-feature *conj*, containing its upward propagation by introducing the T-feature CONJ on the top node of the first conjunct.

²⁷ In response to this counterargument, one might propose that the LCL be interpreted in such a way that coordination of members of the same *Extended Projection* (Grimshaw 1991) should count as non-distinct for the purposes of LCL, since members of an extended projection all share values for the major categorial features N and V. According to this interpretation, VP* can be non-distinct from CP in (52a), so that LCL is satisfied.

This alternative does not seem workable, however. If for example, VP*, IP, and CP are non-distinct for the purposes of coordination, the palpable differences among the coordination of VP*, IP, and CP in Korean could not be explained in a principled manner.

²⁸ Of the two, a consideration due to Lapointe (1992) might lead us to adopt the analysis that posits movement rather than local inheritance through nodes as the conceptually better way to deal with such phenomenon. Lapointe points out that in feature-inheritance analyses, despite the fact that the inherited feature is instantiated freely on nodes in the percolation path, no significant principle of grammar ever refers to it (that is, why isn't there, for example, an agreement phenomenon referring to freely instantiated features of this sort on nodes in the percolation path?). The feature is relevant only at the bottom and top of the dependency. A movement analysis captures this latter fact directly.

²⁹ There should be verb raising within the first conjunct as well if there is a functional category head *Conj* projected above VP* attracting the movement of *V-ko*. I shall suppress this additional detail in the diagram.

6 References

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