

Semantic Constraints on the Genitive Complements of Verbal Nouns in Korean*

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Jun, Jong Sup. (2006). Semantic Constraints on the Genitive Complements of Verbal Nouns in Korean. *Language Research* 42.2, 357-397.

The adnominal genitive is generally considered to be a purely syntactic case. Genitive complements of verbal nouns in the Korean light verb construction (=LVC), however, show that syntax alone cannot explain the entire distribution of genitive. In this paper, I argue that combined factors of *animacy* and *specificity* constrain the genitive assignment of LVC; i.e., *inanimate* arguments with *specific* semantic content allow genitive-marking more readily than animate non-specific arguments. The alternation between accusative and genitive on the complement NP correlates with case ellipsis of the object NP in Korean. Differential Object Marking between OBJ-Acc and OBJ- \emptyset is also constrained by such factors as animacy and definiteness/specificity (Aissen 2003, H Lee 2005). The commonality between the genitive complement of LVC and OBJ- \emptyset is that they are typical objects, and hence are not confusable with the subject arguments. The overall discussion leads to interesting consequences for the event-type structure and the view of UG.

Key words: case, genitive, verbal noun, light verb construction, animacy, specificity, differential object marking, exceptional case marking

1. Introduction

The distinction between *grammatical* case and *semantic* case, and the claim that grammatical case is assigned with reference to syntactic configurations have served as important assumptions for many contemporary case theories since Chomsky (1981, 1986). Proposed analyses of case assignment differ from theory to theory. In the Government and Binding theory (Chomsky 1981),

* This work is a natural extension of my Brandeis dissertation (JS Jun 2003), in that I did not look into semantic conditions for genitive-marking while I devoted a sizable portion of the dissertation to discussing semantic conditions for nominative/accusative-marking. Hence, my foremost gratitude goes to my dissertation committee: Ray Jackendoff, Edgar Zurif, Joan Maling, James Pustejovsky, and Robert D. Van Valin, Jr. Earlier versions of this paper were presented at the 7th annual conference of the Korean Society for Language and Information (=KSLI), and at the KSLI monthly seminar in October, 2006. I thank participants of the meetings and especially Hee-Rahk Chae, Yongkyoon No, Jae-Woong Choe, Ji-Yung Kim, and Hangjin Yoon for helpful comments. I also thank three anonymous reviewers for detailed critiques that tremendously helped me reshape my ideas and arguments in the paper. The usual disclaimers apply. This work was supported by Hankuk University of Foreign Studies Research Fund of 2006.

nominative is assigned to the <Spec, IP> position by Infl under government; and accusative is assigned to a verbal complement by a governing V. In the Minimalist Program (Chomsky 1995), case assignment is replaced by case checking between the checking head and nominal projections with case features. Despite the diversity of theoretical details of different proposals, both nominative and accusative are treated in a fairly uniform way, such that their assignments are defined under structural terms. This is why Chomsky (1981, 1986) categorizes nominative and accusative as *structural case*.

Genitive, on the other hand, has a somewhat confusing history. In Chomsky's (1981, 1986) original proposal for case assignment, genitive is assigned inside a nominal projection by inherent properties of the head noun with reference to theta role assignment and government, and hence is categorized as *inherent case*. Subsequent researchers, however, have frequently categorized genitive as structural case with nominative and accusative focusing on the syntactic condition of the genitive assignment. In Korean linguistics, for instance, Y-S Kang (1986), H-D Ahn (1988), Y-J Kim (1990), and T-S Yu (1995) put nominative, accusative, and genitive into a single category of *structural or grammatical case*; H-M Sohn (1999) categorizes nominative, accusative, and genitive as *syntactic or structural case*.

Despite the confusion of classification, Chomsky's view of genitive as inherent case does not differ very much from subsequent researchers' categorization of genitive as structural case, in that genitive assignment is crucially determined by the presence of a nominal head (*for* Chomsky) or its maximal projection (*for* others). In all these studies, genitive is a nominal case that is assigned to the specifier and the complement positions of an NP (or a DP); i.e., the condition for genitive assignment seems to be purely syntactic in nature.¹

The syntactic nature of genitive is widely assumed in the literature of generative grammar, whereas numerous studies from outside the Chomskyan tradition have successfully shown that the case assignment of nominative and accusative can be defined by semantic terms rather than syntactic terms. In cognitive linguistics (Langacker 1988, 1991), Role and Reference Grammar (=RRG, Van Valin and Lapolla 1997), Wierzbicka (1981, 1983), K-S Hong (1991a), etc., cases like nominative and accusative are semantic in nature: their distribution is primarily explained by meaning or various thematic roles. S-J Ko (2000) makes an interesting claim that nominative and accusative cannot

¹ To Chomsky (1986), case is just an abstract feature on an overt NP, and its realization can be either covert or overt as shown in (i) and (ii). Also, the abstract genitive case can be realized as a PP headed by *of* as well as its regular possessive form in the <Spec, NP> position: the PP *of Miss Marple* in (iii) is the overt reflex of an inherent genitive case.

- (i) *John* loves *Mary*. (covert realization of abstract nominative and accusative)
- (ii) *He* loves *her*. (overt realization of abstract nominative and accusative)
- (iii) *Poirot* *s* envy *of* *Miss Marple* (overt realization of abstract genitive as a PP)

be defined by syntactic terms, and furthermore that Korean has no unique category of case that includes nominative and accusative. S-J Ko then develops a cognitive linguistic account for the distribution of nominative and accusative particles in Korean. Interestingly, however, even the researchers that try to define nominative and accusative by non-syntactic mechanisms do not argue much against the syntactic nature of genitive. In short, it is apparently very difficult to define a rule of genitive assignment without resorting to the nominal projection, i.e., a syntactic configuration.

One non-trivial question arises: Is the syntactic condition that genitive is assigned inside a nominal projection *necessary* and *sufficient* to explain the distribution of adnominal genitive? Although it seems impossible to account for adnominal genitive without a syntactic configuration, the syntactic condition does not explain all the empirical data. That is, the syntactic condition looks necessary, but not sufficient. For example, the following pairs of sentences from the light verb construction (=LVC) in Korean cannot be explained by the syntactic condition.²

- (1) a. kim paksa-ka [_{VP} yangcayekhak-ul [_{VNP} yenkwu]-lul hay-ss-ta]
 K doctor-Nom quantum.physics-Acc study-Acc do-Pst-Dec
 'Dr. Kim studied quantum physics.'
 b. kim paksa-ka [_{VP} [_{VNP} yangcayekhak-uy yenkwu]-lul hay-ss-ta]
 Gen

- (2) a. inho-ka [_{VP} kwahak-ul [_{VNP} kongpu]-lul hay-ss-ta]
 I-Nom science-Acc study-Acc do-Pst-Dec
 'Inho studied science.'
 b. ??inho-ka [_{VP} [_{VNP} kwahak-uy kongpu]-lul hay-ss-ta]
 Gen

- (3) a. ku kental-i [_{VP} etten sonyen-ul [_{VNP} kwutha]-lul hay-ss-ta]
 the scamp-Nom one boy-Acc beating-Acc do-Pst-Dec
 'The scamp beat a boy.'
 b. *ku kental-i [_{VP} [_{VNP} etten sonyen-uy kwutha]-lul hay-ss-ta]
 Gen

² The present discussion of genitive complements centers around what we call the *true* light verb construction (=LVC) where the verbal noun is marked accusative. In the other type of LVC, or the *incorporated* LVC, the verbal noun is not case-marked at all, and seems to make up a word with the light verb as in *yenkwu-hata* 'to study'. There is a debate about the morphosyntactic status of the incorporated LVC; e.g., H-R Chae (1996) argues that the incorporated LVCs like *yenkwu-hata* should be analyzed as phrases rather than words. For more discussion, see JS Jun (2003, esp. Ch. 3).

is assigned to adnominal arguments. In particular, inanimate arguments with specific semantic contents allow genitive-marking more readily than animate non-specific arguments. The alternation between accusative and genitive on the complement NPs as shown in (1-4) correlates with Differential Object Marking (=DOM, Bossong 1985, Aissen 2003). H Lee (2005, 2006) shows that the case ellipsis phenomenon in Korean is constrained by non-syntactic factors like animacy, definiteness/specificity, etc. The commonality between the genitive complements of VNs and the object NPs without overt case (i.e., OBJ- \emptyset) is that they are typical objects, and hence are not confusable with the subject arguments. Hence, the genitive case on the complements of VNs can be explained by similar principles that lie behind the cross-linguistically common case ellipsis phenomena. Besides, I argue that the traditional view of semantic specificity, namely *token-specificity*, does not provide an adequate account for the hard cases in (1-4); instead, I propose a new kind of specificity, namely *type-specificity*. The discussion of type-specificity, justified by both theoretical and empirical grounds, will turn out to have several important consequences for the hierarchical classification of event-types and the study of UG.

The paper is organized, as follows. Section 2 is a brief review of previous studies of LVC: I will show that earlier studies, though outstanding in many regards, do not provide a natural account for the exact nature of genitive assignment for the complements of VNs of the Korean LVC. After the literature review, I discuss the status of the genitive complements in section 3: whether they are part of a word or part of a phrase. In section 4, I introduce important studies of Differential Subject/Object Marking, where such semantic factors as animacy and definiteness/specificity constrain the distribution of grammatical cases for the subject/object of a sentence. Then, in section 5, I show that animacy and type-specificity play important roles for the distribution of the genitive complements of LVC. Section 6 provides independent pieces of evidence for type-specificity in terms of both theoretical and empirical grounds. Section 7 presents some consequences of the theory. And section 8 is the conclusion of the paper.

2. Previous Studies of the Light Verb Construction

Two related issues of LVC that have been the focus of research in the literature are (i) the interaction of the argument structure of the VN and that of the light verb (=LV), and (ii) the case-marking of the VNP-internal argument in the true LVC. For the first problem, most researchers assume complex predication to account for the composite argument structure of the LVC. That is, the argument structure of the VN somehow interacts with the argument structure of the light verb to create the combined argument structure of the LVC.

Scholars agree that the VN is contentful; i.e., the argument structure of the VN is crucial in determining the composite argument structure of the LVC. On the contrary, scholars do not agree whether the light verb is contentful or not. For this reason, many earlier studies can be viewed with respect to the question of whether or not they consider the light verb to be contentful.

Grimshaw and Mester's (1988) argument transfer is a representative proposal that assumes an empty argument structure for the light verb. (5) illustrates the argument transfer from the VN to the light verb.

- (5) a. VN (x, y, z)
 b. LV ()
 c. VN (z) + LV (x, y)

As a result of the argument transfer, some arguments that originally belong to the VN — x and y in (5) — behave as if they were the syntactic arguments of the light verb. Miyagawa (1989), S Rosen (1989), Sells (1990), H-D Ahn (1991), Yamamoto (1992), and C-S Suh (1996) also assume an empty argument structure for the light verb.

In another group of studies, the light verb is assumed to make some thematic contribution to the entire LVC. The light verb has its own argument structure, which interacts with the argument structure of the VN. Approaches to the LVC in categorial grammar (=CG), Lexical Functional Grammar (=LFG), O'Grady (1995), J Yoon (1991), Butt (1995, 1997), T Mohanan (1997), J-R Kim (1993), Kageyama (1991), and JK Lee (2001) proposed argument sharing/fusion between the two argument structures of the VN and the light verb. On the other hand, Isoda (1991), Matsumoto (1992a, 1992b), and Sato (1993) proposed argument control in configurational terms.

The third group of studies proposed the heavy HATA/SURU hypothesis (H-P Choi 1937, H-P Im 1979, Y-H Kim 1985, Terada 1990, Hasegawa 1991, Kajihara 1991a, 1991b, Uchida and Nakayama 1993). In these studies, the light verb, in fact the heavy verb, is contentful, and provides the argument structure of the LVC as a whole. See JS Jun (2003) for a detailed review of these approaches.

The case-marking issue is related to the previous issue of complex predication. Most importantly, the case-marking of the argument that receives its theta-role directly from the VN in the true LVC has been the focus of many earlier studies. We have already observed in (1-4) that the complements of VNs in the Korean LVC show case alternation between accusative and adnominal genitive; i.e., *yangcayekhak-ul* in (1a) vs. *yangcayekhak-uy* in (1b), *kwahak-ul* in (2a) vs. *kwahak-uy* in (2b), *etten sonyen-ul* in (3a) vs. *etten sonyen-uy* in (3b), and the two clausal complements in (4). A similar case is found in the Japanese LVC, too.

- (6) a. John-wa Bill-to aiseki-o shita (Japanese)
 J-Top B-with table.sharing-Acc do-Pst
 'John shared a table with Bill.'
- b. John-wa [_{VNP} Bill-to-no aiseki]-o shita
 B-with-Gen
 (Grimshaw and Mester 1988: 206)

In (6a), *Bill* receives its theta-role directly from the VN, but is marked by verbal oblique *to* 'with'. On the other hand, (6b) shows that the same argument can occur inside the VNP, which is shown by the adnominal genitive on the oblique argument.

A better parallel case could have been made by comparing the case alternation of adnominal genitive and accusative in Korean with the same kind of alternation in Japanese. This, however, is not an easy job due to the presence of the well-known Double-*o* constraint in Japanese, according to which two adjacent items cannot be marked accusative simultaneously (Harada 1973, Kuroda 1978, Poser 1981). Hence, (7) is ungrammatical, not because the theme is outside the VNP, but because the sentence violates the Double-*o* Constraint.

- (7) *sensei-ga gengogaku-o kenkyuu-o suru
 teacher-Nom linguistics-Acc research-Acc do
 'The teacher does research on linguistics'
 (Tsuji-mura 1996: 251)

A plausible conclusion is that in both Korean and Japanese, VNP-internal arguments can *in principle* occur either inside or outside the VNP.

The verbal or non-adnominal case on the VNP-internal argument in the (a) sentences of (1-4) for Korean and (6a) for Japanese poses a theoretical problem that is known as the locality mismatch between theta-marking and case-marking (Grimshaw and Mester 1988, H-D Ahn 1991, J Yoon 1991, Y-S Lee 1992, *inter alia*). The VNP-internal arguments must receive their theta-roles directly from the VN, but they are syntactically outside the VNP as shown by the non-adnominal case. In other words, the local domain for theta-marking does not match the local domain for case-marking for the accusative complements in the (a) sentences of (1-4), and *Bill-to* in (6a). Grimshaw and Mester's (1988) argument transfer illustrated in (5) was an attempt to solve the locality problem of LVC. That is, some arguments of the VN are transferred to the light verb, and hence they are subject to verbal case-marking instead of adnominal case-marking inside the VNP.

Another interesting case is reported from Hindi. In the Hindi true LVC, the VNP-internal arguments of the VN can never occur outside the VNP (Mo-

hanan 1994, 1997).

- (8) a. *ilaa-ne* [_{VNP} *mohan-kaa apmaan*] *kiyaa*
 I-Erg M-Gen(M) insult-Nom(M) do-Perf-M
 ‘Illa insulted Mohan’
 b. *_{[Clause} *ilaa-ne mohan-ko* [_{VNP} *apmaan*] *kiyaa*]
 Acc
- (9) a. *ilaa-ne* [_{VNP} *mohan-kii prašamsaa*] *kii*
 I-Erg M-Gen(F) praise-Nom(F) do-Perf-F
 ‘Illa praised Mohan’
 b. *_{[Clause} *ilaa-ne mohan-ko* [_{VNP} *prašamsaa*] *kii*]
 Acc

In both (8) and (9), *mohan* can be marked only by adnominal genitive, which suggests that the locality mismatch between theta-marking and case-marking does not occur in the Hindi LVC.

Korean, Japanese, and Hindi have one thing in common: the adnominal genitive of LVC. Grimshaw and Mester’s (1988) study aimed to explain how the genitive-marked NP could get a verbal case outside the VNP instead of the adnominal genitive. Mohanan’s (1994, 1997) work was descriptively adequate, but she did not ask why the locality mismatch never occurred in Hindi. In JS Jun (2003), I tried to explain why the locality mismatch occurred in one language and did not occur in another language in terms of universal principles and parameters. All these studies were concerned with a macroscopic picture of complex predication and case theory. Some important microscopic problems like the refined acceptability judgment of the (b) sentences in (1-4) were not adequately handled in the literature. This is the main issue of the present paper. But before we study more about the semantic conditions for adnominal genitive, we will work on an important syntactic issue in the next section.

3. Lexical Compounding vs. Phrasal Composition

A questionable claim is often made about the status of the genitive complements of LVC: the genitive case is the result of a mis-analysis of a lexical compound. In this view, *yangcayekhak-uy yenkwu* ‘the study of quantum physics’ in (1b) is the mis-analysis of a compound word *yangcayekhak-yenkwu*.⁵ This view,

⁵ A related, but not the identical, idea can be found in H-M Sohn (1999: 332-333): “The genitive case ... is marked by the particle *uy*, although the particle is frequently omitted. ... In addition, when the head word is a verbal or adjectival noun, the relation is that of an argument and a

though attractive at first glance, is not tenable under serious consideration. I present some hard cases for the lexical compound view in 3.1, and then show why the genitive complements of LVC should be analyzed as real phrasal complements of VNP in 3.2.

3.1. Lexical Compounding

According to the lexical compound view, the complement of a VN makes a compound with the VN before it is inserted into the syntactic structure. Hence, (1b), (2b), and (3b), repeated in (10) below, are nothing more than the result of mis-analyses of the three sentences in (11) respectively.

(10) a. (=1b)

kim paksa-ka [VP [VNP **yangcayekhak-uy** yenkwu]-lul
 K doctor-Nom quantum.physics-Gen study-Acc
 hay-ss-ta]
 do-Pst-Dec

‘Dr. Kim studied quantum physics.’

b. (=2b)

??inho-ka [VP [VNP **kwahak-uy** kongpu]-lul hay-ss-ta]
 I-Nom science-Acc study-Acc do-Pst-Dec

‘Inho studied science.’

c. (=3b)

*ku kental-i [VP [VNP **etten sonyen-uy** kwutha]-lul hay-ss-ta]
 the scamp-Nom one boy-Gen beating-Acc do-Pst-Dec

‘The scamp beat a boy.’

(11) a. kim paksa-ka **yangcayekhak-yenkwu-lul** hay-ss-ta

b. inho-ka **kwahak-kongpu-lul** hay-ss-ta

c. *ku kental-i **etten-sonyen-kwutha-lul** hay-ss-ta

There are several major problems for the lexical compound view. First, it cannot explain why the mis-analysis does not readily occur for (10b), and why lexical compounding is not possible for (11c).

Second, other elements can intervene between the genitive complement and the VN as in (12a), whereas violating the lexical integrity is not allowed for a real lexical compound as in (12b).

predicate, as in ... *Ilakhu-uy phakoy* ‘the destruction of Iraq’ ... The genitive particle in most of these constructions may be omitted in casual speech.”

- (12) a. (?)kim paksa-ka yangcayekhak-uy kiphi iss-nunyenkwu-lul
 K doctor-Nom quantum.physics-Gen profound study-Acc
 hay-ss-ta
 do-Pst-Dec
 'Dr. Kim did a profound study of quantum physics.'
- b. *kim paksa-ka yangcayekhak-kiphi-iss-nun-yenkwu-lul hay-ss-ta
 quantum.physics-profound-study-Acc

Third, the coordination of complement NPs readily occurs as shown in (13).⁶

- (13) a. kim paksa-ka haykmulihak-kwa yangcayekhak-uy
 K doctor-Nom nuclear.physics-and quantum.physics-Gen
 yenkwu-lul hay-ss-ta
 study-Acc do-Pst-Dec
 'Dr. Kim studied nuclear physics and quantum physics.'
- b. ??kim paksa-ka haykmulihak-kwa yangcayekhak yenkwu-lul
 hay-ss-ta

Notice that the lexical compound with coordinated complements in (13b) is not so good as (13a).

Fourth, it is hard to imagine how the genitive-marked clausal complements in (14) can be part of compound words.

- (14) a. (=4b)
 kim paksa-ka [cicin-i palsayngghan wenin]-uy
 K doctor-Nom [earthquake-Nom happen-Rel cause]-Gen
 yenkwu-lul hay-ss-ta
 study-Acc do-Pst-Dec
 'Dr. Kim studied the causes of the earthquake'
- b. kim paksa-nun ipen cwulkiseypho hakhoy-eyse
 K doctor-Top this stem-cellsymposium-in
 [inkanpaya cwulkiseypho-lul mantul ttay cwieccaki kiswul-ul
 human-embryostem-cell-Acc make when squeezing-technique-Acc
 iyong-haye nanchayk-ul ceyke-han kyengwu
 use-by ovum.nucleus-Acc eliminate-Rel in.case

⁶ I thank one anonymous reviewer for pointing this out to me.

paypanpho-lul mantulenay-nun kes-i yongi-hata-nun
 blastocyst-Acc make-Rel thing-Nom easy.be-Rel
 nayyongl-uy palphyo-lul hay-ss-ta
 contents-Gen presentation-Acc do-Pst-Dec

'In the stem cell symposium, Dr. Kim made a presentation of the report that when building a human embryo stem cell, it is facile to make a blastocyst in case the nucleus of an ovum is taken out by the squeezing technique.'

Fifth, the genitive complement can be the theme of two coordinated VNs.

(15) kim kyoswu-nun i kyohyangkok-uy cakkok-kwa
 K professor-Top this symphony-Gen composition-and
 cihwi-lul hay-ss-ta
 conducting-Acc do-Pst-Dec

'Professor Kim composed and conducted this symphony.'

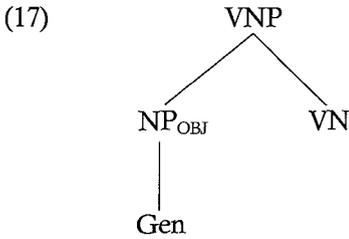
Finally, in the incorporated LVC (cf. Footnote 2), the genitive complement is not allowed as shown in (16).

(16) a. kim paksa-ka yangcayekhak-ul yenkwu-hay-ss-ta
 K doctor-Nom quantum.physics-Acc study-do-Pst-Dec
 'Dr. Kim studied quantum physics.'
 b. *kim paksa-ka yangcayekhak-uy yenkwu-hay-ss-ta
 Gen

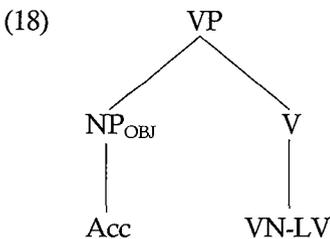
In order to explain (16b) in terms of the lexical compound view, we need an *ad hoc* stipulation to block the compounding of the theme argument with the VN-LV compound.

3.2. Phrasal Composition

In the phrasal composition view, the genitive NP takes the complement position of the maximal projection of a VN, as in (17).



The problems of lexical compounding discussed in 3.1 are not real problems for the phrasal composition view. First, the contrast of acceptability in (10) can be explained by positing a semantic constraint on the genitive case-marking *per se*. The constraint cannot be imposed as the lexical requirement for the complement of a VN, because even though (10b) and (10c) are bad, their respective counterparts with accusative complements, i.e., (2a) and (3a), are grammatical. This view of case-marking is consistent with the position that assumes some interaction between syntax and semantics for case assignment (JS Jun 2003); i.e., the adnominal genitive of a VNP is assigned not only because the complement NP is inside the VNP, but because it fulfills some semantic condition. The second, third, fourth, and fifth problems are borne out by the syntactic configuration in (17). In fact, the adjectival modification of the VN as in (12a), the coordinated complements in (13a), the clausal complements in (14), and the coordination of two VNs in (15) are just expected properties of (17). Finally, in the incorporated LVC, the VN-LV complex serves as the main verb of a sentence, and hence the complement NP is not inside a nominal projection, but inside a VP, as shown in (18) (JS Jun 2003).



(18) naturally explains the contrast between (16a) and (16b), since it is impossible to assign adnominal genitive to the NP_{OBJ} in (18).

The syntactic domain for the complement NP to get genitive case is the nominal projection, i.e., the VNP in (17). In other words, the genitive case has nothing to do with the light verb. This explains how we get genitive complements in the context where the VNP occurs without a light verb, as shown in (19).

- (19) a. Aspectual Nominal Construction:
 [kim paksa-uy yangcayekhak-uy yenkwu] cwung,
 K doctor-Gen quantum.physics-Gen study while(Nominal)
 hakcatul-uy chokkunilon-ey tayhan kwansim-i
 scholars-Gen super.string.theory-in interest-Nom
 cungphok-toy-ess-ta
 be.expanded
 ‘During Dr. Kim’s research of quantum physics, scholars’ interest
 in the super-string theory is expanded.’
- b. VNP as the subject of a clause:
 [yangcayekhak-uy yenkwu]-nun elyep-ta
 quantum.physics-Gen study-Top difficult-Dec
 ‘The study/research of quantum physics is difficult.’
- c. VNP as the object of a clause:
 kim paksa-nun [yangcayekhak-uy yenkwu]-lul
 K doctor-Top quantum.physics-Gen study-Acc
 phyengsayng-uy mokphyo-lo sam-ass-ta
 whole.life-Gen goal-as take-Pst-Dec
 ‘Dr. Kim took the study of quantum physics as his life goal.’
- d. VNP as a postpositional complement:
 kim paksa-nun [yangcayekhak-uy yenkwu]-ey
 K doctor-Top quantum.physics-Gen study-on/at
 ilsayng-ul pachi-ess-ta
 whole.life-Acc devote-Pst-Dec
 ‘Dr. Kim devoted his whole life to the study of quantum physics.’

In 5.3, I will show that all the genitive complements of VNs under various contexts in (19) are subject to the same semantic constraint, namely type-specificity.

4. Semantic Constraints on Differential Subject/Object Marking

Our inquiry into the genitive-marking of the complements of LVC begins with the discussion of accumulated research of a parallel domain, i.e., Differential Subject/Object Marking (Bossong. 1985, Aissen 2003, H Lee 2005, 2006, *inter alia*). Differential Subject/Object Marking refers to cross-linguistically established phenomena, in which the case-marking for subjects or objects is either overt or covert.

Aissen's (2003) discussion of Differential Object Marking (=DOM) shows why DOM is so common in world languages. In Sinhalese, a language spoken in Sri Lanka and Singapore, only animate objects can be overtly case-marked, and inanimate objects are not case-marked at all. In Hebrew, obligatory case-marking is limited only to definite objects. In Romanian, case-marking on objects is obligatory, optional, or impossible. If the case-marking is obligatory for morphosemantic reasons, it is limited to animate personal pronouns and proper nouns.

The generalization that lies behind the seemingly unrelated data from diverse languages is stated, as follows.

- (20) The higher in prominence a direct object, the more likely it is to be overtly case-marked. (Aissen 2003: 436)

The relative prominence is assessed with reference to the two hierarchies in (21).

- (21) a. Animacy scale: Human > Animate > Inanimate
 b. Definiteness scale: Personal pronoun > Proper name > Definite NP
 > Indefinite specific NP > Non-specific NP

In Sinhalese, overtly case-marked objects are animate NPs. In Hebrew, overt case-marking is limited to definite objects. In Romanian, the targets for overt case-marking are animate personal pronouns and proper names. Crucially, overt case-marking correlates with either animate NPs or definite NPs in all these languages. Animate or definite NPs are relatively prominent in both the animacy and definiteness scales in (21), and hence these NPs are more likely to be overtly case-marked according to (20).

Interestingly, a slightly different wording of (20) is descriptively adequate to account for Differential Subject Marking (=DSM).

- (22) The lower in prominence a subject, the more likely it is to be overtly case-marked.⁷

The generalization in (22) explains why the overt case-marking on the subject of an embedded clause in Turkish is limited to specific NPs (Kornfilt to appear). Specific NPs are relatively low in prominence in (21b), and hence are more likely to be overtly case-marked.

⁷ (20) and (22) together with the relational scale 'SUBJ > OBJ' provide basic ideas of two markedness hierarchies '*SUBJ/Inanim >> *SUBJ/Anim >> *SUBJ/Human' and '*OBJ/Human >> *OBJ/Anim >> *OBJ/Inanim' in Aissen (2003: 443).

Now, one question arises: Why do (20) and (22) with the animacy and definiteness hierarchies in (21) work for DOM and DSM in diverse languages? The main idea of (20-22) is that the more prominent an NP is on the animacy and definiteness scales, the more likely it is to be realized as the subject, rather than the object, of a sentence; and the less prominent an NP is on the animacy and definiteness scales, the more likely it is to be realized as the object, rather than the subject, of a sentence. In other words, typical subjects are animate definite NPs, whereas typical objects are inanimate indefinite NPs. Typical subjects are not confusable with objects; so they do not have to be overtly case-marked. Typical objects are not confusable with subjects; so they do not have to be overtly case-marked. On the other hand, animate definite objects are atypical objects, and are easily confused with subjects; and inanimate specific subjects are atypical subjects, and are easily confused with objects. These atypical subjects and objects, therefore, must be overtly case-marked.

Notice that the generalizations in (20-22), elegant as they are, do not provide clear-cut boundaries that all native speakers of a given language would unanimously agree with. Rather, the generalizations provide a broad picture or some tendency we find in world languages. Some languages may stress the animacy scale, while others count the definiteness scale more heavily.⁸ Speakers of a given language may show different judgments for particular data.⁹ The tendency to overtly case-mark atypical subjects and objects is quite robust in Korean, too. H Lee (2005, 2006) experimentally shows that, in Korean, case ellipsis for subjects occurs readily for human pronouns, and case ellipsis for objects occurs readily for inanimate NPs. With this in mind, we will see how the genitive-marking of the complements of LVC correlates with DOM in section 5.

5. Semantic Constraints on the Genitive Complements of the Light Verb Construction

In principle, the complement of the Korean LVC shows case alternation between accusative and genitive as shown in (1) (repeated in (23)).

(23) (= (1))

- a. kim paksa-ka [_{VP} yangcayekhak-ul] [_{VNP} yenkwu]-lul hay-ss-ta
 K doctor-Nom quantum.physics-Acc study-Acc do-Pst-Dec

⁸ The relative importance among constraints and hierarchies in world languages is expressed by different rankings of constraints in the Optimality Theoretic syntax. See Aissen (2003) and H Lee (2005, 2006) for details.

⁹ This is why Kornfilt (to appear) provides an explanation for various speaker judgments for her Turkish data.

- b. inho-ka senmul-ul/uy paytal-ul hay-ss-ta
 I-Nom present-Acc/Gen delivery-Acc do-Pst-Dec
 'Inho delivered the present.'

(26) *Patient:

- a. (= (3b))
 ku kental-i etten sonyen-ul/*uy kwutha-lul hay-ss-ta
 the scamp-Nom one boy-Acc/Gen beating-Acc do-Pst-Dec
 'The scamp beat a boy.'
- b. ku namca-nun atul-ul/*uy haktay-lul hay-ss-ta
 the man-Top son-Acc/Gen abuse-Acc do-Pst-Dec
 'The man abused his son.'

The data in (25) and (26) suggest that theme, but not patient, arguments allow genitive case-marking in LVC.

But the theme condition does not adequately explain the fact that not all themes readily allow genitive-marking, and that not all patients disallow genitive-marking, as shown in (27) and (28).¹⁰

(27) Theme:

- a. KTX-ka pusan-kkaci sungkayk-ul/?uy wunpan-ul hay-ss-ta
 KTX-Nom Pusan-to passengers-Acc/Gen carrying-Acc do-Pst-Dec
 'KTX carried passengers to Pusan.'
- b. KTX-ka pusan-kkaci salamtul-ul/?uy wunpan-ul hay-ss-ta
 people-Acc/Gen
- c. KTX-ka pusan-kkaci inho-lul/*uy wunpan-ul hay-ss-ta
 I-Acc/Gen

(28) Patient:

- a. cekkwun-i ku toshi-lul/?uy phakoy-lul ha-yess-ta¹¹
 enemy-Nom the city-Acc/Gen destruction-Acc do-Pst-Dec
 'The enemy destroyed the city.'
- b. ku kental-i nay ekkay-lul/?uy kakyek-ul ha-yess-ta
 the scamp-Nom my shoulder-Acc/Gen beating-Acc do-Pst-Dec
 'The scamp beat my shoulder.'

¹⁰ I thank two anonymous reviewers for pointing this out to me with helpful supporting data.

¹¹ This sentence was originally suggested by an anonymous reviewer as an example that shows the restriction of genitive-marking of patients. The reviewer's judgment is '*', whereas my judgment is '?'. Because the semantic condition I am proposing in this section does not aim to provide clear-cut boundaries between *acceptable* and *unacceptable*, and because the contrast of acceptability in (28b) and (28c) adequately shows that the patient restriction on genitive-marking does not provide a natural account for the data, individual variation of the acceptability judgment for (28a) does not pose a serious challenge against my proposal.

- c. ku kental-i na-lul/*uy kakyek-ul ha-yess-ta
 me-Acc/Gen
 'The scamp beat me.'

Notice, in particular, the contrast between (27a-b) and (27c), and between (28a, b) and (28c).

What seems to be more relevant as a semantic constraint for genitive-marking is animacy, not thematic roles. The data in (25–28) suggest that genitive is more readily assigned to inanimate complements rather than animate ones. In the beginning of section 5, we set up a hypothesis that genitive case is assigned to typical inanimate objects that are not confusable with subjects like the covert case assignment (i.e., NP- \emptyset) in DOM. According to this hypothesis, animate objects are atypical objects in terms of the animacy scale in (21a), and hence are more likely to be marked by overt accusative. Notice that this hypothesis does not strictly impose that all animate objects should be marked accusative, and that all inanimate objects should be marked genitive; rather, this hypothesis, as part of violable constraints in the sense of Optimality Theory, states that there is a tendency that animate complements of VNs are marked accusative rather than genitive. This not only explains the general distribution of accusative and genitive of complements of LVC, but places the theory in a broader picture of cross-linguistically established phenomena, namely DOM.

5.2. Definiteness

The definiteness scale in (21b) (Aissen 2003) mixes two conceptually different domains, i.e., definiteness and specificity, into a single hierarchy. We test the definiteness effect on genitive-marking in this subsection, and then discuss the specificity effect in the next subsection.

Definiteness is an important factor that plays a crucial role in a theory that assumes interaction between syntax and semantics.¹² One outstanding study that makes use of definiteness as a determining factor of grammar is Kuno (1987). According to his proposal, the definiteness of a nominal defines the anaphoricity hierarchy; i.e., 'Definite NP > Indefinite NP > Indefinite Pronoun.' The anaphoricity hierarchy directly affects the acceptability judgment of the three sentences in (29).

- (29) a. John_i talked to Mary about himself_i. (John: Definite)
 b. ?A Student_i talked to Mary about himself_i. (A Student: Indefinite)

¹² Definiteness is also important for the theory of topic/focus. See Lambrecht (1994) for more information.

- c. (?)?Someone_i talked to Mary about himself. (*Someone*: Indef. Pron.)
(Kuno 1987: 159)

Does definiteness play a role for genitive assignment on the complements of a VN in the Korean LVC? A quick look into the data shows that the answer to this question seems to be positive.

- (30) a. kim kyoswu-ka ku chayk-ul cipphil-ul hay-ss-ta
K professor-Nom the book-Acc writing-Acc do-Pst-Dec
'Professor Kim wrote the book.'
b. kim kyoswu-ka ku chayk-uy cipphil-ul hay-ss-ta
Gen
- (31) a. kim kyoswu-ka etten chayk-ul cipphil-ul hay-ss-ta
K professor-Nom a book-Acc writing-Acc do-Pst-Dec
'Professor Kim wrote a book.'
b. ?kim kyoswu-ka etten chayk-uy cipphil-ul hay-ss-ta
Gen

Sentences (30) and (31) differ only in terms of the definiteness of the complements of the VN, and the acceptability of (31b) is not as good as that of (31a).¹³ A closer look into more data, however, reveals that the contrast between (30b) and (31b) has little to do with definiteness. Sentence (32) below illustrates that definiteness of the complements is not the only factor involved.

- (32) kim kyoswu-ka [cosensitay yesengtul-uy
K professor-Nom Chosun.Dynasty women-Gen
sengsaynghwal-ey tayhan etten hungmilowun chayk]-uy
sex.life-about a interesting book-Gen
chipphil-ul hay-ss-ta
writing-Acc do-Pst-Dec
'Professor Kim wrote an interesting book about the sex life of the women in the Chosun Dynasty.'

The complement NP of the VN in (32) is an indefinite NP, but all my native Korean consultants report that (32) is as fine as (30b). Clearly, there is something other than definiteness involved in genitive assignment.

¹³ Two anonymous reviewers point out that there is no contrast of acceptability between (30b) and (31b), and between (31a) and (31b). The different judgments, in this case, support my position that definiteness *per se* does not play a role for genitive-marking. The subsequent discussion simply provides another piece of argument for those who do not agree with the anonymous reviewers.

5.3. Type-Specificity

The other half of the definiteness scale in (21b) is specificity. Specificity has often been introduced into the theory of grammar under a few contexts like extraction and coordination. For instance, Fiengo and Higginbotham (1981) and Gueron (1981) propose a Specificity Condition (=SC) for extraction to account for Chomsky's (1973) Specified Subject Condition (=SSC) effect in (33) and (34).

- (33) a. Did he buy a portrait of Nietzsche?
 b. Who did he buy a portrait of?
- (34) a. Did he buy Lena's portrait of Nietzsche?
 b. *Who did he buy Lena's portrait of?

According to SC, extraction from a specific NP is not allowed. (34b) is bad, since the presence of a possessive NP *Lena's* makes the complement of the main verb a specific NP.^{14,15}

The conventional use of the term *specificity* is, without much discussion, restricted to the relationship between a type and its token. Jackendoff's (1972) classical discussion of the *want* context in (35) focuses on the ambiguity between a specific fish as a token and a non-specific fish as a token.

- (35) John wants to catch a fish.

In this sense, the specificity discussed in the literature is *token-specificity*; i.e., a specific NP refers to a specific token.

On the other hand, NPs with abstract concepts that take the complement position of the infinitival clause in the *want* context call for a different kind of specificity: *type-specificity*.

- (36) John wants to major in science.

Sentence (36) is ambiguous between two readings: in one reading, there is a specific field of science like biology or chemistry that John already has in his mind (i.e., the specific reading); in the other reading, John wants to study any field of science, and he has not thought much about the exact field of his preference (i.e., the non-specific reading). Here, the specificity involved in both the

¹⁴ Kuno (1987) argues that neither SSC nor SC is a plausible constraint of English, and that *contrastivity* is the main factor that explains the SSC effect.

¹⁵ For a brief discussion of the role of specificity for coordination, see Kuno (1987: 7-).

specific and the non-specific readings has to do with the relationship between a semantic type *science* and its subtypes like *biology*, *chemistry*, *physics*, etc.

The relationship between types and tokens, according to Lyons (1977), is one of instantiation. That is, types are instantiated by tokens. For this reason, “tokens are unique physical entities, located at a particular place in space or time (Lyons 1977: 14).” The semantic interpretation of concrete terms like *fish* in (35) involves the instantiation of a type by its token; i.e., the ambiguity of *fish* is concerned with the ambiguity of a fish as a physical entity. Unlike concrete terms, abstract concepts like *science* in (36) cannot be instantiated by unique physical entities. The ambiguity of *science* is concerned with kinds of science, i.e., the subtypes of *science* in the semantic type hierarchy.

Type-specificity is orthogonal to the countability of the infinitival complement.

(37) John wants to play a game.

In (37), the count noun *game* is ambiguous in meaning between the specific reading and the non-specific reading in terms of the relationship between a type and its subtypes. In one reading, there can be a specific game that John has in his mind. In the other reading, John wants to play any *game* no matter what the game might be.

Type-specificity explains the contrast of acceptability in (38) and (39), where the two sentences in (38) are repeated, with slight changes of wording, from (1) and (2).

- (38) a. kim paksa-ka yangcayekhak-uy yenkwu-lul hay-ss-ta
 K doctor-Nom quantum.physics-Gen study-Acc do-Pst-Dec
 ‘Dr. Kim studied quantum physics.’
 b. ??incho-ka kwahak-uy yenkwu-lul hay-ss-ta
 I-Nom science-Genstudy-Acc do-Pst-Dec
 ‘Inho studied science.’
- (39) a. (?)incho-ka yenge thongsalon-uy kongpu-lul hay-ss-ta
 I-Nom English syntax-Gen study-Acc do-Pst-Dec
 ‘Inho studied English syntax.’
 b. *??incho-ka yenge-uy kongpu-lul hay-ss-ta
 English-Gen
 ‘Inho studied English.’

Each pair of sentences in (38) and (39) has the same syntactic configuration, but the (b) sentences are not so acceptable as the (a) sentences for most Korean speakers. The genitive-marked theme *yangcayekhak* of (38a) is semantically a subtype of the genitive theme *kwahak* of (38b); i.e., ‘science > ... > quantum

‘While Inho was studying English, English was included in the official curriculum of the elementary school.’

- b. [kim paksa-uy yangcayekhak-uy kongpu] cwung,
 K doctor-Gen quantum.physics-Gen study while(Nominal)
 hakcatul-uy chokkunilon-ey tayhan kwansim-i cungphok-toy-ess-ta
 scholars-Gen super.string.theory-in interest-Nom be.expanded
 ‘During Dr. Kim’s research of quantum physics, scholars’ interest in the super-string theory is expanded.’

(43) VNP as the subject of a clause

- a. *[yenge-lul kongpu]-nun elyep-ta
 English-Acc study-Top difficult-Dec
 ‘The study of English is difficult. (i.e., English is hard to study.)’
- b. ?[yenge-uy kongpu]-nun elyep-ta
 Gen
- c. [yengehak-uy kongpu]-nun elyep-ta
 English.linguistics-Gen study-Top difficult-Dec
 ‘The study of English linguistics is difficult.’

(44) VNP as the object of a clause

- a. *incho-nun [yenge-lul kongpu]-lul isiptay-uy mokphyo-lo
 I-Top English-Acc study-Acc twenties-Gen goal-as
 sam-ass-ta
 take-Pst-Dec
 ‘Inho took the study of English as a goal in his twenties.’
- b. ??incho-nun [yenge-uy kongpu]-lul isiptay-uy mokphyo-lo sam-ass-ta
 Gen
- c. incho-nun [yengehak-uy kongpu]-lul isiptay-uy
 I-Top English.linguistics-Gen study-Acc twenties-Gen
 mokphyo-lo sam-ass-ta
 goal-as take-Pst-Dec
 ‘Inho took the study of English linguistics as a goal in his twenties.’

(45) VNP as a postpositional complement

- a. *incho-nun [yenge-lul kongpu]-ey chengchwun-ul pachi-ess-ta
 I-Top English-Acc study-on/at youth-Acc devote-Pst-Dec
 ‘Inho devoted his youth to the study of English.’
- b. ??incho-nun [yenge-uy kongpu]-ey chengchwun-ul pachi-ess-ta
 Gen

- c. inho-nun [yengehak-uy kongpu]-ey chengchwun-ul
 I-Top English.linguistics-Gen study-on/at youth-Acc
 pachi-ess-ta
 devote-Pst-Dec
 'Inho devoted his youth to the study of English linguistics.'

The genitive complement of (42b) is more specific than that of (42a), and hence more acceptable than (42a). Likewise, the specificity of the complement NPs in the (c) sentences increases from the specificity of the complement NPs in the (b) sentences, and so does the acceptability of the sentences. Notice that verbal case like accusative is not allowed for the complement NPs inside VNPs as shown by the (a) sentences in (43-45). This is striking in that genitive is the only overt choice for the VNPs in (43-45), but the semantic condition allows the use of genitive case only for the NPs with specific meaning.¹⁷

From the discussion so far, it is clear that type-specificity is an important factor for genitive assignment. One important question arises: Why does the specificity condition work? The definiteness hierarchy in (21b) does not provide a natural account for this, since the hierarchy is about token-specificity rather than type-specificity. Unlike token-specificity, type-specificity is concerned with the informational content of the words.¹⁸ A type-specific entity is a hyponym of its type-less-specific counterpart. For instance, *quantum physics*, as a subtype of *science*, is more specific in meaning than *science*, and hence richer in terms of the informational content. In Erteschik-Shir's (1997) study of the syntax-pragmatics interface, the subject of a sentence is usually the topic of the sentence, and the object is part of the focus phrase. It is also well-known that the focus of a sentence usually adds new information to the discourse (Lambrecht 1994). Based on these considerations, I suggest the following syntax-semantics-pragmatics interface.

(46) Syntax:	SUBJ	OBJ
	Semantics: Type_less_specific >> Type_specific	
Pragmatics:	Topic	Focus

What (46) says is two things: (i) typical subjects are type-less-specific NPs, and are topics; and (ii) typical objects are type-specific NPs, and are foci.

¹⁷ For this reason, the most prevalent choice for the NPs with non-specific meaning is to use compound forms like *yenge-kongpu* 'the study of English' instead of *yenge-uy kongpu*.

¹⁸ I thank one anonymous reviewer for this observation.

Because type-specific NPs are typical objects, and genitive is assigned to typical objects under my hypothesis, genitive-marking is influenced by type-specificity.^{19,20}

6. Type-Specificity as a Relevant Factor of Grammar

Two more questions arise from the discussion of type-specificity: (i) Are there any theoretical problems in introducing type-specificity into the theory of grammar?; and (ii) Are there any independent empirical motivations for type-specificity? 6.1 examines theoretical problems of my proposal, and provides justification from cognitive psychology. 6.2 provides independent empirical evidence for type-specificity.

6.1. Type-Specificity as a Formal Feature in the Theory of Grammar

So far, I have argued that type-specificity plays an important role for genitive assignment; but I have been unclear about the exact nature of type-specificity. Two things should be clarified: (i) How do we know that certain semantic types are “specific enough” for genitive assignment?; and (ii) Since the decision of specificity tends to differ from person to person, what is the justification for using subjective judgment as a formal feature of grammar?

In 5.3, I defined type-specificity as the relationship between a type and its subtypes. For instance, *physics* as a subtype of *science* is more specific than *science*, and *quantum physics* as a subtype of *physics* is more specific than *physics*. Type-specificity *per se* is unambiguous: it simply refers to a relationship that

¹⁹ H Lee (2006) also provides evidence that topic/focus-hood correlates with DSM and DOM in Korean based on experimental studies.

²⁰ One anonymous reviewer points out that it is hard to imagine that topics are type-less-specific than foci, since topics carry old information and hence tend to be definite NPs. Two things are worth mentioning in response to this question. First, type-specificity is independent of definiteness; notice that I proposed type-specificity in place of the definiteness hierarchy in (21b) to account for the problematic data. This means that both type-less-specific and type-specific NPs can be definite or indefinite. Secondly, what (46) tries to capture is the general tendency of discourse that expands the old given information into a more detailed/specific piece of new information. This tendency is illustrated by the following conversation, where the topic of B's response is expanded into a more specific domain in the focus phrase of the sentence.

- (i) A: What's his favorite food?
 B: *His favorite* food is *sushi*.

The animacy and definiteness scales in (21) do not make a strong claim that all subjects are animate definite NPs; rather, the scales simply pinpoint that animate definite NPs tend to become subjects rather than objects of sentences. Likewise, the proposed mapping among syntax, semantics, and pragmatics in (46) simply points out the natural tendency of expanding the old given information (i.e., topics) into a more specific domain of information (i.e., foci).

holds between a type and its subtypes in the hierarchical type lattice. What is not clear about type-specificity is how native speakers of Korean can share some intuitions that certain semantic types are specific enough for genitive assignment.

One possible solution for this problem is to define specific enough in terms of the basic level category, or basic level terms (Rosch and Mervis 1975). The basic level category was proposed in the early development of prototype theory based on several experimental findings. For instance, in the semantic verification test, basic level terms like *table*, *chair*, *bed*, *etc.* are taken as better examples of *furniture* than more specific subtypes like *dining-room chair*, *kitchen chair*, *dentist's chair*, *etc.* There is also ample evidence for the psychological reality of the basic level category in the language acquisition literature; e.g., children learn basic level terms earlier than other types of words (Mervis 1983). Assuming that the hierarchical type lattice is psychologically real, and that we know the basic level types in the type structure, “specific enough” can be defined as “subordinate types of any basic level type.”

This definition is, however, problematic, since the two sentences in (47) do not differ in acceptability.²¹

- (47) a. inho-ka kakwu-uy wunpan-ul hay-ss-ta
 I-Nom furniture-Gen carrying-Acc do-Pst-Dec
 ‘Inho carried the furniture.’
 b. inho-ka chayksang-uy wunpan-ul hay-ss-ts
 desk-Gen

Moreover, basic level terms are not easy to define, when we deal with more complicated types in abstract domains like *science*, *physics*, *quantum physics*, *etc.* Decisions for these abstract types tend to be more subjective than decisions for concrete types like *furniture*, *animal*, *plant*, *etc.*

Another possibility is to define “specific enough” in terms of our subjective judgment. It would not be difficult to formulate a case theory, such that genitive-marking of the complements of VNs should fulfill a semantic condition [+specific_type]. What seems to be difficult is to leave the decision of “specific enough” to subjective judgment. Many formal grammarians are not comfortable with this situation; one may wonder if this is a falsifiable theory. From the perspective of formal grammar, it is not falsifiable. But from the perspective of psychology, a semantic condition based on subjective judgment becomes the basis of a completely falsifiable theory. For instance, we can build a learning algorithm following the honorable tradition of connectionism (McClelland and Rumelhart 1986, Rumelhart and McClelland 1986), where specificity can

²¹ I am grateful to one anonymous reviewer for these data.

be defined in terms of certain threshold values. Once the system is built, the assessment of the system is carried out by its efficiency of learning existing data and its adaptability to new data.

Subjectiveness is in fact the basis of many other cognitive processes. A striking example comes from Rips, Shoben, and Smith's (1973) classical study of semantic verification, where subjects' reaction time for the proposition *13 is an odd number* is much faster than the reaction time for *57 is an odd number*. Similarly, the reaction time for *A mother is a female* is much faster than *A waitress is a female*. Human cognitive processes are often hard to understand from the logical point of view. This is why cognitive scientists study the discrepancy of normative reasoning and descriptive reasoning of our cognitive processes. One such case is found in Tversky and Gati's (1978) study of similarity judgment task, where subjects' responses to *How similar is Russia to Poland?* are dramatically different from responses to *How similar is Poland to Russia?*

In the normative model of cognition, there is no reason to believe that 13 is a better example of an odd number than 57. In the descriptive model, however, subjective principles like *familiarity* constrain our cognitive processes; i.e., subjects are more familiar with 13 than 57 when it comes to the oddness of numbers.

In my theory, genitive-marking of the complements of VNs is constrained by a semantic condition [+specific_type]. Developing an exact mechanism based on this proposal is a daunting task that is clearly beyond the scope of this paper. What I want to emphasize is, hence, three things: (i) incorporating subjective judgment in the formal model of grammar is in fact an essential part of modelling cognitive processes; (ii) a model of grammar that incorporates subjective judgment is truly falsifiable under psychological experiments; and (iii) in any event, syntax alone can never explain genitive-marking of the complements of VNs.

6.2. Independent Support from Exceptional Case Marking

Specificity, as a constraining factor of grammar, is independently motivated by Exceptional Case Marking (=ECM).²² Traced back to Rosenbaum's (1967) proposal of Subject-to-Object Raising for the transformation of (48a) into (48b), ECM is applied to sentences with infinitival complements in English.

- (48) a. I believe that John is a liar.
 b. I believe John to be a liar.

Analogous constructions in Korean, however, show free alternation between nominative and accusative without affecting the finiteness of complement

²² I thank Hangjin Yoon (pers. comm.) for pointing out the relevance of type-specificity for ECM.

clauses, as shown in (49). Notice that the use of a tensed verb in the complement clause does not affect the case alternation in (49c).

- (49) a. inho-nun ku yeca-ka pemin-ilako mit-ess-ta
 I-Top the woman-Nom criminal-Comp believe-Pst-Dec
 'Inho believed that the woman was a criminal.'
 b. inho-nun ku yeca-lul pemin-ilako mit-ess-ta
 Acc
 c. inho-nun ku yeca-ka/lul pemin-i-ess-ta-ko mit-ess-ta
 Nom/Acc criminal-be-Pst-Dec-Comp

Two outstanding properties of Korean ECM have been pointed out in the literature (K-S Hong 1991b, 1997, J-S Lee 1992, J Yoon 1996, *inter alia*). First, not all matrix verbs with clausal complements allow ECM.

- (50) a. inho-nun ku yeca-lul pemin-ilako mit-ess-ta
 I-Top the woman-Acc criminal-Comp believe-Pst-Dec
 'Inho believed that the woman was a criminal.'
 b. ?inho-nun ku yeca-lul pemin-ilako solichi-ess-ta
 Acc shout-Pst-Dec
 c. *inho-nun ku yeca-lul pemin-inyako kwungkumhay hay-ss-ta
 Acc wonder-Pst-Dec
 'Inho wondered whether she was a criminal.'

Second, the acceptability of ECM sentences depends upon embedded predicates, as well.

- (51) a. inho-nun ku yeca-lul yepputa-ko sayngkakhan-ta
 I-Top the woman-Acc pretty-Comp think-Dec
 '(Lit.) Inho thinks the woman to be pretty.'
 b. ??inho-nun ku yeca-lul col-ass-ta-ko sayngkakhan-ta
 drowse-Pst-Dec-Comp
 'Inho thinks that the woman dozed off.'
 c. *inho-nun ku yeca-lul yulichang-ul kkay-ss-ta-ko sayngkak han-ta
 window-Acc break-Pst-Dec
 'Inho thinks that the woman broke the window.'

Explanations for these properties tend to be lexical; i.e., the lexical information of certain verbs specifies whether they are ECM verbs, or whether they can be embedded predicates of the ECM construction.²³ The lexical approach,

²³ Imposing a lexical requirement on an embedded predicate of the ECM construction looks far

however, faces empirical limitations, in that the acceptability varies among sentences with the same (main or embedded) predicate depending upon the semantic content of the complement NP of the embedded predicate. Look at (52).

- (52) a. chelswu-nun cwucenca-ey iss-nun mul-ul manhtha-ko
 C-Top teapot-in be-Rel water-Acc much-Comp
 sayngkakhay-ss-ta
 think-Pst-Dec
 'Chulsoo thought that there was (too) much water in the teapot.'
- b. *chelswu-nun mul-ul cwucenca-ey manhtha-ko sayngkakhay-ss-ta
 water-Acc
 (S-J Ko 2000: 249)

The contrast in acceptability of (52) has attracted broad attention from many scholars (H-P Im 1979, Y-H Kim 1985, T-S Yu 1995, K-S Nam 1996, S-J Ko 2000). Among these studies, S-J Ko's proposal is particularly interesting. In his approach, the particle *-ul/lul* is not the accusative marker. In fact, he claims that there is no such thing as *case* in Korean. He assumes that the particle *-ul/lul* has the meaning of 'choice and designation of the reaching point.' S-J Ko points out that the water in the teapot in (52a) is bounded in meaning, so it can be *chosen* and *designated* as the target point of *thinking*. On the other hand, the water in (52b) is not bounded, so it cannot be *chosen* and *designated* as the target point of *thinking*.²⁴

The overall evaluation of S-J Ko's proposal that there is no such thing as *case* in Korean, and that the distribution of *-ul/lul* can be explained by the meaning of 'choice and designation of the reaching point' is beyond the scope of this paper. But it seems that he is on the right track for the issue of ECM. His idea of the boundness condition as the determining factor of acceptability for (52a) and (52b) can be translated into the specificity condition in my theory. That is, if we impose a specificity condition as a semantic constraint on ECM, such that specific NPs allow exceptional accusative marking more readily than non-specific NPs, then the contrast of acceptability in (52) is naturally explained, simply because the water in (52a) is more specific than the water in

less natural than imposing a lexical requirement on a matrix predicate. One possible way out is to introduce the individual and stage level distinction for embedded predicates in constraining a theory of ECM. For discussion of this alternative approach, see J-S Lee (1992).

²⁴ 주전자에 있는 물[은] ... 모문의 주어의 '내적 행위'의 대상이면서 화자나 청자에 의해서도 파악될 수 있는 한정적 개체이기 때문에 모문에서 '생각하다, 믿다, 파악하다' 등의 '대상'으로 '선택 지정'될 수 있는 반면에, '물[은] ... 화자나 청자에게 파악될 수 없는 '비한정적 개체'이기 때문에 모문 서술어의 '대상'으로는 '선택 지정'될 수 없는 것으로 분석된다. (S-J Ko 2000: 249)

(52b).²⁵

The specificity condition on ECM makes an interesting prediction that specific NPs will allow accusative even in the context where the ECM structure is generally disallowed. This prediction is borne out when we test the ECM sentences with matrix predicates like *solichita* ‘to shout’ and *palata* ‘to wish/hope’, and with embedded predicates like *colta* ‘to drowse’ and *kkayta* ‘to break’.

(53) With the matrix verb *solichita* ‘to shout’:

- a. *in_{ho}-nun etten yeca-lul pemin-ilako solichi-ess-ta
 I-Top a woman-Acc criminal-Comp shout-Pst-Dec
 ‘Inho shouted that a (certain) woman was a criminal.’
- b. ?in_{ho}-nun ku yeca-lul pemin-ilako solichi-ess-ta
 the
- c. (?)in_{ho}-nun cihachel-an-uy moca-lul ssun yeca-lul
 subway.train-in-Gen cap-Acc wear.Rel woman-Acc
 pemin-ilako solichi-ess-ta
 ‘Inho shouted that the woman in a cap in the subway train was a criminal.’

(54) With the matrix verb *palata* ‘to wish/hope’:

- a. *in_{ho}-nun etten yeca-lul pemin-i-ki-lul palan-ta
 I-Top a woman-Acc criminal.be-Nm-Acc wish-Dec
 ‘Inho wishes that a (certain) woman is a criminal.’
- b. ??in_{ho}-nun ku yeca-lul pemin-i-ki-lul palan-ta
 the
- c. ?in_{ho}-nun cihachel-an-uy moca-lul ssun yeca-lul
 subway.train-in-Gen cap-Acc wear.Rel woman-Acc
 pemin-i-ki-lul palan-ta
 ‘Inho wishes that the woman in a cap in the subway train is a criminal.’

²⁵ An anonymous reviewer objects to this analysis based on the unacceptability of the following sentence.

(i) *in_{ho}-nun [cwucenca-ey iss-nun mul]-ul shiktakwi-ey manhta-ko sayngkakhay-ss-ta
 I-Top teapot-in be-Rel water-Acc table-on much-Comp think-Pst-Dec

(i) is different from (52b) only in terms of the specificity of the ECM-ed object. But notice that the non-ECM-ed counterpart for (i) is also bad, which suggests that the unacceptability of (i) has nothing to do with the soundness of my theory, but with its semantic anomaly.

(ii) *in_{ho}-nun [cwucenca-ey iss-nun mul]-i shiktakwi-ey manhta-ko sayngkakhay-ss-ta

(55) With the embedded verb *colta* 'to drowse':

a. *in_{ho}-nun ku yeca-lul con-ta-ko sayngkakh_{an}-ta
 I-Top the woman-Acc drowse-Dec-Comp think-Dec
 'Inho thinks that the woman dozes off.'

b. (?)in_{ho}-nun chayk-ulo elkwul-ul kalin ku haksayng-ul
 book-with face-Acc hide.Rel the student-Acc
 con-ta-ko sayngkakh_{an}-ta
 'Inho thinks that the student who hides her face with the book
 (cover) dozes off.'

(56) With the embedded verb *kkayta* 'to drowse'

a. *in_{ho}-nun ku yeca-lul yulichang-ul kkay-ss-ta-ko
 I-Top the woman-Acc window-Acc break-Pst-Dec
 sayngkakh_{an}-ta
 think-Dec

'Inho thinks that the woman broke the window.'

b. ??in_{ho}-nun chayk-ulo elkwul-ul kalin ku haksayng-ul
 book-with face-Acc hide.Rel the student-Acc
 yulichang-ul kkay-ss-ta-ko sayngkakh_{an}-ta
 'in_{ho} thinks that the student who hides her face with the book
 (cover) broke the window.'

The judgment of the sentences in (53-56) may differ from speaker to speaker; e.g., one of my informants stubbornly insists two question marks for (54c). But all my informants report that the (b) sentences are slightly better than the (a) sentences in (53-56), and that the (c) sentences are slightly better than the (b) sentences in (53-54). Notice that the accusative NPs in (53b), (54b), (55a), and (56a) are all definite NPs: they are *bounded* in the sense of S-J S-J Ko's boundness condition, but the sentences with these NPs are not acceptable in general. This shows that my specificity condition works more naturally than S-J Ko's proposal that *-ul/lul* has the meaning of 'choice and designation of the reaching point.'

To sum up my proposal, there must be syntactic conditions for ECM; there must be lexical requirements for ECM verbs, since some verbs like *mitta* 'to believe' allow the ECM construction more readily than other verbs like *so-lichita* 'to shout'; at the same time, there must be some semantic requirement for the exceptional accusative marking, since the acceptability of these sentences varies depending upon the semantic content of the accusative complement. Crucially, the specificity condition is independently motivated outside

the domain of genitive marking of the complements of VNs in the Korean LVC. In other words, specificity can be a relevant factor of grammar.

7. Consequences of the Proposal

7.1. Event-Type Hierarchy

Type-specificity refers to the relationship between a type and its subtypes in the hierarchical type lattice that is assumed to exist in our mind. It does not matter whether the type structure is innately given (*a la* Fodor 1983) or is learned from experiences. What is important is that there is a type structure, such that types like *science*, *biology*, *physics*, *quantum physics*, etc. are hierarchically organized in the lattice.

Type-specificity, when imposed as a semantic constraint on genitive assignment of the Korean LVC, explains the contrast of acceptability in (1b) and (2b), repeated in (57a and b).

- (57) a. kim paksa-ka yangcayekhak-uy yenkwu-lul hay-ss-ta
 K doctor-Nom quantum.physics-Gen study-Acc do-Pst-Dec
 'Dr. Kim studied quantum physics.'
 b. ?inho-ka kwahak-uy kongpu-lul hay-ss-ta
 I-Nom science-Gen study-Acc do-Pst-Dec
 'Inho studied science.'

But what about (4b), repeated in (58)?

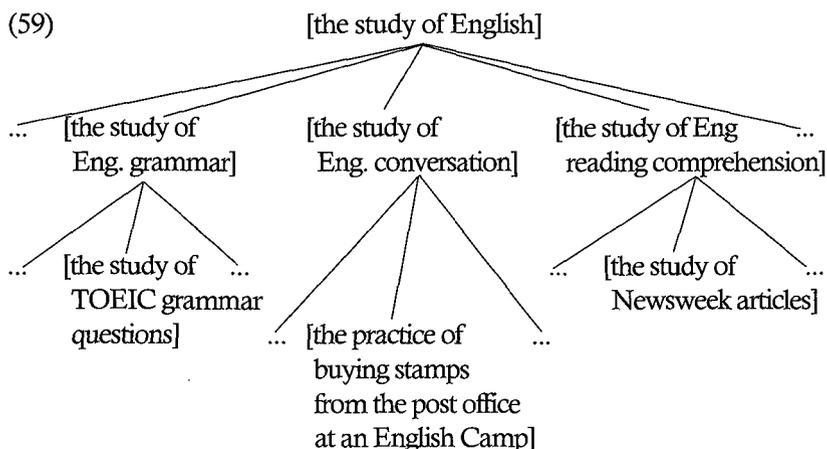
- (58) kim paksa-ka [cicin-I palsaynghan wenin]-uy
 K doctor-Nom earthquake-Nom happen.Rel cause]-Acc
 yenkwu-lul hay-ss-ta
 study-Acc do-Pst-Dec
 'Dr. Kim studied the causes of the earthquake'

The type lattice in our mind cannot list all possible event-types like [*the reason why the earthquake broke out*], [*the reason why John got upset yesterday*], [*the fact that Bill got married to Susan last year*], and so on. The standard assumption for these complex event-types is compositionality (Frege 1892); i.e., the meaning of the whole event is the sum of the meanings of its parts.

The paradox of (58) is this: the complement of the VN in (58) allows genitive marking, because it is specific in meaning; but, the existing type-lattice in our mind does not have a complex event-type like [*the reason why the earthquake*

broke out]. A natural solution for this problem is to assume an event-type hierarchy that defines the relationship between an event-type and its subtypes. The event-type hierarchy does not list all possible event-types; rather, it functions like working memory based on the Fregean principle of compositionality.

The view has an interesting consequence. A substructure of the event-type hierarchy that is constructed in our working memory based on the principle of compositionality is (59).



What (59) amounts to say is this: [*the study of TOEIC grammar questions*] as a subtype of [*the study of English grammar*] is more specific than [*the study of English grammar*]; likewise, [*the study of English grammar*] as a subtype of [*the study of English*] is more specific than [*the study of English*]. Now, the specificity condition on genitive assignment of LVC makes an interesting prediction: the more specific an event-type is, the more acceptable the sentence is. This prediction is confirmed by the delicate contrast of acceptability of the sentences in (60).

- (60) a. */??in_{ho}-ka yenge-uy kongpu-lul hay-ss-ta
 I-Nom English-Gen study-Acc do-Pst-Dec
 ‘Inho studied English.’
- b. ?in_{ho}-ka yengemunpep-uy kongpu-lul hay-ss-ta
 I-Nom English.grammar-Gen study-Acc do-Pst-Dec
 ‘Inho studied English grammar.’
- c. (?)in_{ho}-ka thoikmunpep muncey-uy kongpu-lul hay-ss-ta
 I-Nom TOEIC.grammar.questions-Gen study-Acc do-Pst-Dec
 ‘Inho studied TOEIC grammar questions.’

The event-type hierarchy also explains another interesting contrast.

- (61) a. */??inho-ka yenge-uy kongpu-lul hay-ss-ta
 I-Nom English-Gen study-Acc do-Pst-Dec
 'Inho studied English.'
- b. *(?)inho-ka yenge-uy yenkwu-lul hay-ss-ta
 I-Nom English-Gen study-Acc do-Pst-Dec
 'Inho studied English. (or Inho did a research on English.)'

Most Korean native speakers report that (61b) is slightly better than (61a). The only difference between (61a) and (61b) is the choice of VNs. In fact, *kongpu* means 'study' in general, whereas *yenkwu* is closer to 'a specific research.' Hence, *yenkwu* can be a subtype of *kongpu* in the event-type hierarchy. This explains why (61b) is slightly better than (61a).

Now, recall that I was not clear about the use of terminology between *specificity* and *type-specificity* when I discussed the theoretical and empirical validity of *specificity* as a factor of grammar in section 6. The point of discussion was that (55b) was better than (55a), since [*the student who hides her face with the book cover*] was more specific in meaning than [*the woman*]. Because I did not define the event-type hierarchy in section 6, I was not explicit enough in accounting for the contrast of acceptability caused by event-type specificity. In short, specificity plays a significant role in genitive assignment of the Korean LVC; and specificity here means both type-specificity and event-type specificity as a natural extension of type-specificity.

7.2. Implication for UG

The term Universal Grammar (=UG) first appears in Chomsky's (1965: 5-6) *Aspects of the Theory of Syntax*. The main conception of UG is that all languages share particular grammatical features, which seem to be innate to the human being's language capacity. Children learn their language based on *primary linguistic data* by virtue of having the innate capacity. Chomsky's arguments for UG are mainly about acquisition facts; i.e., the primary linguistic data that language learners face underdetermine the grammar of a target language (i.e., *the poverty of the stimulus*); children eventually learn the incredibly complex system—the grammar of their mother tongue—in a relatively short period of time without difficulty; and therefore children must have some built-in capacity to *invent* a grammar, which is UG.

Since Chomsky (1981), the popular conception of UG has been that UG is a finite set of parameters that have to be turned on or off, or that have to be ranked differently from language to language (esp. in OT, cf. Prince and Smolensky 1993). On the other hand, Newmeyer (1998), Culicover (1999), and Ackerman and Webelhuth (1999), through detailed investigation of cross-linguistic data, conclude that it is impossible to parameterize all the diversities

of human languages with a finite number of parameters.

Jackendoff (2002: esp. Ch. 4) shares the view with Newmeyer, Culicover, and Ackerman and Webelhuth, and suggests a new perspective about UG; i.e., *UG is a toolkit*. According to Jackendoff (2002: 193), the contents of UG are architectural universals (i.e., possible structures in the grammar and their interface rules), a number of prespecified *tricks* (e.g., particular fragments of structure) that guide the children's acquisition of generalizations, and so on. A crucial insight in Jackendoff's view of UG as a toolkit is that "when you have a toolkit, you are not obliged to use every tool for every job (p. 75)". Unlike the standard conception of UG, "not every grammatical mechanism provided by Universal Grammar appears in every language (Ibid.)." Van Valin and LaPolla's (1997) discussion of *grammatical function* illustrates this point well. According to them, languages like Acehnese do not make use of grammatical functions. All grammatical operations that resort to the crucial notions like SUBJ, OBJ, etc. in other languages depend upon semantic macroroles (i.e., Actor and Undergoer) in Acehnese. Jackendoff's (2002: 261-264) view is that the grammatical function is part of UG as a toolkit, and they do not use the tool in Acehnese.

Why is the view of UG as a toolkit important for type-specificity? In this paper, we have observed that type-specificity plays an important role for genitive assignment of the Korean LVC. We also know that functional studies of language have identified several other non-syntactic factors of grammar like definiteness (or the feature [\pm definite]), (token-)specificity (or the feature [\pm specific]), old/new-ness (or topic/focus-hood), awareness, and so on.²⁶ This paper identified one more non-syntactic factor, namely type-specificity, and added it to the list of non-syntactic factors of grammar in the functionalist tradition. Does it bring about any problem for UG? In Chomsky's (1965) original conception of UG, adding one more tool to UG costs a lot, since we have to show that the tool is useful for all languages. In Jackendoff's (2002) conception of UG, however, adding one more tool to the toolbox costs less. We just have to show that the new tool brings sufficient theoretical and empirical gains, as I have done in this paper. For this reason, introducing type-specificity into the theory of grammar supports Jackendoff's conception of UG as a toolkit.

8. Conclusion

I began my discussion with a simple question: Is adnominal genitive a purely syntactic case? The question was formulated focusing on the contrast of acceptability for genitive complements of VNs in the Korean LVC. Through-

²⁶ Interested readers should see Kuno (1987).

out the paper, I have argued that the syntactic condition, though crucial, is not sufficient to explain the entire distribution of genitive complements of the LVC. My proposal is summarized, as follows.

(62) Summary of the proposal:

- a. Syntax alone cannot explain genitive complements of the LVC.
- b. Genitive complements are not part of a word; they are part of a syntactic phrase, i.e., VNP.
- c. Genitive-marking of complements of VNs correlates with the covert case-marking of the cross-linguistically well-established DOM phenomena.
- d. Both the genitive-marking and the covert-marking of DOM are allowed for typical objects that are not confusable with subjects.
- e. Inanimate NPs are typical objects, and tend to allow genitive-marking.
- f. Type-specificity is a semantic constraint on genitive complements of the Korean LVC.
- g. Type-specific NPs are informationally contentful, and hence tend to be the foci of sentences.
- h. The foci of sentences are typical objects.
- i. Type-specific NPs tend to allow genitive-marking, since they are typical objects.
- j. Type-specificity is motivated by our cognitive layouts, and also by other empirical domains like ECM.
- k. The idea of type-specificity can be naturally extended to the conception of the event-type hierarchy.
- l. The idea of type-specificity is compatible with the view of UG as a toolkit.

Perhaps, the most important contribution of this paper is the finding that syntax alone can never explain the complicated nature of genitive-marking of the complement NPs of VNs. As possible candidates for non-syntactic conditions, I have proposed animacy and type-specificity. But animacy and type-specificity do not explain the entire distribution of genitive satisfactorily, either. Moreover, the interaction between these two conditions is far from clear yet. Some Optimality Theoretic ranking of the two conditions may be a good direction for a future research. Also, we are left with the tough task of proving the cross-linguistic validity of type-specificity as a constraining factor of grammar. Until then, type-specificity remains as a working hypothesis for a few grammatical domains of a particular language.

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Received: September 21, 2006

Revised version received: December 25, 2006

Accepted: December 26, 2006