May 2001

Bracketing Guidelines for Penn Korean TreeBank

Chung-hye Han  
*University of Pennsylvania*

Na-Rae Han  
*University of Pennsylvania*, nrh@ling.upenn.edu

Eon-Suk Ko  
*University of Pennsylvania*, esko@alumni.upenn.edu

Follow this and additional works at: [http://repository.upenn.edu/ircs_reports](http://repository.upenn.edu/ircs_reports)

Han, Chung-hye; Han, Na-Rae; and Ko, Eon-Suk, "Bracketing Guidelines for Penn Korean TreeBank” (2001). *IRCS Technical Reports Series*. 26.  
[http://repository.upenn.edu/ircs_reports/26](http://repository.upenn.edu/ircs_reports/26)

This paper is posted at ScholarlyCommons. [http://repository.upenn.edu/ircs_reports/26](http://repository.upenn.edu/ircs_reports/26)  
For more information, please contact libraryrepository@pobox.upenn.edu.
Bracketing Guidelines for Penn Korean TreeBank

Abstract
This document describes the syntactic bracketing guidelines for the Penn Korean Treebank, which is an online corpus of Korean texts annotated with morphological and syntactic information. The corpus consists of around 54,000 words and 5,000 sentences. The Treebank uses a phrase structure style of annotation, making head/phrasal node distinctions, argument/adjunct distinctions, and identifying empty arguments and traces for moved constituents. This document is organized as follows. In section 2, the basic syntactic ingredients of a clause structure are presented. Some notational conventions are introduced in section 3, including different types of syntactic tags, such as head level tags, phrase level tags and function tags used in the Treebank. In section 4, the bracketing guidelines for various types of clauses are discussed, including simple clauses, subordinate clauses, and clauses with coordination. Several types of subcategorization frames found in the Treebank are then presented in section 5, followed by bracketing guidelines for various linguistic phenomena in sections 6 to 21, including guidelines for annotating punctuation. The document ends with guidelines for handling some bracketing ambiguities and for handling some confusing examples.

Comments

This technical report is available at ScholarlyCommons: http://repository.upenn.edu/ircs_reports/26
Bracketing Guidelines for Penn Korean TreeBank

Chung-hye Han, Na-Rae Han, Eon-Suk Ko

May, 2001
# Contents

1 **Introduction**  

2 **An Overview of Basic Clause Structure**  
   2.1 Basic elements of S  
   2.1.1 Predicate  
   2.1.2 Arguments of the predicate  
   2.2 Levels of attachment  
   2.3 Complementation within syntactic categories  
   2.4 Modification  

3 **Notation**  
   3.1 Clause level tags  
   3.2 Phrase level tags  
   3.3 Head level tags  
   3.4 Function tags  
   3.5 Null elements  
   3.6 Punctuation  

4 **Clause type**  
   4.1 Simple clause  
   4.2 Subordination  
   4.2.1 Sentential complements  
   4.2.2 Sentential adjuncts  
   4.3 Coordination  

5 **Subcategorization Frames**  
   5.1 Intransitive Verb  
   5.2 Transitive Verb  
   5.3 Intransitive Verb with a complement NP  
   5.4 Transitive Verb with a complement NP  
   5.5 Double Nominative Verb  
   5.6 Predicative Nominal: Copula  
   5.7 Adjective  
   5.8 Adjective with a complement NP  
   5.9 Double Nominative Adjective  

6 **Noun Phrases**  
   6.1 Noun-noun compounds  
   6.2 NP modifiers  
   6.3 Relative clause constructions  
   6.3.1 Argument relative clause constructions  
   6.3.2 Relativization out of multiple nominative/accusative clauses  
   6.3.3 Relativization out of a complex noun phrase construction  
   6.3.4 Adjunct relative clause constructions  
   6.3.5 Internally headed relative clause constructions  
   6.3.6 Across-the-Board (ATB) relativization
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Object-to-Subject Raising</td>
<td>43</td>
</tr>
<tr>
<td>16.1</td>
<td>Sentences with ‘안하고’</td>
<td></td>
</tr>
<tr>
<td>16.2</td>
<td>Sentences with ‘하나’</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Coordination</td>
<td>45</td>
</tr>
<tr>
<td>17.1</td>
<td>Level of coordination</td>
<td></td>
</tr>
<tr>
<td>17.2</td>
<td>Coordination of unlike categories</td>
<td></td>
</tr>
<tr>
<td>17.3</td>
<td>Coordination vs. modification</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Negative Sentences</td>
<td>48</td>
</tr>
<tr>
<td>19</td>
<td>Minor Categories</td>
<td>49</td>
</tr>
<tr>
<td>19.1</td>
<td>Parenthetical</td>
<td></td>
</tr>
<tr>
<td>19.2</td>
<td>Lists</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Empty Categories</td>
<td>52</td>
</tr>
<tr>
<td>20.1</td>
<td>Empty argument</td>
<td></td>
</tr>
<tr>
<td>20.2</td>
<td>Trace</td>
<td></td>
</tr>
<tr>
<td>20.3</td>
<td>Empty operator</td>
<td></td>
</tr>
<tr>
<td>20.4</td>
<td>Predicate deletion</td>
<td></td>
</tr>
<tr>
<td>20.4.1</td>
<td>Verb deletion</td>
<td></td>
</tr>
<tr>
<td>20.4.2</td>
<td>VP deletion</td>
<td></td>
</tr>
<tr>
<td>20.4.3</td>
<td>VX deletion</td>
<td></td>
</tr>
<tr>
<td>20.4.4</td>
<td>Copula deletion</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Punctuation</td>
<td>55</td>
</tr>
<tr>
<td>21.1</td>
<td>Mid-sentence punctuation</td>
<td></td>
</tr>
<tr>
<td>21.1.1</td>
<td>Quotation</td>
<td></td>
</tr>
<tr>
<td>21.1.2</td>
<td>Comma</td>
<td></td>
</tr>
<tr>
<td>21.2</td>
<td>Sentence-final punctuation</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Ambiguity</td>
<td>57</td>
</tr>
<tr>
<td>22.1</td>
<td>Adverb adjunction to S or VP</td>
<td></td>
</tr>
<tr>
<td>22.2</td>
<td>Object scrambling or not</td>
<td></td>
</tr>
<tr>
<td>22.3</td>
<td>Overt subject or pro</td>
<td></td>
</tr>
<tr>
<td>22.4</td>
<td>Complement or not</td>
<td></td>
</tr>
<tr>
<td>22.5</td>
<td>Trace of the scrambled object before or after an adverb</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Confusing Examples</td>
<td>61</td>
</tr>
<tr>
<td>23.1</td>
<td>‘질요’</td>
<td></td>
</tr>
<tr>
<td>23.2</td>
<td>‘-분만 아니라’</td>
<td></td>
</tr>
<tr>
<td>23.3</td>
<td>‘-바로 안 되나’, ‘-바로 모든다’</td>
<td></td>
</tr>
<tr>
<td>23.4</td>
<td>‘변다’</td>
<td></td>
</tr>
<tr>
<td>23.5</td>
<td>pro NP subjects with no referent</td>
<td></td>
</tr>
<tr>
<td>23.6</td>
<td>‘N-에서 N’</td>
<td></td>
</tr>
<tr>
<td>23.7</td>
<td>‘N-PAD+PCA’</td>
<td></td>
</tr>
<tr>
<td>23.8</td>
<td>‘N-PAD N-PAD’</td>
<td></td>
</tr>
<tr>
<td>23.9</td>
<td>Fragments</td>
<td></td>
</tr>
</tbody>
</table>
23.10 Coordination of a noun and a Sino-Korean verb with ‘약’ .......................... 65
23.11 ‘고 엥서’ .................................. 65
23.12 ‘것만 맛다’ .................................. 65
23.13 ‘물론’ ..................................... 66
23.14 ‘자기 스스로’ ................................ 66
23.15 ‘알 맛나 되다’ ................................ 66

A Summary of the Penn Korean Treebank Part-of-Speech Tagset 68
A.1 Content Tags ........................................ 68
A.2 Function Tags ........................................ 69
A.3 Symbols ............................................. 69
1 Introduction

This document describes the syntactic bracketing guidelines for the Penn Korean Treebank, which is an online corpus of Korean texts annotated with morphological and syntactic information. Each word in the corpus is annotated with part-of-speech (POS) tags and each sentence is bracketed to represent its structural analysis. A list of part-of-speech tags used in Penn Korean Treebank is presented in the appendix at the end of this document. For a detailed description of part-of-speech tags, see the IRCS technical report titled “Part of Speech Tagging Guidelines for Penn Korean Treebank” written by Chung-hye Han and Na-Rae Han. For structural analysis, the Treebank uses a phrase structure style of annotation, making head/phraseal node distinctions and argument/adjunct distinctions, and identifying empty arguments and traces for moved constituents.

This document is organized as follows. In §2, the basic syntactic ingredients of a clause structure are presented. Some notational conventions are introduced in §3, including different types of syntactic tags, such as head level tags, phrase level tags and function tags used in the Treebank. In §4, bracketing guidelines for various types of clauses are discussed, including simple clauses, subordinate clauses, and clauses with coordination. Several types of subcategorization frames found in the Treebank are then presented in §5, followed by bracketing guidelines for various linguistic phenomena in sections §6 to §21, including guidelines for annotating punctuation. The document ends with guidelines for handling some bracketing ambiguities in §22, and for handling some confusing examples in §23.

2 An Overview of Basic Clause Structure

2.1 Basic elements of S

2.1.1 Predicate

The predicate is either the lowest VP or ADJP.

2.1.2 Arguments of the predicate

- External:

  The surface subject is an NP marked with a nominative case, and is tagged as -SBJ. In some cases, i.e., multiple nominative constructions, there are more than one nominative marked NPs in a clause. See §11 on bracketing guidelines for multiple nominative constructions.

  The surface subject may be an S which can be marked with a nominative case. In this case, S has the function tag -SBJ.

- Internal:

  Object NP: marked with an accusative case and has the function tag -OBJ.

  Object S: (can be) marked with an accusative case and has the function tag -OBJ.

1We are extremely grateful to Martha Palmer for her continued support and encouragement. We also thank Aravind Joshi, Tony Kroch and Fei Xia for valuable discussions on many occasions. Special thanks are due to Owen Rambow, Nari Kim, and Juntae Yoon for discussions in the initial stage of the project. We also acknowledge Mark Dras for comments on the document. The work reported in this document was supported by contract DAAD 17-99-C-0008 awarded by the Army Research Lab to CoGenTex, Inc., with the University of Pennsylvania as a subcontractor, NSF Grant - VerbNet, IIS 98-00658, and DARPA Tides Grant N66001-00-1-8915.
Complement NP: marked with an adverbial postposition and has the function tag -COMP. Complement S: marked with a complementizer and has the function tag -COMP.

2.2 Levels of attachment

- S-level:
The following are attached at S-level: subject NP, highest VP, fronted constituents, initial and final punctuation, and adverbial modifiers that precede the subject NP, such as sentential adjunct clauses, NP adjuncts, and adverb phrases.

- VP-level:
The following are attached at VP-level: object NP, complement NP, complement clause and almost all adverbial modifiers that follow the subject NP, such as sentential adjunct clauses, NP adjuncts, and adverb phrases.

- ADJP-level:
The following are attached at ADJP-level: complement NP, almost all adverbial modifiers that follow the subject NP, such as sentential adjunct clauses, NP adjuncts, and adverb phrases.

2.3 Complementation within syntactic categories

Complements are attached inside the VP, NP or ADJP. Structurewise, a complement and its head are in sister relation. In (1), X is the head, and YP is the complement of X.

\[ \begin{array}{c}
YP \\
\text{XP}
\end{array} \]

- Complement of verbs:
  1. internal arguments are complements of verbs.
  2. auxiliary verbs and modal verbs take VPs or ADJPs as their complements.

- Complement of nouns:
  1. We do not make argument/adjunct distinctions for nouns. In general, we treat nouns associated with another noun as modifiers.
  2. For complex NPs, we treat the clause associated with the head noun as a modifier of that noun.

- Complement of adjectives:
  1. internal arguments are complements of adjectives.

- Complement of adverbs:
  1. There are some adverbs which take an argument.\(^2\)

2.4 Modification

S, ADVP, or NP can modify S, VP or ADJP. S and DANP can modify an NP. ADVP can modify another ADVP. Also, NPs can modify other NPs. Structurewise, a modifier adjoins onto the phrase it is associated with. In (2), YP modifies XP.

(2) \[ \text{XP} \quad \overset{\text{YP}}{\sim} \quad \text{XP} \]

- Modifiers of a noun adjoin onto the NP they are associated with.
- Modifiers of a verb adjoin onto the lowest VP they are associated with.
- Modifiers of an adjective adjoin onto the ADJP they are associated with.
- Modifiers of an adverb adjoin on to the ADVP they are associated with.
- Modifiers of a sentence adjoin onto the S they are associated with.

3 Notation

3.1 Clause level tags

S: Simple sentential clause. Includes interrogatives, imperatives as well as declaratives.

3.2 Phrase level tags

ADJP: adjective phrase
VP: verb phrase
NP: noun phrase
ADVP: sentential and phrasal adverb phrase
ADCP: coordinate adverb phrase
DANP: adnominal phrase
INTJ: interjection
PRN: parenthetical
X: unknown, uncertain, or unbracketable
LST: list marker. Includes surrounding punctuation. 1, 2, \( \dagger \), ("\dagger"), a, b, c, (1.2.1), (2), (3), etc.
3.3 Head level tags

In general, the head level tag of a lexical item corresponds to the part-of-speech tag of its stem. Such lexical items are not labeled with a head level tag. Instead, they are directly assigned with a phrase level tag. But in some cases, the part-of-speech tag of the stem of a lexical item does not correspond to its head level tag. Such cases include verbs with a verbalization suffix, adjectives with an adjectivization suffix, light verbs, nominal auxiliary predicates, and adverbs with an adverbialization suffix ‘-ŋ’ or ‘-ŋ fraction’. Such lexical items are labeled with an appropriate head level tag, and then they are labeled with an appropriate phrase level tag.

VV: The stem of verbs with a verbalization suffix has the part-of-speech tag NNC. For syntactic annotation, these verbs are labeled with the head level tag VV.

VJ: The stem of adjectives with an adjectivization suffix has the part-of-speech tag NNC. For syntactic annotation, these adjectives are labeled with the head level tag VJ.

VX: The stem of nominal auxiliary predicates has the part-of-speech tag NNX. For syntactic annotation, these nominal auxiliary predicates are labeled with the head level tag VX.

LV: The stem of light verbs has the part-of-speech tag VV. For syntactic annotation, these light verbs are labeled with the head level tag LV.

ADV: The stem of adverbs with an adverbialization suffix ‘-ŋ’ or ‘-ŋ fraction’ has the part-of-speech tag VJ. For syntactic annotation, these adverbs are labeled with the head level tag ADV.

CV: CV marks a compound verb. Note that there is no corresponding part-of-speech tag.

3.4 Function tags

Function tags mark the grammatical function of an NP (or an S) within a sentence. Usually, the subject has nominative case marker and the object has accusative case marker. But in some cases, even though an NP is marked with a nominative case marker, it may not be the subject of the sentence. Further, even though an NP is marked with accusative case marker, it may not be the object of the sentence. It is crucial that the function tags are markers of the grammatical function, and not case.

-SBJ: marks NP subject with nominative case marker.

-OBJ: marks NP complements with accusative case marker.

-COMP: marks NP complements that occur with adverbial postposition.

-ADV: marks NP when it is used adverbially.

-VOC: marks nouns of address.

-LV: used coupled with the LV tag on the light verb. This function tag marks the NP (‘base noun’) which associates with the light verb to form a predicate.

Note that S is marked with a function tag when it is used as the subject, object or the complement of a sentence. S does not have a function when it is used as an adjunct.
3.5 Null elements

*T*: trace of movement, used in object/complement preposing constructions and relative clauses.

(NP *pro*): for dropped subject or object. Generally, the dropped nominal constituent refers to some element within or outside the sentence in which it occurs, and can be recovered from the context. The sentence is still grammatical if the empty category is substituted by the appropriate constituent recovered from the context.

(WHNP *op*): used for the empty operator in relative constructions.

(VV ???): used for verb deletion.

(VP ???): used for VP ellipsis.

(XP ???): used for other unknown empty categories.

3.6 Punctuation

commas: ,

parentheses( ): -LRB- (left round bracket), -RRB- (right round bracket)

braces{ }: -LCB- (left curly brace), -RCB- (right curly brace)

brackets[ ]: -LSB- (left square bracket), -RSB- (right square bracket)

quotation marks: “ ”

colons: :

final punctuations: . ? !

4 Clause type

4.1 Simple clause

Any simple sentences, including declaratives, interrogatives, imperatives, propositives, are S. The sentence final punctuation is attached to the highest S.

우젠 가고 잔났다.

(S (NP-SBJ 우젠 가/NNC+ 꾸/PCA)
 (VP 고 잔날+VV+늧/EFP+だと思います/EFN)
 ./SFN)

우젠 가고 잔났습니까?

(S (NP-SBJ 우젠 가/NNC+ 꾸/PCA)
 (VP 고 잔날+VV+늧/EFP+습니까/EFN)
 ./SFN)
4.2 Subordination

4.2.1 Sentential complements

A sentential complement is an argument of the verb. It is labeled as S with the function tag -COMP. In general, it is a sister of the verb it is associated with.

그는 무전기 가 고장났다고 말했다.
(S (NP-SBJ 그 /NPN+는 /PAU)
 (VP (S-COMP (NP-SBJ 무전기 /NNC+가 /PCA)
  (VP 고장나/VV+었 /EPF+다가 /ECS))
  말약/VV+었/EPF+다가/EFN)
 ./SFN)

그건 염마나 맞이 쓰는가에 달려 있지요.
(S (NP-SBJ 그건 /NPN+은 /PAU)
 (VP (VP (S-COMP (NP-SBJ +pro*)
  (VP (NP-OBJ +pro*)
   (VP (ADVP (ADVP 염마나/ADV)
    (ADVP 맞이/ADV))
   (VP +VV+는 "/EFN+에/PAU))))
  달력/VV+에/EAU)
  것/VA+지요/EFN)
 ./SFN)

4.2.2 Sentential adjuncts

Sentential adjuncts are adjoined to the S or VP that they are associated with.

날씨 아주 덥으면 찰랑 연간의 과열된다.
(S (S (NP-SBJ 날/NNC+이 /PCA)
 (ADJP (ADVP 아주/ADV)
  (ADJP 덥/VA+면/ECS))))
 (S (NP-SBJ 찰랑/NNC
 연간/NNC+이 /PCA)
  (VP (VV 과열/NNC+이 /XSV+다가/EFN))))
 ./SFN)

우리는 그 통신 기체에 대해 이야기했다.
(S (NP-SBJ 우리 /NPN+는 /PAU)
 (VP (S (NP-SBJ +pro*)
  (VP (NP-COMP 그 /DAN
 통신/NNC
4.3 Coordination

Coordinated clauses are represented as sisters and they are attached to S. If a coordinating adverb is present, it is represented at the same level as the coordinated clauses.

5 Subcategorization Frames

This section describes various subcategorization frames in Korean. In our analysis, internal arguments of a predicate are subclassified into objects and complements. The difference between them is that the former category typically takes an accusative case marker, including a null one, whereas the latter typically takes an adverbial postposition.

Not only noun phrases, but sentential constituents can also be an argument and be treated either as a subject, object or a complement. When a sentential element is explicitly nominalized with the suffixation of ‘-을/-를’ or ‘-이/이’, it is bracketed as S and then is projected to an NP with an appropriate function tag, i.e., NP-SBJ, NP-OBJ, or NP-COMP. These nominalized clauses can be optionally followed by a case marker or a postposition.

(S (NP-SBJ *pro*)
  (VP (NP-OBJ 화학/NNC 지문/NNC+은/PAU))
Sentential elements taking suffixes such as ‘-지’ and ‘-나’ can also be a sentential subject, sentential object or sentential complement. They are bracketed as S with appropriate function tags, i.e., S-SBJ, S-OBJ, or S-COMP. Note that they are not further projected to an NP. Although these sentential arguments can be optionally followed by a case marker or a postposition, they are distributionally restricted to be considered as a full-fledged NP.

그들의 근사 정표가 된다는 것이 잘 모르겠습니다.

(S (S-OBJ-1 (NP-SBJ (NP 근사/NNC 경표/NNC+가/PCA))
  (VP (NP 무엇/NPN+의/CO++지/EFN+는/PAU))
  (S (NP-SBJ 음/NPN+와/PCA))
  (VP (S-OBJ +T*+1))
  (VP (ADVP 잘/ADV))
  (VP 모두/VV+때나/EFN)))))
./SFN)

어떤 동물의 기준선을 사용되는데 아직 까야 방위에는 세 가지 종류가 있습니다.

(S (S NP-SBJ *pro*)
  (VP (S-COMP (NP-SBJ (NP 어떤/DAN 동물/NNC+의/PCA))
          (NP 기준선/NNC+의/PCA))
       (VP (VV 사용/NNC+의/XSV+는나/EFN+은/PAD)))
  (따른/VV+이/ECS))
  (S (NP-ADV 방위/NNC+에/PAD+는/PAU))
In all other cases where \( S \) is an argument, \( S \) itself is simply treated as a complement of a verb, i.e., S-COMP. This includes, but is not limited to, the cases where a sentence is followed by an inflectional ending (-ECS) such as ‘-다고’ and ‘-다고’ as well as ‘-도/하+骜’, etc.

5.1 Intransitive Verb

Intransitive verbs do not take any internal arguments. They include verbs such as ‘자다, 전사하다’, etc.

\[
(S (NP-SBJ 乍/NNU 까/NNX 총 놈/NNC+ergy/PCA) (ADJP 요/VPJ+윤/EFN)))
\]

In all other cases where \( S \) is an argument, \( S \) itself is simply treated as a complement of a verb, i.e., S-COMP. This includes, but is not limited to, the cases where a sentence is followed by an inflectional ending (-ECS) such as ‘-다고’ and ‘-다고’ as well as ‘-도/하+骜’, etc.

5.2 Transitive Verb

Transitive verbs take an internal argument, which is optionally marked with an accusative case and has the function tag -OBJ.

어떤 과목에서 직업병의 근무 요령을 닦꾸는가?

\[
(S (NP-SBJ に/NNU 1/NNU) (ADVP 1/NNU) (ADVP 1/NNU) (NP-OBJ *pro*) (VP (NP-ADV 오늘/NNC 야한/NNC+의/PAU (VP (VV 전사/NNC+의/XXS+어/EFN+지요/EFN))))
\]

Some verbs such as ‘말하다’ can take a sentence as an internal argument.
5.3 Intransitive Verb with a complement NP

Some intransitive verbs take an NP complement which is marked with a postposition and the function tag -COMP. Such verbs include ‘대한, 속한, 가다’ and so on.

이 사람은 그 지역을 속합니다.

(S (NP-SBJ 이/DAN 사람/NNC+도/PAU)
 (VP (NP-COMP 집착/NNC+에/PAD)
      속/VV+이니/EFN)
 ./SFN)

고등학교 3학년 학생은 본연소에 갑니다.

(S (NP-SBJ (NP 고등/NNC
          학교/NNC))
 (NP 3/NNU
          학년/NNX))
 (NP 학생/NNC+은/PAU))
 (VP (NP-COMP 본연소/NNC+에/PAD)
     가/VV+이니/EFN)
 ./SFN)

위수 규정, 보조와 감사함과 직업병의 근무 요령, 근태 예절, 근사 규율,
그리고 상벌 사항 등에 대해로서 가르칩니다.

(S (NP-SBJ *pro*)
 (VP (S (NP-SBJ *pro*)
      (VP (NP-COMP (NP (NP 위수/NNC 규정/NNC)
     ,/SCM
      (NP (NP 보조/NNC+의/PCJ)
          (NP 감사함/NNC+과/PCJ)
          (NP 직업병/NNC+의/PCJ))
      (NP 근무/NNC 규정/NNC))
     ,/SCM
 (NP 근태/NNC 예절/NNC)
 ,/SCM

즉, 이 식이 보조와 감사의 근무 규정을 준수하고, 근태 예절을 유지합니다.

(S (NP-SBJ 이/DAN 사람/NNC+도/PAU)
 (VP (NP-COMP 집착/NNC+에/PAD)
      속/VV+이니/EFN)
 ./SFN)
(NP 근사/NNC 규율/NNC)
, /SCM
(ADCP 근사/ADC)
(NP 상발/NNC 상황/NNC))
(NP 동/NNX+왜/PAD))
(VP 가르쳐/VP+어니+Met/ECS))
(VP 가르쳐/VP+어니+Met/EFN))

5.4 Transitive Verb with a complement NP

Some transitive verbs take an NP complement in addition to an NP object.

공격 시에는 진압을 한쪽에 집중해야 합니다.

(S (NP-SBJ *pro*)
 (NP-ADV 공격/NNC
 시/NNX+왜/PAD+는/PAU)
 (VP (NP-OBJ 진압/NNC+을/PCA)
 (NP-COMP 삼폭/NNC+왜/PAU)
 (VV 집중/NNC+의/EXV+의/ECN))
 애/XV+너니라/EFN)
 . /SFN)

Ditransitive verbs such as ‘주악, 제공하다’, etc. also belong to this category.

(PP (NP-SBJ 대대/NNC 예비/NNC 봉사/NNC+은/PAU)
 (VP (NP 1/NNU 개/NNN
 텅크/NNC
 소대/NNC+의/CO+는/PAU)
 (S (NP-SBJ 그/DAN
 염무/NNC+는/PAU)
 (VP (VP (NP (S (NP-SBJ *pro*)
 (VP (NP-COMP 착각/NNC+의/XSF
 소통/NNC
 부대/NNC+한/PAU)
 (NP-OBJ 받/XPF+진작/NNC
 방어/NNC+을/PAU)
 (VV 제공/NNC+의/EXV+의/ECN))
 애/NNX+의/CO+너니라/EFN)
 . /SFN)

In addition, this subcategorization frame includes constructions that are similar to English small clauses. In these constructions, the two internal NP arguments cannot be deleted.
5.5 Double Nominative Verb

Some verbs such as ‘되다’ require two nominative arguments. The first nominative element is treated as the subject and the second nominative element is treated as the complement.

저는 완전히 몇 시간 동안 109 에서 숭직을 왔습니다.

(S (NP-SBJ 직의/NPN
    포데/NNC+같/PCA)
  (VP (ADVP 몇/ADV)
      (NP-ADV 시간/NNC
         경면/NNC+예시/PAD)
     (VP (NP-COMP 숭직/NNC+같/PCA)
       되/VV+있/EPF+습니더/EFN)))
).

Note that the above construction should be differentiated from the cases where both of the nominatives serve as subjects. See §11 for more on double nominative construction.

그는 완전히 몇 시간 동안 109 에서 숭직을 왔습니다.

(S (NP-SBJ 그/DAN
    소택/NNC
    숭직/NNC+는/PAU)
  (S (ADVP 몇/ADV)
      (S (NP-SBJ 숭직/NNC+같/PCA)
        (VP 숭직/VV+있/EPF+습니더/EFN)))
).

5.6 Predicative Nominal: Copula

In copular constructions, the predicative NP is directly projected to a VP.

그리고 랭크 소택의 포준 공격 철면은 약 150 미터입니다.
5.7 Adjective

Intransitive adjectival predicates do not take any internal arguments.

육박전에서 총 검술이 난 백권도가 제일 총습니다.

(S (NP-ADV 육박전/NNC+에서/PAD+는/PAU)
 (S (NP-SBJ (NP 총검술/NNC+이/나/PCJ)
   (NP 백권도/NNC+가/PCA))
   (ADJP (ADVP 제일/ADV)
     (ADJP 총/VJ+습니다/EFN)))
./SFN)

5.8 Adjective with a complement NP

Some adjectival predicates such as ‘더 투, 곱’ take an NP complement.

경보병 일을 하는 투음과 곱음.

(S (NP-SBJ (NP 경보병/NNC
   더/나/PCA)
   (NP 일을/NNC+는/PAU))
   (ADJP (NP-COMP 투음/NNC+과/PAD)
     곱/VJ+는/EFN))
./SFN)

5.9 Double Nominative Adjective

Some adjectives such as ‘있어, 아님, 좋다, 싫다, 필요하다’, etc. take an NP with a nominative case marker as a complement. In such cases the NP complement is tagged with -COMP.

탱크 중대는 무엇 가 약간 많이 있습니다.

(S (NP-SBJ 탱크/NNC
   중대/NNC+는/PAU)
   (ADJP (NP-COMP 무엇/나/NNC+가/PCA)
     (ADJP (ADVP (ADVP 약/ADV)
       (ADVP 많이/ADV))
       (ADJP 있/VJ+합니다/EFN)))

./SFN)
어떤 경우에는 제한된 시점에서도 철수가 필요합니다.

(S (NP-SBJ *pro*)
  (ADJP (NP-ADV 년월/DAN
          경우/NNC+에/PAU)
     (NP-ADV (S (WHNP-1 *op*)
                  (S (NP-SBJ *T*-1)
                     (VP (VV 결정/NNC+에/EXSV+에서/EAN)))
                (NP 성격/NNC+에/에/PAU)))
  (ADJP (NP-COMP 철수/NNC+의/PCA)
          (VJ 필요/NNC+에/XSJ+으/니/가/EFN))
/.SFN)

한국 사람은 독도에 펼쳐 놓습니다.

(S (NP-SBJ 한국/NPR
        사람/NNC+은/PAU)
  (ADJP (ADVP 태제도/ADV)
        (ADJP (NP-COMP 예절/NNC+이/PCA)
              박스/VJ+에/가/EFN))
/.SFN)

Note that these constructions should be differentiated from those where both of the nominatives are treated as subjects and tagged as -SBJ. For more discussion on double nominative constructions, see §11.

이 곤수 공장은 상당히 규모가 크다.

(S (NP-SBJ 이/DAN
        곤수/NNC
          공장/NNC+은/PAU)
  (S (ADVP 상당히/ADV)
       (S (NP-SBJ 규모/NNC+이/PCA)
            (ADJP 크/가/EFN)))
/.SFN)

6 Noun Phrases

6.1 Noun-noun compounds

In general, compounds that are formed with nouns are left flat and is labeled as NP.

R-116 무전기 가
6.2 NP modifiers

NP modifiers adjoin onto the noun they are associated with.

그 무전 기의 총선 기는

(NP-SBJ (NP 무전 기/NNC+의/PCA)
  (NP 총선 기/NNC+는/PAU))

6.3 Relative clause constructions

6.3.1 Argument relative clause constructions

Argument relative clause constructions have a gap in an argument position of the relative clause which is semantically associated with the head noun. The head noun is labeled as NP, and the relative clause is labeled as S. The relative clause projects to S whose specifier contains an empty operator labeled as WHNP. This S adjoins onto the head noun NP. The gap in the relative clause is represented as a trace *T* and this trace is coindexed with the WHNP that contains the empty operator *op*.

고장난 수선 기는

(NP (S (WHNP-1 *op*)
  (S (NP-SBJ *T*-1)
    (VP 고장난/VV+을/EAN)))
  (NP 수선 기/NNC+는/PAU))

어째 fermi 140 미터 방사포를 설치안 절-151 트럭 석 태를 보았습니다.

(S (NP-ADV 어째/NCC)
  (S (NP-SBJ *|*/NPN+는/PAU)
    (VP (NP-OBJ (S (WHNP-1 *op*)
      (S (NP-SBJ *pro*)
        (VP (NP-OBJ 140/NNU
          미터/NNX
          방사포/NNC+을/PCA)
        (NP-COMP *T*-1)
          (VV 설치/NNC+의/XSV+을/EAN))))
      (NP 트럭/NNC
        석/NNU
        태/NNX+을/PCA)
      보/VV+있/EPF+습니라/EFN))
    )/SFN)
6.3.2 Relativization out of multiple nominative/accusative clauses

The highest NP in a multiple nominative/accusative construction can undergo relativization. Be sure to properly coindex the gap position with the relative operator (see §11 for multiple nominative constructions and §12 for multiple accusative constructions).

눈이 큰 아기

\[
\text{(NP (S (WHNP-1 *op*))}\\
\text{ (S (NP-SBJ *T*-1)}\\
\text{ (S (NP-SBJ \text{ flotation}/NNC+/\/PCA)}\\
\text{ (ADJP \text{ /VJ+/\/EAN})))}\\
\text{(NP \text{ \text{ /EAN})))}
\]

6.3.3 Relativization out of a complex noun phrase construction

In ‘clause \text{ /EAN}’ constructions, sometimes an NP contained in the complement clause of ‘clause’ seems to have undergone relativization. Since ‘clause + \text{ /EAN}’ is a complex NP, we would not expect such relativization to be possible given what we know about movement constraints, island effects and so on.

Although there may be something more complex going on in such constructions, for annotation purposes, simply put a trace in the complement clause (if the relativized NP is an argument of the clause) and coindex this trace with the empty relative operator.

제가 기역할 수 있는 건 바잡없이 닥 말으면 드 فإذا 니다.

\[
\text{(S (NP-SBJ *pro*)}\\
\text{ (VP (NP-OBJ (S (WHNP-1 *op*))}\\
\text{ (S (NP-SBJ (S (NP-SBJ \text{ 제역}/NNP+/\/PCA)}\\
\text{ (VP (NP-OBJ *T*-1)})\\
\text{ (VV \text{ /EAN}+/\/XSV+/\/EAN})))}\\
\text{ (NP \text{ /EAN})))}\\
\text{ (ADJP \text{ /VJ+/\/EAN})))}\\
\text{ (NP \text{ /EAN}+/\/PAU)))}\\
\text{ (VP (ADVP \text{ 까랑없이/\/ADV}}\\
\text{ (ADVP \text{ /ADV})}\\
\text{ (VP \text{ 말으면 드 Bakanı/VV+/\/EPF+/\/EAN})))}\\
\text{./SFN)}
\]

6.3.4 Adjunct relative clause constructions

In adjunct relative clause constructions, an adjunct NP has been relativized. That is, the head noun is semantically associated with an empty adjunct in the relative clause. The bracketing guidelines for adjunct relative clause constructions are essentially the same as argument relative clause constructions, except in adjunct relative clause constructions, trace \text{ *T*-1} is not represented.

그 문장을 가고 장난 원인의 무엇인가?
6.3.5 Internally headed relative clause constructions

In internally headed relative clause constructions, the head of the relative clause is inside the relative clause (i.e., internal head of the relative clause), and it is semantically associated with the head noun of the relative clause which is instantiated as ‘가’. The bracketing guideline for such constructions is essentially the same as the argument relative clauses, except you should coindex the relative pronoun operator (WHNP) with the internal head of the relative clause.

(Because 5 틀에 처음 왔을 때는 틀에 화기들 역시 들어 본 것이 없었습니다.

(S (NP-ADV (S (WHNP *op*)
   (S (NP-SBJ *?”/NNP+ ㅏ/PCA)
   (VP (NP-COMP 5/NNU
       중 닥/NNC+에/PA)
   (VP (NP-ADV 적/NNC)
   (VP 오/VV+을/EPF+을/EAN))))))
(NP 닥/NNC+는/PAU))
(NP-COMP-2 닥/NNC+에/PA)
(S (NP-SBJ (S (WHNP-1 *op*)
   (S (NP-SBJ *pro*)
   (VP (NP-OBJ-1 화기/NNC+을/PCA)
   (VP (NP-ADV 적/NNC으로/PA)
   (VP 오/VV+을/EAN))))))
(NP ㅏ/NNX+에/PCA))
(ADJP (NP-COMP *T*-2)
   없/VJ+을/EPF+습니다/EFN))
./SFN)

(+B Always 드린 그 부분을 말하고 다른 부분들에 한정 점보는 가진 게 약간도 없습니다.

(S (S (NP-SBJ (S (WHNP-1 *op*)
   (S (ADVP 김/ADV)
   (S (NP-SBJ *pro*)
   (VP (NP-OBJ *T*-1)
       말/VV+으/EA)
   (VP 김/ADV
       드린/NNC+들을/XS))
   (VP 말/VV+고/ECS))
./)
6.3.6 Across-the-Board (ATB) relativization

Conjoined clauses can each have a gap that is semantically associated with a single head noun. In this case, the conjoined clauses project to S whose specifier contains an empty operator labeled as WHNP. Moreover, the gap in each conjunct is represented as a trace and it is coindexed with the empty operator.

개인과 기관 개인과 기관과 기관과 기관의 유패약어 혼자서 조작하는 모든 화기름 말한답.

(S (NP-SBJ 개인/NNC
  화기/NNC+란/PAU))
  (VP (NP-OBJ (S (WHNP-1 *op*))
    (S (S (NP-SBJ 개인/NNC+의/PCA)
      (VP (NP-OBJ *T*-1)
        (VV 유패약어/NNC+악/XSV+의/ECS))))
    (S (NP-SBJ *pro*))
    (VP (NP-ADV 온작/NNC+서/PAU)
      (VV 조작/NNC+악/XSV+는/EAN))))
  (NP 모든/DAN
    화기/NNC+로/PAU)
  말약/VV+ㄴ/PAU)
./SFN)

모든식이클을 타고 순찰하는 사외 안전원도 있습니까.

(S (NP-SBJ (S (WHNP-1 *op*))
  (S (NP-SBJ *T*-1)
    (VP (NP-OBJ 모터사이클/NNC+을/PCA)
      타/VV+과/ECS))
  (S (NP-SBJ *T*-1)
    (VP (VV 순찰/NNC+악/XSV+는/EAN))))

1/8
6.3.7 Relative clauses with Determiner

Determiners adjoin onto the NP containing the head noun and the relative clause.

이 별간 선들의 도로 지.

(S (NP-SBJ (DANP 얇/DAN)
   (NP (S (WHNP-1 *op*)
        (S (NP-SBJ *T*1)
            (ADJP 발길/VJ+--/EAN)))))
   (NP 선/NNC+들/XSF+어/PCA))
   (VP (NP 도/NNC+어/CO+/어/EFN))
./SFN)

6.4 Complex noun phrases

A complex noun phrase is similar to a relative clause construction in that it is composed of a head noun and a clause that is associated with the head noun. But it differs from the relative clause construction in that it does not have a gap in the clause that is semantically associated with the head noun. Similarly to relative clause constructions, the head noun is labeled as NP, the clause is labeled as S, and this S adjoins onto the head noun NP. But unlike relative clause constructions, the clause in complex NPs does not project to an S whose specifier contains an empty operator.

6.4.1 When the head is a common noun

R-116 무전기 가 5중 대에서 지금 된다는 소식

(NP (S (NP-SBJ R-116/NFW
      무전기/NNC+어/PCA)
      (VP (NP-COMP 5/NNU
            종 떨/NNC+어/PAD)
            (VV 지금/NNC+되/XSV+-다/inction/EAN)))))
   (NP 소식/NNC+은/PAU))

Some common nouns that frequently occur as heads of a complex NP include ‘경우, 동안, 놓, 달성, 정도’, etc.

6.4.2 When the head is a dependent noun

- Clause + ‘거’

When ‘거’ is a head of a complex NP, it can denote a proposition.
그 사람들의 군복을 입고 있는 것이 눈에 띄었기 때문요.

(S (NP-SBJ (S (NP-SBJ 그/DAN 사람/NNC+들/XSF+과/PCA)
  (VP (VP (NP-OBJ 군복/NNC+을/PCA)
   없/VX+을/EAN))
  (NP 크/NNX+으/PCA))
  (VP (NP-COMP 눈/NNC+에/PAU)
   뭐/VX+없/EFP+가/는/EFN)))
./SFN)

‘것’ can also be a head of a relative clause. In this case, ‘것’ usually denotes ‘thing’.

제가 본 것은 그것뿐입니다.

(S (NP-SBJ (S (WHNP-1 *op*)
  (S (NP-SBJ 우리/NPN+의/PCA)
   (VP (NP-OBJ *T*+1)
    보/VV+을/EAN)))
  (NP 크/NNX+이/PAU))
  (VP (NP 크/NNPN 본/NNX+이/CO+로/EFN+나/EFN))
./SFN)

Note that ‘것이란’ as a whole can be an auxiliary predicate, contributing future tense or irrealis modality. In this case, the verb preceding ‘것이란’ is inflected with ‘-ㄹ/을’.

아마 우리의 텅크가 공격 시에 그 도토리를 사용하기도 되어 있었을 것입니다.

(S (ADVP 아마/ADV)
  (S (NP-SBJ 우리/NPN 텅크/NNC+의/PCA)
   (VP (VP (VP (NP-ADV 공격/NNC+이/PCA)
    (VP (NP-OBJ 그/DAN 도토/NNC+을/PCA)
     (VV 사용/NNC+을/XSV+과/PCA)
     되/VX+을/EAN))
   없/VX+없/EFP+을/EAN)
   (VV 크/NNX+이/CO+로/EFN+나/EFN))
  ./SFN)

• Clause + ‘데’, ‘일’

건전히 봉숭받는 데는 적이 되는 일이 없지요.

(S (NP-ADV (S (NP-SBJ *pro*)
  (VP (NP-OBJ 건전/NNC+을/PCA)
   (VV 보통/NNC+받/XSV+을/EAN))))
  (NP 데/NNX+을/EAN)

20
Note that ‘ самым’ can also be a head of a relative clause. In this case, ‘ самым’ usually denotes ‘place’.

언제 어떤 사람이 언제 어디에 어떻게 얼마 안타고 들은 적은 있습니다.

(S (NP-SBJ (S (NP-SBJ *pro*)))
 (VP (S-COMP (NP-SBJ (NP 그/DAN 언택/NNC+의/P)K)
 (NP 지역부/NNC+의/P))
 (VP (NP-COMP (S (WHNP-1 *op*))
 (S (NP-SBJ 언택/NNC 지역부/NNC+의/P)K)
 (ADJP (NP-COMP *T*-1)
 얇/VJ+의/EAN))))
 (NP 죽/NNX+은/EAN))
 (ADJP 얇/VJ+습 닥/EFN)
 ./SFN)

• Clause + ‘수’

In general, the function tag for the NP headed by ‘수’ is -SBJ.

그들의 말을 너무나도 작게 해서 잘 알아들을 수가 없었습니다.

(S (S (NP-SBJ 그/NPN+를/XSF+의/P)K)
 (VP (NP-OBJ 말/NNC+을/EAN))
 (VP (ADVVP (ADVVP 너무+도/ADV+의/EAN))
 (ADVVP (ADV 죽/VJ+의/EAN))))
 (VP 죽/VV+의/EAN))
 (NP 죽/NX+의/P))
 (ADJP 얇/VJ+습 닥/EFN))
 ./SFN)

• Clause + ‘적’

In general, the function tag for the NP headed by ‘적’ is -COMP. This is to capture the intuition that ‘적’ implies the presence of an experiencer, which in turn implies the presence of an external argument, the subject of the clause.
Nominalized clauses: gerunds

Gerunds are clauses headed by a nominalized verb or adjective (i.e., a verb or an adjective with a nominalizer ending such as ‘야’ or ‘을’). They behave as an NP within the matrix clause in that they can be the subject or the object of the matrix clause. They are labeled as S and then projected to an NP with the relevant function tag.

6.6 Equative NP

When ‘족’ is equating two or more NPs, it should be part-of-speech tagged as ADC, and the NPs associated with ‘족’ should be conjoined.

2 경의 부분대장, 족 정치 부분대장과 군사 부분대장이 있습니다.

(S (NP-SBJ) (NP 2/NNU
명/NNX+의/PCA)
(NP 부분대장/NNC))
./SCM
(ADCP 족/ADC)
(NP (NP 정치/NNC
부분대장/NNC+복/PCJ)
(NP 군사/NNC
부분대장/NNC+의/PCA))
(ADJP 없/VJ+습 니/EFN))
./SFN)


7 Verb Phrases

7.1 Verb complementation

Internal arguments are complements of verbs.

모출 태조를 받았음니다.

(S (NP-SBJ *pro*)
  (VP (NP-OBJ 모출/NNC 태조/NNC+을/PCA)
   받/VV+을/EPF+습 니타/EFN)
./SFN)

사항관에게 보고서를 보냈습니다.

(S (NP-SBJ *pro*)
  (VP (NP- COMP 사항관/NNC+에게/PAD)
   (NP-OBJ 보고서/NNC+을/PCA)
   보나/VV+있/EPF+담/EFN)
./SFN)

But when there is a verb modifier intervening between the internal argument and the verb, the verb is labeled as VP, and the modifier adjoins to this VP. And then the internal argument adjoins to the VP to which the modifier attaches.

모출 태조를 많이 받았음니다.

(S (NP-SBJ *pro*)
  (VP (NP-OBJ 모출/NNC 태조/NNC+을/PCA)
   (VP (ADVP 많이)
    (VP 받/VV+있/EPF+습 니타/EFN)))
./SFN)

7.2 Auxiliary predicates

7.2.1 Auxiliary verbs

Auxiliary verbs take the highest VP (or AP) in the clause as their complements, and auxiliary verbs and their complement VP (or AP) are labeled as VP.

그 무전가의 송신기는 뭐 됐으므로 구성되어 있겠구?

(S (NP-SBJ (NP 그/DAN
   무전가/NNC+의/PCA)
 (NP 송신가/NNC+는/PAU))
 (VP (VP (NP- COMP 무엇/NPN
   무엇/NPN+으로/PA))

7.2.2 Sentences with more than one auxiliary verbs

The innermost auxiliary verb takes the VP as its complement, projecting to a VP. And then the outer auxiliary verb takes this VP as its complement, projecting to another VP, and so on.

와 그 도토 상에서 지휘를 탐지하기도 되어 있었지?

(S (NP-SBJ *pro*)
 (VP (VP (ADVP 왜/ADV)
   (NP-ADV 그/DAN 도도/NNC 상/NNC+에서/PAD)
   (VP (NP-OBJ 지/NNC+을/PCA)
     (VV 탐지/NNC+이/XSV+이/ECJ)
     되/VX+이/EAU)
   앞/VX+있/EFN)
 ?/SFN)

7.2.3 Auxiliary adjectives

Auxiliary adjectives such as ‘만약하, 듯 하다, 벌하’ take the highest VP (or AP) in the clause as their complements, and auxiliary adjectives and their complement VP (or AP) are labeled as VP.

그건 R-116 무진기로 통할 만하다.

(S (NP-SBJ 그건/NPN+은/PAU)
 (VP (VP (NP-ADV R-116/NFW
   무진기/NNC+을/PAD)
     (VP 동악/VV+을/EAN)
   만악/VX+있/EFN))
 ./SFN)
7.2.4 Auxiliary predicative nouns

Auxiliary predicative nouns such as ‘것이다, 뻔이다, 뺀이다’ contribute modal or aspectual interpretation. They are labeled as VX and take the highest VP (or AP) in the clause as their complements. Further, auxiliary predicative nouns and their complement VP (or AP) are labeled as VP.

이 선들은 연인군 직도에 있는 것보다 약 1.5도 좀 닮을 뻔이다.

지도가 있으면 제가 그것을 찾아 낼 수 있을텐데요.

아간 영군을 알 테니까 그 거리는 약 1 젊도미터쯤 될 걸니다.
7.2.5 Complex auxiliary predicate

Complex auxiliary predicates such as ‘기절하다’ occur at the end of clauses and corresponds in meaning to English raising predicates such as ‘seem’ and ‘be likely’. Label such predicates as VX and treat them as an auxiliary predicate.

7.3 Light verb

Light verbs occur with an activity-denoting noun. They are called ‘light’ because they do not seem to have much semantic content and do not seem to contribute subcategorization information. Rather, in sentences with light verbs, the subcategorization information come from the activity denoting noun. We refer to this activity denoting noun as the ‘base noun’ of the light verb.

The most common light verb is ‘할’. It follows a Sino Korean noun (Chinese origin nouns) which can be marked with accusative case marker.

수익을 약간
손질을 약간
보고를 약간
필요도 약간
Some other light verbs include ‘날다’, ‘먹다’ and ‘발다’. ‘날다’ occurs with a nominative marked NP, and ‘발다’ occurs with an accusative marked NP.

A light verb is labeled as LV, and its base noun is labeled as NP with the appropriate function tags. If the base noun can have accusative case marker, the function tag is -OBJ, and if it can have nominative case marker, the function tag is -COMP. This base noun is further tagged with -LV.
If the base noun is modified, -LV tag should be given to the highest projection of the base noun.

(\text{S} \text{ NP-SBJ 우전/NNC 통신/NNC+은/PAU})
\text{ VP (NP-OBJ-LV (NP \text{ 작인/NNC+의}/PCA))}
\text{ VP (ADVP 띄여/ADV))}
(\text{VP (LV 발/VV+지요/EFN))})

In many cases, determining whether a verb is a light verb is very difficult. When in doubt, treat the verb in question as a regular verb and do not label it as LV.
7.4 Compound verb

Compound verbs are labeled as CV. The first verb of compound verbs ends with ‘-어/-약’ and it cannot have tense morphemes. The second verb belongs to a certain class of verbs that has a directional meaning, such as ‘가다, 오다, 나가다, 남다, 따니다’.

그는 진공관을 잡아 놓았다.

(S (NP-SBJ 그는)
  (VP (NP-OBJ 진공관/NNC+을/PCA)
    (CV 꼽/VV+약/ECS
     남/VV+에/EP+다/EFN))
  ./SFN)

아마 너를 감옥에 잡아 날까까지 알지도 못하다.

(S (NP-SBJ *pro*)
  (VP (VP (ADVP 아/ADV)
    (VP (NP-OBJ (S (NP-SBJ *pro*)
      (VP (NP-OBJ 너/NNP+을/PCA)
        (NP-COMP 감옥/NNC+에/PA)
          (CV 잡/VV+이/ECS
           남/VV+의/ENM+까지/PAU))))
    이/VV+/도/EFN))
  ./SFN)

7.5 VP modification

Verb modifiers adjoin onto the lowest VP they are associated with.

우리는 무진가를 오랫동안 조작하지 못합니다.

(S (NP-SBJ 우리/NPN+는/PAU)
  (VP (VP (NP-OBJ 우리/NNC+을/PCA)
    (VP (NP-ADV 오랫동안/NNC)
      (VP (VV 조작/NNC+이/XSV+지/EAU))))
  이/VX+/는/EFN)
  ./SFN)

포트를 잡으면 지체없이 보고해야 합니다.

(S (S (NP-SBJ *pro*)
  (VP (NP-OBJ 포트/NNC+을/PCA)
    잡/VV+으로/ECS))
  (S (NP-SBJ *pro*)
    (VP (VP (ADVP 지체없이/ADV)
      (VP (NP-OBJ *pro*)
        ./SFN)
        ./SFN)
        ./SFN)
        ./SFN)
        ./SFN)
        ./SFN)
When there are more than one verb modifiers, they attach to the same VP level.

부대 명칭은 동상 암호로 약탈됩니다.

(S (NP-SBJ 부대/NNC
    명칭/NNC+은/PAD)
    (VP (ADVVP 동상/ADV)
        (NP-ADV 암호/NNC+은/PAD)
        (VP (VV 약탈/NNC+은/XSV+ㅂ니다/EFN))
    )
).

7.6 Derived verb

For derived verbs, the stem is part-of-speech tagged as NNC and the derivation suffix is part-of-speech tagged as XSV. The derived verbs are labeled as VV in syntactic bracketing.

보고 하셨다

(VV 보고/NNC+은/XSV+였/EPF+فاق/EFN)

보고 되었습니다

(VV 보고/NNC+였/XX+였/EPF+فاق/EFN)

In some cases, derived verbs have conjoined noun stems. Treat them as coordinated verbs.

지뢰 동출 안했다.

(VV 지뢰/NNC
    (VV 동출/NNC+은/XSV+فاق/EFN))

습격 합격안했다.

(VV (VV 습격/NNC)
    (VV 합격/NNC+은/XSV+فاق/EFN))

8 Adjective Phrase

Adjectives project to AP. If an adjective has a complement, the adjective and the complement are labeled as AP. Adjective modifiers adjoin onto the AP.

날의 맑다.

(S (NP-SBJ 날/NNC+은/PCA)
9 Adverb Phrase

Adverbs are part-of-speech tagged with ADV, and they are bracketed with the label ADVP.

The stem of derived adjective is part-of-speech tagged as NNC and the derivation suffix is part-of-speech tagged as XSJ. The derived adjectives are labeled as VJ in syntactic bracketing.

9.1 Adjunction site of adverb phrase

Adverb phrases (ADVPs) in general adjoin onto VP, ADJP or S.

The stem of derived adjective is part-of-speech tagged as NNC and the derivation suffix is part-of-speech tagged as XSJ. The derived adjectives are labeled as VJ in syntactic bracketing.
(VP (ADVP 만/ADV)
  (VP (VV 운용/NNC+먹/XSV+먹/ECF)))
  야/VX+먹 닦다/EFN)
./SFN)

Sometimes an adverb modifies another adverb, especially adverbs of degree such as ‘너무, 약속, 매우, 더, 약간’. In the example below, ‘너무 날로’ does not modify the verb but rather the following adverb ‘작게’.

그 친구들의 말을 너무 날로 작게 했다.

(S (NP-SBJ 그/DAN 친구/NNC+들/XSF+먹/PCA)
  (VP (NP-OBJ VP+먹/ADVP+먹/PAU)
    (ADVP (VV+먹/ECF))
  (VP 야/VX+먹/EFN)))
./SFN)

Moreover, a few adverbs can adjoin to a limited number of noun phrases and limited number of adnominal phrases.

 얼마 남, 오랫동안

(NP (ADVP 얼마 남/ADV)
  (NP 오랫동안/NNC))

가의 모든

(DANP (ADVP 가의/ADV)
  (DANP 모든/DAN))

9.2 Derived adverbs

In general, adjectives suffixed with ‘-게’ are derived adverbs (e.g., ‘작게’) and are bracketed with the label ADV first and then bracketed with the label ADVP.

그 친구들의 말을 너무 날로 작게 했다.

(S (NP-SBJ 그/DAN 친구/NNC+들/XSF+먹/PCA)
Nouns suffixed with ‘-적으로’ are also derived adverbs.

단계적으로

(ADVP (ADV 단계/NNC+적으로/XSF+으로/PAD))

Note, however, that this does not entail that the nouns suffixed with ‘-적’ is treated as an adjective. They are simply treated as a NP.

전면적 우방 이동을

(NP-OBJ (NP 전면/NNC+적/라프)  
(NP 우방/NNC  
이동/NNC+으로/PCA))

9.3 Adverb with an NP complement

Some adverbs such as ‘어bitrary, 말리, 같이, 함께, 물론’ take an NP complement to form an adverb phrase.

포병 지원 부대로 만여금

(ADVP (NP-COMP 포병/NNC  
지원/NNC  
부대로/NNC+으로/PAD)  
만여금/ADV)

고등학생과 대학생은 물론

(ADVP (NP-COMP (NP 고등/NNC  
학생/NNC+과/PCJ)  
(NP 대학생/NNC+은/PAU))  
들물/ADV)

이와 같이

(ADVP (NP-COMP 이/NNP+과/PAD)  
 같이/ADV)

In some cases, NPs functioning as adverbials also take an NP complement.

그 부대는 장갑차를 핵심으로 편성돼 있습니다.
10 Copular Sentences

In copular sentences, a noun with a copula marker (‘는’) is the predicate. The predicative noun is labeled as NP, and this NP projects to VP. Auxiliary predicates take this VP as a complement.

R-106도 소련에 입니다.

(S NP-SBJ R-106/NFW+도/PAU)
  (VP NP 소련에/NNC+에/CD+에/EFN))
./SFN)
11 Multiple Nominative Constructions

11.1 Complement NP with nominative case

There are verbs and adjectives that take a nominative-case marked NP as their complement. Examples include 떨다, 아니하다, 필요하다, 좋다, 싫다; ‘있다’ (have, possess), ‘없다’ (not have, not possess)

In sentences with such verbs and adjectives, the subject NP has function tag -SBJ, and the complement NP has function tag -COMP.

그것이 문 제가 되었다.

(S (NP-SBJ 그 것/NNP+이/PCA)
 (VP (NP-COMP 문 제/NNC+이/PCA)
   되/VV+/있/EPF+/가/EFN)
  ./SFN)

그것이 문 제가 아니 다.

(S (NP-SBJ 그 것/NNP+이/PCA)
 (ADJP (NP-COMP 문 제/NNC+이/PCA)
   아니/VJ+/가/EFN)
  ./SFN)

칠수 가 장 괴이 있다.

(S (NP-SBJ 척 수/NPR+/이/PCA)
 (ADJP (NP-COMP 장 괴/NNC+이/PCA)
   없/VJ+/가/EFN)
  ./SFN)

칠 수 가 장 괴이 없다.

(S (NP-SBJ 척 수/NPR+/이/PCA)
 (ADJP (NP-COMP 장 괴/NNC+이/PCA)
   없/VJ+/가/EFN)
  ./SFN)

지금도 기 기에 어떤 부 택가 있는 지는 의심스럽습니다.

(S (NP-SBJ *pro*)
 (VP (S-COMP (NP-ADV 지금/NNC+/이/PAU)
   (NP-COMP-1 기/가/NPN+/이/PAU)
   (S (NP-SBJ 의심/DAN
     부 택/NNC+/이/PCA)
   (ADJP (NP-COMP *T*+/1)
     없/VJ+/는/지/EFN+/는/PAU))
 (VJ 의심/NNC+/슴/XSJ+/습니다/EFN))

35
11.2 Statives

All adjectives and some stative verbs can have multiple nominative-case marked NPs. One of the NPs attaches to S, in general the one closest to the adjective, and other NPs adjoin onto S. All the nominative-marked NPs have -SBJ function tag. This treatment of multiple subjects in adjective constructions is to capture the intuition that an adjective forms a sentence with a nominative-marked NP and this sentence in turn forms a predicate and takes another nominative-marked NP as its own subject.

통신 기체가 상태가 좋습니다.

(S (NP-SBJ 통신/NNC
  기체/NNC+이/PCA)
  (ADJP 좋/VJ+습니다/EFN)))

Adjectives such as ‘어렵다, 싫다’ can take a clausal unit containing a nominalized verb as the second NP. Often the object of this clause is semantically coreferential with the subject of these adjectives.

보병 사태에서는 어떤 적책이 보충약가 어려운가?

(S (NP-ADV 보병/NNC
  사태/NNC+예시/PAD+는/PAU)
  (S (NP-SBJ 어린/DAN
       적책/NNC+이/PCA)
       (S (NP-SBJ (S (NP-SBJ *pro*)
                   (VP (NP-OBJ *pro*)
                     (VV 보충/NNC+약/XSV+이/ENM+이/PCA))))
       (ADJP 어려워/VJ+는/EFN))))

Compare the above example with the following one, where NP ‘어린 적책’ is marked with an accusative case. In this example, the noun phrase belongs to the nominalized clause, which is the subject of the entire sentence. The sentence is not a multiple nominative construction.
12 Multiple Accusative Constructions

Some sentences can have more than one accusative-case marked NPs even though they do not contain a ditransitive verb. In this case, one of the accusative-marked NPs attaches to VP as a complement of the verb, in general the one closest to the verb, and other accusative-marked NPs adjoin to the VP. All the accusative-marked NPs have -OBJ function tag.

주아적으로 근관돌이 정차 근관을 동양을 조사합니다.

(S (ADVP (ADV 주 /NCC+적/XSF+으로/PAD))
  (S (NP-SBJ 근관/NCC+돌/XSF+이/PCA)
    (VP (NP-OBJ 정차/NCC 근관/NCC+을/PCA)
      (VP (NP-OBJ 동양/NCC+을/PCA)
        (VV 조사/NNC+의/XSV+의닉택/EFN))))
  ./SFN)

When one of the accusative marked NPs occurs in the beginning of the sentence, this NP is treated as if it has undergone argument fronting (i.e., scrambling). That is, it is adjoined to the clause level S and it is coindexed with a *T* in the base position which is adjoined to VP. More on argument fronting is presented in §14.

정차 근관은 주아적으로 근관돌이 동양을 조사합니다.

(S (NP-OBJ-1 정차 근관은)
  (ADVP (ADV 주 /NCC+적/XSF+으로/PAD))
  (S (NP-SBJ 근관/NCC+돌/XSF+이/PCA)
    (VP (NP-OBJ *T*-1)
      (VP (NP-OBJ 동양/NCC+을/PCA)
        (VV 조사/NNC+의/XSV+의닉택/EFN)))))
  ./SFN)

13 Floating numerals

Numerals that semantically modify a subject NP can occur after the subject NP. These numerals can also take a nominative case marker, giving one the illusion that the sentence has multiple subjects. We treat such numerals as verb modifiers and mark them with -ADV function tag.

우전방이 두 개가 있음니다.
When the subject that does not have a case marker is immediately followed by a numeral, bracket the subject and the numeral as NP.

In cases where the subject or the object is absent, and only the numerals are present, in general, the empty subject and the object are represented as *pro*, and the numerals are adjoined to the predicate.

However, depending on the context and the annotator’s intuition, the numeral itself can be represented as the subject or the object of the predicate.
14 Fronted elements

Fronted elements are those that appear before the subject, but interpreted somewhere else in the clause. They are adjoined onto the top clause level S.

14.1 Fronted arguments

Fronted arguments are adjoined to the main clause level. They always leave a *T* and are coindexed with it.

권한을 누가 가지고 있지?

(S (NP-OBJ-1 권한/NNC+을/PCA)  
  (S (NP-SBJ 누구/NPN+가/PCA)  
    (VP (VP (NP-OBJ *T*-1)  
        힌지/VV+고/EAU)  
        었/VX+가/EFN))  
    ?/SFN )

14.2 Across-the-Board fronting

A fronted argument can originate from conjoined clauses. In this case, the conjoined clauses each have a trace that is syntactically associated with the fronted argument which is adjoined to the conjoined S.

가기엔 573 온실 포병 연대의 담은 포병 연대 2개가 있고, 박격포 부대와 반항공 포병단 등도 있었습니다.

(S (S (NP-COMP-2 가+NPN+의/PA+능/PAU)
14.3 Fronted adjuncts

Fronted adjuncts do not leave a *T*. They are adjoined to the top clause level S.

When there are more than one adjuncts preceding a clause S, they attach to the same S level.

When both a fronted argument and an adjunct is preceding a clause S, they attach to the same S level.
15 Causatives

Causatives are biclausal. The subject is the causer and the sentential complement denotes the situation the causer caused to bring about. There are two ways in which the causee can be represented syntactically: (i) as the subject of the complement clause, or (ii) as the object or the complement of the main clause.

15.1 Causee is the subject of the complement clause

In this case, the causative verb takes only an S-COMP argument, and the causee is represented as the subject of this S-COMP clause. The verbal ending of the S-COMP clause is usually ‘도록/ECs’ or ‘ hare/ECS’.

15.2 Causee is the object or complement of the main clause

In this case, the causative verb takes two arguments, an NP-OBJ and an S-COMP. The causee is represented as the NP-OBJ, and it is coreferential with the subject of the S-COMP argument, which is represented as a null pronoun. When the noun is followed by a postposition marker such as ‘만해/PAD’ instead of ‘을/PCA’, the causee argument is tagged as NP-COMP.

(VP (NP-COMP 학교/NNC+에/PAD)
   애/VV+/ECS))

(S (NP-SBJ *pro*)
   (VP (NP-COMP (S (NP-SBJ *pro*)
               (VP (NP-OBJ (NP 정북/NNC)
               ,/SCM
               (NP 경제/NNC)
               (ADCP 및/ADC)
               (NP (NP 기자/NNC)
               (NP 졸전/NNC+을/PCA)))
               (S-COMP (NP-SBJ *pro*)
               (ADJP 싸/VJ+/EAU))
               애/VV+ 가/ENM))

위가/VV+ 애/ECS))
(S NP-SBJ 연방/NNC 후방/NNC 시설/NNC+은/PAU)
   (VP (NP-COMP 연대/NNC 후방/NNC 경계선/NNC 부분/NNC+에/PAD)
   (VV 위가/NNC+ 애/XSV+ 다/EFN)))

관측자는 적의 무선 전화수 안내에 이 목표들에 대한 좌표를 적의 포반에 송신하도록 했습니다.

(S NP-SBJ 관측/NNC+ 적/XSF+는/PAU)
   (VP (NP-COMP 적의/NPN
       무선/NNC
       전화수/NNC+ 안내/PA)
   (S-COMP (NP-SBJ *pro*)
   (VP (NP-OBJ (S WHNP-2 *op*)
   (S NP-SBJ *T*+2)
   (VP (NP-COMP 애/DAN
       목표/NNC+을/XSFX+에/PA)
       애/VV+ 다/EAN))
   (NP 좌표/NNC+을/PCA))
   (NP-COMP 적의/NPN
       포반/NNC+에/PAD)
   (VV 송신/NNC+ 애/XSV+ 도록/ECS)))

/ .SFN)
16 Object-to-Subject Raising

16.1 Sentences with ‘만약담’

만약담 is an auxiliary predicate that occurs with a main verb inflected with ‘-ㄹ/-을’.

이 책상은 약의들의 속 만약담.

What is interesting about sentences with ‘-ㄹ/-을 만약담’ is that the subject of the sentence seems to have originated from the object/complement position of the main verb. For instance, in the above example, the sentential subject ‘이 책상은’ is also the object of the main verb ‘_slots’. Moreover, the subject of the main verb is not equivalent to the sentential subject. In the above example, the subject of the main verb ‘_slots’ is not ‘이 책상은’, but is ‘약의들의’.

These syntactic properties of sentences with auxiliary predicate ‘만약담’ is very similar to English tough-constructions.

John is tough for Mary to please.

In this example, John is the sentential subject, and yet it seems to have originated from the object position of please. Moreover, the subject of please is not John, but is Mary.

When annotating sentences with auxiliary predicate ‘만약담’, assign the sentential subject and the subject of the main verb with -SBJ function. If the subject of the main verb is absent, insert an empty pronoun (*pro*). And then put a trace in the object/complement position of the main verb and coindex this trace with the sentential subject. Annotated examples are given below.

이 책상은 약의들의 속 만약담.

(S (NP-SBJ-1 여/DAN  
책상/NNC+는/PAU)  
(S (NP-SBJ 약의/NNC+들의/XSF+의/PCA)  
(VP (VP (NP-OBJ *T*-1)  
_slots/VV+을/EAN)  
만약/VX+담/EFN))  
./SFN)

이 영화가 청소년의 속 만약담.

(S (NP-SBJ-1 여/DAN  
영화/NNC+의/PCA)  
(S (NP-SBJ 청소년/NNC+의/PCA)  
(VP (VP (NP-OBJ *T*-1)  
보/VV+을/EAN)  
만약/VX+담/EFN))  
./SFN)

이 영화가 청소년에게 추천할 만약담.

43
(S (NP-SBJ-1 의/DAN
  영/NNC+ 꾸/PCA)
(S (NP-SBJ *pro*)
  (VP (VP (NP-OBJ 의/DAN
    영/NNC+ 돌/PCA)
    보/VV+ 돌/EAN)
    맘/VD+ 닥/EFN))
./SFN)

However, note that ‘만약다’ can also be used as a regular auxiliary predicate, where the
sentential subject is also the subject of the main verb. Annotate such sentences just as any other
sentences with auxiliary predicates: i.e., ‘만약다’ takes the highest VP as its complement.

(S (NP-SBJ 청소년/NNC+ 의/DAN
  영/NNC+ 돌/PCA)
  (VP (VP (NP-OBJ 의/DAN
    영/NNC+ 돌/PCA)
    보/VV+ 돌/EAN)
    맘/VD+ 닥/EFN))
./SFN)

이 영/NNC+ 돌/PCA

(S (NP-OBJ-1 의/DAN
  영/NNC+ 돌/PCA)
(S (NP-SBJ 청소년/NNC+ 의/DAN
  영/NNC+ 돌/PCA)
  (VP (VP (NP-OBJ *T*-1)
    보/VV+ 돌/EAN)
    맘/VD+ 닥/EFN))
./SFN)

16.2 Sentences with ‘되다’

One dominant usage of verb ‘되다’, when not used as a main verb, is an auxiliary verb as shown
in the following example. In this example, the sentential subject and the subject of the main verb
‘가며’ are the same, namely ‘철수 가’.

철수 가 가게 되었다.

(S (NP-SBJ 철수/NPR+ 의/DAN
  (VP (VP ‘가/VV+ 드/EAU)
    되/VD+ 드/EAN))
./SFN)

However, in some other cases, the subject of the sentence seems to have originated from the
object/complement position of the main verb. For instance, in the example below, the sentential
subject ‘이 기계는’ is also the object of the main verb ‘쓰 리’. The subject of the main verb is an empty pronoun that refers to unspecified people.

The annotation method for such sentences is the same as sentences with auxiliary predicate ‘만약다’. That is, assign the sentential subject and the subject of the main verb with -SBJ function. If the subject of the main verb is absent, insert an empty pronoun (*pro*). And then put a trace in the object/complement position of the main verb and coindex this trace with the sentential subject. Annotated examples are given below.

이 기계가 못 쓰 리 되었다.

(S (NP-SBJ-1 이 기계가)
 (S (NP-SBJ *pro*)
   (VP (VP (VP (NP-OBJ *T*-1)
     (VP (ADVP 못/ADV)
       (VP 쓰 리/VV+/하/EAU))))
     되/VX+/있/EFF+/тив/EFN))
   ./SFN)

유래 양식은 택래장의 의가 없으레는 쓰지 못하게 되어 있슴니다.

(S (NP-SBJ-1 유래/NNC
   양식/NNC+은/PAU)
 (S (NP-SBJ *pro*)
   (VP (VP (VP (VP (ADVP (NP-COMP (NP 택래장/NNC+의/PCA)
     (NP 의가/NNC))
       없이/ADV+는/PAU)
     (VP (NP-OBJ *T*-1)
       쓰 리/VV+/하/EAU))
     못/AX+/있/EAU)
     되/VX+/있/EAU)
     없/VX+/숨/니/닭/EFN))
   ./SFN)

17 Coordination

The label of coordination has the same label as the coordinated phrases. For instance, in NP coordination, the coordinated NP phrases are attached to an NP. The coordinating adverb such as ‘그 대고’ or ‘또는’ is represented at the same level as the coordinated phrases. See §4.3 for examples of clausal coordination.

우리는 송신기나 수신기를 가끔 손절한다.

(S (NP-SBJ 우리는)
 (VP (NP-OBJ (NP 송신기/NNC+의/PCJ)
     (NP 수신기/NNC+을/PAU))
   (VP (ADVP 가끔/ADV)
   ./SFN)
(VP (VV 손절/NNC+악/XSV+ㄹ 달/EFN)))
./SFN)

17.1 Level of coordination

Coordination is represented at the lowest level possible. For instance, where both VP coordination and S coordination analyses are possible, assign a VP coordination structure, unless the annotator has a strong intuition that S coordination is the right analysis.

우리는 R-106 우전기에는 HAK-24형 승전지를 쓰고 R-116 우전기에는 승리-80
전진지를 쓰십니다.

(S (NP-SBJ 우리는)
 (VP (VP (NP-ADV R-106/NFW
 우전 기/NNC+에/PAAD+는/PAU)
 (VP (NP-OBJ HAK-24/NFW 영/NNC 승전 지/NNC+을/PCA)
 쓰/VV+/로/EFN))
 (VP (NP-ADV R-116/NFW 우전 기/NNC+에/PAAD+는/PAU)
 (VP (NP-OBJ 승리-80/NNC 전진 지/NNC+을/PCA)
 쓰/VV+/니 달/EFN)))
 ./SFN)

17.2 Coordination of unlike categories

When two different categories such as ADJP and VP seem to be coordinated, we exceptionally allow coordination at a higher level to avoid coordination of different categories.

총참모장은 박토 그 밑에서 군의 최고 사령관으로 있고 전군을 지휘 통솔합니다.

(S (S (NP-SBJ 총참모장/NNC+은/PAU)
 (ADJP (NP-ADV 박토/DAN 그/DAN 덕/NNC+에서/PAAD)
 (NP-ADV (NP 군/NNC+의/PCA)
 (NP 최고/NNC 사령관/NNC+으로/PAAD)))
 (ADJP 됏/VJ+/로/EFN))))
(S (NP-SBJ *pro*)
 (VP (NP-OBJ 전/DAN 군/NNC+을/PCA)
 (VV (VV 지휘/NNC)
 (VV 통솔/NNC+악/XSV+ㄹ 달/EFN))))
./SFN)
Another example of coordination of unlike categories can be found when an NP is coordinated with a sentence. This is due to the unique characteristics of clauses in Korean which behave very often as if they are NPs. In our analysis, the coordinated S and NP are sisters and project to an NP.

In a VP or S level coordination, the predicate in the first conjunct of the coordinated structure is inflected with ‘-고’ or ‘- 것’ also as well as ‘-서’, - 면서, or ‘-약’ projects to S and is adjoined to the following VP or S.

In a VV level coordination, however, the first verb can be inflected with ‘-서’, - 면서, -약 as well as ‘-고’ or ‘- 것’. Verbs can form a coordinated structure if they share exactly the same argument structure.

17.3 Coordination vs. modification

In a VP or S level coordination, the predicate in the first conjunct of the coordinated structure is inflected with ‘-고’ or ‘- 것’. A phrase containing a predicate inflected with all other endings such as ‘-서’, - 면서, or ‘-약’ projects to S and is adjoined to the following VP or S.

In a VV level coordination, however, the first verb can be inflected with ‘-서’, - 면서, -약 as well as ‘-고’ or ‘- 것’. Verbs can form a coordinated structure if they share exactly the same argument structure.
18 Negative Sentences

There are two major types of sentential negation in Korean: preverbal negation and postverbal negation. Preverbal negation is bracketed as an adverb phrase (ADVP) which adjoins onto a VP.

Postverbal negation is annotated as an auxiliary verb which takes a VP as a complement.
(VP (ADVP 만약/ADV)
  (VP (VV 사용/NNC+ 악/XSV+ 이/EAU))
  악/VX+도/EFN)
./SFN)

19 Minor Categories

19.1 Parenthetical

Parentheticals are usually surrounded by parentheses or commas. Bracket the entire parenthetical with the label PRN, including the punctuation marks that surround them. In most cases, they can be adjoined to VP or S, depending on the context. Annotate the content inside the parenthetical as much as you can, as you would for the content inside any other phrases.

만약 태레어서 태레 무전망에 있는 무전소들, 악들 등이 두 세 군데나, 동시에 모출가락인 여인 모출태호를 사용하는 가?

(S (S (ADVP 만약/ADV)
  (NP-ADV 태레/NNC+에서/PAD)
  (NP-SBJ *pro*)
  (VP (NP-OBJ (S (WHNP-1 *op*)
         (S (NP-SBJ *T*-1)
           (ADJP (NP-COMP 태레/NNC
                     무전망/NNC+에/PAD)
                   없/VJ+는/EAN))))
    (NP 무전소/NNC+들/PCA))
  (VP (PRN ,/SCM
        (S (NP-SBJ *pro*)

./SFN)}
When a parenthetical occurs with a noun, represent it as the sister of the noun it is associated with.

마지막으로 정치보위부에는 보위 지도원 (소좌) 1명이 있답.

19.2 Lists

Letters and numerals which identify items in a list, and their surrounding punctuation, are labeled as LST. The list marker is represented as the sister of the phrase it precedes. In particular, when the enumerated items are listed in one sentence, they are conjoined.
(ADJP (NP-COMP 닥 /NNC+[var]/PAD)
    간 /VJ+[var]/EFN))

; /SSY

(S (LST -LRB-/SLQ 1 -RRB-/SRQ)
  (S (S (NP-SBJ *[pro]*)
      (VP (NP-COMP (NP 전연/NNC+의/PCA)
            (NP 우방/NNC 지역/NNC+의/PAD))
      (VV 참투/NNC+의/XSV+의/PCS)))
  (S (NP-SBJ *[pro]*)
      (VP (NP-OBJ (NP 직/NNC+의/PCA
                    지위/NNC))
      (ADCP 및 /ADG)
      (NP 동선망/NNC+을/PCA))
      (VV 막박/NNC+의/XSV+을/EFN))))))

; /SSY

(S (LST -LRB-/SLQ 2 -RRB-/SRQ)
  (S (NP-ADV (S (NP-SBJ *[pro]*)
      (VP (NP-OBJ 굳 /NNC
            시설/NNC+을/PCA)
      (VV 숨견/NNC
            막변/NNC+의/XSV+을 /ENM+으로 /ECS)))))
  (S (NP-SBJ *[pro]*)
      (VP (NP-OBJ (NP 직/NNC+의/PCA)
      (NP 우방/NNC+을/PCA))
      (VV 고단/NNC+의/XSV+을/EFN))))))

; /SSY

(S (LST -LRB-/SLQ 3 -RRB-/SRQ)
  (S (S (NP-SBJ *[pro]*)
      (VP (NP-ADV 군 /DAN
            우방/NNC
            지역/NNC+의/PAD))
      (VP (NP-OBJ 직/XPF+2/NNU
            전선/NNC+을/PCA))
      (VV 형성/NNC+의/XSV+의/PCS)))
  (S (NP-SBJ *[pro]*)
      (VP (NP-ADV 직/NNC+의/계/PCA)
      (VP (NP-OBJ 전우방/NNC
            양인/NNC
            전투/NNC+을/PCA))
      (VV 강요 /NNC+의/XSV+을 /EFN))))))

./SFN)
20 Empty Categories

20.1 Empty argument

Dropped arguments are represented as *pro* and labeled as NP with the appropriate function tag.

우전망을 뜯어내 운용하는가?

(S (NP-SBJ *pro*)
 (VP (NP-OBJ 우전망/NCC+을/PCA)
  (VP (NP-ADV 및/NNU 간/NNX+나/PAU)
   (VP (VV 운용/NNC+되/XSV+는 가/EFN))))

?/SFN)

여전방 12시에 발았음을니다.

(S (NP-SBJ *pro*)
 (VP (NP-ADV 여전방/NNC)
  (NP-ADV 12/NNU  시/NNX+때/PAU)
 (VP (NP-OBJ *pro*)
   발/VV+었/EPF+습 니다/EFN)))

./SFN)

20.2 Trace

When an argument constituent is fronted before the subject, it leaves a trace *T* which is labeled as NP (or S in some cases) with an appropriate function tag and this trace is coindexed with the fronted element.

수신기를 유리한가끔 손절한다.

(S (NP-OBJ-1 수신기/NNC+을/PAU)
 (S (NP-SBJ 유리/NNPN+는/PAU)
  (VP (NP-OBJ *T*-1)
   (VP (ADVP 가끔/ADV)
    (VP (VV 손절/NNC+되/XSV+ㄴ 니다/EFN)))))

./SFN)

Argument relative clauses also contain a trace *T* (see §20.3).

20.3 Empty operator

Relative clauses are indicated with an empty operator *op* which is labeled as WHNP. When an argument has been relativized, the empty operator is coindexed with the gap in the clause which is semantically associated with the head noun. The gap in the relative clause is represented as *T* and is labeled as NP with the appropriate function tag.
When an adjunct has been relativized, there is no coindexation between the empty operator and the adjunct gap in the relative clause.

그 무전기가 고장난 원인이 무엇인가?

20.4 Predicate deletion

Predicate deletion occurs in coordinated constructions. The deleted predicate is represented as *?* and is labeled with an appropriate head level or phrase level tag, e.g., VV, VJ, and VP.

20.4.1 Verb deletion

The deleted verb is annotated as (VV *??*).

크기는 가토가 42센티, 눈이는 7센티, 세토가 42센티 정도니다.
20.4.2 VP deletion

The deleted VP is annotated as (VP *?*).

대퇴 지위말은 기본 주락수 46.54 매개행목에서, 시거 지위말은 기본 주락수 47.36 매개행목에서 응용되고 있음을 달.

(S (S (NP-SBJ 대퇴/NNC 지위말/NNC+은/PAU)
  (VP (NP-ADV 기본/NNC 주락수/NNC
      46.54/NNU 매개행목/NNX+예서/PAD)
    (VP *?*))
  ),/SCM
(S (NP-SBJ 시거/NNC 지위말/NNC+은/PAU)
  (VP (NP-ADV 기본/NNC 주락수/NNC
      47.36/NNU 매개행목/NNX+예서/PAD)
    (VP (VV 응용/NNC+의/XSV+고/EAU))
  )
  ),/SFN
)./SFN)

20.4.3 VX deletion

When a sentence contains clauses that are coordinated and only the second clause has an auxiliary verb that takes scope over the entire coordinated clauses, annotate the sentence as S coordination and treat the first clause as having a VX deletion.

철수는 밥을 먹고 손의는 물을 마시고 있었다.

(S (S (NP-SBJ 철수/NPR+는/PAU)
  (VP (NP-OBJ 밥/NNC+을/PCA)
    음/VV+고/ECS)
  )
  ),/SFN
(S (NP-SBJ 손의/NPR+는/PAU)
  (VP (NP-OBJ 물/NNC+을/PCA)
    마시/VV+고/ECS)
  )
  ),/SFN
)./SFN)

20.4.4 Copula deletion

In coordinate copular sentences, the copula can be deleted. In such cases, put vacuous VP around the predicative noun to mark predication.

중기 종대는 "갑산 21," 박격포 종대는 "갑산 22," 그리고 백병종포 소대는 "갑산 23"임니다.

(S (S (NP-SBJ 중기/NNC 종대/NNC+은/PAU)
  (VP "*/SLQ
    (NP 갑산/NPR 21/NNU)
21 Punctuation

Punctuation markers are not given a phrase level tag, and they attach to the highest level possible.

21.1 Mid-sentence punctuation

21.1.1 Quotation

Quotation markers are siblings of the constituent they surround. For instance, if an NP is surrounded by a quotation marker and it is a daughter of a VP, then the quotation markers are also daughters of the same VP.

왜 ‘‘미혹산 1이 있답’’ 고 하지?

(S (NP-SBJ *pro*)
 (VP (ADVP 왜/ADV)
  (VP (S-COMP (NP-SBJ *pro*)
   (VP "*/SLQ
    (NP 미혹산/NPR
     1/NNU+의/CO+없/EPF+담/EFN)
    "*/SRQ
     이/CO+담/EFN))
   */SFN)
 ?/SFN)

Sometimes the content of the quotation markers form a constituent only by virtue of their presence. In this case, place a phrase level tag outside of the quotation markers, as in the following example:

‘‘전체 들을 것, 역기는’’ 어림개 말하구

(S (NP-SBJ *pro*)
 (VP (NP-ADV "*/SLQ
21.1.2 Comma

Commas are siblings of the constituent they follow. For example, if a comma follows an adverb adjoined to an S, it attaches to the same S.

그럼, 계속 해 보자.

(S (ADCP 그림/ADC)
 ,/SCM
 (S (NP-SBJ *pro*)
  (VP (VP (VV 계속/NNC+ 의/XSV+ 의/EAU)
  보/VX+ 지/EFN))
  ./SFN)

If a comma follows a noun that is adjoined to an NP, it attaches to the same NP.

총선 기, 수선 기, 안전약, 그런 정도지요.

(S (NP-SBJ *pro*)
 (VP (NP (NP 총선 기/NNC)
  ,/SCM
 (NP 수선 기/NNC)
  ,/SCM
 (NP 안전약/NNC)
  ,/SCM
 (NP 그린/DAN
 정도/NNC+ 의/CD+ 지요/EFN))
  ./SFN)

21.2 Sentence-final punctuation

A sentence-final punctuation is a child of the highest level S label of the sentence.

축전지 재고도 충분히 있는가?

(S (NP-SBJ 축전지/NNC
 재고/NNC+ 도/PAU)
 (ADJP (ADVP 충분히/ADV))
(ADJP 을/VJ+는 /EFN))
?/SFN)

축전적 제고도 충분이 있다.

(S (NP–SBJ 축전적/NNC
제고/NNC+도 /PAU)
(ADJP (ADVP 충분적/ADV)
(ADJP 을/VJ+는 /EFN))
./SFN)

22 Ambiguity

22.1 Adverb adjunction to S or VP

If a sentence has an empty subject and an adverb preceding the VP, in principle, the adverb can
adjoin to S, or to VP. In this case, the default rule is to adjoin the adverb to the VP, rather than
to the S.

그때_blue 가 한 일을 순서대로 설명하다.

(S (NP–SBJ *pro*)
 (VP (NP–ADV 그때/NNC)
  (VP (NP–OBJ (S (WHNP–1 *op*)
   (S (NP–SBJ 는/NPN+ 이/PCA)
    (VP (NP–OBJ *T*–1)
  악/VV+시 /EAN))))
  (NP 일/NNC+을 /PCA))
  (VP (NP–ADV 순 /NNC+테크토 /PAD)
   (VP (VV 실행/NNC+악/XSV+가/VF)))))
./SFN)

However, when the annotator has a strong intuition that the adverb takes the S as its scope,
adjoin it to S.

우선 부 đề 규정악어말는 과목에선 무엇을 가르치는가?

(S (ADVP 우선/ADV)
 (S (NP–SBJ *pro*)
  (VP (NP–ADV (S (WHNP–1 *op*)
   (S (NP–SBJ *T*–1)
    (VP (NP 부대/NNC
  규정악/NNC+의/CO+가/VF는 /EAN)))))
  (NP 과목/NNC+의/PAU+)
  (VP (NP–OBJ 무엇/NPN+을 /PCA)
   가르치/VV+는 /EFN))))
?/SFN)
When a sentence has an empty subject with an adverb tagged as ADC, the adverb is adjoined to the S instead of the VP.

그러므로 가기 전부 몇 명의 남 있었는지 그것 조차 모르겠습니다.

(S (ADCP 그라모/ADC)
  (S (NP-SBJ *pro*)
    (VP (NP-OBJ (S (NP-COMP-1 '가/NPN+어/PA)
             (S (NP-SBJ 학생/NNC+의/PCA)
               (ADJP (ADVP 전부/ADV)
                 (NP-ADV 및/NNU 영/NNX+이/PAU)
                 (ADJP (NP-COMP *T*-1)
                   (VJ/었/EPF+는지/ECS)))))
             (NP 그/가/NPN+조차/PAU))
           모/또/VV+결/EPF+습/나/다/EFS))(SFN))
./SFN)

22.2 Object scrambling or not

In a sentence with an empty subject, an object NP that appears in the beginning of a sentence with a topic marker ‘-는’ is by default treated as in-situ, i.e., not treated as a moved element.

토목 도목 보조석 로판은 어떤 목표에 사격할 때 사용하는가?

(S (NP-SBJ *pro*)
  (VP (NP-OBJ 토목/NNC
        소목/NNC+식/XSF
        로판/NNC+은/PAU)
   (VP (NP-ADV (S (WHNP *op*)
                (S (NP-SBJ *pro*)
                  (VP (NP-COMP 어떤/DAN
                       목표/NNC+의/PA)
                   (NP 독/NNC)
                   (VP (VV 사격/NNC+의/XSV+이/EAN))))))
             (NP 독/NNC))
           (VP (VV 사격/NNC+의/XSV+는 가/EFN))))))
?/SFN)

However, this is not a hard-cast rule. When the annotator has a clear intuition that the object NP should be treated as a moved element, annotate accordingly.

목표 지뢰句子는 가독 헥서 보고할 필요가 없지.

(S (NP-OBJ-1 목표/NNC
       지뢰句子/NNC+은/PAU)
  (S (NP-SBJ (S (NP-SBJ *pro*)
               (VP (VP (NP-OBJ *T*-1)
                  (VV (VV 가독/NNC+의/XSV+이/시/ECS)
22.3 Overt subject or pro

When an overt NP subject is followed by two VP's, and it is possible to assign a pro NP for either VP, we parse incrementally from left to right, assigning a pro NP subject for the second VP.

학생들은 중력 규모의 구분대로 편성에서 주로 안외에서 운전을 실시합니다.

(S (S (NP-SBJ 학생/NNC+을/XSF+은/PAU) (VP (NP-ADV 중력/NNC 구분/NNC+의/PCA) (VP (VV 편성/NNC+에서/XSV+의시/ECN)) (S (NP-SBJ *pro*) (VP (ADVP 주도/ADV) (NP-ADV 야외/NNC+에서/PAAD) (VP (NP-OBJ 운전/NNC+을/PCA) (VP (VV 실시/NNC+에서/XSV+의시/ECN))))))}

However, this is just a guideline to be followed when the annotator is in doubt. There are many cases where this incremental parsing principle does not apply, including when the first VP is part of a complex NP, a relative clause, or an adverbial clause.

내일 적외들은 생물학 전식의 포병 작전에 대한 운전을 합니다.

(S (NP-ADV 내일/NNC) (S (NP-SBJ 적외/NPN+을/XSF+은/PAU) (VP (NP-OBJ (S (NP-SBJ *pro*) (VP (NP-COMP (NP 생물학/NNC 전식/NNC+의/PCA) (NP 포병/NNC 작전/NNC+에/PAAD)) 야외/VV+에/EAN)) (NP 운전/NNC+을/PCA)) 야외/VV+에/EAN))}

탱크 부대는 패주하는 적을 추격할 때는 어떤 탱크를 사용합니까?

(S (NP-SBJ 탱크/NNC 부대/NNC+는/PAU) (VP (NP-ADV (S (NP-SBJ *pro*) (VP (NP-OBJ (S (WHNP-1 *op*) (VP (NP-OBJ (S (NP-SBJ *T*-1)

59
22.4 Complement or not

For certain predicates such as ‘있었다’ that can be analyzed as either having a complement or not, go for an analysis with no complement, unless otherwise suggested by context.

For example, in the following sentence, the clause headed by ‘수고’ can in principle be treated either as a complement of the verb ‘있었다’ with an empty subject, or simply as a sentential subject. In such cases, go for the simpler analysis of analyzing it as a sentential subject.

우리가 가지고 있는 지도가 부정확해서 그 지점을 찾을 수 없었다.

(S (S (NP-SBJ (S (S WHNP-1 *op*)
    (S (NP-SBJ 수고/NPN+ γ/PCA)
        (VP (VP (NP-OBJ *T*-1)
            가져/VV+의/EAN)
            없/VX+는/EAN))
        (NP 지도/NNC+ γ/PCA))
    (ADJP (VJ 부정확/NNC+ 하/XSV+는/ECS)))
(S (NP-SBJ (S (NP-SBJ *pro*)))
    (VP (NP-OBJ 수고/DAN 지점/NNC+을/PCA)
        찾/VV+을/EAN))
    (NP 수고/NNX))
(ADJP 없/VJ+있었다/EFN))
./SFN)

22.5 Trace of the scrambled object before or after an adverb

When an object or a complement is scrambled out of a VP which is modified by an adverb, the trace can in principle be put before or after the adverb. In such cases, put the trace immediately preceding the verb, unless otherwise indicated by context.

1 개 밥먹고 잡혀가 있더니 걸 직는 분명이 않았다.

(S (NP-OBJ-1 (S (NP-SBJ 1/NNU
    곱/NNX
    밥먹고/NNC
    잡혀가/NNC+ 하/PCA)
    (ADJP 없/VJ+있으니/EAN)))
    (NP 수고/NNX+은/EAN))
(S (NP-SBJ 수고/NPN+는/PAU))
There is an exception to this guideline. Some adverbs normally come immediately before the verb. In such cases, the trace of the scrambled object is placed before the adverb.

23 Confusing Examples

This section lists a number of specific examples with the corresponding annotation as a reference guide.

23.1 ‘밀으므로 맛다’

In this case, ‘맛다’ is treated as a light verb, and ‘밀으므로’ is treated as the base noun of the light verb. Together, they form a predicate.

23.2 ‘-뿐만 아니라’

‘-만’ is treated as the subject of ‘아니라’. That is, ‘아니라’ is intransitive adjective in this case.
23.3 ‘-복에 안 되막’, ‘-복에 모든막’

The NP with the postposition ‘-복에’ is treated as an adverbial element tagged with -ADV, and the presence of an empty NP complement is assumed.

(S (NP-VOC 급/NPR
특무장/NNC)
,SCM
(S NP-SBJ *pro*)
  (VP (ADVP 악가/ADV)
  (VP (S-COMP (NP-SBJ (NP 석탄/NNC 선병/NNC 교육/NNC 중대/NNC)
  (NP 운전/NNC 기관/NNC+의/PCA)))
  (VP (NP-ADV 1/NNU 개월/NNX+말여/PAU))
  (VP (NP-COMP *pro*))
  (VP (ADVP 안/ADV)
  (VP 되/VV+담고/ECS))))

 recomposed/VV+/EfN+)
./SFN)

23.4 ‘되막’

In general, this verb is analyzed as a double nominative verb that takes a subject and a complement NP as in ‘계절이 봄이 되막.’ However, in some cases it is treated as an intransitive verb, having only a subject as in ‘바로 막 되막.’

23.5 *pro* NP subjects with no referent

In many sentences, it is not clear what the *pro* NP subjects are supposed to refer to. This situation occurs particularly often in constructions involving copulas. These *pro* NPs should nevertheless be represented in an appropriate position.

연체 다태가 집합 지역에서 공격 출발 전지토 접적 행군을 개시할 애정인가?

(S (NP-SBJ *pro*)
  (VP (NP (S (NP-ADV 연재/NPN)
  (S (NP-SBJ 대대/NNC+의/PCA)
  (VP (NP-ADV 집합/NNC 지하/NNC+예시/PAE)
  (NP-ADV 공격/NNC 출발/NNC 전지/NNC+포/PAE))
  (VP (NP-OBJ 접적/NNC 행군/NNC+을/PCA)

./SFN)

62
(VV 계획/NNC+의/XSV+은 /EAN)))
(NP 계획/NNC+의/CO+을 /가 /EFN)))
?/SFN)

통신소는 언제 습격할 계획이었는가?

(S (NP-SBJ *pro*)
  (VP (NP (S (NP-SBJ *pro*)
    (VP (NP-OBJ 통신소/NNC+는/PAU)
      (VP (NP-ADV 언제/NPN)
        (VP (VV 습격/NNC+의/XSV+은 /EAN))))
      (NP 계획/NNC+의/CO+을 /EPF+을 /가 /EFN)))
  ?/SFN)

23.6 ‘N-에서 N’

In general, ‘N-에서’ should project to an NP and attach to a VP. But there are cases in which it should be grouped together with another NP and attach to an NP.

6시에서 6시 30분 사이에, 즉 태태가 공격 준비 사격을 하는 동안이지요.

(S (NP-ADV (NP 6/NNU 시/NNX+에서/PAD)
  (NP 6/NNU 시/NNX 30/NNU 분/NNX))
  (NP 사이/NNC+에/PAU)))
, /SCM
(ADCP 죽/ADC)
(S (NP-SBJ *pro*)
  (VP (NP (S (NP-SBJ 태태/NNC+한 /PCA)
    (VP (NP-OBJ 공격/NNC 준비/NNX 사격/NNC+을/PAU)
      (VV 습격/NNC+을 /EAN))))
    (NP 동안/NNX+의/CO+한 /요 /EFN))))
./SFN)

23.7 ‘N-PAD+PCA’

Function tags for nouns that have an adverbial postposition in conjunction with a case postposition are determined by their grammatical functions within the sentence. For instance, in the example below, ‘역기에서부터’ has both adverbial postposition and a nominative case postposition, and it has the function tag -SBJ since it functions as the subject of the whole sentence.

역기에서부터 가지 문제이다.

(S (NP-SBJ 역기/NPN+에서부터/PAD+한 /PCA)
  (VP (NP 문제/NNC+의/CO+한 /EFN)))
./SFN)
23.8 ‘N-PAD N-PAD’

A noun with an adverbial postposition can occur with another noun with an adverbial postposition to project an NP. In such cases, adverbial postpositions on the two nouns have cooccurrence restrictions and the second noun usually has a case postposition in addition to an adverbial postposition. For instance, a noun with the adverbial postposition ‘-에서 부터’ (from) can cooccur with another noun with an adverbial postposition and a nominative case postposition ‘-까지 가’ (to-Nom). In such examples, the first noun is bracketed as NP and adjoins onto the second noun bracketed as NP. The two NPs do not have a function tag, and only the NP to which the two NPs attach has an appropriate function tag.

학교에서부터 집까지 가 문제이다.

(S (NP-SBJ 학교/NNC+에서 부터/PAD) (NP 집/NNC+까지/PAD+가/PCA))
    (VP (NP 문제/NNC+이/CO+십/EFN))
./SFN)

Some examples of adverbial postpositions that are subject to such cooccurrence restrictions include:

NP-에서 NP-로
NP-에서 NP-까지
NP-부터 NP-까지
NP-부터 NP-로
NP-에서 NP-에도의
NP-에서 NP-에도

Note that these pairs of nouns are grouped together as an NP only if such analysis is necessary: i.e., when the two nouns form a phrase to function as a subject or an object of a predicate, or the two nouns form a phrase and become a modifier of another NP. Otherwise, the two nouns each project an NP and they both adjoin to a VP.

참수가 학교에서부터 집까지 떠있었다.

(S (NP-SBJ 참수/NPR+가/PCA)
    (VP (NP-ADV 학교/NNC+에서 부터/PAD)
        (NP-ADV 집/NNC+까지/PAD)
        (VP 떠있다/VV+있다/EFP+십/EFN))
./SFN)

23.9 Fragments

NP fragments do not have function tags.

"할까" 할까요?

(S (NP "할까"/ADV+할지/PAD)
 Coordination of a noun and a Sino-Korean verb with ‘억’
Treat examples such as ‘차의 통솔 안하다’ or ‘속객 피하한다’ as VV-level coordination.

In this rather colloquial construction, ‘억’ is annotated as an auxiliary verb.

Treat the complex NP in ‘-것만 억하다’ as the object of ‘억하다’.

/SPN)

장식 우에.
(S (NP 장식/NNC 우/NNC+에/PAD)
./SPN)

23.10 Coordination of a noun and a Sino-Korean verb with ‘억’
Treat examples such as ‘차의 통솔 안하다’ or ‘속객 피하한다’ as VV-level coordination.
전근을 지휘 통솔 한다.
(S (NP-SBJ *pro*)
 (VP (NP-OBJ 전/SGN
 근/NNC+을/PCA)
 (VV (VV 지휘/NNC)
 (VV 통솔/NNC+억/RSV+ㄴ/PCA/EFN))
).

23.11 ‘-고 예서’
In this rather colloquial construction, ‘억’ is annotated as an auxiliary verb.

In this rather colloquial construction, ‘억’ is annotated as an auxiliary verb.

 bådeum 예서는 기술도 시간도 없고 예서 축구모의 축구작업은 알 수가 없지요.
(S (NP-ADV '도/NNX+에/PAU)
 (S (NP-SBJ (NP 기술/NNC+도/PAU)
 (NP 시간/NNC+도/PAU))
 (VP (ADJP 없/VJ+고/ECS)
 (억/VX+여서/ECS))
 (S (NP-SBJ (S (NP-SBJ *pro*)
 (VP (NP-OBJ-LV (NP 태극문/NNC+의/PCA)
 (NP 축구/NNC 작/NNC+은/PAU))
 (LV 억/VV+을/EAN))
 (NP 수/NNX+이/PCA))
 (ADJP 없/VJ+이요/EFN))
).

23.12 ‘-것만 억하다’
Treat the complex NP in ‘-것만 억하다’ as the object of ‘억하다’.

너는 목숨이 살만 있던 것만 애도 맘을리다.
(S (S (NP-SBJ ‘/NPN+은/PAU)
 (VP (NP-OBJ (S (NP-SBJ *pro*)
 (VP (NP-COMP 목숨/NNC+의/PCA)
23.13 ‘들vron’

‘들vron’ is tagged as an adverb (ADV) in most cases. But when it occurs with a copula, it is tagged as a common noun (NNC) and is bracketed accordingly.

예, 불구하는 들vron이고 사회 안전연도 제외됩니다.

(S (INTJ 예/IJ) 
 ,/SCM
 (S (S (NP-SBJ 불구 작/NNC+는/PAU) 
 (VP (NP 들vron/NNC+의/CO+고/ECS)))
 (S (NP-SBJ 작히/NNC 안전연/NNC+도/PAU) 
 (VP (VV 제외/NNC+의/XSV+卣니따/EFN))))
 ./SFN)

23.14 ‘작기 스스로’

In ‘작기 스스로’, ‘ 스스로’ is an adverb taking ‘작기’ as a complement NP.

경상작는 작기 스스로 치도 하는 경우가 많지요.

(S (NP-SBJ (S (NP-SBJ 경상 작/NNC+는/PAU) 
 (VP (ADVP (NP-COMP 작기/NPN) 스스로/ADV)
 (VP (NP-OBJ *pro*) 
 (VV 치도/NNC+의/XSV+는/EAN))))
 (NP 경우/NNC+의/PCA))
 (ADJP 당신/VJ+치 요/EFN)
 ./SFN)

23.15 ‘얼막막 뒤다’

‘뒤다’ in ‘얼막막 뒤다’ is a verb requiring a degree argument. It is the same kind of verb as in ‘우전기의 주막수 범위는 3km로 된다.’ In ‘얼막막 뒤다’, there is no NP for degree argument, and instead the adverb ‘얼막막’ seems to assume this role. In such sentences, simply adjoin ‘얼막막’ to the verb, just like any other adverbs.

R-106 우전기의 주막수 범위는 얼막막 되는가?
(S (NP-SBJ (NP R-106/NFW
무진 거/NNC+의/PCA)
(NP 주복수/NNC
범위/NNC+는/PAU))
(VP (ADVP 얼마나/ADV)
(VP 되/VV+는 거/EFN))
/?/SFN)

대태 방어 지역의 중심은 보통 얼마나 되는 거?

(S (NP-SBJ (NP 대태/NNC 방어/NNC 지역/NNC+의/PCA)
(NP 중심/NNC+은/PAU))
(VP (ADVP 보통/ADV)
(ADVP 얼마나/ADV)
(VP 되/VV+는 거/EFN))
/?/SFN)

67
## A Summary of the Penn Korean Treebank Part-of-Speech Tagset

### A.1 Content Tags

<table>
<thead>
<tr>
<th>Category</th>
<th>Tag Description</th>
<th>Tag Label</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>noun</td>
<td>proper noun</td>
<td>NPR</td>
<td>한국 (Korea), 클린턴 (Clinton)</td>
</tr>
<tr>
<td>common noun</td>
<td>NNC</td>
<td></td>
<td>학교 (school), 컴퓨터 (computer)</td>
</tr>
<tr>
<td>dependent noun</td>
<td>NNX</td>
<td></td>
<td>것 (thing), 등 (etc), 년 (year), 달러 (dollar), 적 (situation)</td>
</tr>
<tr>
<td>pronoun, demonstrative</td>
<td>NPN</td>
<td></td>
<td>그 (he), 이 (this), 무엇 (what)</td>
</tr>
<tr>
<td>ordinal, cardinal, numeral</td>
<td>NNU</td>
<td></td>
<td>하나 (one), 첫째 (first), 1, 세 (three)</td>
</tr>
<tr>
<td>words written in foreign characters</td>
<td>NFW</td>
<td></td>
<td>Clinton, computer</td>
</tr>
<tr>
<td>predicate</td>
<td>verb</td>
<td>VV</td>
<td>가 (go), 읽 (eat)</td>
</tr>
<tr>
<td>adjective</td>
<td>VJ</td>
<td></td>
<td>예쁘 (pretty), 다른 (different)</td>
</tr>
<tr>
<td>auxiliary predicate</td>
<td>VX</td>
<td></td>
<td>있 (present progressive), 안 (must)</td>
</tr>
<tr>
<td>adverb</td>
<td>constituent adverb, clausal adverb</td>
<td>ADV</td>
<td>매우 (very), 조금 더 (quietly), 정상 (please), 만일 (if)</td>
</tr>
<tr>
<td>conjunctive adverb</td>
<td>ADC</td>
<td></td>
<td>그 리고 (and), 그 리나 (but, however), 또는 (or)</td>
</tr>
<tr>
<td>adnominal</td>
<td>configurative, demonstrative</td>
<td>DAN</td>
<td>새 (new), 된 (old), 에 (that)</td>
</tr>
<tr>
<td>interjection</td>
<td>exclamation</td>
<td>IJ</td>
<td>야 (ah)</td>
</tr>
<tr>
<td>list</td>
<td>list marker</td>
<td>LST</td>
<td>a, (b), 1, 2.3.1, 가, 나</td>
</tr>
</tbody>
</table>
### A.2 Function Tags

<table>
<thead>
<tr>
<th>Category</th>
<th>Tag Description</th>
<th>Tag Label</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>adverbial</td>
<td>PAD</td>
<td></td>
<td>염/서 (from), 도 (to)</td>
</tr>
<tr>
<td>conjunctive</td>
<td>PCJ</td>
<td></td>
<td>와/와, 하/가 (and)</td>
</tr>
<tr>
<td>auxiliary</td>
<td>PAU</td>
<td></td>
<td>만 (only), 도 (also), 돼 (topic), 막쳐 (even)</td>
</tr>
<tr>
<td>copula</td>
<td>CO</td>
<td></td>
<td>이 (be)</td>
</tr>
<tr>
<td>ending</td>
<td>final</td>
<td>EFN</td>
<td>은/는 (declarative), 는, 는, 는/는 (interrogative), 여/들/다 (imperative), 가 (propositive), 구/남 (exclamatory)</td>
</tr>
<tr>
<td>coordinate, subordi-</td>
<td>coordinate, sub-</td>
<td>ECS</td>
<td>고 (and), 보/보/보 (because), 재 (attaches to adjectives to derive adverbs), 다고 (that), 라고 (that)</td>
</tr>
<tr>
<td>nate, adverbial,</td>
<td>complementizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>auxiliary</td>
<td>EAU</td>
<td></td>
<td>약, ≪, ≪, 고 (on verbs or adjectives that immediately precede auxiliary predicates)</td>
</tr>
<tr>
<td>adnominal</td>
<td>EAN</td>
<td></td>
<td>은/는 (on main verbs or adjectives in relative clauses or complement clauses of a complex NP)</td>
</tr>
<tr>
<td>nominal</td>
<td>ENM</td>
<td></td>
<td>≪, 은 (on nominalized verb)</td>
</tr>
<tr>
<td>pre-final ending</td>
<td>EPT</td>
<td></td>
<td>것을 (past), 쉬 (honoriific), 쿠/고 (future)</td>
</tr>
<tr>
<td>(tense, honorific)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>affix</td>
<td>suffix</td>
<td>XSF</td>
<td>놓다, 들다, 적다</td>
</tr>
<tr>
<td></td>
<td>prefix</td>
<td>XPF</td>
<td>채, 꽔, 써</td>
</tr>
<tr>
<td>verbalization suffix</td>
<td>XSV</td>
<td></td>
<td>맞다, 되다, 싶다</td>
</tr>
<tr>
<td>adjectivization suffix</td>
<td>XSJ</td>
<td></td>
<td>소이다, 었다, 각다</td>
</tr>
</tbody>
</table>

### A.3 Symbols

<table>
<thead>
<tr>
<th>Category</th>
<th>Tag Description</th>
<th>Tag Label</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>comma</td>
<td>SCM</td>
<td></td>
<td>,</td>
</tr>
<tr>
<td>termination</td>
<td>sentence ending</td>
<td>SFN</td>
<td>. ? !</td>
</tr>
<tr>
<td>markers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>left quotation mark</td>
<td>SLQ</td>
<td>‘ “ left bracktets</td>
<td></td>
</tr>
<tr>
<td>right quotation mark</td>
<td>SRQ</td>
<td>’ ” right brackets</td>
<td></td>
</tr>
<tr>
<td>symbols</td>
<td>others</td>
<td>SSY</td>
<td>... ; : -</td>
</tr>
</tbody>
</table>

69