

# Verb Cluster, Non-Projectivity, and Syntax-Topology Interface in Korean

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## Abstract

We describe the non-projectivity phenomenon in Korean, based on the notion of verb cluster, a cohesive topological constituent, which appears in a syntax-topology interface, within the framework of the topological dependency grammar – the first topological modeling for this language.

### ① Extraction and Placement of Verbs

**Korean** : verb final language with a relatively free order for verbal dependents

#### Placement of verbs:

► in the case of declarative sentences without extraction

- (1) a. 영이가 시골에 엄마 차를 타고 갔다  
 Yeongi-ka sigol-e eomma cha-leul ta-ko ka-ss-da  
 Yeongi-NOM country-LOC mother car-ACC take-VM go-P-DEC  
 'Yeongi went to the countryside taking her mother's car'
- b. 영이가 엄마 차를 타고 시골에 갔다  
 Yeongi-ka eomma cha-leul ta-ko sigol-e ka-ss-da  
 Yeongi-NOM mother car-ACC take-VM country-LOC go-P-DEC  
 'Yeongi went to the countryside taking her mother's car'

► in the case of extraction

- (2) a. [영이가 시골에 타고 간 ] 엄마 차는 검은색이다  
 Yeongi-ka sigol-e ta-ko ka-n eomma cha-neun keomeunsaek-i-da  
 Yeongi-NOM country-LOC take-VM go-REL mother car-TOP black-C-DEC  
 'the mother's car that Yeongi took for going to the countryside is black'
- b. ?\* [영이가 타고 시골에 간 ] 엄마 차는 검은색이다  
 Yeongi-ka ta-ko sigol-e ka-n eomma cha-neun keomeunsaek-i-da  
 Yeongi-NOM take-VM country-LOC go-REL mother car-TOP black-C-DEC  
 'the mother's car that Yeongi took for going to the countryside is black'

**Correlation** between **extraction** and **constraints on the placement of verbs**

### ② Topological Approach

How can we account for the phenomenon presented above ?

→ Proposition of being placed in a **topological approach** in which function and constituency are separately represented

#### Basic idea of the topological model

« placing an element in linear order means creating topological constituents; each topological constituent is internally organized as a sequence of fields which can in turn host topological constituents and so forth » (Gerdes & Kahane 2007)

#### Organization of the topological structure for Korean

- **Macro-domain** having three fields (the pre-kernel, kernel and post-kernel fields); the pre-kernel and post-kernel fields for detached elements
- **Micro-domain** having two fields (the principal and head fields) for elements in « proper » syntactic level
- **Verb cluster**, a cohesive topological constituent, having four fields (Dep-V, ADV, NEG, V)

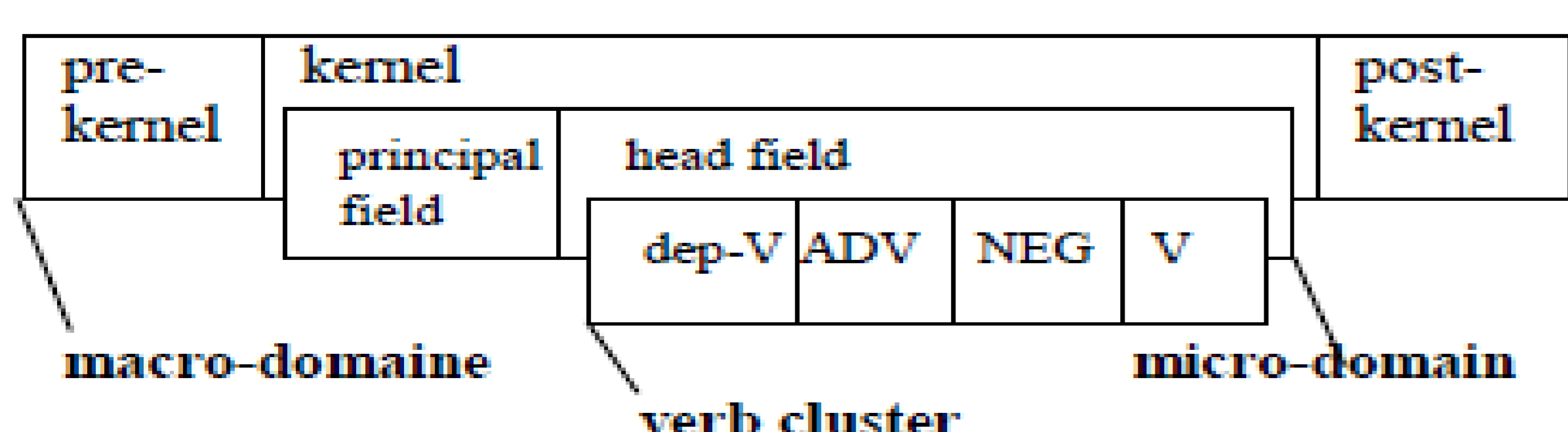


Fig. 1. Three embedded levels of the topological structure in Korean

### ③ Syntax-Topology Interface of the Example (1b)

Description of the correspondence from the dependency tree below, using our correspondence rules and box creation rules of the topological dependency grammar for Korean (cf. Chun 2013)

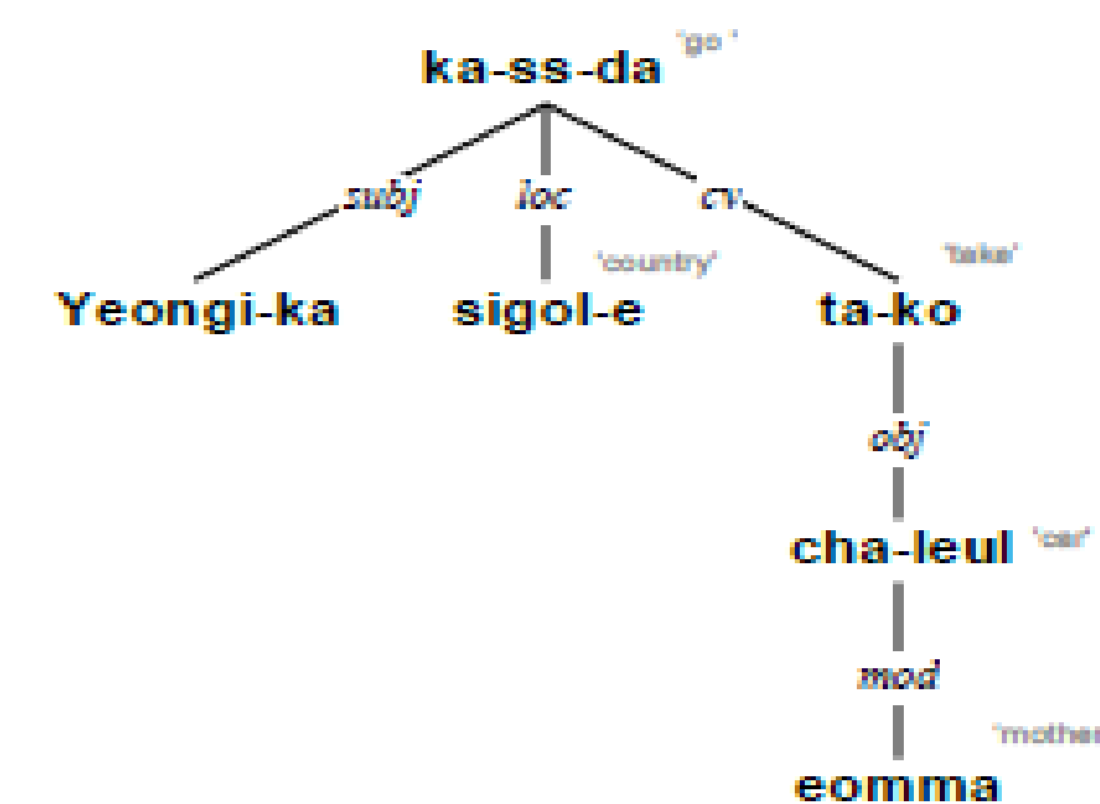


Fig. 2. Dependency tree of the example (1)

The dependent verb *ta-ko* 'take' with its nominal dependent *eomma cha-leul* 'mother's car' in the principal field in terms of the communicative structure, instead of staying with its governor *ka-ss-da* 'go' in the verb cluster:

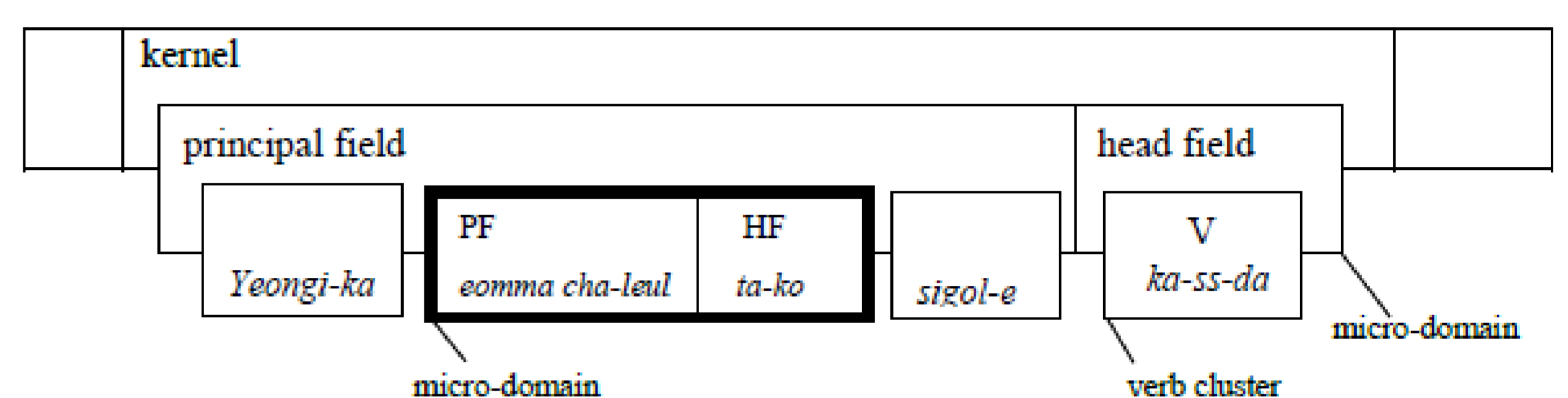


Fig. 3. Topological structure of the example (1b)

### ④ Syntax-Topology Interface of the Example (2a)

#### Order rules in the case of extraction

- 1) Only a dependent of the main verb can be extracted, but this main verb can be a verbal complex;
- 2) The verbal complex has to form a verb cluster

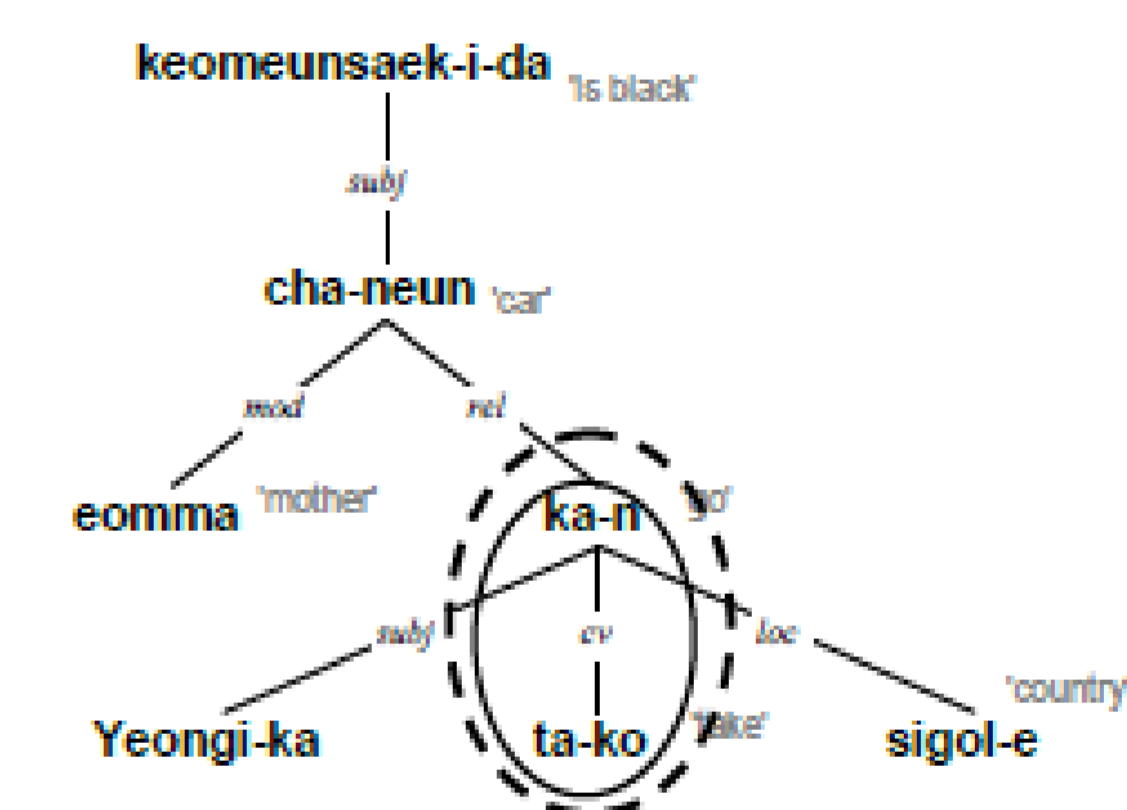


Fig. 4. Dependency tree of the example (2a) with a dotted oval representing a verbal complex

*ta-ko* 'take' has to be placed in the dep-V field of the verb cluster opened by its governor *ka-n* 'go', instead of creating an independent constituent:

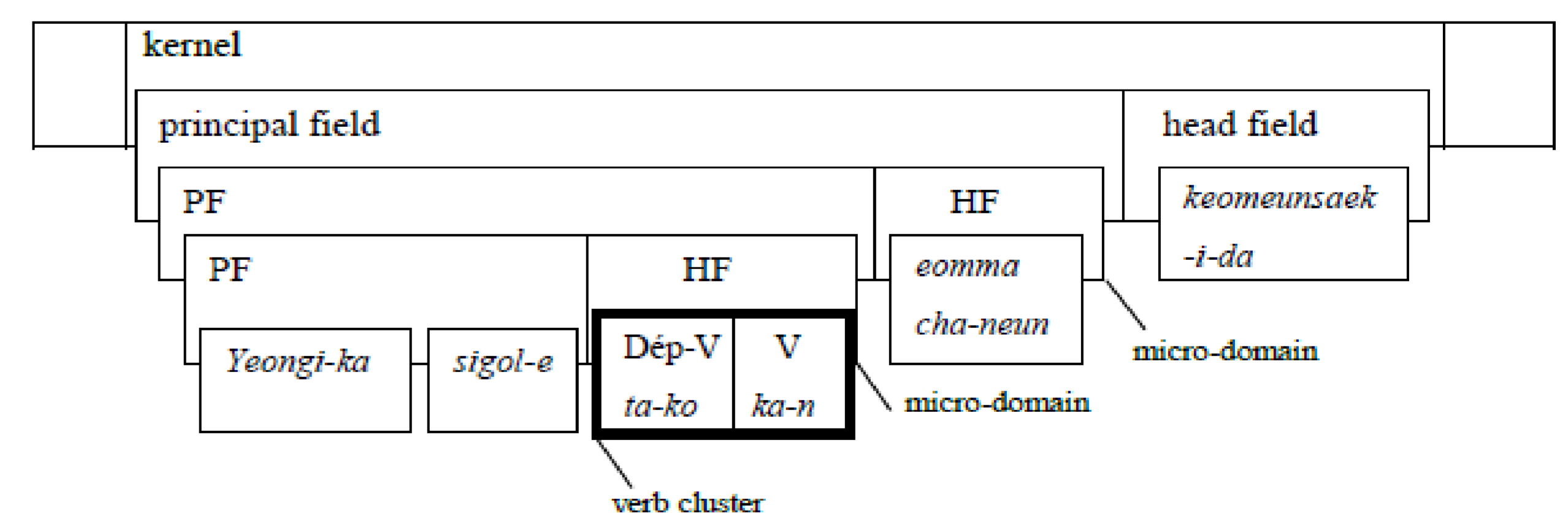


Fig. 5. Topological structure of the example (2a)

※ In the case where the two verbs in a verbal complex **do not form** a verb cluster: other possible linearization such as (2b), which is not natural, rather ungrammatical

## Conclusion

We have shown that the notion of verb cluster is useful to describe non-projectivity phenomena. This is described in the framework of the topological dependency grammar, a simple modeling of Korean word order.