



On the source of displacement: two meanings of embedded CPs

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Abstract

This paper provides an argument for the view that the source of displacement in attitude and speech reports is within the embedded clause (Kratzer 2006, Anand and Hacquard 2008, Moulton 2009, Bogal-Allbritten 2016, Elliott 2020a). The main empirical observations come from examining Korean clauses that combine with nouns like *opinion* (content nouns, Cont-NPs) and clauses that combine with nouns like *situation* (situation nouns, Sit-NPs). I argue that embedded CPs that combine with these nouns (i) are nominal modifiers, and (ii) only sentences with Cont-CPs involve *displacement*—shift of evaluation of the embedded proposition to a set of situations determined by the noun. I argue that Cont-CPs being modifiers implies that these clauses must be the source of displacement, and propose that it is introduced by an overt morpheme—the so-called *declarative marker*, which we see in the structure of Cont-CPs but not Sit-CPs. Based on data from Buryat, English and Russian, I argue that the two meanings of embedded CPs that we observe in Korean exist in other languages too, and suggest that the cross-linguistic variation in these constructions is morphological in nature. While the syntax and semantics of constructions with Cont-NPs and Sit-NPs are uniform, languages vary in whether they have overt morphology for the Cont head inside the embedded clause.

Keywords Complementation · Attitude reports · Intensionality · Korean · Russian · Buryat

1 Introduction

This paper is concerned with the question of how meanings of sentences with embedded finite clauses are built compositionally: what is the division of labor between the embedding predicate and the embedded clause—what is their respective semantic

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contribution? Meanings of many sentences with embedded clauses involve *displacement* (Hockett 1960; von Stechow 1997–2020): the embedded proposition is not evaluated at the same situation as the predicates in the matrix clause, but its evaluation is “shifted” to the situations/worlds determined by the embedding predicate. For example, in (1) the proposition contributed by the embedded clause is evaluated in situations *reflective of Mitya’s beliefs*.

- (1) Mitya’s **belief** [that the squirrel ate the nuts] is mistaken.
 $\sim$ According to what Mitya believes, the squirrel ate the nuts.

A compositional question arises: which element in sentences like (1) contributes displacement? A common view is that displacement is contributed by the embedding predicate: by verbs in sentences with verbs (e.g., Hintikka 1969, a.o.), and by nouns in constructions like (1) (e.g., Djärv 2019, a.o.). An alternative view proposed in the literature is that the embedded clause contains the source of displacement (Kratzer 2006, 2016; Anand and Hacquard 2008; Moulton 2009, 2015; Deal 2014, 2020; Bogal-Allbritten 2016, 2017; Elliott 2020a; Bondarenko 2022, a.o.). Below I sketch how the two approaches would analyze the noun and the CP in (1), under the assumption that displacement involves quantification over situations.

- (2) *The noun as the source of displacement*
- a. $\llbracket \text{belief} \rrbracket =$
 $\lambda p. \lambda x. \text{belief}(x) \wedge \forall s' [s' \text{ is compatible with the content of } x \rightarrow p(s')=1]$
 - b. $\llbracket \text{that the squirrel ate the nuts} \rrbracket = \lambda s. \text{the squirrel ate the nuts in } s$
- (3) *The CP as the source of displacement*
- a. $\llbracket \text{belief} \rrbracket = \lambda x. \text{belief}(x)$
 - b. $\llbracket \text{that the squirrel ate the nuts} \rrbracket = \lambda x. \forall s' [s' \text{ is compatible with the content of } x \rightarrow \text{the squirrel ate the nuts in } s']$

In (2) *belief* takes a proposition and returns a predicate of individuals such that in all situations compatible with their content the proposition is true. In (3) on the other hand *belief* simply denotes a predicate of individuals that are beliefs, and it is the embedded clause that “connects” belief-individuals to the proposition *The squirrel ate the nuts*. One consequence of viewing the embedded CP as the source of displacement is that the embedded clause does not have to be a semantic argument of the noun that it combines with: the CP and the noun in (3) will compose by Predicate Modification.

The goal of this paper is to provide an argument for the general approach in (3), and to make a proposal about the semantic contribution of elements at the left periphery of embedded CPs. The main focus of the paper are Korean embedded clauses that combine with two kinds of nouns: nouns like *uykyen* ‘opinion’ or *cwucang* ‘claim’, which denote predicates of entities with propositional content (henceforth, content nouns or Cont-NPs), and nouns like *sanghwang* ‘situation’ or *kyengwu* ‘case’, which denote predicates of truth-supporting circumstances (henceforth, situation nouns or Sit-NPs). I argue that clauses that combine with content nouns (Cont-CPs) and clauses that combine with situation nouns (Sit-CPs) are both nominal modifiers, but they differ in both their syntactic structure, and in their meaning. I suggest

that the fact that Cont-CPs are modifiers is incompatible with the idea that content nouns introduce displacement, and propose that the structure of Cont-CPs includes a functional head, which I call *Cont*, which introduces displacement. I argue that Sit-CPs lack this syntactic head, explaining the observed differences in structure and meaning between them and Cont-CPs. Thus, the analysis of the two kinds of Korean clauses supports the view that, when displacement is present in sentences with clausal embedding, it is the functional material within the embedded CP that introduces it.

Furthermore, I argue that the distinction between Cont-CPs and Sit-CPs extends beyond the constructions with nouns in Korean. Based on data from Buryat, English and Russian, I show that clauses with these two meanings exist in other languages as well. I argue that my proposal about Korean can be extended to them if we assume that the cross-linguistic variation is morphological in nature. I argue that while the *Cont* head is overt in Korean and Buryat, it has null morphological exponence in languages like English and Russian, making clauses ambiguous between Cont-CP and Sit-CP structures. The prediction of this proposal is that we will not find languages in which Sit-CPs are morphologically more complex than Cont-CPs.

The paper is structured as follows. In Sect. 2, I discuss Korean clauses that combine with Cont-NPs and Sit-NPs. I show that Cont-CPs are structurally more complex than Sit-CPs (Sect. 2.1), that Cont-NPs are true of individuals with content while Sit-NPs are true of content-less situations (Sect. 2.2), and that sentences with Cont-CPs, unlike sentences with Sit-CPs, involve displacement (Sect. 2.3). I argue that CPs are modifiers of nouns they combine with (Sect. 3), which makes it difficult to maintain the view that the noun is the source of displacement in sentences with Cont-CPs. In Sect. 4, I present my proposal for the structures and meanings of Cont-CPs and Sit-CPs, and discuss how it accounts for the observed empirical differences. I also situate my proposal in the previous literature on Korean embedded clauses (Kim 2009; Kim 2011; Shim and Ihsane 2015; Bogal-Allbritten and Moulton 2018; Bogal-Allbritten et al. 2024). Section 5 provides a cross-linguistic extension of my proposal. I show that Buryat, English and Russian make the same distinction between Cont-CPs and Sit-CPs that Korean does, and discuss how my proposal can be extended to account for the constructions in these languages. Section 6 concludes the paper.

2 Two kinds of CPs: Sit-CPs and Cont-CPs

This section presents the main empirical observations about two kinds of Korean clauses: those that combine with content nouns like *uykyen* ‘opinion’ (Cont-CPs), and those that combine with situation nouns like *sanghwang* ‘situation’ (Sit-CPs).

2.1 Morphosyntax of Korean clauses

Korean clauses that combine with content nouns (Cont-CPs) consist of the following morphemes: the verbal root, tense marking (e.g., past tense suffix *-ess*), and the so-called “declarative” (*-ta*) and “adnominal” (*-nun*) markers. This is illustrated in (4) with nouns *uykyen* ‘opinion’ and *mitum* ‘belief’, which describe attitudes, and nouns

cwucang ‘claim’ and *somwun* ‘rumor’, which describe speech events.^{1,2}

- (4) a. [Swuna-ka mwuncey-lul phwul-ess-ta-nun] mitum-i
Swuna-NOM problem-ACC solve-PST-DECL-ADN belief-NOM
/uykyen-i olh-ta.
/opinion-NOM correct.PRS-DECL
‘The belief/opinion that Swuna solved the problem is correct.’
- b. [Swuna-ka mwuncey-lul phwul-ess-ta-nun] cwucang-i
Swuna-NOM problem-ACC solve-PST-DECL-ADN claim-NOM
/somwun-i sasil-i-ta.
/rumor-NOM fact-COP-DECL
‘The claim/rumor that Swuna solved the problem is a fact.’

Korean clauses that combine with nouns like *sanghwang* ‘situation’ and *kyengwu* ‘case’ (Sit-CPs) contain just the verbal root and the adnominal marker (5).

- (5) [Swuna-ka mwuncey-lul phwul-un] sanghwang-i /kyengwu-ka
Swuna-NOM problem-ACC solve-ADN situation-NOM /case-NOM
hungmilop-ta.
interesting-DECL
Lit. ‘The situation/case that Swuna solved the problem is interesting.’

It is not possible to omit the declarative marker in Cont-CPs (6), irrespective of the form of the adnominal marker that is used in the sentence,³ and the presence of overt tense. It is also not possible to include the declarative marker in Sit-CPs (7).

- (6) a. *[Swuna-ka mwuncey-lul phwul-un/phwul-ess-un/phwul-ess-nun]
Swuna-NOM problem-ACC solve-ADN/solve-PST-ADN/solve-PST-ADN
mitum-i /uykyen-i olh-ta.
belief-NOM /opinion-NOM correct.PRS-DECL
‘Intended: ‘The belief/opinion that Swuna solved the problem is correct.’

¹ Korean data in this paper come from elicitation with five native speakers of Korean in 2021–2024. All of them at the time of elicitation were linguistics PhD students living in the US.

² Note that the example in (4b) shows us that *sasil* ‘fact’ in Korean is a predicate of individuals with propositional content. This might be considered surprising: we might have thought that facts are situations—parts of the world—which exemplify propositions. While languages might have expressions that match this meaning, it doesn’t seem correct for *sasil* in (4b), and it also doesn’t seem correct for the noun *fact* in English. Consider (i) (I thank Patrick Elliott for these examples):

- (i) a. John (incorrectly) thinks that this fact is false.
b. #John thinks that this situation is false.
c. #John thinks that this fact didn’t happen.
d. John thinks that this situation didn’t happen.

In (ia) and (ic) we see that *fact* can occur with the predicate *false* (when embedded under an attitude verb reporting a wrong belief), but not with the predicate *happen*. Examples in (ib) and (id) show the reverse pattern with the noun *situation*. Thus, linguistically the English noun *fact* seems to behave like a predicate of things with content and not like a predicate of situations too.

³ See the discussion of the different allomorphs of the adnominal marker on pp. 5–7.

- b. *[Swuna-ka mwuncey-lul phwul-un/phwul-ess-un/phwul-ess-nun]
 Swuna-NOM problem-ACC solve-ADN/solve-PST-ADN/solve-PST-ADN
 cwucang-i /somwun-i sasil-i-ta.
 claim-NOM /rumor-NOM fact-COP-DECL
 Intended: 'The claim/rumor that Swuna solved the problem is a fact.'
- (7) a. *[Swuna-ka mwuncey-lul phwul-ess-**ta**-nun] sanghwang-i
 Swuna-NOM problem-ACC solve-PST-**DECL**-ADN situation-NOM
 /kyengwu-ka hungmilop-ta.
 /case-NOM interesting-DECL
 Intended: 'The situation/case that Sw. solved the problem is interesting.'

The distinction between the two types of clauses that combine with lexical nouns has been previously discussed in Kim (2011). A number of works also have examined these two types of clauses when they modify the abstract noun *kes* 'thing' (8) (Kim 2009; Shim and Ihsane 2015; Yoon 2017; Bogal-Allbritten and Moulton 2018). In this paper, I will focus on clauses combining with lexical nouns, but see Sect. 4.3 for comparison of my account to proposals about CPs with *kes* in the literature. Given that Cont-NPs, Sit-NPs and *kes* seem to occupy the same syntactic position, I will assume that the conclusions that we reach about how Cont-NPs and Sit-NPs combine with embedded clauses can be extended to the sentences with *kes*.

- (8) a. Kibo-nun [Dana-ka i chayk-ul ilk-**ess-ta-nun kes-ul]**
 Kibo-TOP Dana-NOM this book-ACC read-PST-**DECL-ADN thing-ACC**
 yukamsulewehay-ss-ta /mit-ess-ta.
 regret-PST-DECL /believe-PST-DECL
 'Kibo regretted/believed that Dana read this book.'
- b. Kibo-nun [Dana-ka i chayk-ul ilk-**un kes-ul]**
 Kibo-TOP Dana-NOM this book-ACC read-**ADN thing-ACC**
 yukamsulewehay-ss-ta /mit-ess-ta.
 regret-PST-DECL /believe-PST-DECL
 'Kibo regretted/believed that Dana read this book.'
- (Shim and Ihsane 2015, p. 131, ex. (4))

Let us now discuss the adnominal marker that we see in both constructions. It will provide us with evidence that Sit-CPs contain tense (TP), even though we do not usually see overt tense morphemes in these clauses. The adnominal marker is a morpheme that we see on some nominal modifiers, for example on relative clauses (9). This morpheme has several allomorphs, *-(u)n/-nun/-(u)l*, the choice of which usually depends on the temporal characterization of the clause. For example, in (9) we see that *-(u)n* is used for past tense, *-nun* for present, and *-(u)l* for future.

- (9) a. [nay-ka mek-**un**] sakwa
 I-NOM eat-PST.**ADN** apple
 'the apple that I ate'

- b. [nay-ka mek-**nun**] sakwa
I-NOM eat-PRS.ADN apple
'the apple that I'm eating'
- c. [nay-ka mek-**ul**] sakwa
I-NOM eat-FUT.ADN apple
'the apple that I will eat'

All three allomorphs of the adnominal marker are used in Sit-CPs, and they are interpreted in the same way as in relative clauses: e.g., the embedded proposition in (10) receives a past tense interpretation relative to the matrix time (= *time of remembering*); in (11), a present tense reading;⁴ and in (12), a future one.⁵

- (10) Mina-ka [Swuna-ka mwuncey-lul phwul-**un**] sanghwang-ul
Mina-NOM Swuna-NOM problem-ACC solve-PST.ADN situation-ACC
kiekha-n-ta
remember-PRS-DECL
Lit. 'Mina remembers the situation that Swuna solved the problem.'
(*solve* < **remember**, **solve* ~ *remember*, **remember* < *solve*)
- (11) Mina-ka [Swuna-ka mwuncey-lul phwul-**nun**] sanghwang-ul
Mina-NOM Swuna-NOM problem-ACC solve-PRS.ADN situation-ACC
kiekha-n-ta
remember-PRS-DECL
Lit. 'Mina remembers the situation that Swuna solves the problem.'
(?*solve* < *remember*, *solve* ~ **remember**, **remember* < *solve*)
- (12) Mina-ka [Swuna-ka mwuncey-lul phwul-**ul**] sanghwang-ul
Mina-NOM Swuna-NOM problem-ACC solve-FUT.ADN situation-ACC
kiekha-n-ta
remember-PRS-DECL
Lit. 'Mina remembers the situation that Swuna will solve the problem.'
(**solve* < *remember*, **solve* ~ *remember*, **remember** < *solve*)

This suggests that tense is present in Sit-CPs. This hypothesis is corroborated by the data from conjunctions inside Sit-CPs. In (13) we see two clauses conjoined under a single adnominal marker. The first conjunct contains the past tense marker *-ess*, which I assume to be in T. If the conjuncts must be of the same size, then the second

⁴My consultants were uncertain about the possibility of using this form in contexts where the situation described by the embedded clause precedes the matrix time.

⁵The embedded tense is evaluated with respect to the matrix tense, so if the matrix tense is shifted to precede the utterance time, the future tense of the embedded clause can be interpreted to follow the time of the matrix event but precede the time of the utterance:

- (i) Mina-ka [Swuna-ka mwuncey-lul phwul-**ul**] sanghwang-ul kiekha-**yess**-ta
Mina-NOM Swuna-NOM problem-ACC solve-FUT.ADN situation-ACC remember-PST-DECL
Lit. 'Mina remembered the situation that Swuna would solve the problem.'
Possible temporal ordering: *remember* < *solve* < *utterance time*

conjunct must also contain T: this T itself is null, but triggers the past tense form of the adnominal marker. The fact that we can embed TP conjunction inside Sit-CPs corroborates the hypothesis that Sit-CPs contain tense.⁶

- (13) Na-nun [_{TP} Swuna-ka mwuncey-lul phul-**ess**]-**ko**
 I-TOP Swuna-NOM problem-ACC solve-T.**PST-CONJ**
 [_{TP} sensayngnim-kkeyse sungca-ka iss-ta-ko
 teacher-HON.NOM winner-NOM exist-DECL-COMP
 malssumha-si-ci.anh-(∅)]-un sanghwang-i silh-ta.
 say.HON-HON-NEG-(T.**PST**)-ADN situation-NOM dislike-DECL
 Lit. 'I dislike the situation that Swuna solved the problem and the teacher didn't tell us that there is a winner.'

In Cont-CPs, only two allomorphs of the adnominal marker are available, *-(u)n* and *-nun*, and they seem to be in free variation and not contribute to the meaning—the tense of the embedded clause is always determined by the tense morphemes that occur before the declarative marker. For example, in (14) we see that a Cont-CP with the past tense marker *-ess* is interpreted as occurring in the past irrespective of whether the *-(u)n* or *-nun* allomorph is selected. Similarly, the clause in (15) receives present tense interpretation regardless of the form of the adnominal marker that is chosen.

- (14) Mina-ka [Swuna-ka mwuncey-lul phwul-**ess**-ta-**nun**
 Mina-NOM Swuna-NOM problem-ACC solve-**PST-DECL-PRS.ADN**
 /phwul-**ess**-ta-**n** /*phwul-**ess**-ta-**I**] cwucang-ul
 /solve-**PST-DECL-PST.ADN** /solve-**PST-DECL-FUT.ADN** claim-ACC
 kiekha-n-ta.
 remember-PRS-DECL
 'Mina remembers the claim that Swuna solved the problem.'
 (*solve* < *remember*, **solve* ~ *remember*, **remember* < *solve*)

⁶The tenses in the two conjuncts can generally mismatch, as is illustrated in (i), where the first conjunct is interpreted in the past with respect to the matrix time and the second is interpreted as co-temporal with it. There are however restrictions on possible combinations: e.g., the combination of the first conjunct being in the future and the second being in the past was not permitted by my consultants. The issue of what leads to such restrictions requires further research.

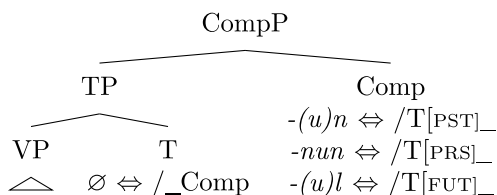
- (i) Na-nun [Swuna-ka tto kenning-ul ha-**yess**]-ko [sensayngnim-kkeyse kunye-uy
 I-TOP Swuna-NOM again cheating-ACC do-**PST-CONJ** teacher-HON.NOM 3SG-GEN
 pwumonim-kkey malha-ci.anh-ko.iss]-**nun** sanghwang-i silh-ta.
 parent-HON.DAT say-NEG-PROG-**PRS.ADN** situation-NOM dislike-DECL
 Lit. 'I dislike the situation that Swuna cheated again (in the past) and the teacher (right now) is not telling her parents.'

- (15) Mina-ka [Swuna-ka mwuncey-lul phwul-**n**-ta-**nun**
 Mina-NOM Swuna-NOM problem-ACC solve-**PRS**-DECL-**PRS**.ADN
 /phwul-**n**-ta-**n** /*phwul-**n**-ta-**l**] cwucang-ul
 /solve-**PRS**-DECL-**PST**.ADN /solve-**PRS**-DECL-**FUT**.ADN claim-ACC
 kiekha-n-ta.
 remember-**PRS**-DECL
 ‘Mina remembers the claim that Swuna solves the problem.’
 (**solve* < *remember*; *solve* ~ **remember**, **remember* < *solve*)

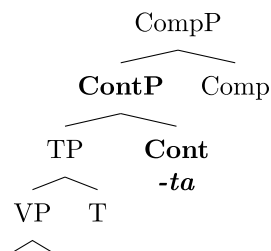
To sum up, we see that there is a connection between the absence/presence of overt tense morphemes and the allomorphs of the adnominal marker. In Sit-CPs, overt tense morphemes are usually absent, but the adnominal marker takes different shapes depending on the temporal interpretation of the clause. In Cont-CPs, overt tense morphemes are present, and the adnominal marker does not carry temporal meanings—the two available forms *-(u)n* and *-nun* are in free variation.

I propose that the observed morphological differences between the two kinds of clauses stem from the difference in their syntactic structure. Both clauses contain T(ense) and Comp(lementizer) projections in their structure, but only Cont-CPs have a Cont(ent) projection, which is sandwiched between TP and CompP (16)–(17).

- (16) *The structure of Sit-CPs*



- (17) *The structure of Cont-CPs*



Overt temporal markers like *-ess* expone the T head, the adnominal markers expone the Comp(lementizer) head, and the declarative marker *-ta* that we see in Cont-CPs expones the Cont(ent) head. I propose that the forms of T and Comp are subject to contextual allomorphy: T becomes null ($\emptyset$) in the context of Comp, and the choice of the allomorph for Comp is dependent on the features of tense when it occurs next to it. This is why in Sit-CPs we don't see overt tense morphemes but see that the choice of allomorphs for the adnominal marker is dependent on tense. The presence

of the Cont head (*-ta*) in the structure of Cont-CPs disrupts the environment for the application of these allomorphy rules. Thus, we see overt exponents of T in Cont-CPs, and the choice of the Comp's exponent isn't sensitive to temporal features of T.

To sum up, clauses that modify content nouns in Korean are more structurally complex compared to clauses that modify situation nouns: while TP and CompP are included in the structures of both clauses, ContP, which hosts the declarative marker *-ta*,⁷ is only present in the structure of clauses that combine with content nouns. As we will see in the following sections, this structural complexity correlates with a difference in meaning: only sentences with Cont-CPs involve displacement.

2.2 Semantics: content individuals vs. situations

In this section, I would like to argue that the meanings of nouns like *idea* (*rumor*, *claim*, *belief*, etc.—“content nouns (Cont-NPs)”) and the meanings of nouns like *situation* (*event*, *case*, *state of affairs*, etc.—“situation nouns (Sit-NPs)”) differ in at least two important ways. The first difference has to do with the type of an individual that the predicate is true of. I assume that the domain of all individuals D_e contains the domain of situations D_v as its proper part ($D_v \subset D_e$), and that there are also proper individuals that are not situations: they are in D_e but not in D_v . I would like to suggest that nouns like *situation* or *event* are true of individuals that are situations, but content nouns like *idea* are only true of proper, non-situational individuals. The motivation for this difference comes from predicates of occurrence: verbs like *happen* or *occur* can only combine with Sit-NPs, but not with Cont-NPs. This is illustrated in (18)–(19). This suggests that only Sit-NPs describe situations.

- (18) *[Swuna-ka mwuncey-lul phwul-ess-ta-nun] mitum-i
 Swuna-NOM problem-ACC solve-PST-DECL-ADN belief-NOM
 /uykyen-i /cwucang-i ilena-ss-ta
 /opinion-NOM /claim-NOM occur-PST-DECL
 Intended: ‘A belief/opinion/claim that Swuna solved the problem occurred.’
- (19) [Swuna-ka mwuncey-lul phwul-un] sanghwang-i ilena-ss-ta
 Swuna-NOM problem-ACC solve-ADN situation-NOM occur-PST-DECL
 Lit. ‘A situation that Swuna solved the problem occurred.’

The second difference between the two types of nouns is that individuals in the denotations of nouns like *idea* have propositional content associated with them (Moltmann 1989; Kratzer 2006; Anand and Hacquard 2008; Moulton 2009; Hacquard 2010; Bogal-Allbritten 2016; Elliott 2020a; Moltmann 2020, a.o.). Individuals in the denotations of nouns like *situation* lack propositional content. This difference manifests itself in compatibility with predicates like *true/correct*, *false/mistaken*. While it is a

⁷The declarative marker *-ta* also occurs in root clauses, as can be seen in most of the examples above. While the analysis of such uses of *-ta* is beyond the scope of this paper, I would like to suggest that it might be playing the same role in matrix contexts as it does in embedded ones: the matrix ContP introduces the speech event of the utterance (whose Agent is the speaker) and links the matrix proposition to it. Given the proposal in the main text, such an analysis requires a framework where events of uttering sentences are directly represented in syntax.

characteristic feature of content nouns that they can combine with such predicates, Sit-NPs are incompatible with them (20)-(21).⁸

- (20) a. [Swuna-ka mwuncey-lul phwul-ess-ta-nun] mitum-i
Swuna-NOM problem-ACC solve-PST-DECL-ADN belief-NOM
/uykyen-i olh-ta /thulli-ta.
/opinion-NOM correct.PRS-DECL /incorrect.PRS-DECL
‘The belief/opinion that Swuna solved the problem is correct/incorrect.’
b. [Swuna-ka mwuncey-lul phwul-ess-ta-nun] cwucang-i
Swuna-NOM problem-ACC solve-PST-DECL-ADN claim-NOM
kecis-i-ta /cham-i-ta.
falsehood-COP-DECL /truth-COP-DECL
‘The claim that Swuna solved the problem is false/true.’
- (21) *[Swuna-ka mwuncey-lul phwul-un] sanghwang-i kecis-i-ta
Swuna-NOM problem-ACC solve-ADN situation-NOM falsehood-COP-DECL
/cham-i-ta /olh-ta /thulli-ta.
/truth-COP-DECL /correct.PRS-DECL /incorrect.PRS-DECL
Intended:
‘The situation that Swuna solved the problem is false/true/correct/incorrect.’

We can model the distinction between contentful and contentless individuals with the help of a function $\text{CONT}(\text{ENT})$ (Kratzer 2006; Anand and Hacquard 2008; Moulton 2009, a.o.), which, when applied to an individual, returns its content if it has one. It is a partial function: we can call the proper subset of D_e for which it is defined D_{Cont} .

The difference between the meanings of the two types of nouns is then summarized in (22): nouns like *idea* are true of proper individuals which have propositional content, and nouns like *situation* are true of situations that lack content.⁹

- (22) a. $\llbracket \textit{idea} \rrbracket^{s,g,t} = \lambda x: x \notin D_v \wedge x \in D_{\text{Cont}}. \textit{idea}(x)_{s,t}$
b. $\llbracket \textit{situation} \rrbracket^{s,g,t} = \lambda x: x \in D_v \wedge x \notin D_{\text{Cont}}. \textit{situation}(x)_{s,t}$

The proposed difference in meaning implies that the sets of individuals described by Cont-NPs and by Sit-NPs have no members in common. This has the following consequences for their distribution. First, it derives the compatibility restrictions between the two kinds of nouns and the two kinds of clauses (see Sect. 4 for a formal implementation). Content nouns are not compatible with Sit-CPs, as the latter describe situations, and individuals in the denotations of Cont-NPs are not situations. Situation nouns on the other hand cannot be modified by Cont-CPs, as these clauses describe propositional content, and individuals described by Sit-NPs lack content.

⁸The sentence in (21) can be used with *olhta* under an irrelevant meaning of the predicate that the situation is “right” from the moral perspective—a situation that the speaker thinks should have happened.

⁹I assume that all expressions are evaluated with respect to some situation s , some assignment function g and some time t . Notation ‘ $\text{predicate}(x)_{s,t}$ ’ is an abbreviation for ‘the predicate is true of x in s at time t ’.

Second, it makes a prediction that sentences of the form ‘*The SitNP that p is a ContNP*’ and ‘*The ContNP that p is a SitNP*’ should be infelicitous (I thank Deniz Özyıldız for raising this question). This is because, on the proposed semantics of these nouns, no individual with content can be a situation, and vice versa. While it remains to be investigated whether this prediction is borne out for Korean, it seems that in English such sentences are indeed degraded (23):¹⁰

- (23) a. #[The rumor that the event is canceled due to weather conditions] is a situation.
 b. ?#[The situation that the event is canceled due to weather conditions] is a rumor.

Note that there could in principle be natural language expressions that describe situations with propositional content. It has been suggested in the literature that attitude and speech verbs (e.g., *think*, *say*, etc.) denote such predicates of situations/events (see Hacquard 2010; Bogal-Allbritten 2016; Bondarenko 2020; Elliott 2020a, a.o.). The current proposal merely implies that we don’t find such expressions in the nominal domain: content nouns like *idea* describe proper individuals.

2.3 Semantics: presence vs. absence of displacement

The difference in whether a noun describes an individual with propositional content or not goes hand in hand with the key difference in semantics of sentences with Cont-CPs vs. Sit-CPs: meanings of the former involve displacement, whereas meanings of the latter do not.¹¹ In sentences with Cont-CPs, the embedded proposition is evaluated not at the matrix situation, but at some distinct set of situations determined by the content noun. In sentences with Sit-CPs, the embedded proposition describes the situation denoted by the Sit-NP, and thus it is evaluated at the matrix situation.

This difference in meaning manifests itself in the following way. Cont-CPs constitute a referentially opaque domain, which does not support substitution of extensional equivalents without potentially altering the truth of the statement, whereas Sit-CPs are referentially transparent and thus support such substitution (see Frege 1892; Quine 1956; Barwise 1981; Perry and Barwise 1983, a.m.o.). To illustrate this, we will consider sentences where Cont-NPs and Sit-NPs are objects of the verb *remember*. Note that verbs meaning ‘remember’ usually belong to the class of verbs for which $V [NP \phi]$ does not entail $V \phi$ (24), suggesting that *remember* should not affect the judgments when we are diagnosing the transparency/opacity of the embedded clause.

- (24) a. Mary believed [the claim that Susi won].
 $\rightsquigarrow$ Mary believed [that Susi won].
 b. Mary remembered [the claim that Susi won].
 $\nrightarrow$ Mary remembered [that Susi won].

¹⁰To the extent that (23b) is acceptable, it gives rise to a corrective feeling—“this is actually a rumor, not an actual situation of this kind”.

¹¹Of course, this is true only as long as no additional displacement-introducing operators are added into the structure.

In (25) with the Cont-NP *mitum* ‘belief’ we see that the premises (25a) and (25b) are not sufficient to justify the conclusion in (25c): one can truthfully assert (25a) and (25b) and negate (25c). This is so because we can interpret NPs inside of the Cont-CP as being evaluated not with respect to the actual world/situation, but with respect to the worlds/situations in which things are according to the belief. Thus, it is possible to understand (25c) as saying that Mina remembered a belief that a person who is *the tallest girl in the class according to the belief* solved the problem. And this does not follow from the premises in (25a)-(25b).

(25) *Opacity with Cont-CPs*: from {(a), (b)} $\nRightarrow$ (c)

- a. Mina-ka [Swuna-ka mwuncey-lul phwul-ess-ta-nun]
Mina-NOM Swuna-NOM problem-ACC solve-PST-DECL-ADN
mitum-ul kiekhay-ss-ta.
belief-ACC remember-PST-DECL
‘Mina remembered a belief that Swuna solved the problem.’
- b. Swuna-ka pan-eyse kacang khi-ga khu-ta.
Swuna-NOM class-LOC most height-NOM large-DECL
‘Swuna is the tallest in the class.’
- c. Mina-ka [pan-eyse kacang khi-ga khun sonye-ka
Mina-NOM class-LOC most height-NOM large girl-NOM
mwuncey-lul phwul-ess-ta-nun] mitum-ul kiekhay-ss-ta.
problem-ACC solve-PST-DECL-ADN belief-ACC remember-PST-DECL
‘Mina remembered a belief that the tallest girl in the class solved the problem.’

In (26) on the other hand, where we see sentences with the Sit-NP *sanghwang* ‘situation’, the premises in (26a) and (26b) necessitate the truth of the conclusion in (26c): if Mina remembered a situation of Swuna solving a problem, and Swuna is the tallest girl in the class, then it follows that she remembered a situation of the tallest girl in the class solving the problem (even if she’s not aware of the fact that Swuna is the tallest girl in the class). This is so because we have to interpret all noun phrases inside of Sit-CPs with respect to the same world/situation that the matrix verb is evaluated at. And since by (26b) *Swuna* and *the tallest girl in the class* describe the same person in that situation, the truth of (26a) makes (26c) true.

(26) *Transparency with Sit-CPs*: from {(a), (b)} $\Rightarrow$ (c)

- a. Mina-ka [Swuna-ka mwuncey-lul phwul-un] sanghwang-ul
Mina-NOM Swuna-NOM problem-ACC solve-ADN situation-ACC
kiekhay-ss-ta.
remember-PST-DECL
Lit. ‘Mina remembered the situation that Swuna solved the problem.’
- b. Swuna-ka pan-eyse kacang khi-ga khu-ta.
Swuna-NOM class-LOC most height-NOM large-DECL
‘Swuna is the tallest in the class.’

- c. Mina-ka [pan-eyse kacang khi-ga khun sonye-ka
 Mina-NOM class-LOC most height-NOM large girl-NOM
 mwuncey-lul phwul-un] sanghwang-ul kiekhay-ss-ta.
 problem-ACC solve-ADN situation-ACC remember-PST-DECL
 Lit. 'Mina remembered the situation that the tallest girl in the class
 solved the problem.'

Another way to observe the difference in referential opacity/transparency between Cont-CPs and Sit-CPs is to consider sentences that force *de dicto* readings of predicates inside embedded clauses. Under the assumption that sheep and goats are two disjoint sets of individuals with no members in common, unembedded sentences like (27a) are semantically odd, as they can never be true. But once embedded under operators introducing displacement, sentences like (27a) become felicitous, as the two predicates can then be evaluated at different situations: e.g., in (27b) the predicate *sheep* is evaluated with respect to the actual world, whereas *goats* is evaluated at the situations that the conditional takes us to.

- (27) a. #These sheep_s are goats_s.
 b. If these sheep_s were goats_{s'}, they would have had horns_{s'}.

Clauses that combine with content nouns can contain mutually incompatible predicates: this is illustrated for Korean in (28).¹²

- (28) Na-nun [san-uy yang-i yemso-la-nun] (calmottoy-n)
 I-TOP mountain-GEN sheep-NOM goat-COP.DECL-ADN be.mistaken-ADN
 uykyen-ul po-ass-ta
 opinion-ACC see-PST-DECL
 'I saw a (mistaken) opinion [e.g., written somewhere on the internet] that the
 sheep on this mountain are goats.'

CPs that combine with Sit-NPs on the other hand cannot contain such predicates (29). In the sentence in (29) the form containing the declarative morpheme (as part of the portmanteau *-la*; see fn. 12) is ungrammatical, and the form without it observes the same infelicity as English (27a).

- (29) Na-nun [san-uy yang-i #yemso-i-n /*yemso-la-nun]
 I-TOP mountain-GEN sheep-NOM goat-COP-ADN /goat-COP.DECL-ADN
 sanghwang-ul po-ass-ta
 situation-ACC see-PST-DECL
 Lit. 'I saw a situation that the sheep on this mountain are goats.'

The fact that clauses like (27a) can be embedded in Cont-CPs, but not in Sit-CPs, corroborates that only the semantics of the former involves displacement.¹³

¹²In Korean (28) we see the morpheme *-la* preceding the adnominal marker. This is a portmanteau for the copula *i* together with the declarative marker *-ta*.

¹³Deniz Özyıldız raises a question of whether the presence of displacement *forces* us to evaluate the embedded proposition at situations distinct from the situation/world of evaluation. As we will see in Sect. 4.2,

3 Clauses that combine with nouns are modifiers

The fact that the presence of displacement correlates with the presence of a special morpheme within the embedded clause raises a question: is the declarative marker *-ta* itself the source of displacement, or is it merely a reflex of the fact that semantics of the noun involves displacement? Let us assume that displacement occurs due to the presence of the function *CONT* (Kratzer 2006; Anand and Hacquard 2008; Moulton 2009; Hacquard 2010; Bogal-Allbritten 2016; Elliott 2020a, a.o.) that takes us from an individual or event to a set of worlds compatible with its content (see Sect. 4.2 for further discussion). The hypothesis that the content noun is the source of displacement commits us to the view that the embedded proposition is an argument of the noun. This is because if “*CONT*(*x*)=*p*” is part of the meaning of the noun and not the clause, the noun has to take a propositional argument (30).¹⁴

$$(30) \quad \llbracket \textit{idea} \rrbracket^{s,g,t} = \\ \lambda \mathbf{p}: \mathbf{p} \in \mathbf{D}_{vt}. \lambda x: x \notin D_v \wedge x \in D_{Cont}. \textit{idea}(x)_{s,t} \wedge \textit{CONT}(x)=\mathbf{p}$$

If, however, displacement is part of the meaning of the embedded clause—if it is introduced by an element in the left periphery like Korean *-ta*—then the noun does not need to take any arguments except for its individual argument:

$$(31) \quad \begin{array}{ll} \text{a.} & \llbracket \textit{idea} \rrbracket^{s,g,t} = \lambda x: x \notin D_v \wedge x \in D_{Cont}. \textit{idea}(x)_{s,t} \\ \text{b.} & \llbracket \textit{-ta} \rrbracket^{s,g,t} = \lambda \mathbf{p}: \mathbf{p} \in \mathbf{D}_{vt}. \lambda x: x \in D_{Cont}. \textit{CONT}(x)=\mathbf{p} \\ \text{c.} & \llbracket \textit{that the squirrel ate the nuts} \rrbracket^{s,g,t} = \\ & \lambda x: x \in D_{Cont}. \textit{CONT}(x)=\lambda s': \textit{the squirrel ate the nuts in } s' \end{array}$$

In (31b) we see that *-ta* takes the embedded proposition and returns a predicate of individuals such that their propositional content equals this proposition (31c). This meaning of the clause can combine with the noun (31a) as a modifier, by a principle like Predicate Modification (32) (Heim and Kratzer 1998, p. 105).

(32) Predicate Modification (PM)

If α is a branching node and $\{\beta, \gamma\}$ the set of its daughters, then, for any assignment a , α is in the domain $\llbracket \alpha \rrbracket^a$ if both β and γ are, and $\llbracket \beta \rrbracket^a$ and $\llbracket \gamma \rrbracket^a$ are both of type $\langle e, t \rangle$. In this case, $\llbracket \alpha \rrbracket^a = \lambda x: x \in D$ and x is in the domain of $\llbracket \beta \rrbracket^a$ and $\llbracket \gamma \rrbracket^a$. $\llbracket \beta \rrbracket^a(x) = \llbracket \gamma \rrbracket^a(x) = 1$.

the semantics of displacement that I propose will never make us directly evaluate the embedded proposition at the situation/world of evaluation. However, it could be that the set of situations determined by the nominal predicate are actual situations in the world of evaluation: e.g., for a noun *fact* we might assume that the situations in the propositional content of a fact are actual situations in the matrix world. Thus, such inherent factivity of some embedding predicates will make the shift to other situations introduced by displacement in the meaning of the embedded clause vacuous.

¹⁴Note that once “*CONT*(*x*)=*p*” is part of the noun’s meaning, we need to bind the propositional variable p in some way. If we just existentially quantify over p , the statement “*CONT*(*x*)=*p*” will not be contributing anything, as all the semantics would be saying is that there is some proposition that this individual has as its content—this will be already trivially true due to the definedness condition “ $x \in D_{Cont}$ ”, and so in this case we’d still need the embedded CP to equate the embedded proposition with the content of an individual. So as long as we want the noun to be the lexical item relating a proposition and a contentful individual, the proposition needs to be an argument of the noun.

Thus, the two views on the source of displacement have different expectations about the status of the embedded clause in the argument structure of the noun: if the noun is the source of displacement, we expect the clause to behave like its argument, but if the source of displacement is in the embedded clause, then the clause could behave like a modifier. That is not a necessity: we could write a semantics where the embedded clause is an argument—e.g., the content noun could take a property of individuals as its first argument. But this view opens up a possibility of CPs being modifiers.

I would like to argue that from the argument/modifier heuristics available to us (see Jackendoff 1977; Pollard and Sag 1987; Grimshaw 1990; Schütze 1995; Ackema 2015, a.o.), all point to the conclusion that both Sit-CPs and Cont-CPs that combine with nouns are their modifiers. For Cont-CPs, this is not a new conclusion: modificational analysis of such clauses has been extensively argued for in the literature (Kratzer 2006; Moulton 2009; Kayne 2010; Moulton 2015; Kratzer 2016; Elliott 2020a, a.o.).¹⁵ If this conclusion is right, it supports the view that the embedded clause is the source of displacement. I will discuss five heuristics that tend to correlate with the argument vs. modifier distinction: interpretation, obligatoriness, ordering, morphosyntactic marking and distribution.¹⁶ We will see that in all of them we find evidence that Korean Cont-CPs and Sit-CPs are modifiers to nouns.

3.1 Interpretation

Interpretations of arguments tend to heavily depend on the head that they combine with, whereas modifiers usually have constant semantic interpretation across their uses (Pollard and Sag 1987; Schütze 1995). Among other things, this distinction has been used to argue that external arguments are not true arguments of the verb but are introduced by a functional projection (Kratzer 1996). Let us illustrate this heuristic with prepositional phrases. Consider the PPs with the preposition *on* in (33). The phrase *on Sunday* in (33a)–(33b) can be interpreted without any reference to the rest of the sentence, and its meaning is the same with the verb *meditate* and with the copula *be*. This is not the case for the PP *on Sandy* in (33c)–(33d): this phrase can only be interpreted in these sentences with reference to the main verb, and its meanings will differ from the sentence with the copula (33e), suggesting that in these cases the PP is an argument.

(33) *On-PPs as adjuncts vs. arguments* (Schütze 1995, p. 100)

- a. Kim camps/jogs/meditates on Sunday.
- b. The meeting is on Sunday.
- c. Kim depended/decided on Sandy.
- d. The authorities blamed/pinned the arson on Sandy.
- e. The spider is on Sandy.

¹⁵However, see Djärv (2019) and Hankamer and Mikkelsen (2021) for opposing views.

¹⁶Most of the argument/modifier diagnostics available in the literature seem to be better thought of as heuristics rather than guaranteed indicators of the status of the constituent (see Schütze 1995 for discussion). But if the majority of such heuristics agree on the status of a certain constituent, I think we are justified to draw the conclusion about its status.

Both Cont-CPs and Sit-CPs seem to have a constant interpretation independent of the identity of the noun that they occur with. Cont-CPs describe propositional content associated with content nouns. For example, in (34), no matter which noun the CP combines with, it bears the same semantic relationship—it describes the content of the individual denoted by the noun (content of the *claim*, of the *lie*, or of the *opinion*).

(34) *claim/lie/opinion that Mitya is getting married, attested:*

- a. $\lambda x. \text{claim}(x) \wedge \text{Content}(x) = \text{"Mitya is getting married"}$
- b. $\lambda x. \text{lie}(x) \wedge \text{Content}(x) = \text{"Mitya is getting married"}$
- c. $\lambda x. \text{opinion}(x) \wedge \text{Content}(x) = \text{"Mitya is getting married"}$

If Cont-CPs were arguments, we could have found a lot more variability in how such clauses would be interpreted with different nouns. In (35), I sketch some logically feasible meanings that do not seem to be attested.

(35) *claim/lie/opinion that Mitya is getting married, non-attested:*

- a. $\lambda x. \text{claim}(x) \wedge \text{Response}(x) = \text{"Mitya is getting married"}$
- b. $\lambda x. \text{lie}(x) \wedge \text{Corrected}(x) = \text{"Mitya is getting married"}$
- c. $\lambda x. \text{opinion}(x) \wedge \text{About}(x) = \text{"Mitya is getting married"}$

A CP combining with *claim* could have described a proposition that this claim is in response to, or a proposition that was a response to this claim. With *lie*, a CP could have described a corrected proposition—a proposition we would get if we corrected the lie described by the noun. With *opinion*, a CP could have described the proposition that this opinion is about. We do not find such interpretations.¹⁷

The same is true of Sit-CPs: they always describe the eventuality that the noun denotes (36), and don't have other imaginable interpretations (37): these clauses don't describe causing events of the situation at hand, or events preceding the event under consideration, or events that this circumstance has been created for.

¹⁷Deniz Özyıldız suggests that considering interpretations of interrogative clauses under nouns like *answer* and *question* might be helpful: if such nouns take CPs as arguments, we might expect an interrogative clause under *answer* to describe the question that the answer is an answer to, as opposed to describing the content of the answer. While I do not have data from Korean regarding this issue, in Russian *otvet* 'answer' cannot combine with interrogative clauses. In (i) we see that *otvet* 'answer' can only combine with declarative CPs, and *vopros* 'question' can only combine with interrogative CPs.

- (i) a. *vopros* /**otvet* [kto pobedil na turnire]
 question /answer who won on tournament
 'the question/*answer who won the tournament'
- b. *otvet* /**vopros* [čto Maša pobedila na turnire]
 answer /question COMP Masha won on tournament
 'the answer /*question that Masha won the tournament'

In both cases the embedded CPs describe the content associated with the individual—which is propositional in case of *otvet* 'answer', but question content (set of propositions) in case of *vopros* 'question'. Thus, these nouns, at least in Russian, seem to support the idea that clauses combine as modifiers and not as arguments.

- (36) *situation/event/circumstance that squirrels ate the nuts, **attested**:*
- a. $\lambda s. \text{situation}(s) \wedge \text{eating-the-nuts-by-squirrels}(s)$
 - b. $\lambda s. \text{event}(s) \wedge \text{eating-the-nuts-by-squirrels}(s)$
 - c. $\lambda s. \text{circumstance}(s) \wedge \text{eating-the-nuts-by-squirrels}(s)$
- (37) *situation/event/circumstance that squirrels ate the nuts, **non-attested**:*
- a. $\lambda s. \text{situation}(s) \wedge \exists s' [\text{CAUSE}(s)(s') \wedge \text{eating-the-nuts-by-squirrels}(s')]$
 - b. $\lambda s. \text{event}(s) \wedge \exists s' [\text{BEFORE}(s)(s') \wedge \text{eating-the-nuts-by-squirrels}(s')]$
 - c. $\lambda s. \text{circumstance}(s) \wedge \exists s' [\text{PURPOSE}(s)(s') \wedge \text{eating-the-nuts-by-squirrels}(s')]$

The fact that we do not find variability in how Cont-CPs and Sit-CPs are interpreted in Korean and cross-linguistically (see Sect. 5) suggests that they are modifiers of NPs.

3.2 Obligatoriness

This heuristic says that arguments are obligatory, whereas modifiers are optional. This automatically follows, *ceteris paribus*, if arguments combine via Functional Application (FA), and modifiers combine via Predicate Modification (PM): if a function has an argument, the derivation will not compose if it is not saturated, whereas nothing forces the intersection of two predicates by PM. The presence of an embedded clause is always optional with Cont-NPs and Sit-NPs (38). This suggests that these nouns do not take Cont-CPs and Sit-CPs as their semantic arguments.

- (38) a. Mina-ka ku mitum-ul /uykyen-ul /cwucang-ul
 Mina-NOM that belief-ACC /opinion-ACC /claim-ACC
 kiekhay-ss-ta.
 remember-PST-DECL
 'Mina remembered that belief/opinion/claim.'
- b. Mina-ka ku sanghwang-ul kiekhay-ss-ta.
 Mina-NOM that situation-ACC remember-PST-DECL
 'Mina remembered that situation.'

There is of course a possibility that functions might take arguments that are existentially closed whenever needed, leading to optionality. On this view nouns like *belief* and *situation* would be similar to verbs like *eat*, which can occur both with a direct object (*Mary ate an apple*) and without it (*Mary ate*). In case of verbs like *eat* however, the existential closure is not the only semantic difference between the sentences with and without internal arguments: intransitive predicates describes activities (atelic), whereas the transitive ones describe accomplishments (telic). There does not seem to be any observable interpretative difference between nouns that combine with Cont-CPs or Sit-CPs and nouns without them—they seem to denote the same predicate of

individuals regardless of whether they occur with an embedded clause. Thus, it is not obvious that embedded clauses with nouns behave like optional arguments.

3.3 Ordering

According to the ordering heuristic, arguments have to combine with heads before modifiers, and thus we expect modifiers to not be able to occur closer to heads than arguments. This heuristic assumes that semantics has principles like Functional Application and Predicate Modification at its disposal, but that it doesn't have principles that would allow it to "skip" saturating the argument of a function and instead intersect the predicate that the function returns with another predicate.

Both with Cont-CPs and Sit-CPs in Korean, nominal modifiers like adjectives have to occur between the noun and the embedded clause, suggesting that they combine with the noun before the CP (39)-(40).

- (39) a. Mina-ka [Swuna-ka tayhwoy-lul wusunghay-ss-ta-nun]
 Mina-NOM Swuna-NOM competition-ACC win-PST-DECL-ADN
 kimyoha-n mitum-ul /uykyen-ul kiekha-ss-ta.
 curious-ADN belief-ACC /opinion-ACC remember-PST-DECL
 'Mina remembered a curious belief/opinion that Swuna won the competition.'
- b. *Mina-ka kimyoha-n [Swuna-ka tayhwoy-lul
 Mina-NOM curious-ADN Swuna-NOM competition-ACC
 wusunghay-ss-ta-nun] mitum-ul /uykyen-ul kiekha-ss-ta.
 win-PST-DECL-ADN belief-ACC /opinion-ACC remember-PST-DECL
 Intended: 'Mina remembered a curious belief/opinion that Swuna won the competition.'
- (40) a. Mina-ka [Swuna-ka tayhwoy-lul wusunghay-n]
 Mina-NOM Swuna-NOM competition-ACC win-ADN
 kimyoha-n sanghwang-ul kiekha-ss-ta.
 curious-ADN situation-ACC remember-PST-DECL
 Lit. 'Mina remembered a curious situation that Swuna won the competition.'
- b. *Mina-ka kimyoha-n [Swuna-ka tayhwoy-lul
 Mina-NOM curious-ADN Swuna-NOM competition-ACC
 wusunghay-n] sanghwang-ul kiekha-ss-ta.
 win-ADN situation-ACC remember-PST-DECL
 Intended: 'Mina remembered a curious situation that Swuna won the competition.'

This ordering is unexpected on the view that these clauses are arguments of nouns.^{18, 19}

3.4 Morphosyntactic marking

This heuristic is based on the idea that morphosyntactic form might reflect the type of the semantic object that a constituent denotes.²⁰ If this idea is on the right track, it suggests that both Cont-CPs and Sit-CPs in Korean are modifiers of nouns, as they occur with the same morphology as other nominal modifiers—just as relative clauses (41) and intersective adjectives (42), they occur with the adnominal marker.

- (41) [nay-ka mek-**nun**] sakwa
I-NOM eat-ADN apple
'the apple that I'm eating'
- (42) sulphu-**n** sanghwang
sad-ADN situation
'sad situation'

Korean also provides us with evidence that Cont-CPs and Sit-CPs that combine with nouns are not nominalized, as in this language nominalization receives an overt realization. In Korean the CP with the adnominal marker combines with a bleached noun *kes* 'thing' when it undergoes nominalization (see (8) in Sect. 2.1). As we see in (43), content nouns and situation nouns are unable to combine with nominalized clauses. Under the assumption that nominalization transforms the denotation of a CP into an individual-denoting expression, the ungrammaticality of (43) suggests that content NPs and situation NPs can't take clauses as individual-denoting arguments.²¹

¹⁸An alternative hypothesis for the data in (39)–(40) might be that we are in fact encountering conjunction-less coordination of the embedded clause and the adjective prior to them combining with the noun. Note that if this is the right analysis of syntactic constituency, then it also is an argument for CPs being modifiers: given that two conjoined elements have to be of the same semantic type, the embedded clause must be a predicate of individuals just like the adjective.

¹⁹We might wonder why, if both clauses and adjectives are modifiers, the two exhibit a fixed order. My hope is that this would follow from some general constraints on how modifiers are ordered.

Deniz Özyıldız also notes that an alternative explanation of the data could be that the clause undergoes obligatory extraposition. I am unaware of data that would support or refute the hypothesis that Korean has obligatory leftward extraposition of clauses. Given that this is an SOV language, this is difficult to test.

²⁰As an anonymous reviewer notes, this is a rather weak argument, as the morphosyntactic marking might be reflective of the syntactic category and not the semantic type. For Korean, this view would imply that adjectives, relative clauses and embedded clauses all have the same syntactic category—as they all occur with adnominal markers. On the other hand, the argument in this section assumes that the reason all of these constituents bear the adnominal marker is that all of them are semantically predicates—i.e., what unites the different uses of this morpheme is that the phrases bearing it are all <e,t>-type functions.

²¹The inability to compose with nominalized arguments of course still leaves open the possibility that nouns take arguments of a different semantic type.

- (43) a. *[[Swuna-ka mwuncey-lul phwul-ess-ta-nun] **kes** /**kes-i**
 Swuna-NOM problem-ACC solve-PST-DECL-ADN **thing** /**thing-NOM**
 /**kes-(n)un**] cwucang-i sasil-i-ta.
 /**thing-ADN** claim-NOM fact-COP-DECL
 Intended: ‘The claim that Swuna solved the problem is a fact.’
- b. *[[Swuna-ka mwuncey-lul phwul-un] **kes** /**kes-i**
 Swuna-NOM problem-ACC solve-ADN **thing** /**thing-NOM**
 /**kes-(n)un**] sanghwang-i hungmilop-ta.
 /**thing-ADN** situation-NOM interesting--DECL
 Intended: ‘The situation that Swuna solved the problem is interesting.’

Thus, this heuristic suggests that both Cont-CPs and Sit-CPs that combine with nouns are their modifiers—they are predicates of individuals, just like relative clauses.

3.5 Distribution: scrambling & fragment answers

Further support for embedded clauses being nominal modifiers comes from the fact that they seem to show the same syntactic restrictions as other $\langle e, t \rangle$ -type constituents. While noun phrases can scramble in Korean (44), nouns themselves cannot (45). Under the assumption that nouns themselves are $\langle e, t \rangle$ -type constituents, but noun phrases denote individuals (type e) or generalized quantifiers (type $\langle \langle e, t \rangle, t \rangle$), we can think of (45) as showing a constraint on movement of $\langle e, t \rangle$ -type predicates.

- (44) [i / motun say-ey tayha-n chayk-ul]₁ John-i t₁
 this / every bird-DAT be.about-ADN book-ACC John-NOM
 kiekha-yess-ta.
 remember-PST-DECL
 ‘John remembered this/every book about birds.’
- (45) *[Chayk-ul]₁ John-i [i / motun say-ey tayha-n t₁]
 book-ACC John-NOM this / every bird-DAT be.about-ADN
 kiekha-yess-ta.
 remember-PST-DECL
 ‘John remembered this/every book about birds.’

The impossibility of scrambling of $\langle e, t \rangle$ -type constituents might have a semantic motivation: this restriction is expected if the only possible type of traces is e (Poole 2024). If that is the case, the sister of the moved phrase would have to have the type $\langle e, t \rangle$ after we λ -abstract over an e -type trace. Both e -denoting DPs and generalized quantifiers could compose with an $\langle e, t \rangle$ constituent by Functional Application and give rise to a well-formed meaning, but if the moved phrase is of an $\langle e, t \rangle$ -type too, we can only use Predicate Modification, and will get a deviant result: the meaning of (45), for example, would be not a truth-value, but a set of individuals (see Heim and Kratzer 1998, p. 212).

In line with the hypothesis that $\langle e, t \rangle$ -type constituents can’t be scrambled, intersective adjectives can’t move either, illustrated in (46). The same constraint is observed with embedded clauses (47). This restriction can be explained in the same

way as restrictions on scrambling nouns and adjective if clauses are predicates of individuals.²²

- (46) *kimyoha-n₁ [Mina-ka t₁ sanghwang-ul kiekha-ss-ta].
curious-ADN Mina-NOM situation-ACC remember-PST-DECL
Intended: ‘Mina remembered a curious situation.’
- (47) *[Swuna-ka tayhwoy-lul wusunghay-n]₁
Swuna-NOM competition-ACC win-ADN
[Mina-ka t₁ sanghwang-ul kiekha-ss-ta].
Mina-NOM situation-ACC remember-PST-DECL
Intended: ‘M. remembered a situation that Sw. won the competition.’

Fragment answers seem to be another environment in which <e,t>-type constituents are not possible: e.g., while whole noun phrases can be fragment answers, adjectives cannot (48). We again see that clauses pattern with <e,t>-type predicates: they cannot constitute fragment answers either.

- (48) Q: Mina-ka ette-n uykyen-ul kiekhay?
Mina-NOM be.how-ADN opinion-ACC remember
‘What kind of opinion does Mina remember?’
- A1: thull-in uykyen /thull-in kes/ *thull-in
false-ADN opinion /false-ADN thing /false-ADN
‘A false opinion/a false one.’
- A2: Swuna-ka tayhoy-eyse ik-yess-ta-nun *(uykyen/kes)
Swuna-NOM competition-LOC win-PST-DECL-ADN (opinion/thing)
‘(The opinion) that Swuna won in the competition.’

To sum up, we have seen converging evidence from a number of heuristics (interpretation, obligatoriness, ordering, morphosyntactic marking, distribution) that suggests that Korean Cont-CPs and Sit-CPs that combine with nouns are their modifiers.²³ This implies that the view where the noun is the source of displacement is not tenable: displacement must come from within the embedded CP. Given the fact that presence of displacement correlates with the presence of the marker *-ta* in the embedded clause, I propose that this marker itself is the element introducing the shift to other situations.

²²Note that, at least according to the definition in Ross (1967, p. 127), the sentence in (47) should not constitute a Complex NP Constraint violation, as we are moving not a constituent *contained* in a sentence dominated by a noun phrase, but the whole embedded sentence itself.

²³There is of course still a question whether embedded clauses are modifiers to nouns in all cases in all languages. See, for example, Özyıldız (2023) for arguments that Turkish DI(K)-clauses that combine with nouns are arguments. See also the discussion in Sect. 6 about possible cases of clausal arguments with nouns.

4 Proposal

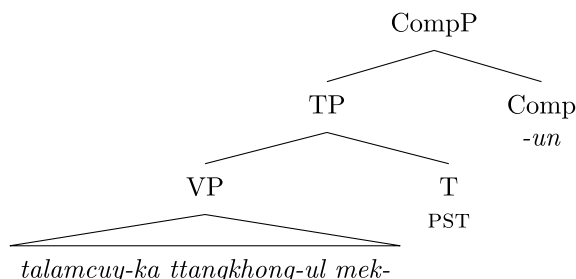
In this section, I present a formal implementation of the proposal that displacement is introduced within Cont-CPs. As previewed in Sect. 2.1, I argue that Cont-CPs contain an additional projection CompP, located between T and Comp, which Sit-CPs lack. The Cont head, spelled out in Korean with the morpheme *-ta*, introduces displacement. In this section, I develop a compositional account of how elements of the left periphery result in the meanings of sentences with Cont-CPs and Sit-CPs.

4.1 Analysis of Sit-CPs

In Sit-CPs, the Comp(lementizer), exponed by the adnominal marker, directly takes TP as its complement.²⁴ Thus, Sit-CPs like in (49) have the structure in (50).

- (49) [talamcuy-ka ttangkhong-ul mek-un] sanghwang-i
 squirrel-NOM peanut-ACC eat-PST.ADN situation-NOM
 Lit. ‘the situation that the squirrel ate the peanut’

- (50) The structure of the Korean embedded clause in (49)



As discussed in Sect. 2.2, I assume that the domain of situations is a subset of the domain of individuals ($D_v \subset D_e$). I will also assume that TPs express propositions. I propose that the Comp head introduces *exemplification*: it takes a predicate p , and returns a set of individuals in the situation of evaluation that exemplify p ,²⁵ where the exemplification relation is defined as in (52)—it is a homogeneity requirement that either p is true of all proper parts of an individual, or of none of them. I will abbreviate “ x exemplifies p ” as $x \Vdash_e p$.

²⁴I assume that the morphological rules of Korean guarantee that it is not possible to spell out T as *-ess* in this structure: both Comp and T undergo allomorphy when they are adjacent (see Sect. 2.1).

²⁵The omission of “ $x \sqsubseteq s$ ” in the abbreviated semantics will not create any issues for the cases that we will be looking at. Given that in the examples we are considering CPs always modify nouns, and denotations of nouns are situation-dependent (e.g., “ $\text{situation}(x)_{s,t}$ ”), the existence of an individual described by the CP will always be evaluated at the situation at which the nominal predicate is evaluated. The inclusion of “ $x \sqsubseteq s$ ” in the full denotation of Comp is motivated by cases where the CP will combine directly with a determiner, without first combining with a noun (e.g., see Bondarenko 2022, Ch. 5). If determiners are treated as situation-independent (see, e.g., von Stechow 1997–2020), then relativization to a situation must be supplied by the predicate that the CP denotes.

- (51) a. $\llbracket \text{Comp} \rrbracket^{s,g,t} = \lambda p: p \in D_{et}. \lambda x. x \sqsubseteq s \wedge x \Vdash_e p$
 b. *abbreviation*: $\lambda p. \lambda x. x \Vdash_e p$
- (52) **Exemplification** (based on Kratzer 1989, 2002; Deigan 2020)
 For any individual $x \in D_e$ and predicate $p \in D_{et}$:
 x exemplifies $p =_{def}$
 $x \in p \wedge (\forall x' [x' \sqsubset x \Rightarrow x' \in p] \vee \forall x' [x' \sqsubset x \Rightarrow x' \notin p])$

In Sit-CPs, Comp directly combines with the embedded proposition by Intensional Functional Application (IFA), giving us the denotation for the Sit-CP in (53a). Sit-CP denotes a set of individuals (which are situations) that exemplify the embedded proposition, and combines with a noun like *situation* by Predicate Modification (53b).

- (53) a. $\llbracket [\text{Comp } \textit{the squirrel ate the peanut}] \rrbracket^{s,g,t} =$
 $\lambda x. x \Vdash_e \{s': \text{the squirrel ate the peanut in } s'\}.$
 b. $\llbracket \textit{situation} [\text{Comp } \textit{the squirrel ate the peanut}] \rrbracket^{s,g,t} =$
 $\lambda x. \text{situation}(x)_{s,t} \wedge x \Vdash_e \{s': \text{the squirrel ate the peanut in } s'\}$

(53b) denotes a predicate true of exemplifying situations in which the squirrel ate the peanut. Because situations of the squirrel eating the peanut are *quantized* (Krifka 1998)—no part of a situation of the squirrel eating the peanut is a (complete) situation of the squirrel eating the peanut, (53b) denotes a predicate of minimal situations of the squirrel eating the peanut—situations in which the squirrel ate the peanut, but in no proper subparts of which the squirrel ate the peanut (second disjunct in (52)). If the embedded proposition was *cumulative* instead, e.g., it was a set of situations in which the sun is shining, the first conjunct of the homogeneity condition in (52) would apply: exemplification would give us a set of situations in which the sun is shining and in all parts of which the sun is shining (see Kratzer 1989, 2020 for discussion).

Let us see why we need the minimality introduced by the semantics of exemplification (54). An alternative to this semantics would be (55), where situations of any size in which the squirrel ate the peanut are in the denotation of the clause—from exemplifying situations of the squirrel eating the peanut to whole worlds containing the squirrel eating the peanut, and situations of all possible sizes in between.

- (54) *Minimal semantics for Sit-CPs*:
 $\llbracket [\text{Comp } \textit{the squirrel ate the peanut}] \rrbracket^{s,g,t} =$
 $\lambda x. x \Vdash_e \{s': \text{the squirrel ate the peanut in } s'\}.$
- (55) *Non-minimal semantics for Sit-CPs*:
 $\llbracket [\text{Comp } \textit{the squirrel ate the peanut}] \rrbracket^{s,g,t} =$
 $\lambda x. x \in \{s': \text{the squirrel ate the peanut in } s'\}$

One argument for exemplification comes from Sit-NPs occurring as CAUSERS of emotive states. Consider (56).

- (56) **Context:** Swuna won an award and didn't thank anyone when receiving it. Mina was expecting Swuna to win the award, but was surprised that she didn't thank anyone.

[FALSE] [Swuna-ka sang-ul pat-un] sanghwang-i
 Swuna-NOM award-ACC win-ADN situation-NOM
 Mina-lul nollakey ha-yess-ta.
 Mina-ACC be.surprise do-PST-DECL

Lit. 'A situation that Swuna won an award surprised Mina.'

We can individuate at least three situations in the context in (56): a situation of Swuna winning an award, a situation of Swuna not thanking anyone, and a situation that is made up of these two situations (57).²⁶

- (57) a. **situation₁**: **situation₁** $\models_e \{s': \text{Swuna won an award in } s'\}$
 b. **situation₂**: **situation₂** $\models_e \{s': \text{Swuna didn't thank anyone in } s'\}$
 c. **situation₃** = **situation₁** $\sqcup$ **situation₂**,
situation₃ $\models_e \{s': \text{Swuna won an award and didn't thank anyone in } s'\}$

Swuna is surprised by **situation₂**, and thus by **situation₃**, but not by **situation₁**. In this context the sentence in (56) is judged false. Let us see if the semantics in (54) and (55) predict this. In this paper I disregard tense for simplification, and adopt a neo-Davidsonian approach to argument structure (Castañeda 1967, a.o.), with the assumption that verbs denote predicates of exemplifying situations (58). I will henceforth abbreviate the denotations as in (58) in the following way: $\lambda s'. \models_e \text{surprise}_{s,t}(s')$.

- (58) $\llbracket \text{surprise} \rrbracket^{s,g,t} =$
 $\lambda s': s' \in D_v. s' \sqsubseteq s \wedge s' \text{ is at } t \wedge s' \models_e \{s'': \text{there is surprise in } s''\}$

With these assumptions, consider the predictions for the sentence in (56) that minimal and non-minimal semantics make, in (59) and (60), respectively.

- (59) **(56) according to minimal semantics**
 $\llbracket \text{A situation that Swuna won an award surprised Mina} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\models_e \text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{Mina} \wedge \exists x [\text{CAUSER}(s') = x$
 $\wedge \text{situation}(x)_{s,t} \wedge x \models_e \{s'': \text{Swuna got an award in } s''\}]$
- (60) **(56) according to non-minimal semantics**
 $\llbracket \text{A situation that Swuna won an award surprised Mina} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\models_e \text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{Mina} \wedge \exists x [\text{CAUSER}(s') = x$
 $\wedge \text{situation}(x)_{s,t} \wedge x \in \{s'': \text{Swuna got an award in } s''\}]$

On the non-minimal semantics, **situation₃** satisfies the required description, as it contains Swuna winning the award, and so the sentence should be true, contra to fact. The minimal semantics predicts (56) to be false, because **situation₃** does not exemplify

²⁶One might wonder what kinds of situations will be in the set $\{s': \text{Swuna didn't thank anyone in } s'\}$. We could hypothesize that this set contains negative situations: we could think of them being similar to negative events (Bernard and Champollion 2018, a.o.) or falsifiers (Fine 2017a,b,c).

{s': Swuna got an award in s'}. Thus, the fact that (56) is judged by the native speakers to be false in the given context argues in favor of minimality semantics.

Another argument for exemplification comes from the lack of stacking, (61).

- (61) *Mina-ka [Swuna-ka nolayha-nun] [Hani-ka chwumchwu-nun]
 Mina-NOM Swuna-NOM sing-ADN Hani-NOM dance-ADN
 sanghwang-ul kiekha-ss-ta.
 situation-ACC remember-PST-DECL
 Intended:
 'M. remembered the situation, in which S. sang and in which H. danced.'

If Sit-CPs describe exemplifying situations, then sentences like (61) should be always false, since no situation can exemplify Swuna singing and Hani dancing at the same time (62). I propose that this leads to ungrammaticality of such sentences. Non-minimal semantics, (63), doesn't expect such a restriction: we should be able to modify a noun with two Sit-CPs and get a situation in which Swuna sang and Hani danced.

- (62) **Minimal semantics: no stacking**
 $\llbracket \text{Mina remembered a situation that Swuna sang that Hani danced} \rrbracket^{s,g,t} = 1$
 iff $\exists s' [\models_e \text{remember}_{s,t}(s') \wedge \text{EXP}(s') = \text{Mina} \wedge \exists x [\text{THEME}(s') = x$
 $\wedge \text{situation}(x)_{s,t} \wedge x \models_e \{s'' : \text{Swuna sang in } s''\}$
 $\wedge x \models_e \{s'' : \text{Hani danced in } s''\}]]$ **always false**
- (63) **Non-minimal semantics: should allow stacking**
 $\llbracket \text{Mina remembered a situation that Swuna sang that Hani danced} \rrbracket^{s,g,t} = 1$
 iff $\exists s' [\models_e \text{remember}_{s,t}(s') \wedge \text{EXP}(s') = \text{Mina} \wedge \exists x [\text{THEME}(s') = x$
 $\wedge \text{situation}(x)_{s,t} \wedge x \in \{s'' : \text{Swuna sang in } s''\}$
 $\wedge x \in \{s'' : \text{Hani danced in } s''\}]]$

Now let us see how the proposed semantics accounts for the properties of Sit-CPs that we observed in Sects. 2 and 3. First, it straightforwardly captures the fact that Sit-CPs behave like modifiers of nouns that they combine with: according to (53a), Sit-CPs are predicates and combine with nouns by Predicate Modification. This semantics also correctly predicts that the adnominal marker cannot be omitted: Sit-NPs cannot combine with TPs (or VPs) directly (64). This follows from my proposal, as it predicts a type mismatch in such cases due to nouns not taking propositional arguments.

- (64) *[talamcuy-ka ttangkhong-ul mek-(ess)] sanghwang-i
 squirrel-NOM peanut-ACC eat-(PST) situation-NOM
 Intended: 'the situation that the squirrel ate the peanut'

Second, my proposal captures the lack of displacement in sentences with Sit-CPs, as according to it, neither the noun nor the clause is contributing a shift to other situations. Thus, for example, in (59) the situation of Swuna getting the award is evaluated with respect to the matrix situation of evaluation. Due to the lack of displacement in the meanings of Sit-CPs, *de dicto* readings of predicates inside them are correctly predicted to not be possible. (65) illustrates this for the sentence in (66).

- (65) *Infelicitous result with Sit-CPs:*
 $\llbracket I \text{ saw a situation that the sheep are goats} \rrbracket^{s,g} = 1$ iff
 $\exists s', x [\models_e \text{see}_s(s') \wedge \text{THEME}(s') = x \wedge \text{EXP}(s') = \text{Speaker} \wedge \text{situation}(x)_s \wedge$
 $x \models_e \{s': \iota y(\text{sheep}(y)_s) \text{ are goats in } s'\}]$
 $\Rightarrow \#$ if sheep and goats are disjoint sets in s
- (66) #Na-nun [san-uy yang-i yemso-i-n] sanghwang-ul
 I-TOP mountain-GEN sheep-NOM goat-COP-ADN situation-ACC
 po-ass-ta.
 see-PST-DECL
 Intended: 'I saw a situation that the sheep on this mountain are goats.'

By the definition of exemplification (52), if x exemplifies p , then $x \in p$. This means that in (65) $x \in \{s': \iota y(\text{sheep}(y)_s) \text{ is a goat in } s'\}$. In other words, for the sentence to be true it has to be the case that the sheep in s , the situation of evaluation, are goats in x . Note that the situation x in (65) must be part of the situation s . First, this must be true because " $\text{situation}(x)_s$ " holds: x is a situation in s . Second, this must be true because in (66) the Sit-NP is a THEME argument of the verb *see*. In neo-Davidsonian semantics, this means that the individual that this noun phrase describes is connected to the situation argument of the verb via the THEME relation (65). Since the situation of seeing s' is located in s , its participants must also be located in s , and thus the situation x must be located in s too. Thus, if the sheep in s are goats in x , they must be goats in s , a bigger situation that contains x , as well. This last step of argumentation relies on the assumption that propositions like $\{s: y \text{ is a goat in } s\}$ are persistent (67) (see Kratzer 1989 for discussion): if someone is a goat in a situation s , someone is still a goat in bigger situations containing s .

- (67) *Persistence* (Kratzer 1989, p. 618)
 A proposition $p \in \mathbb{P}(S)$ is persistent if and only if for all s and $s' \in S$ the following holds: Whenever $s \sqsubseteq s'$ and $s \in p$, then $s' \in p$.

Thus, we arrive at a contradiction under the assumption that sheep and goats are disjoint sets of individuals, hence the infelicity of examples like (66).

The lack of displacement also explains the results of the substitution test in (26). Let us make a simplifying assumption that proper names can be interpreted akin to definite descriptions. Then a sentence like *Swuna is the tallest girl in the class* will receive the truth-conditions in (68): when evaluated at s , it is true iff the person who is Swuna in s is the tallest girl in s .

- (68) $\llbracket \text{Swuna is the tallest girl in the class} \rrbracket^{s,g} = 1$ iff
 $\iota y(y \text{ is Swuna in } s) \text{ is the tallest girl in the class in } s$.

Now consider the truth-conditions that we get for Sit-CPs: (70a) for the sentence in (69a), and (70b) for the sentence in (69c).

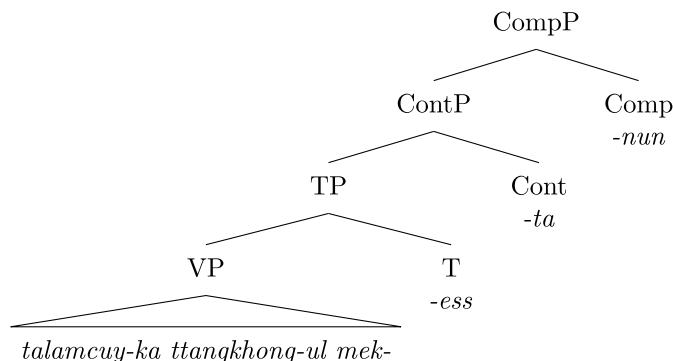
- (69) *Transparency with Sit-CPs*: from $\{(a), (b)\} \Rightarrow (c)$
- a. Mina-ka [Swuna-ka mwuncey-lul phwul-un] sanghwang-ul
Mina-NOM Swuna-NOM problem-ACC solve-ADN situation-ACC
kiekhay-ss-ta.
remember-PST-DECL
Lit. ‘M. remembered the situation that S. solved the problem.’
 - b. Swuna-ka pan-eyse kacang khi-ga khu-ta.
Swuna-NOM class-LOC most height-NOM large-DECL
‘Swuna is the tallest in the class.’
 - c. Mina-ka [pan-eyse kacang khi-ga khun sonye-ka
Mina-NOM class-LOC most height-NOM large girl-NOM
mwuncey-lul phwul-un] sanghwang-ul kiekhay-ss-ta.
problem-ACC solve-ADN situation-ACC remember-PST-DECL
Lit. ‘Mina remembered the situation that the tallest girl in the class
solved the problem.’
- (70) a. $\llbracket \text{Mina remembered the situation that Swuna solved the problem} \rrbracket^{s,g} = 1$
iff $\exists s' [\vdash_e \text{remember}_s(s') \wedge \text{EXP}(s') = \iota y (y \text{ is Mina in } s) \wedge \exists x [\text{THEME}(s') = x \wedge \text{situation}(x)_s \wedge x \Vdash_e \{s'' : \iota y (y \text{ is Swuna in } s'') \text{ solved the problem in } s''\}]]$
- b. $\llbracket \text{Mina remembered the situation that the tallest girl in the class solved the problem} \rrbracket^{s,g} = 1$ iff
 $\exists s' [\vdash_e \text{remember}_s(s') \wedge \text{EXP}(s') = \iota y (y \text{ is Mina in } s) \wedge \exists x [\text{THEME}(s') = x \wedge \text{situation}(x)_s \wedge x \Vdash_e \{s'' : \iota y (y \text{ is the tallest girl in the class in } s'') \text{ solved the problem in } s''\}]]$

Assume that (69a) and (69b) are both true when evaluated with respect to the actual world @. Then there exists a situation x which is part of the actual world @. By definition of exemplification, x is a situation of the individual who is Swuna in x solving the problem in x . Given that $x \sqsubseteq @$, this means that x is a situation of the individual who is Swuna in @ solving the problem. But from (69b) being true it follows that the individual who is Swuna in @ is the tallest girl in @. Thus, x is a situation of the individual who is the tallest girl in @ solving the problem, and thereby a situation of the individual who is the tallest girl in x solving the problem. We also know that Mina remembers the situation x . This leads to the conclusion that (69c) must be true: it is the case that Mina remembers the situation of the tallest girl in the class solving the problem. Note that deriving the entailment in (69c) does not bear on what Mina’s beliefs are: we derive it even if she does not know that Swuna is the tallest girl in the class. Everything in the description of the situation at hand has to be evaluated at @ due to the lack of displacement.

4.2 Analysis of Cont-CPs

I propose that in Cont-CPs, there is an additional projection—*ContP*—between TP and CompP. Thus, the structure of Cont-CPs in examples like (71) is in (72).

- (71) [talamcuy-ka ttangkhang-ul mek-ess-ta-nun] cwucang-i
 squirrel-NOM peanut-ACC eat-PST-DECL-ADN claim-NOM
 ‘the claim that the squirrel ate the peanut’
- (72) The structure of the Korean embedded clause in (71)



Cont introduces displacement (73): it demands that the CONT(ENT) relation (see Moltmann 1989; Kratzer 2006; Moulton 2009; Hacquard 2010; Moltmann 2013; Moulton 2015; Bogal-Allbritten 2016, 2017; Kratzer 2016; Elliott 2020a; Moltmann 2020) holds between an individual x and a proposition p , and in particular that the content of x equals p (Moulton 2009; Elliott 2020a; Bassi and Bondarenko 2021).^{27,28}

- (73) $\llbracket \text{Cont} \rrbracket^{s,g,t} = \lambda p \in D_{vt}. \lambda x. \text{CONT}(x) = p$

²⁷I assume that the same syntactic head Cont also hosts the interrogative marker *-nya* when the propositional content associated with the noun is interrogative, as for example with the noun *mwuncey* ‘question, problem’ in (i). I assume that this morpheme signals that there is propositional content associated with the noun, and it is not just a single proposition, but a set with multiple propositions (see, e.g., Elliott 2020a).

- (i) [Enu haksayng-tul-i sihem-ul thongkwaha-yess-**nya**-nun] mwuncey-ka Mina-eyke
 which student-PL-NOM exam-ACC pass-PST-Q-ADN question-NOM Mina-DAT
 hungmilop-ta.
 interesting.PRS-DECL
 ‘The question of which students passed the exam is interesting to Mina.’

Deniz Özyıldız raises the question of whether the notion of *displacement* can be applied to interrogative complements, and whether it is possible to have interrogative Sit-CPs. I would like to suggest that meanings of questions are inherently intensional, so in that sense they always involve displacement—no proposition in the set of propositions denoted by a question is evaluated at the same situation as the matrix predicate. This is corroborated by the fact that predicates inside of interrogative clauses can be interpreted *de dicto*, e.g., *Mary is wondering whether the girl outside is inside*. I think that we expect question-denoting Sit-CPs to not exist, because a single situation cannot exemplify multiple incompatible propositions (= answers to the question) at the same time. We could only link a situation and a set of propositions if we introduce quantification over the question set: e.g., say that *there exists* some proposition in the set that the situation exemplifies.

²⁸The idea that the Korean declarative marker *-ta* has the meaning in (73) has been entertained in a presentation by Moulton et al. (2020), though this was not the focus of their discussion, and they did not commit to this idea in a later publication (Bogal-Allbritten et al. 2024), proposing that displacement is introduced in the meaning of the nominalized head *kes*.

Combining Cont with TP gives us the denotation in (74): it is a set of individuals (which could be situations as well) whose propositional content equals the embedded proposition.

$$(74) \quad \llbracket [\text{Cont } \textit{the squirrel ate the peanut}] \rrbracket^{s,g,t} = \\ \lambda x. \text{CONT}(x) = \{s' : \text{the squirrel ate the peanut in } s'\}$$

While (74) is already a meaning that could compose with Cont-NPs, note that the adnominal marker (Comp) is nevertheless obligatory in Cont-CPs (75). I will assume that Comp in Cont-CPs has the same semantic contribution as in Sit-CPs—that of exemplification, and so Cont-CPs have meanings as in (76a), abbreviated as in (76b).

$$(75) \quad *[\text{talamcuy-ka } \textit{ttangkhong-ul mek-ess-(ta)}] \text{ cwucang-i} \\ \text{squirrel-NOM peanut-ACC eat-PST-(DECL) claim-NOM} \\ \text{Intended: 'the claim that the squirrel ate the peanut'}$$

$$(76) \quad \text{a. } \llbracket [\text{Comp Cont } \textit{the squirrel ate the peanut}] \rrbracket^{s,g,t} = \\ \lambda x. x \Vdash_e \{x' : \text{CONT}(x') = \{s' : \text{the squirrel ate the peanut in } s'\}\} \\ \text{b. } \textit{abbreviation: } \lambda x. \Vdash_e \text{CONT}(x) = \{s' : \text{the squirrel ate the peanut in } s'\}$$

While empirically the existence of exemplification in meanings of Cont-CPs is difficult to test, it does not lead to any unwelcome consequences, as far as I can see.²⁹ Note that by the definition of exemplification, repeated again below in (77), this is a relation that can hold between an individual and any predicate of individuals, whether they are situations or not. Thus, the meaning of the Cont-CP in (76a) is derived by Functional Application: Comp, (78), takes the meaning of the ContP in (74) as its argument. Cont-CP will then compose with the noun by Predicate Modification (79).

²⁹Introducing exemplification filters the set of individuals: we get rid of any individuals that contain something irrelevant to the truth of the predicate $\{x' : \text{CONT}(x') = \{s' : \text{the squirrel ate the peanut in } s'\}\}$. Here is a brief illustration of when such filtering might be non-vacuous. Let us consider an individual x made of two parts: $x = y \sqcup z$. Imagine that while y has propositional content associated with it (ic), z does not (id), and that the rules of calculating propositional content of complex individuals tell us that if some subparts of a complex individual do not have propositional content associated with them, we ignore them in calculating the propositional content of the complex individual (cf. example (82), where we consider an entity consisting of two contentful subparts and assume that its content is the conjunction of the contents of its parts). Such an individual x won't be a member of the set which the function in (76a) characterizes.

- (i) *Example:* $\neg(x \Vdash_e \{x' : \text{CONT}(x') = \{s' : \text{the squirrel ate the peanut in } s'\}\})$
- $x = y \sqcup z$
 - $\text{CONT}(x) = \{s' : \text{the squirrel ate the peanut in } s'\}$
 - $\text{CONT}(y) = \{s' : \text{the squirrel ate the peanut in } s'\}$
 - $\text{CONT}(z) = \#$

The propositional content associated with x will be the same as the propositional content associated with y , but by the definition of exemplification, x will not be an exemplifying individual for the predicate $\{x' : \text{CONT}(x') = \{s' : \text{the squirrel ate the nuts in } s'\}\}$, because it has a proper part y in which the predicate is true, but also a proper part z in which the predicate is not true (it is undefined). Thus, x does not exemplify this predicate even though it is a member of the predicate. The requirement that we will consider only exemplifying individuals will get rid of such individuals as x .

- (77) **Exemplification** (based on Kratzer 1989, 2002; Deigan 2020)
 For any individual $x \in D_e$ and predicate $p \in D_{et}$:
 x exemplifies $p =_{def}$
 $x \in p \wedge (\forall x'[x' \sqsubset x \Rightarrow x' \in p] \vee \forall x'[x' \sqsubset x \Rightarrow x' \notin p])$
- (78) $\llbracket \text{Comp} \rrbracket^{s,g,t} = \lambda p: p \in D_{et}. \lambda x. x \Vdash_e p$
- (79) a. $\llbracket \text{claim} [\text{Comp Cont the squirrel ate the peanut}] \rrbracket^{s,g,t} = \lambda x. \text{claim}(x)_{s,t}$
 $\wedge x \Vdash_e \{x': \text{CONT}(x') = \{s': \text{the squirrel ate the peanut in } s'\}\}$
 b. *abbreviation*:
 $\lambda x. \text{claim}(x)_{s,t} \wedge \Vdash_e \text{CONT}(x) = \{s': \text{the squirrel ate the peanut in } s'\}$

(79a) denotes a set of claims whose propositional content is the proposition “*The squirrel ate the peanut*”, such that either all of the proper parts of these claims have the content “*The squirrel ate the peanut*”, or none of them do.

According to my proposal, CONT is a function (80): it takes an individual and returns the propositional content associated with it. The Cont head demands that this content *equals* the embedded proposition (Moulton 2009; Elliott 2020a; Bassi and Bondarenko 2021). A common alternative to the equality semantics of displacement is to assume that the content of an individual is a *subset* of the embedded proposition (81) (see Kratzer 2006; Bogal-Allbritten 2016 a.o.).

- (80) *Equality Semantics of Displacement*
 $\llbracket \text{Cont} \rrbracket^{s,g,t} = \lambda p \in D_{st}. \lambda x. \text{CONT}(x) = p$
- (81) *Subset Semantics of Displacement*
 $\llbracket \text{Cont} \rrbracket^{s,g,t} = \lambda p \in D_{st}. \lambda x. \text{CONT}(x) \subseteq p$

Arguments in favor of equality semantics in the literature include impossibility of clause stacking (Moulton 2009), copular constructions (Djäv 2019), obligatory wide scope of conjunction in ‘*CP and CP*’ strings (Bassi and Bondarenko 2021), the use of the definite article with the noun *fact* (Elliott 2020a,b), and examination of NPI licensing in complements to nouns like *belief* (Bondarenko and Elliott 2024). Here I would like to propose an additional argument in favor of the equality semantics.

Let us assume that a complex claim, **claim**₃, has been made: it consists of two sub-claims: “*Swuna won an award*” and “*Swuna didn’t thank anyone*” (82a)–(82b). Let us further assume, following Elliott (2020a), that the content of an entity consisting of two subparts is the conjunction of the propositional contents of the parts (82c).

- (82) a. **claim**₁: $\text{CONT}(\text{claim}_1) = \{s': \text{Swuna won an award in } s'\}$
 b. **claim**₂: $\text{CONT}(\text{claim}_2) = \{s': \text{Swuna didn’t thank anyone in } s'\}$
 c. **claim**₃ = **claim**₁ $\sqcup$ **claim**₂,
 $\text{CONT}(\text{claim}_3) = \{s': \text{S. won the award and didn’t thank anyone in } s'\}$

In the provided context, the sentences in (83) is judged to be false.

- (83) **Context:** Someone claimed that Swuna won an award and that she didn't thank anyone (= **claim**₃). Mina is not surprised by the claim that Swuna won an award (**claim**₁), but she is surprised by the claim (**claim**₂) that Swuna didn't thank anyone when receiving it (she suspects it's a lie).

[Swuna-ka sang-ul pat-ess-ta-nun] cwucang-i Mina-lul
 Swuna-NOM award-ACC win-PST-DECL-ADN claim-NOM Mina-ACC
 nollakey ha-yess-ta. [FALSE]
 be.surprised do-PST-DECL

'A claim that Swuna won the award surprised Mina.'

The equality semantics predicts this:

- (84) **Truth-conditions under the equality semantics**

$\llbracket A \text{ claim that Swuna won the award surprised Mina} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\models^e \text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{Mina} \wedge \exists x [\text{CAUSER}(s') = x \wedge \text{claim}(x)_{s,t} \wedge \models^e \text{CONT}(x) = \{s' : \text{Swuna got an award in } s'\}]]$

In the provided context, there is no claim with the content "*Swuna got an award*" that surprised Mina. Under the truth-conditions that we get from the subset semantics, however, the prediction is that the sentence should be true (85).

- (85) **Truth-conditions under the subset semantics**

$\llbracket A \text{ claim that Swuna won the award surprised Mina} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\models^e \text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{Mina} \wedge \exists x [\text{CAUSER}(s') = x \wedge \text{claim}(x)_{s,t} \wedge x \models_e \{x' : \text{CONT}(x') \subseteq \{s' : \text{Swuna got an award in } s'\}]]]$

All that (85) requires for the sentence to be true is that there be a claim that surprised Mina such that in all situations in its content Swuna got an award. Assuming that individuals whose parts are surprising are surprising themselves, **claim**₃, which has been made according to the context, will count as a claim that surprised Mina: all situations in the content of **claim**₃ are such that Swuna got an award in them.

If the equality semantics is on the right track, its logical properties require further study, as they are quite different from the more commonly assumed subset semantics. For example, note that while the subset semantics predicts closure under entailment, the equality semantics, in the absence of any additional assumptions, does not guarantee such a result (86)–(87). See Elliott (2020a), Bondarenko (2022, pp. 140–149, 423–434) and Bondarenko and Elliott (2024) for discussions of when/whether closure under entailment is a desirable property in structures with clausal embedding, and suggestions of how to model entailment by appealing to mereological properties in attitude reports.

- (86) *The subset semantics: closure under entailment*

- $\exists x [\text{CONT}(x) \subseteq p]$
- $p \subseteq q$
- $\Rightarrow \exists x [\text{CONT}(x) \subseteq q]$

(87) *The equality semantics: no closure under entailment*

- a. $\exists x[\text{CONT}(x) = p]$
- b. $p \subseteq q$
- c. $\nRightarrow \exists x[\text{CONT}(x) = q]$

Now let us see how my proposal about semantics of Cont-CPs captures their properties. As with Sit-CPs, it accounts for the fact that these clauses behave like modifiers (see Sect. 3) by proposing that Cont-CPs are nominal modifiers composing by Predicate Modification (79). This also correctly predicts that nouns will not be able to combine with TPs, which denote truth-values, as their arguments (75).

According to my proposal, semantics of sentences with Cont-CPs will have displacement due to the presence of the Cont head in their structure. This explains why Cont-CPs allow predicates inside of them to be interpreted *de dicto*: ‘sheep’ and ‘goats’ can be evaluated with respect to distinct situations in examples like (88).

- (88) Na-nun [san-uy yang-i yemso-la-nun] (calmottoy-n)
 I-TOP mountain-GEN sheep-NOM goat-COP.DECL-ADN be.mistaken-ADN
 uykyen-ul po-ass-ta
 opinion-ACC see-PST-DECL
 ‘I saw a (mistaken) opinion that the sheep on this mountain are goats.’

I hypothesize that, whatever the mechanism of achieving *de re* interpretation of ‘sheep’ in (88) is, it produces the truth-conditions in (89).

- (89) $\llbracket I \text{ saw an opinion that the sheep on this mountain are goats} \rrbracket^{s,g} = 1$ iff
 $\exists s', x_l \models_e \text{see}_s(s') \wedge \text{THEME}(s') = x \wedge \text{EXP}(s') = \text{Speaker} \wedge \text{opinion}(x)_s \wedge$
 $\models_e \text{CONT}(x) = \{s'' : \iota y(\text{sheep}(y)_{s'}) \text{ are goats in } s''\}$

In (89) the properties of being a sheep and being a goat do not have to be evaluated with respect to the same situation. Cont gives us a set of situations that represent the content of an opinion, and the situations in this set could differ from the evaluation situation s in the properties that different individuals have: e.g., goats in these situations might not be goats in the evaluation situation. Thus, if some mechanism allows us to interpret the property of being sheep *de re*, we will get a felicitous sentence according to which the individuals who are sheep in the evaluation situation are goats in the situations *according to the opinion*.

The presence of displacement in Cont-CPs also means that definite descriptions and proper names in these clauses will be able to be evaluated at a situation distinct from the evaluation situation. Let us again make a simplifying assumption in the example below that proper names denote unique individuals who have the name under consideration. Thus, the sentence in (90a) can have the truth-conditions in (91a), and the sentence in (90c) the truth-conditions in (91b).

- (90) *Opacity with Cont-CPs*: from {(a), (b)} $\nRightarrow$ (c)
- a. Mina-ka [Swuna-ka mwuncey-lul phwul-ess-ta-nun]
Mina-NOM Swuna-NOM problem-ACC solve-PST-DECL-ADN
mitum-ul kiekhay-ss-ta.
belief-ACC remember-PST-DECL
'Mina remembered a belief that Swuna solved the problem.'
 - b. Swuna-ka pan-eyse kacang khi-ga khu-ta.
Swuna-NOM class-LOC most height-NOM large-DECL
'Swuna is the tallest in the class.'
 - c. Mina-ka [pan-eyse kacang khi-ga khun sonye-ka
Mina-NOM class-LOC most height-NOM large girl-NOM
mwuncey-lul phwul-ess-ta-nun] mitum-ul kiekhay-ss-ta.
problem-ACC solve-PST-DECL-ADN belief-ACC remember-PST-DECL
'Mina remembered a belief that the tallest girl in the class solved the problem.'
- (91) a. $\llbracket \text{Mina remembered the belief that Swuna solved the problem} \rrbracket^{s,g} = 1$ iff
 $\exists s' [\models^e \text{remember}_s(s') \wedge \text{EXP}(s') = \iota y (y \text{ is Mina in } s) \wedge$
 $\exists x [\text{THEME}(s') = x \wedge \text{belief}(x)_s \wedge$
 $\models^e \text{CONT}(x) = \{s'' : \iota y (y \text{ is Swuna in } s'') \text{ solved the problem in } s''\}]]$
- b. $\llbracket \text{Mina remembered the belief that the tallest girl in the class solved the problem} \rrbracket^{s,g} = 1$ iff $\exists s' [\models^e \text{remember}_s(s') \wedge \text{EXP}(s') = \iota y (y \text{ is Mina in } s) \wedge \exists x [\text{THEME}(s') = x \wedge \text{belief}(x)_s \wedge \models^e \text{CONT}(x) = \{s'' : \iota y (y \text{ is the tallest girl in the class in } s'') \text{ solved the problem in } s''\}]]$

The CONT function provides a set of situations that is the content of the belief, and expressions like *Swuna* and *the tallest girl in the class* can be evaluated according to the situations in this set. Thus, one could truthfully believe (90a) and (90b) to be true of the actual world, but (90c) to be false. Mina could have remembered a belief that the individual who is *Swuna according to the belief* solved the problem, but not have remembered a belief that the individual who is *the tallest girl in the class according to the belief* solved the problem. The fact that Swuna and the tallest girl in the class pick out the same individual in the actual world is irrelevant. Of course, it is possible to interpret both *Swuna* and *the tallest girl in the class de re*—with respect to the evaluation situation, and the substitution test would then succeed. But crucially, we do not have to interpret these expressions *de re*: there is a reading on which (90a) and (90b) can be true whereas (90c) is false, and for that reading to exist, the meaning of the sentence has to involve displacement.

Now let us take stock and discuss how the current proposal captures the relationship between the two types of nouns (situation nouns and content nouns; (92a)–(92b)) and two types of embedded clauses (Sit-CPs and Cont-CPs; (93a)–(93b)). Recall in Sect. 2.2 we discussed the difference between the two types of nouns, which manifests itself in compatibility with different predicates: situation nouns are predicates of situations that do not have propositional content (92a), and content nouns are predicates of non-situational individuals with propositional content (92b). Neither selects for a CP, and so both will combine with CPs via Predicate Modification (32).

- (92) a. $\llbracket \textit{situation} \rrbracket^{s,g,t} = \lambda x: x \in D_v \wedge x \notin D_{Cont}. \textit{situation}(x)_{s,t}$
 b. $\llbracket \textit{belief} \rrbracket^{s,g,t} = \lambda x: x \notin D_v \wedge x \in D_{Cont}. \textit{belief}(x)_{s,t}$
- (93) a. $\llbracket [\textit{Comp the squirrel ate the peanut}] \rrbracket^{s,g,t} =$
 $\lambda x. x \Vdash_e \{s': \text{the squirrel ate the peanut in } s'\}$
 b. $\llbracket [\textit{Comp Cont the squirrel ate the peanut}] \rrbracket^{s,g,t} =$
 $\lambda x. \Vdash_e \text{CONT}(x) = \{s': \text{the squirrel ate the peanut in } s'\}$

In previous sections, we have seen that Sit-NPs can be modified by Sit-CPs, and Cont-NPs can be modified by Cont-CPs. Now consider what will happen if we try to combine a “wrong” embedded clause with a noun. Both modifying a Sit-NP by a Cont-CP and modifying a Cont-NP by a Sit-CP will result in a predicate that is not defined for any individual. If an individual is in the domain of a noun like *situation*, it won’t be in the domain of a Cont-CP, because it will lack propositional content. If an individual is in the domain of a noun like *belief*, it will not be in the domain of a Sit-CP, as it is not a situation. Thus, specification of domains for the partial functions denoted by the two kinds of nouns and two kinds of clauses ensures the observed (in)compatibility.

4.3 Comparison to alternative approaches

Most of the literature on Korean adnominal embedded clauses has to do with the cases where these clauses combine with the abstract noun *kes* ‘thing’ (Kim 2009; Shim and Ihsane 2015; Yoon 2017; Bogal-Allbritten and Moulton 2018; Bogal-Allbritten et al. 2024). An exception to this is Kim (2011), which discusses embedded clauses with lexical nouns in Korean. Kim’s key observation aligns very well with the present findings: they observe that there are two morphological types of clauses that we find—“simpler” ones with nouns like *kwangkyeng* ‘scene’ and more complex ones with nouns like *cwucang* ‘claim’, and conclude that “the simple modifying clause denotes a fact or event, an object in the world, while the complex form denotes a proposition, an object that is a description of a possibility” (Kim 2011, p. 4). The present proposal could be seen as fleshing out a formal analysis for this intuition that identifies what the different pieces in the structures of these clauses contribute to their meanings.

Clauses nominalized with the abstract noun *kes* ‘thing’ have received different accounts in the literature. Shim and Ihsane (2015) argue that the declarative marker *-ta* is located in ForceP, and that Force also exists in Sit-CPs, although with null exponents—an assumption they make due to their view of nominative case assignment. The idea that a null equivalent of *-ta* is present in Sit-CPs is incompatible with the observations made in this paper: I have argued that we do not want to have the same semantic contribution that *-ta* makes be present in Sit-CPs.

Kim (2009) proposes that *-ta* is an indicative mood marker occurring in embedded clauses with assertoric force, the adnominal marker serves as a conjunction for the contents of the embedded and embedding clauses, and *kes* is an E-type pronoun that combines with a definite determiner. A similar proposal is advocated for in Bogal-Allbritten and Moulton (2018), where the declarative marker *-ta* is provided with the denotation in (94a) (p. 225, ex. (23)), and *kes* is treated as an element that takes a proposition as its argument and returns back a definite description (94b).

(94) *Denotations of -ta and kes from Bogal-Allbritten and Moulton (2018)*

- a. $\llbracket ta_{embedded} \rrbracket = \lambda p. \lambda e. e$ is an event of asserting p
 b. $\llbracket kes \rrbracket^C = \lambda p. \lambda x. R(p)(x)$,
 where x is in the domain of ordinary individuals or situations, R is a
 suitable relation defined iff x is familiar in C

The denotation for *-ta* in (94a) cannot apply across the board to all the cases of clauses combining with nouns: not all of them imply existence of an assertion event. For example, consider (95).

(95) **Context:** No one has asserted that the squirrel ate the peanut.

Mina-ka talamcuy-ka ttangkhang-ul mek-ess-ta-nun mitum-ul
 Mina-NOM squirrel-NOM peanut-ACC eat-PST-DECL-ADN belief-ACC
 /uykyen-ul kaci-ess-ta.
 /opinion-ACC have-PST-DECL

‘Mina had a belief/opinion that the squirrel ate the peanut.’

This sentence can be uttered even if Mina did not assert her belief/opinion, and there is generally no requirement that someone asserted or even thought the embedded proposition before. (95) just seems to describe the belief/opinion that Mina had.

The semantics proposed for the abstract noun *kes* in (94b) also cannot be generalized to lexical nouns. Note that in the denotation in (94b) *kes* takes a proposition as its semantic argument, whereas in Sect. 3, I argued that embedded clauses that combine with situation and content nouns are their modifiers. The same issue arises for the denotation of *kes* proposed in Bogal-Allbritten et al. (2024), where it is argued to be an element that turns the embedded proposition into an anaphoric definite description of individuals bearing the propositional content of that clause (96).

- (96) $\llbracket kes \rrbracket = \lambda p. \lambda x. \lambda w : \exists ! x [\text{CONT}(x)(w) = p \wedge x = y]. \lambda x [\text{CONT}(x)(w) = p \wedge x = y]$,
 where y is a free variable whose value is determined by the context via an assignment function g

I would like to suggest however that my proposal is very much compatible with certain ideas about *kes*-nominalization expressed in the literature. In fact, an earlier version of the proposal in Bogal-Allbritten et al. (2024), presented in a talk (Moulton et al. 2020), entertained the same semantics for the declarative marker that I argue for in this paper (97). The fact that they opted for encoding displacement in *kes* in Bogal-Allbritten et al. (2024) seems to just reflect the fact that the source of displacement was tangential to the goals of their paper on anaphoricity in clausal embedding.

- (97) $\llbracket -ta \rrbracket = \lambda p. \lambda x. \lambda w. [\text{CONT}(x)(w) = p]$ (Moulton et al. 2020, ex. (33))

To sum up, my proposal shares some of the intuitions about the meanings of Korean embedded clauses expressed in the literature. But its focus on the two kinds of lexical nouns and comparison between Cont-CPs and Sit-CPs allows us to examine the

contribution of different pieces to the overall meaning in more detail and provide an argument for the declarative marker *-ta* encoding displacement.

5 Cross-linguistic extensions

This section discusses the question of whether my proposal can be extended to other languages. I discuss data from Buryat, English and Russian, and argue that in all of them we can distinguish Sit-CPs and Cont-CPs among the clauses that combine with nouns. My analysis developed for Korean can be extended to these languages under the assumption that not all languages have an overt morphological exponent for Cont.

In Buryat (Mongolic language family, spoken in southeastern Siberia) both clauses that combine with content nouns and clauses that combine with situation nouns occur with participial (PART) morphemes (past tense participle *-A:šA*³⁰ in (98)–(99)), which have functions similar to Korean adnominal markers.³¹ The two types of CPs differ in whether there is an additional morpheme before the participial marker: Cont-CPs must occur with *g(ə)-*, a functional element which is a grammaticalized root of the verb ‘say’ (see, e.g., Ozyildiz 2017; Major 2021 for discussion of *say*-complementation) (98), whereas Sit-CPs cannot contain this morpheme (99).

- (98) a. [[Badma *tərgə əmdəl-ə: g-ə:šə*] hana:n] Sajana-da
 Badma.NOM cart break-PST SAY-PART thought.NOM Sajana-DAT
 tolgoi-do-n’ ər-ə:
 head-DAT-3SG arrive-PST
 ‘The thought that Badma broke the cart occurred to Sajana (lit. ‘arrived in Sajana’s head).’
- b. *[[Badma/Badm-i:n *tərgə əmdəl-ə:šə*] hana:n]
 Badma.NOM/Badma-GEN cart break-PART thought.NOM
 Sajana-da *tolgoi-do-n’ ər-ə:*
 Sajana-DAT head-DAT-3SG arrive-PST
 Intended: ‘The thought that Badma broke the cart occurred to Sajana (lit. ‘arrived in Sajana’s head).’³²
- (99) a. *Sajana [Badm-i:n *tərgə əmdəl-ə: g-ə:šə*] *ušar hana-na*
 Sajana.NOM Badma-GEN cart break-PST SAY-PART event think-PRS
 Intended: ‘Sajana remembers an event that Badma broke the cart.’

³⁰Capital letters represent vowels before harmony rules have applied to them.

³¹Most Buryat examples present in this paper have been collected by the author during a 2018 fieldtrip to the village Baraghan located in Kurumkansky District, Buryatia, Russia. The data come from three native speakers of the Barguzin dialect of Buryat. Some additional examples have been elicited via virtual elicitations with one of these speakers in 2019–2024.

³²While the subjects of participial clauses with *g(ə)-* can be nominative (in addition to genitive, and sometimes accusative), participial clauses without this morpheme usually cannot have nominative marking (only genitive and sometimes accusative). Here we see that the sentence without *g(ə)-* is not acceptable irrespective of the case with which the subject is marked.

- b. Sajana [Badm-i:n tərgə ɔmdəɭ-ə:šə] ušar hana-na
 Sajana.NOM Badma-GEN cart break-PART event think-PRS
 Lit. ‘Sajana remembers an event that Badma broke the cart.’

Thus, we see that Buryat patterns together with Korean when it comes to morphosyntax of Cont-CPs and Sit-CPs: the structure of Cont-CPs is more complex than that of Sit-CPs. We can hypothesize that *g(ə)-* is the exponence of the Cont head in Buryat.

In English and Russian embedded clauses that combine with content nouns and situation nouns do not differ in their morphosyntactic appearance. In English *that*-clauses are used in both cases (100)–(102). *That*-CPs with content nouns have received a lot of attention in the literature (Higgins 1973; Moltmann 1989, 2013, 2014, 2020; Stowell 1993; Potts 2002; Kratzer 2006, 2016; Arsenijević 2009; Moulton 2009, 2015; Elliott 2020a; Roberts 2020), and have often been used to argue for the view that embedded clauses are modifiers. *That*-clauses seem to be less commonly used with Sit-NPs in English, and have been barely discussed in the literature (with the notable exception of Moltmann 2021; (101)), but they can be found naturally occurring with a variety of situation nouns, as examples from (102) found on the Internet show.

- (100) I don’t believe the **idea/story/theory/scoop/myth/notion** [that Fred didn’t report his income.] (Moulton 2009, p. 21)
- (101) It was twice the **case** [that John made a mistake]. (Moltmann 2021, p. 180)
- (102) a. It is [a curious **situation** [_{CP} that the sea, from which life first arose should now be threatened by the activities of one form of that life]].
 b. In [the **event** [_{CP} that an event is canceled due to inclement weather]], they will immediately update the website...
 c. In [the **case** [_{CP} that the President should be unable to perform their duties]], the Vice-President becomes the President.
 d. It was now proposed that he should be accredited as Bavarian ambassador in London; but [the **circumstance** [_{CP} that he was a British subject]] presented an insurmountable obstacle.
 e. It’s [a sad **state of affairs** [_{CP} that we’ve needed to soften our language to debate hard issues]].

In Russian, both Cont-NPs and Sit-NPs combine with clauses with the complementizer *čto*—the most common strategy of clausal embedding in the language.³³

- (103) a. Mne prišla v golovu [**mysl’** [_{CP} čto belki s’eli vse to.me arrived in head **thought** COMP squirrels ate all orexi]].
 nuts
 ‘I had a thought that squirrels ate all the nuts.’

³³Unless indicated otherwise, the Russian data present in this paper have been collected in elicitation sessions with eight native speakers of Russian, all of which lived most of their lives in Moscow, during 2020–2022. The author of the paper is also a native speaker of Russian.

Table 1 Morphosyntax of Cont-CPs and Sit-CPs

Morphosyntactic appearance	Languages
Cont-CPs and Sit-CPs look identical	English, Russian
Cont-CPs have additional structure	Buryat (<i>gə</i>), Korean (<i>-ta</i>)
Sit-CPs have additional structure	—

- b. Ja slyšala [**slux**, [_{CP} čto universitet rešil dobrovol'no
I heard **rumor** COMP university decided voluntarily
priznat' profsojuz]].
recognize.INF union
'I heard a rumor that the university decided to recognize the union
voluntarily.'
- (104) a. Na prošloj nedele byl [**slučaj**, [_{CP} čto belki s"eli vse orexi]].
on last week was **event** COMP squirrels ate all nuts.
'Last week there was an event of squirrels eating all the nuts.'
- b. Predstav' sebe [**situaciju**, [_{CP} čto universitet rešil
imagine.IMP self.DAT **situation** COMP university decided
dobrovol'no priznat' profsojuz]].
voluntarily recognize.INF union
'Imagine a situation that the university decided to recognize the union
voluntarily.'

Thus, if we consider Cont-CPs and Sit-CPs across the four languages, we see the pattern summarized in Table 1: in some languages these clauses look identical—finite tensed clauses with a complementizer (English, Russian), whereas in others ContP clauses have additional overt morphology inside of them (Buryat, Korean). I am aware of no language that employs the third logical possibility: Sit-CPs that are morphosyntactically more complex than Cont-CPs. This gap might not be accidental: if my hypothesis that in all languages displacement is introduced in embedded clauses by the Cont head is correct, then we will not be able to find a language in which Sit-CPs have an additional head in their structure that Cont-CPs lack.

Crucially, the semantics of Cont-CPs and Sit-CPs seems to be uniform across the languages: sentences with Cont-CPs involve displacement and thus constitute a referentially opaque environment, whereas Sit-CPs do not involve displacement and are referentially transparent. For example, we can see that in Russian (105) the substitution test fails with the CP modifying the noun *slux* 'rumor' but succeeds with the CP modifying the noun *slučaj* 'event', even though both contain *čto*-clauses.

- (105) *Opacity with Cont-CPs*: from {(a), (b)} $\nRightarrow$ (c)
Transparency with Sit-CPs: from {(a), (b)} $\Rightarrow$ (c)
- a. Lena zametila slux /slučaj [čto **ěta ženščina** priexala na kone].
Lena noticed rumor /event COMP **this woman** arrived on horse
'Lena noticed a rumor/an event that this woman arrived on a horse.'

- b. Èta ženščina — [koroleva Velikobritanii].
 this woman queen Great.Britain
 ‘This woman is the queen of Great Britain.’
- c. Lena zametila slux /slučaj [čto [koroleva Velikobritanii]
 Lena noticed rumor /event COMP queen Great.Britain
 priexala na kone].
 arrived on horse
 ‘Lena noticed a rumor/an event that the queen of Great Britain arrived
 on a horse.’

Example (106) shows that in Buryat *de dicto* predicates can occur in Cont-CPs but not in Sit-CPs (same facts hold for Russian as well, omitted due to space limitations).

- (106) a. [xada də:rə ənə xoni-d jama:-nu:d bai-ga: g-ə:šə] buru:
 mountain on this sheep-PL goat-PL be-PST SAY-PART wrong
 zuga: Badma han-a:
 talk Badma think-PST
 ‘Badma recalled a mistaken opinion that the sheep on this mountain
 were goats.’
- b. #[xada də:rə ənə xoni-d-oi jama:-nu:d bai-g-a:ša] ušar
 mountain on this sheep-PL-GEN goat-PL be-PART event
 Badma han-a:
 Badma think-PST
 Intended: ‘Badma recalled an event that the sheep on this mountain
 were goats.’

This corroborates the hypothesis that *g(ə)-* expones Cont and is the source of displacement: without it the predicate *goat* cannot be evaluated at a situation distinct from the one at which *sheep* is evaluated, leading to infelicity.

Moreover, there is evidence that in other languages embedded clauses that combine with nouns are their modifiers as well. They are also optional in Buryat, English, and Russian, their interpretation is the same across different environments, and we observe distributional and ordering effects suggestive of their status as modifiers. If clauses are always modifiers of nouns they combine with, we might wonder whether nouns ever take true arguments. I would like to suggest that in some cases, they can—for example, this happens with nouns like *aspect*, which are inherently relational. Cf. the answers to the question *What did Susi do?*, which aims to exclude argument ellipsis, in (107).

- (107) Q: What did Susi do? (same judgments hold for Russian)
 A1: She ate (the soup).
 A2: She repaired *(the car).
 A3: She discussed an aspect *(of this hypothesis).

While optional arguments of verbs like *eat* don’t have to be used in such a context, obligatory arguments of verbs have to be present, and so are expressions describing the entity that an aspect is an aspect of. Per the ordering heuristic, we expect true

arguments like this to occur closer to the noun than clauses if all clauses are modifiers. In (108) we see an example from Russian suggesting that this is indeed borne out:

- (108) Tot aspekt [ètoj gipotezy], [čto trivial'nost' možet privodit' k
this aspect this hypothesis.GEN COMP triviality can lead to
negrammatičnosti], mne očen' nravilsja.
ungrammaticality I.DAT very liked
'I liked a lot the aspect of this hypothesis, which was that triviality can lead
to ungrammaticality.'
- (109) *Tot aspekt, [čto trivial'nost' možet privodit' k negrammatičnosti],
this aspect COMP triviality can lead to ungrammaticality
[ètoj gipotezy] mne očen' nravilsja.
this hypothesis.GEN I.DAT very liked
Intended: 'I liked a lot the aspect of this hypothesis, which was that trivial-
ity can lead to ungrammaticality.'

In (108)–(109) the *čto*-clause can be understood as modifying the noun *aspekt* 'aspect' in addition to the irrelevant parse where it describes the content of the whole hypothesis. And we see that this CP must combine with this noun *after* it has composed with the genitive DP, suggesting that the *čto*-clause is a modifier of this noun.

As discussed in Sect. 3, the conclusion that Cont-CPs are nominal modifiers is at odds with nouns being the source of displacement, which means that the CPs must be the source of displacement not only in languages with overt morphology signaling displacement (Korean and Buryat), but also in languages like English and Russian. This forces us to postulate some morphological process for the languages in which Cont-CPs and Sit-CPs look identical. One option is to say that the Cont head in these languages has null exponence. An alternative solution could say that elements like *that* and *čto* lexicalize *spans* (Svenonius 2012, 2016; Ramchand 2018) <Comp, Cont>, and so they will be able to expone Comp in the structure of Sit-CPs and both Comp and Cont at once in the structure of Cont-CPs.

6 Conclusions

Focusing on the data from Korean embedded clauses that combine with nouns, in this paper I argued that the source of displacement in semantics of clausal embedding is within the embedded clause. I proposed two meanings for CPs: some clauses introduce displacement and describe propositional content associated with individuals (Cont-CPs), whereas others describe situations (Sit-CPs). I suggested that this distinction is found in other languages too. Here are few of the many questions that remain open.

First, there is a question of whether clauses that combine with verbs also can have meanings of Cont-CPs and Sit-CPs. It has been argued in the literature (Bondarenko 2020; Özyıldız 2020; Roberts 2020; Bochnak and Hanink 2021; Bondarenko 2021; Özyıldız and Uegaki 2024, a.o.) that clauses that combine with verbs can both be their arguments and their modifiers. If that is the case, do we find clauses with Cont-CP and Sit-CP meanings among both arguments and modifiers of verbs?

Second, there is an empirical question of whether the predictions about the exemplification relation in the meaning of Cont-CPs that my proposal makes are borne out. Recall that it puts a restriction on how the content of an individual is related to the content of its proper parts—it requires that they either all have the same content as this individual or all differ from the content of the individual. It would be interesting to see if we can empirically test this, and what other conditions on mereological relations between contentful individuals and their parts might need to be imposed (see Özyıldız 2021; Bondarenko and Elliott 2024 for discussion).

Third, while we have seen that clauses describing propositional content and clauses describing situations are modifiers of content and situation nouns, respectively, there is still a question of whether some clauses can be true arguments of nouns, what meanings they can have, and whether the nouns they combine with are derived from verbs and thus inherit their argument structure. These questions are also relevant for our understanding of question embedding. For example, consider Korean noun *kiek* ‘memory’: only declarative clauses are possible as modifiers of the noun describing the content of the memory (110a)–(110b), but interrogative clauses seem to be able to combine as nominalized genitive arguments describing the thing being remembered (110c). Does this noun preserve the argument structure from the verb *kiekhay* ‘remember’, or project its own argument? What are the restrictions on such argument CPs?

- (110) a. [Juni-ka sihem-ul thongkwaha-yess-**ta**-nun] kiek-i
 Juni-NOM exam-ACC pass-PST-DECL-ADN memory-NOM
 Mina-eykey hungmilop-ta.
 Mina-DAT interesting-DECL
 ‘The memory with content “Juni passed the exam” is interesting to Mina.’
- b. *[Enu haksayng-tul-i sihem-ul thongkwaha-yess-**nya**-nun]
 which student-PL-NOM exam-ACC pass-PST-Q-ADN
 kiek-i Mina-eykey hungmilop-ta.
 memory-NOM Mina-DAT interesting-DECL
 Intended: ‘The memory of which students passed the exam is interesting to Mina.’ (*not possible under any interpretation*)
- c. [[Enu haksayng-tul-i sihem-ul thongkwaha-yess-**nya**-nun]
 which student-PL-NOM exam-ACC pass-PST-Q-ADN
kes-uy] kiek-i Mina-eykey hungmilop-ta.
thing-GEN memory-NOM Mina-DAT interesting-DECL
 ‘The memory of which students passed the exam is interesting to Mina.’

Finally, I argued that the semantic difference between Sit-CPs and Cont-CPs is related to a difference in syntax: presence of ContP. This raises questions about whether there are observable syntactic effects stemming from this difference: e.g., does ContP affect extraction out of CPs? A recent presentation by Wang (2024) suggests that in English availability of QR depends on whether *that*-clause denotes a predicate of events (QR is possible) or predicates of contentful individuals (QR is banned). It would be interesting to see if there are other effects of this sort cross-linguistically.

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Declarations

Competing interests The author has no conflicts of interest to declare.

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