

On the source of displacement: Two meanings of embedded CPs

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Abstract

This paper contributes to the question of how the meanings of sentences with embedded clauses are built compositionally. It provides an argument for the view that the source of displacement in such sentences is within the embedded clause (Bogal-Allbritten, 2016; Elliott, 2020; Kratzer, 2006, 2013; Moulton, 2009). The main evidence comes from comparing clauses that combine with nouns like *idea* and clauses that combine with nouns like *situation* in Russian and Korean.

I argue that the two kinds of embedded clauses are modifiers of nouns and that they have distinct meanings. Taken together, these two properties necessitate a view that the source of displacement, when it is present, must come from within the embedded clause. I propose that clauses that combine with nouns like *idea* contain a syntactic projection in the left periphery, which I call Cont, that introduces displacement. Clauses that combine with nouns like *situation* lack this projection. I provide morphosyntactic evidence for existence of Cont: I show that in Korean and Buryat we see overt morphology spelling out this syntactic head. Finally, I show that the two kinds of clauses that we see with nouns can also occur with verbs: verbs also can combine with CPs that introduce a shift to other possible situations, as well as with CPs that do not introduce displacement.

Keywords: complementation, attitude reports, intentionality, 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 contribution? Meanings of many sentences with embedded clauses involve *displacement* (von Stechow & Heim, 1997-2020; Hockett, 1960): 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 “*The squirrel ate the nuts*” is evaluated in situations *according to Mitya’s beliefs*.

- (1) Mitya **believes** [that the squirrel ate the nuts].
According to Mitya’s beliefs, 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 verb (Hintikka 1969, a.m.o.). An alternative view proposed in the literature is that the embedded clause contains the source of displacement (Bogal-Allbritten 2016, 2017; Kratzer 2006, 2016, a.o.). I sketch the two approaches below, under the assumptions that displacement involves universal quantification, and that modals are anchored to particulars, e.g. to the belief states in (2)-(3) (The Modal Anchor Hypothesis, Kratzer 2013).¹

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

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 empirical evidence comes from cross-linguistic comparison (in Buryat, English, Korean and Russian) of embedded clauses that combine with two kinds of nouns: nouns like *idea* or *claim*, which denote predicates of entities with propositional content (henceforth, content nouns or Cont-NPs), and nouns like *situation* or *event*, 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 propose that these differences follow from the fact that the structure of Cont-CPs includes a functional head, which I call Cont, which introduces displacement, and Sit-CPs lack this syntactic head. Thus, the analysis of these two kinds of 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.

The paper is structured as follows. In section 2 I discuss the differences between Cont-CPs and Sit-CPs. I argue that Cont-CPs are structurally more complex than Sit-CPs (section 2.1) and that sentences with them, unlike sentences with Sit-CPs, involve displacement (section 2.2). I show that both types of CPs seem to be modifiers

¹Here I am assuming that the attitude holder is severed from the verb (Kratzer, 1996), and is added later via a Voice projection.

of respective nouns (section 2.3), which makes it difficult to maintain the view that the noun is the source of displacement. In section 3 I present my proposal for the structures and meanings of Cont-CPs and Sit-CPs, and discuss how this proposal accounts for the observed empirical differences. Section 4 provides supporting evidence for two aspects of the proposed semantics: equality semantics of displacement and exemplification relation introduces by complementizers. Section 5 provides evidence that the same two kinds of clauses also occur with verbal predicates, and section 6 concludes.

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

2.1 Morphosyntax: Cont-CPs are more complex

Languages differ in whether clauses that combine with nouns like *idea* and clauses that combine with nouns like *situation* display overt morphosyntactic differences. In languages like English and Russian, these clauses look exactly alike.

In English, both Cont-NPs and Sit-NPs combine with *that*-clauses. *That*-clauses in combination with content nouns, (4), have received a lot of attention in the literature (Arsenijević, 2009; Elliott, 2020; Higgins, 1973; Kratzer, 2006, 2016; Moltmann, 1989, 2013, 2014, 2020; Moulton, 2009, 2015; Potts, 2002; Roberts, 2020; Stowell, 1993), 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 barely been discussed in the literature (with the notable exception of Moltmann 2021, (5)), but they can be found naturally occurring with a variety of situation nouns, (6).²

- (4) I don't believe the **idea/story/theory/scoop/myth/notion** [that Fred didn't report his income.] (Moulton, 2009, 21)
- (5) It was twice the **case** [that John made a mistake]. (Moltmann, 2021, 180)
- (6) 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]]. <Link>
 b. In [the **event** [_{CP} that an event is canceled due to inclement weather]], they will immediately update the website... <Link>
 c. In [the **case** [_{CP} that the President should be unable to perform their duties]], the Vice-President becomes the President. <Link>
 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. <Link>

²With many of these nouns, it is also possible to combine a relative clause that would describe what state of affairs the noun refers to, (i). I will set these aside, and not examine them within the scope of this paper.

- (i) a. A\$AP Rocky gives album update: "It's not [a **situation** [where they are going to have to wait long]]." <Link>
 b. It [= *underemployment*] refers to [a **situation** [in which individuals are forced to work in low-paying or low-skill jobs]]. <Link>
 c. Here are three tips for navigating [the tricky **situation** [when someone else takes credit for your work]]. <Link>

- e. It's [a sad **state of affairs** [_{CP} that we've needed to soften our language to debate hard issues]]. <Link>

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.³

- (7) a. Mne prišla v golovu [**mysl'** [_{CP} čto belki s"eli vse orexi]].
to.me arrived in head **thought** COMP squirrels ate all nuts
'I had a thought that squirrels ate all the nuts.'
- 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.'
- (8) 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.'

Some speakers reported to me that the use of *čto*-clauses with Sit-NPs is stylistically marked and a bit stilted for them, compared to the use of *čto*-CPs with Cont-NPs. But one finds many naturally occurring examples of this construction, e.g., (9)-(10).

- (9) Byl [**clučaj**, [čto priloženie pokazyvaet, čto mašina pod"exala,
was **event** COMP application shows COMP car arrived
ždět, no po faktu ne bylo taksi]]. <Link>
is.waiting but on fact NEG was taxi
'There was an event when the app showed that the car arrived and was waiting, but there was no taxi.'
- (10) V rezul'tate složilas' [**situacija**, [čto u Apple ne bylo partnërov po
in result arose **situation** COMP by Apple NEG was partners on
optovym postavkam iPhone]]. <Link>
wholesale distribution iPhone
'As a result, a situation that Apple had no partners for wholesale distribution of iPhones arose.'

³Unless indicated otherwise, the Russian data present in this paper have been collected in elicitation sessions with 8 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.

Both English *that*-clauses and Russian *čto*-clauses are finite tensed clauses with Sit-NPs as well as with Cont-NPs.

In other languages however we see overt differences between Cont-CPs and Sit-CPs: the structure of Cont-CPs contains a morpheme that is absent in Sit-CPs. For example, in Buryat both Cont-CPs and Sit-CPs that combine with nouns occur with participial (PART) morphemes (past tense participle *-A:šA*⁴ in (11)-(12)).⁵ But they 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’, (11a), whereas Sit-CPs cannot contain this morpheme, (12a)-(12b).

- (11) a. [[Badm-i:n tərgə əmdəl-ə: g-ə:šə] zuga:] züb.
 Badma-GEN cart break-PST **SAY**-PART talk correct
 ‘The rumor (lit. ‘talk’) that Badma broke the cart is correct.’
- b. *Sajana [[Badm-i:n tərgə əmdəl-ə:šə] zuga:] hana-na.
 Sajana.NOM Badma-GEN cart break-PART talk think-PRS
 ‘Sajana remembers a rumor (lit. ‘talk’) that Badma broke the cart.’
- (12) a. *[[Badm-i:n tərgə əmdəl-ə: g-ə:šə] ušar] gomdoltoi.
 Badma-GEN cart break-PST **SAY**-PART event sad
 ‘The situation (lit. ‘event’) that Badma broke the cart is sad.’
- b. Ušar gomdoltoi.
 event sad
 ‘The situation (lit. ‘event’) is sad.’
- c. Sajana [[Badm-i:n tərgə əmdəl-ə:šə] ušar] hana-na.
 Sajana.NOM Badma-GEN cart break-PART event think-PRS
 ‘Sajana remembers an event of Badma breaking the cart.’

The two types of clauses also show different morphology in Korean.⁶ While both occur with a so-called adnominal marker (ADN)⁷, Cont-CPs must also contain a morpheme

⁴Capital letters represent vowels before harmony rules have applied to them.

⁵Most Buryat examples present in this paper have been collected by the author during the 2018 field-trip to the village Baraghan located in Kurumkansky District, Buryatia, Russia. The data come from 3 native speakers of the Barguzin dialect of Buryat. Some additional examples have been elicited via virtual elicitations with one of these speakers in 2019-2020.

⁶Korean data in this paper come from elicitations with 4 native speakers of Korean in 2021-2022. All of them are linguistics PhD students currently living in the US.

⁷The adnominal marker has three allomorphs: *-(u)n* for past tense, *-nun* for present tense, *-(u)l* for future tense. In Cont-CPs, only two of these allomorphs are available: *-(u)n* and *-nun*, and they seem to be in free variation and not semantically interpreted—the tense of the embedded clause is always determined by the tense morphemes that occur before the declarative marker (such tense morphemes are usually absent in Sit-CPs, see ft. 8 for discussion). For example, in (i) we see that a Cont-CP with the past tense marker *-ess* will be interpreted as occurring in the past irrespective of whether *-(u)n* or *-nun* allomorph is selected.

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

All three allomorphs are however used in Sit-CPs, and they are semantically interpreted: e.g., the embedded proposition in (ii) receives only a past tense interpretation, and in (iii)—only a future tense interpretation.

-*ta*, which is usually called a declarative marker (DECL): we see that omitting it is impossible, irrespective of the form of the adnominal marker and the presence of overt tense, (13b). Sit-CPs on the other hand must lack this morpheme, (14).⁸

- (13) a. [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.’
- 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 kedis-i-ta.
 claim-NOM falsehood-COP-DECL
 Intended: ‘The claim that Swuna solved the problem is false.’
- (14) 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
 ‘The situation/the case that Swuna solved the problem is interesting.’
- b. [Swuna-ka mwuncey-lul phwul-un] sanghwang-i /kyengwu-ka
 Swuna-NOM problem-ACC solve-ADN situation-NOM /case-NOM
 hungmilop-ta.
 interesting-DECL
 ‘The situation /the case that Swuna solved the problem is interesting.’

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- (ii) Mina-ka [Swuna-ka mwuncey-lul phwul-**un**] sanghwang-ul kiekha-n-ta
 Mina-NOM Swuna-NOM problem-ACC solve-PST-**ADN** situation-ACC remember-PRS-DECL
 ‘Mina remembers the situation that Swuna solved the problem.’
 (*solve* < *remember*, **solve* ~ *remember*, **remember* < *solve*)
- (iii) Mina-ka [Swuna-ka mwuncey-lul phwul-**ul**] sanghwang-ul kiekha-n-ta
 Mina-NOM Swuna-NOM problem-ACC solve-FUT-**ADN** situation-ACC remember-PRS-DECL
 ‘Mina remembers the situation that Swuna will solve the problem.’
 (**solve* < *remember*, **solve* ~ *remember*, *remember* < *solve*)

⁸ Note that overt tense morphemes (like past tense *-ess*) are usually absent in Sit-CPs, (14b). However, I’d like to suggest that this is a morphological phenomenon: when no additional projection intervenes between T and the projection hosting the adnominal marker, as is the case in Sit-CPs, they are exponed together.

One way to formalize this intuition is to say that T has a null (\emptyset) allomorph that is chosen in the context of the adnominal head, and the adnominal head has three allomorphs that are chosen based on the features of T (see ft. 7). One piece of evidence in favor of this view comes from Sit-CPs that contain coordinations: as we see in (i), the first conjunct within a Sit-CP can contain the past tense marker *-ess*. If conjuncts must be of the same size, then we have a conjunction of two TPs inside a Sit-CP, which would be impossible if the structure of Sit-CPs did not contain tense projections.

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

Thus, we see that in languages that overtly distinguish Cont-CPs and Sit-CPs, the former are more complex than the latter: they contain an additional morpheme that precedes the final element at the left periphery of the clause (the participial marker, the adnominal marker⁹). I am unaware of a language where Sit-CPs would be more complex than Cont-CPs (table 1), a gap which I would like to suggest is not accidental.

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	—

Table 1: Morphosyntax of Cont-CPs and Sit-CPs

Two questions arise at this point. First, does the observed structural complexity of Cont-CPs in languages like Buryat and Korean correspond to any interpretative effect: i.e., do morphemes *gə*- and *-ta* have a semantic contribution? Second, are the meanings of Cont-CPs and Sit-CPs different in languages like English and Russian, which do not morphologically distinguish the two kinds of clauses? In the next section, I focus on comparing Cont-CPs and Sit-CPs in Korean and Russian, and argue that sentences with the two types of clauses have different meanings in both languages.

2.2 Semantics: $\llbracket \text{Cont-CP} \rrbracket \neq \llbracket \text{Sit-CP} \rrbracket$

Things like *ideas* (*rumors, claims, beliefs, etc.*) and things like *situations* (*events, cases, states of affairs, etc.*) differ in at least two important ways, encoded in (15) as presuppositions: (i) the former are abstract individuals, and the latter are situations; (ii) the former have propositional content associated with them, and the latter do not.

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

where D_e — domain of individuals, D_s — domain of situations, where $D_s \subset D_e$, and D_{Cont} — the subdomain of D_e that contains entities with propositional content¹⁰

These two differences are reflected in the types of predicates that can combine with Cont-NPs and Sit-NPs. Predicates of occurrence like ‘happen’ or ‘occur’ can only combine with Sit-NPs, but not with Cont-CPs. This is illustrated for Korean in (16)-(17) and for Russian in (18). I take this difference to suggest that Sit-NPs describe situations, which can be said to occur/happen, but Cont-NPs denote individuals that are not situations.

⁹In both languages these markers occur in a variety of other configurations, for example in both Buryat and Korean we see them in relative clauses. In my proposal, I will assume that these elements correspond to a complementizer (COMP).

¹⁰I 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 ’.

- (16) *[Swuna-ka mwuncey-lul phwul-ess-ta-nun] cwucang-i
 Swuna-NOM problem-ACC solve-PST-DECL-ADN claim-NOM
 ilena-ss-ta
 occur-PST-DECL
 ‘A claim that Swuna solved the problem occurred.’
- (17) [Swuna-ka mwuncey-lul phwul-un] sanghwang-i ilena-ss-ta
 Swuna-NOM problem-ACC solve-ADN situation-NOM occur-PST-DECL
 ‘A situation that Swuna solved the problem occurred.’
- (18) Včera proizošla /slučilas’ *ideja /✓situacija [_{CP} što moj zakaz
 yesterday happened /occurred idea /situation COMP my order
 zadržali].
 delayed
 ‘Yesterday a situation/idea that my order was delayed happened/occurred.’

The second difference manifests itself in compatibility with predicates like ‘true’, ‘false’, ‘mistaken’. Whereas it is a characteristic feature of nouns like *idea* that they can combine with such predicates (Elliott, 2020; Kratzer, 2006; Moltmann, 1989, 2020; Moulton, 2009), Sit-NPs are incompatible with them, (19)-(21).

- (19) Ideja /*situacija [_{CP} što grjadut reformy] javljaetsja vernoj
 idea /situation COMP are.coming reforms is true
 /ošibočnoj.
 /mistaken
 ‘A(n) idea/situation that reforms are coming is true/mistaken.’
- (20) [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.
 /truth-COP-DECL
 ‘The situation that Swuna solved the problem is false/true.’

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

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

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, whereas Sit-CPs are referentially transparent (Barwise, 1981; Higginbotham, 1983). If we pick a predicate like ‘remember’ or ‘notice’, which does not shift the evaluation situation of its internal argument NP, (22)-(23), we can perceive a difference between possible interpretations of predicates within Cont-CPs and Sit-CPs. One way to illustrate this difference is via the substitution test.

(22) Lena noticed/remembered Cont-NP $\underbrace{[CP \dots NP..]}_{\text{opaque}}$

(23) Lena noticed/remembered Sit-NP $\underbrace{[CP \dots NP..]}_{\text{transparent}}$

Consider the Korean sentences in (24) with the Cont-NP *cwucang* ‘claim’. The premises (24a) and (24b) are not sufficient to justify the conclusion in (24c): one can truthfully assert (24a) and (24b) and negate (24c). This is so because we can interpret NPs inside of Cont-CPs as being evaluated not with respect to the actual world/situation, but with respect to the the worlds/situations in which things are according to the claim. Thus, it is possible to understand (24c) as saying that Mina remembered a claim that a person who is *the tallest girl in the class according to the claim* solved the problem. And this does not follow from the premises in (24a)-(24b).

- (24) *Opacity with Cont-CPs: from {(a), (b)} $\not\Rightarrow$ (c)*
- a. Mina-ka [Swuna-ka mwuncey-lul phwul-ess-ta-nun]
Mina-NOM Swuna-NOM problem-ACC solve-PST-DECL-ADN
cwucang-ul kiekhay-ss-ta.
claim-ACC remember-PST-DECL
‘Mina remembered the claim 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] cwucang-ul kiekhay-ss-ta.
problem-ACC solve-PST-DECL-ADN claim-ACC remember-PST-DECL
‘Mina remembered the claim that the tallest girl in the class solved the problem.’

In (25) on the other hand, where we see sentences with the Sit-NP *sanghwang* ‘situation’, the premises in (25a) and (25b) necessitate the truth of the conclusion in (25c): 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 the 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 (25b) *Swuna* and *the tallest girl in the class* describe the same person in that situation, the truth of (25a) makes (25c) true.

- (25) *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
 ‘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 girl 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
 ‘Mina remembered the situation that the tallest girl in the class solved the problem.’

Thus, we see that Cont-CPs are referentially opaque in Korean, but Sit-CPs are referentially transparent. Languages that do not morphosyntactically distinguish Cont-CPs from Sit-CPs display the same difference. This is illustrated with Russian in (26).

- (26) *Opacity with Cont-CPs*: from {(a), (b)} \nRightarrow (c)
Transparency with Sit-CPs: from {(a), (b)} \Rightarrow (c)
- a. Lena zametila slux /slučaj [čto èta 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] priexala
 Lena noticed rumor /event COMP **queen** **Great.Britain** arrived
 na kone].
 on horse
 ‘Lena noticed a rumor/an event that the queen of Great Britain arrived on a horse.’

With the noun *slux* ‘rumor’, the conclusion in (26c) does not follow from the premises (26a) and (26b). This is so because DPs *this woman* and *the queen of Great Britain* can be understood in (26a) and (26c) as *the person who is this woman according to the rumor* and *the queen of Great Britain according to the rumor* respectively. The fact that in the actual world *this woman* and *the queen of Great Britain* pick out the same individual does not mean that in worlds/situations according to the rumor these expressions would pick out the same referent. With the noun *slučaj* ‘event’, on

the other hand, the entailment goes through: all the predicates in the description of the event are evaluated with respect to the same world/situation that the verb ‘notice’ is evaluated at, and so (26a) and (26b) entail (26c), even if Lena is unaware of the fact that the woman on the horse is the queen of Great Britain.

Another way to observe the difference in referential opacity/transparency comes from 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 be evaluated at different situations then: 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, and for Russian in (29).

- (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 that the sheep on this mountain are goats.’
- (29) Andreja pozabavilo (ošibočnoe) mnenie, [čto [ovcy na ètoj gore] —
 Andrej amused (mistaken) opinion COMP sheep on this mountain
 èto kozy].
 COP goats
 ‘A (mistaken) opinion that the sheep on this mountain are goats amused Andrej.’

CPs that combine with Sit-NPs on the other hand cannot contain such predicates, (30)-(31).¹³ In Korean (30) the form containing the declarative morpheme (as part of the portmanteau *-la*, see ft. 12) is ungrammatical, and the form without it observes the same infelicity as English (27a). The same is true of the Russian Sit-CP in (31).

- (30) 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

¹² In 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*.

¹³ Cf. the felicitous (i) with no *de dicto* predicate.

- (i) Andreja pozabavila situacija, [čto ovcy na ètoj gore begajut po krugu].
 Andrej amused situation COMP sheep on this mountain run by circle
 ‘A situation that the sheep on this mountain run in a circle amused Andrej.’

- ‘I saw a situation that the sheep on this mountain are goats.’
- (31) #Andreja pozabavila situacija, [čto [ovcy na ètoj gore] — èto kozy].
 Andrej amused situation COMP sheep on this mountain COP goats
 ‘A situation that the sheep on this mountain are goats amused Andrej.’

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

The same impossibility of *de dicto* readings in Sit-CPs can be observed in Buryat as well. It is illustrated in (32) with clauses that combine with verbs.¹⁴

- (32) a. Badma jama:-nu:d-i:jə xoni-d gə-žə han-a:
 Badma.NOM goat-PL-ACC sheep-PL SAY-CONV think-PST
 ‘Badma thought that the goats were sheep.’
- b. Badma jama:-nu:d-i:jə xoni-d bai-ga: g-ə:š-i:jə han-a:
 Badma.NOM goat-PL-ACC sheep-PL be-PST SAY-PART-ACC think-PST
 ‘Badma recalled (lit. ‘though of’) a claim/thought that the goats were sheep.’
- c. #Badma jama:-nu:d-i:jə xoni-d bai-ga:š-i:jə han-a:
 Badma.NOM goat-PL-ACC sheep-PL be-PART-ACC think-PST
 ‘Badma recalled (lit. ‘though of’) the goats being sheep.’

ContCPs in (32a) and (32b), which contain the element *g(ə)*- ‘say’, give rise to felicitous sentences when they embed propositions like *The goats are sheep*, suggesting that the semantics of clausal embedding in these cases involves displacement.¹⁵ The Sit-CP in (32c) on the other hand is infelicitous with such an embedded proposition, suggesting that in this case there is no displacement, and hence ‘goats’ and ‘sheep’ are forced to be interpreted with respect to the same situation. Thus, Buryat provides us with additional evidence that in languages in which Cont-CPs contain additional overt morphology, it correlates with the introduction of displacement.

To sum up, we have seen that sentences with Cont-CPs and Sit-CPs do not have identical meanings both in languages where the two look different (Korean, Buryat), and in languages where the two look alike (Russian): in both kinds of languages only sentences with Cont-CPs involve displacement.

2.3 Argument Structure: CPs are modifiers to nouns

We have seen that in languages like Korean and Buryat presence of displacement in the semantics of a sentence with an embedded clause correlates with the presence of a special morpheme within the embedded clause (*-ta* in Korean, *g(ə)*- in Buryat). This raises a question: are these morphemes themselves the source of displacement, or are they merely a reflex of the fact that semantics of the noun involves displacement?

¹⁴Unfortunately, I do not possess analogous examples for clauses that combine with nouns, but the prediction is that they should behave in the same way.

¹⁵The difference between the two Cont-CPs in (32a) and (32b) has to do with how they are incorporated into the argument structure, reflected in the use of converbial vs. participial endings. See Bondarenko (2020) and Bondarenko (2022) for the discussion.

Let us set aside the issue of what exactly is the semantics of displacement for now. I will just assume that it is a relationship between a particular (the anchor, [Kratzer 2013](#)) and a proposition: $\mathfrak{D}(x)(p)$. This is compatible with a variety of approaches to displacement. For example, if we assume that there is a function CONT that takes us from a particular to a set of worlds compatible with its content ([Kratzer 2006](#); [Moulton 2009](#), a.o.), we could entertain different relations that might hold between the content of the particular and the embedded proposition, (33).

- (33) For any individual with content x and proposition p , $\mathfrak{D}(x)(p) =_{def}$
- | | |
|-----------------------------------|--|
| a. <i>Subset Semantics:</i> | 1 iff $\text{CONT}(x) \subset p$; |
| b. <i>Intersection Semantics:</i> | 1 iff $\text{CONT}(x) \cap p \neq \emptyset$ |
| c. <i>Equality Semantics:</i> | 1 iff $\text{CONT}(x) = p$ |

The view that the content noun is the source of displacement commits us to the view that the embedded proposition is an argument of the noun: if $\mathfrak{D}(x)(p)$ is part of the meaning of the noun, then the noun has to take a propositional argument, (34).

- (34) $\llbracket \text{idea} \rrbracket^{s,g,t} =$
 $\lambda \mathbf{p}: \mathbf{p} \in \mathbf{D}_{st}. \lambda x: x \in D_e \wedge x \notin D_s \wedge x \in D_{Cont}. \text{idea}(x)_{s,t} \wedge \mathfrak{D}(x)(\mathbf{p})$

If however the displacement is part of the meaning of the embedded clause—if it is introduced by an element in the left periphery, which in some languages has overt expression (*-ta* in Korean, *g(ə)*- in Buryat), then the noun does not need to take any arguments except for its individual argument:

- (35) a. $\llbracket \text{idea} \rrbracket^{s,g,t} = \lambda x: x \in D_e \wedge x \notin D_s \wedge x \in D_{Cont}. \text{idea}(x)_{s,t}$
 b. $\llbracket -ta/gə- \rrbracket^{s,g,t} = \lambda \mathbf{p}: \mathbf{p} \in \mathbf{D}_{st}. \lambda x: x \in D_e \wedge x \in D_{Cont}. \mathfrak{D}(x)(\mathbf{p})$
 c. $\llbracket \text{that the squirrel ate the nuts} \rrbracket^{s,g,t} =$
 $\lambda x: x \in D_e \wedge x \in D_{Cont}. \mathfrak{D}(x)(\{s': \text{the squirrel ate the nuts in } s'\})$

In (35b) we see that the special morpheme (*-ta/gə-*) takes the embedded proposition and returns a predicate of individuals standing in the displacement relation to this proposition, (35c). This meaning of the clause can combine with the noun, (35a), as a modifier, by a principle like Predicate Modification.

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.¹⁶ I would like to argue that from the argument/modifier heuristics available to us (see [Ackema 2015](#); [Grimshaw 1990](#); [Jackendoff 1977](#); [Pollard and Sag 1987](#); [Schütze 1995](#), a.o.), all point out 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 ([Arsenijević, 2009](#); [Elliott, 2020](#); [Haegeman, 2012](#); [Haegeman &](#)

¹⁶That is not a necessity, of course: we could still 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.

Ürögdi, 2010; Higgins, 1973; Kayne, 2008, 2010; Kratzer, 2006, 2016; Moltmann, 1989; Moulton, 2009, 2015; Stowell, 1981).¹⁷ 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: morphosyntactic marking, obligatoriness, interpretation, distribution and ordering.¹⁸ I will not illustrate them for all of the languages due to space considerations (see Bondarenko 2022 for a detailed discussion).

2.3.1 Morphosyntactic marking

This heuristic is based on the idea that morphosyntactic form might reflect the type of the semantic object that a constituent denotes. If this idea is on the right track, it suggests that both Cont-CPs and Sit-CPs that combine with nouns are their modifiers, as cross-linguistically they tend to occur with the same morphology as other nominal modifiers—in particular, with the morphology we find on relative clauses.

Recall that in Korean clauses that combine with nouns bear a so-called adnominal marker, (13)-(14). The same marker occurs on relative clauses, (36a). The participial marker that we saw on clauses combining with nouns in Buryat, (11)-(12), is also exactly the same morpheme that is used for relativization in the language, (36b). The complementizers *that* and *čto* that are used in complement clauses in English and Russian respectively are also used in relative clauses of these languages, (36c)-(36d).

- (36) a. [nay-ka mek-**nun**] sakwa
 I-NOM eat-**ADN** apple
 ‘the apple that I’m eating’
- b. [Gər-tə oro-x-i:jə-n’ du:d-**a:ša**] xün-i:n’ malgai-ga:
 house-DAT come.in-POT-ACC-3 call-**PART** man-3.NOM hat-REFL
 tail-a:
 take.off-PST
 ‘The man who was invited to come into the house took off his hat.’
- c. the rumor [**that** Helen heard]
- d. Ja skazala vsë, [**čto** ja xotela skazat’].
 I said all **COMP** I wanted say.INF
 ‘I said everything that I wanted to say.’

Russian and Korean also provide us with evidence that CPs that combine with nouns are not nominalized, as in these languages nominalization receives an overt realization. In Russian a demonstrative *to* ‘that’ occurs on top of nominalized CPs with the complementizer *čto*¹⁹. In Korean the CP with the adnominal marker combines with a bleached noun *kes* ‘thing’ when it undergoes nominalization. As we see in (37) and

¹⁷However, see Djärv (2019) and Hankamer and Mikkelsen (2021) for opposing views.

¹⁸Most 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.

¹⁹See Bondarenko (2021, 2022); Knyazev (2016, 2022) for a more detailed discussion of its distribution.

(38), in both languages content nouns and situation nouns are unable to combine with nominalized clauses, suggesting that they don't take individual-denoting arguments.²⁰

- (37) a. Mnenie (***togo**) [č**to** belki vpadajut v spjačku]
 opinion (DEM.GEN) COMP squirrels fall in hibernation
 ošibočno.
 mistaken
 'The opinion that the squirrels hibernate is mistaken.'
 b. Složilas' takaja situacija (***togo**) [č**to** ja utopil svoj telefon].
 developed such situation (DEM.GEN) COMP I sunk self's phone
 'A situation that I sunk my phone happened.'
- (38) 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
 '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
 '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.

2.3.2 Obligatoriness

This heuristic says that arguments are obligatory, whereas modifiers are optional. This automatically follows 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. In all of the languages under consideration, clauses that combine with nouns are always optional. I illustrate this with Korean Cont-NP and Sit-NP in (39): 'claim' and 'situation' do not require the presence of a CP.

- (39) a. Mina-ka ku cwucang-ul kiekhay-ss-ta.
 Mina-NOM that claim-ACC remember-PST-DECL
 'Mina remembered that claim.'

²⁰Some nouns in Russian do seem to take individuals as arguments and can combine with nominalized clauses, but the clauses in such cases neither describe propositional content nor situations. For example, *aspekt* 'aspect' can take a nominalized CP, (i), but note that in this case the demonstrative is obligatory, and the clause describes the fact whose aspects are being talked about, not what aspects these were.

(i) aspekty *(togo) č**to** načalas' èpoxa Èllinizma
 aspects DEM.GEN COMP began period Hellenism
 'aspects of (the fact) that the Hellenistic time began.'

- b. Mina-ka ku sanghwang-ul kiekhay-ss-ta.
 Mina-NOM that situation-ACC remember-PST-DECL
 ‘Mina remembered that situation.’

While this heuristic agrees with others when it comes to complements of nouns, it is worth pointing out that it does not seem to be overall very reliable, as there exist both optional arguments and obligatory modifiers (Jackendoff, 1977; Levin, 1993), (40)-(41).

- | | | | |
|------|--------------------------|------|--------------------------------------|
| (40) | <i>Optional argument</i> | (41) | <i>Obligatory modifier</i> |
| | a. Helen ate an apple. | | a. They worded the letter carefully. |
| | b. Helen ate. | | b. *They worded the letter. |

2.3.3 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 & Sag, 1987; Schütze, 1995). 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 that they combine with. For example, in (42), 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).

- (42) *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 (43) I sketch some logically feasible meanings that do not seem to be attested.

- (43) *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 the 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 his opinion is about. We do not find such interpretations.

The same is true of Sit-CPs: they always describe the eventuality that the noun denotes, (44), and don’t have other imaginable interpretations, (45): 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.

- (44) *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. $\lambda s. \text{circumstance}(s) \wedge \text{eating-the-nuts-by-squirrels}(s)$
- (45) *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 suggests that they are modifiers of nouns.

2.3.4 Distribution

Distribution of complement clauses that combine with nouns have been used to argue for their status as modifiers (Elliott 2020; Kratzer 2006; Moulton 2009, a.o.). The key observation comes from English copular constructions. In these constructions, constituents of different syntactic categories can occur after the copula (Grimshaw, 1990), (46)-(47). What seems to be a shared property among them is that they are interpreted as predicates that hold of the subject of the copular sentence. Arguments, which cannot be interpreted as predicates, cannot occur in the post-copular position, (48).

- (46) a. the book by/about/on Chomsky
- b. The book was by/about/on Chomsky.
- (47) a. the interesting book
- b. The book was interesting.
- (48) a. the destruction of the city
- b. *The destruction was of the city.

Clauses that combine with nouns can occur in the post-copular position. This observation for content nouns is known as Higgins-Stowell facts (Higgins, 1973; Stowell, 1981), (49), but it holds for situation nouns as well, (50).

- (49) a. The belief is [that Edna was stealing].
- b. Andrea's guess was [that Bill was lying].
- c. John's claim was [that he would go].
- d. Paul's explanation was [that he was temporarily insane].
(Stowell, 1981, 199)
- (50) The situation was [that in many districts the results of all the private schools were declared zero]. <Link>

This diagnostic then points to the conclusion that complement clauses are predicates, and thus likely nominal modifiers. This argument relied on the assumption that copular constructions are always *predicational*: that the post-copular position is occupied by something that is a predicate. Potts (2002) and Djärv (2019) contested this view: they suggested that examples like in (49) are *equatives*, in which a contentful entity is

equated with a proposition that is type-shifted to denote an individual. Their evidence against the predicational view comes from small clauses: they are incompatible with two individuals being equated, (51), and complement CPs cannot occur in them, (52).

- (51) *Two DPs cannot be equated in a small clause* Heycock and Kroch (1999)
 a. *I consider your attitude toward Jones my attitude toward Davies.
 b. *I consider my attitude toward Davies your attitude toward Jones.
- (52) *Impossibility of Cont-CPs in small clauses* (Potts, 2002, 68)
 a. *I consider the problem that she is bonkers.
 b. *I consider that she is bonkers the problem.
 c. *I consider it the problem that she is bonkers.

With the help of data from Russian and Korean, I would like to argue that copular constructions with complement clauses can be both predicational and equative, but in both cases the clause itself denotes a predicate. The restriction on occurrence in small clauses, (52), is due to the fact that only certain kinds of predicates can occur in them, and thus it is not an argument against viewing clauses as predicates.

First, note that if examples like (49)-(50) involve equative structures, and equative structures require turning a clause into an individual that can be equated with the subject, then in languages in which such nominalization is overtly marked, we would expect clauses in copular constructions to obligatorily occur with markers of nominalization. Korean shows us that there are indeed languages in which sentences like (49)-(50) involve equative structures: as we see from (53)-(54), both Cont-CPs and Sit-CPs must be overtly nominalized in order to appear in the post-copular position.

- (53) Ku cwucang-un [Swuna-ka tayhwoy-lul wusunghay-ss-ta-nun]
 that claim-TOP Swuna-NOM competition-ACC win-PST-DECL-ADN
 *(kes)-i-ess-ta
 thing-COP-PST-DECL
 ‘That claim was that Swuna won the competition.’
- (54) Ku sanghwang-un [Swuna-ka tayhwoy-lul wusungha-n]
 that situation-TOP Swuna-NOM competition-ACC win-ADN
 *(kes)-i-ess-ta.
 thing-COP-PST-DECL
 ‘That situation was that Swuna won the competition.’

Note that languages like Korean do not provide an argument against the predicational analysis of CPs though: the CPs that combine with nouns are never nominalized, (38), and there is nothing suggesting that they cannot be predicates. Russian on the other hand shows us that copular constructions with CPs are not always equatives: overtly nominalized CPs in Russian cannot occur in the post-copular position, such CPs must be bare, (55)-(56), supporting the view that they are predicates.

- (55) Ideja byla [(to) čto Petja otrpavitsja v Moskvu].
 idea was (DEM.NOM) COMP Petya will.head.off to Moscow
 ‘The idea was that Petya will head off to Moscow.’

- (56) Na prošloj nedele slučaj byl [(*)to] čto belki s"eli vse orexi].
 on last week event was (DEM.NOM) COMP squirrels ate all nuts
 ‘Last week there was an event of squirrels eating all the nuts.’

Furthermore, Russian provides us with an insight into why CPs might be ungrammatical in small clause structures under predicates like ‘consider’. Russian makes a morphological distinction between two kinds of case-bearing predicates (nominals/adjectives/pronouns) in the post-copular position (see [Bailyn and Rubin 1991](#); [Fowler 1997](#); [Pereltsvaig 2007](#); [Peshkovskij 1914/1956](#); [Rozenal' 1976](#); [Smith 1999](#); [Wierzbicka 1980](#), a.m.o.). Instrumental-marked constituents have been argued to express temporary, transitory properties that are potentially subject to change, (57a). It has been proposed that there is a special functional head, Pred, which is responsible in this structure for the instrumental case assignment and for creating a predicate out of the expression it combines with ([Bailyn 1995, 2001](#); [Bailyn and Citko 1999](#); [Bailyn and Rubin 1991](#), a.o.). Nominative-marked constituents in the post-copular position, which are not part of PredP, describe inalienable, permanent, characteristic properties of individuals, (57b).²¹ Finally, the post-copular position can also involve constituents that do not get case, e.g. PPs, (57b), and then no inference about the permanent/temporary nature of the property is derived.²²

- (57) a. *Predicative PredP construction*
 Moj deduška byl krasivym /doktorom.
 My grandfather was handsome.INSTR /doctor.INSTR
 ‘My grandfather was handsome/a doctor.’
 ~> My grandfather used to be handsome/a doctor before, he might be still alive, but then he’s probably not handsome/a doctor anymore.
- b. *Predicative without PredP construction*
 Moj deduška byl krasivyj /doktor /v Indii.
 My grandfather was handsome.NOM /doctor.NOM /in India

²¹[Pereltsvaig \(2007\)](#) argues that sentences with nominative expressions in the post-copular positions are equative constructions. In certain cases, this indeed seems to be the case: e.g., (i) says that the individual that we know as ‘Lenin’ and the individual that we know as ‘Vladimir Uljanov’ is in fact the same individual.

- (i) [Lenin] byl [Vladimir Uljanov].
 Lenin.NOM was Vladimir Uljanov.NOM
 ‘Lenin was Vladimir Uljanov.’ ([Pereltsvaig, 2007, 4](#))

But for other nominative expressions it does not seem to be the case that we are interpreting them as referring to individuals, see for example the nominative adjective in the example in (58). So the equative structure cannot be the only structure available for post-copular nominative phrases.

If Russian has the equative structure, it raises the question of why nominalized CPs cannot be equated with content and situation DPs, (55)-(56). I would like to suggest that it might have to do with the fact that the equative structure is not always available: many speakers I consulted find DPs with demonstratives in the post-copular position degraded, (ii). Nominalized CPs are formed with the help of the same demonstrative, and the impossibility of the equative structure with them might arise due to its presence.

- (ii) ??[Ètot rebënok] byl [tot rebënok].
 this child was that.NOM child.NOM
 ‘This child was that child.’

²²See ([Pereltsvaig, 2007](#)) for arguments that this interpretative distinction is more complex than just stage-level predicates vs. individual-level predicates.

‘My grandfather was handsome/a doctor/in India.’
 ~> My grandfather is no longer alive, when he was alive he was
 handsome/a doctor (no similar inference with the PP).

One might wonder whether the nominative constituents in (57b) might in fact be part of a definite DP (with a null determiner) that is equated with the subject. I would like to suggest that this is not the case, and the structure in (57b) is really predicational. Consider (58).

- (58) **Context:** My friend and I are watching old family videotapes from the 60s. We see young students celebrating the day of their department. One of the students is visibly taller than the rest. After we stop watching, my friend asks me: who of them was your grandfather? I respond:
- a. Moj deduška byl tot vysokij paren’.
 my grandfather was that.NOM tall.NOM guy.NOM
 ‘My grandfather was that tall guy.’
- b. # Moj deduška byl vysokij.
 my grandfather was tall.NOM
 ‘My grandfather was tall.’

While it is felicitous in this case to use a definite DP with a demonstrative *tot* ‘that’, a simple nominative adjective cannot be understood as referring to the unique tall individual salient in the context, and thus cannot be equated with the subject. This suggests that nominative adjectives in post-copular positions denote predicates, and thus at the very least not all nominative expressions are part of individual-denoting DPs.

Now when it comes to complements of predicates like ‘consider’, it turns out that they do not just combine with any predicate, but select for PredPs: they cannot combine with nominative predicative nouns or adjectives, and they cannot combine with PPs either. In other words, they are compatible only with a subset of possible predicates that can occur in copular constructions. CPs do not fall into that set, (59).

- (59) Ja sčítaju moego dedušku [lučšim povarom] /krasivym
 I consider my grandfather.ACC best cook.INSTR handsome.INSTR
 /*lučšij povar /*krasivyj /*v parke.
 /best cook.NOM /handsome.NOM /in park
 ‘I consider my grandfather the best cook/handsome/to be in the park.’
- (60) a. *Ja sčítaju ètu ideju [(to/tem) čto Petja
 I consider this idea (DEM.NOM/DEM.INSTR) COMP Petya
 otrpavitsja v Moskvu].
 will.head.off to Moscow
 ‘I consider this idea to be that Petya will head off to Moscow.’
- b. *Ja sčítaju ètu situaciju [(to/tem) čto belki s”eli
 I consider this situation (DEM.NOM/DEM.INSTR) COMP squirrels ate
 vse orexi].
 all nuts
 ‘I consider this situation to be that the squirrels ate all the nuts.’

Note that Cont-CPs and Sit-CPs describe inherent, permanent properties of individuals they combine with: if the content of an idea changed, it is not the same idea anymore; if the description of the situation changed, it is a different situation. Thus, the impossibility of CPs embedded in a PredP structure (nominalized and receiving instrumental case) is expected. The impossibility of bare CPs in this configuration however is not an argument against analyzing CPs as predicates, as we see that there are many other predicates that are impossible in this position, (60). The reason that CPs are banned is that ‘consider’ selects for a PredP (or for the semantic kinds of predicates that the PredP creates), and CPs cannot be part of such a constituent.

To sum up, we have seen that the distributional facts from Russian and Korean are in line with the view that CPs that combine with nouns are predicates. Furthermore, data from Russian suggested that the restriction on CPs in small clause structures is not an argument against them being predicates: verbs like ‘consider’ impose additional restrictions on the predicates they embed, and CPs do not meet them.

2.3.5 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. Applying this heuristic to Cont-NPs and Sit-NPs is difficult, as most of such nouns don’t take any obvious arguments. But Russian has a noun *aspekt* ‘aspect’, which does take an individual whose aspect is talked about as an argument expressed by a genitive DP, and thus allows us to apply this heuristic, (61)-(62).

- (61) Tot aspekt [ètoj gipotezy], [čto trivial’nost’ možet privodit’ k
 this aspect this hypothesis.GEN COMP triviality can lead to
 negrammaticičnosti], 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.’
- (62) *Tot aspekt, [čto trivial’nost’ možet privodit’ k negrammaticičnosti], [ètoj
 this aspect COMP triviality can lead to ungrammaticality this
 gipotezy] mne očen’ nravilsja.
 hypothesis.GEN I.DAT very liked
 ‘I liked a lot the aspect of this hypothesis, which was that triviality can lead
 to ungrammaticality.’

Note that in (61)-(62) 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. This suggests that the *čto*-clause is a modifier of this noun.

To sum up, we have considered several heuristics that have been argued to reflect the argument vs. modifier distinction, and all of them point to the conclusion that both Cont-CPs and Sit-CPs are modifiers of nouns.²³ The fact that Cont-CPs are modifiers

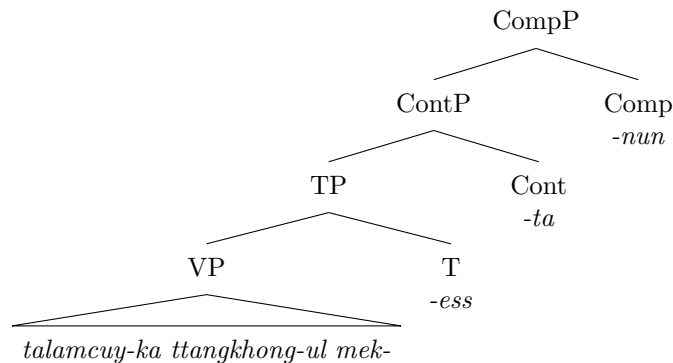
²³Here I have not discussed two other prominent diagnostics: reconstruction for principle C and and possibility of stacking. See Bondarenko (2022) for discussion of why reconstruction data is inconclusive. As

of nouns has an important consequence: the noun is not the source of displacement; displacement must be introduced within the embedded clause.

3 Proposal

I propose that Cont-CPs and Sit-CPs differ in the structures of their left peripheries in all languages, irrespective of whether morphological differences between the two kinds of clauses are observed: Cont-CPs contain an additional projection, which Sit-CPs lack. I will call this projection ContP, and assume that it is merged between TP and CompP—the highest projection in the left periphery, which hosts complementizers. In languages like Korean and Buryat the Cont head has overt exponence (*-ta* in Korean, *g(ə)-* in Buryat), but in languages like Russian and English it is null.²⁴ I assume that the Comp head hosts complementizers like Russian *čto* and English *that*, the adnominal marker in Korean, and the participial markers in Buryat. Note that both in Korean and Buryat the morphemes exponing Cont precede the ones exponing Comp, suggesting that the former are lower in the structure than the latter. Thus, Cont-CPs like in (63) and (64) have the structures in (65) and (66) respectively.

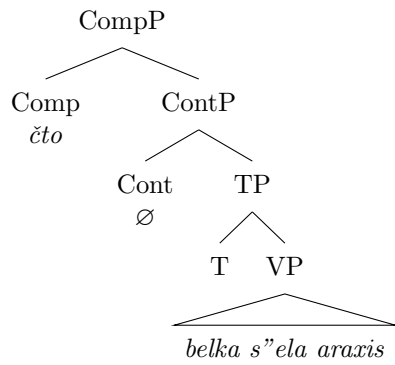
- (63) [talamcuy-ka ttangkhong-ul mek-ess-ta-nun] cwucang-i
 squirrel-NOM peanut-ACC eat-PST-DECL-ADN claim-NOM
 ‘the claim that the squirrel ate the peanut’
- (64) utverždenie, [čto belka s’ela araxis]
 claim COMP squirrel ate peanut
 ‘the claim that the squirrel ate the peanut’
- (65) The structure of the Korean embedded clause in (63)



for stacking, it has been observed that modifiers can only stack when their semantics is compatible with each other (Schütze, 1995). As we will see, my proposal about the semantics of Cont-CPs and Sit-CPs (section 3) will predict stacking of two clauses to be impossible (which is indeed borne out), and thus the stacking heuristic wouldn’t differentiate between arguments and adjuncts in this case.

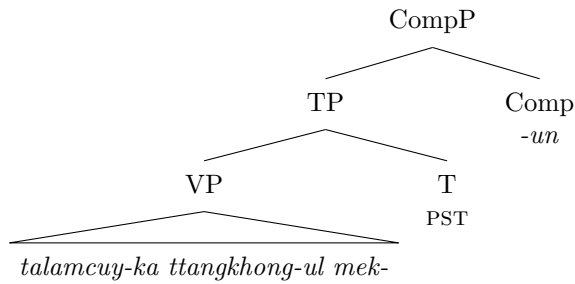
²⁴Alternatively, one could hypothesize that items like Russian *čto* and English *that* lexicalize a span <Comp,Cont>.

- (66) The structure of the Russian embedded clause in (64)



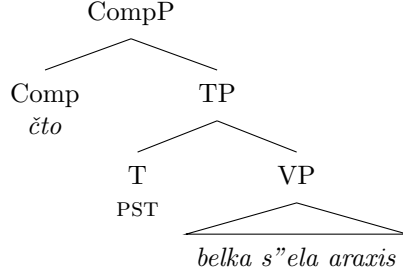
In Sit-CPs, Comp directly takes TP as its complement.²⁵ Thus, Sit-CPs in examples like (67) and (68) have the structures in (69) and (70) respectively.

- (67) [talamcuy-ka ttangkhong-ul mek-un] sanghwang-i
 squirrel-NOM peanut-ACC eat-PST.ADN situation-NOM
 ‘the situation that the squirrel ate the peanut’
- (68) situacija, [čto belka s"ela araxis]
 situation COMP squirrel ate peanut
 ‘the situation that the squirrel ate the peanut’
- (69) The structure of the Korean embedded clause in (67)



²⁵I assume that morphological rules of Korean guarantee that it is not possible to spell out T as *-ess*: either allomorphy of Comp is followed by impoverishment on T, or the adnominal marker lexicalizes the span <Comp,T>. See ft. 8 for some evidence in favor of the morphological nature of this restriction.

(70) The structure of the Russian embedded clause in (68)



Now let us turn to the semantics of Cont-CPs and Sit-CPs. I assume that the domain of situations is a subset of the domain of individuals, $D_{st} \subset D_{et}$. I propose that Cont and Comp have the denotations in (71) and (72) respectively. The Cont head introduces displacement: it demands that the $\text{CONT}(\text{ENT})$ relation (see Bogal-Allbritten 2016, 2017; Elliott 2020; Kratzer 2006, 2016; Moltmann 1989, 2013, 2014, 2020; Moulton 2009, 2015) holds between an individual x and an embedded proposition p , and in particular that the content of x equals p (Bassi & Bondarenko, 2021; Elliott, 2020; Moulton, 2009). The Comp head introduces exemplification: it takes a predicate p , and returns a set of individuals in the situation of evaluation that exemplify p ,²⁶ where exemplification relation is defined as in (73)—it is a homogeneity requirement that either p is true of all proper parts of an individual, or of none of them.

$$(71) \quad \llbracket \text{Cont} \rrbracket^{s,g,t} = \lambda p \in D_{st} . \lambda x . \text{CONT}(x) = p$$

$$(72) \quad \llbracket \text{Comp} \rrbracket^{s,g,t} = \lambda p : p \in D_{et} . \lambda x . x \sqsubseteq s \wedge x \Vdash_e p =_{abbr} \lambda p . \lambda x . x \Vdash_e p$$

(73) **Exemplification** (based on Deigan 2020; Kratzer 1989, 2002)

For any individual $x \in D_e$ and predicate $p \in D_{et}$:

x exemplifies $p =_{abbr} x \Vdash_e p =_{def}$

$$x \in p \wedge (\forall x'[x' \sqsubset x \Rightarrow x' \in p] \vee \forall x'[x' \sqsubset x \Rightarrow x' \notin p])$$

Now let us see how these pieces derive the meanings of Sit-CPs and Cont-CPs. I assume that TPs denote truth-values. Sit-CPs do not have ContP in their structure, so Comp is directly combined with the embedded proposition by Intensional Functional Application (IFA), giving us the denotation for the Sit-CP in (74a). Sit-CP denotes a set of individuals (which are situations) which exemplify the embedded proposition, and combines with a noun like *situation* by Predicate Modification, (74b).

$$(74) \quad \begin{array}{l} \text{a.} \quad \llbracket [\text{Comp the squirrel ate the peanut}] \rrbracket^{s,g,t} = \\ \quad \lambda x . x \Vdash_e \{s' : \text{the squirrel ate the peanut in } s'\}. \\ \text{b.} \quad \llbracket \text{situation } [\text{Comp the squirrel ate the peanut}] \rrbracket^{s,g,t} = \\ \quad \lambda x . \text{situation}(x)_{s,t} \wedge x \Vdash_e \{s' : \text{the squirrel ate the peanut in } s'\} \end{array}$$

²⁶The requirement that the individual is part of the situation of evaluation is not doing any work if the CP combines with a nominal predicate, which itself is evaluated at a situation, so I will omit this part of the denotation in some of the examples. But if the same CP was to directly combine with a determiner, and determiners are not treated as situation-dependent, then the predicate that the CP describes would not be relativized to a situation, which seems like an undesirable outcome.

(74b) denotes a predicates true of minimal (exemplifying) situations in which the squirrel ate the peanut—situations in which the squirrel ate the peanut, but in no proper subparts of which the squirrel ate the peanut.

The meaning of Cont-CP is derived as follows. Combining Cont with TP gives us the denotation in (75a): it is a set of individuals (which could be situations as well) whose propositional content equals the embedded proposition. In principle, this is a meaning that we could directly combine with Cont-NPs. But in languages which overtly realize both Cont and Comp, we see that Comp must also be present in Cont-CPs, (76). 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 (75b). 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, and so I will assume that it is present and abbreviate it with \llbracket_e , (75b).²⁷ Cont-CPs compose with content nouns by Predicate Modification, resulting in meanings like (75c).

- (75) a. $\llbracket[\text{Cont the squirrel ate the peanut}]\rrbracket^{s,g,t} = \lambda x. \text{CONT}(x) = \{s': \text{the squirrel ate the peanut in } s'\}$
 b. $\llbracket[\text{Comp Cont the squirrel ate the peanut}]\rrbracket^{s,g,t} = \lambda x. x \llbracket_e \{x': \text{CONT}(x') = \{s': \text{the squirrel ate the peanut in } s'\}\} =_{abbr} \lambda x. \llbracket_e \text{CONT}(x) = \{s': \text{the squirrel ate the peanut in } s'\}$
 c. $\llbracket[\text{claim} [\text{Comp Cont the squirrel ate the peanut}]]\rrbracket^{s,g,t} = \lambda x. \text{claim}(x)_{s,t} \wedge x \llbracket_e \{x': \text{CONT}(x') = \{s': \text{the squirrel ate the peanut in } s'\}\} =_{abbr} \lambda x. \text{claim}(x)_{s,t} \wedge \llbracket_e \text{CONT}(x) = \{s': \text{the squirrel ate the peanut in } s'\}$.
- (76) * $[\text{talamcuy-ka ttangkhong-ul mek-ess-(ta)}]$ cwucang-i
 squirrel-NOM peanut-ACC eat-PST-(DECL) claim-NOM
 ‘the claim that the squirrel ate the peanut’

(75c) denotes a set of claims whose propositional content is the proposition “*The squirrel ate the peanut*”, such that either all of proper parts of these claims have the content “*The squirrel ate the peanut*”, or none of them do.

²⁷ Introducing 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 (of course, this is just one possible hypothesis about how we could deal with content-less parts of contentful individuals).

- (i) *Example:* $\neg(x \llbracket_e \{x': \text{CONT}(x') = \{s' : \text{the squirrel ate the peanut in } s'\}\})$
 a. $x = y \sqcup z$
 b. $\text{CONT}(x) = \{s' : \text{the squirrel ate the peanut in } s'\}$
 c. $\text{CONT}(y) = \{s' : \text{the squirrel ate the peanut in } s'\}$
 d. $\text{CONT}(z) = \#$

In that case, the propositional content associated with x will be the same as the propositional content associated with y , but by the definition in (73), x will not be an exemplifying individual for the predicate $\{x': \text{CONT}(x') = \{s' : \text{the squirrel ate the nuts in } s'\}\}$, as it is not homogeneous: 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 .

Here is how this proposal accounts for the observed properties of Cont-CPs and Sit-CPs. First, it straightforwardly captures the fact that both kinds of clauses behave like modifiers of nouns that they combine with (section 2.3): both kinds of CPs denote predicates and combine with nouns by Predicate Modification. Note also that it is correctly predicted that the elements at the left periphery of these clauses cannot be omitted: Cont-NPs and Sit-NPs cannot take TPs directly, as is illustrated in (76) and (77) for Korean, and in (78) and (79) for Russian. This follows from my proposal, because according to it nouns do not take propositions as arguments, and TPs denote truth-values. This means that the two could never combine due to a type mismatch.

- (77) *[talamcuy-ka ttangkhong-ul mek-(ess)] sanghwang-i
 squirrel-NOM peanut-ACC eat-(PST) situation-NOM
 ‘the situation that the squirrel ate the peanut’
- (78) *utverždenie, [belka s”ela araxis]
 claim squirrel ate peanut
 ‘the claim that the squirrel ate the peanut’
- (79) *situacija, [belka s”ela araxis]
 situation squirrel ate peanut
 ‘the situation that the squirrel ate the peanut’

Second, the correlation between the type of CP a noun combines with and the kinds of predicates that it can occur with (section 2.2) follows from the present proposal. Nouns like *claim* describe individuals in the domain of the CONT function and not situations, which explains why they can combine with predicates like ‘true’ or ‘false’ and Cont-CPs, but not with predicates like ‘occur’ or ‘happen’ and not with Sit-CPs. Nouns like *situation* describe situations that are not in the domain of the CONT function. This is why such nouns can combine with predicates like ‘occur’ or ‘happen’ and Sit-CPs, but not with predicates like ‘true’ or ‘false’ and not with Cont-CPs.

Finally, the crucial difference that we observed between Cont-CPs and Sit-CPs—difference in transparency/opacity of the clause—arises due to the fact that only the meanings of Cont-CPs involve displacement, as only they contain the Cont head. Recall that Cont-CPs allow predicates inside of them to be interpreted *de dicto*, but Sit-CPs do not: ‘sheep’ and ‘goats’ can be evaluated with respect to distinct situations in examples like (80), but not in the ones like (81).

- (80) Andreja pozabavilo (ošibočnoe) mnenie, [čto [ovcy na ètoj gore] —
 Andrej amused (mistaken) opinion COMP sheep on this mountain
 èto kozy].
 COP goats
 ‘A (mistaken) opinion that the sheep on this mountain are goats amused Andrej.’
- (81) #Andreja pozabavila situacija, [čto [ovcy na ètoj gore] — èto kozy].
 Andrej amused situation COMP sheep on this mountain COP goats
 ‘A situation that the sheep on this mountain are goats amused Andrej.’

I hypothesize that, whatever the mechanism of achieving *de re* interpretations of ‘sheep’ in (80) is, it produces the truth-conditions in (82).²⁸

$$(82) \quad \begin{aligned} & \llbracket \text{An opinion that the sheep are goats amused Andrej} \rrbracket^{s,g} = 1 \text{ iff} \\ & \exists s' [\text{amuse}_s(s') \wedge \text{THEME}(s') = \text{Andrej} \wedge \exists x [\text{CAUSER}(s') = x \wedge \text{opinion}(x)_s \wedge \\ & \text{CONT}(x) = \{s': \iota y(\text{sheep}(y)_s) \text{ is a goat in } s'\}]] \end{aligned}$$

In (82) the properties of being a sheep and being a goat do not have to be evaluated with respect to the same situation, because the CONT function introduces displacement. 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 responsible for *de re* readings allows us to interpret the property of being sheep with respect to evaluation situation s , 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*.

Due to the lack of displacement in the meanings of Sit-CPs, *de dicto* readings of predicates inside them will not be possible. (83) illustrates this for the sentence in (81).

$$(83) \quad \begin{aligned} & \text{Infelicitous result with Sit-CPs:} \\ & \llbracket \text{A situation that the sheep are goats amused Andrej} \rrbracket^{s,g} = 1 \text{ iff} \\ & \exists s' [\text{amuse}_s(s') \wedge \text{THEME}(s') = \text{Andrej} \wedge \exists x [\text{CAUSER}(s') = x \wedge \text{situation}(x)_s \wedge \\ & x \Vdash_e \{s': \iota y(\text{sheep}(y)_s) \text{ is a goat in } s'\}]] \\ & \Rightarrow \# \text{ if sheep and goats are disjoint sets in } s \end{aligned}$$

By the definition of exemplification, (73), if x exemplifies p , then $x \in p$. This means that in (83) $x \in \{s': \iota y(\text{sheep}(y)_s) \text{ is a goat in } s'\}$. In other words, for the sentence to be true it has to be that the sheep in s , the situation of evaluation, are goats in x . But we also know that x is part of s ($x \sqsubseteq s$): this is so because x is the CAUSER of the situation of being amusing within s , and also because x is a situation in s . 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 results in a contradiction under the assumption that sheep and goats are disjoint sets of individuals, hence the infelicity of examples like (81).

The same difference in presence/lack of displacement explains the different behavior of Cont-CPs and Sit-CPs with respect to the substitution test in (24)-(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*, (85b)/(87b), will receive the truth-conditions in (84): when evaluated at s , it is true iff the person who is Swuna in s is the tallest girl in s .

²⁸In this paper I disregard tense for simplification. I also adopt a neo-Davidsonian approach to argument structure (Castañeda 1967, a.o.), and assume that verbs denote predicates of exemplifying situations, (i). I will henceforth abbreviate their denotations as shown in (i), with the exemplification superscript diacritic.

(i) $\llbracket \text{amuse} \rrbracket^{s,g,t} =$
 $\lambda s': s' \in D_e, s' \sqsubseteq s \wedge s' \text{ is at } t \wedge s' \Vdash_e \{s'': \text{there is amusement in } s''\}$
 $=_{abbr} \lambda s'. \text{amuse}_{s,t}(s')$

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

Because the semantics of Cont-CPs involves displacement, the situation variable inside definite descriptions and proper names will be able to be distinct from the evaluation situation. So, for example, the sentence in (85a) can have the truth-conditions in (86a), and the sentence in (85c)—the truth-conditions in (86b).

- (85) *Opacity with Cont-CPs: from* $\{(a), (b)\} \not\Rightarrow (c)$
- a. Mina-ka [**Swuna-ka** mwuncey-lul phwul-ess-ta-nun]
 Mina-NOM **Swuna-NOM** problem-ACC solve-PST-DECL-ADN
 cwucang-ul kiekhay-ss-ta.
 claim-ACC remember-PST-DECL
 ‘Mina remembered the claim 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] cwucang-ul kiekhay-ss-ta.
 problem-ACC solve-PST-DECL-ADN claim-ACC remember-PST-DECL
 ‘Mina remembered the claim that the tallest girl in the class solved the problem.’
- (86) a. $\llbracket \text{Mina remembered the claim that Swuna solved the problem} \rrbracket^{s,g} = 1$ iff
 $\exists s' [\text{remember}_s(s') \wedge \text{EXP}(s') = \text{Mina} \wedge \exists x [\text{THEME}(s') = x \wedge \text{claim}(x)_s \wedge$
 $\text{CONT}(x) = \{s'' : \iota y (\text{y is Swuna in } s'') \text{ solved the problem in } s'' \}]]$
- b. $\llbracket \text{Mina remembered the claim that the tallest girl in the class solved the problem} \rrbracket^{s,g} = 1$ iff $\exists s' [\text{remember}_s(s') \wedge \text{EXP}(s') = \text{Mina} \wedge$
 $\exists x [\text{THEME}(s') = x \wedge \text{claim}(x)_s \wedge \text{CONT}(x) = \{s'' : \iota y (\text{y is the tallest girl in the class in } s'') \text{ solved the problem in } s'' \}]]$

The CONT function provides a set of situations which is the content of the claim, and expressions like *being Swuna* and *being the tallest girl in the class* can be evaluated according to the situations in this set. Thus, one could truthfully believe (85a) and (85b) to be true of the actual world, but (85c) to be false. Mina could have remembered a claim that the individual who is *Swuna according to the claim* solved the problem, but not have remembered a claim that the individual who is *the tallest girl in the class according to the claim* 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 (85a) and (85b) can be true whereas (85c) is false, and for that reading to exist, the meaning of the sentence has to involve displacement.

Now consider the truth-conditions that we get for Sit-CPs: (88a) for the sentence in (87a), and (88b) for the sentence in (87c).

- (87) *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
'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 girl 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
'Mina remembered the situation that the tallest girl in the class solved the problem.'
- (88) a. $\llbracket \text{Mina remembered the situation that Swuna solved the problem} \rrbracket^{s,g} = 1$ iff
 $\exists s' \Vdash_e \text{remember}_s(s') \wedge \text{EXP}(s') = \text{Mina} \wedge \exists x [\text{THEME}(s') = x \wedge \text{situation}(x)_s$
 $\wedge x \Vdash_e \{s'' : \iota y (y \text{ is Swuna in } s'') \text{ solved the problem in } s''\}]$
- b. $\llbracket \text{Mina remembered the situation that the tallest girl in the class solved the problem} \rrbracket^{s,g} = 1$ iff $\exists s' \Vdash_e \text{remember}_s(s') \wedge \text{EXP}(s') = \text{Mina} \wedge$
 $\exists x [\text{THEME}(s') = x \wedge \text{situation}(x)_s \wedge x \Vdash_e \{s'' : \iota y (y \text{ is the tallest girl in the class in } s'') \text{ solved the problem in } s''\}]$

Assume that (87a) and (87b) 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.²⁹ But from (87b) 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 (87c) must be true: it is the case that Mina remembers the situation of the tallest girl in the

²⁹This step of argumentation relies on the assumption that for any individual y , the proposition $\{s: y \text{ is Swuna in } s\}$ is persistent:

- (i) *Persistence* (Kratzer, 1989, 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 $s' \in p$.

Intuitively, this seems like a welcome assumption: if someone is Swuna in a situation s , someone is still Swuna in bigger situations containing s . Here I do not commit myself to the hypothesis that all propositions are persistent (see discussion in Kratzer 1989), but assume that propositions like the one under consideration are persistent.

class solving the problem. Note that deriving the entailment in (87c) 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 Equality & Exemplification: supporting evidence

My proposal has two components that are in principle independent of the idea that semantics of Cont-CPs but not Sit-CPs involves displacement. The first is the *equality* semantics for displacement: propositional content of an individual is *equated* with the embedded proposition. The second is the exemplification semantics introduced by Comp. I motivate these components in sections 4.1 and 4.2.

4.1 Equality semantics

I proposed that CONT is a function, (89): it takes an individual and returns the propositional content associated with it. The Cont head demands that this content *equals* the embedded proposition (Bassi & Bondarenko, 2021; Elliott, 2020; Moulton, 2009). A common alternative to this is to assume that the content of an individual is a *subset* of the embedded proposition (see Bogal-Allbritten 2016; Kratzer 2006 a.o.), (90).

$$(89) \quad \textit{Equality Semantics of Displacement} \\ \llbracket \text{Cont} \rrbracket^{s,g,t} = \lambda p \in D_{st} . \lambda x. \text{CONT}(x) = p$$

$$(90) \quad \textit{Subset Semantics of Displacement} \\ \llbracket \text{Cont} \rrbracket^{s,g,t} = \lambda p \in D_{st} . \lambda x. \text{CONT}(x) \subseteq p$$

Here are the arguments that have been made in the literature for the equality semantics. First, Moulton (2009) observes that despite the fact that clauses behave like modifiers to nouns, they cannot be stacked, (91), unlike relative clauses, for example. This observation seems to hold cross-linguistically: Cont-CPs in Russian and Korean cannot be stacked either, (92)-(93).

- (91) a. *The rumor that Fred was happy, that he was in Paris, that he could see ghosts.
 b. The rumor that Fred made, that Jill believed, that Bill spread to his friends...
 (Moulton, 2009, 29)

- (92) *Byl slux, [čto Mitja igral na pianino] [čto Nastja pela].
 was rumor COMP Mitya played on piano COMP Nastya sang
 ‘There was a rumor, according to which Mitya played the piano, according to which Nastya sang.’

- (93) *Mina-ka [Swuna-ka nolayha-ss-ta-nun] [Hani-ka
 Mina-NOM Swuna-NOM sing-PST-DECL-ADN Hani-NOM
 chwumchwu-ess-ta-nun] cwucang-ul kiekha-ss-ta.
 dance-PST-DECL-ADN claim-ACC remember-PST-DECL
 ‘Mina remembered the claim, according to which Swuna sang and according to which Hani danced.’

While such an impossibility of stacking is mysterious under the subset semantics, it is expected under the equality semantics. Since `CONT` is a function, it cannot return two distinct propositions when applied to the same individual: e.g., in (94) we would require that the content of x is “Fred was happy” and “Fred was in Paris” at the same time, which is impossible, resulting in an illicit meaning.³⁰

$$(94) \quad \begin{aligned} & \llbracket [\text{Comp Cont } \textit{Fred was happy}] \\ & \quad [\text{Comp Cont } \textit{Fred was in Paris}] \rrbracket^{s,g,t} = \\ & \lambda x. x \Vdash_e \{x': \text{CONT}(x') = \{s': \text{Fred was happy in } s'\}\} \\ & \wedge x \Vdash_e \{x': \text{CONT}(x') = \{s': \text{Fred was in Paris in } s'\}\} = \emptyset. \end{aligned}$$

Second, Bassi and Bondarenko (2021) observe that equality semantics can also explain why embedded CP conjunction—i.e., strings ‘that CP and that CP’, cross-linguistically takes wide scope with respect to the matrix verb. In the narrow scope context, (95), most people judge TP conjunction felicitous, but CP conjunction as quite odd. Bassi and Bondarenko (2021) argue that the reason behind this infelicity is that true CP conjunction is in fact impossible, for the same reason as CP stacking is: intersective conjunction of two Cont-CPs would result in the same meaning in (94), which is illicit due to the equality semantics. The sentence in (95b) on their account involves Conjunction Reduction: two matrix VPs are conjoined, but the verb in the second conjunct is not pronounced. This derives the fact that we only get wide scope readings of ‘that CP and that CP’ strings.

- (95) *Context:* Yesterday Masha sang and Dina danced at the same time, and they produced so much noise that Bill couldn’t handle it. Individually, these events are always pleasant.
- a. Bill got angry [_{CP} that [_{TP} Masha sang] and [_{TP} Dina danced]].
 - b. ??Bill got angry [_{CP} that Masha sang] and [_{CP} that Dina danced].
- (Bassi & Bondarenko, 2021, p. 587-588)

Third, Elliott 2020 develops an argument in favor of equality semantics based on the observation that the noun *fact*, unlike some other content nouns, requires a definite article in sentences with embedded clauses, (96)-(97).

- (96)
 - a. Darcy mentioned a fact (*that it’s raining).
 - b. Darcy mentioned the fact (that it’s raining).
 - c. Darcy mentioned two facts (*that it’s raining).
(Elliott, 2020, 146, ex. (275))
- (97)
 - a. Darcy mentioned a rumour (that it’s raining).
 - b. Darcy mentioned the rumour (that it’s raining).
 - c. Darcy mentioned two rumours (that it’s raining).
(Elliott, 2020, 146, ex. (276))

He suggests that this restriction is a *Maximize Presupposition!* effect (Heim, 1991). His explanation of the pattern relies on the assumptions about facts in (98).

³⁰Note however that this proposal does not rule out stacking of two CPs which denote identical propositions. But it seems plausible that some principle banning redundancies would apply in such cases.

- (98) *Assumptions about facts* (Elliott, 2020, 148, ex. (282))
- a. Two facts are distinct iff they have distinct content.
 - b. In w , every proposition p s.t. $p(w) = 1$ is the content of a unique fact in w , and every fact in w has as its content a unique proposition p s.t. $p(w)=1$.

Maximize Presupposition! requires that whenever the presupposition of a certain lexical item is met, we have to chose that item over an item with the same meaning without the presupposition. The definite article introduces a presupposition that there is a unique individual of the kind described by the noun phrase. Thus, for the sentence in (96b) we will get the meaning in (99) under the equality semantics, and the meaning in (100) under the subset semantics.³¹

- (99) *Equality Semantics*
 $\llbracket \text{Darcy mentioned the fact that it's raining} \rrbracket^{s,g,t} =$
 defined iff $\exists!x[\text{fact}(x)_{s,t} \wedge \text{CONT}(x) = \{s': \text{it is raining in } s'\}]$
 when defined, true iff
 $\exists s'[\text{I}^e\text{mention}_{s,t}(s') \wedge \text{AGENT}(s')=\text{Darcy} \wedge \text{THEME}(s')=\iota x(\text{fact}(x)_{s,t} \wedge \text{CONT}(x) = \{s': \text{it is raining in } s'\})]$.
- (100) *Subset Semantics*
 $\llbracket \text{Darcy mentioned the fact that it's raining} \rrbracket^{s,g,t} =$ defined iff
 $\exists!x[\text{fact}(x)_{s,t} \wedge \forall s' [s' \in \text{CONT}(x) \Rightarrow \text{it is raining in } s']]$
 when defined, true iff
 $\exists s'[\text{I}^e\text{mention}_{s,t}(s') \wedge \text{AGENT}(s')=\text{Darcy} \wedge \text{THEME}(s')=\iota x(\text{fact}(x)_{s,t} \wedge \forall s' [s' \in \text{CONT}(x) \Rightarrow \text{it is raining in } s'])]$.

Under the equality semantics, (99), the sentence will be defined if there is a unique individual which is a fact with the propositional content “*It is raining*”. When defined, it will be true if there is a situation of Darcy mentioning this fact. Imagine that the embedded proposition is true in the situation of evaluation s . By (98b) (swapping worlds for situations), it would imply that this embedded proposition is the content of a unique fact in s . Thus, if it is raining in s , the presupposition introduced by the definite article will be met, and because of *Maximize Presupposition!* we will be required to use the definite article instead of the indefinite one.

Under the subset semantics on the other hand, (100), the presupposition introduced by the definite article will never be met. Imagine that it is true in the evaluation situation s that it is raining, and furthermore that it is raining heavily and it is Tuesday. Then, by our assumption in (98b), at least the following facts will be facts in s :

- (101) a. **fact**₁: $\text{CONT}(\mathbf{fact}_1) = \{s': \text{it is raining in } s'\}$
 b. **fact**₂: $\text{CONT}(\mathbf{fact}_2) = \{s': \text{it is raining heavily in } s'\}$
 c. **fact**₃: $\text{CONT}(\mathbf{fact}_3) = \{s': \text{it is raining and it is Tuesday in } s'\}$
 d. **fact**₄: $\text{CONT}(\mathbf{fact}_4) = \{s': \text{it is raining heavily and it is Tuesday in } s'\}$

We will not be able to find the *unique* fact such that in all situations of its propositional content it is raining. The facts **fact**₁, **fact**₂, **fact**₃ and **fact**₄ all fit the

³¹I have made minor adjustments to the truth-conditions provided in (99) and (100) in order for them to be in line with the framework adopted this paper.

description—all situations in their content are situations in which it rains. Thus, the subset semantics predicts the reverse pattern of the one we see: it should be the case that the indefinite article is used when *fact* combines with an embedded clause.

The difference between rumors and facts, (96)-(97), stems from the fact that two distinct rumors could have the same propositional content. Elliott (2020, 149-150) suggests that it is for example sufficient for two rumors to have different creators to count as distinct. Thus, both definite and indefinite articles are possible with nouns like ‘rumor’: the definite article is chosen if there is a unique rumor with a given content, and the indefinite article is used if there is more than one rumor with the given content.

I would like to add another argument in favor of the equality semantics. Let us assume that a complex claim, **claim**₃, has been made: it consists of two subclaims: “*Swuna won an award*” and “*Swuna didn’t thank anyone*”, (102a)-(102b).³² Let us further assume, following (Elliott, 2020), that the content of an entity consisting of two subparts is the conjunction of the propositional contents of the parts, (102c).

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

In the context provided in (103), the sentences like (103a) and (103b) are judged false by native speakers of Korean and Russian.

- (103) **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).
- a. [Swuni-ka sang-ul pat-ess-ta-nun]
 Swuni-NOM award-ACC win-PST-DECL-ADN
 cwucang-i Mina-lul nollakey ha-yess-ta. [FALSE]
 claim-NOM Mina-ACC be.surprised do-PST-DECL
 ‘A claim that Swuni won the award surprised Mina.’
- b. Zajavlenie, [čto Svuna polučila nagradu], udivilo Minu. [FALSE]
 claim COMP Swuna got award surprised Mina
 ‘A claim that Swuna got the award surprised Mina.’

The equality semantics predicts this:

- (104) **Truth-conditions under the equality semantics**
 $\llbracket A \text{ claim that Swuna won the award surprised Mina} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\models_e \text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{Mina} \wedge \exists x [\text{CAUSER}(s') = x \wedge \text{claim}(x)_{s,t} \wedge \models_e \text{CONT}(x) = \{s': \text{Swuna got an award in } s'\}]]$

³²One 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, 2017b, 2017c).

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, (105).

- (105) **Truth-conditions under the subset semantics**
 $\llbracket A \text{ claim that Swuna won the award surprised Mina} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{Mina} \wedge \exists x [\text{CAUSER}(s') = x \wedge \text{claim}(x)_{s,t} \wedge x \Vdash_e \{x': \text{CONT}(x') \subseteq \{s': \text{Swuna got an award in } s'\}\}]]$

All that (105) 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.³³

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, (106)-(107).

- (106) *The subset semantics: closure under entailment*
 a. $\exists x [\text{CONT}(x) \subseteq p]$
 b. $p \subseteq q$
 c. $\Rightarrow \exists x [\text{CONT}(x) \subseteq q]$
- (107) *The equality semantics: no closure under entailment*
 a. $\exists x [\text{CONT}(x) = p]$
 b. $p \subseteq q$
 c. $\not\Rightarrow \exists x [\text{CONT}(x) = q]$

³³One might object to this argument by suggesting that while the truth-conditions in (105) are correct, asserting such a sentence would be uninformative in the provided context, and this is why it is perceived as false. Perhaps we would always choose to speak about **claim**₁ instead of **claim**₃, as it is the **claim**₁ part of **claim**₃ that evokes surprise in Mina. I would like to suggest that uninformative of (105) cannot be the sole reason for why it is judged as false. Imagine that we are in fact dealing with an uncooperative speaker: the one that is still committed to saying only things that are factually true, but who doesn't want others to know the real reason for Mina's surprise. Such a sneaky-but-truthful speaker cannot use the sentence in (ia), as this would mean making a factually wrong statement. They could however use a different construction involving a relative clause with a preposition *soglasno* 'according to', (ib).

- (i) **Context:** Everything is as in (103), but in addition imagine that the speaker is trying to conceal the real cause of Mina's surprise—e.g., they don't want others to know about Swuna's lack of gratitude—*without saying anything that is actually false*.
- a. [FALSE] Zajavlenie, [čto Svuna polučila nagradu], udivilo Minu.
 claim COMP Swuna got award surprised Mina
 'A claim that Swuna got the award surprised Mina.'
- b. [TRUE] Zajavlenie, [soglasno kotoromu Svuna polučila nagradu], udivilo Minu.
 claim according which Swuna got award surprised Mina
 'A claim according to which Swuna got the award surprised Mina.'

The intuition is that (ib) does not require that the claim at hand is the claim whose content is precisely “*Swuna won an award*”. Thus (ib) could be talking about **claim**₃. The sentence in (ia) though cannot: it has to refer to **claim**₁. Thus, I conclude that while the subset semantics might be appropriate for other constructions, e.g. Russian preposition *soglasno* 'according' could involve it, it is not a good candidate for meanings of embedded clauses.

Whether we want closure under entailment to hold or not seems to depend on the noun and also the matrix verb that are involved in the sentence. There seem to be clear cases where such entailment is absent, for example, (108).

- (108) **Context:** Hani made a claim that someone got an award. Then Mina made a claim that Swuna got an award. I'm not surprised by the former claim, but I am surprised by the latter one.
 Ja ne udivilas' zajavleniju, što kto-to polučil nagradu, no ja
 I NEG surprised claim COMP someone got award but I
 udivilas' zajavleniju, što Svuna polučila nagradu.
 surprised claim COMP Swuna got award
 'I'm not surprised by a claim that someone got an award, but I am surprised
 by a claim that Swuna got an award.'

The sentence in (108) is not contradictory: the speaker can be surprised by the claim that Swuna got an award without being surprised by the claim that someone got an award. In the context there are two claims, made by Hani and Swuna, and the speaker found only Mina's claim surprising. The subset semantics incorrectly predicts (108) to be infelicitous, because (109a) and (109b) together entail that (109c) is true, and so the speaker must be surprised by the claim that someone got an award. The equality semantics makes no such prediction due to absence of closure under entailment.

- (109) *Subset semantics predicts entailment*
- a. $\llbracket I'm\ surprised\ by\ a\ claim\ that\ Swuna\ got\ an\ award \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{the speaker} \wedge \exists x [\text{CAUSER}(s') = x$
 $\wedge \text{claim}(x)_{s,t} \wedge \text{CONT}(x) \subseteq \{s': \text{Swuna got an award in } s'\}]]$
 - b. $\{s': \text{Swuna got an award in } s'\} \subseteq \{s': \text{someone got an award in } s'\}$
 - c. $\exists s' [\text{surprise}_{s,t}(s') \wedge \text{THEME}(s') = \text{the speaker} \wedge \exists x [\text{CAUSER}(s') = x$
 $\wedge \text{claim}(x)_{s,t} \wedge \text{CONT}(x) \subseteq \{s': \text{someone got an award in } s'\}]]$

On the other hand, with some content nouns, we do observe closure under entailment. One of such nouns is 'belief'. For example, it is infelicitous to assert that one has a belief p but doesn't have a belief that is entailed by p :

- (110) #U menja net ubeždenija, što kto-libo polučil nagradu, no u menja
 by me no belief COMP who-LIBO got award but by me
 est' ubeždenie, što Svuna polučila nagradu.
 exists belief COMP Swuna got award
 'I don't have a belief that someone got an award, but I have a belief that
 Swuna got an award.'

The equality semantics does not guarantee such entailment: without something additional being said about 'belief', there is no entailment between (111a) and (111b).

- (111) *Equality semantics doesn't predict entailment*
- a. $\llbracket I \text{ have a belief that Swuna got an award} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\models_e \text{have}_{s,t}(s') \wedge \text{HOLDER}(s') = \text{the speaker} \wedge \exists x [\text{THEME}(s') = x$
 $\wedge \text{claim}(x)_{s,t} \wedge \models_e \text{CONT}(x) = \{s': \text{Swuna got an award in } s'\}]$
- b. $\llbracket I \text{ have a belief that someone got an award} \rrbracket^{s,g,t} = 1$ iff
 $\exists s' [\models_e \text{have}_{s,t}(s') \wedge \text{HOLDER}(s') = \text{the speaker} \wedge \exists x [\text{THEME}(s') = x$
 $\wedge \text{claim}(x)_{s,t} \wedge \models_e \text{CONT}(x) = \{s': \text{someone got an award in } s'\}]$

Elliott (2020) proposes that entailment between sentences like in (111) is not due to the presence of the subset relation in semantics of displacement, but due to the properties of how pluralities of beliefs are structured. In other words, on his account the presence of closure under entailment is dependent on the predicate that the clause combines with because mereological properties of entities with content depend on what kinds of entities they are—e.g., propositional contents of beliefs and claims stand in different relations to propositional contents of their parts. This seems like a promising direction for explaining why with some predicates we observe closure under entailments. Numerous questions within this approach however still need to be worked out.

4.2 Exemplification

I proposed that complementizers (English *that*, Russian *čto*, the adnominal marker in Korean and participial markers in Buryat) are not semantically vacuous: their semantic contribution is “filtering” the predicate they combine with to contain only individuals that exemplify it, (112). The motivation for introducing exemplification into the meanings of embedded clauses comes from clauses that combine with situation nouns.

$$(112) \quad \llbracket \text{Comp} \rrbracket^{s,g,t} = \lambda p. \lambda x. x \models_e p$$

The complementizer in (112) gives us the minimal semantics for Sit-CPs (113), where only situations that exemplify the squirrel eating the peanut are in the denotation of the clause. An alternative to that would be (114), where situations of any size in which the squirrel ate the peanut are in the denotation of the clause.

$$(113) \quad \textit{Minimal semantics for Sit-CPs:}$$

$$\llbracket \llbracket \text{Comp the squirrel ate the peanut} \rrbracket \rrbracket^{s,g,t} =$$

$$\lambda x. x \models_e \{s': \text{the squirrel ate the peanut in } s'\}.$$

$$(114) \quad \textit{Non-minimal semantics for Sit-CPs:}$$

$$\llbracket \llbracket \text{Comp the squirrel ate the peanut} \rrbracket \rrbracket^{s,g,t} =$$

$$\lambda x. x \in \{s': \text{the squirrel ate the peanut in } s'\}$$

The first argument for exemplification comes from Sit-NPs occurring as CAUSERS of emotive states. Consider (115).

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

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

‘A situation that Swuni won an award surprised Mina.’

We can individuate at least three situations in the context in (115): a situation of Swuni winning an award, a situation of Swuni not thanking anyone, and a situation that is made up of these two situations, (116).

- (116) a. **situation₁**: **situation₁** \Vdash_e {s': Swuni won an award in s'}
 b. **situation₂**: **situation₂** \Vdash_e {s': Swuni didn't thank anyone in s'}
 c. **situation₃** = **situation₁** \sqcup **situation₂**,
situation₃ \Vdash_e {s': Swuni won an award and didn't thank anyone in s'}

Swuni is surprised by **situation₂**, and thus by **situation₃**, but not by **situation₁**. In this context the sentence in (115) is judged false. This is predicted by the minimal semantics, (117), but not by the semantics that lacks exemplification, (118).

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

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

On the non-minimal semantics, **situation₃** satisfies the required description, as it contains Swuni winning the award, and so the sentence should be true, contra to the fact. The minimal semantics predicts (115) to be false, because **situation₃** does not exemplify {s': Swuna got an award in s'}.

The second argument for exemplification comes from the lack of stacking, illustrated for Russian and Korean in (119) and (120) respectively.

- (119) *Byla situacija, [čto Mitja igral na pianino] [čto Nastja pela].
 was situation COMP Mitya played on piano COMP Nastya sang
 ‘There was a situation, in which M. played the piano, in which N. sang.’

- (120) *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
 ‘M. remembered the situation, in which S. sang and in which H. danced.’

As semantics of Sit-CPs does not involve displacement, we need an explanation distinct from the one that has been suggested for the impossibility of stacking Cont-CPs. I propose that exemplification introduced by complementizers explains this restriction:

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

If Sit-CPs describe exemplifying situations, then sentences like in (119)-(120) should be always false, since no situation can exemplify Swuni singing and Hani dancing at the same time. I propose that this leads to ungrammaticality of such sentences. Non-minimal semantics, (122), would not expect such a restriction: we should be able to stack two Sit-CPs and get a situation in which both Swuni sang and Hani danced.

Thus, we saw some evidence that the meanings of Sit-CPs should not be equated with propositions, but should contain only situations that exemplify the embedded proposition. I conjecture that Cont-CPs, which also contain the Comp head in their structure, have exemplification “filtering” the predicate contributed by ContP as well (see ft. 27 for discussion).

5 Sit-CPs and Cont-CPs as complements to verbs

The distinction between Cont-CPs and Sit-CPs that we observed with nouns leads to the question of whether we find the same two kinds of clauses combining with verbs. I would like to suggest a positive answer to this question.

There are verbs that combine exclusively with Cont-CPs. For example, Korean *sayngkakha* ‘think’ is such a verb that requires displacement: it cannot occur with an embedded clause that lacks the declarative marker *-ta*, (123).³⁴

- (123) Mina-nun [talamcuy-ka ttangkhong-ul mek-ess-*(ta)-ko]
 Mina-TOP squirrel-NOM peanut-ACC eat-PST-DECL-COMP
 sayngkakha-n-ta.
 think-PRS-DECL
 ‘Mina thinks that the squirrel ate the peanuts.’

But there are also verbs that combine only with Sit-CPs. For example, Russian verbs *byvat’* ‘happen’, *slučat’sja* ‘occur’, *proisxodit’* ‘take place’ fall into this class, as is

³⁴We also see that the clause comes with the complementizer *ko* instead of the adnominal marker. This morphological difference is signaling that the CP is a modifier of the verb, and not the noun.

illustrated with the impossibility of *de dicto* readings in their complements, (124). Korean verb *-ilena* ‘occur’ is also a verb that is incompatible with Cont-CPs, (125).

(124) # Byvaet /slučilos’ /proizošlo (takoe) čto ovcy èto kozy.
 happens /occured /took.place (such) COMP sheep COP goats
 lit. ‘It happens/occurred/took place that sheep are goats.’

(125) *[talamcuy-ka ttangkhong-ul mek-ess-ta-ko] ilena-ess-ta
 squirrel-NOM peanut-ACC eat-PST-DECL-COMP occur-PST-DECL
 ‘It occurred so that the squirrel ate peanuts.’

Finally, there are verbs that can combine with both Cont-CPs and Sit-CPs. For example, consider Korean *haysekha* ‘interpret’, which can combine with two kinds of clauses that are nominalized with the help of a bleached noun *kes* ‘thing’. When it combines with a clause that contains *-ta*, the CP is referentially opaque, (126). When it combines with a clause that lacks *-ta*, the CP is referentially transparent, (127).

(126) *Opacity with Cont-CPs*: from {(a), (b)} $\not\Rightarrow$ (c)
 a. Swuna-ka [hoysa-ka hyepsang-ul ha-l
 Swuna-NOM company-NOM negotiation-ACC do-FUT.ADN
 cwunpi-ka toy-ess-ta-nun kes-ul] kuncengcek-ulo
 preparation-NOM become-PST-DECL-ADN thing-ACC positive-as
 haysekha-yess-ta.
 interpret-PST-DECL
 ‘S. interpreted that the company is ready for negotiations as good.’
 b. I hoysa-ka kacang khun sekyuhoysa-i-ta.
 this company-NOM most large oil.company-COP-DECL
 ‘This company is the biggest oil company.’
 c. Swuna-ka [kacang khun sekyuhoysa-ka hyepsang-ul
 Swuna-NOM most large oil.company-NOM negotiation-ACC
 ha-l cwunpi-ka toy-ess-ta-nun
 do-FUT.ADN preparation-NOM become-PST-DECL-ADN
 kes-ul] kuncengcek-ulo haysekha-yess-ta.
 thing-ACC positive-as interpret-PST-DECL
 ‘Swuna interpreted that the largest oil company is ready for negotiations
 as good.’

(127) *Transparency with Cont-CPs*: from {(a), (b)} \Rightarrow (c)
 a. Swuna-ka [hoysa-ka hyepsang-ul ha-l
 Swuna-NOM company-NOM negotiation-ACC do-FUT.ADN
 cwunpi-ka toy-nun kes-ul] kuncengcek-ulo
 preparation-NOM become-ADN thing-ACC positive-as
 haysekha-yess-ta.
 interpret-PST-DECL
 ‘Swuna interpreted that the company is ready for negotiations as a good
 thing.’

- b. I hoysa-ka kacang khun sekyuhoysa-i-ta.
 this company-NOM most large oil.company-COP-DECL
 ‘This company is the biggest oil company.’
- c. Swuna-ka [**kacang khun sekyuhoysa-ka** hyepsang-ul
 Swuna-NOM **most large oil.company-NOM** negotiation-ACC
 ha-l cwunpi-ka toy-nun kes-ul] kuncengcek-ulo
 do-FUT.ADN preparation-NOM become-ADN thing-ACC positive-as
 haysekha-yess-ta.
 interpret-PST-DECL
 ‘Swuna interpreted that the largest oil company is ready for negotiations
 as a good thing.’

Because clauses with *-ta* involve displacement, and we are able to interpret predicates within them with respect to situations that are not equal to the evaluation situation. So, in (126) the nominalized clause could be describing some statement that someone made and Swuna is interpreting. While this company might be the biggest oil company in the evaluation situation, the company under consideration does not have to be the biggest oil company according to that statement. Thus, the entailment does not go through. In (127) we see Sit-CPs, which lack displacement, and the substitution test then goes through: if Swuna is providing an interpretation of some actual situation of the company being ready for negotiations, then if this company is the biggest oil company, it must be the case that she is providing an interpretation of an actual situation of the biggest oil company being ready for negotiations.

To sum up, we see that clauses with meanings of Cont-CPs and Sit-CPs combine with verbs too. The fact that with some verbs, like Korean *haysekha* ‘interpret’, presence of displacement correlates with the structure of the embedded clause, provides additional support for the claim that embedded clauses are the source of displacement.

6 Conclusion

In this paper I argued that the source of displacement in semantics of clausal embedding is within the embedded clause, and proposed two meanings for CPs: some clauses introduce displacement and describe propositional content associated with individuals (Cont-CPs), whereas others describe situations (Sit-CPs). If correct, this proposal makes the following cross-linguistic prediction: if a language makes a morphological distinction between Cont-CPs and Sit-CPs, the former should always be more complex, as they contain an additional syntactic head which introduces displacement.

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