

On propositional anaphora: ‘Referential’ propositions and propositional proforms

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1 Introduction

Cross-linguistic research on nominalized vs. non-nominalized clausal complementation has shown that nominalized clauses tend to be associated with factive interpretation more readily than non-nominalized clauses are (Özyıldız 2017, Lee 2019b, Bondarenko 2020, Bochnak and Hanink 2021). In the study of Japanese, for instance, *koto*, which can turn a finite clause into a nominal element, has been often described as the factive complementizer, as opposed to another element *to*, which has been described as a non-factive complementizer (*e.g.*, Kuno 1973).¹

In this paper, we present a case study on nominalized clausal complements in non-factive belief reports, involving *-ta-nun-kes* and *(-to-yuu)-no* at the right periphery of such complements in Korean (1) (Shim and Ihsane 2015) and in Japanese (2), respectively.

- (1) Na-nun [kay-ka swukecey-lul ta ha-yass-**ta-nun kes**]-ul mit-e.
I-TOP he-NOM homework-ACC all do-PST-DEC-ADN *kes*-ACC believe-DEC
‘I believe that he finished his homework.’
- (2) Watashi-wa [kare-ga shukudai-o zembu shi-ta(-**to-yuu**)-no]-o shinji(-tei)-ru.
I-TOP he-NOM homework-ACC all do-PST-*to-yuu-no*-ACC believe-TE.ASP-NPST
‘I believe that he finished his homework.’

The belief reports in (1) and (2) carry a kind of familiarity requirement—one which we explore in detail below—such that the embedded proposition must be anaphoric to a proposition in the discourse. At first, this result may appear to support a proposal by Kastner (2015) that nominalized complements function as anaphoric definites in the style of Heim (1983), which refer to familiar

¹We can immediately see that this is not quite accurate as *koto* can be used in complements to predicates such as *kitaisuru* ‘hope, expect’, *negau* ‘wish’ and *inoru* ‘pray’.

propositions in the discourse. It turns out, however, that in both Korean and Japanese, nominalized complement clauses in belief report contexts exhibit anaphoric behaviour that is much more restricted than expected on the view where such clauses simply ‘refer’ to familiar propositions in the discourse (Bogal-Allbritten and Moulton 2018).

We will furthermore show that the restricted anaphoricity we find in nominalized clauses may be more general. Interestingly, some similar restrictions are observed in propositional proforms such as English *that/it*, Korean *kukes* ‘that’ and Japanese *sore* ‘that’.

We offer a sketch of a possible analysis for these observations. We speculate that ‘reference’ to propositions in the cases we study is actually reference to particular individuals—entity-type ‘things’—that bear propositional content. We will see that not just any salient proposition in the discourse evokes such individuals, and we suggest this goes toward explaining the restricted set of propositions that are available for anaphoric reference. This proposal can be seen as part of a larger program: variables are uniformly individual types (Chierchia 1984, Landman 2006, Poole 2017).

2 Nouny CPs

2.1 ‘Referential’ propositions

From the beginning of research on clausal complementation there have been many proposals for nominal and determiner structure above the CP (Rosenbaum 1967, Kiparsky and Kiparsky 1970, Han 2005, Davies and Dubinsky 2010, Takahashi 2010, Hartman 2012, among others). There have also been proposals that clauses can trade in the semantics associated with DPs as ‘referential’ propositions (De Cuba 2007, Haegeman and Ürögdi 2010, Sheehan and Hinzen 2011, De Cuba 2017). An example of this line of research is Kastner (2015), which argues that CPs are nominalized by a meaningful definite determiner (overt in some languages), if they complement presuppositional factives and response stance verbs. This is shown in (3b) and (3c) below.

- (3) a. non-stance: We believe/think/said [$_{CP}$ that they won]
 b. factives: We know/remember/regret [$_{DP} \emptyset_D$ [$_{CP}$ that they won]]
 c. response stance: We confirm/deny/accept/admit/agree [$_{DP} \emptyset_D$ [$_{CP}$ that they won]]

Kastner’s hypothesis is that “This D endows the proposition with referentiality, turning it into a DP along the way.” (Kastner 2015: p. 172).

Response stance complements are an interesting case for probing possible ‘referential’ properties for propositional expressions since they are not factive but are “familiar” or presupposed (Cattell 1978, Hegarty 1992). According to Honcoop (1998, p. 167), for example, “response stance verbs presuppose that their complements express assumptions or claims held by someone possibly other than the speaker which are part of the common ground.” This can be seen in the infelicity of the continuation in (4).

- (4) Alice agreed/admits/confirmed [that Ron called]...
 #...but no one had said that Ron called.

2.2 Some open questions

There are some open questions regarding the hypothesis that the addition of a definite determiner to a CP makes the proposition denoted by the CP referential. First, it is not clear what really triggers the presupposition that the content of the CP is part of the common ground (see (4) above). For Kastner (2015), the presupposition comes from the D, which is treated like a Heimian anaphoric definite. Kastner (2015) presents good evidence from extraction for D, but there are also open questions about distribution. The clausal complements of response stance verbs distribute like CPs and not like DPs. For instance, passivized (5a) and nominalized (5b) response stance verbs accept CP internal arguments but not DP ones (5c).

- (5) a. It was agreed/denied/accepted that he lost.
 b. His denial/agreement/acceptance that he lost.
 c. *It was denied that claim./his denial *(of) that claim

This casts doubt on the CPs in (5a) and (5b) being DPs in disguise. However English plays out, response stance verbs do not help us ‘isolate’ the source(s) or the content of the presupposition associated with so-called referential propositional complements.

Second, it is unclear what a ‘referential proposition’ is in the first place. A good place to look is work on response particles and other propositional anaphora. It has been argued that various ‘chunks’ of the clause can introduce discourse referents, several of them propositional. (6) shows available propositional discourse referents proposed in Krifka (2013, (4a)), exemplified in (7).

- (6) Ede didn’t steal the cookie.

$$[_{ActP} \text{ASSERT } [_{NegP} \text{Ede did-n't } [_{TP} t_{Ede} t_{did} [_{vP} \text{steal the cookie }]]]]$$

$$\hookrightarrow d_{speechact} \quad \hookrightarrow d'_{prop} \quad \hookrightarrow d''_{prop}$$
- (7) a. **That** was a lie. $\hookrightarrow d$
 b. **No** (he didn’t) $\hookrightarrow d'$
 c. **Yes** (he did) $\hookrightarrow d''$
 I think **so** $\hookrightarrow d''$

An interesting question that arises is whether “referential propositions” refer to these kinds of discourse referents. So far, we are finding the answer is ‘no’.

2.3 What we are going to show

In what follows, we will first provide basic descriptions of nominalized clauses in Korean and Japanese of the type we see in (8) and (9) (section 3).

- (8) Na-nun [kay-ka swukecey-lul ta ha-yass-**ta-nun kes-ul**] mit-e.
 I-TOP he-NOM homework-ACC all do-PST-DEC-ADN *kes*-ACC believe-DEC
 ‘I believe that he finished his homework.’
- (9) Watashi-wa [kare-ga shukudai-o zembu shi-ta(-**to-yuu**)-no-o] shinji-teiru.
 I-TOP he-NOM homework-ACC all do-PST-*to-yuu-no*-ACC believe-ASP
 ‘I believe that he finished his homework.’

We will see in section 4 that in belief report contexts these clauses are *anaphoric*, and this can be shown to be the case independently of a response stance embedding verb. However, the kinds of

propositional antecedents that support such clauses are more limited than the schema from Krifka (2013) in (6) would suggest.

We will then re-appraise some of the facts surrounding propositional anaphora proper (Asher 1993, Snider 2017) in English (section 6). It turns out that once we separate ‘true’ propositional anaphora (*that, it*) from elliptical propositional anaphora (*so*), the data concerning which antecedents are available are, in our opinion, not as clear-cut as reported in the literature. We speculate that even for bona fide propositional anaphora, not just any salient proposition will support anaphora.

We suggest a working hypothesis about which kinds of propositions are available for anaphoric reference by nominalized clauses and propositional proforms. We speculate that reference to proposition is in fact reference to individuals (entity types) that bear propositional content, such as Moltmann’s (2020) ‘attitudinal objects’. Nominalized clauses, we contend, are anaphoric descriptions of such individuals, and we suggest further that these individuals are evoked by only certain pieces of language, *e.g.* Speech Acts and certain clausal complements, but not all the propositional chunks of language in (6).

3 Nominalized clauses in Korean and Japanese

3.1 Korean *-ta-nun-kes* clauses

We focus on two clause embedding strategies in Korean: those introduced by the quotative, complementizer-like element *ko* (10) and those introduced by the form *kes* as in (11).

(10) Embedded by *ko*

Na-nun [kay-ka swukecey-lul ta ha-yass-ta-**ko**] mit-e.
 I-TOP he-NOM homework-ACC all do-PST-DEC-*ko* believe-DEC
 ‘I believe that he finished his homework.’

(11) Nominalized with *kes*

Na-nun [kay-ka swukecey-lul ta ha-yass-**ta-nun kes**]-ul mit-e.
 I-TOP he-NOM hmwrk-ACC all do-PST-DEC-ADN *kes*-ACC believe-DEC
 ‘I believe that he finished his homework.’

We can see that *kes* nominalizes the clause (Kim 1984, Jo 2003) from the fact that (i) *kes* must take a case marker (*-ul* ‘ACC’), unlike *ko*; and (ii) *kes* is preceded by *-(n)un*, an adnominal marker as with nominal modification generally. Although *kes* is not synchronically a full-fledged noun, it is translated often as “thing”.²

It should be noted that *kes*-headed clauses have a very flexible use (Kim 2009). They are used, for example, in internally headed relative clause constructions, with *kes* as the ‘nominalizing’ element as in (12a). *Kes*-headed clauses are also used in perception and factive reports, as in (12b) and (12c).

(12) a. Internally headed relative clause construction:

John-un [totwuk-i tomangka-n-un **kes**]-ul cap-ess-ta.
 J.-TOP thief-NOM run.away-IMPF-ADN *kes*-ACC catch-PSST-DEC.

²In the literature, *kes* is variously called a nominalizer (Kim 1984, Jo 2003), pronoun (Chung 2002, Lee 2006), or complementizer (Jhang 1994). See also Chae (2007).

‘John caught the thief that was running away.’

b. Perception construction:

John-un [totwuk-i tomangka-n-un **kes**]-ul po-ess-ta.
 J.-TOP thief-NOM run.away-IMPF-ADN *kes*-ACC see-PST-DEC
 ‘John saw (the event) of the thief running away.’

c. Factive construction:

John-un [totwuk-i tomangka-n-un **kes**]-ul al-ess-ta.
 J.-TOP thief-NOM run.away-IMPF-ADN *kes*-ACC know-PST-DEC
 ‘John knew (the fact) that the thief was running away.’

Unlike the internally headed relative, perception, and factive *kes*-constructions, the *kes* construction of interest to us contains the *-ta* declarative (DECL) marker. Example (13), with *-ta*, is interpreted non-factively, while example (14), without *-ta*, is interpreted factively (Kim 2011, Shim and Ihsane 2015). We follow the literature and refer to examples such as (13) as the *ta-nun-kes* construction.

(13) *ta* ⇒ non-factive

Kibo-nun [Dana-ka i chayk-ul ilk-ess-**ta-nun kes**]-ul mit-ess-ta,
 K.-TOP D.-NOM this book-ACC read-PST-DEC-ADN NMLZ-ACC believe-PST-DEC
 kulente sasil-un Dana-nun i chayk-ul ilk-ci anh-ass-ta.
 but fact-TOP D.-TOP this book-ACC read-NEG-PST-DEC
 ‘Kibo believed that Dana read this book, but in fact she didn’t read it.’

(14) No *ta* ⇒ factive

Kibo-nun [Dana-ka i chayk-ul ilk-un **kes**]-ul mit-ciahn-ess-ta,
 K.-TOP D.-NOM this book-ACC read-ADN NMLZ-ACC believe-NEG- PST-DEC
 #kulente sasil-un Dana-nun i chayk-ul ilk-ci anh-ass-ta.
 but fact-TOP D.-TOP this book-ACC read-NEG-PST-DEC
 ‘Kibo didn’t believe (the fact) that Dana read this book, #but in fact she didn’t read it.’
 (Shim and Ihsane 2015: 140)

Ta-nun-kes constructions resemble complex NP constructions headed by nouns like *rumour/news/claim*, as shown in (15). These also require *-ta*. However, *kes*, unlike a bona fide noun like *cwucang* ‘claim’, cannot be modified by adjectives as shown in (16).

(15) Mina-ka posek-ul hwumchi-ess-*(**ta**)-nun somwun/sosik/cwucang.

Mina-NOM jewelry-ACC steal-PAST-DECL-ADN rumour/news/claim
 ‘the rumour/news/claim that Mina stole the jewelry.’

(Kim 2011: (4a,b))

(16) a. pi-ka on-ta-nun **calmostoy-n** cwucang

rain-NOM come-DECL-ADN wrong-ADN claim
 ‘the wrong claim that it is raining’

b. pi-ka on-ta-nun (***calmostoy-n**) kes

rain-NOM come-DECL-ADN wrong-ADN KES
 ‘the wrong thing that it is raining’

This fits the typological observations in Alexiadou (2020) and Iordăchioaia (2020) that nominalizing elements that combine with higher categories in the functional sequence of the clause (e.g.

tense phrase (TP) or complementizer phrase (CP)) are nominalizers of the category determiner (Abney 1987) rather than nominalizers of the category noun. In this we follow Kim (2009) in treating *kes* as a determiner (D).

As to the structure below D in the *ta-nun-kes* construction, it has been analyzed as involving a hidden complementizer *ko* and hidden verb of saying *ha* ‘say’ as in (17) (Lee 2019a), although this is not uncontroversial (see Yeom 2018).

(17) [_{TP}] -ta-COMP-SAY-nun-kes

3.2 Japanese (-to-yuu)-no clauses

Japanese has a similar contrast between clauses headed by the element *to*, as in (18), and nominalized clauses headed by *no*, as in (19).

(18) Embedded by *to*

Watashi-wa [kare-ga shukudai-o zembu shi-ta-**to**] shinji-teiru.
 I-TOP he-NOM homework-ACC all do-PST-*to* believe-ASP
 ‘I believe that he finished his homework.’

(19) Nominalized with (-to-yuu)-no

Watashi-wa [kare-ga shukudai-o zembu shi-ta(-**to-yuu**)-**no**]-o shinji-teiru.
 I-TOP he-NOM homework-ACC all do-PST-*to-yuu-no*-ACC believe-ASP
 ‘I believe that he finished his homework.’

The form *to-yuu*, (= *to* + *yuu*) is a grammaticalized verb of saying, and in combination with *no*, it is assumed to be analogous to the Korean *ta-nun-kes* in S.S. Kim (2011). Like *ta-nun-kes*-clauses in Korean, *to-yuu-no*-clauses in Japanese can be interpreted non-factively under *believe*.³

Similarly to *kes* in Korean, *no* attaches to a full clause and turn it into a nominal constituent. Also similarly to *kes*, the morpheme *no* is found elsewhere, such as for internally headed relative clause constructions, perception constructions, and factive constructions.

(20) a. Internally headed relative clause construction:

Yoko-wa [neko-ga mado-kara haittekita **no**]-o tsukamaeta.
 Yoko-WA cat-ACC window-from entered NO-ACC caught
 ‘Yoko caught a/the cat that came in from the window.’

b. Perception construction:

Yoko-wa [neko-ga mado-kara haittekuru **no**]-o mita.
 Yoko-WA cat-ACC window-from entered NO-ACC caught
 ‘Yoko saw (the event of) a cat coming in from the window.’

c. Factive construction:

³ Nominalized clauses with *-no/koto*, but without *to-yuu*, can be interpreted factively. Japanese *to-yuu*-less forms can also be interpreted non-factively as in (i) with a non-response stance verb *kitaisuru* ‘hope’. In such cases, we often see *-no* being interchangeable with *koto*. We would have to deal with this type of *-no* as separate from the *-no* we are focusing on. Thanks to a reviewer for a relevant question.

(i) [Hanako-ga denwashi-te kuru-{no/koto}]-o kitaishiteiru.
 Hanako-NOM call-TE come-NO-ACC hope
 ‘I’m hoping that Hanako will call me.’

Yoko-wa [neko-ga mado-kara haittekita **no**]-o shit-te i-ru.
 Yoko-WA cat-ACC window-from entered NO-ACC know-TE ASP-NPST
 ‘Yoko knows that a cat came in from the window.’

In addition, the following example illustrates that *no* functions as an N-anaphor (Murasugi 1991).

- (21) Shiroy osara totte. Ato, dore-demo iikara, akai-**no**-o ichi-mai totte.
 white plate grab and which-DEMO good red-NO-acc one-CL grab.’
 ‘Grab me a/the white plate. Also, it doesn’t matter which, grab me a red one (=plate).’

3.3 The anaphoric properties of *ta-nun-kes*/(*to-yuu*)-*no* clauses

Korean *ta-nun-kes* clauses are a good candidate for Kastner (2015)’s hypothesis that nominalized clauses are definite. Such clauses are possible, in fact required, under response stance verbs. As shown in (22b), a *ko*-clause is simply ungrammatical under such verbs.⁴

- (22) a. Na-nun [Lee-ka wa-ss-ta-nun **kes**-ul] incengha/pwuiha-n-ta.
 I-TOP L.-NOM come-PST-DECL-ADN *kes*-ACC accept/reject-PRES-DECL
 ‘I agree/reject that Lee came.’
 b. *Na-nun [Lee-ka wa-ss-ta-**ko**] incengha/pwuiha-n-ta.
 I-TOP L.-NOM come-PST-DECL-COMP accept/reject-PRES-DECL
 ‘I accept/reject that Lee came.’

Importantly, however, we cannot be sure whether the familiarity meaning comes from the embedding verb or from the *ta-nun-kes* complement itself (or both). Our strategy here will be to use a non-response-stance verb (a ‘believe’ verb) and try both *ko/to* and *ta-nun-kes/to-yuu-no* clauses. That way we can isolate the effects of the complement type.

3.3.1 Korean *ta-nun-kes*

We begin with Korean and ask whether *ta-nun-kes* can be felicitously used in contexts where the relevant proposition is given in the discourse. In the discourse in (23), from Bogal-Allbritten and Moulton (2018), both utterances B (*ϕ-ta-nun-kes*) and B’ (*ϕ-ta-ko*) were judged felicitous.

- (23) **A:** Na-nun swukecey-lul ta ha-yass-e. Pakk-ey naka nola-to toy?
 I-TOP homework-ACC all do-PST-DEC outside-at go play-also can
 ‘I finished my homework. Can I go outside and play?’
B: An toy. **A:** Na-lul an mit-e?
 not can I-ACC not believe-INT
 ‘No.’ ‘Don’t you believe me?’
B: Um. Na-nun [ney-ka swukecey-lul ta ha-yass-**ta-nun kes**]-ul mit-e.
 Yes. I-TOP you-NOM homework-ACC all do-PST-DEC-ADN NMLZ-ACC believe-DEC
 Haciman cikum-un cenyek siksa sikan-i-ya.
 but now-TOP evening meal time-COP-DEC

⁴We note here that the data above speak against Kastner (2015)’s collapsing factives with response-stance. In Korean, factives are not forced to take *ta-nun-kes* clauses, as observed in (12c) above.

however focus on *no* in this paper because, compared to *no*, *koto* seems to give rise to a weaker ‘anaphoric’ interpretation. The nature of the contrast between *no* and *koto* needs to be examined carefully in future research. See, for example, Hiraiwa (2010), Poirier (2020), Yamada and Kubota (2018), Yamada and Kubota (2019).

We should also note that we use *(-to-yuu)-no* in example sentences when, in a given context, both (i) *-no* and (ii) *-to-yuu-no* sound ok to us. This, however, does not mean that these two forms are always interchangeable. Both forms, *-no* and *-to-yuu-no*, carry a kind of familiarity requirement, with the latter giving rise to a stronger flavour of the content of the embedded clause being ‘said’ literally or non-literally. More detailed studies are needed in order to tease apart precise contributions of the individual morphemes, as pointed out by a reviewer.

4 Restricted anaphoricity

We have seen that *ta-nun-kes/(to-yuu)-no* constructions are anaphoric to propositions that are given in the discourse. In this section we will see that this anaphoric relation is much more restricted than better-studied phenomena of propositional anaphora in languages such as English and German.

Response particles (*yes/no*) are often treated as a type of propositional anaphora (e.g. Krifka (2013)). Previous studies have shown that their propositional antecedents can typically be sourced from a range of things including the part of a polar question minus the Q-component, which is called the ‘partitioning proposition’ in Krifka (2013). The partitioning proposition d' in (30) introduces a propositional discourse referent, which can be picked up by the response particle *Yes* in (31).

- (30) Did Ede steal the cookie?

$$\begin{array}{ccc} [_{ActP} \text{ did-QUEST } [_{TP} \text{ Ede } t_{did}\text{-PAST } [_{vP} \text{ steal the cookie }]]] & & \\ \hookrightarrow d_{speechact} & \hookrightarrow d'_{prop} & \hookrightarrow d''_{event} \end{array} \quad (\text{Krifka 2013, (21)})$$
- (31) **A:** Did Ede steal the cookie?
B: Yes. (anaphoric to d')

The following example from Snider (2017) illustrates a similar point.⁵

- (32) Did Barb go to the party? Because Nancy told me that (and she’s unreliable).
#that: Did Barb go to the party? / whether...
that: Barb went to the party.
#that: Barb didn’t go to the party.

Furthermore, Schwabe, Frey, and Meinunger (2016) citing Sudhoff (2003) show that German propositional correlative *es...dass* constructions behave similarly to response particles. Under non-factive verbs *es...dass* constructions are anaphoric. While they cannot be used to answer a question such as (33) (Sudhoff 2003), they can refer back to the partitioning proposition (34).

- (33) **A:** What’s new? What happened?
B: Max behauptet (*es), dass Lea krank ist.
Max claims it that Lea ill is

⁵We will come back to this data point in section 6.2.

- ‘Max claims that Lea is ill.’ (Schwabe, Frey, and Meinunger 2016: (3))
- (34) **A:** Ist Lea krank?
 Is Lea ill?
 ‘Is Lea ill?’
- B:** Max behauptet es, (dass sie krank ist).
 Max claims it that she ill is
 ‘Max claims that she is ill.’ (Schwabe, Frey, and Meinunger 2016: (4))

The preajcent of negation also licenses anaphoric *es...dass* constructions:⁶

- (35) a. Lea ist nicht krank. . .
 Lea is not ill
 ‘Lea is not ill. . .’
- b. obwhol Max es behauptet, (dass sie krank ist).
 even.though Max it claims that she ill is
 ‘even though Max claims that she is ill.’

Interestingly, anaphoric *ta-nun-kes* and *(to-yuu)-no* clauses in Korean and Japanese turn out to work differently from the above picture. For both Korean and Japanese, the partitioning proposition in a polar question does not provide a good antecedent for these nominalized clauses in belief-report contexts. This is shown in (38) for Korean and (39) for Japanese.

- (36) polar question(ϕ) is given in the discourse: *believe...* $\times\phi$ -*ta-nun-kes* (Korean)
 $\checkmark\phi$ -*ta-ko*

- (37) polar question(ϕ) is given in the discourse: *believe...* $\times\phi$ -*(-to-yuu)-no* (Japanese)
 $\checkmark\phi$ -*to*

- (38) **A:** Johnny-nun swukcey-lul ta ha-yass-ni?
 J.-TOP homework-ACC all do-PST-Q
 ‘Has Johnny finished his homework?’

B: #Na-nun [Johnny-ka swukcey-lul ta ha-yass-**ta-nun kes-ul**] mit-e.
 I-TOP J.-NOM homework-ACC all do-PST-DEC-ADN *kes*-ACC believe-DEC
 ‘I believe that Johnny finished his homework.’

B’: Na-nun [Johnny-ka swukcey-lul ta ha-yass-**ta-ko**] mit-nun-ta.
 I-TOP J.-NOM homework-ACC all do-PST-DEC-*ko* believe-DEC
 ‘I believe that Johnny finished his homework.’

- (39) **A:** Honda-san-wa byooki desu ka?
 Honda-san-WA ill COP Q
 ‘Is Honda-san ill?’

B: #Suzuki-san-wa [kanojo-ga byooki {na/da **to-yuu**} no]-o
 Suzuki-san-WA she-NOM ill COP.ADN/COP TO-YUU NO-ACC
 shinjiteru-rashii-yo.
 believe-REP-PRT

⁶Thanks to Bernhard Schwarz (p.c.) for the data.

these restrictions, one that takes as a starting point the idea that clausal nominalizations are also semantic nominalizations, turning a proposition type to an entity-denoting type in the spirit of Chierchia (1984).

5 Reference to individuals with content

Of the propositional discourse referents that utterances provide according to Krifka (2013)’s schema, our data suggest that *ta-nun-kes*/(*to-yuu*)-*no* clauses most naturally refer to those introduced by assertion Speech Acts, and not other propositional discourse referents evoked by clauses.

(44) Johnny finished his homework.

$$\begin{array}{ccc} [_{ActP} \text{ ASSERT } [_{TP} \text{ Johnny finish-PAST } [_{vP} \text{ } t_{finish} \text{ his homework }]]] \\ \hookrightarrow d_{speechact} & \hookrightarrow d'_{prop} & \hookrightarrow d''_{event} \end{array}$$

In Bogal-Allbritten and Moulton (2018) we proposed that Korean *ta-nun-kes* clauses literally referred to assertion events. This view essentially predicts that *ta-nun-kes* clauses refer to claims. This is potentially too strong given (45), as noted by Yeom (2018). Here the actual noun phrase that describes a claim is not interchangeable with a *ta-nun-kes* clause, which would be unexpected if such constructions referred to claims. A similar point can be made for Japanese, with (46).⁸

(45) Mina-ka ttena-ss-ta-nun {kes/*?cwucang}-i somwun-uy nayyong-i-ta.
 Mina-NOM leave-PAST-DECL-ADN KES/claim-NOM rumour-of content-be-DECL
 ‘The {thing/*?assertion} that Mina left is the content of the rumor.’ (Yeom 2018: (63))

(46) [Hottoshiteiru to-yuu{-no/*shuchoo}]-ga ima-no kimochi desu.
 relieved TO-YUU-NO/claim-NOM current-GEN feeling COP
 ‘The {thing/*assertion} that I’m relieved is (the content of) my current feeling.’

We present a revised analysis, whereby *kes* (and *to-yuu-no*) constructions denote individual entities which bear propositional content. We first turn to a brief background justifying the existence of such entities in the ontology of natural language, followed by an application to the Korean and Japanese data presented above.

5.1 Background on content individuals

Proto-typical examples of content individuals are things like rumours, ideas, and claims, information repositories like newspaper articles and books, and also particular beliefs or belief states held by individuals (Hacquard 2006, Kratzer 2013). For instance, *the claim that Toronto is the capital of Canada* refers to an individual with content, and spells out what that content is (that

⁸ The following example from a reviewer, with slight modification, is another case like (46) in that a nominalized clause shows up in the subject position. If the order of the two constituents before the copula is flipped, the *-to yuu no*-clause feels anaphoric, and the anaphoricity disappears if we replace it with (*-to yuu*) *koto*. We leave more detailed study of this for later.

(i) [Tanom-are-ta shigoto-wa kanarazu hikiukeru-to yuu-no]-ga watasi-no ryuugi desu.
 Ask-PASS-PST job-TOP necessarily accept-TO YUU-NO-NOM I-GEN principle COP.NPST
 ‘{To accept/accepting} all jobs that are offered to me is (the content of) my principle.’

Toronto is the capital of Canada). So, for that matter, does the noun phrase *the proposition that Toronto is the capital of Canada*. Events of assertion and other speech acts might bear (or at least be associated) with content as well (Hacquard 2006). We should note that content individuals do not have to be associated with propositions that are asserted in any discourse; they can be propositional meanings disembodied from any particular speech act or attitude holder (e.g. *Any notion that central banks will pause rate hikes is ‘for the birds,’*). Content-bearing individuals are very close, if not identical, to what Moltmann (2013, 2020) terms *attitudinal objects*. Moltmann develops a sustained set of arguments for adding these individuals to natural language ontology.

Hacquard (2006) and Kratzer (2013) have argued that content-bearing individuals are used as ‘anchors’ used to project modal bases (Kratzer 1977) for certain types of modal and attitude expressions. They propose that modal domains—sets of possible worlds—can be projected from content individuals via a **content function**, defined in (47) following Kratzer 2013, p.195 (25)).

$$(47) \quad \text{CONT}(x)(w) = \{w' : w' \text{ is compatible with the intentional content determined by } x \text{ in } w\}$$

Kratzer (2013) argues that content projection using (47) is at work with the reportative modal *sollen* in German. In (48), for instance, the particular issue of the newspaper provides, via (47), a set of possible worlds that restrict the modal base of the reportative modal. The statement in (48) is true if in all such possible worlds—i.e. those that are compatible with the content of a particular issue of the newspaper—Clyde got married.

- (48) Der Hampshire Gazette nach soll Clyde geheiratet haben.
the Hampshire Gazette according SOLL Clyde marrie have
‘According to the Hampshire Gazette, Clyde supposedly got married.’

It is also plausible to think that the content function is at work in uses of the verb *say* in (49), which like (48) expresses the content of a particular content bearing individual.

- (49) That issue of the Hampshire Gazette says that Clyde got married.

The content function has also been put to use by Kratzer (2006) and Moulton (2009, 2015) to model the way complement clauses express the propositional content of nouns like *rumor*. In those works, the content function is part of the functional material that embeds the complement clause; this could be the complementizer itself or some other functional element, which we simply label ‘fCONT’ (see Elliott (2018) for discussion and refinements). This element has the denotation in (50): taking a proposition and returning a property of content individuals with the content of the proposition:

$$(50) \quad \llbracket \mathbf{fCONT} \rrbracket = \lambda p. \lambda x. \lambda w [\text{CONT}(x)(w) = p]$$

On this view, the complement clause in a content NP like that in (51) includes fCONT. The resulting property of individuals (51a) combines with the content noun like *idea* (51b) via predicate modification resulting in (51c).

- (51) [idea [fCONT [that Clyde got married]]]

- (52) a. $\llbracket [\mathbf{fCONT} [\mathbf{that\ Clyde\ got\ married}]] \rrbracket =$
 $\lambda x. \lambda w [\text{CONT}(x)(w) = \lambda w' [\text{Fred got married in } w']]$
b. $\llbracket \mathbf{idea} \rrbracket = \lambda x. \lambda w [\text{idea}(x)(w)]$
c. $\llbracket (51) \rrbracket =$

$$\lambda x.\lambda w[\text{idea}(x)(w) \ \& \ \text{CONT}(x)(w) = \lambda w'[\text{Fred got married in } w']]$$

Our claim about the Japanese/Korean nominalized clauses under consideration in this chapter is that they refer to individuals with the content expressed by the proposition embedded under the nominalizer. That is, nominalization, in part, performs the semantic function that fCONT does in (52a). In essence, nominalization not only changes the syntactic category, but semantically nominalizes the clause turning it into a property of individuals (see also Chierchia (1984) and Potts (2002) for similar treatments of embedded clauses). Moreover, we have seen that the Japanese/Korean nominalized clauses must anaphorically refer to such a thing, hence the propositional content must be given and salient in the discourse. We claim that the *restricted* anaphoricity we outlined in the previous sections arises from what kinds of linguistic material can establish a content individual in a discourse. We propose that not every piece of linguistic material that introduces a proposition can establish a content individual as a discourse referent.

5.2 Analysis for nominalized clauses

We give the proposal for Korean, but the idea carries over straightforwardly to Japanese. In particular, we argue that the content function discussed above is part of the nominalization of the clauses we consider here.⁹ The idea is that nominalization turns the sentential constituent into a property of individuals. The nominalization here involves content nominalization.¹⁰ Following Kim (2007), we also assume that the nominalizer *kes* contributes definiteness, in particular, that it is an anaphoric definite. Our denotation for the relevant use of *kes* does two things then: it introduces a content individual argument and encodes anaphoric definiteness. To implement the latter component, we follow Schwarz (2009)'s analysis of anaphoric definite determiners: *kes* introduces an additional individual argument y that gets saturated by a free variable whose value is determined by the context via an assignment function g . The uniqueness presupposition is represented by the underlined component of the formula in (53).

$$(53) \quad \llbracket \mathbf{kes} \rrbracket = \lambda p.\lambda y.\lambda w: \underline{\exists!x[\text{CONT}(x)(w) = p \ \& \ x = y]}. \iota x[\text{CONT}(x)(w) = p \ \& \ x = y]$$

The upshot is that *kes*-nominalizations that incorporate the content function will turn a clause (a proposition of type $\langle s, t \rangle$) into an anaphoric definite description of individuals bearing the propositional content of that clause. A concrete example is given in (54) and (55):

$$(54) \quad [\text{Johnny-ka swukcey-lul} \quad \text{ta ha-yass-ta-nun} \quad \mathbf{kes-ul}]$$

J.-NOM homework-ACC all do-PST-DEC-ADN *kes*-ACC

‘that Johnny finished his homework.’

$$(55) \quad \llbracket (54) \rrbracket^g = \lambda w: \underline{\exists!x[\text{CONT}(x)(w) = p \ \& \ x = g(1)]}. \iota x[\text{CONT}(x)(w) = p \ \& \ x = g(1)]$$

where $p = \{w' : \text{Johnny finished homework in } w'\}$

Under the analysis where *ta-nun-kes* / (*to-yuu*)-*no* clauses denote individuals with content, we

⁹We stress that this cannot be a general property of all nominalizations in the languages, nor even all *no/kes*-clauses, as pointed out above in sections 3.1 and 3.2, as well as footnotes 3 and 8. There are various types of individuals that *kes*-nominalization returns, some ordinary individuals as is the case in internally headed relatives clauses. But when a *kes*-clause meets a content-selecting attitude verb, as in the cases we are looking at in this chapter, content nominalization is an available and successful option.

¹⁰We will not explore in depth the role of the declarative element *-ta* in Korean or the *toyuu* in Japanese. As noted, the presence of these affect the factivity of the clause, but do not impact the observations regarding anaphoricity.

‘Mina believed Inho was happy.’ (Yeom 2018 (42))

Media and information repositories (books, *etc.*) can also introduce referents that support *kes* clauses.

- (60) *Context:* One day Kibo reads in his geography textbook that Toronto is the capital of Canada. His teacher tells the class that that was an error in the textbook. But Kibo missed geography class that day.

Kulayse acikto Kibo-nun [Toronto-ka Canada-uy swuto-**la**-nun **kes**]-ul
 so still Kibo-TOP Toronto-NOM Canada-GEN be-DECL-ADN *kes*-ACC
 mit-e.
 believe-PAST

‘Even still Kibo believed that Toronto is the capital of Canada.’

Finally, if our story in this subsection turns out to be more or less on the right track, it would have interesting consequences for the study of so-called article-less languages in general (Jenks 2018). In the domain of prototypical nouns (excluding nominalized clauses), neither Korean nor Japanese requires anaphoric definiteness to be overtly marked, unlike in English. Yet, what we have discovered is that these languages do seem to have a way of marking anaphoric definiteness in nominalized clauses. This opens up a new area to be explored in the study of article-less languages.

6 Tip of the iceberg? Other propositional anaphora

In this section, we will explore properties of other, better-known types of propositional anaphora. We will present an initial set of data that show that, somewhat surprisingly, they are subject to similar restrictions as the nominalized clauses in Korean and Japanese.

6.1 Propositional anaphora in Japanese/Korean: initial observation

When the antecedent proposition is asserted or presented as a complement of *say* as in A’s utterance in (61), anaphoric reference by forms such as *soo* ‘so’, *sore* ‘it/that’, or *so-no* ‘it-GEN’ is possible, as shown in B’s utterance in (61). These pro-forms are formed from the medial series (*so-*) in the demonstrative system.

- (61) A: [Johnny-wa shukudai-o zenbu yatta tte] minna itteru yo.
 Johnny-TOP homework-acc all did TO everyone say PRT
 ‘Everyone’s saying that Johnny finished his homework.’
 B: Watashi-mo {soo/?sore-o/sore-wa/so-no koto-wa} {shinjiteru/omotteru} yo.
 I-also so/it-ACC/it-TOP/it-GEN koto-WA believe/think PRT
 ‘I also {believe/think} {so/that/that thing}.’¹¹

However, when the target antecedent is merely the partitioning proposition in a polar question, *sore* is not felicitous while *soo* is.

- (62) Polar Question antecedent:

¹¹*So-no koto-o/-wa* with ‘think’ is good in the unintended interpretation: ‘thinking about that thing’.

- A: Johnny-wa moo shukudai-o zenbu yatta?
 Johnny-TOP already homework-ACC all did
 ‘Has Johnny already done all the homework?’
- B: Watashi-wa {soo/#sore-o/#so-no koto-o} shinjiteru/omotteru yo.
 I-TOP so/it-ACC/that-GEN thing-ACC believe/think PRT
 ‘I {believe/think} {so/#it/ #that thing}.’

Likewise, the preajcent of negation is not an available antecedent for *sore* while it is for *soo*.

(63) Negation

Johnny-wa Toronto-wa Canada-no shuto-ja nai to kiita hazu
 Johnny-WA Toronto-WA Canada-GEN capital-COP.WA NEG TO heard must
 na-no-ni, mada {?soo/#sore-o/#so-no koto-o} shinjiteru-rashii.
 COP-NO-DAT still so/it-ACC/that-GEN thing-ACC believe-REP
 ‘Johnny must have heard that Toronto is not the capital of Canada. Even so, he still
 believes {so/#it/#that thing}, I hear.’

We also note here that Korean has two relevant propositional anaphors: *kukes* ‘that/it’ and *kulehkey* ‘so’. Our initial data obtained from one native speaker suggests that *kukes* is constrained like *ta-nun-kes* clauses, as shown in (64).

- (64) A: Johnny-nun swukcey-lul ta ha-yass-ni?
 J.-TOP homework-ACC all do-PST-Q
 ‘Has Johnny finished his homework?’
- B: Johnny-uy emma-nun {kulehkey/#kukes-ul} mit-e
 Johnny-GEM mom-TOP so/#that believes.
 ‘Johnny’s mother believes so.’

6.2 English *that* vs. *so*

Similarly to the contrast we just observed above between *soo* ‘so’ vs. *sore* ‘it/that’ in Japanese and between *kulehkey* ‘so’ vs. *kukes* ‘that’ in Korean, *that/it* in English is much less successful at referring to the partitioning proposition than *so*.

- (65) A: Has Johnny finished his homework?
 B: I believe so/#that/#it.

This is surprising since the partitioning proposition is a salient enough antecedent to support *so*, as well as response particles, as we saw earlier in (7), as well as in (31), (32) and (34).

We should note that we are not the first to test this data point. Snider (2017) in fact concludes that propositional anaphor *that* can refer successfully here. Examples below are provided in Snider (2017, p. 100 (202–203)) that he argues show that English propositional anaphora *can* refer to the partitioning proposition of a polar question.

- (66) Did Barb go to the party? Because Nancy told me that (and she’s unreliable).
 #that: Did Barb go to the party? / whether... matrix clause
 ✓that: Barb went to the party. partitioning proposition
 #that: Barb didn’t go to the party. complement proposition

These propositional proforms Japanese, Korean and English (*sore/kukes/that*) do not contain silent verbs of saying, suggesting that the patterns with *to-yuu-no/ta-nun-kes* that we observed in section 4 may run deeper. An emerging picture is that, if response particles are elliptical (Holmberg 2013) and if *so* is so too¹³, then neither refer. Pronominal anaphora must be recruited then to refer to propositions, but not just any salient proposition in the discourse is available.

A (strong) hypothesis is that there is no anaphoric reference to propositions. English *that/it*, Japanese *sore* and Korean *kukes* do refer, but only to individuals. Not just any salient proposition in the discourse evokes such individuals. This might fit in a larger program: variables are uniformly individual types (Chierchia 1984, Landman 2006, Poole 2017). We include in this eventualities, situations, and individuals with content.

This hypothesis leads to a more general prediction, namely that even deictic reference by propositional proforms should be constrained to individuals with content. Moulton (2020) presents some evidence that this might be the case. Deictic, or exophoric, propositional pronouns correspond to what Hankamer and Sag (1976) call ‘deep’ anaphors. Since their work it has been accepted that propositional proforms such as *this*, *that* and *it* can be either “surface” or “deep” anaphors. An example of the latter from Snider (2017) is given in (73).

(73) Deep/deictic/exophoric propositional anaphor:

[Mom walks into the living room, and sees her three children standing around the broken remains of a lamp.]
 [Mom:] Who broke the lamp?
 [Two of the children look at Dewey.]
 [Dewey:] **That’s** not true! (Snider 2017: (89))

Moulton (2020) argues, however, that the existence of the deep propositional proforms is more constrained than previously thought. In order to see this, differences in complement types—and the selecting verb—need to be controlled for. Verbs like *tell*, *surprise* and *expect* seem to select as complements particulars—typically events and eventualities, and possibly categories like facts or possibilities—what Zucchi 1993 calls ‘states of affairs’. These states of affairs can be referred to deictically by propositional proforms (75). (The context in (74) makes those states of affairs contextually salient.)

(74) *Context*: I’ve been inside a windowless lab all day, and do not know that it is snowing. I

that = Two plus two is five
 (Krifka 2013, (23))

We would like to raise the possibility, albeit very tentatively, that these discourses invite the accommodation of a discourse referent corresponding to the claim/assertion of the prejacent proposition—i.e., that someone actually claimed that two plus two is five. In that case, reference would not in fact be to the prejacent. In contexts where this accommodation is less easy, like the all-new presentation in (iii), our initial reaction is the anaphoric reference to the relevant proposition is degraded with *that* and perfectly fine with *so*.

(iii) Guess what? Bo came to the party. He wasn’t happy to be there, even though everyone thought/believed *so/ ?#that*.

We leave negation for further research.

¹³There is ample evidence for this: *e.g.*, *so* needs a linguistic antecedent (Hankamer and Sag 1976):

(i) Watching you get a hole in one:
 I don’t believe it/**so*.

know that you've been outside recently and know the weather. On exiting the building together, I see the snow and say the following:

- (75) a. I am surprised by **this**.
 b. I didn't expect **this**. *this = that it is snowing*
 c. **This** is crazy.
 d. **This** was unlikely given the heat yesterday.
 e. %You didn't tell me **this**.¹⁴

In contrast, with the more canonically propositional attitude verbs (*believe, say, claim, think*), a propositional proform is less felicitous, even though the proposition 'it is snowing' is salient in the context.

- (76) Same context as (74)
 a. #You didn't *say* **this** before.
 b. #I didn't *think* **this**.
 c. #I *believed* **this** already.
 d. #Had you *claimed* **this** before, I'd have thought you were crazy!

These attitude reports are possible with proform complements as long as a linguistic antecedent is available, as in (77).

- (77) You: Look, it's snowing!
 Me: (i) You didn't *say* **this/that** before.
 (ii) ?I didn't *think* **this/that**.
 (iii) I *believed* **this/that** already.
 (iv) Had you *claimed* **this/that** before, I'd 'a thought you were crazy!

Moulton points out that the difference between the possible and impossible deictic reference corresponds quite transparently to the types of DP arguments these different predicates select. The referents of *this* in (75) appear to be things like eventualities, facts, and possibilities (Zucchi's states of affairs), while the intended referents of *this* in (76) are propositions. The predicates in (78a) select different DP arguments than those in (78b). Note that (79) is fine in the context in (74).

- (78) Different selectional properties
 a. ✓Deictic propositional anaphor
tell someone __, __ surprise, expect __, __ be crazy, __ be unlikely
 b. ✗Deictic propositional anaphor
believe/say/think/claim __
 (79) a. I am surprised by **this outcome**.
 b. I didn't expect **this loveliness**.
 c. **This situation** is crazy.
 d. **This possibility** was unlikely given the heat yesterday.

¹⁴We have found variation in whether *tell* requires a preposition, e.g. *tell me about this*. Concomitant with this, we find variation in whether speakers allow *tell* to select fact-denoting lexical NP complements, e.g. %*tell me a fact that most people don't know about you*. Interestingly, other event-denoting lexical NPs require the preposition for all the speakers we consulted: *tell me *(about) the incident*. We thank an anonymous reviewer for pointing out these subtleties, which deserve further empirical scrutiny.

- e. %You didn't tell me **this fact** before.
- (80) a. *You didn't say **this fact** before.
 b. *I didn't think **this outcome**.
 c. *I believed **this possibility** already.
 d. *When you claimed **this situation**, I thought you were crazy!

We are not in a position to make any specific ontological claims about Zucchi's states of affairs, but it is clear that they *are* different from propositions proper, as we can see from the ungrammaticality of (81).¹⁵

- (81) *That fact/situation/possibility/outcome/event is true/false.

If, as discussed above, reference to propositions (and not facts or possibilities) can in fact be reference to an individual-type discourse referent associated with a speech act, then the fact that the contexts above do not support propositional proforms is explained: there is no discourse referent of that sort. No one has uttered anything. Of course, there are indirect ways for humans to put speech-act like moves into a discourse, and this we think helps to explain Snider's original example in (73) purporting to show that deictic reference to propositions is possible. The gestures made by the two children ('two of the children look at Dewey') are required for successful reference by *that*. These gestures may not be speech acts *per se*, but they evoke a claim, an individual with content. (We can even report that "the children's looks **say** that Dewey did it.")

To summarize, just as anaphoric propositional proforms (and *ta-nun-kes/(to-yuu)-no* clauses) must refer to individuals with content so do deictic propositional proforms.

7 Conclusion

We have shown that nominalized complement clauses in Korean and Japanese exhibit anaphoric behaviour that is more restricted than expected in the view in which nominalized clauses refer to familiar propositions in the discourse. We furthermore showed that the restricted anaphoricity in nominalized clauses runs deeper, being observed also in propositional proforms such as English *that/it*, Korean *kukes* 'that' and Japanese *sore* 'that'. We put a speculation on the table: that nominalized clauses are semantically nominal, describing individual-type entities. Those individuals are content-bearing individuals. We further speculated that the restricted anaphoricity we find is a result of the fact that not all propositional pieces of language (e.g. projections of the clause that are of type $\langle s,t \rangle$) introduces content individuals as discourse referents.

Many questions remain. Future work should address questions such as: (i) whether constructions in languages that deploy definite determiners accompanying proposition-denoting clauses (e.g., Greek, Roussou (1991)) exhibit similar anaphoric constraints; (ii) How the German *es...dass* construction behaves; and (iii) What 'chunks' of language evoke content individuals (Speech acts, embedded clauses, or anything else?) and why these.

¹⁵A reviewer has suggested that the notion of 'eventuality' alone is the relevant category. We are not in a position yet to make a concrete proposal as to what deictic 'that' refers to with predicates like those in (78a). Our point is that there is an interesting empirical contrast between (78a) and (78b), in whatever way the relevant object is ultimately characterized.

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