

# Nouny propositions and their individual correlates: the view from Japanese

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## NomProps: Nouny propositional expressions

Japanese *-no* (1a) and Korean *-kes* (1b) head nominalized finite clauses.

These can appear under propositional attitude verbs just as their non-nominalized counterparts can (2) (Kim 2011, Shim and Ihsane 2015). We call these NomProps—nominalized propositions.

### (1) NomProp complements

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

### (2) Non-nominalized complements

- a. Watashi-wa [kare-ga shukudai-o zembu shi-ta-**to**] shinji-teiru. *Jpn.*  
I-TOP he-NOM homework-ACC all do-PST-*to* believe-ASP  
'I believe that he finished his homework.'
- b. Na-nun [kay-ka swukecey-lul ta ha-yass-ta-**ko**] mit-e. *Kor.*  
I-TOP he-NOM homework-ACC all do-PST-DEC-*ko* believe-DEC  
'I believe that he finished his homework.'

The choice of a NomProp vs. non-nominalized complement has impacts on the semantics of the belief report.

## Questions about the meanings

If propositional expressions can be “nouny”, one question that arises is whether they trade in the semantics typically associated with nominal expressions, including:

- referentiality (De Cuba 2007, De Cuba and Ürögdi 2009, Haegeman and Ürögdi 2010, Sheehan and Hinzen 2011, De Cuba 2017)
- definiteness (and what type of definite?)

What exactly *is* the referent?

- a proposition?
- an entity? (see Chierchia 1984, Moltmann 2020 on propositional objects in the individual domain)

# Today's talk

- We provide evidence that Korean and Japanese NomProps behave like anaphoric definites.
- We will show that in certain contexts they have restricted anaphoric reference: they appear to be anaphoric to a very specific kind of propositional discourse referents and not just any propositional antecedent.
  - **Hypothesis A:** NomProps themselves can only refer to a restricted range of **entities** with propositional content not propositions themselves (Moulton, Bogal-Allbritten, and Shimoyama 2020).
  - **Hypothesis B:** The predicates that embed NomProps are responsible for the restricted reference.
- We will use new data from Japanese to argue for a combination of Hypothesis A **and** B.
  - We contrast two types of NomProps in Japanese based on the presence/absence of the element *to-yuu*.
  - We suggest that NomProps shift certain verbs into Response Stance predicates (Cattell 1978, Honcoop 1998, Kastner 2015) and it's the verb meaning that imposes restricted anaphoricity.
  - While the verb imposes restricted anaphoricity, we will suggest that the NomProp require an antecedent generally, which in turn shifts the verb given **competition with the other complementation strategies** in the language.
  - We also (tentatively) hypothesize that NomProps can denote familiar 'things' with propositional content and also familiar propositions in the context set (Kastner 2015).

## Road map

- §1 The Korean facts and Hypothesis A from Moulton et al. (2020)
- §2 Arguments for Hypothesis B using data from Japanese
- §3 The combined role of the NomProp and embedding predicate

# 1 NomProps in Korean

We compare two complementation strategies in Korean under the belief verb *mit*.

- *Mit* can combine with both non-nominalized clauses (3) and NomProps (4). By comparing (3) and (4), we sought to [isolate the contribution of NomProps](#).

(3) **Embedded by Comp *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.’

(4) **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.’

## Structure and category of *ta-nun-kes*

We follow the literature and refer to Korean NomProps like (4) as *ta-nun-kes* clauses.

- *ta*: declarative marker; required in *ta-nun-kes* clauses for a non-factive interpretation (Kim 2011, Shim and Ihsane 2015)
- *nun*: adnominal marker
- *kes*: nominalizes the clause (Kim 1984, Jo 2003)

*kes* is most likely a D-type nominalizer, not an N/*n*-type nominalizer since it does not permit adjectival modification (unlike lexical nouns).

- (5) 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 that it is raining’

- This fits the typological observations in Alexiadou (2020) and Iordăchioaia (2020) that nominalizers that take TPs or larger are D rather than *n*.
- We therefore **treat *kes* as a D** (Kim 2007, 2009)

### Structure below D:

In addition to these overt morphemes, the *ta-nun-kes* construction has been analyzed as involving a hidden Comp *ko* and a hidden verb of saying *ha* ‘say’ (Lee 2019), although this is not uncontroversial (see Yeom 2018).

- (6) [<sub>TP</sub> ] -ta-COMP-SAY-nun-kes

## *ta-nun-kes* clauses are anaphoric

$\phi$  is given in the discourse: *believe...* ✓ $\phi$ -*ta-nun-kes*  
✓ $\phi$ -*ta-ko*

(7) **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  
'Yes, I believe that you finished your homework. But it's dinner time.'

**B':** Um. Na-nun [ney-ka swukecey-lul ta ha-yass-**ta-ko**] mit-e. Haciman  
Yes. I-TOP you-NOM homework-ACC all do-PST-DEC-*ko* believe-DEC but  
cikum-un cenyek siksa sikan-i-ya.  
now-TOP evening meal time-COP-DEC  
'Yes, I believe that you finished your homework. But it's dinner time.'

$\phi$  is not given in the discourse: *believe...* ✗ $\phi$ -*ta-nun-kes*  
✓ $\phi$ -*ta-ko*

(8) **A:** Cyoni-nun pakk-ey naka nola-to toy?  
J.-TOP outside-at go play-also can  
'Can Johnny go outside and play?'

**B:#** Um. Na-nun [kay-ka swukecey-lul ta ha-yass-**ta-nun kes-ul**] mit-e.  
Yes. I-TOP he-NOM hmwrk-ACC all do-PST-DEC-ADN NMLZ-ACC believe-DEC  
# 'Yes, I believe that he finished his homework.'

**B':** Um. Na-nun [kay-ka swukecey-lul ta ha-yass-**ta-ko**] mit-e.  
Yes. I-TOP he-NOM homework-ACC all do-PST-DEC-*ko* believe-DEC  
'Yes, I believe that he finished his homework.'

## Restricted anaphoricity!

**A:** polar question( $\phi$ )                      **B:** *believe...*  $\nexists\phi$ -*ta-nun-kes*  
     $\surd\phi$ -*ta-ko*

(9) **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-e.  
        I-TOP    J.-NOM    homework-ACC all do-PST-DEC-*ko* believe-DEC  
        ‘I believe that Johnny finished his homework.’

**A:** NEG( $\phi$ )    **B:** *believe...*  $\nexists\phi$ -*ta-nun-kes*  
     $\surd\phi$ -*ta-ko*

(10) **A:** Kibo has certainly heard in his geography class that Toronto is not the capital of Canada...

**A:** ...#Kulayto Kibo-nun [Toronto-ka Canada-uy swuto-**la-nun kes-ul**]  
                      even.so K.-TOP    T.-NOM    C.-GEN    capital-DEC-ADN NMLZ-ACC  
                      mit-e.  
                      believe-DEC  
                      ‘Even so, Kibo still believes that Toronto is the capital of Canada.’

**This is surprising since propositional anaphora can source** antecedents from the part of a polar question minus the Q-component (the ‘partitioning proposition’):

(11) **Partitioning propositions (d’) introduces a discourse referent (Krifka 2013, (21))**

Did Ede steal the cookie?

[*ActP* did-QUEST [*TP* Ede *t<sub>did</sub>*-PAST [*vP* steal the cookie ]]]  
       ↪ *d<sub>speechact</sub>*                                    ↪ *d’<sub>prop</sub>*                                    ↪ *d’’<sub>event</sub>*

(12) Did Ede steal cookie?

**Yes.**    ↗ *d’* (Ede stole the cookie)  
 I had suspected **that**.    ↗ *d’* (Ede stole the cookie)

So we do not want to restrict propositional reference *per se* to asserted content.

# The chicken and the egg: verb or complement?

*What is the restricted anaphoricity due to, the complement or the verb?*

**Hypothesis A:** the NomProp is responsible.

- This is plausible because we held the verb constant and found an effect that was conditioned by the nature of the complement.

**Hypothesis B:** the restricted anaphoricity comes from the verb.

- The verbs that select NomProps might just be those verbs that require their complement to have a certain discourse antecedent (e.g. Response Stance verbs, Kastner 2015).

## Hypothesis A

*ta-nun-kes* clauses are anaphoric definite description of **things with propositional content** via a hidden SAY element (Moulton et al. 2020)

### Gist of the proposal:

- *ta-nun-kes* includes a hidden level of structure (Lee 2019):

(13)    ta        -COMP -HA    -nun-kes  
           DECL -COMP  -SAY -*nun-kes*

- *kes*-clauses are associated with anaphoric definiteness (not uniqueness)
- $[_{DP} \phi\text{-ta-nun-kes}] \rightsquigarrow$  the familiar thing that “says”  $\phi$ .
- it’s like a little light-headed/headless relative

## Key hypothesis

Only \*some\* propositional discourse referents evoke things with content:

(14)	$[_{ActP}$ Has-QUESTION	$[_{TP}$ Johnny $t_{has}$	$[_{vP}$ finished his homework ]]
	$\hookrightarrow d_{speechact}$	$\hookrightarrow d'_{prop}$	$\hookrightarrow d''_{event}$
	=thing (with content)	$\neq$ thing with content	=thing
	✓that	✓so/✗that	✓that

Evidence: Propositional pronominal *that* targets  $d_{speechact}$  and  $d''_{event}$  but not  $d'_{prop}$

(15) Has Johnny finished his homework?

- I asked **that** too.  $d_{speechact}$
- I believe so/#**that**.  $d'_{prop}$
- Yes, **that** happened.  $d''_{event}$

**So** is elliptical and not referential and therefore can find surface antecedents corresponding to  $d'$ .

## Describing the *ta-nun-kes* data

- (16) **A:** Johnny finished his homework.  
 $[_{ActP} \text{ ASSERT } [_{TP} \text{ Johnny finish-PAST } [_{vP} \text{ t}_{finish} \text{ his homework } ]]]$   
 $\hookrightarrow d_{speechact}$                        $\hookrightarrow d'_{prop}$                        $\hookrightarrow d''_{event}$   
 = thing<sub>1</sub> with content
- B:** I [Johnny-finished-his-homework-*ta-nun-kes*] believe.  
 presupposes there's a familiar individual thing with content that Johnny finished  
 his homework: **SATISFIED**
- (17) **A:** Has Johnny finished his homework?  
 $[_{ActP} \text{ QUESTION } [_{TP} \text{ Johnny finish-PAST } [_{vP} \text{ t}_{finish} \text{ his homework } ]]]$   
 $\hookrightarrow d_{speechact}$                        $\hookrightarrow d'_{prop}$                        $\hookrightarrow d''_{event}$   
 ≠ thing with content
- B:** I [Johnny-finished-his-homework-*ta-nun-kes*] believe.  
 presupposes there's a familiar individual thing with content that Johnny finished  
 his homework: **FAILURE**



## 2 Arguments for Hypothesis B from Japanese

- Japanese NomProps: nominalized finite clauses with *-no*.<sup>1</sup>
- Optional SAY element:
  - ***to-yuu-no***: QUOT/REP + SAY (a grammaticalized verb of saying) + *no*  
(see Shimamura 2019 and Saito 2019 for recent accounts)

- (18) Watashi-wa [kare-ga shukudai-o zembu shi-ta(-**to-yuu**)-**no**-o]  
I-TOP he-NOM homework-ACC all do-PST-*to-yuu-no*-ACC  
shinji-{ru/teiru}.  
believe-NONPAST/ASP.NONPAST  
'I believe that he finished his homework.'

### *No*-clauses (with or without *to-yuu*) are anaphoric

- The discourse in (19) requires the embedded clause to bear main assertion status.
- But *no*, being anaphoric, is not an appropriate answer in comparison to the non-nominalized *to*-clause in (20b).

- (19) Shachoo-no hikooki-wa doko deshoo ka?  
president-GEN airplane-WA where COP Q  
'Where is our company president's airplane?'

- (20) a. #[Sapporo-ni bujini tsuiteru(-*to-yuu*)-*no*]-o shinji-temasu.  
Sapporo-in safely has.arrived-*to-yuu-no*-ACC believe-ASP.NONPAST  
'We believe that it has safely arrived in Sapporo.'  
b. [Sapporo-ni bujini tsuiteru to] shinji-temasu.  
Sapporo-in safely has.arrived *to* believe-ASP.NONPAST  
'We believe that it has safely arrived in Sapporo.'

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<sup>1</sup>We focus on *-no* and put aside *koto*, which has an overlapping distribution with *no*. One task is to understand the relation between the 'anaphoricity' we discuss here and the notion of 'concreteness' often associated with clauses nominalized with *-no* in the literature on Japanese, in comparison to clauses nominalized with 'koto'. See Hiraiwa (1998), Poirier (2020), Yamada & Kubota (2018, 2019).

**Key observation: it's not just about SAY**

*No*-clauses have restricted anaphoricity with or without *to-yuu*.

- They behave just like *ta-nun-kes* clauses in all the contexts given above.
- All the above judgments from Korean *kes* vs. *ko* hold for *no* vs. *to*.
- Below we replicate one example with polar questions.

**A: polar question( $\phi$ )**                      **B: believe...  $\times\phi(-to-yuu)-no$**   
 $\checkmark\phi-to$

- (21) **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.NONPAST-*to-yuu* *no*-ACC  
shinji-teru-rashii-yo.  
believe-ASP.NONPAST-REP-PRT  
‘I hear that Suzuki-san believes that she is ill.’
- B’:** Suzuki-san-wa [kanojo-ga byooki da **to**] shinji-teru-rashii-yo.  
Suzuki-san-WA she-NOM ill COP *to* believe-ASP.NONPAST-REP-PRT  
‘I hear that Suzuki-san believes that she is ill.’

UPSHOT: The restricted anaphoricity of NomProps cannot be due to a SAY element.

## Hypothesis B

The restricted anaphoricity is enforced not by the NomProp but by the embedding **belief-verb**, which is shifted into a **Response Stance verb**.

- I**     **Response Stance:** Embedded clause refers to familiar idea.  
Alice **agreed/admits/confirmed/doubts** [that Ron called].
- II**    **Volunteered stance / non-factive:** Embedded clause introduces new idea.  
Alice **believed/says/assumed/feels/thought** [that Ron called].
- III**   **Non-stance / factive:** Embedded clause refers to a fact.  
Alice **remembered/regretted/knows/forgot** [that Ron called].

Response Stance complements are not (necessarily) factive but are “familiar” or presupposed (Cattell 1978, Hegarty 1992).

- Honcoop (1998, p. 167) “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.”

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

Kastner (2015) has argued that Response Stance verbs select clauses headed by (possibly null) anaphoric definite determiners. They involve definite reference to a propositional discourse antecedent.

## Response Stance verbs require NomProps

Korean *ta-nun-kes* clauses are a good candidate for Kastner’s definite reference to propositions, since they are possible under Response Stance verbs (in fact required):

- a *ko*-clause is simply ungrammatical.

- (23)    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.’

### A dramatic case of meaning shift in Japanese:

NomProp shifts the verb *utagaw-* from ‘suspect’ to ‘doubt’, a Response Stance verb (also observed in Yamada 2019):

- (24) a. Yoko-wa [[Ken-ga katta] to] **utagat-teiru**.  
Yoko-TOP Ken-NOM won to **suspect**-ASP.NONPAST  
‘Yoko suspects that Ken won.’
- b. Yoko-wa [[Ken-ga katta] (to-yuu)-no]-o **utagat-teiru**.  
Yoko-TOP Ken-NOM won to-yuu-no-ACC **doubt**-ASP.NONPAST  
‘Yoko doubts that Ken won.’

The effect of NomProp is a Response Stance verb.

### Response Stance *believe* $\Rightarrow$ *accept*

**Idea:** *mit-/shinji-* NomProp complements require/induce a Response Stance meaning for ‘believe’ (e.g. ‘accept’). This requires the proposition be either:

- a familiar assertion in the reported discourse
- a familiar idea in the common ground

### Explaining the restricted anaphoricity:

- In discourses where the antecedent proposition  $\phi$  is part of a polar question or under negation (**polar question**( $\phi$ ), **NEG**( $\phi$ )),  $\phi$  is neither asserted nor in the common ground.
- On this view, the restricted anaphoricity arises just because of what Response Stance verbs imply.

### Evidence that a common ground familiarity is enough:

It's not just asserted propositions that are possible antecedents; rather  $\phi$  just needs to be part of a common ground.

- (25) a. Context: It's May in Montreal. Tobi and Yoko are sitting by the window, and they both see that it's snowing. Thinking about their grandmother in an almost snowless city, Tobi says to Yoko:  
b. Obaachan-wa [yuki-ga hut-teru-no]-o shinji-ru ka naa?  
grandma-TOP snow-NOM fall-ASP.NONPAST-NO-ACC believe-NONPAST Q PRT  
'I wonder if Grandma would believe that it's snowing (here).'

The utterance in (25b) would be infelicitous if Yoko didn't share the knowledge that it is snowing. It would feel like a typical presupposition failure (see Kim 2009, 2011, Yeom 2018 for similar speaker-evaluated role of bare *kes* clauses).

### 'Factive' effects:

Like Korean *ta*-less clauses (Kim 2011, 2009, Yeom 2018), *no*-clauses without *to-yuu* can appear under belief-verbs but require the speaker be committed to the content of the proposition:

(26) **A says to B:**

Texas-de yuki-ga hut-teru-rashii yo.  
Texas-in snow-NOM fall-ASP.NONPAST-REP PRT  
'It's snowing in Texas, I hear.'

(27) **B says to C:**

A-wa Texas-de yuki-ga hut-teru #(-to-yuu)-no-o  
A-WA Texas-in snow-NOM fall-ASP.NONPAST -to-yuu-no-ACC  
shinji-teru kedo, watashi-wa shinji-tei-nai yo.  
believe-ASP.NONPAST but I-WA believe-ASP-NEG.NONPAST PRT  
'A believes that it's snowing in Texas, but I don't believe it.'

### 3 NomProps induce Response Stance meanings

The nature of the complement must still play a role!

- It appears that the NomProp is responsible for shifting the verb into a Response Stance meaning.
- Otherwise, we might expect the NomProps to behave like the *to/ko*-clauses.
  - Remember that anaphoric reference to propositions is not generally constrained in the way we found (e.g. response particles/propositional anaphora in (12) above).

**Tentative hypothesis:** The anaphoricity requirement itself comes from the NomProp (*kes/no*), which in turn forces the verb to coerce, which in turn imposes the *restricted* anaphoricity.

#### Competition between *to/ko* vs. *no/kes*

Korean *ko*-clauses and Japanese *to*-clauses require a matrix subject to be (at least partially) committed to the proposition.

- (28) [Benkyoo-o yoku gambat-ta-to] obaachan-ga okane-o watashi-ni kure-ta.  
 study-ACC well work.hard-PAST-*to* grandma-NOM money-ACC 1sg-DAT give-PAST  
 ‘(Lit.) Grandma gave me money, [(I) studied hard].’  
 ‘Grandma gave me money, saying/thinking that I studied hard.’ (J. Kim 2018)

This is what prevents *ko/to*-clauses under (negative) Response Stance verbs like *reject/deny*:

- (29) Yoko-wa [Tobi-ga mada ne-teiru]-{\**to/no*-o} hiteishi-ta.  
 Yoko-TOP Tobi-NOM still sleep-ASP.NONPAST-*to/no*-ACC deny-PAST  
 ‘Yoko denied that Tobi was still asleep.’

The competition between a NomProp and a *to/ko*-clause could trigger the following inference chain to derive the Response Stance flavour of sentences of the form in (30):

- (30) Att.holder [ $\phi$ -*no/kes*] *believe*
1. The speaker chose not to use a form (*to/ko*) that requires the attitude holder to believe the complement  $\phi$ .
  2. The speaker instead chose to use a form that requires that  $\phi$  be either previously asserted or part of the common ground (the anaphoric nature of NomProps).
  3. This could suggest that the attitude holder did not assert  $\phi$  themselves or perhaps has not always/previously believed  $\phi$ .
  4. An easy shift in meaning: it reports that the attitude holder comes to believe (i.e. accepts)  $\phi$ .
- ↪ This is a Response Stance report.

**Yeom’s intuition:** The competition between anaphoric NomProps and *to/ko*-clauses cashes out Yeom (2018)’s intuition that *kes*-clauses present propositions “externally” while *ko*-clauses present them from a perspective “internal” to the attitude holder.

## 4 Conclusion

NomProps in Japanese/Korean:

- make anaphoric definite reference to propositions and propositional entities.
- They can shift certain verbs (belief-verbs) into Response Stance verbs (of acceptance) in competition with *ko/to*-clauses.
- The restrictions on anaphoricity follow from the nature of Response Stance meanings (response to asserted propositions/common ground knowledge).

Distinctions among NomProps (for future work):

- With our without *-toyuu*, Japanese NomProps count as ‘referential propositions’, raising the question of the compositional semantics of D with the propositional expression.
- Different NomProps differ in subtle ways
  - e.g. bare NomProps cannot complement “remeber” type verbs but only *toyuu-no* can.

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## Appendix

### Details of proposal

- **SAY element in *ta-nun-kes*:** its subject argument  $x_c$  denotes a thing with propositional content ( $c$  for content), e.g. rumors, ideas, news reports, and crucially also objects associated with **assertions**.<sup>2</sup>

$$(31) \quad \llbracket \text{-ta} \rrbracket = \lambda p. \lambda x_c. \lambda w [\text{CONT}(x_c)(w) = p]$$

- The content  $\text{CONT}$  function (defined below after Kratzer 2013, p.25) allows the proposition  $p$  to identify the content of  $x_c$ .

$$\begin{aligned} \text{CONT}(x_c)(w) = \\ \{w' : w' \text{ is compatible with the intentional content determined by } x_c \text{ in } w\} \end{aligned}$$

- **Nominalizer *kes*,** following Kim (2007), contributes definiteness
  - We add the requirement that it is **an anaphoric definite**.
  - Following Schwarz (2009), the  $D$  has an argument  $y$  that gets saturated by a free variable whose value is determined by the context via an assignment function  $g$  (requires an entity in the context)

$$(32) \quad \llbracket \text{kes} \rrbracket = \lambda P. \lambda y. \lambda w: \underline{\exists! x [P(x)(w) \ \& \ x = y]}. \iota x [P(x)(w) \ \& \ x = y]$$

Putting the pieces together, the *kes*-construction in (33) then denotes (34):

$$(33) \quad \begin{aligned} &[\text{Johnny-ka swukcey-lul} \quad \text{ta ha-yass-ta-nun} \quad \text{kes-ul}] \\ &\text{J.-NOM} \quad \text{homework-ACC} \quad \text{all do-PST-DEC-ADN} \quad \text{kes-ACC} \\ &\text{'that Johnny finished his homework.'} \end{aligned}$$

$$(34) \quad \llbracket (33) \rrbracket^g = \lambda w: \underline{\exists! x_c [\text{CONT}(x_c)(w) = p \ \& \ x_c = g(1)]}. \iota x_c [\text{CONT}(x_c)(w) = p \ \& \ x_c = g(1)]$$

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

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<sup>2</sup>For a more sophisticated semantics for these objects, see Moltmann 2013, 2020.



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