Nominalized clauses and reference to propositional content[1]

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Abstract. We investigate the semantics of Korean embedded clauses that bear the nominalizer *kes* and declarative marker *ta*. Such clauses can be embedded by *mit* 'believe.' While such clauses are not factive (Shim and Ihsane 2015), we present elicitation data that shows that nominalized (*ta-kes*) clauses are felicitously embedded by *mit* only if their conveyed content was previously asserted in the context; no such restriction arises for non-nominalized clauses. Our analysis of such nominalized embedded clauses argues that they do not denote a proposition — a set of possible worlds — but rather a definite description of a discourse event — an assertion event — that carries propositional content. The use of *ta-kes* embedded clauses allows Korean verbs like *mit* to acquire felicity conditions similar to those proposed for response-stance verbs (e.g. *agree*, *deny*) (Cattell 1978, Anand and Hacquard 2014).

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1. Introduction

Clause-embedding verbs are often divided into different classes based on certain aspects of the embedded clause's interpretation. Classification schemes include those by Kiparsky and Kiparsky (1970), Hooper and Thompson (1973), Cattell (1978), Hegarty (1992), and Anand and Hacquard (2009, 2014). The classification from Cattell (1978) is given below.

(1)   a. *Volunteered-stance / non-factive:* Embedded clause introduces new idea
            Alice {believed/said/assumed/thought/claimed/supposed} that Ron called.
        b. *Non-stance / factive:* Embedded clause refers to a fact
            Alice {remembered/regretted/knows/forgot/realized} that Ron called.
        c. *Response-stance:* Embedded clause refers to a familiar idea
            Alice {agreed/admitted/confirmed/denied/accepted} that Ron called.

Cross-linguistic investigations of clausal embedding have observed that complements to verbs classified as *non-stance* (1b) or *response-stance* (1c) often exhibit morphosyntactic properties suggestive of nominal structure. The exact nature of these properties varies across languages. In some languages, the relevant embedded clauses occupy syntactic positions otherwise reserved for nominal expressions, e.g. Dutch: (Barbiers, 2000; Haegeman and Ürögdi, 2010). In many other languages, embedded clauses are associated with (or perhaps headed by) proforms or demonstratives: such languages include English (Kiparsky and Kiparsky, 1970), German (Sudhoff, 2003; Zimmermann, 2016), Hebrew (Kastner, 2015), Greek (Roussou, 1991; Kallulli, 2006), Albanian (Kallulli, 2006), Bulgarian (Krapova, 2010), and Hungarian (Abrusán, 2011).

Previous research largely agrees that apparent nominal morphosyntactic properties of embedded clauses do not strictly correlate with factivity.[2] However, there is significant variation in the characterization of these complements. Among the terms used to describe them are "referential propositions" (de Cuba and Ürögdi, 2009; Haegeman and Ürögdi, 2010), "familiar" (de Cuba, 2007), "presuppositional" (Kastner, 2015), and "given" (Zimmermann, 2016). This primarily syntactic literature does not discuss in detail the contexts that license such clauses, nor does it clarify what type of semantic object these clauses denote. For example, if they denote propositions as in Haegeman and Ürögdi (2010), what exactly does it mean for a proposition — a set of possible worlds — to 'refer' (Bhatt, 2010; Kastner, 2015)?[3]

This paper begins to examine these questions by asking what it might mean for a clause to 'refer.' Our focus is Korean sentences like (2). The embedded clause in (2) bears the nominalizer *kes* in addition to the declarative mood marker *ta* (Kim, 2009; Yoon, 2013; Shim and Ihsane, 2015). The nominalized clause in (2) is embedded not by a factive or response-stance verb, but rather by *mit* 'believe,' a volunteered-stance verb.

(2) 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 *kes*-ACC believe-PST-DEC
     'Kibo believed (the claim) that Dana read this book.'   (Shim and Ihsane, 2015: (4b))

After §2 places sentences like (2) in the context of prior work on other types of Korean embedded clauses (Kim, 2009; Yoon, 2013; Shim and Ihsane, 2015), §3 presents new data about the contexts that license sentences like (2): (2) is only felicitous if the content conveyed by the embedded clause was previously asserted in the context. In §4, we propose that embedded clauses like (2) do not denote propositions but instead definite descriptions of assertion events that carry propositional content. When *mit* 'believe' embeds a *kes*-clause (2), its interpretation resembles that of sentences with response-stance verbs (2c) under Anand and Hacquard's (2014) proposal that such verbs report discourse moves.

2. The structure and basic interpretation of *kes*-clauses

Kim (2009) discusses three types of Korean *kes*-constructions: internally-headed relative clause (IHRC) (3a), perception, (3b), and factive (3c) constructions.

(3) a. John-un [totwuk-i tomangka-n-un   **kes**-ul] cap-ess-ta.
         J.-TOP   thief-NOM run.away-IMPF-ADN *kes*-ACC catch-PST-DEC
         'John caught the thief that was running away.'
                  (*Internally-headed relative clause (IHRC) construction*, Kim, 2009: (1))

     b. 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.'
                  (*Perception construction*, Kim, 2009: (2))

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[2]For arguments that factivity is the crucial notion in Albanian and Greek, see Kallulli (2006, 2010).

[3]Treatments of reference to propositions that can be found in Asher (1993) and Chierchia (1984) are not addressed in the literature on nominalized clauses cited above.

    c.   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.'

                                      (*Factive construction*, Kim, 2009: (3))

In each example above, the *kes*-clause is an invariant string but its interpretation appears to depend on the nature of the verb that embeds it. Kim (2009) gives a compositional and largely unified account of *kes*-clauses where *kes* denotes individuals of different sorts: ordinary entities (3a), events (3b), and facts (3c). This treatment of *kes* is superficially supported by the translation of such Korean sentences into English using the nouns *event* (3b) and *fact* (3c).[4] However, Kim (2009) does not discuss *kes*-clauses of the shape in (4), which are our focus:

(4)   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 *kes*-ACC believe-PST-DEC
        'Kibo believed (the claim) that Dana read this book.'   (Shim and Ihsane, 2015: 4b))

Unlike the *kes*-clauses in (3a)–(3c), the embedded clause in (4) contains the declarative mood marker *ta* in addition to nominalizer *kes*. The morpheme *ta* also occurs on verbs in main clauses that express assertions, as in *mit-ess-ta* 'believed' in (4). It is in complementary distribution with elements like the question and imperative markers. The embedded *kes*-clause in (4) is translated into English with the noun *claim*, rather than *event* (cf. (3b)) or *fact* (cf. (3c)).

The main previous discussion of sentences like (4) comes from Shim and Ihsane (2015), who demonstrate that Korean verbs such as *mit* 'believe' can embed *kes*-clauses that contain *ta* (4) as well as *kes*-clauses of the shape in (5). The *kes*-clause in (5) has the same morphosyntactic form as the *kes*-clauses investigated by Kim (2009): (5) lacks the declarative marker *ta*.

(5)   Kibo-nun [Dana-ka i   chayk-ul ilk-ess-nun   **kes**-ul] mit-ess-ta.
        K.-TOP   D.-NOM this book-ACC read-PST-ADN *kes*-ACC believe-PST-DEC
        'Kibo believed (the fact) that Dana read this book.'   (Shim and Ihsane, 2015: (4c))

In addition to both types of *kes*-clauses, *mit* also embeds clauses of the shape in (6), which bear declarative marker *ta* but lack *kes*; the clause instead bears complementizer *ko*, which is not nominal (does not accept case).

(6)   Kibo-nun [Dana-ka i   chayk-ul ilk-ess-**ta-ko**]   mit-ess-ta.
        K.-TOP   D.-NOM this book-ACC read-PST-DEC-*ko* believe-PST-DEC

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[4]As discussed by Chae (2007) and references therein, the Korean morpheme *kes* has been variously characterized as a nominalizer, pronoun, and complementizer. For terminological consistency, we refer to *kes* as a nominalizer below. Morphological evidence that for the nominal character of *kes*-clauses comes from the presence of *un* (a relativizer or adnominalizer) and case marking (e.g. accusative marker *ul*). It is not possible for a *kes*-clause to occur without an embedding verb (i).

(i)   *Lee-ka   hoyngryengha-ss-ta-nun **kes**-ul
       Lee-NOM embezzle-PST-DEC-ADN *kes*-ACC
       (*Intended:* 'The fact, claim that Lee embezzled.')   (Yoon, 2013: (12))

'Kibo believed that Dana read this book.'   (Shim and Ihsane, 2015: (4a))

Shim and Ihsane show that the constructions in (4) and (6) are both non-factive. The continuation '...but Dana didn't read it' was felicitous after embedded clauses containing both *ta* and *kes* (7a) and embedded clause containing both *ta* and *ko* (7b).

(7)   a.   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 *kes*-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 (the claim) that Dana read this book, but D. didn't read it.'
                                                          (Shim and Ihsane, 2015: (5b))

      b.   Kibo-nun [Dana-ka i   chayk-ul ilk-ess-**ta-ko**]   mit-ess-ta,
           K.-TOP   D.-NOM this book-ACC read-PST-DEC-*ko* 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 D. didn't read it.'
                                                          (Shim and Ihsane, 2015: (5a))

The absence of factivity in (7a) and (7b) is not surprising: as a canonical volunteered-stance verb, *mit* 'believe' is not among those verbs we expect to have factive interpretations.[5] However, Shim and Ihsane observe that when *mit* embeds clauses that contain *kes* but lack *ta*, a factive interpretation arises:

(8)   #Kibo-nun [Dana-ka i   chayk-ul ilk-ess-**nun**   **kes**-ul] mit-ess-ta,
       K.-TOP   D.-NOM this book-ACC read-PST-ADN *kes*-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 (the fact) that Dana read this book, but D. didn't read it.'
                                                          (Shim and Ihsane, 2015: (5c))

We elicited additional data that support the restriction of factivity for *mit* sentences to those whose embedded clauses contain only *kes*. For a false embedded proposition (*that Sydney is the capital of Australia*), it is infelicitous for *mit* to embed the clause marked with *kes* alone (9a). By contrast, *mit* can felicitously embed clauses that contain both *kes* and the declarative marker (realized here as *la*) (9b) as well as clauses that contain both *ko* and the declarative marker (9c). (The declarative marker is realized as *la* in (9) rather than *ta*.)

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[5]As Shim & Ihsane (2015) point out, sentences with *yukamsuleweha* 'regret' as the embedding verb have a factive interpretation regardless of the morphosyntax of the embedded clause. This suggests that while choice of embedded morphology may drive factivity with verbs like *mit* 'believe,' other verbs may lexically impose factivity on their complements, as in Kiparsky & Kiparsky (1970) and subsequent work.

(9)   *Context:* Kibo's stupid friend Dana told him that Sydney is the capital of Australia.
      Kibo missed the day of class where the children learned that Sydney is not the capital
      of Australia.
      a.   # Kulayse acikto Kibo-nun [Sydney-ka Australia-uy swuto-i-n   **kes**-ul]
              so   still   K.-TOP   S.-NOM   A.-GEN   capital-COP-ADN *kes*-ACC
           mit-e.
           believe-DEC
           #'Kibo still believes (the fact) that Sydney is the capital of Australia.'

      b.   Kulayse acikto Kibo-nun [Sydney-ka Australia-uy swuto-**la**-nun   **kes**-ul]
              so   still   K.-TOP   S.-NOM   A.-GEN   capital-DEC-ADN *kes*-ACC
           mit-e.
           believe-DEC
           'Kibo still believes (the claim) that Sydney is the capital of Australia.'

      c.   Kulayse acikto Kibo-nun [Sydney-ka Australia-uy swuto-**la-ko**]   mit-e.
              so   still   K.-TOP   S.-NOM   A.-GEN   capital-DEC-*ko* believe-DEC
           'Kibo still believes that Sydney is the capital of Australia.'

Following Shim and Ihsane (2015), we conclude that the morphosyntactic shape of clauses
embedded by *mit* 'believe' correlates with the factivity of the sentence as a whole: factive
interpretations arise if the embedded clause contains only *kes*, but not if the embedded clause
contains both *ta* and *kes* or both *ta* and *ko*.

3. Licensing *ta-kes*-marked clauses

While we agree with Shim and Ihsane (2015) that clauses with *ta* and *kes* and those with *ta* and
ko are both non-factive, Shim and Ihsane (2015) — nor any other prior work on Korean embed-
ded clauses, to our knowledge — do not discuss differences in the distribution or interpretation
of these two types of embedded clauses. We turn to this now.

3.1. *ta-kes-ϕ*: ϕ previously asserted in local discourse

As previously discussed, the Korean verb *mit* 'believe' can embed clauses marked with declar-
ative *ta* and nominalizer *kes* (abbreviated *ϕ-ta-kes*) or clauses marked with *ta* and complemen-
tizer *ko* (abbreviated *ϕ-ta-ko*). In the following discourse, both utterance B1 (*ϕ-ta-ko*) and
utterance B2 (*ϕ-ta-kes*) were judged felicitous.

(10)   **A:** Na-nun swukecey-lul   ta ha-yess-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?'

B1: Um. Na-nun [ney-ka   swukecey-lul   ta ha-yess-**ta-ko**] mit-e.
Yes. I-TOP   you-NOM homework-ACC all do-PST-DEC-*ko* 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.'

B2: Um. Na-nun [ney-ka   swukecey-lul   ta ha-yess-**ta**-nun   **kes**-ul]
Yes. I-TOP   you-NOM homework-ACC all do-PST-DEC-ADN *kes*-ACC
mit-e.   Haciman cikum-un cenyek siksa sikan-i-ya.
believe-DEC but   now-TOP evening meal time-COP-DEC
'Yes, I believe (the claim) that you finished your homework. But its dinner time.'

In the following discourse, by contrast, only utterance B1 (*ϕ-ta-ko*) was accepted. The consultant rejected utterance B2, where *mit* embeds *ϕ-ta-kes*.

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

B1: Um. Na-nun [kay-ka swukecey-lul   ta ha-yess-**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.'

B2:#Um. Na-nun [kay-ka swukecey-lul ta ha-yess-**ta**-nun   **kes**-ul] mit-e.
Yes. I-TOP   he-NOM hmwrk-ACC   all do-PST-DEC-ADN *kes*-ACC believe-DEC
#'Yes, I believe (the claim) that he finished his homework.'

The key difference between the discourses in (10) and (11) is that only (10) contains a previous assertion that carries content comparable — if not string identical — to the ϕ later uttered by B: A asserts *I finished my homework*. In such discourses, both *ϕ-ta-kes* and *ϕ-ta-ko* were licit in utterances by B. When such a previous assertion is missing as in (11), only *ϕ-ta-ko* is licit.

It is not the case that *ϕ-ta-kes* is only licensed where ϕ corresponds to a direct quotation. The ϕ uttered by B in (10) is not string identical to the string previously uttered by A: whereas A's utterance contains a first person pronoun, B's utterance contains a second person pronoun. This point is made even more dramatically in the discourse in (12). Here, A's utterance of *I ate peas* only entails the proposition corresponding to the ϕ uttered by B. In addition to *ϕ-ta-ko* (B1), *ϕ-ta-kes* (B2) was also judged felicitous:

(12)   *Context:* B has a rule that A must eat vegetables before having cake.
A: I ate peas! Can I have cake now?

B: No, you can't.   **A:** But why? Don't you believe me?

B1: Na-nun [ney-ka   yachae-lul   mek-ess-**ta-ko**] mit-e...
    I-TOP   you-NOM vegetable-ACC eat-PST-DEC-*ko* believe-DEC
    'I believe that you ate vegetables (...but the cake's not ready).'

B2: Na-nun [ney-ka   yachae-lul   mek-ess-**ta**-nun   **kes**-ul] mit-e...
    I-TOP   you-NOM vegetable-ACC eat-PST-DEC-ADN *kes*-ACC believe-DEC
    'I believe that you ate vegetables (...but the cake's not ready).'

However, while ϕ need not be string identical to a previous assertion, the propositional content associated with ϕ must be consistent with the content associated with the prior assertion. The consistency requirement was met in the entailment discourse in (12). However, it is not met in the discourse in (13), in which ϕ occurs in the scope of negation in A's previous assertion. As shown, A is not allowed to go on to use ϕ-*ta-kes* in a subsequent assertion. (Although not shown here, ϕ-*ta-ko* would have been licit.)

(13)   **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 *kes*-ACC
             mit-e.
             believe-DEC
             'Even so, Kibo still believes that Toronto is the capital of Canada.'
             Comment: "This sounds really odd to me, if Kibo has never heard anybody tell him that 'Toronto is the capital of Canada'."

The prior act of *assertion* of ϕ — or material consistent with ϕ — is necessary for the felicity of ϕ-*ta-kes* under *mit* 'believe.' In the following discourse, we find that A's polar question (*Has Johnny finished his homework*) is not sufficient to license B's utterance of ϕ-*ta-kes* in B2, despite ϕ being string identical to the proposition on which A's polar question was formed. The infelicity of ϕ-*ta-kes* in B2 contrasts with the felicity of ϕ-*ta-ko* in utterance B1.

(14)   **A:**   Johnny-nun swukcey-lul   ta ha-yess-ni?
               J.-TOP   homework-ACC all do-PST-Q
               'Has Johnny finished his homework?'

           B1: Na-nun [Johnny-ka swukcey-lul   ta ha-yess-**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.'

           B2: #Na-nun [Johnny-ka swukcey-lul   ta ha-yess-**ta**-nun   **kes**-ul]
                I-TOP   J.-NOM   homework-ACC all do-PST-DEC-ADN *kes*-ACC
               mit-e.
              believe-DEC
              #'I believe (the claim) that Johnny finished his homework.'

The importance of assertion — as opposed to a question — distinguishes Korean φ-*ta-kes* from structures in other languages that have also been described as imposing a 'familiarity' requirement and exhibiting nominal morphosyntactic properties. For instance, Schwabe et al. (2016) citing Sudhoff (2003) show for German that a polar question is sufficient to license 'familiar' clauses, which contain the sentential proform *es*.

(15)   **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 it that she is ill.'   (Schwabe, Frey, and Meinunger, 2016: (4))

We turn to a final restriction on φ-*ta-kes* when embedded by *mit* 'believe.' The prior assertion of φ must be familiar to the subject (attitude holder) of *mit*. It appears that the 'familiarity' requirement is satisfied if the subject of *mit* is among those to whom φ was asserted. In addition to [φ-*ta-ko*] *mit* (A1) being felicitous in this context, [φ-*ta-kes*] *mit* (A2) was also accepted. Here, the subject of *mit* is *Johnny's mother*, to whom φ was previously asserted.

(16)   **A:**   Johnny-ka ku-uy   emma-eykey [ku-ka   swukcey-lul   ta ha-yess-ta-ko]
       J.-NOM   he-GEN mother-to   he-NOM homework-ACC all do-PST-DEC-*ko*
       malha-yess-ta...
       say-PST-DEC
       'Johnny told his mother that he finished his homework...'

   A1:   ...kulayse Johnny-uy emma-nun   [Johnny-ka swukcey-lul   ta
       so   J.-GEN   mother-TOP J.NOM   homework-ACC all
       hay-ss-**ta-ko**]   mit-e.
       do-PST-DEC-*ko* believe-DEC
       '...so Johnny's mother believes that Johnny finished his homework.'

   A2:   ...kulayse Johnny-uy emma-nun   [ku-ka   swukcey-lul   ta
       so   J.-GEN   mother-TOP he-NOM homework-ACC all
       ha-yess-**ta**-nun   **kes**-ul]   mit-nun-ta.
       do-PST-DEC-ADN *kes*-ACC believe-PRES-DEC
       '...so Johnny's mother believes that he finished his homework.'

In discourse (17), however, only [φ-*ta-ko*] *mit* (B1) was accepted whereas [φ-*ta-kes*] *mit* (B2) was judged to be infelicitous. In this discourse, *Johnny's mother* is once again the subject of *mit* 'believe' but φ was not asserted previously to *Johnny's mother*: instead, φ was asserted to speaker A. It appears that the felicity of [φ-*ta-kes*] *mit* hinges on whether φ was asserted specifically within in the 'reported' or 'local' discourse (the one that the matrix subject participates in).

(17) **A:** Johnny told me—but hasn't said anything to his mother—that he finished all his homework. Do you believe him?

      B: I don't know, but Johnny's mother went into his room and saw several completed assignments...

      B1: ...kulayse Johnny-uy emma-nun [Johnny-ka swukcey-lul   ta
          so   J.-GEN   mother-TOP J.NOM   homework-ACC all
          hay-ss-**ta-ko**]   mit-e.
          do-PST-DEC-*ko* believe-DEC
          '...so Johnny's mother believes that Johnny finished his homework.'

      B2: #...kulayse Johnny-uy emma-nun [Johnny-ka swukcey-lul   ta
          so   J.-GEN   mother-TOP J.NOM   homework-ACC all
          ha-yess-**ta**-nun   **kes**-ul] mit-e.
          do-PST-DEC-ADN *kes*-ACC believe-DEC
          '...so Johnny's mother believes that Johnny finished his homework.'
          Comment: "I feel that Johnny's mom herself must have heard the claim that Johnny finished the homework."

In summary, whereas ϕ-*ta-ko* imposes no restrictions on discourses in which it occurs, ϕ-*ta-kes* is only felicitous under the following conditions, informally characterized:

(18) *The familiarity requirement of ϕ-ta-kes:*
      Utterance of [ϕ-*ta-kes*] *mit* is felicitous just in case ϕ — or some utterance associated with propositional content that is consistent with ϕ — has been previously asserted in a local discourse (a discourse that includes the subject of *mit*).

In §4, we arrive at these conditions by appealing to the individual contributions of declarative marker *ta* and nominalizer *kes*. ϕ-*ta-kes* presupposes the existence of a prior assertion ϕ (or material consistent with ϕ) which is familiar to the subject of *mit*.[6]

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[6]Our claim that ϕ-*ta-kes* presupposes a previous assertion event of ϕ recalls presuppositional characterizations of reportative expressions in German and Tagalog (Schenner, 2008; Fabricius-Hansen and Sæbø, 2004; Schwager, 2010). Elements like German *sollen* and Tagalog *daw* "induce a presupposition that the prejacent has been asserted" (Schwager, 2010: 238).

  However, while the meanings can be described similarly, *ta-kes* differs from reportatives in at least three ways. First, whereas reportatives introduce this presupposition, the presupposition in Korean arises through semantic contributions of independent markers *ta* and *kes*, neither of which can itself be characterized as a reportative. Second, while reportatives can occur as main clauses that express assertions, Korean *ta-kes* clauses cannot (i). Third, whereas *mit* 'believe' readily embeds Korean *ta-kes* clauses, German *glauben* 'believe' is reluctant to embed reportative *sollen* (Schenner, 2008).

3.2. Comparison with response-stance verbs

Our characterization of belief attributions with a complement of shape ϕ-*ta-kes* in (18) is strongly reminiscent of previous descriptions of Cattell's (1978) response-stance verbs:

(19)   *Response-stance:* Embedded clause refers to a familiar idea
         Alice {agreed/admits/confirmed} that Ron called.

Authors including Cattell (1978), Hegarty (1992), de Cuba (2007), and Kastner (2015) observe that response-stance verbs embed 'familiar' complements. Hegarty suggests that this familiarity requirement is satisfied when such complements express common knowledge or a point of current discussion in the reported discourse. As (20) shows, assertions with response-stance verbs that embed ϕ cannot be followed by a denial that ϕ was previously asserted.

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

De Cuba (2007) and Kastner (2015) observe that Hungarian and Hebrew response-stance verbs prefer to embed clauses that exhibit nominal morphosyntactic properties, namely nominal pro-forms and clause-taking determiners. The same is true of Korean. The consultant readily allowed ϕ-*ta-kes* clauses to be embedded by response-stance verbs *tonguyha* 'agree' (21a), *incengha* 'acknowledge, accept' (21b), and *pwuinha* 'deny, reject' (21c). By contrast, the consultant strongly dispreferred sentences in which these verbs instead embedded ϕ-*ta-ko* clauses.

(21)   a.   Na-nun [Lee-ka wa-ss-**ta**-nun   **kes**-ey] tonguyha-n-ta.
            I-TOP   L.-NOM come-PST-DEC-ADN *kes*-at   agree-PRES-DEC
            'I agree (with the claim) that Lee came.'

       b.   Na-nun [Lee-ka wa-ss-**ta**-nun   **kes**-ul] incengha-n-ta.
            I-TOP   L.-NOM come-PST-DEC-ADN *kes*-ACC acknowledge/accept-PRES-DEC
            'I acknowledge/accept the claim that Lee came.'

       c.   Na-nun [Lee-ka wa-ssa-**ta**-nun   **kes**-ul] pwuinha-n-ta.
            I-TOP   L.-NOM come-PST-DEC-ADN *kes*-ACC deny/reject-PRES-DEC
            'I deny/reject (the claim) that Lee came.'

4. Toward an account of reference to prior asserted content

We propose that the parallels between Korean *ta-kes* clauses and clauses with responses-stance verbs are no accident, but rather that typically volunteered-stance verbs like *mit* 'believe' take on the profile of a response-stance verb by virtue of the individual semantic contributions of *ta* and *kes*.

4.1. The contributions of *ta* and *kes*

We begin with the contribution of the declarative marker *ta*. As was first noted (to our knowledge) by S.S. Kim (2011), *ta* introduces a separate layer of embedding when found in clauses embedded under nouns, such as the relative in (22). In (22a), the clause without *ta* is translated as simply 'the rumor that Chelswu told me.' By contrast, the clause in (22b) contains *ta*, which is reflected in its translation with an additional verb of saying.

(22)   a.   [Chelswu-ka na-eykey allye cwu-n] somwun
              C.-NOM   I-DAT   tell-ADN   rumor
              'the rumor$_i$ that Chelswu told me t$_i$'

        b.   [Chelswu-ka na-eykey allye cwu-ess-**ta**-nun] somwun
              C.-NOM   I-DAT   tell-PST-DEC-ADN   rumor
              'the rumor$_i$ that (people say that) Chelswu told me t$_i$'
              *'the rumor$_i$ that Chelswu told me t$_i$'   (S.S. Kim 2011: 13a,b)

We suggest that *ta*-clauses evoke events of assertion of *p*.[7] We record this meaning as in (23):[8]

(23)   ⟦ *ta$_{embedded}$* ⟧ = $\lambda p \lambda e.e$ is an event of asserting p

Next, we consider what *kes*-clauses do independently of *ta*. We rely here on M.-J. Kim (2009). Kim (2009) offers a largely unified account of three structures that feature *kes*: internally-headed relative clause (IHRC) constructions (24a), perception constructions (24b), and factive constructions (24c).

(24)   a.   John-un [totwuk-i tomangka-n-un   **kes**-ul] cap-ess-ta.
              J.-TOP   thief-NOM run.away-IMPF-ADN *kes*-ACC catch-PST-DEC.
              'John caught the thief that was running away.'
                    (*Internally-headed relative clause (IHRC) construction*, Kim, 2009: (1))

        b.   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.'
                    (*Perception construction*, Kim, 2009: (2))

        c.   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.'
                    (*Factive construction*, Kim, 2009: (3))

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[7]When *ta* is in a root clause or combined with *ko*, its semantics is not as transparent. We leave a full treatment of *ta* for future work.

[8]We treat its contribution as an entailment here, although it is possible it's a presupposition. It's hard to tell since *ta*-clauses make this contribution when embedded, and we only have examples where the embedding noun phrase carries a uniqueness presupposition, and hence determining whether the assertion component is entailed or presupposed has been challenging.

Kim (2009) proposes that *kes* introduces a salient individual or situation which stands in some contextually-supplied relation R to the proposition p. (See also Kim (2007), Hoshi (1995), and Shimoyama (1999) on IHRCs.) We adopt a version of Kim's analysis of *kes*, which departs from the original in largely trivial ways. *Kes* takes as its argument the embedded clause p (a set of situations) and returns what amounts to a definite description (25), which we characterize as a familiarity definite.[9],[10]

(25) $[\![kes]\!]^C = \lambda p \iota x.R(p)(x)$
        x is in the domain of ordinary individuals or situations
        R is a suitable relation
        defined iff x is familiar in C

Kim identifies several relations that are suitable for R in different *kes*-constructions. For IHRCs, theta-relations (26) pick out an individual from the situation denoted by the embedded clause, e.g. the thief who is the agent of the running situation described in (27). The entity denoted by the entire *kes*P functions as an argument to a verb in the main clause (e.g. *caught*).

(26)   a. $R_{agent} = \lambda p' \lambda x'.\exists s[p'(s) \ \& \ Agent(x')(s)]$
        b. $R_{theme} = \lambda p' \lambda x'.\exists s[p'(s) \ \& \ Theme(x')(s)]$

(27)   John-un [totwuk-i tomangka-n-un   **kes**-ul] cap-ess-ta.
        John-TOP thief-NOM run.away-IMPF-ADN *kes*-ACC catch-PST-DEC
        'John caught the thief that/while he was running away.'

<div align="center">

*kes*P: *e*

IHRC:$\langle$s,t$\rangle$ *kes*:$\langle\langle$s,t$\rangle$,e$\rangle$

λs[run.away(thief)(s)]

</div>
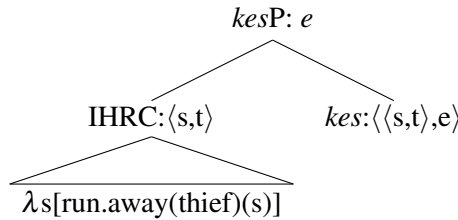
(28)   a. $[\![\,kes\,]\!] = \lambda p \iota x.R_{agent}(p)(x)$
              $= \lambda p \iota x.[\lambda p' \lambda x'.\exists s[p'(s) \ \& \ Agent(x')(s)]](p)(x)$
              $= \lambda p \iota x.\exists s[p(s) \ \& \ Agent(x)(s)]$
        b. $[\![\,kes\mathrm{P}\,]\!] = \lambda p \iota x.\exists s[p(s) \ \& \ Agent(x)(s)](\lambda s'.run\text{-}away(thief)(s'))$
              $= \iota x.\exists s[run\text{-}away(thief)(s) \ \& \ Agent(x)(s)]$ $\rightsquigarrow$ the thief

While we must constrain the possible values for R (see below), we also want to allow it a certain flexibility. As Kim (2007) shows with (29a), R can return a sum of individuals in IHRC, each with distinct thematic roles (Kim, 2007: 8). In (29b), R returns an individual that is part of a result state described by the IHRC predicate (Grosu and Landman, 2012 after (40) in Chung and Kim (2003)).

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[9]Further work is needed to determine if there is a uniqueness requirement.

[10]For Kim, *kes* takes as its argument the trace left by LF movement of the embedded clause. She also separates definiteness from *kes*, but we have built definiteness in simply for ease of exposition.

(29) a. Jinho-un [koyangi-ka cwi-lul coch-ko iss-n-un **kes**]-ul capassta.
J.-TOP [cat-NOM mouse-ACC chase-*ko* COP-IMPF-ADN *kes*]-ACC catch-PST-DEC
'A cat chased a mouse & J. caught {the cat/the mouse/the mouse & cat}.'

b. Jinho-un [paci-ka teleweci-un **kes**-ul] takkanay-ss-ta
J.-TOP pants-NOM got.dirty-ADN *kes*-ACC wipe.out-PST-DEC
'The pants got dirty and J. wiped the dirt off the pants.'

Kes-constructions arrive at factive (30) and perception (31) meanings via different values for R. Following Kim (2007) and Kratzer (2002), we treat factive complements as denoting situations that exemplify propositions; the fact-producing R (R_{fact}) in (30b) delivers this. Perception complements denote bare events—i.e. the individual situation described by the complement (Higginbotham 1983). The R found in such *kes*-clauses (31b) is simply the identity function.

(30) *Factive construction*
a. 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.'
b. $R_{fact} = \lambda p'\lambda x'.x'$ is a fact that exemplifies p'
(Treatment of facts after Kim (2009); Kratzer (2002))
c. $[\![kesP]\!] = \iota x.x$ is a fact that exemplifies $[\lambda s'.\textit{run-away}(\textit{thief})(s')]$

(31) *Perception construction*[11]
a. John-un [totwuk-i tomangka-n-un **kes**-ul] po-ess-ta.
John-TOP thief-NOM run.away-IMPF-ADN *kes*-ACC see-PST-DEC
'John saw (the event) of the thief running away.'
b. $R_{id} = \lambda p'\lambda s'.p'(s')$
c. $[\![kesP]\!] = \iota s.\textit{run-away}(\textit{thief})(s)$

There are questions, of course, that arise about how to constrain R. One way to constrain R would be to say that the individual x/s must refer to a (possibly non-proper) 'part' of the situation described by p: individuals in the situation, the situation itself (for perception), or the fact. We also note that the entries we give for R_{fact} and R_{id} are closely related — or identical, in the case of R_{fact} — to the denotations of complementizers given by Kratzer (2006), so there is precedent for linguistically encoding these functions.

4.2. Combining *ta* and *kes*

It is now a matter of combining *kes* with a clause that contains *ta*. (We assume the adnominal marker *un* makes no semantic contribution.) If R is valued as R_{id} as in the perception construction, then the ϕ-*ta-kes* structure simply denotes the set of assertion eventualities denoted by the *ta*-clause. For instance, the embedded clause in (32) refers to the familiar event of assertion of p in the context:

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[11]Kim (2007) suggests *kes* may pick out something more like the 'image' or 'sound' of an event. We've eliminated that step for simplicity.

(32) Na-nun [$_{kesP}$ Johnny-ka swukcey-lul   ta ha-yess-**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.'

(33) a. ⟦*ta*⟧(*that Johnny finished his homework*)
              = λe.e is an event of asserting *that Johnny finished his homework*
      b. ⟦*kes*⟧ = λpιs.[R$_{id}$(p)(s)]
      c. ⟦*kes*P⟧(⟦*ta*⟧(*that Johnny finished his homework*))
              = ιs.s is an event of asserting *that Johnny finished his homework*
              ⤳ the event of asserting that Johnny did his homework

In §4.3, we discuss how a verb like *believe* combines with an individual event like the one in (33c). Even before doing so, however, we can already appreciate how treating *ta-kes* clauses as definite descriptions of assertion events will capture the data in §3 (10)–(13). When the assertion has been made in the context, it can be referred to successfully because it is familiar in the context of utterance:

(34) A: Johnny finished his homework. (=an event of asserting p)
      B: ✓(32)

In (35) (an excerpt from (14)), there is no event of asserting that Johnny did his homework (only a question): as a result, *ta-kes* will not be defined and will be — as attested — infelicitous. (We return in the the next section to the additional requirement of ϕ-*ta-kes* that ϕ have been asserted within a local discourse.)

(35) A: Has Johnny done his homework? (not an event of asserting p)
      B: ✗(32)

We can envision an alternative account, which would treat the contribution of *ta* as presupposition that its complement is asserted in the context, but would semantically just pass up a propositional meaning rather than introduce an event description in the object language. That presupposition would be accommodated globally when the attitude holder is a first person (utterance context participant) or locally under *believe* with a third person attitude holder. We explore this possibility in ongoing work. We do not pursue that approach here, however, because we do not see how it would account for the fact that *ta* is required for a non-factive meaning. If all *ta* did was place a presupposition on the propositional complement—that it was uttered—then modulo that presupposition, *ta-kes* clauses and *kes*-clauses under believe should behave alike. But that is not the case: as first demonstrated by Shim and Ihsane (2015), bare *kes*-clauses under *believe* are factive. The *ta* needs to make enough of a contribution to alleviate that factivity, and that is what our proposal will do.

Our proposal, however, requires further elaboration to rule out R$_{fact}$ being used with *ta-kes* clauses under *believe*.

4.3. Response-stance *believe*

Traditionally, we think of attitude verbs as selecting propositions. By contrast, our proposal is that a *ta-kes* clause refers to an event, which is not in any obvious way what a verb like *believe* would select. In this section, we treat *ta-kes*-taking predicates as response-stance verbs in a fashion similar to the

account of such verbs developed in Anand and Hacquard (2014): in their account, verbs like *claim, agree, dispute, etc.* report discourse moves whose goal is to update a reported common ground, CG_R, with the complement proposition.

(36) $[\![claim]\!]^{c,w,g} = \lambda p \lambda e.\text{claim'}(e,w)$ & $\forall$w' compat. with Goal(e) [$\forall$w" $\in CG_R$(w') [p(w")]]

                                                              (Anand & Hacquard, 2014: 78)

The part of their proposal we will capitalize on is the notion of updating a reported common ground: the discourse situation that the discourse move described by the verb is a part of. We suggest that response-stance *believe* reports acceptance of (the propositional content of) of a certain discourse move into the attitude holder's belief set, where a discourse move is an event of assertion (whose own goal is to update the reported common ground). We sketch a denotation for response-stance *believe_{RS}* in (37) which relates an attitude holder to an event of assertion e. Condition (37a) guarantees that e be uttered in the reported common ground; this accounts for the contrast in felicity between (16) and (17). Condition (37b) guarantees that e be an assertion event: the goal of e is to introduce its propositional content to the reported common ground.

(37)   Sketch of denotation of Response-stance (RS) *believe*:
            x believes$_{RS}$ e in a reported common ground (CG_R) in w iff:
        a.   e is a **discourse move** in CG_R
        b.   **goal**(e) is to add the CONTENT(e) to CG_R
        c.   DOX(x)(w) $\subset$ CONTENT(e)(w)

The notion of an event's propositional content is defined in (38b). Following Hacquard (2006) and Kratzer (2013), we take CONTENT to be a function that takes some particular with informational content (books, information sources, assertion events, belief states) and packages that informational content as a set of possible worlds. This set of worlds can then be related to the attitude holder's doxastic alternatives in standard Hintikkan fashion. The end result is that to believe an assertion event is to believe the content of that event.

(38)   a.   DOX(x)(w) = {w' : w' is compatible with what x believes in w}
        b.   CONTENT(e)(w) = {w': w' is the informational content of e in w}

There are many open questions that arise from this preliminary report. Among these questions is the full range of predicates that embed *ta-kes* clauses. We might predict that embedding *ta-kes* clauses under a verb of communication like *malha* 'say' would conflict with the claim being presupposed in the CG or CG_R. We also have not broached the question of what *kes*-clauses that lack *ta* mean when embedded by *believe*, e.g. (8). We described these as factive following Shim and Ihsane (2015), but remain agnostic as to whether they should be equated with knowledge ascriptions.

5. Conclusion

We set out to examine what it could mean to say that a clause "refers," taking as our focus Korean embedded clauses that bear the nominalizer *kes* and declarative marker *ta*. We suggested that they might not refer to propositions or even to propositional content directly (whatever that might be), but to assertion events that carry propositional content. Korean *ta-kes* clauses are best understood as denoting definite descriptions of an assertion event. Assertion events are easily equated with propositions, as the recent trend in projecting possible worlds from information sources ("anchors") have demonstrated

(Hacquard, 2006; Kratzer, 2013). When *ta-kes* is present, Korean *mit* 'believe' behaves like a response stance verb, reporting a discourse move: the uptake of an assertion (Anand and Hacquard 2014). The results from Korean are interesting because things could have been different: nominalized *ta-kes*-clauses instead might have referred to content that was *not* necessarily previously asserted. Both Chierchia (1984) and Asher (1993) allow propositions to denote entities, and these can be anaphorically referred to. But nothing on that view requires there be an assertion event of the proposition.

It may be useful to apply the contexts used here to other languages that have been claimed to have 'referential clauses' with nominal morphosyntactic properties. Our results reinforce the need to clearly distinguish factive from so-called 'familiar' (de Cuba, 2007), 'referential' (de Cuba and Ürögdi, 2009; Haegeman and Ürögdi, 2010), and 'presuppositional' (Kastner, 2015) clauses. When used to study embedded clauses with nominal properties in other languages, our contexts may show that such structures are best understood in terms of belief as a discourse-move reporting predicate. Preliminary results show that when Kastner's (2015) Hebrew "presuppositional clauses" (bearing demonstrative *ze*) are embedded by belief verbs (39b), they have felicity conditions similar to those of Korean *ta-kes* clauses.

(39) **Hebrew**
a. anaxnu ma'aminim [še-yeš le-xa   hetkef   lev].
     we   believe.PL COMP-is to-you.M attack.CS heart
     'We believe that you are having a heart attack.'
b. anaxnu ma'aminim le-**ze** [še-yeš le-xa   hetkef   lev].
     we   believe.PL to.this COMP-is to-you.M attack.CS heart
     'We believe this that you are having a heart attack.'   (I. Kastner, p.c.)

(40) *Discourse A:*
A: What's wrong with me Doctor?
B: ✓(39a), ✗(39b)

(41) *Discourse B:*
A: Don't you believe me that I am having a heart attack?
B: ✓(39a), ✓(39b)

A full-scale investigation of the semantics and pragmatics of nominalized clauses is underway.

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