

**Keynote 9**

**Semantic Universals of Fact, Say, or Fiction: Crosslinguistic Factivity Alternation along with Epistemic/Doxastic and Preferential/Imaginative Attitudes**

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**Abstract**

The use of epistemic attitude predicates like ‘know’ or ‘remember’ typically entails the factivity of their proper complement clause, where the complement is headed by a covert/overt FACT (Kiparsky and Kiparsky 1972). However, if the complement clause ends in a SAY/REPORT C(complementizer) as in Altaic or a nominal SAY heads the complement (as proposed for SAY/doxastic verbs in English by Kratzer 2013), then factive presupposition can be cancelled. Thus, factivity alternation for epistemic predicates is yielded. The non-factive reading is like ‘believe with some evidence that.’ This talk presents different types of cross-linguistic factivity alternation, mainly the Altaic type, the English (Indo-European) type, and the Chinese type. The Altaic type factivity alternation depends on complement (case) endings, where syntactic factors like the choice of FACT nominalizers vs. SAY complementizers are crucial for factivity alternation. In the English type, propositional operators such as negation, interrogative, conditional, modal, and before, and contextual denial with but and not are instead utilized. For example, Bush doesn’t know that Putin is honest, in its non-factive reading, Putin may not be honest. In languages like Chinese, where factivity alternation in epistemic predicates such as *zhidao* ‘know’ is highly restricted, the focus position is still a crucial factor leading to factivity alternation in the use of *jide* ‘remember.’ I report three findings relevant: First, Korean and Japanese have two distinct kinds of fact: external ‘fact’ with -*ta-nun kes* (K) and -*iu-koto* (J) both involving SAY under the ProFactNoun kes/koto (The Earth turns round – external) and internal ‘fact’ with -nun kes in K and *koto* in J with no SAY but personal perception involved, as grammatically distinguished (Wittgenstein earlier said a child’s ‘I know that the Earth turns round’ actually means ‘I learned that the Earth turns round’ in English). Second, the head nominal and its complement are consistent in factivity: (1) Mia knows the rumor that Ken kissed Ava. Because the rumor is non-factive, that Ken kissed Ava is non-factive. All head nouns except the fact are non-factive. Therefore, Vendler’s paradox about why that clause as the object of know is not presupposed is easily resolved. The third finding of mine is that the preferential whether is equivalent to expletive negation. The polar interrogative complementizer whether is initially for negative verbs such as know but not believe. Its complement P (or not P) is presupposed truth-wise. However, preferential [or positively biased] attitude predicates such as think, believe, hope, and fear also occur with whether (White 2021). My finding is that this unusual, psychological use of whether in English is equivalent to the expletive negation phenomenon in Korean and Japanese. (1K) *Mia-nun [caki thim-i iki-ci anh-ul-kka] sayngkakha-n-ta/kitaiha-n-ta.* (2J) *Mia-wa [jibun no chimu ga kata-nai ka to] omou/kitai-suru* ‘Mia thinks/expects whether her team will win.’ (If the complement verb is disadvantageous as ‘lose,’ then the higher embedding predicate must be ‘fear,’ not ‘expect/hope.’). The content of complement is determining. The counter-factive attitude predicate *imagine* rarely takes any real-world factive complements. It typically takes the that complement clause, which I take to be an unusual SAY-head reportative complement. It reports the imaginer’s creative thinking. *Imagine* can take whether but with future/modal but not past, cross-linguistically. The predicate dream is similar in not dealing with any real-world facts. *Na-nun Brigitte Barudot-wa kissu-ha-nun kkwum-ul kkwu-ess-ta* ‘I dreamt a dream in which I kissed Brigitte Bardot.’ A cognate object is used and the tense is a constant kind used with stage/scene/image, originated from the present. Thus, *imagine* must be based on the ‘parasitic’ (Grice, Liefke) or rather creative use of language like a metaphor, which associates two unrelated things or propositions. We can establish semantic universals with FACT-headed complements (equivalently ProFactNoun kes/koto in K/J) as presupposed, as opposed to SAY-C complements as non-

factive to explain facticity alternation for epistemic attitude predicates (and the same SAY-C for doxastic predicates) (at times imagine as well to report ‘parasitic’/creative complements). A non-typical use of *whether* complementizer is for a psychologically biased use (departing from its original logical use), equivalent to expletive negation in Korean, Japanese, and French.

## 1. Introduction

Propositional attitude predicates/reports are studied in epistemology/epistemic logic (as by Hintikka 1962), and semantics/pragmatics. Epistemic attitude predicates like ‘know,’ ‘recognize,’ or ‘remember’ typically entail their proper complement clauses. There the complement is headed by a covert/overt FACT (Kiparsky and Kiparsky 1972) in English and cross-linguistically. However, if the complement clause ends in a SAY/REPORT C(complementizer) as in Altaic (-*ko* in Korean (K henceforth), -*to* in Japanese, J hereafter), then factive presupposition by complement content disappears. Thus, factivity alternation for epistemic predicates is yielded in many languages. The non-factive reading of such epistemic predicates is like ‘believe with some evidence that P’ on commitment scale. This is a bit stronger than a pure doxastic verb ‘believe,’ which may lack evidence for the complement content. This paper presents different types of cross-linguistic factivity alternation, mainly the Altaic type, the English (Indo-European) type, and the Chinese type in section 2. In 3, two different kinds of facts coded in Korean and Japanese but not in English is discussed. Consistency of content nominals with their complements are argued for. In 4, The set of non-canonical *whether* complement-taking predicates and Korean and Japanese expletive negation complements are compared. The positively biased sense is common in both, with the Korean and Japanese counterpart being more solid. In 5, ‘imagine’ and fiction are discussed. The fictive use is interesting. 6 concludes the discussion.

## 2. Cross-linguistic Factivity Alternation Types

The Altaic type including K, J, Mongolian, Manchurian, Azeri, Turkish uses grammatical markings at complement endings, as already hinted in K and J in 1.

### 2.1 The Altaic Type Factivity Alternation

- Factive Complement: The Altaic type employs either verbal nominal markings as in Mongolian (1) or the ProFACT-Noun form, as in K (2).

(1) Bat [Mia –giin yav-**san**-iig] mede-j baina      **Factive** (Mongolian)

B M-GEN leave-NPST-ACC know ST [[-j baina: ST = result state]]

‘Bat knows that Mia left.’

(2) Ken-un [Mia –ka ttēna -n      **kes-ul**] al-n-ta      **Factive** (Korean)

K TOP M NOM leave AdnPST ProFACTN-ACC know

‘Ken knows that Mia left.’

J also has the same ProFACT-Noun form *kes* for the factive ‘know’ and other factive epistemic verbs, as in K (2). But J has no alternative non-factive ‘know,’ unlike K or other Altaic ‘know,’ although J also has non-factive alternants for other epistemic verbs such as ‘recognize’ and ‘remember,’ as in (4). K has another ProFACT-Noun form *cwul*, as in (4) but its use is limited to the epistemic verb ‘know’ with ACC attached, alternating with its non-factive reading with PP *-uro/-lo* ‘as, toward,’ replacing ACC. If ACC and PP delete, as in (5b, 6b), ambiguity arises. (5b) and (6b), null-marked, are ambiguous, with no prosody marked. However, prosodic focus marking may intervene: if the embedding verb ‘know’ is focused, its factive reading arises with its association with the structural ACC deletion and with the ProFACT N DP in apposition with its presupposed complement content. But if the complement (constituent) is focused, the embedding verb ‘know’ becomes non-factive.<sup>1</sup> If the embedding verb *AL-a* ‘know’ is focused, (5b) becomes factive, and if an element in the complement, say, *MIA* is focused, the embedding verb becomes non-factive (See its parallel in Chinese in 2.3).

- Non-factive Complement: The Altaic type employs the SAY/REPORT C *-ko* (or *-uro* ‘as’ in K, *-to* in J) as opposed to Pro-FACT Noun *kes* in K (and *koto* in J)

(3) Mia-nun [Ken-i ttena -ass -ta ?**ko**/ttena -n kes-**uro**] al-ass -ta

M-TOP K-NOM leave PST DEC SAY-C left AdnPST thing-as knew

‘Mia believed with evidence/knows non-factively that Ken left.’ (Or Mia regarded that Ken left.)

### Non-factive

(4) Yua-wa [watashi-ga ni-nen mae-ni kita **to-**] kioku-si-ta **Non-factive**

Y-TOP I-NOM 2-year ago-at came REPORT remember-PST

‘Yua non-factively remembered that I came here twoyears ago.’

(5) a. Ken -un [Mia-ka ttena-n cwul -ul] al-a **Factive** [with ACC]

K -TOP M-NOM leave-C ProFactN-ACC know-DEC

‘Ken knows that Mia left.’

b. Ken -un [Mia-ka ttena-n cwul -Φ] al-a **Factive** [with Null]

K -TOP M-NOM leave-C ProFactN-Null know-DEC

‘Ken knows that Mia left.’

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<sup>1</sup> Jeong (2010) in this sense lacks attention to the deleted structural elements, correlated with prosody.

- (6) a. Ken -un [Mia-ka ttena-n cwul -lo] al-a **Non-factive** [with PP]

K -TOP M-NOM leave-C ProFactN-as know-DEC

‘Ken knows that Mia left.’

- b. Ken -un [Mia-ka ttena-n cwul -Φ] al-a **Non-factive** [with Null]

K -TOP M-NOM leave-C ProFactN-Null know-DEC

‘Ken knows that Mia left.’

## 2.2 The English Type Factivity Alteration

The English type employs propositional operators such as negation, interrogative, modal, conditional, and *before*, distant from the complement. Because those operators typically appear afar from the complement content, the non-factive meanings may not be that obvious, compared to the Altaic complement endings.

- Factive Complement: the complement clause follows the complementizer *that*, which is claimed to be covertly headed by the noun FACT (*the fact*) to block constraint violations and for conceptual reasons.

(4) Mary knows (the FACT) that it rained last night. ⇒ It rained last night.

- Non-factive Complement:

(5) Medieval Koreans *knew* that Chinese characters were the best *before* Hangul was invented. (cf. Hazlett 2010)

Here, *knew* is non-factive because of the nonveridical operator<sup>2</sup> (Zwarts 1995)

*before* (*after* is not nonveridical and does not illicit a non-factive reading). In (5), *knew* actually means ‘believe (with some evidence)’ and the doxastic belief attitude comes from the SAY/REPORT complement (overt in Altaic as in (3a, b) above and covert in English (as claimed by Kratzer 2013)).

As illustrated in (6), a non-factive clause can undergo neg-raising, just like typical doxastic predicates (6a ⇔ 6b, though with some controversies over mutual entailment relation). This neg-raising possibility in English and Altaic for a non-factive alternant of an epistemic predicate has not been discussed in the literature

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<sup>2</sup> *Op* is veridical iff *Op* (p) → p is logically valid. Otherwise, *Op* is **nonveridical**. Nonveridical contexts are conditional, modal, interrogative, etc.

(except in Lee 2019):

- (6) a. If the TA proves that your work is **NOT ORIGINAL**, I will be forced to notify the dean. (Cf. Beaver 2010)  $\Leftrightarrow$
- b. If the TA does **NOT** prove that your work is **ORIGINAL**, I will be forced to notify the dean.

A non-factive conditional antecedent in (6a) can undergo neg-raising to its originally epistemic upper clause predicate. The focused **NOT ORIGINAL** nullifies the potential factive presupposition of the embedded content. Here overall semantic congruence is needed.<sup>3</sup>

### 2.3 The Chinese Type Factivity Alteration

The Chinese type uses focal intonation for the alternation verb *ji-de* ‘remember.’ Other epistemic verbs such as ‘know,’ ‘recognize,’ and ‘understand’ are all factive-only verbs in Chinese, as an isolating language type. Largely, different verbs distinguish epistemic only, doxastic only, etc.

The rare alternation verb *ji-de* ‘remember,’ with no clausal markings or operators, employs the crucial factor of focal position, as follows:

- (7) Li-si      **jì-dé**      [jí-m-tiān shì fà-xīn-rì].  
Li-si remember today is payday.

- a. **Factive reading:** The predicate *jì-dé* ‘remember’ is **focal and high**, bearing **focus**, as in Fig 1 below, with presupposed embedded clause content. (7)  $\Rightarrow$  Today is payday. Then, (7) becomes factive. Here what is at issue is whether Li-si remembers or not, and what is remembered (i.e., the complement part) is back-grounded and factively presupposed. In other words, (7) expresses the memory of a **fact**, which can be an overt apposition, *de shì-shí (shì-qǐng)* (**‘the fact that’**) added to the complement clause.

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<sup>3</sup> Mike Barrie and Jeff Holliday, pc, agree to my neg-raising claim here; if *proves* is replaced by *discovers*, as in Beaver’s example, neg-raising hardly occurs (Craig Roberts p.c.). However, if *discovers/proves shows/establishes* with focus H\* and *plagiarized* replacing its equivalent *not original*, factive presupposition in its embedded clause occurs, making the embedding verb epistemic.

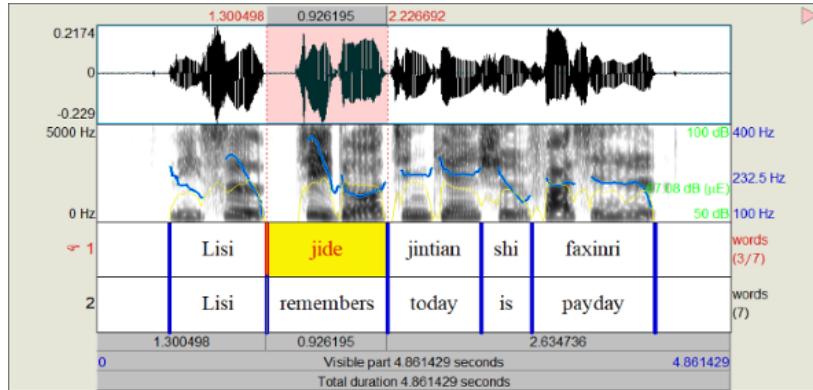


Fig 1 Focus on *jide*, with presupposed complement

- b. **Non-factive reading:** According to Lisi's memory, it's **today** that is payday. Then, *Jin-tian* ('today') is **focal and high**, bearing **focus** on a constituent of an embedded complement clause. Once **today** is focused it generates a relevant set of focus alternatives such as {today, yesterday, tomorrow, the day before yesterday, etc.} naturally arousing its related relevant set of propositional alternatives such as {---Yesterday was payday, Tomorrow will be payday, etc.} (Rooth 1992). Only one alternative can be true, so the embedding verb cannot be active.

c.

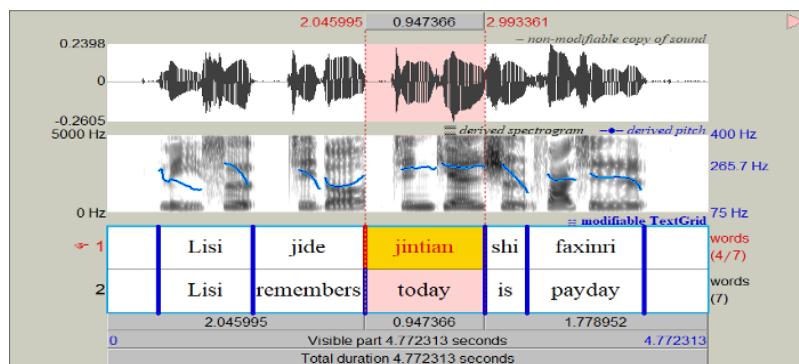


Fig 2 Focus on *jin-tian* ('today'), a complement

constituent, making its embedding verb non-factive

The surface ambiguity between the factive *ji-dé* 'remember' and the non-factive *ji-dé* 'remember' is resolved by focus marking; if the embedding verb is focused in prosody, then the embedded complement must have the covert head nominal (*de*) *shi-shi* 'fact' in structure so that the complement content is factively presupposed in interpretation. On the other hand, if the embedded

complement (constituent) is focused, then I argue that it has a covert C(omplementizer) *shuo* ‘say.’<sup>4</sup> This leads to a non-factive interpretation. Overall, prosody to syntactic structure, ultimately to semantic interpretation is chained.

### 3. Fact and SAY

#### 3.1 Fact: Internal vs. External

K and J share two distinct kinds of fact, occurring with epistemic predicates: internal fact simply with *kes* (K) and *koto* (J) [ProFACTNoun] and external fact with *-ta-nun kes* (K)/*-iu-koto* (J) involving SAY under the ProFACTNoun *kes/koto* (‘the fact saying that’), as in (8) and (9) respectively below.

The J/K sentences in (8) without SAY in the complement, denote the first-hand perception or witnessing of the complement content by the attitude holders (subjects), which is rather unlikely (except in the situation where the subjects look down upon the Earth from far above in the space and feel the slow motion of the Earth) and that’s why the sentences in (8) are odd.<sup>5</sup> If the complement were [**the boy fell**] instead, its sentences must be natural; the attitude holders could easily get access to the first-hand evidence of the complement event by personal perception.

The J/K sentences in (9) with SAY in the complement, on the other hand, are perfect. Although they share the FACT-denoting *kes* (K) and *koto* (J) [ProFACTNoun], the ProFACT Nouns are preceded (above in the tree structure) by the SAY component *-ta-nun* (K) and *-to([+say]* C(omplementizer) *iu* ‘say’ (J). In Korean, *-ta* (DEC) *-ko* ([+say] C(omplementizer)) *ha* - ‘say’ is optionally contracted. J and K share the same SAY complement structure. External fact is via SAY.

- (8) a. <sup>7</sup>Mia -nun [cikwu-ka tol-nun – kes -ul] al-ko iss-ta. **Korean**

M-TOP earth-NOM turn-ADPR- ProFN-ACC know-ST-DEC

‘Mia knows that the Earth turns round.’ [ADPR: ADNPRES, ST: STATIVE]

- b. <sup>7</sup>Ema-wa [chikyu-wa mawaru] koto-o shit-te-iru. **Japanese**

E-TOP earth-NOM turn-ΦPR ProFN-ACC know-ST-DEC

‘Ema knows that the Earth turns round.’ [ΦPR: ADNPRES] [-ko iss-: STATIVE]

- (9) a. Mia -nun [cikwu-ka tol-n-ta -nun - kes -ul] al-ko iss-ta

M-TOP earth-NOM turn-PRS-DEC-NUN- ProFN-ACC know-ST DEC

‘Mia know that the Earth turns round.’

- b. Ema-wa [chikyu-wa mawaru]-to iu koto -o shit-te iru. **Japanese**

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<sup>4</sup> James Huang (pc) also agrees that it is a C form grammaticalized from the verb of the same form.

<sup>5</sup> Katsuhiko Yabushita, Satomi Ito, and Yasunari Harada (pc) agree.

E-TOP earth-TOP turn -C SAY ProFN-ACC know-ST-DEC

‘Ema knows that the Earth turns round.’

English does not show any distinct SAY complement structure in grammar and interpretation but it has surprisingly been found that Wittgenstein earlier noticed (“On certainty” in posthumous publication) that a young child’s saying ‘I know that the Earth turns round’ actually means that she **learned** that the Earth turns round. Thus, in English, either a covert SAY component must be stipulated or some pragmatic explanation must be provided.

#### A. Content Nominal Heads: Consistent with Clausal Complements in Factivity

(10a) is predicted to presuppose that there exists a unique fact, the content of which is that Mia left (cf. Elliott 2017?). In Korean, a definite demonstrative *ku* can occur to refer to the complement, suggesting the DP status of the factive complement clause. This is fully consistent with the view of existing studies like Kastner (2015).

- (10) a. Ken confirmed the fact/#a fact that Mia left.
  - b. Ken confirmed a fact (#that Mia left).
  - c. Ken confirmed every fact (#that Mia left).
  - d. Ken-un Mia-ka ttena-n ku kes/sasil-ul al-ko iss-ta

K-TOP M-NOM leave-PSTC that PROFN/fact-ACC know -ST DEC

‘Ken knows the fact that Mia left.’

We can have the following subject-predicate relations via copula for nominals and embedded clauses, as in (10) (Higgins 1973), and have the nominal head – with its complement clause appositionally embedded, as in (11):

- (10) a. The fact is that the boy fell.
  - b. The rumor is that Mia left.
- (11) a. I know the fact that the boy fell.
  - b. Ken knows the rumor that Mia left.

$\lambda x[RUMOR_w(x) \wedge F_{cont}(w)(x) = \lambda w^1.Mia\ left\ in\ w^1]$  (Elliott 2016?)

In (11b), Ken is acquainted with the existence of the nominal head *the rumor* but its sentence with *knows* does not entail its associated complement *that Mia left* even though it is in the object position of *knows*, which led to Vendler’s (19 ) paradox. Because *the rumor* is lexically non-factive and this feature is consistent with its appositionally embedded complement content. Thus, the paradox is resolved. Factive nominals that embed consistently factively presupposed complements are very rare: *the fact* in English, its equivalents in other languages, and ProFACT Nouns *kes* (K)/*koto* (J) [Internal] and *ta-nun kes* (K)/*iu koto* [External] (if composed with epistemic predicates) appositionally embedded. In J and K, ProFACT Nouns *kes* (K) and *koto* (J) can be replaced by *sasil* ‘fact.’ All other head nouns such as ‘story,’ ‘news,’

‘theory’ ‘proposition,’ etc., taking the SAY C in J/K. A ‘proposition’ is something to talk about and is not a fact all the time.<sup>6</sup> The derived nominal from ‘know,’ ‘knowledge’ (*alm* in Korean) is also non-factive, taking the SAY complement in Korean and Japanese.

- (12) Ken-un [inkan-un nulk-nun-**ta-nun** myengcey]-rul ic-ko sa-n-ta  
 K-TOP humans-TOP get old-C-DEC-C-proposition-ACC forget-and live  
 ‘Ken lives forgetting the proposition that humans get old.’
- (13) [inkan-un holo thayena-n-**ta-nun** alm]-un mac-ci anh-ta  
 Human-TOP alone-born-DEC-C knowledge-TOP right-NEG-DEC  
 ‘The knowledge that man is born alone is not right.’

All nominals derived from illocutionary act verbs such as ‘assertion,’ ‘question,’ ‘order,’ ‘proposal,’ and ‘promise’ (in Korean) are also non-factive with the SAY C preceding. Derived nominals from factivity-alternating epistemic predicates such as ‘memory’ (from ‘remember’), as in (14) in Japanese.

- (14) [[watashi-ga kanojo-ni at-ta **to**] IU **kioku**-wa tadashi-ku nai  
 I -NOM she-at meet-PST C say memory-TOP right-  
 ‘The memory saying that I met her is not right.’

#### 4. Noncanonical *whether* and Korean and Japanese Expletive Negation

Complementizer *whether* is typically used as the head of an interrogative clause and often (traditionally) selected by rogative attitude predicates like *ask*, *investigate*, and *wonder* (see (14)).

- (14) a. Mary **wonders whether** it’s raining.  
 b. \*Mary **wonders that** it’s raining.

At the same time, epistemic attitude predicates such as *know* are known to select either *that* or *whether* (see (15); see Lahiri 2002, Zuber 1982, a.o.).

- (15) a. Mary **knows that** it’s snowing.  
 b. Mary **knows whether** it’s snowing.

Logically, *know whether* can be defined by *know that*: (A: attitude holder; *know that* here has the effect of *know the fact that*)

- (16) a. A knows **whether P** iff if *P* is true then A knows that *P* and if *P* is false then A knows that not *P*.

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<sup>6</sup> Elliott’s (2017) treating *proposition* as equal to *fact* is not correct.

b. A knows **whether** *P* iff A knows that *P* or A knows that not *P*.

(Zuber 2022)

Those well-known cognitive factive verbs including *know* are veridical because they fit the definition by entailment (Karttunen 1971a, Egré 2008, a.o.) and factive via the definition by presupposition (Kiparsky & Kiparsky 1970, Karttunen 1971b a.o.). However, White and Rawlins's (2016) factivity excludes the non-factive alternants of such epistemic predicates as *know*, *recognize*, and *discover*, generated by such previously introduced non-veridical operators as negation, interrogative, modal, conditional, and *before*, as exemplified in (17), which does not entail *Putin was a straightforward trustworthy guy*; it has the effect of having the head *the saying* before *that*:

- (17) Yes, but Bush didn't KNOW he was a straightforward trustworthy guy... L+H\*

L-H%

- (i) ... He just BELIEVED it, or maybe HOPED he was.  
(ii)... He's not! Bush didn't know that Putin was straightforward.

(Simons et al 2017)

In contrast, White (2021) has shown that predicates like *think*, *believe*, *hope* and *fear* are all in fact compatible with interrogative complements, based on corpus evidence, although many speakers are reluctant to accept them. The predicates like *think* and *believe* have been treated as anti-rogative, being compatible only with declarative complements. *Hope* and *fear* are nonveridical and preferentially used but were argued not to be compatible with *whether* (Uegaki and Sudo ). However, all these predicates are actually compatible with *whether*, as illustrated by White in (18).

- (18) a. I was **hoping whether** you are able to guide me.  
b. I'm trying to **think whether** I'd have been a star today or not.

The set of predicates in question *think*, *believe*, *hope*, *fear* and *imagine* (added here) *whether* is **nonveridical**, licensing NPIs, as in (19):

- (19) Mia is **thinking whether/\***that there is any cake.

We view this set of verbs as indicating a positively-biased thinking with hedge. With *whether - or not*, the negative choice is opened, leading to hedge (often even politeness). The speaker as attitude holder desires the addressee's guiding in (18a) and being a star *irrealis* in subjunctive mood. In English, however, the semantic sense of disjunctive choice *whether - or not* seem to still remain in some contexts.

On the other hand, the Korean and Japanese complement expletive negation counterparts also require a complement question mood ending (plus an optional [+say] C(omplementizer)). Neg-raisability (N-R) of 'believe that' type in English (Zuber 1982) was shown to apply also to non-factive alternants of epistemic verbs in Altaic and English (Lee 2019) but N-R does not apply to the *whether* complements treated here. Compared to the use of *that*, the use of *whether* in (18) indicates a positively-biased attitude still with some hedge of apparent negative possibility.

Examine the comparable Korean and Japanese expletive negation constructions. Surprisingly they can

achieve the same effect of positively-biased attitude in a more solid way. In Korean (20a), the expletive negation *anh-* is followed by the conjectural modal *-ul* and then the embedded interrogative mood marker *-kka* with the optional [+say] C (*ha*)-*ko* (signaling non-factive, in all Altaic) following, although typically the [+say] C deletes in Korean/Japanese. Japanese (20b) has a parallel structure and meaning (except that Japanese lacks an overt modal and a polar interrogative complementizer (-*ci* ‘whether’ in Korean, odd in the expletive negation complement)).

- (20) a. Mia-nun [caki thim-i iki-ci **anh-ul-kka**] ((ha)-ko\_)  
M-TOP her team-Nom win-C Exp.Neg-Mod-QComp say-C  
{sayngkakha-n-ta / ?mit-nun-ta / kitayha-n-ta/siph-ta. }  
think-Pres-Dec/ believe-Pres-Dec/expect-Pres-Dec/has.a.hunch-Dec  
‘Mia thinks/believes/expects/has a hunch whether her side will win.’
- b. Mia-wa [jibun no chimu-ga kata-**nai-ka**(to)] omou/?shinji-ru/kitai-suru  
M-Top-her-of-team-Nom-winC-Exp.Neg-Q C think/believePres.Dec/expect-Dec  
‘Mia thinks/believes/hopes whether her side will win.’

Goodhue & Shimoyama (in review) attack our Choi & Lee’s (2017) complement expletive negation analysis, arguing for reducing it to the **negation** in embedded negative polar question. But this reduction claim easily collapses:

- (21) Double negation law is violated. Not positively but **negatively** biased sense results.
- \*Mia-nun [caki thim-i **mot/an** iki-ci.anh-ul-kka] ((ha)-ko)  
M-Top her team-Nom Neg win Neg-Mod-Q (say)-C  
sayngkakha- /kitayha-n-ta.  
think/hope-Asp-Dec  
\*‘Mia thinks/hopes whether her team might not win.’

The opposite is meant: ‘Mia thinks/fears whether her team will lose.’ It is because the positively biased expletive negation meaning is **negated**. Remember that expletive negation is logically trivial. Secondly, anaphoricity is violated. A first-person pronoun *na* instead of the anaphoric (reflexive) pronoun *caki* must appear in the subordinate subject. Thirdly, non-rising intonation is violated.

See (22), for a French example of complement expletive negation, which provides a cross-linguistic evidence. Such an expletive negation *ne* also occurred in *esplore* ‘hope’ historically. Cross-linguistically, if the complement content is adversative to the wisher, then, the attitude of ‘fear,’ ‘worried’ appears above by composition and selection as well. Depending solely on selection as in White (2016) cannot explain the attitudinal force of complement content.

- (22) Je crains [que vous **ne** preniez froid]  
I fear that you ExpNeg catch.Subj.Pres cold

'I fear that you might catch cold.'

**Approximation of an analysis: the wishful bouletic modal meaning determines attitude predicates.** Attitude predicates like 'remember' and 'know,' in their factive alternants, presuppose factivity and are incompatible with these biased expletive negation elements, as illustrated by the Korean examples in (23). In the unacceptable sentence (23a), the use of (i) expletive negation (*-ci*) *anh*, (ii) past tense morpheme *-ass-*, and modal *-ul*, and (iii) question complementizer *-kka* is incompatible with predicates *kiekha-* 'remember' or *al-* 'know'). In contrast, in the acceptable sentence (23b), the negation marker (*-ci*) *anh/motha* is a regular negation, not expletive, and contributes to the expression of a fact.

- (23) a. #Mia-nun [caki thim-i iki-ci **anh-(ass)-ul-kka**] {kiekha-/al-}n-ta.

M-Top.her.team-Nom.win-C.Exp.Neg-(Pst)-Mod-QC.{remembers/knows}

'Mia remembers/knows whether her team might (have won)/win.'

- b. Mia-nun [caki thim-i iki-ci **anh/motha-ass-(nun)ci(-rul)**]

M-Top her team-Nom win-C Neg Neg-Past-Comp-(Acc)

{kiekha-n-ta/al-n-ta}

'Mia remembers/knows whether her team didn't/couldn't win.'

Given this, we argue that the canonical view of attitude predicates that they select different fixed complementizers largely on logical/semantic grounds must be jettisoned in the face of White's interrogative complementizers. The newly discovered parallel between them and the expletive negation phenomenon in Korean and Japanese (and partly French) compel us to consider psychological factors involved: positively-biased but negatively in hedge (*whether* also involves *or not*). Therefore, complement content matters and it determines what kind of attitude predicate it is composed with. It determines compatible predicates: a favorable event of her team's winning in the complement selects 'hope' and 'expects' as embedding attitude predicates, whereas an unfavorable event of her team's losing or catching cold may select 'fear' or 'worry.' Both kinds of events can be composed with 'think' and 'believe' in those languages. Complement types are important and determining.

**Formalization.** We assume the following lexical entry for bouletic modals (Romero 2023, Portner & Rubinstein 2020, a.o.):

- (24) For any  $w'$ ,  $w'' \in W$ :  $w' <_{Bou_x(w_0)} w''$  iff  $w'$  is more desirable according to  $Bou_x(w_0)$  than  $w''$

- (25)  $BEST_{w_0}(\cap Dox_x(w_0), Bou_x(w_0))$

$$= \{w': w' \in \cap Dox_x(w_0) \wedge \neg \exists v(v \in \cap Dox_x(w_0) \wedge v <_{bou_x(w_0)} w')\}$$

= the set of  $x$ 's belief worlds that are best according to the ranking by  $Bou_x(w_0)$

- (26)  $[[x \text{-}ul p]]$  (where  $\text{-ul}$  is a bouletic modal: see 8, a.o.)

$$= \lambda w_0. \forall w \in BEST_{w_0}(\cap Dox_x(w_0), Bou_x(w_0))[p(w)]$$

We further assume that, the negation *anh-* with the modal *-ul* is an expletive, and even though *-kka* is used, due to this expletive *anh-*, the complement with *-kka* is actually interpreted as a set of worlds rather than a set of sets of possible worlds (or this expletive *anh-* may be a counterpart to the ! operator in inquisitive semantics, which changes the set of sets of possible worlds into the set of possible worlds).

- (27) [[caki thim-i iki-ci anh-ul-kka]] ‘whether her team would win (or not)’

$$= \lambda w_0. \forall w \in \text{BEST}_{w_0}(\cap \text{Dox}_x(w_0), \text{Bou}_x(w_0))[\text{her side will win in } w_0]$$

The attitude predicate *sayngkakha-* ‘think’, for example, takes (27) as its complement:

- (28) [[sayngkakha-]] ‘think’

$$= \lambda P_{st}. \lambda x_e. \lambda w_{0s}. \forall w \text{ compatible with } x \text{'s thought in } w_0. P(w) = 1.$$

In English, the same bouleuc modal should work analogously, although the disjunctive choice reading of *whether --- or not* is still available in some contexts.

A counterfactual attitude predicate *imagine* has been found to take the same complementizer *whether*. This *whether* complement embedded by *imagine* is remarkably positively-biased largely with subjunctive mood, and cross-linguistically this is widely attested. Observe the Korean and Chinese cases (from Lee (in review)).

- (29) I am imagining whether the new sofa will fit into my living room.

- (30) say sofa-ka ungcepsil-ey ewuli-ci **anh**-ul-kka sangsanghay po-n-ta

new -NOM livingroom-at fit-C NEG-MOD-Q imagine try

Korean: ‘(I) try to imagine whether the new sofa will fit into the living-room.’

- (31) Wǒ zài xiǎngxiàng x¯ in sh¯afa shìfǒu sh`ih'e wǒ-de k`et¯ing.

I am imagining new sofa whether fit my living-room

Chinese: ‘I am imagining whether the new sofa (‘d) fit my living room.’

The eventive ‘imagine’ needs an attempt auxiliary ‘try’, progressive aspect, or modal, as in ‘I can’t imagine whether. . . ,’ “the imagining does not succeed in answering the question” with ‘whether’ (Alexander Williams p.c.) (‘think’ is also eventive, see Özyıldız 2021). ‘Imagine whether *P*’ is preferred to ‘think/believe whether *P*’ (Heidi Harley and Julian Grove p.c.). These two consultants prefer the logical meaning, but that following kind of ‘positive bias’ reading is often witnessed:

- (32) a. Mary imagined whether her team would win in hope.

- b. Mary imagined whether her team would lose in fear.

- (33) I tried to **imagine whether** my own kids **would** want to come on the trip.

We examined the set of non-canonical *whether*-taking attitude predicates including *imagine*.

## 5. *Imagine and Fiction*

We can establish that *imagine that* is equivalent to *imagine the saying that* and to the Korean SAY C=ko sangsang-ha ‘imagine that’. It is an imaginative mental report. Then, as in ‘believe that,’ neg-raising can occur in English between (34’) and (35’) (Özyıldız 2021, Liefke 2023). It occurs in Korean as well, as in (34) and (35). With the neg in the embedded clause in (34) and neg in the matrix clause in (35), both sentences are equivalent. However, if the predicate is an event as in ‘I am imagining that ---,’ ‘Imagine that ---!’ ‘I tried to imagine that ---,’ etc., neg-raising is blocked.

- (34) Mia-nun [ywukio-ka irena-ci **anh**-ass-ta-ko] sangasanghayss-ta  
M-TOP Korean War-NOM arise-C not-PST-DEC-COMP imagined DEC

‘Mia imagined that the Korean War didn’t occur.’

- (34’) Mia imagined that the Korean War didn’t occur.

- (35) Mia-nun [ywukio-ka irena-ass-ta-ko] sangangha-ci **anh**-ass-ta  
M-TOP Kor War-NOM arise-PST-DEC

‘Mia didn’t imagine that the Korean War occurred.’

- (35’) Mia didn’t imagine that the Korean War occurred.

The complement content of imagination likewise often occurs with the *say that* as in (36):

- (36) I imagine that you are the cream in my coffee.

It is an embedded utterance from the following kind of metaphorical assertion:

- (37) You are the cream in my coffee. (Paul Grice)

Grice said that this kind of metaphor is a parasitic use of language.

This may better be called ‘creative use’ of language, as far as artistic beauty is created. But there are other kinds of use of language such as fake news, all fictive, apart from facts.

## 6. Concluding Remarks

We investigated different factivity alternation types involving sound, grammatical structures and meaning inter-weavings. Particularly, we examined the non-canonical *whether* complementation in its close relationship with the Korean and Japanese (and French) expletive negations, which reveal the positively biased sense solidly. This involves *imagine whether* as well. We also briefly examined how a fictive world can be brought into our use of ‘imagine.’ Semantic universals are a tantalizing goal to pursue, and progress made shows it is within our grasp.

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