

Factivity alternations in Tundra Nenets

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Tundra Nenets

Tundra Nenets is a Uralic, Samoyedic language spoken in the far north of Russia.

map created by the Finno-Ugric Society, Helsinki
from Nikolaeva 2014



The plot

- It has been observed that in some languages verbs can be factive or non-factive depending on the type of the argument they take (Özyıldız 2017; Lee 2019, Bondarenko 2020, 2023)
- In Tundra Nenets, propositional verbs exhibit two argument forms—nominalized clauses and tensed clauses (Nikolaeva 2014).
- We observe that factive verbs (e.g., *know*, *remember* and *see*) contribute the factivity presupposition exclusively when the complement is in a tensed form.
- Conversely, tensed clauses fail to introduce the factivity presupposition when paired with non-factive verbs like *believe*, thus, it cannot be written into the meaning of the tensed complement itself.
- Building on (Özyıldız 2017, Bondarenko 2020), we propose an account of this alternation in the spirit of (Djäv 2021), where factive and non-factive verbs compose with different type of arguments – factive verbs looking to compose with situations and non-factive verbs taking content individuals as arguments.

The empirical description

The two forms of embeddings

In Tundra Nenets attitude verbs like *ibidorŋas* ('think') can embed

- a fully tensed clause

(1) Njebjada ibidorŋa, Vanja urok.xana vevako ŋe.s'

mother thinks Vanja lesson.at bad be.Past

'Mother thinks Vanja behaved badly during the class'.

- or a nominalized clause,

(2) Vanja urok.xana vevako ŋe.va.m^q njebjada ibidorŋa.

Vanja lesson.at bad be.NOM.ACC mother thinks

'Mother thinks Vanja behaved badly during the class'.

The two forms of embeddings

Both sentences (1) and (2) are compatible with the continuation given in (3).

This shows that neither sentence entails that Vanja really behaved badly in class.

(3) Valakada nenzja pyda sava ηe.s'.
However indeed he good be.Past
'However, in reality he behaved well'.

Background on clauses in Nenets

The tensed embedded clause can stand alone as a complete sentence, unlike the nominalized embedding.

(4) Vanja urok.xana vevako ŋe.s’

Vanja lesson.at bad be.Past

‘Vanja behaved badly during the class’.

(5) *Vanja urok.xana vevako ŋe.va.m^q .

Vanja lesson.at bad be.NOM.ACC

Intended: ‘Vanja behaved badly during the class’.

Background on clauses in Nenets

- There is no overt complementizer.
- Nenets is a strictly verb final language.
- The only exception to the verb final structure is when a sentence contains an embedded tensed clause like in (1), in which case the clause follows the verb.

(1) Njebjada ibidorŋa, Vanja urok.xana vevako ŋe.s'
 mother thinks Vanja lesson.at bad be.Past
 'Mother thinks Vanja behaved badly during the class'.

- Otherwise, the language does not have native finite dependent clauses. For example, finite relative clauses appear to be borrowed from Russian, whereas finite complements seem to be a native strategy (Nikolaeva 2014).

Background on clauses in Nenets

Nominalized clauses do not contain a tense layer; they are compatible with past, present, and future time references.

(6) Vanja (tej' jalja^q/ xunjana/ tjeda^q) mansara.va.m^q njebjada ibidorŋa
Vanja (yesterday/ tomorrow/ now) work.NOM.ACC mother thinks
'Mother thinks Vanja worked yesterday/will work tomorrow/is working now'.

Background on clauses in Nenets

- Binding is possible into an embedded tensed clause regardless of its syntax.

(7) Xibjaxart₁ ni.da xet^h, pyda₁ sjanakomda ŋamge^q tjaxa^q takalŋas’

Nobody not. Osg say he toy what behind hide

‘No one₁ said where he₂ has hidden his toy’.

(8) Pyda₁ sjanakomda ŋamge^q tjaxa^q takalŋas’ xibjaxart₁ ni.da xet^h,

He toy what behind hide nobody not. Osg say

‘No one₁ said where he₂ has hidden his toy’.

Factivity alternations

Factive verbs and negation

- Factive verbs in English, such as ‘remember’, contribute the presupposition that their complement is true in the actual world.
- This inference projects across negation and questions.
- We observe the same situation in Tundra Nenets when the complement of a factive verb is tensed.

(9) Tokolxoda ni tjenje, Vanja urok.xana vevako ŋe.s’.
teacher NOT remember Vanja lesson.at bad be.PAST
Pyda pilibt^a sava ŋe.sjety
He always good be.GEN

‘The teacher does not remember that Vanja behaved badly in class. He always behaved well’.

Factive verbs and negation

Nominalized embeddings are compatible with factive scenarios and non-factive scenarios

- (10) Vanja urok.xana vevako ŋe.va.m^q tokolxoda ni tjenje.
Vanja lesson.at bad be.NOM.ACC teacher NOT remember
'The teacher does not remember Vanya's bad behavior in class'.

- (11) Pyda Vanja.n samljanm^q masibtje.s'.
He Vanya.DAT five gave.PAST

- (12) Pyda pilibt^q sava ŋe.sjety.
He always good be.GEN
'He always behaved well'.

Factive verbs and negation

An embedded nominalized clause can get a non-factive interpretation regardless of its temporal reference:

(13) Vanja tej jalja to.va.m^q njebja,da jexera.
Vanja yesterday day come.NOM.ACC mother.3s NOT.know

Pyda ni.naky tu
He not.Prob come

‘His mother does not know about Vanya’s arrival yesterday. He probably did not come’

The same contrast with the tensed clause is observed:

(14) Njebja.da jexera, Vanja tej jalja to.s’
Mother.3 NOT.know Vanja yesterday day come.Past

#Pyda ni.naky tu.
He not.Prob come

Indented ‘His mother does not know that Vanya came yesterday. He probably did not come’

Factive verbs and negation

Factivity inference can be tested with the 1st person subject.

(15) Vanja tej jalja to.va.m^q man' jexera.dm^q.
Vanja yesterday day come.NOM.ACC I NOT.know.1sg
'I don't know about Vanya's arrival'

(16) #Man' jexera,dm^q, Vanja tej jalja to.s'
I NOT.know.1s Vanja yesterday day come.Past
Attempted: 'I don't know that Vanya arrived'

Factive verbs and questions

- The same pattern is observed when this verb is embedded in a question.
- The discourse below with the nominalized embedding is consistent

(17) Anya: Vanja urok.xana vevako ηe.va.m^q pydar tjenjen?
Vanja lesson.at bad be.NOM.ACC you remember?
‘Do you remember Vanya’s bad behavior during class?’

Tanya: Jango!

No!

Anya: Man’ ηobtarem^q nidm^h tjenje.
I too not remember.
‘I also do not remember’.

Factive verbs and questions

- The discourse below with the tensed embedding is not consistent

(18) Anya: Pydar tjenjen Vanja urok.xana vevako ŋe.s'?

You remember Vanja lesson.at bad be.PAST ?

'Do you remember that Vanya behaved badly during class?'

Tanya: Jango!

No!

Anya: Man' ŋobtarem^q nidm^h tjenje.

I too not remember.

'I also do not remember'.

Factive verbs and *if*-clauses

- It is difficult to test the projection from *if*-clauses, as local accommodation is available, making both forms of embeddings compatible with the context where the truth value of the embedded context is not known.

(19) Man' jexeradm^q, xibja tikym^q sjerta.s'.
I not-know, who this do.PAST
'I don't know who did this'.....

Continuation 1:

(20) Valakada Vanja tikym^q sjerta.va.m^q pydar tjeneva.bat^h
But Vanya this do.NOM.ACC you know.Cond
učastkovyj xebatar.
policeman tell.Cond need
'But if you know that Vanya did this, you need to tell the district police officer.'

Continuation 2:

(21) Valakada pydar tjeneva.bat^h Vanja tikym^q sjerta.s'
But you know.Cond Vanya this do.PAST
učastkovyj xebatar.
policeman tell.Cond need
'But if you know that Vanya did this, you need to tell the district police officer.'

Unembedded verbs

When *tjenje* is not embedded under negation, the inference that its complement is true is present independently of whether the complement is nominalized or tensed.

(22) Tokolxoda tjenje, Vanja urok.xana vevako ŋe.s'
teacher remember Vanja lesson.at bad be.PAST
'The teacher remembers that Vanja behaved badly in class'.

(23) Vanja urok.xana vevako ŋe.va.m^q tokolxoda tjenje.
Vanja lesson.at bad be.NOM.ACC teacher remember
'The teacher remembers Vanya's bad behavior in class'.

(24) Valakada ŋenzja pyda sava ŋe.s'.
However indeed he good be.Past
'However, in reality he behaved well'.

The empirical generalization

- Nominalized clauses, when combined with factive verbs, do not give rise to a factive presupposition.
- Fully tensed clauses trigger the factive presupposition when paired with factive verbs.
- Importantly, neither nominalized nor fully tensed clauses result in the factive inference when associated with non-factive verbs.

The difference from other languages

Interestingly, in Turkish (Özyıldız 2017) and Buryat (Bondarenko 2020) the pattern is the opposite.

Turkish (from Özyıldız 2017)

(25)

a. Tunç [Hillary'nin kazan-dığın-ı] biliyor.

T. H. win-NMZ-ACC knows

Tunç knows that Hillary won. → Hillary won. (factive)

b. Tunç [Hillary kazan-dı diye] biliyor.

T. H. win-PST DIYE knows

Tunç believes that Hillary won. ↗ Hillary won. (non-factive)

The difference from other languages

The facts we observe here differ from the facts in Turkish (Özyıldız 2017) and Buryat (Bondarenko 2020), where the verb itself changes the meaning depending on the embedding (in Turkish it is believe/know alternation, in Buryat it is think/remember alternation).

The proposal

Verb denotations

Building on (Djärv, 2021), we posit that factive and non-factive verbs are looking to compose with distinct argument types.

Factive verbs seek to compose with situations.

$$\llbracket \text{remember} \rrbracket^{s_0, g} = \lambda s. \lambda x. x \text{ remembers } s \text{ in } s_0$$

Non-factive verbs seek to compose with content individuals (Moulton 2015).

$$\llbracket \text{think} \rrbracket^{s_0, g} = \lambda y_c. \lambda x. x \text{ believes } y \text{ in } s_0$$

Clauses denotations

Nominalized clauses denote propositions

$$\llbracket \text{Vanja be-NOM bad} \rrbracket^{s_0, g} = \lambda s. \text{Vanja was bad in } s$$

Tensed clauses denote content individuals

$$\llbracket \text{C Vanja was bad} \rrbracket^{s_0, g} = \iota x_c. \text{Cont}(x)(s_0) = \lambda s. \text{Vanja was bad } s$$

The composition of nominalized clauses with factive verbs

- Nominalized clauses do not compose with factive verbs directly.
- There is a silent existential modal in the structure, represented by \emptyset below

[The teacher [remembers [[Vanja bad be-NOM] \emptyset]]]

$$[[\emptyset]]^{s_0, g} = \lambda p_{\langle st \rangle}. \lambda q_{\langle s, et \rangle}. \lambda x. \exists s [s_0 \geq s \ \& \ p(s) \ \& \ q(s)(x)]$$

The silent existential can take scope with respect to negation.

The composition of nominalized clauses with factive verbs

Consequently, the truth conditions can be compatible with the factive scenario:

(26) $\exists s[s_0 \geq s \ \& \ \text{Vanja was bad in } s \ \& \ \neg \text{the teacher remember } s]$

(27) Vanja urok.xana vevako $\eta e.va.m^q$ tokolxoda ni tjenje.
Vanja lesson.at bad be.NOM.ACC teacher NOT remember
'The teacher does not remember Vanya's bad behavior in class'.

(28) Pyda Vanja.n samljan m^q masibtje.s'.
He Vanya.DAT five gave.PAST
'He gave him 5'

The composition of nominalized clauses with factive verbs

- Alternatively, it can be construed as (29), aligning with the continuation in (31), where no cases of the bad behavior occurred.

(29) $\neg\exists s[s_0 \geq s \ \& \ \text{Vanja was bad in } s \ \& \ \text{the teacher remember } s]$

(30) Vanja urok.xana vevako $\eta e.va.m^q$ tokolxoda ni tjenje.
Vanja lesson.at bad be.NOM.ACC teacher not remember
‘The teacher does not remember Vanya’s bad behavior in class’.

(31) Pyda pilibt^q sava $\eta e.sjety$
He always good be.GEN
‘He always behaved well’.

The composition of nominalized clauses with non-factive verbs

- Non-factive verbs, such as *think* are looking to compose with a content individual rather than a proposition denoted by a nominalized clause.
- Consequently, a silent operator *OP* that transforms a proposition into a content individual is merged into the structure in these cases (Bassi & Bondarenko 2020; Djärv 2021).

(32) [mother thinks [OP [Vanja be-NOM bad]]]

(33) $[[OP]]^{s0,g} = \lambda p_{\langle st \rangle}. \iota x_c. \text{Cont}(x_c)(w) = p$

The composition of finite tensed clauses with propositional verbs

- Finite tensed complements can compose with non-factive verbs like *think* directly as they have the right semantic type due to the fact that they already contain C.
- In contrast, factive verbs cannot compose with the tensed clauses directly, as they are looking to compose with a situation.
- We propose that the composition requires a special operator Exe turning the content individual into a situation, exemplifying the content of this individual (Özyıldız 2017, Djärv 2021).
- It is this operator that introduces the factive presupposition.

The composition of finite tensed clauses with factive verbs

[the teacher [remembers [Exe C Vanja was bad]]]

[[C Vanja was bad]]^{s₀,g} = $\iota x_c. \text{Cont}(x)(s_0) = \lambda s. \text{Vanja was bad } s$

[[Exe]]^{s₀,g} = $\lambda x_c: \exists s[s_0 \geq s \ \& \ s \text{ exemplifies } \text{Cont}(x_c)]. \ \iota s[s \text{ exemplifies } \text{Cont}(x_c)]$

The composition of finite tensed clauses with non-factive verbs

- Finite tensed complements can compose with non-factive verbs like *think* directly as they have the right semantic type due to the fact that they already contain C.

[the teacher [thinks [C Vanja was bad]]]

$[[\text{think}]]^{s_0, g} = \lambda y_c. \lambda x. x \text{ believes } y \text{ in } s_0$

$[[\text{C Vanja was bad}]]^{s_0, g} = \iota x_c. \text{Cont}(x)(s_0) = \lambda s. \text{Vanja was bad } s$

Other factive verbs participating in the alternation

- majmbi ('to be happy')

(34) #Man' ni.dm^q majmbju, Maša to.s', .

I not.Is happy Masha came.PAST

man' jena.dm^q, pyda nis' tu

I hope.Is, she not come.

'#I am not happy that Masha came. I hope she did not come'

Other factive verbs participating in the alternation

majmbi ('to be happy')

(35) Maša to.va.n^h, man' ni.dm^q majmbju. .
Masha come.NOM.DAT I not.Is happy

man' jenadm^q, pyda nis' tu
I hope, she not come.

'I am not happy about Masha's arrival. I hope she did not come'

Other factive verbs participating in the alternation

tjenevas' ('to know')

(36) Vanja vevakovna laxana.va.m^h tokolxoda ni tjenjeva.
Vanya bad speak.NOM.ACC teacher not know.

Sjaxangart^h tarcja jangu.s'.
Never this was.not.Past

'The teacher did not experience Vanya's rudeness. This never happened.'

(37) #Tokolxoda ni tjenjeva Vanja vevakovna laxana.s'
teacher not know Vanya bad speak.PAST

Sjaxangart^h tarcja jangus'.
Never this was.not

Intended: 'The teacher does not know that Vanya was rude. This never happened.'

Other factive verbs participating in the alternation

manec' ('see')

(38) Vanja tej jalja to.va.m^h man' ni.dm^q manesh^h .
Vanya yesterday day come.NOM.ACC I Not.Is see.

Pyda ni.naky tu.
He not.Prob come

'I did not see Vanya's arrival (yesterday) . He probably did not come'

(39) #Vanja tej jalja to.va.m^h man' ni,dm^q manesh^h .
Vanya yesterday day come.NOM.ACC I not .Is see.

Pyda ni.naky tu.
He not.Prob come

'#I did not see that Vanya arrived yesterday . He probably did not come'

The factive verb that is always factive

Juras' (forget)

(40) Man' ni,dm^q jur^h, pydar ci^hym njadabina,s'
Man not.1sg forget you me help.Past

Pydar sjaxaŋgart^q xibjaxartan^q ni.sety.n njadangu
You never no one not.Hab.2sg help

'#I did not forget you helping me, you never help anyone'

Conclusions

- The findings in Tundra Nenets provide additional empirical support for the notion that the factive presupposition observed with factive verbs in English is not inherently contributed by the attitude verb itself, in line with (Kratzer 2006) and other more recent work in this domain.

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