Focus feature percolation: Evidence from Tundra Nenets and Tundra Yukaghir

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Abstract

Two Siberian languages, Tundra Nenets and Tundra Yukaghir, do not obey strong island constraints in questioning: any sub-constituent of a relative or adverbial clause can be questioned. We argue that this has to do with how focusing works in these languages. The focused sub-constituent remains in-situ, but there is abundant morphosyntactic evidence that the focus feature is passed up to the head of the clause. The result is the formation of a complex focus structure in which both the head and non-head daughter are overtly marked as focus, and they are interpreted as a pairwise list such that the focus background is applicable to this list, but not to other alternative lists.

1 Preliminaries

This paper intends to enhance the empirical basis for the typology of constituent questions and syntactic islands by presenting new data on systematic island constraints violations in two languages of the extreme north of Eurasia, Tundra Yukaghir (TY, north-eastern Siberia, isolate) and Tundra Nenets (TN, north-western Siberia, Uralic). The data were obtained through the authors' own fieldwork supported by the Max Planck Society (MPI EVA and MPI for Psycholinguistics) for TY, as well as an ELDP grant and a grant from the Academy of Finland (project number 125225) for TN. As explained below, we believe these data to be interesting because they contribute to our understanding of how the focusing operation works and can be representation in grammar.

Both languages display a total lack of strong island effects in questioning. Relative and adverbial clauses are headed by non-finite verbal forms such as participles, action nominals or converbs, and the *wh*-word remains in situ. Examples (1) and (2) illustrate the relative and adverbial clauses in TN and TY, respectively.

(1) a. [[xənʹana yilʹe-wi°] nʹenecʹ°] to-sa ?
where live-PF.PTCP man come-INTER.3SG
lit. 'The man who lived where arrived?'

b. Petʹa [Wera-h ŋəmke-m xada-qma-xəd°] to-sa ?
Petya Wera-GEN **what-ACC** kill-PF.AN-AB come-INTER.3SG
lit. 'Petya came after Wera killed what?'

(2) a. [[qaduŋudəŋ uː-nu-j] köde] ŋol-k?
whither go-IMPF-PTCP person be-NEUFOC.INTER.2SG
lit. 'You are a person who goes where?'

b. [neme lew-rəŋ] qudoːl-ŋu?
what eat-SS.CVB lie-NEUFOC.INTER.3PL
lit. ‘While eating what are they lying?’

While TN and TY behave identically with respect to questions, they diverge with respect to the other types of filler-gap dependencies. In TN relativization and topicalization obey island constraints, while in TY they do not, similar to questioning. This difference is illustrated below for topicalisation out of adverbial clauses. Example (3a) demonstrates that TY allows syntactic topicalization out of an adverbial clause but the parallel TN example (3b) is ungrammatical.

(3) a. čoɣojə-lə met mə=kewečəŋ [amaː-gi
knife-ACC 1SG EX=leave.NEUFOC.INTR.1SG father-3POSS
met-in __ kiː-də-ɣa]
1SG-DAT give-3-DS.CVB
‘Knife, I left after his father gave __ to me.’

b. *ti [nʹīsʹa-nta __ xada-qma-xəd°] Wera xəya-sʹ°
reindeer father-GEN.3SG kill-PF.AN-ABL Wera go-PST.3SG
‘The reindeer, Wera left after his father killed __.’

This suggests that islands violations in questions do not come from the same source as in other types of extractions. We will argue that they have to do with how focusing works in these languages, cf. Matić (2014).

Among numerous explanations for question islands violations even in ‘well behaved’ languages, it has been suggested that the issue may not be the nature of the filler-gap dependency itself, but the focusability of certain types of structures: only those structures that are focusable can be subject to inquiry (Erteschik-Shir 1973, 2007; Van Valin 1994, 2005). Syntactic islands such as relative and adverbial clauses are known to be inherently presupposed and therefore cannot normally function as the locus of focusing operations (Frege 1892; Lambrecht 1994; Erteschik-Shir 2007). However, if an island clause is embedded into the matrix clause which itself is presupposed or easily presupposable (e.g. an existential clause), the island is the only candidate for focusing (Erteschik-Shir 1973, 2007; Shimojo 2002). This reverses the focusability relationship and renders the question island the major focus domain in the sentence. As a result, any sub-constituent of the island clause can be focused, as in the following Danish example.

(4) Hvad for en slags is er der mange børn [der kan li‘ __]?
what kind of ice.cream are there many children who can like
‘What kind of ice cream are there many children [who can like __]?’

In languages like Danish, on which Erteschik-Shir's original proposal was based, focusability shift is observed when pragmatic/semantic factors conspire to render the island clause focusable. We propose below that TN and TY achieve the same effect through grammar, by formally treating phrases with focused sub-constituent as focused. The focused sub-constituent remains in-situ but the focus feature percolates up to the mother node to provide interpretation which, we show, is a pairwise-listing complex focus.

2 Focus meaning and focus marking

The definition of focus we employ in this paper relies on Alternative Semantics (Rooth 1992; Krifka & Musan 2012). Focus will be understood as an operator that triggers common ground update via invocation of alternatives. While the ordinary semantic value, ignoring the contribution of focus, is a standard proposition ($[\![\alpha]\!]^o$), the focus semantic value ($[\![\alpha]\!]^f$)is a set of propositions that differ from each other only in that the denotatum of the focused expression is replaced by another object of the same type. To constrain the focus semantic value to relevant alternative propositions, a context variable C is introduced. It refers to a contextually determined set of alternatives, along with a focus operator which induces the requirement that C be a subset of focus-induced alternatives (Q).

(5) *JOHN arrived.*
   a. $[\![\alpha]\!]^o$: arrive'(John)
   b. $[\![\alpha]\!]^f$: $Q = \lambda p \exists x[p = \text{arrive'}(x)] \sim C$, where $C \subseteq Q$

This is largely identical to the widely accepted semantics for questions, according to which the meaning of a question is a set of contextually relevant propositions corresponding to the answer (Hamblin 1973; Hagstrom 1998). For instance, the question *Who arrived?* and the answer with the focus on the subject, *JOHN arrived*, have an identical focus-semantic value, the set of propositions of the form *x arrived*, where x is a variable ranging over entities constrained by C. The difference between questions and the answers is the identification of one true alternative in the latter. Following Abusch (2010), we assume that wh-words are a subtype of focus with a semantic contribution of their own. Minimally, they are soft presupposition triggers; the presupposition induces existential quantification over the question word and thus creates the ordinary semantic value with specific indefinite interpretation. This results in the following semantics: the ordinary semantic value (6a) is that someone arrived; the focus semantic value comprises all contextually plausible identifications of the indefinite.

(6) *Who arrived?*
   a. $[\![\alpha]\!]^o$: $(\exists x)[arrive'(x)]$
   b. $[\![\alpha]\!]^f$: $Q = \lambda p \exists x[p = arrive'(x)] \sim C$, where $C \subseteq Q$

Focus can also be associated with certain items that are commonly interpreted as quantifying over alternatives and are therefore focus-sensitive. In this paper we only deal with *only* and assume the following meaning for it based on König (1991), Horn (1996), and Krifka (1998):

(7) *Only JOHN arrived.*
   a. $[\![\alpha]\!]^o$: arrive'(John)
   b. $[\![\alpha]\!]^f$: $Q = \lambda p \forall x[p = arrive'(x) \Rightarrow x = John\} \sim C$, where $C \subseteq Q$

The exhaustive effect of focus modified by *only* is explained via universal quantification: any element to which the focus background is applicable must correspond to the description provided by the focus phrase. Exclusive particles of the *only*-type thus correspond to a universal quantifier which scopes over alternatives generated by focus.

These three types of focus, i.e. wh-question focus, narrow 'argument focus' and focus generated by *only*, are all relevant here because they are encoded identically in both TN and TY. Consider TN first. This language exhibits obligatory subject agreement in person/number, while object agreement in number is 'optional' in the sense that transitive verbs agree only with a subset of objects. A non-focused object can trigger agreement depending on a number of semantic and information structure-related conditions (for detail see Nikolaeva 2014). In (8) the marker *-da* that indicates that the 3rd person singular subject is acting upon a singular object is optional on the verb. When this marker is absent, the verb only indexes the subject.

(8) Wera-h ti-m xadaə(-da)
   Wera-GEN reindeer-ACC kill.3SG(>**SG.OBJ)**
   'Wera killed a/the reindeer.'

However, a focused object never triggers agreement on the verb. This applies to all three relevant types of focus, i.e. questions and answers focus as in (9a) and the focus modified by *only* as in (9b). The latter example demonstrates that when the object word hosts the focus-sensitive particle *-r'i/-l'i* **'**only', the object is treated as focused for the purpose of agreement.

(9) a. ŋəmke-m xada-sa(*-da)?
   what-ACC kill-INTER.3SG(*>**SG.OBJ)**

ti-m xadaə(*-da).
reindeer-ACC kill.3SG(*>**SG.OBJ)**
‘– What did he kill? ─ He killed a REINDEER.’

b. te-r′i-m xadaə(*-da)
reindeer-**ONLY**-ACC kill.3SG(*>**SG.OBJ)**
‘He only killed a REINDEER.’

Thus, the impossibility for the transitive verb to exhibit object agreement is a reliable indicator of the focus status of its object.

In TY agreement in person/number is always with the subject, but its form depends on what non-verbal element is in focus (and partially on transitivity). The actual agreement exponence must be chosen from one of the three available paradigms, the so-called subject-focus paradigm (SFOC), the object-focus paradigm (OFOC) or the neutral-focus paradigm (NEUFOC), so the form of the verb is ultimately determined by the position of focus. For example, the 3rd person singular subject agreement suffix is *-l* for SFOC, *-mələ* for OFOC, *-č/-j* for intransitive verbs in NEUFOC, *-m* for transitive verbs in NEUFOC, and agreement is altogether absent when focus is on the transitive subject. In addition, intransitive subjects and transitive objects must bear a special focus marker *-(ə)k/-ləŋ* instead of the grammatical case marker when they are in focus. Focus marking and focus agreement facts are summarized in the table below, where S stand for an intransitive subject, O for a direct object, and A for transitive subject.

Table 1: Focus marking in Tundra Yukaghir

Focused element	**Focus marking**	**Focus agreement on the verb**
S	-(ə)k/-ləŋ	SFOC
O	-(ə)k/-ləŋ	OFOC
A	Ø	Ø
Oblique	Ø	NEUFOC

This distribution is shown in (10) for wh-questions and answers. (10a) exemplifies the focus on the intransitive subject: the subject is marked by the focus marker *-(ə)k* and the 3rd person singular verbal form is chosen from the SFOC paradigm. In (10b) the object is in focus; it bears the focus marker and the verb agrees with the 1st person singular subject but the agreement form is OFOC. In (10c) the focus is on the transitive subject, which results in the lack of focus marking and agreement. Finally, in (10d) the focus is on an oblique element. This element stands in the required grammatical case (the dative, in this instance) and bears no focus marker, whereas the form of the verb is NEUFOC.

(10)a. kin-ək ewrə-l? ma:rqə-n köde-k ewrə-l.
who-**FOC** walk-**SFOC.**3SG one-GEN man-**FOC** walk-**SFOC.**3SG
'– Who went (there)? ─ One MAN did.'

b. neme-ləŋ iŋe:-məŋ? labunmə-ləŋ iŋe:-məŋ.
what-**FOC** fear-**OFOC**.1/2SG ptarmigan-**FOC** fear-**OFOC**.1/2SG
'– What do you fear? ─ I fear PTARMIGANS.'

c. tet-qanə kin-Ø tite we:-Ø? əl=tet-Ø tite we:-Ø
you-ACC who-**Ø** so do-**Ø** NEG=you-**Ø** so do-**Ø**
met-ul?
1SG-ACC
'– Who treated you like that? ─ Didn't YOU treat me like that?'

d. qaduŋudəŋ kewej? Moskva-ŋiń keweč.
whither go.**NEUFOC.**INTER.3SG Moscow-DAT go.**NEUFOC**.3SG
'– Where did he go? ─ He went to MOSCOW.'

We only have limited data for *only*-type focus in TY, but example (11) demonstrates that when the free-standing focus-sensitive particle *mo:rqo:n* 'only' has object in its scope, this object must bear the focus marker and agreement on the verb must come from the OFOC paradigm. NEUFOC agreement on the verb in combination with the non-focus marked object is ungrammatical.

(11) mo:rqo:n lačiləŋ ičo:-mələ
only fire.**FOC** look-**OFOC**.3SG
/ *mo:rqo:n lačilə ičo:-m
/ only fire.**ACC** look-**NEUFOC**.3SG
'He only saw FIRE.'

We can see then that both TN and TY have complicated systems of focus marking on core arguments and focus-sensitive agreement on the main verb. This equally applies to *wh* and non-*wh* types of narrow focus.

3 Focusing sub-constituents

In both languages if a sub-constituent of a complex phrase is interpreted as focused, the whole phrase is treated as focus for the purpose of focus marking and agreement. In TN this can be most clearly seen on focused objects. If any non-head sub-constituent of the object NP is focused, object agreement is impossible on the verb, suggesting that the whole NP is marked as focus.

This is shown in (12) for the focused possessor, attributive modifier, and a complement of the head noun.

(12) a. [xībʹa-h ti-m] xada-sa(*-da) ?
who-GEN reindeer-ACC kill-INTER.3SG(*>**SG.OBJ)**
[Wera-h ti-m] xadaə(*-da).
Wera-GEN reindeer-ACC kill.3SG(*>**SG.OBJ)**
‘– Whose reindeer did he kill?’ – He killed WERA’s reindeer.’

b. [xurka ti-m] xada-sa(*-da) ?
what.kind reindeer-ACC kill-INTER.3SG(*>**SG.OBJ)**
[serako ti-m] xadaə(*-da).
white reindeer-ACC kill.3SG(*>**SG.OBJ)**
‘– What kind of reindeer did he kill?’ – He killed a WHITE reindeer.’

c. [ŋəmke-h nʹamna ləx°nako-m] wadʹe-ca-n° ?
what-GEN about tale-ACC tell-INTER-2SG
/ *wadʹe-ca-r° ? [[tʹonʹa-h nʹamna] ləx°nako-m]
/ tell-INTER-2SG>**SG.OBJ** fox- GEN about tale-ACC
wadʹeqŋa-d°m / *wadʹeqŋa-w°
tell-1SG / tell-1SG>**SG.OBJ**
‘– A tale about what did you tell? – I told a tale about a FOX.’

Sentences (13) exemplify the same distribution for the *only*-type focus.

(13) a. [Wera-rʹi-h ti-m] xadaə-d°m / *xadaə-w°
Wera-**ONLY**-GEN reindeer-ACC kill-1SG / kill-1SG>**SG.OBJ**
‘I only killed WERA’s reindeer.’

b. [parʹidʹenʹa-rʹi ti-m] xadaə(*-da)
black-**ONLY** reindeer- ACC kill.3SG(*>**SG.OBJ)**
‘He only killed a BLACK reindeer.’

c. [tʹonʹa-rʹi-h nʹamna ləx°nako-m] wadʹeqŋa / *wadʹeqŋa-da
fox-**ONLY**-GEN about tale-ACC tell-3SG / tell-3SG>**SG.OBJ**
‘He told a tale only about a FOX.’

Similarly, if a modifier or a possessor is in focus, the whole NP behaves like focus in TY. In (14a) the focus is associated with the possessor of the locative oblique, and the verbal agreement must come from the NEUFOC paradigm. In (14b) the modifier of the intransitive subject is in focus, which results in the focus marking of the head noun and SFOC agreement on the verb.

(14) a. [kin nime-də-ɣa] ewreː-nu-k? [wolʹbə
who house-3-LOC walk-IMPF-**NEUFOC.**INTER.2SG **friend**
nime-də-ɣa] ewreː-nu-jəŋ.
house-3-LOC walk-IMPF-**NEUFOC.**1SG
'– To whose house are you going? – I'm going to a FRIEND's house.'

b. pure-n [neme nime-k] oɣoːlə-l?
above-LOC **what** house-**FOC** stand-**SFOC.**3SG
[joqon nime-k] oɣoːlə-l.
Yakut house-**FOC** stand-**SFOC.**3SG
'– What kind of house stands on the top? – A YAKUT house does.'

Crucially, island clauses behave identically to simple NPs with respect to focus-sensitive agreement and focus-sensitive marking. In TN, if any sub-constituent of a relative clause is focused and the relative clause modifies the object of the main verb, this verb cannot be marked for object agreement. This is illustrated in (15): in (15a) the focus on the relative clause subject and in (15b) it is on the clausal adjunct. In both instances object agreement on the main verb is ungrammatical.

(15) a. [[xībʹa-h xada-wi°] ti-m] məne-ca-n° ?
who-GEN kill-PF.PTCP reindeer-ACC see-**INTER**-2SG
/ *məne-ca-r° ? [[Wera-h xada-wi°] ti-m]
/ see-INTER-2SG>**SG.OBJ** **Wera-GEN** kill-PF.PTCP reindeer-ACC
məneqŋa-dm° / *məneqŋa-w°.
see-1SG / see-1SG>**SG.OBJ**
'– You saw the reindeer killed by whom? – I saw the reindeer killed by WERA.'

b. [[Wera-h sʹax°h xo-wi°] noxa-m]
Wera-GEN **when** find-PF.PTCP polar.fox-ACC
xada-sa-n° / *xada-sa-r° ? [[Wera-h tʹenʹana
kill-**INTER**-2SG / kill-INTER-2SG>**OBJ.SG** Wera-GEN **yesterday**
xo-wi°] noxa-m] xadaə-d°m / *xadaə-w°
find-PF.PTCP polar.fox-ACC kill-1SG / kill-1SG>**OBJ.SG**
'– You killed the polar fox which Wera found when? – I killed the polar fox which Wera found YESTERDAY.''

Similar patterns obtain for the *only*-type focus. In (16) the sub-constituent in the scope of *only* hosts the bound particle *-rʹi/ -lʹi*, but the head noun must be marked as focused too, as is evidenced by the lack of object agreement.

(16) a. [[Wera-rʹi-h pedara-xəna xo-wi°] ti-m]
Wera-**ONLY**-GEN forest-LOC find-PF.PTCP reindeer-ACC

mənеqŋa-d°m / *mənеqŋa-w°
see-1SG / see-1SG>SG.OBJ
‘I saw the reindeer that only WERA found in the forest.’

b. [[Wera-h pedara-r´i-x°na xada-wi°] ti-m]
Wera-GEN forest-**ONLY**-LOC kill-PF.PTCP reindeer-ACC
mənеqŋa-d°m / *mənеqŋa-w°
see-1SG / see-1SG>SG.OBJ
‘I saw the reindeer which Wera killed only IN THE FOREST.’

In TY, if the relative clause with a focused sub-constituent modifies the intransitive subject, it is morphologically marked as focus and the verb bears SFOC agreement.

(17) [[kin pa:j-o:l] o:-k] o:riń a:-nu-l?
who beat-STAT.AN child-**FOC** weep-IMPF-**SFOC.**3SG
[[taŋ we:n kö:d’ədo: paj-o:l] rukun-ək]
that **other** **boy** beat-STAT.AN thing-**FOC**
o:riń a:-nu-l
weep-IMPF-**SFOC.**3SG
‘– The child beaten by whom is crying? – The one beaten by THAT OTHER BOY is crying.’

If the relative clause modifies the transitive subject, there is no agreement or focus marking.

(18) sespə-lə [qaduŋudəŋ kewej-l′əl-d′ə] köde-Ø oŋotej-Ø?
door-ACC **whither** leave-EV-IMPF.PTCP person-**Ø** open-**Ø**
lit. ‘The man who went where opened the door?’

Focusing a sub-constituent of the relative clause that modifies the object of the main verb requires focus marking on that object and object-focus agreement on the verb. As shown in (19b), alternative marking, e.g. a NEUFOC form of the verb and the regular accusative case marker on the object, would be ungrammatical in this instance.

(19) a. [[kin jaqta:-nu-l] jaqtə-k] möri:-məŋ?
who sing-IMPF-AN song-**FOC** hear-**OFOC.**1SG
[[ama: jaqta:-nu-l] jaqtə-k] möri:-məŋ.
father sing-IMPF-AN song-**FOC** hear-**OFOC.**2SG
lit. ‘– The song which who was singing did I hear? – You heard the song which FATHER was singing.’

b. *[kin jaqta:-nu-l] jaqtə-ɣanə möri:-mək?
who sing-IMPF-AN song-**ACC** hear-**NEUFOC.**2SG

Finally, questioning out of the relative clause that modifies the oblique element requires NEUFOC agreement on the verb with no special focus marking on the oblique. In (20a) the relativized nominal corresponds to the complement of the copula verb *be* and counts as oblique for the purpose of focus agreement. In (20b) we exemplify questioning out of the adverbial clause, which also requires NEUFOC agreement.

(20) a. [[kin pa:j-o:l] rukun] ŋol-k?
who hit-STAT.AN thing be-**NEUFOC.INTER**.2SG
'You are a person hit by whom?'

b. [kin kelu-də-ɣa] tet kewej-k?
who come-3-DS.CVB you leave-**NEUFOC.INTER**.2SG
'After whose arrival did you leave?' [lit. after who arrived did you leave]

So it is not the syntactic role of the focused element within the island clause that affects the patterns of agreement and focus marking in the main clause, but the syntactic role of its head. The noun modified by a relative clause or the dependent verb form in the adverbial clause are morphosyntactically treated as focused elements. For instance, in (20b) the main verb bears NEUFOC agreement even though the questioned/focused word corresponds to the intransitive subject, so technically SFOC agreement could have been expected.

In sum, the focus feature responsible for the marking of the phrase as focused and for the patterns of agreement it triggers on the verb must be associated with the head of that phrase in both languages in question, even though, at the first glance, the semantic operation of focusing appears to target one of its non-head daughters.

4 Complex focus structures

Based on the morphosyntactic evidence presented in the previous section, we propose that the grammar of TN and TY has to refer to two focus-related features: the feature [FOC], whose value is some semantic expression corresponding to the semantics of the focused word, and the [WH] feature. [WH] is a subtype of [FOC], so that wh-words are positively specified for both [FOC] and [WH], while the non-wh focus is only specified as [FOC]. We take this double specification to be a direct corollary of the meaning of questions briefly introduced in Section 2. Clearly, *wh*-words must carry [FOC] since they define the disjunctive set of alternatives which is the meaning of the

question proper. On the other hand, they must also be specified for [WH] in order to trigger the appropriate force. In other words, we are assuming that [FOC] is there to delimit the scope of alternatives, while [WH] signals illocution.

This is reflected in the morphosyntax of both TN and TY. As in many standard analyses of *wh*-questions, question formation involves the relationship between the [WH]-specified word and the clause (the main verb) which enforces its interrogative reading. This relationship has a morphosyntactic expression: in both languages some environments (past tense in TN and NEUFOC in TY) require the verb to take a special interrogative form, independently on whether the *wh*-word is located in the main or embedded clause. This can be seen from the comparison between TN and TY questions which contain the interrogative form of the verb in (15a) and (20b) and their ungrammatical counterparts in which the verb does not host the interrogative marker in (21).

(21) a. *[xībʹa-h xada-wi°] ti-m mənеqŋa-nə-sʹ°?
who-GEN kill-PF.PTCP reindeer-ACC see-2SG-**PST**
'You saw the reindeer killed by whom?'

b. *[kin kelu-də-ɣa] tet kewe**čək**?
who come-3-DS.CVB you leave.**NEUFOC**.2SG
'After whose arrival did you leave?' [=after who arrived did you leave].

The relationship between the wh-word and the main verb is direct in the sense that the [WH] feature is not morphosyntactically reflected on the head of the dependent clause and does not immediately contribute to its interpretation, as its main role is to signal the illocutionary force conveyed by the whole sentence.

In contrast to [WH], the [FOC] feature is crucially passed to the head of the dependent clause (the relativized nominal in relative clauses or the non-finite verbal form in adverbial clauses) first, and only then enters the relationship with the main verb. We will not provide the technical implementation of this idea here but believe that syntactically it may be expressed via some kind of percolation mechanism which targets [FOC] and resembles the theory of focus projection which accounts for the placement of focal accents in English (Selkirk 1995). On the standard focus projection view, only heads and arguments project focus. However, we are not aware of any structural restrictions in TN and TY that would permit the focus feature to be transmitted to the maximal projection from certain positions only, so the mechanism has to be freer for these languages. Any non-head sub-constituent of the phrase carrying [FOC] can pass it to the head, as was in fact reflected in Bürings' (2006) theory of 'Unrestricted Vertical Focus Projection'. We can

formulate this as two basic principles, which ensure that the head must be focus-marked no matter what non-head daughter is specified as focus:

(22) [FOC] on a non-head daughter licenses [FOC] on the head
[FOC] on the head licences [FOC] on the phrase.

Another important difference is semantic. Whereas the focus projection mechanism was originally intended to account for broad focus structures, the focus percolation to the head of the clause/phrase in TN and TY creates what Krifka (1991) refers to as 'complex focus' in which both the head of the phrase/clause and the original carrier of focus are foci, i.e. expressions whose denotations have alternatives in the context. These two foci are not interpreted independently, but rather as a pairwise list, such that the focus background is applicable to this list, but not to other alternative lists. The functioning of complex foci is especially clear if they are modified with focus-sensitive items with quantificational force. To shows this, we adopt Krifka's (1991) enrichment of the representational language with *lists* (marked with •) which function identically to simple arguments, so that they can be bound by a single operator. In the sentence *John only introduced PETER to STEVE*, with a nuclear accent on both *PETER* and *STEVE*, the exclusive particle does not only scope over one of these two arguments. The interpretations according to which John introduced Peter only to Steve (and to nobody else) or only Peter (and nobody else) to Steve, while he might have introduced other people to each other, do not capture what this sentence conveys, namely that the only introduction event in which John was involved was between Peter and Steve. This interpretation follows from the complex focus structure (indicated by two nuclear accents): the focus alternatives have the form 'John introduced (x•y)', and *only* introduces universal quantification over these alternatives, similar to (7). The way this works is represented in (23).

(23) $[\![\alpha]\!]^o$ = introduce' (j,p,s)
$[\![\alpha]\!]^f$ = introduce' (j, x•y) & $\forall$x•y [introduce'(j, x•y) $\Rightarrow$ x•y = p•s] ~C,
C $\subseteq$ Q

This principle of complex focus interpretation is also at work with foci that are buried in island clauses in TN and TY. We first need a general rule that connects the island clause to the matrix clause:

(24) For a pair x,y, such that P(x•y), it is true that R(x)
where x = head of a clause, y = focused word within the clause, • = list operator, P = $\lambda x \lambda y$.island clause(x•y), R = λx.matrix clause(x)

The way alternatives are computed in this context is represented in (24').

(24') $[\![\alpha]\!]^o$ = R(a) & P(a•b)
$[\![\alpha]\!]^f$ = R(x) & P(x•y)~C & C ⊆ Q
$[\![\alpha]\!]^f$ = {R(a) & P(a•b), R(a) & P(a•c), R(a) & P(a•d)...
R(i) & P(i•b), R(i) & P(i•c), R(i) & P(i•d)...
R(m) & P(m•b), R(m) & P(m•c), R(m) & P(m•d)...}

The identity of *x* in the matrix clause is dependent on the list it forms with *y* in the island clause, so that these two variables are co-dependent – which is the essence of the pairwise list reading. Now consider the answer in (15b) again.

(15b) [[Wera-h t′en′ana xo-wi°] noxa-m] xadaə-d°m
Wera-GEN yesterday find-PF.PTCP polar.fox-ACC kill-1SG
'I killed the polar fox which Wera found YESTERDAY.'

Its rough semantics (abstracting from quantification, time, deixis, reference, and other details) can be represented as follows:

(15b') $[\![\alpha]\!]^o$ = kill' (me, fox) & find' (Wera, fox•yesterday)
$[\![\alpha]\!]^f$ = kill' (me, x) & find' (Wera, x•y)~C & C ⊆ Q
$[\![\alpha]\!]^f$ = {kill' (me, fox) & find' (Wera, fox•today),
kill' (me,fox) & find' (Wera, fox•yesterday),
kill' (me,fox) & find' (Wera, fox•last year)...
kill' (me, bird) & find' (Wera, bird•today),
kill' (me,bird) & find' (Wera, bird•yesterday),
kill' (me,bird) & find' (Wera, bird•last year)...
kill' (me, elk) & find' (Wera, elk•today),
kill' (me,elk) & find' (Wera, elk•yesterday),
kill' (me,elk) & find' (Wera, elk•last year)...}

The ordinary semantic value of this sentence is trivial: I killed a polar fox and Wera had found that fox the day before. The focus value consists of propositions with the format *I killed x such that Wera killed x at time y* in which the focused variables are co-dependently replaced by contextually appropriate alternatives of the same type, e.g. (fox•today), (bird•yesterday), etc. Importantly, the identity of *x,* which corresponds to the head of the phrase, is defined via relationship with *y,* which is the primary carrier of [FOC]. The pairwise list reading induces co-dependent identification of variables. In this way it is ensured that the alternatives cover both such propositions in which I killed the fox found by Wera today (as opposed to the one which he found yesterday) and such in which I killed the bird or the elk which Wera found yesterday (as opposed to the polar fox he found at the same time).

Question islands are a special case of this more general semantic operation. The head noun denotes a set of entities defined in terms of the properties specified in the *wh*-word. As indicated in Section 2, we take it that questions with *wh*-words have an ordinary semantic value which comes about via default presuppositional interpretation; this semantic value can be enriched via further specifications of *wh*-words as to the type of the element they denote, such that *who* adds the feature [+human], *what* [-human], etc. The focus value of questions is the set of propositions that differ in the denotation of the *wh*-word slot, restricted by the *wh*-word's specifications and by the context variable. In case of pairwise list readings within island clauses, focus-induced alternatives differ in the denotations of both the head noun and the *wh*-word, which co-dependently vary and form a pairwise list. Informally, this can be represented as follows:

(25) For which pair x,y, such that P(x•y), does it hold true that R(x)
where x = head of the question island, y = question word,
P = λxλy.island clause(x•y), R = λx.matrix clause(x)

For instance, in (15a) the question word 'who' denotes a set of men who kill reindeer and the question ranges over the set of reindeer which have the property of having been killed by these men and are defined in terms of this property.

(15a)	[[xīb′a-h	xada-wi°]	ti-m]	məne-ca-n° ?
	who-GEN	kill-PF.PTCP	reindeer-ACC	see-INTER-2SG
	'You saw the reindeer killed by whom?'			

The resulting meaning can be formulated as follows: For which pair (reindeer, person), such that it is true that person killed the reindeer, is it true that you saw the reindeer?

(15a') $[\![\alpha]\!]^o$ = see' (you, reindeer) & kill' (person•reindeer))
$[\![\alpha]\!]^f$ = see' (you, x) & kill' (y•x)~C & C ⊆ Q
$[\![\alpha]\!]^f$ = {see' (you, reindeer1) & kill' (Petya•reindeer1),
see' (you,reindeer1) & kill' (Misha•reindeer1),
see' (you,reindeer1) & kill' (Vasya•reindeer1)...
see' (you, reindeer2) & kill' (Petya•reindeer2),
see' (you,reindeer2) & kill' (Misha•reindeer2),
see' (you,reindeer2) & kill' (Vasya•reindeer1)...
see' (you, reindeer3) & kill' (Petya•reindeer3),
see' (you,reindeer3) & kill' (Misha•reindeer3),
see' (you,reindeer3) & kill' (Vasya•reindeer3)...}

This creates the broadening of the object of inquiry formally expressed as the broadening of question focus (cf. Nishigauchi 1990; Jin 2013). Like in Japanese, Chinese and a number of other languages with *wh* in-situ, question islands inquire about the identity of the whole island, making a crucial use of the identity of the element represented by the question word: this is due to the list-reading induced by complex focus. This can be seen in answers to *wh*-questions in island clauses. A felicitous answer normally recapitulates the entire island with the specified question word variable. (26a) is the regular answer to the question in (15a), although speakers can occasionally produce (26b) too, so that certain degree of variation is observed here, possibly due to the interfering influence of Russian in which all speakers are bilingual.

(26) a. Wera-h xada-wi° ti-m
Wera-GEN kill-PF.PTCP reindeer-ACC
'the reindeer killed by Wera.'

b. ?/* Wera-h (xada-wi°-m)
Wera-GEN kill-PF.PTCP-ACC
'(killed) by Wera.'

TN provides an additional morphosyntactic indication that focus within island clauses triggers complex focus interpretation forming a pairwise list with the head. It comes from the semantics of *only* in relative clauses. The focus-sensitive item *-r'i/-l'i* 'only' can take different scope within a relative clause, but the head noun always has to be specified as [FOC] irrespective of its scope, as follows from agreement on the main verb. The important point is that different scopes of *only* result in different focus readings, as indicated in the translations of examples (16) above. (16a) roughly means 'For the pair (reindeer, Wera), such that it is true that Wera (and no-one else) killed the reindeer in the forest, it is true that I saw the reindeer':

(16a')
$[\![\alpha]\!]^o$ = see' (me, reindeer) & kill' (Wera•reindeer, in.forest)
$[\![\alpha]\!]^f$ = see' (me, x) & $\forall$x•y [kill'(x•y, in.forest) $\Rightarrow$ x=Wera]~C & C $\subseteq$ Q

In contrast, (16b) can be represented as follows: 'For the pair (reindeer, forest), such that it is true that Wera killed the reindeer in the forest (and not anywhere else), it is true that I saw the reindeer'.

(16b')
$[\![\alpha]\!]^o$ = see' (me, reindeer) & kill' (Wera, reindeer•in.forest))
$[\![\alpha]\!]^f$ = see' (me, x) & $\forall$x•y [kill'(Wera, x•y) $\Rightarrow$ y=in.forest]~C & C $\subseteq$ Q

What is important here is that no matter what the scope of *only* is, the head of the island clause must be included in the focused pairwise list as indicated by the ungrammaticality of object agreement on the main verb, which signals that its object must be in focus. Different readings are derivable from the interaction of the focus-sensitive particle and the focus expression in its scope, on the one hand, and the denotation of the head noun, on the other.

Examples like (16) are particularly interesting because they appear to challenge the view, which has become popular in the recent years, that focus is associated with an overt or covert operator that either adjoins to the whole phrase or takes it as its complement. For example, Cable (2007, 2010ab) and later Coon (2009) propose that *wh*-questioning is not directly triggered by any properties of the *wh*-word itself. Rather, the question operation targets the features of a distinct formal element termed Q(uestion)-particle, which c-commands the *wh*-phrase and is accessible to the larger clause. This analysis creates the effect of the whole phrase/clause being available for questioning but eliminates the mechanism of feature percolation from the grammar altogether. In fact, the whole concept of 'pied-piping' becomes unnecessary because the operation of questioning applies to the maximum projection of the *wh*-word without looking 'inside' it. Despite its name, the Q-particle is not actually understood as being restricted to questions: Cable (2010b: 200ff.) suggests that a similar analysis may be applicable to other types of 'A-bar movement', in particular, the operation of focusing. This is also the basic claim in Horvath (2007), who argues that at least some types of focusing in Hungarian do not actually target the features of the focused phrase itself but are triggered by the focus-sensitive Exhaustivity Identification Operator *only* that c-commands the focus phrase and can be phonologically null.

It is not immediately clear to us how this type of analysis can account for the difference between (16a) and (16b) if the word within the scope of *only* does not have any bearing on grammaticality and the overall semantics because none of its features are targeted. In (16) we do have clear morphosyntactic evidence that both the sub-constituent of the relative clause and its head nominal are in focus: the former hosts the focus particle *-r′i*/*-l′i* 'only', while the latter appears to be specified as [FOC] because it cannot trigger object agreement on the main verb. The different position and scope of *-r′i*/*-l′i* create difference in interpretation, which effectively means that the word inside the island remains visible for the purpose of focusing. Since the maximal projection is also focused, we proposed that some kind of focus feature percolation may be responsible for the resulting structure. This operation has an important semantic effect: the focusing of a non-head sub-constituent and the percolation of the focus feature to the head results in the formation of a pairwise list in which the head denotes a set of entities defined in terms of the properties specified in the focus phrase, so both the head of the phrase and its sub-constituent are focused. The syntactic

implementation of this semantic analysis in its application to TN and TY is a subject of future work.

Abbreviations

ABL – ablative; ACC – accusative; AFOC – agent focus; AN – action nominaliser; COM – comitative; CVB – converb; DAT – dative; DS – different subject; GEN – genitive; FOC – focus; IMPF – imperfective; INTER – interogative; LOC – locative; NEUFOC – neutral focus; OBJ – object; OFOC – object focus; PST – past tense; PF – perfective; PL – plural; PTCP – participle; SFOC – subject focus; SG – singular; STAT – stative; SS – same subject

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