Scope in Kalaallisut: Analysis in CCG+UC$_2$

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Plan

- Review:
  - scope prediction
  - Kalaallisut data
- Analysis of Kalaallisut data
- Questions & discussion

Scope prediction

- The scope of BA (morphologically bound argument) and any iv- or cn-modifiers is unambiguous

Kalaallisut bound pronouns: Wide scope only

- (Last month Ole$^{\top}$ ordered three books$^{\perp}$.)
- Transitive s^{+}…-*pn*$_{\perp}$: wide only

Suli	*atuagaq*	*ataasiq*	*tigu-nngi(t)-la-a-Ø.*
still	$^{\perp}$book$_{\perp}$	one$_{\perp}$	receive-not-DEC-3S$_{(\top)}$-*3S*$_{(\perp)}$

$\exists\neg$. one book still missing

- Passive s^{+}…-**pn**$_{\perp}$: wide only

Suli	*atuagaq*	*ataasiq*	*tigu-niqa(r)-nngi(t)-la-q.*
still	$^{\top}$book$_{\top}$	one$_{\top}$	receive-pssv-*not*-DEC-**3S**$_{(\top)}$

$\exists\neg$. one book still missing

Kalaallisut argument *base-* | *-suffix*: Narrow scope only

- (Last month Ole$^{\top}$ ordered three books$^{\bot}$.)
- Antipassive s^{+}…*-antip*: narrow only

Suli	*atuakkamik*	*ataatsimik*	*tigusinngilaq.*
Suli	*atuagaq-mik*	*ataasiq-mik*	*tigu-si-nngi(t)-la-q.*
still	book-MOD_{δ}	one-$_{\delta}$MOD	receive-antip-not-DEC-$3\text{S}_{(\top)}$

$\neg\exists$. hasn't received any

- 'Noun incorporation ^{+}s…*cn-iv\cn-*: narrow only

Suli	*ataatsimik*	*atuagarsinngilaq*
Suli	*ataasiq-mik*	*atuagaq-si-nngi(t)-la-q.*
still	one-$_{\delta}$MOD	book-rcv-not-DEC-$3\text{S}_{(\top)}$

$\neg\exists$. hasn't received any

Multiple *cn*-modifiers: [[$^{+}$s… *cn*-…] $^{+}$s] only

- (Yesterday I saw a bear near the village. And today…)

Ole	*alla-mik*	*nanu-si-pu-q*	*angisuu-mik.*
Ole	other-$_{\delta}$MOD	bear-see-DEC_{iv}-$3\text{S}_{(\top)}$	big-$_{\delta}$MOD

Ole saw another bear, a big one.

- (Yesterday I saw a big bear near the village. And today…)

Ole	*angisuu-mik*	*nanu-si-pu-q*	*alla-mik.*
Ole	big-$_{\delta}$MOD	bear-see-DEC_{iv}-$3\text{S}_{(\top)}$	other-$_{\delta}$MOD

Ole (too) saw a big bear, another one.

Kalaallisut Lexicon (part 1)

LEXICAL CATEGORIES (iv = s\pn, tv = iv\pn)

- roots

book-	cn: $\lambda \underline{x}[bk\langle \underline{x}\rangle]$	*atuaga(q)-*
one-	cn: $\lambda \underline{x}([?\delta \in \underline{x}\|]; [\underline{x} \in ?\delta\|])$	*ataasi(q)-*
other-	cn: $\lambda \underline{x}([?\delta \in \underline{x}\|]; [\underline{x} \neq_i ?\delta])$	*alla-*
big-	cn: $\lambda \underline{x}[big\{\underline{x}, \underline{x}\|\}]$	*angisuu(q)-*
receive-	tv: $\lambda \underline{y}\lambda \underline{x}([e]^{\bot}; [rcv\langle \bot\varepsilon, \underline{x}, \underline{y}\rangle])$	*tigu-*

- derivational suffixes

-rcv	iv\cn: $\lambda \underline{P}\lambda \underline{x}(\underline{P}\ \bot\delta^{\bot}; ([e]^{\bot}; [rcv\langle \bot\varepsilon, \underline{x}, \bot\delta\rangle]))$	*-si*
-see	iv\cn: $\lambda \underline{P}\lambda \underline{x}(\underline{P}\ \bot\delta^{\bot}; ([e]^{\bot}; [see\langle \bot\varepsilon, \underline{x}, \bot\delta\rangle]))$	*-si*
-antip	iv\tv: $\lambda \underline{R}\lambda \underline{x}.\ \underline{R}\ \text{BCK}\langle \bot\varepsilon\rangle\ \underline{x}$	*-si* | *-(ss)i* |…
-pssv	iv\tv: $\lambda \underline{R}\lambda \underline{x}.\ \underline{R}\ \underline{x}\ \text{CTR}\langle \bot\varepsilon\rangle$	*-niqar* | *-taa*
-not	iv\iv: $\lambda \underline{P}\lambda \underline{x}[\sim(\underline{P\ x})]$	*-nngit*

Kalaallisut Lexicon (part 2)

- GRAMMATICAL CATEGORIES (s^{+} = s/s, ^{+}s = s\s)

-DEC	(s\pn)\iv: $\lambda \underline{P}\lambda \underline{x}.\ \underline{P\ x}$		*-pu* | *-pa* | *-la*
$\text{-(ERG)}_{\top}$	x\cn: $\lambda \underline{P}\,\lambda K(\underline{P}\ \top\delta^{\top}; K)$	(x $\in \{s^{+}, {}^{+}s\}$)	*-Ø* | *-p…(-$3_{\top}$)*
$\text{-(ERG)}_{\bot}$	s^{+}\cn: $\lambda \underline{P}\,\lambda K(\underline{P}\ \bot\delta^{\bot}; K)$	(x $\in \{s^{+}, {}^{+}s\}$)	*-Ø* | *-p…(-$3_{\bot}$)*
-MOD_{δ}	s^{+}\cn: $\lambda \underline{P}\lambda K(\underline{P}\ \bot\delta^{\bot}; (K^{\bot}; [\text{BCK}\ \bot\varepsilon =_i \bot\delta]))$		*-mik*
-$_{\delta}$MOD	^{+}s\cn: $\lambda \underline{P}\lambda K(K^{\bot}; \underline{P}\ \bot\delta)$		*-mik*
-$3\text{S}_{(\top)}$	s\(s\pn): $\lambda \underline{P}.\ \underline{P}\ \top\delta$		*-q* | *-a…*
-*$3s_{(\bot)}$*	s\(s\pn): $\lambda \underline{P}.\ \underline{P}\ \bot\delta$		*-Ø* |…

- LEXICAL OPERATORS

$^{\top}(\cdot)$-	cn/cn: $\lambda \underline{P}\lambda \underline{x}([\mathbf{x}]^{\top}; \underline{P\ x})$		$\top\delta$-accom.
$^{\bot}(\cdot)$-	cn/cn: $\lambda \underline{P}\lambda \underline{x}([y]^{\bot}; \underline{P\ x})$		$\bot\delta$-accom.
-$^{\backslash}(\cdot)$	(cn\\$^{+}s$)\cn: $\lambda \underline{P}\lambda \underline{J}\lambda \underline{x}.\ \underline{J}(\underline{P\ x})$		cn-lift
	(iv\\$s^{+}$)\iv: $\lambda \underline{P}\lambda \underline{J}\lambda \underline{x}.\ \underline{J}(\underline{P\ x})$		iv-lift
-$^{\backslash\backslash}(\cdot)$	(s\(s\x))\x: $\lambda \underline{J}\lambda \underline{H}.\ \underline{H}\ \underline{J}$	(x $\in \{s^{+}, {}^{+}s\}$)	postposed x-lift

Kalaallisut bound pronouns: Wide scope $s^{+}\ldots\text{-}pn_{\bot}$ | **-pn$_{(\top)}$**

- (Last month Ole$^{\top}$ ordered three books$^{\bot}$.)
- TRANSITIVE
  (suli) atuaqaq ataasiq tigu-nngi(t)-la-a-Ø
  (still) $^{\bot}$book$_{\bot}$ one$_{\bot}$ receive-*not*-DEC-**3s**$_{(\top)}$-*3s*$_{(\bot)}$
  $\exists\neg$. one is still missing
- 'PASSIVE'
  (suli) atuaqaq ataasiq tigu-niqar-nngi(t)-la-q
  (still) $^{\top}$book$_{\top}$ one$_{\top}$ receive-passv-*not*-DEC-**3s**$_{(\top)}$
  $\exists\neg$. one book is still missing

TRANSITIVE: Wide scope $s^{+}\ldots\text{-}pn_{\bot}$ (part 1)

- $^{\bot}$book-$_{\bot}$ one-$_{\bot}$ …
  - $^{\bot}(\cdot)$- ——— cn/cn: $\lambda \underline{P}\lambda \underline{x}([y]^{\bot}; \underline{P}\,\underline{x})$
  - book ——— cn: $\lambda \underline{x}[bk\langle \underline{x}\rangle]$
  - -$_{\bot}$ ——— $^{+}$s\cn: $\lambda \underline{P}\lambda K(\underline{P}\,\bot\delta^{\bot}; K)$
  - ——— > cn: $\lambda \underline{x}([y]^{\bot}; [bk\langle \underline{x}\rangle])$
  - ——— < $^{+}$s: $\lambda K([y|\ bk\langle y\rangle]^{\bot}; K)$
  - one- ——— cn: $\lambda \underline{x}([\bot\delta_2 \in \underline{x}||]; [\underline{x} \in \bot\delta_2||])$
  - -$^{\backslash}(\cdot)$ ——— (cn\$^{+}$s)\cn: $\lambda \underline{P}\lambda \underline{J}\lambda \underline{x}.\ \underline{J}(\underline{P}\,\underline{x})$
  - -$_{\bot}$ ——— s^{+}\cn: $\lambda \underline{P}\lambda K(\underline{P}\,\bot\delta^{\bot}; K)$
  - ——— < cn\$^{+}$s: $\lambda \underline{J}\lambda \underline{x}.\ \underline{J}([\bot\delta_2 \in \underline{x}||]; [\underline{x} \in \bot\delta_2||])$
  - ——— <**B** s^{+}\$^{+}$s: $\lambda \underline{J}\lambda K(\underline{J}([\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||])^{\bot}; K)$
  - ——— < s^{+} (= s/s): $\lambda K(([y|\ bk\langle y\rangle]; [\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||])^{\bot}; K)$

TRANSITIVE: Wide scope $s^{+}\ldots\text{-}pn_{\bot}$ (conclusion)

- $^{\bot}$book-$_{\bot}$ one-$_{\bot}$ …
  ——— <
  s^{+} (= s/s): $\lambda K(([y|\ bk\langle y\rangle]; [\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||])^{\bot}; K)$
- … ⊤ hasn't received ⊥.
  - receive- ——— tv (= iv\pn): $\lambda \underline{y}\lambda \underline{x}([e]^{\bot}; [rcv\langle \bot\varepsilon, \underline{x}, \underline{y}\rangle])$
  - -*not* ——— iv\iv: $\lambda \underline{P}\lambda \underline{x}[\sim(\underline{P}\,\underline{x})]$
  - -DEC ——— (s\pn)\iv: $\lambda \underline{P}\lambda \underline{x}.\ \underline{P}\,\underline{x}$
  - -3s$_{(\top)}$ ——— s\(s\pn): $\lambda \underline{P}.\ \underline{P}\,\top\delta$
  - -*3s*$_{(\bot)}$ ——— s\(s\pn): $\lambda \underline{P}.\ \underline{P}\,\bot\delta$
  - ——— <**B** tv (= iv\pn): $\lambda \underline{y}\lambda \underline{x}[\sim([e]^{\bot}; [rcv\langle \bot\varepsilon, \underline{x}, \underline{y}\rangle])]$
  - ——— <**B** (s\pn)\pn: $\lambda \underline{y}\lambda \underline{x}[\sim([e]^{\bot}; [rcv\langle \bot\varepsilon, \underline{x}, \underline{y}\rangle])]$
  - ——— <**B** s\pn: $\lambda \underline{y}[\sim([e]^{\bot}; [rcv\langle \bot\varepsilon, \top\delta, \underline{y}\rangle])]$
  - ——— < s: $[\sim[e|\ rcv\langle e, \top\delta, \bot\delta\rangle]]$
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  s: $([y|\ bk\langle y\rangle]; [\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]; [\sim[e|\ rcv\langle e, \top\delta, \bot\delta\rangle]])$

'PASSIVE': Wide scope $s^{+}\ldots$**-pn$_{\top}$** (part 1)

- $^{\top}$book-$_{\top}$ one-$_{\top}$ …
  - $^{\top}(\cdot)$- ——— cn/cn: $\lambda \underline{P}\lambda \underline{x}([\mathbf{x}]^{\top}; \underline{P}\,\underline{x})$
  - book ——— cn: $\lambda \underline{x}[bk\langle \underline{x}\rangle]$
  - -$_{\top}$ ——— $^{+}$s\cn: $\lambda \underline{P}\lambda K(\underline{P}\,\top\delta^{\top}; K)$
  - ——— > cn/cn: $\lambda \underline{x}([\mathbf{x}]^{\top}; [bk\langle \underline{x}\rangle])$
  - ——— < $^{+}$s: $\lambda K([\mathbf{x}|\ bk\langle \mathbf{x}\rangle]^{\top}; K)$
  - one- ——— cn: $\lambda \underline{x}([\bot\delta_2 \in \underline{x}||]; [\underline{x} \in \bot\delta_2||])$
  - -$^{\backslash}(\cdot)$ ——— (cn\$^{+}$s)\cn: $\lambda \underline{P}\lambda \underline{J}\lambda \underline{x}.\ \underline{J}(\underline{P}\,\underline{x})$
  - -$_{\top}$ ——— s^{+}\cn: $\lambda \underline{P}\lambda K(\underline{P}\,\top\delta^{\top}; K)$
  - ——— < cn\$^{+}$s: $\lambda \underline{J}\lambda \underline{x}.\ \underline{J}([\bot\delta_2 \in \underline{x}||]; [\underline{x} \in \bot\delta_2||])$
  - ——— <**B** s^{+}\$^{+}$s: $\lambda \underline{J}\lambda K(\underline{J}([\bot\delta_2 \in \top\delta||]; [\top\delta \in \bot\delta_2||])^{\top}; K)$
  - ——— < s^{+} (= s/s): $\lambda K(([\mathbf{x}|\ bk\langle \mathbf{x}\rangle]; [\bot\delta_2 \in \top\delta||]; [\top\delta \in \bot\delta_2||])^{\top}; K)$

'PASSIVE': Wide scope $s^{+}\ldots$-**pn**$_{\top}$ (conclusion)

- $^{\top}$book-$_{\top}$ one-$_{\top}$ …

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  s^{+} (= s/s): $\lambda K(([\mathbf{x}|\ bk\langle \mathbf{x}\rangle];\ [\bot\delta_2 \in \top\delta||];\ [\top\delta \in \bot\delta_2||])\ ^{\top};\ K)$

- … ⊤ hasn't been received.

receive-	-passv	-*not*	-DEC	**-3s**$_{(\top)}$
tv:	iv\tv:	iv\iv:	(s\pn)\iv:	s\(s\pn):
$\lambda \underline{y}\lambda \underline{x}([e]\ ^{\bot};\ [rcv\langle \bot\varepsilon, \underline{x}, \underline{y}\rangle])$	$\lambda \underline{R}\lambda \underline{y}.\ \underline{R}\ \underline{y}$ CTR$\langle\bot\varepsilon\rangle$	$\lambda \underline{P}\lambda \underline{x}[\sim(\underline{P}\ \underline{x})]$	$\lambda \underline{P}\lambda \underline{x}.\ \underline{P}\ \underline{x}$	$\lambda \underline{P}.\ \underline{P}\ \top\delta$

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  iv: $\lambda \underline{y}([e]\ ^{\bot};\ [rcv\langle \bot\varepsilon, \text{CTR}\ \bot\varepsilon, \underline{y}\rangle])$

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  iv: $\lambda \underline{x}[\sim([e]\ ^{\bot};\ [rcv\langle \bot\varepsilon, \text{CTR}\ \bot\varepsilon, \underline{x}\rangle])]$

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  s\pn: $\lambda \underline{x}[\sim([e]\ ^{\bot};\ [rcv\langle \bot\varepsilon, \text{CTR}\ \bot\varepsilon, \underline{x}\rangle])]$

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  s: $[\sim[e|\ rcv\langle e, \text{CTR}\ e, \top\delta\rangle]]$

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  s: $([\mathbf{x}|\ bk\langle \mathbf{x}\rangle];\ [\bot\delta_2 \in \top\delta||];\ [\top\delta \in \bot\delta_2||];\ [\sim[e|\ rcv\langle e, \text{CTR}\ e, \top\delta\rangle]])$

Kalaallisut 'object' reduction: Narrow scope $s^{+}\ldots$-*antip* | $^{+}s\ldots$*cn-*

- (Last month Ole$^{\top}$ ordered three books$^{\bot}$.)

- (*suli*) *atuakkamik* *ataatsimik* *tigusinngilaq*

  (suli) atuaga(q)-mik ataasi(q)-mik tigu-si-nngi(t)-la-q

  (still) $^{\bot}$book-MOD$_{\delta}$ one-$_{\delta}$MOD $^{\setminus}$(receive-*antip*)-not-DEC-3S$_{(\top)}$

  ¬∃. hasn't received even one book

- (*suli*) *ataatsimik* *atuagarsinngilaq*

  (suli) ataasi(q)-mik atuaga(q)-si-nngi(t)-la-q

  (still) one-$_{\delta}$MOD $^{\setminus}$(*book*-)-rcv-not-DEC-3S$_{(\top)}$

  ¬∃. hasn't received even one book

ANTIPASSIVE: Narrow scope $s^{+}\ldots$-*antip* (part 1)

- $^{\bot}$book-MOD$_{\delta}$ one-$_{\delta}$MOD…

$^{\bot}(\cdot)$-	book	-MOD$_{\delta}$
cn/cn	cn:	s^{+}\cn
$\lambda \underline{P}\lambda \underline{x}([y]\ ^{\bot};\ \underline{P}\ \underline{x})$	$\lambda \underline{x}[bk\langle \underline{x}\rangle]$	$\lambda \underline{P}\lambda K(\underline{P}\ \bot\delta\ ^{\bot};\ (K\ ^{\bot};\ [\text{BCK}\langle\bot\varepsilon\rangle =_i \bot\delta]))$

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  cn: $\lambda \underline{x}([y]\ ^{\bot};\ [bk\langle \underline{x}\rangle])$

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  s^{+} (= s/s): $\lambda K([y|\ bk\langle y\rangle]\ ^{\bot};\ (K\ ^{\bot};\ [\text{BCK}\langle\bot\varepsilon\rangle =_i \bot\delta]))$

one-	-$_{\delta}$MOD
cn:	$^{+}$s\cn:
$\lambda \underline{x}([\bot\delta_2 \in \underline{x}||];\ [\underline{x} \in \bot\delta_2||])$	$\lambda \underline{P}\lambda K(K\ ^{\bot};\ \underline{P}\ \bot\delta)$

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  $^{+}$s (= s\s): $\lambda K(K\ ^{\bot};\ ([\bot\delta_2 \in \bot\delta||];\ [\bot\delta \in \bot\delta_2||]))$

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  s^{+} (= s/s): $\lambda K([y|\ bk\langle y\rangle]\ ^{\bot};\ (K\ ^{\bot};\ ([\bot\delta_2 \in \bot\delta||];\ [\bot\delta \in \bot\delta_2||];\ [\text{BCK}\langle\bot\varepsilon\rangle =_i \bot\delta])))$

ANTIPASSIVE: Narrow scope $s^{+}\ldots$-*antip* (conclusion)

- $^{\bot}$book-MOD$_{\delta}$ one-$_{\delta}$MOD …

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  s^{+} (= s/s): $\lambda K([y|\ bk\langle y\rangle]\ ^{\bot};\ (K\ ^{\bot};\ ([\bot\delta_2 \in \bot\delta||];\ [\bot\delta \in \bot\delta_2||];\ [\text{BCK}\langle\bot\varepsilon\rangle =_i \bot\delta]))$

- … ⊤ hasn't $\underline{J}$-[received *anything*].

receive-	-*antip*	-$^{\setminus}(\cdot)$	-*not*-DEC-3S$_{(\top)}$
tv:	iv\tv	(iv\s^{+})\iv:	s\iv:
$\lambda \underline{y}\lambda \underline{x}([e]\ ^{\bot};\ [rcv\langle \bot\varepsilon, \underline{x}, \underline{y}\rangle])$	$\lambda \underline{R}\lambda \underline{x}.\ \underline{R}$ BCK$\langle\bot\varepsilon\rangle\ \underline{x}$	$\lambda \underline{P}\lambda \underline{J}\lambda \underline{x}.\ \underline{J}(\underline{P}\ \underline{x})$	$\lambda \underline{P}\lambda \underline{x}[\sim(\underline{P}\ \top\delta)]$

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  iv: $\lambda \underline{x}([e]\ ^{\bot};\ [rcv\langle \bot\varepsilon, \underline{x}, \text{BCK}\ \bot\varepsilon\rangle])$

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  iv\s^{+}: $\lambda \underline{J}\lambda \underline{x}.\ \underline{J}([e]\ ^{\bot};\ [rcv\langle \bot\varepsilon, \underline{x}, \text{BCK}\ \bot\varepsilon\rangle])$

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  s\s^{+}: $\lambda \underline{J}[\sim \underline{J}[e|\ rcv\langle e, \top\delta, \text{BCK}\ e\rangle]]$

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  s: $[\sim([y|\ bk\langle y\rangle];\ [e|\ rcv\langle e, \top\delta, \text{BCK}\ e\rangle];\ [\bot\delta_2 \in \bot\delta||];\ [\bot\delta \in \bot\delta_2||];\ [\text{BCK}\langle\bot\varepsilon\rangle =_i \bot\delta])]$

  s: $[\sim([y|\ bk\langle y\rangle];\ [\bot\delta_2 \in \bot\delta||];\ [\bot\delta \in \bot\delta_2||];\ [e|\ rcv\langle e, \top\delta, \text{BCK}\ e\rangle];\ [\text{BCK}\langle\bot\varepsilon\rangle =_i \bot\delta])]$

  s: $[\sim([y|\ bk\langle y\rangle];\ [\bot\delta_2 \in \bot\delta||];\ [\bot\delta \in \bot\delta_2||];\ [e|\ rcv\langle e, \top\delta, \bot\delta\rangle])]$

‘NOUN INCORPORATION’: Narrow scope $^{+}$s … *cn-* (part 1)

- one-   -$_{\delta}$MOD

  cn: $\lambda \underline{x}([\bot\delta_2 \in \underline{x}||]; [\underline{x} \in \bot\delta_2||])$ $^{+}$s\cn: $\lambda \underline{P}\lambda K(K^{\bot}; \underline{P}\,\bot\delta)$

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  $^{+}$s (= s\s): $\lambda K(K^{\bot}; ([\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]))$

- … ⊤ has*n’t* [received any *J*-*book*].

  $^{\bot}(\cdot)$-   book-   -$^{\backslash}(\cdot)$ -rcv   -not-DEC-3S$_{(\top)}$

  cn/cn: $\lambda \underline{P}\lambda \underline{x}([y]^{\bot}; \underline{P}\,\underline{x})$ cn: $\lambda \underline{x}[bk\langle \underline{x}\rangle]$ $(\text{cn}\backslash^{+}\text{s})\backslash\text{cn}$: $\lambda \underline{P}\lambda \underline{J}\lambda \underline{x}.\,\underline{J}(\underline{P}\,\underline{x})$ iv\cn: $\lambda \underline{P}\lambda \underline{x}(\underline{P}\,\bot\delta^{\bot}; ([e]^{\bot}; [rcv\langle \bot\varepsilon, \underline{x}, \bot\delta\rangle]))$ s\iv: $\lambda \underline{P}[\sim(\underline{P}\,\top\delta)]$

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  cn: $\lambda \underline{x}([y]^{\bot}; [bk\langle \underline{x}\rangle])$

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  $\text{cn}\backslash^{+}\text{s}$: $\lambda \underline{J}\lambda \underline{x}.\,\underline{J}([y]^{\bot}; [bk\langle \underline{x}\rangle])$

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  $\text{iv}\backslash^{+}\text{s}$: $\lambda \underline{J}\lambda \underline{x}(\underline{J}[y|\,bk\langle y\rangle]^{\bot}; ([e]^{\bot}; [rcv\langle \bot\varepsilon, \underline{x}, \bot\delta\rangle]))$

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  $\text{s}\backslash^{+}\text{s}$: $\lambda \underline{J}[\sim(\underline{J}[y|\,bk\langle y\rangle]; [e|\,rcv\langle e, \top\delta, \bot\delta\rangle])]$

‘NOUN INCORPORATION’ vs. Antipassive: Comparison

- ‘NOUN INCORPORATION’

  one-$_{\delta}$MOD $^{\backslash}(^{\bot}$book-)-rcv-not-DEC-3S$_{(\top)}$

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  $^{+}$s (= s\s): $\lambda K(K^{\bot}; ([\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]))$ $\text{s}\backslash^{+}\text{s}$: $\lambda \underline{J}[\sim(\underline{J}[y|\,bk\langle y\rangle]^{\bot}; [e|\,rcv\langle e, \top\delta, \bot\delta\rangle])]$

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  s: $[\sim(([y|\,bk\langle y\rangle]^{\bot}; ([\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]))^{\bot}; [e|\,rcv\langle e, \top\delta, \bot\delta\rangle])]$

  s: $[\sim([y|\,bk\langle y\rangle]; [\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]; [e|\,rcv\langle e, \top\delta, \bot\delta\rangle])]$

- ANTIPASSIVE

  $^{\bot}$book-MOD$_{\delta}$ one-$_{\delta}$MOD $^{\backslash}$(receive-antip-)-not-DEC-3S$_{(\top)}$

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  s^{+} (= s/s): $\lambda K([y|\,bk\langle y\rangle]^{\bot}; (K^{\bot}; ([\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]; [\text{BCK}\langle \bot\varepsilon\rangle =_i \bot\delta]))$ $\text{s}\backslash\text{s}^{+}$: $\lambda \underline{J}[\sim \underline{J}[e|\,rcv\langle e, \top\delta, \text{BCK}\ e\rangle]]$

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  s: $[\sim([y|\,bk\langle y\rangle]; [e|\,rcv\langle e, \top\delta, \text{BCK}\ e\rangle]; [\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]; [\text{BCK}\langle \bot\varepsilon\rangle =_i \bot\delta])]$

  s: $[\sim([y|\,bk\langle y\rangle]; [\bot\delta_2 \in \bot\delta||]; [\bot\delta \in \bot\delta_2||]; [e|\,rcv\langle e, \top\delta, \bot\delta\rangle])]$

Multiple *cn*-modifiers: [[$^{+}$s… *cn*-…] $^{+}$s] only

- (Yesterday I saw a bear near the village. And today…)

  Ole   alla-mik   nanu-si-pu-q   angisuu-mik.

  $^{\top}$Ole$_{\top}$ other-$_{\delta}$MOD $^{\backslash}(^{\backslash}(^{\bot}$bear-))-see-DEC$_{iv}$-3S$_{(\top)}$ $^{\backslash\backslash}$(big-$_{\delta}$MOD)

  Ole saw another bear, a big one.

- (Yesterday I saw a big bear near the village. And today…)

  Ole   angisuu-mik   nanu-si-pu-q   alla-mik.

  $^{\top}$Ole$_{\top}$ big-$_{\delta}$MOD $^{\backslash}(^{\backslash}(^{\bot}$bear-))-see-DEC$_{iv}$-3S$_{(\top)}$ $^{\backslash\backslash}$(other-$_{\delta}$MOD)

  Ole (too) saw a big bear, another one.

Multiple *cn*-modifiers: [[$^{+}$s … *cn*-…] $^{+}$s] only (part 1)

- ⊤ saw a $\underline{J}(\underline{J}'$-bear)) …

  $^{\bot}(\cdot)$-   bear-   -$^{\backslash}(\cdot)$ -$^{\backslash}(\cdot)$

  cn/cn: $\lambda \underline{P}\lambda \underline{x}([y]^{\bot}; \underline{P}\,\underline{x})$ cn: $\lambda \underline{x}[bear\langle \underline{x}\rangle]$ $(\text{cn}\backslash^{+}\text{s})\backslash\text{cn}$: $\lambda \underline{P}\lambda \underline{J}'\lambda \underline{x}.\,\underline{J}'(\underline{P}\,\underline{x})$ $(\text{cn}\backslash^{+}\text{s})\backslash\text{cn}$: $\lambda \underline{P}\lambda \underline{J}\lambda \underline{x}.\,\underline{J}(\underline{P}\,\underline{x})$

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  cn: $\lambda \underline{x}([y]^{\bot}; [bear\langle \underline{x}\rangle])$

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  $\text{cn}\backslash^{+}\text{s}$: $\lambda \underline{J}'\lambda \underline{x}.\,\underline{J}'([y]^{\bot}; [bear\langle \underline{x}\rangle])$

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  $(\text{cn}\backslash^{+}\text{s})\backslash^{+}\text{s}$: $\lambda \underline{J}'\lambda \underline{J}\lambda \underline{x}.\,\underline{J}(\underline{J}'([y]^{\bot}; [bear\langle \underline{x}\rangle]))$

  -see   -DEC$_{iv}$-3S$_{(\top)}$

  iv\cn: $\lambda \underline{P}\lambda \underline{x}(\underline{P}\,\bot\delta^{\bot}; ([e]^{\bot}; [see\langle \bot\varepsilon, \underline{x}, \bot\delta\rangle]))$ s\iv: $\lambda \underline{P}.\,\underline{P}\,\top\delta$

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  s\cn: $\lambda \underline{P}(\underline{P}\,\bot\delta^{\bot}; [e|\,see\langle e, \top\delta, \bot\delta\rangle])$

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  $(\text{s}\backslash^{+}\text{s})\backslash^{+}\text{s}$: $\lambda \underline{J}'\lambda \underline{J}(\underline{J}(\underline{J}'[y|\,bear\langle y\rangle])^{\bot}; [e|\,see\langle e, \top\delta, \bot\delta\rangle])$

$[[{}^{+}\mathrm{s} \ldots \mathit{cn}\text{-}\ldots]\ {}^{+}\mathrm{s}]$: Ole saw another bear, a big one.

- T saw a $\underline{J}$(other bear) …

  other- $\qquad$ $\text{-}_{\delta}\mathrm{MOD}$

  cn: $\lambda\underline{x}([\bot\delta_2 \in \underline{x}\|]; [\underline{x} \neq_i \bot\delta_2])$ $\qquad$ ${}^{+}\mathrm{s}\backslash\mathrm{cn}$: $\lambda\underline{P}\lambda K(K^{\bot}; \underline{P}\,\bot\delta)$

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  ${}^{+}\mathrm{s}$ (= s\s): $\lambda K(K^{\bot}; ([\bot\delta_2 \in \bot\delta\|]; [\bot\delta \neq_i \bot\delta_2]))$

  $\backslash(\backslash(^{\bot}\mathit{bear}\text{-}))$-see-$\mathrm{DEC}_{iv}$-$3\mathrm{s}_{(T)}$

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  $(\mathrm{s}\backslash{}^{+}\mathrm{s})\backslash{}^{+}\mathrm{s}$: $\lambda\underline{J}'\lambda\underline{J}(\underline{J}(\underline{J}'[y|\ \mathit{bear}\langle y\rangle])^{\bot}; [e|\ \mathit{see}\langle e, \top\delta, \bot\delta\rangle])$

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  $\mathrm{s}\backslash{}^{+}\mathrm{s}$: $\lambda\underline{J}(\underline{J}([y|\ \mathit{bear}\langle y\rangle]; [\bot\delta_2 \in \bot\delta\|]; [\bot\delta \neq_i \bot\delta_2])^{\bot}; [e|\ \mathit{see}\langle e, \top\delta, \bot\delta\rangle])$

- … a big one.

  big- $\qquad$ $\text{-}_{\delta}\mathrm{MOD}$ $\qquad$ $\text{-}^{\backslash\backslash}(\cdot)$

  cn: $\lambda\underline{x}[\mathit{big}\{\underline{x}, \underline{x}\|\}]$ $\qquad$ ${}^{+}\mathrm{s}\backslash\mathrm{cn}$: $\lambda\underline{P}\lambda K(K^{\bot}; \underline{P}\,\bot\delta)$ $\qquad$ $(\mathrm{s}\backslash(\mathrm{s}\backslash{}^{+}\mathrm{s}))\backslash{}^{+}\mathrm{s}$: $\lambda\underline{J}\lambda\underline{H}.\ \underline{H}\ \underline{J}$

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  ${}^{+}\mathrm{s}$: $\lambda K(K^{\bot}; [\mathit{big}\{\bot\delta, \bot\delta\|\}])$

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  $\mathrm{s}\backslash(\mathrm{s}\backslash{}^{+}\mathrm{s})$: $\lambda\underline{H}.\ \underline{H}(\lambda K(K^{\bot}; [\mathit{big}\{\bot\delta, \bot\delta\|\}]))$

- s: $([y|\ \mathit{bear}\langle y\rangle]; [\bot\delta_2 \in \bot\delta\|]; [\bot\delta \neq_i \bot\delta_2]; [\mathit{big}\{\bot\delta, \bot\delta\|\}]; [e|\ \mathit{see}\langle e, \top\delta, \bot\delta\rangle])$

$[[{}^{+}\mathrm{s} \ldots \mathit{cn}\text{-}\ldots]\ {}^{+}\mathrm{s}]$: Ole saw a big bear, another one

- T saw a $\underline{J}$(big bear) …

  big- $\qquad$ $\text{-}_{\delta}\mathrm{MOD}$

  cn: $\lambda\underline{x}[\mathit{big}\{\underline{x}, \underline{x}\|\}]$ $\qquad$ ${}^{+}\mathrm{s}\backslash\mathrm{cn}$: $\lambda\underline{P}\lambda K(K^{\bot}; \underline{P}\,\bot\delta)$

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  ${}^{+}\mathrm{s}$ (= s\s): $\lambda K(K^{\bot}; [\mathit{big}\{\bot\delta, \bot\delta\|\}])$

  $\backslash(\backslash(^{\bot}\mathit{bear}\text{-}))$-see-$\mathrm{DEC}_{iv}$-$3\mathrm{s}_{(T)}$

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  $(\mathrm{s}\backslash{}^{+}\mathrm{s})\backslash{}^{+}\mathrm{s}$: $\lambda\underline{J}'\lambda\underline{J}(\underline{J}(\underline{J}'[y|\ \mathit{bear}\langle y\rangle])^{\bot}; [e|\ \mathit{see}\langle e, \top\delta, \bot\delta\rangle])$

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  $\mathrm{s}\backslash{}^{+}\mathrm{s}$: $\lambda\underline{J}(\underline{J}([y|\ \mathit{bear}\langle y\rangle]; [\mathit{big}\{\bot\delta, \bot\delta\|\}])^{\bot}; [e|\ \mathit{see}\langle e, \top\delta, \bot\delta\rangle])$

- … another one.

  other- $\qquad$ $\text{-}_{\delta}\mathrm{MOD}$ $\qquad$ $\text{-}^{\backslash\backslash}(\cdot)$

  cn: $\lambda\underline{x}([\bot\delta_2 \in \underline{x}\|]; [\underline{x} \neq_i \bot\delta_2])$ $\qquad$ ${}^{+}\mathrm{s}\backslash\mathrm{cn}$: $\lambda\underline{P}\lambda K(K^{\bot}; \underline{P}\,\bot\delta)$ $\qquad$ $(\mathrm{s}\backslash(\mathrm{s}\backslash{}^{+}\mathrm{s}))\backslash{}^{+}\mathrm{s}$: $\lambda\underline{J}\lambda\underline{H}.\ \underline{H}\ \underline{J}$

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  ${}^{+}\mathrm{s}$: $\lambda K(K^{\bot}; ([\bot\delta_2 \in \bot\delta\|]; [\bot\delta \neq_i \bot\delta_2]))$

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  $\mathrm{s}\backslash(\mathrm{s}\backslash{}^{+}\mathrm{s})$: $\lambda\underline{H}.\ \underline{H}(\lambda K(K^{\bot}; ([\bot\delta_2 \in \bot\delta\|]; [\bot\delta \neq_i \bot\delta_2])))$

- s: $([y|\ \mathit{bear}\langle y\rangle]; [\mathit{big}\{\bot\delta, \bot\delta\|\}]; [\bot\delta_2 \in \bot\delta\|]; [\bot\delta \neq_i \bot\delta_2]; [e|\ \mathit{see}\langle e, \top\delta, \bot\delta\rangle])$