A Semantic Analysis for Korean Echo Questions

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Echo Questions (echo-Qs)

- Interrogative clauses that require and partially repeat previously uttered sentences (cf. Banfield 1982; Comorovski 1996; Dayal 1996, 2016; Noh 1998)

- Two main types of echo-Qs (Karttunen 1977)
  - First-order echo-Qs (1st-echo-Qs)

    A: Mina brought $_{the\ meat}$. $\longrightarrow$ requires a declarative antecedent

    B: Mina brought WHAT?

  - Second-order echo-Qs (2nd-echo-Qs)

    A: Who brought $_{the\ meat}$? $\longrightarrow$ requires an interrogative antecedent

    B: Who brought WHAT?

    Echo *wh*-expressions are *in-situ*

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Motivation of this study

- When compared to ordinary interrogative clauses, echo-Qs have received relatively scant attention, and research on the formal semantics of echo-Qs has been even more limited...
  - Some exceptions that discuss the semantics of echo-Qs (cf. Dayal 1996; Artstein 2010; Sudo 2010) heavily rely upon English.

- Do those analyses represent the cross-linguistic variation of echo-Qs in languages that behave differently from English?

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Main Proposals

- Descriptive
  - Korean echo questions show properties different from echo questions in Indo-European languages.
    - Korean overtly marks echo questions and distinguish echo questions from ordinary questions through sentence-final complementizers.
    - Korean echo questions might allow for pair-list reading.

- Analytic
  - Previous analyses do not capture those properties.
    - Our analysis: the sentence-final complementizers in Korean echo questions bear a presuppositional content, such that there exists a proposition (or a set of propositions) that has been already delivered through previously uttered sentences.

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Part 1.

Properties of echo questions in English and Korean

Echo-Qs in English

- English does not make overt morpho-syntactic distinction between multiple-*wh* ordinary questions, 1st-echo-Qs, and 2nd-echo-Qs. (cf. Dayal 1996, 2016; Noh 1998)

1)

a. Ordinary Q	b. 1st-echo-Q	c. 2nd-echo-Q
A: Who brought what?	A: Mina brought the meat.	A: Who brought the meat?
B: Mina brought the meat.	B: WHO brought WHAT?	B: Who brought WHAT?

Echo-Qs in Korean

- Korean clearly distinguishes ordinary questions, 1st-echo-Qs, and 2nd-echo-Qs by means of overt morpho-syntactic marking.

2)

a. Ordinary Q	**b. 1st-echo-Q**	**c. 2nd-echo-Q**
A: Nwuka mwue-lul	A: Mina-ka koki-lul	A: Nwuka koki-lul
who. NOM what-ACC	Mina-NOM meat-ACC	who.NOM meat-ACC
kacyeo-o-ass-**ni?**	kacyeo-o-ass-e.	kacyeo-o-ass-ni?
bring-come-PST-C_Q	bring-come-PST-C_{DC}	bring-come-PST-C_Q
'Who brought what?'	'Mina brought the meat.'	'Who brought the meat?'
B: Mina-ka koki-lul	B: Nwuka mwue-lul	B: Nwuka mwue-lul
Mina-NOM meat-ACC	who.NOM what-ACC	who.NOM what-ACC
kacyeo-o-ass-e.	kacyeo-o-ass-**tako↑?**	kacyeo-o-ass-**nyako↑?**
bring-come-PST-C_{DC}	bring-come-PST-C_{ECHO}	bring-come-PST-C_{ECHO}
'Mina brought the meat.'	'WHO brought WHAT?'	'Who brought WHAT?'

↑: high boundary tone (H%, Jun & Oh (1996))

Echo-Qs in Korean

- Korean clearly distinguishes ordinary questions, 1st-echo-Qs, and 2nd-echo-Qs by means of overt morpho-syntactic marking.

	Ordinary-Q reading	Echo-Q reading	1st-echo-Q	2nd-echo-Q
-ni	✓	✗	-	-
-tako↑	✗	✓	✓	✗
-nyako↑	✗	✓	✗	✓

Pair-list Echo-Qs?

- Multiple-*wh* echo-Qs have been claimed not to allow for pair-list reading (cf. Dayal 1996; Chernova 2017)

3) SCENARIO: A went to a party last night. A describes the party for B, but B is not familiar with Korean last names. B barely understands what A said.

A: Dr.Kwon invited Dr.Choi, Dr.Shin invited Dr.Yeom, and Dr.Namgoong invited Dr.Chi to the party.

B: #WHO invited WHO to the party?!

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Pair-list Echo-Qs?

- Korean allows for pair-list echo-Qs.

4) SCENARIO: The same as (3).

A: Kwonpaksa-ka   choipaksa-lul   chotay.ha-ess-ko,
Dr.Kwon-NOM Dr.Choi-ACC   invite.do-PST-CONN

yeompaksa-ka   shinpaksa-lul   chotay.ha-ess-ko,
Dr.Yeom-NOM Dr.Shin-ACC   invite.do-PST-CONN

namgoongpaksa-ka   chipaksa-lul   phathi-ey
Dr.Namgoong-NOM Dr.Chi-ACC   party-to
chotay.ha-ess-e.
invite.do-PST-C$_{DC}$

B: nwuka   nwukwu-lul phathi-ey chotay.ha-ess-tako↑?
who.NOM who-ACC   party-to   invite.do-PST-C$_{ECHO}$

Part 2.

Semantics of echo questions

Previous Analysis

- Previous literature has argued that echo-Qs in Indo-European languages such as English involve a phonologically null complementizer (cf. Comorovski 1996; Dayal 1996, 2016; Sudo 2010)

  - Dayal's (1996) uniform approach

    - The semantic content in an echoed *wh*-expression (free variable) is different from that in a non-echoed *wh*-expression ($\lambda P \exists x[P(x)]$)

    - A null operator OP_{ECHO} applies to both types of echo-Qs

    5) $[\![OP_{ECHO}]\!] \rightsquigarrow \lambda Z \lambda Q[\exists x_1 ... \exists x_n [Q = Z(x_1)...(x_n)]]$

    6) $[_{CP'} OP_{ECHO} [_{CP} $ WHO/Who brought WHAT?$]]$

  ! It cannot naturally capture the interface between the morpho-syntax and semantics/pragmatics of echo-Qs in Korean.

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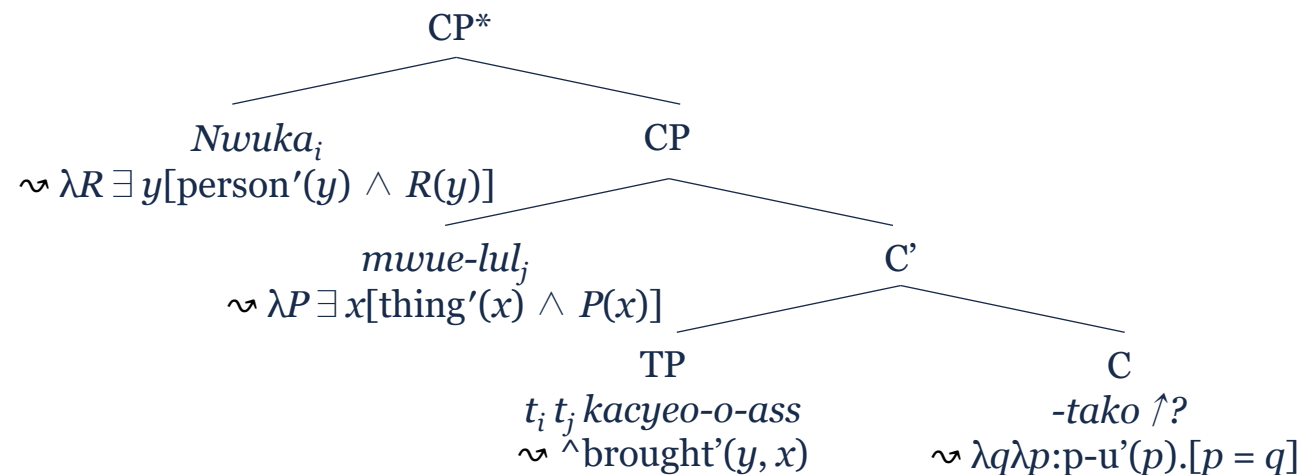
Alternative Analysis for Korean

- Assumptions

1. Questions denote a set of possible answers (Hamblin 1973)

2. Each of the complementizers (*-ni, -tako,* and *-nyako*) is associated with a set formation operation

    7) C for ordinary interrogative clauses ⟦*-ni*⟧

        ↝ $\lambda q \lambda p[p = q]$ ⟶ forms a set of propositions

    8) C for 1st-echo-Qs ⟦*-tako*↑⟧

        ↝ $\lambda q \lambda p$:**previously-uttered'(p).**$[p = q]$ ⟶ forms a set of propositions

    9) C for 2nd-echo-Qs ⟦*-nyako*↑⟧ (Heim & Kratzer 1998)

        ↝ $\lambda p \lambda Q$:**previously-uttered'(Q).**$[Q(p)]$ ⟶ forms a set of questions (a set of sets of propositions)

3. Both echo and non-echo *wh*-expressions have the same semantics: $\lambda P \exists x[P(x)]$ (Karttunen 1977)
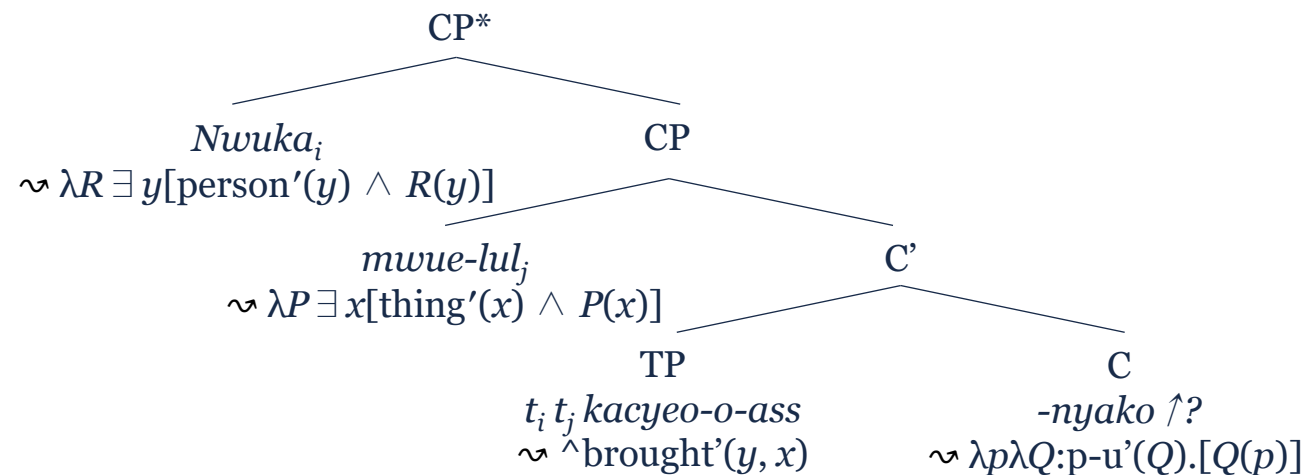
Alternative Analysis for Korean

- The logical translations of the 1st-echo-Q 'WHO brought WHAT?' (10) and the 2nd-echo-Q 'Who brought WHAT?' (11):

10) 1st-echo-Q 'WHO brought WHAT?'

$[\![_{CP}$ nwuka mwue-lul kacyeo-o-ass-tako↑? 'WHO brought WHAT?'$]\!]$ $<st, t>$

⤳ λp:previously-uttered'(p). $\exists y \exists x$[person'(y) $\wedge$ thing'(x) $\wedge$ $p = {}^\wedge$brought'(y, x)]

CP*

Nwuka$_i$
⤳ $\lambda R \exists y$[person'(y) $\wedge$ R(y)]

CP

mwue-lul$_j$
⤳ $\lambda P \exists x$[thing'(x) $\wedge$ P(x)]

C'

TP
$t_i\, t_j$ kacyeo-o-ass
⤳ ${}^\wedge$brought'(y, x)

C
-tako ↑?
⤳ $\lambda q \lambda p$:p-u'(p).[p = q]

Alternative Analysis for Korean

- The logical translations of the 1st-echo-Q 'WHO brought WHAT?' (10) and the 2nd-echo-Q 'Who brought WHAT?' (11):

11) 2nd-echo-Q 'Who brought WHAT?'

$\llbracket_{CP*}$ Nwuka mwue-lul kacyeo-o-ass-nyako↑? 'Who brought WHAT?'$\rrbracket$ $<<st, t>, t>$
↝ λQ:previously-uttered'$(Q). \exists y \exists x[$person'$(y) \land$ thing'$(x) \land Q(^\wedge$brought'$(y, x))]$

CP*
— Nwuka$_i$
↝ $\lambda R \exists y[$person'$(y) \land R(y)]$
— CP
— mwue-lul$_j$
↝ $\lambda P \exists x[$thing'$(x) \land P(x)]$
— C'
— TP
$t_i t_j$ kacyeo-o-ass
↝ $^\wedge$brought'(y, x)
— C
-nyako ↑?
↝ $\lambda p \lambda Q$:p-u'$(Q).[Q(p)]$

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Summary & Implications

- Korean echo-Qs are crucially different from echo-Qs in Indo-European languages such as English due to the clear morpho-syntactic distinction between ordinary interrogatives and 1st- and 2nd-echo-Qs.

- Our proposal maps different complementizers onto different operators, assuming the operators to have a similar semantic content and differ in their presuppositional content, as shown in (7-9).

- Our proposal, thus, allows more precise understanding of echo-Qs in Korean.

Seoyeon Jang & Ivano Caponigro

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Thank you!

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C in Echo-Qs: C$_{ECHO}$ vs. C$_{DC}$ + C$_{QT}$?

- Some previous studies have argued that the echo-Q reading is triggered by the quotative particle –*ko* that follows the final ending of the subordinate, quoted (or reported) clause (e.g. Noh 1995; Kim 1999; Lee 2010)

1) [[nwuka   mwue-lul kacyeo-o-ass-**ta**]-**ko**]   (ha-ess-ni?)

   [[who.NOM what-ACC bring-come-PST-**c$_{DC}$**]-**c$_{QT}$**] (say-PST-c$_Q$)

   '(Did you say) WHO brought WHAT?'

- If this is the case, then –*ko* could be interpreted as Dayal's (1996) OP$_{ECHO}$.

C in Echo-Qs: C_{ECHO} vs. C_{DC} + C_{QT}?

- Meanwhile, our proposal has treated *–tako↑* as monomorphemic C_{ECHO} for the following main reasons:

1. The quotative particle *–ko* cannot freely combine with clauses with sentence-final ending complementizers other than *–ta, -nya, -ca*, and *–la*. (Ahn 1992)

The paradigm of sentence-final endings in Korean (Sohn 2013)

	Declarative	Interrogative	Imperative	Propositive
Plain	-ta	-ni?/-nya?	-la	-ca
Intimate	-a/-e	-a?/-e?/-ay?	-a/-e	-a/-e
Familiar	-ney	-na?/-nun-ka?	-key	-sey
Blunt	-(s)o/-(s)wu	-(s)o?/-(s)wu?	-(u)o/-wu	-(u)p-ti-ta
Polite	-yo	-yo?	-yo	-yo
Deferential/formal	-(su)p-ni-ta	-(su)p-ni-kka?	-sip-si-o	-sip-si-ta

+ -ko
-C_{QT} ⟹ Works out only with *-ta, -nya, -ca*, and *-la*

C in Echo-Qs: C$_{ECHO}$ vs. C$_{DC}$ + C$_{QT}$?

2. What is necessary in the realization of echo-Qs are both the string –*ta(/nya/ca/la)*-ko and the high rising sentence final intonation

2) *-tako* with falling intonation

A: Mina-ka   koki-lul   kacyeo-o-ass-ta.

Mina-NOM meat-ACC bring-come-PST-C$_{DC}$

'Mina brought the meat.'

B: nwuka   mwue-lul kacyeo-o-ass-tako.   [falling]

who.NOM what.ACC bring-come-PST-C$_{DC}$

'No one brought anything.' (*lit*. 'who brought what.')

Negative assertion
(Chae 2019)