

A Semantic Proposal for Korean Echo Questions

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Introduction. Echo questions (*echo-Qs*) are known to occur in two main types: first-order echo-Qs (*1st-echo-Qs*), which require appropriate statements to have been introduced in the discourse, and second-order echo-Qs (*2nd-echo-Qs*), which require appropriate questions to have been previously introduced in the discourse (Karttunen 1977). An English example of 1st-echo-Q is given in (1-B) with its declarative clause antecedent given in (1-A). (2-B) exemplifies an English 2nd-echo-Q with (2-A) showing its interrogative clause antecedent.

- (1) A: Mina brought the meat. (2) A: Who brought the meat?
B: Mina brought WHAT? B: Who brought WHAT?

It has been argued in the literature that echo-Qs in Indo-European languages such as English involve a phonologically null complementizer (cf. Comorovski 1996; Dayal 1996, 2016; Sudo 2010). In particular, Dayal (1996) assumes a null operator OP_{ECHO} that contains a variable with an open semantic type so that it can uniformly apply to both types of echo-Qs. We show that such a uniform approach cannot naturally capture the interface between the morpho-syntax and the semantics/pragmatics of echo-Qs in Korean. We propose the first formal analysis of Korean echo-Q and their complementizers that builds on previous analysis of English ordinary interrogatives (Hamblin 1973; Karttunen 1977) and develops and significantly modifies Dayal's (1996) analysis of echo-Qs.

Korean echo-Qs and their complementizers. Unlike English, Korean clearly distinguishes 1st-echo-Qs and 2nd-echo-Qs from each other and from ordinary interrogative clauses by means of overt morpho-syntactic marking: three different complementizers. The complementizer *-tako* occurs in 1st-echo-Qs ((3-B), with its antecedent declarative clause in (3-A)), *-nyako* occurs in 2nd-echo-Qs ((4-B), with its antecedent interrogative clause in (4-A)), and *-ni* occurs in ordinary interrogative clauses (4-A).

- (3) A: Mina-ka koki-lul kacyeo-o-ass-e.
Mina-NOM meat-ACC bring-come-PST- C_{DC}
'Mina brought the meat.'
B: Mina-ka mwue-lul kacyeo-o-ass-**tako**?
Mina-NOM what-ACC bring-come-PST- C_{ECHO}
'Mina brought WHAT?'
- (4) A: Nwuka koki-lul kacyeo-o-ass-ni?
who.NOM meat-ACC bring-come-PST- C_Q
'Who brought the meat?'

B: Nwuka mwue-lul kacyeo-o-ass-nyako?
 who.NOM what-ACC bring-come-PST-C_{ECHO}
 ‘Who brought WHAT?’

Proposal. We propose that each complementizer is associated with a similar semantic operation: a set formation operation. The complementizer for ordinary interrogative clauses (*-ni*) and the one for 1st-echo-Qs (*-tako*) form a set of propositions (5)-(6), and the complementizer for 2nd-echo-Qs forms a set of questions (a set of sets of propositions, (7)).

- (5) $\llbracket -ni \rrbracket \sim \lambda q \lambda p [p = q]$ $\langle st, \langle st, t \rangle \rangle$
 (6) $\llbracket -tako \rrbracket \sim \lambda q \lambda p : \text{previously-uttered}'(p). [p = q]$ $\langle st, \langle st, t \rangle \rangle$
 (7) $\llbracket -nyako \rrbracket \sim \lambda q \lambda Q : \text{previously-uttered}'(Q). [Q(p)]$ $\langle st, \langle \langle st, t \rangle, t \rangle \rangle$

The crucial meaning difference is in the presuppositional content of those three complementizers. The ordinary interrogative clause complementizer triggers no presupposition (5). The 1st-echo-Q complementizer (6) triggers a presupposition that all the propositions in the set of propositions the 1st-echo-Q denotes have been previously introduced in the discourse (by means of uttering sentences conveying them). The 2nd-echo-Q complementizer (7) triggers a presupposition that all the questions in the set of questions the 2nd-echo-Q denotes have been previously introduced in the discourse.

We assume the denotation of echo-Qs as a set of possible answers (Hamblin 1973); 1st-echo-Qs denote a set of propositions $\langle st, t \rangle$, and 2nd-echo-Qs denote a set of questions (a set of sets of propositions, $\langle \langle st, t \rangle, t \rangle$). Also, we assume the same semantics for both echo and non-echo *wh*-phrases ($\lambda P \exists x [P(x)]$), following Karttunen (1977). Under these assumptions, the logical translations of (3-B) and (4-B) are those shown in (8) and (9), respectively.

- (8) *1st-echo-Q* (3-B)
 $\llbracket_{CP} \text{Mina-ka mwue-lul kacyeo-o-ass-tako? 'Mina brought WHAT?'} \rrbracket$ $\langle st, t \rangle$
 $\sim \lambda p : \text{previously-uttered}'(p). \exists x. [\text{thing}'(x) \wedge p = \text{'brought}'(\text{Mina}, x)]$
 (9) *2nd-echo-Q* (4-B)
 $\llbracket_{CP} \text{Nwuka mwue-lul kacyeo-o-ass-nyako? 'Who brought WHAT?'} \rrbracket$ $\langle \langle st, t \rangle, t \rangle$
 $\sim \lambda Q : \text{previously-uttered}'(Q). \exists y \exists x. [\text{person}'(y) \wedge \text{thing}'(x) \wedge Q(\text{'brought}'(y, x))]$

Problems with Dayal’s uniform treatment of English echo-Qs. Dayal (1996) proposes just one null operator OP_{ECHO} to account for both 1st-echo-Qs and 2nd-echo-Qs, the one shown in (10). OP_{ECHO} takes scope over CP, in which both 1st- and 2nd-echo-Qs are allowed. In addition, the echoed *wh*-phrase in 2nd-echo-Q (*WHAT* in (4-B)) is assumed to be a free variable, whereas the non-echo *wh*-phrase (*who* in (4-B)) is existentially bound. The free variable introduced by the non-echo *wh*-phrase is bound when OP_{ECHO} combines with CP.

- (10) *Dayal’s (1996) OP_{ECHO} operator*
 $\llbracket OP_{ECHO} \rrbracket \sim \lambda Z \lambda Q [\exists x_1 \dots \exists x_n [Q = Z(x_1) \dots (x_n)]]$

What is crucial for our current purposes is that Dayal’s OP_{ECHO} doesn’t distinguish between different kinds of echo-Qs, which is at odds with the different morpho-syntactic marking in Korean. Also, Dayal’s OP_{ECHO} crucially requires *wh*-words in echo-Qs to have a different lexical meaning from

those in ordinary interrogative clauses, despite the fact that they are morphologically the same. Lastly, Dayal's OP_{ECHO} is semantically different from the ordinary interrogative operator. Our proposal, instead, doesn't face any of those three issues: different complementizers are mapped onto different operators; the meaning of *wh*-words is assumed to be the same; the three operators share the same semantic content and differ just in presuppositional content.

Selected References.

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