Restrictions on Rogative and Responsive Verb Complements in Uyghur

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Background: Uyghur (Turkic) has three complementation strategies each headed by a distinct particle: *dep*, *liq* and *ish*. Clauses headed by *dep* have tense, aspect, and agreement marking, clauses headed by *liq* only have aspect, and clauses headed by *ish* only allow bare verbs. While rogative verbs ('ask', 'wonder') can take interrogative complements of all three clause types (1), responsive verbs ('know', 'agree') cannot take *dep* headed interrogative complements (2). When taking a *ish* complement, rogative verbs acquire a modal flavor (1c); responsive verbs do not (2c). Data was collected with a native speaker consultant in the US.

(1) a. *Reyhan kim tort-ni yé-d-i dep sori-d-i.*
Reyhan who cake-ACC eat-PST-3 DEP ask-PST-3
'Reyhan asked who ate the cake.'

b. *Reyhan kim-ning tort-ni yé-gen-lik-i-ni sori-d-i.*
Reyhan who-GEN cake-ACC eat-PFV-LIQ-POSS.3-ACC ask-PST-3
'Reyhan asked who ate the cake.'

c. *Reyhan kim-ning tort-ni yé-yish-i-ni sori-d-i*
Reyhan who-GEN cake-ACC eat-ISH-POSS.3-ACC ask-PST-3
'Reyhan asked who could/would eat the cake.'

(2) a. **Reyhan kim tort-ni yé-d-i dep bil-i-du*
Reyhan who cake-ACC eat-PST-3 DEP know-NPST-3
Intented: 'Reyhan knows who ate the cake.'

b. *Reyhan kim-ning tort-ni yé-gen-lik-i-ni bil-i-du*
Reyhan who-GEN cake-ACC eat-PFV-LIQ-POSS.3-ACC know-NPST-3
'Reyhan knows who ate the cake.'

c. *Reyhan kim-ning tort-ni yé-yish-i-ni bil-i-du*
Reyhan who-GEN cake-ACC eat-ISH-POSS.3-ACC know-NPST-3
'Reyhan knows who will eat the cake.'

Approach: This paper follows the intuitions in Suñer (1993) and Lahiri (2002) that responsive verbs take semi-question complements, while rogative verbs take ontologically distinct full question complements. This paper differs by arguing that complements of attitude verbs such as 'know' contain arguments for mental models, of type $\langle s,\langle\langle s,t\rangle,t\rangle\rangle$, which associate a given world with a set of propositions which the model attributes to that world (3). I argue that semi-questions have open arguments for a single model and a single world , while full questions have an additional world argument . When building a clause, a REQUEST operator is attached to a semi-question, opening a world argument and subsequently turns it into a full question.

(3) For a given mental model m, world w, and proposition p:
$m(w,p) = 1$ iff the m evaluates p to hold true of w

Clauses headed by *dep* are syntactically large and include a REQUEST operator, while clauses headed by *liq* are smaller and lack a REQUEST operator. The REQUEST operator, can however apply after the introduction of a complementizer such as *liq*. As a result, while full questions may be represented by both *dep* (1a) and *liq* (1b) headed clauses, semi-questions can only be represented by *liq* headed clauses, causing ungrammaticality in (2a). Clauses headed by *ish* cannot include a REQUEST operator, and instead the interpretation in (1c) is derived from the insertion of a silent modal which allows the application of a REQUEST operator, similar to infinitive embedding under 'ask' in English (4). I argue that the difference in judgement across (1) and (2) is representative not just of different syntactic size requirements of semi-questions and full questions, but also that these differences may be distinguished by different complementation strategies within a language.

(4) Liam asked who to pay for the motorcycle ≈ Liam asked who he should pay for the motorcycle.

Semantic Machinery: Interrogative complements of responsive verbs are typically understood as representing a set of propositions such that if the proposition is true, the matrix verb holds true of that proposition (Heim 1994; Uegaki 2019). Abstracting over mental models allow us to account for this by requiring that the model accurately represents the value of a proposition evaluated with respect to the real world (5).

(5) Sean knows whether Liam sings
$\lambda w.\exists x[\text{know}(w, \text{S}, x) \wedge \forall m[\textsc{comp-m}(x, m) \rightarrow m(w, \text{L-sings}) = \text{L-sings}(w)]]$
... if m is compatible with what Sean knows, then m accurately models 'Liam sings' in w

Complements of rogative verbs, however, tend to be understood as denoting intent or desire for information regarding a set of propositions, such as in (1a), where the subject is requesting knowledge of the truth values for a proposition set. To account for this, I argue that verbs like 'ask' and 'wonder' are semantically compounds denoting desires of knowledge. When the REQUEST operator is applied to a semi-question, the additional world argument can then be used to represent desired worlds in which an attitude is held (6).

(6) a. $\textsc{Hold}(w, x, m)$ is true iff m is a model compatible with x's mental state in w
b. $[\![\text{REQUEST}]\!] = \lambda Q \lambda w_s \lambda m_{\langle s,\langle\langle s,t\rangle,t\rangle\rangle} \lambda x_e \lambda w'_s.[\textsc{Hold}(w, x, m) \rightarrow Q(m, w')]$

Thus while complement of a verb like 'know' can be modeled by the structure in (5), while the complement of a verb like 'ask' can be modeled by the structure (7).

(7) Sean asks whether Liam sings
$\lambda w.\exists x[\text{ask}(w, \text{S}, x) \wedge \forall w' \forall m[\textsc{comp-w}(x, w') \wedge \textsc{Hold}(w', \text{S}, m) \rightarrow m(w, \text{L-sings}) = \text{L-sings}(w)]]$
... if w' is comp. with what Sean asks for, then Sean holds m in w' and m accurately models 'Liam sings' in w

Syntactic Sizes: Asarina (2011) argues that *ish* heads an NP with a VP complement: *ish* clauses can have no aspect, and must be immediately followed by possessor agreement (8a). Asarina (2011) argues that *liq* is actually a complementizer; in (8b), possessor agreement appears on the head noun *isharet* rather than after *liq*, suggesting the *liq* headed phrase is not a DP, but rather a CP which modifies a (often null) head noun.

(8) a. *men-*(ing) kitap oqu-(*wat)-sh-im muhim.*
1SG-GEN book read-PROG-ISH-1SG.POSS important
'My reading a book is important.' [adapted from Asarina 2011:27–28]
b. *Ötkür-ning tamaq yé-gen-lik isharet-i muhim.*
Ötkür-GEN food eat-PFV-LIQ sign-POSS.3 important
'The sign that Ötkür ate food is important' [adapted from Asarina 2011:94]

Agreeing with Asarina (2011)'s analysis, this paper places *dep* and *liq* in the CP, while *ish* is placed below the modal phrase (9a). *dep* takes a XP complement, *liq* takes a Modal YP, and *ish* takes a ZP. Because the REQUEST operator is mandatory under XPs, *dep* clauses are necessarily full questions. *liq* clauses are semi-question, finally *ish* clauses can only be semi-questions. Type shifting to a full question can be coerced through the addition of a modal YP and REQUEST operator, which requires a silent modal. This coercion is not necessary under responsive verbs, and so there is no modal interpretation in (2c).

(9) a. $[_{\text{XP}}$ (*dep*) ... X ... REQUEST $[_{\text{YP}}$ (*liq*) ... Mod ... $[_{\text{ZP}}$ (*ish*) ... VP ...]]]
b. $[_{\text{VP}}$ Rogative Verb ... REQUEST $[_{\text{YP}}$ ... Silent Modal ... $[_{\text{ZP}}$ ... VP-ish ...]]]

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