Structured Questions

This work addresses a previously undescribed phenomenon of what I call structured questions. I claim that these questions encode a hierarchical QUD structure: in a single utterance, they raise both a main QUD (Question Under Discussion), and a sub-QUD.

The object of study. Below is a Turkish example of a structured alternative question (AQ) (Turkish has other types of structured questions, not discussed here for reasons of space).

1. Kahve mi istiyor-sun, yoksa çay mı, süt mı...?
   coffee Q want-ipf-2sg not-if tea Q milk Q
   ≈ Do you want coffee, or tea, or milk? (typically non-exhaustive list)

The intuitive meaning of this question is the following. The speaker wants to know what the addressee wants, among several options: a main one – coffee, that is of higher importance (e.g. for its relevance or utility), as well as a number of less prominent options, that include tea and milk. The addressee responds to this question by picking an option. The question in (1) contrasts with a typical “flat” AQ, in which each alternative has equal prominence:

2. Kahve mi istiyor-sun, çay mı, (yoksa) süt mı?
   coffee Q want-ipf-2sg tea Q (not-if) milk Q
   ≈ Do you want coffee, tea, or milk? (obligatorily exhaustive list)

In addition to differences in prominence distribution between the alternatives, structured and flat AQs differ in the availability of a non-exhaustivity inference. A list of alternatives is exhaustive when all the possible options have been uttered; it is non-exhaustive when there may be other options left unmentioned. Exhaustive and non-exhaustive inferences are available in English AQs, each associated with a particular prosodic contour (see Zimmerman 2000, Pruitt 2008, Biezma & Rawlins 2012, a.o.). In Turkish, all AQs, flat or structured, can have an exhaustive reading, but only structured AQs may have a non-exhaustive reading (non-/exhaustivity inferences in Turkish are also each associated with a particular prosodic contour).

The crucial difference in form between structured and flat AQs is the position of the particle yoksa (composed of "not" (yok) and "if" (-sa)), that appears between alternatives. In flat AQs, yoksa appears right before the last alternative; if it is the only yoksa particle in the question, its presence is optional and does not affect the meaning of the question in any perceptible way. Examples of flat AQs are of the form ab, aYb, abYc, aYbYc (where a,b,c are alternatives of the form "p mi" for a proposition p, and Y is yoksa). In structured questions, yoksa appears between non-final alternatives. Examples are aYbc, aYbcd, abYcd, aYbYc, aYbYc. Note that requirements for flat and structured are not incompatible: aYbYc can be either flat or structured.

Gist of the proposal. I propose to capture the meaning of structured questions by appealing to the notions of QUDs and sub-QUDs (see Roberts 1996, 2012, Büring 2003, a.o.). A sub-QUD is defined as a QUD that, once settled, at least partially responds to the main QUD. Questions that raise sub-QUDs are strategies that help achieve the goal of answering the main QUD: by bringing attention to a specific alternative of the main QUD, there is more chance for the hearer to be able to answer it. Utterances that raise QUDs and sub-QUDs are said to structure the discourse.

In Turkish, I propose that this structure can be encoded in single utterances, namely in structured questions. More specifically, such questions as (1) are discourse strategies that raise exactly two QUDs: a main QUD (What do you want?) and a sub-QUD (Do you want coffee?). In addition, facts about non-/exhaustivity can be explained as follows: there is a general requirement for exhaustivity in Turkish questions; a question is exhaustive in relation to a QUD; a flat AQ will therefore be
exhaustive relative to the unique QUD it raises; a structured AQ, on the other hand, will be exhaustive relative to its sub-QUD, leaving the main QUD alone—and thus allowing the list of alternatives mentioned in the question to remain non-exhaustified.

**Ingredients of the analysis.** I assume Inquisitive Semantics (Ciardelli, Groenendijk & Roelofsen 2015, a.o.), to be able to treat inquisitive and non-inquisitive objects on a par. Below, I lay out the semantics of the Turkish question operator, the question particle mi, and the particle yoksa.

The question operator Q-op is a null operator that is present in all utterances that are specified as questions in the syntax. \([Q-op(p)]\) presupposes that the inquisitive disjunction of linguistically available alternatives corresponds to QUD0, the most recent QUD: \(p \lor \Pi_p = \text{[QUD}_0]\), where \(\Pi_p\) is the set of propositions required by the presuppositions of \(p\) to be possible answers of QUD0. The question particle mi forces inquisitive disjunction between propositions it selects. Based on the semantics for KA from Szabolcsi 2015, \([\text{mi}]\) requires, for \(X\) and \(Y\) of type \(t\), that \([X\text{mi}, Y] = [X, Y]\text{mi} = A \lor B\); and the asserted content of \([X \text{mi}]\) is \([X]\).

The particle yoksa marks the last uttered item of a QUD (like Hungarian pedig, see Szabolcsi 2016). The term "item of a QUD" is a semantic requirement, formalized as follows. \([p, \text{yoksa} q]\) \(= p \lor q\), presupposes that the most linguistically salient non-inquisitive proposition containing \(\neg p \land q\) is an answer to QUD0. Specifically: if \(q\) is non-inquisitive, it is an item of QUD0; if \(q\) is inquisitive, then \(\neg p\) (ensured by \(\neg\) to be non-inquisitive) will be required to be an item of QUD0.

The term "last uttered" is a phonological requirement. I claim that the phonological item yoksa breaks up prosodic constituency (OT analysis available), affecting syntactic constituency (Selkirk 2011) in the following way:

**Derivations.**

No yoksa (flat AQ): \([A \text{mi} B \text{mi}] = A \lor B\). \([Q-\text{Op}]\) requires that \(A \lor B = \text{[QUD}_0]\). The only possible answers to QUD0 are \(A\) and \(B\), therefore the question is exhaustive. (We find a similar result for AQs with \(n\) alternatives without yoksa, for any \(n\)).

With yoksa in final position (flat AQ): \([[[A \text{mi} B \text{mi}] \text{yoksa} C \text{mi}] = A \lor B \lor C\). \([\text{yoksa}]\) requires that the most salient non-inquisitive proposition containing \(\neg (A \lor B) \land C\) is an item of QUD0. Such a proposition is C. Then \([Q-\text{Op}]\) requires that \(A \lor B \lor C \lor C = A \lor B \lor C = \text{[QUD}_0]\). This means the question is exhaustive. (Similar result for any question of the form \(a_1...a_{n-1} \text{Y}a_n\), for \(n>1\)). Importantly, we find \(a_1...a_{n-1} \text{Y}a_n = [a_1...a_{n-1}\text{a}_n]\), which matches the data.

With yoksa in non-final position (structured AQ): \([[[A \text{mi yoksa} [B \text{mi C mi}] = A \lor B \lor C\). \([\text{yoksa}]\) requires that the most salient non-inquisitive proposition containing \(\neg A \land B \lor C\) is an item of QUD0. \(B \lor C\) is inquisitive, therefore it cannot be used as an alternative to a QUD; therefore, \(\neg A\) is used instead. \([Q-\text{Op}]\) requires that \(A \lor B \lor C \lor \neg A = \text{[QUD}_0]\). In AQs, alternatives are mutually exclusive (see Groenendijk & Roelofsen 2009, Biezma & Rawlins 2012, a.o.), i.e. exhaustified with respect to each other. Exhaustified alternatives B and C don’t overlap with A, and are therefore subsumed under \(\neg A\). Therefore, \(A \lor \neg A = \text{[QUD}_0]\). The denotation of the question \(A \lor B \lor C\) must be relevant, i.e. directly address a QUD’ (see Büring 2003): \(A \lor B \lor C \subseteq \text{[QUD}’\)\). Here, we have \([\text{QUD}_0] \subseteq \text{[QUD}’\)\), where QUD0 is a sub-QUD to QUD’: these are the two QUDs that structure the question. Moreover, there is no requirement for the denotation of the question to equal QUD’: this means that \(A, B, C\) can be an open list of alternatives, and the question may be non-exhaustive.