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Asking (non-)canonical questions*

Kyle Rawlins
Johns Hopkins University

Abstract Questions are classically taken to be requests for information, while acknowledging a wide variety of 'non-canonical' questions that do not have this function (e.g. rhetorical questions, exam questions, etc). A standard current approach is to take the request-for-information view as an analytical starting point and then weaken it for tge counterexamples. This paper proposes an alternative view of questioning that encompasses many of these counterexamples directly: to ask a question is to open coordination on the public resolution of an issue. This coordination-centric view, I argue, accounts for much of the landscape of both canonical and non-canonical questions, while generalizing much previous work related to Questions Under Discussion in discourse.

Keywords: pragmatics, questions, force, speech acts

1 Overview

What is it to ask a question? A long-standing, pervasive view is that to ask a question is in one way or another, to request information from an interlocutor. For example:

> "The speech act of questioning involves a request for information. A felicitous use of a question requires that the speaker not be privy to the information and that he/she must believe that the addressee might be." (Dayal 2016: 1)

I will distill the idea down to:

(1) *Questioning as requesting* / **The canonical theory**
To ask a question is to request information.

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This has been a powerful idea exactly because so many questions do seem to request information. Canonically, a (single) root interrogative clause is used to ask a question, as in the following:

(2) A: What is his name? (cf. Dayal 2016 ex. 1: "What is your name?")
B: Bingley.
A: Is he married or single?
B: Oh, single, my dear, to be sure! A single man of large fortune; four or five thousand a year.
(Pride & Prejudice / Jane Austen[1])

In this characteristic question-answer sequence, agent A targets specific pieces of information with interrogative clauses, and requests that B provide that information in the form of answers. Because of the prevalence of questions like the A examples above, the canonical theory has been an extremely important tool and starting point in work on the meaning and analysis of interrogatives and questions.

This paper introduces a different idea, centered around the game-theoretic notion of *coordination*.

(3) *Questioning as Coordinating*
To ask a question is to open coordination on the public resolution of an issue.

Broadly speaking (I will return to this later), agents are coordinating when they are jointly managing interdependent actions and beliefs towards some goal. When agents are coordinating on the public resolution of an issue, they are contributing publicly in a way that at least aims at an optimal path to resolving the issue introduced by the question in the common ground.[2] In (2), A and B can in fact be seen to be coordinating, but with a very uneven starting point: A has nothing to contribute to the issues that they raise, and B has everything. The motivation for Questioning as Coordinating is not from such asymmetric settings, but rather from so-called "non-canonical questions". As long as the canonical view has been around, researchers have been aware of counterexamples. In §3 I go through various cases in detail, but one starting point is rhetorical questions. In these cases, arguably (Rohde 2006; Caponigro & Sprouse 2007; Biezma & Rawlins 2017b a.o.) a question can act rhetorically to convey information exactly because everyone knows the answer:

(4) I dont think we should have Onavi on our short list. (After all,)

1 Henceforth *P&P*. Text is quoted from the Project Gutenberg edition: https://www.gutenberg.org/files/1342/1342-h/1342-h.htm

2 See Clark 1996 for the classic discussion of coordination within linguistics, and Murray & Starr 2018 for recent work that applies this idea to the interpretation of force, though not questions per se.

a. what does he know about semantics? (Caponigro & Sprouse 2007)
"⇝ Onavi knows nothing about semantics."

Clearly, either questions aren't requests for information, or rhetorical 'questions' aren't questions in this sense.[3] This sort of puzzle is exactly what leads to the division between canonical and non-canonical questions. However, this division then leads to a further puzzle: how to map from interrogative root clauses to canonical vs. non-canonical questions? Quite a lot has been written on this topic at this point, and the present paper will not exhaustively tackle the problem. What I will do here is present Questioning as Coordinating as a programmatic response to the puzzle of non-canonical questions, show that it covers quite a bit more ground than the canonical view, and finally, argue that to the extent there is a category of canonical questions, it is essentially derived from markedness.

Next, I will go into a bit more detail on how canonical questions are viewed in §2. Following that, I will go into key examples of non-canonical questions that I address in the present paper in §3. From there, I turn to developing my positive proposal, Questioning as Coordinating, in §4. In §5 I return to requests for information, arguing that many of the felicity conditions assumed by canonical views follow as special cases of the new system. Finally, in §6 I conclude.

2 Canonical questions

The canonical view is often traced back to a quote from Frege, and is quite prominent in subsequent early work on speech act theory.

> "An interrogative sentence and an indicative one contain the same thought; but the indicative contains something else as well, namely, the assertion. The interrogative sentence contains something more too, namely a request.", as translated in Frege 1956 p. 294.

For example, Searle articulates what can be taken as a version of questioning-as-requesting:

> "There are two types of questions, *(a)* real questions, and *(b)* exam questions. In real questions, *S* wants to know (find out) the answer; in exam questions *S* wants to know if *H* knows." (Searle 1969)

3 Both paths have been tried; see Han 2002; Reese 2007 for examples of fairly different non-question views. However, I will focus on question-based views such as Rohde 2006; Caponigro & Sprouse 2007; Biezma & Rawlins 2017b; Farkas 2024 without further discussion in the present paper.

Other versions of this can be found in Hamblin 1958[4], Bach & Harnish 1979[5], and others (see e.g. Aqvist 1965; Hintikka 1974, 1976).

It can be seen from Searle's mention of exam questions that awareness of counterexamples is early and pervasive, but this is often taken in an "exception that proves the rule" fashion. One standard approach (see Dayal 2016 ch. 9 for discussion) is to take non-canonical questions to be regular questions with some extra syntax/semantics machinery that explains their non-canonical behavior. A particularly well-worked-out version of this appears in Farkas 2022 (see also Farkas & Roelofsen 2012, 2017), where marked forms trigger a special *Conventional Discourse Effect* (CDE) that may override the basic discourse constraints applied by an interrogative, e.g. that the speaker does not know the answer to the question. Similarly, in recent work by Krifka (Krifka 2014, 2013, 2015, 2022, etc.) an interrogative sentence contains a question operator that acts as a request[6] but that can be further modified by operators that adjust the impact of this request. Of course, the challenge is and has been to get the specifics right for various non-canonical questions and their variety of (or absence of) marking. I will not argue that this cannot be done, but I will suggest very broadly in following sections that the preponderance of non-canonical cases do not really support taking requests as the starting point.

There is one request-based idea that is worth mentioning as a more direct precedent of my proposal. Truckenbrodt (2004) takes questions to be wishes/requests that the answer *become* common knowledge, what Plunze & Zimmermann (2006) term an *intersubjective* analysis – partly with the aim of handling non-canonical questions. While I will ultimately argue that (under a specific construal of what a request is) questions are not requests at all, I do essentially adopt the intersubjective component of this proposal.

2.1 Questions Under Discussion

Perhaps the most influential modern work on questions follows from the idea of a Question Under Discussion (QUD; Roberts 1996, 2012; Ginzburg 1996; Büring 2003; Ginzburg 2012 among many others, see Beaver, Roberts, Simons & Tonhauser 2017 for a recent overview). On this view, asking a question amounts to

4 "If pressed to define a question, I should do so by saying that it is a sentence which requires an answer; or (I should hastily add) a refusal to answer, or the raising of a point of order." (Hamblin 1958: 161)

5 "*Questions* are special cases of requests, special in that what is requested is that the hearer provide the speaker with certain information. [...]" (Bach & Harnish 1979: 48)

6 "With an information question, a speaker requests an assertion of a particular type from the other speaker. This can be modeled by a meta speech act that does not change the root of the commitment space, but restricts the possible continuations to those in which the other speaker makes an assertion of an appropriate type." (Krifka 2015)

putting an issue up for discussion, essentially making it a discourse topic. Very broadly, (i) asking a question puts the relevant issue on the QUD stack, (ii) moves in discourse must be relevant (i.e. partially answering) to the QUD stack, and (iii) questions on the QUD stack go away when resolved. QUD theories (sometimes implicitly) take a coordination view of discourse in general, but I have not seen one that specifically develops the view I articulate here. We might translate these ideas into a third answer to what a question is:

(5) *Questioning as QUDing*
To ask a question is to introduce a QUD / discourse topic.

In fact, this is quite underspecified, as QUD theory can be easily combined (and often is) with the trappings of the canonical theory, so I do think that many of the issues QUD approaches address are orthogonal to the question of what a question is. However, my proposal here can be seen as a direct extension of a QUD theory, and a refinement of (5) – providing new answers as to what happens *after* a QUD is introduced, and especially, how reasoning about this might lead to interpretive effects. In fact, I will introduce my proposal in a related dynamic approach, the Table model (Farkas & Bruce 2010), which inherits the notion of a QUD. Future work will have to provide a more nuanced comparison for how the coordination games I develop here relate to the dynamics involved in typical QUD systems, but in a nutshell, they are (hopefully) closely related and compatible with many features of QUD systems.

3 Non-canonical questions

Let us begin with a slight caricature of the canonical view:[7]

(6) **The canonical view**
To ask a question is to request information, in the form of answers, where:
a. *Ignorance*: the asker doesn't know the answer
b. *Viability*: the askee might be able to answer
c. *Obligation*: the askee should attempt to provide an answer (immediately) following the question

There are many variants of this one might propose and minor wording tweaks to

7 This is a simplified and modified version of Farkas 2022 ex. 4, 'Default assumptions accompanying question acts'. Her 'addressee competence' becomes Viability, and 'addressee compliance' becomes Obligation. The differences here are not intended to be significant, but rather, to simplify things down to hopefully cover a broader set of possible views. In §5 I will ultimately suggest that a version of Farkas' fourth constraint, 'Issue resolution goal', be retained.

argue about, but I do think that these principles capture the heart of what many researchers take this view to entail. As is very well known, there is a laundry list of types of questions(/root interrogatives) that do not obey all, or in some cases, any of these constraints. I turn to this list now.

In exam/quiz questions (Truckenbrodt 2004; Plunze & Zimmermann 2006; Gärtner & Pankau 2024), the speaker *does* know how to answer the question, but (intuitively) wants the hearer to demonstrate their knowledge of it for one reason or another:

(7) **Exam questions** ✖Ignorance ✓Viability ✓Obligation

a. *(Scenario: teacher talking to class)*
What is the main point of this paper?

b. *(Scenario: quizmaster at bar trivia)*
What year did the battle of Waterloo happen?

c. *(Border guard to traveler, while looking at screen with travel records)*
When did you last enter the US?

In rhetorical questions, at least of the standard kind (Han 2002; Rohde 2006; Caponigro & Sprouse 2007; Biezma & Rawlins 2017b; Farkas 2024), both the speaker and the hearer know how to answer the question, and the rhetorical question descriptively serves to convey the known answer like an assertion might.[8]

(8) **Rhetorical questions** ✖Ignorance ✓Viability ✖Obligation

a. I dont think we should have Onavi on our short list. (After all,) what does he know about semantics? (Caponigro & Sprouse 2007)

b. Is this fun or is it fun? (Biezma & Rawlins 2017b)

c. Who are you to tell me what to do? (Dayal 2016 ex. 1)

Biased questions involve (plausibly) a request for information combined with some indication about the asker's view, but that falls short of a rhetorical question. There is a very large literature on biased questions and adjacent move types (e.g. rising declarative, tag questions, ...) that I will not dive into here, but in a nutshell, these all seem to require a weakened (but not fully weakened) version of ignorance: the asker has some priors about the answer.

(9) **Biased questions** ? Ignorance ✓Viability ✓Obligation

a. Didn't Rosa Montero write poetry? (after a Romero & Han 2004 example)

b. Did Rosa Montero really write poetry?

8 See Farkas 2024 for some recent cases that require a more nuanced descriptive characterization, e.g. where the question is rhetorical because it can't be answered.

c. Did Rosa Montero really NOT write poetry?
d. Rosa Montero wrote poetry, right? (tag question)
e. "Good Lord! Sir William, how can you tell such a story? Do not you know that Mr. Collins wants to marry Lizzy?" (*P&P*)

A somewhat less-discussed type of non-canonical question involves conjecture, directed at either others or the self (Eckardt 2020, see also Farkas 2022 on 'non-intrusive' questions, which I will not address here). These questions often involve scenarios where the answer isn't known or decided by any agent, and there is often less (or no) obligation to answer. While questions that are broadly conjectural can have markers in various languages, it is quite common in collaborative discussion to use ordinary/unmarked interrogatives to introduce issues with no expectation of immediate answers.

(10) **Conjectural/self-directed questions** ✓Ignorance ✖Viability ✖Obligation
a. *(Scenario: speaker alone in their house just having finished a TV show.)*
What to watch next?
b. What should I watch next, I wonder? (Eckardt 2020)
c. Wo wohl der Schlüssel ist? ('Where might the key be, I wonder?'; Eckardt 2020 ex. 2)
d. Scenario: collaborative context where detectives are discussing a murder.
Who could the murderer be?

A more extreme case of this involves questions used to indicate complete ignorance or non-answerability, e.g. those marked with epithets in many languages. This can, but does not need to, lead to a rhetorical flavor for such questions; even without this it is somewhat unclear if they really expect an answer.

(11) **Ignorance questions** ✓Ignorance ✖Viability ? Obligation
Scenario (Rawlins 2008 ex. 606-8): a reality show is nearing the end of its season. 5 candidates are left, and the competition is fierce. On the task for this episode, all of the competitors do extremely well. It is hard to tell who the judges will pick as the person to send home.
a. Who on earth will they pick?

(12) Ippolito 2024 ex. 21 (see also: den Dikken & Giannakidou 2002; Eckardt & Yu 2020; Martin 2021)
A: Someone will marry Oscar.
B: Who the hell will/would ever do that? You are fool if you think that!

Nobody is ever going to marry Oscar.

Turning from the key cases of non-canonical questions that I focus on in this paper, there are a number of ways in which *Obligation* from (6) runs uncomfortably up against reality. I take Obligation to express one of the key ways in which questions are supposed to be requests in particular: a request inherently turns 'control' over to the person who may or may not fulfill the request. First, there are many ways of dispelling obligation – allowing an agent to avoid answering at all. One key response type that is somewhat neglected is indications of ignorance; when it has been handled it is typically special cased. For example, Hamblin 1971 and Asher & Lascarides 2013 treat ignorance responses as a special move type, and Krifka 2015 requires retraction of question to interpret ignorance responses.[9]

(13) A: Is it raining?
B: I don't know.

Beyond expression of ignorance, there are other possible strategies, e.g. the agree-to-disagree moves of Farkas & Bruce 2010, or more aggressive disengaging responses:

(14) Asher 2014 ex. 5
N: Excuse me. Could you tell me the time please?
B: Fuck you!

The latter case probably does amount to a marked way of dispelling obligation, but despite their non-answering status, it seems like ignorance expressions should not be considered a particularly abnormal or strange way of avoiding the constraint. In fact, the incorporation of ignroance responses as possible moves in the game will turn out to be crucial to handling ignorance questions like those in (11) – I return to this in §4.5. This is not to say that a system with Obligation as a constraint couldn't handle ignorance responses – but it does seem like such a system (or its replacement) should say something about them.

Second, and more of a puzzle, when looking at the full spectrum of followups to questions in discourse, it is apparent that they can often be followed by same-speaker questions or assertions, as well as cross-speaker questions. Certain cases of Question-Question (Q-Q) sequences have been discussed in the QUD literature, and are reasonably well-understood – they serve to introduce sub-questions.

(15) **Question-question sequences** ✓Ignorance ✓Viability ✖Obligation
a. What are you cooking for tomorrows party? Are you cooking pasta?

9 Though, see also the discussion in Krifka 2022.

(Biezma & Rawlins 2012 ex. 62)

b. Where is the reception happening? Is it at Johns house or what? (Biezma & Rawlins 2017a ex. 5)

c. "Well, Jane, who is it from? What is it about? What does he say?" (*P&P*)

d. "And what sort of young lady is she? Is she handsome?" (*P&P*)

e. Vicki: When is, when is Easter? March, April? (Ginzburg 2012 §4.5 ex. 66, from BNC)

If the unit size we are working with is that of a single root clause/sentence, then such discourses are also a puzzle for the canonical view. Of course, one possible strategy would be take these sequences each as a discourse-complex question, perhaps summing the requests from individual sentences in an additive way; this is the QUD approach following Roberts 1996. While appropriate for data like that above, this strategy won't obviously generalize to same-speaker question-assertion sequences:

(16) **Question-assertion sequences** ✖/✓Ignorance ✓Viability ✖Obligation

a. "Has she been presented? I do not remember her name among the ladies at court." (*P&P*)

b. "My dear Mr. Bennet," replied his wife, "how can you be so tiresome? You must know that I am thinking of his marrying one of them." (*P&P*)

c. "What advantage can it be to you to offend Mr. Darcy? You will never recommend yourself to his friend by so doing." (*P&P*)

These cases, at the discourse unit, often have the flavor of complex rhetorical questions, with ignorance either partly or completely optional. Cross-speaker Q-Q sequences are also common in followups, e.g. clarification requests, instantiating a sub-discourse:

(17) a. A: What is the paper about?
B: What do you think?
B′: Didn't you read it?
B′: Which paper? (*Clarification Request*: see Ginzburg 1998, 2012 etc.)

For further context on the puzzle presented by Q-X sequences, I looked at the distribution of questions in the INTERVIEW data set (Majumder, Li, Ni & McAuley 2020), a corpus of NPR interview transcripts annotated for turn/sentence boundary

and speaker identity, among other things.[10] Strikingly, of 127535 unique questions in the data set (105103 from the host, 22432 from the guest), 42% (44366) participate in a same-speaker Q-X sequence, 19133 in Q-Q sequences (so the number of sequences is half this), and 25233 in Q-A sequences. This quantity, in all respects, is well over what the canonical view might lead us to expect. Of course, there may well be genre effects that I won't deal with; the style of interview found on NPR might lead to a monologue bias. On the other hand, I would expect that it also leads to a bias towards requests for information. In what follows, I'll briefly characterize the kinds of examples found in this data set.

Sequences that suspend obligation are exceedingly common, illustrating many common types described above. In Q-Q sequences, we find among others, stacked requests, sub-questions, and meta-questions:

(18) H: President Trump is, of course, a close ally to Netanyahu.
H: Is the president playing a role in the Israeli elections?
H: Is he trying to help Netanyahu win?

(19) G: Most leeches in this group and other groups have three jaws, but the number of teeth in those jaws is more variable.
H: So why three jaws?
H: What do they need them for?

(20) H: The president has at least appeared to be weighing the options.
H: What is he signaling?
H: Do we know?

In Q-A sequences, we find (among others) conjectural questions with a same-speaker followup, rhetorical questions that are self-answered, and self-addressed non-rhetorical questions:

(21) G: As a former federal prosecutor, I actually have no idea how this would happen [...]
G: How did this happen?
G: It's worthy of an investigation.

(22) G: Well, I think he's going to come to the table.
G: Is it going to be substantive?
G: I don't think it's going to be substantive.

(23) G: And those states are home to high numbers of Trump's strongest supporter.

10 Thanks to Karl Mulligan for help with this; the code for identifying questions was developed for Mulligan & Rawlins 2024.

G: Who is that?
G: The white working-class voter.

As (21) illustrates, questions with a declarative followup can issue some sort of request for information (although in the host-guest context, this one may well be fairly conjectural), but the other two intuitively provide a tentative are definitive answer to the question itself, respectively. Now, in broad terms Questioning as Requesting can say something about certain of these cases: they can be self-requests. But, the specific Obligation constraint is quite tenuous here, and a self-request strategy does not seem to generalize across data like (21).

Let us briefly recap the empirical points made here. First, as is well known, there are many, many counterexamples to the canonical view of questions as requests for information. These are very often bracketed, or taken one-by-one, but when put together, I suggest that there is a very strong case for pursuing views of questioning that are not the canonical one. Second, there are many cases (more than a third in the data set I looked at) where thinking about questions as requests, particularly at the unit of a root interrogative clause, runs aground on same-speaker sequences where an interrogative sentence is followed by something else, for a wide variety of purposes. This is simply not expected on a view where an interrogative as question makes a request. At a minimum, we would have to take a 'question' to be spread across multiple interrogatives, e.g., allow stacking up or summation of requests, but this covers still only a portion of the Q-X sequences found in the data.

(24) **The canonical theory**
To ask a question is to request information, in the form of answers.

a. *Ignorance*: the asker doesn't know the answer
Challenged in: exam questions, rhetorical questions, maybe biased questions
b. *Viability*: the askee might be able to answer
Challenged in: ignorance questions, conjectural questions
c. *Obligation*: the asker should attempt to answer following the question
Challenged in: rhetorical questions, conjectural questions, Q-X sequences

At this point, we have reached a familiar situation in pragmatics: a relatively restrictive theory has many counterexamples. There are several standard strategies. A classic approach on this topic is to declare exceptions, as in how Searle 1969 or Hintikka 1974 treat exam questions. This is perhaps compelling for a few special cases, but I do not find it compelling once all the non-canonical question types are

viewed together.[11] Alternatively, we might find specific mechanisms that weaken the restrictive theory in a principled way, or develop a principled theory that is weak enough to cover all the counterexamples. An influential approach recently has been to provide a canonical theory that under the right circumstances defeats the canonical principles in a principled, hopefully compositional, way (see e.g. Farkas & Roelofsen 2017; Farkas 2022; Rudin 2022). As Dayal 2016 puts it (p. 5), "The conversational contribution of questions that are not requests for information are still calculated based on the semantics associated with canonical questions."

A clear and well-worked-out example is found in Farkas 2022, which provides a restrictive set of constraints on canonical questions (on which I have based the constraints in (6)), following from their Conventional Discourse Effect/CDE. The basic CDE of a form may then further combine compositionally with items that modify, including defeating, canonical principles. I will not directly argue against such an approach here, and in fact many individual approaches along these lines could well be on the right track for the data they deal with; nor would I want to deny that there are CDEs related to different sentence types that may be modified compositionally. However, what I will do here is consider a different, alternative view of questions that makes none of the question types I have discussed in this section 'non-canonical'. This could be seen as providing an alternative CDE for interrogative clauses, along with the beginnings of an inferential system that allows strengthen it for either compositional, or contextual reasons.

4 Questioning as Coordinating

To repeat, the proposal is:

(3) *Questioning as Coordinating*
To ask a question is to open coordination on the public resolution of an issue.

In what follows I will go into detail on what I mean by coordination, but at an intuitive level, to coordinate is to engage in a social activity aimed at some crucially shared goal where agents participate as best as they can. The goal in this case is to *resolve* an issue that is salient in discourse, and I will use relatively standard technology for modeling resolution, in particular, the Table model of Farkas & Bruce 2010 combined with an Inquisitive Semantics for issues/resolution (Ciardelli, Groenendijk & Roelofsen 2019 etc.). Nothing hinges on these specific choices, but I will need some way of modeling discourse dynamics with relatively decomposed move

11 The cases I am examining here are far from exhaustive. In fact, I would still be inclined to draw exceptions in some cases, such as interrogatives used as greetings – these may well be conventionalized in some dialects to not act as questions in my sense at all.

sequences, and some way of modeling issues and resolution. The basic idea is that once questioning is re-framed as coordination, there may be many ways to satisfy the resolution goal, and there is no guarantee that satisfaction of this goal rests solely on an askee. Non-canonical questions, as well as regular requests for information, fall out as special cases. Moreover, I will argue that when the inference involved in interpreting a question is cast in a coordination game, the constraints involved in Questioning as Requesting fall out as special cases.

This section proceeds as follows. In §4.1 I will briefly sketch some of the background on coordination games in general. In §4.2 I present the specific system that I will be using here to implement a coordination game case study in extensive form, with the formal details given somewhat parenthetically in §4.3. In §4.4 I present a detailed case study of response moves to questions, which illustrates how to think about non-canonical questions and their responses given Questioning as Coordinating. Finally, in §4.5 I return to the non-canonical question types in play in the context of this case study. This will lead into §5, which returns to the case of questions when they are used as requests for information.

4.1 Coordination basics

In a classic problem of coordination (Lewis 1969: 6), drivers in a two-lane road must decide whether to drive on the right or the left. The observation is that as long as they make the same choice, everyone is safe; trouble comes when they make different choices. This can be schematized in the 'payoff matrix' in (25). Here, the bolded cells are termed coordination equilibria, where no agent would be better off if any one agent deviated (i.e. any one agent deviating leads to a crash).

(25)

	R	L
R	**1,1**	-1,-1
L	-1,-1	**1,1**

More generally, this example is a case of what might be termed *action-oriented coordination*, where actions are coordinated between agents if the interdependencies between those actions are managed by the agents in service of a common goal (Schelling 1960; Lewis 1969; Malone & Crowston 1994; Clark 1996). (This can be compared to a more Stalnakerean *attitude-oriented coordination*, where an attitude (e.g a belief) is coordinated between agents if the attitude 'agrees' for all of the agents, and it is commonly supposed by the agents that this is so (Thomason 1990).)

The treatment of coordination in game theory (Schelling 1960; Lewis 1969) standardly involves a 'simultaneous' game, where the payoffs for the choices are considered all at once by both agents in advance. Of course, in the setting of lin-

guistic discourse, it is a bit hard to make sense of a simultaneous game. We will therefore consider such games in 'extensive form', where payoffs are calculated for an entire decomposed move sequence for all agents, but decomposing the sequence is necessary to do the calculation. Moves will be linguistic moves, e.g. questions and assertions. This general idea has been made well-known in linguistics and psychology by Clark (1996), and more recently developed by Murray & Starr (2018) for force in general, but to my knowledge has never been applied to questions. This paper will not involve particularly sophisticated game theory or payoffs, and will not delve into coordination formally much beyond what I have shown here.[12]

4.2 Modeling moves

Producing an extensive-form version of the coordination game we need for questions and their responses requires decomposing discourse sequences into appropriate moves. Recent work on dynamics and force provides several good candidate theories of moves, especially the 'Table model' of Farkas & Bruce 2010 and subsequent work, and the commitment space semantics of Krifka 2014, 2015, 2017 etc. Here I will use the Table model. On this approach to conversational dynamics, linguistic moves by agents manipulate the Table, a repository for proposed updates to the common ground. For example, an assertion proposes to update the common ground by incorporating the information contained in the assertion, and responses to assertions (which may be implicit) accept, reject, or otherwise address that proposal. In Farkas & Bruce 2010, asking a question puts that question on the table, analogous to raising a Question Under Discussion (QUD; Roberts 1996; Ginzburg 1996), and responses address the issue raised. Some possible response moves that will be relevant to the discussion include 'yes' and 'no', which resolve a polar issue positively or negatively, 'I don't know' (abbreviated 'idk') which indicates ignorance, and abstractly what I will refer to as acceptence ('ok') moves and disagree moves, which accept or reject a proposal on the table anaphorically. The former corresponds plausibly to English 'ok'. We will be interested for the most part in the formal part of this paper in sequences like the following:

(26) A: Is it raining?
B: Yes.
A: ok. (may be tacit)

This can be translated as the following moves:

12 This a rich topic with a large literature, and I do not have the space to do full justice to it here. For an overview of game theory in linguistics, see Franke 2017. For an overview of game theory aimed at approximately the audience of the present paper, including coordination games, see Ross 2018.

(27) A: Question(*Is it raining*)
B: Propose(*It's raining*)
A: Accept

To make sense of this in a coordination setting, what we then need is a way of calculating payoffs for individual move sequences. Given this, we can model certain kinds of conversational inference as search over those payoff matrices in order to find coordination equilibria. I propose that the response move case study I focus on in this section can be handled by the following constraints, first presented informally:

(28) If A utters ϕ relative to QUD Q:
a. **Quality**: the informative content of ϕ should be entailed by A's belief state.
b. (**Consistency**: the output state should be consistent with each agent's belief state.)
c. **Resolvedness**: If possible, the result of updating with ϕ should 'move towards' resolving Q

These are presented in as general terms as possible but focus on the various possible responses to a question. Quality, named after the famous Gricean principle (Grice 1975), is violated by inconsistency with private beliefs. Consistency on the other hand, is violated by inconsistency between public and private beliefs. And last but not least, Resolvedness states the coordination goal most directly: agents are working towards resolving whatever issue is on the Table.

Given these principles, one further thing is clear: both private doxastic states and the public conversational state also need to be modeled as part of the search for coordination equilibria.

4.3 Formal implementation

This section presents a very brief statement of the way in which the constraints are formalized for the response case study in 4.4. The formalism corresponds to a Jupyter notebook implementing the case study that can be found on GitHub[13]. The model here is stated in a version of inquisitive semantics (key references: Ciardelli, Groenendijk & Roelofsen 2013; Ciardelli et al. 2019; Ciardelli 2017), though other formalizations of issues could be used as well.

(29) a. An *alternative set* is a non-empty set of type $\{\{s\}\}$ (e.g. a set of sets of worlds; Hamblin 1973 and much subsequent work)

13 https://github.com/rawlins/asking-questions/blob/main/salt-2024/asking-questions.ipynb

b. An *issue* is a downward-closed alternative set
c. $Q^{\downarrow}$ is the non-empty *downward closure* of Q: $\{p \subseteq q \mid q \in Q \wedge p \neq \emptyset\}$
d. $Q^{\uparrow}$ selects the maximal sets from Q:
$\{q \in Q \mid \neg\exists q' \in Q : q \subset q'\}$

(30) a. An issue is *informative* iff it doesn't cover $\mathbb{W}$.
b. An issue is *inquisitive* iff its upward closure is non-singleton.

(31) For any issue Q, its *informative content* (output type: $\{s\}$) is:
$\inf(Q) = \bigcup Q$

Interrogatives will denote inquisitive issues, and resolving them will involve choosing among the options they provide.[14] For example, a polar question like "Is it raining?" will denote an issue that divides things up into sets of worlds where it is raining, and sets of worlds where it isn't. Given this setup, we can formally define resolvedness in a very straightforward way:

(32) An issue Q is *resolved* by a proposition $p_{\{s\}}$ iff $p \in Q$

And finally, we can then formally state the conversational principles used in calculating payoffs. Note that Quality is decomposed into two parts. The approach to Resolvedness presented here is not intended as the last word on the principle, but is sufficient for the response case study.[15]

(33) a. Let 'cs_c' indicate the (Stalnakerean) context set of a context c.
b. Let 'Q_c' indicate the salient QUD in a context c, i.e. the inquisitive issue closest to the top of the Table stack.
c. Let 'Dox_X' indicate the doxastic state of agent X.

(34) If A utters ϕ relative to context c:
a. **Quality-1**: $\text{Dox}_A \cap \text{Inf}(\phi) \neq \emptyset$
Quality-2: $\text{Dox}_A \subseteq \text{Inf}(\phi)$
b. **Consistency**: $(cs_c + \phi) \cap \text{Dox}_A \neq \emptyset$
c. **Resolvedness**: $(\text{Inf}(\phi) \not\subseteq Q_c) \rightarrow (Q_c \cap \{\text{Dox}_A\}^{\downarrow} = Q_c)$
'If ϕ is not at least partially resolving, A's doxastic state doesn't resolve Q.'

14 I won't be saying much about the semantics here, but this builds directly and indirectly on a large body of literature that tackles the compositional problem, e.g. Hamblin 1958, 1973; Karttunen 1977; Groenendijk & Stokhof 1984, 1997; von Stechow 1991; Ginzburg 1995a,b; Higginbotham 1996; Roberts 1996; Lahiri 2002; Kratzer & Shimoyama 2002; Kotek 2019 among many others.

15 In particular, it would need to be modified to handle certain cases of partial resolvedness for more complicated move sequences, as well as disengagement moves that are not just expressions of ignorance. I will leave this for the future.

In the present paper, payoff calculation for a move sequence at a context and doxastic state is very simple: constraints are equally weighted and summed for each agent, building a payoff matrix for A's moves on one axis and B's moves on the other. Quality is calculated over an entire sequence, but Consistency and Resolvedness are calculated on each move. See the Jupyter notebook for more details. A coordination equilibrium is then defined nearly standardly following Lewis 1969 (p. 14): any move state where if any one agent deviated, neither that agent nor others would be any better off. The way in which this is non-standard is that I crucially (for present purposes) do allow so-called trivial equilibria, games where there is just one coordination equilibrium. (Of course, the setting here is rather different than Lewis', and each individual payoff matrix we are calculating is embedded in a larger epistemic game, so arguably these individual matrices should not be considered trivial coordination games themselves.)

4.4 The response move case study

In order to illustrate the system, in this section I develop in detail a case study of questions followed by responses, and then followups. The first move will be locked to be a simple polar question, with a fixed set of possible responses and then followups. This is essentially a specific extensive form game with agents A,B, and the template for possible move sequences as follows:

(35) A: Is it raining?
B: {yes / no / idk }
A: {yes / no / idk / ok / disagree }

This game is obviously the tip of the iceberg for formal implementations of Questioning as Coordinating, but it is what I have space for in the present paper. To calculate payoffs for an extensive form game based on this setup, we need to consider the possible moves for each agent, at each doxastic state for each agent. The reason for the latter should be clear: the way payoff constraints are implemented, they may or may not be satisfied depending on doxastic state.

For now, I will suspend the issue of *why* the question was asked, and only consider how to interpret responses in various possible private states (assuming that the public conversational state does not decide the answer). Suppose the toy model where $\mathbb{W} = \{w_1, w_2\}$, and it is raining in w_1, sunny in w_2. This leads to three possible (non-absurd) belief states for A or B: $\{w_1\}, \{w_2\}, \{w_1, w_2\}$. We can then consider various possible responses to a question:

(36) A: Is it raining?
$[\![\textbf{Is it raining?}]\!] = \{\{w_1\}, \{w_2\}\}$

My main claim here is this: in this case study, for each belief state, there is a B-A response sequence to the question (call it the *coordinated response*) that is a coordination equilibrium. Looking at these equilibria gives insight into certain kinds of 'non-canonical' questions. In particular, *all* of the cases involving doxastic that correspond to non-canonical questioning are well behaved. The space here is quite large, so it will be useful to zoom in to start. For example, if A's belief state is $\{w_1, w_2\}$, then they don't know the answer to the question. In this scenario, they might hope that B will have resolving information, and indeed if they do, the equilibria involve B providing that information. If they don't, then an idk response is the equilibrium.

The full set of coordinated response sequences for the template in (35) are provided in (37). In the right-hand column I have annotated certain special cases that fall out. The way to read this column is as roughly follows: if it can be inferred that the belief states are indicated by the matching rows, that question type can be inferred. For example, if either both agents believe that it's raining (and that is known), or both agents believe that it is not raining (and that is known), then the question type can be taken as a rhetorical question. Of course, locking the turn sequence to be exactly A-B-A may make some of these cases less natural, especially on A's followup, and modifying them can prove interesting, but I will not delve into that here.[16]

(37) A: Is it raining?

	Dox_A	Dox_B	coordinated response	
1.	$A\{w_1\}$	$B\{w_1\}$	B: yes. A: ok.	rhetorical, exam
2.	$A\{w_1\}$	$B\{w_2\}$	B: no. A: disagree.	exam
3.	$A\{w_1\}$	$B\{w_1, w_2\}$	B: idk. A: yes.	exam
4.	$A\{w_2\}$	$B\{w_1\}$	B: yes. A: disagree.	exam
5.	$A\{w_2\}$	$B\{w_2\}$	B: no. A: ok.	rhetorical, exam
6.	$A\{w_2\}$	$B\{w_1, w_2\}$	B: idk. A: no.	exam
7.	$A\{w_1, w_2\}$	$B\{w_1\}$	B: yes. A: ok.	Request for info
8.	$A\{w_1, w_2\}$	$B\{w_2\}$	B: no. A: ok.	Request for info
9.	$A\{w_1, w_2\}$	$B\{w_1, w_2\}$	B: idk. A: ok.	RfI, conjectural

The first observation is that the coordinated responses seem exactly like what we would expect for the cases in question, and the non-canonical question types are perfectly viable in the toy game presented here. More specifically, coordination

16 For example, the implemented model in the provided Jupyter notebook uses a more restricted set of A followups where they won't answer the question, which then leads to guessing being equilibrium for B in exam question cases; this actually seems like the right prediction.

leads to B answering when they can, and declaring ignorance when they can't, and handling all of rhetorical, exam, RfI, and conjectural scenarios just fine. Second, in scenarios of partial information, which would be the norm, this table provides fodder for inference. That is, given partial information about doxastic state, a hearer can draw inferences about what kinds of questions may be in play, and what response sequences might be expected. And finally, when expanded into a setting where the first move isn't locked, we might be able to make a rich set of predictions about what the expected effect of a particular question is.

4.5 Considering the question

We can further expand on the picture in (37) by considering what else A might have done besides ask the question they did. I will not present the exhaustive analysis here (leaving that for future work), but certain cases follow straightforwardly.

4.5.1 Exam questions

In the exam question cases, the obvious alternative move that agent A might have is simply to provide the information that would resolve the issue, either directly, or as a Q-A same-speaker sequence. However, they don't do this. On the coordination view, the explanation is straightforward: if a social norm of some kind prevents A from contributing to resolution of the issue, then we are effectively conditioning on rows 1-6 of the table, leading to an exam question scenario. However, in absence of such a social norm, a move by A that fails to provide the information they have in rows 1-6 would violate Resolvedness.[17]

4.5.2 Rhetorical questions

If it can be inferred that both agents' belief states converge on the same resolution of an issue, then the corresponding question can be taken to be rhetorical. However, a rhetorical question in this framework is always in competition with a corresponding assertion that could be used. Simply put, an agent needs a reason of a certain kind to make a point using a rhetorical question. One candidate reason (Biezma & Rawlins 2017b) is to publicly extract a commitment from another agent. Aside from this, nothing prevents coordination on the resolution of an issue that can be immediately resolved, except perhaps for prior *public* resolution. Rhetorical questions are natural and expected under Questioning as Coordinating.

17 This approach dovetails well with a recent proposal on exam question marking in Marzahn German in Gärtner & Pankau 2024, though I will not address their full results here; the handling of other non-canonical questions in this dialect is trickier.

4.5.3 Conjectural and ignorance questions

In general, nothing about this system requires that a goal be easily or immediately achievable in order to coordinate on it. Therefore, questions that have no immediate answer such as the ignorance question case, are still questions. Of course, this says next to nothing about how specific types of conjectural questions might work in discourse, and they may end up being fairly heterogeneous beyond just the specific case visible in the toy game above (which does correspond most closely to ignorance questions in (11) as well as questions in collaborative discourse). For example, self-directed conjectural questions might be modeled by a single agent with the goal of resolving an issue, signaled publicly. I will leave a full exploration of this for the future.[18]

4.5.4 Biased questions and same-speaker sequences

It was noted above that in exam question cases, in absence of a norm allowing an agent to hold back information, they shouldn't. Biased questions can be thought of as the flip side of this: questions where an agent *does* contribute what they can, even if this doesn't lead to full resolution.[19] Similarly, many same-speaker (Q-Q and Q-A) sequences can be thought of in the same way: the asker provides followup(s) as their setup contributions to coordination. This highlights one of the main features of this framework: coordination is a joint activity, and we should expect participation from both parties to the extent possible, as long as general turn-taking principles allow it.

5 Requests for information

Finally, I will return to the case of canonical questions as requests for information. The present proposal doesn't deny the existence of what can be described as requests for information, just reduces them to one special case of Questioning as Coordinating. It is worth considering this in light of the following three constraints, repeated from (6), which are often taken to be (perhaps defeasible) felicity conditions of unmarked questions:

(38) a. *Ignorance*: the asker doesn't know the answer

18 One particular challenge may be 'non-intrusive' questions in the sense of Farkas 2022; these are the one case that I know of in the literature which might require 'coordination' the way I have used it to be backed off. Farkas' account in combination with a coordination story suggests the possibility of something like optional coordination.

19 Note that formally, this requires an upgraded version of Resolvedness from what the formal version used in the case study; see fn. 15.

b. *Viability*: the askee might be able to answer
c. *Obligation*: the askee should attempt to provide an answer (immediately) following the question

The proposal up to this point is that none of these constraints is an inherent property of questions, and that special cases where all of these constraints are violated is a consequence of Questioning as Coordination. A natural question at this point is where the intuition that these *are* constraints on unmarked questions may have come from, and whether anything replaces them.

In the case of Ignorance, there is still reasoning about the asker's doxastic state involved in the system. Without any further information, a hearer may reason over the full space of possibilities illustrated in (37), i.e. including the case of asker ignorance. Moreover, by asking a question and making no further contribution towards the coordination goal, and asker further indicates that they are unable to contribute to the goal, ruling out non-ignorant states. Therefore, a *highly* defeasible version of Ignorance simply follows from the logic of Questioning as Coordinating. In other words, it follows that if it can be reasonably expected that A should know how to resolve Q, and doesn't, then either: A is ignorant, or there should be some contextually salient reason why A does not contribute whatever they can to the game. Further, if a hearer has information that A appears to be deviating from a coordination equilibria (by only asking a question) then they may reason about why A is doing so.

The case of Viability is a bit more nebulous, but what we can say here is that, conditioning on A's ignorance (rows 7-9 of (37)), and further conditioning on B's ignorance (reducing us to row 9) leads to a scenario where the coordination goal is in immediate terms, hopeless. While there is nothing really wrong with this in terms of the game, and the local equilibrium is straightforward, I speculate that to engage in 'locally pointless' coordination may also invite reasoning about why an agent would bother. One reason, analogous to rhetorical questions on the Biezma & Rawlins 2017b view, can be to indicate publicly that the question is unanswerable, exactly triggering inferences about speaker ignorance or rhetorical force. See Farkas 2024 for a recent discussion of rhetorical questions that are of the 'unanswerable' type. Another reason may be to invite wild speculation, or express frustration.

Finally, I do not really think that Obligation has much remnant in the present system beyond very general reasoning about turn-taking and turn releases. On the Questioning as Coordinating view, we should not expect an asymmetric principle like this at all. However, we can definitely get something out of reasoning about turn-taking. If an asker is truly ignorant, then they are out of moves beyond asking the question itself (and optionally directly indicating their ignorance). Therefore, after an asking move, once coordination begins there is nothing for them to do

except release the turn. Similar logic applies to exam question turn releases, and many other cases. Overall, the prediction is exactly that an asking agent should do what they can to contribute to the game as early as they can, and hence we expect to see the large number of same-speaker Q-X sequences visible in corpus data, the preponderance of ways of marking biased questions, etc. This points towards a larger challenge that I leave for future work: the dynamics of turn-taking and turn releases are largely neglected in formal pragmatics, but I do not think that question dynamics can be fully understood without understanding them.

Overall, therefore, I take it that the case of requests for information falls out from the overall picture I have argued for in Questioning as Coordinating. Moreover, one piece of reasoning that can be observed above is that opening the coordination game under this view can be done with a simple question, but anything more may involve a marked form. That is, it follows from the system that unmarked forms are particularly good at making requests for information: without further (marked) augmentation, they will be a preferred move in cases where Ignorance and Viability are satisfied. However, nothing need be built directly into the meaning of these particular question types.

Are there felicity conditions that emerge in the new approach? First, there is one that I have implicitly baked into the system:

(39) *Relevance*: A move in discourse should be relevant to any coordination games that the speaker has agreed to.

This condition is obviously inspired by Relevance conditions in the QUD literature (Roberts 1996), but generalized. For answers, this is actually already handled by Resolvedness, but I have not presented a formal version of this that applies to questions relative to their prior discourse. I will leave it to future work, but the QUD notion of a *strategy* clearly should be generalized to the present setting.

Second, is another constraint I have baked into the system, inspired by one from Farkas 2022:

(40) *Issue resolution goal*: It is assumed that the main aim the speaker pursues when raising an issue is to have it resolved in the immediate future of the conversation. (Farkas 2022 4-d)

That is, a question move is not felicitous if the speaker introduces it without the private goal of (here) coordinating on the resolution of an issue. This might be generalized to:

(41) *Coordination obligation*
Agents who agree to participate in coordination should contribute towards the coordination goal up to the limits of both encoding and their beliefs.

Finally, we might require that coordination on the resolution of an issue necessitates that the issue not be publicly resolved before (even if all agents know the answer, know each other knows the answer, etc).

(42) *Coordination viability*
Asking a question $Q_{\{\{s\}\}}$ is felicitous in c only if agents are not already *publicly coordinated* on a resolution of Q in c.

Like the other new constraints, in the way I have formally implemented the system, this went without saying, but it is worth considering as a constraint on its own terms.

6 Conclusions

In this paper I have argued against the classic idea that questions are requests for information. While I haven't definitively argued that a canonical view fails to be upgradeable account for the wide range of counterexamples, I have shown that a different positive proposal can handle the many counterexamples. The idea is that questions involve coordination in a game-theoretic sense, in particular:

(3) **Questioning as Coordinating**
To ask a question is to open coordination on the public resolution of an issue.

On this view, there is no distinction between 'canonical' questions as requests for information, and various types of 'non-canonical' questions. Rather, requests for information are simply a common special case where coordination is (potentially) asymmetric and the asker is ignorant; this special case aligns with unmarked question forms. Further, I have argued that many of the classical constraints on questions from the canonical view can follow from reasoning about markedness of form as well as the context in which a question is asked. This proposal puts exam questions, rhetorical questions, (at least some kinds of) conjectural questions, and questions that indicate ignorance under one heading together with standard requests for information, while pointing towards explanations for the differences. In fact, the proposal leads us to the straightforward expectation that there *should* be many kinds of uses for interrogative root clauses outside of requests for information. In doing so, it builds on and generalizes what it means for a question to be "under discussion" in the QUD sense. A question is under discussion when agents are coordinating on its resolution, and the dynamics of coordination explain many things about the dynamics of questioning.

There are many open questions at this point, and this paper has been extremely programmatic. In future work I especially hope to address: (i) precise modeling of larger and more flexible games than the toy game presented in §4.4, and (ii)

better handling of the details of specific non-canonical question types discussed in this paper, and especially those marked with specific morphology. Finally, (iii) on this view it is crucial to have a linguistically informed view of the dynamics of turn-taking.

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Kyle Rawlins
Department of Cognitive Science, Johns Hopkins University
3400 N Charles St, Baltimore, MD, 21218
kgr@jhu.edu