

Apposition in Question-based Conversational Dynamics

Abstract This article investigates non-clausal appositives, motivating an analysis of them as fragment answers to implicit questions. This analysis builds on prior fragment answer accounts of nominal appositives (Onea 2016, AnderBois & Jacobson 2018, Onea & Ott 2022), but diverges from these accounts in treating the implicit questions as typical Questions Under Discussion (QUDs) arising from regular pragmatic mechanisms operative in discourse (Roberts 2012). Empirical support comes from a previously unanalyzed class of prepositional appositives, which are shown to be subject to an independently established constraint on fragment answers. Further evidence comes from cases of apposition that play a central role in strategic discourse, demonstrating that the implicit questions they answer are genuine QUDs. This analysis challenges the understanding of appositives as side commentary separate from strategic discourse, a status often taken to underlie their *not at-issue* or secondary status relative to their hosts (Simons et al. 2010, Onea 2016). It also shows that conversational dynamics must be taken into account in our explanations of apposition.

Keywords: appositives, implicit questions, fragment answers, relevance, discourse dynamics

1 Introduction

One standard view in pragmatics takes conversation to be structured around conversational goals to which interlocutors should be relevant (Ginzburg 1996, Roberts 2012). Speech acts are performed as part of *strategies* to accomplish these goals. An influential articulation of this view is Roberts' (2012) Question Under Discussion (QUD) framework, in which conversational goals are represented as questions (QUDs), and asking a question sets a new conversational goal.

Appositives tend to be treated as peripheral to this kind of conversation. Often considered “extraneous information”, or “side commentary”, appositives have been explicitly analyzed as separate from strategic discourse (Simons et al. 2010, Onea 2016). On the face of it, this position suggests that appositives are both (i) inessential to and (ii) unconstrained by the larger goals around which conversation is structured.

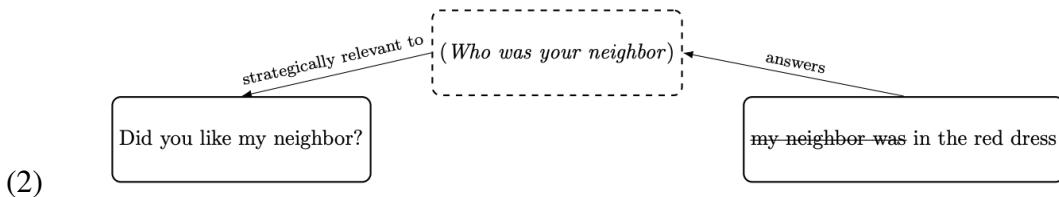
This article investigates cases of apposition that, contra this characterization, are both essential to and constrained by strategic discourse. I use these cases to motivate an analysis of non-clausal appositives (e.g., nominal appositives), where they are integrated into the QUD framework as independent assertions, and governed by the same discourse constraints as regular assertions.

Most strikingly, I draw attention to a case of *appositional repair*, in which an appositive can ameliorate the use of an otherwise infelicitous utterance:

- (1) A brought B to an event, where B met a number of new people. One of them, C, was wearing a red dress. B never learned that C was A's neighbor and A knows this. After the event, A asks:
- #Did you like my neighbor?
 - Did you like my neighbor, in the red dress?

I provide evidence that the appositive in (1b) is used strategically to help the hearer answer the host question, and that this strategic role also underlies its ability to ameliorate the question's infelicity in (1a). In essence, I argue that the appositive is an essential – in fact, necessary – part of a strategy to resolve a new QUD.

I also show that prepositional appositives like the one in (1b) are constrained by the QUDs present in the discourse. In particular, they are subject to a constraint that identifies them as **fragment (elliptical) answers** to a class of implicit QUDs I call **questions of identity**. In (1b), this implicit QUD can be paraphrased as *Who was your neighbor?*. The appositive can target this question since it is part of a strategy to answer the host question, as described above. The overall analysis of (1b) is diagrammed below:

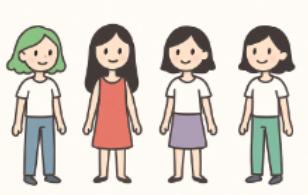


This analysis builds on prior fragment answer accounts of nominal appositives (Onea 2016, AnderBois & Jacobson 2018, Onea & Ott 2022), but diverges from them in treating the implicit questions as standard QUDs.

A substantial portion of this article presents empirical motivation for the analysis in (2). Motivation for the relation on the left – the relevance of the question of identity to the host question – comes from empirical arguments showing that the appositive and implicit question that it answers play a strategic role in their context. To capture this role, I introduce a notion of strategic relevance that, while consistent with Roberts' (2012) original intent, is more capacious than her original formulation. This broader notion will illustrate both the flexibility of the basic QUD theory, as well as the ways in which conversation is less tightly structured than in Roberts' original account.

Motivation for the relation on the right in (2) comes from a novel empirical generalization about prepositional appositives like the one in (1b) that are used for identification: they must denote a unique individual. I call this the “Uniqueness Generalization”. For example, in (3) below, where there’s one person with green hair and several with black hair, *with the green hair* sounds natural as an appositive (3a), while *with black hair* is infelicitous (3b).

- (3) A and B arrive at an event where the four people below are standing around. A knows that one is a lawyer, and that B doesn’t know this. A also knows that the lawyer has (a) green or (b) black hair. B asks A: “Who do you want to talk to?” A responds:



- a. I want to talk to the lawyer, with the green hair.
- b. I want to talk to the lawyer, #with black hair.

Importantly, this infelicity does not remain with follow-up assertions or nominal appositives used for identification, in the case where all the speaker knows is that the lawyer has black hair:

- (4) [Same context as (3).] B: “Who do you want to talk to?” A responds:
- a. I want to talk to the lawyer. She has black hair. (A friend of mine told me about her.)
 - b. I want to talk to the lawyer, one of the women with black hair. (A friend of mine told me about her.)
 - c. #I want to talk to the lawyer, with black hair. (A friend of mine told me about her.)

Unlike prepositional appositives, the speaker can use follow-up assertions and nominal appositives to communicate that they only have partial identifying information about the lawyer.

I demonstrate that the contrasts in (3) and (4) support an analysis of these appositives as fragment answers to implicit questions of identity by showing that (i) the same contrasts in (3) and (4) can be found in answers to overt questions of identity, and that (ii) the generalization can be attributed to an independently established constraint on fragment answers.

To be clear: my analysis treats both prepositional (3a) and nominal appositives (4b), in the contexts I examine, as fragment answers to such questions. Prepositional appositives simply have properties that make these questions detectable. In this way, I use the properties of a less-studied category of apposition to provide evidence for a more general analysis.

Given this analysis, how should one account for the widespread intuitions that appositives are side commentary? Indeed, observations about the *not at-issue* or secondary status of appositives relative to their hosts have reinforced these intuitions, leading researchers to characterize not at-issueness as irrelevance to the QUD (Simons et al. 2010, Tonhauser et al. 2013). Furthermore, prior fragment answer analyses of apposition have explicitly argued that the implicit questions appositives answer are *non-strategic*, offering both empirical and theoretical support for this view (Onea 2016, AnderBois & Jacobson 2018). How does one reconcile the data here with considerations from this literature?

I demonstrate that the QUD framework can, in fact, accommodate both the phenomena motivating past fragment answer accounts of apposition and the intuitions behind appositives' secondary discourse status. First, I trace non-strategic uses of non-clausal apposition identified in prior work to independent pragmatic mechanisms operative in discourse, which should in any case be integrated into the QUD framework. Second, following Koev (2013) and Jasinskaja (2016), I trace intuitions of appositives' secondary status to how they are sequenced relative to their hosts. Taken together, this supports distinguishing appositives' secondary status from their relevance to the QUD structure (Koev 2013).

1.1 Parenthetical prepositional phrases are appositives

Before proceeding, we must first establish that parenthetical prepositional phrases like *in the red dress* in (1b) are, in fact, appositives. To my knowledge, these expressions have not been analyzed elsewhere, so their status as appositives cannot be assumed. Furthermore, their use identifying the reference of their anchor conflicts with the usual characterization of appositives as “non-restrictive”, raising the question of whether they compose where integrated restrictive modifiers do – in the scope of their anchor’s determiner. Below are two arguments showing that these modifiers do not occupy that position and that they exhibit the properties of typical appositives.

First, these expressions don’t trigger *anti-uniqueness* implications about the constituent they modify, unlike integrated restrictive modifiers. For example, (5a) implies that there has been more than one president of Genovia; a speaker can use this sentence if they know the hearer is aware of multiple presidents. In contrast, (5b)

does not trigger implications about the number of Genovian presidents; a speaker can use this sentence even if there has only been a single one.

- (5) a. In 2012, I met the president of Genovia with the huge hat.
b. In 2012, I met the president of Genovia, with the huge hat.

The anti-uniqueness implication in (5a) arises because of the modifier's role in meeting the uniqueness requirement of the definite determiner: a speaker would not use the modifier if *president of Genovia* was already unique (cf. Schlenker 2005). The absence of this implication in (5b) suggests that these modifiers sit outside of the domain in which uniqueness is calculated, i.e. outside of the scope of the definite determiner. This is the position of canonical appositives.

Second, these expressions are subject to an *anti-backgrounding* requirement: they cannot be contextually trivial. This requirement applies to appositives, but not presuppositional material (Potts 2005):

- (6) Lance Armstrong survived cancer... (Potts 2005: 34)
a. And most riders know that Lance Armstrong is a cancer survivor.
b. #And when people interview Lance, a cancer survivor, he often talks about it.

Although the information in the initial clause can be repeated in presuppositional material (the complement of *know*) (6a), it sounds redundant when repeated in apposition (6b).

Modifiers in the scope of a definite determiner are presuppositional: the expression *the lawyer in the red dress* presupposes that there is a lawyer in a red dress (Strawson 1950, Elbourne 2013). Therefore, modifiers in this position can be used even when trivial:

- (7) A. You see the lawyer in the red dress? Did you like her?
B: Yes, I liked the lawyer in the red dress.

Of course, a pronoun might be a better choice for B to use; still, because it is presuppositional, B can use the same description to refer to the same lawyer without sounding particularly redundant.

If parenthetical prepositional phrases lie in the scope of the definite determiner in their anchor, they should similarly be allowed to be redundant. However, unlike the integrated modifiers in (7), they cannot be repeated ad nauseum:

- (8) A: You see the lawyer, in the red dress? Did you like her?
B: #Yes, I liked the lawyer, in the red dress.

In contrast to (7), B’s response in (8) sounds redundant enough to make it infelicitous. The anti-backgrounding requirement on appositives explains this difference – A already identified the lawyer as the person in the red dress, so the appositive is trivial, and thus ruled out.

Now that I’ve shown that parenthetical prepositional phrases are appositives, I will use their properties to motivate the proposal here. The article proceeds as follows. §2 derives the contrast in (1) and explores appositional repair more generally. §3 draws on the uniqueness generalization to argue that the modifiers function as fragment answers to questions of identity. §4 explains the strategic relevance of these implicit questions in discourse. §5 considers the implications of this data for the theory of (not) at-issueness. §6 concludes.

2 Deriving appositional repair

Appositives are usually considered inessential to their host clauses, hosting information that a speaker can leave out at will. Cases of appositional repair like (1), repeated from above, challenge this view:

- (1) A brought B to an event, where B met a number of new people. One of them, C, was wearing a red dress. B never learned that C was A’s neighbor and A knows this. After the event, A asks:
- #Did you like my neighbor?
 - Did you like my neighbor, in the red dress?

In (1), the appositive plays a crucial role in rendering the question felicitous. This section will determine how it does so.

One might suppose that the kind of repair in (1b) is only possible if the appositive can semantically compose with its host. Such a contribution to a question’s felicity, under this view, would only be possible if the appositive were part of the question itself, rather than independent from it.

Nevertheless, a follow-up assertion can perform this same repair:

- (9) [Same context as (1).] Did you like my neighbor? She was in the red dress.

Therefore, the contrast in (1) should be explained pragmatically, not semantically.

Another possibility is that this repair is dynamic semantic in nature. However, dynamic semantic theories of apposition can only account for cases of appositional repair that respect linear order, such as cases with anaphora (AnderBois et al. 2015):

- (10) a. #A woman took him to the hospital.
b. A woman, who hit a man_i with her car, took him_i to the hospital.

Out of the blue, the sentence in (10a) is infelicitous, since the pronoun *him* has no antecedent. The appositive in (10b) provides such an antecedent. The case of appositional repair in (1) works in the other direction: the appositive allows linguistic material that linearly precedes it to be used. Theories that only model the linearity of update cannot explain this case.

The account here explains this kind of repair by looking at the broader conversational dynamics. In particular, I tie the infelicity of (1a) to a question-specific condition of **hearer competence** (cf. Farkas 2022), which operates at the level of *conversational turns*. Its *turn-based* sensitivity will explain the appositive's ability to ameliorate the use of a question that – at the *move* level – precedes it.

2.1 Motivating the account

This section shows that the contrast in (1) follows from the host's status as a question, unlike other cases of appositional repair, and argues that appositional repair in general targets pragmatic constraints evaluated at the boundary of conversational turns. Along the way, alternative explanations for (1) based on presupposition satisfaction, correction, and ambiguity resolution are set aside.

2.1.1 The questionhood of (1a) drives its infelicity

To start, I want to set aside an obvious alternative explanation that would tie the infelicity in (1a) to a failure to meet the presupposition of *my neighbor*. The use of the appositive *in the red dress* clarifying the reference of *my neighbor* suggests this kind of account. However, presuppositions of possessives should be trivial to accommodate. And in other questions, the presupposition of *my neighbor* is easily accommodated:

- (11) [Same context as (1)] Did Marc point out my neighbor to you?

The presupposition of *my neighbor* is, therefore, not at fault for the infelicity of (1a).

Both questions in (11) and (1a) presuppose that someone at the event was A's neighbor. The crucial difference between them is that only (1a) requires B to identify who the neighbor was. In contrast, the question in (11) makes it at-issue whether B can identify them. Something about this particular requirement contributes to (1a)'s infelicity.

Intuitively, this requirement stems from the fact that, to answer *Did you like my neighbor?*, the hearer must consult their own internal experience of the neighbor. This evaluation procedure requires her to identify the neighbor to access her experience of them in her memory.

Indeed, there is evidence that the infelicity of (1a) stems from its status as a question, a speech act that puts the hearer on the spot for going through this evaluation procedure. Consider an assertive variant of (1a) – *You liked my neighbor* – which doesn't place the same kind of pressure on the hearer. This sentence is of course odd in normal contexts since the speaker is not in the epistemic position to make such an assertion. But one can craft a situation where this epistemic asymmetry is relaxed, in which case it is more natural:

- (12) A and B have a special relationship where A knows B quite well, such that A's observations about B's behavior can clue A into B's feelings. Also, A had informed B that her neighbor would be at the event, and that if B liked the neighbor, it would be a good predictor that B would also get along with another individual, a potential roommate, one of A's friends. Although B never learns which person at the event was A's neighbor, A notices that B reacts well to A's neighbor when they were talking. After the event, A says:
- a. You liked my neighbor.
 - b. #Did you like my neighbor?

In this context, the assertion doesn't run into the same problem as the question does. Of course, the assertion might trigger a follow-up question from B – *Who was your neighbor?* – so B can see if her internal evaluation matches A's external one, but the assertion doesn't track the question in being disallowed, from the speaker's perspective. B can respond to (12a) – *Oh great, I guess I'll like my new roommate!*

Importantly, both the assertion and question in (12) are felicitous so long as B can identify A's neighbor. Thus, the infelicity of the speech act in (12b) must follow from an interaction between the hearer's inability to identify the neighbor and its status as a question.

Similar observations can be made about an embedded variant of the question:

- (13) [Same context as (12)] I can't tell whether you liked my neighbor.

Again, the statement can be an invitation for the hearer to ask the question *Who was your neighbor?*, but it is not disallowed. This contrast shows that the infelicity of (1a) follows from the pragmatics of interrogative clauses, not their semantics.

2.1.2 Turn-sensitive constraints underlie appositional repair

We can better understand what enables appositional repair in (1) by examining other instances of this phenomenon. Below, I compare one such case with (1), showing that, unlike (1), it is not sensitive to sentential force and therefore requires a different ultimate explanation. Nevertheless, I suggest that all cases of appositional repair

share a common feature: they reflect pragmatic constraints evaluated at the boundary of *conversational turns*. On this view, apposition, like any other speech act, can be used by speakers to add clarifying material before their turn ends, thereby satisfying these constraints.

Nominal appositives that contain *one*-anaphora have been discussed at length in the literature because of their projection behavior (Wang et al. 2005, Nouwen 2014, AnderBois et al. 2015, Onea & Ott 2022, Schlenker 2020). These *one-asides* are also implicated in appositional repair:

- (14) Two foxes are in front of the speaker and hearer, one little and one big.
- a. #The fox is so cute.
 - b. The fox, the little one, is so cute.
 - c. #Isn't the fox so cute?
 - d. Isn't the fox, the little one, so cute?

This case resembles the one in (1), as it repairs the infelicitous use of a preceding noun phrase. Note, however, that this infelicity is present regardless of its force.

One approach in the literature accounts for repairs like (14) by proposing a rule-based operation. For example, AnderBois et al. (2015) and Schlenker (2020) both analyze *one*-asides like (14b) as *corrections*, underlyingly a distinct linguistic phenomenon from apposition. Schlenker (2020) suggests that *one*-asides involve an operation of replacing the material from their anchor with the material from the *one*-aside, directly modifying their host sentence. Such an analysis is corroborated by the corrective intention in (14b).

There is reason to doubt this analysis, however. Nouwen (2014) has drawn attention to pragmatic and prosodic differences between *one*-asides and uncontroversial cases of corrections that point to an analysis of them as regular appositives.

Moreover, such an operation would not in any case apply to the appositives I am concerned with. First, since they are prepositional phrases, they cannot replace their anchor, invalidating the kind of corrective mechanism proposed in Schlenker 2020:

- (15) *Did you like in the red dress?

Second, this case does not necessarily come with a corrective intention – a speaker can use the question *Did you like my neighbor, in the red dress?* to both (i) inform the hearer that the person in the red dress was their neighbor, while (ii) asking whether the hearer liked them.

For these reasons, I don't trace appositional repair to a particular operation. Rather, as discussed above, I propose that it reflects turn-sensitive pragmatic constraints. Below I give an informal overview of such an analysis for (14), showing how it naturally accounts for the contrast.

I adopt an analysis of *one*-asides building on Duff (2022): *one*-asides can act as tools speakers use to allow hearers to resolve the implicit contextual domain restriction C attached to their anchor, in the case of definites, allowing uniqueness of the anchor to be met. For example, in (14b), once the referential link between *the little one* and *the fox* is established, hearers can resolve the original C on *the fox* to something like $\lambda x. x \text{ is on the left}$.

Now, a Gricean view of conversation predicts a strong pragmatic constraint against utterances containing variables that the hearer cannot resolve. This can be tied to the *Be unambiguous!* clause of the Maxim of Manner (Grice 1975). A specific formulation of this constraint is the notion of “retrievability” in Roberts 2010:

- (16) **Retrievability** (Roberts 2010): In order for an utterance to be rationally cooperative in a discourse interaction D , it must be reasonable for the speaker to expect that the addressee can grasp the speaker’s intended meaning in so-uttering in D .

Suppose in (14a) the speaker initially intends C to be $\lambda x. x \text{ is on the left}$: this is not retrievable in the context.

Crucially, since this constraint references the speaker’s expectations about the hearer’s ability to understand their utterance, it need only be satisfied just before the hearer is required to act on that understanding. This moment coincides with the beginning of the hearer’s turn. Thus, the speaker can perform additional moves—such as apposition—that clarify the values of C such that retrievability is ultimately met. I propose this is how appositional repair functions in (14).

In the case of (1), I do not tie appositional repair to retrievability, since, as I have shown, the infelicity of (1a) stems from its status as a question. Instead, I attribute it to a different pragmatic constraint that has been discussed in the literature on questions: **hearer competence**. What unites this constraint with retrievability is that both constraints are evaluated with respect to conversational turns.

2.2 Hearer competence

I demonstrated above that the infelicity of *Did you like my neighbor?* in (1a) stems from pragmatic constraints on questions. In particular, I suggested that this infelicity is linked to the fact that answering the question requires the hearer to identify the neighbor, a task the speaker knows the hearer cannot do.

Of course, answering the question does not *necessarily* require identification of the neighbor. Consider cases where the hearer liked everyone, or no one, they met at the event. In these cases, the hearer can truthfully answer the question in (1a) with *Yes* or *No*, respectively, without being able to identify the speaker’s neighbor. This consideration tells us that it’s not impossible, from the speaker’s perspective, for

the hearer to answer the question. In other words, one cannot trace the infelicity of (1a) to some constraint on whether the question is answerable, strictly construed as there being some state of affairs where the hearer can answer the question truthfully (Rudin 2022, Rawlins 2024). There is such a state of affairs.

Instead, I trace the infelicity to a stronger requirement – that it’s reasonable for the speaker to expect the hearer to know the answer to the question. This requirement, hearer competence, is an instantiation of some pragmatic constraints on questions that have been discussed in recent literature (e.g. *Addressee competence/compliance* in Farkas 2022; *Obligation* in Rawlins 2024). An informal definition is given below:

- (17) **Hearer competence** (informal): For a question Q to be rationally cooperative in a discourse interaction D , it must be reasonable for the speaker to expect that the hearer’s doxastic state supports an answer to Q in D .

In this section I provide conceptual and empirical justification for this constraint and offer evidence that it is the source of infelicity of (1a). Then, I provide a formal definition and show how it derives this infelicity, as well as the appositive in (1b)’s ability to ameliorate it.

Hearer competence can be, at least in part, derived from dynamic models of discourse, such as the QUD framework, when paired with standard Gricean assumptions. In the QUD framework, asking a question sets it as the Current Question (CQ), the top element of the QUD stack. During their turn, speakers have to address the CQ if it exists to meet the Maxim of Relevance. Providing an answer allows a speaker to meet Relevance to the CQ. Moreover, all speakers have to be truthful – i.e., speak according to their own doxastic state – so as not to violate the Maxim of Quality. To be cooperative, speakers must therefore only proffer a question if they expect their hearer will be able to meet both Relevance and Quality – i.e. provide an answer supported by their doxastic state.

This explanation derives hearer competence from conversational pressure to prevent the hearer from having to violate norms of conversation. This framing can also explain the constraint’s sensitivity to conversational turns. When the speaker asks a question Q , the hearer is only in a position where they’d have to meet these norms at the beginning of their next turn. Thus, the speaker can perform additional moves—such as apposition—that can update the hearer’s doxastic state in such a way that the hearer is in a position to answer Q . This is the core of my proposal for what is going on in the case of (1b).

Of course, this norm-based derivation of hearer competence ignores the fact that answers are not the only relevant responses to questions. It is not irrelevant for a hearer to respond to a question with *I don’t know* or a follow-up question in service of answering the CQ (Roberts 2012, Ginzburg 2010). Still, it is infelicitous to ask a

question if you think the hearer will respond in such a way (Farkas 2022). One way of accounting for this divergence is to directly derive hearer-competence from the conventional discourse effect of questions, while treating non-answer responses – *I don't know*, follow-up questions – as non-canonical discourse moves (Krifka 2015, Farkas 2022). Another strategy is to connect questions to the goals of the speaker, and derive hearer competence from a theory of how agents choose optimal actions to meet their goals: the speaker should not take an action (ask a question) that they don't expect to result in their desired goal (an answer) (Van Rooy 2003, Lauer 2013).

Regardless of how one derives this constraint, there is a significant amount of evidence that it holds in typical contexts. Some evidence for this constraint comes from linguistic strategies used to circumvent it. For instance, often speakers embed possibility modals in questions to meet this constraint (Farkas 2022):

- (18) A and B were both out sick yesterday. A, to B:
- #What did the teacher say in class yesterday?
 - What could the teacher have said in class yesterday?

The question in (18a) is the issue A is actually interested in. She can't, however, ask (18a) to B, since it's not reasonable in the context for her to expect that B knows the answer to it. In contrast, it is trivial for B's doxastic state to support an answer to (18b), since from B's perspective, the teacher could have said many things in class yesterday. This makes the possibility modal a perfect tool to meet hearer competence.

Other strategies speakers use to circumvent this constraint are non-standard word orders and discourse particles. Eckardt (2020), for instance, describes a class of non-canonical questions in German realized with verb final word order, and which embed the modal *wohl*. These questions are used precisely when the speaker does not expect the hearer to know the answer. The closest corresponding English construction is the slinging use of *I wonder*:

- (19) What will my future be, I wonder?

We can use these strategies to motivate the fact that the infelicity in (1a) stems from hearer competence. In cases where the hearer cannot identify the neighbor, the infelicity of (1a) is ameliorated with the use of *I wonder*:

- (20) A brought B to an event, where B met some people. One of them, C, was A's neighbor, but A knows that B never learned this. The next day, B tells A: "I got drunk last night and don't remember much." A responds:
- #Did you like my neighbor?
 - Did you like my neighbor, I wonder?

Under the assumption that the slinging construction allows the speaker to circumvent hearer competence in some way, the fact that it can ameliorate the infelicity of (1a) provides evidence that the infelicity stems from this constraint.

To formalize this constraint, I define the notion of **settledness**. A question Q is settled for an agent A at world w and time point t if A 's doxastic state at w and t entails the truth of an answer to Q .

$$(21) \quad \text{Settled}(w, t, A, Q) = \exists a \in \text{PROP-SET}(Q): \text{DOX}(A, w, t) \subseteq a$$

The function $\text{PROP-SET}(Q)$ returns the set of propositions corresponding to the answers to Q (Hamblin 1976).¹

Next, I define a *move* in a discourse interaction D : a mapping from a natural number i – the move's position in discourse – to a tuple of contextual coordinates (Roberts 2012). These coordinates include the speaker (S_i), hearer (H_i), initial time point (t_i), context set (CS_i), and semantic object associated with the move (assertion A_i or question Q_i). Moves correspond to the discourse properties of disambiguated speech acts (e.g., root declaratives and interrogatives).

Using these notions, a formal version of hearer competence can be defined as a constraint on licit moves that is evaluated from the speaker's perspective.

$$(22) \quad \textbf{Hearer competence:} \text{ For any move } i, \text{ where } k \text{ is the closest move s.t. } k > i \text{ and } S_k = H_i, Q_i \text{ is felicitous only if } \forall w \in \text{DOX}(S_i, t_k): \text{Settled}(w, t_k, H_i, Q_i)$$

In prose, asking a question Q at i is only felicitous if in every world w compatible with the speaker's beliefs at the hearer's next turn k , the question will be settled in the hearer's doxastic state. Note that the definition does not prevent a move after Q_i , but before k , from helping Q_i meet this constraint.

We can use this constraint to derive the contrast in (1). Let's say that there are two candidates at the event for A's neighbor, α and β . Let's assume α is the actual neighbor. Let's also assume that B either liked someone or didn't like them. I will use four atomic propositions to derive the worlds in this scenario.

$$(23) \quad \begin{array}{ll} p_1: \text{A's neighbor is } \alpha & p_3: \text{B liked } \alpha \\ p_2: \text{A's neighbor is } \beta & p_4: \text{B liked } \beta \end{array}$$

Using these, A's doxastic state at the beginning of the hearer's turn is the following:

$$(24) \quad \text{DOX}(A, t_k) = \{w_{1,3}, w_{1,4}, w_{1,3,4}, w_1\}$$

¹ I use this function to make this analysis compatible with the one in the next section, which uses a *structured meaning* framework for question semantics (Von Stechow 1990, Krifka 2001). In this framework, PROP-SET can be defined as follows: $\text{PROP-SET}(\langle F, B \rangle) = \{B(x) \mid x \in F\}$.

In $w_{1,3}$, B only liked α ; in $w_{1,4}$, B only liked β ; in $w_{1,3,4}$, B liked both α and β ; in w_1 , B liked neither.

Note that A's neighbor is α across all worlds in A's doxastic state, since A knows who their neighbor is. However, B's doxastic state looks different at these worlds, since it includes possibilities where A's neighbor is α and possibilities where A's neighbor is β . The candidates for B's doxastic state at the beginning of their turn in (1a), relative to the worlds in A's doxastic state, are the following:

- (25) a. $\text{DOX}(B, w_{1,3}, t_k) = \{w_{1,3}, w_{2,3}\}$
b. $\text{DOX}(B, w_{1,4}, t_k) = \{w_{1,4}, w_{2,4}\}$
c. $\text{DOX}(B, w_{1,3,4}, t_k) = \{w_{1,3,4}, w_{2,3,4}\}$
d. $\text{DOX}(B, w_1, t_k) = \{w_1, w_2\}$

In each world, B knows the truth about who they liked at the event, since B has special knowledge of their own likes and dislikes. However, since A knows B doesn't know whether the neighbor is α or β , in every world in A's doxastic state, B's doxastic state includes both possibilities.

Now consider the answers to *Did you like my neighbor?* in the context at i :

- (26) $\text{PROP-SET}(\llbracket \text{Did you like my neighbor?} \rrbracket) =$
{ Yes: $\{w_{1,3}, w_{2,4}, w_{1,3,4}, w_{2,3,4}\}$, No: $\{w_{1,4}, w_{2,3}, w_1, w_2\}$ }

In two candidates for the hearer's doxastic state, (25a) and (25b), this question is not settled, since neither answer is entailed. The question is thus ruled out as a licit move by hearer competence.

Now consider what the appositive *in the red dress* in (1b) allows A to do. Let's say that α was wearing the red dress. So long as A uses the appositive to tell B that the neighbor was in the red dress, B's doxastic state at the beginning of their turn (k) looks like the following:

- (27) a. $\text{DOX}(B, w_{1,3}, t_k) = \{w_{1,3}\}$
b. $\text{DOX}(B, w_{1,4}, t_k) = \{w_{1,4}\}$
c. $\text{DOX}(B, w_{1,3,4}, t_k) = \{w_{1,3,4}\}$
d. $\text{DOX}(B, w_1, t_k) = \{w_1\}$

All of these candidates settle the question in (26). Thus, hearer competence is met.

To show the generality of this condition, consider the felicitous question *Did Marc point out my neighbor to you?*. Crucially, if Marc pointed out A's neighbor to B, then B knows that the neighbor was α . If Marc didn't point out A's neighbor to B, then either B found out the neighbor was α another way or they still don't know whether A's neighbor was α or β . These correspond to three possibilities for B's doxastic state, from A's perspective:

- (28) p_1 : A's neighbor is α p_5 : Marc pointed out A's neighbor to B
 p_2 : A's neighbor is β p_6 : B found out who A's neighbor was another way
- (29) a. $\text{DOX}(B, w_{1,5}, t_k) = \{w_{1,5}\}$
b. $\text{DOX}(B, w_{1,6}, t_k) = \{w_{1,6}\}$
c. $\text{DOX}(B, w_1, t_k) = \{w_1, w_2\}$

Now consider the answers to the question:

- (30) $\text{PROP-SET}(\llbracket \text{Did Marc point out my neighbor to you?} \rrbracket) =$
{Yes: $\{w_{1,5}\}$, No: $\{w_{1,6}, w_1, w_2\}$ }

In all of the candidates for B's doxastic state at k , the question is settled. By making identification of the neighbor at-issue, hearer competence is met.

In sum, appositives can play an essential role in facilitating the contextual felicity of their hosts. They do not merely host extra information that a speaker can omit at will. In some cases, they host clarificatory material that helps satisfy pragmatic constraints that the host sentence cannot satisfy on its own.

In the case of (1), the relevant pragmatic constraint is hearer competence, which requires that a speaker ask a question only if they expect the hearer to have an answer. The appositive in (1b) thus is used explicitly to facilitate the hearer's ability to answer a question. Later in this article, I will argue that this function – facilitating hearer competence – is coextensive with the appositive's role in a broader *strategy* for resolving the host question, and thereby underlies its contextual *relevance*.

3 Prepositional appositives are fragment answers to implicit questions

Before diving into strategies, we must first provide an analysis of the appositive in (1b). What are its semantics, and semantic or pragmatic relation to its host? Only through such an analysis can we see how it fits into the broader discourse dynamics.

One may take the parallel behavior of the appositive in (1b) and the follow-up assertion in (9) to suggest that they are semantically and pragmatically equivalent:

- (31) a. Did you like my neighbor, in the red dress?
b. Did you like my neighbor? She was in the red dress.

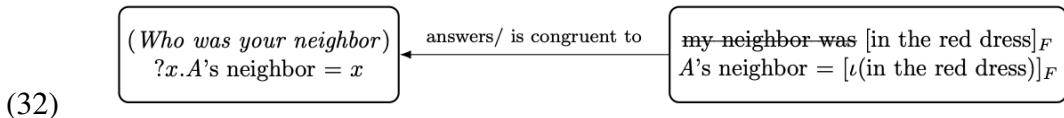
However, the fact that both kinds of expressions facilitate hearer competence in the same way does not mean they have the same semantics or pragmatics.

This section shows that there are, indeed, differences between prepositional appositives like (1b) and follow-up assertions like (9). However, it also shows that these differences are not inherent to the appositives *per se* but arise from their reduced

form. In fact, I use these differences to provide empirical support for integrating these appositives into the QUD framework as independent assertions.

The empirical motivation for this claim is a novel generalization about prepositional appositives like (1b), which doesn't apply to follow-up assertions – or nominal appositives: prepositional appositives used for identification must denote uniquely. I call this generalization the **Uniqueness Generalization**, and derive it from how properties of prepositional appositives interact with their role as **fragment answers** to **implicit questions of identity** (equative questions like *Who = A's neighbor?*). To corroborate this analysis, I show that this generalization also applies to prepositional, but not unreduced or nominal, answers to overt questions of identity.

Under this analysis, the Uniqueness Generalization is derived from **question-answer congruence**, a discourse constraint imposed by the focus structure of an utterance (Roberts 2012, Krifka 2006). In brief, fragment prepositional answers to equative questions must be *e*-type arguments of the identity relation (=), and thus denote uniquely, to derive the right focus structure to meet congruence. Although nominal appositives and follow-up assertions can also function as answers to implicit questions of identity, they have different properties that render them felicitous even when they do not denote uniquely. Specifically, the difference between prepositional and nominal appositives follows from the latter's ability to denote generalized quantifiers; the difference between prepositional fragments and unreduced clauses follows from the more liberal focus structures allowed for the latter. A diagram of this analysis is below:

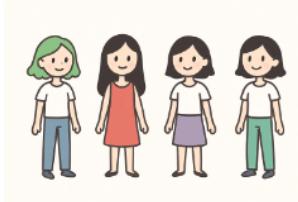


This generalization and analysis follow straightforwardly under an account of these appositives as assertions in a QUD model of discourse. In the QUD theory of focus, every assertion must be congruent with a QUD, since each assertion has a focus structure that determines congruence to its current QUD (Roberts 2012). So long as appositives are independent assertions, they too should be constrained by congruence. This section thus provides direct empirical motivation for the larger pragmatic analysis of apposition advanced in this article.

3.1 Motivating the Uniqueness Generalization

The example in (3) from the introduction, repeated below, showed that it's infelicitous to use prepositional appositives that denote more than one entity for the purpose of identification:

- (3) A and B arrive at an event where the four people below are standing around. A knows that one is a lawyer, and that B doesn't know this. A also knows that the lawyer has (a) green, or (b) black hair. B asks A: "Who do you want to talk to?" A responds:



- a. I want to talk to the lawyer, with the green hair.
- b. I want to talk to the lawyer, #with black hair.

In (3), where multiple people have black hair, A cannot identify the lawyer using *with black hair*, even if she bears this property. In contrast, *with the green hair* uniquely identifies the intended referent and can be used felicitously. This contrast exemplifies the uniqueness generalization, stated below:

- (33) **Uniqueness Generalization:** The predicate in a prepositional appositive used for identification denotes uniquely in its contextual domain.

Fragment answers to overt questions of identity show the same contrast:

- (34) [Same context as (3).] B: "Who do you want to talk to?" A: "I want to talk to the lawyer." B: "Who is the lawyer?"
- a. With the green hair.
 - b. #With black hair.

That an answer to an overt question of identity is constrained in the same way as the appositives provides evidence that they are one and the same linguistic object.

I also noted in the introduction that this infelicity does not remain in unreduced assertions or nominal appositives used to help identify their anchor, e.g., when all the speaker knows about the lawyer is that they have black hair:

- (4) [Same context as (3).] B: "Who do you want to talk to?" A responds:
- a. I want to talk to the lawyer. She has black hair. (A friend of mine told me about her.)
 - b. I want to talk to the lawyer, one of the women with black hair. (A friend of mine told me about her.)
 - c. #I want to talk to the lawyer, with black hair. (A friend of mine told me about her.)

To repeat: with both the full clause and nominal appositive, A can communicate that they only have partial identifying information about the lawyer. This is not possible to communicate with a prepositional fragment.

This contrast extends to answers to overt questions of identity. Full answers and nominal fragments are natural, unlike prepositional fragments:

- (35) [Same context as (3).] B: “Who do you want to talk to?” A: “I want to talk to the lawyer.” B: “Who is the lawyer?”
- She has black hair.
 - One of the women with black hair.
 - #With black hair.

These examples demonstrate that these appositives are not merely subject to constraints of Relevance such as *partial answerhood* (Roberts 2012). In the context of (3), all responses are partial answers to the question *Who is the lawyer?*, since they rule out the woman with green hair. Rather, they are subject to constraints that they share only with *fragment* answers to questions of identity.

3.2 Deriving the Uniqueness Generalization

The analysis here links the Uniqueness Generalization to **question answer congruence**. Put simply, prepositional fragment answers to questions of identity must be *e*-type arguments of the identity relation (=), and thus denote a unique individual, to derive the right focus structure to meet congruence. Below, I walk through this derivation in detail.

I start by outlining assumptions I make about the syntax and semantics of these appositives. I adopt an elliptical analysis of fragment answers, as in Merchant 2005, where the fragment moves to a focus position and the rest of the clause is deleted:

- (36) a. [in the red dress]_F my neighbor is \ddot{t}
b. [with the green hair]_F the lawyer is \ddot{t} ²

This elliptical analysis derives a crucial component of the analysis: the presence of focus on the PP, as in (36). This will account for the difference between prepositional fragments like (4c) and full clauses like (4a).

² One might take the ungrammaticality of **the lawyer is with the green hair* as evidence against this elliptical account. However, there is evidence that possessive *have* – e.g., *the lawyer has the green hair* – is the spell out of the copula *be* and possessive *with* (Kayne 1993, Harley 2002, Levinson 2011). This morphological rule would block *is with*, accounting for its ungrammaticality. This rule would also crucially not be triggered when the copula is elided, allowing *with* to surface.

Next, I assume that there is a type shifter in English, IOTA, separate from the definite determiner, which takes a predicate (type $\langle e, t \rangle$) as input and returns an individual (type e), so long as the predicate denotes uniquely (Partee 1987, Coppock & Beaver 2015). It also includes an implicit domain restriction variable C to help satisfy uniqueness (cf. Stanley & Szabó 2000). Its interpretation is below:

$$(37) \quad \llbracket \text{IOTA}_C \rrbracket^{c,w,g} = \lambda P. \iota u. P(u) \wedge g(C)(u)$$

In typical cases, this type shifter operates on definite and possessive descriptions. I assume these expressions are underlyingly predicates, and get type-shifted by IOTA in argument positions to denote individuals (Coppock & Beaver 2015).

$$(38) \quad \begin{aligned} \text{a. } \llbracket \text{IOTA}_C \text{ the lawyer} \rrbracket^{c,w,g} &= \iota x. \mathbf{lawyer}_w(x) \wedge g(C)(x) \\ \text{b. } \llbracket \text{IOTA}_C \text{ my neighbor} \rrbracket^{c,w,g} &= \iota x. \mathbf{neighbor}_w(x, \text{spkr}_c) \wedge g(C)(x) \end{aligned}^3$$

What adopting this type shifter allows us to account for are the less typical cases under consideration. Specifically, it predicts that prepositional phrases also receive e -type readings so long as (i) they are licensed in argument positions by the syntax and (ii) meet IOTA's presupposition. I propose that the expressions *in the red dress* and *with the green hair* are examples of such cases when they are the right-ward argument of an equative copular clause. Below is this LF for *with the green hair*:

$$(39) \quad \llbracket \text{IOTA with IOTA the green hair} \rrbracket^{c,w,g} = \iota x. \mathbf{with}_w(x, \iota y. \mathbf{green}_w(y) \wedge \mathbf{hair}_w(y))$$

Next, I adopt an ambiguity analysis of the copula (Russell 1919). On this view, *be* can be interpreted in two ways, as predicational or equative:

$$(40) \quad \begin{aligned} \text{a. } &\text{Predicational: } \llbracket \text{be}_{PRED(ICATIONAL)} \rrbracket^{c,w,g} = \lambda P. \lambda x. P(x) \\ \text{b. } &\text{Equative: } \llbracket \text{be}_{EQ(UATIVE)} \rrbracket^{c,w,g} = \lambda x. \lambda y. y = x \end{aligned}$$

Although both interpretations are grammatically available for prepositional appositives, I argue later that in contexts where the uniqueness generalization holds, only the equative structure is pragmatically available. For example, in (3a), the prepositional appositive *with the green hair* has the structure of an equative copular clause. Below is its proposed interpretation:

$$(41) \quad \llbracket \text{IOTA with IOTA the green hair} \rrbracket_F \lambda 1 \text{ IOTA the lawyer be}_{EQ} t_1 \rrbracket^{c,w,g} = \\ \iota x. \mathbf{lawyer}_w(x) = \iota y. \mathbf{with}_w(y, \iota z. \mathbf{green}_w(z) \wedge \mathbf{hair}_w(z))$$

Since only predicates that denote unique individuals can be type shifted by IOTA, non-unique predicates like *with black hair* (3b) are ruled out from functioning as type e arguments in the equative structure above.

3 I omit the contextual domain restriction C from following logical forms.

There is, nevertheless, a second option for arguments to the equative copula: the argument could denote a generalized quantifier (type $\langle et, t \rangle$) and take scope over the identity statement. I assume this is the structure of *one of the women with black hair* in (4b):

$$(42) \quad \llbracket [\text{one of IOTA the women with black hair}]_F \lambda 1 \text{ IOTA the lawyer } \text{be}_{EQ} t_1 \rrbracket^{c,w,g} = \exists y. \text{one-of-the-women-with-black-hair}_w(y) \wedge \iota x. \text{lawyer}_w(x) = y$$

Crucially, I assume that prepositional predicates like *with black hair* cannot be interpreted as generalized quantifiers.⁴ As a result, non-unique prepositional predicates like *with black hair* cannot serve as arguments to an equative copula, since they are only interpretable as type $\langle e, t \rangle$. This derives the fact that the only semantically viable interpretation of *with black hair* in (3b) is predicational. Below is this interpretation:

$$(43) \quad \llbracket [\text{with black hair}]_F \lambda 1 \text{ IOTA the lawyer } \text{be}_{PRED} P_1 \rrbracket^{c,w,g} = \exists y. \text{black}_w(y) \wedge \text{hair}_w(y) \wedge \text{with}_w(\iota x. \text{lawyer}_w(x), y)$$

Finally, for perspicuity, I adopt a structured meaning account of questions and focus (Von Stechow 1990, Krifka 2001, 2006).⁵ This account posits that both questions, and the assertions they answer, are composed of two parts: a foreground and a background. In the case of questions, the foreground is the restriction contributed by the *wh*-word and the background is a functional expression comprising the non *wh* component of the question. Let's consider the semantic value of the implicit question of identity in (3):

$$(44) \quad \llbracket [Who \text{ is the lawyer}] \rrbracket^{c,w,g} = \langle \text{PERSON}, \lambda y. \iota x. \text{lawyer}_w(x) = y \rangle$$

Here, the foreground is PERSON, since *who* requires its answer to be a person; the background is the function that identifies its argument with the lawyer.

In the case of assertions, their focus structure separates them into a foreground – the focused constituent – and a background – a propositional abstract comprising the non-focused part of the sentence. The interpretation of the appositive *with the green hair*, with its focus structure represented in a structured proposition, is the following:

$$(45) \quad \llbracket [\text{IOTA with IOTA the green hair}]_F \lambda 1 \text{ IOTA the lawyer } \text{be}_{EQ} t_1 \rrbracket^{c,w,g} = \langle \iota y. \text{with}_w(y, \iota z. \text{green}_w(z) \wedge \text{hair}_w(z)), \lambda y. \iota x. \text{lawyer}_w(x) = y \rangle$$

⁴ This assumption is predicted by recent theories of type-shifting. For example, the system in Coppock & Beaver 2015 rules out any existential type shifting of predicates in favor of IOTA type shifting, except for (i) indefinite NPs, and (ii) definite NPs in configurations that do not arise for PPs.

⁵ The reason I adopt this account of questions and focus rather than the alternative semantics of Hamblin (1976) and Rooth (1992) is that the former elegantly captures congruence for fragment answers containing focused generalized quantifiers (Weir 2018).

In Krifka 2006, the foreground and background of this fragment answer, at the root level, is composed together so the non-structured proposition in (41) is asserted.

Together with the assumption that appositives serve as answers to implicit questions of identity, or equative copular questions, these premises allow us to derive the Uniqueness Generalization. The constraint responsible for deriving it here is **question answer congruence**. I adapt Krifka's (2001) version of this constraint to the QUD framework. This formulation requires the Current Question (CQ) – the top question on the QUD stack – to share its background with the answer (cf. Krifka 2001, Weir 2018).

- (46) **Question Answer Congruence:** Given an assertion $\langle F_A, B_A \rangle$ in a context where $\langle F_Q, B_Q \rangle$ is the Current Question, $B_A = B_Q$ and F_A meets the requirements of F_Q .

Let's start with (3). Here, the implicit question of identity has the background in (44) above: $\lambda y. \iota x. \mathbf{lawyer}_w(x) = y$. The appositive *with the green hair* in (3a) has the same background, as shown in (45). Since the backgrounds are identical, this appositive meets congruence. This allows the apposition to be used felicitously.

The appositive in (3b), *with black hair*, in contrast, does not have an equative analysis, since there are multiple people with black hair. The only possible interpretation, therefore, is predicational, as shown in (43). The structured proposition corresponding to the interpretation of this expression is the following:

- (47) $\llbracket [\text{with black hair}]_F \lambda 1 \text{ IOTA the lawyer be}_{PRED} P_1 \rrbracket^{c,w,g} =$
 $\langle \lambda x. \exists y. \mathbf{black}_w(y) \wedge \mathbf{hair}_w(y) \wedge \mathbf{with}_w(x, y), \lambda P_{et}. P(\iota x. \mathbf{lawyer}_w(x)) \rangle$

This sentence is not congruent to the question of identity in (44), since the backgrounds are not identical. This lack of congruence means it cannot be used felicitously. This is, in essence, the derivation of the Uniqueness Generalization: only an equative copular clause can meet congruence to an equative question, and a prepositional phrase can only be an argument in an equative copular clause if it denotes uniquely.

Example (4b) demonstrated that non-unique nominal appositives can be felicitously used when non-unique prepositional appositives are infelicitous. Example (35b) demonstrated that nominal fragment answers to overt questions of identity are also felicitous. In the analysis here, the nominal appositive in (4b), like the prepositional appositive in (3a), is an answer to an implicit question of identity, and is thus felicitous for the same reason as (35b). Its felicity as a fragment answer stems from its ability to background an equative copular clause. This ability, in turn, comes from its capacity to take scope as a generalized quantifier, as illustrated in (42). The interpretation of (4b) in this analysis is the following:

- (48) $\llbracket [\text{one of the women with black hair}]_F \lambda 1 \text{ IOTA the lawyer } \text{be}_{EQ} t_1 \rrbracket^{c,w,g} =$
 $\langle \lambda P. \exists y. \text{one-of...black-hair}_w(y) \wedge P(y), \lambda y. \text{1x.lawyer}_w(x) = y \rangle$

This structured proposition is congruent with the question of identity.

Example (4a) demonstrated that non-unique *full clauses* can also be felicitously used when non-unique prepositional appositives are infelicitous. Example (35a) demonstrated that non-unique full clauses are felicitous as answers to overt questions of identity. In the analysis here, the full clause in (4a) *also* serves to help answer an implicit question of identity, and is thus felicitous for the same reason as (35a). The source of its felicity is its more liberal focus structure. Consider the following focus structure for (4a):

- (49) B: Who do you want to talk to?
A: I want to talk to the lawyer. She has [black hair]_F.

The second sentence above can only be interpreted as a predicational copular clause,⁶ since it is non-unique. Its interpretation as a structured proposition is the following:

- (50) $\llbracket [\text{black hair}]_F \lambda 1 \text{ IOTA the lawyer } \text{be}_{PRED} \text{ with } t_1 \rrbracket^{c,w,g} =$
 $\langle \lambda P. \exists y. \text{black}_w(y) \wedge \text{hair}_w(y) \wedge P(y), \lambda y. \text{with}_w(\text{1x.lawyer}_w(x), y) \rangle$

This sentence is not congruent with the question of identity *Who is the lawyer?*. However, it *is* congruent with another implicit question paraphrasable as *What (features) does she have?*, which is itself a contextual subquestion of *Who is the lawyer?*, and therefore can be addressed in the context (Roberts 2012). In other words, its contextual felicity stems from a subquestion of the implicit question of identity, rather than the question of identity itself. Crucially, the fragment in (47) – *with black hair* – is not congruent to this subquestion, and therefore cannot be used in the same way.

As a whole, this section demonstrated that prepositional appositives used identificationally conform to a generalization that can be traced to their status as fragment answers to a certain kind of question. This analysis, along with the appositives' contrast with nominals and unreduced clauses, falls out from the assumption that the appositives are integrated into the discourse as independent assertions, which, like all assertions, have a focus structure that requires congruence to a QUD. In this way, the generalization here provides empirical support for the proposed QUD-based theory of apposition.

6 As discussed in footnote 4, I treat *has* as the spell out of *be + with* (Kayne 1993, Harley 2002, Levinson 2011)

4 Implicit questions can arise as part of a strategy

In Section §3, I stipulated the presence of a question of identity in the contexts under consideration. But I didn't provide an account of where this question comes from, and how, as an implicit semantic object, it can be targeted by apposition. In this section, I will argue that these questions of identity are made available via the same mechanisms of strategic inference that regulate the felicity of typical questions in discourse.

An alternative approach would be to associate apposition conventionally with questions of identity or implicit questions with a certain shape. I do not pursue this approach for the following reasons. For one, it might predict that prepositional appositives always serve as answers to questions of identity. However, there are cases where they do not – i.e., where they don't adhere to the uniqueness generalization.

- (51) How can I get this letter to the dean?
Eva, in the back room, will take it. A lot of people are in there, but she'll have a name tag on.

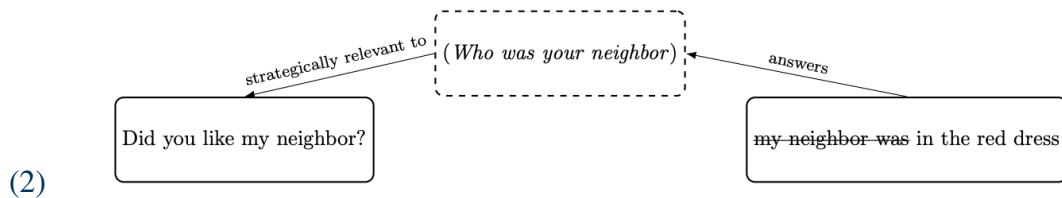
In (51), the appositive fails to denote uniquely, as made explicit by the follow-up sentence that mentions others with the same property. And yet, the appositive is felicitous, indicating that prepositional appositives that are not fragment answers to equative questions are nonetheless available. Indeed, one can use the tools developed in this section to show that the appositive *in the back room* is a fragment answer to another question — *Where is Eva?* — that is contextually relevant.

Second, there is evidence that regular mechanisms of strategic inference govern what role an appositive can play in the discourse, rather than linguistic conventions. One can think of these inferences for now as relations between a speech act and questions previously raised in the discourse. Appositives can be constrained by their relation to such questions:

- (52) A: John is in the bathroom tending his wounds. B: How did he get injured?
a. A: Mark, a large guy, bumped into him.
b. A: Mark, #a chess player, bumped into him.

While both appositives introduce new information, only (52a) is felicitous. In this context, being “a large guy” can be plausibly construed as related to how John got injured – B's question – whereas being “a chess player” cannot be construed in such a way. Assuming appositives answer implicit questions, this contrast suggests that such questions are constrained by their relation to other questions in discourse, much like typical questions.

For these reasons, I take a pragmatic route to explaining what makes implicit questions targetable by apposition. I propose that in any given context, there are a range of implicit questions which the speaker can use an appositive to answer. Pragmatic factors, among others,⁷ delimit this range. Specifically, for an implicit question to be available, the hearer has to be able to justify its relevance in the context (Grice 1975). One crucial form of justification is an implicit question's *strategic relevance* to other questions in the discourse: informally, an implicit question is strategically relevant if resolving it is useful in resolving the current question interlocutors are addressing. In the case of (1b), for instance, the question of identity is strategically relevant to the host question in which the appositive is embedded:



The implicit question's strategic relevance is sufficient to justify its relevance in the context, and answer it using an appositive. This proposal is modeled in the QUD framework of Roberts (2012).

In this section, I introduce the QUD framework and Roberts' (2012) original proposal to capture the strategic relevance of questions (§4.1). Then, I motivate a broader notion of strategic relevance, and present an empirical diagnostic and verification procedure for this notion (§4.2). Finally, I argue that the implicit questions of identity discussed in previous sections play a strategic role in their contexts, capturing this role with the proposed notion (§4.3).

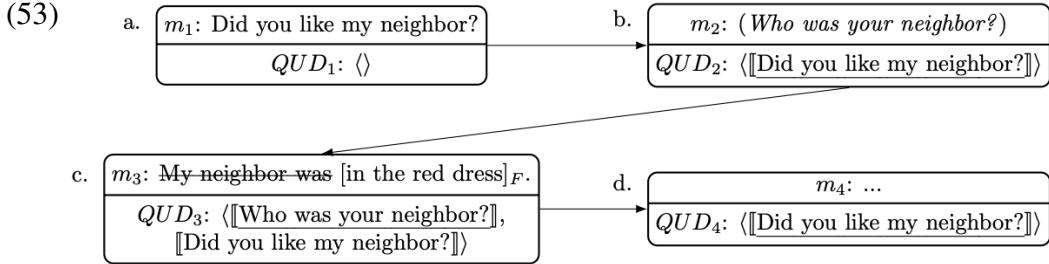
4.1 The QUD framework

Roberts' (2012) QUD framework models discourse as structured through raising and resolving questions. In this framework, a discourse proceeds as a sequence of moves. At any move, there is a stack of questions that interlocutors are jointly committed to resolving. This stack structures the discourse and constrains its development. For example, uttering an interrogative clause introduces a new QUD by placing it at the

⁷ Formal properties of appositives also constrain the implicit questions they can answer. For example, the mechanisms of ellipsis available to an appositive constrain its underlying form, and thus the kinds of implicit questions for which it can serve as a fragment answer (Ott 2016, Onea & Ott 2022). One such mechanism is **copular ellipsis**, in which a copy of the anchor in subject position and the copula are elided, as in (2). Appositives that have undergone copular ellipsis can only serve as fragment answers to questions with the semantics of copular clauses, like questions of identity, due to congruence. For other elliptical mechanisms available to apposition, see Ott 2016.

top of the stack. Providing a complete answer to a question pops it off the stack. In addition, the focus structure of an utterance requires it to be congruent with the question at the top of the stack, the Current Question (CQ).

To illustrate this system in action, consider the following sequence of moves, which I assume underlies in the discourse in (1b). In this diagram, moves are on top, while the QUD stack is on bottom. The CQ is underlined.



First, the host question is raised (53a), which sets it as the Current Question for the next move. Then, the implicit question of identity is raised (53b), which pushes this question onto the top of the stack. This latter move is inferred by the hearer from the focus structure of the appositive. Finally, the appositive answers this implicit question (53c), popping it off the stack. This leaves the host question at the top of the QUD stack to be answered in the following move (53d).

The relevance of questions is implemented in this theory via constraints on the QUD stack. Specifically, any question on the QUD stack has to be part of a **strategy** to answer any question below it. For example, the sequence of moves in (53) is only felicitous if *Who was your neighbor?* is part of a strategy to answer *Did you like my neighbor?*. The condition Roberts (2012) proposes for this notion is the following:

- (54) **Question Relevance** (Roberts 2012: 15): Q is relevant to Q' iff the complete answer to Q entails a partial answer to Q' in the context set CS .
- a. A entails A' in CS iff $A \cap CS \subseteq A'$

Complete answerhood is the resolution of all alternatives in a question, either true or false; partial answerhood is the resolution of at least one alternative. Entailment in the context set, defined in (54a), is equivalent to the notion of contextual entailment.

This condition essentially dictates that Q is relevant so long as resolving it will allow the interlocutors to resolve questions below it on the stack. In the next subsection, I reformulate this constraint in order to capture the strategic relevance of the implicit question *Who was your neighbor?* in (1b), which is not captured by (54).

Before moving to this reformulation, however, a quick note. In Roberts' model, QUDs are often implicit: even when they haven't been overtly raised by interlocutors,

they can be inferred from the focus structure of an utterance. Although these implicit QUDs lack syntactic structure, they sometimes share the semantics of overt questions in natural language, and can be paraphrased as such. In the case of the appositives in this article, the implicit QUDs they answer – questions of identity – can be paraphrased in English as equative copular questions. These are not meant to literally be the implicit questions answered by the appositives; the actual implicit questions are semantic objects.

4.2 Strategic relevance

Grice's (1975) Maxim of Relevance is grounded in the way speakers and hearers manage conversational goals. These goals start out as private objectives that each interlocutor brings to a conversation. As a conversation progresses, some of these objectives are made public. At this point, the cooperative nature of social interaction dictates that any speech act will be treated as addressing these public goals. Even if a speaker intends to address or set a conversational goal distinct from the one currently being addressed, they have to make explicit discourse moves to make this intention clear, or else their utterance will be construed as related to the current goal. For such reasons, it is pragmatically inappropriate to use a sentence in a context that a hearer cannot construe as related to the current goal, unless the speaker's intention to be irrelevant is explicitly signaled.

In the QUD framework, the public conversational goals of interlocutors are formally represented as questions. Question Relevance in (54) is thus treated as a question-specific case of the Maxim of Relevance: so long as there are questions on the QUD stack – current conversational goals – asking a question is only appropriate if it helps resolve those questions.

The proposal here reformulates the condition on Question Relevance proposed in Roberts 2012. While staying true to the Gricean motivations of Roberts' condition, this reformulation weakens the notion of *contextual entailment* (entailment in CS).

The primary reason for this reformulation is to capture the strategic relevance of the implicit question *Who was your neighbor?* in (1b). I will argue later that B's question is strategically relevant to A's – it is used to help resolve A's. However, its relevance is not captured by the notion of contextual entailment in (54). To show why, consider the following discourse based on (1):

- (55) A: Did you like my neighbor?
B: Who was your neighbor?

The answer to B's question does not contextually entail an answer to A's, since the information needed to resolve A's question is not in the context, but is in B's head. In other words, identifying A's neighbor does not provide any information in the

context about whether B liked them; rather, it enables B to provide that information based on their own experience with A's neighbor.

We can make the same point using another example:

- (56) A does not know what classes are offered at Lily's school.
 A: What class did Lily have on the 19th?
 B: What day of the week was it?
 A: Wednesday.
 B: Ok, then it was Semantics.

B's question is clearly used strategically: it is intended to help resolve A's question. However, it does not meet Roberts' condition in (54), since resolving it will not contextually entail a partial answer to A's question. Resolving what day was the 19th does not provide any information in the context about what class Lily had on that day; rather, it enables B to provide that information based on their own private knowledge of Lily's schedule.

These examples demonstrate that the strategic relevance of a question can be justified relative to a interlocutor's private doxastic state. In (55), for example, answering *Who was your neighbor?* will settle *Did you like my neighbor?* for B, even though it won't settle it in the context set. This, in turn, will allow B to share the answer with A. This is one strategy for resolving a question.

To define this reformulation, I introduce a notion of Question Relevance relativized to an information state:

- (57) **Question Relevance in an information state:** Q is relevant to Q' in an info state I if the complete answer to Q entails in I a partial answer to Q' .

Using this, I define a tripartite condition of strategic relevance, representing three inferences a hearer can make to justify that a question raised by a speaker will help resolve the Current Question.

- (58) **Strategic Relevance:** Q is strategically relevant in a context C iff...
- CG-Relevance:** Q is relevant to CQ_C in CS_C , or...
 - Speaker-Relevance:** $\forall w \in CS_C: Q$ is relevant to CQ_C in $DOX(S_C, w)$, or...
 - Hearer-Relevance:** $\forall w \in CS_C: Q$ is relevant to CQ_C in $DOX(H_C, w)$

The first subcondition restates Roberts' Question Relevance. The second and third subconditions state that Q is strategically relevant if it is common ground that resolving Q will help resolve the CQ in the speaker or hearer's doxastic state. If either of these conditions are met, it will be manifest in the context that Q will help

resolve the CQ for the speaker or hearer, enabling them to share this answer with their conversational partner. Such questions count as cooperative moves.

Adding conditions to capture this “private relevance” is the primary modification to Roberts’ condition here. Note, however, that (58) also introduces a second change: instead of treating strategic relevance as the sole notion of question relevance, the condition is explicitly dubbed *Strategic Relevance*. This change reflects work showing that strategic relevance is not the only kind of relevance at stake in reasoning about the cooperative use of questions in discourse (Ginzburg 2010).

4.2.1 An empirical diagnostic for strategic relevance

I will use the condition in (58) to explain why questions of identity are available in the examples examined in this article. Before doing so, however, I introduce two tools that will be useful in this discussion. The first is an empirical diagnostic for strategic relevance. This diagnostic will be used to give the reader an intuitive sense of an appositives’ strategic role or lack thereof, a sense that (58) alone may not provide.

The diagnostic utilizes the verb *depends on*, which asserts a relation between the answers of two questions (Ciardelli 2016, Theiler et al. 2018). This expression seems to track the notion of strategic relevance in (58). The diagnostic is as follows:

- (59) **Dependency Diagnostic:** An implicit question Q^A answered by an appositive in a host sentence H is strategically relevant to the CQ, only if...
- If H is a question ($CQ = H$), the sentence “ H depends on Q^A ” is true.
 - If H is an assertion ($CQ = Q^H$), the sentence “Given H , Q^H depends on Q^A ” is true.

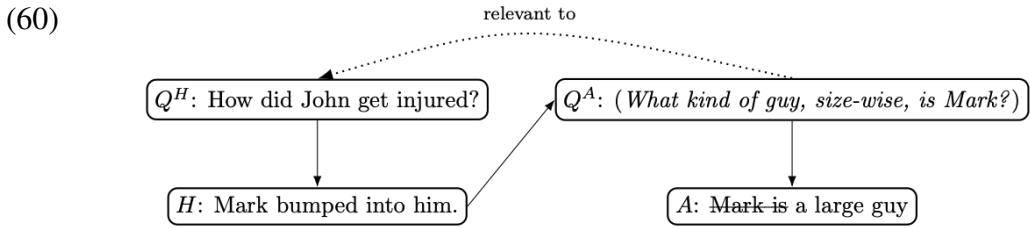
This diagnostic relies on the assumption that the apposition is sequenced after its host (Onea 2016). Therefore, when the host sentence is a question (59a), the host will be set as the CQ for the next move, which is the implicit question that the appositive answers ($H \rightarrow Q^A \rightarrow A$). When the host sentence is an assertion (59b), the information in the host sentence will be in the common ground (*Given H*) at the point the implicit question is raised ($Q^H \rightarrow H \rightarrow Q^A \rightarrow A$).

The basic logic behind this diagnostic is that if, after the host sentence is integrated in the discourse model, Q^A is strategically relevant to its CQ, then the answer to Q^A should have some bearing on the answer to the CQ. Of course, this diagnostic does not prove that Q^A is intended to be part of a strategy to resolve the CQ; only that it *can be construed as* part of a strategy, since answering Q^A will help determine the answer to the CQ.

The utility of this diagnostic can be demonstrated with (52), repeated below:

- (52) B: John is tending to his wounds right now. A: How did he get injured?
 a. B: Mark, a large guy, bumped into him.
 b. B: Mark, #a chess player, bumped into him.

Let's start with (52a). I assume that the implicit question answered by *a large guy* can be paraphrased as *What kind of guy, size-wise, is Mark?*.⁸ This discourse is represented below:

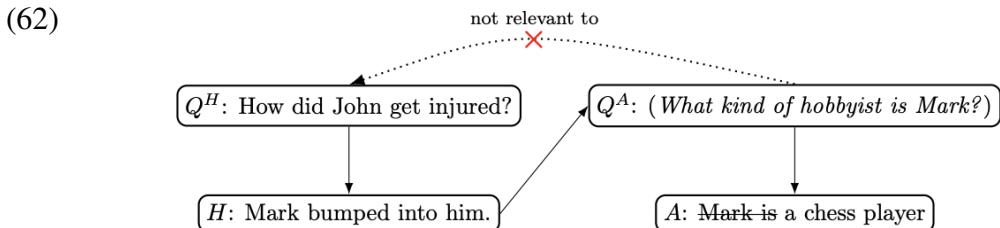


Using this discourse, the Dependency Diagnostic can be formulated as follows:

- (61) Given Mark bumped into him, how John got injured depends on what kind of guy, size-wise, Mark is. → TRUE

This is intuitively true, aligning with our understanding of the appositive as related to the question.

Next, consider (52b). For this example, I assume that the implicit question answered by *a chess player* can be paraphrased as *What kind of hobbyist is Mark?*. This discourse is represented below:



The Dependency Diagnostic can be formulated as follows:

- (63) Given Mark bumped into him, how John got injured depends on what kind of hobbyist Mark is. → FALSE

⁸ As discussed in §4.1, this is not the actual question answered by *a large guy*, but my best attempt at paraphrasing it with a question to which the appositive is congruent. Satisfying congruence is why I choose *What kind of guy, size-wise, is Mark?* rather than the more natural *How big is Mark?*.

This is intuitively false, aligning with our understanding of the appositive as unrelated to the question.

The results of this diagnostic thus correlate with the (in)felicity of the appositives in (52), providing some initial motivation for using it to diagnose strategic relevance.

4.2.2 A verification procedure for strategic relevance

Our second tool is a verification procedure for Strategic Relevance in (58). Applying this condition directly is a complicated task, since it requires reconstructing the implicit question that the appositive answers in order to find its complete answer. Instead of undertaking this task, we can show whether (58) holds using the appositive itself.

This procedure consists of the following steps. First, determine the CQ at the point the implicit question is raised. Next, for each subcondition of (58), check whether the appositive constitutes a partial answer to this CQ in the relevant information state. I call this verification procedure “Appositional Relevance”:

- (64) **Appositional Relevance:** The implicit question Q^A answered by an appositive A is strategically relevant in a context C if...
- a. **CG-Relevance:** A is a partial answer to CQ_C in CS_C
 - b. **Speaker-Relevance:** $\forall w \in CS_C: A$ is a partial answer to CQ_C in $DOX(S_C, w)$
 - c. **Hearer-Relevance:** $\forall w \in CS_C: A$ is a partial answer to CQ_C in $DOX(H_C, w)$

Partial answerhood is defined as follows:

- (65) **Partial answerhood:** A is a partial answer to CQ in an info state I iff
 $\exists a \in \text{PROP-SET}(CQ): A \cap I \subseteq a$ or $A \cap I \cap a = \emptyset$

This derived condition follows from two basic corollaries of the framework: (i) the appositive must constitute some kind of answer to Q^A , since it is congruent with that question; and (ii) the complete answer to a question logically entails its answers. If an answer to Q^A constitutes a partial answer to CQ in I , then the complete answer to Q^A will as well. This verification procedure is thus sufficient to demonstrate that Strategic Relevance in (58) is satisfied.

Let’s use this verification procedure to derive the contrast in (52), repeated again:

- (52) B: John is tending to his wounds right now. A: How did he get injured?
- a. B: Mark, a large guy, bumped into him.
 - b. B: Mark, #a chess player, bumped into him.

In this case, the strategic relevance of the appositive in (52a) as compared to (52b) can be verified by the subcondition in (64a), **CG-Relevance**.

The CQ in (52) is *How did John get injured?*, a “method”-type *how*-question whose answers describe different causal events where John was injured (Sæbø 2016). Now, at the point the implicit question is integrated in the discourse, it is common ground that Mark bumped John, as shown in diagrams (60) and (62). Let’s say that it is also common ground that if a smaller guy bumped John, John would not have been injured only from the bump: it would have taken some freak accident for John to have been injured. In this case, the appositive *Mark is a large guy* rules out this freak-accident possibility, and thus constitutes a partial answer to *How did John get injured?*. This explains the use of the apposition in (52a): it clarifies why Mark bumping him, on its own, injured John – because Mark is large.

In contrast, since there is no causal relation between being a chess player, bumping into someone, and getting injured, the copular apposition *Mark is a chess player* in (52b) does not constitute a partial answer to *How did John get injured?*.

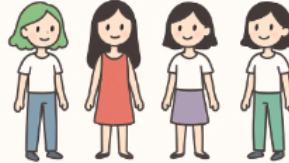
Therefore, by the reasoning above, only the question answered by *a large guy* meets Strategic Relevance and is licit to add to the QUD stack in the context. The question answered by *a chess player* does not meet Strategic Relevance and is therefore not targetable by apposition.

4.3 Deriving the relevance of questions of identity

The notion of strategic relevance in (58) accounts for the felicitous use of two central examples of apposition in this paper: (3a) *I want to talk to the lawyer, with the green hair* and (1b) *Did you like my neighbor, in the red dress?*. These appositives’ relevance will be captured by the notions of **CG-Relevance** (58a) and **Hearer-Relevance** (58c), respectively, demonstrating the utility of the broader notion proposed above. The discussion of each example will proceed as follows: first, I apply the Dependency Diagnostic to give a sense of the appositive’s strategic role. Second, I argue that the appositive is *used* strategically in its context. Finally, I use the verification procedure in (64) to derive this strategic role.

I will start with the question of identity *Who is the lawyer?* in (3a), repeated below, as Roberts’ original notion of **CG-Relevance** will capture its strategic role:

- (3) A and B arrive at an event where the four people below are standing around. A knows that one is a lawyer, and that B doesn't know this. A also knows that the lawyer has green hair. B asks A: "Who do you want to talk to?" A responds:



- a. I want to talk to the lawyer, with the green hair.

The Dependency Diagnostic provides an intuitive sense of the relevance of the question of identity to the CQ:

- (66) Given A wants to talk to the lawyer, who A wants to talk to depends on who the lawyer is.

This is true, showing, at least, that the question of identity can be construed as part of a strategy to help resolve the CQ.

To show that it is *used* as part of a strategy, consider if the host sentence were used on its own. In this context, since A knows that B doesn't know which of the four women is a lawyer, it is pragmatically marked to answer B's question using only the host sentence. The use of this host sentence is only improved if A intends B to ask the question of identity *Who is the lawyer?* in response.

- (67) B: Who do you want to talk to?
 A: ?I want to talk to the lawyer.

We can understand this judgment by investigating the domain of quantification of the *wh*-word in B's initial question.⁹ In this context, the most natural set of individuals for *who* to range over is the four women in front of the speaker and hearer: let's call them α , β , γ , and δ . This domain creates the following answer set for the question:

- (68) Given $Q = \llbracket \text{Who does A want to talk to?} \rrbracket \dots$
 $\text{PROP-SET}(Q) = \{ \{ w \mid \text{A wants to talk to } \alpha \text{ in } w \},$
 $\quad \{ w \mid \text{A wants to talk to } \beta \text{ in } w \},$
 $\quad \{ w \mid \text{A wants to talk to } \gamma \text{ in } w \},$
 $\quad \{ w \mid \text{A wants to talk to } \delta \text{ in } w \} \}$

⁹ The following discussion is inspired by the notion of *conceptual covers* in Aloni 2001, which derives my assumptions about the domain of quantification of the *wh*-word.

Let's call these answers a_α , a_β , a_γ , and a_δ . In all of these answers, there are worlds where the individual A wants to talk to is the lawyer, and worlds where they are not, since it isn't known in the context who of α through δ is the lawyer. Let's assume the relevant atomic propositions for these answers are the following:

- | | | |
|------|-------------------------------------|--------------------------------|
| (69) | p_1 : A wants to talk to α | p_5 : the lawyer is α |
| | p_2 : A wants to talk to β | p_6 : the lawyer is β |
| | p_3 : A wants to talk to γ | p_7 : the lawyer is γ |
| | p_4 : A wants to talk to δ | p_8 : the lawyer is δ |

Using these, a_α , a_β , a_γ , and a_δ contain the following worlds:

- $$(70) \quad \text{PROP-SET}(Q) = \{ a_\alpha: \{ w_{1,5}, w_{1,6}, w_{1,7}, w_{1,8} \},$$
- $$a_\beta: \{ w_{2,5}, w_{2,6}, w_{2,7}, w_{2,8} \},$$
- $$a_\gamma: \{ w_{3,5}, w_{3,6}, w_{3,7}, w_{1,8} \},$$
- $$a_\delta: \{ w_{4,5}, w_{4,6}, w_{4,7}, w_{4,8} \} \}$$

Now, consider the host sentence used on its own, as in (67):

- $$(71) \quad [\text{I want to talk to the lawyer.}] = \{ w_{1,5}, w_{2,6}, w_{3,7}, w_{4,8} \}$$

This sentence doesn't provide an answer to the question in (70), since it does not resolve any alternative in a_α through a_δ .

In contrast, consider the host sentence used with the appositive:

- $$(72) \quad [\text{I want to talk to the lawyer.}] \cap [\text{The lawyer is with the green hair.}] =$$
- $$\{ w_{1,5}, w_{2,6}, w_{3,7}, w_{4,8} \} \cap \{ w_{1,5}, w_{2,5}, w_{3,5}, w_{4,5} \} = \{ w_{1,5} \} \subseteq a_\alpha$$

These together entail that a_α is the answer. The contrast between (67) and the original answer in (3a) thus provides evidence that the appositive, and the implicit question it answers, is a crucial part of a strategy to answer the QUD.

This strategic relevance is verified by the condition of **CG-Relevance** in (64a), repeated below:

- $$(64a) \quad Q^A \text{ is relevant to } CQ \text{ in } C \text{ if } A \text{ is a partial answer to } CQ \text{ in } CS_C.$$

Now, the host sentence restricts CS_C to those worlds in which A will speak to α through δ only if they are the lawyer, as in (71). In this restricted context, the appositive is incompatible with any worlds in alternatives a_β , a_γ , or a_δ , and thus eliminates those alternatives—constituting an answer to the host question, as illustrated in (72). This procedure thus shows that the implicit question of identity meets the requirements of Strategic Relevance and is therefore a felicitous QUD.

Let's move on to the example in (1b), repeated below.

- (1) A brought B to an event, where B met a number of new people. One of them, C, was wearing a red dress. B never learned that C was A's neighbor and A knows this. After the event, A asks:
- b. Did you like my neighbor, in the red dress?

The Dependency Diagnostic gives us an initial sense of whether the implicit question of identity *Who was your neighbor?* is relevant to the host question:

- (73) Whether B liked A's neighbor depends on who A's neighbor was.

This is true, showing that, at minimum, the question of identity can be construed as part of a strategy to answer the host question.

Like in (3), there is evidence that *Who was A's neighbor?* is *used* strategically in the context of (1). This evidence is the question's role in facilitating hearer competence, as discussed in §2. There, I showed that *Did you like my neighbor?* is infelicitous on its own, because the speaker cannot reasonably expect the hearer to answer it without knowing who the neighbor is. The appositive – an answer to *Who was A's neighbor?* – ensures that the hearer is in a position to evaluate their experience and respond. In this sense, the fact that the implicit question is used to enable hearer competence entails that it is used strategically.

This strategic role becomes clear when one considers the question of identity used as an overt response:

- (74) A: Did you like my neighbor?
 B: Who was your neighbor?

Here, B's question clearly is used to gain the information needed to respond meaningfully to A's.

Unlike (3a), this question does not meet **CG-Relevance**. Instead, it meets the condition in (58c): **Hearer-Relevance**. The verification procedure in (64c) demonstrates how it meets this condition. This procedure is repeated below:

- (64c) Q^A is relevant to CQ in C if $\forall w \in CS_C : A$ is a partial answer to CQ in $DOX(H_C, w)$.

Let's say there are two candidates for A's neighbor at the event: α and β . The relevant four atomic propositions are as follows:

- (75) p_1 : B liked α p_3 : A's neighbor is α
 p_2 : B liked β p_4 : A's neighbor is β

These atomic propositions correspond to the following worlds in the context set:

$$(76) \quad CS = \{ w_{1,2,3}, w_{1,2,4}, w_{1,3}, w_{1,4}, w_{2,3}, w_{2,4}, w_3, w_4 \}$$

These worlds create the following partition on doxastic states of the hearer:

- $$(77) \quad \begin{array}{l} a. \quad \text{DOX}(H_C, w_{1,2,3}) = \text{DOX}(H_C, w_{1,2,4}) = \{ w_{1,2,3}, w_{1,2,4} \} \\ b. \quad \text{DOX}(H_C, w_{1,3}) = \text{DOX}(H_C, w_{1,4}) = \{ w_{1,3}, w_{1,4} \} \\ c. \quad \text{DOX}(H_C, w_{2,3}) = \text{DOX}(H_C, w_{2,4}) = \{ w_{2,3}, w_{2,4} \} \\ d. \quad \text{DOX}(H_C, w_3) = \text{DOX}(H_C, w_4) = \{ w_{1,3}, w_4 \} \end{array}$$

In (77a), B liked both α and β . In (77b), B liked only α . In (77c), B liked only β . In (77d), B liked neither of them.

Note that in each of the possible doxastic states of B, B knows who they liked, since they have privileged access to their own doxastic state. Note also that in each of B's possible doxastic states, there are worlds where the neighbor is α and worlds where the neighbor is β .

The answer set of the host question – the CQ – is the following:

$$(78) \quad \text{PROP-SET}(\llbracket \text{Did B like A's neighbor?} \rrbracket) = \{ \text{Yes: } \{ w_{1,2,3}, w_{1,2,4}, w_{1,3}, w_{2,4} \}, \\ \text{No: } \{ w_{1,4}, w_{2,3}, w_3, w_4 \} \}$$

The Yes answer includes worlds where B liked both α and β , and worlds where B only liked the neighbor. The No answer includes worlds where B only liked the non-neighbor and where B liked neither α nor β .

Finally, consider the denotation of the appositive in this context:

$$(79) \quad \llbracket \text{A's neighbor was in the red dress.} \rrbracket = \{ w_{1,2,3}, w_{1,3}, w_{2,3}, w_3 \}$$

The appositive constitutes an answer to the question in (78) across all possible doxastic states for B in (77). In (77a) and (77b), the appositive entails the Yes answer; in (77c) and (77d), the appositive entails the No answer:

- $$(80) \quad \begin{array}{l} a. \quad (79) \cap (77a) = \{ w_{1,2,3} \} \subseteq \{ w_{1,2,3}, w_{1,2,4}, w_{1,3}, w_{2,4} \} \text{ (Yes)} \\ b. \quad (79) \cap (77b) = \{ w_{1,3} \} \subseteq \{ w_{1,2,3}, w_{1,2,4}, w_{1,3}, w_{2,4} \} \text{ (Yes)} \\ c. \quad (79) \cap (77c) = \{ w_{2,3} \} \subseteq \{ w_{1,4}, w_{2,3}, w_3, w_4 \} \text{ (No)} \\ d. \quad (79) \cap (77d) = \{ w_3 \} \subseteq \{ w_{1,4}, w_{2,3}, w_3, w_4 \} \text{ (No)} \end{array}$$

Whichever doxastic state the hearer is actually in, the host question *Did you like my neighbor?* will be settled. This demonstrates why raising and resolving the question of identity is strategically useful, as it will settle the question for the hearer, allowing them to share their answer with the speaker.

This finalizes the pragmatic analysis of apposition pursued here. The implicit questions that appositives answer can play a role in the same strategies of inquiry

as other questions in discourse, and are constrained by the same mechanisms of strategic inference.

Indeed, up to this point, the investigation here has revealed no fundamental differences between apposition and regular assertions in discourse. Interpretive interactions between appositives and their hosts also occur between sequential sentences. Interpretive constraints on appositives follow from the focus presupposition that constrains all assertions.

5 At-issueness in fragment answer theories of apposition

The claim that appositives are no different from regular assertions may seem puzzling. Past literature has consistently treated appositives as having a fundamentally different discourse status from their hosts (Potts 2005, AnderBois et al. 2015, Onea 2016, Schlenker 2023). The prevailing view is that appositives are in some sense “secondary” to the content of the host, or *not at-issue*.

One widely adopted theory of at-issueness ties the notion to the Current Question: content is at-issue if it is intended to be relevant to the CQ; content that is not relevant to the CQ is not at-issue (Simons et al. 2010, Tonhauser et al. 2013, Snider 2017).

Fragment-answer accounts of apposition therefore face a challenge. If appositives answer implicit questions – questions that resemble QUDs – how can this be reconciled with the observations that motivate treating appositives as not at-issue?

Existing fragment-answer accounts of apposition have treated the implicit questions appositives answer as distinct from typical QUDs, and crucially *non-strategic* (Onea 2016, AnderBois & Jacobson 2018, Onea & Ott 2022), providing both empirical and theoretical support for this distinction. This resolves the tension above: appositives remain not at-issue in these accounts since, although they answer implicit questions, they are not intended to be relevant to their host’s CQ.

The proposal here diverges from these accounts: I have argued that the implicit questions appositives answer are genuine QUDs – they are constrained by the same relation of question-answer congruence – and, crucially, can be relevant to their hosts’ CQs. This has allowed us to explain contrasts that remain mysterious under prior accounts, such as the oddness of *#Mark, a chess player, bumped into him* in (52) compared with the acceptability of *Mark, a large guy, bumped into him*.

This proposal therefore faces *two* challenges. First, it must demonstrate compatibility with the phenomena that led earlier accounts to treat implicit questions as non-strategic, thus showing that appositives’ not at-issue status cannot be reduced to the supposed “secondary” status of these questions. Second, it must show that the proposal nevertheless remains consistent with the observations that motivated classifying appositives as not at-issue in the first place.

This section takes up these challenges, suggesting that the nuanced approach to relevance I pursued in §4 gives us the capacity to confront them. First, I show that the QUD framework can accommodate the phenomena discussed in the accounts of [AnderBois & Jacobson \(2018\)](#) (§5.1) and [Onea \(2016\)](#) (§5.2). Some of these phenomena, I suggest, are actually strategic, while non-strategic appositives can be explained by incorporating other independently-attested notions of relevance into the framework.

Second, to show compatibility with observations of appositives' secondary status, I consider their infelicity as direct answers to questions (§5.3). I suggest that this can be explained by how the host and the appositive are sequenced in the discourse (cf. [Koev 2013](#), [Jasinskaja 2016](#)). Indeed, relevance prior to a complex speech act should not be conflated with relevance *during* it.

5.1 AnderBois & Jacobson's (2018) account of *namely*

Existing accounts of appositives have drawn a distinction between the implicit questions appositives answer and typical QUDs. [AnderBois & Jacobson \(2018\)](#) (henceforth: A&J) claim that the implicit questions they are concerned with are (i) not QUDs and (ii) not strategically relevant to the overarching QUD structure. This has the effect of maintaining the not at-issue status of appositives. Contra these claims, I demonstrate below that these implicit questions can be integrated into the QUD framework, and that, moreover, there is theoretical motivation for doing so.

The phenomena A&J are concerned with are appositions and afterthoughts that contain the adverb *namely*:

- (81) Fred scaled the tallest building in the world, namely Burj Khalifa.
([AnderBois & Jacobson 2018](#))

They propose that *namely* presupposes that its prejacent addresses an implicit specifical question:

- (82) (*Which building is the tallest building in the world?*) Burj Khalifa.

In their paper, A&J claim that these implicit questions are not strategic. This claim stems from examples like (83) below, which can imply that the speaker is not interested in the answer to the specifical question *What did Alejandro bake?*. Such an implication suggests that answering such a question is not a goal of the speaker, and is thus not strategically relevant.

- (83) I ate something Alejandro baked, namely, apple pie.
([~AnderBois & Jacobson 2018: 397](#))

Note, however, that (83) is a natural response to the question *What did you eat?*, to which this specificational question can be strategically relevant, according to the Dependency Diagnostic developed in §4.2.1:

- (84) Given I ate something Alejandro baked, what I ate depends on what Alejandro baked. → TRUE

The implication that the speaker isn't interested in an answer to a question, therefore, does not mean that the question is not strategically relevant. The speaker's conversational goals are not the *public* conversational goals.

There are theoretical grounds, in fact, for analyzing the implicit questions associated with *namely* as regular QUDs. These grounds relate to *namely*'s focus sensitivity.¹⁰ In the theory of Beaver & Clark (2009), focus sensitivity is treated as an indirect matter, mediated by the CQ. While the focus structure of a sentence determines its CQ through congruence, focus sensitive expressions directly reference the CQ, and thus necessarily interact with the focus structure of their sentences. Since *namely* is focus sensitive, it is therefore unsurprising that it directly references an implicit question in its semantics. What it is referencing is the CQ.

5.2 Onea's (2016) potential questions

Onea (2016) and Onea & Ott (2022) (henceforth: O&O) take a much broader stance on the relation between apposition and implicit questions: in their theory, all appositives conventionally associate with implicit questions called **potential questions (PQs)**. PQs are salient implicit questions licensed by new information in their host utterance.

Now, unlike A&J, O&O treat PQs as a kind of QUD. However, like A&J, they treat potential questions as fundamentally non-strategic: PQs are side questions that do not need to be justified by their role in a strategy. This analysis seems to preserve appositives' status as not at-issue.

To be sure, O&O acknowledge that a PQ may be *incidentally* strategically relevant: nothing in the theory rules this out. Nevertheless, the QUD-theory of at-issuehood treats content as at-issue only if it is *intended* to be relevant (Simons et al. 2010). One might, on *this* basis, use the PQ framework to maintain appositives' not

¹⁰ One can show this focus sensitivity using phonologically reduced pronouns (Beaver & Clark 2009). These expressions cannot be targeted by focus sensitive expressions like *only*, since they cannot bear focus. Like *only*, *namely* cannot target such expressions:

- (i) John and Lisa are coming over. I don't like one of them though.
 - a. #Namely, I don't like' im.
 - b. Namely, I don't like HIM.

at-issue status, in the following way. Since appositives are conventionally marked as answering questions licensed through non-strategic means, when a speaker uses an appositive, they are signaling that its content is licensed non-strategically. By virtue of this signal, one cannot communicate an intention for the appositive to be relevant to the CQ. In this way, appositives maintain their not at-issue status.

In what follows, I show that the QUD framework can accommodate at least one major set of data motivating the association of appositives with PQs. I then argue that conventionally associating appositives with PQs ultimately makes the wrong predictions about appositive behavior.

One crucial justification for the PQ framework comes from the observation that nominal appositives are typically used when discourse referents are introduced:

- (85) She met Skylar Garcia, an old friend, at the pub today. (Onea & Ott 2022)

Since appositives are used so often in these cases, it is reasonable to attribute their felicity to PQs triggered by the introduction of the discourse referent itself, and not to the larger discourse context.

Nevertheless, there are other notions of relevance besides strategic relevance that can justify raising a question (Ginzburg 2010). I suggest that one of these notions – *metacommunicative relevance* – is responsible for the correlation between apposition and dref introduction above. Consider the following:

- (86) A: What has Jane been up to?
B: She met Skylar Garcia at the pub today.
A: Skylar Garcia?
B: An old friend.

Above, A does not know who B intends to refer to – i.e., what *Skylar Garcia* means (Kripke 1980). Maybe Skylar Garcia is someone they are supposed to know. This leads to A raising a clarification request about Skylar Garcia's identity. These clarification requests are part of a pragmatic process, *grounding*, in which interlocutors have latitude in shaping how a new discourse referent is construed before joint acceptance (Clark & Brennan 1991). Importantly, grounding moves count as cooperative moves regardless of whether they are strategically relevant, since they serve a *meta-communicative* purpose (Ginzburg 2010).

Now, the appositive in (85) seems to be used to pre-empt such a dialogue. Thus, the same notion of metacommunicative relevance is most likely responsible for justifying the use of apposition in (85). One therefore need not appeal to PQs to account for these cases. Within the QUD framework, all that is required is to allow for additional “justifications of relevance” like those in (58), which reference metacommunicative factors.

Such a pragmatic theory is, in fact, preferable to one based on convention, since appositives like the one in (85) can appear after familiar discourse referents as well as novel ones. A counterexample in this vein is brought up by O&O themselves. They note that under their theory, copular potential questions should not be licensed by pronouns whose antecedent lies in a previous sentence, since the question should have been raised at the pronoun's antecedent (the novel discourse referent). This prediction is contradicted by examples such as:

- (87) In 2002, Lance Armstrong won the Tour de France. No one had expected him, an Arkansan, to achieve this incredible feat. (Onea & Ott 2022)

According to the theory of potential questions, the appositive *an Arkansan* should only be licensed at the point when *Lance Armstrong* is first introduced, since that is when a copular potential question becomes available. The pronoun *him* does not license this question.

Onea & Ott (2022) explain this example away by appealing to pretense: the idea is the speaker can freely pretend that *him* contains new information in the second sentence to license such a question. However, it is unclear what it means for a speaker to treat a pronoun as “new” for the purpose of potential question licensing, and at the same time “old” for the purpose of anaphora resolution. A more plausible explanation, to me, is that the appositive in (87) is used strategically: it answers an implicit copular question that is relevant to a broader discourse strategy concerning Lance Armstrong’s rise to fame. On this account, the appositive has a clear relation to its host sentence: it is used to explain why nobody expected Lance Armstrong to win – in their minds, he was a mere Arkansan.

O&O are therefore right to separate their cases of apposition from typical QUDs, which were originally proposed to model strategic discourse. However, so long as strategic relevance is treated a subcase of relevance and QUD-licensing in general, regular pragmatic mechanisms can explain their use.

5.3 Appositives as direct answers to questions

Now that we’ve accommodated the phenomena discussed in previous accounts, we are left with a theory where appositives can be relevant to the QUDs of their hosts. In this theory, one cannot appeal to the secondary status of implicit questions to explain appositives’ status as not at-issue. Our remaining task, then, is to show that the proposal here is nonetheless compatible with the very observations that motivated calling appositives “not at-issue” in the first place.

This section demonstrates a compatibility with one such observation – appositives’ inability to directly answer questions. This observation has been used to demonstrate appositives’ secondary status:

- (88) Who stole my money? (Tonhauser 2012: 9)

- a. That man, my mother's friend, stole your money.
- b. ??That man, who stole your money, is my mother's friend.

It is odd for appositives to host the direct answer to a question, while natural for them to host other information.

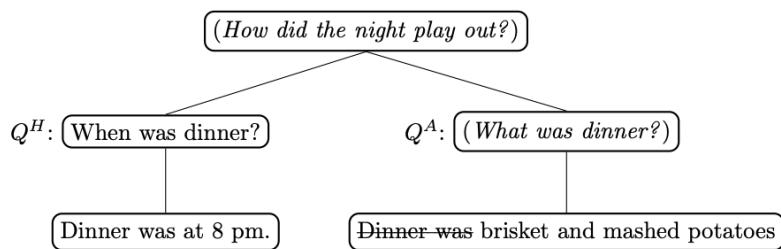
The focus here is on non-clausal apposition rather than appositive relative clauses like (88). We therefore need to see if the same contrast holds for non-clausal appositives. Indeed, the oddness remains:

- (89) B is answering A's questions about a dinner party she hosted the night before. A: When was dinner?
- a. B: Dinner, brisket and mashed potatoes, was at 8 pm.
 - b. B: ??Dinner, at 8 pm, was brisket and mashed potatoes.

Just like (88), the answer to the question should be in the host. This provides some motivation for connecting appositives' secondary status to their relevance to the CQ.

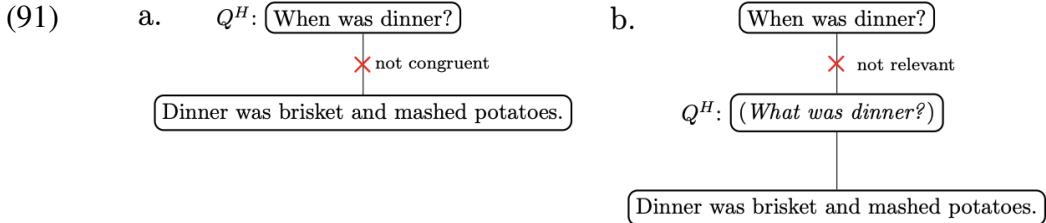
This contrast can nevertheless be explained within the present proposal. As assumed in §4, the host's relationship with the QUD is established prior to the appositive's (Onea 2016).¹¹ For (89a) this is fine: A's question can be identified as the CQ of the host (Q^H), and the appositive's CQ (Q^A) can be raised as another question in a broader strategy:

- (90)



This doesn't work for (89b), however, as the host is neither congruent to A's question (91a), nor can it address a QUD that is relevant to A's question (91b):

¹¹ There is evidence that appositives are actually dynamically *interleaved* within their hosts (AnderBois et al. 2015, Koev 2013). For a proposal that takes this into account while still being compatible with the sequencing of QUDs assumed here, see Jasinskaja 2016.



The proposal here thus predicts that appositives can never directly respond to a question – only the host can establish such a relationship.¹²

This explanation echoes a point made by [Jasinskaja \(2016\)](#): relevance is a dynamic notion, one that can change over the course of a single sentence. Accordingly, although an appositive's relevance is established via a QUD, it is not the same QUD as its host.

Overall, this investigation suggests that appositives' secondary discourse status relative to their hosts should be distinguished from their relevance to the QUD. Despite their inability to directly answer their host's CQ, appositives can be relevant to it. Consequently, definitions of at-issueness that aim to exclude appositives cannot rely on QUD-based criteria alone.

Given this data, two paths to defining at-issueness are available. The first is to sever at-issueness from the QUD entirely. This is the approach of [Koev \(2013\)](#), who treats at-issueness as independent from the QUD, tied instead to what counts as the “main proposal” of a sentence. A second path is to adopt a more complex definition in which QUD-relevance is only one condition among others. This is the approach of [Beaver et al. \(2017\)](#), who, building on the original QUD-based definition of [Simons et al. \(2010\)](#), define content as at-issue if (i) it is part of the semantic composition of the host, and (ii) is relevant to the CQ. Since appositives do not semantically compose with their hosts, they are excluded from being at-issue under this definition, regardless of their relevance to the CQ. Both of these definitions are consistent with the data here.

6 Conclusion

It is commonplace to think of appositives as “superfluous” and as “side-commentary”. This article has challenged this view for non-clausal appositives through a detailed investigation of several case studies. Non-clausal appositives can be essential to their host clauses, satisfying pragmatic constraints, like hearer competence, that the host alone cannot meet. They are also constrained by the discourse they are in: they

¹² This explanation parallels the accounts of [Koev \(2013\)](#) and [Jasinskaja \(2016\)](#), which link different observations about the secondary status of appositives to their sequencing.

must be congruent to implicit questions whose relevance, in many cases, needs to be justified in the discourse.

This investigation has led to a theory in which appositives share the discourse profile of standard assertions. This theory suggests that conversational dynamics should be incorporated into our explanations of appositive interpretation. Sentences with non-clausal appositives are complex speech acts, with multiple assertions, each associated with its own QUD. As a result, the interpretation of these sentences is necessarily influenced by the pragmatic properties of both the host and appositive.

This investigation has also shown that appositives offer a window onto conversational dynamics that might otherwise go unstudied. For instance, it has uncovered facts about hearer-competence – such as its *turn sensitivity* – that are overlooked in current theories of discourse. Moreover, it has shown that a more liberal notion of strategic relevance is needed.

Does this theory extend beyond non-clausal apposition? As the theory constructed here is largely pragmatic, one might expect similar complex, interleaved speech acts to appear in other areas of language.

One obvious candidate is appositive relative clauses (ARCs). However, ARCs can be interpreted as part of their host content (i.e., fail to project; Schlenker 2023), as in (92) below, where the ARC event is part of the hypothetical scenario being constructed:

- (92) If tomorrow I called the chair, who in turn called the dean, we'd be in big trouble.

ARCs thus need not be separate speech acts from their host, unlike non-clausal appositives.¹³

Nevertheless, certain ARCs have been claimed to be independent speech acts (Koev 2013). At minimum, the focus structure of these expressions should be investigated to see if they are also constrained by question-answer congruence.

13 Prepositional and predicational nominal appositives always project:

- (i) a. If tomorrow I called the chair, with the green hair, we'd be in big trouble.
b. If tomorrow I called the chair, a stern man, we'd be in big trouble.

There are some nominal appositives that fail to project, like *one*-asides (Wang et al. 2005, AnderBois et al. 2015, Schlenker 2020, Onea & Ott 2022). However, the projection behavior of these appositives is traceable to their “reformulative” elided syntax, rather than the fact that they are actually embedded (Ott 2016, Onea & Ott 2022):

- (ii) a. If tomorrow I called a chair, a famous one, then we'd be in big trouble.
b. *Appositive*: If tomorrow I called a famous one, then we'd be in big trouble.

Other parentheticals look more promising. The non-standard interpretive behavior of, for instance, clausal parentheticals, left-dislocation, and right-dislocation might be explained within a more articulated theory of conversational dynamics.

One particularly promising case is nominal free adjuncts (Stump 1981):

- (93) A cancer survivor, Lance has donated to many hospitals.

Compared to other free adjuncts, like *as-* and *being-*parentheticals, these exhibit the discourse profile of regular assertions and nominal appositives. For instance, they resist backgrounding:

- (94) Many celebrities, such as Lance Armstrong and Ben Stiller, have survived cancer.
- a. Being/As a cancer survivor, Lance has donated to many hospitals.
 - b. #A cancer survivor, Lance has donated to many hospitals.
 - c. Lance has donated to many hospitals. #He's a cancer survivor.
 - d. Lance, #a cancer survivor, has donated to many hospitals.

This indicates that nominal free adjuncts have the discourse status of nominal appositives. How their initial position differentiates them from nominal appositives, as well as their relation to their host clause, remains to be determined. There is much to explore.

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