Presupposing Questions[1]

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Abstract. Utterances like *and the parents are where?* (declarative word-order, non-fronted *wh*-words, and a non-echo interpretation) in languages that in principle have obligatory *wh*-fronting present a challenge. I avoid ad-hoc stipulations by paying attention to the interplay between the semantics of the utterances and their dynamic update. I argue that, in English, such sentences are not interrogatives, but declaratives with vacuous content whose function is to indicate the speaker's presupposition regarding the question to be answered. This system allows us to make predictions about their interpretation while keeping the semantics true to form.

Keywords: *wh*-in-situ, *wh*-questions, dynamic update, discourse models, focus presupposition.

1. Felicity in discourse

Utterances in discourse are subject to felicity constraints. Within a sequence of utterances, a given utterance's 'relevance' is often the principle determining the utterance's felicity. Roughly, for utterances of declaratives and interrogatives, a discourse move (a communicative act) is relevant if it is a (partial) answer to a question or if it posits a question whose answer would help solving the ongoing issue participants have committed to solve. Out of the blue utterances have not, however, received much attention.

In this paper I study an English construction that I dub WhDec, (1a). WhDecs are puzzling because they have a declarative word order (compare with (1b)) containing a non-fronted *wh*-word, and an interpretation that seems similar to that of an (information-seeking) *wh*-interrogative, (1d). In this sense, they are related to rising declaratives (RisDecs), (1c): utterances with declarative word order that request information.[2]

(1)   a.   (And) the boyfriend is where↑?   WhDec
       b.   The boyfriend is in Joshua tree↓.   Dec
       c.   The boyfriend is in Joshua tree↑.   RisDec
       d.   Where is the boyfriend↓?   WhQ

WhDecs present an interesting puzzle. Structurally, we want to understand how an inquisitive utterance with a *wh*-word may allow the *wh*-word to stay 'in-situ'. In order to understand WhDecs I present a thorough examination of the data building on initial explorations in the literature (see e.g. Ginzburg and Sag, 2001; Pires and Taylor, 2007). I show that WhDecs behave differently from WhQs and are not discursively interchangeable, §2. Given that WhDecs are not alone and similar facts can be found in other languages such as Spanish (see Biezma, 2018), the behavior observed in WhDecs is arguably not due to conventionalization and we should be able to derive it in a principled way understanding their semantics and dynamic update.

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[2]In this paper I use '↑' and '↓' to specify the final utterance intonation. '↑' stands for a final rising contour (in ToBI this is corresponds to a nuclear contour with a L* H-H% shape, although there are other possibilities), while '↓' stands for a final falling contour (often H*L-L%, but other shapes are also possible).

In §3 I introduce the dynamic assumptions (which I adopt from Biezma and Rawlins, 2017b, henceforth B&R), and in §4 I address the semantics and dynamic update of WhDecs, comparing it to regular WhQs and (regular) declaratives. The key to the analysis is that WhDecs are declaratives (not interrogatives) and that they are hence proposals to update the (Stalnakerian) common ground (CG). As declaratives, WhDecs are vacuous (the utterance of (1a) merely establishes that there are different alternatives salient in the context of utterance regarding the whereabouts of the boyfriend). However, via focus anaphora (à la Rooth), it presupposes that there is a question in the context of utterance of the form equivalent to the WhDec's WhQ counterpart (e.g. *where is the boyfriend?* for the running example).[3] This (presupposed) question is left unsolved and, hence, posterior utterances ought to be geared towards solving it and thus creating the mirage that WhDecs are questions themselves.

Before going ahead, let me make two disclaimers. First, the proposal in this paper is centered around American English (although similar phenomena can be observed in Spanish, see Biezma, 2018), where interrogatives are said to exhibit obligatory fronting of the *wh*-word and subject-auxiliary inversion. The proposal is not meant to cover cases observed in so called optional-*wh*-in-situ languages (see Bayer and Cheng to appear for an overview). Second, in this paper I am not concerned with 'echo questions' (EchQs). While echo questions are not necessarily in-situ, the most stereotypical type of echo question shares similarities with WhDecs:

(2)   A: The boyfriend is in %@##!%.
      B: The boyfriend is WHERE?
                    L+H* H-H%

As WhDecs, stereotypical EchQs also have an inquisitive interpretation while having a declarative word order. They differ, however, in their prosody: the nuclear contour in EchQs includes a complex accent instead of the simple accent found in WhDecs (see Artstein, 2002 for discussion of the prosody of EchQs). But the class of EchQs is larger. An utterance is identified as an EchQs when it requests information about what was just said in the previous utterance while repeating it verbatim ('echo-ing') to a certain degree. Besides *wh*-in-situ EchQs there are also EchQs with interrogative word order, or non-*wh* EchQs (small caps are used to signal the stressed word carrying the complex accent):

(3)   A: I called John.
      B: WHO did you call↑? / B': You called JOHN↑?

Addressing the problems presented by EchQs in a comprehensive way that includes all the different types of EchQs is a task beyond the scope of this paper. However, the proposal made for WhDecs in this paper seems a promising way to explain the structural challenges faced by theories of EchQs in explaining in-situ *wh*-EchQs (i.e. explaining why the *wh*-word remains in situ).[4] If it were possible to extend the proposal for WhDecs to the case of in-situ *wh*-EchQs,

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[3]That WhDecs are presuppositional was already noticed in Ginzburg and Sag (2001: pg. 280): "It is clear that out of the blue an in-situ *wh*-interrogative clause is typically infelicitous. That is, an in-situ *wh*-clause minimally carries a presupposition of a particular kind. Although the nature of this presupposition is difficult to characterize precisely, we believe that the appropriate account of such presuppositions will provide an appropriate pragmatic explanation for the relative rarity of such uses." Part of what I try to do in this paper is to understand the exact nature of such presupposition while providing an analysis of the semantics and pragmatics of WhDecs.

[4]The reader is referred to e.g. Ginzburg and Sag (2001); Iwata (2003); Sudo (2007); Beck and Reis (2018) for different approaches to EchQs mostly focusing on *wh*-EchQs.

it is likely that we would end up with a picture in which so called EchQs are not structurally fundamentally different from other utterances an in which the term EchQ is merely a cover term including declaratives (RisDecs and WhDecs) and interrogatives (non-*wh*-interrogatives and WhQs) whose echoic interpretation are derived from factors such as information structure.

2. Different ways to inquire about salient alternatives

While WhDecs have not been discussed at length nor have they been the main object of study in the literature (see Pires and Taylor, 2007 for an exception) they have often been mentioned in passing. Example (4a) is from Bolinger (1957), while (4b) is from Kuno and Robinson (1972), and (4d) is from Carlson (1983) from a court setting (see Bartels, 1999 for an overview):[5]

(4) a. A: He was out all night.
         B: Didn't get in until when?
                        H*/L* H-H%/L%
     b. [Quizmaster:] The Boston Marathon this year was won by who?
                         (H*)   H* H-H%
     c. A: … As always, I'm only going to be here for a few weeks.
         B: You're going abroad again when?
                        H* H-H%
     d. [In a court setting] You were informed of the fact on what day?
                         (H*)   H*   H-H%/L%

The meaning of these English hybrid-utterances is reported to be discursively linked. Bolinger (1957: p.142) claims that these utterances evoke a previous question and dubs them "reminder questions". However, examples like (4a), (4c) and (4d) show that these are not mere repetitions of other questions and Bartels (1999) points out that often "the speaker merely pretends to rely on a discourse link while knowing that no such link exists." In order to provide a more comprehensive view of the use of WhDecs I present below data from a TV-series *Major Crimes*, Season 5, Episode 1, "Present tense", where information of what precedes WhDecs and what follows them may be observed (Ltn. Provenza below is the highest ranking officer in the conversation and examples sound very natural to native speakers):

(5) [The episode's starting scenes make clear that something has happened to a particular teenage girl, Amanda. We learn that she has gone missing. These scenes are excerpts from her life intertwined with images of people posting signs with her picture advertising her as a missing person. Ltn. Provenza is shown walking to meet his detectives at the place Amanda was last seen while doing volunteer work for a charity, First Care. He needs to be updated on what the detectives have learned so far. (The dialogue presents the very first utterances when they meet)]
     Det. Sykes: She hasn't even been gone 48 hours yet.
     Det. Oderno: Watch Command didn't take the report seriously because just eight months ago, Amanda ran away from home after having an argument with her parents.

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[5]Bartels points out that a final-falling contour is also possible in non-fronted *wh*-utterances when "calling for specification of the agent in the original statement" and are equivalent to narrow focus WhQs that she calls "reference questions" (the label is due to Rando, 1980). (Bartels, 1999: ex. (57)):

(i)   A: John knows.
      B: John knows what? /   What does John Know?
                  H* L-L%   H*   L-L%

For reasons of space I only return to the role of intonation briefly in §6, but see Biezma (2019).

Det. Sykes: Let me guess. The fight was over a boyfriend? [RisDec]
     H*   L-   L*   H-H%

Det. Oderno: Oh, you must be psychic. Yeah. Parents don't like the age difference. Gabe Young is a graduating senior, and Amanda, she just turned 16 today. Yeah.

Ltn. Prov: Well, let's hold off lighting the candles on her cake for a minute, okay? **And the boyfriend is where?** [WhDec]
     L*H   L*H-H%

Det. Oderno: Uh, supposed to be camping in Joshua Tree this weekend with friends.

(6) [... The detectives have now reunited with the rest of the unit and they are talking to the First Care Coordinator]

Det. Flynn: (ironically commenting on the safety of the volunteers' tasks) 15-year-old girl approaching strange homeless men at night in downtown L.A.

First Care Coordinator: Not by herself. Gabe, her boyfriend, was helping her, till they had an argument about him missing her birthday for some camping trip.

Ltn. Provenza: **And you know about this argument how?** [WhDec]
          L+H*   L* H-H%/L-H%

First Care Coordinator: Jenny Stratton, my Outreach Supervisor. I make sure all teenage volunteers work in tandem with adult employees.

The WhDecs utterances above are not preceded by an equivalent inquiry (and all participants are aware of the lack of such antecedent). However, all of them are very much interpreted as requesting information related to the ongoing inquiry.[6]

While WhDecs seem to be similar to WhQs and, e.g., they allow for similar responses, they differ in other aspects. Impressionistically, native speakers report the intuition that WhDecs distill a sense of urgency not obtained from the utterance of the parallel WhQ (without the aid of special prosody). In terms of their distribution, WhDecs distribution is narrower than WhQs and are not possible in (completely) out of the blue situations (contrast (7) with (8) and (9)):[7]

(7) A stops a random pedestrian on the street and says.
     A$_1$: Excuse me, where can I buy an Italian newspaper? [WhQ]
     A$_2$:#Excuse me, I can buy an Italian newspaper where? [WhDec]

WhDecs are possible without a preceding linguistic context as long as the issue is relevant in the utterance situation and we can assume that the addressee is willing take up the question:

(8) A is helping to tidy up after dinner at her friend's house and enters the kitchen carrying the dishes.
     A$_1$: These go where? / A$_2$: Where do these go?

(9) Professor B is in her office when a delivery-man (A) enters with a pile of packages that are clearly not for her (she is not expecting any package but knows that the office manager is sick at home and her office is next to his):
     A$_1$:#Good morning! I can put these packages where?
     A$_2$: Good morning! Where can I put these packages?

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[6]In all instances in which a WhDec is felicitous it can be preceded by *and* or *but*, which in this case are discourse markers (see Asher and Lascarides, 2003 a.o.) indicating that the question is integrated in a larger discourse structure. While WhQs can also be preceded by these markers in some occasions, it's not always possible.

[7]See e.g. Ginzburg and Sag, 2001; Pires and Taylor, 2007 regarding this observation.

The difference between A_1's utterance in (8) and (9) is that in the latter the professor cannot be taken to be willing to solve the delivery-man's issue (even if she knows the answer, it's not her job to be in charge of packages and she may not be willing to busy herself with such issues and help out). Notice also that WhDecs are only felicitous when the spakers considers that the addressee knows the answer or knows whether the answer is known:[8]

(10)   [Assuming the same preceding context as in in (5)]
    a.   And the boyfriend is where? #Have you checked?
    b.   And where is the boyfriend? Have you checked?

Differences between WhDecs and WhQs can also be observed in sequences of questions:

(11)   [Lt. Provenza in the same preceding context to the WhDec in (5).]
    a.   #Ok, where is the boyfriend? The parents are where?
    b.   ?#Ok, and the boyfriend is where? Where are the parents?
    c.   Ok, and the boyfriend is where? The parents are where?
    d.   Ok, and where is the boyfriend? Where are the parents?

The proposal I make below explains (i) why WhDecs have a more restricted distribution than WhQs, (ii) the restrictions observed in sequences of questions and, (iii) the differences in the overall interpretation between WhDecs and WhQs discussed above.

3. A dynamic system to capture context updates

B&R assume that a context c is formed by a *local context* (l_c), which is composed by the actual context set cs and the QUD stack Q (implemented using a simple alternative-semantics representation) and a *projected context* in which proposals are recorded, ($\mathscr{F}$). This assumption allows them to capture the 'proposal' component of utterances.

(12)   A *context c* is a tuple $\langle cs, Q, \mathscr{F} \rangle$ where its elements are characterized as:
    a. $l_c = \langle cs, Q \rangle$ is a local context.
    b. $\mathscr{F}_c$ is either a local context or $\emptyset$. Call $\mathscr{F}_c$ the *projected context*.[9]

(13)   A *local context* is a tuple $\langle cs, Q \rangle$ such that:
    a. cs is a context set.
    b. Q is a stack of sets of propositions.

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[8](10a) can be uttered by a lieutenant who wants to convey that the addressee should have inquired already about that information:

(i)   Ltn. Provenza arrives at the crime scene and sees that people are very relaxed mingling with people from other units but not much work is being done. He asks quite angrily:
    Ltn. Provenza: So, what do we know?
    Det. Skyes: The missing person is female. Sandra Smith. She is 15.
    Ltn. Provenza: And?!
    Det. Sykes: Well, she was last seen here with her boyfriend yesterday at 11:00 pm.
    Ltn. Provenza: And?
    Det. Sykes: And...?
    Ltn. Provenza: (quite irritated) And the boyfriend is where? Have you checked that? Are you doing any detective work?

Notice that in this case the WhDec is 'reporting' the inquiry that he would have liked to have solved previously, which he now suspect can't be answered. Addressing formally these cases is beyond the scope of this paper.

[9]Biezma and Rawlins (2017b) simplify to consider one possible future context or none (notated by $\emptyset$) accepting that in the general case, one may want to allow several future contexts.

The system assumes the standard *push*, *pop* and *top* operations on stacks (see Kaufmann, 2000; Isaacs and Rawlins, 2008).[10] In this model, the current/immediate QUD in the local context l_c will always be at the top of the stack, i.e. given the stack of questions in a context c, Q_c, the current QUD is $top(Q_c)$. The context updates as conversation progresses and declarative utterances propose to update cs while interrogatives propose to update Q:[11]

(14) Local updates. For a local context l,
    a. $l \oplus \ulcorner \varphi_{\langle s,t \rangle} \urcorner = \langle cs_l \cap \llbracket \varphi \rrbracket, Q_l \rangle$ **[Declarative update]**
        Felicity constraints:
        (i) cs_l is compatible with $\llbracket \varphi \rrbracket$.   (assertability)
        (ii) $\llbracket \varphi \rrbracket$ is relevant to $top(Q_l)$
    b. $l \oslash \ulcorner \varphi_{\{\langle s,t \rangle\}} \urcorner = \langle cs_l, push(Q_l, \llbracket \varphi \rrbracket) \rangle$ **[Interrogative update]**
        Felicity constraints:
        (i) cs_l is compatible with $\{w \mid \exists p \in (\llbracket \varphi \rrbracket) : p(w)\}$.   (answerability)
        (ii) $\llbracket \varphi \rrbracket$ is relevant to $top(Q_l)$ or $Q_l = \langle \rangle$

In this model, the notion of *relevance* is captured as a constraint on answerhood and question licensing. In an idealization of discourse, declaratives are considered to be answers to a (implicit) question and relevance is relevance to such question. The notion of relevance also specifies the licensing of utterances of interrogatives. (Definitions below are adapted from the notion of relevance in Roberts, 1996.[12])

(15)   **Answerhood licensing**: an assertion move is relevant to $top(Q_c)$ only if it entails, either positively or negatively, the resolution of at least one alternative in $top(Q_c)$.

(16)   **Question licensing**: a question move is relevant in Q_c only if $Q_c = \langle \rangle$, or it is (part of) a strategy to answer $top(Q_c)$ (where a strategy is a sequence of subquestions that together answer a given question, Roberts, 1996).

B&R assume that presuppositions carried by utterances must be accommodated before the move is accepted (informative updates take place before performing other local updates).[13]

(17)   **Accommodation**. If φ presupposes ψ and ψ is not satisfied in l, first update l so that ψ is satisfied.

Finally, full contexts are formed by the current context (the local context) and proposals to update it: the projected context (or 'future context'). The structure of projected contexts is the same as the structure of the local context. The absence of a projected context is notated by $\emptyset$. Given the machinery above, B&R use the following basic definitions:

(18) $c + \ulcorner \text{Assert}(\varphi) \urcorner = \langle cs_c, Q_c, l_c \oplus \ulcorner \varphi \urcorner \rangle$ **Assertion**
        Constraints:
        a. $\mathscr{F}_c = \emptyset$ b. $l_c \oplus \ulcorner \varphi \urcorner$ is felicitous

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[10]I adopt the usual operations on stacks. Given a stack s, $push(s,x)$ delivers the stack resulting from adding x to the top of s. Conversely, $pop(s)$ delivers a stack in which the top element of s has been removed. Finally, $top(s)$ just establishes what's the top element on the stack.

[11]Obviously, Q and cs interact, e.g. cs dictates what the live alternatives in the questions in Q are, and the fact that a particular question has been discussed is recorded in cs.

[12]See Büring (2003) for a more relaxed notion of answerhood. The differences do not matter for our purposes.

[13]This is independent of any specific treatment of presupposition.

(19) $c + \ulcorner \text{Question}(\varphi) \urcorner = \langle cs_c, Q_c, l_c \oslash \ulcorner \varphi \urcorner \rangle$ **Question**
         Constraints:
         a. $\mathscr{F}_c = \emptyset$ b. $l_c \oslash \ulcorner \varphi \urcorner$ is felicitous

(20) $c + \ulcorner \text{Accept}_x \urcorner = \langle cs_{\mathscr{F}_c}, Q_{\mathscr{F}_c}, \emptyset \rangle$ **Acceptance**

According to the definitions above, utterances do not modify directly the local context but rather the future context: they propose to either add information to the *cs*, in the case of declaratives, or to add a question to the question stack in the case of interrogatives. Acceptance replaces the original context by the future context and leaves the proposal slot (the future context slot) empty. Utterances are felicitous if the update obeys the felicity constraints in (14). In their model B&R also include two 'maintenance' operations: rejection of a move, i.e. rejecting a future context, and the elimination of a QUD once it has been solved, which requires popping that QUD from the stack.[14] The empty stack is notated by $\langle \rangle$.

(21) $c + \ulcorner \text{Clear} \urcorner = \langle cs_c, Q_c, \emptyset \rangle$ **Rejection**

(22) $c + \ulcorner \text{Pop} \urcorner = \langle cs_c, \text{pop}(Q_c), \mathscr{F}_c \rangle$ **QUD resolution**
         Constraints:
         a. $\mathscr{F}_c = \emptyset$ b. $Q_c \neq \langle \rangle$

The last relevant notion for our proposal in B&R is the notion of 'inquisitiveness'. A context is inquisitive if $top(Q)$ is not purely informative, i.e. if the context doesn't entail its answer:

(23)   A local context l is non-inquisitive just in case $top(Q_l)$ is *purely informative* relative to cs_l (see (24)).

(24)   **(Pure) informativity**
         A set of propositions A is purely informative relative to a context set c iff
         $\left| \left\{ p \in D_{\langle st \rangle} \mid p \neq \emptyset \land \exists q \in A : p = q \cap c \right\} \right| = 1$
         Paraphrase: There is exactly one $q \in A$ such that $q \cap c \neq \emptyset$

The definitions above result in a set of propositions being inquisitive iff there is not only one alternative viable in the context (i.e. if the set is not purely informative).

4. WhQs vs WhDecs: Interrogatives vs Declaratives

4.1. WhQs

The semantics of WhQs   The compositional analysis provided here builds on analyses within the Hamblin/Rooth tradition. The keys for this analysis is that (i) questions denote sets of propositions and (ii) how those propositions are identified by linguistic cues.

In the Hamblin-semantics tradition declaratives denote singleton sets and interrogatives are sets of sets of possible worlds (sets of propositions). Alternative sets compose via pointwise function-argument application.[15] If the sets are singletons, composition behaves like standard

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[14]B&R assume that when QUDs are not inquisitive (see (23) below), they pop automatically (this mechanism to clear non-inquisitve QUDs follows most directly Groenendijk, 1999).

[15]From Kratzer and Shimoyama (2002):

(i)   Pointwise Function-Argument Application
        If α_M is a branching node with daughters β and γ, and $[\![\beta]\!]^{g,c} \subseteq D_\sigma$ and $[\![\gamma]\!]^{g,c} \subseteq D_{\sigma, \tau}$,
        then $[\![\alpha_M]\!]^{g,c} \underset{\text{def}}{=} \{ a \in D_\tau \mid \exists b \exists c (b \in [\![\beta]\!]^{g,c} \land c \in [\![\gamma]\!]^{g,c} \land a = c(b)) \}$

function-argument application. In the Hamblin-semantics literature following Kratzer and Shimoyama (2002) operators manipulating alternatives are dissociated from lexical items introducing them. The alternatives introduced in the composition by lexical elements are collected by operators, e.g. an '∃' operator providing existential force, as in the case of disjunction in declaratives (this operator returns a singleton set) or a 'Q' operator in the case of *wh*-interrogatives or interrogatives with disjunction (see Biezma and Rawlins, 2012 for alternative questions; this operator leaves the set of alternatives intact). Kratzer and Shimoyama's (2002) original definitions are in (25). A standard definition for *wh*-words is in (26). (Given that the discussion below will consider the link between utterances and discourse and that within the Roothian tradition this is mediated by focus meaning, I start differentiating between the ordinary meaning ($[\![\cdot]\!]^o$) and the focus meaning ($[\![\cdot]\!]^f$).[16])

(25)   Where $[\![\alpha]\!]^o \subseteq D_{\langle\langle s,t\rangle,t\rangle}$ Kratzer and Shimoyama (2002)
   a. $[\![\exists\alpha]\!]^o = \{\lambda w.\exists p \in [\![\alpha]\!]^o : p(w) = 1\}$ (preliminary)
   b. $[\![Q\alpha]\!]^o = [\![\alpha]\!]^o$ (preliminary)

(26) $[\![wh\text{-}]\!]^o = D_\tau$ (where τ stands for the type of the given *wh*-word)

The alternatives generated by the *wh*-word enter into the composition via point-wise function-argument application. This system, as is, would provide the following denotation for WhQs:

(27) $[\![$**Where is the boyfriend?**$]\!]^o = [\![[Q[$**the boyfriend is where**$]]]\!]^o = $
     $[\![Q(\{$the boyfriend is at home; the boyfriend is camping,...$\})]\!]^o = $
     {the boyfriend is at home; the boyfriend is camping,...}

The denotation of the interrogative in (27) is, hence, a set of propositions varying on the different locations where the boyfriend may be. Notice that the alternatives manipulated by the 'Q' operator are the set of alternatives generated by the *wh*-word, which does not mean that these are the only alternatives under discussion in the context of utterance. This is in particular relevant when understanding that *nowhere*, *nothing*, *nobody* etc, what I term 'empty-set' responses can be live-alternatives in the context of utterance, i.e., when understanding that *wh*-interrogatives do not (necessarily) trigger the so called 'existential' presupposition.[17] The status of this existential inference has been discussed in the literature (see e.g. Roberts, 1996; Abusch, 2009; Stalnaker, 2014; Biezma and Rawlins, 2017a). Abusch (2009) calls this inference the *some-alternative presupposition*, i.e. the presupposition that the disjunction of the set of propositions introduced lexically is true, and presents data showing that such inference can be cancelled and is contextually dependent.[18] Stalnaker, 2014 also argues that the existential

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[16]In Rooth's framework, a sentence is associated with both an ordinary semantic value ($[\![\cdot]\!]^o$) and a focus semantic value $[\![\cdot]\!]^f$. The focus semantic value of an utterance is the set of alternatives obtained by substituting the focused element. (The English translation below is a shorthand for propositions.) Recall also that in Hamblin semantics, declaratives denote singleton sets:
(i)   John eats [POTATOES]$_F$
     a. $[\![$John eats [POTATOES]$_F]\!]^o = \{$John eats potatoes$\}$.
     b. $[\![$John eats [POTATOES]$_F]\!]^f = \{$John eats potatoes; John eats cookies,...$\}$.

[17]See Roberts (1996) for discussion on the existential presupposition in QUDs.
[18]See Abusch (2009), ex. (16b) repeated below or Biezma and Rawlins (2017a) for additional examples:
(i)   I've alienated my colleagues completely. Who will vote for me? Probably nobody.

inference is not a presupposition and claims that it is merely an entailment of the set of answers.

There is, hence, a difference between the 'semantic alternatives' (the alternatives introduced in the composition lexically) and the alternatives that are under consideration in the evaluation of the question, which may include additional alternatives inferred from the context. If we were to enforce that the semantic alternatives be the only alternatives under consideration, we would predict (counter the empirical observations) that all *wh*-questions trigger the existential presupposition. To explain this discrepancy, authors appeal to pragmatic mechanisms affecting the interpretation of questions. For example, Abusch (2009) argues that while a default process generates a presupposition from the set generated semantically (and hence we often take away that *wh*-interrogatives trigger such inference), this process does not take place "if the some-alternative presupposition is either inconsistent with context or made implausible by context."

One way to capture this division of labor between semantics and pragmatics in the interpretation of questions is to bridge them in the denotation. I agree with Stalanker's view that the existential presupposition in *wh*-questions (when it is present) is an entailment of the set of alternatives under consideration. The proposal below also assumes, that the semantics establishes what the question in discourse (QUD) is about but does not solely determine it (see Roberts, 1996).

In what follows I adopt and adjust Biezma and Rawlins's (2012) proposal for the 'Q' operator, which does just that (see also Biezma and Rawlins, 2017a for a fully fleshed out version). The system assumes that utterances provide conventionally information regarding where they are located in discourse (where discourse is a hierarchical order of moves). That is, an explicit discourse 'move' is a communication event tightly linked to a context of utterance and to a linguistic form. In what follows, given some move M, the context of utterance for that move at that point in discourse is notated c_M.[19]

(28)   A move M's **Content** is defined by:
    a.   If M is overt, $\text{Content}(M) = [\![\beta_M]\!]^o_{c_M}$ where β_M is the linguistic form uttered in move M and c_M is the context of utterance of M.
    b.   Otherwise, $\text{Content}(M) \subseteq \mathscr{P}(\mathscr{W})$. ($\approx$ implicit moves are questions.)

(29) ALT_{c_M} is the set of propositional alternatives that are salient in the context of interpretation c for move M.   (v1 preliminary)[20]

(30)   Let M be a move such that $\text{Content}(M) = [\![\text{Q}[\alpha]]\!]^o_{c_M}$, where $[\![\alpha]\!]^o_{c_M} \subseteq D_{\langle\langle s,t\rangle, t\rangle}$
    $[\![\text{Q}[\alpha]]\!]^o_{c_M} = [\![\alpha]\!]^o_{c_M}$, defined only if
    a. $[\![\alpha]\!]^o_{c_M} \subseteq \text{ALT}_{c_M}$ or if $\text{ALT}_{c_M} = \emptyset$ b. $| [\![\alpha]\!]^o_{c_M} \cup \text{ALT}_{c_M} | > 1$

The 'Q' operator in (30) does not affect the semantic alternatives (as in (25b)) but imposes felicity conditions. The definedness conditions in the 'Q' operator, once we assume the utterance is made by a cooperative speaker, often translates into *informative presuppositions* in the sense of Stalnaker (1998) (presuppositions triggered in contexts where they are not satisfied but are satisfiable). Hence, the utterance of an interrogative provides information regarding what are

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[19]Biezma and Rawlins (2017a) build on Biezma and Rawlins (2012) and provide a fleshed out proposal within the QUD system (see e.g. Roberts, 1996). The formal details in Biezma and Rawlins (2017a) are not necessary for our discussion here. I present here a simplified version.
[20]The possible answers to the QUD dominating M.

the salient alternatives in discourse: if there were no salient alternatives present in the context (i.e. in a discourse initial situation, $\text{ALT}_{cM} = \emptyset$), we learn that $[\![\alpha]\!]^o_{cM}$ are live alternatives (and accommodate it). If participants are conscious of the alternatives available, we are told to focus on a subset of them, $[\![\alpha]\!]^o_{cM}$ (of course, in a scenario in which we know that there are alternatives available but it is not clear to participants which ones they are, we learn that $[\![\alpha]\!]^o_{cM}$ are amongst the salient alternatives). The utterance of an interrogative presents alternatives and requests that the addressee choose between those alternatives and others inferred in context. What is key is that in (30) lexically introduced alternatives do not completely constrain the live alternatives. This was important in the interpretation of non-*wh*-questions in Biezma and Rawlins (2012, 2017a): the utterance of a polar question (e.g. *do you want pasta↑?*) presents an alternative (polar questions are singleton sets, $[\![\alpha]\!]^o_{cM} = \{\text{the addressee wants pasta}\}$) and requests that the addressee choose between that alternative and other contextually salient alternatives that they must infer from the context (e.g. other edible options). In Biezma (2009); Biezma and Rawlins (2012), the difference between polar questions and alternative questions (*do you want pasta or fish↓?*, where '↓' stands for a final falling contour, e.g. H* L-L%) is that the final falling contour acts as a lexical marker indicating that the alternatives presented (e.g. that the addressee wants pasta and that the addressee wants fish), the content of the question, exhaustify logical space, i.e. that the alternatives introduced lexically are all the alternatives available in the context of utterance ($\text{ALT}_{cM} = [\![\alpha]\!]^o_{cM}$).[21] While Biezma and Rawlins (2012, 2017a) focus mostly on non-*wh*-questions, the aim is that this 'Q' operator be also the one in *wh*-questions and I make use of it here. In (31) I define the focus and ordinary value of *wh*-words, the latter containing only salient alternatives:

(31)　a.　$[\![wh\text{-}]\!]^f = D_\tau$　　　　　　　(where τ stands for the type of the given *wh*-word)
　　　b.　$[\![wh\text{-}]\!]^o = \{x : x \in [\![wh\text{-}]\!]^f \ \& \ x \text{ is contextually salient}\}$

(32)　$[\![\text{Where is the boyfriend?}]\!]^o = [\![[\text{Q}[\text{the boyfriend is where}]]]\!]^o =$
　　　$[\![\text{Q}(\{p : p = \lambda w. \text{ the boyfriend is in } x, \text{ for } x \text{ a contextually salient location}\})]\!]^o =$
　　　$\{\text{the boyfriend is at home; the boyfriend is camping,}\ldots\}$ defined only if
　　　a.　$\{p : p = \lambda w. \text{ the boyfriend is in } x, \text{ for } x \text{ a contextually salient location}\} \subseteq \text{ALT}_{cM}$
　　　　　or $\text{ALT}_{cM} = \emptyset$
　　　b.　$|\{p : p = \lambda w. \text{ boyfriend is in } x, \text{ for } x \text{ a context. salient location}\} \cup \text{ALT}_{cM}| > 1$

As in the case of polar questions, *wh*-interrogatives present alternatives and request that the addressee choose between those alternatives and other contextually salient inferred from the context. That is, alternatives introduced lexically do not completely determine the live alternatives under consideration and the burden of including (non-semantic) alternatives is in the pragmatics. This leaves room for the 'empty-set' alternative to be considered as a live alternative if it is salient in the context of utterance (i.e. if it is part of ALT_{cM}). The some-proposition/existential inference is obtained when there are no salient alternatives other than the ones introduced lexically (the inference is, then, an entailment, as pointed out in Stalnaker, 2014). The question is what is the mechanism that allows us to take under consideration the empty-set alternative but not any other non-semantic alternative. The empty-set alternative needs to be included as a non-focus alternative (given (31) the semantic alternatives in *wh*-questions already include all possible *wh*-focus alternatives that are contextually salient), but the mechanism that allows us to

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[21]In ftn. (22) I suggest that such type of constraint may also play a role in the difference between *wh*-words and indefinites in English.

include the empty-set alternative has to be principled to allow us to make the right predictions.

Recall that *wh*-questions, as non-*wh*-questions, ask the addressee to choose amongst alternatives that include both alternatives presented and inferred. Linguistically, focus-marking is what drives our inferences regarding what alternatives are under consideration (the live alternatives are a subset of the focus value of the utterance). The worry is how to control what alternatives can reasonably be let in pragmatically in ALT_{c_M} without them being a focus alternative. The suggestion I want to put forward is that, given that a question is a request to evaluate alternatives, it is reasonable to let in the possibility that none of the live focus alternatives is actually true. This is exactly what the empty-set answer is. In order to formalize this intuition we first identify the focus-alternatives of the utterance with the auxiliary definition in (33), and then constrain what the salient alternatives in the context of utterance can be taken to be, (34): either just the focus-alternatives or the focus alternatives plus the possibility that none of them is true. (34) acknowledges the role of focus in identifying alternatives while at the same time taking into account the logical possibility that none of the alternatives is true.

(33)   Given a move M with linguistic expression α_M in a context c,
$f\text{-Content}(M) = \{p : p \neq \emptyset \wedge \exists q \in [\![\alpha_M]\!]^f : p = q \cap cs_c\}$
(Paraphrase: The non-empty focal alternatives that are live options relative to the context set in context c)

(34) ALT_{c_M} is the set of live alternatives considered upon acceptance of M: (final version)
    a. $\text{ALT}_{c_M} = f\text{-Content}(M)$ or
    b. $\text{ALT}_{c_M} = f\text{-Content}(M) \cup \{\lambda w.\forall p \in f\text{-Content}(M), p(w) = 0\}$

One of the predictions is that the empty-set answer is more easily available in some contexts than in others (see also Abusch, 2009).

(35)   a.   Mother: To grow strong yo have to eat well. You can choose what you eat for lunch today. So, what do you want?
        Kid: #I'm fine. I'm not hungry.
    b.   Host: I'm afraid I don't have much to offer you. What do you want? I got a celery stick and half an apple.
        Guest: I'm fine, thank you.

The difference between (35a) and (35b) is in the pragmatics. In (35a) the mother establishes that the addressee has to choose one of the options and that s/he is not allowed to discard all the options offered (in *wh*-questions these are all the salient options). The kid's response can only be accepted if we understand that s/he is challenging the mother's assumptions (i.e. s/he is signalling presupposition failure). In (35b), it is understood that the addressee may choose not to eat anything and hence the empty-set response is fine without it indicating presupposition failure. It is harder to accept the empty-set answer in other circumstances:

(36)   A: Where is the boyfriend?
     B: ?#Nowhere.

The empty-set response is only possible if we undertand it as short for "nowhere I can think of" (while knowing that there must be other alternatives), or as implying that he is dead, in which case it is signaling presupposition failure (i.e. the boyfriend actually *isn't*, he's dead).

The dynamic update of WhQs The dynamic update in a context c is as follows:

(37) Let ϕ be the sentence *where is the boyfriend?*
    a. $c + \ulcorner \text{Question}(\phi)\urcorner = \langle cs_c, Q_c, l_c \oslash \ulcorner \phi \urcorner \rangle$
    b. $l_c \oslash \ulcorner \phi \urcorner = \langle cs_{l_c}, push(Q_{l_c}, [\![\phi]\!]^o) \rangle$
    c. Acceptance: $c_2 = \langle cs_{l_c}, Q'_c, \emptyset \rangle$

By uttering the interrogative the speaker proposes to update the context in such a way that the set of alternatives be placed on the top of the question stack (to become the immediate QUD in Roberts's terms). Accepting the proposal makes the proposed updated context (the projected context $\mathscr{F}_c$) the current context, and subsequent discourse moves are then geared towards answering the newly placed question (either by providing answers or by proposing new questions to answer it). As we will see below, the final result is similar to that of WhDecs.

4.2. WhDecs

The semantics of WhDecs The proposal in this paper is that WhDecs are declaratives containing a lexical item introducing alternatives (the *wh*-word). In the Hamblin system, lexically introduced alternatives in declaratives are collected by the '$\exists$' operator. Adopting the operator in (25a) the denotation of the WhDec *the boyfriend is where?* is as in (38):

(38) $[\![\exists[\text{the boyfriend is where}]]\!]^o = \{\lambda w.\exists p \in [\![\text{the boyfriend is where}]\!]^o : p(w) = 1\}$

With WhDecs we face the same problem with the empty-set answer noted for WhQs. One solution is to again invoke ALT_{cM} as in (34). This is what the '$\exists$' operator in (39) does.

(39) Let M be a move such that $\text{Content}(M) = [\![\exists[\alpha]]\!]^o_{cM}$, where $[\![\alpha]\!]^o_{cM} \subseteq D_{\langle\langle s,t\rangle, t\rangle}$
    $[\![\exists[\alpha]]\!]^o_{cM} = \{\lambda w.\exists p \in \text{ALT}_{cM} : p(w) = 1\}$
    defined only if $[\![\alpha]\!]^o_{cM} \subseteq \text{ALT}_{cM}$

The resulting semantics for our running WhDec example is as follows:

(40) Given the utterance of the WhDec *the boyfriend is where?*, M:
    $[\![\exists[\text{the boyfriend is where}]]\!]^o_{cM} = [\![\exists[\alpha]]\!]^o_{cM}$
    $[\![\alpha]\!]^o_{cM} = \{p : p = \lambda w.\ \text{the boyfriend is in } x, \text{ for } x \text{ a contextually salient location}\}$
    $[\![\exists[\alpha]]\!]^o_{cM} = \{\lambda w.\exists p \in \text{ALT}_{cM} : p(w) = 1\}$, defined only if $[\![\alpha]\!]^o_{cM} \subseteq \text{ALT}_{cM}$.

The resulting semantics leaves room for the empty-set alternative to be relevant for the interpretation if it is a salient alternative in the context of utterance.[22]

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[22] In this paper I do not address how utterances of WhDecs are different from utterances of declaratives containing indefinites and in particular so called epistemic indefinites (see Alonso-Ovalle and Menéndez-Benito, 2015 for a recent collection of papers on the topic). There are obvious relations between indefinites and question-*wh*-words as illustrated by the fact that in some languages such as e.g. Japanese and Tlingit they have the same (surface) form (see e.g. Kratzer and Shimoyama, 2002, Cable, 2010, Kotek, 2014 and references therein for discussion). WhDecs and utterances with indefinites are different. In particular, in utterances with indefinites the empty-set alternative is not a live alternative. Consider the contrast in A's continuations below:
(i)   A: John hardly ever eats anything…
            a.   #Today he ate something, probably nothing.
            b.   Today he ate what? Probably nothing.
One way to account for this contrast could be to assume that indefinites require that the alternatives under consideration be the semantically generated alternatives alone (i.e., that $\text{ALT}_{cM} = P$), while that is not a constraint

Notice, however, that the semantics only establishes that there are different possibilities for the location of the boyfriend. Since this is a declarative, this is how the context set gets updated (information-wise, this is rather trivial). The semantics does not itself address the inquisitive flavor associated with WhDecs. The key to addressing this problem, I suggest, comes from our understanding of the dynamic update.

The dynamics of WhDecs The dynamics of WhDecs are different from the dynamics of WhQs. In the case of WhDecs we have a declarative and its update involves adding information to the common ground. Given that we are working within Hamblin semantics, where propositions are singleton sets, we need to adjust the definition of '$\oplus$' in (14). The definition in (41) is an amendment to (14a) where we merely extract the set of possible worlds within the set denoted by the (declarative) WhDec and then conjoin it with the *cs* in the update:

(41)   Let Φ be a sentence s.t. $[\![\Phi]\!]^o$ is a singleton set containing $\varphi_{\langle s,t \rangle}$ (let us call this $\varphi_{\langle s,t \rangle}$ ContentProp(Φ))
$l \oplus \ulcorner \Phi \urcorner = \langle cs_l \cap \text{ContentProp}(\Phi), Q_l \rangle$
Felicity constraints:
a. cs_l is compatible with ContentProp(Φ).   (assertability)
b.   ContentProp(Φ) is relevant to $top(Q_l)$

The felicity constraints of assertions require that the content of WhDec be compatible the *cs* and that it be relevant to $top(Q_l)$. We do know from our discussion of the empirical data above, that WhDecs are linked in a special way to discourse. The next step is to establish what are the constraints on $top(Q_l)$ in a principled way. Given that WhDecs are declaratives, the constraints imposed by WhDecs should be similar to those imposed by other declaratives.

In the Roothian tradition, the relation between utterances and discourse is mediated by focus. Focus establishes an anaphoric relation with discourse that is cashed out by a congruence constraint (see Constant, 2014: pg. 89):

(42)   Question-Answer congruence: An utterance U with F-marking answers a question containing ≥ 2 alternatives from the set $[\![U]\!]^f$.

This congruence constraint is derived in the Roothian tradition with the definition of the '$\sim$' operator. In (43) I provide a version of this operator based on Constant's (2014) rendition that works with Hamblin semantics.

(43)   Roothian '$\sim$' adapted to Hamblin semantics
a. $[\![\sim \phi]\!]^o = [\![\phi]\!]^o$ b. $[\![\sim \phi]\!]^f = [\![\phi]\!]^o$
c.   … and presupposes that the context contain an antecedent C such that:
(i) $C \subseteq [\![\phi]\!]^f$ (ii). $|C| > 1$ (iii). $[\![\phi]\!]^o \subset C$

The main work of this operator is done by (c). According to (c), $\sim$ establishes that utterances with a given focus-structure presupposes a specific context of utterance: one in which there are

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in *wh*-words. In a way, this is equivalent as saying that regular indefinites lead to closure effects similar to the closure operator in Zimmermann (2000); Biezma and Rawlins (2012): the alternatives under consideration are the semantically generated alternatives. This will leave unchanged claims made for indefinites in the literature and allows us to explain the interpretation of *wh*-words when met by an existential operator while keeping only one '$\exists$' operator and interpretation for *wh*-words. Presumably, differences between *wh*-words and *wh*-indefinites are also related to information structure and focus. I leave exploring these differences for future research.

alternatives under discussion that are also focus alternatives.[23] I put this at work below.

Following the semantics proposed above for *wh*-interrogatives, the focused element in WhDecs is the *wh*-word itself. This provides the focus meaning in (44) for our running example, where we find the constraints imposed by the '∃' operator and the presuppositions imposed by '∼':

(44) $[\![\exists[\sim\text{the boyfriend is where}_F]]\!]^f = \{\lambda w.\exists p \in \text{ALT}_{c_M} : p(w) = 1\}$
         defined only if $\{p : p = \lambda w. \text{ the boyfriend is in } x, \text{ for } x \text{ a context. sal. location}\} \subseteq \text{ALT}_{c_M}$
         and felicitous only if there is an antecedent in discourse C, s.t. $C \subseteq \{$the boyfriend is at home, the boyfriend is camping,...$\}$, i.e. only if there is a question in discourse of the form *where is the boyfriend?* (namely, only if $top(Q_l)$ is (27)).

The system derives that WhDecs are only felicitous if there is a question in discourse of the form of their WhQ-counterparts. We turn now to the dynamic update of WhDecs, which will derive their inquisitive effect. To that end, we start by looking at regular declaratives and show that WhDecs behave alike.

4.2.1. The dynamic update of declaratives

Let us assume that Detective Sykes utters (45), whose focus meaning is in (46):

(45)   Det. Sykes: The boyfriend is in [JOSHUA TREE]$_F$

(46) $[\![(45)]\!]^f = \{$The boyfriend is in Joshua tree$\}$
         felicitous only if there is a question in discourse of the form *where is the boyfriend?*, one of whose possible answers is that the boyfriend is in Joshua Tree.

The utterance of (45) hence triggers a presupposition that $top(Q_l)$ is a question of the form *where is the boyfriend?* As laid out above, the dynamic update can only take place once this presupposition is accommodated (if it is not the case that the question has been explicitly accepted and become $top(Q_l)$ already). Once this is done, we can proceed with the dynamic update of the declarative.

The declarative proposes that the cs in the context c with the accommodated question be updated with the information that the boyfriend is in Joshua Tree. When the (declarative) move is accepted, $top(Q'_c)$ is resolved and hence the question is popped ($pop(Q'_c)$). The resulting question stack is then as it was before the (declarative) move was made, (47b) ($Q_{c_2} = Q_c$).

(47)   Let $c = \langle cs, Q, \emptyset \rangle$ be the initial context:
         a. $c + \ulcorner Assert(\text{The boyfriend is in [Joshua Tree]}_F)\urcorner$
              (i)   Accommodate that the local context is $\langle cs_c, Q'_c \rangle = l'_c$ (Focus anaphora)
                      s.t. $Q'_c = push(Q_c, [\![\text{where is the boyfriend?}]\!]^o)$, i.e.
                      $$top(Q'_c) = [\![\text{where is the boyfriend?}]\!]^o$$
              (ii)   Propose the update of cs (with the answer)   (Assertion)
                      $\langle cs_c, Q'_c, l_{c'} \oplus \ulcorner\text{The boyfriend is in [Joshua Tree]}_F\urcorner\rangle$
                      $l_{c'} \oplus \ulcorner\text{The boyfriend is in [Joshua Tree]}_F\urcorner =$
                      $\langle cs_c \cap \text{contentProp}(\text{The boyfriend is in [Joshua Tree]}_F), Q'_c\rangle$

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[23]Notice Rooth's view on focus does not establish that one of those alternatives is true. That is, Rooth doesn't assume that focus triggers an existential presupposition.

b.   Acceptance: Accept the proposed future context and $pop(Q'_c)$:
$$c_2 = \langle cs_c \cap \text{contentProp(The boyfriend is in [Joshua Tree]}_\text{F}), Q'_c, \emptyset \rangle$$

With regular declaratives the final result of the update only allows us to see the change in *cs*. There is no trace left of the intermediate accommodation of the question presupposed via focus anaphora. At the end of the update the accommodated question is popped. In the case of WhDecs, since they are 'vacuous' content-wise, *cs* will remain as it was and the accommodated question won't be popped.

4.2.2. The dynamic update of WhDecs

The same presupposition-accommodation process that we observed for regular declaratives (accommodation of $top(Q_l)$) takes place with WhDecs.[24] However, the final result is different. The difference is that, given that WhDecs are a trivial update of *cs*, the question on $top(Q_l)$ is not resolved upon acceptance and, hence, it is not popped:

(48)   Let $c = \langle cs, Q, \emptyset \rangle$ be the initial context and *WhDec* the WhDec *the boyfriend is where?*
    a. $c + \ulcorner\text{Assert}(WhDec)\urcorner = \langle cs_c, Q_c, l_c \oplus \ulcorner WhDec \urcorner \rangle$
        (i)   Accommodate that the local context is $\langle cs_c, Q'_c \rangle = l_{c'}$ (Focus anaphora)
            s.t. $Q'_c = push(Q_c, [\![\text{where is the boyfriend?}]\!]^o)$, i.e.
$$top(Q'_c) = [\![\text{where is the boyfriend?}]\!]^o$$
        (ii)   Propose the update of *cs*:   (Assertion)
            $\langle cs_c, Q'_c, l_{c'} \oplus \ulcorner WhDec \urcorner \rangle$
            $l_{c'} \oplus \ulcorner WhDec \urcorner = \langle cs_c \cap \text{ContentProp}(WhDec), Q'_c \rangle$
    b.   Acceptance: Accept the proposed context
    $c_2 = \langle cs_c, Q'_c, \emptyset \rangle$ (Trivial update of *cs*)

At the end, the utterance has not changed *cs*, given that WhDecs are trivial regarding its content. However, Q_c has been changed: $top(Q'_c)$ is now the newly accommodated question, i.e. a question of the form *where is the boyfriend?* The resulting update is indeed the same update we achieved with the utterance and acceptance of the WhQ *where is the boyfriend?* (see (37)). The result predicts that subsequent responses to WhDecs are geared to addressing the newly accepted $top(Q'_c)$, i.e. they are predicted to be similar to responses following the acceptance of the WhQ counterpart of the WhDec. This is what creates the mirage that WhDecs are questions.

To sum up, by taking into account the dynamic update of WhDecs as declaratives, we have been able to derive why they behave like questions. The final dynamic update is the same, but we arrive at it through different routes. In §5 I argue that this difference in the process is what makes the difference in the pragmatics.

5. Explaining the data

Given that WhDecs presuppose that there is a question that needs to be answered, felicity is dictated by the willingness of the addressee to accept that she is committed to pursuing this question. She never has the chance to openly accept it. The speaker uttering the WhDec

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[24]Notice that WhDecs are not felicitous if the WhQ counterpart is spelled out explicitly.

presupposes that the question is already accepted and hence (if this is an informative presupposition) 'imposes' it on the addressee. This is why WhDecs are only possible if the power dynamics are right: the speaker has to have 'power' over the addressee or at least be an equal (see (8) and (9) above).

The same accounts for the impossibility of WhDecs out of the blue: participants have a hard time accepting why they should go along with the pretense that they have already accepted to pursue an inquiry that is not immediately relevant in the discourse. Put differently, they have problems accepting that there are particular salient alternatives that are under discussion, e.g., regarding the location of a place to buy an Italian newspaper (see (7)). This is also what we observe in out of the blue declaratives:

(49)   Graduate students are working in their office. A, also a graduate student, comes in:
         A_1:#Hey! My uncle makes cheese in Vermont.
         A_2: Hey! There are free bagels in the common room.

The infelicity of A_1's utterance results from the difficulty of accommodating that that piece of information is <u>relevant</u>. In the system adopted in this paper, this means that there is a difficulty to understand that the conveyed proposition is a amongst the relevant alternatives to be evaluated (the context assumes broad focus and those alternatives form an issue that could be paraphrased with the linguistic counterpart *what happened?*). This is the same as to say that it is hard to accommodate the question presupposed by the speaker (since questions are no more than sets of propositions). It is certainly less problematic to accept that there being free bagels is a relevant alternative (the question the speaker is presupposing, i.e. what she considers to be relevant alternatives under discussion, is easier to accommodate).

The present proposal also explains the data regarding sequences of questions:

(11)   [Lt. Provenza in the same preceding context to the WhDec in (5).]
         a. #Ok, where is the boyfriend? The parents are where?
         b. ?#Ok, and the boyfriend is where? Where are the parents?
         c.   Ok, and the boyfriend is where? The parents are where?
         d.   Ok, and where is the boyfriend? Where are the parents?

(11a) is infelicitous because accepting the WhQ places it on the top of the *Q*-stack, but the WhDec that follows triggers the presupposition that a different question is on the top of the *Q*-stack, resulting in contradiction. The oddity of (11b) is the result of the mix of strategies: the speaker asks the addressee to presuppose that a question is to be answered just to propose to add another. The speaker could have just uttered the WhQ upfront. Sequences of two WhDecs or two WhQs that are taken to be part of the sams strategy to answer a higher question are fine: in (11c) the speaker 'tells' the addressee what are the questions that need to be answered next while WhQs propose to pursue the two questions spelled out.

6. Going forward: The role of intonation

In this paper I have argued that, taken seriously, the dynamic update of utterances helps us explain pragmatic inferences without ad-hoc stipulations in the semantics. For reasons of space, I cannot address here how the system presented in this paper can be extended to RisDecs (see e.g. Gunlogson, 2003; Malamud and Stephenson, 2015; Westera, 2018 for recent work on the

matter). (The reader is referred to Biezma, 2019 for a sketch of how this may work.)

Notice that the proposal put forward in this paper derives the interpretation of WhDecs without assigning the final intonational contour any role to play. As a matter of fact, WhDecs are possible also with a final fall (see ftn. 5 above), and this does not affect their inquisitivity. This may appear puzzling when comparing WhDecs with RisDecs, in which the final rising contour is the only marking that distinguishes them from plain declaratives and brings about inquisitivity. One could try to understand this by noting that the semantics and pragmatics of WhDecs already bring about the inquisitive interpretation, freeing in this way the use of the final contour to bring about additional shades to the interpretation (such as "curtness", see Bartels, 1999). This perspective could possibly generalize to provide an alternative way of looking at the role of final contours across other constructions. The contrast between final rising and falling is also found within WhQs (see Hedberg et al., 2010 for discussion on their interpretations), and we have already seen above that within non-*wh*-interrogatives, the final contour serves to mark a contrast between polar and alternative questions regarding exhaustivity. The picture that emerges is one where the contrast between final raising and final falling contour has merely a markedness function that results in different effects within particular realms.

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