

# Non-informative assertions

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## Abstract

Inquisitive (non-echo) utterances with a non-fronted *wh*-word, WhDecs (e.g. *and the party is where?*) have not received much attention in the literature. WhDecs present an interesting theoretical puzzle: syntactically they look like declaratives but still have an inquisitive interpretation and, in terms of meaning, they are not interchangeable with (canonical) *wh*-interrogatives (WhQs). While there have been some attempts to characterize them in the literature (see e.g. Ginzburg & Sag 2001, Pires & Taylor 2007), these refer to a subset of the data or are not centered on WhDecs. In this paper I use WhDecs as a window to explore how taking into account the interaction between semantics, discourse structure and the dynamic update triggered by utterances, we can derive subtle interpretational differences while keeping the overall interpretation true to form.

**Keywords:** *wh*-in-situ questions, *wh*-interrogatives, dynamic update, discourse, prosody

## 1 Different ways of requesting information

Interrogatives in English and in other languages differ from declaratives and other clause-types in several structural and prosodic features. The contrast between canonical utterances of declaratives and *wh*-interrogatives is illustrated in (1)-(2) where ‘↓’ is used as a shortcut for a final falling contour (FF) corresponding stereotypically to H\* L-L% in the ToBI annotation system.<sup>1,2</sup>

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1 ToBI is a system of prosodic annotation that assumes that the underlying phonological representation of intonation consists of sequences of phonemic tones. The absolute pitch level, pitch range, the relative excursion size or properties of the pitch movement connecting tonal targets are not taken to be part of the underlying representation although they may have a paralinguistic function (such as the expression of emotions). In the ToBI system intonation is represented by means of L(ow) and H(igh) tonal events. Amongst them we can identify in English pitch accents (H\*, L\* as well as their combinations with other tones), phrase Tones (H-, L-) and boundary tones (H%, L%). Following the tradition of the semantics/pragmatics literature on the topic at hand, this is the system used in this paper in the annotation of the tunes and no further distinctions are made.

2 I take the final contour to include the final pitch accent and phrase and boundary tones (what corresponds to the *nuclear tune* in the British School).

- (1) Canonical Declaratives
  - a. The boyfriend is at home↓.
  - b. You know that via John↓.
- (2) Canonical *wh*-interrogatives (WhQs)
  - a. Where is the boyfriend↓?
  - b. How do you know that↓?

Canonical examples of *wh*-interrogatives (WhQs) involve a *wh*-word at the front and, compared to declaratives, the reversed relative order of subject and auxiliary. Prosodically, WhQs exhibit canonically the same FF, H\* L-L%, although, as in the case of declaratives, there are other possibilities (see [Bartels 1999](#) for an overview and [Hedberg et al. 2010](#) for corpus work on WhQs).<sup>3</sup>

There are however other constructions that present a mix of these features. The most studied ones are so called *rising declaratives* (henceforth RDecs), utterances exhibiting declarative word order but a final rising contour (FR) (canonically L\* H-H%, but other realizations are possible). RDecs can be interpreted as “requesting information” (see [Jeong 2018](#) for a more recent and refined analysis of declaratives with a final rise). [Bartels 1999](#) (pg. 228) provides the following schema representing the prosodic differences between utterances with canonical declarative (surface) word-order that are used to request information and those that are used to provide it:

- (3) A: I don’t think Aunt Mary knows about the crash yet .
- B: She doesn’t read the newspaper.
  - a. (H\*)                    L\*    H-H%/L%
  - b. (H\*)                    H\*    H-H%/L%
  - c. (H\*)                    H\*    L-H%
  - d. (H\*)                    H\*    L-L%

According to [Bartels \(1999\)](#) (a) and (b) trigger a “question” interpretation whereas (c) is borderline. Finally, by uttering (d) the speaker claims that it is not the case that Aunt Mary reads the newspaper. The meaning of RDecs like (a) and (b) above,

<sup>3</sup> While H\* L-L% is taken to be the prototypical final contour for declaratives, other contours are possible too. [Pierrehumbert & Hirschberg \(1990\)](#) take H\* L-L% and H\* L-H% both to correspond to “neutral declarative intonation”. See [Bartels \(1999\)](#) for discussion and other combinations such as L\* L-H%. It is quite well known that a final rise is also possible in so called ‘uptalk’ dialects. This is currently the object of a much heated debate and we leave it aside here. As for *wh*-interrogatives, [Hedberg et al. \(2010\)](#) report the analysis of 200 *wh*-fronted-questions collected from the CallHome Corpus of American English and the Fisher English Corpus. They report that from those 200 questions, WhQs are found to have a final contour made up of H\*L-L% in a high proportion (64/200), but !H\*L-L% (34/200) is also fairly common as it is L+H\* L-L% (42/200) and L\*L-L% (14). Nevertheless, there are also WhQs with a final rise, e.g. 25/200 display L\* H-H%. See §3.2.



In what follows we call utterances with *wh*-words not placed at the front and declarative word order that are not echo questions “*wh*-declaratives” (WhDec). The examples below further illustrate the use of WhDecs. They are taken from an episode in a North American TV-series, *Major Crimes* (Season 5, Episode 1, “Present tense”) and, hence, we can retrieve the utterances’ intonation as well as the full details of the context of utterance, allowing us to keep track of what came before, what followed, and their discourse effect. Lt. Provenza below is the highest ranking officer in the conversation and examples sound very natural to native speakers.

- (8) [The episode’s silent starting shots make clear that Amanda, a teenage girl, has disappeared. We see Lt. Provenza walking alone to meet his detectives at the place Amanda was last seen while doing volunteer work for a charity, First Care. He is 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.

Det. Sykes: Let me guess. The fight was over a boyfriend? [RDec]

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.

Lt. Prov: Well, let’s hold off lighting the candles on her cake for a minute, okay? **And the boyfriend is where?** [WhDec]

Det. Oderno: Uh, supposed to be camping in Joshua Tree.

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

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

- (ii) [Wendell is a military advisor recommending a strategy for troop deployment to President Bartlet.]

Wendell: We’ll start an early deployment of 12,000 troops. The rest will follow as ready.

President Bartlet: Coming from where?

H\* !H\* L-L%

Wendell: We’d pull the first armored division from Vispaden.

President Bartlet: And we get them there how?

L- H\* L-L%

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?**  
L+H\* L\* H-H%/L%

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

(10) [...Ltn. Provenza starts assigning tasks to procede with the investigation to find Amanda.]

Ltn. Provenza: Oderno!

Det. Oderno: Yes, sir?

Ltn. Prov: Contact the local authorities in Joshua Tree. Have them trace Gabe Young's phone to his location. Sykes, interview our young witnesses here, and then contact Gabe Young's parents. Uh, now, **Amanda's mother and father are where?** [WhDec]  
L+H\* L\* H-H%/L%

First Care Coordinator: In my office.

The examples above illustrate that WhDecs do not need to be preceded by a previous utterance stating the equivalent *wh*-question for the WhDec to be felicitous. There is no such a previous utterance in any of the examples (8)-(10) and participants are aware that such utterances have not taken place. What is common to all the examples above is that WhDecs can be taken to request information that is very much related to an ongoing conversation, making WhDecs very much discourse-linked (see also Pires & Taylor 2007 for similar observations).<sup>5</sup> In addition, speakers report a difference between WhDecs and WhQs in the contexts above: while every time a WhDec is used a WhQ is also felicitous (but not the other way around, see below), the use of WhDecs helps to move the discourse forward with a sense of urgency lacking when WhQs are used instead (unless extra-prosodic support is used).

Regarding distribution, WhDecs are not possible out of the blue (see also Ginzburg & Sag 2001):

(11) A stops a random pedestrian on the street and says.

A: Excuse me, where can I buy an Italian newspaper?

A': #Excuse me, I can buy an Italian newspaper where?

<sup>5</sup> Notice that WhDecs can always be preceded by *and* or *but*. These are in these cases discourse markers (see Asher & Lascarides 2003 a.o.), indicating that the question is integrated in a larger discourse structure. WhQs can also be preceded by these markers when they are used in similar circumstances, but not in other contexts, showing that the distribution of WhQs is broader than that of WhDecs.

While WhDecs are not possible out of the blue, a preceding linguistic utterance is not strictly necessary to license a WhDec. Extra-linguistic context can sometimes offer the necessary support and WhDecs are felicitous as far as we can reasonably assume that the addressee is willing to take up the question:<sup>6</sup>

(12) A is helping to tidy up after dinner at her friend's house and enters the kitchen carrying the dishes.

A: These go where?

In addition, WhDecs are different from WhQs in that the speaker seems to take it that the addressee either knows the answer or knows whether the answer is known.

(13) [Assuming the same preceding context as in (8)]

a. And the boyfriend is where? #Have you checked?

b. And where is the boyfriend? Have you checked?

When it is clear that the addressee is very likely ignorant about the whereabouts of the boyfriend, the WhDec results in infelicity, (13a).<sup>7</sup> Here is another example illustrating the same point:

(14) I want to repair the sink but I can't find your father's toolbox. I don't seriously expect you to know this, but just in case,

a. #... your father's toolbox is where? (Do you know?)

b. ... where is your father's toolbox? (Do you know?)

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6 "Willing to take up the question" involves factors regarding the power dynamics, i.e. the speaker has to have authority over the speaker or else be in an "familiarity" situation and, as we will see below, be certain that the addressee knows the information.

7 Notice that (13a) can be uttered by a lieutenant who wants to convey that the addressee should have inquired already about that information:

(i) Lt. Provenza arrives at the crime scene and sees that his officers 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. Sykes: The missing person is female. Amanda. 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 (even) checked that?

The WhDec has a metalinguistic flavor: it indicates information that Det. Sykes should have already also inquired about. We set aside metalinguistic issues here.

This sets WhDecs apart from WhQs. In Searle's terms, the assumption that the addressee "may" know the answer is part of the preparatory condition of asking a question. With WhDecs, the speaker seems to make the stronger assumption that the addressee is in a position to solve it or to establish whether it can be solved.<sup>8</sup>

WhQs and WhDecs are also different regarding sequences of questions (the judgements below do not change if the first inquiry in the sequence is about the parents and the second about the boyfriend):

- (15) [Lt. Provenza in the same preceding context to the WhDec in (8).]
- 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?

An account of WhDecs has to explain why (i) WhDecs have a more restricted distribution than WhQs, (ii) the different overall effect that we have observed between the two and, (iii) restrictions on the sequence of questions.

Here is an intuitive outline of the proposal to be developed in in this paper. The key to the analysis proposed below is the idea that WhDecs are declaratives and, as such, they propose to update the context as declaratives do: they are proposals to update the common ground (CG) and, hence, the associated context set (*cs*). They are *assertions* in this sense (see Stalnaker 1978, 1984, Farkas & Bruce 2010, Malamud & Stephenson 2015 for this definition of assertion as the (grammatical) dynamic update triggered by the utterance of a declarative, which one could also call 'declarative force').<sup>9</sup> WhDecs differ from canonical declaratives in that the proposition they denote trivially updates the *cs* (it only establishes that *cs* is compatible

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<sup>8</sup> Notice that this doesn't discard the possibility of the answer not being known. In (13) Lt. Provenza can very well entertain that the whereabouts of the boyfriend are not known but, at any rate, he expects his detectives to have inquired about it. Knowing whether the answer is known is also a step forward to dealing with the issue. At least, it leads to agreeing that the issue cannot be solved at that point. This is not the same as the addressee not knowing anything at all: knowing that the answer is not known yet helps in deciding what steps to follow to address it next.

<sup>9</sup> This concept of 'assertion' (declarative force) refers to the dynamic update triggered by the utterance of a declarative and is grammatically encoded. It is not to be confused with how the term 'assertion' is used in the broader speech act literature. In fact, it doesn't provide by itself an account for how indirect speech acts performed by utterances of declaratives are derived. The same applies to our use of 'question' below, which is tied to the (grammatically encoded) dynamic update triggered by the utterance of interrogatives (which we could also term 'interrogative force'). Nevertheless, it is expected that an explanation of how indirect speech acts are derived will take into consideration the dynamic update triggered by the utterances.

with different possibilities).<sup>10,11</sup> The question is then how to derive the ‘inquisitive flavor’ of WhDecs. I argue that we do not need any ad-hoc machinery to do this: the overall interpretation is derived from the dynamics of context update and well-known mechanisms of discourse anaphora triggered by focus (à la Rooth). The proposal, in a nutshell, is that via simple focus structure the WhDec *the boyfriend is [where]<sub>F</sub>?* presupposes that there is a question open in discourse (that participants have to answer) of the form *where is the boyfriend?* (i.e. the immediate QUD in Roberts’ 1996 terms). This is the same question presupposed via focus anaphora by *The boyfriend is in [Joshua Tree]<sub>F</sub>*. However, while the plain declarative answers the presupposed question, and hence it is dispelled, the WhDec doesn’t provide an answer, and the question is left to be addressed by subsequent discourse moves. Hence, cooperative responses to WhDecs are also cooperative responses to its presupposed WhQ counterpart. In contrast to WhDecs, utterances of WhQs are proposals to pursue a new question, either as part of a strategy to answer a more ‘general’ question or a new question altogether (see Biezma & Rawlins 2017a,b). In this proposal, discourse differences between WhDecs and canonical questions stem from their different semantics and their different dynamic update: WhQs propose to pursue the inquiry they denote, while WhDecs presuppose that participants have already accepted to pursue such inquiry (the WhDec acts in a sense as a “reminder”).<sup>12</sup> If the analysis offered here is right, it is superior to potential alternative analyses requiring ad-hoc syntax-semantics for WhDecs, ad-hoc semantics for the *wh*-words in WhDecs or ad-hoc dynamic updates.

The paper is organized as follows. In §2 we introduce the formal assumptions. In §2.1 we present the dynamic framework and in §2.2 the semantics of *wh*-interrogatives. I show how the system works in the case of WhQs. In §2.3 we address WhDecs and show how the behavior of WhDecs and their differences with canonical WhQs can be explained once we take into account all the elements involved in the construction of meaning.

The case of WhDecs is certainly related to another hybrid, *rising declaratives* (RDecs), inquisitive utterances that differ from canonical declarative assertions in the final rise. In §3 we sketch how the proposal made for WhDecs can be extended to RDecs and tackle the contribution of the final contour in the construction of meaning.

10 See fn. 29 for differences between WhDecs and the utterance of a declarative with an indefinite.

11 This analysis of WhDecs has parallels with Farkas & Roelofsen’s (2017) claims regarding non-*wh*-interrogatives and their contrast with RDecs. Working within inquisitive semantics, in Farkas & Roelofsen’s (2017) model declarative sentences are claimed to have a (typically) trivial inquisitive content while, conversely, interrogatives have a (typically) trivial informative content. While the analysis in this paper could potentially be framed within the Inquisitive Semantics framework, the proposal will instead be developed in a Hamblin framework, providing us with an easy link to Rooth’s focus semantics and to work with discourse presuppositions.

12 That WhDecs are somehow presuppositional was already noticed in Ginzburg & Sag (2001: pg. 280).

In §4 we compare the proposal made for WhDecs with previous analyses in the literature.

Before going ahead, let us make two disclaimers. First, let us point out that the analysis proposed in this paper aims to explain the North American English data, where WhDecs and WhQs differ in meaning (fronting is not optional). I have nothing to say about languages in which fronting is optional. Notice, however, that similar phenomena to English WhDecs can be observed in other languages (see e.g. Biezma 2018 for Spanish and Pires & Taylor 2007 for claims about similarities between English and Brazilian Portuguese). Given that WhDecs can be observed in other languages, one should be able to derive their properties in a principled manner, and not by appealing to a mere lexicalization of the construction. The key to the analysis in this paper is that English WhDecs are declaratives despite containing a *wh*-word and, hence, they update dynamically as such. The challenge then is how to explain their ‘inquisitiveness’. I compare the analysis offered here to other analysis in the literature in 4.<sup>13</sup>

Second, in this paper I do not address echo questions (EchQs). The term “echo-question” refers to utterances inquiring about what has been just said. A stereotypical echo-question is one in which the *wh*-word is also in situ and much of the literature proposes a special syntax to derive this word order (see e.g. Sudo 2007, Beck & Reis 2018). However, EchQs can also be WhQs or RDecs, (16). Prosodically, EchQs are characterized by a complex accent (L+H\*, expressed by SMALL CAPS below) on the contingent element (while the rest is commonly deaccented) and final rising intonation (see e.g. Bartels 1999, Artstein 2002).

- (16) A: I ate ostrich.  
B: You ate WHAT↑? / WHAT did you eat↑? / You ate OSTRICH↑?

An analysis of the puzzles presented by EchQs requires far more attention than we can devote to in this paper (see Ginzburg & Sag 2001, Iwata 2003, Sudo 2007, Beck & Reis 2018 for discussion). I leave for the future an attempt to extend the

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13 In fact, Pires & Taylor (2007), one of the few instances in which WhDecs have been addressed (see also e.g. Ginzburg & Sag 2001: chp. 7), take them to be interrogatives (and therefore questions) because, in their words, “*wh*-in-situ questions (including echo-Qs) do request information, thus a non-interrogative analysis (even for echo-questions) is inaccurate.” In their analysis, Pires & Taylor (2007) discuss data in which (i) more specific information is requested about something mentioned immediately prior (A: *I made desserts*; B: *you made what kind of desserts*), (ii) further questioning for new information is expected (Attorney: *Tell me what happened on January 1st, 2005 at 4 pm*; Defendant: *I was driving along Andrews Avenue*; Attorney: *And you were driving which direction?*); (iii) reference questions (A: *I did not sell those strange pictures*; B: *You didn’t sell what strange pictures?*), and (iii) echo questions. They do not discuss, for example, same-speaker sequences of questions or questions that are not tightly linked to the immediate utterance (i.e. that are not *reprise* questions in the sense of Bolinger 1957, Ginzburg & Sag 2001), such as (10). I return to this in §4.

proposed analysis for WhDecs to stereotypical EchQs. If this were possible, we would end up with a picture in which the term *echo questions* is an umbrella term for a variety of constructions that are also found in inquisitive non-echo environments (i.e., there are WhDec-EchQs, polar-EchQs, RDec-EchQs and WhQ-EchQs). The research-question would be then how to formally derive the “echo”-effect.

## 2 Deriving the differences between WhDecs and canonical interrogatives

To model the differences between WhDecs and WhQs we need to consider the dynamic update of utterances. I follow most directly Farkas & Bruce (2010), Malamud & Stephenson (2015), Starr (2016) and Biezma & Rawlins (2017b), who build on Stalnaker’s (1978) suggestion that utterances are mere proposals to update the context. A declarative, for instance, is a proposal to update the (Stalnakerian) CG and its associated *cs* with the propositional content of the utterance (see Farkas & Bruce 2010, Malamud & Stephenson 2015).<sup>14</sup> The addressee has then the option of accepting such proposal, rejecting the proposal or resisting the proposal until some considerations are pondered (see Bledin & Rawlins 2016 for *resistance* moves). In the case of declaratives, the addressee’s acceptance of the proposal triggers the actual addition of the proposition to the CG (and the shrinking of its associated *cs*). Acceptance is the default and hence, in absence of a reaction to the contrary, the propositional content makes its way to the CG. In the same way, imperatives are proposals to add a preference (the content proposition of the imperative) and its acceptance amounts to updating the ranking of alternatives according to such preference (see Starr 2016). Finally, the utterance of an interrogative is a proposal to update the context’s questions stack (the set of unresolved questions in discourse that participants agree on answering, i.e. the Q(uestion)U(nder)D(iscussion) stack in Roberts’s 1996), and its acceptance makes the question denoted by the interrogative the current question to be addressed, i.e. the immediate QUD (see Biezma & Rawlins 2017b). In what follows we borrow the formal details mostly from Biezma & Rawlins (2017b) (henceforth B&R). In §2.1 we introduce the formal apparatus in B&R with small adaptations for Hamblin-semantics. In §2.2 we see how the system works with canonical *wh*-questions. In §2.3 we lay out the results of the system for the case of WhDecs characterized as declaratives.

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<sup>14</sup> In the Stalnakerian framework, the CG is modeled as a set of propositions, those taken to be mutually accepted by participants in discourse. Propositions are standardly modeled as sets of possible worlds, and the *cs* associated to a given CG is the intersection of all the proposition in said CG.

## 2.1 Dynamic assumptions

In order to capture the ‘proposal’ component of utterances, B&R distinguish between a local context of a given context  $c$  ( $l_c$ ), which is composed by the actual context set ( $cs$ ) and the QUD stack ( $Q$ , implemented using a simple alternative-semantics representation), and the proposed update, the projected (future) context ( $\mathcal{F}$ ).

- (17) A *context*  $c$  is a tuple  $\langle cs, Q, \mathcal{F} \rangle$  where its elements are characterized as:
- $l_c = \langle cs, Q \rangle$  is a local context.
  - $\mathcal{F}_c$  is either a local context or  $\emptyset$ . Call  $\mathcal{F}_c$  the *projected context*.<sup>15</sup>
- (18) A *local context* is a tuple  $\langle cs, Q \rangle$  such that:
- $cs$  is a context set.
  - $Q$  is a stack of sets of propositions.

The empty stack is notated by  $\langle \rangle$ . The system assumes the standard *push*, *pop* and *top* operations on stacks (see Kaufmann 2000, Isaacs & Rawlins 2008).<sup>16</sup> In this model, the current 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  $top(Q_c)$ . Declarative and interrogative local-updates are defined below:

The updates triggered by declarative and interrogative utterances are defined as follows:

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

The purpose of conversation is taken to be a communal inquiry and it is hence organized around questions that participants commit to addressing. These questions are stored in  $Q$ . The structural-constraints governing  $Q$  (or QUD stack) are mainly

<sup>15</sup> Biezma & 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. I adopt the same simplification in this paper.

<sup>16</sup> 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.

*relevance* (of questions and assertions), and *entailment*. (Definitions below are adapted from the notion of relevance in Roberts 1996.)

- (20) **Answerhood licensing:** an assertion  $a$  is relevant to  $\text{QUD}_c$  only if it entails, either positively or negatively, the resolution of at least one alternative in  $\text{top}(Q_I)$ .
- (21) **Question licensing:** a question  $q$  is relevant in  $Q_I$  only if  $Q_I = \langle \rangle$ , or  $q$  is entailed by  $\text{top}(Q_I)$  ( $q$  is part of a strategy to answer  $\text{top}(Q_I)$ ; informally, a strategy is a sequence of subquestions that together answer a given question).
- (22) **Question Entailment:** A question  $q_1$  entails another  $q_2$  iff every proposition that completely answers  $q_1$  completely answers  $q_2$  as well.

In an idealization of discourse, relevant declaratives are (partial or complete) answers to a (implicit) question, (20).<sup>17</sup> Implicit questions can be retrieved by conventional linguistic cues such as focus structure. Questions are licensed if they start a new discourse (when  $Q = \langle \rangle$ ) or are entailed by  $\text{top}(Q_I)$ . Lastly, we need a notion of accommodation. In B&R, presuppositions carried by utterances must be accommodated before the move is accepted.<sup>18</sup>

- (23) **Accommodation.** If  $\varphi$  presupposes  $\psi$  and  $\psi$  is not satisfied in  $l_c$ , first update  $l_c$  so that  $\psi$  is satisfied.

As said, full contexts are formed by the current context ( $l_c$ ) and proposals to update it: the projected context  $\mathcal{F}$ . The structure of  $\mathcal{F}$  is the same as the structure of  $l_c$ . The absence of a projected context is notated by  $\emptyset$ . Given the machinery above, B&R use the following basic definitions:

- (24)  $c + \ulcorner \text{Assert}(\varphi) \urcorner = \langle cs_c, Q_c, l_c \oplus \ulcorner \varphi \urcorner \rangle$  **Assertion**  
 Constraints:  
 a.  $\mathcal{F}_c = \emptyset$   
 b.  $l_c \oplus \ulcorner \varphi \urcorner$  is felicitous
- (25)  $c + \ulcorner \text{Question}(\varphi) \urcorner = \langle cs_c, Q_c, l_c \otimes \ulcorner \varphi \urcorner \rangle$  **Question**  
 Constraints:  
 a.  $\mathcal{F}_c = \emptyset$   
 b.  $l_c \otimes \ulcorner \varphi \urcorner$  is felicitous
- (26)  $c + \ulcorner \text{Accept}_x \urcorner = \langle cs_{\mathcal{F}_c}, Q_{\mathcal{F}_c}, \emptyset \rangle$  **Acceptance**

<sup>17</sup> See Büring (2003) for a more relaxed notion of answerhood. The differences do not generally matter for our purposes, but see fn. 35.

<sup>18</sup> This is independent of any specific treatment of presupposition.

The definitions above capture the ‘proposal’ nature of uttering declaratives and questions: they modify the future context slot by proposing either to add the propositional content to the common ground, in the case of declaratives, or the 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 (19). B&R’s model also includes two ‘maintenance’ operations: rejection of a move, i.e. rejecting a future context, and elimination of a QUD once it has been solved, which requires popping that QUD from the stack.<sup>19</sup>

- |      |   |                       |
|------|---|-----------------------|
| (27) | $c + \lceil \text{Clear} \rceil = \langle cs_c, Q_c, \emptyset \rangle$               | <b>Rejection</b>      |
| (28) | $c + \lceil \text{Pop} \rceil = \langle cs_c, \text{pop}(Q_c), \mathcal{F}_c \rangle$ | <b>QUD resolution</b> |
|      | Constraints:  |                       |
|      | a. $\mathcal{F}_c = \emptyset$  |                       |
|      | b. $Q_c \neq \langle \rangle$   |                       |

B&R define a notion of ‘inquisitiveness’ that will be relevant to our proposal. A context is inquisitive if  $\text{top}(Q)$  is not purely informative, i.e. if the context doesn’t entail its answer:

- (29) A local context  $l$  is non-inquisitive just in case  $\text{top}(Q_l)$  is *purely informative* relative to  $cs_l$  (see (30)).
- (30) **(Pure) informativity**  
A set of propositions  $A$  is purely informative relative to a context set  $c$  iff  
 $|\{p \in D_{\langle st \rangle} \mid p \neq \emptyset \wedge \exists q \in A : p = q \cap c\}| = 1$   
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).

In the two sections below I turn to WhQs and WhDecs. In each case, I first present the details for their denotations and then examine their context update effects in terms of B&R’s model as discussed above.

## 2.2 Canonical questions (WhQs)

**The semantics of WhQs** Let us consider first canonical WhQs. Following current approaches to questions within the Hamblin tradition (Hamblin 1958, 1973), we assume that questions denote sets of propositions, the set of its possible answers,

<sup>19</sup> B&R assume that when QUDs are not inquisitive (see (29) below), they pop automatically (this mechanism to clear non-inquisitive QUDs follows most directly Groenendijk 1999).

and model propositions as sets of possible worlds. Alternative sets compose via pointwise function-argument application,<sup>20</sup> which in the case of singleton sets (e.g. the denotation of a declarative) behaves like standard function-argument application. I follow [Kratzer & Shimoyama \(2002\)](#) in disassociating the lexical operators introducing alternatives from the operators manipulating them: alternatives introduced lexically in the denotation are collected by operators such as ‘ $\exists$ ’ (which provides existential force and returns a singleton set when several alternatives are introduced in declaratives, as in the case of disjunction; see e.g. [Alonso-Ovalle 2006](#)) or ‘Q’ (which leaves intact the alternatives introduced lexically in the composition in the case of interrogatives; see [Kratzer & Shimoyama 2002](#) for *wh*-questions or [Biezma & Rawlins 2012](#) for alternative questions). Henceforth we refer to alternatives introduced lexically in the denotation as the semantic alternatives. The definitions in (31) are from [Kratzer & Shimoyama \(2002\)](#); (33) illustrates how the system works for the interrogative *where is the boyfriend?*:

- (31) Where  $\llbracket \alpha \rrbracket \subseteq D_{\langle \langle s,t \rangle, t \rangle}$   
 a.  $\llbracket \exists \alpha \rrbracket = \{ \lambda w. \exists p \in \llbracket \alpha \rrbracket : p(w) = 1 \}$   
 b.  $\llbracket Q\alpha \rrbracket = \llbracket \alpha \rrbracket$
- (32)  $\llbracket wh- \rrbracket = D_\tau$  (where  $\tau$  stands for the type of the given *wh*-word)
- (33)  $\llbracket \text{Where is the boyfriend?} \rrbracket = \llbracket [Q[ \text{the boyfriend is where}]] \rrbracket =$   
 $\llbracket Q(\{ \text{the boyfriend is at home; the boyfriend is camping, ...} \}) \rrbracket =$   
 $\{ \text{the boyfriend is at home; the boyfriend is camping, ...} \}$

In (33) the set of alternatives manipulated by  $Q$  are the ones generated by the *wh*-word. The resulting semantics predicts that there is a place where the boyfriend is. However, the alternatives entertained by speakers when uttering WhQ like (33) may also involve the “null-alternative”. [Abusch \(2009\)](#) illustrates it with (34):

- (34) I’ve alienated my colleagues completely. Who will vote for me? Probably nobody.

[Abusch](#) uses (34) to show that the so called existential presupposition in WhQs is a ‘soft’ presupposition: the context of utterance can cancel it.<sup>21</sup> The question is how to

<sup>20</sup> From [Kratzer & Shimoyama \(2002\)](#):

- (i) Pointwise Function-Argument Application  
 If  $\alpha_M$  is a branching node with daughters  $\beta$  and  $\gamma$ , and  $\llbracket \beta \rrbracket^{s,c} \subseteq D_\sigma$  and  $\llbracket \gamma \rrbracket^{s,c} \subseteq D_{\sigma,\tau}$ ,  
 then  $\llbracket \alpha_M \rrbracket^{s,c} =_{\text{def}} \{ a \in D_\tau \mid \exists b \exists c (b \in \llbracket \beta \rrbracket^{s,c} \wedge c \in \llbracket \gamma \rrbracket^{s,c} \wedge a = c(b)) \}$

<sup>21</sup> The status of this existential inference has been discussed in the literature (see e.g. [Roberts 1996](#), [Abusch 2009](#), [Stalnaker 2014](#), [Biezma & Rawlins 2017a](#)). [Abusch \(2009\)](#) calls this inference the

formally derive this observation. One way to do this is to bridge the semantics and the pragmatics so the semantics considers both the alternatives introduced lexically and those that are live contextually. This is in fact what the semantics of questions in Biezma & Rawlins (2012, 2017a) achieves for non-*wh*-interrogatives.<sup>22</sup> The authors suggest that the proposal could be extended to *wh*-interrogatives. I show below how this could be done.

I assume that 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  $c_M$ .

- (35) A move  $M$ 's **Content** is defined by:
- a. If  $M$  is overt,  $\text{Content}(M) = \llbracket \beta_M \rrbracket_{c_M}$  where  $\beta_M$  is the linguistic form uttered in move  $M$  and  $c_M$  is the context of utterance of  $M$ .
  - b. Otherwise,  $\text{Content}(M) \subseteq \mathcal{P}(\mathcal{W})$ . ( $\approx$  implicit moves are questions.)
- (36)  $\text{ALT}_{c_M}$  is the set of propositional alternatives that are salient in the context of interpretation  $c$  for move  $M$ .<sup>23</sup> (v1 preliminary, see (41))
- (37) Let  $M$  be a move such that  $\text{Content}(M) = \llbracket [\text{Q}[\alpha]] \rrbracket_{c_M}$ , where  $\llbracket \alpha \rrbracket_{c_M} \subseteq D_{\langle \langle s,t \rangle, t \rangle}$   
 $\llbracket [\text{Q}[\alpha]] \rrbracket_{c_M} = \llbracket \alpha \rrbracket_{c_M}$ , defined only if
- a.  $\llbracket \alpha \rrbracket_{c_M} \subseteq \text{ALT}_{c_M}$  or  $\text{ALT}_{c_M} = \emptyset$
  - b.  $|\llbracket \alpha \rrbracket_{c_M} \cup \text{ALT}_{c_M}| > 1$

The ‘Q’ operator in (37) does not affect the alternatives introduced semantically but acknowledges that there may be other alternatives in the context of utterance (clause (a);  $\text{ALT} = \emptyset$  correspond to the discourse initial situation). In Biezma & Rawlins (2012, 2017a), interrogatives present alternatives and request that the addressee chooses between those and others present in the context. The definedness condition in (b) only requires that there be more than one (live) alternative (i.e. questions are

---

*some-alternative presupposition*, i.e. the presupposition that the disjunction of the set of propositions introduced lexically is true. Abusch (2009) argues that such presupposition is a default process stemming from the set generated semantically (and hence we often take away that *wh*-interrogatives trigger such inference) but the process does not take place “if the some-alternative presupposition is either inconsistent with context or made implausible by context.” Similarly, Stalnaker (2014) argues that such presupposition is merely an entailment of the answers that are entertained. Hence, if we entertained that the null-alternative is a possible answer, then the “existential presupposition” goes away. This is what we capitalize on below.

22 Biezma & Rawlins (2012) are primarily focused on how to derive differences between polar questions and alternative questions. The overall idea is that a polar question (*Is the boyfriend in Joshua tree?*) puts forward an alternative (that the boyfriend is in Joshua Tree) and requests that the speaker chooses between that alternative or others that are also contextually salient (see (37)). For alternative questions, (final falling) intonation signals that the spelled out alternatives are the only live alternatives.

23 The possible answers to the QUD dominating  $M$  in Roberts’s system.



(a subset of the focus alternatives are live-alternatives). The focused element in an utterance is the element evoking alternatives relevant for the interpretation. In the case of WhQs, this is the *wh*-word. According to (37) and (38), the semantic alternatives are already all (and only) the live salient focus alternatives. Is there any other contextual alternative? Notice that in this approach to questions, to utter an interrogative is to offer some alternatives for the addressee to evaluate. One of the possibilities is that none of the alternatives offered is evaluated as being viable, and this is what the null-alternative is. This is captured in (40) and (41). (40) is an auxiliary definition that allows us to isolate the focus alternatives that are live alternatives and (41) establishes that ALT may be only that set (41a), or also contain the option that none of the alternatives in that set is viable (41b):

- (40) Given a move  $M$  with linguistic expression  $\alpha_M$  in a context  $c$ ,  
 $f\text{-Content}(M) = \{p : p \neq \emptyset \wedge \exists q \in \llbracket \alpha_M \rrbracket^f : p = q \cap cs_c\}$   
 (Paraphrase: The non-empty focal alternatives that are live options relative to the context set in context  $c$ )
- (41)  $\text{ALT}_{c_M}$  is the set of live alternatives considered upon acceptance of  $M$ :  
 a.  $\text{ALT}_{c_M} = f\text{-Content}(M)$  or  
 b.  $\text{ALT}_{c_M} = f\text{-Content}(M) \cup \{\lambda w. \forall p \in f\text{-Content}(M), p(w) = 0\}$

This proposal predicts that the null-alternative is not always available:

- (42) A: You do not seem from around here. Where were you born?  
 B: #I wasn't born anywhere.
- (43) A: The semester is finally over. Where are you going for vacations?  
 B: I am not going anywhere. This year I'm going to stay put. I'm too tired to travel.

If one is born, one is born somewhere (excluding metaphoric uses) and the null-alternative is not a live one, (42). However, one can entertain that someone is staying home during the non-teaching time and the null-alternative is not discarded, (43).

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

- (44) Let  $\phi$  be the interrogative sentence *where is the boyfriend?*  
 a.  $c + \ulcorner \text{Question}(\phi) \urcorner = \langle cs_c, Q_c, l_c \otimes \ulcorner \phi \urcorner \rangle$   
 b.  $l_c \otimes \ulcorner \phi \urcorner = \langle cs_{l_c}, \text{push}(Q_{l_c}, \llbracket \phi \rrbracket^o) \rangle$  ( $\text{push}(Q_{l_c}, \llbracket \phi \rrbracket^o) = Q'_c$ )  
 c. Acceptance:  $c_2 = \langle cs_{l_c}, Q'_c, \emptyset \rangle$

Uttering an interrogative amounts to proposing that the question it denotes be added on the top of  $Q_l$  (i.e. it's a proposal that participants commit to addressing that

question in the current discourse making it the immediate QUD in Roberts’s terms). By accepting the proposal, the future context  $\mathcal{F}_c$  becomes the local context and the local future context slot is emptied. Participants are thus committed to pursuing this inquiry next in discourse (see acceptance in (26) above). Hence, subsequent moves are either answers to the question (see answerhood licensing in (20)), or further questions relevant to answering such question (see question licensing in (21)). However, the addressee can also reject the proposal (i.e. reject the future context and hence empty the future context slot) and leave the context as it was before the proposal was made (see (27)).

### 2.3 WhDecs

We know that WhDecs and WhQs can receive the same responses which, ultimately, clear up an issue and let the discourse move forward. The fact that responses to WhDecs seem to be roughly similar to its parallel WhQ (but see rejection moves in §2.3.3) might lead to the intuitive view that WhDecs are also semantically questions. However, this fails to capture the observed contrasts. What we propose instead is that WhDecs are declaratives (as indicated by their word order) and, hence, they denote singleton sets in Hamblin semantics. Dynamically, they also propose to update  $cs$ .

In the spirit of the semantics of WhQs laid out above, I assume the following semantics for WhDecs and adjust the ‘ $\exists$ ’ operator in (31a) along the lines of ‘Q’ above.

- (45) Let  $M$  be a move s.t.  $\text{Content}(M) = \llbracket \exists[\alpha] \rrbracket_{c_M}^o$ , where  $\llbracket \alpha \rrbracket_{c_M}^o \subseteq D_{\langle \langle s, t \rangle, t \rangle}$   
 $\llbracket \exists[\alpha] \rrbracket_{c_M}^o = \{ \lambda w. \exists p \in \text{ALT}_{c_M} : p(w) = 1 \}$   
 defined only if  $\llbracket \alpha \rrbracket_{c_M}^o \subseteq \text{ALT}_{c_M}$

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

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

The semantics of WhDecs, hence, simply says that the context set is compatible with different alternative locations for the boyfriend and further state that one of the live alternatives is true.<sup>26</sup> We still need to derive inquisitivity and I argue that inquisitivity naturally results from the utterance’s dynamic update.

<sup>26</sup> Notice that in this case, as in the case of WhQs, we don’t exclude the possibility of the null-alternative, though in this case pragmatically impossible.

To account for the dynamic update of WhDecs it is crucial to take into account that WhDecs are declaratives and, hence, they are proposals to update *cs*. The crucial difference with (regular) declaratives is that WhDecs do not resolve any (open) issue. Let us examine this difference in more detail. In order to explore the declarative update in Hamblin-semantics, where declaratives are singleton sets, we need to adjust the definition of ‘ $\oplus$ ’ in (19), where the update proceeded by merely intersecting *cs* with the denotation of the declarative (a set of possible worlds). A quick fix to (19a) that delivers the right results is provided in (47), 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:

- (47) Let  $\Phi$  be a syntactic expression s.t.  $\llbracket \Phi \rrbracket^o = \Phi$ , where  $\Phi$  is a singleton set containing  $\varphi_{\langle s,t \rangle}$  (let us call this  $\varphi_{\langle s,t \rangle}$  *contentProp*( $\Phi$ ))  
 $l \oplus \ulcorner \Phi \urcorner = \langle cs_l \cap \text{contentProp}(\Phi), Q_l \rangle$   
 Felicity constraints:  
 a.  $cs_l$  is compatible with *contentProp*( $\Phi$ ). (assertability)  
 b. *contentProp*( $\Phi$ ) is relevant to  $\text{top}(Q_l)$

So, assertability for a WhDec will require compatibility between *cs* and its “content” proposition as well as ensuring that the proposition is relevant to  $\text{top}(Q_l)$ .

As we saw above, WhDecs are linked to discourse and I argue that this is the result of simple focus-presupposition (à la Rooth). While WhDecs do not provide an answer, they do require, as any other declarative, to be embedded in a particular discourse to be felicitous and, just as with any other declarative, this link is mediated by focus structure: the focus structure of an utterance indicates anaphorically what is the question in discourse that the utterance is answering. This relation between questions and answers in discourse is cashed out via a constraint on question-answer congruence. Informally, the Roothian congruence constraint can be summarized as in (48) (see Constant 2014: pg. 89):

- (48) Question-Answer congruence: An utterance *U* with F-marking answers a question containing  $\geq 2$  alternatives from the set  $\llbracket U \rrbracket^f$ .

In Rooth’s system the exact anaphoric relation to discourse is captured as a presupposition introduced formally by the ‘ $\sim$ ’ operator. A simplification of this operator that suffices for our purposes is in (49) (adapted from Constant 2014).<sup>27</sup>

<sup>27</sup> Within Hamblin semantics, declaratives denote singleton sets, while questions are sets of propositions. Applying the original Roothian ‘ $\sim$ ’ as rendered in (i) below (see Constant 2014) would lead to focus values being a set containing a set of propositions, hence the modification in (49) to keep focus values to be sets of propositions.

(i) Rendition of Roothian ‘ $\sim$ ’

- (49) Roothian ‘ $\sim$ ’ adapted to Hamblin semantics, where OP is an operator collecting alternatives in the Hamblin system (e.g. ‘ $\exists$ ’) if there is one:
- a.  $\llbracket \text{OP} \sim \phi \rrbracket^o = \llbracket \text{OP} \phi \rrbracket^o$     b.  $\llbracket \text{OP} \sim \phi \rrbracket^f = \llbracket \text{OP} \phi \rrbracket^o$
  - c. ... and presupposes that the context contain an antecedent  $C$  such that:
    - (i)  $C \subseteq \llbracket \phi \rrbracket^f$     (ii)  $|C| > 1$     (iii)  $\llbracket \phi \rrbracket^o \subset C$

In the Roothian system, the work of the ‘ $\sim$ ’ operator is mostly specified in (c): the utterance presupposes that (i) there is a discourse antecedent formed by a subset of the focus value, (ii) that this antecedent is a set containing more than one proposition (i.e. it is a question) and, (iii) that the proffered proposition is one of the possible answers to that question. Let us see how this applies to WhDecs.

Following the discussion above for *wh*-interrogatives, the focused element in WhDecs is the *wh*-word itself. This provides the focus meaning in (50) for our running example, where we find the constraints imposed by the ‘ $\exists$ ’ operator and the presuppositions imposed by ‘ $\sim$ ’:

- (50)  $\llbracket \llbracket \exists [\sim \text{the boyfriend is where}_F] \rrbracket^f \rrbracket^f = \{ \lambda w. \exists p \in \text{ALT}_{c_M} : p(w) = 1 \}$   
 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.  
 $C \subseteq \{ \text{the boyfriend is at home, the boyfriend is camping, } \dots \}$ ,  
 i.e. only if there is a question in discourse of the form *where is the boyfriend?* (namely, only if  $\text{top}(Q_I)$  is (33)).<sup>28</sup>

To sum up, given the assertion conditions, the utterance of the WhDec *the boyfriend is where?* establishes that there is a question in discourse of the form *where is the boyfriend?*, the *wh*-interrogative counterpart of the uttered WhDec, and indicates that there are different possibilities.<sup>29</sup> How do WhDecs update? In order to understand

- 
- a.  $\llbracket \sim \phi \rrbracket^o = \llbracket \phi \rrbracket^o$     b.  $\llbracket \sim \phi \rrbracket^f = \{ \llbracket \phi \rrbracket^o \}$
  - c. ... and presupposes that the context contain an antecedent  $C$  such that:
    - (i)  $C \subseteq \llbracket \phi \rrbracket^f$     (ii)  $|C| > 1$     (iii)  $\llbracket \phi \rrbracket^o \in C$

<sup>28</sup> Notice that the focus structure is a set of propositions varying in the location where the boyfriend is. This is the denotation of the natural language interrogative *where is the boyfriend?*;  $C$  is that question restricted to the context of utterance. The *the boyfriend is where?* is only felicitously uttered in a discourse in which there is an open question equivalent to the denotation *where is the boyfriend?*

<sup>29</sup> I do not address in this paper how utterances of WhDecs are different from utterances of declaratives containing indefinites and in particular so called epistemic indefinites (see [Alonso-Ovalle & 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 & Shimoyama 2002](#), [Cable 2010](#), [Kotek 2014](#) and references therein for discussion). It is beyond the scope of this paper to address this issue but, at any rate, notice that while the semantics of WhDecs and that of

the dynamic update of WhDecs it is useful to observe the update of canonical declaratives, §2.3.1 and see then how the same mechanisms lead us naturally to an inquisitive outcome in WhDecs, §2.3.2.

### 2.3.1 Canonical declarative update

Imagine that Detective Sykes utters (51), with focus meaning (52) (analogous to (50)):

- (51) Det. Sykes: The boyfriend is in [JOSHUA TREE]<sub>F</sub>  
 $[\exists[\sim\text{the boyfriend is in JOSHUA TREE}_F]]$
- (52)  $\llbracket(51)\rrbracket^f = \{\text{The boyfriend is in Joshua Tree}\}$   
 defined 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 J. Tree.

To proceed with the dynamic update of the declarative, we need to accept its presuppositions (see (23) above). In the case of declaratives, besides other possible presuppositions such as, e.g., that there is a boyfriend (in (51)), the presupposition we need to accommodate (if it is not explicitly conveyed) is the discourse-presupposition triggered by focus anaphora that there is a question open in discourse that the utterance is addressing, i.e. the top of the question-stack, (53a-i). In the case of (51), this would be equivalent to the denotation of *where is the boyfriend?* Once this is accommodated (which is possible when the question is compatible with the rest of the question stack), the proposal made by the move takes place, (53a-ii). The

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Hamblin indefinites used in the analysis of epistemic indefinites is similar, focus structure is different: the *wh*-word in WhDecs is the focused constituent and determines the question in discourse that the WhDec is addressing, which is crucial in our analysis of WhDecs, while this is not the case with indefinites. Consider the question-answer pair A: *Who is dating someone?*; B: *John is dating someone*. Given that the dialogue is felicitous and we understand that B's response is an answer to A's question, we can conclude that the question and the answer are congruent and, hence, *John* is focused but *someone* isn't. Furthermore, B's utterance is not a complete answer to the question *who is John dating?* It may be a felicitous response, more so if one hedges it, *I'm not sure..., but he is dating someone*, discarding the null answer as a live-alternative, i.e. it can be a partial answer, but not a complete answer. Notice in fact that utterances with indefinites do not include the null-alternative as a live alternative (unlike WhDecs).

- (i) John hardly ever eats anything... (adapted from Abusch 2009)  
 a. Today he ate something. #Probably nothing.  
 b. Today he ate what? Probably nothing.

It seems that indefinites require that alternatives under consideration be only semantic alternatives, resembling in this way the closure effects displayed by intonation in alternative questions or declaratives with disjunction (see e.g. Zimmermann 2000, Biezma & Rawlins 2012).

proposal made by the declarative is to update  $cs_c$  in the (newly accommodated) context ( $l'_c$ ) with the new information regarding the location of the boyfriend. Once the move is accepted,  $top(Q'_c)$  is resolved and hence the question is popped ( $pop(Q'_c)$  as defined in (28)), leaving the question stack as it was before the move, (53b) ( $Q_{c_2} = Q_c$ ).

- (53) Let  $c = \langle cs, Q, \emptyset \rangle$  be the initial context:
- a.  $c + \lceil Assert(\text{The boyfriend is in [Joshua Tree]}_F) \rceil$ 
    - (i) Accommodate that the local context is  $\langle cs_c, Q'_c \rangle = l'_c$   
s.t.  $Q'_c = push(Q_c, \llbracket \text{where is the boyfriend?} \rrbracket^o)$ , i.e.  
 $top(Q'_c) = \llbracket \text{where is the boyfriend?} \rrbracket^o$
    - (ii) Propose the update of  $cs$  (with the answer) (Assertion)  
 $\langle cs_c, Q'_c, l'_c \oplus \lceil \text{The boyfriend is in [Joshua Tree]}_F \rceil \rceil$   
 $l'_c \oplus \lceil \text{The boyfriend is in [Joshua Tree]}_F \rceil =$   
 $\langle cs_c \cap contentProp(\text{The boyfriend is in [Joshua Tree]}_F), Q'_c \rangle$
  - b. Acceptance: Accept the proposed future context and  $pop(Q'_c)$ :  
 $c_2 = \langle cs_c \cap contentProp(\text{The boyfriend is in [Joshua Tree]}_F), Q_{c_2}, \emptyset \rangle$   
where  $Q_{c_2} = Q_c$

At the end of the process the only thing that we can see that has changed from the original context  $c$  is  $cs_c$ , but in fact  $Q_c$  also suffered some temporary changes, if only to end up the same it was.

Before proceeding to show how the same mechanism allows us to derive that WhDecs have an inquisitive overall meaning in the next section, let us finish with a note regarding the benefits of this model and the predictions it makes regarding the felicity of declarative utterances. This model allows us to explain why out of the blue declaratives are sometimes infelicitous. We already know that assertions are in general infelicitous if the proposed content is not compatible with  $cs_c$  or is not relevant to a spelled-out question on  $top(Q_c)$  (see (25) above). What about out-of-the-blue assertions? How do we explain that they are sometimes but not always fine?:

- (54) Three students are quietly working in their office. The door is open and another student shows up and says:  
Student: Hey, good morning! My uncle makes cheese in Vermont.

The student's utterance in (54) leaves everybody perplexed. Sure, there may be no problem in accepting that the speaker has an uncle, or that the uncle makes cheese in Vermont (it can all be compatible with  $cs$ ). Why is it infelicitous? Let's assume that (54) has broad focus and hence that the question presupposed is of the form *what is the case?*, the least specific question. Still, presupposing the question

amounts to presupposing a set of possible answers (the salient contextual alternatives that make up the question meaning), and (54) is infelicitous because participants will not accommodate that the proposition that the speaker’s uncle makes cheese in Vermont is one of the salient contextual alternatives making up the meaning of  $top(Q_c)$  (a question of the form *what’s the case?*), or how it helps identifying which amongst the live alternatives is the actual answer. It is, therefore, irrelevant (in the sense of (20)): (54) is infelicitous because participants cannot accommodate the presupposed question that would make the utterance relevant. Notice, in contrast, that the utterance in (55) is not infelicitous:

(55) [Same context as in (54)]

Student: Hey, good morning! There is free cake in the common-room.

In this case participants happily accept that there is a question open in discourse for which one of the contextually salient answers is that there is free cake in the common-room and, hence, (55) is relevant and the utterance felicitous.

The discussion above shows that infelicity with assertions is not only related to incompatibility between the propositional content and the *cs*, or relevance regarding a spelled out question. Often times (as in out of the blue utterances) we are forced to accommodate that there is already a question open in discourse and infelicity arises when we are not willing to do that. That we have to accommodate questions and that we sometimes refuse to do so is at the core of our explanation for WhDecs and their discursive behavior. I return to the case of out-of-the-blue utterances below.

### 2.3.2 WhDec update

As in the case of regular declaratives above, WhDecs are proposals to update *cs* and, again, before proceeding with the update we need to accommodate the discourse-presupposition triggered by focus anaphora regarding the question in discourse that the utterance addresses, i.e.  $top(Q)$ , (56a-i) (if it has not been explicitly conveyed before<sup>30</sup>). Given its focus meaning (see (50)) the question in discourse addressed by a WhDec is its *wh*-interrogative counterpart. Once this is accommodated (as well as other presuppositions such as, e.g., that there is a unique boyfriend), the proposal made by the move takes place, (56a-ii). Given that the WhDec doesn’t provide the answer to the question in discourse, *cs* doesn’t change, (56b), but what has changed is  $Q$ , since the accommodated question was not resolved and, hence, it was not popped.

<sup>30</sup> WhDecs are not possible immediately following the utterance of its *wh*-interrogative counterpart. We can explain this in the current system: if we have just accepted that  $top(Q)$  is  $\phi$ , it serves no purpose to point out that  $top(Q)$  is  $\phi$ , which is the only effect that WhDecs have in our system.

- (56) 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  $\langle cs_c, Q'_c \rangle = l'_c$   
s.t.  $Q'_c = push(Q_c, \llbracket \text{where is the boyfriend?} \rrbracket^o)$ , i.e.  
 $top(Q'_c) = \llbracket \text{where is the boyfriend?} \rrbracket^o$
    - (ii) Propose the update of  $cs$ : (Assertion)  
 $\langle cs_c, Q'_c, l'_c \oplus \ulcorner WhDec \urcorner \rangle$   
 $l'_c \oplus \ulcorner WhDec \urcorner = \langle cs_c \cap contentProp(WhDec), Q'_c \rangle$
  - b. Acceptance: Accept the proposed context  
 $c_2 = \langle cs_c, Q'_c, \emptyset \rangle$  (Trivial update of  $cs$ )

Notice that the final context obtained after the update via the *WhDec* is the same as the one obtained after the update with its *wh*-interrogative counterpart (see (44)). However, we got to the final result through a different route: in *WhDecs* the context has become inquisitive without the speaker having proposed to pursue a question and thus without having given participants the chance to reject it. With *WhDecs* the modification of  $Q$  is done indirectly, i.e. the speaker has instead demanded that participants assume that the question is already in  $Q$ . In §2.3.3 we will see how the path to the final update matters and how discourse differences between *WhDecs* and *WhQs* can be derived from differences in this journey.

From the dynamic point of view, *WhDecs* do not change  $cs$ , but are devices to signal the content of  $Q$  (via (informative) presupposition triggered by focus anaphora). Certainly, for the accommodation to take place, the question that the speaker is taking to be on the top of the question stack has to maintain a well-formed question stack and be relevant (see (21)). The obvious way in which the *WhDec* can be relevant is by being (/possibly taken to be) (part of) a strategy to answer a question already in  $Q$ . I discuss below cases when *WhDecs* are not felicitous, but let us address first what *WhDecs* teach us about the notion of relevance.

Up to now, our dynamic system considers that assertions are only licensed as answers to (implicit) questions, see (20) above. *WhDecs*, however, do not provide any answer, they provide other kinds of information. *WhDecs* show that we need a broader notion of relevance that takes into account information about discourse structure:

- (57) **Relevance for assertions:** An assertion move is relevant in discourse iff
- a. it is relevant to  $Q_I$ , i.e., if it provides the resolution of at least one alternative in  $top(Q_I)$  either positively or negatively.
  - b. it constrains  $Q_I$  (hence, it provides information about  $Q_I$ ).

WhDecs provide information about  $c$  by providing information regarding  $Q_l$ . The claim is that providing information about what the structure of the discourse is (e.g. what  $Q$  looks like) is to be considered on par to other kind of information: providing information about the context is as informative as narrowing down  $cs$ .<sup>31</sup>

The discussion so far leads to the dynamics of WhDecs below (which summarizes what we have derived from independent assumptions regarding the dynamic instructions provided by the form, their semantics, and focus structure).

- (58) **WhDec licensing:** Let  $c$  be a context,  $\Phi$  a WhDec,  $\Psi$  the set of propositions denoted by its WhQ counterpart and  $l_c$  a local context:  
 $l_c \oplus \lceil \Phi \rceil$  is defined only if  $top(Q_{l_c}) = \Psi$

We turn now to examining how differences in the update process lead to overall differences in interpretation.

### 2.3.3 Comparing WhDecs with *wh*-interrogatives

After accepting the move made by uttering the WhQ *where is the boyfriend?* or the WhDec *the boyfriend is where?* the resulting contexts preserve the original  $cs_c$  in both cases and have the same resulting  $top(Q'_c)$  (i.e.  $top(Q'_c) = \llbracket \text{Where is the boyfriend?} \rrbracket^o$ , see (53) and (56) above). However, as we saw, we get there through different routes. In the case of WhDecs we get there indirectly, the speaker presupposes that the question is already there. This presupposition is often an *informative presupposition* (Stalnaker 1998), i.e. it is triggered in contexts in which it is not satisfied but is satisfiable: when the presupposition is not satisfied, the speaker “requests” that the addressee accommodate it. That is, the speaker ‘imposes’, without putting it up for discussion, what the next question to be addressed is. Accommodation is possible as long as the question can be considered a strategy for an ongoing inquiry and the speaker is willing to accept the mandate. Power dynamics

31 Assertions can also provide information regarding  $cs$ . This would be instances in which the assertion does not provide new information but is merely used to remind participants about the properties of the worlds in  $cs$ .

- (i) It’s 6:00 a.m. and A and B are on the phone arranging how to meet to pick up Sarah at the airport. They know Sarah’s plane is arriving at 12:30.  
 A: Sarah is arriving at 12:30. What time will you meet me there?  
 B: I’ll be there at 12:45.  
 A: She is arriving at 12:30!!  
 B: Yes, but I can’t make it any earlier.

A’s utterance is not providing new information, it is only reminding the addressee of something they already know and s/he knows that they both know.

may affect the speaker's choice of utterance: WhDecs impose what the next issue to be addressed is instead of proposing to address the particular issue (as WhQs do), and not all participants in discourse have that authority. As a consequence, when WhDecs are uttered by a participant lacking authority, WhDecs come across as out of place manners-wise. For WhDecs to be felicitous either the speaker has particular authority or all participants are taken to be equal (see the contrast between (12) and (11) above). This is what one would expect when there is an "imposition" regarding what we should *do* next, i.e. dictating what our next discourse move should be (to address the question that is presupposed and left un-answered). Given this commanding nature, in the wrong context accommodation is naturally more "aggressively" resisted than regular accommodation of information in *cs*, which does not impose what the addressee's following discourse move has to be in the same way. Factual presuppositions regarding *cs* are easily accommodated unless the information conflicts with other facts.

**Reactions to WhDecs and *wh*-interrogatives:** After acceptance, both in the case of WhDecs and WhQs cooperative responses are geared to solving the same discourse-question. This gives the impression that WhDecs are questions: answers to the WhQ are also felicitous responses to its WhDec counterpart. WhDecs and WhQs differ, however, in the case of rejections. Rejecting a WhQ amounts to rejecting the proposal to add a question to the top of the question stack, i.e. refusing to pursue a line of inquiry. Rejecting the WhDec, on the other hand, does not amount to rejecting shrinking the *cs*, since WhDecs are not informative that way. Rejecting the WhDec is rejecting its presupposition and hence rejections to WhDecs are indications of presupposition failure. This is observed in out-of-the-blue scenarios, in which the addressee cannot/will not accommodate that s/he has already accepted a question.

(11) A stops a random pedestrian on the street and says.

A: Excuse me, where can I buy an Italian newspaper?

A': Excuse me, # I can buy an Italian newspaper where?

A' is infelicitous out of the blue because the addressee can't accommodate why/how s/he should have agreed to address a particular question. Cases in which the context of utterance seems to provide the cue for the question, and the power-dynamics are right, can be perfectly fine, as in (12). But again, when the power dynamics is not right, WhDecs are rather nosy or rude:

(59) Passengers in a plane are getting settled before departure. Passenger A starts a conversation with passenger B, whom s/he assumes to be American.

A: I hope this plane gets to NY on time.

- B: (With a strong non-English accent) Yes, otherwise I will be missing my connection.
- A: [Obviously surprised to hear a non-English accent] Oh! Yes, there is always that risk..., (and) you are from where?

The contrast between (12) and (59) depends on the willingness to accept the ‘imposition’ of the question to be addressed: we are usually less willing to accept that a stranger is entitled to impose where the discourse is going next and that we are willing to comply, let alone when this involves requesting personal information.

The bottom line is that WhDecs behave just as utterances with other kinds of presuppositions do. They offer a shortcut in the same way many other presupposition triggers do (as when a speaker utters *I can't meet you later. I'm picking up my brother at the airport* taking a shortcut regarding the information that s/he has a brother). The difference is that in the case of WhDecs the shortcut concerns what is the question that participants are to address next and, when accepted, WhDecs help to move the discourse along quickly. Because of their nature, WhDecs are related to declaratives and interrogatives in their licensing conditions. Infelicity in out of the blue WhDecs is related to infelicity in out of the blue declaratives (see discussion above in §2.3.1): in both cases there is a tension between what the speaker presupposes the addressee has committed to and how much the addressee is ready to accommodate. Additionally, given that WhDecs request that a question be accommodated, the felicity of WhDecs is also related to the felicity of WhQs.

Notice that while WhDecs are predicted to be felicitous when the power dynamics are right and participants have no problem accepting that they can be told what their next move is and that the question the WhDec presupposes to be on the top of the stack is highly relevant to the ongoing inquiry, as in (8) above, WhDecs are also possible when the presupposed question has in fact been openly agreed upon before (i.e. having being openly accepted), as in (60):<sup>32</sup>

- (60) Lt. Provenza: Where is the boyfriend?  
 Det. Sykes: The other volunteers gave us information regarding where her other acquaintances are.  
 Lt. Provenza: And the boyfriend is where?

A's utterance above is used as a reminder that the question is still open awaiting on the top of the stack.

<sup>32</sup> Notice that acceptance is the default. If the power dynamics allow it (as assumed in the running example, where Lt. Provenza is Det. Sykes' superior) the question is taken to be accepted by default. Otherwise, a response similar to Det. Sykes' response may be taken as a rejection to the proposed question.

**Sequences of WhDecs, *wh*-interrogatives and both:** Recall the contrast in (15):

- (15) [Lt. Provenza in the same preceding context to the WhDec in (8).]
- 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?

Given that the sequences above ultimately raise issues that are not in an entailment relation (see (22) above), they can only be felicitous when interpreted as spelling out subquestions that together form a strategy to answer a more general question, e.g. “what are the whereabouts of the persons of interest in the case?” (see (21)). This is fine in the case of two WhQs or WhDecs but not if we have a mixed sequence.

The sequences in (15c) and (15d) are understood as the spell out of the subquestions forming a strategy and, hence, as presupposing (with WhDecs, (15c)) or proposing (with WhQs, (15d)) a question, the more general question that is addressed, e.g. “what are the whereabouts of the interested parties?”.<sup>33</sup>

The problem with (15a) is that it is contradictory. In uttering the WhQ, the speaker does not take for granted that the addressee will accept to address the question regarding the whereabouts of the boyfriend: with the WhQ s/he is **proposing** to pursue the inquiry, leaving room for rejection. With the WhDec, the speaker presupposes that the question they are already addressing is about the whereabouts of the parents. However, given that the two issues form a strategy, the inquiry that ultimately is being addressed is about the whereabouts of all the interested parties, and there is an inconsistency as to whether this (more general) question is proposed or presupposed.

Finally, judgements for (15b) are less clear: it is not as bad as (15a) (speakers find it better than (15a)) but not perfect). The addressee could reach the same conclusion as with (15a), and then it would be infelicitous. But here the addressee has the option of understanding it differently. (15b) could be understood as the speaker ‘reminding’ the addressee that *top(Q)* is a question about the whereabouts of the boyfriend and *then* proposing to also address the question regarding the whereabouts of the parents. At the end, the two issues still form a strategy and the proposal is to address a more general question regarding the whereabouts of the interested parties, but in this interpretation we ask to ‘extend’ a presupposed inquiry to a more general

33 Another context in which either (15c) and (15d) are good while (15a) and (15b) are not is the following (illustrated with WhDecs): *Ltn. Provenza: So, what do we know?; Det. Sykes: Not much, the shelter people said Amanda didn’t get along with her parents and had a fight with her boyfriend; L. Pr.: And...?; D. S.: “And...?”; L. Pr.: and the boyfriend is where?, the parents are where?... is anybody doing any detective work?!*

question.<sup>34</sup> Of course, the speaker could just have uttered two WhQs and, depending on how much participants are willing to accept the mix of shapes, the overall result could be more or less acceptable, with variability predicted.

**Questioner’s assumptions about the addressee’s knowledge:** There are other situations in which WhDecs are worse than WhQs (contrast (14) and (61)):

- (14) I want to repair the sink but I can’t find your father’s toolbox. I don’t seriously expect you to know this, but just in case,
- a. #... your father’s toolbox is where? (Do you know?)
  - b. ... where is your father’s toolbox? (Do you know?)
- (61) I want to repair the sink. You told me where the toolbox is but I forgot,
- a. ... your father’s toolbox is where?
  - b. ... where is your father’s toolbox?

In the examples above the inquiry is not out of the blue and we can assume that the power dynamics are right. The only difference are the speaker’s assumptions regarding the addressee’s knowledge: WhDecs are not possible when it is likely that the addressee doesn’t know the answer. This can be easily explained. We assume by default that a questioner proposing a question doesn’t possess the information to resolve it and, hence, committing to pursuing the question involves being able to help towards resolving the issue, i.e. to provide some kind of information. Hence, presupposing that a question is in  $Q$  is presupposing that the addressee has already accepted it and that s/he has information to solve it (or, in the limit case, has information regarding whether the answer can be found). The infelicity of the WhDecs in (14a) results from admitting that the addressee may lack the information and then uttering the WhDec presupposing that the s/he has information leading to the answer. This is effectively a contradiction. It’s the dynamic equivalent to *#you may not have a sister but I just saw your sister in the cafeteria*.<sup>35</sup> The canonical *wh*-interrogative in (14b) does not presuppose that any question is already accepted

34 This interpretational strategy wouldn’t rescue (15a). For (15a) it would amount to placing (assuming acceptance) a question regarding the whereabouts of the boyfriend as  $top(Q)$  and then presupposing that  $top(Q)$  is a different question regarding the whereabouts of the parents, which is a contradiction.

35 Two reviewers raise questions regarding what it entails to accept a question. A reviewer points out that an addressee can always accept the question by saying *That’s an interesting question* while admitting ignorance regarding the answer. Notice that such response is not an ‘acceptance’ of the question in the relevant sense: *That’s an interesting question, let’s find out* indicates that the addressee has no information to solve it and hence the ‘discourse’ moves to a difference sequence: the speaker rejects pursuing the question (it cannot be solved within that discourse-sequence). Accepting a question in the relevant sense means that one commits to directing subsequent discourse moves towards answering it (see definitions above), not that one is willing to go ask someone else. A

but rather is a proposal that it be accepted and placed on  $Q$ . Since it is a mere proposal to place the question on the top of the stack, it gives the addressee the chance to reject the question on the basis of lack of knowledge. In such cases, the continuation offered by the speaker in which it is questioned whether the addressee has any information provides a possible reason to reject placing the question on the top of  $Q$ . In such cases, as expected, the continuation is fine.

In what follows we sketch how the system proposed here for WhDecs could be extended to another hybrid, RDecs, cashing out insights in the literature, §3. I also address the role of intonation in the interpretation.

### 3 Rising declaratives and WhDecs

Declaratives with a final rise (FR), RDecs, are the non-*wh*-counterpart of WhDecs. RDecs' prototypical final contour is  $H^* H-H\%$  or  $L^* H-H\%$ , but  $H^*/L^* H-L\%$  is also possible; see [Bartels 1999](#)), the same as in polar questions (POLQs):

- (62) Rising Declaratives (RDecs)
- a. The fight was over a boyfriend $\uparrow$ .
  - b. It is raining $\uparrow$ .
- (63) Polar Questions (PolQs)
- a. Was the fight over a boyfriend $\uparrow$ ?
  - b. Is it raining $\uparrow$ ?

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reviewer points out that one can accept a question and yet be not-knowledgeable about the answer. The following example illustrates it:

- (i) A: Where is Susan?  
 B: I do not know, isn't she in her office?/ # Is she in her office?

Notice that B's response is still cooperative: while B is not directly providing a (partial) answer, s/he is introducing a strategy to address the question. In this case to evaluate the alternatives one by one while indicating that s/he expected that Susan is in her office to be true. The plain POLQ is not felicitous across speakers because if A knew that Susan is in her office s/he wouldn't be asking where Susan is. For a response to be felicitous **across speakers** it has to be at least a partial answer (where a partial answer is one that favors one alternative over others, see [Büring 2003](#)): B's felicitous response (a high-negation question) indicates that s/he would have expected Susan to be in her office, hence marking that alternative as more probable, while wondering whether this is indeed true or, alternatively confirming that this is indeed not the case (see e.g. [Ladd 1981](#) for the available readings). A single speaker can, however, utter the sequence *where is Susan? Is she in her office?* This contrast is not formalized within the QUD model and formalizing it is beyond the scope of this paper. At any rate, the take home message is that once the question is accepted, the questioner expects the addressee's cooperative move to be one in which a (partial) answer is provided. Consequently, WhDecs signal that the speaker expects the addressee to know the answer to the presupposed question or at least to be able to provide a partial answer.

RDecs are also hybrids: while they have a declarative word order, they have an inquisitive interpretation comparable but different from that of POLQs (which exhibit subject-auxiliary inversion and are interrogatives). In both cases the speaker seems to request that the addressee reveals whether the content proposition (e.g. that the fight is over a boyfriend or that it is raining in the examples above) is true (see e.g. Gunlogson 2003, 2008, Malamud & Stephenson 2015, Farkas & Roelofsen 2017, Jeong 2018, Westera 2018 for discussion). However, unlike with POLQs, when uttering the RDec the speaker indicates that s/he is inclined to believe that the content proposition is true. Regarding their intonation, the final contours in RDecs and POLQs are also comparable (see also figure 1, pg. 35). This means that meaning differences between POLQs and RDecs arise from differences in word order, just as WhDecs and WhQs. A lingering question in the semantics/pragmatics literature, however, concerns how FR contributes to inquisitiveness in declaratives. I return to this in §3.2.

Given the parallelism between WhDecs/ WhQs and RDecs/POLQs, the obvious question is whether the proposal to explain the contrast WhDecs/WhQs can explain RDecs/POLQs. If this were the case, differences between POLQs and RDecs would also be derived from differences in the update process, i.e. from POLQs (as interrogatives) being proposals to update  $Q$  and RDecs (as declaratives) being proposals to update the context set, *cs*.<sup>36</sup> In what follows I summarize Malamud & Stephenson's (2015) (henceforth M&S) proposal, since it contains insights already in other proposals within an update model, and sketch a way to apply the proposal for WhDecs that cashes out their insights, §3.1. I then turn to intonation and the interpretation of the final contour in RDecs and WhDecs, §3.2.

### 3.1 RDecs and WhDecs

Building on Farkas & Bruce 2010 and on insights from Gunlogson 2003, 2008, M&S offer an analysis of RDecs in contrast to POLQs: RDecs involve the indication that the speaker wants to commit to the content proposition while the utterance of a POLQ doesn't make any indication regarding any participant's commitment. Full speaker's commitment, however, requires the addressee's confirmation that the proposition denoted is true in the context of utterance.

In Farkas & Bruce's (2010) model, the proposal nature of utterances is cashed out by placing their (semantic) content "on the table" for the addressee's consideration (*the table* is modeled as a stack of issues to be resolved, where issues are sets of propositions, singletons in the case of declaratives; see Farkas & Bruce 2010, Farkas & Roelofsen 2015 for a more complex system that also deals with anaphora

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<sup>36</sup> Indeed, this is in line with, e.g., Gunlogson 2003, 2008, Malamud & Stephenson 2015, who consider RDecs as declaratives with a different update from interrogatives.

and ellipsis phenomena). Besides placing the propositional content on the table, regular declaratives introduce the same proposition into the speaker's *commitment set* (modeled as a set of propositions, the propositions the speaker commits to). In M&S's system, RDecs do not introduce the propositional content in the speaker's commitment set, but rather in their *projected commitment set* (the set of propositions that the speaker is willing to commit to but has not committed to yet because, for example, s/he lacks evidence fully supporting them).<sup>37</sup> The declarative content is placed on the table for the addressee to assess (just as in canonical declaratives) together with a *metalinguistic issue* (see Ginzburg 2012), modeled as a set. The metalinguistic issue can be, for example, the speaker's uncertainty regarding the truth of the content proposition. To be more concrete, the RDec in (62a), for example, indicates that the speaker is willing to commit to the fight being over a boyfriend by adding that propositional content to her/his projected commitment set. That propositional content is also added to the table for the addressee to consider. On top of it, a metalinguistic issue regarding (possibly) the speaker's uncertainty about the actual truth of such proposition is added on top of the table stack. The addressee is then expected to evaluate the metalinguistic issue and, in doing so, to accept or reject the propositional content of the utterance. This evaluation triggers the final update (i.e. the proposition is added to the CG or its negation is). In M&S's words (pg. 296), “[by making] a move that will have the same effect as a plain assertion [that *p*], but only with hearer's involvement and approval, the speaker is, roughly speaking, seeking approval to make an assertion that *p*. Thus [RDecs] are predicted to be possible whenever the speaker isn't sure if a plain assertion is appropriate.” POLQs, on the other hand, simply add an issue to the table (in M&S's system the set containing the POLQs content proposition and its negation, both of which the addressee needs to evaluate) without adding any content to the speaker's commitment or projected commitment set.

The question is whether the insights in M&S can be replicated in the model presented for WhDecs while reproducing the parallelisms and differences between WhDecs and WhQs explored above treating WhDecs and RDecs similarly. In what follows I merely sketch a way M&S's insights translate in the system with the aim to show that this is possible and that the proposal presented in this paper provides a very elegant understanding of the construction of meaning of these hybrids and their contrast with the interrogative parallels. However, we leave exploring the details for future research.

RDecs are treated in M&S already as other declaratives regarding what is added to the table, although RDecs also add a metalinguistic issue on the top. In the model in this paper there is no “table”, but RDecs are still proposals to update  $cs_c$ . As

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<sup>37</sup> PolQs do not add anything to any commitment set.

any other declarative, they should be relevant to a contextual question determined by focus structure. For example, (62a) presupposes that  $top(Q_c)$  is a question of the form *what was the fight over?* The declarative provides a tentative answer to this question while a “sure” answer would be provided by the canonical declarative exhibiting a final fall (FF). There are several ways to model the interpretational contrast between FF and FR in declaratives. One could, for example, argue that FR marks the utterance as contingent (see Gunlogson 2008), as adding the propositional content to the projected commitment (see M&S), or as suspending the maxim of quality (see Westera 2018).<sup>38</sup> We return to this below but, however we model the contribution of FF/FR, the consensus is that FR in declaratives signals that the resulting context is inquisitive. How can we cash this out within the model proposed for WhDecs?

A declarative with FF signals that the proposition denoted is the answer to the contextual question identified via focus structure (no other alternative is an answer), with a RDec the speaker signals that there are other alternatives to the content proposition that are also viable in *cs* (i.e. while proposing to update the *cs* with the information that it is raining in (62), the speaker acknowledges that there are other live alternatives). By proposing to add the proposition to *cs* the speaker proposes it as the answer to the contextual question and we infer that the speaker is willing to commit to such proposition (rather than to any other non-mentioned alternative), and by signaling that s/he still considers that other alternatives are viable s/he signals her/his uncertainty. Given that the speaker only makes a proposal to solve the question while admitting that s/he lacks complete certainty, the question is not actually solved<sup>39</sup> and cannot be popped. The addressee then needs to either publicly accept the proposal made, discarding in this way the competing alternatives (the other answers to the contextual question) and finally solving the question, or reject the proposal.<sup>40</sup> At the end the same system used to explain WhDecs can capture the insights in M&S’s proposal.

While the system proposed for WhDecs can be extended to explain RDecs, accounting for both declarative hybrids in the same way, we have not discussed whether the meaning of the final contour in RDecs is the same in WhDecs. If the construction of meaning is alike in both cases, the contribution of the final contour should be similar. However, while WhDecs and RDecs share the same canonical realization (H\*/L\* H-H%), WhDecs also allow H\* L-L% (see fn. 4 on pg. 3).

38 We are abstracting away from details on the final contour studied in Jeong (2018).

39 It’s at best a partial answer in Büring’s (2003) terms (see fn. 35).

40 As it is, the framework presented here doesn’t consider Ginzburg’s (2012) metalinguistic issues as M&S do, but there is nothing in the model preventing us from incorporating them.

### 3.2 The role of the final contour in RDecs and WhDecs

In our proposal for the construction of meaning in WhDecs the final contour doesn't play any role. Differences between WhDecs and WhQs result from WhDecs being declaratives and updating as such (they are proposals to update *cs*) and WhQs being interrogatives (they are proposals to update *Q*). If we aim for a unified analysis of RDecs and WhDecs, this seems at odds with what we observe in RDecs, where what identifies the utterance as inquisitive is the final rising contour. Furthermore, while WhDecs and RDecs share canonically the same contours, WhDecs also allow for a FF (see fn. 4 in pg. 3).

Much of the literature on formal semantics/pragmatics focusing on the role of intonation is devoted to finding a mapping between a specific accent, phrases and boundary tones, and meaning. In this vein, [Bartels](#) (see also see also [Truckenbrodt 2012](#) on similar ideas, and see [Büring 2016](#) for an overview) argues that L- signals the presence of an Assert operator lending assertiveness that is missing in RDecs, which portray H- (which may be taken to be interpretationally void or to mark lack of assertiveness).<sup>41</sup> In her account, RDecs are analyzed on par to POLQs, while the link between RDecs and WhDecs is lost. WhDecs are analyzed on par with WhQs while their differences are not explored in much detail. While we do not reject that an analysis on that vein may be correct, the proposal here zooms in and pursues an analysis in which the interpretation of RDecs (and for us also WhDecs) is kept true to form, i.e. analyses in which the fact that they are declaratives plays a role.

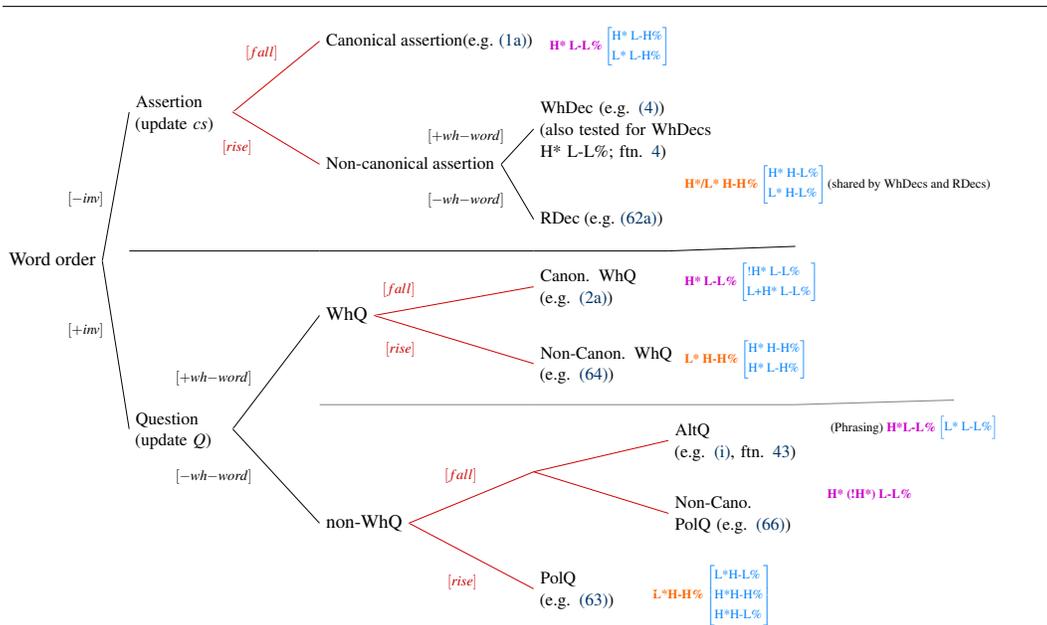
In the section above we argued that what an analysis of RDecs needs to derive that FR in declaratives signals that there are live alternatives other than the the one spelled out (and all [Gunlogson 2003](#), [Malamud & Stephenson 2015](#), [Westera 2018](#), a.o. can all do it one way or another). In this way, FR is compatible with WhDecs (which canonically portray H\*/L\* H-H%), since their semantics convey that there are several possibilities. What about the FF? I argue that the reason WhDecs can portray a FF is that its semantics already guarantees its inquisitive interpretation. [Bartels](#) puts forward a similar argument to justify a FF in POLQs (see e.g. (66) below). Given that inquisitiveness is guaranteed syntactically, a FF is possible in POLQs and is

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<sup>41</sup> *Assertiveness* in [Bartels \(1999\)](#) is defined “as a cognitive attitude of the speaker towards the addressee expressible in the terms of a Stalnakerian discourse model: in uttering an assertive utterance (as cued by L-) the speaker instructs the addressee to reduce his context set by all those possible worlds incompatible with the speaker’s commitment to the asserted proposition (or equivalently, to add the proposition to his, the addressee’s, mutual beliefs).”

used to mark “curtness” or to “keep the addressee to the point”.<sup>42</sup> The same effect is what we observe in s with final fall.

Taken together with §3.1, the discussion in this section leads us to conclude that the system proposed in this paper allows for a unified view of declarative hybrids but it also brings up a question: is the interpretation of FR in RDecs (or WhDecs) an interpretation that we can generalize across the board? If this were the case, how would we explain, for example, that WhQs allow for both FF and FR with the same possible answers? While this question is beyond the scope of this paper, notice that the strategy of taking seriously the update triggered by the sentential form and then considering intonation may allow us to explore the contrast FF/FR under a different light (see fig. 1 in 35).



**Figure 1** The makeup features of declaratives and (plain information-seeking) interrogatives. Prosodic annotations refer to final pitch accents and final contours: the canonical final contour is presented first and other attested non-canonical possibilities are offered between brackets (see Bartels 1999, Hedberg et al. 2010 and citations within for prosodic annotations).

42 (Bartels 1999: pg. 127), who uses the label *question* to refer to either a RDec or an interrogative, already states that “[d]eclarative intonation - a fall from (a variant of) a final H\* into the L-L% configuration - is possible on any question that is syntactically marked as such (by inversion), without interfering with its questionhood. Compared to the corresponding rising YNQs the intuitive connotation of falling YNQs has been described as one of curtness or wanting to “keep the addressee to the point.” See fn. 44 for a way to derive this effect.

Fig. 1 reveals the taxonomy that results from taking into consideration the conventional cues leading to the interpretation of declaratives and interrogatives, starting with word-order and finishing by considering the final contour. The result shows that the choice between FF and FR is used to mark a contrast in all the different realms, and that this contrast doesn't need to mark the same opposition across the board. In fact, looking at *wh*-interrogatives, it seems it can't.

We have already seen above that the contrast between FF and FR in declaratives allows us to distinguish between canonical declaratives and declaratives that derive inquisitive contexts (see (29)). As discussed, there are several ways to model this, and a proposal modeling the FR as indicating that there are several live alternatives in the context of utterance would do the work. The same contrast between FF and FR can be observed in *wh*-interrogatives (see (64) for a WhQ with FR) and there are also proposals to address this opposition along different parameters (see e.g. Hedberg et al. 2010).

- (64) [S has been worrying about where she could stay when she visits]  
 S: But if not I mean I'm just coming anyway but I have no idea like where I'll go-  
 H: When are you planning on coming?  
       L\*+H           !H\*                   L\*   H-H%

Finally, the choice between FF and FR in non-*wh*-interrogatives has recently been analyzed as indicating whether the spelled out alternatives are all that are available in the context of utterance (FF) (see e.g. Pruitt 2008, Biezma 2009, Biezma & Rawlins 2012, Pruitt & Roelofsen 2013).<sup>43</sup> These proposals can explain that FF is possible in POLQs ((65) is from Bartels 1999; (66) is from *Major Crimes*, S05 E01).<sup>44</sup>

- (65) A: Don't worry, George will deal with it.  
       B: Can he do it in April still?                   ↔ other times don't matter  
   H\*           L-L%
- (66) [Detective Flynn is interviewing Amanda's father as part of the investigation.]

43 POLQs are typically found with a final rising contour, while ALTQs involve, necessarily a final falling contour and intermediate phrases (prosodic annotations from Bartels 1999):

- (i) Would you like mineral water, ice tea, or lemonade?  
       H\*       H-    H\* H-   H\*   L-L%  
       H\*       H- H+!H\* H- H+!H\* L-L%

44 In e.g. Biezma (2009), a POLQ with final fall requests the addressee to assume for the purpose of the conversation that the only live option is the one spelled out. This derives the "curtness" effect discussed in fn. 42.



is enough as the common ground for the *wh*-in-situ question.” Consider, however, a scenario in which several people on the street are walking by with CVS bags<sup>45</sup> and the speaker approaches one of them and says “*Excuse me, the nearest CVS is where?*”. In this scenario it is safe to assume that it is common ground that there is a CVS store very much nearby and yet the WhDec is infelicitous in this context (contra P&T’s prediction) while the WhQ is perfectly fine. This situation is similar to the out-of-the-blue situations discussed above and it is odd for the same reasons. In addition, P&T’s proposal does not address the data presented in this paper regarding sequences of questions (see (15)) nor the stronger preparatory conditions that WhDecs require (see (14)).

The proposal in this paper is related to Biezma’s (2018) proposal for Spanish utterances with non-fronted *wh*-words. Biezma (2018) treats these utterances as questions and argues that the difference between *wh*-fronted and non-fronted questions is that the latter are strategies to indicate that the question is a “follow up question”, i.e. a question that is a response to an assertion and presupposes that the utterance is part of a larger strategy to answer a higher question or that requests further information about the event predicated of in the previous assertions. The overall claim in this paper is similar to that in Biezma (2018): i.e. that WhDecs are linguistic devices whose role is to presuppose discourse structure, in particular the structure of *Q*. However, in Biezma’s proposal, that non-fronted- *wh*-questions have to follow an assertion and that they are follow-up moves is stipulated and not derived from the properties of the utterance itself. In contrast, the proposal for English WhDecs in this paper derives those properties from independently motivated ingredients (from focus structure and by considering that English non-*wh*-fronted inquisitive utterances are declaratives and are hence assertions).

## 5 Conclusion

The proposal in this paper offers an analysis of the semantics and pragmatics of WhDecs making use of independently motivated ingredients. The analysis ends up deriving why an utterance with declarative word order can be inquisitive without appealing to ad-hoc solutions at LF and is in line with analyses of related phenomena such as RDecs that try to keep the interpretation of the utterance true to form.

WhDecs illustrate how different linguistic factors interact in the construction of meaning in natural language utterances. The overall interpretation of WhDecs is the result of the interaction between syntax, semantics and pragmatics. Taking into account the dynamic update *proposed* by word order together with the link to

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45 CVS is a famous pharmacy/convenience-store chain in USA.

discourse signaled by focus structure we can derive differences between WhDecs and WhQs without ad-hoc stipulations.

WhDecs are the flip side of the coin of RQs in B&R's analysis. B&R's objective was to propose an analysis of rhetorical questions that explains why they 'feel' like assertions and how they actually differ from them. In B&R's proposal, rhetorical questions are interrogatives conventionally indicating (e.g. via prosody or lexical items) that the answer is entailed in the context of utterance (and hence that all participants have access to it). That is, RQs are interrogatives triggering the speaker's presupposition that the answer is known by all participants. B&R propose that, dynamically, RQs behave like other interrogatives and are proposals to update  $Q$  but, given the presupposition they trigger, their acceptance leads to a non-inquisitive update: accepting the proposal to update  $Q$  means accepting the presupposition it triggers and, hence, the final update is trivial, i.e. it takes place in a context in which the (presupposed) answer is accepted and the resulting updated context is non-inquisitive (in the sense of (29)). Differences between rhetorical questions and assertions are explained with respect to their differences at the proposal stage: unlike rhetorical questions, which propose to update  $Q$ , assertions are proposals to update the context set (the reader is referred to B&R for details). In this line, WhDecs can be thought of as the flip side of the coin: WhDecs are assertions that presuppose what the current QUD is. Accepting the assertion amounts to accepting the presupposition, i.e. that all speakers commit to answering a particular question and subsequent responses are answers to such QUD. This leads to a picture in which WhDecs differ from WhQs in that WhDecs do not propose that participants pursue a question, they indicate that participants have agreed on pursuing a particular question. Accepting the WhDec leads to accepting such presupposition and hence responses to the WhDec become answers to the presupposed question. Indirectly, WhDecs add a question in discourse, the same way that, indirectly, RQs add information to the common ground.

In the broader picture, WhDecs are a window into the study of presupposition. WhDecs are conventional (linguistic) devices signaling speaker's assumptions about the structure of discourse, i.e. they trigger a *discourse-structural presupposition*. In addition, the study of WhDecs allows us to revise the notion of *relevance* in discourse: an assertion is relevant (and hence felicitous) if it provides information about the context, either about  $cs$  or about  $Q$ .

Once we take into account the morpho-syntactic features of declaratives and interrogatives we arrive at a taxonomy of utterances that raises questions about the role of the final prosodic contour in the construction of meaning and, in general, about the overall contribution of prosody in the interpretation. This opens different hypotheses that should be pursued in future research.

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