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## ИМПЛИКАТИВНЫЕ ВОПРОСЫ И СЕМАНТИКА ХЭМБЛИНА\*

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**Аннотация:** В статье оценивается модель вопросов, известная как семантика Хэмблина, и ее роль для семантико-прагматического интерфейса. Импликативные вопросы, где говорящий предрасположен принять один из ответов и ждет от слушателя подтверждения, что *p* истинно, важны для оценки применимости модели Хэмблина. Приводятся аргументы в пользу того, что импликативные вопросы реализуют модифицированную семантику Хэмблина, в то время как нейтральные да-нет вопросы реализуют базовую семантику Хэмблина в неосложненном виде. Импликативность как компонент значения вопроса может быть объяснена композиционно. Имеется класс выражений, вводящих пресуппозиции о разной степени вероятности альтернатив, эти выражения могут сочетаться с операторами вопроса и маркерами верификации. Прагматические эффекты, сходные с импликативностью, маргинально возможны в альтернативных вопросах и вопросах с вопросительным словом, но лишь в да-нет вопросах они могут быть закреплены в структуре предложения. Все основные типы вопросов могут быть описаны семантикой Хэмблина, но ее экстраполяция на другие типы высказываний не всегда продуктивна.

**Ключевые слова:** семантика Хэмблина, исчерпывающие множества, вопросительные слова, альтернативы, импликативные вопросы, семантико-прагматический интерфейс, коммуникативная структура, дискурсивная связность, пресуппозиция, композициональность

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## BIASED QUESTIONS AND HAMBLIN SEMANTICS\*

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**Abstract:** This paper takes a stand on Hamblin semantics and its relation to the semantics-to-pragmatics interface. Biased questions, where the speaker finds one of the options more likely and expects the confirmation that *p* is true, raise a concern about the limits of Hamblin semantics. I argue that biased questions have modified Hamblin semantics, while unbiased questions have unconstrained Hamblin semantics. The optional bias feature explains compositionally. It is triggered by likelihood presuppositions ranging Hamblin sets and highlighting the preferred alternative(s). Biased effects are exceptionally possible in alternative and *wh*-questions, but only in polar questions, they can be encoded lexically and grammatically. I argue that Hamblin semantics covers all core types of questions, while some of its applications for non-questions are problematic.

**Keywords:** Hamblin semantics, exhaustive sets, *wh*-words, alternatives, biased questions, semantics-to-pragmatics interface, communicative structure, discourse coherence, presupposition, compositionality

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*All we need to do is to resolve to say that an indicative proper name such as ‘Mary’ stands not for the individual Mary but for the set whose sole member is Mary; that ‘Mary walks’ stands not for the proposition that Mary walks but for the set whose sole member is this proposition; and so on.*

*Charles Hamblin*

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## 1. Introduction

This paper aims to take a stand on the model of questions known as Hamblin semantics and assess its role for the semantics-to-pragmatics interface. I discuss biased questions and their relation to Hamblin semantics. The formal aspects of Hamblin semantics have been analyzed in the preceding literature more extensively than its linguistic implementation. Therefore, I concentrate on the limits and perspectives of the Hamblin-style analysis. The standard model of questions [Dayal 2016] explores the idea that an answer to a question is a choice on the exhaustive set of mutually exclusive alternatives [Hamblin 1958, 1973]. Biased questions, where the speaker is disposed to pick one of the options and expects the confirmation that *p* is true, pose a problem for Hamblin analysis. Biased polar questions are attested in different languages [Suda 2013; Šimík, to appear], while the existence of biased *wh*-questions was challenged [Rudnev 2023]. I first render two Hamblin's ideas and the distinction between complete and partial answers in sections 2 and 3, discuss the reduction of Hamblin sets to true and relevant alternatives in section 4, and touch on the modifications of Hamblin semantics in section 5. In sections 6 and 7, I discuss biased questions and provide contexts where biased *wh*-questions can occur. Section 8 addresses the semantics/pragmatics divide and methodological issues.

## 2. Two Hamblin hypotheses and Hamblin semantics

In 1973, the great philosopher Charles Leonard Hamblin wrote an influential paper [Hamblin 1973], reprinted in [Hamblin 1976]. Apart from treating the title issue — adding *wh*-words to Montague grammar — he put two general claims.

### 2.1. Hamblin-A and singleton sets

The first claim (hence — Hamblin-A) is that grammar deals with sets, not individuals. Hamblin barely outlined this idea, see the epigraph above: probably he considered it a matter-of-fact observation. The distinction between individuals and singleton sets is crucial for the border between lexicon and grammar. Grammar can be modeled in terms of restrictive conditions constraining the variation, while lexicon cannot: to predict the uses of any item stored in the lexicon, one needs to get the unique concept associated with it. Grammatical rules occasionally apply to *hapax legomena*, i.e., unique expressions. Many languages have ordering rules that apply to singleton sets of particles but not to other elements. The puzzle is that syntactic rules operating on singleton sets

can be retrieved without recourse to the lexical meaning, but if one aims at giving instructions on how to use a lexical item, one is forced to look at the concept and its lexicographic type, i.e. identify the discourse element, e.g., Modern Russian clitic particle *zhe* or Old Russian clitic particle *ti*, ‘indeed’, ‘really’ as a marker of focus, contrast, polarity, verification, evidentiality [Zimmerling 2023].

## 2.2. Hamblin-B and exhaustive alternatives

The second claim (hence — Hamblin-B) pertains question-answer pairs. Hamblin assumes that knowing what counts as a valid answer amounts to knowing the question and argues that valid answers to a question are an exhaustive set of mutually exclusive alternatives<sup>1</sup>. In other words, if the speaker picks *p* as the answer, he<sup>2</sup> denies *q*, *r*...*x*, *y*, *z*. The tag ‘Hamblin semantics’ in the following refers to Hamblin-B only. In the original version, Hamblin-B operates on the set of all possible exhaustive alternatives. The generalized denotation for exhaustive questions like ‘Who stole the pie?’, ‘Did John steal the pie?’, ‘Did John or Cthulhu steal the pie?’, ‘Did John steal the pie or did someone else do it?’ for an open set of *n* propositions involving potential agents like *John* and *Cthulhu* is shown in the simplistic form in (1)<sup>3</sup>:

$$(1) \llbracket ?p \rrbracket = \{(\text{John}, \text{Cthulhu}, \text{John \& Cthulhu}, \text{anyone else}, \text{nobody}) \oplus_n\}.$$

Karttunen [1977, § 2] points out that Hamblin did not apply the formalism sketched in Montague’s paper “Proper Treatment of Quantification in Ordinary English” [Montague 1974]. If one uses generalized quantifiers, the question ‘Who stole the pie?’ stands for all objects of the type  $\langle \langle e, t \rangle t \rangle$  and gets the denotation  $\{Q \mid Q (\lambda x.\text{stole} (x. \iota y.\text{pie} (y)))\}$ ,  $Q: \langle \langle e, t \rangle t \rangle$ .<sup>4</sup>

<sup>1</sup> The word ‘alternative’ in the pre-Hamblin sense means that there are exactly two options that exclude each other. The Hamblin approach to exhaustive sets describes them via functional point-wise application  $\{A \text{ stole the pie}, B \text{ stole the pie}, C \text{ stole the pie} \dots \text{nobody stole the pie}\}$ , the minimal requirement being at least two alternatives. The proposal to consider singleton sets of alternatives [Biezma, Rawlins 2012] is extravagant, but since the Hamblin tradition already deviates from the common sense picture, it is not a terminological failure.

<sup>2</sup> For ease of reference, I treat the speaker as male and the addressee as female if the context is ambiguous.

<sup>3</sup> In (1), I ignore language-specific differences in the form of the replies ‘John’ versus ‘John did’.

<sup>4</sup> An advantage of this approach is that it explains the use of all quantifiers and quantified expressions in the answer, cf. ‘all/everybody’, ‘nobody’, ‘John and Cthulhu’, ‘John or one of his friends’, ‘half of Cthulhu’s believers’, etc. I am grateful to Daniel Tiskin (p.c.) for this comment.

In this paper, I am primarily interested in the logical form of the question and semantics-to-pragmatics interface, not in morphosyntax. I follow in the footsteps of Hamblin himself [1958: 159, 1976: 254], who refused to capitalize on the asymmetry of word order in declarative versus interrogative clauses or *wh*-movement. I wonder whether he would be happy with modern diagnostics of declarative versus interrogative syntax based on the use of polarity items and prosody. I touch on the use of PPI and NPI in passim and provide the details about prosody of one language, Russian. The prosodic transcription is introduced below.

### 2.3. Hamblin operators and compositional semantics

A standard Hamblin approach stipulates multiple operators for different types of questions: these operators interact with the logical form of the sentence in a compositional way. One can also use a unified operator *Q* and get the set of alternatives from the context by a discourse principle, e.g., Relevance [Roberts 1996]. For most of this paper, I remain agnostic about the merits of these approaches and state that a sentence is a Hamblin question iff it contains the operator *Q* that activates a set of alternatives. Otherwise it is an assertion, exclamation, imperative, vocative, etc.

The standard version of Hamblin semantics, which deals only with direct and indirect questions [Karttunen 1977] assumes that *Q* generates the sets of alternatives. The modified version proposed by Kratzer, Shimoyama [2002] assumes that *Q* only manipulates expanding sets of Hamblin alternatives, but these sets are generated lexically by such items as *wh*-words, disjunction *or*, yes-no particles like Russian and Bulgarian *li*, Polish *czy*, Ukrainian *čy*, or adverbs/particles like *only* and *even*. An advantage of this approach is that it explains the use of *wh*-elements in non-questions, cf. Russian *koe*<sub>INDEF</sub> + *gde*<sub>WH</sub> ‘somewhere’, *ni*<sub>NEG</sub> + *gde*<sub>WH</sub> ‘nowhere’, *né*<sub>NEG,∃</sub> + *gde*<sub>WH</sub> ‘there is not such a place, where *p*’ and the presence of alternative semantics in some declaratives, see section 5 below. Polar questions can be built in many languages without an overt *Q* morpheme and with the same word order as the corresponding declarative. In such cases, only prosody marks that the sentence is a question in Russian. The communicative-neutral reading of assertions like (2a) has two accents — the falling accent tagged by ‘\’ (L\*HL-) is in the focal (rhematic) part of the sentence, and the rising accent tagged by ‘/’ (HL\*L-) in its topical part. Adding the restrictor *tol’ko* ‘only’ removes the topical accent and replaces it with the focal accent on the contrastive subject *Vanya*: I tag it by ‘\’ (H\*LL-)

in (2b). The contrastive question (2c) places the reinforced rising accent ‘↗ ↗’ (LH\*LL-) on *Vanya*. In the notation, prosodic tags are given before the word form.

- (2) a. ↗ *Vanya* brings ↘ *shampanskoe*.  
 ‘Johnny brought champagne.’
- b. *Tol’ko* ↘ ↘ ***Vanya*** brings *shampanskoe*.  
 ‘Only **Johnny** brought champagne.’
- c. *Tol’ko* ↗ ↗ ***Vanya*** brings *shampanskoe*?  
 ‘Was **Johnny** the only one who brought champagne?’

In the assertion (2b), Hamblin semantics comes from the adverb *tol’ko* ‘only’ restricting the set of agents who could do *p* by a single member. Yet in the question (2c) that offers the choice between two propositions  $\{\lambda w A(w); \lambda w \neg A(w)\}$ , or shortly  $\{p; \neg p\}$ , Hamblin semantics comes from prosody [Yanko 2001: 21, 26, 41, 50]<sup>5</sup>. A skeptic might object that prosody cannot be the source of alternatives unless it encodes either the force [Yanko 2001] or exhaustivity [Zimmermann 2000; Xiang 2022], while it is counterintuitive to split Q and illocutionary force of polar questions<sup>6</sup>. My aim is to explore the limits of Hamblin approach but not to replace it by other theories, e.g., inquisitive or conversational semantics, cf. [Krifka 2015], therefore I state that to proceed, one needs an agreement like (i):

- (i) A sentence is a Hamblin question iff it contains the question operator Q and a lexical or prosodic component introducing a set of exhaustive alternatives<sup>7</sup>.

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<sup>5</sup> The silent particle analysis ascribing the force of the question to the deleted *yes-no* particle is not attractive, given that the absence of the *yes-no* marker often contributes to a different flavor than its presence, cf. Suda [2013] for Japanese and Šimík [to appear] for Czech. The prosody of Russian questions with *li* is discussed by Yanko [Yanko 2019].

<sup>6</sup> I am aware of the tradition in Germanic studies to dub sentences like *There is a school here?* ‘rising declaratives’ or ‘declarative polar questions’, i.e., structures with the word order and morphosyntax of declaratives but illocutionary force and prosody of polar questions. I doubt whether this label applies to languages, where prosodic marking of questions overrides overt movement and segmental cues such as merger of question particles.

<sup>7</sup> Roberts [1996: 7] makes a similar statement and argues that Hamblin semantics can be modeled both by recognizing *wh*-words with question operators and by postulating a silent operator Q that unselectively binds all *wh*-variables.

### 3. Partial and complete answers and the Communicative Filter

#### 3.1. Partial and complete answers

In the earlier paper [Hamblin 1958] Hamblin introduced the distinction of partial versus complete answers. Complete answers are those where the overt form of the reply discloses its exhaustive semantics, cf. (3a). The answers (3b) and (3c) are partial since they mention that John came to the party but do not exclude the possibility that someone else could come to the same party.

(3) — *Who came to the party?*

- a. *The one who came was John.* (Hamblin Alternative, hence — HA),
- b. *John came.* (\*Non-Hamblin Alternative, hence — Non-HA)
- c. *John came.* (\*Non-HA)

Hamblin's central claim is that communication is based on complete answers like (2a) but not on more peripheral cases like (2bc). This view is shared by Paducheva [Paducheva 1986: 236], Roberts [1996: 12], and Dayal [2016]. The shape of the reply is elusive, and the fragments (3bc) can have the same logical form as (3a). It is casual to explain the grammar of fragments by phrasal A' movement to the focus position and ellipsis deleting the remnant part of the answer [Merchant 2004]. I am not going to contest this approach here but introduce an interface condition that can be called Communicative Filter. It is impossible to check the status of the reply as complete or partial without taking into account its communicative structure (c-structure) and the matching c-structure of the question.

- (ii) Communicative Filter (CF): The logical form of the answer can only be established on pairs of sentences, where both the question and the answer have assigned c-structures.

Communicative status (c-status) can be marked overtly by prosody and word order. Prosodic disambiguation of partial answers of the type 'John came', and complete answers with the same string of elements is discussed in [Xiang 2022]<sup>8</sup>.

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<sup>8</sup> The status of the reply depends on the question. The sentence *John ate a pie* serves as complete answer to the question **What did John eat?** and gets the interpretation 'The pie is what John ate'. However, if the question is **Who ate what at the party?**, the reply *John ate a pie* serves only as a partial contribution to valuating all members in the set of propositions  $\{A \text{ ate } b_1, B \text{ ate } b_2 \dots Z \text{ ate } b_n\}$ .

### 3.2. Russian fragments and prosodic clitics

The CF is salient for identifying complete answers. Russian is a language with direct accentual marking of *c*-status: sentences with the same word order can be assigned different *c*-structures [Yanko 2001: 34–45, 2008]. The locus of the accent can vary, but there are default settings for the accent placement for each type of constituents. For the VP with one object argument, the accent is by default placed on the object, irrespective of the word order:  $V + \mathbf{O} \sim \mathbf{O} + V$ , cf. the reply (3b), which is a complete answer to the question (3a). The variant with the accented verb, *\*szheg elku* ‘burnt the X-mas tree’ is strictly impossible here. The locus can shift due to pragmatic factors: if the object is activated, the accent falls on the verb [Yanko 2008: 41, 45–46; Zimmerling 2008]. In (4b), the argument *elka* ‘X-mas tree’ is activated, and the accent goes over to the verb *szheg* ‘burnt <something>’. The variant *\*szheg elku* is not acceptable here. I use the following notation: the tag ‘↘’ stands for the focus accent realized as the slight fall or even tone, the tag ‘↘↘’ stands for the reinforced focus accent realized as the marked fall, the tag ‘↗’ stands for the steep rise with the subsequent fall on the posttonics if any, the tag ‘↗’ stands for the slight rise without the subsequent fall<sup>9</sup>. Deaccented elements get the tag ‘<sub>0</sub>X’. In the wake of [Zimmerling 2008, 2021: 421], I place the accent tags before the word form, not after it.

(4) A: — *Chto on sdelal posle Novogo ↘ Goda?*

‘What did he do after the New Year?’

B.: — <sub>0</sub>*Szheg ↘ elku; ↘↘ elku <sub>0</sub>szheg; \*↘ szheg <sub>0</sub>elku; \*<sub>0</sub>elku ↘szheg.*

‘Burnt the X-mas tree.’

(5) A: — *↗ Chto on sdelal so svoei ↘ elkoi?*

‘What did he do with his X-mas tree?’

B: — *↘↘ Szheg <sub>0</sub>elku; ↘↘ Szheg; \*<sub>0</sub>Szheg ↘ elku; \*↘↘ Elku <sub>0</sub>szheg.*

‘Burnt the X-mas tree’; ‘Burnt <it>.’

<sup>9</sup> The accent tags identify relevant prosodies known as ‘intonation constructions’ (*intonatsionnye konstruksii*, IKs) in Russian studies. I give autosegmental equivalents for four IKs after [Zimmerling 2021: 425]. The tag ‘↗’ stands for IK-3 (LH\*L-), ‘↘’ stands for IK-1 (HL\*L-), ‘↘↘’ stands for IK-2 (H\*LL-), and ‘↗’ stands for IK-6 (L\*HH-).



The accent placement rules are not focus-sensitive and hold in topical and focal constituents, as well as inthetic sentences. The realization of the focus accent, however has a specific effect in Russian: it excludes any relevant accents of the sentence level in the post-focal part<sup>10</sup>. This condition blocks the sequences with post-focal accents like \*↘ ↘ *elku ↗ szheg*, \*↘ ↘ *szheg ↗ elku* in any type of speech acts. The sequences with unstressed post-focal elements are possible in fragmented answers [Morgunova 2019], cf. the licit fragment ↘ ↘ *szheg* <sub>o</sub>*elku* in the example (5) above. The same holds for the fragments with the V<sub>intr</sub>+S structure, which can be realized with either order: ↘ ↘ *Ivan* <sub>o</sub>*prishel* <Who came?> ‘*John came*’ ‘*prishel* ↘ ↘ *Ivan*’. The main problem is that the variants with the elided and non-elided post-focal and pre-focal elements are not synonymic. While the short variants pronounced with the default focus accent ‘↘ ↘’ (LH\*LL-), cf. (7) are normally interpreted as complete answers to *wh*-questions like (6) — ↘ ↘ *Ivan* <sub>o</sub>*prishel* = ‘The one who came to the party is John’, the variants with the non-elided sentence material (≈ ‘prosodic clitics’) are ambiguous between a partial and a complete reading. In the notation of examples (6) and (7), prosodic clitics are marked with blue, and the elided part that affects the interpretation is marked by double strike-through.

(6) ↗ *Kto prishel na* ↘ *korporativ*?  
‘Who came to the party?’

(7) — ↘ ↘ *Ivan* ~~*prishel na korporativ*~~. (HA)  
‘John came to the party.’

John is the one who came to the party. I do not have information about others, or it is not relevant. (HA)

\*Take, for instance, John. He came to the party.

(8) — ↘ ↘ *Ivan* = <sub>o</sub>*prishel* ~~*na korporativ*~~.  
~ <sub>o</sub>*Prishel* = ↘ ↘ *Ivan* ~~*na korporativ*~~ (partial or complete answer)

Take, for instance, John. He came to the party. Others could come too.  
(Non-HA)

John is the one who came to the party. (HA)

<sup>10</sup> The only relevant accent licensed in Russian after the focus accent is the incompleteness accent [Yanko 2008: 132-133], which is a discourse level prosody indicating that the text is to be continued. The incompleteness accent is realized in several ways, including the rising tone ‘↗’ (LH\*L-), the falling-rising contour ‘↘ ↗’ (H\*LH), the slight rise without the subsequent fall ‘↗’ (L\*HH-) and in exceptional cases, with the gradual rise ‘↗ ↗’ (L\*H-^H%) [ibid., 163–170].

Prosodic clitics mark the status of partial answers in Russian, which is in line with the idea that partial answers require pragmatic cues [Paducheva 1985: 236]. Partial answers also have non-segmental cues. Suppose the standard focus accent IK-2 (H\*LL-) is replaced by the prolonged variant of the IK-6 accent (L\*HHH-). In that case, the fragmented answer reconstructs an open set ‘X came, Y came...U, W came’, even if only one of its elements is visible. In the notation of (9), this accent is marked with the tag ‘↗ + X’.<sup>11</sup>

(9) A: ↗ *Kto prishel na ↘ korporativ?*

‘Who came to the party?’

B: — ↗ + *Ivan prishel...* ~ ↗ + *Prishel Ivan...*

‘John came... <Y came...Z came...>

The speaker’s commitment to give a partial or complete answer is based on his ability to interpret the *c*-structure of the question and use the appropriate cues to encode them. Other languages can have more simple rules for the fragments, but I see no reason to assume that the status of complete and partial answers in any language can be established without recourse to *c*-structure.

## 4. Relevant alternatives and true alternatives

### 4.1. Relevant alternatives

The notion of Relevance [Sperber, Wilson 1986; Roberts 1996: 15, 33, 46] is a matter of convention. If a speaker asks ‘In which continent is Luxembourg?’, there is a presupposition that Luxembourg is on some continent [Hamblin 1958: 164], and the answer ‘In no continent’ is not desired, i.e., not relevant. To move one step further towards real life, one can stipulate that the answers to this question are a choice on the restricted set of 7 continents (*Europe, Asia, Africa, North America, South America, Australia, Antarctica*) accepted by the shared background knowledge so that the answers ‘Eurasia’, ‘Gondwana’, or ‘Cthulhuland’ referring to disputed, previously existing or fictitious continents are irrelevant. However, problems with identifying ambiguous names in different worlds may preclude a logician from ignoring negative replies ‘nothing’, ‘nobody’, and ‘in no continent’ as valid answers to *wh*-questions. According to

<sup>11</sup> The prolonged IK-6 accent (↗ + X) spreads over the whole fragment. The slight rise is on the first element, irrespective of whether it is the subject or the verb.

Wikipedia<sup>12</sup>, the name ‘Bristol’ can refer to at least 46 places and businesses: let us, on simplistic reasons, assume that the references to all items from that list are correct and that the set of true alternatives is a subset of the set of all relevant alternatives. Then, if the name ‘Bristol’ refers to the city in Gloucestershire, UK, the true answer is (9a). If it refers to one of the 30 places located in the USA, the answers (10b) and (10e) are true. If it refers to *Bristol Paint*, the Australian company, the answers (10c) and (10e) are true. If it refers to *Bristol Boats*, the Indian manufacturer, the only true answer is (10d).

(10) — *In which continent is Bristol?*

- a. — *In no continent.* (HA)
- b. — *In North America.* (HA)
- c. — *In Australia.* (HA)
- d. — *In Asia.* (HA)
- e. — *Either North America or Australia.* (Non-HA).

Mind that Hamblin semantics is about exhaustive alternatives, not true alternatives. Option (10e) being a true answer in some scenarios where Bristol is either in North America or Australia, is not a Hamblin alternative since it is compatible with (10b) or (10c). Relativizing Relevance by the shared Common Ground of the interlocutors reduces the set of alternatives in (9), where the number of alternatives is denotatively restricted but not necessarily so with questions like ‘Who killed John Kennedy?’, where no preliminary consensus exists, and the addressee is not obliged to proceed from the same set of alternatives as the questioner<sup>13</sup>. Moreover, one cannot exclude paradoxes even if the questioner wants the addressee to choose between *p* and *q*. Such speech acts can surface both as *wh*-questions, cf. (11a) and (12a), and as alternative questions, cf. (11b) and (12b).

<sup>12</sup> [https://en.wikipedia.org/wiki/Bristol\\_\(disambiguation\)](https://en.wikipedia.org/wiki/Bristol_(disambiguation)). Accessed on 17.12.2023.

<sup>13</sup> Technically, their sets follow the pattern {X, Y... **someone else**, *nobody*}, where the indefinite pronoun stands for a variable expanding the enumeration. There is no obvious way to relativize the binding of this variable uniformly in the worlds of the interlocutors. The option ‘nobody’ is activated if the addressee cancels the presupposition, e.g., that Kennedy was killed and asserts that Kennedy died from natural reasons or committed suicide. Roberts [1996] hopes to eliminate this scenario by her Question Under Discussion principle since canceling presuppositions is not desired. However, the desires of the speakers are not part of Hamblin semantics. I concur with [Grindrod, Borg 2019] in that substantial claims about the mental lives of conversational participants should be better placed outside any semantic theory.

- (11) a. [<sub>WH</sub> *Who informed the police: Finkelstein<sub>i</sub> or the financial inspector<sub>j</sub>?*]  
 b. [<sub>ALT</sub> *Did Finkelstein<sub>i</sub> inform the police or did the financial inspector<sub>j</sub> inform the police?*]
- (12) a. [<sub>WH</sub> *Who wrote “The Grammatical Dictionary”: Andrej<sub>i</sub> or Elena’s husband<sub>j</sub>?*]  
 b. [<sub>ALT</sub> *Did Andrej<sub>i</sub> write “The Grammatical Dictionary” or did Elena’s husband<sub>j</sub> write “The Grammatical Dictionary”?*]

The questioner in (11a–b) believes that *p* (Finkelstein informed the police) and *q* (the financial inspector informed the police) are exhaustive, and assumes that the expressions ‘Finkelstein’ and ‘the financial inspector’ identify different persons in the context of his question. This condition, called presupposition of uniqueness or uniqueness requirement [Xiang 2017: 17] is salient for recognizing well-formed questions. Finkelstein and the financial inspector can be the same person in the real world or the world of the addressee, and the same holds for Andrej and Elena’s husband in (12a–b). It does not threaten the Hamblin picture since it deals with all exhaustive alternatives, including those emerging in intensional contexts. Roberts [1996: 15, 29] and Xiang [2022] assume that Relevance trims Hamblin sets<sup>14</sup>, but in some contexts, cf. (10) non-relevant alternatives are cut off based on shared epistemic bias of both interlocutors, while in other contexts, cf. (11)–(12) the available alternatives hold only in the world of the questioner. Finally, the non-constrained Hamblin’s model does not range the alternatives according to their probability, common sense matches, or other factors. Let us assume that there are only two reasonable complete answers to the question ‘Who stole the pie?’ in (13): if the pie was stolen, then either John or Mary is the culprit. The model does not exclude weird complete answers like (13c) or vague complete answers like (13d). Likewise, it allows the addressee to pick the answer (13e) and deny that the pie was stolen. HA are propositions. I ignore propositions with complex individuals in my toy example for simplistic reasons. Otherwise, Hamblin can also account for actions realized by different sets of possible agents, e.g., ‘John & Mary stole the pie together’ or ‘Mary stole the pie with Cthulhu’s assistance’.

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<sup>14</sup> Relevance in the Gricean sense is a vague notion. Sperber, Wilson [1986] reduce all Gricean maxims to a single Relevance postulate: the premise is that to produce a coherent discourse, the interlocutors must behave in an R way, whatever it means. In Roberts’ framework [1996: 15], Relevance is defined based on the shared Common Ground of the interlocutors.

- (13) — *Who stole the pie?*
- a. — *John.*
  - b. — *Mary.*
  - c. — *Cthulhu.*
  - d. — *Someone else.*
  - e. — *Nobody.*

Hamblin’s model does not entail that the speaker is committed to telling the truth: it does not matter whether who gave the answer (13c) joked or really believed in Cthulhu’s intervention or used ‘Cthulhu’ as the nick of the actual culprit. The only constraint is exhaustivity: that means that if the addressee is obeying Hamblin semantics, ‘Cthulhu’ should not be another name for ‘Mary’ or ‘John’ or just a figure of speech synonymic to ‘nobody’ in the possible world of the speaker.

#### 4.2. True alternatives and indirect questions

Unconstrained Hamblin semantics gives a ‘run-of-the-mill’ [Kratzer, Shimoyama 2002] picture and begs for diverse applications to be valued. A substantial revision of Hamblin’s model was made by Karttunen [1977], who restricted the set of possible alternatives by the subset of exhaustive true alternatives and claimed that this reduction almost obligatorily takes place in indirect questions. Karttunen considered Hamblin semantics a great model in search of its linguistic object and hoped to find it in the meaning of indirect questions, cf. his comment: “I think that Hamblin’s suggestion is not the best one explicating the meaning of direct questions... However, I believe that his idea what questions mean can be developed to yield the right kind of model-theoretical interpretation for indirect questions.” The claim that indirect questions reduce HA to the set of true alternatives that jointly constitute a complete answer to a question is based on two observations. The first one is that with predicates like *X depends on Y* indirect questions can fill both the subject and the object slot as in (14):

- (14) *Who is elected depends on who is running.*

Karttunen alternatives (hence — *KA*) do not necessarily refer to the real world, but definitions of the lexical meanings like ‘depend on’ make little sense without the stipulation that all members of the *KA* set are true in *some* world *w*. The Russian version of (14) is shown in (15). Note that (15a) follows the de-

fault pattern with accent placement on the object in the V+O constituent. Shifting the accent to the verb could diagnose the meaning of contrast or verification, but this strategy is not available here, as shown by the ill-formedness of (15b).

- (15) a.  $\uparrow$  Kto <sub>0</sub>vyigraet  $\nearrow$  vybory, zavisit ot togo, kto  $\searrow$   $\searrow$  kandidaturu <sub>0</sub>vydvinet.<sup>15</sup>  
 b. \*Kto  $\nearrow$  vyigraet <sub>0</sub>vybory, zavisit ot togo, kto ( $\searrow$ ) vydvinet ( $\searrow$ ) <sub>0</sub>kandidaturu.

The second observation is that verbs like *tell*, *indicate* typically entail that the embedded proposition is true if it is contained in an indirect question, cf. (16a) but do not do so with that-complements, cf. (16b).

- (16) a. *John told Mary, who passed the test. →  
 Whoever passed the test, John told the truth about it.*  
 b. *John told Mary that Bill and Sue passed the test →  
 Bill and Mary passed the test.*

Karttunen explained this asymmetry by the logical form of indirect questions and the lexical semantics of the verbs selecting them as propositional arguments. While *know*, *forget*, *find out*, *discover* are always veridical (in traditional terms — ‘factive’), *tell*, *indicate*, *disclose* turn veridical with indirect questions. I feel that Karttunen’s contribution can be characterized the way he treated Hamblin: a great model but not a very accurate description of indirect questions. To start with, veridical effects arise in interrogative and negative *that*-clauses as well [Spector, Égre 2015: 11]<sup>16</sup>.

- (17) a. *John told Mary that the snow was not removed. → The snow was not removed.*  
 b. *John did not tell Mary that the snow was not removed. → The snow was not removed.*  
 c. *Did John tell Mary that the snow was not removed? → The snow was not removed.*

<sup>15</sup> In (15a), the word order Comp OV (*kto*  $\searrow$   $\searrow$  *kandidaturu* <sub>0</sub>*vydvinet*) shows that the last word or phrase does not get the accent by default.

<sup>16</sup> There is some debate as to which veridical reading is forced in contexts like (17a–c). Spector and Égre [ibid.] assume that the wait-a-minute test [Von Stechow 2004] proves that there is factive presupposition that can be canceled. The cancellation strategy for (17a–c) is (17’).

(17’) *Hey! Wait a minute. I didn’t know that the snow had not been removed.*

This test suggests that the veridical reading of verbs from the *tell* class is rather a feature of some embedded contexts than a feature of indirect questions. Moreover, the veridical reading holds in biased questions, where the questioner is disposed to pick one of the options and expects the confirmation that *p* is true. Such questions lack standard Hamblin denotations (see section 6 below), but pass the veridical test.

(18) *Didn't he tell you that the snow was not removed?* →

*The snow was not removed.*

For the second, non-veridical readings of indirect questions are not completely blocked, especially in the 1<sup>st</sup> and 2<sup>nd</sup> person, cf. the example from [Bulygina, Shmelev 1988: 88].

(19) A: *Tak, ty uznal chto-nibud' novoe?*

'So, did you learn anything new?'

B. *Nu, on skazal mne, kogo naznachayut direktorom, no ya ne ochen'-to doveryayu ego svedeniyam.*

'Well, he told me who is appointed director, but I do not really trust his sources.'

One might split the verbs from the *tell* class into pairs 'non-factive *tell*<sub>1</sub> versus factive *tell*<sub>2</sub>', but this undermines the claim that indirect questions are licensed lexically by the matrix verb, given that a similar split is attested in *that*-clauses, cf. (17a–c). Moreover, the non-factive member in such pairs combines with verification words like *really*, *indeed* that mark the dedicated true alternative, cf. (20b).

(20) a. *Did John tell<sub>2</sub> Mary that Victor is 7'4''?* → *Victor is 7'4''.*

b. *Did John really tell<sub>1</sub> Mary that Victor is 7'4''?* → *Victor is 7'4''.*

(20a) and (20b) have different prosody in spoken English, but the accent placement alone cannot disambiguate the factive *tell*<sub>2</sub> versus non-factive *tell*<sub>1</sub><sup>17</sup>.

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<sup>17</sup> Given that the default accent on *tell*<sub>2</sub> with deaccenting does not 100% exclude that the embedded proposition is false, the accent placement on the verb *tell* in *that*-clauses like (20a) rather marks that the interlocutors are already familiar with *p*, e.g., know the rumor that Victor is 7'4'' than factivity. I am grateful to Wayles Brown for the consultation. This weakens Spector and Égre's claim that veridical reading are forced by embedding of *that*-clauses into

The meaning of verification is encoded by intonation across the world's languages, which holds for Russian. In neutral polar questions like (21a), the focus accent falls on verification words *dejstvitel'no* 'really' or *pravda* 'indeed'. In emphatic polar questions like (21b), the characteristic prosody expands over the whole domain, and the accent falls on the last word.

- (21) a.  $\{_{PQ} Ivan \searrow \searrow \textit{dejstvitel'no} \textit{skazal Mashe, chto rost Viktora} — 220 \textit{santimetrov}?\}$   
 'Is it true that John told Mary that Viktor is 220 cm tall?'  $\rightarrow$  Viktor is 220 cm tall.
- b.  $\{_{PQ EMPH} \uparrow \rightarrow Ivan \textit{dejstvitel'no} \textit{skazal Mashe, chto rost Viktora} — 220 \textit{santimetrov}??\}$   
 'What! Can it be true that John told Mary that Viktor is 220 cm tall?'  $\rightarrow$  Viktor is 220 cm tall.

For the third, not all Karttunen's sentences are questions<sup>18</sup>. Sentences with emotive verbs *amazed* or *surprised*, cf. *Peter was amazed what this would lead to. Everybody was surprised where the bride had gone* do not reconstruct direct questions and should be better classified as indirect exclamations, to use Paducheva's term [Paducheva 1988: 40]. These critical points do not kill Karttunen's account but deprive it of its original motivation: not every linguistic object that can be explained in terms of true exhaustive alternatives is an indirect question.

## 5. Hamblin semantics beyond questions

In this section, I briefly touch on several applications of unconstrained Hamblin semantics in 1980–2000-s: their objective is to model linguistic objects other than questions.

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interrogative and negative clauses. However, weak factivity effects hold here, and it is possible to cancel the presupposition by the wait-a-minute reply. In (20b), which has the non-factive *tell<sub>1</sub>*, the questioner solicits an answer as to which it is really true that X told Y that *p*, but does not directly ask whether *p* or  $\neg p$ . Therefore, (20b) pronounced with a rising accent on the final part does not provide a suitable context for the wait-a-minute reply.

(i) A: Did John *really* *tell<sub>1</sub>* Mary that Victor is 7'4"??

B: ??Hey! Wait a minute. I didn't know that Victor is 7'4".

<sup>18</sup> The starting point of Karttunen's analysis is that indirect questions are a proper subset of questions.



### 5.1. *Wh*-words and declarative sentences

I start with Kratzer, Shimoyama's indeterminate *wh*-pronouns [2002]. On their account, indeterminate phrases that surface as interrogatives, negatives, existentials, free choice indefinites, or negative polarity items (NPI) introduce sets of alternatives that keep expanding until they meet an operator fixing their distribution in some type of clauses. This approach captures the behavior of free and bound *wh*-elements in Japanese, German, and Russian. In Russian studies, it was implemented in the descriptions of *ne*- existentials [Kondrashova, Šimík 2013] and *wh*-items licensing endoclititic insertion of prepositions, e.g., *ni*- negatives and *koe*- indefinites, cf.  $u_{\text{PREP}} + ni_{\text{NEG}} kogo_{\text{WH}} > ni\ u\ kogo, u\ koe_{\text{INDEF}}-kogo_{\text{WH}} > koe\ u\ kogo$  [Zimmerling 2018].

Another extension of Hamblin semantics is the theory of focus developed by Rooth [1985, 1992]. On his account, affirmative and negative statements have a two-tier meaning and include an ordinary non-set assertive value plus an alternative focus value added as a second tier. The focus feature recalls the functional notion of *rheme*, i.e., the principal illocutionary component of the declarative sentence in the Prague school of discourse analysis. However, these notions cannot be easily reconciled. The Moscow school also introduces the notion of *contrast*, which is largely equivalent to Hamblin-Rooth alternatives [Yanko 2001: 28–34]. The main beef is that the contrast value can be assigned both to the focal and non-focal (topical) parts of the sentence, cf. (22)–(23), while Rooth allows only one focus location per sentence. In other words, the contrastive value is superimposed on the topic-focus (=topic–rheme) articulation and is not a *sine qua non* feature of declaratives (ibid.). The contrastive topic accent is marked below with the tag ‘↗ ↗’, the *c*-constituents are marked with curly brackets. The so-called focus words like *only*, *even* freely combine with contrastive topics, cf. (23a–b).

- (22) {<sub>TCONTR</sub> [<sub>NP</sub> ↗ ↗ **Voskresnyu progulku**]} {<sub>F</sub> *prishlos'* ↘ ↘ *otmenit'*}  
 < a *subbotnyaya proshla khorosho*. >  
 ‘The **Sunday** trip had to be canceled < but the Saturday trip fared well >.’

- (23) a. {<sub>TCONTR</sub> **Tol'ko** [<sub>PP</sub> *posle* ↗ ↗ **povtornogo zaprosa**]} {<sub>F</sub> *my poluchili otvet iz*  
 ↘ ↘ *ministerstva*.}  
 ‘**Only** after the **repeated** request did we receive an answer from the ministry.’

- b.  $\{_{\text{CONTR}} \textit{Tol'ko} [_{\text{PP}} \textit{posle smerti} \nearrow \nearrow \textit{Petrova}] \{_{\text{F}} \textit{sleduyushchii direktor smog uvolit'}$   $\searrow \searrow \textit{Ivana.}\}$   
 ‘Only after Petrov’s death, the next director managed to fire John.’

One might object that the notion of focus is global in the sense that if a topical *c*-constituent is contrastive, the contrast value is also found on the focal *c*-constituent, and that there are different kinds of focus depending on the pragmatic context, cf. multiplying terms ‘contrastive focus’, ‘polarity focus’, ‘information focus’, ‘predicate focus’, ‘constituent focus’, ‘verb focus’, ‘argument focus’, ‘presentational focus’, ‘verum focus’, ‘sentential focus’, also ‘narrow focus’ and ‘broad focus’. If focus is an added feature that can be ‘highlighted’, i.e., marked overtly at the semantics-to-pragmatics interface, and the term ‘prosodic focus’ = prosodic marking of the focus *in situ* is valid, cf. Rooth (1985) and Roberts (1996), one could also play with terms like ‘linear-accent focus’ = prosodic marking combined with inversion, cf. [Paducheva 1985], ‘morphosyntactic focus’ = use of extra morphemes or sentence material, and even ‘topical focus’ = highlighting the presumably topical parts of the sentence if they have contrastive semantics, cf. (22) and (23) above. Nevertheless, the burden to explain how topical elements can be focused and to prove that the focal constituent in non-contrastive sentences can be realized without any overt marking diagnosing alternative semantics is on the adepts of the Hamblin-Rooth approach. There is more than a terminological discrepancy between the tradition, where contrast is considered an optional feature, and the tradition, where Hamblin semantics is recognized as a general feature of all declaratives.

I conclude that the Hamblin-Rooth account of declaratives is great as a model but probably does not give the best description of the phenomena it was presumably designed for — topic-focus articulation and the semantics-to-information structure interface.

## 5.2. Contrastive replies and exhaustive inferences

In two cases, Hamblin-Rooth semantics is adequate. The first case concerns contrastive sentences. Here one must be careful with reconstructing or removing the silent alternatives, so-called exhaustive inferences [Zimmermann 2000; Kratzer, Simoyama 2002: 18–20]. A complete answer to the polar question ‘A or B?’ with a truth-conditional content  $P$  ( $A \vee B$ ) can be either  $\{A\}$  or  $\{B\}$ : if the addressee picks the answer  $\{A\}$ , there is a licit inference that  $\neg P$  ( $B$ ) is true. If the question offers a wider set of alternatives  $\{A \& B\}$ , e.g., someone

asks whether it is true that X fears (A & B), and the addressee picks {A}, there is again a licit inference that  $\neg P$  (B) is true.

(24) — *Ivan boitsya* {**Andreya** *i* ↗ ↗ **Eleny**}?

‘Does John fear **Andrej** and **Elena**?’

— *On boitsya* {<sub>FCONTR</sub> ↘ ↘ **Andreya**}. → *Ivan ne boitsya Eleny*.

‘He fears **Andrej**’ → John does not fear Elena.

The same reply {A} as an answer to the *wh*-question ‘Who does John fear?’ does not count as a contrastive sentence since the list of people and demons who John fears is not supposed to be known beforehand. There is no licit inference that  $\neg P$  (B) and  $\neg P$  (C), e.g., that John does not fear Elena or does not fear Cthulhu.

(25) A: — *Tak* ↗ *kogo boitsya* ↗ *Ivan*?

‘So, who does John fear?’

B: — *On boitsya* {<sub>F</sub> ↘ ↘ **Andreya**}. ↗ *Ivan ne boitsya Eleny*.

‘He fears **Andrej**’ ↗ John does not fear Elena.

Let us consider an example with John playing a musical piece from the six-element set called “English Suites”. Let “№1”... “№6” be the proper names of its members. Then  $||\{\text{№ } 6\}||$  as an answer to the disjunctive question  $||?\{ \text{№}1 \vee \text{№}2 \vee \text{№}3 \vee \text{№}4 \vee \text{№}5 \vee \text{№}6 \}\|$  is a contrastive sentence, so the inference that John did not play №1 ( $\neg P$  (№1)) is licit. Natural languages often apply free choice items like Russ. *kakoi-to* or Ger. *irgendein* instead of the whole enumeration.

(26) A: — *Ivan igral* {*kakuyu-to Angliiskuyu* ↗ ↗ *Syuitu* / *odnu iz Angliiskikh* ↗ ↗ *Sjuit*} *vchera na kontserte*?

‘Did John play any English Suite / one of the English Suites yesterday at the concert?’

B: — *On igral* {<sub>FCONTR</sub> **№** ↘ ↘ **6**}. → *Ivan ne igral №1 vchera na kontserte*.

‘He **did play № 6**’. → John did not play № 1 at yesterday concert.

If the question is ‘What did John play at the concert yesterday?’ this reply is not a complete contrastive answer unless it is known that X played only one

piece at that concert. There is no licit inference that John did not play №1, *Murka*, or *People United*.

(27) A: —  $\mapsto$  *Chto Ivan igrал na vcherashnem  $\nearrow$  kontserte?*  
 ‘What did John play at the yesterday concert?’

B: — *Angliiskuju Syuitu № 6.  $\rightarrow$  Ivan ne igrал №1.*  
 ‘The English Suite №6.’  $\rightarrow$  John did not play №1.

### 5.3. Verification, Hamblin alternatives, and Karttunen alternatives

The notions of verification and falsification are good candidates for Hamblin-Rooth analysis since the speaker picks two alternatives,  $p$  and  $\neg p$ , and verifies or falsifies  $p$ . It is a matter of convention whether verification sentences are recognized as a subset of contrastive sentences<sup>19</sup>. There is one reason to treat them separately. The speaker who has a verification commitment asserts that he considered both  $p$  and  $\neg p$  and found  $p$  true so that the verification meaning involves a clash of two states of his mind — before the verification procedure and afterwards.

The speaker can provide some arguments supporting his conclusion, but this is optional<sup>20</sup>. Let us have a closer look at the verification domain. It is often maintained that verified propositions always relate to the real world, but this is an emergent effect caused by language-specific restrictions on the distribution of verification markers. The Arabic particle *inna* ‘verily’, ‘really’ is used only in nominal clauses in the indicative mood and can therefore only refer to the real world. The overtly similar Old Russian particle  $ti_1$  ‘really’, ‘indeed’ occurs in verbal clauses and combines with both indicative and optative mood [Zimmerling 2023: 136–140]. It can, therefore, be used in hypothetical and even counterfactual contexts. The same holds for Eng. *really*, *indeed*, Ger. *wirklich* or Russian *deistvitel’no*, *v samom dele* ‘indeed’ and <stressed> *pravda* in the meaning ‘really’.

<sup>19</sup> Cf. “The verification meaning, i.e., the yes-no meaning, is a special case of contrast” [Yanko 2001: 61].

<sup>20</sup> If I say that Hans is a real cheater (in cards, chess), it does not matter whether I have direct visual evidence of him cheating, heard anyone else’s opinion about him, made my own investigation, or firmly believe that people with such faces as Hans always cheat in cards. What matters is that the speaker himself is the guarantee that  $p$  is verified.

(28) *If John indeed were a good student, he would have read Mary's seminal paper about questions. → John did not read Mary's paper & John is not a good student.*

The validity of the verification can be questioned since, from the perspective of natural language metaphysics the situation where some  $X$  asserted that  $p$  is a spatiotemporal *event*, i.e., part of the real world, located in space and time. Therefore,  $Y$  can ask whether  $X$  *really said that*  $p$ , e.g., whether Plato really defined humans as bipods without feathers, or whether King Henry really told his servants to kill St. Thomas. Cf. also non-factive uses of the verb *tell* with verification markers in (20b) and (21a–b). These ties with the real world notwithstanding, it is hardly possible to explain verification sentences in terms of Karttunen alternatives since  $p$  and  $\neg p$  cannot be both true in the same world.

## 6. Bias and polar questions

Polar questions, i.e., questions soliciting two answers — “yes” and “no” — are challenging for Hamblin semantics on two reasons. The first issue is that the spell-out of HA hangs on the semantics-to-pragmatics interface. The term “bias” means that the speaker expects a specific answer to the question [Asher, Reese 2007]. Standard definitions of biased questions rely on epistemic probability.

(iii) A polar question is biased if the speaker finds  $p$  more likely than  $\neg p$  (positive bias) or vice versa (negative bias).

The bias is diagnosed by the choice of the replies “yes” or “no”<sup>21</sup>, cf. the experimentation [Panchenko 2021] for Russian, as well as by structural characteristics such as the use of polarity items [Ladd 1981; Suda 2013], negation [Büring, Gunlaugson 2000], prosody [Biezma, Rawlins 2012], word order [Šimík, to appear] and particles [Hirayama 2018]. If biased questions contain a hidden assertion [Asher, Reese 2007] plus a request to accept the expectation of the speaker instead of introducing a set of alternatives, they are incompati-

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<sup>21</sup> To put it cautiously, the replies “yes” and “no” provide language-specific diagnostics of bias once the discourse strategy behind the choice of these replies is established. Japanese and English have similar structural conditions in biased questions [Suda 2013] but apply different pragmatic strategies for questions like *John is not running? John is running, isn't he?* In Japanese, the answers *hai* “yes” and *iie* “no” only signal the (dis)agreement with the highlighted proposition, so the answer *hai* is possible only if John is running, and the answer *iie* is only possible if John is not running [Hirayama 2018: 3].

ble with the Hamblin picture. The second issue is the status of negation and its interaction with epistemic modals. It is common to assume that only polar questions and tag questions are biased. There is little motivation to look for bias in alternative questions, cf. section 7.1 below. Biased *wh*-questions occur rarely and are discussed in 7.2.

### 6.1. Spell-out of Hamblin alternatives and Prosodic Closure

The difference between alternative  $[[? \text{ [}_{\text{ALT}} (p \vee q)]]$  and polar questions, including disjunctive polar questions like  $[[? \text{ [}_{\text{PQ}} (p (p_1 p_2 \dots p_n) \vee \neg p)]]$ , can be formulated in truth-conditional terms [Karttunen 1977]<sup>22</sup>, which does not entail it is the most prominent difference between these groups of sentences. Two interface conditions have been discussed extensively. The first one concerns spell-out. In alternative questions, both *p* and *q* are spelled out and equal. In polar questions, only one alternative is spelled out, while the other is silent. One may hypothesize, like [Larson 1985], that the silent alternative is concealed in the deleted *or not* part. However, even if there is a silent *or not* part, it is its absence that makes polar questions pragmatically different.

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<sup>22</sup> Let us render the basics. The denotation of an alternative question with a strict disjunction, as in (i), is a set of two propositions: either *p* is true, or *q* is true.

- (i)  $[_{\text{ALT}} \text{ Did John eat the fish } (p) \text{ or } \langle \text{did John eat} \rangle \text{ the pasta } (q) ?]$ .

*John ate the fish* (*p*).

*John ate the pasta* (*q*).

The denotation of a polar question containing a binary disjunctive phrase with a non-strict disjunction like (ii) is a set of four propositions  $p_1, p_2, p_3 (p_1 \& p_2), \neg p$ .

- (ii)  $[_{\text{PQ}} \text{ Did John eat } ((\text{the fish})_{p_1} \text{ or } (\text{the pasta})_{p_2})_{p_3} \langle \text{or not} \rangle \neg p ?]$

*John ate the fish* (*p*<sub>1</sub>).

*John ate the pasta* (*p*<sub>2</sub>).

*John ate both the fish and the pasta* (*p*<sub>3</sub>).

*John ate neither the fish nor the pasta* ( $\neg p$ ).

The logical form in (i) and (ii) is different, which is fixed in PF, at least in languages like English or Russian. The exhaustive semantics of alternative questions like (i) is encoded by the falling final accent called Prosodic Closure [Zimmermann 2000]. The absence of Prosodic Closure in polar questions like (ii) can be interpreted as proof that polar questions are not exhaustive, but this is a matter of convention. If one considers two options, *p* and  $\neg p$ , and treats  $p^1, p^2, p^3 \dots p^n$  not as alternatives but as different scenarios of manifesting the positive alternative *p*, then the most straightforward way is to treat polar questions as exhaustive [Karttunen 1977].

There is a conviction that the speaker is always biased to the overtly realized alternative  $p$  and that polar questions are mixed speech acts combining the force of an assertion and the force of the question soliciting answers “yes” and “no” [Asher, Reese 2007]. This claim is backed by the second interface condition. In languages like English and Russian, alternative questions are marked by the falling accent on the final element, while polar questions lack it. Given that alternative questions are exhaustive, Zimmermann [2000] considers the clause-final falling accent a general marker of exhaustivity, called Prosodic Closure. On this account, the rising tone or other prosodies characteristic of polar questions can encode the illocutionary force but not Hamblin semantics. This does not necessarily entail that polar questions are not exhaustive but leaves a path for the argument that the denotation of a question can, contrary to Hamblin, be a singleton set consisting of the content proposition  $p$ , while the missing alternative  $\neg p$  is restored from the context by some pragmatic principle. This kind of analysis was outlined by Biezma, Rawlins [2012: 26]; they argue that all polar questions are biased and lack Hamblin semantics. Their model has two weak points. For the first, there are no obvious triggers for the pragmatic coercion restoring the missing alternative  $\neg p$  from the context. A discourse-based mechanism is only possible if polar questions have some hidden contrastive or ‘focus’ value. The focus theory was developed to explain specific features of declaratives; therefore, extending it to all sentences blurs the border between assertions and questions. For the second, there is no evidence that polar questions are always biased and that the absence of Prosodic Closure predicts that  $p$  is the strongly preferred option. In Russian sentences (29a–b), Prosodic Closure is missing, and the rising accent ‘↗’ (LH\*L-) is placed on the clause-final element, be it the last part of the Disjunction Phrase as in (29a) or the verb as in (29b). The example (29c) is a verification statement:

- (29) a. [<sub>PQ</sub> Ty *proboval* [<sub>DISP</sub> **rybu ili ↗ *pastu***]]? –Prosodic Closure  
 ‘Have you tried the fish or the pasta?’
- b. [<sub>PQ</sub> [<sub>DISP</sub> **Rybu ili *pasty***] ty ↗ *proboval*]? –Prosodic Closure  
 ‘the same.’
- c. [<sub>ASS</sub> Ty ↘ ↘ ***proboval*** [<sub>DISP</sub> *rybu ili* <sub>0</sub> *pastu*]]. (+Prosodic Closure)  
 <I know> ‘You **did try** the fish or the pasta?’
- d. [<sub>ALT</sub> Ty *proboval* ↗ **rybu ili** ↘ *pastu*]? +Prosodic Closure  
 ‘Have you tried the fish or the pasta?’

The prosody of (29a–b), unlike the word order, unambiguously tells that these sentences are polar questions and not assertions like (29c) or alternative questions like (29d). The speaker in (29a–b) might be biased towards  $p$  and suspect that the addressee tried the fish or the pasta, but this information cannot be inferred from either word order or prosody. On the contrary, the prosody of the verification statement (29c) does entail that the speaker knows  $p$ . I conclude that the claim that all polar questions are biased is too strong. The presence of bias in polar questions must be proved.

## 6.2. Negative polar questions and kinds of negation

Several authors starting from Ladd [1981] expressed the view that Positive and Negative Polar Questions are not equivalent, although underspecified theories like Hamblin semantics supply them with the same denotation  $||? [_{pQ} (p \vee \neg p)] ||$ . Although a device like a toggle switch has only two modes — “on” and “off”, questions like (i) *Is the toggle switch on?* (ii) *Isn't the toggle switch on?* (iii) *Is the toggle switch off?* are not synonymic insofar they have different felicity conditions, and require different contexts to be uttered [Büring, Gunlogson 2000]. The differences between (i), (ii), and (iii) have a semantic trigger — the logical operator of negation corresponds to two or more language categories. This idea comes from Ladd [ibid., 166], who introduced the distinction of Inner versus Outer Negation. These notions are semantic-pragmatic but arguably linked with clausal syntax. Outer Negation is the form applied in Negative Polar Questions (NPQs) to mark the speaker's belief that the pragmatic presupposition  $p$  is true. Inner negation is the form applied in NPQs to confirm the speaker's belief that the presupposition  $\neg p$  is true. In other words, in the context of Outer Negation, the speaker is biased towards  $p$ , while in the context of Inner Negation, he is biased towards  $\neg p$ . Inner Negation also licenses Negative Polarity Items (NPIs), while Outer Negation licenses Positive Polarity Items (PPIs), cf. Ladd's original examples (30a–b).

- (30) a.  $[_{NPQ} \textit{Isn't Jane coming EITHER}_{NPI} ?]$  Inner Negation, NPI  
 b.  $[_{NPQ} \textit{Isn't Jane coming TOO}_{PPI} ?]$  Outer Negation, PPI

According to Ladd, in (30a), the speaker had previously assumed that at least Jane would come and has now drawn the inference that she is not coming either, while in (30b) the speaker believes that Jane is coming and wants to confirm his belief. Büring, Gunlogson [ibid.] add that in German and English, Inner and Outer Negation can have different morphosyntax, Inner Negation being the default form licensed in all clauses with negative polarity, both nega-



tive declaratives and NPQs, Outer Negation being an option reserved for NPQs. E.g., the contracted German form *kein* ‘no one’ (< NEG + *ein*) is licensed both in declaratives and in NPQs, while the combination of the free negation *nichts* with the indefinite article/PPI *ein* is only licensed in declaratives. A similar correlation of the contracted Danish form *ingen* (< NEG + *nogen*) versus the combination *ikke nogen*, with the corresponding bias, is attested in Danish<sup>23</sup>. The German strategy of encoding bias by the two idiosyncratic forms of negation in NPQs partly corresponds to the Russian strategy of using indefinites versus negatives in biased NPQs, cf. (31a–b). Indefinites and NPIs like Russian *kakoi-nibud* ‘someone’ in (31a) are based on  $\exists$ , while negatives like Russian *nikakoi* ‘no one’ in (31b) are based on  $\forall$ . It is well-known that expressions based on the universal quantifier tend to be stressed. It is, therefore not surprising that *nikakoi* in (31b) takes over the accent from the negation *net* that otherwise is accented in Russian NPQs, as in (31a).

- (31) a. [<sub>NPQ</sub> ↗ *Net tut **kakogo-nibud**’ restorana?*] Outer Negation, positive bias  
 ‘Isn’t there **some restaurant** around here?’  
 → X believes that *p* (there is some restaurant here).
- b. [<sub>NPQ</sub> *Net tut ↗ **nikakogo** restorana?*] Inner Negation, negative bias  
 ‘Is there **no restaurant** around here?’  
 → X believes that  $\neg p$  (there is no restaurant here).

NPQs frequently express epistemic and inferential bias. The bias effects in English and German are due to the realization of the negation operator. From the pragmatic perspective, to believe in  $\neg p$  is not the same thing as not to believe in *p*. I wonder whether all this has to do with the logical form. If one removes the bold-faced markers from (31a–b), these sentences will no longer be biased but still will be polar questions. Ladd’s examples (30a–b) can be rendered in Russian in several ways. I opt for the variants with the particle *tozhe* that is not polarity-sensitive and corresponds both to *too* and to *either*. The ad-

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<sup>23</sup> The combination of a free negation (*ikke*) with the indefinite marker *nogen* (*noget*) has a broader distribution in Danish than in German. It is possible in some declaratives, cf. the corpus examples:

(i) *Der er **ikke noget land** i Europa, der har så mange naboer som Tyskland.*

lit. ‘There is **not any country** in Europe that has so many neighbors as Germany.’

(ii) *Der er **intet land**, vi kan hente hjælp hos.*

lit. ‘There is **no country** we can get the help from.’

ditional marker is the additive proclitic *i* ‘and’, its semantic contribution is to add an element to a set. Note that (32b) is a PPQ, not an NPQ<sup>24</sup>. The particle *tozhe* is usually stressed and takes the phrasal accent in the absence of *i* in PPQs, but if *i* precedes the NP *Jane*, the accent goes over from *tozhe* to *Jane* in (32b).

- (32) a. [<sub>NPQ</sub> *I*<sub>PTCL</sub> *Dzhein* ↗ *tozhe*<sub>PTCL</sub> *ne*<sub>NEG</sub> *pridet?*] Negative bias  
 → X had assumed that several people, including Jane, are coming (*p*), but now believes that  $\neg p$  (even Jane is not coming).
- b. [<sub>PPQ</sub> *I*<sub>PTCL</sub> ↗ *Dzhein tozhe*<sub>PTCL</sub> *pridet?*] Positive bias  
 → X believes that several people, including Jane, are coming (*p*) and wants to confirm that Jane is in that set.

I conclude this section by stating that negation combines with particles and other epistemic and inferential markers. However, there are no grounds to assume that it is the source of epistemic semantics or hypothesize that the logical form of NPQs and PPQs is responsible for such combinations.

### 6.3. Diagnosing bias and biased questions

In this section, I render two contributions. The first insight is that bias always has triggers. Several scholars suggested that the speaker’s preferences can be motivated or not motivated by the public evidence in favor of *p*. Suda [2013] divided the background information into *private epistemic bias* analyzed as the set of beliefs and attitudes of the speaker, and *evidential bias* analyzed as the shared Common Ground of both interlocutors. The combinatory model of Japanese polar questions illustrates this conception. Japanese, like Russian or

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<sup>24</sup> Providing Ladd’s example (30b) with an equivalent Russian NPQ is difficult since Outer Negation is less grammaticalized in Russian than in English. The translation (i) with the particle *razve* ‘isn’t it?’ adds a different flavor — that the speaker somehow inferred that Jane is not coming and wants a confirmation that his reasoning is correct.

(i) [<sub>NPQ</sub> *Razve*<sub>PTCL</sub> *Dzhein ne*<sub>NEG</sub> ↗ *pridet?*]. → X inferred that Jane is coming (*p*).

The variants (ii)-(iii) with the *yes-no* particle *li* pose another problem — they are not necessarily biased.

(ii) [<sub>NPQ</sub> *Ne*<sub>NEG</sub> *pridet li*<sub>V/N</sub> *i*<sub>PTCL</sub> ↗ *Dzhein?*].

(iii) [<sub>NPQ</sub> *Ne*<sub>NEG</sub> *pridet li*<sub>V/N</sub> *i*<sub>PTCL</sub> *Dzhein* ↗ *tozhe?*].

The NPQs (ii) – (iii) are felicitous in contexts where the speaker has a strong belief that *p* (Jane is coming), but they are just as felicitous in contexts where the speaker has no information about the likelihood of *p* and  $\neg p$ .

English, is a language that allows prosodic marking *in situ* but, unlike these languages, lacks the option of deriving questions by movement. The primary cue is the combination of rising prosody with merging the clause-final particles *-ka*, *-no(da)*, *-desho*. Suda and subsequent authors, including [Hirayama 2018], work out Ladd's distinction of Inner and Outer Negation and test it on PPIs like *dareka* 'somebody', NPIs like *daremo* 'nobody', and negative morpheme *nai*. According to Hirayama, Japanese polar questions with *-ka* do not bring about any epistemic bias and are used in contexts that are neutral regarding the presence of any public evidence in favor or against *p*, while other types of polar questions are biased: *nai*<sub>2</sub> questions have positive epistemic bias, while *-no(da)* have both positive epistemic and positive evidential bias (ibid., 7). If this description is correct, biased questions comprise a subset of Japanese polar questions.

The second issue in bias studies, which gains increasing attention, is the concern about the speaker's goal. The classical discourse model assumes that the dialogue's primary goal is to share new relevant information about the outer world or — in more formal terms — to add new items to the context set of true propositions [Stalnaker 1978]. Some authors explore the idea that in polar questions the goal of the speaker may be different — to explain something, double-check one's intuition, or clarify the intentions and competence of the addressee. Šimík [to appear], quoting [AnderBois 2019], resorts to the assumption that although in real life, all polar questions might be biased, the speakers often apply to the "quiz scenario" with the primary concern not to give any clue to the truth of *p* or  $\neg p$  and not to show which answer is expected. Šimík argues that quiz questions, where the speaker pretends that he does not know the answer pattern with unbiased polar questions, use a narrow inventory of cues compared to information-seeking polar questions, where the speaker really does not know the answer. In Slavic languages, the speakers can build unbiased information-seeking polar questions by prosody alone, without verb movement and question particles. Nevertheless, as Šimík argues, Czech, Slovenian, Polish, Ukrainian, Serbian, Bulgarian, and Russian speakers in the context of a TV quiz show strongly prefer to get questions by overt verb movement or the use of question particles<sup>25</sup> and avoid NPQs (ibid., xxiii–xxviii). I concur

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<sup>25</sup> I leave aside parametric variation across Slavic languages, e.g., the presence/ absence of the constraint blocking V1 declaratives with overt post-verbal subject NPs and the impact of this parameter on the syntax of polar questions in West Slavic [Šimík, to appear, vii, xxvii]. Russian widely uses V1 declaratives with post-verbal subjects; a classification of such sentences can be found in [Yanko 2001: 179-220].

with Šimík in that quiz questions are a subset of unbiased polar questions, but I doubt that the context of a TV quiz show is quite representative of all situations, where the speaker pretends that he does not know the answer. The same scenario occurs at the exam, where the inventory of polar question varieties is much broader, at least in Russian. The professor supposedly knows the correct answer to (33) but can ask his student a question with accent marking *in situ*. The Russian initial proclitic *a* ‘and’, ‘but’, ‘what about’, like the Slovenian proclitic particle *a* mentioned by Šimík (*ibid.*, xxiii), may or may not signal ‘weak bias’. It is felicitous in (33a–b), where the speaker is not expected to prompt the student. Suppose that the professor adds the dubitative marker *a shto* ‘and what’ to (33c). In that case, his question is biased: it does not matter whether he is really shocked by the student’s previous answer or is deliberately trying to confuse her.

(33) <Quiz scenario: The professor asks the student during an exam.>

- a. [<sub>PPQ</sub> A<sub>PTCL</sub> ↗ *vse*<sub>∇</sub> *gadyuki yaitsezhivorodyashchie?*] No bias  
<What about ovoviviparous snakes:> ‘Are **all** **vipers** ovoviviparous?’
- b. [<sub>PPQ</sub> A<sub>PTCL</sub> *gadyuki* ↗ *vse*<sub>∇</sub> *yaitsezhivorodyashchie?*] No bias  
<What about vipers:> ‘Are they **all** ovoviviparous?’
- c. [<sub>PPQ</sub> A<sub>PTCL</sub> *shto*<sub>PTCL</sub> ↗ *vse*<sub>∇</sub> *gad’uki yaitsezhivorodyashchie?*] Negative bias  
‘What?! Are **all** **vipers** ovoviviparous?’

Status communication, where the interlocutors have unequal ranks, can infer bias. Everyone can assume the roles of quiz master, professor, or expert in everyday life and challenge the competence or educational level of the audience. Question (34) is about stress location in the Russian word form *snosyakh* ‘very pregnant’, ‘on the verge of pregnancy’. It is unbiased if the questioner has not encountered that word before or is unsure of where the stress is. It can also be unbiased with the quiz scenario, where a teacher checks the competence of his non-native students. Almost everyone says *na snosyákh*, so the teacher likely takes the answer “yes, the stress is on the last syllable” to be correct and expects that good students pick it. His beliefs notwithstanding, the quiz strategy makes him act as if he does not know the answer. However, if the questioner is Professor Higgins and the addressee knows that, the question is no longer unbiased since the norm prescribes stress on the first syllable: *na snósyakh*. The

addressee might be unaware of it but able to understand that it was a trick question<sup>26</sup>.

- (34) [<sub>PPQ</sub> A<sub>PTCL</sub> v sochetanii 'na snosyakh' udarenie na ↗ poslednem sloge?]  
 'Does stress fall on the last syllable in the phrase 'na snosyakh'?'

I conclude this section by warning against diving too deep into pragmatic contexts to learn whether the speaker was biased. What matters is the form: if polar questions include a presuppositional component introduced by an epistemic/evidential particle or encoded in some other way, they are biased. Otherwise they are not. The presuppositional component does not come from the logical form of the polar question. Unbiased polar questions are possible and widespread.

- (iv) A polar question is biased iff the speaker finds  $p$  more likely than  $\neg p$  (positive bias) or vice versa (negative bias), and his bias is encoded lexically or by morphosyntax or prosody.

#### 6.4. Biased polar questions: Interim summary

Abusing the bias terminology, I could say that the sentiment that all polar questions *must* be biased is a private epistemic belief on the part of those scholars who are prone to describe the meaning of sentences in terms of compelling contextual evidence against and for  $p$ . Biased questions are a subset of polar questions, it intersects with the subset of negative polar questions (NPQs). The claim that all NPQs are biased is an overgeneralization. The bias feature explains compositionally by a presuppositional component realized lexically by epistemic and evidential particles or grammatically by an optional combination of dedicated morphosyntactic and prosodic cues. Non-biased polar questions have standard Hamblin semantics and can be divided into information-seeking

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<sup>26</sup> Note that verification markers like Russian *tochno* 'exactly', 'just', *deistvitel'no* 'indeed', *pravda* 'really' do not contribute to biased readings of questions: what is questioned is the validity of the verification procedure, but not the embedded proposition. All these words take the main accent from the last phrase. The sentences (i)-(ii) differ in the positions of verification markers but convey the same meaning 'Is that true that anyone confirmed  $p$ ?'.  
 (i) [<sub>PPQ</sub> A ↗ **tochno** / ↗ **deistvitel'no** / ?pravda v sochetanii 'na snosyakh' udarenie na poslednem sloge?]  
 'Does the accent **really** fall on the last syllable in the phrase 'na snosyakh'?'  
 (ii) [<sub>PPQ</sub> A v sochetanii 'na snosyakh' udarenie ↗ **tochno** / ↗ **deistvitel'no** / ↗ **pravda** na poslednem sloge?]  
 'Does the accent **really** fall on the last syllable in the phrase 'na snosyakh'?'

and quiz questions pace [Šimík, to appear]. Biased questions can be analyzed in terms of modified Hamblin semantics or in terms of singleton sets pace [Biezma, Rawlins 2012]. If bias feature does not come from the alternative-setting operator, be it a visible yes-no particle like Japanese *ka*, Slavic *li*, or an invisible value triggering verb movement or rising prosody, both approaches are valid. Semantic models are underspecified. Therefore, some pragmatic subtleties escape either analysis. As Büring, Gunlogson [2000: 1] aptly put it, it is not the number of alternatives but the behavior of negation that prevents differentiating pairs of questions like  $[_{NPQ} \text{Isn't the toggle switch on?}]$  versus  $[_{PPQ} \text{Is the toggle switch off?}]$  With polar alternatives  $\{\llbracket p \rrbracket \llbracket \neg p \rrbracket\}$ , they get the same denotation, and if one replaces the polar alternatives with the singleton set  $\{\llbracket p \rrbracket\}$ , they still will get the same denotation ‘The toggle switch is off in the world *w*’.

## 7. Biased alternative questions and *wh*-questions

In the previous section, I argued that unbiased polar questions *must* be recognized as having unconstrained Hamblin semantics if other types of questions get Hamblin denotations, whereas biased polar questions *can* but not necessarily must be described as having modified Hamblin semantics. It is essential to check whether bias holds in other types of questions.

### 7.1. The logical machine scenario: Are all alternative questions unbiased?

It is well-known that polar questions often have paraphrases in the form of alternative questions and *wh*-questions. It is possible to ask a question about the state of the logical machine, e.g., an ideal toggle switch<sup>27</sup>, with a *wh*-word instead of asking whether it is on:  $[_{WH} \text{In which position is the toggle switch?}]$ . It is equally easy to make an alternative question out of it:  $[_{ALT} \text{Is the toggle switch on or off?}]$ . As we know that some polar questions are biased, one can check whether bias disappears in such paraphrases. It does not. Let us try Professor Higgins example about stress in the disyllabic word *w*. For the sake of simplicity, I ignore answers ‘there is no stress in *w*’ and ‘the stress affects both syllables in *w*’<sup>28</sup> and treat stress assignment as a logical machine: either the stress falls on the first syllable or it falls on the second and last syllable. Mind that Professor H. knows the answer, and the addressee knows that the questioner is tricky.

<sup>27</sup> I leave out the scenario where the toggle switch as a physical mechanism is stuck so that ‘be off’ in *w* is not the same thing as ‘be on’.

<sup>28</sup> The readers can outline alternative semantics for this scenario themselves.

- (35) <Scenario: A noted authority, Professor H., asks a question in the situation where most people believe they know how to stress the disyllabic word *w*. >
- a. [<sub>ALT</sub> A<sub>PTCL</sub> ∨ *sochetanii 'na snosyakh' udarenie na ↗ pervom sloge ili<sub>DIS</sub> na ↘ poslednem?*]  
 ‘So, does the stress in the phrase ‘*na snosyakh*’ fall on the first syllable **or** the last one?’
- b. [<sub>WH</sub> A<sub>PTCL</sub> ↗ *gde<sub>WH</sub> udarenie ∨ sochetanii 'na ↘ snosyakh'?*]  
 ‘And where is stress in the phrase ‘*na snosyakh*?’’

Both (35a–b) have Prosodic Closure, i.e., falling final accent, whereas the polar question (34) lacks it. Otherwise, (34) and (35a–b) are pragmatically equivalent and have inferential bias. The addressee knows that the questioner is a high authority who challenges the customary usage. If she pronounces *w* with stress on the second syllable or is aware that most people do that, the correct inference is → ‘the word *w* is pronounced with stress on the first syllable’. Professor Higgins can also ask about stress in *n*-syllabic words, like the Russian word *fenomen* ‘phenomenon’ consisting of three syllables *a*, *b*, *c*. The three-element set {P<sub>a</sub>, P<sub>b</sub>, P<sub>c</sub>} does not comply with the logical machine scenario. However, the questioner is hinting at a narrower subset {P<sub>b</sub>, P<sub>c</sub>} containing the correct answer (P<sub>b</sub>) and the typical mistake (P<sub>c</sub>).

- (36) <Scenario: A noted authority, Professor H., asks a question in a situation where most people believe they know how to stress the trisyllabic word *w* and make stress on the third syllable. >
- a. [<sub>ALT</sub> A<sub>PTCL</sub> ∨ *slove 'fenomen' udarenie padaet na ↗ pervyi slog, ili<sub>DIS</sub> na ↗ vtoroi slog ili<sub>DIS</sub> na ↘ poslednii?*]  
 ‘So, does the stress in the word ‘*fenomen*’ fall on the first syllable **or** on the second **or** on the third and last one?’

The context (36) has the following conversational logic. The questioner assumes that if the addressee does not pick the answers at random she will reduce the set of alternatives to two {P<sub>a</sub>, P<sub>b</sub>, P<sub>c</sub>} ⇒ {P<sub>b</sub>, P<sub>c</sub>} since nobody puts the stress on the first syllable: most people say *fenomé<sup>n</sup>*, but few intellectuals stress the second syllable (*fenó<sup>n</sup>men*). The addressee then has two moves — to base the answer on her own experience or go along the path suggested by the authority — to pick {P<sub>b</sub>}. One might ask why bias in alternative questions is ignored, while there is a bulk of literature about biased polar questions. I guess this has to do

with spell-out. If both alternatives are overt, bias does not affect Hamblin semantics. It is also possible that the role of bias in polar questions is misconceived.

## 7.2. Biased *wh*-questions: To see Mary and to see nobody

The logical machine scenario is insufficient for proofing the existence of biased *wh*-questions. Sentences like (35b) represent a degraded case defined for denotatively closed Hamblin sets consisting of two propositions so that they are polar questions in disguise. Are biased *wh*-questions denoting expanding sets of alternatives possible? Rudnev [2023] argues that a *wh*-question ‘Who have you seen?’ cannot be met with a reply *I have not seen Mary* in any language. The answer *Nobody* (whatever it means in a real dialogue, see below) in that context is OK, but the message that the addressee has not seen some particular individual violates Hamblin’s and Dayal’s definition of complete answers. There are, however, situations where such a dialogue is felicitous. I argue that contexts like (37) show the missing link — biased *wh*-questions and answers to such questions. In Suda’s terms (2013), one deals here with evidential or inferential bias since the information that the addressee has an interest in Mary and Mary was expected to be in the same place as the addressee is part of the shared Common Ground.

(37) <Scenario: A and B know that Mary is used to coming to the university and that B likes Mary. B just returned from the university. A asks who B saw there today. >

A: [<sub>WH</sub> I<sub>PTCL</sub> ↗ **kogo**<sub>WH</sub> ty tam segodnya ↘ videl?]

‘And **who** have you seen there today?’

B: ↗ **Mashi** ne<sub>NEG</sub> ↘ videl.

‘I have not seen **Mary**.’ ≈ ‘You ask about Mary? I have not seen her.’

Along the same lines, one can build congruent dialogues about shopping, favorite music or conversational topics, and any other events that were expected but did not happen.

(38) <Scenario: John is a pianist. A and B know that he played some Beethoven sonatas in yesterday’s concert and that he usually plays Beethoven’s Seventh Sonata, but only B knows which ones John played yesterday. >

A: [<sub>WH</sub> I<sub>PTCL</sub> ↗ **kakie**<sub>WH</sub> zhe<sub>PTCL</sub> **sonaty** Ivan vchera igrat?]

‘And **which sonatas** did John play yesterday?’



B: ↗ *Sed'muyu ne*<sub>NEG</sub> ↘ *igral*.

'He did not play **the Seventh**.' ≈ 'You ask about the Seventh? This time, he did not play it.'

I am not aware of *wh*-questions with private epistemic bias, but retrieving a hidden presupposition from evidential bias is an option. One cannot exclude that the speaker in (37)–(38) asked an unbiased question without any hidden presupposition about the expected event, but the addressee was preoccupied with Mary or with the Seventh Sonata and abused the evidential strategy. I will not dwell on this scenario since these exchanges can be explained without the conjecture that the addressee has gone mad. Deciding whether (37)–(38) display partial or complete answers is more important. I argue for the latter since if there is no presupposition about the likelihood of seeing Mary or hearing the Seventh Sonata, and the addressee, out of the blue, denies that she saw M. or heard that piece of music, the dialogue is a communicative failure.

Let us turn to the perspective of *seeing nobody* in the Hamblin world. The answer 'nobody' is weird if both interlocutors know or believe that the addressee should have seen somebody. Nevertheless, the hidden presupposition can salvage such dialogues as (39).

(39) < *Scenario*: A and B are waiting for credits from their teachers. They know that only Professor Higgins and his assistant Dr. Stein can sign their student books. B just visited the Department. The room was full, but neither Professor H. nor Dr. S. were present. A asks who B has seen. B answers that he has seen nobody. >

A: [<sub>WH</sub> ↗ *Kogo*<sub>WH</sub> *ty* ↘ *videl?*].

'Who have you seen?'

B: ↘ *Nikogo*.

'Nobody.'

The interlocutors in (37)–(39) produce portmanteau questions. Overtly, these are unbiased *wh*-questions about the choice on a larger set of HA. However, the questioner is, in fact, interested in getting information about the relevant subset of alternatives: it is a singleton set in (37)–(38)<sup>29</sup> and a non-

<sup>29</sup> (37) and (38) do not exclude non-singleton subsets. If it was expected that *X* meet Mary and Olga, a reply like *Mashi i Oli ne videl* 'I have neither seen Mary nor Olga' is felicitous in (37).

singleton set in (39)<sup>30</sup>. The negative answer cancels the presupposition in all cases, the only difference being that in (37)–(38), the presupposition is about the likelihood of event *p* (*X saw Mary*; *X played the Seventh Sonata*), while in (39) the presupposition is about the satisfied wish that the event *p* be realized (*X assumed that Y and Z would appear and sign the record books*).

### 7.3. Bias outside polar questions: summary

The bias feature explains compositionally. There is no need to stipulate ad hoc an exclusive relation between bias and polar questions. Biased alternative and polar questions are possible under logical machine scenario and hidden presupposition scenario. The first scenario shows a degraded case of Hamblin semantics with a closed set of two propositions. Some languages allow converting biased polar questions into pragmatically equivalent alternative questions and *wh*-questions (35a–b). The second scenario is based on the interlocutors' ability to retrieve a hidden presupposition from the Common Ground and cancel it, as in (37)–(39).

## 8. Discussion

Two points must be clarified: 1) the contribution of the proposed analysis of biased questions to Semantics/Pragmatics divide. 2) the interpretation of language-specific phenomena.

### 8.1. The semantics-pragmatics divide

Hamblin semantics is straightforward. Pre-theoretically, it captures two intuitions: a) questions are different from non-questions; b) all types of questions are similar, so that if alternative questions  $[[? \text{ [ALT } (p \vee q) ] ]]$  denote exhaustive sets the same applies to polar questions  $[[? \text{ [PQ } (p \vee \neg p) ] ]]$  and *wh*-questions

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<sup>30</sup> A neutral way of asking a portmanteau question with the scenario (39) is to add the NPI item *kto-nibud* 'anyone' to a polar question:

- (i) < *Scenario*: A and B are waiting for credits from their teachers. They know that only Professor Higgins and his assistant Dr. Stein can sign their student books. B just visited the Department. The room was full, but neither Professor H. nor Dr. S. were present. A asks whether B has seen anyone. B answers that he has seen nobody. >

A:  $[_{PQ}$  Ty *kogo-nibud*'<sub>NPI</sub> / *videl?*].

'Have you seen anyone?'

B: \ *Nikogo*.

'Nobody.'

[[? [<sub>wh</sub> (p<sub>1</sub>, p<sub>2</sub>... p<sub>n</sub>)]]]. It is an effective tool if questions are its natural linguistic object, i.e., if 1) it in the non-modified form applies to all kinds of questions; 2) it cannot without substantial revision apply to non-questions. Alternative-setting expressions — *wh*-words and Kratzer, Shimoyama's indeterminate pronouns, quantifiers, indefinites, and negatives based on  $\exists$  and  $\forall$ , restrictors like *only*, modal particles — surely occur in non-questions. However, they are not sentences and thus are not a threat to Hamblin. Rooth's theory of focus [1985; 1992] claiming a Hamblin-style operator for all assertions poses a problem. Functional theories of the semantics-pragmatics interface generally reject that declaratives get the focus value by default. Yanko [Yanko 2001] argues that contrastive and verification sentences = potential answers corresponding to matching polar and alternative questions that introduce strictly limited sets of propositions, e.g., 'Did Sparrow dine out at the Zoo?', 'Did Sparrow really dine out at the Zoo?', 'Did Sparrow dine out at the Zoo or did he have dinner at home?'<sup>31</sup> have Hamblin semantics but vigorously denies that it is contained in plain assertions = potential answers corresponding to standard *wh*-questions, e.g., 'Where did Sparrow have dinner?' plusthetic sentences matching information-seeking or explanatory questions 'What happened?' and 'Why p?', cf. <What happened?> — Sparrow did not come for dinner. <Why are you so gloom?> — The Croc swallowed Sparrow. The assessment of this controversy is beyond the scope of my paper. Since my baseline assumption is that Hamblin's account is correct unless the opposite is proven, I cannot accept Yanko's claim that *wh*-questions lack Q. But I can reject Rooth's theory of focus, which is about assertions, not about specific features of questions. Nevertheless, I find his two-tier theory of meaning with an added focus-like value useful for analyzing questions.

Polar questions raise a concern about the limits of Hamblin approach for three reasons: 1) only one alternative is spelled out; 2) Q can be covert; 3) the speaker is often biased towards or against *p*. These three factors stimulated radical ideas that all polar questions are biased [Büring, Gunlaugson 2000], that polar questions lack Hamblin semantics and denote singleton sets [Biezma, Rawlins 2012], and that they might not be questions at all [Asher, Reese 2007]. In my survey, I did not find compelling evidence that all polar questions are biased: what matters is whether epistemic or evidential bias is encoded overtly in the form of the sentence or just inferred from the reconstructed men-

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<sup>31</sup> The examples are mine. They echo a child poem.

tal lives of the interlocutors, as in Professor Higgins contexts (34)–(36). The bias feature in questions can be explained compositionally: it arguably comes from presuppositional expressions (including modal particles) contained in some questions but not from Q. There are two kinds of question presuppositions. Each question has a sortal presupposition and some bring about existential or factive presuppositions. If one asks ‘Who killed John?’, one presupposes that John was killed, and if one asks ‘Did Sparrow have dinner at home today?’, one presupposes that S had dinner somewhere<sup>32</sup>. These primary presuppositions pass the wait-a-minute test [Von Stechow 2004] and can be canceled, which is in accord with Hamblin semantics since the reply ‘ $\emptyset$ ’ is part of the question denotation: — *Wait a minute. John was killed? Haven’t heard about that; — Alas, the poor thing did not have his dinner at all: the Croc swallowed him this morning.*<sup>33</sup> There are also secondary presuppositions coming from optional epistemic particles like Russian *razve* ‘X doubts that p’ (for PPQ) or ‘isn’t it’ (for NPQ) or affirmative markers like Russian *ved’* ‘after all’ (PPQ & NPQ). Such items combine with polar questions and bring about likelihood presuppositions for a set of two alternatives — either the likelihood of p is higher  $\langle P(p) \rangle > P(\neg p)$ , cf. [<sub>PPQ</sub> *Ved’<sub>PTCL</sub> Ivan byl ubit?*] ‘**After all**, John was killed?’, [<sub>NPQ</sub> *Razve<sub>PTCL</sub> Ivan ne<sub>NEG</sub> byl ubit?*], ‘**Wasn’t** John killed?’ or the likelihood of  $\neg p$  is higher  $\langle P(\neg p) \rangle > P(p)$ , cf. [<sub>PPQ</sub> *Razve<sub>PTCL</sub> Ivan byl ubit?*] ‘John was killed? **<Unlikely>**’. Since polar questions, except for degraded cases capitalized by Krifka [2015: 336], leave a choice between the answers “yes” and “no”, likeli-

<sup>32</sup> I assume that sortal presuppositions of polar questions in the absence of the implicit contrast (*to have dinner at home* versus *to dine out*) are realized via an abstract predicate with the features of one of the primary predicate types, e.g., PROPERTY, STATE, ACTION, so that [<sub>PQ</sub> *Is this shirt red?*] has the presupposition  $\alpha^{\text{PROPERTY}} \{p; \neg p\}$ , informally  $\approx$  ‘the shirt has the property  $\alpha$  such as that it either is red or not red’, [<sub>PQ</sub> *Are you cold?*] has the presupposition  $\alpha^{\text{STATE}} \{p; \neg p\}$ ,  $\approx$  ‘there is a state  $\alpha$  such as X can experience  $\alpha$  or not experience  $\alpha$  at the moment  $t$ ’, and [<sub>PQ</sub> *Did you eat the pizza?*] has the presupposition  $\alpha^{\text{ACTION}} \approx$  ‘there is an action  $\alpha$  such as X can either eat the pizza or not eat the pizza’. With alternative questions, the primary category is EVENT, so that [<sub>ALT</sub> *<What an awful noise!> Did you slip (p) or was your dad hanging the shelf (q)?*] has the presupposition  $\alpha^{\text{EVENT}} (p \oplus q) \approx$  ‘there is a pair of events p and q such that either p or q took place in w’. Such presuppositions can be canceled. Imagine the context: — *What an awful noise! P or q? — Neither. Your guess is wrong: it is music on my phone.* There are several ways of canceling presuppositions in polar questions. One can take Von Stechow’s prompt and cancel the existential presupposition in [<sub>PQ</sub> *Is this shirt red?*], cf. the reply: — *Hey! Wait a bit. This is a coat, not a shirt.* One can also cancel the sortal presupposition: — *Hey! Wait a bit. I do not know how to answer. This shirt is white with red stripes.*

<sup>33</sup> A paradox of polar questions is that canceled presuppositions do not block the answer ‘ $\neg p$ ’: — *No, he did not have dinner anywhere; he died before dinner.*

hood presuppositions normally can be canceled<sup>34</sup>. The elements bringing likelihood presuppositions do a double job — they range Hamblin alternatives and reduce Hamblin sets to non-empty relevant subsets. In polar questions, there are just two options, which makes the preferred option a singleton set. This gives rise to theories that polar questions are not exhaustive. However, the optional character of likelihood presuppositions and the evidence that bias marginally arises in other question types (section 7) indicate that this claim is unjustified. I conclude that biased questions show modified Hamblin sets, not the absence of Hamblin semantics. Discourse presuppositions can exceptionally highlight non-singleton sets of biased propositions, which is marginally possible in alternative and *wh*-questions like (36) and (39).

Hamblin semantics does not say much about pragmatics and is underspecified. It needs to be accommodated to discourse theories. This need stimulated many brilliant works and gave rise to new theories. It is unclear whether their concepts, e.g., the focus feature and Prosodic Closure are semantic, pragmatic or related to the semantics-to-pragmatics interface. The perspective of *seeing nobody* in the Hamblin world and canceling the presupposition of *wh*-questions is an inherent feature of Hamblin semantics. If we play by Hamblin rules and accept answers like ‘ $\emptyset$ ’, ‘There is no such event as “killing of John”’ to questions like ‘Who killed John?’ we are forced to accept answers like ‘ $\emptyset$ ’, ‘Neither *p* nor *q*’ to questions like ‘*p* or *q*?’. It is not so easy with polar questions. One needs an exhaustification condition [Xiang 2017: 55, 2022: 8] to ignore felicitous replies like ‘This is not a shirt’ or ‘This shirt has neither the property *p* nor the property  $\neg p$ ’ as valid answers to the question ‘Is this shirt red?’: the relevant condition here is ‘if this thing is a shirt in *w*, and all things in *w* are either red or not red’.

I am unsure whether claims that the possible world must conform to a language model should be considered part of semantics or not. Mainstream pragmatics, i.e., discourse models, interacts with Hamblin semantics in a twofold way — it contextualizes Hamblin sets and tells apart felicitous question-answer pairs and larger dialogue fragments from the infelicitous ones. It is certainly reasonable to minimize Hamblin sets down to an intuitively reliable size and to

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<sup>34</sup> The pick of the unlikely alternative *p* in *w*, i.e., the realization of *p* in *w* contrary to the speaker’s expectation, does not cancel likelihood presuppositions. An explicit strategy for canceling a secondary likelihood presupposition looks like this: — *Wait a bit. Your calculation is wrong. There are no grounds to assume that John was killed.* One might object that private epistemic bias cannot be canceled. That is true, but the addressee can challenge the questioner’s ability to process the data correctly, albeit this might appear rude.

expel the propositions with shadow agents like Cthulhu from the set of relevant alternatives. Scholars have different ideas about what counts as relevant. Moreover, the interlocutors sometimes assume non-identical sets of alternatives in (11), (12) and (36). In the most interesting case, the questioner identifies the relevant subset of alternatives, typically — a singleton set, via a likelihood presupposition. This is what happens in biased questions. Since the bias feature explains compositionally, I dubbed its contribution to the meaning of sentences ‘modified Hamblin semantics’ on the premise that extensions of Hamblin semantics are possible. If Hamblin semantics cannot be enriched, and the only way to handle it to constrain it, e.g., reduce Hamblin sets to Karttunen sets of true alternatives, bias studies pattern with pragmatics.

The remaining issues pattern with semantics-to-pragmatics interface. The CF filter introduced in section 3 claims that *c*-(ommunicative) structure mediates between logical form and spell-out: the logical form of the answer can only be established on pairs of sentences, where both the question and the answer have assigned *c*-structures. The Prosodic Closure taken to be a marker of exhaustive semantics is a similar condition, perhaps lying one step closer to the surface. I interpret it as a consequence of a more general principle that *c*-structure has a prosodic dimension. That returns us to the dilemma of whether rising intonation in questions encodes Force [Yanko 2001] or non-exhaustive semantics [Zimmermann 2000; Biezma, Rawlins 2012]. I opt for the first. Contrast and verification are two meanings that are always marked by prosody at *c*-structure. This holds both for declaratives and questions. A polar question under a default reading is not verificational unless it contains some optional component like English *really* or Russian *deistvitel’no*, but it is necessarily contrastive if the silent alternative is retrieved from the context and the addressee is free to pick it. It is logically possible to deny that polar questions have Hamblin semantics and simultaneously admit that they are contrastive at the level of *c*-structure only if one applies a two-tier theory of meaning with an added focus-like value. This is exactly what Biezma, Rawlins propose [ibid., 26]: they assume that the denotation of a polar question is a singleton set but restore the missing alternative from the context by pragmatic coercion. Paradoxically, their analysis arrives at the same end as Yanko [Yanko 2001: 49], who advocates a functional one-tier theory of meaning and claims that the meaning of a polar question is a Hamblin set. This precedent shows that questions as linguistic objects limit the number of reasonable solutions: different approaches arrive at the same end, and one can be cautiously optimistic. The meaning of verification (see section 5) combines with the meaning of questions and the bias com-

ponent in a compositional way. A declarative with a verification component asserts that X considered the hypotheses  $p$  and  $\neg p$  and verified  $p$ : [<sub>ASS</sub> ↗ Ivan ↘ ↘ **deistvitel'no**<sub>VER</sub> <sub>0</sub>byl <sub>0</sub>ubit] ~ [<sub>ASS</sub> ↗ Ivan ↘ ↘ **byl**<sub>VER</sub> <sub>0</sub>ubit] ‘John was **really** killed.’. A neutral polar question with a verification component brings a request to confirm or deny that any X verified  $p$ : [<sub>PPQ</sub> Ivan ↗ ↗ **deistvitel'no**<sub>VER</sub> <sub>0</sub>ubit?] ~ [<sub>PPQ</sub> Ivan ↗ ↗ **byl** <sub>0</sub>ubit?] ‘Was John **really** killed?’. A biased polar question brings a request to confirm or deny that the alternative  $p$  the speaker finds more likely, is true: [<sub>PPQ</sub> **Ved'**<sub>PTCL</sub> <sub>0</sub>Ivan <sub>0</sub>byl ↗ ubit?] ‘**After all**, John was killed, **right?**’. A biased polar question with an explicit verification marker brings a request to confirm or deny that any X verified the alternative  $p$  that the speaker finds more likely: [<sub>PPQ</sub> **Ved'**<sub>PTCL</sub> <sub>0</sub>Ivan ↗ ↗ **deistvitel'no**<sub>VER</sub> <sub>0</sub>ubit?] ~ [<sub>PPQ</sub> **Ved'**<sub>PTCL</sub> <sub>0</sub>Ivan ↗ ↗ **byl** <sub>0</sub>ubit?] ‘**After all**, John was really killed, **right?**’ I suggest that in two-tier theories of meaning, the second-tier focus-like feature should be reserved for bias since the verification component introduced by *really*, *deistvitel'no* or displayed by the accent shift <sub>0</sub>byl ↘ (<sub>Q</sub> ↗) ubit ‘was killed’ ⇒ ↘ ↘ (<sub>Q</sub> ↗) **byl**<sub>VER</sub> <sub>0</sub>ubit ‘**was** killed’ directly relates to the validity of verification procedure but not to the embedded proposition<sup>35</sup>.

I conclude that all core<sup>36</sup> types of question comply with the Hamblin picture and there is no need to exclude polar questions, where Q can be silent. Therefore, the most straightforward solution is to postulate one generalized Hamblin operator Q that can be overt or silent.

<sup>35</sup> Note that expressions like *certainly*, *of course*, *as a matter of fact*, *naturally*, Russian *konečno*, *samo soboi razumeetsya* can signal bias but lack verification semantics. Such expressions are often used as alienation markers so that a sentence like ↗ Ivan,<sub>0</sub> **konečno**, byl ↗ ubit? ‘John was **naturally** killed, right?’ can convey the meaning: ‘You are replicating the misconception that X was killed, aren’t you?’

<sup>36</sup> In my paper, I kept silent about two peripheral cases that raise complications for a Hamblin approach — conditional polar questions and *why* questions. Hamblin himself refused to consider the word *why* [1976: 254]. Probably, he felt that the answers to a [[Why  $p$ ?]] question are not necessarily exhaustive. Although the answers like ‘because  $q$ ’, ‘because  $r$ ’ pass the exhaustification test (roughly  $\approx$  one verbalized reason for  $p$  is enough for the world  $w$ ), this is not a valid explanation. Conditional questions [Isaacs, Rawlins 2008] leave too many answers depending on the partition of possible worlds and do not look like polar questions.

- (i) — *Will you come to the party if I buy a bottle of vodka and invite Kate?*
- a. *Yes.*
  - b. *No.*
  - c. *Only if you buy two bottles of vodka and also invite Ann.*
  - d. *Only if you apologize for your behavior.*
  - e. *I won’t come even if you buy ten bottles and invite a bunch of girls.*

I assume that Hamblin semantics can be extended to these question types but does not give the best description here.

## 8.2. Linguistic typology and semantic universals

This paper mentions language-specific details concerning prosody, fragments, distribution of particles, but discusses general models. I share three methodological assumptions on language comparison and linguistic typology. Typological research deals either with all the world's languages or with open classes of languages

1. There is no variation in logical structure across the world's languages. If the answer '∅' with canceling the question presupposition is part of a Hamblin denotation, it does not matter, how oft the speakers in Russian, English or Japanese communities apply to this option and cancel the presupposition.
2. The same holds for the groundwork of the semantics-to-pragmatics interface. The notions of 'theme', 'rheme', 'focus', 'contrast', 'verification', 'categorical sentence', 'thetic sentence' make sense only if they are universal notions and not just cross-linguistic categories rooted in the descriptions of some world's languages. How many languages are described in terms of theme-rheme articulation or focus, does not matter. It is, though, the plight of typologists to double-check whether these terms are used correctly and refer to the same things in the descriptions of different languages.
3. Semantics is the tertium comparationis of grammatical typology. To parametrize case systems, the distribution of verification particles, or any other language feature, one must assume that the applied definitions of case or verification are universal, even though there are case-less languages and languages without verification particles.

Thus, I deny the existence of semantic typology *sensu stricto* since typology is empirical science. The so-called lexical typology claiming the analysis of regular shifts in the lexical meaning is a viable branch of typology insofar as it is based on statistic tendencies retrieved from datasets containing fragments of diverse lexicons. The studies in the evolution of morphosyntactic categories involving a change in their meaning pattern with grammatical typology: a possible illustration is a scenario where perfect in language L or an open class of languages containing L acquires or loses evidential uses.

Are there any meaning-related things that pattern with typology and are not universal? I guess there are three candidates: grammaticalization, lexicalization, and constructions. The use of the Japanese clause-final particle *ka* or Slavic 2P particle *li* for encoding the meaning of polar questions results from



the grammaticalization process. It can occur regularly across the world's languages, but the fact that the corresponding Japanese and Slavic questions are typically unbiased is not trivial. In Russian, prosodic marking *in situ* is the primary cue for encoding the polar questions' meaning. It overrides other cues, and Russian polar questions marked by prosody alone are *ceteris paribus* unbiased. This result is not trivial either. The meaning of polar questions is neither Russian nor Japanese, Slavic or Altaic; it is universal. Still, each language develops its hierarchy of cues encoding this meaning, which partly predicts the bias effects and licensed combinations of question markers. The contracted English negation *n't*, as observed by Ladd [1986], contributes to bias effects in NPQs. This observation shows that unique (suffixed, cliticized, contracted) forms of negation are closely associated with epistemic modals, which is a general source of bias in NPQs. However, it does not predict that the epistemic operator in NPQ must be covert. The wide use of lexicalized negation forms like *isn't*, *hasn't*, *doesn't* in English NPQs compensates for the absence of high frequent epistemic particles like *ved'* and *razve* doing the same job in Russian biased polar questions. The term 'construction' is vague and biased. Under the most neutral reading, it refers to a conventionalized part of syntactic structure associated with a part of meaning structure in the language L. The default hypothesis is that constructions are language-specific and that the similarity of any constructions, e.g., cleft constructions in languages L and M, is not identity. Can questions be 'constructions' in the specified sense? Maybe. I have not met them in my data, and Hamblin semantics that guided me throughout this paper has not forced me to look for them.

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