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Interrogative particles in polar questions: the view from Finnish and Turkish

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The strategy used for forming polar questions varies across languages. While in some languages, polar questions are formed using a raising intonation, in others, polar questions are formed using an interrogative particle. This paper focuses on a type of interrogative particles which has not received much attention in the semantic literature. I call these particles *polar interrogative particles*. On the empirical side, I establish the signature properties of polar interrogative particles, and show that we need to draw a distinction between (at least) three types of interrogative particles cross-linguistically. On the theoretical side, I develop a full-fledged semantic analysis of these particles and of the questions where ther occur. The proposed account contributes to a better understanding of the source of presuppositions in questions and their projection behavior, and of the interaction between different sets of alternatives (namely, question and focus alternatives).

1 Introduction

The strategy used for forming polar questions varies across languages. For instance, in languages like English, polar questions are formed using a raising intonation (marked as ↑) and subject-auxiliary inversion, as illustrated in (1). In contrast, in other languages, polar questions are formed using an interrogative particle. Japanese is an example of such a language. As shown in example (2), polar questions can be formed using the interrogative particle *ka*.

(1) Are you leaving ↑ ?

(2) *Japanese* (Uegaki 2018)
Hanako-ga hashitta-**ka**?
Hanako-NOM ran-KA
'Did Hanako ran?'

Two main types of interrogative particles have been studied in the semantic literature: (i) particles like Japanese *-ka* (2) (Kuroda 1965; Hagstrom 1998; Uegaki 2018: a.o.), which can occur in interrogatives and can also form disjunctions and/or indefinites in declaratives (see Slade (2011) for a detailed discussion of some languages with this type of particles), and (ii) particles like Hindi-Urdu *kya:* (Biezma & Butt & Jabeen 2018; Bhatt & Dayal 2020), which are restricted to interrogatives (3).

(3) *Hindi-Urdu* (Bhatt & Dayal 2020)
kya: Anu = ne Uma = ko kita:b [di:]↑?
KYA Anu = ERG Uma = ACC book.F give.PFV.F
'Did Anu give a/the book to Uma?'

This paper focuses on another type of particles restricted to interrogatives, which I call *polar interrogative particles* (PolQPs).[1] I show that PolQPs differ from particles like Hindi-Urdu *kya:* in several respects: (i) they are mandatory in polar and alternative questions, (ii) they can be embedded under all kinds of question-embedding predicates, and (iii) they cannot function as the *wh*-word meaning 'what' in *wh*-questions. Two instances of PolQPs in two unrelated languages are investigated in this paper: the Finnish interrogative particle *-kO* (4a) and the Turkish interrogative particle *mI* (4b). The empirical goal is to identify the signature properties of PolQPs in order to provide a typology of interrogative particles cross-linguistically. To achieve this goal, I review some data discussed in previous literature (Holmberg et al. 1993; Holmberg 2003; Holmberg 2014 on Finnish -kO; Kamali 2011; Atlamaz 2015; Özyıldız 2015; Kamali & Krifka 2020 on Turkish mI) and clarify some of them by means of novel diagnostics in order to confirm

[1] In their paper, Bhatt & Dayal (2020) call the Hindi-Urdu particle *kya:* which occurs in polar questions like (3) polar interrogative particle. Even though I use the same terminology here, I show in Section 2 that we should draw a distinction between these two types of interrogative particles.

that they constitute characteristic properties of PolQPs. Furthermore, I provide new empirical evidence in favor of additional characteristic properties of these particles. Taken together, these data show that we need to draw a distinction between (at least) three types of interrogative particles cross-linguistically: (i) particles like Japanese *ka*, (ii) particles like Hindi-Urdu *kya:*, and (iii) PolQPs. Unless otherwise indicated, the data presented in this paper have been collected through elicitation sessions with one Finnish native speaker and three Turkish native speakers.

(4) a. *Finnish*
Lähti-**kö** Mari?
left-PolQP Mari
'Did Mari leave?'

b. *Turkish*
Oya Dilara'yı **mı** öp-tü?
Oya Dilara-ACC PolQP kiss-PST
'Did Oya kiss Dilara?'

On the theoretical side, building on Atlamaz (2015) and Kamali & Krifka (2020) I develop a full-fledged semantic analysis of PolQPs and a compositional account of the polar questions where they occur. Specifically, I propose that PolQPs are focus markers which are interpreted within the proposition out of which a question is formed. These particles carry an interrogative feature which must agree with an interrogative $C_{[+Q]}$ head. The focus alternatives triggered by the constituent they combine with project all the way to the interrogative $C_{[+Q]}$ head. In Finnish and Turkish (and in any other languages with such interrogative particle), $C_{[+Q]}$ is a focus operator which triggers an existential presupposition. I show that in addition to capturing the characteristic properties of PolQPs, this analysis accounts for two novel phenomena observed in Turkish polar questions (i.e., interaction between PolQPs and quantifiers, and intervention effects). The proposed account allows us to address core questions in two major research areas in semantics: namely, presuppositions and alternatives. Specifically, this paper contributes to a better understanding of the source of presuppositions in questions and their projection behavior. And as far as alternatives are concerned, it offers a compositional way to combine two types of alternatives (namely, focus alternatives and question alternatives) with the interrogative $C_{[+Q]}$ head, thus contributing to a better understanding of the interaction between different sets of alternatives more generally.

Even though PolQPs have received some attention in the syntactic literature (see Holmberg et al. 1993, Holmberg 2003, and Holmberg 2014 on Finnish -kO, and Kamali 2011 and Özyıldız 2015 on Turkish *mI*), not much is known about their semantics and the way they compose with other elements in the questions in which they occur. Recent work that contributes to a better understanding of the meaning of the Turkish interrogative particle is Atlamaz (2015) and Kamali & Krifka (2020). Part of the contribution of the current paper is parallel to theirs as the set of

data these studies are based on overlap (especially some data from Turkish). Nevertheless, these work also complement each other given that a large part of them is distinct: e.g., the proposed accounts differ and the papers are part of fundamentally distinct projects. For instance, while Kamali & Krifka's (2020) goal is to develop a theory of focus and contrastive topics in both questions and assertion, the current paper constitutes a first step toward the establishment of a typology of interrogative particles cross-linguistically and a theory of these particles.

The rest of this paper is organized as follows. Section 2 establishes the signature properties of PolQPs, and shows how these particles differ from the two other types of interrogative particles previously studied in the semantic literature, namely, particles like Japanese *ka* and particles like Hindi-Urdu *kya:*. Section 3 provides a semantic analysis of PolQPs and of the questions where they occur. In Section 4, I demonstrate how the proposed account captures the signature properties of these particles. Section 5 extends the analysis to two previously unnoticed phenomena in Turkish polar questions. And finally, Section 6 concludes.

2 A typology of interrogative particles

This section shows that PolQPs differ from particles like Japanese *ka* and particles like Hindi-Urdu *kya:*. In doing so, it establishes the signature properties of PolQPs using Finnish *-kO* and Turkish *mI* as examples. Data discussed in this section come from previous literature when specified (Holmberg et al. 1993, Holmberg 2003, and Holmberg 2014 on Finnish -kO; Kamali 2011, Atlamaz 2015, Özyıldız 2015 and Kamali & Krifka 2020 on Turkish *mI*) and from elicitation sessions with one Finnish native speaker and three Turkish native speakers.

2.1 PolQPs are mandatory

The first major difference between PolQPs and particles like Japanese *ka* and Hindi-Urdu *kya:* is that in contrast to the latter, PolQPs are mandatory (see Holmberg 2014 on Finnish *-kO* and Kamali & Krifka 2020 on Turkish *mI* and references therein). Example (5) shows that in Japanese and in Hindi-Urdu, the particles *ka* and *kya:* are optional in a question. In contrast, example (6) shows that when in Finnish and Turkish, the particles *-kO* and *mI* are not realized, the resulting polar questions are not well-formed.

(5) a. *Japanese*
Hanako-wa hashitta↑?
Hanako-TOP ran
'Did Hanako run?'

b. *Hindi-Urdu* (Bhatt & Dayal 2020)
Anu = ne Uma = ko kita:b [di:]↑?
Anu = ERG Uma = ACC book.F give.PFV.F
'Did Anu give a/the book to Uma?'

(6) a. *Finnish*
*Lähti Mari?
left Mari
(Int.) 'Did Mari leave?'

b. *Turkish*
*Oya Dilara'yı öp-tü?
Oya Dilara-ACC kiss-PST
(Int.) 'Did Oya kiss Dilara?'

2.2 PolQPs are restricted to polar and alternative questions

As mentioned in the introduction, particles like Japanese *ka* can also form disjunctions and/or indefinites in declaratives. This is not a property shared by particles like Hindi-Urdu *kya:* and PolQPs, which are all restricted to interrogatives.[2]

As far as their occurrence in interrogatives is concerned, the three types of particles can appear in polar and alternative questions. This is illustrated in example (7) for Japanese *ka*, in example (8) for Hindi-Urdu *kya:* and in examples (9) and (10) for PolQPs (see Holmberg 2014, a.o., on Finnish *-kO*; and Kamali 2011, Atlamaz 2015, Özyıldız 2015 and Kamali & Krifka 2020 on Turkish *mI* for further examples)

(7) *Japanese* (Uegaki 2018)
a. Hanako-ga hashitta-**ka**?
Hanako-NOM ran-KA
'Did Hanako ran?' ✓Polar Q

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[2] Atlamaz (2015) notes that Turkish *mI* can appear in certain conditionals, as shown below.

(i) *Turkish*
Ali geldi **mi** gider-iz.
Ali come.PST PolQP go-1PL
'We'll leave when Ali comes.'

The fact that some expressions restricted to interrogatives can appear in conditionals or in structures comparable to conditionals is quite common across languages, even in languages which do not necessarily have PolQPs. For instance, French *si* can introduce both embedded questions (iia) and antecedents of conditionals (iib).

(ii) *French*
a. Je me demande **si** Zoé viendra.
I me ask if Zoe come.FUT
'I wonder whether Zoe will come.'

b. **Si** Zoé vient, je serai contente.
if Zoe comes I be.FUT happy
'If Zoe comes, I will be happy.'

Whether these expressions should have a unified analysis in both interrogatives and conditionals is a question that is outside the scope of this paper.

b. Hanakotion-ga hashitta-**ka** Jiro-ga hashitta-**ka** (oshiete).
Hanako-NOM ran-KA Jiro-NOM ran-KA tell
‘ (Tell me) which is true: Hanako ran or Jiro ran?’ ✓Alternative Q

(8) *Hindi-Urdu* (Bhatt & Dayal 2020)

a. **kya:** Anu = ne Uma = ko kita:b [di:]↑?
KYA Anu = ERG Uma = ACC book.F give.PFV.F
‘Did Anu give a/the book to Uma?’ ✓Polar Q

b. **kya:** tum ca:i pi-yoge↑ ya: coffee?
KYA you tea drink-FUT.2MPL or coffee
‘Will you drink tea or coffee?’ ✓Alternative Q

(9) *Finnish*

a. Lähti-**kö** Mari?
left-PolQP Mari
‘Did Mari leave?’ ✓Polar Q

b. Lähti-**kö** Mari vai Pekka?
left-PolQP Mari or Pekka
‘Did Mari leave or did Pekka leave?’ ✓Alternative Q

(10) *Turkish*

a. Oya Dilara’yı **mı** öptü?
Oya Dilara-ACC PolQP kiss.PST
‘Did Oya kiss Dilara?’ ✓Polar Q

b. Oya Dilara’yı **mı** öp-tü (yoksa) Ali’yi **mi**?
Oya Dilara-ACC PolQP kiss-PST or Ali-ACC PolQP
‘Did Oya kiss Dilara or did she kiss Ali?’ ✓Alternative Q

Just like in polar questions, the use of PolQPs is mandatory in alternative questions. In Turkish, both instances of *mI* are obligatory.

(11) a. *Finnish*
*Lähti Mari vai Pekka?
left Mari or Pekka
(Int.) ‘Did Mari leave or did Pekka leave?’

b. *Turkish*
*Oya Dilara’yı öp-tü (yoksa) Ali’yi?
Oya Dilara-ACC kiss-PST or Ali-ACC
(Int.) ‘Did Oya kiss Dilara or did she kiss Ali?’

Particles like Japanese *ka* and PolQPs also differ in their ability to participate in the formation of *wh*-questions. While Japanese *ka* can participate in the formation of these questions (12), PolQPs cannot (see Kamali & Krifka (2020) on Turkish *mI*) as illustrated in (13).[3]

(12) *Japanese* (Uegaki 2018)
Dare-ga hashitta-**ka** (oshiete).
who-NOM ran-KA tell
'(Tell me) who ran?'

(13) a. *Finnish*
*Kuka-**ko** lähti?
who-PolQP left
(Int.) 'Who left?'

b. *Turkish*
*Kim Dilara'yı **mı** öp-tü?
who Dilara-ACC PolQP kiss-PST
(Int.) 'Who kissed Dilara?'

As for Hindi-Urdu *kya:*, while it does not occur in *who*-questions, it participates in the formation of *what*-questions (Biezma & Butt & Jabeen 2018; Bhatt & Dayal 2020). Specifically, it functions as the *wh*-word meaning 'what', as shown in (14).

(14) *Hindi-Urdu* (Bhatt & Dayal 2020)
Anu = ne Uma = ko **kya:** [diya:]↓?
Anu = ERG Uma = ACC what give.PFV
'What did Anu give to Uma?'

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[3] Even though PolQPs cannot participate in the formation of *wh*-questions, they can co-occur with a *wh*-word in a question in both Finnish and Turkish, as illustrated in (i) and (ii) respectively (see Kamali & Krifka 2020 on Turkish *mI*).

(i) *Finnish*
Mitä-**kö** Pekka osti? No koiran tietenkin.
what-PolQP Pekka bought well dog of.course
'Are you asking what Pekka bought? Well, a dog of course.'

(ii) *Turkish*
Kim **mi** *Sessizev*-i aldı? Tabiki de Can aldi.
who PolQP *Sessizev*-ACC bought of.course FOC Can bought
'Are you asking who bought *Sessizev*? Of course, Can bought it.'

As the paraphrases suggest, the two questions in (i) and (ii) are not *wh*-questions – they are in fact polar questions of a special kind. Further research is required to better understand the composition of these questions.

Biezma & Butt & Jabeen (2018) have shown that *kya:* used as an interrogative particle in polar and alternative questions and *kya:* used as a *wh*-word do not share the same prosody. Based on this, previous studies investigating this particle have focused on its use in polar and alternative questions (Biezma & Butt & Jabeen 2018; Bhatt & Dayal 2020). As mentioned by Bhatt & Dayal (2020) however, it might be that the two instances of *kya:* are accidentally homophonous or that these two have a deeper connection – especially in light of the fact that other languages with presumably the same type of interrogative particles like Bangla and Odia (Syed & Dash 2017), and Italian and Slovenian (Bhatt & Dayal 2020), show the same homophony. This issue which requires further research would deserve a paper on its own. What is important for the current discussion is that PolQPs – in contrast to particles like Hindi-Urdu *kya:* – cannot act as the *wh*-word meaning 'what' in *wh*-questions.

2.3 PolQPs can be embedded

Another difference between Hindi-Urdu *kya:* and PolQPs concerns their ability to be embedded. Specifically, while *kya:* can only be embedded under a subset of question-embedding predicates, PolQPs do not show the same restrictions. For instance, example (15) shows that *kya:* can be embedded under the rogative predicate *pu:ch* 'ask', but cannot be embedded under the responsive predicate *ja:n* 'know'.[4]

(15) *Hindi-Urdu* (Bhatt & Dayal 2020)

a. Ṭi:car=ne Anu=se pu:ch-a: [ki **kya:** vo ca:i piyegi:].
teacher=ERG Anu=from ask-PFV that KYA s/he tea drink.FUT.3FSG
'The teacher asked Anu whether she would drink tea.'

b. *Anu ja:n-ti: hai [ki **kya:** tum ca:i piyoge].
Anu.F know.HAB.F be.PRS.SG that KYA you tea drink.FUT.2MPL
(Int.) 'Anu knows whether you will drink tea.'

In contrast, PolQPs can be embedded under both kinds of question-embedding predicates, as illustrated in (16) and (17) for Finnish and Turkish respectively.[5]

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[4] The restrictions that *kya:* is subject to in embedded interrogatives are more complex than what is presented here. I refer the reader to Bhatt & Dayal (2020) for further details.

[5] As noted by an anonymous reviewer, there are multiple ways of embedding a clause in Turkish: some embedded clauses are referred to as nominalized embedded clauses and others as tensed or finite embedded clauses. Examples (17) show that PolQP *mI* can occur in tensed embedded clauses. Kamali & Krifka (2020) show that this interrogative particle can also occur in nominalized embedded clauses under the responsive predicate 'know', as in (i).

(i) *Turkish* (Kamali & Krifka 2020)
Merve [Ali-nin mi iskambil oyna-dığ-ın-ı] bil-iyor.
Merve Ali-GEN PolQP card play-NOM-3SG-ACC know-PRES
'Merve knows whether it was Ali who played cards.'

(16) *Finnish*

a. Jenna kysyi [on-**ko** huomenna hyvä sää].
Jenna asked is-PolQP tomorrow good weather
'Jenna asked whether tomorrow's weather will be nice.'

b. Jenna tietää [on-**ko** huomenna hyvä sää].
Jenna knows is-PolQP tomorrow good weather
'Jenna knows whether tomorrow's weather will be nice.'

(17) *Turkish*

a. Ali [Oya *Sessizev*'i **mi** al-dı] merak ediyor.
Ali Oya *Sessizev*-ACC PolQP buy-PST wonder
'Ali wonders whether Oya bought *Sessizev*.'

b. Ali [Oya *Sessizev*'i **mi** al-dı] biliyor.
Ali Oya *Sessizev*-ACC PolQP buy-PST know
'Ali knows whether Oya bought *Sessizev*.'

As far as embedding is concerned, PolPQs resemble particles like Japanese *ka* which can be embedded under both rogative and responsive predicates as well.

(18) *Japanese*

a. Hanako-wa [Jiro-ga hashitta-**ka**] kiita.
Hanako-TOP Jiro-NOM ran-KA asked
'Hanako asked whether Jiro ran.'

b. Hanako-wa [Jiro-ga hashitta-**ka**] shitteiru.
Hanako-TOP Jiro-NOM ran-KA know
'Hanako knows whether Jiro ran.'

2.4 PolQPs are focus-sensitive

To my knowledge, interrogative particles like Japanese *ka* have not been claimed to show focus-sensitivity. In contrast, Biezma & Butt & Jabeen (2018) and Bhatt & Dayal (2020) show that the interrogative particle *kya:* is focus-sensitive and can associate with material to its right. As illustrated in example (19), only expressions that follow *kya:* can be negated and thus targeted for correction. For further evidence in favor of the focus-sensitivity of *kya:*, I refer the reader to Biezma & Butt & Jabeen (2018) and Bhatt & Dayal (2020).

(19) *Hindi-Urdu* (Bhatt & Dayal 2020)
Ram=ne Sita=ko **kya:** kal kita:b di: thi:?
Ram=ERG Sita-DAT KYA yesterday book.F give.PFV.F be.PST.F
'Had Ram given a/the book to Sita yesterday?'

a. #Nahĩ:, Shyam-ne di: thi:.
NEG Shyam=ERG give.PFV.F be.PST.F
'No, Shyam did.'

b. Nahĩ:, parsõ di: thi:.
NEG day.before.yesterday give.PFV.F be.PST.F
'No, the day before yesterday.'

c. Nahĩ:, magazine di: thi:.
NEG magazine give.PFV.F be.PST.F
'No, he gave her a magazine yesterday.'

Similarly, PolQPs have been shown to be focus-sensitive (Holmberg 2014; Kamali 2011; Atlamaz 2015; Kamali & Krifka 2020, a.o.). In all the Finnish and Turkish examples discussed up to now, PolQP *-kO* attached to the predicate, and PolQP *mI* occurred right after the object – these constitute the unmarked case. However, the distribution of these particles is more flexible than what these previous examples suggest. Specifically, Finnish *-kO* can attach to other elements in the question, as in (20), as can Turkish *mI* (21). In both languages, varying the position of the interrogative particle affects the interpretation of the question.

(20) *Finnish*
Mari-**ko** lähti?
Mari-PolQP left
'Was it Mari who left?'

(21) *Turkish*
Oya (**mı**) *Sessizev*'i (**mi**) al-dı (**mı**)?
Oya PolQP *Sessizev*-ACC PolQP buy-PST PolQP

In what follows, I adapt Bhatt & Dayal's (2020) diagnostics to Finnish and Turkish to show that the two PolQPs usually associate with the constituent they follow. For a discussion of other kinds of focused expressions (e.g., verbs, adjectives) or more complex constituents focused (e.g., PPs, VPs) whereby PolQPs can associate with a constituent that contains a focused expression (see Section 4.2), I refer the reader to Holmberg (2014) for Finnish *-kO* and Kamali (2011) and Özyıldız (2015) for Turkish *mI*. The first diagnostic is about the formation of alternative questions. Examples (22)–(25) show that alternative questions can only be formed on phrases that precede PolQPs *-kO* and *mI*, wether the interrogative particles follow the subject of the question, the object or the adverb.

As of now, I will add brackets to the examples to highlight the interrogative particle and the constituent it associates with.

(22) *Finnish*

[Zoe-**ko**] osti eilen uuden pyörän ...
Zoe-PolQP buy.PST yesterday new bike ...
'Is it Zoe who bought a new bike yesterday ...

a. vai Lou?
or Lou
'or is it Lou?'

b. #vai kirjan?
or book

c. #vai toissapäivänä?
or day.before.yesterday

d. #vai vuokrasi?
or sell-PST

(23) *Finnish*

[Pyörän-**kö**] Zoe osti eilen ...
bike-PolQP Zoe buy.PST yesterday ...
'Is it a bike that Zoe bought yesterday ...

a. #vai Lou?
or Lou

b. vai kirjan?
or book
'or is it a book?'

c. #vai toissapäivänä?
or the.day.before.yesterday

d. #vai vuokrasi?
or sell.PST

(24) *Turkish*

[Oya **mı**] dün yeni bir bisiklet al-dı ...
Oya PolQP yesterday new one bike buy-PST
'Is it Oya who bought a new bike yesterday ...

a. Ali **mi**?
Ali PolQP
'or is it Ali?'

b. #önceki gün **mü**?
before day PolQP

c. #kitap **mı**?
book PolQP

d. #sat-tı **mı**?
sell-PST PolQP

(25) *Turkish*
Oya [dün **mü**] yeni bir bisiklet al-dı ...
Oya yesterday PolQP new one bike buy-PST
'Is it yesterday that Oya bought a new bike ...

a. #Ali **mi**?
Ali PolQP

b. önceki gün **mü**?
before day PolQP
'or is it the day before?'

c. #kitap **mı**?
book PolQP

d. #sat-tı **mı**?
sell-PST PolQP

The second diagnostic is about negative responses. Examples (26)-(29) show that expressions that precede PolQPs are the only ones that can be negated and thus targeted for correction in both Finnish and Turkish. Again, this is the case whether the interrogative particles follow the subject of the question, the object or the adverb.

(26) *Finnish*
[Zoe-**ko**] osti eilen uuden pyörän?
Zoe-PolQP buy.PST yesterday new bike
'Is it Zoe who bought a new bike yesterday?'

a. Ei, vaan Lou.
no, but Lou
'No, it is Lou.'

b. #Ei, vaan kirjan.
no but book

c. #Ei, vaan toissapäivänä.
no but day.before.yesterday

d. #Ei, vaan vuokrasi.
no but sell-PST

(27) *Finnish*

[Pyörän-**kö**] Zoe osti eilen?
bike-PolQP Zoe buy.PST yesterday
'Is it a bike that Zoe bought yesterday?'

a. #Ei, vaan Lou.
no, but Lou

b. Ei, vaan kirjan.
no but book
'No, it is a book.'

c. #Ei, vaan toissapäivänä.
no but day.before.yesterday

d. #Ei, vaan vuokrasi.
no but sell-PST

(28) *Turkish*

[Oya **mı**] dün yeni bir bisiklet al-dı?
Oya PolQP yesterday new one bike buy-PST
'Is it Oya who bought a new bike yesterday?'

a. Hayır, Ali (al-dı).
no Ali buy-PST
'No, it is Ali.'

b. #Hayır, önceki gün.
no before day

c. #Hayır, kitap.
no book

d. #Hayır, sat-tı.
no sell-PST

(29) *Turkish*

Oya [dün **mü**] yeni bir bisiklet al-di?
Oya yesterday PolQP new one bike buy-PST
'Is it yesterday that Oya bought a new bike?'

a. #Hayır, Ali (al-dı).
no Ali buy-PST

b. Hayır, önceki gün.
no before day
'No, it is the day before.'

c. #Hayır, kitap.
no book

d. #Hayır, sat-tı.
no sell-PST

2.5 Presence of an existential presupposition

With this section ends our discussion of the characteristic properties of PolQPs and of the questions where they occur. Polar questions involving PolQPs differ from polar questions in languages like English for instance – and to my knowledge, from polar questions in languages like Japanese – in that they come with an existential presupposition (see e.g. Atlamaz 2015 on Turkish). For instance, the questions in (30) and (31), in Finnish and Turkish respectively, both presuppose that someone left.[6]

(30) *Finnish*

a. [Mari-**ko**] lähti?
Mari-PolQP left
'Was it Mari who left?'

b. *Presupposes:* Someone left.

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[6] Questions involving PolQPs are often translated using cleft constructions in English. As pointed out by an anonymous reviewers, clefts are known to come with an exhaustivity inference in addition to an existential presupposition (e.g., Velleman et al. 2012; Büring & Križ 2013; De Veaugh-Geiss et al. 2018; and references therein). What the status of this exhaustivity inference and its exact form are is not relevant for our discussion. Consider now the examples in Finnish and Turkish in (i) and (ii) respectively. These questions are all answered positively, and crucially come with a continuation stating that the focused expression in the question is not the only individual making the proposition true. If questions involving PolQPs were coming with an exhaustivity inference, these continuations should be unfelicitous. The fact that they are not suggests that polar questions involving PolQPs do not come with such an inference, and thus are not the equivalent of English interrogatives involving a clefted constituent.

(i) *Finnish*

a. [Mari-ko] lähti?
Mari-PolQP leave.PST
'Was it Mari who left?'

b. Kyllä, ja Aino myös.
yes and Aino too
'Yes, and Aino left too.'

(ii) *Turkish*

a. [Oya mı] Dilara'yı öp-tü?
Oya PolQP Dilara-ACC kiss-PST
'Was it Oya who kissed Dilara?'

b. Evet, bir de Ali öp-tü.
Yes, one ADD Ali kiss-PST
'Yes, and Ali kissed her too.'

(31) *Turkish*

a. [Oya **mı**] ayrıl-dı?
Oya PolQP leave-PST
'Was it Oya who left?'

b. *Presupposes:* Someone left.

Although to my knowledge it has not been discussed explicitly in previous literature, some polar questions involving Hindi-Urdu *kya:* seem to come with an existential presupposition as well. For instance, example (32) suggests that the two questions in (a) and (b) differ in the presuppositions they come with. The first question is unfelicitous in the given context because its presupposition (i.e., there is something that John gave to Amra) is not satisfied, whereas the second question is felicitous because its presupposition (i.e., there is someone whom John gave a toy to) is satisfied. Whether polar questions involving particles like Hindi-Urdu *kya:* indeed come with an existential presupposition will need to be carefully investigated in future work.

(32) *Hindi-Urdu* (Biezma & Butt & Jabeen 2018)
Context: I know that John gave a toy to someone.

a. #Jon=ne amra=ko **kya:** khılona di-ya?
John=ERG Amra=DAT KYA toy.M.SG.NOM give-PERF.M.SG
'Did John give a toy to Amra?'

b. Jon=ne **kya:** amra=ko khılona di-ya?
John=ERG KYA Amra=DAT toy.M.SG.NOM give-PERF.M.SG
'Did John give a toy to Amra?'

In what follows, I adapt some well-known tests to diagnose the presence of the existential presupposition in polar questions involving PolQPs. First, when the speaker does not take for granted that someone left, the two polar questions given above are unfelicitous, as shown in (33) and (34). This provides evidence in favor of the presence of a presupposition of the form 'Someone left.'.

(33) *Finnish*
I don't know whether someone left there.
#[Mari-**ko**] sinne lähti?
Mari-PolQP there leave.PST
'Was it Mari who left there?'

(34) *Turkish*
I don't know whether someone left.
#[Oya **mı**] ayrıl-dı?
Oya PolQP leave-PST
'Was it Oya who left?'

Another well-known diagnostic for presuppositions is the 'Hey, wait a minute' test. von Fintel (2004) claims that if a sentence *S* presupposes *P*, one can respond 'Hey, wait a minute. I didn't know that P.' In examples (35) and (36), I adapt this test to Finnish and Turkish respectively. These examples show that the two polar questions come with an existential presupposition of the form 'Someone left.' and 'Someone kissed Dilara.' respectively.

(35) *Finnish*

a. [Mari-**ko**] sinne lähti?
Mari-PolQP there leave.PST
'Was it Mari who left there?'

b. Odotapas hetki. Minä en edes tiennyt että joku lähti sinne.
wait.IMP moment I NEG even know that someone leave.PST there
'Wait a moment. I did not even know that someone left there.'

(36) *Turkish*

a. [Oya **mı**] Dilara'yı öp-tü?
Oya PolQP Dilara-ACC kiss-PST
'Was it Oya who kissed Dilara?'

b. Bi saniye bi saniye, birisi-nin Dilara'yı öp-tüğ-ü-nden
one sec one sec someone-GEN Dilara-ACC kiss-VN-3S.POSS-ABL
haber-im yok-tu.
news-1S.POSS not.exist.PST
'Wait a second, I had no idea that someone had kissed Dilara.'

To sum up, I have shown in this section that the differences between particles like Japanese *ka* and PolQPs are the following:

(i) Unlike *ka*, PolQPs are mandatory;
(ii) Unlike *ka*, PolQPs are restricted to interrogatives;
(iii) Unlike *ka*, PolQPs cannot participate in the formation of *wh*-questions;
(iv) Unlike *ka*, PolQPs are focus-sensitive;
(v) Unlike polar questions involving *ka*, polar questions involving PolQPs come with an existential presupposition.

And the differences between particles like Hindi-Urdu *kya:* and PolQPs are the following:

(i) Unlike *kya:*, PolQPs are mandatory;
(ii) Unlike *kya:*, PolQPs cannot function as the *wh*-word meaning 'what' in a *wh*-question;
(iii) Unlike *kya:*, PolQPs can be embedded under all kinds of question-embedding predicates.

Table 1 summarizes the uses of the three types of interrogative particles. As illustrated in this table, Finnish *-kO* and Turkish *mI* pattern alike.

Drawing from data found in previous literature as well as novel data in Finnish and Turkish, I have established in this section the signature properties of PolQPs. I have further shown that PolQPs differ from interrogative particles well-studied in the semantic literature, and thus that we need to draw a distinction between (at least) three types of interrogative particles cross-linguistically: (i) particles like Japanese *ka*, (ii) particles like Hindi-Urdu *kya:*, and (iii) PolQPs. Although I limited my discussion to Finnish *-kO* and Turkish *mI*, PolQPs are presumably more widely spread across languages than one may have previously thought. For instance, other possible candidates are Bulgarian *li* (Rudin 2012), Quechua *chu* (Juan Carlos Romero Ventura, p.c.) and Russian *li* (King 1993 and references therein, Lena Borise, p.c.).[7] To determine whether these particles are truly PolQPs or rather belong to the second type of interrogative particles, further work is required.

	Japanese	**Hindi-Urdu**	**Finnish**	**Turkish**
Mandatory	no	no	yes	yes
Q only ?	no	yes	yes	yes
Polar Q	yes	yes	yes	yes
Alternative Q	yes	yes	yes	yes
Wh-Q	yes	sometimes	no	no
Embedded Q	yes	sometimes	yes	yes
Focus-sensitivity	no	yes	yes	yes
∃-presupposition	no	yes?	yes	yes

Table 1: Characteristic uses of the three types of interrogative particles.

[7] At first sight, it seems that Russian *li* differs from PolQPs in that its use is not mandatory in matrix interrogatives. In other words, matrix polar questions without *li* are well-formed in Russian. However, when *li* is absent, a raising intonation seems to be required. Thus, it might be that several strategies are available in Russian to form polar questions: one can either use the interrogative particle *li* or a raising intonation. When speakers choose to use *li*, the use of the interrogative particle is mandatory. One way to verify this is to look at embedded interrogatives. Because raising intonation is a root phenomenon, this strategy is not available to embed a question. As a result, one can only use the interrogative particle strategy. Example (i) shows that in this case *li* is mandatory.

(i) *Russian*

a. Ja spros-i-l-a [prish-l-a *(**li**) Zoj-a].
1SG ask-TH-PST-F come-PST-F LI Zoj-NOM
'I asked whether Zoe came.'

b. Ja zna-ju [prixod-i-l-a *(**li**) Zoj-a].
1SG know-PRS-1SG come-TH-PST-F LI Zoj-NOM
'I know whether Zoe came.'

3 A multi-dimensional analysis of PolQPs-questions

This section presents my proposal for questions containing PolQPs (henceforth PolQPs-questions) which involves the following ingredients:

i. PolQPs are cross-categorial particles which can attach to any constituent in the structure;
ii. PolQPs are focus markers interpreted within the proposition out of which the question is formed;
iii. The focus alternatives triggered by the constituent PolQPs combine with project all the way up to the interrogative $C_{[+Q]}$ head;
iv. In languages with PolQPs, the interrogative $C_{[+Q]}$ head is a focus operator which triggers an existential presupposition.

3.1 A baseline semantics for polar questions

There are two main approaches to the semantics of questions which differ with respect to what a question denotes. On the approach adopted in this paper, questions denote a set of propositions (Hamblin 1973; Karttunen 1977). As far as polar questions are concerned, it has been argued in the past decade that these questions do not denote a set containing both of their possible answers, but rather denote a singleton set which only contains the proposition out of which the question is formed (Biezma & Rawlins 2012; Roberts 2012; Roelofsen & Farkas 2015: a.o.). Empirical arguments in favor of such an analysis come from the distinct behavior of polar questions and alternative questions, biased polar questions, the interpretation of response particles, among others. On this proposal, the polar question in (37) can be analyzed as in (38). That is, it denotes the singleton set which contains the proposition *that Zoe left*.

(37) Did Zoe leave?

(38) a. $[_{CP}\ C_{[+Q]}\ [_{TP}$ Zoe left]]
b. $[\![\ \text{TP}\ ]\!] = \lambda w.\text{left}_w(z)$
c. $[\![\ C_{[+Q]}\ ]\!] = \lambda q_{\langle s,t\rangle}.\lambda p_{\langle s,t\rangle}.p = q$
d. $[\![\ \text{CP}\ ]\!] = \lambda p_{\langle s,t\rangle}.p = \lambda w.\text{left}_w(z)$

The question whether polar questions denote singleton sets or sets containing both of their possible answers is outside the scope of this paper. For the sake of consistency with the recent literature on polar questions, I adopt the singleton analysis. However, my proposal for questions involving PolQPs which will be presented in the next section does not rely on this analysis.

As is well-known, presuppositions triggered within declaratives survive in polar questions. That is, the polar question in (39a), just like the declarative *Zoe brought the cake.*, presupposes that there is a unique contextually relevant cake. To capture the projection of presuppositions in polar questions, I adopt Guerzoni's (2003) proposal according to which the interrogative $C_{[+Q]}$ head

denotes a function that inherits the definedness conditions of its argument. The new interrogative $C_{[+Q]}$ head is defined in (40c). Once we combine $C_{[+Q]}$ with the proposition in (40b), we obtain the interpretation in (40d) for the question in (39a). This question as a whole presupposes that there is exactly one contextually relevant cake. We thus derive the presupposition given in (39b) that this question comes with.

(39) a. Did Zoe bring the cake?
b. *Presupposition:* There is a unique (contextually relevant) cake.

(40) a. $[_{CP}\ C_{[+Q]}\ [_{TP}$ Zoe brought the cake]]
b. $[\![\ \text{TP}\ ]\!] = \lambda w\text{: } \exists!x[\text{cake}_w(x)].\text{brought}_w(\iota x :\text{cake}_w(x))(z)$
c. $[\![\ C_{[+Q]}\ ]\!] = \lambda q.\lambda w : w \in dom(q).\lambda p.p = q$
d. $[\![\ \text{CP}\ ]\!] = \lambda w\text{: } \underline{\exists!x[\text{cake}_w(x)]}.$
$\lambda p.p = \lambda w\text{: } \exists!x[\text{cake}_w(x)].\text{brought}_w(\iota x :\text{cake}_w(x))(z)$

With this baseline analysis for polar questions and their presuppositions in hand, I turn to my proposal for questions involving PolQPs in the next section.

3.2 Analysis of PolQPs-questions

On the syntactic side, building on Holmberg's (2014) proposal for Finnish *-kO* I propose that PolQPs can be merged anywhere in a tree as long as they c-command a [Foc] feature. They carry a [uFoc] feature which needs to enter in an Agree-relation with a valued [Foc] feature. In addition, PolQPs carry an interrogative [uQ] feature which needs to agree with an interrogative $C_{[Q]}$ head. To illustrate that the Agree-relation between $C_{[Q]}$ and the PolQP has taken place, I will rewrite the interrogative C-head $C_{[+Q]}$ in the remainder of this paper. Languages differ in whether the PolQP together with the constituent it associates with moves to the specifier of FocP or not. While in Turkish, the *mI*-phrase (i.e., the phrase made of *mI* and the constituent it associates with) can remain in situ, in Finnish, the *kO*-phrase (i.e., the phrase made of *-kO* and the constituent it associates with) moves to Spec,FocP on the surface.[8]

On the semantic side, I build on Atlamaz (2015) and Kamali & Krifka (2020) and analyze PolQPs as focus markers which are interpreted within the proposition out of which the question is formed. In other words, I claim that PolQPs are interpreted below the interrogative $C_{[+Q]}$ head. These particles can combine with constituents of any semantic type as long as these constituents

[8] This syntactic analysis differs from Kamali's (2011) and Ödeniz's (2015) analyses of Turkish *mI*. In particular, both Kamali and Ödeniz propose that *mI* is generated as the head of a projection below the interrogative $C_{[+Q]}$ head and attracts the constituent it associates with to its specifier. As far as I know, there is no strong argument in favor of their analysis or in favor of mine. However, the syntactic analysis I adopt here – namely, that PolQPs are crosscategorial particles that can attach to any constituent in the structure – allows us to provide a unified analysis of the two particles under study, namely Finnish *-kO* and Turkish *mI*.

contain a focused expression. When α is a focused expression (or contains a focused expression), the contribution of PolQPs is vacuous, as shown below.

(41) $[\![\alpha_F \text{-}kO/mI]\!]^g = \alpha$

I adopt a two-tier alternative semantics analysis of focus (Rooth 1985; 1992) according to which the function of focus is to evoke alternatives. On this analysis, expressions come with both an ordinary (o-value) and a focus-semantic value (f-value). The f-value of an expression which does not carry any F-feature is the singleton-set that contains its ordinary semantic value, as illustrated in (42). In contrast, the f-value of an F-marked expression corresponds to the set of objects of the same semantic type. As for its o-value, it is the same as its regular semantic value without an F feature, as illustrated in (43).

(42) a. $[\![\text{Zoe}]\!]^o = z$
b. $[\![\text{Zoe}]\!]^f = \{\text{z}\}$

(43) a. $[\![\text{Zoe}_F]\!]^o = z$
b. $[\![\text{Zoe}_F]\!]^f = \{x \mid x \in D_e\}$

The focus alternatives combine in a compositional manner, via a rule known as pointwise functional application, until they get factored into meaning via some operator.

(44) *Pointwise Functional Application*
If the node α has $\{\beta,\gamma\}$ as the set of its daughters, $[\![\beta]\!]^{alt} \subseteq D_\sigma$, and $[\![\gamma]\!]^{alt} \subseteq D_{\langle\sigma,\tau\rangle}$, then $[\![\alpha]\!]^{alt} = \{a(b) | a \in [\![\gamma]\!]^{alt} \wedge b \in [\![\beta]\!]^{alt}\}$

In particular, the focus alternatives triggered by the constituent PolQPs combine with at LF project all the way to the focus-sensitive $\sim$ -operator. Rooth's (1992) $\sim$ -operator is defined in (45).[9] This operator evaluates all foci in its scope unselectively and neutralizes their contribution by resetting the f-value to the o-value (Beck 2006).

(45) If $\psi = [\sim_\Gamma \gamma]$, then:
a. $[\![\psi]\!]^o = [\![\gamma]\!]^o$
Defined iff $g(\Gamma) \subseteq [\![\gamma]\!]^f \wedge [\![\gamma]\!]^o \in g(\Gamma) \wedge \exists p[p \neq [\![\gamma]\!]^o \wedge p \in g(\Gamma)]$
b. $[\![\psi]\!]^f = \{[\![\gamma]\!]^o\}$

Let us now turn to the denotation of the interrogative $C_{[+Q]}$ head. I propose that in languages with PolQPs, $C_{[+Q]}$ is a focus operator which triggers an existential presupposition, as defined in (46).

(46) $[\![\text{C}_{[+Q]}]\!]^g = \lambda\Gamma_{\langle st,t\rangle}.\lambda q_{\langle s,t\rangle}.\lambda w : \exists\psi \in \Gamma[\psi(w)=1].\lambda p.p = q$

[9] In the rest of this paper, I will ignore the second and third conjunct of the presupposition triggered by this operator when they are not relevant to the discussion.

The set Γ is identical to the set provided by the ~ -operator, which is moreover dependent on the focus value of the sister node of ~.

To illustrate this analysis, let us consider again the polar question involving Finnish *-kO* in (47a) and the polar question involving Turkish *mI* in (49a). The step-by-step composition of the Finnish question in (47a) is given in (48) and the step-by-step composition of the Turkish question in (49a) is given in (50). Both questions denote partial functions from worlds to sets of propositions, which are only defined in worlds in which one proposition in the alternative set $g(\Gamma)$ is true. That is, the question in (47a) is only defined in worlds in which someone left, and the question in (49a) is only defined in worlds in which someone bought *Sessizev*.

(47) *Finnish*

a. [Mari-ko] lähti?
Mari-PolQP left
'Was it Mari who left?'

b. *Presupposition:* Someone left.

(48)

a. $[_{CP}\ C_{[+Q]}\ \Gamma\ [_{\psi}\ [_{FocP}\ [\ \text{Mari}_F\text{-ko}]\ [\ \lambda x\ [_{TP}\ \text{x left }]]]\ \sim_{\Gamma}]\ ]$

b. $[\![\ \text{Mari}_F\text{-ko}\ ]\!]^g = m$

c. $[\![\ \text{FocP}\ ]\!]^g = \lambda w.\text{left}_w(m)$

d. $[\![\ \psi\ ]\!]^g = \lambda \text{w} : g(\Gamma) \subseteq \{\lambda w'.\text{left}_{w'}(z) | z \in D_e\}.\text{left}_w(m)$

e. $[\![\ \text{C}_{[+Q]}\ ]\!]^g = \lambda\Gamma.\ \lambda q.\lambda w :\ \exists\psi \in\ \Gamma\ [\psi(w) = 1].\ \lambda p.p = q$

f. $[\![\ \text{CP}\ ]\!]^g = \lambda \text{w} : \underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.\ \lambda p.p = \lambda w'.\text{left}w'\ (m)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{left}_w(\text{Mari}) \\ \lambda w.\text{left}_w(\text{Olli}) \\ \lambda w.\text{left}_w(\text{Pekka}) \end{array} \right\}$$

(49) *Turkish*

a. [Oya mı] *Sessizev*'i al-dı?
Oya PolQP *Sessizev*-ACC buy-PST
'Was it Oya who bought *Sessizev*?'

b. *Presupposition:* Someone bought *Sessizev*.

(50)

a. $[_{CP}\ [_{\psi}\ [_{TP}\ [\ \text{Oya}_F\ \text{mı}\ ]\ \textit{Sessizev}\ \text{bought}\ ]\ \sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$

b. $[\![\ \text{Oya}_F\ \text{mı}\ ]\!]^g = o$

c. $[\![\ \text{TP}\ ]\!]^g = \lambda w.\text{bought}_w(\textit{Sessizev})(o)$

d. $[\![\ \psi\ ]\!]^g = \lambda w\text{: } g(\Gamma) \subseteq \{\lambda w'.\text{bought}_{w'}(\textit{Sessizev})(z) | z \in D_e\}.\ \text{bought}_w(\textit{Sessizev})(o)$

e. $[\![\ \text{C}_{[+Q]}\ ]\!]^g = \lambda\Gamma.\lambda q.\lambda w\text{:}\exists\psi \in\ \Gamma[\psi(w) = 1].\lambda p.p = q$

f. $[\![\text{CP}]\!]^g = \lambda w\text{: } \exists \psi \in g(\Gamma)[\psi(w) = 1].\lambda p.p = \lambda w'.\ \text{bought}_{w'}(Sessizev)(o)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_w(Sessizev)(\text{Oya}) \\ \lambda w.\text{bought}_w(Sessizev)(\text{Ali}) \\ \lambda w.\text{bought}_w(Sessizev)(\text{Dilara}) \end{array} \right\}$$

As a result, this analysis captures the existential presupposition questions involving PolQPs come with. Presuppositions which come with PolQPs-questions involving other kinds of focused expressions will be discussed in Section 4.2.

The astute reader may wonder whether the existential presupposition coming with PolQPs-questions is not triggered by the interrogative particle itself or by the constituent it associates with. The following example from Turkish suggests that this is not the case. The polar question in (51a) which involves PolQP *mI* and the universal quantifier *herkes* 'everyone' cannot be uttered in a context in which everyone is going to a different place. For it to be felicitously uttered, there needs to be a place where everyone is going to, showing that the question in (51a) comes with the presupposition in (51b).

(51) *Turkish*

a. **Herkes** [Ankara-ya **mı**] git-yor?
everyone Ankara-DAT PolQ go-PRES
'Is it Ankara that everyone is going to?'

b. *Presupposition:* There is a place where everyone is going to.

Section 5.1 will show that Turkish shows scope-rigidity and that the linear order between *herkes* and [*Ankara-ya mı*] determines their relative scope. As a result, the universal quantifier outscopes the *mI*-phrase in (51). This example thus shows that the existential presupposition PolQPs-questions come with is not triggered by *mI* or the expression it associates with but is triggered higher in the structure, above the universal quantifier in (51). In the proposed account, this existential presupposition is triggered by the interrogative $C_{[+Q]}$ head defined in (46) which is available in languages with PolQPs like Finnish and Turkish.

4 Deriving the properties of PolQPs and PolQPs-questions

Recall the signature properties of PolQPs summarized again in **Table 2**.

In this section, I demonstrate how the proposal put forth in Section 3 captures these signature properties. Given that Finnish and Turkish PolQPs share the same characteristic properties, I will focus here on Turkish *mI*. As previously mentioned, the main difference between Finnish PolQPs-questions and Turkish PolQPs-questions is syntactic: while in Turkish, the *mI*-phrase can remain in situ, in Finnish, the *-kO*-phrase moves to Spec,FocP on the surface.

	Finnish	Turkish
Mandatory	yes	yes
Q only ?	yes	yes
Polar Q	yes	yes
Alternative Q	yes	yes
Wh-Q	no	no
Embedded Q	yes	yes
Focus-sensitivity	yes	yes
∃-presupposition	yes	yes

Table 2: Signature properties of PolQPs.

4.1 PolQPs are mandatory

Recall that when PolQPs are not realized in a polar question, the resulting question is not well-formed, as shown again for Turkish below.

(52) *Turkish*
*Oya *Sessizev*-i al-dı?
Oya *Sessizev*-ACC buy-PST
(Int.) 'Did Oya buy *Sessizev*?'

The role of PolQPs together with the constituent it combines with is to satisfy the non-singleton requirement of the ∼-operator that co-occurs with $C_{[+Q]}$. When they are absent in a question, the presupposition is not sastified, and as a result, the question not well-formed. To illustrate, consider the step-by-step composition of the question in (52) in (53). The set of focus alternatives of the proposition that combines with ∼ is a singleton-set. Thus, the presupposition of this operator is not satisfied and the question is undefined.

(53) a. $[_{CP}\ [_{\psi}\ [_{TP}$ Oya *Sessizev* bought] $\sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$
b. $[\![\ \text{TP}\ ]\!]^{g} = \lambda w.\text{bought}_{w}(\textit{Sessizev})(o)$
$[\![\ \text{TP}\ ]\!]^{f} = \{\lambda w.\text{bought}_{w}(\textit{Sessizev})(o)\}$
c. If $\phi = [\sim_{\Gamma} \gamma]$, then:
(i) $[\![\phi]\!]^{g} = [\![\gamma]\!]^{g}$
Defined iff $g(\Gamma) \subseteq [\![\gamma]\!]^{f} \wedge [\![\gamma]\!]^{g} \in g(\Gamma) \wedge \exists p[p \neq [\![\gamma]\!]^{g} \wedge p \in g(\Gamma)]$
(ii) $[\![\phi]\!]^{f} = \{[\![\gamma]\!]^{g}\}$
d. $[\![\ \psi\ ]\!]^{g} = \#$

Questions like (54) which involve a stressed expression are not well-formed polar questions in Turkish either. Underlyingly, I propose that these questions involve a covert exhaustification

operator EXH which co-occurs with the ∼-operator. EXH is defined in (55). Given a sentence ϕ and a set of alternatives Δ of ϕ, *EXH* ϕ asserts the conjunction of ϕ and the negations of all alternatives that are not entailed by the assertion.

(54) *Turkish*
*OYA *Sessizev*-i al-dı?
Oya *Sessizev*-ACC buy-PST
(Int.) 'Did Oya buy *Sessizev*?'

(55) $[\![\text{EXH } \Delta]\!]^g(\phi) = \lambda w.\phi_w \wedge \forall q \in g(\Delta)[q_w \rightarrow \phi \subseteq q]$

The step-by-step composition of the question in (54) is given in (56). The ∼-operator which comes with EXH evaluates the F-marked expression in its scope and resets its focus semantic value to its ordinary semantics value. Thus, the set of focus alternatives of the proposition that combines with the ∼-operator that comes with $C_{[+Q]}$ is a singleton. As a result, the presupposition of this operator is not satisfied and the question is again undefined.

(56) a. $[_{CP}\ [_{\psi}\ [_{\chi}$ EXH Δ $[_{\zeta}\ [_{TP}$ Oya$_F$ *Sessizev* bought] $\sim_{\Delta}]$] $\sim_{\Gamma}]$ $C_{[+Q]}$ Γ]
b. $[\![\text{TP}]\!]^g = \lambda w.\text{bought}_w(\textit{Sessizev})(o)$
$[\![\text{TP}]\!]^f = \{\lambda w.\text{bought}_w(\textit{Sessizev})(x) | x \in D_e\}$
c. If $\phi = [\sim_{\Gamma} \gamma]$, then:
(i) $[\![\phi]\!]^g = [\![\gamma]\!]^g$
Defined iff $g(\Gamma) \subseteq [\![\gamma]\!]^f \wedge [\![\gamma]\!]^g \in g(\Gamma) \wedge \exists p[p \neq [\![\gamma]\!]^g \wedge p \in g(\Gamma)]$
(ii) $[\![\phi]\!]^f = \{[\![\gamma]\!]^g\}$
d. $[\![\zeta]\!]^g = \lambda w : g(\Delta) \subseteq \{\lambda w'.\text{bought}_{w'}(\textit{Sessizev})(x) | x \in D_e\}.\text{bought}_w(\textit{Sessizev})(o)$
$[\![\zeta]\!]^f = \{\lambda w.\text{bought}_w(\textit{Sessizev})(o)\}$
e. $[\![\chi]\!]^g = \lambda w : g(\Delta) \subseteq \{\lambda w'.\text{bought}_{w'}(\textit{Sessizev})(x) |\ x \in D_e\}.$
$\text{bought}_w(\textit{Sessizev})(o) \wedge \forall q \in g(\Delta)\ [q_w \rightarrow (\lambda w'.\ \text{bought}_{w'}(\textit{Sessizev})(o)) \subseteq q]$
$[\![\chi]\!]^f = \{[\![\chi]\!]^g\}$
f. $[\![\psi]\!]^g = \#$

4.2 PolQPs are focus-sensitive

Another characteristic property of PolQPs discussed in detail in Section 2.4 is their focus-sensitivity. In particular, they can combine with any constituent in the structure as long as this constituent is F-marked or contains an F-marked expression. In particular, in a polar question like (57), Turkish *mI* can either follow the subject or the object, or it can appear in final position. The position of this particle affects the interpretation of the question, and in particular the presuppositions it comes with.

(57) *Turkish*
Oya (**mı**) *Sessizev*'i (**mi**) al-dı (**mı**)?
Oya PolQP *Sessizev*-ACC PolQP buy-PST PolQP

In Section 3.2, I have shown how the proposed account captures the interpretation of a question where *mI* associates with the subject. In the following examples, I turn to the other positions of *mI*. In particular, I derive the interpretations of questions where *mI* follows the object and where *mI* occurs in final position. When *mI* follows the object, it can either associate with the object, the VP (not illustrated here for sake of space) or the whole proposition out of which the question is formed (Kamali 2011). This is illustrated in examples (58)-(60).

(58) *Turkish*

a. *What did Oya buy yesterday?*
Oya [Sessizev-i mi] al-dı?
Oya *Sessizev*-ACC PolQP buy-PST
'Was it *Sessizev* that Oya bought?'

b. *Presupposition:* Oya bought something.

(59) a. $[_{CP}\ [_{\psi}\ [_{TP}$ Oya [$Sessizev_{F}$ mi] bought] $\sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$

b. $[\![\ Sessizev_{F}\ \text{mi}\ ]\!]^{g} = s$

c. $[\![\ \text{TP}\ ]\!]^{g} = \lambda w.\text{bought}_{w}(s)(o)$

d. $[\![\ \psi\ ]\!]^{g} = \lambda w : g(\Gamma) \subseteq \{\lambda w'.\text{bought}_{w'}(z)(o) | z \in D_{e}\}.\text{bought}_{w}(s)(o)$

e. $[\![\ \text{CP}\ ]\!]^{g} = \lambda \text{w} : \underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.\lambda p.p = \lambda w'.\text{bought}_{w'}(s)(o)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_{w}(Sessizev)(\text{Oya}) \\ \lambda w.\text{bought}_{w}(Nineteen\ Eighty\text{-}Four)(\text{Oya}) \\ \lambda w.\text{bought}_{w}(The\ Idiot)(\text{Oya}) \end{array} \right\}$$

(60) *Turkish*

a. *What happened?*
[Oya Sessizev-i mi al-dı]?
Oya *Sessizev*-ACC PolQP buy-PST
'Did Oya buy *Sessizev*?'

b. *Presupposition:* Something happened.

(61) a. $[_{CP}\ [_{\psi}\ [_{TP}$ [Oya *Sessizev* bought $]_{F}$ mi] $\sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$

b. $[\![\ \text{TP}\ ]\!]^{g} = \lambda w.\text{bought}_{w}(s)(o)$

b. $[\![\ \psi\ ]\!]^{g} = \lambda w : g(\Gamma) \subseteq \{\ p | p \in D_{<s,t>}\}.\text{bought}_{w}(s)(o)$

d. $[\![\ \text{CP}\ ]\!]^{g} = \lambda w : \underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.\lambda p.p = \lambda w'.\text{bought}_{w'}(s)(o)]$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_{w}(Sessizev)(\text{Oya}) \\ \lambda w.\text{stayed-home}_{w}(\text{Ali}) \\ \lambda w.\text{ran}_{w}(\text{Dilara}) \end{array} \right\}$$

The fact that *mI* can associate with the object, the VP and the whole proposition when it attaches to the object on the surface is not a property specific to this particle. As shown by Kamali (2015a), other focus-sensitive particles like *also/even* show the same behavior in Turkish.

(62) *Turkish* (Kamali 2015a)
Dindar amcam iskambil de/bile oyna-dı.
religious uncle.my cards even play-PST
'My religious uncle also/even played cards yesterday.'
a. NP focus: . . . and he played other games.
b. VP focus: . . . and he did other things.
c. TP focus: . . . and other amazing things happened.

Let us now consider polar questions where *mI* appears in final position. In this case, this particle can for instance associate with the predicate (63) or the polarity head (65) (Kamali & Krifka 2020, a.o.). See Kamali (2011) and Kamali (2015b) for more detailed discussions of the interpretation of questions involving *mI* in final position.

(63) *Turkish*
a. *What did Oya do with Sessizev yesterday?*
Oya Sessizev-i [aldı mı]?
Oya *Sessizev*-ACC buy.PST PolQP
'Was it buying it that Oya did with *Sessizev*?'
b. *Presupposition:* Oya did something with *Sessizev*.

(64) a. $[_{CP}\ [_{\psi}\ [_{TP}$ Oya *Sessizev* [bought$_{F}$ mı]] $\sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$
b. $[\![$ bought$_{F}$ mı $]\!]^{g} = \lambda y.\lambda x.\lambda w.\text{bought}_{w}(y)(x)$
c. $[\![$ TP $]\!]^{g} = \lambda w.\text{bought}_{w}(s)(o)$
d. $[\![\ \psi\ ]\!]^{g} = \lambda w : g(\Gamma) \subseteq \{\lambda w'.R_{w'}(s)(o) | R \in \text{D}_{<e,<e,st>>}\}.\text{bought}_{w}(s)(o)$
e. $[\![$ CP $]\!]^{g} = \lambda w : \underline{\exists \psi \in g(\Gamma)\ [\psi(w) = 1]}.\lambda p.p = \lambda w'.\ \text{bought}_{w'}(s)(o)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_{w}(Sessizev)(\text{Oya}) \\ \lambda w.\text{read}_{w}(Sessizev)(\text{Oya}) \\ \lambda w.\text{sold}_{w}(Sessizev)(\text{Oya}) \end{array} \right\}$$

(65) *Turkish*
a. *Did Oya buy Sessizev or not?*
Oya Sessizev-i aldı mı?
Oya *Sessizev*-ACC buy.PST PolQP
'Did Oya buy *Sessizev*?'
b. *Presupposition:* Either Oya bought *Sessizev* or she didn't buy *Sessizev*.

(66) a. $[_{CP}\ [_{\psi}\ [_{PolP}\ [_{TP}$ Oya *Sessizev* bought] $[_{Pol}\ +\ ]_{F}\ ]$ mı $\sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$
b. $[\![$ TP $]\!]^{g} = \lambda w.\text{bought}_{w}(Sessizev)(\text{Oya})$
c. $[\![\ +\ ]\!]^{g} = \lambda p.p$
d. $[\![$ PolP $]\!]^{g} = \lambda w.\text{bought}_{w}(s)(o)$

e. $[\![\ \psi\ ]\!]^g = \lambda w : g(\Gamma) \subseteq \{\text{bought}_w(s)(o),\ \neg\ \text{bought}_w(s)(o)\}.\ \text{bought}_w(s)(o)$

f. $[\![\ \text{CP}\ ]\!]^g = \lambda w : \underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.\lambda p.p = \lambda w'.\ \text{bought}_{w'}(s)(o)]$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_w(Sessizev)(\text{Oya}) \\ \lambda w.\neg\text{bought}_w(Sessizev)(\text{Oya}) \end{array} \right\}$$

Kamali (2015b) shows that questions with final *mI*, in contrast to questions where *mI* follows the object, cannot be used out of the blue, as illustrated in (67)-(68). The analysis presented above helps us better understand this contrast. Questions involving final *mI* share the same presuppositions as the alternative questions *Did someone break the window or not?* and *Did the baby roll down the bed or not?*. These alternative questions, just like questions with final *mI*, are unfelicitous in such contexts, suggesting that this infelicitousness should be derived from the presuppositions.

(67) *Turkish* (Kamali 2015b)
Hearing a sudden crash in the next room, I run, open the door and ask:

a. Biri cam-ı **mı** kır-dı?
someone window-ACC PolQP break-PST
'Did someone break the window?'

b. #Biri cam-ı kır-dı **mı**?
someone window-ACC break-PST PolQP

(68) *Turkish* (Kamali 2015b)
Hearing a sudden crash in the next room, I run, open the door and ask:

a. Bebek yatak-tan **mı** yuvarlan-dı?
baby bed-ABL PolQP roll-PST
'Did the baby roll down the bed?'

b. #Bebek yatak-tan yuvarlan-dı **mı**?
baby bed-ABL roll-PST PolQP

4.3 PolQPs can be embedded

Not only can PolQPs occur in matrix interrogatives but also in embedded ones. In that case, they can be embedded under both rogative and responsive predicates, as illustrated again in (69) for Turkish *mI*.

(69) *Turkish*

a. Ali [[Oya mı] *Sessizev*-i al-dı] merak ediyor.
Ali Oya PolQP *Sessizev*-ACC buy-PST] wonder
'Ali wonders whether Oya bought *Sessizev*.'

b. Ali [[Oya mı] *Sessizev*-i al-dı] biliyor.
Ali Oya PolQP *Sessizev*-ACC buy-PST] know
'Ali knows whether Oya bought *Sessizev*.'

When questions are embedded under rogative predicates like *wonder*, their presupposition is filtered to the attitude holder's beliefs, as is the case with any attitude predicates (Karttunen 1974; Heim 1992: a.o.). Similarly, the sentence in (69a) comes with the presupposition that Ali believes that someone bought *Sessizev*. In contrast, when questions are embedded under responsive and factive predicates like *know*, their presupposition projects all the way to the matrix level. Unlike English *know*, Turkish *bil-* shows a factivity alternation (Özyildiz 2017a). For the sake of simplicity, we will focus on its factive use in this paper. In that case, the embedded question in (69b) comes with the presupposition that someone bought *Sessizev*.

We start with the analysis of the embedded question in (69a). The question-embedding predicate *wonder* is defined in (75). Just like other attitude predicates (Heim 1992), $wonder_w(Q)(x)$ presupposes that *x believes* $\pi(Q)$.

(70) For any question Q which presupposes $\pi(Q)$,
$[\![\text{ wonder }]\!]^g(Q)(x)(w)$ is defined iff $Dox_w^x \subseteq \pi(Q)$

Proponents of the singleton analysis of polar questions claim that the singleton-set denotation of a polar question must sometimes be mapped to the corresponding bipolar denotation (Biezma & Rawlins 2012; Uegaki 2018: a.o.) to avoid some type mismatch or other composition issues. In particular, this extra operation is necessary in accounting for question-embedding. One way to retrieve this bipolar denotation is to combine the singleton denotation of the question with the operator defined in (71).

(71) $[\![\text{ OP}_{Y/N}]\!] = \lambda Q.\lambda w.\{\lambda w.\forall p \in Q(w)[p(w) = p(w')] | w' \in W\}$

To illustrate how the composition works, let us consider again the embedded question (69a) repeated in (72). The semantic value of the embedded CP is given in (73b). Composing (73b) with the operator in (71), we obtain the semantic value in (73c). This resulting semantic value then combines with the predicate *wonder* defined in (70) and the matrix subject. As a result, we obtain in (73d) the desired interpretation for the embedded question in (72).

(72) *Turkish*
Ali [[Oya mı] *Sessizev*-i al-dı] merak ediyor.
Ali Oya PolQP *Sessizev*-ACC buy-PST] wonder
'Ali wonders whether Oya bought *Sessizev*.'

(73) a. $[_{TP}$ Ali $[_{\zeta}$ $\text{OP}_{Y/N}[_{CP}$ $[_{\psi}$ $[_{TP}$ [Oya_F mı] *Sessizev* bought$]\sim_{\Gamma}]$ $C_{[+Q]}$ $\Gamma]]$ wonder]
b. $[\![\text{ CP }]\!]^g = \lambda w : \exists \psi \in g(\Gamma)[\psi(w) = 1].\lambda p.p = \lambda w'.\text{bought}_{w'}(s)(o)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_w(Sessizev)(\text{Oya}) \\ \lambda w.\text{bought}_w(Sessizev)(\text{Ali}) \\ \lambda w.\text{bought}_w(Sessizev)(\text{Dilara}) \end{array} \right\}$$

c. $[\![\zeta]\!]^g = \lambda w : \exists \psi \in g(\Gamma)[\psi(w) = 1].\{\lambda w'.\text{bought}_{w'}(s)(o), \lambda w'.\neg\text{bought}_{w'}(s)(o)\}$

d. $[\![(72)]\!]^g = \lambda w :$ $\underline{Dox_a^w \subseteq (\exists \psi \in g(\Gamma)[\psi(w) = 1]).}$
$\text{wonder}(\{\lambda w'.\ \text{bought}_{w'}(s)(o), \lambda w'.\neg\ \text{bought}_{w'}(s)(o)\})(a)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_w(Sessizev)(\text{Oya}) \\ \lambda w.\text{bought}_w(Sessizev)(\text{Ali}) \\ \lambda w.\text{bought}_w(Sessizev)(\text{Dilara}) \end{array} \right\}$$

Now that we have seen how the proposed account captures the interpretation of PolQPs-questions embedded under rogative predicates like *wonder*, we turn to PolQPs-questions embedded under responsive predicates like *know*. The meaning of *know* can be paraphrased as 'to know the answer of'. To retrieve the answer of a question, I adopt Dayal's (1996) answerhood operator ANS defined in (74). ANS is a partial function from questions to propositions which presupposes the existence of a unique most informative true member of the question denotation. When defined, it returns the most informative true answer.

(74) $[\![\text{ANS}]\!] = \lambda Q.\lambda w:$
$\exists p[p(w) = 1 \wedge p \in Q(w) \wedge \forall q[q \in Q(w) \wedge p \subseteq q]].$
$\iota p[p(w) = 1 \wedge p \in Q(w) \wedge \forall q[q \in Q(w) \wedge p \subseteq q]]$

Recall that we focus here on the factive use of Turkish *bil-* 'know'. In that case, it presupposes the truth of its complement.

(75) For any proposition p,
$[\![\text{know}]\!]^g(p)(x)(w)$ is defined iff $p(w) = 1$

To see how these pieces combine together, consider again the embedded PolQPs-question in (76). The step-by-step composition of this question is provided in (77). First, the operator $\text{OP}_{Y/N}$ composes with the embedded CP in (77b). The resulting denotation given in (77c) then combines with ANS, as illustrated in (77d). Finally, (77d) combines with *know* and the matrix subject. As a result, we derive for the sentence in (76) the expected reading in (77e) which is only defined in case someone bought *Sessizev* in *w*.

(76) *Turkish*
Ali [[Oya mı] *Sessizev*-i al-dı] biliyor.
Ali Oya PolQP *Sessizev*-ACC buy-PST] know
'Ali knows whether Oya bought *Sessizev*.'

(77) a. $[_{TP}$ Ali$[_{\chi}$ ANS$[_{\zeta}$ OP$_{Y/N}$ $[_{CP}$ $[[_{TP}$ [Oya$_{F}$ mı] *Sessizev* bought] $\sim_{\Gamma}]$ $C_{[+Q]}$ $\Gamma]]]$ knows]

b. $[\![$ CP $]\!]^{g} = \lambda w : \underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.\lambda p.p = \lambda w'.\text{bought}_{w'}(s)(o)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_{w}(Sessizev)(\text{Oya}) \\ \lambda w.\text{bought}_{w}(Sessizev)(\text{Ali}) \\ \lambda w.\text{bought}_{w}(Sessizev)(\text{Dilara}) \end{array} \right\}$$

c. $[\![\zeta]\!]^{g} = \lambda w : \exists \psi \in g(\Gamma)[\psi(w) = 1].\{\lambda w'.\ \text{bought}_{w'}(s)(o),\ \lambda w'.\ \neg\text{bought}_{w'}(s)(o)\}$

d. $[\![\chi]\!]^{g} = \lambda w:$

$\exists \psi \in g(\Gamma)[\psi(w) = 1] \wedge$
$\exists p[p(w) = 1 \wedge p \in \{\lambda w'.\text{bought}_{w'}(s)(o),\ \lambda w'.\ \neg\text{bought}_{w'}(s)(o)\} \wedge$
$\forall q[q \in Q(w) \wedge p \subseteq q]].$
$\wp[p(w) = 1 \wedge p \in \{\lambda w'.\ \text{bought}_{w'}(s)(o),\ \lambda w'.\ \neg\text{bought}_{w'}(s)(o)\} \wedge$
$\forall q[q \in Q(w) \wedge p \subseteq q]]$

e. $[\![$ (76) $]\!] = \lambda w :$

$\underline{\exists \psi \in g(\Gamma)[\psi(w) = 1] \wedge}$
$\underline{\exists p[p(w) = 1 \wedge p \in \{\lambda w'.\text{bought}_{w'}(s)(o),\ \lambda w'.\ \neg\text{bought}_{w'}(s)(o)\} \wedge}$
$\underline{\forall q[q \in Q(w) \wedge p \subseteq q]]}.$
$\text{know}(\wp[p(w) = 1 \wedge p \in \{\lambda w'.\text{bought}_{w'}(s)(o),\ \lambda w'.\ \neg\text{bought}_{w'}(s)(o)\} \wedge$
$\forall q[q \in Q(w) \wedge p \subseteq q]])(a)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_{w}(Sessizev)(\text{Oya}) \\ \lambda w.\text{bought}_{w}(Sessizev)(\text{Ali}) \\ \lambda w.\text{bought}_{w}(Sessizev)(\text{Dilara}) \end{array} \right\}$$

This section has shown how the proposed account derives the fact that POlQPs-questions can be embedded under rogative and responsive predicates, capturing at the same time the presuppositions these questions come with. In the next section, we turn to the last characteristic property of PolQPs, i.e., their restriction to polar and alternative questions.

4.4 PolQPs are restricted to polar and alternative questions

In section 3.2, I have provided an account of polar questions involving PolQPs. Let us now show how the proposed account extends to alternative questions. Following Gračanin-Yuksek (2016), I assume that alternative questions in Turkish are disjunctions of polar questions. Similar analyses of alternative questions have been put forth by Uegaki (2014) for Japanese alternative questions, and Mayr (to appear) for Polish alternative questions, among others. The step-by-step composition of a question like (78) is provided in (79). In each disjunct, *mI* satisfies the non-singleton requirement of the $\sim$-operator that co-occurs with $C_{[+Q]}$. The disjunction is interpreted as a generalized disjunction (Partee & Rooth 1983), as defined in (79d). Composing the semantic values of the two CPs with the semantic value of the disjunction, we derive in (79e) the desired interpretation of the alternative question in (78).

(78) *Turkish*

[Oya mı] *Sessizev*-i al-dı (yoksa) [Ali mi]?
Oya PolQP *Sessizev*-ACC buy-PST or Ali PolQP
'Was it Oya who bought *Sessizev* or was it Ali?'

(79) a. $[_{CoordP}\ [_{CP_1}\ [_{\psi}\ [_{TP}\ [\text{Oya}_F\ \text{mı}]\ \textit{Sessizev}\ \text{bought}\ ]\ \sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$
$[_{Coord^0}\ \text{or}]$
$[_{CP_2}\ [_{\psi}\ [_{TP}\ [\ \text{Ali}_F\ \text{mi}]\ \textit{Sessizev}\ \text{bought}\ ]\ \sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]]$

b. $[\![\ \text{CP}_1\ ]\!]^g = \lambda w : \underline{\exists \psi \in g(\Gamma)[\psi(w)=1]}.\lambda p.p = \lambda w'.\text{bought}_{w'}(s)(o)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_w(\textit{Sessizev})(\text{Ali}) \\ \lambda w.\text{bought}_w(\textit{Sessizev})(\text{Oya}) \end{array} \right\}$$

c. $[\![\ \text{CP}_2\ ]\!]^g = \lambda w : \underline{\exists \psi \in g(\Gamma)\ [\psi(w)=1]}.\ \lambda p.p = \lambda w'.\text{bought}_{w'}(s)(a)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_w(\textit{Sessizev})(\text{Ali}) \\ \lambda w.\text{bought}_w(\textit{Sessizev})(\text{Oya}) \end{array} \right\}$$

d. $[\![\ \text{or}\ ]\!]^g = \lambda Q.\lambda Q'.\lambda w.\lambda p.Q(w)(p) \vee Q'(w)(p)$

e. $[\![\ (78)\ ]\!]^g = \lambda w$: $\underline{\exists \psi \in g(\Gamma)[\psi(w)=1]}$.
$\lambda p.p = \lambda w'.\text{bought}_{w'}(s)(o) \vee p = \lambda w'.\text{bought}_{w'}(s)(a)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\text{bought}_w(\textit{Sessizev})(\text{Ali}) \\ \lambda w.\text{bought}_w(\textit{Sessizev})(\text{Oya}) \end{array} \right\}$$

The astute reader may have noticed that the uniqueness requirement that comes with alternative questions (i.e., that not more than one alternative is true) is not captured in the derivation in (79). The source of this inference has been subject to debate in the literature; some have claimed that it is a presupposition, a conventional implicature, or some other non-assertive component (Karttunen & Peters 1976; Romero & Han 2003; Biezma & Rawlins 2012; Pruitt & Roelofsen 2013; Mayr to appear: a.o.). To know exactly what the source of this inference is is outside the scope of this paper. One can choose their favorite analysis to derive this uniqueness requirement as long as it is compatible with the proposed account for PolQPs and PolQPs-questions.

The final signature property of PolQPs is that they cannot participate in the formation of *wh*-questions, as illustrated again in (80).

(80) *Turkish*

a. *Kim mi Dilara'yı öp-tü?
who PolQP Dilara-ACC kiss-PST
(Int.) 'Who kissed Dilara?'

b. *Kim Dilara'yı mı öp-tü?
who Dilara-ACC PolQP kiss-PST
(Int.) 'Who kissed Dilara?'

Intuitively, these data suggest that there exists a competition between what the *wh*-word and the *mI*-phrase contribute in a question. In particular, both contribute a set of alternatives. In a question like (80a), these sets of alternatives are redundant, whereas in a question like (80b), they are incompatible.

However, deriving the incompatibility of these two interrogative elements is not an easy task. The main reason is that in standard analyses of *wh*-questions, the *wh*-word is interpreted as an indefinite and overtly or covertly moves to be interpreted above the interrogative $C_{[+Q]}$ head. However, given that PolQPs are interpreted below $C_{[+Q]}$, these two elements cannot easily combine with each other in a question like (80a). In the literature, we find analyses of *wh*-questions according to which *wh*-words are interpreted within the proposition out of which the question is formed. Versions of such analyses have been proposed by Beck (2006), Kotek (2014), and Mayr (2014), among others. However, none of these analyses are compatible with polar questions, and more specifically with polar questions involving PolQPs. As a result, one cannot adopt analyses of *wh*-in-situ questions to derive the incompatibility of the *wh*-word and PolQPs in questions like (80).

Another possible line of inquiry is to postulate that interrogative $C_{[+Q]}$ heads in *wh*-questions and in polar questions differ from each other. Specifically, the interrogative $C_{[+Q]}$ head found in *wh*-questions selects a TP and denotes a total function, as in (81a), whereas the interrogative $C_{[+Q]}$ head found in PolQPs-question selects a FocP and denotes a partial function, as in (81b). In that case, we could maintain a standard analysis of *wh*-questions according to which *wh*-words are interpreted above the interrogative $C_{[+Q]}$,

(81) a. *Wh*-questions:
$[\![C_{[+Q]}]\!]^g = \lambda q.\lambda w.\lambda p.p = q$
b. PolQPs-questions:
$[\![C_{[+Q]}]\!]^g = \lambda\Gamma.\lambda q.\lambda w : \exists \psi \in g(\Gamma)[\psi(w) = 1].\lambda p.p = q$

If one assumes that the existential presupposition of *wh*-questions is contributed by the *wh*-words (e.g., Chierchia & Liao 2015), the incompatibility of the *wh*-words and *mI* in questions like (80) would come from a redundancy of the existential presupposition (80a) or an incompatibility of these existential presuppositions (80b). Further work is required to detail the implementation of such an analysis. More generally, the impossibility of PolQPs to participate in the formation of *wh*-questions raises core questions regarding what varies across different types of questions (e.g, the interrogative $C_{[+Q]}$ head, the way interrogative elements combine with the interrogative $C_{[+Q]}$ head) which will be addressed in future research.

5 Extending the analysis: interaction with quantifiers and focus particles

The previous section has shown how our proposal put forth in Section 3 captures the properties of PolQPs and of the questions where they occur. In this section, I extend the proposed account

to capture two novel phenomena observed in Turkish polar questions: (i) interaction between PolQPs and quantifiers, and (ii) intervention effects.

5.1 Interaction with quantifiers

Because the position of Turkish *mI* is flexible in a question, we can investigate how it interacts with other logical operators like quantifiers. Özyıldız (2015) shows that when a universal quantifier co-occurs with negation in a declarative, the narrow scope interpretation of the universal quantifier is the preferred interpretation for all speakers, as shown in example (82). Even though Özyıldız's (2015) example involves a subject quantifier, example (83) shows that the same is true of sentences involving object quantifiers.

(82) *Turkish* (Özyıldız 2015)
Herkes Ankara-ya git-**mi**-yor.
everyone Ankara-DAT go-NEG-PRES.PROG
a. 'It is not the case that everybody is going to Ankara.' ¬ > ∀
b. %'Nobody is going to Ankara.' ∀ > ¬

(83) *Turkish*
Dilara lab-da **herkes**-i gör-**me**-di.
Dilara lab-LOC everyone-ACC see-NEG-PST
a. 'It is not the case that Dilara has seen everybody at the lab.' ¬ > ∀
b. % 'Dilara has not seen anybody at the lab.' ∀ > ¬

When we turn these declaratives into polar questions by combining PolQP *mI* with the universal quantifier, that quantifier must now take wide scope with respect to negation, as illustrated in (84). The reading where the universal quantifier takes narrow scope with respect to negation (i.e., 'Is it not the case that everybody is going to Ankara?') is not available. Again, questions involving universal quantifiers in object position pattern the same way, as shown in (85).

(84) *Turkish* (Özyıldız 2015)
[**Herkes** **mi**] Ankara-ya git-**mi**-yor?
everyone PolQP Ankara-DAT go-NEG-PRES.PROG
'Is everybody such that they are not going to Ankara?' ∀ > ¬

(85) *Turkish*
Dilara lab-da [**herkes**-i **mi**] gör-**me**-di?
Dilara lab-LOC everyone-ACC PolQP see-NEG-PST
'Is it everyone that Dilara has not seen at the lab?' ∀ > ¬

The above examples show that combining PolQP *mI* with a universal quantifier changes the scope of that quantifier. In particular, the quantifier takes a wider scope than the one it takes in declaratives. Now, when *mI* combines with constituents other than the quantifier, a contrast is

observed depending on the position of *mI* with respect to the quantifier. Specifically, when the quantifier precedes *mI* on the surface, it must take wide scope with respect to negation. Example (86) shows that this is true of both subject and object quantifiers. In contrast, example (87) shows that when *herkes* follows *mI*, it must scope under negation just like in declaratives. Again, both subject and object quantifiers pattern the same.

(86) *Turkish*

a. **Herkes** [Ankara-ya **mı**] git-**mi**-yor?
everyone Ankara-DAT PolQP go-NEG-PRES.PROG
'Is it Ankara that no one is going to?' ∀ > ¬

b. Lab-da **herkes**-i [Dilara **mı**] gör-**me**-di?
lab-LOC everyone-ACC Dilara PolQP see-NEG-PST
'Is it Dilara who has not seen anyone at the lab?' ∀ > ¬

(87) *Turkish*

a. [Ankara-ya **mı**] **herkes** git-**mi**-yor?
Ankara-LOC PolQP everyone go-NEG-PRES.PROG
'It it Ankara that not everyone is going to?' ¬ > ∀

b. [Dilara **mı**] lab-da **herkes**-i gör-**me**-di?
Dilara PolQP lab-LOC everyone-ACC see-NEG-PST
'Is it Dilara who has not seen everybody at the lab?' ¬ > ∀

These examples show that the surface position of *mI* with respect to a universal quantifier matters and affects the interpretation of the question. **Table 3** summarizes the generalizations I just established.[10]

	Declaratives	[Q_F *mI*]	[XP_F *mI*]
Q precedes XP	¬ > *Q*	*Q* > ¬	*Q* > ¬
XP precedes Q	¬ > *Q*	*Q* > ¬	¬ > *Q*

Table 3: Co-occurrence with a scope-taking expression and negation.

Let us see how the account put forth in Section 3 can capture these scope facts. In Turkish, negation occurs above vP and below TP, as suggested by the order of the morphemes on the verb (see e.g. Jeretič 2022). The fact that the universal quantifier *herkes* must take narrow scope with respect to negation in a declarative for most speakers (88) suggests that for them the quantifier must reconstruct under negation at LF, as shown in (89a). With this structure, we derive for the sentence in (88) the interpretation in (89b).

[10] To make sure that the contrast indicated in the last column of this table is due to the presence of PolQP *mI* and is not specific to the universal quantifier *herkes*, I elicited further examples with other quantifiers (in particular, numerals), and replicated the patterns. Therefore, this generalization is robust and should be accounted for by any analysis of Turkish *mI*.

(88) *Turkish*
Herkes Ankara-ya git-**mi**-yor.
everyone Ankara-DAT go-NEG-PRES.PROG.3S
'It is not the case that everybody is going to Ankara.' ¬ > ∀
%'Nobody is going to Ankara.' %∀ > ¬

(89) a. $[_{TP}\ [_{NegP}\ [_{vP}$ herkes $[\ \lambda x\ [_{vP}$ x Ankara went]]] ¬]]
b. ⟦ (88) ⟧ = ¬ ∀x[*human*(x) → went-to(a)(x)]

To derive the interpretation of PolQPs-questions involving both *herkes* and negation (schematized in the second and third column of the above table), I adopt Kratzer's (1991) implementation of Rooth's (1992) theory (cf. discussion by Beck 2006). In this system, the ordinary value of a (non-complex) constituent α is its usual denotation, which is derived by applying the interpretation function. For the secondary value, a designated assignment function h is invoked. The F feature of a focused expression carries an index which serves as a distinguished variable subject to interpretation by h. h maps the variable on α onto an object of the same semantic type as $[\![\alpha]\!]^g$.

(90) a. $[\![\alpha]\!]^g = [\![\alpha]\!]$ if α is assignment-independent, and $g(\alpha)$ otherwise
$[\![\alpha]\!]^{g,h} = [\![\alpha]\!]^g$

b. $[\![\alpha_{F_i}]\!]^g = [\![\alpha]\!]^g$
$[\![\alpha_{F_i}]\!]^{g,h} = h(i)$

The secondary value of a complex constituent is then derived recursively by applying the usual semantic rules to its subconstituents. The rules of functional application and predicate abstraction are defined in this system as follows.

(91) *Functional application:*
If A is a branching node with daughters B of type $<\gamma,\tau>$ and C of type γ,
a. $[\![A]\!]^g = [\![B]\!]^g\ ([\![C]\!]^g)$
b. $[\![A]\!]^{g,h} = [\![B]\!]^{g,h}\ ([\![C]\!]^{g,h})$

(92) *Predicate abstraction:*
If A is a branching node with daughters B and a numerical index i,
a. $[\![A]\!]^g = \lambda x.[\![B]\!]^{g[x/i]}$
b. $[\![A]\!]^{g,h} = \lambda x.[\![B]\!]^{g[x/i],h}$

To illustrate how this system works, let us consider again a polar question which involves neither negation nor a quantifier like (93). The step-by-step composition is given in (94). We derive for this question the denotation in (94g), as expected. That is, the question denotes a partial function from worlds to sets of propositions, which is only defined in worlds in which one proposition in the alternative set $g(\Gamma)$ is true – namely, in worlds in which someone left.

(93) *Turkish*
[Oya mı] ayrıl-dı?
Oya PolQP leave-PST
'Was it Oya who left?'

(94) a. $[_{CP}\ [_{\phi}\ [_{TP}\ [\ \text{Oya}_{Fi}\ \text{mı}\ ]\ \text{left}\ ]\ \sim_{\Gamma}]\ C_{[+Q]}\ \Gamma\ ]$
b. $[\![\ \text{Oya}_{Fi}\ \text{mı}\ ]\!]^{g} = o$
$[\![\ \text{Oya}_{Fi}\ \text{mı}\ ]\!]^{g,h} = h(i)$
c. $[\![\ \text{TP}\ ]\!]^{g} = \lambda w.left_{w}(o)$
$[\![\ \text{TP}\ ]\!]^{g,h} = \lambda w.left_{w}(h(i))$
d. If $\phi = [\sim_{\Gamma} \gamma]$, then:
(i) $[\![\ \phi\ ]\!]^{g} = [\![\gamma]\!]^{g}$
Defined iff $g(\Gamma) \subseteq \{[\![\ \gamma\ ]\!]^{g,h'} \mid h' \in H\} \wedge [\![\ \gamma\ ]\!]^{g} \in g(\Gamma)$
$\wedge\ \exists p[p \neq [\![\gamma]\!]^{g} \wedge p \in g(\Gamma)]$
(ii) $[\![\phi]\!]^{g,h} = [\![\gamma]\!]^{g}$
e. $[\![\phi]\!]^{g} = \lambda w : g(\Gamma) \subseteq \{\lambda w'.left_{w'}(h(i)) \mid h \in H\}.left_{w}(o)$
$[\![\phi]\!]^{g,h} = \lambda w : g(\Gamma) \subseteq \{\lambda w'.left_{w'}(h(i)) \mid h \in H\}.left_{w}(o)$
f. $[\![\ C_{[+Q]}\ ]\!]^{g} = \lambda\Gamma.\lambda q.\lambda w : \exists \psi \in g(\Gamma)[\psi(w) = 1].\lambda p.p = q$
$[\![\ C_{[+Q]}\ ]\!]^{g,h} = [\![\ C_{[+Q]}\ ]\!]^{g}$
g. $[\![\ \text{CP}\ ]\!]^{g} = \lambda \text{w} : \underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.\lambda p.p = \lambda w.left_{w}(o)$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.left_{w}(Oya) \\ \lambda w.left_{w}(Ali) \\ \lambda w.left_{w}(Oya) \end{array} \right\}$$

$[\![\ \text{CP}\ ]\!]^{g,h} = [\![\ \text{CP}\ ]\!]^{g}$

Consider now a polar question where the interrogative particle *mI* co-occurs with a universal quantifier, as (95). This question has the underlying structure in (96a). Combining the negative proposition in (96b) with the phrase made of *mI* and the constituent it associates with in (96b), and then with the ∼-operator and the interrogative $C_{[+Q]}$ head, we obtain the denotation in (96e) for the polar question in (95), as expected. That is, we derive the interpretation according to which the universal takes wide scope with respect to negation.

(95) *Turkish* (Özyıldız 2015)
[**Herkes mi**] Ankara-ya git-**mi**-yor?
everyone Q Ankara-DAT go-NEG-PRES.PROG.3S
'Is everybody such that they are not going to Ankara?' ∀ > ¬

(96) a. $[_{CP}\ [_{\phi}\ [\ \text{everyone}_{Fi}\ \text{mi}\ ][\ \lambda x\ [_{TP}\ \neg\ [_{vP}\ \text{x Ankara go}\ ]]]]\ \sim\Gamma]\ C_{[+Q]}\ \Gamma\ ]$
b. $[\![\ \text{TP}\ ]\!]^{g} = \lambda w.\neg is\text{-}going\text{-}to_{w}(a)(x)$
$[\![\ \text{TP}\ ]\!]^{g,h} = \lambda \text{w}.\ \neg is\text{-}going\text{-}to_{w}(a)(x)$

c. $[\![$ everyone$_{Fi}$ mi $]\!]^{g} = \lambda P.\lambda w.\forall x[human_{w}(x) \rightarrow P(x)]$
$[\![$ everyone$_{Fi}$ mi $]\!]^{g,h} = h(i)$

d. $[\![\ \phi\ ]\!]^{g} = \lambda w : g(\Gamma) \subseteq \{h(i)(\lambda x.\neg is\text{-}going\text{-}to_{w}(a)(x)) | h \in H\}.$
$\forall x[human_{w}(x) \rightarrow \neg\ is\text{-}going\text{-}to_{w}(a)(x)]$
$[\![\ \phi\ ]\!]^{g,h} = [\![\ \phi\ ]\!]^{g}$

e. $[\![$ CP $]\!]^{g} = \lambda w$:
$\underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.$
$\lambda p.p = \lambda w'.\forall x[human_{w'}(x) \rightarrow \neg is\text{-}going\text{-}to_{w'}(a)(x)]$
with $g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\forall x[human_{w}(x) \rightarrow \neg is\text{-}going\text{-}to_{w}(a)(x)] \\ \lambda w.\exists x[human_{w}(x) \rightarrow \neg is\text{-}going\text{-}to_{w}(a)(x)] \end{array} \right\}$
$[\![$ CP $]\!]^{g,h} = [\![$ CP $]\!]^{g}$

Just like other quantifiers in the language (Kelepir 2001; Özyıldız 2017b; Demirok 2019), I propose that *mI* can freeze the scope of another quantifier it co-occurs with. The phenomenon of scope rigidity between two quantifiers in Turkish declaratives is illustrated in example (97).

(97) *Turkish* (Demirok 2019)

a. **Bi** çocuk **her** elma-yı ye-di.
a child every apple-ACC eat-PST.3sg
'A child ate every apple.' ✓ $\exists > \forall$; *$\forall > \exists$

b. **Her** elma-yı **bi** çocuk ye-di.
every apple-ACC a child eat-PST.3sg
'Every apple was eaten by a different child.' *$\exists > \forall$; ✓$\forall > \exists$

As a result, when the *mI*-phrase precedes the universal quantifier on the surface, it takes wide scope over it at LF. In that case, the universal can reconstruct under negation just like in declaratives, and we derive for the question the reading $\neg > \forall$, as shown in (99).

(98) *Turkish*
[Ankara-ya **mı**] **herkes** git-**mi**-yor?
Ankara-LOC PolQP everyone go-NEG-PRES.PROG.3S
'Is it Ankara that not everyone is going to?' $\neg > \forall$

(99) a. $[_{CP}\ [_{\psi}$ [Ankara$_{Fi}$ mı] $[\lambda x\ [_{TP} \neg\ [_{vP}$ everyone $[\lambda y[y\ x$ go$]]]]]\ \sim_{\Gamma}]\ C_{[+Q]}\ \Gamma]$

b. $[\![$ CP $]\!]^{g} = \lambda w$:
$\underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.$
$\lambda p.p = \lambda w'.\neg\ \forall x[human_{w'}(x) \rightarrow is\text{-}going\text{-}to_{w'}(a)(x)]$
with $g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\neg\forall x[human_{w}(x) \rightarrow is\text{-}going\text{-}to_{w}(Ankara)(x)] \\ \lambda w.\neg\forall x[human_{w}(x) \rightarrow is\text{-}going\text{-}to_{w}(Izmir)(x)] \\ \lambda w.\neg\forall x[human_{w}(x) \rightarrow is\text{-}going\text{-}to_{w}(Istanbul)(x)] \end{array} \right\}$

In contrast, when the *mI*-phrase follows the universal quantifier on the surface, it scopes under it at LF. In that case, the universal quantifier cannot reconstruct to its base position, as illustrated in the structure in (101a), and we derive for the question in (100) the reading $\forall > \neg$ given in (101b).

(100) *Turkish*
Herkes [Ankara-ya **mı**] git-**mi**-yor?
everyone Ankara-DAT Q go-NEG-PRES.PROG.3S
'Is it Ankara that no one is going to?' $\forall > \neg$

(101) a. $[_{CP}\ [_{\psi}$ [everyone [λy [Ankara$_{Fi}$ mı] [λx [$_{TP}$ ¬ [$_{vP}$ *y x* go]]]]] $\sim_{\Gamma}$] $C_{[+Q]}$ Γ]

b. $[\![\ \text{CP}\ ]\!]^{g} = \lambda w$:
$\underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}$.
$\lambda p.p = \lambda w'.\forall x[human_{w'}(x) \rightarrow \neg is\text{-}going\text{-}to_{w'}(a)(x)]$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\forall x[human_w(x) \rightarrow \neg is\text{-}going\text{-}to_w(Ankara)(x)] \\ \lambda w.\forall x[human_w(x) \rightarrow \neg is\text{-}going\text{-}to_w(Izmir)(x)] \\ \lambda w.\forall x[human_w(x) \rightarrow \neg is\text{-}going\text{-}to_w(Istanbul)(x)] \end{array} \right\}$$

To summarize, this section builds on Özyıldız (2015) and establishes a new empirical generalization regarding the interaction between PolQP *mI* and quantifiers. On the theoretical side, I show how the account of PolQPs and PolQPs-questions provided in Section 3 combined with Kratzer's (1991) implementation of Rooth's (1992) theory captures this generalization. As pointed out by an anonymous reviewer, one prediction this account makes is that the universal quantifier *herkes* should take narrow scope with respect to negation in broad focus contexts, that is, when *mI* associates with the whole proposition. This prediction will be carefully investigated in future work.

5.2 Intervention effects

In the proposed account of PolQPs-questions, the focus alternatives triggered by the constituent PolQPs combine with must project all the way to the interrogative $C_{[+Q]}$ head. Therefore, we expect the following: if an operator which can use these focus alternatives intervenes between $C_{[+Q]}$ and the *mI*-phrase, the corresponding polar question would not be well-formed. This final section shows that this prediction is indeed borne out. Before turning to the discussion of PolQPs-questions, I first introduce the phenomenon of intervention effects with *wh*-questions as it has – to my knowledge – never been discussed in the domain of polar questions before.

In *wh*-in-situ languages, when some logical operator like the focus particle *only* precedes the *wh*-word, the resulting *wh*-question is ill-formed (Beck 2006; Beck & Kim 2006; Mayr 2014; and references therein). This is illustrated in (102a) for Korean. When the *wh*-word moves accross the focus particle, the question becomes fully acceptable, as illustrated in (102b).

(102) *Korean* (Beck 2006)

a. *Minsu-man nuku-lûl po-ss-ni?
Minsu-only who-ACC see-PST-Q
'Who did only Minsu see?'

b. Nuku-lûl Minsu-man po-ass-ni?
who-ACC Minsu-only see-PST-Q
'Who did only Minsu see?'

The focus particle *only* is not the only operator which causes intervention effects. Other focus particles like *even* and *also*, and other logical operators like *every*, *no*, *few*, are also known to trigger intervention effects. In addition, intervention effects are also observed in languages with *wh*-movement. In these languages, multiple *wh*-questions become ill-formed when one of the *wh*-words follows the intervening operator, as illustrated in (103).

(103) *German* (Beck 1996)

a. Wen hat der Hans wo gesehen?
whom has the Hans where seen
'Who did Hans see where?'

b. *Wen hat niemand wo gesehen?
whom has nobody where seen
'Who did nobody see where?'

In what follows, I present novel data showing that polar questions involving Turkish *mI* show similar intervention effects. Specifically, the *mI*-phrase cannot be preceded by a focus particle, except when they associate with the same expression. This is illustrated in examples (104) and (105) for the focus particles *sadece* 'only' and *bile* 'even' respectively.[11]

(104) *Turkish*

a. [**Sadece** Oya **mı**] dün yemek yap-tı?
only Oya PolQP yesterday dinner make-PST
'Was it only Oya who made dinner yesterday?'

b. ***Sadece** Oya [dün **mü**] yemek yap-tı?
only Oya yesterday PolQP dinner make-PST

c. ***Sadece** Oya dün [yemek **mi**] yap-tı?
only Oya yesterday dinner PolQP make-PST

[11] An anonymous reviewer mentioned that for them, the sentences in (105a)-(105c) are all well-formed. The four native speakers of Turkish I consulted for these examples disagree with this judgment and agree with the judgements reported in (105). Why there is some speaker variation with examples involving *bile* 'even' but not with examples involving *sadece* 'only' is a question I leave for future work.

d. *__Sadece__ Oya dün yemek yap-tı __mı__?
only Oya yesterday dinner make-PST PolQP

(105) *Turkish*

a. [Oya __bile__ __mi__] dün yemek yap-tı?
Oya even PolQP yesterday dinner make-PST
'Was it even Oya who made dinner yesterday?'

b. *Oya __bile__ [dün __mü__] yemek yap-tı?
Oya even yesterday PolQP dinner make-PST

c. *Oya __bile__ dün [yemek __mi__] yap-tı?
Oya even yesterday dinner PolQP make-PST

d. *Oya __bile__ dün yemek yap-tı __mı__?
Oya even yesterday dinner make-PST PolQP

As is the case in *wh*-questions, when *mI*-phrases are scrambled across the focus particles, the questions then become fully acceptable. This is illustrated in examples (106) and (107) for *sadece* 'only' and *bile* 'even' respectively.

(106) *Turkish*

a. [Dün __mü__] __sadece__ Oya yemek yap-tı?
yesterday PolQP only Oya dinner make-PST
'Was it yesterday that only Oya made dinner?'

b. Oya [dün __mü__] __sadece__ yemek yap-tı?
Oya yesterday PolQP only dinner make-PST
'Was it yesterday that Oya made only dinner?'

(107) *Turkish*

a. [Dün __mü__] Oya __bile__ yemek yap-tı?
yesterday PolQP Oya even dinner make-PST
'Was it yesterday that even Oya made dinner?'

b. Oya [dün __mü__] yemek __bile__ yap-tı?
Oya yesterday PolQP dinner even make-PST
'Was it yesterday that Oya made even dinner?'

These intervention effects can be accounted for by the analysis of PolQPs-questions put forth in Section 3. In a nutshell, the polar question in (108) is ill-formed because the focus particle *sadece* uses the focus alternatives generated by the constituent *mI* associates with. As a result, these focus alternatives are no longer available to the interrogative $C_{[+Q]}$ head. The step-by-step composition of this question is given in (109). The ∼-operator which comes with the focus particle *sadece*

evaluates all the F-marked expressions in its scope and neutralizes their contribution by resetting the focus semantic value to the ordinary semantics value, as illustrated in (109c). The set of focus alternatives thus becomes a singleton set. Therefore, when the ∼-operator which comes with the interrogative $C_{[+Q]}$ head combines with its complement, the presupposition of this operator is not satisfied and the question is undefined, as in (109e).

(108) *Turkish*

*__Sadece__ Oya [dün __mü__] yemek yap-tı?
only Oya yesterday PolQP dinner make-PST

(109) a. $[_{CP}\ [_{\psi}\ [_{\chi}$ only $\Delta[_{\zeta}\ [_{TP}$ Oya_{Fj} [yesterday_{Fi} mü] dinner made$]\sim_{\Delta}]]\sim_{\Gamma}]$ $C_{[+Q]}$ $\Gamma]$

b. $[\![\ \text{TP}\ ]\!]^{g} = \lambda w.yesterday(made\text{-}dinner_{w}(o))$
$[\![\ \text{TP}\ ]\!]^{g,h} = \lambda w.h(i)(made\text{-}dinner_{w}(h(j)))$

c. $[\![\ \zeta\ ]\!]^{g} = \lambda w : g(\Delta) \subseteq \{\lambda w'.h(i)(made\text{-}dinner_{w'}(h(j)))|h \in H\}.$
$yesterday(made\text{-}dinner_{w}(o))$
$[\![\ \zeta\ ]\!]^{g,h} = [\![\ \zeta\ ]\!]^{g}$

d. $[\![\ \chi\ ]\!]^{g} = \lambda w : g(\Delta) \subseteq \{\lambda w'.h(i)(made\text{-}dinner_{w'}(h(j)))|h \in H\}.$
$\forall q \in g(\Delta)[q \rightarrow yesterday(made\text{-}dinner_{w}(o)) \subseteq q)]$
$[\![\ \chi\ ]\!]^{g,h} = [\![\ \chi\ ]\!]^{g}$

e. $[\![\psi]\!]^{g} = \#$

In contrast, when the *mI*-phrase precedes the focus particle, as in (110) for instance, the derivation proceeds as expected, as illustrated in (111). In that case, the focus alternatives generated by the constituent *mI* associates with are available to the interrogative $C_{[+Q]}$ head and we derive for the question in (110) the interpretation in (111g).

(110) *Turkish*

[Dün __mü__] __sadece__ Oya yemek yap-tı?
yesterday PolQP only Oya dinner make-PST
'Was it yesterday that only Oya made dinner?'

(111) a. $[_{CP}\ [_{\psi}\ [_{\gamma}$ [yesterday_{Fi} mü]$[\lambda Q[_{\chi}$ only $\Delta[_{\zeta}\ [_{TP}$ Oya_{Fj} Q dinner made$]\ \sim_{\Delta}]]]]\sim_{\Gamma}]$ $C_{[+Q]}$ $\Gamma]$

b. $[\![\ \text{TP}\ ]\!]^{g} = \lambda w.Q(made\text{-}dinner_{w}(o))$
$[\![\ \text{TP}\ ]\!]^{g,h} = \lambda w.Q(made\text{-}dinner_{w}(h(j)))$

c. $[\![\ \zeta\ ]\!]^{g} = \lambda w : g(\Delta) \subseteq \{\lambda w'.Q(made\text{-}dinner_{w'}(h(j)))|h \in H\}.$
$Q(made\text{-}dinner_{w}(o))$
$[\![\ \zeta\ ]\!]^{g,h} = [\![\ \zeta\ ]\!]^{g}$

d. $[\![\ \chi\ ]\!]^{g} = \lambda w : g(\Delta) \subseteq \{\lambda w'.Q(made\text{-}dinner_{w'}(h(j)))|h \in H\}.$
$\forall q \in g(\Delta)[q \rightarrow \text{Q(made-dinner}_{w}(o)) \subseteq q)]$
$[\![\ \chi\ ]\!]^{g,h} = [\![\ \chi\ ]\!]^{g}$

e. $[\![\ \gamma\ ]\!]^g = \lambda w.\forall q \in g(\Delta)[q \rightarrow yesterday(made\text{-}dinner_w(o)) \subseteq q)]$
$[\![\ \gamma\ ]\!]^{g,h} = \lambda w.\forall q \in g(\Delta)[q \rightarrow h(i)(made\text{-}dinner_w(o)) \subseteq q)]$

f. $[\![\psi]\!]^g = \lambda w : g(\Gamma) \subseteq \{\forall q \in g(\Delta)[q \rightarrow h(i)(made\text{-}dinner_w(o)) \subseteq q)] | h \in H\}.$
$\forall q \in g(\Delta)[q \rightarrow yesterday(made\text{-}dinner_w(o)) \subseteq q)]$
$[\![\psi]\!]^{g,h} = [\![\psi]\!]^g$

g. $[\![\ \text{CP}\ ]\!]^g = \lambda w :$
$\underline{\exists \psi \in g(\Gamma)[\psi(w) = 1]}.$
$\lambda p.p = \lambda w'.\forall q \in g(\Delta)\ [q \rightarrow yesterday(made\text{-}dinner_{w'}(o)) \subseteq q)]$

$$\text{with } g(\Gamma) \subseteq \left\{ \begin{array}{l} \lambda w.\forall q \in g(\Delta)[q \rightarrow yesterday(made\text{-}dinner_w(o)) \subseteq q)] \\ \lambda w.\forall q \in g(\Delta)[q \rightarrow today(made\text{-}dinner_w(o)) \subseteq q)] \\ \lambda w.\forall q \in g(\Delta)[q \rightarrow day\text{-}before\text{-}yesterday(made\text{-}dinner_w(o)) \subseteq q)] \end{array} \right\}$$

$[\![\ \text{CP}\ ]\!]^{g,h} = [\![\ \text{CP}\ ]\!]^g$

This account predicts that only focus particles can cause intervention effects when they occur between the interrogative $C_{[+Q]}$ head and the *mI*-phrase. Operators which do not use focus alternatives should not be problematic. Example (112) shows that again, this prediction is borne out. When the quantifiers *herkes* 'every' and *az* 'few' occur between $C_{[+Q]}$ and the *mI*-phrase, the resulting questions are well-formed.

(112) *Turkish*

a. **Herkes** [Ankara-ya **mı**] git-mi-yor?
everyone Ankara-DAT Q go-NEG-PRES.PROG.3S
'Is it Ankara that no one is going to?'

b. **Az** öğrenci [dün **mü**] Ankara-ya git-ti?
few students yesterday PolQP Ankara-DAT go-PST
'Is it yesterday that few students went to Ankara?'

To sum up, this section explored a prediction made by the account of PolQPs and PolQPs-questions provided in Section 3. I have shown that this prediction – i.e., that we should observe intervention effects in PolQPs-questions involving *mI* – is borne out in Turkish thus providing empirical evidence that intervention effects are not restricted to *wh*-questions and alternative questions, but can be found in polar questions as well. Moreover, I have demonstrated how the proposed account combined with Kratzer's (1991) implementation of Rooth's (1992) theory captures these intervention effects. In future research, finding additional languages with PolQPs will be required to determine whether the two phenomena discussed in this last section are specific to Turkish polar questions or are shared by other PolQPs-questions. For this, one would need to find a language with a PolQP whose syntactic position in the question is flexible but remains in situ, just like Turkish *mI* and unlike Finnish *-kO*.

6 Conclusion

The contributions of this work are both empirical and theoretical. Drawing from data found in previous literature as well as novel data elicited in Finnish and Turkish, I started out by establishing the signature properties of PolQPs. In doing so, I have argued that we need to draw a distinction between (at least) three types of interrogative particles across languages: (i) particles like Japanese *ka* which can occur in both declaratives and interrogatives, (ii) particles like Hindi-Urdu *kya:* which are optional, can occur in some but not all *wh*-questions, and can be embedded under rogative predicates, and (iii) PolQPs which are restricted to polar and alternative questions and are mandatory in both matrix and embedded questions. Although I limited my discussion to Finnish *-kO* and Turkish *mI*, PolQPs are presumably more widely spread across languages than one may have previously thought. Further work is required to determine whether other interrogative particles show the same signature properties as PolQPs.

On the theoretical side, I have provided a multi-dimensional analysis of PolQPs-questions which captures the signature properties of these interrogative particles, and derive the presuppositions PolQPs-questions come with. Specifically, I have claimed that PolQPs are focus markers which are interpreted within the proposition out of which a question is formed. These particles carry an interrogative feature which must agree with an interrogative $C_{[+Q]}$ head. The focus alternatives triggered by the constituent they combine with project all the way up to the interrogative $C_{[+Q]}$ head. In languages with PolQPs, I have claimed that $C_{[+Q]}$ is a focus operator which triggers an existential presupposition. In addition to capturing the characteristic properties of PolQPs, this analysis accounts for two novel phenomena observed in Turkish polar questions, namely, the interaction between PolQPs and quantifiers and intervention effects (see Gonzalez 2021). In future research, finding additional languages with PolQPs will be required to determine whether these two phenomena are specific to Turkish polar questions or are shared by other PolQPs-questions, and thus whether they constitute two additional characteristic properties of PolQPs-questions. In addition to its empirical contribution, this work contributes to a better understanding of the source of presuppositions in questions and their projection behavior, and of the interaction between different sets of alternatives.

Abbreviations

The abbreviations follow the Leipzig Glossing Rules, except: PolQP = polar interrogative particle.

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The author has no competing interests to declare.

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