Isn't my question a real question?

A Pragmatic Approach to Polar Questions

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Abstract

This paper proposes a homogeneous pragmatic approach to the interpretation of Polar Question also known as yn-question. Maintaining a classical semantic interpretation of a question as the set of its possible answers the attention will focus on the pragmatic impact of these kinds of linguistic objects. In particular a general condition of use for Polar Question will be proposed in order to give an account of the appropriateness of different types of questions with the same semantic representation.

By means of this notion some facts about the relation between questions, contexts of use and speakers' beliefs will be pointed out.

1.1 Problem

Asking a question is something intuitively very different than asserting a proposition. We can analyze the sentences used in these speech acts with respect to their meaning and to their appropriateness. The meaning of a declarative sentence is its propositional content and its conditions of use have been described, for instance, by Stalnaker's (1978) appropriateness condition. The present paper maintains a classical semantic interpretation of the meaning of an interrogative sentences, i.e. questions, as the set of its possible answers and focuses its attention on their conditions of use. Asking if a question is true or false clearly does not make sense while asking under which conversational conditions one can ask something appropriately seems to give rise to useful consequences for the understanding of the pragmatic impact of these linguistic objects. The focus of this paper is on a class of questions, the so-called Polar Questions (also known as the yes/no question).

A classical approach to the semantic of questions is that of Hamblin. According to it, the meaning of a polar question q is {[p],W-[p]} (where p is the declarative of q, is the proposition underlying q, [ ] is the interpretation function and W is the set of all possible worlds). The idea that the meaning of a question is the set of its possible answers (set of propositions) has been developed and refined by Kartunnen (1977) and Groenendijk & Stokhof (1984, 1997). They all agree on the fact is that polar questions are semantic objects that correspond to partitions of the logical space. The elements of the partition, called blocks, correspond to propositions. These propositions are the possible semantic answers to the question; they are mutually exclusive and exhaust the logical space. The view that polar questions correspond to partitions of the logical space embodies the view that a semantic interpretation of an interrogative determines what its answers are. Hence the meaning of (1), for instance:

(1) Did John enjoy the match?

Is the set containing the two propositions?

a. {w/ John enjoyed the match in w}
b. {w/ John didn't enjoy the match in w}

So-called structured meaning approaches (von Stechov (1990), Ginzburg (1994)), consider question meanings functions that, when applied to the meaning of the answer, yield a proposition. They interpret (1) as:

<μf [f(enjoy)(the match)(John)], {μp[p], μp[¬p]}>

The following questions, analyzed according to these proposed approaches couldn't be distinguished with respect to their interpretations:

(2)

a. Is it raining?

b. Isn't it raining?

c. Is it dry outside?

d. Is it not raining outside?

In fact, according to Hamlin (1973), the questions in (2) all share the same semantic representation. The same holds true for the structured meaning approaches. Kartunnen's and Groenendijk & Stokhof's approaches lead to the same conclusion: all the questions are synonymies, they express the same meaning, that is:

(3) a. {w/ It is raining in w}

b. {w/It is dry outside in w}

It follows, assuming that [dry] ⊃ [raining]=W, that {[p],W-[p]} is the same for all the questions in (2) (where p is the declarative of a question q).

Even if we consider the meaning of a question just to be [p] we can point out a distinction between (2.a) and the other three, but these again share the same meaning, namely {w/ it is dry outside in w}.

The goal of this paper is to show that this assumed synonymy is more superficial than real. The present approach maintains the standard way to look at the semantic of questions avoiding to find an ad hoc semantic interpretation for each of the questions in (2). The different behavior of the data in (2) will be explained with respect to their pragmatic impact, in particular looking at their conditions of use and at the implicature

they carry (an implicature is that part of information that a sentence indirectly communicates rather than explicitly expresses). Some differences between (2.a), (2.b) and (2.c) have been analyzed already (Buring & Gunlogson (2000)), but literature focusing on the possible difference between (2.b), (2.c) and (2.d) is sparse. First of all, in 2.1 and 2.3 we differentiate theoretically between Positive Polar Question (PPQ) like (2.a) and (2.c) and Negative Polar Questions (NPQ) like (2.b) and (1.d) with respect to the occurrence of the negation. Following Ladd (1981), I will show in 2.2, 2.5 and 2.6 the utility of a further classification of NPQ in Inner NPQ (INPQ) and outer NPQ (ONPQ) in order to explain the differences between the questions under consideration. In particular, I will try to extend this distinction to pairs of questions like (1.b) and (1.d). At the same time it will be shown that the proposed distinction works also for Italian.

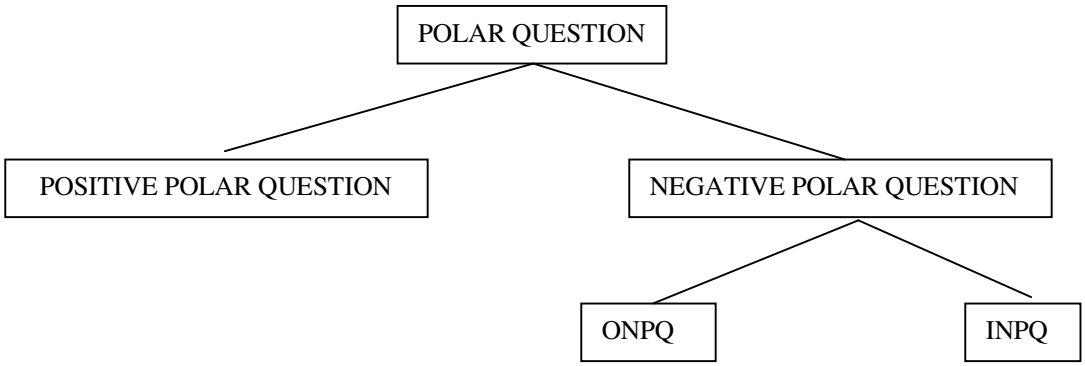
In 2.7 it will be shown that there are peculiar syntactic structures that characterize INPQs and ONPQs.

The nature of the relationship between question, speaker's beliefs and contexts of utterance will be analyzed. This should help to give a satisfactory definition of this relationship. Furthermore, a formal device will be defined which is able to characterize types and possible interpretations of the Polar Question (sec.3).

In the last section I will analyze questions that can have either a polar interpretation or an alternative interpretation.

2.1 Polar Question

A polar question, as indicated above, can be classified as positive or negative with respect to the occurrence of the negation. Ladd proposes a further distinction to differentiate among negative polar questions. What he calls Inner Negative Polar Question (INPQ) and Outer Negative Polar Questions. Hence we can depict the geography of polar question as follows:



2.2 Ladd

Ladd (1981) describes two different types of NPQs. Let us consider the following dialogs adduced by Ladd as an **outer negation** polar question:

(4) Situation: Kathleen and Jeff have just come from Chicago on the Greyhound bus to visit Bob in Ithaca.

Bob: You guys must be starving. You want to get something to eat?

Kathleen: Yeah, isn't there a vegetarian restaurant around here – Moosewood or something like that?

Bob: Gee, you've heard about Moosewood all the way out in Chicago, huh? Let's go there.

Situation: A and B are former left wing activists discussing the recent activities of a colleague.

A: Did you hear John's decided to go to business school?

B: Yeah- I can't believe how much he has changed these days- didn't he even vote for Reagan?

A: That's what somebody told me.

For this use of the NPQ Ladd says: "Kathleen uses the negative question... to ask for confirmation of something she believes to be true (p.164), similarly A uses the NQ to confirm something he believes true." In opposition to (4) let's consider the following dialog:

(5) Situation: Bob is visiting Kathleen and Jeff in Chicago while attending the CLS.

Bob: I'd like to take you guys out to dinner while I'm here- we'd have time to go somewhere around here before the evening session tonight, don't you think?

Kathleen: I guess, but there is not really any place to go in Hyde Park.

Bob: Oh, really, isn't there a vegetarian restaurant around here?

Kathleen: No, about all we can get is hamburgers and souvlaki.

Situation: A and B are staunch Republicans.

A: What's Dick been up to these days- I haven't seen him at the Club for ages.

B: Haven't you heard? He says he's disillusioned with two-party politics, he's joined Common Cause, gave a lot of money to the Citizen's party…

A: Didn't he even vote for Reagan?

B: Not as far as I know.

The underlined question in (5) is an example of **inner negation** and it is described by Ladd as follows:

"Bob uses the NQ here... because he had previously assumed the truth of the proposition *there is a vegetarian restaurant around here*, but he now has inferred from what Kathleen says that this proposition is actually false, and is using the NQ to check

this new inference." (p.164) Ladd continues his description of INPQ saying that:" the speaker has just inferred a proposition ¬P..., so what is being questioned is the inference ¬P"(p.165) The same holds true also for the dialog about the regretful Republican.

Schematizing Ladd's ideas, and following Buring & Gunlogson (2000), we can say that, given the fact that the speaker believes or expects P as background of the context of utterance :

(6)

- if, by using a NPQ, he wants a confirmation that ∧p, then q will be interpreted as INPQ
- if, by using a NPQ, he wants a confirmation for p, then q will be interpreted as ONPQ

Which inference the speaker wants confirmation for is the parameter used to classify a NPQ as an INPQ or an ONPQ.

One could say that the difference of implicatures (the inference that p for an ONPQ and the inference that not-p for an INPQ) carried by the different questions has to be addressed by pure pragmatic factors. In particular, in the examples (4) and (5) this difference is due just to the different knowledge of the speakers with respect to vegetarian restaurant since the questions, in the former examples, are the same.

Ladd's point is that in (4), where the speaker believes that there is a vegetarian restaurant and he wants a confirmation, the negation is somehow outside the proposition under question (outer), what has been pragmatically asked is *Is there a vegetarian restaurant around here?*; while in (5), where the speaker has just heard that there is not a vegetarian restaurant and wants a confirmation of it, the negation is inside (inner) the question, what has been asked is *Isn't there a vegetarian restaurant around here?* .

According to him there are syntactic probes of this distinction, the first of them is the occurrence of polarity items in this kind of question.

With respect to ONPQ it means that even if the negation occurs in the question it is not a real part of it. That is supported by noticing that positive polarity items can occur just in negative polar questions classified, according to (5), as ONPQ and negative polarity items can't.

He considers the distribution of too/*either* (where the former is a Positive Polar Item (PPI) and the latter a Negative Polar Item (NPI)) in some examples (see also Buring & Gunlogson (2000)):

(7) a. John is coming too. (Positive polarity item)

b. John isn't coming either. (negative polarity item)

c. Is John coming too?

d. Is John coming either?*

e. Isn't John coming too?

f. Isn't John coming either?

PPIs can occur just in positive environments and, similarly, NPIs just in negative ones. The same seems to hold true also for questions since the positive question (7.d) does not allow the negative polarity item *either* . Similarly negative questions should not allow positive polarity items but, surprisingly, (7.e) is clearly acceptable. In order to explain why *too* is allowed here, we have to admit that the negation is not really a part of the question, or better it is not part of the proposition under question while in (7.f) the negation is part of it. Hence, in (7.e) the speaker is asking in reality whether John is coming and not whether John is not coming (5.f).

The same holds for Italian. Let's consider the distribution of the pair *anche/neanche* (PPI/NPI) in the following dialog:

Situation: A, B, C and D are very fond of football. A and B are getting into the car to go to see a match. C cannot go and A asks to D who is still standing outside the bar:

(8) A: Non vieni anche tu?

Aren't you coming too?

D: No

A: Non vieni neanche tu?

Aren't you coming either?

With the first question A is checking the assumption that D is going to join him. He is asking D: *Are you coming?*, while with the second one he is checking the inference that D is not coming, he is asking: *Aren't you coming?*.

The semantic/pragmatic intuition about the differences between INPQ and ONPQ pointed out before is supported by syntactic data. Furthermore the different distribution of positive and negative items can be seen as a formal device to determine the pragmatic impact of a particular question. Keeping in mind that the declarative form of a polar question q is p, and that the meaning of q is {[p],W-[p]}, we can say that the

presence of a positive (or negative) polar item selects a particular implicature and related condition of use of q.

The problem is clear: semantically synonymous questions can carry different pragmatic interpretations. As we saw in Ladd's previous examples (4) and (5), to know the right interpretation of a polar question means also to know some aspect of the speaker's beliefs and of the context: the pragmatic interpretation of a PQ can provide interesting information about the context of utterance.

In section 2.3 the difference between neutral and not-neutral questions and correspondingly between neutral and non-neutral contexts will be pointed out. A neutral question q is a question with its ordinary semantic/pragmatic interpretation ({[p],W-[p]}), similarly a context is neutral with respect to p if neither p nor not-p is definitely assumed by the conversational agents. A question is not neutral if it forces a particular pragmatic interpretation and a non-neutral context with respect to p is a context in which there is evidence for or against p.

2.3 Positive Polar Question (PPQ)

It has been assumed that positive polar questions are neutral, that is they do not expect any particular answer among their possible answers. Hence they could be used in every kind of context.

Let us consider the following examples:

(9) Neutral context: John just woke up. He cannot see outside because the curtains are closed. He wants to know how the weather is outside. He asks his roommate:

a. Is it sunny outside?

b. Is it raining outside?

Both questions are perfectly acceptable, no particular answer is expected. The neutral context allows the standard interpretation.

Let us consider the same kind of question uttered in a non-neutral context that is non-neutral with respect to the proposition underlying the question. That means that a particular proposition p is clearly evident or commonly assumed. The relationship between a proposition p and the context of utterance needs to be clarified; it is an opaque relationship involving the beliefs of the participants of a conversation as well as

the evidence of p. The nature of this relationship will become clearer and more formal after having considered some more examples.

In the following example the same pair of questions are considered with respect to a not neutral context, that is, a scenario in which the proposition p has the same kind of evidence:

(10) Non-neutral context: John just woke up. He cannot see outside because the curtains are closed, but he can hear the tinkle of the rain from outside. He asks his roommate:

a. #Is it sunny outside?
b. #Is it raining outside?

(10.a) is clearly infelicitous in such a context (unless uttered with irony), (10.b) is infelicitous as well, even if it involves a different kind of appropriateness: it sounds trivial and redundant. In the interpretation of the data in (10) I do not agree with Buring & Gunlogson (2000) since they find (10.b) acceptable. It seems intuitively clear that once there is evidence for something concerning the world a question like (10.b) is clearly inappropriate. They could argue that if one suspects that is raining because of a sound that resembles the tinkle of the rain, one could utter a question like that, but I think that the speaker can use (10.b) only if there is not enough evidence that it is raining. The point is that a question asks for new information. And if the information requested is already part of the context, the question does not make much sense.

To avoid this kind of objection it is necessary to clarify the notion of *evidence* .

I assume the definition of *compelling contextual evidence* as describe in Buring & Gungloson (2000).

The characterization of ‘contextual evidence’ is:

Contextual evidence:

Evidence that has just become mutually available to the participants in the current discourse situation.

In the aim of the authors this should avoid any reference to private beliefs of the participants of a conversation.
The definition of 'compelling' is:

Compelling:

a. Evidence for p is compelling if, considered in isolation, it would allow participants to assume p (i.e. the evidence could reasonably be considered to justify the inference that p)
b. Evidence against p is compelling if it is compelling evidence for the opposite of p, W-p.

The present approach lies in the middle of the conceptual characterization of the context of utterance of Buring & Gungloson (2000) and of Stalnaker (1978). In particular the difference between Buring & Gungloson and the Stalnakerian idea of common ground and context must be empathized: according to the former it is the contextual evidence of a particular proposition p that makes the speaker prefer a kind of question instead of another and not what is in the common ground, as in Stalnaker's point of view. In distinction to Burring & Unloosen I perceive what is contextually evident as already belonging to the common ground, it does not have an indefinite epistemological state: if something is contextually evident to the conversational agents it is therefore part of the common ground. We can say that this information has just entered the common ground and it could need some verifications via questions in order to be a definitive part of the mutually shared information. One can think about the common ground as a box in which shared verified information falls down in chronological order. What lies on the bottom is old information. It has a degree of reliability proportional to its position in the common ground box, the deeper (and hence older) it is, the more reliable it is. This kind of information has been stored already in the shared beliefs of the agents for a long time and in contrast with Stalnaker, but in accordance with Buring & Gunlogson, I think it does not play a main role. Of course it has its role since what is now contextually evident has to be compared with the previous beliefs of the participants of the conversation in order to determine if the new information accords with the speakers' common ground or not. Instead what plays a main role is what lies on the top of our box: it is a kind of information that has just become a shared belief in virtue of its evidence. It could be the object of some questions

by the conversational agents in order to confirm something that, by the way, is already believed true by the speakers. In fact it can be just the topic of what we could call a non-genuine question, which is a question that does not ask for some new information but instead asks for a confirmation of what it has just known. That is why in my perspective I interpret the data in (10) in a different way from Buring & Gunlogson. If it is evident that it is raining then this information has become part of the common ground and hence it cannot be the topic of a genuine question like a PPQ.

There are two considerations that can be pointed out immediately:

(i) In contrast with Buring & Gunlogson (2000) we claim that positive polar questions are not neutral, they cannot fit in every context. In particular when there is evidence for either p or not-pa question q is likely to be infelicitous.

(ii) Positive polar questions do not force particular interpretations; they do not expect a particular answer.

2.4 Negative polar Questions

Negative polar questions, as pointed out before, seem to be non-neutral, they force a particular pragmatic interpretation, they expect just one of the two possible answers.

2.5 Inner Negative Polar Questions

We start to consider the appropriateness of INPQs with respect to different kinds of contexts. As noticed before, the distribution of PPI and NPI like *too/either* in polar questions can be used as formal witness of the type of the question it occurs in. The same holds true for the pair *some/any* (the former indicate an ONPQ and the latter an INPQ).

(11) Neutral context

Scenario: Mike and Ilya are talking on the phone.

Mike: What do you want to do tonight?

Ilya: # Isn't there any chance of getting some tickets to the Super bowl?

In a context where there is no evidence for or against the possibilities of getting tickets to the Super bowl a question like in (11) is inappropriate. The contrast is between on the one hand the INPQ, which clearly suggests the affirmative answer (the speaker

assumes not to be able to get tickets), and on the other hand the scenario that does not privilege any of the possibilities.

It must be noticed that the inappropriateness of the INPQ is unexpected if one assumes that a PPQ and a NPQ have the same meaning and hence can be substituted for each other in every context without change of meaning and pragmatic impact. As we can imagine, the same question will be infelicitous if uttered in a context that shows a real possibility of getting some tickets:

(12) Non-neutral context (compelling evidence for p):
Scenario: Mike is a sport reporter and he has a lot of connections.

Mike: I can get, more or less, every kind of ticket.
Ilya: # Isn't there any chance of getting some tickets to the Super bowl?

The contrast is again between, on the one hand, the expected answer (there are not any available tickets) and, on the other hand, the context that clearly suggests the contrary. As one can expect the only state in which *Isn't there any chance of getting some tickets to the Super bowl?* can be properly uttered is the one in which ¬p is expected:

(13) Non-neutral context (compelling evidence against p)
Scenario: Mike and Ilya are talking on the phone.

Mike: I am sorry but I think this year you will have to miss the game.
Ilya: Isn't there any chance of getting some tickets to the Super bowl?

Accordingly to Ladd we can say that:

(i) INPQ , as supposed, are not neutral. They are used to check a new inference, not-p, and they expect an affirmative answer.
(ii) Consequently they cannot properly fit in contexts in which there is nothing that can make the conversational agent to assume that not-p.

2.6 Outer Negation Polar Question

We consider now the behavior of ONPQs. As for INPQs we will check the appropriateness of this kind of question with respect to different types of contexts. The

same contexts of the previous section will be used with respect to the outer version of the same question (Isn't there some chance of getting some tickets for the Super bowl?).

(14) Neutral context

Scenario: Mike and Ilya are talking on the phone.

Mike: What do you want to do tonight?

Ilya: Isn't there some chance of getting some tickets for the Super bowl?

(15) Non-neutral context (compelling evidence for p):

Scenario: Mike is a sport reporter and he has a lot of connections.

Mike: I can get, more or less, every kind of ticket.

Ilya: # Isn't there some chance of getting some tickets for the Super bowl?

(16) Non-neutral context (compelling evidence against p)

Scenario: Mike and Ilya are talking to the phone.

Mike: I am sorry but I think this year you will have to miss the game.

Ilya: Isn't there some chance of getting some tickets for the Super bowl?

In distinction to INPQ, ONPQ can be felicitously uttered in neutral contexts. That should not be a surprise since, as noticed before, in this kind of question the negation does not have its usual function, it is somehow out of the proposition under question. What is asked in reality seems to be Is *there some chance of getting some tickets to the Super bowl?*, that is why it patterns with a PPQ.

This asymmetry between INPQ and ONPQ, intuitively explained, will have a more rigid characterization.

Summarizing the observation of this section:

(i) ONPQ are not neural, they are used to check the inference that p and they expect an affirmative answer.

(ii) Consequently they can fit in a neutral context but, surprisingly, they cannot fit in a context with evidence for p and they can fit in contexts with evidence against p.

In (15) the ONPQ is infelicitous, or more properly, redundant. The context clearly shows the possibility to get some tickets for the Super bowl and hence the speaker's question is superfluous, he can infer p without further information. It must be noticed that, according to this analysis, the INPQ in (13) should be redundant too.

The explanation for this asymmetry of behavior should be found in the opposite polarity of the two questions. In (13) we have a negative environment, Ilya has just discovered the fact that he will not likely see the Super bowl but he does not accept it, before accepting it he wants a confirmation of this bad news. We can say that it is more difficult to be redundant checking bad news than good news. It is as if speakers are allowed more space checking new unwanted inferences than checking new wanted ones. It is a behavior that is allowed by, using a Gricean term, a non-conventional, non-conversational, but social maxim: be polite! I just told you fact x. Normally a new question regarding x would sound redundant and annoying. But since x is bad news, I politely give you some more space for having a confirmation and accept it: if you are disappointed you can keep on asking for a brief period but if you receive good news you are happy and do not ask again.

In (16), one should expect the inappropriateness of the ONPQ. The contrast between what the question is meant for and what the context suggests would be resolved by the infelicity of the question. But if we explicate it from the same perspective as the previous example the felicity in (16) is easily explained: the negative environment allows the speaker to ask another question, either an INPQ or an ONPQ. In this particular example the ONPQ is really asking if there is some other possibility of getting some tickets via the connection of Mike, it is used more to change the topic rather than to check the inference that not-p.

It is interesting to notice that each element of the pair *some/any* affects in different ways the implicatures carried by the questions in which they occur. Kadman & Landam (1993) pointed out the different ways in which *any*, in declaratives, interacts with the domain of quantification. In particular, it seems to enlarge the domain, when it is possible, in what might be called a 'vertical' way (that is to try to find new elements of the domain keeping fixed the characterizing property of the set, it works on the size of the set with respect to a property P).

The same seems to hold also for interrogatives. In fact, with respect to the previous example, in *Is there any chance of getting some tickets to the Super bowl*, the

question implicates something like *Can you check more carefully, in a deeper way, all the chances you have to get some tickets* leaving open the possibility to discover a forgotten connection that will really enlarge the domain of quantification.

Something similar hold true also for a PPI like *some*, with the difference that it works on what we can call, in opposition to *any,* the horizontal dimension of the domain (that is, it also works on the size of the set but it tries to enlarge it looking for a more general characterizing property of the set, looking at a close superset of the initial set). In particular *Is there some chance of getting some tickets to the Super bowl?* seems to ask to the hearer if it is possible to find another, not usual way to get tickets. It seems to work on the property that characterized the domain, in particular it seems to requires a less specific condition of appurtenance to the set under quantification: if before the condition were something like "Mike's usual way to get tickets" now it seems to be "Mike's possible way to get tickets". We can depict this intuition graphically:

Fig.1 Any

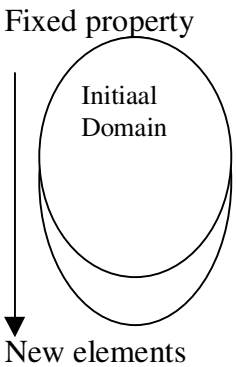
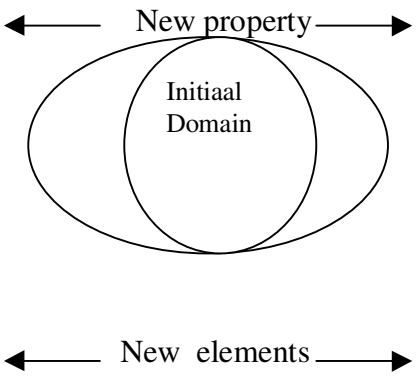


Fig.2 Some



In both cases it is requested to enlarge the domain, but in two different ways: with *any* the property that characterizes the set is the same, it is asked to check the elements of the set with more attention, to find something maybe forgotten, while with *some* it asks to find an element belonging to a superset of the initial set with the same contextual restrictions (in our example, for instance, the way to get tickets must be accessible to Mike).

2.7 Summarizing

The behavior of the different kinds of PQs are schematized in the tables in (24):

(17)

(1)	evidence for p	neutral	evidence against p
PPQ		*	
ONPQ		*	*
INPQ			*

(2)Expected answer	p	p or not-p	not-p
PPQ		*	
ONPQ	*		
INPQ			*

In (17.1) we can see the different contexts in which different kinds of questions can be felicitously uttered. We can notice that when in a context there is evidence for p it is useless and not felicitous asking whether p is true. In (17.2) the relation is drawn between a question and the information the question is meant to confirm. A PPQ does not expect any particular answer; it can be uttered by a person who is in a state of ignorance towards p. The others are meant to check a particular belief of the speaker. Hence there are questions used to get new information and questions used to get confirmation of a determinate inference.

(17.1) differs from the analysis proposed by Buring & Gungloson (2000) with respect to the definition of the context of use of PPQ, since I claim that PPQs can only be considered as genuine questions that require new information. Therefore they cannot be uttered in a context with some sort of evidence with respect to p. Once recognized that PPQs are neutral, that do not expect any particular answer, and are the typical questions uttered in a state of ignorance towards p, it follows naturally (and also theoretically) that they can not fit in non-neutral contexts.

2.8 Rising declaratives questions

Rising declarative questions are syntactic declaratives with final rising intonation (the rise is indicated with a question mark). I will analyze in this section their behavior in comparison with INPQs and ONPQs:

Neutral context: John just woke up. He cannot see outside because the curtains are closed. He wants to know how the weather is outside. He asks his roommate:

Is it sunny outside?
Is it raining outside?
#It is raining?

Non-neutral context: John just woke up. He cannot see outside because the curtains are closed, but he can hear the tinkle of the rain from outside. He asks his roommate:

#Is it sunny outside?
#Is it raining outside?
It is raining?

Neutral context
Scenario: Mike and Ilya are talking on the phone.
Mike: What do you want to do tonight?

Ilya: Isn't there some chance of getting some tickets for the Super bowl? ONPQ
Ilya: # Isn't there any chance of getting some tickets for the Super bowl? INPQ
Ilya: # There is some chance of getting some tickets for the Super bowl?
Ilya: #There isn't any chance of getting some tickets for the Super bowl?

Non-neutral context (compelling evidence for p):
Scenario: Mike is a sport reporter and he has a lot of connections.
Mike: I can get, more or less, every kind of tickets

Ilya: # Isn't there some chance of getting some tickets for the Super bowl? ONPQ
Ilya: # Isn't there any chance of getting some tickets for the Super bowl? INPQ
Ilya: #There isn't any chance of getting some tickets for the Super bowl?
Ilya: There is some chance of getting some tickets for the Super bowl?

Non-neutral context (compelling evidence against p)
Scenario: Mike and Ilya are talking on the phone.
Mike: I am sorry but I think this year you will have to miss the game.

Ilya: Isn't there some chance of getting some tickets for the Super bowl? ONPQ
Ilya: Isn't there any chance of getting some tickets for the Super bowl? INPQ
Ilya: There isn't any chance of getting some tickets for the Super bowl?
Ilya: #There is some chance of getting some tickets for the Super bowl?

Rising declarative questions do not pattern with polar questions in most of the examples. The felicity of rising declarative questions involves both the personal beliefs of the speaker than what is mutually evident (see Gunlogson (2001)). In particular the conversational agents are in some way committed to the propositional content of a rising declarative, they do not really ask for new information. That explains why they do not pattern with PPQs. On the other hand they fail to pattern with ONPQs. Where a negative rising declarative commits the speaker to not-p an ONPQ commits her to p. Instead we can notice a correspondence between the behavior of INPQ and negative rising declaratives: both of them cannot be uttered 'out of the blue', i.e. in neutral contexts, and they can be uttered only in contexts that show an evidence for not-p. In my opinion this correspondence is more superficial than real, it is due to a coincidence. Both of them ask for evidence of not-p but in a different way: the rising declaratives committed the speaker to not-p, she believes that not-p while an INPQ is used just to check whether not-p it does not matter what the beliefs of the speaker are.

2.9 Negative polar question with non-inverted negation

In this section I will compare the behavior of negative polar questions with non-inverted negation (Is there no..., Do you not...) with ONPQs and INPQs.

I propose to characterize these two kinds of questions syntactically with respect to the form of the negation. In particular it will be shown in this section that non-inverted negation is peculiar of INPQs while inverted negation has been already shown (2.6) to be peculiar, if no PPIs occur, for ONPQs.

Let's consider a negative polar question with non-inverted negation like *Is there no chance of getting some tickets to the Super bowl?* with respect to the three different contexts:

(17) Neutral context

Scenario: Mike and Ilya are talking on the phone.

Mike: What do you want to do tonight?

Ilya: #Is there no chance of getting some tickets to the Super bowl?

(18) Non-neutral context (compelling evidence for p):

Scenario: Mike is a sport reporter and he has a lot of connections.

Mike: I can get more or less every kind of tickets

Ilya: # Is there no chance of getting some tickets to the Super bowl?

(19) Non-neutral context (compelling evidence against p):

Scenario: Mike and Ilya are talking to the phone.

Mike: I am sorry but I think this year you will have to miss the game.

Ilya: Is there no chance of getting some tickets to the Super bowl?

In these examples the NPQ with non-inverted negation shows the same contextual acceptability as an INPQ. They share the same felicity conditions.

Further examples will help to check the intuition that these kinds of NPQs pattern with INPQs.

(20) Neutral context

Scenario: Mike and Ilya are at a party. Mike has just introduced Philip to Ilya. Ilya lights a cigar.

Ilya (to Philip): # Don't you want a cigar?
Ilya (to Philip): # Do you not want a cigar?

(21) Non-neutral context (compelling evidence for p)
Scenario: Mike and Ilya are at a party. Mike has just introduced Philip to Ilya. Ilya lights a cigar.

Philip: I have just started to appreciate smoking.
Ilya (to Philip): Don't you want a cigar?
Ilya (to Philip): # Do you not want a cigar?

(22) Non-neutral context (compelling evidence against p)
Scenario: Mike and Ilya are at a party. Mike has just introduced Philip to Ilya. Ilya lights a cigar.

Phillip: I am trying to quit smoking.
Ilya (to Phillip): # Don't you want a cigar?
Ilya (to Phillip): Do you not want a cigar?

It seems that NPQs with non-inverted negation definitely pattern with INPQs. We can say that the not inverted construction of negation in polar questions is a formal witness of an INPQ. On the other hand, if negative polarity items do not occur in the question, the inverted one is typical of an ONPQ.

Furthermore the syntactic construction affects the polarity of a question in a weaker way than the occurrence of polarity items. In fact the presence, for example, of *any* in *Don't you want any cigars?* , and of *some* in *Don't you want some cookies* changes the inference communicate by the question while the same does not seem to hold for a NPQ with non-inverted negation. Since:

(23) Mike: I am starving!
Ilya: #Do you not want some cookies?

is not acceptable, or better, it is not the optimal realization for the meant goal.

A particular syntactic form is linked with a particular polarity as far as no PPI occurs: inverted negation is characteristic of ONPQs where not inverted negation is of type INPQ. I propose to characterize the distinction between ONPQs and INPQs with respect to their syntactic structure (inverted or not inverted negation). Hence:

(24)

(i) a PQ syntactically characterized as Inv-NEG has as its set of expected answers the singleton {[p]} if and only if there is no compelling evidence for p (where p is the declarative of a question q)

(ii) a PQ syntactically characterized as Non Inv-NEG has as its set of expected answers the singleton {[not-p]} if and only if there is compelling evidence for not-p

(iii) a PQ syntactically characterized as PPQ has as its set of possible expected answers {[p], [not-p]} if and only if there is compelling evidence neither for p nor for not-p

Hence, trivially from (24):

(1)	evidence for p	neutral	evidence against p
PPQ		*	
Inv Neg		*	*
Non-Inv Neg			*

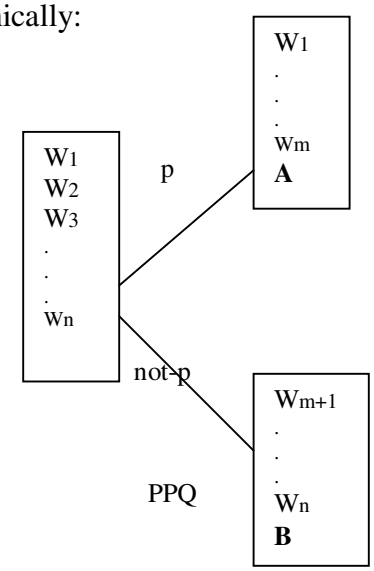
(2) Expected Answer	p	p or not-p	not-p
PPQ		*	
Inv Neg	*		
Non-Inv Neg			*

Hence there is a real correspondence between syntactic structure and pragmatic interpretation. I claim that a pragmatic asymmetry corresponds to syntactic differences between two questions with the same semantic representation. It is a clear explicit case of a constant correspondence between the syntactic and pragmatic side of this kind of question: it is a clear case of conventional implicature.

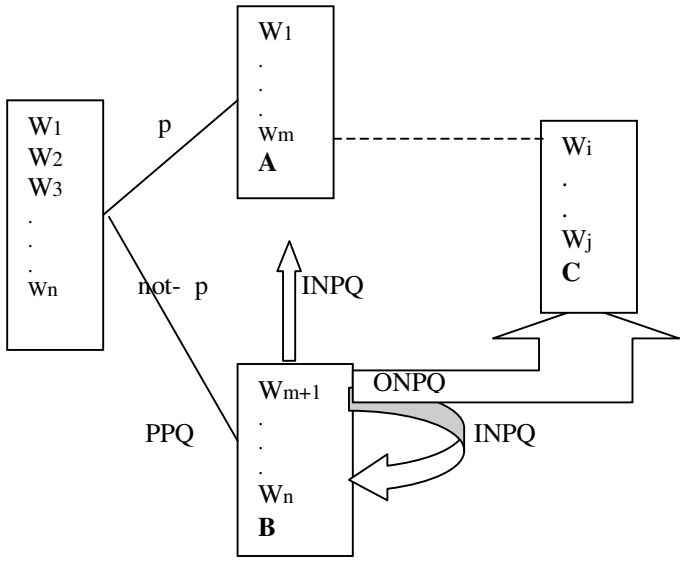
2.10 Contexts

Some things can be pointed out by looking at the tables with respect to the context of utterance and the possible questions it allows. Given a neutral context a PQ q, as noticed at the beginning of the paper, produces a partition in the logical space with respect to p and not-p.

Graphically:



As one can see, A does not allow any further question concerning p while B allows both ONPQ (Inv Neg) and INPQ(Not-Inv Neg). Keeping in mind what these questions are used for we can depict it like:



Once in B one can use an INPQ to have a confirmation of not-p, and it will come back again to B. As noticed before a state updated with p, where p is good news, no other state can be reached by continuing to ask question regarding p, no questions like these are allowed in such a context. Instead in a state updated with not-p, where not-p is bad news, three things can happen: (i) an INPQ can be used to have a further confirmation of not-p and the same state is reached with a loop; (ii) an INPQ, in which a term able to affect the domain of quantification in a vertical way occurs, can be used to recheck more carefully the element of the domain in order to find one that satisfies the property under question. If this happens a state where p holds is reached; (iii) an ONPQ, in which a term able to affect the domain of quantification in a horizontal way occurs, can be used to check if there is some property, very similar to the one under question, that contains at least one element. In this case a state in which something very similar to p holds.

3.1 The proposal

What we are looking for is a formal definition of the conditions of use of polar questions. It should be a unique definition that, interacting with the syntactic shape of the different kinds of questions, gives the proper conditions of use for each of them. Furthermore, these conditions should result according to the principle of compositionality. In particular the different functions of the negation in the two different kinds of negative polar question should be shown: its ordinary function with not inverted negation and its free-standing status (positive item can occur) with inverted negation.

We assume the ordinary interpretation of a polar question: the meaning of a polar question q is the set {[p], [not-p]} where p is the declarative form of q and the union of the sets {w/ p in w} and {w/ not-p in w} is W, the set of all possible worlds. We define the intuitive notion of Expected Answer (EA) with respect to PQ. Informally we can define the Expected Answer of a question as that particular answer the speaker is expecting asking that question, it is the inference the question is used to check.

As pointed out before, PPQs do not expect any particular answers, it is important to emphasize that the fact that a PPQ is not neutral does not mean that it suggests a particular reply; it just means that it cannot fit properly in every context. The point is that a positive polar question does not need any kind of evidence of expectation. On the contrary it can be properly uttered only in a context where there is no evidence for p or for not-p.

Instead, NPQs expect a particular answer, they are used to check a particular inference, they favor a particular interpretation: a Not Inverted NPQ not-p expects an affirmative answer (not-p) and can fit in a context where there is some sort of evidence for this expected answer; an Inverted NPQ not–p requires, or at least expects, an answer p, and cannot fit in a context where there is some sort of evidence for the expected answer. It seems useful to emphasize the different kinds of behavior these two kinds of questions show. We maintain the standard interpretation of a question Q (the meaning of a question is the set of its possible answers). We define a function EA (expected answer(s)) from set of propositions to set of proposition such that when we apply it to the set of possible answers to a question it yields the expected answer(s) to that question:

PPQ : $EA_{PPQ}(Q) = \{[p], [not\text{-}p]\}$

Not Inv NPQ : $EA_{NotInvNPQ}(Q) = \{[not\text{-}p]\}$

Inv NPQ : $EA_{InvNPQ}(Q) = \{[p]\}$

where: $[Q] = \{[p],[not\text{-}p]\}$

The expected answer for Not Inv NPQ and Inv NPQ is respectively the singleton {[not-p]} and {[p]}.

We can now start to define the condition of use of a PPQ in relation to the notion of *compelling evidence*.

Let CE: = μX [there is no compelling evidence for (each of) X]

Where X is a set of propositions

One of the principal differences between Gunlogson & Buring's approach and mine is that the lambda abstraction is applied to sets of propositions and not to propositions. A further distinction is that in my proposal the set of propositions corresponds to the Expected Answer of a question where in their approach the lambda abstraction is applied to the proposition of which there is evidence. We propose to define the general condition of use of a polar question as follows:

Condition of use of PQ:

PQ iff CE ($EA_{PQ}(Q)$) and it can be read as: a Polar Question Q can be uttered felicitously if and only if there is no compelling evidence for the Expected Answer:

Hence the condition of use of a PPQ is:

PPQ: CE ($EA_{PPQ}(Q)$)

and it means that a PPQ can be felicitously uttered if an only if there is no compelling evidence for the set of expected answers.

We noticed before that in an Inv NPQ *not-p* the negation is not really part of the proposition expressed by the question. This intuition is supported by the fact that positive polarity items can occur in the scope of the negation and gives reason to think

of a free standing status of the negation in this construct. Furthermore we emphasized that what is really asked in these questions is p, and not not-p. The negative construction is a conventionalized way to ask p. That is why, even if syntactically they belong to NPQs, I propose to look at them as PPQs:

ONPQ: CE ($EA_{InvNPQ}(Q)$)

Now we apply the negation on the condition of use of PPQs to get the condition of use of NPQs in general, Not Inv NPQ in particular since the claim here is that just this kind of questions has to be interpretationally classified as negative questions. As noticed before in these kinds of questions the negation has its ordinary function, it has its usual scope, no positive polar items can occur in it. Since the negation focuses on the polarity of the question it will feel its effect also on CE:

INPQ: not-CE ($EA_{Not\ Inv\ NPQ}(Q)$)

To summarize:

(25)

PPQ:	:	CE (EA(Q)) = There is no compelling evidence for (each of {[p], [not-p]}
Inv NPQ	:	CE (EA(Q)) = There is no compelling evidence for (each of){[p]}
Not Inv NPQ (not-(PPQ))	:	not-CE (EA(Q)) = There is compelling evidence for (each of){[not-p]}

Two observations with respect to (25):

(i) It matches the condition of use generalized from the examples (17)-(22)

(ii) It supports the idea that Inv NPQ are pragmatically more like PPQ than to Not Inv NPQ

(iii) It gives the condition of use of Not Inv NPQ compositionally (as PPQ plus negation)

As a matter of example:

PPQ : *Is it sunny?* Can be used appropriately iff CE (EA_{PPQ} (Is it sunny?)) iff μX [There is no compelling evidence for (each of) X] {[p], [not-p]} iff There is no compelling evidence for (each of) {It is sunny, It is not sunny}

Inv NPQ: *Isn't there some chance of getting some tickets to the Super bowl?* Can be used appropriately iff CE (EA_{InvNPQ}(Isn't there some chance of getting some tickets to the Super bowl?)) iff μX [There is no compelling evidence for (each of) X] {[p]} iff There is no compelling evidence for (each of) {There is some chance of getting some tickets to the Super bowl}

Not Inv NPQ: *Isn't there any chance of getting some tickets to the Super bowl?* can be used appropriately iff not-CE ($EA_{Not\ Inv\ NPQ}$(Isn't there any chance of getting some tickets to the Super bowl?)) iff μX [There is compelling evidence for (each of) X] {[not-p]} iff There is compelling evidence for (each of) {There isn't any chance of getting some tickets to the Sup bowl}

We are now able to differentiate the possible realization of the questions in (1) with respect to different contexts and expected answers.

(1)

a. Is it raining?
b. Isn't it raining?
c. Is it dry outside?
d. Is it not raining outside?

The proposed approach gives the following interpretation for the questions in (1):

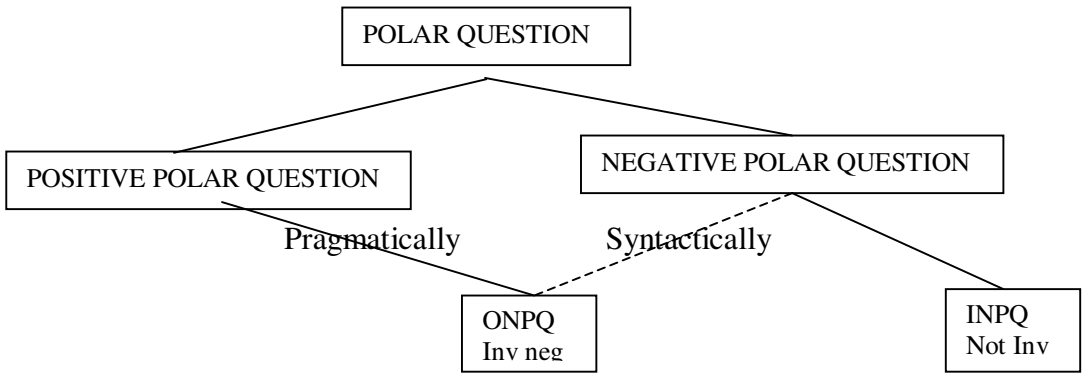
a. There is no compelling evidence for (each of) {It is raining, It is not raining}
b. There is no compelling evidence for (each of) {It is raining}
c. There is no compelling evidence for (each of) {It is dry outside, It is not dry outside}

d. There is compelling evidence for (each of) {It is not raining outside}

(1.a) differs from (1.b) since the former can be realized just in neutral contexts and does not expect any particular answer where (as the latter expects) p and can be uttered also in a context where there is evidence for not-p. (1.a) and (1.c) share the same interpretation and condition of use. (1.a) differs from (1.d) since the latter expects an affirmative answer (not-p) and can be uttered just when there is evidence for not-p. (1.b) differ from (1.c) with respect to the condition of use (the former can be uttered just in a context where there is no evidence for p where the latter can only be used in a neutral context) and the expected answer (no expected answer for (1.c) p for (1.b)); from (1.d) because of its expected answer (not-p for (1.d) and p for (1.b)) and its suitable context ((1.d) can be uttered only in a context where there is compelling evidence for not-p). The same for (1.c) and (1.d).

It must be noticed that we are able now to differentiate between (1.b), (1.c) and (1.d) that share the same propositional content (it is not raining) while normal approaches cannot.

We can now redraw the geography of polar question taking into account what has been discussed in this section:



3.2 Italian

The proposed conditions of use for polar questions also works for Italian. The absence of something corresponding to the English *do* forbids one from having two different negative constructions of a question like in English, but it does have something similar. Consider:

(26)

a. Non mangi?

b. Tu non mangi?

c. Mangi?

That corresponds to:

a'. Don't you eat?

b'. Do you not eat?

c'. Do you eat?

Neutral context

A: Vado a preparare la cena.(I am going to make dinner) Mangi? (Do you eat)(PPQ)

A: Vado a preparare la cena. #Non mangi? (ONPQ)

A: Vado a preparare la cena. # Tu non mangi? (INPQ)

Evidence for p

A: Sto morendo di fame (I am starving)

B: # Mangi?

B: # Non mangi?

B: # Tu non mangi?

Evidence for not-p

A: Ho un terribile mal di stomaco! (I have a terrible stomach)

B: #Mangi?

B: Non mangi?

A: Assolutamente no! (Absolutely not)

B: Tu non mangi?

A: Esatto! (Right)

The felicity conditions of a question are the same for Italian and English. As in English the Italian has a conventionalized form of asking *p* by uttering *not p* (ONPQ). That is also supported by the answers to *Non mangi?* and *Tu non mangi?*. The answer to

the former question is actually suitable for *Mangi*, what is asked is actually *Do you eat* ; the answer to the latter is instead suitable for *Do you not eat?*.

If we apply the condition of use for polar question to the Italian example we get the correct outcome:

a. (ONPQ) : *Non mangi*? iff there is no compelling evidence for (each of) {Tu non mangi}

b. (INPQ) : *Tu non mangi?* iff there is compelling evidence for (each of) {Tu non mangi}

c. (PPQ) : *Mangi?* iff there is no compelling evidence for (each of) {Tu mangi, Tu non mangi}

Hence, a positive polar question is generally characteristic of a 'genuine' question, a question used to get new information, while the negative form is characteristic of questions that, somehow, expect a particular answer. It can be said that the information requested with a PPQ is newer, less expected, than the information requested with a NPQ.

3.3 Conventionalized Form

One of the principal issues of this paper concerns ONPQs. It has been pointed out that this kind of question is negative just at a surface level; interpretationally they should be seen as positive questions. The claim here is that the negation does not have its standard function. To support this intuition it has been shown that positive polarity items can occur in the scope of the negation. To explain this fact we are forced to admit a free standing status of the negation.

Consider:

(27) a. Did Mike not eat fish or meat?

b. Didn't Mike eat fish or meat?

The two questions in (27) differ from each other, as we saw, with respect to the context of use in which they can be uttered appropriately and in their expected answer. In particular (27.a) expects not-p and can be properly uttered in a context where there is evidence for *Mike did not eat fish or meat* and (27.b) expects p and can be properly uttered in a context where there is no evidence for *Mike did ate fish or meat.* But there is a further difference: (27.a) allows an extra reading with respect to (27.b): the so-called alternative reading. Under this reading the speaker presupposes that, between fish or

meat Mike did not eat one of them. Hence there are two more possible answers to (27.a): *Mike did not eat fish* and *Mike did not eat meat.*

The question is: why is there an asymmetry of possible interpretations between inverted and not-inverted negation, in particular why do not-inverted negation allow more readings.

If we apply condition of use in (25) we get the following interpretation:

a. *Did Mike not eat fish or meat* can be uttered appropriately iff there is compelling evidence for *Mike didn't eat fish or meat*

b. *Didn't Mike eat fish or meat* can be uttered appropriately iff there is no compelling evidence for *Mike ate fish or meat*

According to (a), and consistent with previous observations, (27.a) can be uttered felicitously in a context where there is evidence for *Mike didn't eat fish or meat* as a whole. Instead (27.b) can be uttered in a context with no compelling evidence for *Mike ate fish or meat*. Intuitively (27.a) can be uttered also in a context where there is evidence for just one of the disjuncts (*Mike didn't eat fish* or *Mike didn't eat meat*), but my analysis is not yet able to give an explanation of this extra reading. We can try to clarify the possibility of more interpretations of (27.a) thinking about a different, atypical function of the negation (it seems to affect the two disjuncts without affecting the connective) that would allow the following readings:

1. Mike didn't eat meat and didn't eat fish
2. Mike didn't eat meat or Mike didn't eat fish

We can try to explain the asymmetry of implictures between (27.a) and (27.b) from a more general perspective. A possible answer comes from the fact that language associates a particular discourse function to sentences with not-canonical order where a sentence with canonical order can vary its discourse function with respect to the position of the pitch accent. So, in particular, when the negation is inverted, and hence it has not its canonical position, it has a particular discourse function of focus marking the polarity. But when negation is not inverted, and hence it occupies its canonical position, the speaker is able and free to assign focus to any part of the question by changing the position of the accent allowing more readings. Therefore in embedded yn-questions,

formed with contracted negation, the negation occupies its canonical position allowing different readings. Consider:

(28)

a. I asked Mike whether he doesn't eat fish or meat.

b. I asked Mike whether he doesn't smoke.

We can see that (28.a) allows an alternative reading other than a yn-reading. (28.b) on the other side does not expect any particular answers (normally an affirmative implicature is forced).

3.4 Conclusion

The purpose of this paper was to find a representation of the condition of use of Polar Questions. By the notion of Expected Answer and Contextual Evidence we linked what is mutually available in the context by the conversational agents with the pragmatic impact of these kind of questions. The condition of use proposed accords with data and intuition and allows some considerations about the relation between context of utterance and questions. In particular only PPQs can be used to get new pieces of information, they are the only questions allowed in neutral contexts. On the other side no questions regarding whether a fact X is true are allowed in context where there is evidence of X. The possibility to continue asking about X in contexts that show evidence against X has to be addressed to some sort of politeness convention.

It has been shown that some inferences are strictly linked to the syntactic shape of a question. Therefore we can conclude that this kind of transmitted information is a clear case of conventional implicature. In particular: (i) the inference that p is expected is a conventional implicature of questions with inverted negation (ONPQs); (ii) the inference that not-p is a conventional implicature of questions with non-inverted negation (INPQs).

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