Indeterminacy and the Felicity of Inner Negation Polar Questions∗

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1 The Phenomenon

• Inner Negation Polar Questions (INPQ, Ladd, 1981):
  – Polar questions.
  – Negation fronts with the auxiliary.
  – License negative polarity items.

For differences between INPQs and other polar questions see the Appendix.

(1) Bob is visiting Kathleen and Jeff in Chicago while attending 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’ s not really any place to go to in Hyde Park.
    Bob: Oh really, isn’t there any vegetarian restaurant around here?
    Kathleen: No, about all we can get is hamburgers and souvlaki.
    (adapted from Ladd, 1981, 164)

• INPQs betray an expectation by the questioner that the positive answer is true
  (no account will be offered of this fact, but see Sec. 4 for discussion).

• Observation (Büring and Gunlogson, 2000; Romero and Han, 2004): INPQs
  are dependent on information in the context that suggests a negative answer.
  When such evidence is absent, INPQs are unacceptable, see (2).

(2) A: Where do you want to go for dinner tonight?
    B: #Isn’t there any vegetarian restaurant around here?

(3) Evidence Condition on INPQ ¬p?: There is compelling contextual evidence
    against p. (Büring and Gunlogson, 2000, 10)

• Büring and Gunlogson (2000): describe the contexts that admit INPQs in terms
  of evidence present in the context:

• Observation: There is a prima facie tension between the contextual evidence
  apparently settling the issue under discussion, and INPQs querying the very
  issue that the contextual evidence settles.
  What is the relation between INPQs and the contextual evidence?

• A simplistic combination of question semantics and negation does not in and
  off itself give a difference between PPQs and negative polar questions (NPQ):
  they determine the same kind of semantics object (Romero and Han, 2004,
  616).

(4) a. Did John drink anything?
    b. \( \exists x[\text{drink}(\text{John},x)] \land \neg \exists x[\text{drink}(\text{John},x)] \)

(5) a. Didn’t John drink anything?
    b. \( \neg \exists x[\text{drink}(\text{John},x)] \land \neg \neg \exists x[\text{drink}(\text{John},x)] \)

  – The VERUM-approach (Romero and Han, 2004, and later work): Semantics
    and pragmatics.

  ∗ Fronted negation polar questions contain a special operator VERUM
    (Höhle, 1992).

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1Büring and Gunlogson use questions with negative quantifiers, which behave differently from
polar questions where negation fronts with the auxiliary (see Romero and Han, 2004, Section 2.1).
Only INPQs are strictly subject to (3).
* VERUM is a discourse epistemic operator relating to what participants believe should be in the common ground.

* VERUM turns fronted negation polar questions into questions about degrees of certainty about the questioned proposition. Roughly (5) would be assigned the partition:

<table>
<thead>
<tr>
<th>p</th>
<th>\neg p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addressee is absolutely certain that <em>John didn’t drink anything</em> should be in the common ground</td>
<td>Addressee is not absolutely certain that <em>John didn’t drink anything</em> should be in the common ground</td>
</tr>
</tbody>
</table>

(6)

This special meaning and its interaction with pragmatics accounts for the unusual properties of fronted negation polar questions.

- van Rooij and Šafárová (2003), Reese (2007): Pragmatics only.

- The semantics in (5) is right.

- Special properties of negative polar questions arise from the pragmatics of querying a negative proposition.

**Outline:**

Section 2: Shows that INPQs are sensitive to indeterminacy about contextual evidence and are questions about the contextual evidence.

Section 3: Develops an account of the impact of indeterminacy on the context that together with a partition semantics captures the observations in Section 2.

Section 4: Relates the proposal here to previous work on NPQs.

## 2 Indeterminacy of Contextual Evidence

### 2.1 INPQs are sensitive to indeterminacy about the contextual evidence

- INPQs are sensitive to indeterminacy about the contextual evidence. They deteriorate the more clearly the contextual evidence settles the issue under discussion.


- Contexts allow a certain amount of slack with respect to how close to absolutely true an assertion has to me to be accepted in some context.

- The amount of slack can be explicitly controlled by expressions like *absolutely, perfectly or exactly*.

(7) The branch is (perfectly) straight.

(8) A and B are trying to get seats in a lecture hall.

a. A: It’s full.
   B: Aren’t there any seats left in the front?

b. A: It’s absolutely full.
   B: ??Aren’t there any seats left in the front?

(9) Bill is responsible for refilling the department candy jar. The jar is only refilled if it is completely empty.

a. A: Hey Bill, the candy-jar is empty. Can you refill it?
   Bill: I checked this morning. Isn’t there any of the halloween candy left?

b. A: Hey Bill, the candy-jar is perfectly empty. Can you refill it?
   Bill: ??I checked this morning. Isn’t there any of the halloween candy left?

(10) A and B are loading a truck. The truck has a maximum capacity of 5 tons. They need to carry as much load as possible but don’t want to overload the truck. They are loading it on a scale.

a. A: Lets stop now, the truck’s 5 tons.
   B: Isn’t there any more we can load on?

b. A: Lets stop now, the truck’s exactly 5 tons.
   B: ??Isn’t there any more we can load on?

- The degree of oddity of the b. examples varies for speakers between degraded to unacceptable.

- General picture: if pragmatic slack is controlled for, INPQs deteriorate.

- Some variation is to be expected given that *absolutely, perfectly or exactly* only reduce slack but don’t remove it entirely, and that people differ with respect to how much slack they need to accept a question as still open.

- Hedges: e.g. *isn’t really* in (1).
(1) Bob is visiting Kathleen and Jeff in Chicago while attending 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’s not really any place to go to in Hyde Park.
  Bob: Oh really, aren’t there any restaurants around here?
(adapted from Ladd, 1981)

- Vagueness of domains of quantification: In (1), there is indeterminacy about what kinds of places Kathleen is talking about or how close they are to Hyde Park.
  Similar effects can be observed with quantification over times (11) and possible worlds (12).

(11) A: I always cook. I generally don’t take kindly to food that other people have prepared.
  B: Don’t you ever go to a restaurant?

(12) A: Sorry, I don’t think I’ll be able to pick you up from the airport.
  B: Ahh. . . Can’t you do it at all?

- When this form of indeterminacy is controlled for, INPQs degrade.

(13) B: Will you pick me up from the airport tomorrow?
  A: Sorry, I can’t. I’ll be out of town until next week.
  B: #Ahh. . . Can’t you do it at all?

(14) A and B are checking the passenger list of an airplane before leaving.
  A: OK, I have checked three times. Everyone who is on the the list is on the plane.
  B: #Isn’t anyone left in the waiting area?

- Indeterminacy from relation to other information:

(15) Peter is planning a trip to which he invited, among other people, Paul, John and Mary. John and Mary are a couple. They go everywhere together. Paul wants to go on the trip with Peter and he hates both John and Mary.

Peter: John isn’t coming on the trip.
Paul: Hurra! Isn’t Mary coming either? That would be the best!^2

Indeterminacy is about whether Peter’s claim warrants the inference that John isn’t coming.

- Conclusion: INPQs can only be used when there is indeterminacy about whether the contextual evidence settles the issue it addresses.

2.2 INPQs question the contextual evidence
- INPQs address the contextual evidence they are sensitive to, e.g.
  – (1): INPQ probes whether there might be restaurants after all.
  – (11): INPQ probes just how full the lecture hall is.
  – (15): probes whether Peter’s statement allows the conclusion that Mary isn’t coming.

- INPQs cannot be used to change the subject:

(16) A enters the linguistics department’s main office and asks the secretary:
  A: I’m looking for a TA to help me with my assignment for Linguistics 101.
  S: I think there are no grad students around today.
  PPQ: Are there any professors around?
  INPQ1: #Aren’t there any professors around?
  INPQ2: Isn’t there anyone at all?

– PPQ can be used to shift the subject to professors.
– INPQ1 cannot be used to shift the subject away to professors.
– INPQ2 is felicitous, but addresses the way S tried to settle A question.

INPQs are tied to addressing the contextual evidence.

^2This kind of example is not equally acceptable to all speakers. Some find it infelicitous, others unexceptional. I have no explanation for this variation at this point.
• **Putting the pieces together:** If INPQs are questions about the contextual evidence, the degree to which that evidence is indeterminate determines the extent to which the issue raised by the INPQ is still open. Only if the evidence is somewhat ambiguous, is there still a space of possible worlds for the INPQ to partition.

• **Variability:** The felicity of an INPQ depends on its addressee being able to construe the contextual evidence as not resolving the question. This makes us expect some variation among speakers and contexts, depending on whether speakers are willing or able to construe some piece of evidence as indeterminate.

3 Representing Indeterminacy in Context


• Problem: whose epistemic state contributes to the modal base of might?

(17) Alex is aiding Billy in the search for her keys:

Alex: You might have left them in the car.


b. Billy: No, I still had them when we came into the house.

(von Fintel and Gillies, 2008, 11-2, composite of their (18)-(20))

– If only Alex’s epistemic state contributed, b. would be an assertion about Alex’s epistemic state.

– If Alex and Billy’s epistemic state contributed, Alex’s assertion would be an assertion about Billy’s epistemic state.

Both of these seem odd.

• Proposal: Alex proffers the set of propositions in (18). Each proposition differs by whose knowledge contributes to the modal base of might. These propositions can be taken up by other interlocutors.

![Propositions](image-url)

– Billy’s replies in (17) take up the proposition b. in (18), a. confirms, b. denies it.

– No incoherence despite taking up a proposition that was not intended by Alex.

• Adapting to INPQs: INPQs take up propositions that become available through indeterminacy by determining partitions over the worlds they span. These multiple propositions can be introduced into the context in different ways.

3.1 Pragmatic Slack

• Lasersohn (1999) proposes to treat pragmatic slack in terms of utterances introducing sets of propositions that are increasingly far removed from the strictly true denotation of the sentence. This set of propositions is called the **pragmatic halo** of the sentence.

• The sets of propositions are derived compositionally by associating each basic expression with a partially ordered set of interpretations that diverge from it to some degree controlled by the context.

– Special composition rules combine sets of meanings for basic expressions with each other to derive sets of propositions.

– Slack regulators reduce the degree to which the members of the halo can diverge from the strictly true interpretation.

(8′) A and B are trying to get seats in a lecture hall.

A: It’s full.

B: Aren’t there any seats left in the front?

• The alternatives in a halo:

– Lasersohn: the elements of a halo are pragmatically indistinguishable from the true denotation.

– Examples (8)-(10): INPQs distinguish the alternatives inside the halo, i.e., for the questioner using an INPQ they are not pragmatically indistinguishable.

Proposal: Speaker’s assign pragmatic slack based on their estimates of their interlocutors goals, trustworthiness and other factors. Two interlocutors in the same context can allow different amounts of slack depending on their goals and beliefs (for a similar argument that assumptions about knowledgeability affect the computation of scalar implicatures see van Rooij and Schulz, 2004).
3.2 Covert Domain Restriction

- Examples like (1), (11), (12): Indeterminacy arises from different ways of resolving quantificational domains.
  - Character: function from contexts \( c \) to contents: \( \lambda c. [\phi]^c \)
  - Contents: propositions.

Mapping from character to content resolves context dependent aspects of meaning in formula \( \phi \), in particular the meaning of deictic expressions.
- One line of work on covert domain restriction (e.g. von Fintel, 1994; Stanley and Szabó, 2000) attributes domain restriction to the presence of a covert variable that can be interpreted deictically.
- When a context is indeterminate about how some context dependent aspects of meaning are resolved different context parameters can be used, and multiple contents derived from one character.
- An example: (1).

(1') Bob is visiting Kathleen and Jeff in Chicago while attending CLS.

Kathleen: I guess, but there’s not really any place to go to in Hyde Park.
Bob: Oh really, aren’t there any restaurants around here?

- The context prior to Kathleen’s utterance (1):

<table>
<thead>
<tr>
<th>Restaurants:</th>
<th>w₁</th>
<th>w₂</th>
<th>w₃</th>
<th>w₄</th>
<th>w₅</th>
<th>w₆</th>
<th>w₇</th>
<th>w₈</th>
</tr>
</thead>
<tbody>
<tr>
<td>close and good</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>distant and good</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>close or distant</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Domains for any place in (1) and corresponding propositions:

\[
\begin{array}{|c|c|c|c|c|c|c|}
\hline
\text{Domain Restriction:} & \text{Proposition:} \\
\hline
\text{a.} & \{x | x \text{ a close, good restaurant} \} & \{w₂, w₅, w₆, w₈\} \\
\text{b.} & \{x \mid x \text{ a close or distant, good restaurant} \} & \{w₃, w₈\} \\
\text{c.} & \{x | x \text{ a close or distant restaurant} \} & \{w₈\} \\
\hline
\end{array}
\]
Partition for Aren’t there any restaurants around here? in (1) assuming the propositions in (23):

\[ \neg p \quad p \quad w_8 \quad w_2, w_3, w_6. \]

- As in (21), the queried proposition takes up one of the propositions proffered, again this is unlikely to have been the intended meaning, but that does not cause a disruption to the discourse.
- Both yes- and no-answers settle the interpretation of the contextual evidence.

3.3 Standards of Justification

- The account in Sec. 3.2 also gives an account of examples like (15) which do not involve quantification or pragmatic slack.

(15) Peter is planning a trip to which he invited among other people Paul, John and Mary. John and Mary are a couple. They go everywhere together. Whenever one shows up the other does too. Paul wants to go on the trip with Peter and he hates both John and Mary.
Peter: John isn’t coming on the trip.
Paul: Hurra! Isn’t Mary coming either? That would be the best!


The problem: clarity assertions, (25). If something is ‘clear,’ why can still assert them without the usual oddity of asserting things that are already in the common ground.

(25) It is clear that Abby is a doctor.

- Their proposal: Speakers can be uncertain about which worlds exactly are in the common ground, therefore there is uncertainty about what the common ground entails.
- Standards of justification: To manage uncertainty about the content of the common ground, speakers tacitly adopt standards, similar to standards of comparison for gradable adjectives, for when some piece of information allows some inference in a context.

- Standards of justification are context dependent (similar to standards of comparison, Barker, 2002).

- Standards themselves are vague: like with gradable adjectives like tall, there are clear talls, clear non-talls and some amount of grey area.

Adjectives like clear refer to points on the scale of standards of justification.

- Accounting for (25): What is being asserted is that the proposition Abby is a doctor meets the standard of justification denoted by clear in the current context.

- Accounting for (15):

  - Uncertainty about which inferences are allowed by the contextual evidence: Does John isn’t coming entail that Mary isn’t coming?
  - Standards of justification are part of the context, they take effect on interpretation in the mapping from character to content.
  - When there is uncertainty about the standard of justification, interpreting John isn’t coming under stricter standards will not entail that Mary is coming, under weaker standards it will.
  - This leaves both worlds where she is one worlds where she isn’t coming in the common ground, opening the possibility of questioning.

3.4 Conclusions

- The dependency of INPQs on indeterminacy about the contextual evidence and the fact that they are questions about the evidence can be accounted for by a normal partition semantics once the effect of indeterminacy is taken into account.

- Indeterminacy can arise from different sources:

  - Allowing different amounts of pragmatic slack (e.g. (8)).
  - Context dependent aspects of linguistic form (e.g. (1))
  - Uncertainty about standard of justification (e.g. (15))

As long as they increase the number of live possibilities in the common ground, they could open the possibility of questioning.
4 Relation to Existing Accounts

- My argument is an argument for assuming that INPQs determine normal partitions, as opposed to partitions over degrees of certainty as in the VERUM-account.

- There is no pragmatic explanation here for (i) why INPQs are sensitive to contextual evidence, (ii) why the evidence has to be negative, and (iii) why INPQs betray the questioners inclination towards a positive answer (see Romero, 2006, for argument that the same is true of other purely pragmatic accounts).

These facts suggest that there is work to be done by an additional operator in INPQs, but it doesn’t contribute to the descriptive content of the question.

- A picture where INPQs contain an additional operator that does not contribute to the descriptive meaning would assimilate them to what has been argued for other kinds of biased questions (questions with strong NPIs e.g. van Rooij (2003), Guerzoni (2004); wh-the-hell-questions: den Dikken and Giannakidou (2002)).

References


Appendix: Difference between INPQs and other polar questions

- Position of negation:
  - Fronted negation polar questions always signal that the questioner believes that the positive answer is true.
  - Negative polar question with ‘in situ’-negation do not necessarily signal such expectations.

This contrast is illustrated in the contrast in (26). See Romero and Han (2004) for more detailed discussion.

(26) Scenario: S interviews A on TV about Rosa Montero.

A: Mrs. Rosa Montero’s writing career is closely related to the political episodes that Spain has lived through since 1936. There were times when she simultaneously worked on prose and poetry, but there were other times full of journalistic prose and completely devoid of poetry.

S: Please tell us more about those poetic gaps, and about what exactly caused them. For example, did she not write poetry in the 70s? And, if she didn’t, why not?

S’: #Didn’t she write (some/any) poetry in the 70s? And, if she didn’t, why not?

(Romero and Han, 2004, 614)

- Polarity item licensing:
  - Ladd (1981): Fronted negation polar questions admit both negative and positive polarity items.
  - Fronted negation polar questions with positive and negative polarity items differ in a number of properties (Büring and Gunlogson, 2000; Romero and Han, 2004; Reese, 2007).
  - Example: Fronted negation polar questions can appear without any kind of contextual evidence, (27).

(27) A: Where do you want to eat tonight?

B: #Isn’t there any vegetarian restaurant around here?

B’: Isn’t there some vegetarian restaurant around here?