

Assertions, polar questions, and the land in between: Division of labor between semantics and discourse pragmatics*

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1 Introduction

History of the project

- Starting point for me: empirical goal of understanding the distribution and interpretation of polarity particles in English and beyond – this issue will be backgrounded today

- | | | | |
|-----|---------------------------------------|-----|--|
| (1) | Amy left. | (2) | Did Amy leave? |
| | a. Yes, she did. / *No, she did. | | a. Yes, she did. / *No, she did. |
| | b. No, she didn't. / *Yes, she didn't | | b. No, she didn't. / *Yes, she didn't. |

- Led to the realization that we cannot understand polarity particles in responses without understanding the initiatives they respond to: assertions, polar questions
- Led to identifying a class of discourse moves we call *polar initiatives*, and to the question of how best to treat them; this is our starting point today
- Led to the larger question of how to divide analytical labor between semantics and discourse pragmatics; this is the larger context of the talk today

Polar Initiatives

- Polar initiatives*: class of sentences whose typical discourse function is to induce a choice between two complementary alternatives.
- (3) Two alternatives (sets of worlds) are *complementary* iff they are mutually exclusive and, together, cover the entire logical space.

- To illustrate:

*Parts of this talk were presented at a workshop at Newcastle University in June 2012, at Linguistics Colloquia at Yale University and Nijmegen University in April 2012, at the Amsterdam Colloquium and a Linguistics Colloquium at Stanford University in December 2011, and during seminars at the University of Amsterdam in October 2011, and at the Georg August University of Göttingen in April 2011. Most recently, the material presented here was part of the contents of a course we taught at ESSLI 2013. We are grateful to the audiences at these events for useful comments.

The door is open
The door isn't open

- Even within English, large variety of sentence forms used as polar initiatives¹:

- | | | |
|-----|------------------------------|--------------------------------------|
| (4) | The door is open. | [falling declarative] |
| (5) | Is the door open? | [polar interrogative] |
| (6) | The door is open, isn't it? | [positive reverse tag interrogative] |
| (7) | The door is not open, is it? | [negative reverse tag interrogative] |
| (8) | The door is open, is it? | [positive same tag interrogative] |
| (9) | The door is open? | [rising declarative] |

- Further types that will remain out of our discussion today:

- | | | |
|------|------------------------------|--|
| (10) | Isn't the door open? | [high negation polar interrogative] |
| (11) | Is the door open, or closed? | [positive polar alternative interrogative] |
| (12) | Is the door open, or not? | [mixed polar alternative interrogative] |

- General question for today: how to best account for the overall similarities and differences across the group illustrated in (4) - (9)?

2 Desiderata and preview

- Given the size of the empirical pie, an immediate question that arises is how to divide it
- Distinctions in syntactic form
 - declarative vs. interrogative sentence form
 - rising vs. falling intonation
 - negative vs. positive polarity
 - no tag or tag attached
- Distinctions across discourse function wrt Speaker commitment:
 - categorical commitment to one alternative

¹The contrast between positive and negative *per se* will not concern us today so we exemplify with positive sentences except when the distinction becomes relevant to matters of present concern.

- neutrality with respect to the two alternatives
- non-categorical commitment (rising declaratives)
- non-neutral question (tag interrogatives)

- General questions:
 - How to best characterize differences/similarities in discourse function?
 - How to best connect them with differences/similarities in sentence form?

Theoretical desiderata

- **Task:** account *in a principled way* for the range of discourse functions polar initiatives have and thereby give a principled account of the connection between form and function.
- What does it mean to account for this range in a ‘principled way’?
- **Two theoretical constraints**
 - *Maximize uniformity:* prefer a uniform account.
 - *Justify non-uniformity:* depart from a uniform account only if you can justify it.
- Theoretical components we work with:
 - The **syntactic component** of the theory generates the syntactic structures associated to each sentence
 - The **phonological component** specifies how each syntactic structure is spelled out
 - The **semantic component** associates every syntactic structure with a semantic value, in a compositional way
 - The **discourse component** specifies how an utterance of a sentence affects the discourse context, given the semantic value of the uttered sentence and (sometimes) its syntactic form
 - Our main concern here: the **semantic component** and the **discourse component**
- Type of account to be avoided, given our two constraints:
 - case-by-case stipulation of the discourse effects of each type of polar initiative without making connections between the syntax/semantics of the sentence and its discourse effect
- Type of account to be pursued, given our two constraints:
 - The **discourse component** should specify discourse effects as uniformly as possible
 - The **default case** should be one where discourse effects follow from the semantics of the sentence
 - **Marked discourse effects** should be allowed only if associated with **marked sentence forms**

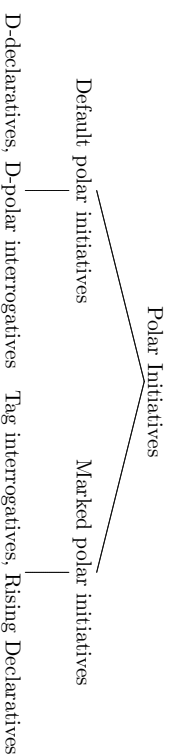
Plan for the rest of the talk: Section 3 sets up a typology of polar initiatives; Section 4 presents the bare bones of Inquisitive Semantics and the discourse architecture we presume; Section 5 presents an account of default assertions and default polar questions; Section 6 considers some non-default cases and then we conclude.

3 A typology of polar initiatives

First cut: **default vs. non-default cases**

- **Default polar initiatives:** default assertions and default polar questions
 - (13) a. The door is closed. [default declarative]
 - b. Is the door closed? [default polar interrogative]
- **Non-default polar initiatives:** non-default assertions and non-default polar questions

- (14) Amy left, didn't she? [tag interrogative]
- (15) Amy left? [rising declarative]



Justification of the first cut:

- Default cases are simpler in form than their non-default counterparts.
- Non-default forms are special: they do not occur embedded:
 - (16) a. *Bill knows [T_i that Amy left, didn't she]_i [tag interrogative]
 - b. *Bill knows [_{TP} that Amy left_i] [rising declarative]
- Default forms occur embedded:
 - least at the semantic level, an embedded declarative and an embedded interrogative.
 - (17) a. Beth thought that Amy left.
 - b. Beth wondered whether Amy left.
- Even if there are syntactic differences between root and embedded forms in the default cases, at least at the semantic level, they should be treated as involving an embedded declarative and an embedded interrogative.²

Main difference in discourse effect between default and non-default cases:

²There are languages where embedding interrogatives require no syntactic change; there are also languages where embedded declaratives differ syntactically from root declaratives. The crucial point for us is that in the embedded cases we would say that the Subject is in a particular semantic relation with the semantic value of a declarative/interrogative.

(18) *Commitment scale*

default assertions – – – – – non-default cases – – – – – default questions
↔ commit to one alternative ↔ biased; not full commitment ↔ neutral

The two simplest cases are the two extreme points on the commitment scale:

- (19) a. commitment to one alternative
b. total neutrality

The land in between: combinations of these two:

(20) Some commitment (but not full) and therefore some neutrality (but not total).

Repercussions of our theoretical constraints for the treatment of default and non-default initiatives:

- **Default initiatives** (d-declaratives; d-polar interrogatives)
 - unmarked forms
 - unrestricted distribution
 - no good reason to assume that these forms signal non-default discourse effects
 - in their case, the **discourse effect** should ideally be **determined completely and uniformly by the semantic value** of the uttered sentence
 - best case scenario: Assertion/Question speech act operators become redundant and are put out of business
- **Non default initiatives** (tag interrogatives, rising declaratives)
 - marked forms
 - restricted distribution to root clauses only
 - special root level marking is naturally associated with **signaling a non-default discourse effect**
 - their discourse effect **does not have to be determined completely by the semantic value** of the sentence

Resulting division of labor between semantics and discourse component:

- Default initiatives minimize burden on discourse component; maximize burden on semantics
- Non-default initiatives place a heavier burden on the discourse component

Resulting requirement on the semantic component of the theory:

- In order to comply with the above desiderata, we should give a uniform characterization of the discourse effect of default declaratives and default polar interrogatives.
- To this end, our semantic framework needs to be **richer than the standard truth-conditional framework**.
- For this reason we adopt the basic machinery of **inquisitive semantics**.
- We enrich the discourse component of the theory in order to account for non-default cases.

4 Theoretical assumptions: Inquisitive Semantics and bare bones discourse architecture

4.1 A problem for standard accounts

- (21) a. The door is open.
b. Is the door open?

General property of the account we seek:

- Uniform characterization of the contextual effect of default declaratives and default polar interrogatives

- Consequently, the analytical burden is on their semantics, which should account for the differences and similarities in discourse effect between them

Similarities

- both induce a choice between two complementary alternatives
- both typically license polarity particle responses and other types of anaphora

(22) The door is open. / Is the door open?

- a. Yes, it is. / No, it isn't.
b. Then you can go in. / Otherwise you have to knock.

Differences:

- DA commits speaker to one of the alternatives; d-polar question does not
- DA doesn't require overt response, DPQ does

Problem for standard semantics of declaratives and interrogatives:

- Standard semantics for declaratives
 - semantic value of (21a): set of worlds, {open} – upper alternative in Figure 1
- Standard semantics for polar interrogatives
 - semantic value of (21b): two sets of complementary worlds, {{open}, {not open}} – the two alternatives in Figure 1
- No unified account of discourse effects of declaratives and interrogatives using standard semantics
 - discourse effect of default declarative – *Assertion* operator
 - * intersection of semantic value with cg: $cg \cap \{open\}$
 - discourse effect of default polar interrogative – *Question* operator
 - * leaves cg unchanged
 - * add a question under discussion; proposes to update the cg with one or the other of the elements in the denotation of the interrogative

- But: we are after a unified treatment that accounts for similarities and differences in discourse effects based on semantics.
- The semantics we get here doesn't allow such a unified formal account: effects of default declaratives and default interrogatives have to be stipulated.
- This amounts to a case-by-case stipulation of discourse effects that is independent of the semantics of declaratives and interrogatives.
- The semantic value of a sentence and its discourse effect remain unconnected.
- A generalization is missed: in both cases the discourse effect of the sentence
 - steers the conversation toward a state where all participants agree that w_a is an element of 'one of the sets of worlds involved'.
- In the case of *declaratives*: the 'set involved' is the semantic value of the sentence
- In the case of *polar interrogatives*: the 'sets involved' are the elements of the semantic value of the sentence
- This generalization cannot be captured as long as declaratives and interrogatives are given different types of semantic values.

4.2 Inquisitive semantics to the rescue

- Problem we ran into above is due to the essential difference assumed between the semantics given to declaratives and the semantics given to interrogatives
- This problem is solved in Inquisitive Semantics (or a Hanhlin-style approach) because, for independent reasons, and simplifying greatly,
 - semantic value of both declaratives and interrogatives: *set of sets of worlds*
 - semantic value of declaratives: proposition made up of a singleton set of worlds: $\{\{\text{open}\}\}$
 - semantic value of a polar interrogative: proposition made up of two sets of worlds: $\{\{\text{open}\}, \{\text{not open}\}\}$
- This allows us to formally capture both what is *similar* and what is *different* across declaratives and polar interrogatives
 - essential similarity: same type of semantic value, namely, *set of sets of worlds*
 - core common discourse function: proposal to update the cg in one or more ways; each set of worlds in the semantic value of a sentence counts as a proposed update
 - essential difference: nature of this set depending on properties of its elements – singleton vs. non-singleton

Inquisitive Semantics: bare bones

Point of departure:

- A fundamental function of language is to enable the **exchange of information**
- Language is used both to **provide information** and to **request information**

- Sentences can have both **informative** and **inquisitive** potential
- In **classical logic**, the meaning of a sentence is identified with its **informative content**
 - A **classical proposition** is a set of possible worlds, capturing a **piece of information**
 - When uttering a sentence, a speaker provides the information that the actual world is located in the proposition expressed by the uttered sentence
- In **inquisitive semantics**, meanings capture both **informative** and **inquisitive** content

Information states

- An (**information**) **state** is a set of possible worlds.
- If α and β are states and $\alpha \subseteq \beta$, we say that α is an **enhancement** of β

Issues

- An issue is meant to represent the semantic content of a **request for information**.
- A request for information is a request to **locate the actual world more precisely within the current information state**.
- If our current state is α , then a request for information can be characterized by the set of enhancements of α that locate the actual world with sufficient precision to satisfy the request.
- Hence, an **issue** in α can be modeled as a **non-empty set I of enhancements of α** .
- However, not just any non-empty set I of enhancements of α can be seen as a proper issue.

There are **two constraints**:

1. **Downward closure**
 - If $\beta \in I$, then any $\gamma \subseteq \beta$ must also be in I .
 - After all, if β locates the actual world with sufficient precision, then γ cannot fail to do so as well.
2. **Cover**
 - The elements of I must together form a cover of α , i.e., $\bigcup I = \alpha$.
 - This is to guarantee that the request represented by I can be satisfied truthfully.
 - After all, if $\bigcup I \neq \alpha$, then there is a world $w \in \alpha$ which is not in any $\beta \in I$.
 - The information available in α does not preclude w from being the actual world.
 - But if it *is* the actual world, then it is impossible to truthfully satisfy the request represented by I , i.e., it is impossible to truthfully locate the actual world within some $\beta \in I$, because no such state contains the actual world.

An **issue** I over a state α is a **non-empty**, **downward closed** set of enhancements of α which together form a **cover** of α .

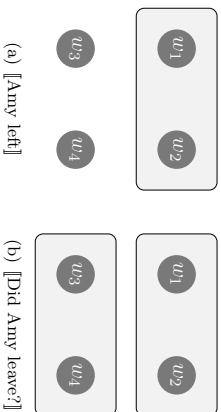


Figure 1: Some simple propositions visualized, depicting only maximal elements.

Propositions

- The proposition expressed by a sentence should **embody the default discourse effect** of an utterance of that sentence.
- We recognize **two types of effects** that an utterance may have:
 1. On the one hand, an utterance may **provide information**, i.e., locate the actual world within a certain set of worlds α
 2. On the other hand, an utterance may **request information**, i.e., raise an issue over α
- Thus, a proposition can be modeled as a pair $\langle \alpha, I \rangle$, where:
 - α is a **state**, capturing the **informative content** of the proposition
 - I is an **issue** over α , capturing the **inquisitive content** of the proposition
- But since I is an issue over α , we always have that $\alpha = \bigcup I$
- That is, α can always be **retrieved** from I , and it need not appear explicitly in the representation of the proposition.

Thus, we simply define a **proposition** as a **non-empty, downward closed** set of states.

- The proposition expressed by a sentence φ is denoted as $\llbracket \varphi \rrbracket$
- We refer to $\bigcup \llbracket \varphi \rrbracket$ as the **informative content** of φ . Notation: $\text{info}(\varphi)$
- For any set of states A , A^\downarrow denotes the downward closure of A :
 $A^\downarrow := \{\beta \mid \beta \subseteq \alpha \text{ for some } \alpha \in A\}$

- Two simple examples, depicted in Figure 1:

$$(23) \quad \llbracket \text{Amy left} \rrbracket = \{\{w : \text{Amy left in } w\}\}^\downarrow$$

$$(24) \quad \llbracket \text{Did Amy leave?} \rrbracket = \{\{w : \text{Amy left in } w\}, \{w : \text{Amy didn't leave in } w\}\}^\downarrow$$

The default effect of uttering a sentence, common to declaratives and interrogatives (to be made more explicit below):

$$(25) \quad \text{In uttering a sentence } \varphi, \text{ a speaker:}$$

1. Provides the information that the actual world is located in $\bigcup \llbracket \varphi \rrbracket$
2. Requests enough information to locate the actual world in a specific state in $\llbracket \varphi \rrbracket$

Result:

- D-declaratives and d-polar interrogatives have now a common discourse effect entirely determined by their semantics.

- Speech act operators become superfluous in their case.

Setting a proposition:

$$(26) \quad \text{A state } \alpha \text{ settles a proposition } \llbracket \varphi \rrbracket \text{ iff } \alpha \in \llbracket \varphi \rrbracket^3.$$

Alternatives/possibilities

- In uttering φ , a speaker steers the common ground towards a state in $\llbracket \varphi \rrbracket$
- The **maximal elements** of $\llbracket \varphi \rrbracket$ are the states that are **easiest to reach**; they require the participants to agree on a minimum amount of information
- These maximal elements are called the **alternatives** for φ , or the **possibilities** for φ
- When depicting a proposition, we generally only depict the alternatives/possibilities
- If $\llbracket \varphi \rrbracket$ contains **two or more alternatives**, then φ is always **inquisitive**
- If all elements of $\llbracket \varphi \rrbracket$ are contained in a **single alternative**, then φ is **not inquisitive**

Examples:

$$(27) \quad \text{Amy left.} \quad \Rightarrow \text{informative, but not inquisitive}$$

$$(28) \quad \text{Did Amy leave?} \quad \Rightarrow \text{inquisitive, but not informative}$$

Declarative and interrogative clause type markers

- The syntactic representation of polar initiatives involves different **clause type markers**, which determine both (1) the phonological spell-out and (2) the semantic interpretation.

Syntactic representation	Spell out
[DECL Amy PAST leave]	Amy left.
[P-INT Amy PAST leave]	Did Amy leave?
[R-DECL Amy PAST leave]	Amy left?
[T-INT Amy PAST leave]	Amy left, didn't she?

- The **semantics** of the various DECL and INT clause type markers:

$$[\text{DECL } \varphi] = [\text{R-DECL } \varphi] = \{\bigcup \llbracket \varphi \rrbracket\}^\downarrow$$

$$[\text{P-INT } \varphi] = [\text{T-INT } \varphi] = \{\bigcup \llbracket \varphi \rrbracket, \bigcup \llbracket \bar{\varphi} \rrbracket\}^\downarrow$$

³The fact that propositions are downward closed ensures that whenever a state α settles a proposition $\llbracket \varphi \rrbracket$, then every more informed state $\beta \subseteq \alpha$ also settles $\llbracket \varphi \rrbracket$

- Some examples:

(29) [DECL Amy PAST leave] = $\{\{w : \text{Amy left in } w\}\}^\dagger$

(30) [R-DECL Amy PAST leave] = $\{\{w : \text{Amy left in } w\}\}^\dagger$

(31) [P-INT Amy PAST leave] = $\{\{w : \text{Amy left in } w\}, \{w : \text{Amy didn't leave in } w\}\}^\dagger$

(32) [T-INT Amy PAST leave] = $\{\{w : \text{Amy left in } w\}, \{w : \text{Amy didn't leave in } w\}\}^\dagger$

Discourse structure assumptions – bare bones

- We assume that the basic components of a discourse context are:⁴
 1. The conversational Table: a stack T of **propositions under discussion**
 2. A set of **discourse commitments** DC_X for each discourse participant X
- Formally, DC_X is a set of **possibilities**
- For every α in DC_X , X is publicly committed to w_α being located in α

5 Default assertions and default polar questions

5.1 Semantics of declaratives and polar interrogatives

Propositions expressed by declaratives and polar interrogatives in basic inquisitive semantics (as before):

(33) [Amy left] = $\{\{w : \text{Amy left in } w\}\}^\dagger$

(34) [Did Amy leave?] = $\{\{w : \text{Amy left in } w\}, \{w : \text{Amy didn't leave in } w\}\}^\dagger$

5.2 The discourse effect of default polar initiatives

Default polar initiatives, whether declaratives or interrogatives, have the same basic discourse effect:

(35) *The discourse effect of default initiatives*

A default initiative involving an utterance of a sentence φ by a participant X has a two-fold effect on the discourse context:

1. The proposition expressed by φ , $[\varphi]$, is entered as the head of the stack on the Table.
2. $\text{info}(\varphi)$, the union of all the possibilities for φ , is added to DC_X .

- Proposition $[\varphi]$ is put on T
 - issue of status of w_α relative to the possibilities in this proposition is raised
 - Speaker steers the conversation towards a state where the issue is resolved positively, i.e., agreement is reached that w_α is a member of one particular element of $[\varphi]$. (The issue is resolved negatively if agreement is reached that w_α is not an element of any possibility in $[\varphi]$)

- Speaker has made a proposal, namely to reach agreement that w_α is in one of the possibilities she put on T
- the possibility expressed by the sentence radical becomes available for subsequent anaphoric reference

- Adding $\text{info}(\varphi)$ to DC_X : X is publicly committed to w_α being in $\text{info}(\varphi)$.

In case φ is a default declarative – *Sam is home*:

- non-trivial Speaker commitment to $\text{info}(\varphi)$
- only one possibility for φ , so only one positive resolution of the issue raised
- α , the possibility expressed by the sentence radical becomes available for subsequent pronominal reference (is highlighted)

In case φ is a default polar interrogative – *Is Sam home?*:

- trivial Speaker commitment, because $\text{info}(\varphi)$ covers the entire logical space
- two possible positive resolutions, given that there are two possibilities for φ
- α , the possibility expressed by the sentence radical becomes available for subsequent reference (it is highlighted)

Back to similarities and differences between default declaratives and default PIs:

- A proposal is made in both cases
- Because of the semantic difference between declaratives and PIs
 - default declaratives commit Speaker to unique positive resolution
 - default polar interrogatives involve trivial commitment
- Basic assumption about *yes* and *no* (oversimplified!!!):
 - anaphoric elements that presuppose a unique antecedent
 - *yes* commits Speaker to the antecedent
 - *no* commits Speaker to the complement of the antecedent
- Correct predictions
 - both default declaratives and default PIs license *yes* and *no* responses because both initiatives put a unique possibility on the Table
 - a *yes* response to a declarative amounts to agreement – Speaker commits to the same possibility that her interlocutor just committed to
 - a *yes* response to a PI provides information but does not involve agreement since the Speaker's commitment is different from the trivial commitment of the interlocutor
 - a *no* response to a declarative amounts to contradiction: the Speaker commits to the complement of what her interlocutor just committed to

⁴The discourse component of our theory draws on Parkas and Bruce (2010), which in turn builds on a rich tradition of previous work on discourse (Hamblin, 1971; Stalnaker, 1978; Carlson, 1983; Clark, 1992; Ginzburg, 1996; Roberts, 1996; Gunlogson, 2001; Asher and Lasnik, 2003; Büring, 2003, a.o.).

- a *no* response to a PI has the same status as a *yes* response: the Speaker provides information but does not contradict since her commitment is not the opposite of her interlocutor's
- Differences and similarities between DAs and DPQs follow entirely from basic semantic differences.
- Positive result:

We have a uniform characterization of the discourse effect of default polar initiatives without the use of special speech act operators.

- Notice that we have given a **uniform characterization of the discourse effect of default polar initiatives**, both DAs and DPQs.
- That is, the discourse effect of these initiatives is determined completely and uniformly by the semantic values of the sentences involved.
- This is as it should be because these default initiatives involve unmarked forms, with unrestricted distribution.
- It would be undesirable if these forms were taken to signal idiosyncratic discourse effects.

6 Non-default cases: TQs and TAs

Question 1: How do non-default cases differ from default ones?

Answer: The non-default cases we consider here are marked for additional special discourse effects that do not follow from their semantics.

Question 2: In what way are these default effects special?

Answer: They involve a Speaker commitment that is somewhere in the space between categorical commitment and total neutrality.

In particular:

- Rising Declaratives: non-default declaratives
 - semantics of a declarative
 - special intonation signals special discourse effect: weakened discourse commitment relative to default declaratives
- Tag Questions: non-default polar questions
 - semantics of a polar interrogative
 - special form signals special discourse effect: bias for the possibility expressed by the declarative sentence, instead of the neutrality signaled by default polar interrogatives

To capture this, we refine the discourse component part of the theory by refining the typology of discourse commitments in two respects:

- Commitments that the Speaker has independent evidence for vs. commitments she makes based on Addressee's prior commitment
- Special preliminary commitment we call *conditional* – needs Addressee ratification in order to become actual
- Both distinctions are based on Gunlogson (2008)
- These distinctions differentiate commitments by degrees of strength:
 - commitment *X* has independent evidence for is stronger than one she accepts based on Addressee's commitment
 - actual commitment is stronger than conditional commitment

6.1 Intuitive characterization of tag questions and tentative assertions

Intuitive characterization of TQs:

(36) Susan is joining us, isn't she?

- TQs are like DPQs and unlike DAs in that Speaker doesn't present the issue as resolved as far as she is concerned
 - Addressee's reaction is requested to resolve it
 - Speaker must assume Addressee knows whether the anchor possibility is true or not
 - uttering a tag question cannot be interpreted as Speaker informing Addressee of content of anchor
- TQs are like DA and unlike DPQ in that Speaker does not present herself as neutral wrt the two possible resolutions
 - Speaker expresses epistemic bias for α , the anchor possibility
 - but this is just a bias – weaker commitment than that signaled by a DA
- Note that our account of DAs and DPQs does not allow us to treat a TQ as a DA followed by a DPQ
 - Such a sequence of moves by the same Speaker should be odd given that the DA commits her to the anchor possibility and the DPQ would raise the question of whether the anchor possibility obtains:

(37) #Susan is joining us. Is she?

Intuitive characterization of TAs

(38) This is a persimmon?

- Tentative assertions are assertion-like in that Speaker signals some type of commitment to α , the unique highlighted possibility in the proposition expressed by the sentence.
- Tentative assertions are question-like in that commitment to α is contingent on the Addressee's ratification.
- Speaker is not authoritative relative to her commitment.

6.2 Sources and dependents

The discussion in this section is based on Gunlogson (2008).

Empirical puzzle: What is behind the contrasts below?

- *yes/no* responses are odd if followed by a statement expressing lack of previous information but fine if followed by statement entailing such information

(39) A: Stuart is in town.

B: \checkmark Yes, I saw him yesterday. / #Yes, I had no idea.

(40) A: Stuart is not in town.

B: \checkmark No, he is on a holiday. / \checkmark No, he is back. / #No, I had no idea.

- *oh/aha* responses are fine when followed by statement expressing lack of previous information but odd if followed by statement entailing such information

(41) A: Stuart is in town.

B: \checkmark Aha / \checkmark Oh, I had no idea. / #Aha / #Oh, I knew that already.

- *oh/aha* cannot be used as responses to questions, while *yes/no* can:

(42) A: Is Stuart in town?

B: \checkmark Yes. / \checkmark No. / #Oh. / #Aha.

- *oh/aha* can be used as signals that the answer to an **information seeking** question is accepted; *yes* cannot:

(43) A: Is Stuart in town?

B: \checkmark Yes. / \checkmark No.

A: #Yes. / \checkmark Oh.

- the opposite pattern obtains in the case of **quiz questions**:

(44) Quizmaster: What is the capital of California?

Johnny: Sacramento.

Quizmaster: \checkmark Yes. / #Oh. Let's go on to the next question.

Solution of the puzzle:

Two types of commitments depending on whether

- the commitment is supported by the author's evidence or
- by evidence that the interlocutor just provided.
- Evidence for a commitment: information that the author bases her commitment on.

- Bare-bones evidentiality relevant to *responses*⁵:

- author has her own evidence for commitment to α : author commit to α as **source**
- author's commitment to α is based on the interlocutor's prior commitment to α as source – author commits to α as a **dependent**

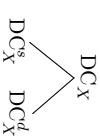
Source/dependent

Discourse moves may be marked for the author's epistemic stance towards the commitment she makes.

- Default, simplest case: author is source of commitment she makes – no special contextual conditions required.
- Special case: author is dependent on interlocutor's prior commitment as source – this presupposes that such a prior commitment was indeed made.

Refinement of discourse context representation:

- DC_X divided into commitments for which X is source and those for which X is dependent:



Back to *yes/no* and *oh/aha*

- Similarities:
 - both **responses**: presuppose prior move
 - both signal author commitment to a unique possibility – add a typically non-trivial commitment to DC_{Sp}
- Differences:
 - *yes/no* responses add commitment to DC_{Sp}^s
 - *oh/aha* responses add commitment to DC_{Sp}^d
- Other source-marking responses: *right/correct/no way/hell yes/no*
- Other dependent-marking response: *okay*

⁵See Oliver Northrup's dissertation in progress for much more on this, as well as on TQs and HNPQs and other relevant issues.

6.3 Conditional commitments

New type of commitment:⁶

(45) *Conditional commitment*

Speaker indicates willingness to commit to α under the condition that her Addressee commits to α in a future move.

- Conditional commitment may become actual only under if the Addressee commits to α .
- Addressee must be source of future commitment to α .
- Speaker may conditionally commit to α either as source or as dependent.
 - if source: she indicates that she has evidence for α
 - if dependent: she indicates that she is ready to commit to α based solely on the evidence of her interlocutor
 - in either case: Speaker signals that Addressee has more epistemic authority wrt α than she has
- Conditional commitments are weaker than actual ones – need interlocutor ratification.

Structure of participant DCs:

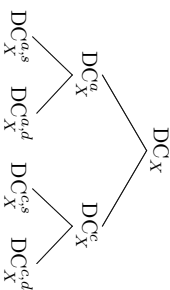


Figure 2: The structure of discourse commitment lists.

6.4 Tag questions as polar questions with conditional commitments

We distinguish three types of tag questions:⁷

- (46)
- Susan is joining us, isn't she?[↑] [↑RTQ]
 - Susan is joining us, isn't she?[↓] [↓RTQ]
 - Susan is joining us, is she?[?] [STQ]

Terminology:

- *anchor*: declarative clause
- *tag*: interrogative remnant following declarative

⁶The notion of conditional commitments comes from Gimlogson (2008), who used it account for rising declaratives.

We extend its use here to the wider domain of non-default initiatives, in particular tag questions.

⁷See Ladd (1981); Beyssade and Marandin (2006); Reese and Asher (2007); Sailor (2009, 2011); Malamud and Stephenson (2011, among others) and Oliver Northrup's current work for different approaches to tag questions.

- *reverse/same tag* depending on whether the polarity of the tag is the same or the opposite of the anchor

- \uparrow or \downarrow depending on whether the intonation on the tag part is rising or falling
- *anchor possibility*: unique possibility in the proposition expressed by the anchor

- Common to all Tag Questions (TQs):

- Place a proposition on the Table with two possibilities, just like DPQs
- Instead of trivial commitment, add commitment to the anchor possibility α to DC_{Sp}^c .

- Differences across subtypes of tag questions:

- whether the speaker also conditionally commitments to $\bar{\alpha}$
- which source/dependent configurations they involve

- Some immediate predictions:

- All types of TQs will license *yes/no* responses, just like DPQs because their effect on the Table is the same as that of DPQs.
- Tag questions never license responses that register the author of the response as a dependent.

(47) A: Susan is joining us, isn't she?

B: \checkmark Yes, she is. / \checkmark No, she isn't. / $\#$ Oh, I had no idea.

Rising reverse tag questions (↑RTQs)

(48) Susan is joining us, isn't she?[↑]

Intuitive characterization

- Speaker requests Addressee to settle the issue of whether the anchor possibility, α , obtains.
- Speaker signals epistemic bias in favor of α .

- Speaker signals readiness to accept $\bar{\alpha}$ on the authority of Addressee.

The discourse effect of ↑RTQs

- A rising reverse tag question with anchor possibility α , uttered by a participant X , has the following effects on the discourse context:

1. The proposition $\{\bar{\alpha}, \bar{\pi}\}$ is added to the Table
2. α is added to DC_X^c,s
3. $\bar{\alpha}$ is added to DC_X^c,d

Non-default nature of ↑RTQs: induce conditional commitments rather than actual commitments.

Difference between DPQ and \uparrow RTQs

- DPQs: Speaker presents herself as neutral wrt the two possibilities in the proposition she puts on the Table.
- \uparrow RTQs: Speaker signals that she favors α based on her own evidence; ready to accept $\bar{\alpha}$ based on Addressee's evidence.

Some predictions concerning contexts that license \uparrow RTQs

- context should allow both Speaker and Addressee to be sources for α – have epistemic authority over it
- context should be consistent with Speaker having epistemic bias for α since she signals that she is ready to co-source it
- context should be consistent with Speaker having non-categorical bias for α
- context should be consistent with Speaker being ready to accept $\bar{\alpha}$ on the Addressee's authority: Addressee should be in a better position than Speaker to decide whether α

Testing the predictions with predicates of personal taste

- 'judge': participant whose direct experience provides the basis for the judgement
- the 'judge' is assumed to have epistemic authority and thus may act as source; a participant who does not have direct experience is by definition less authoritative than one who does

Prediction: in contexts where Addressee can be source but Speaker cannot:

- \checkmark DPQ
- # \uparrow RTQ
- (49) *Context 1: Addressee is eating ice cream; Speaker is not, and no reason to assume Speaker has had direct experience with the icecream*
 - a. \checkmark Is it tasty?
 - b. #It's tasty, isn't it? \uparrow

- Problem with (49b): α should be added to DC_{Sp}^{cs} but *Context 1* is not compatible with Speaker sourcing α .

- No problem with (49a): *Context 1* is consistent with a neutral Speaker and an informed Addressee.

Prediction: in contexts where Speaker can be source but Addressee cannot:

- #DPQ
- # \uparrow RTQ
- (50) *Context 2: Speaker is eating ice cream; Addressee is not*
 - a. #Is it tasty?
 - b. #It's tasty, isn't it?

- Problem: both forms require Addressee to be possible source, and thus Addressee should be epistemically authoritative.

Prediction: in contexts where both Speaker and Addressee can be source:

- \checkmark DPQ
- \checkmark \uparrow RTQ

(51) *Context 3: Speaker and Addressee are eating ice cream out of the same container*

- a. \checkmark Is it tasty?
- b. \checkmark It's tasty, isn't it?
- Both participants can be sources.
- Speaker presents herself as being ready to yield to the authority of the Addressee.

Falling reverse tag questions (\downarrow RTQs)

(52) Susan is joining us, isn't she? \downarrow

Intuitive characterization

- Speaker expresses bias in favor of the anchor possibility just like in the case of \uparrow RTQs
- Signals **high confidence** in information that supports this bias
- Requests ratification of α , but does not present herself as being ready to commit to $\bar{\alpha}$ on the authority of her interlocutor

Refining the source/dependent distinction

- So far, we made a two way distinction concerning the Speaker's epistemic stance towards a possibility that she commits to:
 - relies on evidence just provided by interlocutor - *dependent*
 - has independent evidence - *source*

- To capture the way in which \downarrow RTQs differ from other non-default initiatives, we refine this distinction, reflecting the varying degrees of confidence that the Speaker may have in her independent evidence

Three way contrast in commitments

- *d(dependent)*: no independent evidence
- *s(source)*: independent evidence
- *a(authority)*: strong confidence in independent evidence

Authority is signaled by falling intonation

- we assume that \downarrow RTQs signal Speaker authority by virtue of the falling intonation

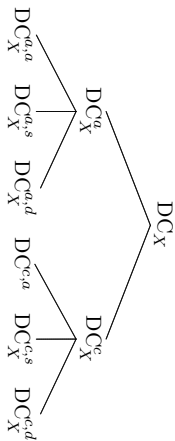


Figure 3: The structure of discourse commitment lists - final version.

- falling intonation, and Speaker authority, are common to \downarrow RTQs and DAs

The discourse effect of \downarrow RTQs

- A falling reverse tag question with anchor possibility α , uttered by a participant X , has the following effects on the discourse context:
 1. The proposition $\{\boxed{\alpha}, \bar{\alpha}\}$ is added to the Table
 2. α is added to $DC_X^{c,a}$

Differences between \uparrow RTQs and \downarrow RTQ

- With \downarrow RTQs Speaker signals high degree of confidence in her evidence for the anchor possibility.

- No indication of readiness to go against bias.

Other items that exploit the difference between s and a:

- contrast between *yes/no* and *hell yes/hell no*: accepting as source vs accepting as authority
 - indicating high degree of confidence
- (53)
- A: Susan won the game last night.
 B: Yes. I heard this rumor too.
 B: #Hell yes. I heard this rumor too.
 B: Hell yes. She totally destroyed her opponent

- same contrast in Dutch between *ja* and *jazeker*, where *zeker* means *certainly*

Same tag questions (STQs)

STQs have only rising intonation, which is why we leave it unmarked.

- (54) Susan is joining us, is she?

Intuitive characterization

- Speaker signals bias in favor of Addressee committing himself to α as source/authority

The discourse effect of STQs

- A same tag question with anchor possibility α , uttered by a participant X , has the following effects on the discourse context:
 1. The proposition $\{\boxed{\alpha}, \bar{\alpha}\}$ is added to the Table
 2. α is added to $DC_X^{c,d}$

Similarities between STQs and RTQs

- bias for highlighted possibility placed on the Table

Difference between STQs and RTQs

- STQ: bias rooted in Speaker's assumption about Addressee's evidence relative to α
- RTQs: bias rooted in Speaker's evidence relative to α

Prediction: STQs should be fine only in contexts compatible with Addressee being authority for α and Speaker being dependent for α

- (55) *Context 4: Addressee is eating ice cream with gusto, and Speaker is not*
- a. ✓Is it tasty?
 - b. ✓It's tasty, is it?
 - c. #It's tasty, isn't it?

Common to all tag questions

- question semantics – contribution of interrogative tag

- bias in favor of anchor possibility as a conditional commitment – contribution of the declarative anchor

Differences between tag questions

- weak confidence in anchor - \uparrow
 - \uparrow RTQ: speaker ready to be source for α but not authority on it; ready to go against her bias
 - STQ: speaker is ready to commit to α as dependent once Addressee commits as source/authority incompatible with falling intonation
- strong confidence in anchor - \downarrow
 - \downarrow RTQ: speaker is ready to commit with independent evidence and strong confidence in it

Contribution of \downarrow

- Speaker is authoritative

Contribution of \uparrow

- Speaker is not authoritative

Note that we predict that STQs cannot be falling: they register Speaker as dependent and therefore are incompatible with Speaker being authoritative.

6.5 Tentative assertions as assertions with conditional commitments

This subsection builds on Gumlogson (2001, 2008).

- (56) That's a pensionnion?
Sentence form:

- rising declarative (RD)

Type of speech act performed uttering them:

- tentative assertion (TA)

The discourse effect of TAs

- A tentative assertion, which involves the utterance of a rising declarative expressing the proposition $\{\alpha\}$ by a participant X, has the following effects on the discourse context:

1. The proposition $\boxed{\alpha}$ is placed on the Table
2. α is added to $DC_X^{\alpha,s}$

Default declaratives

- (57) Sam is here_↓.

- α is added to $DC_X^{\alpha,a}$

Rising intonation generally signals tentativeness/uncertainty, non-authoritative Speaker; the target of the tentativeness may concern different aspects of an utterance (cf. Gumlogson, 2008; Westera, 2013), in particular:

- the informative content of the sentence that is uttered, as in (56), or
 - the appropriateness of the speech act that is performed
- (58) A: My wife just gave birth to triplets.
B: Congratulations_↑
- The extent to which an answer fully resolves a given issue:
- (59) A: Who is coming?
B: Peter_↑

Some test contexts

- (60) *Context 5: A and B arrive at a fork in the road. A knows the way, B doesn't; A goes towards the left*
- a. B: We are turning left here?
 - b. B: We are turning left here, aren't we?_↑
 - c. B: #We are turning left here, aren't we?_↓

- (61) *Context 6: same as 5 except now B knows the way less well than A but is pretty confident*

B: We are turning left here, aren't we?_↓

- (62) *Context 7: A comes home after a soccer game looking pretty happy*

- a. B: You've won, haven't you?_↑
- b. B: #You've won, haven't you?_↓
- c. B: You have won, have you?_↑
- d. B: You have won?

Default/non-default clause type markers and embeddability

- default clause type markers, DECL and P-INT, are unrestricted:

(63) Susan knows that Amy left.

(64) Susan wonders whether Amy left.

- correspondingly, they are not taken to signal special, non-default discourse effects

- non-default clause type markers only occur in root clauses, not in embedded clauses:

(65) #Susan wonders whether Amy left, didn't she.

(66) #Susan thinks that Amy left?

- for this reason, it is natural to assume that they signal non-default discourse effects
- what is characteristic for non-default discourse effects is that they involve conditional commitments, rather than categorical commitments

7 Conclusion

- The simple cases have to be understood before the complex ones can.
- The connection between form and discourse effects has to be taken seriously for sentence forms.
- Inquisitive Semantics helps us give a uniform account of declaratives and interrogatives that allows us to capture both differences and similarities.
- At least some special non-default cases involve complicating the discourse structure part of the theory.

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