



**Leibniz-Zentrum  
Allgemeine Sprachwissenschaft**



# **Questions with a bias: Syntax, semantics, pragmatics**

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**SPAGAD Speech Acts  
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# What is a question? And what is a *biased* question?



- A universal feature of communication
  - Request for information
  - Specific feature of human communication
- Represented distinctly in all human languages
  - Basic sentence types: Declaratives, Interrogatives, Imperatives, cf. König & Siemund 2007
  - Requests for information can also be expressed in other ways than interrogatives
    - *Tell me the time!*
  - And interrogatives serve for other purposes than questions
    - *How late it is!*
- Questions and assertions in a dynamic perspective
  - Common ground (CG): Shared information (Stalnaker 1974, Clark 1996)
  - Communication as joint increase (update) of CG
  - Assertion:  $S_1$  puts information into CG, goal: acceptance by  $S_2$ :  
 $C + S_1: A. (+ S_2: o.k.) = C'$
  - Question:  $S_1$  requests from  $S_2$  to put information of a specific type (answer) into CG  
 $C + S_1: \{A_1, A_2, \dots\}? = C', C' + S_2: A_i (+ S_1: o.k.) = C''$
- Biased questions
  - Biased questions:  $S_1$  indicates that the set of answers is not ranked equally  
 $C + S_1: \{A_1, A_2, \dots\}?$

# Examples of bias

- Types of questions
  - Polar questions: *Is the door open?* / *Is the door closed?*
  - Constituent question: *Who opened the door?* / *What state is the door in?*
  - Alternative question: *Is the door open or closed?* / *Is the door open or not?*
- Neutral polar questions?
  - $S_1$ : *I have to get out of the building.*
  - $S_1$ : *We have to make sure that nobody enters the building.*
  - *Is the door open?*
  - *Is the door closed?*
  - *Is the door open or closed?*
  - *Is the door open or not?*
- Principle in choice of polar questions:
  - If you prefer answer  $A_1$  over an alternative  $A_2$ , then ask  $A_1$ ?  
This question could be answered by *yes* in case the preferred option is true.
  - Bolinger (1978): *Yes-No questions are not alternative questions*
    - *Will you please help me?* / # *Will you please help me or not?*
    - *Nice to meet you! Do you play golf?* / *Do you play golf or not?*
  - Biezma (2009): Cornering effect of alternative questions
    - *Will you marry me or not? (I ask you one more time...)*

# Expressing bias and avoiding bias

- We have seen:
  - Choosing asking  $A_1$  over alternatives  $A_2$ , including not  $A_1$ , can express a bias for  $A_1$
- But this is not always the case:
  - Guessing game: Guess the number of eyes on my dice
    - $S_1$ : *Is the number even?* ok.
    - $S_1$ : *Is the number odd?* ok.
    - $S_1$ : *Is the number even or odd?* perhaps disfavored, as it is longer
- And there are ways to explicitly bias a question
  - Low and high negation questions:
    - *Is the door not open?* / *Isn't the door open?*
  - Questions with particles:
    - *Is the door really open?* / *Is the door perhaps open?* / *Ist die Tür etwa offen?*
  - Focus prosody:
    - *IS the door open?*
  - Declarative questions:
    - *The door is open?*
  - Declarative questions with question tags:
    - *The door is open, isn't it?* / *is it?*
  - Questions with polarity items:
    - *Have you ever lifted a finger to help me?*

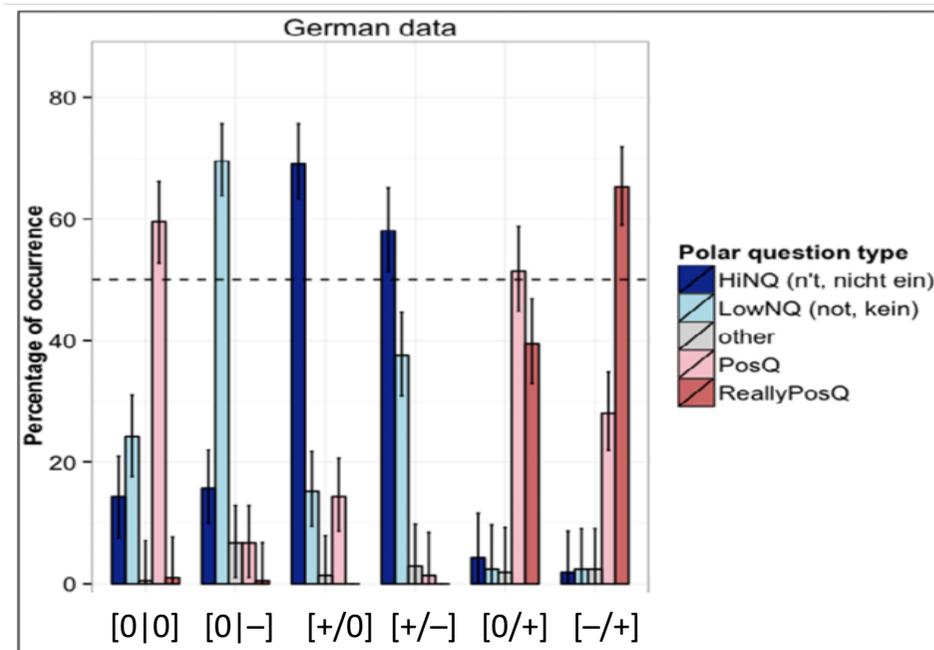
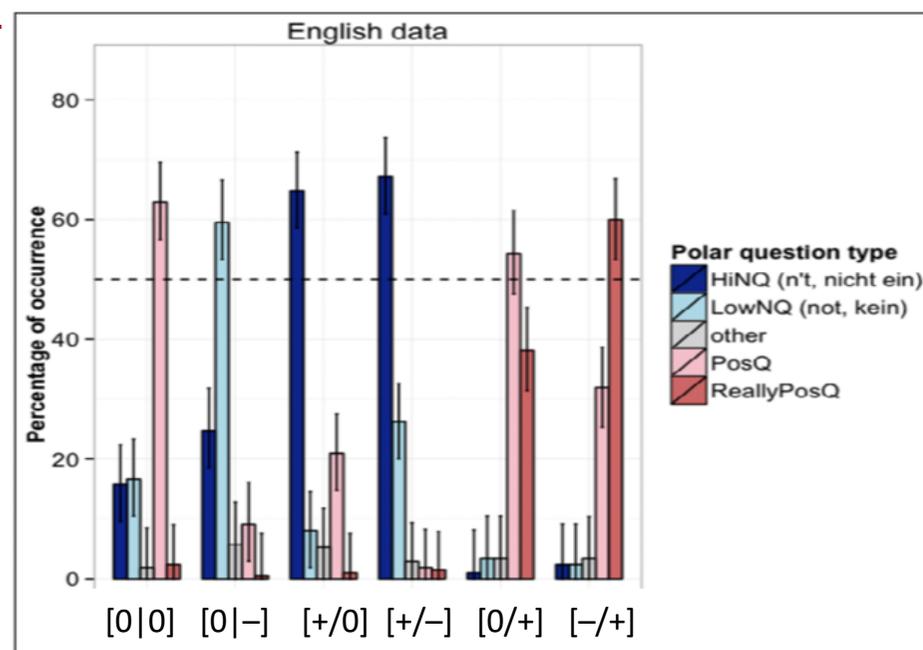
# Bias and reaction to current evidence



- A typical situation for using questions with explicit bias marking (cf. Büring & Gunlogson 2000, Sudo 2013, ...)
- $S_1$  expects / hopes that proposition  $\varphi$  is true: prior belief / hope, epistemic / evaluative bias
- $S_1$  is confronted with evidence that  $\varphi$  might not be true: current evidence, evidential bias
- $S_1$  tries to find out whether  $\varphi$  is true or not, indicating prior belief and current evidence
- Proposal for notation of prior speaker belief and current evidence:
  - Prior speaker belief SB: against, neutral, in favor of proposition: [ --, 0, + ]
  - Current evidence CE: against, neutral, in favor of proposition: [ --, 0, + ]
  - Combination of SB und CE: [ -- | + ] for SB against, CE in favor  
[ -- 0 | + ] for SB against or neutral, CE in favor
- Bias profiles for regular, low negation and high negation questions
  - Büring & Gunlogson 2000, Roelofsen, Venhuizen & Sassoan 2013)
    - Regular: *Is it raining?* [ -- 0 + | 0 (+) ]
    - Low negation: *Is it not raining?* [ + | -- ]
    - High negation: *Isn't it raining?* [ + | -- 0 ]

# Experimental investigation

- Domaneschi, Romero & Braun 2017: English and German
- Experimental task: Selecting best question + Uttering aloud (controlling prosody)
- Testing positive, high negation, low negation, *really* questions

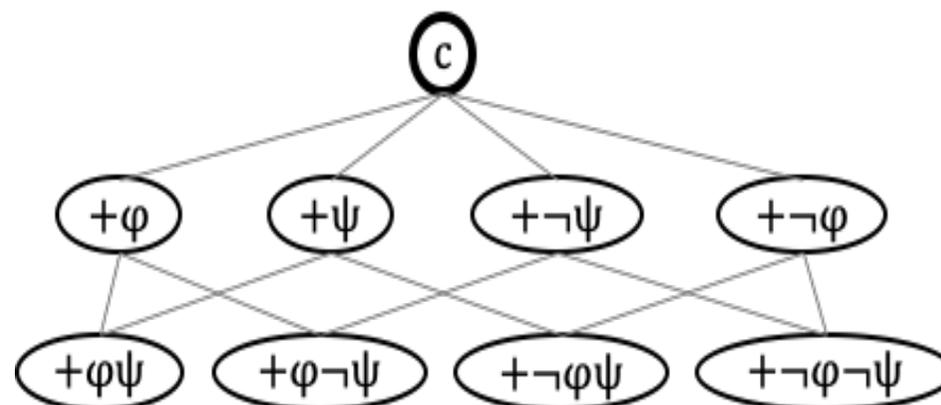
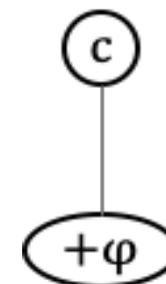


- General similarity between the two lg, slight differences between HQ and LQ
- Due to possible ambiguity [my interpretation]
  - *Isn't there a train in the early morning?* HQ but also LQ
  - *Gibt es hier keinen Zug am Morgen?* LQ but also HQ

# Modelling question bias: Commitment Spaces



- Commitment Spaces (Krifka 2015), a framework for CGs and CG development
- Commitment States  $c$  and their update with propositions:
  - CSt: sets of indices  $i$ , possible worlds/times
  - $c + \varphi = \{i \in c \mid \varphi(i)\}$ , restriction of set of indices
- A closer look at updates (Krifka to appear, simplified)
  - $c + S_1: [_{\text{ActP}} \bullet \mid _{\text{ComP}} \vdash [_{\text{TP}} \varphi ]]] = c + S_1 \vdash \varphi$
  - where ActP: ActPhrase, ComP: Commitment Phrase
  - $S_1 \vdash \varphi$ :  $S_1$  is publicly committed for the truth of  $\varphi$
  - Update with  $S_1 \vdash \varphi$  is a reason for  $S_2$  to admit  $\varphi$ :  $[c + S_1 \vdash \varphi] + \varphi$
- Commitment Spaces  $C$ 
  - Set of CSt, representing possible updates of the CG
  - The smallest CSts in a CS is the root,  $\sqrt{C}$



# Update of CS: Assertions and Questions

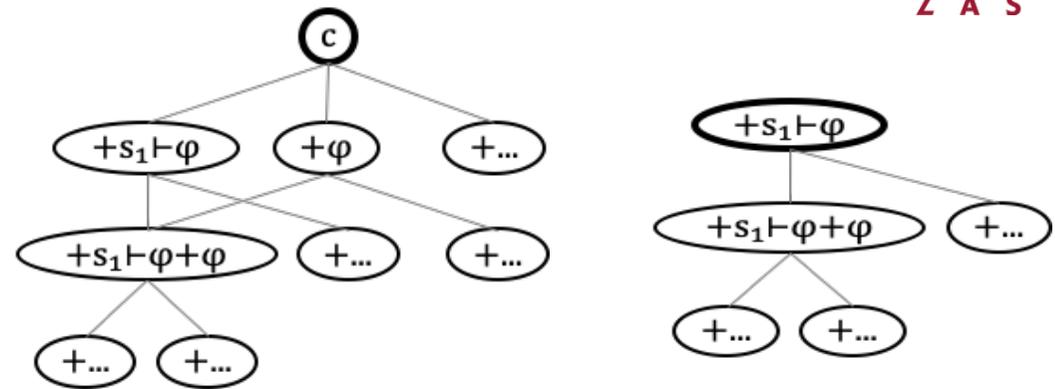
- Update of a CS with an assertion:

- $C + S_1: [_{ActP} \bullet [_{Comp} \vdash [_{TP} \textit{it is raining} ]]]$   
 $= \{c \in C \mid c \subseteq [S_1 \vdash \textit{'it is raining'}]\}$

- Restriction of C to those c for which  $S_1$  is committed to 'it is raining'

- Further update,

e.g. acceptance of  $\phi$  by *okay*, rejection by *no*, co-assertion by *yes*



$$+ S_1: [_{ActP} \bullet [_{Comp} \vdash [_{TP} \phi ]]] =$$

- Update of CS with a polar question

- $C + S_1: [_{ActP} \text{? is} [_{Comp} \vdash [_{TP} \textit{it raining} ]]]$   
 $= \sqrt{C} \cup \{c \in C \mid c \subseteq [S_2 \vdash \textit{'it is raining'}]\}$

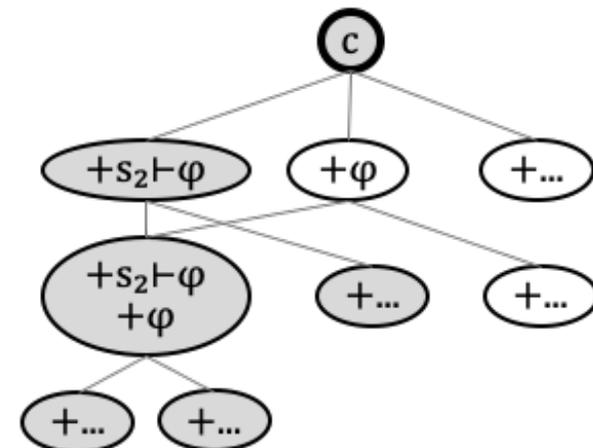
- Root stays the same: No information added

Restriction of continuations to certain assertions by addressee

- Confirming answer *yes* : Assertion of 'it is raining'

- Answer *no*: rejection + assertion of  $\neg$ 'it is raining'

- If speaker assumes that  $\phi$  is more likely than alternative, e.g.  $\neg\phi$ : Ask  $\phi$ , minimize rejection



# Monopolar, bipolar, and constituent questions



- We have seen treatment of monopolar questions

- Bipolar (alternative) questions

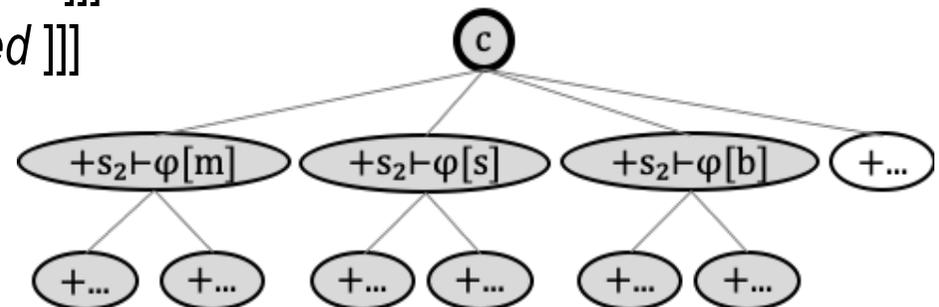
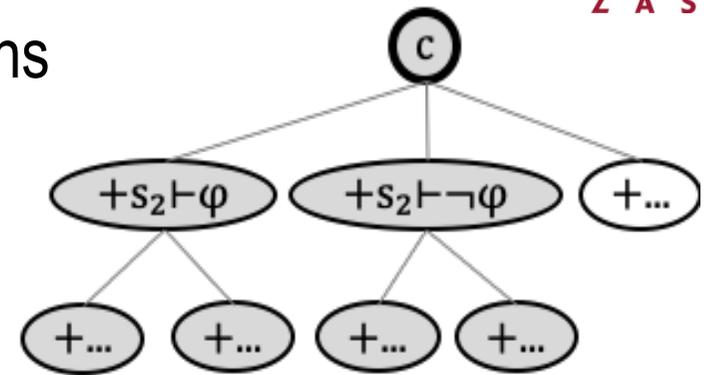
- Disjunctions of monopolar questions

- $C + S_1: [[_{\text{ActP}} ? \text{ is } [_{\text{Comp}} \vdash [_{\text{TP}} \text{ it } \_ \text{ raining } ]]]$   
or  $[_{\text{ActP}} ? \text{ is } [_{\text{Comp}} \vdash [_{\text{TP}} \text{ it } \_ \text{ not raining } ]]]$   
 $= [C + S_1: [_{\text{ActP}} ? \text{ is } [_{\text{Comp}} \vdash [_{\text{TP}} \text{ it } \_ \text{ raining } ]]]$   
U  $[C + S_1: [_{\text{ActP}} ? \text{ is } [_{\text{Comp}} \vdash [_{\text{TP}} \text{ it } \_ \text{ not raining } ]]]$

- Constituent questions

- Disjunction of monopolar questions

- $C + S_1: [[_{\text{ActP}} \text{ Who } ? \text{ has } [_{\text{Comp}} \vdash [_{\text{TP}} \_ \text{ arrived } ]]]$  (of Mary, Sue, and Bill)  
 $= [C + S_1: [_{\text{ActP}} ? \text{ has } [_{\text{Comp}} \vdash [_{\text{TP}} \text{ Mary } \_ \text{ arrived } ]]]$   
U  $[C + S_1: [_{\text{ActP}} ? \text{ has } [_{\text{Comp}} \vdash [_{\text{TP}} \text{ Sue } \_ \text{ arrived } ]]]$   
U  $[C + S_1: [_{\text{ActP}} ? \text{ has } [_{\text{Comp}} \vdash [_{\text{TP}} \text{ Bill } \_ \text{ arrived } ]]]$

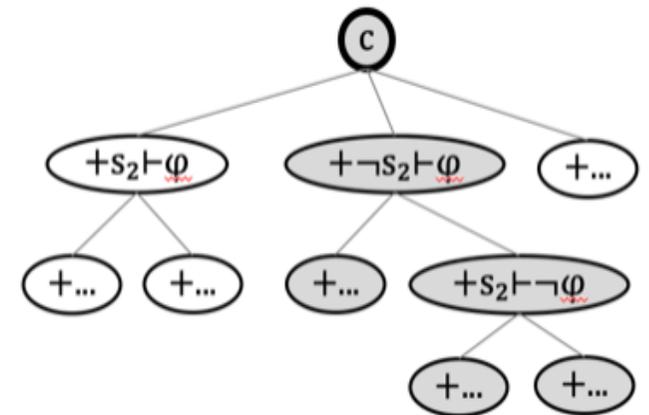


# High and low negation questions

- Extensive literature: Ladd (1981), Romero (2005), Repp (2013), ...

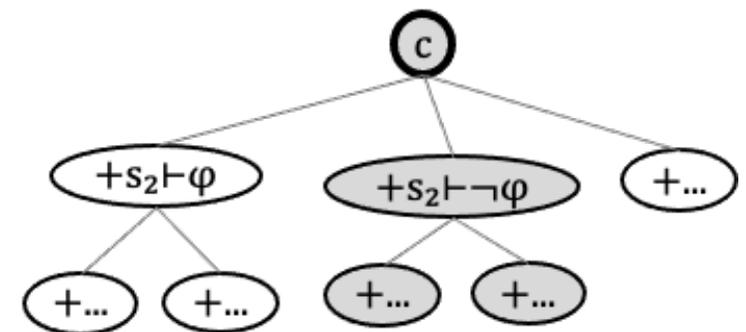
- High negation: *Isn't it raining?*

- Romero: Epistemic operator:  $\neg$  VERUM ('it is raining') ?
- Proposal here (cf. Krifka 2015):  
Negation over commitment operator  $\vdash$
- $C + S_1$ : [<sub>ActP</sub> • *is* [<sub>n't</sub> [<sub>ComP</sub>  $\vdash$  [<sub>TP</sub> *it* \_ *raining*]]]]
- $S_1$  checks whether  $S_2$  does not commit to  $\varphi$
- Ok. if prior belief of  $\varphi$  is undermined by current evidence
- Less imposing on addressee than low negation question



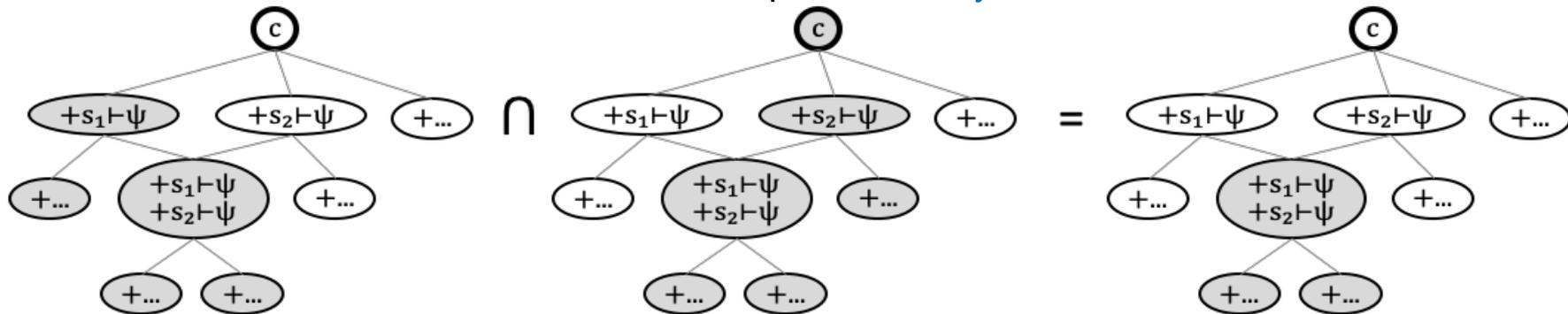
- Low negation:

- *Is it not raining?*
- $C + S_1$ : [<sub>ActP</sub> • *is* [<sub>ComP</sub>  $\vdash$  [<sub>TP</sub> *it* \_ *not raining*]]]]
- $S_1$  checks whether  $S_2$  commits to  $\neg\varphi$
- Better suited if  $S_1$  tends to assume or hope for  $\neg\varphi$  and wants confirmation for it

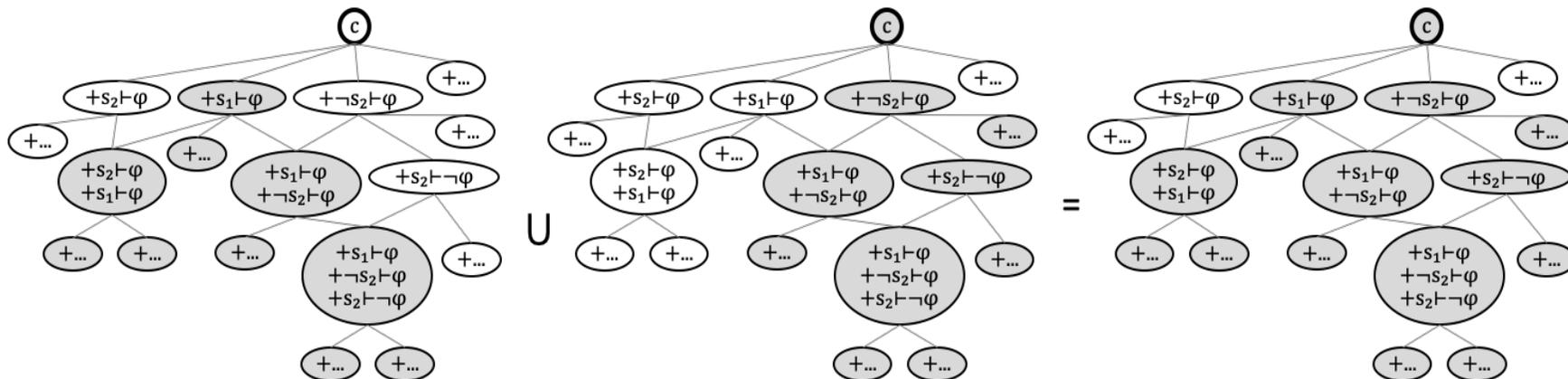


# Question tags

- Two types of question tags (Cattell 1973)
- Reverse: *It is raining, isn't it?* -- offering opinion, asking for agreement by addressee
- Matching: *You like Max, do you?* -- expressing an assumed view of addressee
- Matching question tags: Conjunction
- Intersection of assertion *You like Max* and question *Do you like Max?*

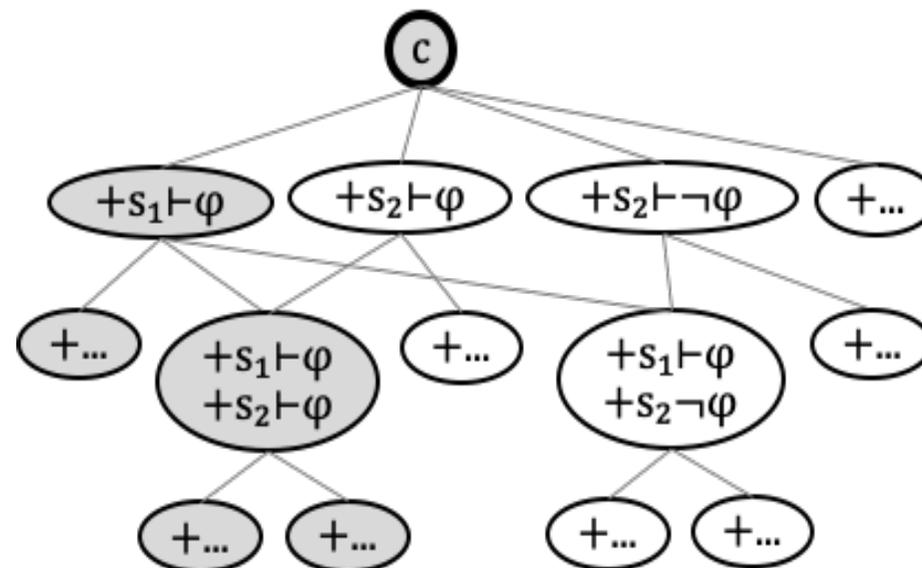


- Reverse question tags: Disjunction
- Union of assertion *It is raining* with high negation question *Isn't it raining?*



# Declarative questions

- Declarative form, rising intonation (cf. Bartels 1997, Gunlogson 2002)
  - *It is raining?*
  - Speaker is predisposed to the proposition, checking with the addressee
  - Allows for speaker-related adverbials like *certainly*.
  - *It was certainly raining?* vs. *Was it certainly raining?*
  - Modelling as an assertion by the speaker  $S_1$  that does not change the root, hence can be rejected by the addressee  $S_2$  as a proposed move



# The effect of prosody

- Prosody in polar questions (cf. Kamali & Krifka 2020 on Turkish)
  - $S_1$ : *Did MAX arrive?*
  - $S_2$ : *Yes.* /  $S_2$ : *No, Mary did.*
- Focus indicates a restriction on the input CS
  - Here: The question *Who arrived?* is asked.
- Prosody and bias
  - Highlighting a meaning by focus can express incredulity for the selected item
    - *Is it REALLY raining?* – request for heightened level of commitment
    - *DID Max arrive?* – highlighting both truth values via verum focus, cornering effect

# The range of biased questions



Z A S

Example	Short	Terminology
<i>Is it raining?</i>	PQ	positive question
<i>Is it not raining?</i>	NQ	negated question
<i>Isn't it raining?</i>	HPQ or HPQ/NQ	high negated positive question
<i>Isn't it not raining?</i> <i>Aren't there no restaurants here?</i>	HNQ	high negated negated question
<i>Is it really raining?</i>	reallyPQ or RPQ	<i>really</i> positive question
<i>Is it really not raining?</i>	RNQ	<i>really</i> negated question
<i>IS it raining?</i>	FPQ	focused positive question
<i>IS it not raining?</i>	FNQ	focused negated question
<i>Is it REALLY raining?</i>	FRPQ	focused <i>really</i> positive question
<i>Is it REALLY not raining?</i>	FRNQ	focused <i>really</i> negated question
<i>It is raining?</i>	DPQ	declarative positive question
<i>Is it raining??</i>	IPQ	incredulity positive question
<i>Is it raining or not?</i>	APNQ	alternative question w negation
<i>Is the bridge open or closed?</i>	AAntQ	alternative question w antonyms
<i>Has he ever lifted a finger to help?</i>	npiPQ	positive question with polarity item