

**A modal analysis of expressive meaning:
German 'ja' under quantifiers**

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Goals of this talk

- analyze the semantic interaction of the German discourse particle 'ja' with quantifiers;
- characterize the contribution of 'ja' as a *presupposition*;
- explain its peculiar projection and accommodation properties in a dynamic semantic framework;
- discuss the implications of this account for the standard dynamic theory of presupposition projection;

Basics

(5) Fritz kommt immer etwas später zum Kegeln, weil er **ja** seine Katzen zu

*Fritz comes always a bit later to the bowling because he **JA** his cats to*

versorgen hat.

(Lindner, 1991)

look after has

Fritz always gets to the bowling a bit late because he has got his cats to look after.

Lindner (1991) : “In using [the modal particle] *ja* the speaker indicates that in his/her

eyes the proposition p is not controversial” (p. 174).

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Descriptive: p

Expressive: p is true and might be known to the addressee (1999)

p is part of shared knowledge or verifiable on the spot (2004)

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p is part of shared knowledge or verifiable on the spot (2004)

Prediction: '*ja*' cannot intervene between quantifiers and the variables they bind.

Data: Universal quantification

- (6) Jeder dieser Arbeiter verlor seinen Job, weil er in der Gewerkschaft war.
each of these workers lost his job because he in the union was
- Each of these worker lost his job because he was in the union.
- > All (of these) workers were in the union.

Data: Universal quantification

- (6) Jeder dieser Arbeiter verlor seinen Job, weil er in der Gewerkschaft war.
each of these workers lost his job because he in the union was
Each of these worker lost his job because he was in the union.
> All (of these) workers were in the union.

- (7) Jeder dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war.
Each of these worker lost his job because he was ja in the union.
>> All (of these) workers were in the union.

Data: Existential quantification

- (8) Einer dieser Arbeiter verlor seinen Job, weil er in der Gewerkschaft war. *one of these workers lost his job because he in the union was*
- One of these workers lost his job because he was in the union. *> A worker was in the union.*

Data: Existential quantification

- (8) Einer dieser Arbeiter verlor seinen Job, weil er in der Gewerkschaft war. *one of these workers lost his job because he in the union was*
- One of these workers lost his job because he was in the union.
- > A worker was in the union.

- (9) Einer dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war. *One of these workers lost his job because he was JA in the union.*
- >> All (of these) workers were in the union.

Data: Proper names

(10) Fritz verlor seinen Job, weil er in der Gewerkschaft war.
Fritz lost his job because he in the union was
Fritz lost his job because he was in the union.
> Fritz was in the union.

Data: Proper names

(10) Fritz verlor seinen Job, weil er in der Gewerkschaft war.
Fritz lost his job because he in the union was
> Fritz was in the union.

(11) Fritz verlor seinen Job, weil er ja in der Gewerkschaft war.
Fritz lost his job because he was ja in the union.
>> Fritz was in the union.

Data: Context dependence

(12) Genau die Hälfte der Arbeiter war in der Gewerkschaft.

exactly the half of the workers was in the union

Exactly half of the workers were in the union.

- a. **#**Jeder Arbeiter verlor seinen Job, weil er (**j**a) in der Gewerkschaft war. *[every]*
- b. Ein Arbeiter verlor seinen Job, weil er (**#j**a) in der Gewerkschaft war. *[one]*
- c. Fritz verlor seinen Job, weil er (**#j**a) in der Gewerkschaft war. *[Fritz]*

Data: Context dependence

(12) Genau die Hälfte der Arbeiter war in der Gewerkschaft.

exactly the half of the workers was in the union

Exactly half of the workers were in the union.

a. #Jeder Arbeiter verlor seinen Job, weil er (ja) in der Gewerkschaft war. [every]

b. Ein Arbeiter verlor seinen Job, weil er (#ja) in der Gewerkschaft war. [one]

c. Fritz verlor seinen Job, weil er (#ja) in der Gewerkschaft war. [Fritz]

(13) Alle Arbeiter waren in der Gewerkschaft.

all workers were in the union

All workers were in the union.

a. Jeder Arbeiter verlor seinen Job, weil er (ja) in der Gewerkschaft war. [every]

b. Ein Arbeiter verlor seinen Job, weil er (ja) in der Gewerkschaft war. [one]

c. Fritz verlor seinen Job, weil er (ja) in der Gewerkschaft war. [Fritz]

Data: Cross-sentential anaphora

(14) Einer dieser Arbeiter verlor seinen Job. Er war in der Gewerkschaft.

one of these workers lost his job he was in the union

One of these workers lost his job. He was in the union.

$\emptyset <$

Data: Cross-sentential anaphora

(14) Einer dieser Arbeiter verlor seinen Job. Er war in der Gewerkschaft.
one of these workers lost his job he was in the union

One of these workers lost his job. He was in the union.

< ∅

(15) Einer dieser Arbeiter verlor seinen Job. Er war *ja* in der Gewerkschaft.
One of these workers lost his job. He was *JA* in the union.

>> All (of these) workers were in the union.

Data: Relative clauses

(16) Ein Arbeiter, der seine Frau liebte, verlor seinen Job.

a worker who his wife loved lost his job

a. ✓ A worker, who loved his wife, lost his job.

b. ✓ A worker who loved his wife lost his job.

> Some workers were married and loved their wives.

[restr]

[non-restr]

Data: Relative clauses

(16) Ein Arbeiter, der seine Frau liebte, verlor seinen Job.

a worker who his wife loved lost his job

a. ✓ A worker, who loved his wife, lost his job.

b. ✓ A worker who loved his wife lost his job.

< Some workers were married and loved their wives.

(17) Ein Arbeiter, der ja seine Frau liebte, verlor seinen Job.

a. ✓ A worker, who JA loved his wife, lost his job.

>> All workers were married and loved their wives.

b. ✗ A worker who JA loved his wife lost his job.

[restr]

[non-restr]

[restr]

[non-restr]

Questions

- Can these observations be explained within the standard account of *'ja'*?

Questions

- Can these observations be explained within the standard account of /a'/?
- Is the contribution of /a' a presupposition?
- How does /a' differ from "ordinary" triggers?

Questions

- Can these observations be explained within the standard account of /jə/?
- Is the contribution of /jə/ a presupposition?
How does /jə/ differ from “ordinary” triggers?
- Is the contribution of /jə/ expressive meaning?

Analysis

Basic elements: three disjoint non-empty sets:

W : possible worlds;

D : individuals (common to all worlds);

X : potential discourse referents.

Analysis

Basic elements: three disjoint non-empty sets: W, D, \mathbb{X} .

Possibilities: pairs of worlds and partial assignments.

$$I = \{ \langle g, m \rangle \mid m \in W, g \in D, X \subseteq \mathbb{X} \}$$

Analysis

Basic elements: three disjoint non-empty sets: W, D, \mathbb{X} .

Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

${}_i[x]{}_j$ iff x is not active in ${}_i$ and active in ${}_j$

– and that is the only difference between ${}_i$ and ${}_j$

Analysis

Basic elements: three disjoint non-empty sets: W, D, \mathbb{X} .

Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

Belief state: accessibility relation B between possibilities that is:

- serial: $B(i) \neq \emptyset$ [consistency]
- transitive: if iBj then $B(j) \subseteq B(i)$ [positive introspection]
- euclidean: if iBj then $B(i) \subseteq B(j)$ [negative introspection]

Analysis

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Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

Belief state: accessibility relation B (consistent and introspective)

Update: $\llbracket \varphi \rrbracket$ is a function from belief states to belief states.

- Sentences without quantifiers: elimination of links.

$$B \llbracket P(t_1, \dots, t_n) \rrbracket = \{ \langle i, i' \rangle \in B \mid \langle g_{i'}(t_1), \dots, g_{i'}(t_n) \rangle \in w_{i'}(P) \}$$
$$B \llbracket \neg \varphi \rrbracket = \{ \langle i, i' \rangle \in B \mid \langle i, i' \rangle \text{ does not subsist in } B \llbracket \varphi \rrbracket \}$$

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Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

Belief state: accessibility relation B (consistent and introspective)

Update: $\llbracket \varphi \rrbracket$ is a function from belief states to belief states.

● Sentences without quantifiers: elimination of links.

● Existential quantifier:

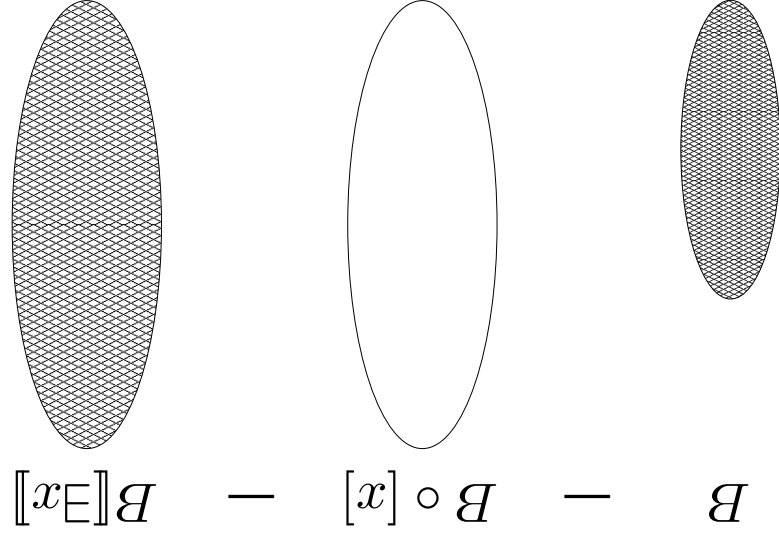
$B \llbracket \exists x \rrbracket$ is just like B , except that x is *activated* and *randomly assigned*.

$$B \llbracket \exists x \rrbracket = (B \circ [x]) \cup \{ \langle i', j' \rangle \mid \text{for some } \langle i, j \rangle \in B, i[x]i' \text{ and } j[x]j' \}$$

Analysis

Referent activation with random assignment:

$$B[\exists x] = (B \circ [x]) \cup \{\langle i', j' \rangle \mid \text{for some } \langle i, j \rangle \in B, i[x]i' \text{ and } j[x]j'\}$$



Analysis

Basic elements: three disjoint non-empty sets: W, D, \mathbb{X} .

Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

Belief state: accessibility relation B (consistent and introspective)

Update: $\llbracket \phi \rrbracket$ is a function from belief states to belief states.

● Sentences without quantifiers: elimination of links.

● Existential quantifier: activation with random assignment.

● Conjunction is composition.

$$\llbracket \phi \rrbracket \circ \llbracket \psi \rrbracket = \llbracket \phi \vee \psi \rrbracket$$

Analysis

Basic elements: three disjoint non-empty sets: W, D, \mathbb{X} .

Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

Belief state: accessibility relation B (consistent and introspective)

Update: $\llbracket \varphi \rrbracket$ is a function from belief states to belief states.

Belief: $[B]\varphi$ iff $B\llbracket \neg\varphi \rrbracket$ is inconsistent.

Analysis

Basic elements: three disjoint non-empty sets: W, D, \mathbb{X} .

Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

Belief state: accessibility relation B (consistent and introspective)

Update: $\llbracket \varphi \rrbracket$ is a function from belief states to belief states.

Belief: $\llbracket B \rrbracket \varphi$ iff $\llbracket B \rrbracket \neg \varphi$ is inconsistent.

Common ground: $B_{s,\ell}$ is the transitive closure of $B_s \cup B_\ell$.

Analysis

Basic elements: three disjoint non-empty sets: W, D, \mathbb{X} .

Possibilities: pairs of worlds and partial assignments.

Referent activation: relation $[x]$ between possibilities, for each $x \in \mathbb{X}$.

Belief state: accessibility relation B (consistent and introspective)

Update: $\llbracket \varphi \rrbracket$ is a function from belief states to belief states.

Belief: $\llbracket B \rrbracket \varphi$ iff $\llbracket B \rrbracket \neg \varphi$ is inconsistent.

Common ground: $B_{s,\ell}$ is the transitive closure of $B_s \cup B_\ell$.

Speaker presupposition: The speaker presupposes φ iff he behaves as if he believed that φ is commonly believed

— as if $\llbracket B_s \rrbracket \llbracket B_{s,\ell} \rrbracket \varphi$ were true —

Analysis

(18) Einer dieser Arbeiter verlor seinen Job, weil er **ja** in der Gewerkschaft war. *one of these workers lost his job because he **JA** in the union was*
One of these workers lost his job because he was **JA** in the union. *» All (of these) workers were in the union.*

Analysis

(18) Einer dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war. *one of these workers lost his job because he JA in the union was*
One of these workers lost his job because he was JA in the union.

» All (of these) workers were in the union.

• Consider $B'_\ell = B_\ell(\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket)$

Analysis

(18) Einer dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war. *one of these workers lost his job because he JA in the union was*
One of these workers lost his job because he was JA in the union.

» All (of these) workers were in the union.

- Consider $B'_\ell = B_\ell(\exists x) \circ \llbracket \text{worker}(x) \rrbracket$
- Assume B'_ℓ is updated with $\llbracket ja(\text{union}(x)) \rrbracket$ (never mind $\llbracket \text{lost-job}(x) \rrbracket$)

Analysis

- (18) Einer dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war. *one of these workers lost his job because he JA in the union was*
One of these workers lost his job because he was JA in the union.

» All (of these) workers were in the union.

• Consider $B'_\ell = B_\ell(\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket)$

• Assume B'_ℓ is updated with $\llbracket ja(\text{union}(x)) \rrbracket$

In using 'ja(ϕ)', the speaker presupposes ' ϕ '

Analysis

(18) Einer dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war. one of these workers lost his job because he ja in the union was
One of these workers lost his job because he was ja in the union.

» All (of these) workers were in the union.

• Consider $B'_\ell = B_\ell(\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket)$

• Assume B'_ℓ is updated with $\llbracket ja(\text{union}(x)) \rrbracket$

In using 'ja(union(x))', the speaker presupposes 'union(x)'
'I (the speaker) know that we both know that x was in the union.'

Analysis

(18) Einer dieser Arbeiter verlor seinen Job, weil er **ja** in der Gewerkschaft war. *one of these workers lost his job because he **JA** in the union was*
One of these workers lost his job because he was **JA** in the union.

» **All (of these) workers were in the union.**

• Consider $B'_\ell = B_\ell(\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket)$

• Assume B'_ℓ is updated with $\llbracket ja(\text{union}(x)) \rrbracket$

In using ' $ja(\text{union}(x))$ ', the speaker presupposes ' $\text{union}(x)$ '

'I (the speaker) know that we both know that x was in the union.'

\Leftrightarrow 'You (the listener) already knew that **all** workers were in the union.'

(18) Einer dieser Arbeiter verlor seinen Job, weil er $\bar{j}a$ in der Gewerkschaft war.
one of these workers lost his job because he JA in the union was
One of these workers lost his job because he was JA in the union.
 \gg All (of these) workers were in the union.

In using ' $j\bar{a}$ (union(x))', the speaker presupposes ' $\text{union}(x)$ '
'I (the speaker) know that we both know that x was in the union.'
 \Leftarrow 'You (the listener) already knew that all workers were in the union.'

\Leftarrow Universal presupposition explained in terms of
– standard dynamic semantics and
– the standard meaning of ' $j\bar{a}$ '.

Can *l* accommodate the presupposition?

Can ℓ accommodate the presupposition?

Update B_ℓ with $\llbracket \text{union}(x) \rrbracket$: Makes it common belief x was in the union, but not that all workers were. Disagreement over the common ground remains.

Can ℓ accommodate the presupposition?

Update B_ℓ with $\llbracket \text{union}(x) \rrbracket : X$

Update B_ℓ with $\llbracket B_s \llbracket \text{union}(x) \rrbracket \rrbracket$: Makes it common belief that s believes that x was in the union. Disagreement over the common ground remains.

Can ℓ accommodate the presupposition?

Update B_ℓ with $\llbracket \text{union}(x) \rrbracket : \mathcal{X}$

Update B_ℓ with $\llbracket B_s[\text{union}(x)] \rrbracket : \mathcal{X}$

Update B_ℓ with $\llbracket B_{s,\ell}[\text{union}(x)] \rrbracket$: Results in inconsistency.

Can ℓ accommodate the presupposition?

Update B_ℓ with $\llbracket \text{union}(x) \rrbracket : X$

Update B_ℓ with $\llbracket B_s \llbracket \text{union}(x) \rrbracket \rrbracket : X$

Update B_ℓ with $\llbracket B_{s,\ell} \llbracket \text{union}(x) \rrbracket \rrbracket : X$

Better: Fix her beliefs in such a way that $\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket$ *would have* led her to conclude that x was in the union.

- post-hoc update with the information that all workers were in the union

- but that is not what the speaker said

- requires some reasoning about how the speaker's beliefs motivated his use of 'ja'

Can ℓ accommodate the presupposition?

Update B_ℓ with $\llbracket \text{union}(x) \rrbracket : X$

Update B_ℓ with $\llbracket B_s \text{union}(x) \rrbracket : X$

Update B_ℓ with $\llbracket B_{s,\ell} \text{union}(x) \rrbracket : X$

Better: Fix her beliefs in such a way that $\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket$ *would have* led her to conclude that x was in the union.

Alternatively: Disagree but keep going.

- accept $\text{union}(x)$

- reject implicit claim that this was already inferrable

Three further questions

Ordinary presuppositions I: Presuppositions of *'ja'*-less triggers

Ordinary presuppositions II: Interactions with *'ja'*

Expressive meaning: Is it the same?

Ordinary presuppositions I

Heim (1983):

(20) A fat man was pushing his bicycle.

↗ Every fat man had a bicycle.

- *x* was pushing his bicycle' presupposes '*x* had a bicycle'.
- Why does (20) not presuppose that every fat man had a bicycle?

Ordinary presuppositions I

Heim (1983):

(20) A fat man was pushing his bicycle.

↯ Every fat man had a bicycle.

- *'x was pushing his bicycle' presupposes 'x had a bicycle'.*
- Why does (20) not presuppose that every fat man had a bicycle?

Solution: Speaker's reference.

- At the time the speaker introduces the discourse referent, he (already) knows that he is using it to refer to a man with a bicycle.
- But he also knows that the listener does not know that.

Ordinary presuppositions I

Possibilities: triples of worlds, assignment functions, and *restriction* functions.

$I = \langle w, g, r \rangle$ is a possibility as before, and

$r : \text{dom}(g) \mapsto W \mapsto \mathcal{P}(D)$ assigns properties

to active discourse referents }

Ordinary presuppositions I

Possibilities: triples of worlds, assignment functions, and *restriction* functions.

Referent activation: relation $[x]$ is redefined to respect restrictions:

$i[x]_j$ iff x is not active in i and active in j

– the individual assigned to x is in the extension of the restriction:

$$g_j(x) \in r_j(x)(w)$$

– and that is the only difference between i and j

Ordinary presuppositions I

Possibilities: triples of worlds, assignment functions, and *restriction* functions.

Referent activation: relation $[x]$ is redefined to respect restrictions.

Update: The introduction of new discourse referents is sensitive to restrictions:

$$B \llbracket \exists x \rrbracket = (B \circ [x]) \cup \{ \langle i', j' \rangle \mid r_{i'} = r_{j'} \text{ and}$$

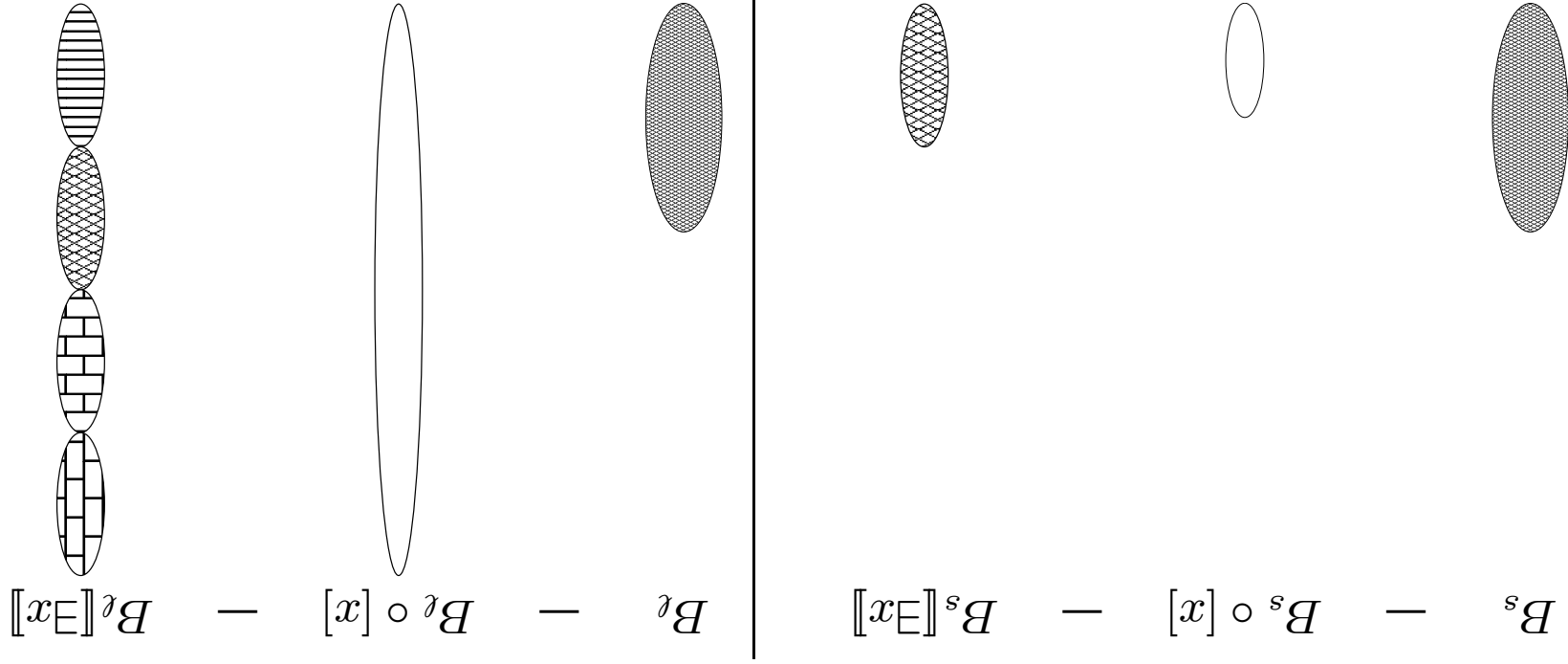
for some $\langle i, j \rangle \in B, i[x]i'$ and $j[x]j' \}$

Ordinary presuppositions I

Referent activation with restrictions

$$B[\exists x] = (B \circ [x]) \cup \{\langle i', j' \rangle \mid r_{i'} = r_{j'} \text{ and}$$

for some $\langle i, j \rangle \in B, i[x]^{i'}$ and $j[x]^{j'}\}$



Ordinary presuppositions I

Possibilities: triples of worlds, assignment functions, and *restriction* functions.

Referent activation: relation $[x]$ is redefined to respect restrictions.

Update: The introduction of new discourse referents is sensitive to restrictions.

The resulting belief state is not euclidean unless the restriction is known.

- Speaker knows r , hence believes that x has all properties entailed by r
- Listener does not know r , and speaker knows that too.

Ordinary presuppositions II

- (9) Einer dieser Arbeiter verlor seinen Job, weil er **ja** in der Gewerkschaft war. *one of these workers lost his job because he **JA** in the union was*
One of these workers lost his job because he was **ja** in the union.

» All workers were in the union.

» All workers *who lost their jobs* were in the union.

Ordinary presuppositions II

(9) Einer dieser Arbeiter verlor seinen Job, weil er **ja** in der Gewerkschaft war.
*one of these workers lost his job because he **JA** in the union was*
One of these workers lost his job because he was **ja** in the union.

» All workers were in the union.

» All workers *who lost their jobs* were in the union.

(9') Einer dieser Arbeiter war in der Gewerkschaft und verlor **ja** daraufhin seinen Job.
*one of these workers was in the union and lost **JA** therefore his job*
One of these workers was in the union and lost **ja** his job as a result.

» All workers lost their jobs.

» All workers *who were in the union* lost their jobs.

Ordinary presuppositions II

(*) $\exists x \vee d(x) \vee (q(x) \text{ because } r(x))$

$$\begin{aligned} &\ll [x]d(x) \leftarrow r(x) \\ &\not\ll [x]d(x) \vee (q(x) \text{ because } r(x)) \leftarrow r(x) \end{aligned}$$

(**) $\exists x \vee d(x) \vee (q(x) \text{ and therefore } r(x))$

$$\begin{aligned} &\not\ll [x]d(x) \leftarrow r(x) \\ &\ll [x]d(x) \vee (q(x) \text{ and therefore } r(x)) \leftarrow r(x) \end{aligned}$$

Q: $q(x)$ makes it into the restriction of the presupposition in (**), but not in (*).
Why?

A: Not clear to me. Discourse relations? Presuppositions?

Ordinary presuppositions II

(9) Einer dieser Arbeiter verlor seinen Job, weil er **ja** in der Gewerkschaft war.

One of these workers lost his job because he was **ja** in the union.

≪≪ All workers were in the union.

≧≧ ~~All workers who lost their jobs were in the union.~~

$\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket \circ \llbracket \partial(\text{union}(x)) \wedge \text{lost-job}(x) \text{ because union}(x) \rrbracket$

(9) Einer dieser Arbeiter war in der Gewerkschaft und verlor **ja** daraufhin seinen Job.

One of these workers was in the union and lost **ja** his job as a result.

≧≧ ~~All workers lost their jobs.~~

≪≪ All workers who were in the union lost their jobs.

$\llbracket \exists x \rrbracket \circ \llbracket \text{worker}(x) \rrbracket \circ \llbracket \text{union}(x) \rrbracket \circ \llbracket \text{lost-job}(x) \text{ because union}(x) \rrbracket$

Expressive meaning

Does expressive meaning behave like 'ja'?

- (9) Einer dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war.
one of these workers lost his job because he JA in the union was
- One of these workers lost his job because he was ja in the union.
» All workers were in the union.

Expressive meaning

Does expressive meaning behave like 'ja'?

- (9) Einer dieser Arbeiter verlor seinen Job, weil er **ja** in der Gewerkschaft war. *one of these workers lost his job because he JA in the union was*
- One of these workers lost his job because he was **ja** in the union.

» All workers were in the union.

- (9) Einer dieser Arbeiter verlor seinen Job, weil **der Hundesohn** in der *one of these workers lost his job because the son of a bitch in the*

Gewerkschaft war.

union was

One of these workers lost his job because **the son of a bitch** was in the union.

» All workers were sons of bitches.

Expressive meaning

Does expressive meaning behave like 'ja'?

(9) Einer dieser Arbeiter verlor seinen Job, weil er ja in der Gewerkschaft war.
one of these workers lost his job because he JA in the union was
One of these workers lost his job because he was ja in the union.

» All workers were in the union.

(9") Einer dieser Arbeiter verlor seinen Job, weil der Hundesohn in der
one of these workers lost his job because the son of a bitch in the

Gewerkschaft war.

union was

One of these workers lost his job because the son of a bitch was in the union.

» All workers were sons of bitches.

Typical cases of expressive meaning do not behave like 'ja' at all.

Conclusion

German 'ja': Presupposition trigger *par excellence*.

- 'ja' projects a speaker (or pragmatic) presupposition in Stalnaker's sense.
- Heim's account works better for 'ja' than for the cases it was designed for.

Conclusion

German 'ja': Presupposition trigger *par excellence*.

Ordinary triggers: They are different.

- They do not have to be satisfied in the common ground and can easily be accommodated.

- The formal implementation of this idea requires a fine-grained representation of speaker's and listener's beliefs.

Conclusion

German '*ja*': Presupposition trigger *par excellence*.

Ordinary triggers: They are different.

Expressive meaning: Needs rethinking.

- Either expressive meaning overlaps with (pragmatic) presupposition;
- Or expressive meaning should be redefined.

Conclusion

German 'ja': Presupposition trigger *par excellence*.

Ordinary triggers: They are different.

Expressive meaning: Needs rethinking.

Interactions: More work ahead.

- Dynamic interpretation of complex sentences affected by discourse relations
- not just the order in which the clauses come down the pipe.

Conclusion

German '*ja*': Presupposition trigger *par excellence*.

Ordinary triggers: They are different.

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The End.