On the projection of expressive presuppositions

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Topic of this talk:

- Semantic interactions between the German discourse particle *'ja'* and quantified noun phrases
- Semantic status of the contribution of *'ja'*
- Projection and accommodation behavior in a dynamic semantic framework
- Implications of this account for the standard dynamic theory of presupposition projection

Contents

1 Preliminaries

Some (interesting but) irrelevant uses of German *ja*

- Affirmative answer to *'yes/no'* questions

  (1) a. Gehen wir essen?
  go we eat
  Shall we go out to eat?
  b. Ja.
  yes
  Yes.

- Emphatic particle in imperatives (always stressed)

  (2) a. Geht **ja** nicht in den Wald!
  go JA *not in the wood*
  Don't go into the wood!

  (3) a. Mach' **ja** deine Hausaufgaben!
  do JA *your homework*
  Do you homework!

- In exclamative sentences

  (4) Das ist ja interessant! (Lindner, 1991)
  this is JA *interesting*
  Now that's interesting!

The relevant use

- In declaratives

  (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.

Previous accounts

- Lindner (1991): "In using MP [modal particle — SK] *ja* the speaker indicates that in his/her eyes the proposition p is not controversial" (p. 174; see also Zimmermann, 2009).
- Kratzer (1999, 2004): *'ja(p)'* is interpreted on two tiers.

  Descriptive meaning: p
  Expressive meaning: p is true and might be known to the addressee (1999)
  p is part of shared knowledge or verifiable on the spot (2004)

2 Data

Goals of this section:

- Examine various kinds of anaphoric relations across the boundaries of the context created by *'ja'*
- Add data to the descriptive facts underlying previous accounts
- Work towards an intuitive idea of what *'ja'* contributes

Notational convention: '>' for "conveys"; '≫ for "presupposes."

2.1 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.

- (7) is only felicitous if it is common knowledge that all workers were in the union.
- This sounds a lot like a *presupposition*.
- This condition is absent in (6).

- Kratzer (1999) claims that (7) is ill-formed, but I disagree with the judgment.
- *'Because'* alone triggers certain presupposition-like effects (Lagerwerf, 1998). Intuitively, the presupposition in (7) is "stronger" and harder to accommodate. This will be made precise below.

2.2 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 worker lost his job because he was JA in the union.
≫ All (of these) workers were in the union.

- (9), just like (7), presupposes that *all* workers were in the union.
- This condition is absent in (8).

- If (or inasmuch as) *'because'* triggers a presupposition, in (8) this presupposition is that a worker was in the union. Regardless of whether this is a presupposition or not, what's important here is that it doess not involve universal quantification.

2.3 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.

(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.

- (11) does not carry a universal presupposition (unlike 7 and 9).
- Not surprisingly, neither does (10).

- As above: a (weak) presupposition is triggered by *'because'* in both cases;
- However, the one triggered by *'ja'* is "stronger" and harder to accommodate.

2.4 Context dependence

The conclusions so far about *'ja'* with quantifiers and proper names become even clearer when we manipulate the context to explicitly introduce or deny the presupposition.

(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.
b. Ein Arbeiter verlor Job, weil er (#ja) in der Gewerkschaft war.
c. Fritz verlor seinen Job, weil er (#ja) in der Gewerkschaft war.

(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.
b. Ein Arbeiter verlor seinen Job, weil er (ja) in der Gewerkschaft war.
c. Fritz verlor seinen Job, weil er (ja) in der Gewerkschaft war.

- (12a) is simply false in the given context, with or without *'ja'*.
- (12b,c) are bad with *'ja'*, but good without it.
- (13a–c) are fine with or without *'ja'*.

- Variants of (12a,b) with *'Jeder/Einer dieser Arbeiter'* 'each/one of these workers' do become acceptable.
- But that is not evidence against our claims: The definite NP *'diese Arbeiter'* 'these workers' favors an implicitly restricted interpretation relative to only those workers that were in the union. The presupposition does hold relative to those workers, of course.

2.5 Cross-sentential anaphora

Do we observe the effects only with bound pronouns, or also with cross-sentential ones?

(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.

- The sequence in (15) behaves just like the single sentence in (9).
- (14) carries no presupposition whatsoever.

- The latter fact suggests that what presupposition there is in (8) is due to *'because'*.

2.6 Rhetorical relations

Do the observations so far depend on the subordinating conjunction *'weil'* 'because' or the explanation relation it expresses (and which is inferred by default in (14))?

(16) Einer dieser Arbeiter verlor seinen Job, obwohl er in der Gewerkschaft war.
one of these workers lost his job even though he in the union was
One of these workers lost his job, even though he was in the union.
> One of these workers was in the union.

(17) Einer dieser Arbeiter verlor seinen Job, obwohl er JA in der Gewerkschaft war.
One of these workers lost his job, even though he was JA in the union.
≫ All (of these) workers were in the union.

- The universal presupposition does not depend on the *'weil'* or the explanation relation.

- However, there are some more subtle facts about discourse relations, to which we will return below.

2.7 Relative clauses

As in English, German relative clauses can have either restrictive or non-restrictive readings. Unlike in English, they are not distinguished orthographically. Here, the difference is indicated with commas in the English translation.

(18) 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. [non-restrictive]
≫ Some workers were married.

b. ✓ A worker who loved his wife lost his job. [restrictive]
≫ Some workers were married [and loved their wifes(?)]

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

a. ✓ A worker, who JA loved his wife, lost his job. [non-restrictive]
≫ All (of these) workers were married and loved their wives.

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

- (19a) has again a universal presupposition. The reading in (19b) is unavailable.
- The appositive clause in (18a) presupposes that the worker had a wife.
- (18b) presupposes that there were workers who loved their wives.

- (18a) can be explained in a theory of appositions like that of Potts (2003), if we assume that the presuppositions of expressive meanings are presuppositions of the whole sentence.
- (18b) can be explained by assuming that quantificicational constructions like these carry a presupposition that the restriction is non-empty.
- Notice also that the presupposition of (19) is not *'all workers who were married loved their wives'*. That x is married is presupposed by *'x loved his wife'*. This presupposition becomes part of the meaning contributed by *'ja'*.

2.8 The scope of *'ja'*

Can we observe similar effects with non-embedded clauses?

(20) Ein Arbeiter war ja in der Gewerkschaft.
one worker was JA in the union

One worker was JA in the union.

≫ One worker was in the union.

⋡ All workers were in the union.

- Relative to the clause in which it occurs, *'ja'* always takes widest scope (see also Kratzer, 1999).

➠ The effects observed above arise only in embedded contexts.

3 Questions to be addressed

Q: Can these observations be explained by extending the standard account of *'ja'* to the quantificational case?

A: Yes.

Q: Is the contribution of *'ja'* a presupposition?

A: Well, the traditional dynamic analysis of presupposition projection works better for *'ja'* than for those cases for which it was designed. We may need a new analysis for the latter.

Q: How does *'ja'* differ from "ordinary" triggers?

A: (i) It is about the context, not the world. (ii) On the one hand, it is is "self-fulfilling" in the sense of Schlenker (2007). On the other, it is harder to accommodate.

Q: Is the contribution of *'ja'* expressive meaning?

A: That depends on what "expressive meaning" is.

4 Formal background

The account is based on a dynamic modal logic, partly inspired by Groenendijk et al. (1996), with explicit representatoins of interlocutors' beliefs about the common ground.

4.1 Basic ingredients

Basic elements: three disjoint non-empty sets:

W: possible worlds
D: individuals, common to all possible worlds
$\mathbb{X}$: potential discourse referents

Possibilities: pairs of worlds and partial assignment functions (from some set X of *active* discourse referents to individuals).

$I = \{\langle w, g\rangle | w \in W, g \in D^X, X \subseteq \mathbb{X}\}$

Referent activation: A relation $[x]$ between possibilities is defined for each referent $x \in \mathbb{X}$. Two possibilities $\langle w, g\rangle$, $\langle w', g'\rangle$ stand in relation $[x]$ iff

- they share the same world $[w = w']$
- x is not active in $\langle w, g\rangle$ $[x \notin dom(g)]$
- $\langle w', g'\rangle$ differs from $\langle w, g\rangle$ at most in that x is active $[dom(g') = dom(g) \cup \{x\}]$
- already active referents are not reassigned $[g'(x') = g(x') \text{ for all } x' \in dom(g)]$

– I assume for simplicity that the set of active discourse referents is shared between interlocutors, and quantifiers always activate fresh referents. Thus I avoid the need for referent systems and "pegs" (Groenendijk et al., 1996).

4.2 Belief and belief update

Belief states: A belief state is an accessibility relation B between possibilities that is consistent and introspective.

– More specifically, $B \subseteq I \times I$ has the following properties (for all i), with the corresponding axioms about the agent's beliefs:

  – Serial: For some j, iBj.
    Consistency: $\Box_B\varphi \Rightarrow \Diamond_B\varphi$
  – Transitive: For all j, k such that iBj and jBk, iBk.
    Positive introspection: $\Box_B\varphi \Rightarrow \Box_B\Box_B\varphi$
  – Euclidean: For all j, k such that iBj and iBk, jBk.
    Negative introspection: $\neg\Box_B\varphi \Rightarrow \Box_B\neg\Box_B\varphi$

  With these properties, the set of accssible possibilities is guaranteed to be a non-empty equivalence class. Informally: The speaker is fully aware of his beliefs, and if any of his beliefs are false, he doesn't realize it. See Fagin et al. (1995); Stalnaker (2002) for more.

Update: The interpretation $[\![\varphi]\!]$ of a sentence φ is a function from belief states to belief states. '$B[\![\varphi]\!]$' the result of updating B with φ.

  – Atomic sentences: Elimination of B-links to those possibilities at which φ is false.
  – Negation: Elimination of those links that survive the update with the scope.
  – Existential quantifier: $B[\![\exists x]\!]$ is a new belief state just like B, except that x has been *activated* and *randomly assigned* to individuals.
  – Conjunction: Composition, written '$B([\![\varphi]\!] \circ [\![\psi]\!])$' instead of '$[\![\psi]\!]([\![\varphi]\!](B))$'.
  – Belief attributions: $B_\alpha[\![B_\beta\varphi]\!]$ leaves only those links in B_α that lead to possibilities j such that all B_β-links leading out of j survive the update of B_β with φ.

– Auxiliary notions:

  – A link $\langle i, j\rangle$ *subsists* in B' iff for some $\langle i', j'\rangle \in B'$, there is a sequence of zero or more discourse referents $x_1, \ldots, x_n$ such that $i([x_1] \circ \ldots \circ [x_n])i'$ and $j([x_1] \circ \ldots \circ [x_n])j'$. Thus i and i' share a world and i''s assignment includes i's. Similarly for j, j'.
  – $w_i(P^n) \subseteq D^n$ for n-ary predicates; proper names are treated DRT-style, as predicates.

– Update:
$$\begin{aligned} B[\![P(t_1, \ldots, t_n)]\!] &= \{\langle i, j\rangle \in B \mid \langle g_j(t_1), \ldots, g_j(t_n)\rangle \in w_j(P)\} \\ B[\![\neg\varphi]\!] &= \{\langle i, j\rangle \in B \mid \langle i, j\rangle \text{ does not subsist in } B[\![\varphi]\!]\} \\ B[\![\exists x]\!] &= \{\langle i', j'\rangle \mid \text{for some } \langle i, j\rangle \in B, i[x]i' \text{ and } j[x]j'\} \\ [\![\varphi \wedge \psi]\!] &= [\![\varphi]\!] \circ [\![\psi]\!] \end{aligned}$$

$$\begin{aligned} \text{Also: } [\![\varphi \rightarrow \psi]\!] &= [\![\neg(\varphi \wedge \neg\psi)]\!] \\ [\![\varphi \vee \psi]\!] &= [\![\neg(\neg\varphi \wedge \neg\psi)]\!] \\ [\![\forall x(\varphi \rightarrow \psi)]\!] &= [\![(\exists x \wedge \varphi) \rightarrow \psi]\!] \end{aligned}$$

4.3 Common ground and speaker presupposition

Belief: A sentence φ is believed in B, written '$[B]\varphi$', iff $B[\![\neg\varphi]\!]$ is not serial (i.e., inconsistent).

Common ground: For speaker and s and listener ℓ with beliefs B_s and B_ℓ, respectively, the common ground is the transitive closure of $B_s \cup B_\ell$.

Speaker presupposition: The speaker presupposes φ iff (s)he believes that φ is commonly believed: $[B_s][B_{s,\ell}]\varphi$.

Assertion: Upon the speaker's assertion of any (declarative) sentence ψ, it becomes common knowledge that the speaker believes ψ: $[B_{s,\ell}][B_s]\psi$.

- Thus $i_1 B_{s,\ell} i_n$ iff there is a sequence $i_1, \ldots, i_n$ with $i_m B_s i_{m+1}$ or $i_m B_\ell i_{m+1}$ for all m such that $1 \leq m < n$.
- $B_{s,\ell}$ is serial and transitive, but it is only Euclidean at worlds at which s and ℓ hold mutually compatible beliefs (i.e., some possibilities are accessible via both B_s and B_ℓ).
- The definition of speaker of presupposition is due to Stalnaker (1974 and elsewhere).
- I'm simplifying (and misrepresenting) Stalnaker (1974), though: He wrote that

  > Presupposing is ... not a mental attitude like believing, but is rather a linguistic disposition – a disposition to behave in one's use of language as if one had certain beliefs, or were making certain assumptions.

  To do justice to this, I should have said:

  > The speaker presupposes φ iff (s)he behaves as if (s)he believed that φ is commonly believed.

  But Stalnaker's motivation for the "behavior" twist was, as I understand it, his desire to account for non-cooperative behaviors like deception, which I am ignoring here.
- With Stalnaker, I believe that the *actual* common ground is of little if any use in understanding speakers' behavior.

- Contribution of '*ja*': '*ja(φ)*' presupposes $[B_{s,\ell}]\varphi$.
- Upon the *assertion* of '*ja(φ)*', it becomes commonly known that the speaker believes that the presupposition of '*ja(φ)*' is true.

➠ It becomes commonly known that the speaker believes that φ is commonly known:

$$[B_{s,\ell}][B_s][B_{s,\ell}]\varphi$$

- One consequence of this view is that it seems to necessitate a formal distinction between semantic and speaker presupposition:
  - Presupposition of '*ja(φ)*': $[B_{s,\ell}]\varphi$
  - Speaker presupposition: $[B_s][B_{s,\ell}]\varphi$

  ➠ The speaker speaker-presupposes φ iff he believes that the semantic presupposition of '*ja(φ)*' is true.
- This doesn't seem wrong, but I have to think more about it.

5 Explaining the data

5.1 Main idea

- Consider (9), repeated here as (21). Let 'φ' represent the clause containing *ja*, and let '$ja(\varphi)$' be the result of composing *ja* with φ.
- Let B'_ℓ be the belief state of ℓ after update of B_ℓ with $[\![\exists x]\!] \circ [\![\text{worker}(x)]\!]$. (Never mind what happened to $[\![\text{lost-job}(x)]\!]$.)

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

- In (21), the speaker indicates that he takes φ to be already in the common ground:

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

- In order for s to have this belief, he has to assume that after the update with $[\![\exists x]\!] \circ [\![\text{worker}(x)]\!]$, ℓ does not entertain the possibility that x refers to an individual who was not in the union.
- But in order for B'_ℓ to have already ruled out this possibility, ℓ must have believed beforehand that all workers were in the union.

5.2 Consequence: Non-accommodability

Suppose ℓ did not already know that x was in the union and wants to accommodate the presupposition. What should she do?

Update B'_ℓ with φ? This will indeed make it common belief that x was in the union. But it does not resolve the disagreement over the common ground: It fails to remove those possibilities in which a different worker not referred to by x was not in the union.

Update B'_ℓ with $[B_s]\varphi$? This update would not align the beliefs of s and ℓ: The disagreement over the common ground remains.

Update B'_ℓ with $[B_{s,\ell}]\varphi$? This is the most straightforward way to *accommodate the (semantic) presupposition* of *'ja(φ)'*. And it usually works.

BUT in this case, the update amounts to a *test*: Remove from B'_ℓ all links $\langle i, j\rangle$ such that for some k, $jB'_{s,\ell}k$ and $\langle j, k\rangle$ does not subsist in $B'_{s,\ell}[\![\varphi]\!]$. This results in B'_ℓ if the listener already believes φ, and in inconsistency otherwise. Thus by assumption, it results in inconsistency.

Better: If ℓ trusts s and wants to resolve the discrepancy, she must fix her beliefs so that the update with $[\![\exists x]\!] \circ [\![\text{worker}(x)]\!]$ *would have* led her to conclude that x was in the union.

- This requires a *post-hoc* update with the information that all workers were in the union.
- But the speaker only said that (he believes she knows) that x was.

⇒ To figure this out, ℓ needs some complex reasoning about the way the speaker's beliefs about her beliefs motivated his use of *'ja'*.

Alternatively: ℓ may accept φ but reject s's claim that φ was already inferable. This need not disrupt the conversation, but the disagreement over the common ground will persist.

5.3 Without *'ja'*

Consider again (8), repeated as (23).

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

- The speaker of (23), does not presuppose (in the above sense) that x was in the union.
- The listener may simply update B_ℓ with φ. It is then common belief that x was in the union, though not that all workers were. There is no problem here because the speaker gives no indication that he thinks so, either.

6 Projection with and without *'ja'*

6.1 Problem: Non-universal projection

The above account has ramifications for the overall theory of presupposition projection. Consider the famous sentence (24) by Heim (1983):

(24) A fat man was pushing his bicycle.
⋡ Every fat man had a bicycle.

- *'x pushed his bicycle'* presupposes *'x had a bicycle'*.
- Why doesn't (24) presuppose that every fat man had a bicycle?

– Heim gives (24) the kind of treatment that is right for *'ja'*:
– At the time *'x pushed x's bicycle'* is processed, the presupposition that x had a bicycle must be entailed by the context set.
➠ Heim predicts a universal presupposition for (24). But this is wrong for semantic presuppositions.

6.2 Solution: Speaker's reference

I will only give a brief semi-formal description of the account. It is inspired by Kadmon (1990); Stanley and Gendler-Szabó (2000); van Rooy (2001); Schwarzschild (2002).

Main idea: In using (24), the speaker indicates that he believes φ.

At the time the speaker introduces the discourse referent, he 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.

Possibilities: triples of worlds, assignment functions, and *restriction* functions, recording, for each discourse reference, the restriction intended by the speaker who introduced it.

$I = \{\langle w, g, r\rangle | \langle w, g\rangle$ is a possibility as before, and
$r : dom(g) \mapsto (W \mapsto \wp(D))$ assigns properties to active discourse referents$\}$

Referent activation: The relation $[x]$ is redefined: $\langle w, g, r\rangle[x]\langle w', g', r'\rangle$ iff

- $\langle w, g\rangle[x]\langle w', g'\rangle$ according to the earlier definition;
- $x \notin dom(r)$;
- $dom(r') = dom(r) \cup \{x\}$;
- $r'(x') = r(x')$ for all $x' \in dom(r)$;
- the individual assigned to x is in the extension of the restriction: $g'(x) \in r'_x(w)$.

Update: The introduction of a new discourse referent into a belief state is sensitive to the restriction:

$$B_s[\exists x] = \{\langle i', j'\rangle | r_{i'}(x) = r_{j'}(x) \text{ and for some } \langle i, j\rangle \in B_s, i[x]i' \text{ and } j[x]j'\}$$
$$B_\ell[\exists x] = \{\langle i', j'\rangle | \text{for some } \langle i, j\rangle \in B_\ell, i[x]i' \text{ and } j[x]j'\}$$

- The speaker knows r, hence he believes that x has all properties entailed by r.
- The listener doesn't know r, and the speaker knows that too.

- In this setting, accommodation of the presupposition *'x was in the union'* can proceed by testing the possible speaker states locally: The speaker believes *of the worker(s) he has in mind* that (s)he was / they were in the union.
- ➨ Eliminate restrictions r that do not entail the presupposition.
- The same does not work with *'ja'*, of course. That is expected.

7 Back to the data

Universal quantification: We can now characterize the intuitive difference between (25) and (26): The presupposition is stronger in the latter than in the former.

(25) Jeder dieser Arbeiter hat seinen Job verloren, weil er in der Gewerkschaft war.
each of these workers has his job lost because he in the union was
Each of these workers lost his job because he was in the union.
> All (of these) workers were in the union.

(26) Jeder dieser Arbeiter hat seinen Job verloren, weil er ja in der Gewerkschaft war.
each of these workers has his job lost because he JA *in the union was*
Each of these workers lost his job because he was JA in the union.
≫ All (of these) workers were in the union.

- In (25), the speaker indicates that he (believes that he) is using x to refer to a worker who was in the union.
- In (26), he indicates that he takes this to be already commonly believed.

Relative clauses: Consider (18) and (19), repeated here as (27) and (29).

(27) 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. [non-restrictive]
b. ✓ A worker who loved his wife lost his job. [restrictive]

≫ A worker was married and loved his wife.

I assume that the restrictive relative clause is inserted in the sequence of updates at the point at which it occurs in the sentence. However, *'x loved his wife'* presupposes that x is married. An update during which this presupposition is accommodated will take the following form:

(28) $[\![\exists x]\!] \circ [\![\text{worker}(x)]\!] \circ [\![x \text{ was married}]\!] \circ [\![x \text{ loved his wife}]\!] \circ [\![x \text{ lost his job}]\!]$

This holds for both (27a) and (27b). The difference (the relative clause is a "comment" by the speaker in (27a)) has no consequences for the outcome. Not so in (29):

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

a. ✓ A worker, who JA loved his wife, lost his job. [non-restrictive]
b. ✗ A worker who JA loved his wife lost his job. [restrictive]

≫ All (of these) workers were married and loved their wives.

Similarly to the case of the existential quantifier, the sentence presupposes that it is already known that x loved his wife by the time the clause is processed.

8 Discourse relations

The presupposition induced by *ja* depends on the discourse relation (explanation, sequence, etc.; cf. Kehler, 2002; Asher and Lascarides, 2003; Webber et al., 2003) in some as-yet ill-understood way.

(30) Jeder dieser Arbeiter verlor seinen Job, weil er ja seinen Chef verpfiffen hatte.
Each of these workers lost his job because he JA his boss bewhistled had

Each of these workers lost his job because he had blown the whistle on his boss.

≫ All (of these) workers blew the whistle on their bosses.

The presupposition that all workers blew the whistle on their bosses is not present in (31)

(31) Jeder dieser Arbeiter verpfiff seinen Chef und verlor daraufhin seinen Job.
each of these workers bewhistled his boss and lost thereupon his job

Each of these workers blew the whistle on his boss and lost his job as a result.

≫ ∅

However, with *ja* in the last clause as in (32), the presupposition is again present. Most importantly, however, unlike in (30), the presupposition is not that all workers lost their jobs!

(32) Jeder dieser Arbeiter verpfiff seinen Chef und verlor ja daraufhin seinen Job.
Each of these workers blew the whistle on his boss and lost JA his job as a result.
≫ All (of these) workers who blew the whistle on their bosses lost their jobs.
⋫ All (of these) workers lost their jobs.

Similarly with existential quantification:

(33) Einer dieser Arbeiter verpfiff seinen Chef und verlor daraufhin seinen Job.
one of these workers bewhistled his boss and lost thereupon his job
One of these workers blew the whistle on his boss and lost his job as a result.
≫ ∅

(34) Einer dieser Arbeiter verpfiff seinen Chef und verlor ja daraufhin seinen Job.
One of these workers blew the whistle on his boss and lost JA his job as a result.
≫ All (of these) workers who blew the whistle on their bosses lost their jobs.
⋫ All (of these) workers lost their jobs.

Q: Why does (30) not convey that all workers *who lost their jobs* had blown the whistle on their bosses?
i.e., why doesn't *'x lost his job'* make it into the restriction of the quantifier?

A: I can only speculate. It apparently has to do with *'weil'* 'because' or temporal order.

9 Conclusion

German *'ja'*: I gave a precise and (I think) plausible analysis of the interaction of German *'ja'* with quantifiers.

Presupposition: From the perspective of the classical dynamic theory of presupposition projection, the import of German *'ja'* is a presupposition *par excellence*. More specifically, a speaker (or pragmatic) presupposition in Stalnaker's sense.

Implications: This raises the question of how ordinary presupposition triggers differ from *'ja'*. Ordinary presuppositions do not refer to the common ground and can therefore (usually) easily be accommodated.

Expressive meaning: If the contribution of *'ja'* is to be expressive meaning, we have to conclude that expressive meaning overlaps with pragmatic presupposition. If there is to be no such overlap, then the notion of "expressiv meaning" should be redefined.

Discourse relations: German *'ja'* offers some insights into the way in which the dynamic interpretation of sentence is constrained by semantic factors, such as discourse relations and/or temporal relations, not just the order in which the clauses are presented. There is much room for further work in this area.

References

Asher, N. and A. Lascarides. 2003. *Logics of Conversation*. Cambridge University Press.

Fagin, R., J. Y. Halpern, Y. Moses, and M. Y. Vardi. 1995. *Reasoning about Knowledge*. MIT Press.

Groenendijk, J., M. Stokhof, and F. Veltman. 1996. Coreference and modality. In Lappin, S., editor, *The Handbook of Contemporary Semantic Theory*, pages 179–213. Blackwell.

Heim, I. 1983. On the projection problem for presuppositions. In Barlow, M., D. Flickinger, and M. Wescoat, editors, *Proceedings of WCCFL 2*, pages 114–125. Stanford University.

Kadmon, N. 1990. Uniqueness. *Linguistics and Philosophy*, 13:273–324.

Kehler, A. 2002. *Coherence, Reference and the Theory of Grammar*. CSLI Press.

Kratzer, A. 1999. Beyond *Ouch* and *Oops*: How descriptive and expressive meaning interact. Handout, Cornell Conference on Theories of Context Dependency. semanticsarchive.net [January 2004].

Kratzer, A. 2004. Interpreting focus: Presupposed or expressive meanings? A comment on Geurts and van der Sandt. *Theoretical Linguistics*, 30:123–136.

Lagerwerf, L. 1998. *Causal Connectives Have Presuppositions: Effects on Coherence and Discourse Structure*. Holland Academic Graphics.

Lindner, K. 1991. Wir sind ja doch alte Bekannte: The use of German *ja* and *doch* as modal particles. In Abraham, W., editor, *Discourse Particles*, pages 163–201. John Benjamins.

Potts, C. 2003. *The Logic of Conventional Implicatures*. PhD thesis, UC Santa Cruz.

van Rooy, R. 2001. Exhaustivity in dynamic semantics: Referential and descriptive pronouns. *Linguistics and Philosophy*, 24:621–657.

Schlenker, P. 2007. Expressive presuppositions. Ms., UCLA and Institut Jean-Nicod.

Schwarzschild, R. 2002. Singleton indefinites. *Journal of Semantics*, 19:289–314.

Stalnaker, R. 1974. Pragmatic presuppositions. In Munitz, M. K. and P. K. Unger, editors, *Semantics and Philosophy: Essays*, pages 197–213. New York University Press.

Stalnaker, R. 2002. Common ground. *Linguistics and Philosophy*, 25:701–721.

Stanley, J. and Z. Gendler-Szabó. 2000. On quantifier domain restriction. *Mind and Language*, 23:219–261.

Webber, B., M. Stone, A. Joshi, and A. Knott. 2003. Anaphora and dicourse structure. *Computational Linguistics*, 29(4):545–587.

Zimmermann, M. 2009. Disocurse particles.