# Comments on Križ (2015, 2016)

## Goals:

- To discuss Križ's argument that trivalence is at the heart of homogeneity (Križ 2015).
- To discuss his arguments (Križ 2016, K&S) that the pragmatic system deals with trivalent objects in a very special way when homogeneity is involved, in particular that, in this special case, presuppositions are not generated.
- To compare Stalnakar's Bridge Principle (that yields presuppositions from trivalent objects) to the bridge principal that comes out of Križ's proposal (Križ's bridge principle).
- To try to pushback on this idea that we need two different bridge principles. Specifically to see if there is a way to live in a world where only Stalnaker's Bridge Principle exists (i.e. if there is a way to return to the old idea – e.g. Schwarzschild, Gajewski – that homogeneity is a presupposition).

## 1. Homogeneity Effects with Embedded Questions

**Basic Effect (attributed by Gajewski 2005 to Krifka 1996):**

(1) a. Mary knows who$_A$ came to the party.
   Meaning $\approx \lambda w. \forall x \in A.\ Came_w(x) \rightarrow Knows_w(M, \lambda w'. Came_{w'}(x))$
  b. Mary doesn't know who$_A$ came.
   Meaning $\approx \lambda w.\ \neg \exists x \in A.\ Came_w(x) \& Knows_w(M, \lambda w'. Came_{w'}(x))$

**Homogeneity Effect (H-E)**: In a positive context, an embedded question is interpreted as a universal quantifier over the true members of the Hamblin-Set. In a negative context, it is interpreted as an existential quantifier.

## 2. Embedded Questions as Plural Definite Descriptions (Gajewski, following Lahiri)

An embedded question denotes a plural objet: the sum of all true members of the Hamblin Denotation.

(2) Question-to-Plurality:
  $QP(Q)(w) = \Sigma\{p: Q(p)=1 \ \&\ p(w)=1\}$[1]

Assume QP(Q)(w) is the denotation of an embedded interrogative construction built up from a question with denotation Q. H-E follows from whatever accounts for H-W with plural definite descriptions.

This is the proposal made in Gajewski (2005).[2]

[1] In the Winter & Scha setup: $QP(Q)(w) = \cup\{\{p\}: Q(p)=1 \ \&\ p(w)=1\}$.

QP was originally motivated (by Lahiri) for the analysis of Quantificational Variability Effects (QVE):

(3) a. She mostly remembers what she got for her birthday.
    b. Bill knows, for the most part, what they serve for breakfast at Tiffany's.

**3. Križ's counter-argument**

H-E disappears when a "homogeneity remover" (all) is introduced within the question nucleus. This is (a) unexpected by Gajewski's account, and (b) not attested with QVE.

(4) **H-E Removed by Homogeneity Remover within Q-nucleus**[3]
    a. Agatha weiß nicht, wer auf der Feier war.
       Agatha knows not who at the party was
       roughly: 'Agatha has no idea who was at the party.'
    b. Agatha weiß nicht, wer **aller** auf der Feier war.
       Agatha knows not who all at the party was
       'There is somebody who Agatha doesn't know was at the party.'

(5) **QVE is not Removed by Homogeneity Remover within Q-nucleus**[4]
    a. Agatha weiß großteils, wer aller auf der Feier war.
       Agatha knows mostly who all at the party was
    b. Wer aller zugelassen wird, hängt großteils (ausschließlich) von diesem Komitee ab.
       who all admitted is depends mostly (exclusively) on this committee prt

(4) argues that H-E should be determined within the question nucleus rather than by a question external operator such as QP.

In particular QP will yield H-E no matter what the question nucleus is like. (5) shows us that whatever is responsible for QVE is not sensitive to what happens within the question nucleus.

**Keny Chatain:** QP predicts that Homogeneity will disappear whenever Q has unique true member. *Mary knows which 5 boys came to the party.* This does not seem to be a correct prediction. Križ's proposal will make the correct prediction (as the unique true member can be a trivalent proposition).

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[2] See also Cremers 2015. Križ calls this "Homogeneity as QVE".
[3] I think I get the same effect in English but Kriz reports the sentences with *all* to be unacceptable:
(i) a. Mary does not know who will be at the party.
    b. (*)Mary does not know who will all be at the party.

[4] I think I get the same effect in English but Kriz reports the sentences with *all* to be unacceptable:
(i) a. Mary does not know who will be at the party.
    b. (*)Mary does not know who will all be at the party.

## 4. Križ's Proposal

**Two Ingredients:**

a. **Trivalent semantics**: non-homogeneity leads to the third value #.
b. **Dayal's view of question embedding**: an answer to a question is a unique member of the Hamblin denotation, the most informative one.

### 4.1. Assumptions about Questions (Dayal 1996)

Every question combines with an answer operator:

(6) a. $\text{Ans}_D(Q) = \lambda w{:}\exists p \in Q[p = \text{Max}_{inf}(Q,w)].\ \text{Max}_{inf}(Q,w)$
b. $\text{Max}_{inf}(Q,w)$=p iff w∈p & ∀q∈Q[q(w) =1 → p *entails* q].

(7) a. Which girl (among a, b and c) came to the party? (uniqueness inference)
b. Who/which girls (among a, b and c) came to the party? (existence inference)

(8) Denotation of argument of $\text{Ans}_D$ in the case of (7a):
$Q = \{p_a, p_b, p_c\}$
(*three logically independent propositions corresponding to the three girls*)
**Presupposition triggered by *$Ans_D$***: exactly one proposition among the three is true

(9) Denotation of argument of $\text{Ans}_D$ in the case of (7b):
$$Q = \{p_a,\quad p_b,\quad p_c,\quad p_{a\oplus b},\quad p_{a\oplus c},\quad p_{b\oplus c},\quad p_{a\oplus b\oplus c}\}$$
(*seven propositions corresponding to the plural individuals we get from the girls*)
**Presupposition triggered by *$Ans_D$***: one of the seven propositions is true.

### 4.2. Trivalence

(10) **Encoding H-E with Trivalence:**

$[\![\text{a and b came to the party}]\!]^w$ = 1 if both a and b came to the party.
= 0 if neither a nor b came to the party.
= # otherwise (if one came and the other didn't).

This will not change the results we get from $\text{Ans}_D$ as long as we choose wisely from the possible extensions of the relation *entails* from a bivalent to a trivalent system.

But the output of $\text{Ans}_D$ will now be a trivalent proposition if the members of the Hamblin denotation are themselves trivalent propositions.

This accounts for the basic H-E with questions that involve quantification over plural individuals and for its elimination whenever we introduce material that eliminates homogeneity within the nucleus (as in (4)).

More generally, it predicts H-E only if the basic members of the question denotation are themselves associated with H-E.

For example, no H-Es in degree questions.

Irene: Not obviously correct. #*John knows that Mary is at least 6 feet tall, but he doesn't know how tall she is*.

**5. Trivalence but no Presupposition**

The trivalent object described in (10) is the kind of object that we introduce when we talk about presuppositions:

(11) **Encoding Presuppositions with Trivalence:**
$[\![\text{The king of France came to the party}]\!]^w$
= 1 if there is a unique king of France and he came to the party.
= 0 if there is a unique king of France and he didn't come to the party.
= # otherwise.

But Križ and Spector present evidence that homogeneity is not a normal presupposition.

**5.1. Doesn't project like a normal presupposition**

(12) a. Not all of John's ten children stopped smoking.
inference (maybe) that all of John's children used to smoke.
a. Not all of John's ten children read the books.
no inference (definitely) that all of John's children have the homogeneity property (enough to find one student who read none of the books)

**5.2. Isn't expected to be part of the common ground**

Normally trivalent propositions introduce pragmatic presuppositions:

(13) **Stalnaker's Bridge Principle**:
C+S is defined only if $\forall w \in C([\![S]\!]^w=1 \text{ or } [\![S]\!]^w=0)$.
When defined, $C+S = C \cap \{w: [\![S]\!]^w = 1\}$

**Possible rational**: # should be thought of as an indeterminate truth-value (either 1 or 0, we don't know which, it doesn't make sense to ask which,…). So if $\exists w \in C([\![S]\!]^w=\#)$, the update would be indeterminate and that's no good.

This BP predicts a pragmatic presupposition. The pragmatic presupposition in turn explains (among other things) why we can object to a sentence that presupposes p by pointing out that p was not part of the common ground (von Fintel 2004):

(14) Did Peter stop smoking?
Hey wait a minute, I didn't know he used to smoke.

(15) Did Peter read the books?[5]
#Hey wait a minute! I didn't know that Peter cannot possibly have read just half of the books

(16) Does Mary know that Peter either read none or all of the books?
Hey wait a minute! I didn't know…that Peter cannot possibly have read just half of the books

**Križ's response**: to introduce a new bridge principle that looks at the trivalent object that is triggered by plurality. This bridge principle will not introduce a presupposition, but instead yield an explanation for Non-Maximality (or pragmatic halos).

**Obvious Questions**:

a. How does the pragmatic system know what kind of trivalent object it is dealing with?
b. Is the formal/compositional system the same (before the different bridge principles apply). And if so, how could we possibly account for different projection properties?
c. …

## 6. Križ's Bridge Principle

(17) **Maxim of Quality**: Utter a sentence only if you believe the proposition it expresses.

(18) **Maxim of Relevance**: Utter a sentence only if the proposition it expresses is relevant given the topic of conversation (the issue, the question)

**Križ makes two non-trivial suggestions/ammendments:**

a. Extends *relevance* to a trivalent system in an unexpected way (suggests *weak*- rather than *strong* relevance).
b. Weakens the Maxim of Quality (introducing the concept of *true enough*).

### 6.1. Weak-Relevance

(19) *A topic of conversation* is a partition of a space of possibilities (logical space, or the common ground) [Lewis, G&S…].

(20) A proposition p is *relevant* (in bivalent setup) for a topic T, if
$\forall C \in T \neg \exists w,w' \in C[p(w) \neq p(w')]$ (cells are homogenous relative to p)

Two Extensions to a trivalent setup.

[5] What do K&S predict for this question?

(21) Weak Relevance: A proposition p is *weakly-relevant* for a topic T, if
$\forall C \in T \neg \exists w,w' \in C[p(w)=1 \& \ p(w')=0]$ (cells are w-homogenous relative to p)

(22) Strong Relevance: A proposition p is *strongly-relevant* for a topic T, if
$\forall C \in T \neg \exists w,w' \in C[p(w) \neq p(w')$ under *any correction* of the third value$]$.
(cells are s-homogenous relative to p)

**6.2. Weak-Quality**

(23) **Weak Maxim of Quality**: Utter a sentence S only if you believe it is true enough given the topic of conversation

S is *true enough* given a topic T and a world w, if there is a w' which is a T-cellmate of w in which S is true.

**6.3. Proposed Account of Non-Maximality**

(24) **Consequence of Weak Relevance and Weak Quality:**
A sentence S is weakly-relevant and true enough given a topic T and a world w if S is not false in w and there is a w' which is a T-cellmate of w in which S is true.

**6.4. Comparison to Stalnaker's Bridge**

The role of S given a topic T is to eliminate cells in T from C.

(25) Stalnaker's Bridge: Utterance of S eliminates from C every cell in T in which S is false, presupposing that cells are *strongly homogenous*.

(26) Križ's Bridge: Utterance of a S eliminates from C every cell in T in which S is false (in at least one member of the cell) and presupposes that cells are *weakly homogenous*.

**Obvious Questions (repeated)**:

a. How does the pragmatic system know when to apply Stalnaker's Bridge and when to apply Križ's Bridge?
b. Is the formal/compositional system the same (before the different bridge principles apply). And if so, how could we possibly account for different projection properties?
c. Are the Non Maximality effects described correctly by Križ?
d. …

**Goal for next week**: to see whether there is a way to keep to just one bridge principle.

I will investigate the possibility that there is just one bridge principle and that the nature of homogeneity explains the different pragmatic consequences. Much will bear on the answer to (c)?

**Goal For Today**:

- **Step 1**: Present the argument from Fox (2013) that, despite initial appearances, it is possible to claim that presuppositions project by the Strong Kleene recipe. If this argument is successful, there will be no projection-based reason to distinguish the trivalent system underlying homogeneity from the one underlying presuppositions. [The difference in projection judgments will be reducible to the other distinction pointed out by K&S, namely that homogeneity does not yield pragmatic presuppositions, e.g. that homogeneity is subject to Kriz's bridge principle.]
- **Step 2**: Try to explain the remaining distinction (that homogeneity does not yield a pragmatic presupposition) on the basis of "proviso considerations". Specifically, I will suggest that homogeneity yields a proviso problem that cannot be corrected in the normal way (by pragmatic strengthening). However, it can be correct by presupposition cancellation, e.g. application of resurrected Buchvar operator (*A*).

**7. Strong-Kleene Projection (Beaver and Krahmer, George, Fox)**

**Basic Idea:** # stands for either 0 or 1, we just don't know which. Presupposition projects the way knowledge (or lack thereof) projects.

**7.1. Connectives**

(27) $[\![\text{and}]\!]^t = \lambda p_t.\ \lambda q_t$: $[\![\text{and}]\!]$ is uniform across corrections of p and q.$[\![\text{and}]\!]$(p')(q')
where p' and q' are arbitrary corrections of p and q.

(28) a. p' is a correction of p if
(1) $p' \neq \#$ and
(2) $p \neq \# \rightarrow p = p'$

b. f of type <tt,t> is uniform across corrections of p and q if f(p')(q')= f(p'')(q''), for all p' p'' q' q'' such that p' and p'' are corrections of p and q' q'' are corrections of q,

**Notational Convention**: Whenever a connective x is uniform across corrections of its truth denoting arguments, we will simply write $[\![x]\!]$(p)(q) to be the result of applying $[\![x]\!]$ to arbitrary corrections of p and q. Hence:

(29) $[\![\text{and}]\!]^t = \lambda p_t.\ \lambda q_t$: $[\![\text{and}]\!]$ is uniform across corrections of p and q. $[\![\text{and}]\!]$(p)(q)
(30) $[\![\text{or}]\!]^t = \lambda p_t.\ \lambda q_t$: $[\![\text{or}]\!]$ is uniform across corrections of p and q. $[\![\text{or}]\!]$(p)(q)…
(31) $[\![\text{if-then}]\!]^t = \lambda p_t.\ \lambda q_t$: $[\![\text{if-then}]\!]$ is unif. across corr. of p and q. $[\![\text{if- then}]\!]$(p)(q)…

These entries predict Karttunen's empirical claim about presupposition projection as long as we focus on third values in sentence final position. In other words no left to right asymmetry is predicted here. [See Schlenker 2008, Chemla and Schlenker (2012) as well as Hirsch and Hackl (2014) for useful discussion of the role of left-right asymmetry in theories of projection.]

## 7.2. Proviso – Pragmatic Strengthening

(32) a. If John is a scuba diver, he'll bring his wetsuit. (correct predictions of SK projection)
b. If John is a scuba diver, his car has a wetsuit in it.

(33) **Cases where predicted presupposition seems correct**:
(a) If John is a scuba diver, he'll bring his wetsuit.
(b) Either John is not a scuba diver or he will bring his wetsuit.
(c) John is a scuba diver and he'll bring his wetsuit.
**Predicted presupposition**:
Either John is not a scuba diver or John has a wetsuit
$\neg$SD or WS (equivalently 'SD $\rightarrow$ WS')

It is very natural for the disjunction to be part of the CG without one of the disjuncts being part of the CG.

**Four scenarios to consider**:

Scenario 1: The first disjunct $\neg$*SD* is part of the common ground, C, at the point of utterance. **Not a possibility**: In such a context the sentence is not assertable for Stalnakarian reasons (it is a contextual tautology).
Scenario 2: The second disjunct *WS* is part of C at the point of utterance. **Possible, though perhaps not very probable**: In most common grounds, only scuba divers own wetsuits. So if *WS* is part of C, probably *SD* is. But then an utterance of a disjunction would be quite odd, as one of the disjuncts is known to be false.[6]
Scenario 3: The disjunction is part of C at the point of utterance, yet neither disjunct is. This is a realistic scenario.
Scenario 4: The disjunction is not part of C at the point of utterance. Here accommodation is required. The "minimal" accommodation $\neg$*SD or WS* leads to a plausible information state.

**Conclusion**: There are scenarios where $\neg$*SD or WS* ends up being part of the common ground without *WS* being part of the common ground. Hence *WS* is not perceived as an inference.

(34)**Cases where predicted presupposition seems too weak**(at least at first sight):
Either John is not a scuba diver or his car has a wetsuit in it.
**Predicted presupposition:**
Either John is not a scuba diver or John has a car
$\neg$SD or Car (equivalently 'SD $\rightarrow$ Car')

[6] As Soames pointed out, this is not a crucial property of cases where weak inferences are observed: *Either she has no disease with detectable symptoms or her illness will be evident to the doctor*, *If he is a general in the US army, he is not wearing his uniform*.

**Attested Inference**: Car

In this case, it is extremely odd for the disjunction to be part of the CG without one of the disjuncts being part of the CG – this motivates **pragmatic strengthening**.

More specifically, **four scenarios to consider**:

Scenario 1: The first disjunct *¬SD* is part of the common ground, C, at the point of utterance. **Not a possibility:** the sentence is not assertable for Stalnakarian reasons (it is a contextual tautology).

Scenario 2: The second disjunct *Car* is part of C at the point of utterance. This could be a reasonable context, and one in which the sentence is assertable.

Scenario 3: The disjunction is part of C at the point of utterance, yet neither disjunct is. **Very implausible**: suggests a connection between being a scuba diver and having a car.

Scenario 4: The disjunction is not part of C at the point of utterance. Here accommodation is required. The "minimal" accommodation *¬SD or Car* leads to an implausible information state (one might even wonder whether there is a minimal accommodation)[7]. We have to search for alternative information states (hence **Pragmatic Strengthening**).
Two strengthenings that suggest themselves corresponds to the two disjuncts *¬SD* and *Car*: *¬SD* is not an available accommodation (Scenario 1). We are left with *Car*.

**Conclusion**: In all scenarios, the second disjunct ends up being part of the common ground and is hence perceived as an inference of the sentence.

(35)**Proviso Problem:** We will say that a Context C and a sentence S with presupposition p ($S_p$) **suffer from Proviso** if C does not entail p and C∩p is too weak to be reasonable information state.

(36)**Presupposition Strengthening:** When C and $S_p$ suffer from proviso, sometimes speaker and hearer manage to figure out that a non-lcoal accommodation is intended. I will call situations of this sort situation of *presupposition strengthening.*

**Look Ahead:** I will claim that when a homogeneity presupposition is triggered the resulting sentence will very often lead to a Proviso Problem, which cannot be repaired by presupposition strengthening. The only repair available will be presupposition cancelation.

## 7.3. Quantifiers

(37) a. Some student [x drives x's car to school]$_{\text{x has a (unique) car}}$
b. No student [x drives x's car to school]$_{\text{x has a (unique) car}}$
c. Every student [x drives x's car to school]$_{\text{x has a (unique) car}}$

[7] i.e. whether adding the disjunction to the common ground would require belief revision, revising the assumption that there is no law connecting the two disjuncts

d. Not every student [x drives x's car to school]$_{\text{x has a (unique) car}}$

(38) Trivalent denotation of the nuclear scope in (37a,b,c,d):

$$\lambda x. \begin{cases} 1 & \text{if x has a (unique) car and x drives it to school} \\ 0 & \text{if x has a (unique) car and x doesn't drive it to school} \\ \# & \text{if x has no car (or more than one car)} \end{cases}$$

(39)**SK Predictions:**

The denotation of S in w is

(a) 1 if its denotation (in a bivalent system) would be 1 under every bivalent correction (total extension) of sub-constituents.
(b) 0 if its denotation would be 0 under every bivalent correction of sub-constituents.
(c) # if neither (a) nor (b) hold

(40) a function $g:X \rightarrow \{0,1\}$ is a *bivalent correction* of a function $f:X \rightarrow \{0,1,\#\}$ if $\forall x[(f(x)=0 \vee f(x)=1) \rightarrow g(x)=f(x)]$

(37'a) Some student [x drives x's car to school]$_{\text{x has a (unique) car}}$
**Presupposes**:
Either [Some student has a car and drives it to school] or
[Every student has a car (and no student drives his car to school)].

(37'b) No student [x drives x's car to school]$_{\text{x has a (unique) car}}$
**Presupposes**:
Either [Every student has a car (and no student drives his car to school)] or
[Some student has a car and drives it to school]

(37'c,d) (Not) Every student [x drives x's car to school]$_{\text{x has a (unique) car}}$
**Presupposes**:
Either [Every student has a car (and drives it to school)] or
[Some student has a car and doesn't drive it to school].

**7.4. Proviso – Pragmatic Strengthening**

K&S claimed that these predictions are correct for homogeneity but too weak for presuppositions (see 12 above).

**But Note**: The formal presuppositions in (37') do not make direct predictions for the inferences we draw from sentences (in particular contexts). To make predictions we will need to say something about how presuppositions get accommodated.

(41) $QP_1$ [x drives x's car to school]$_{\text{x has a (unique) car}}$
Presupposes:
Either [$QP_2$ has a car and does (not) drive it to school] or
[Every student has a car] (where $QP_2$ can, though need not, be identical to $QP_1$)

Equivalently:
¬[$QP_2$ has a car and does (not) drive it to school] →
[Every student has a car]

Believing this disjunction without believing one of the disjuncts is odd. It suggests that there is a connection between the two (if one is false, the other is true). So (as in 7.2.) this Proviso Problem could very well lead to pragmatic strengthening.

More Specifically:

(42) Does one of these 10 girls drive her car to school?
Presupposes:
Either [Some girl has a car and drives it to school] or
[Every girl has a car]

Scenario 1: The first disjunct *some girl has a car and drives it to school* is part of C at the point of utterance. This could be a reasonable context, but probably one in which the question is not assertable (the answer is already part of the common ground).

Scenario 2: The second disjunct *every girl has a car* is part of C at the point of utterance. This could be a reasonable context, and one in which the question is assertable.

Scenario 3: The disjunction is part of C at the point of utterance, yet neither disjunct is. This is an unrealistic Scenario.

Scenario 4: The disjunction is not part of C at the point of utterance. Here accommodation would be required. Minimal Accommodation (leading to the context in Scenario 3) would be odd (perhaps impossible).

So either we are already in scenario 2 or some non-minimal accommodation is required. In either event it is reasonable to assume that we end up with the universal inference (and this K&S tell us is the right results).

**Can we construct cases where the minimal accommodation would be plausible**?

(43) Did anyone of these gangsters acquire their fortune through investments in the tech industry?
**Presupposition**: if none of these gangsters acquired their fortune through investments in the tech industry, they all have a fortune.
Minimal accommodation not an option.

(44) Did anyone of these gangsters acquire their fortune by wiping out one of the others?
**Presupposition**: if none of these gangsters acquired their fortune by wiping out one of the others, they all have a fortune.
Minimal accommodation is plausible.

**Confound** (B. R., George p.c.): nominals can receive temporal interpretations independent of tense, Hence it is not clear that a universal presupposition will be wrong here.

**Can be addressed by explicating the temporal interpretation of the nominal**:

(45 ) Did anyone of these gangsters acquire the fortune they brought to you last week by wiping out one of the others?
**Presupposition**: if no gangster acquired the fortune they brought to you last week by wiping out one of the others, they each brought a fortune to you last week.

**Summary**:

(46) **Pragmatic Strengthening with SK projection**:
Every A $\lambda x.[B(x)]_{P(x)}$
Presupposes:
$[\exists x(A(x)=1 \ \&\ B(x)=0]$ or $[\forall x(A(x)=1 \rightarrow P(x)=1]$

**Candidate for Pragmatic Strengthening**: $[\forall x(A(x)=1 \rightarrow P(x)=1]$
(in (37) *every student has a car*)
**Motivation for pragmatic strengthening**: The formal disjunctive presupposition is not a good target for minimal accommodation (does not lead to a reasonable information state). There is, however, a candidate for strengthening $[\forall x(A(x)=1 \rightarrow P(x)=1]$ which leads to a reasonable information state.

If universal inferences ($[\forall x(A(x)=1 \rightarrow P(x)=1]$) were always attested in quantificational constructions (as K&S suggest), it would be possible to get this result while still adopting a SK theory of projection. Hence, I don't think there is an argument from projection against treating homogeneity as a presupposition.

**Note however**: there is by now quite a lot of evidence that universal inferences are not always attested See Beaver (2000), Chierchia (1995), Chemla (2009), Sudo et. al. (2013). So there is got to be a way to get weaker results.

## 7. 5. Presupposition Cancelation

It has been argued that there has to be a process that cancels presupposition, sometimes called "local accommodation". This process normally applies very selectively (requires special motivation, Gazdar, Heim, i.a.).

The method of cancelation in trivalent semantic is the *A* operator (resurrected from Buchvar by Beaver).

(47) $[\![A]\!] = \lambda t.\ 1$ if t=1, 0 otherwise (if t =# or t=0).[8]

Proposal in Fox (2013) and Sudo et. al. (2013). The *A* operator can be inserted if it resolves a Proviso problem.

**Excercise**: explain why the *A* operator would not resolve the proviso problem discussed in 7.2.

If application of *A* (in some scope position) gets rid of the proviso problem, presupposition strengthening might not be needed. See Sudo et. al. for discussion.

## 8. Back to Homogeneity

**Basic Idea**: A homogeneity presupposition is (or at least can be) proviso problematic from the get go. Hence in quantificational environments strengthening the SK presupposition will not get us out of our proviso difficulty.

(48) Mary read the books.
$\lambda$w: Mary read all of the books or none of the books. Mary read all of the books.

(49) **Proviso is not eliminated by presupposition strengthening.**:
Every A $\lambda$x.[x read the books]$_{\text{Hom(the-books, } \lambda\text{y.x read y)}}$
Presupposes:
[$\exists$x(A(x)=1 & x read none of the books] or
[$\forall$x(A(x)=1 $\rightarrow$ x read all of the books or x read none of the books]

**pragmatic strengthening does not resolve the problem**: This disjunction is not a good target for minimal accommodation. But intersecting C with the second disjunct does not lead to a decent information state.

What I would like to suggest is special about Homogeneity in quantificational contexts is that pragmatic strengethening does not resolve the proviso problem.

**Proposed principle:** If a sentence has a pragmatic presupposition that can't be minimally accommodated and there is no plausible pragmatic strengthening the presupposition is cancelled by the *A* operator.

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[8] Romoli 2012 shows that we need a selective process of cancelation. Possible implementation: every constituent that denotes a partial function will have an index i as sister, which will always be interpreted as the identity function (of the appropriate type), but can be bound by an A operator.

(i) $[\![A_i\ S]\!] = 1$ iff $\forall$g such that g is a function extender (of the relevant type) $[\![S]\!]^{i \rightarrow g} = 1$.
g is a function extender of type <<a,b>, <a,b>> if for every function of type <a,b>, g(f) is a total function which extends f (i.e. has f as a sub-set).

Irene: In some cases homogeneity might not suffer from Proviso and then we might expect to see normal presuppositional behavior (of course it might come and go depending on uncertainty about what is taken to be plausible).

Is this a good prediction?

(50) **Hey Waite a Minute**
a. The Republicans voted for this measure.
Hey wait a minute, I didn't know the Republicans vote as a block.
b. I followed the doctor's recommendations.
(#)Hey wait a minute, I didn't know you would follow all or none of the recommendations.

(51) **Projection**
a. The Republicans didn't vote for every one of these measures.
Inference?: every one of the measures was supported by all or none of the Republicans.
b. Not everyone followed the doctor's recommendations.
Inference? every one followed all or none of the instructions.

## 9. More on Cancellation

Assume that there is only one form of partiality that is treated uniformly by the pragmatics (by Stalnaker's Bridge Principle, SB). If we want this partiality not to lead to a homogeneity presupposition, it ought to be cancelled before SB applies.

(52) Homogeneity is (or can be) cancelled at the root level (with no special motivation).

Possible Explanation in previous section.

A more permissive proposal for *A* insertion: $A(S_p)$ is a good parse whenever $C \cap A(S_p)$ is as plausible an information state as $C \cap p$.

**Problem #1**: no account for "gappy" intuitions.

**Possible Response**: gappy intuitions simply result from an inability to assert a sentence or its negation.

**Problem #2**: no account for Non Maximality

**Possible Responses**:

a. Introduce a new local accommodation operator

(53) $[\![K]\!](T) = \lambda p \lambda w.$ p is not false in w and is true enough given T and w.

b. Provide a different description of the phenomena…