Trading Beliefs: A New View on Importation

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Emotive 'Factives' and Belief-Relative Presuppositions

› We argue that **emotive factive** predicates (*regret*, *be sad*) behave like **hard presupposition triggers** (*too*, *again*) and unlike **semi-factive** predicates (*discover*, *realize*), which are possibly **soft presupposition triggers** (*stop*, *win*) (Abbott 2006, Abrusán 2016), (1)

› Certain patterns of non-projection with emotive factives in **mistaken belief** contexts, (2), are a challenge to the robustness of their presupposition (Klein 1975, Egré 2008, Karttunen 2016)

› Our experimental results show that emotive factive give rise to inferences that project like hard presuppositions, unless a mistaken belief context is made explicit

› We argue that the presupposition of emotive predicates is not factive, but **belief-relative**, and the derivation of the factive inference arises via pragmatic reasoning, just like when a presupposition trigger is embedded under an attitude predicate (Heim 1992, Sudo 2014), (3) and (4)

(1) a. I don't know if Eleni used to drink, but if she **stopped** drinking, Taro will bring soda.
 b. I don't know if Eleni drinks, but if Taro **discovers** that she does, he will make cocktails.
 c. # I don't know if anybody else was ill, but if Eleni was ill **too**, she needed rest.
 d. # I don't know if Taro is ill, but if Eleni **is sad** that he is, she will take care of him.

(2) Eleni mistakenly believes that Taro is ill, and she's sad that he is.
 ↝ Taro is ill.

(3) Skye is happy that Aditi likes linguistics.
 ↝ Aditi likes linguistics.
 ↝ Skye thinks that Aditi likes linguistics.
 a. Skye mistakenly believes that Aditi likes linguistics. They're happy that she does.
 b. # Skye doesn't know that Aditi likes linguistics. They're happy that she does.

(4) Skye thinks that Aditi, too, fell.
 ↝ Someone else fell.
 ↝ Skye thinks that someone else fell.
 a. Skye mistakenly believes that Eleni fell. They think that Aditi, too, fell.
 b. # Skye doesn't know that Eleni fell. They think that Aditi, too, fell.
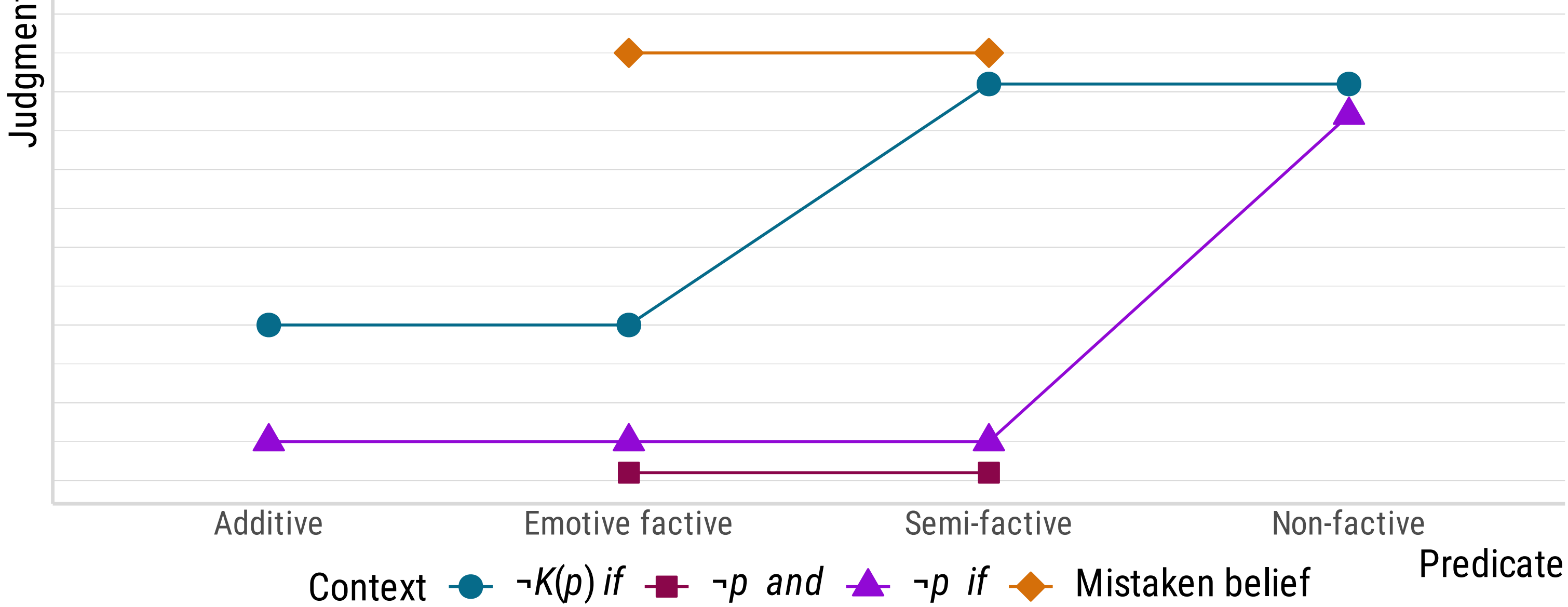
Are Emotives Hard Triggers? An Experiment

We carried out an Acceptability Judgment Task (Likert scale from 1 to 7) to probe into the effects of presupposition violations with a variety of triggers (in Italian).

40 participants (mean age 21.3 ± 3.29) were tested. The experiment consisted of two parts so that the items in the first sub-experiment occurred before the second; with 24 fillers throughout.

Sub-experiment 1 4×2 Design, 32 items
 › PREDICATE (*too*, *again* vs. *be angry*, *be sad* vs. *understand*, *realize* vs. *think*, *believe*)
 › CONTEXT (▲: $\neg p$ if vs. ●: $\neg B_x(p)$ if)

Sub-experiment 2 2×2 Design, 16 items
 › PREDICATE (*be angry*, *be sad* vs. *understand*, *realize*)
 › CONTEXT (■: $\neg p$ and vs. ◆: mistaken belief)
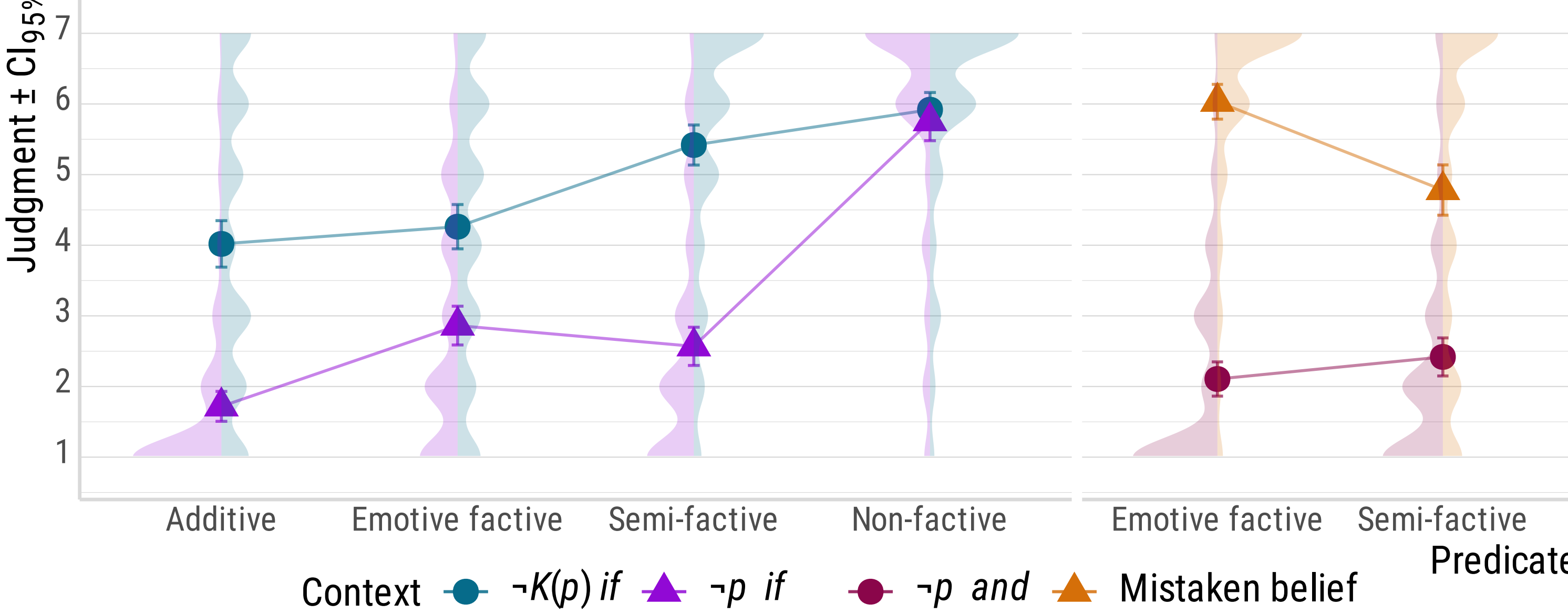
(not acceptable) 1 2 3 4 5 6 7 (completely acceptable)

Materials (slightly adapted to resolve pronoun ambiguities of the English translation)

(5) **Additive particles** *too*, *again*
 ▲ Taro didn't steal anything from Aditi, but if he stole her hat too, Aditi will rip off his bathing suit.
 ● I don't know whether Taro stole anything from Aditi, but if he stole her hat too, Aditi will rip his bathing suit.

(6) **True factives** *be angry*, *be sad*
 ▲ Eleni didn't lose the kite, but if Taro is angry that she did, he will hurl her sunglasses into the sea.
 ● I don't know whether Eleni lost the kite, but if Taro is angry that she did, he will hurl her sunglasses into the sea.
 ■ Taro didn't make the roses die, but Eleni is angry that he made them die.
 ◆ Eleni mistakenly believes that Taro made the roses die, and is angry that he made them die.

(7) **Semi-factives** *understand*, *realize*
 ▲ Aditi didn't manipulate the card deck, but if Taro realizes that she did, he will uninvite her from the next sleepover.
 ● I don't know whether Aditi manipulated the card deck, but if Taro realizes that she did, he will uninvite her from the next sleepover.
 ■ Aditi didn't break the toy train, but Taro, after examining it, realized that she broke it.
 ◆ Aditi didn't break the toy train, but Taro, after examining it, mistakenly realized she broke it.

(8) **Non-factives** *think*, *believe*
 ▲ Eleni didn't get the top grade, but if Taro thinks that she did, he will be jealous.
 ● I don't know if Eleni got the top grade, but if Taro thinks that she did, he will be jealous.

Hypothesis (the ▲ vs. ● contrast for true factives was found in a pilot and hence is included below)

Results

Results The shaded areas indicate the raw rating distribution.

› Our experimental results suggest that **emotive factives** are presupposition triggers (contra Karttunen 2016) and that their presupposition is **hard** rather than soft, similarly to additive particles

› The factive inference is only suspended if a **mistaken belief** context is made explicit. This option might be marginally **available for semi-factives**, too

› The ▲ vs. ● contrast with emotives and additive particles has not been observed before. The effect cannot be due to accommodation of a mistaken belief context: cfr. ▲ and ■ where $\neg p$ is asserted

How many presuppositions?

› Emotive predicates seem to have two presuppositions: a factive and a belief-relative one, (3), mirroring presupposition triggers embedded under attitude predicates, (4)

› A mistaken belief context can suspend the factive/global presupposition, but an ignorance context cannot suspend the belief-relative one

› Heim (1992) and Sudo (2014) propose that only the belief-relative presupposition is generated semantically, the other is the result of *Exportation*

› Geurts (1999) and Abrusán (2022) criticize Exportation because "we do not, in typical circumstances, automatically inherit the beliefs of the people we talk about." The opposite occurs

› We maintain that for cases like (2) and (4), **only a belief-relative presupposition is generated semantically**. We give a version of *Importation* that derives the presuppositional behavior of the factive/global inference while pragmatically operating in a more plausible direction

Towards the Factive Inference: Revisiting Importation

› **Echochamber:** For any context $c_{\langle s,t \rangle}$, given a certain animate entity x_e and proposition $p_{\langle s,t \rangle}$, if $c \models p$, then $c \models \text{Bel}_x \ p$, unless x's ignorance about p is conveyed.

(9) Skye is happy that Aditi likes linguistics.
 Only presupposes: Skye believes that Aditi likes linguistics.

› Presupposition satisfaction in a 'factive' context:

(10) *Context:* Aditi likes linguistics.
 Skye is (not) happy that Aditi likes linguistics.
 a. The global context c entails $p = [\lambda w . \text{ Aditi likes linguistics in } w]$;
 b. By Echochamber, $c \models \text{Bel}_{\text{Skye}} \ p$;
 c. The presupposition of the sentence is satisfied.

› Mistaken-belief contexts, presupposition failure, and filtering:

(11) *Context:* Skye mistakenly believes that Aditi likes linguistics.
 Skye is happy that Aditi likes linguistics.
 a. Echochamber is suspended for Skye, $\neg p = [\lambda w . \text{ Aditi doesn't like linguistics in } w]$;
 b. The global context c entails $[\neg p \wedge \text{Bel}_{\text{Skye}} \ p]$;
 c. The presupposition of the sentence is satisfied.

(12) *Context:* Skye doesn't know that Aditi likes linguistics.
 # Skye is happy that Aditi likes linguistics.
 a. Echochamber is suspended for Skye and $p = [\lambda w . \text{ Aditi likes linguistics in } w]$;
 b. The global context c entails $[p \wedge \neg \text{Bel}_{\text{Skye}} \ p]$;
 c. The presupposition of the sentence is not satisfied.

(13) If Aditi likes linguistics, Skye is happy that she does.
 a. The local context c_l entails $p = [\lambda w . \text{ Aditi likes linguistics in } w]$;
 b. By Echochamber, $c_l \models \text{Bel}_{\text{Skye}} \ p$;
 c. The presupposition of the emotive predicate is locally satisfied.

› Echochamber derives the inference we typically call **factivity** as follows:

(14) *Context:* It has not yet been established whether Aditi likes linguistics.
 Skye is happy that Aditi likes linguistics.
 ↝ Aditi likes linguistics.
 a. The global context c entails $[\Diamond p \wedge \Diamond \neg p]$ for $p = [\lambda w . \text{ Aditi likes linguistics in } w]$;
 b. By Echochamber, $c \models \text{Bel}_{\text{Skye}} [\Diamond p \wedge \Diamond \neg p]$;
 c. Global accommodation does not return $c^* \models [[\Diamond p \wedge \Diamond \neg p] \wedge \text{Bel}_{\text{Skye}} [p \wedge \Diamond \neg p]]$;
 d. Global accommodation under Echochamber returns $c' \models [p \wedge \text{Bel}_{\text{Skye}} \ p]$.

› Accommodation cannot return inconsistent contexts or ascribe inconsistent beliefs

› Epistemic contradictions (Yalcin 2007) count as inconsistent belief states

› The factive inference results from accommodation and avoiding a local epistemic contradiction

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