

Present counterfactuals and the indicative-subjunctive divide

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The semantics of so-called **counterfactual (CF)** conditionals is a matter of ongoing discussion (cf. von Stechow & Iatridou 2020 for a recent overview). German (1) exemplifies what Iatridou (2000) calls a *present* CF: the antecedent [_p she is asleep] and the consequent [_q she is missing the eclipse] are both implied to be false at present, namely the speech time t^* . With Leahy (2011, 2018), focus will henceforth be on the falsity of p ($\neg p$). The distinctive verbal mood is the past subjunctive, or *Konjunktiv 2 (K2)*.

- (1) Wenn sie gerade schlafen würde, würde sie die Mondfinsternis versäumen.
 if she now sleep will-k2 will-k2 she the lunar-eclipse miss
 \rightsquigarrow she is not sleeping (nor missing the lunar eclipse) $\neg p$

One point of deviation between existing proposals is the status of the CF-implication examples like (1) give rise to. Given that such implications project out of *if*-clauses and can be infelicitous (rather than just false), one might focus on two options by asking: Is $\neg p$ a (semantic) **presupposition (PSP)** or merely an *anti-PSP* due to the pragmatic principle *Maximize Presupposition* (MP; Heim 1991, Chemla 2008, Sauerland 2008 a.o.)? Under the latter view, the K2-marked example (1) arguably competes with its **indicative (IND)** variant (2) in presuppositional strength. Unlike the K2-variant, the IND-variant opens up p 's possibility ($\diamond p$):

- (2) Wenn sie gerade schläft, versäumt sie die Mondfinsternis.
 if she now sleeps misses she the lunar-eclipse
 \rightsquigarrow she might be sleeping (and missing the lunar eclipse) $\diamond p$

Taking at least one of the two moods $\{\text{ind}, \text{k2}\}$ to be presuppositional, there are (at least) three possible theories to be entertained about the interpretive contrast between (1) and (2), represented in the table below: Theory T1 treats each mood as presupposing the implication it comes with $\{\diamond p, \neg p\}$. Under theories MP1 and MP2, exactly one of the two loses its PSP, \emptyset ; its characteristic implication stems from an anti-PSP, (roughly) the inferred negation of the PSP triggered by the other mood.

	T1	MP1	MP2
[if p-k2,q] presupposes	$\neg p$	$\neg p$	\emptyset
[if p-ind,q] presupposes	$\diamond p$	\emptyset	$\diamond p$

Table 1: Three possible theories

Views like T1 are held by Schulz (2014) and Portner (1992) as discussed in von Stechow (1998), a view like MP2 by von Stechow (1998) and Grosz (2012), and a view like MP2 by Leahy (2011, 2018).

Despite the resemblance, at least some

of these accounts are more concerned with *past* CFs of the form *if she had been sleeping, she would have been missing the eclipse*, hence with a slightly different type of construction.

This paper presents an acceptability rating study to evaluate the predictions of the three theories summarized in table 1. The findings support MP2, on which the K2 presupposes nothing.

Design, material & predictions. We distinguish PSPs from anti-PSPs by higher **violation costs** caused by the former compared to the latter; cf. Bade & Schwarz (2019) for a variant of this idea. Violation costs are determined as the difference in acceptability between conditions with and without a violation of the involved PSP/anti-PSP.

Violations were induced by a manipulation of the context in a 2×2 design crossing the factors MOOD and CONTEXT. Two kinds of target conditionals differed in mood in that they were either IND- or K2-marked, cf. targets (a) and (b) in sample (3). Their antecedents were adverbially enforced to be interpreted at t^* via *gerade* ‘now’. Targets were paired with two different kinds

of context, **uncertainty (UC)** and **disbelief (DB)**, cf. contexts (a) and (b) in the sample; $p = [\text{henry is flying}]$. In a UC-context, the speaker S was uncertain about whether or not p , violating K2-marking and licensing IND-marking on p . In a DB-context, S believed p to be false, violating IND-marking and licensing K2-marking on p .

- (3) **Contexts:** Bettina & Max own a parrot named Henry, whom they let fly around freely. ... For today, a strong thunderstorm has been forecast.
- [UC] Bettina & Max wonder where Henry is. Searching the apartment for him, ...
 - [DB] That's why Max & Bettina are relieved to find Henry on the sofa. ...

... Bettina says to Max:

Targets

- Wenn Heinrich gerade fliegt_{ind}, schwebt er in Gefahr.
if Henry now flies_{ind} hovers he in danger
- Wenn Heinrich gerade fliegen würde_{k2}, würde er in Gefahr schweben.
if Henry now fly would_{k2} would he in danger hover

The predictions for violation costs derived from (3) are schematized in (4). The violation costs for either level of MOOD (IND vs. K2) were computed as the absolute difference between the mean acceptability score in the UC-context minus the acceptability score in the DB-context. MP1 predicts higher costs for K2- than for IND-marking on p ; MP2 predicts the opposite, i.e., higher costs for IND-marking than for K2-marking on p ; T1 predicts costs not to differ significantly for IND- and K2-marking on p , i.e., T1's prediction coincides with H0.

(4) **Predicted violation costs**

$$k2 \left\{ \begin{array}{l} =T1 \\ >MP1 \\ <MP2 \end{array} \right\} ind$$

Procedure. There were 36 items altogether, each one instantiating each of the four conditions. The items were distributed across nine lists in analogy to a Latin Square design such that every participant was tested with sixteen different items, four in each condition, intermixed with

32 fillers. Items were presented one after another on a computer display. Participants rated targets in their respective contexts on a seven point scale. Subsequent to the rating, participants answered a yes-no-question whose purpose was to keep up their attention.

Results. 75 participants took part in the experiment. Nine of them, who answered four of the 24 questions incorrectly, were excluded from the analyses ($t1$ and $t2$ statistics with participant and item as random factor, respectively). Figure 1 shows the mean ratings in the four conditions. t -tests for paired samples confirmed that violation costs are significantly higher for IND-marked conditionals than for K2-marked conditionals, 2.83 versus 1.29, respectively ($t1$ statistic) [$t1(65) = 6.64, p < .001$; $t2(35) = 6.96, p < .001$]. This result clearly distinguishes MP2 as the theory that correctly accounts for the observed pattern, namely that IND-marking on p presupposes $\diamond p$, while K2-marking on p only *anti*-presupposes $\neg p$.

Discussion. One question our findings raise is what the implications for a unified theory of the past tense are: Morphologically, the {ind,k2}-divide roughly corresponds to the {present,past}-divide insofar as the K2 strongly resembles the past tense (*Präteritum*). Sauerland (2002) argues the present tense to be vacuous, as opposed to the past tense {pres_∅,past}. Our findings suggest the reverse to hold insofar as {ind,k2_∅} corresponds to {ind,past_∅}. Another question is whether the $\neg p$ -implication of *past* CFs (*if she had been V-ing, ...*) is harder to suspend than the one of *present* CFs, and why.

Selected references. Bade, N. & F. Schwarz 2019. An empirical investigation of anti-

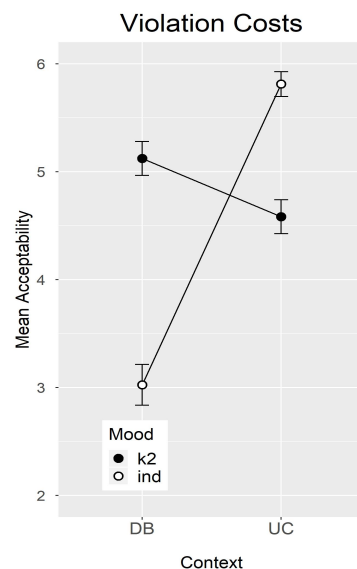


Fig. 1: Mean ratings

presuppositions. • von Stechow, P. 2000. The presupposition of subjunctive conditionals. • Iatridou, S. 2000. The grammatical ingredients of counterfactuality. • Leahy, B. 2018. Counterfactual antecedent falsity and the epistemic sensitivity of counterfactuals.