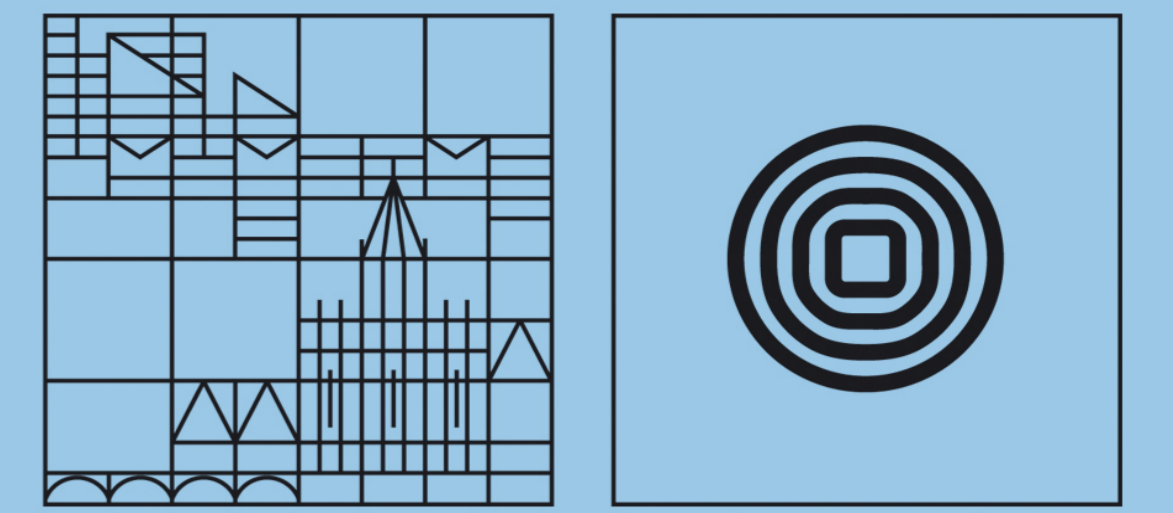


Me and My Teacher — Emotional Crossover in the Classroom: An Experience Sampling Analysis

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Introduction



"I have come to a frightening conclusion. I am the decisive element in the classroom. It is my personal approach that creates the climate. It is my daily mood that makes the weather (...)." (Ginott, 1976)

- Research on students' and teachers' emotions is increasing in the last years
- BUT: No focus on crossover processes between teachers' and students' emotions
- A close link between teachers' and students' emotions is suggested by **crossover theory**: "individuals' experiences at work are interwoven with the experiences of those they interact with" (Härtel & Page, 2009, p.237)

Two main mechanisms for the crossover-process:

- Direct Crossover** through **Emotional Contagion**
 "the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures and movements with those of another person and, consequently, to converge emotionally" (Hatfield et al., 1994, p. 5)
- Indirect Crossover** through Communication / Social Exchange Styles (in an academic context: **Instructional Behavior** → Teachers' emotions influence their instructional behavior which in turn influences students' emotions)

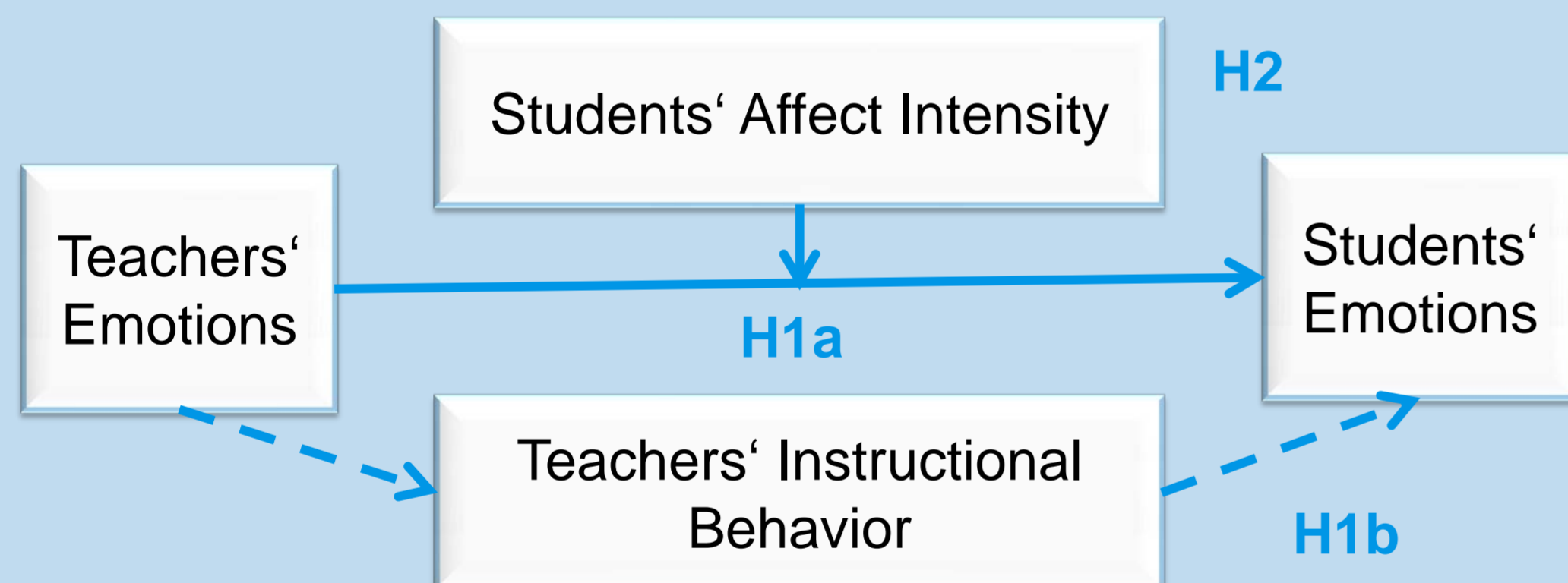
Moderator of the Crossover-Process:

- Students' Affect Intensity** → stable individual differences in the strength with which individuals experience their emotions (see Larsen & Diener, 1987)

Arousal regulation theory (Larsen, Diener, & Emmons, 1986) posits that individuals seek an optimal level of arousal. Individuals with high affect intensity need a high level of arousal and try to intensify their emotional experiences → more prone to the emotions of others.

Research Questions and Hypotheses

- Hypothesis 1:** Students' emotions in the classroom are positively related to teachers' emotions (H1a). This relationship also appears when adjusting for teachers' instructional behavior (control and value induction) as emotions also directly cross over through emotional contagion (1b).
- Hypothesis 2:** Students' affect intensity moderates the relationship between teachers' and students' emotions. It is assumed that students with high affect intensity are more influenced by the emotions of others (2b).



Method

Experience-Sampling-Study

- N = 130 students (56% ♀, M_{Age} = 15.5 years), 43 classes in German-speaking part of Switzerland, 3-4 randomly chosen students per class
- Equipped with an iPod Touch with Experience-Sampling Software (iDialogTouch, see Kubiak & Krog, 2012) for 10 school days
- Mix of random- and event sampling: Students activated the device before classes in German, English, French and Mathematics (event-sampling) and device signaled once within the next 40 minutes (random-sampling)



Measures

Emotions (Anger, Anxiety, Enjoyment)	adapted items from the AEQ (Pekrun, Götz & Frenzel, 2005), parallelized for perceived teacher emotions e.g. Response format : 5-point Likert scale ranging from 1 (not at all) to 5 (very strongly)
Instructional Behavior (Control and Value Induction)	Adapted items from the PALMA Project (Pekrun, vom Hofe, Blum, Frenzel, Goetz, & Wartha, 2007) Response format : 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree)
Affect Intensity	Overall affect intensity score was calculated by aggregating the emotion-intensity-ratings for each student with eight or more state assessments, following the guidelines of Larsen & Diener (1987). Affect intensity was then treated as a level-2 variable (trait).

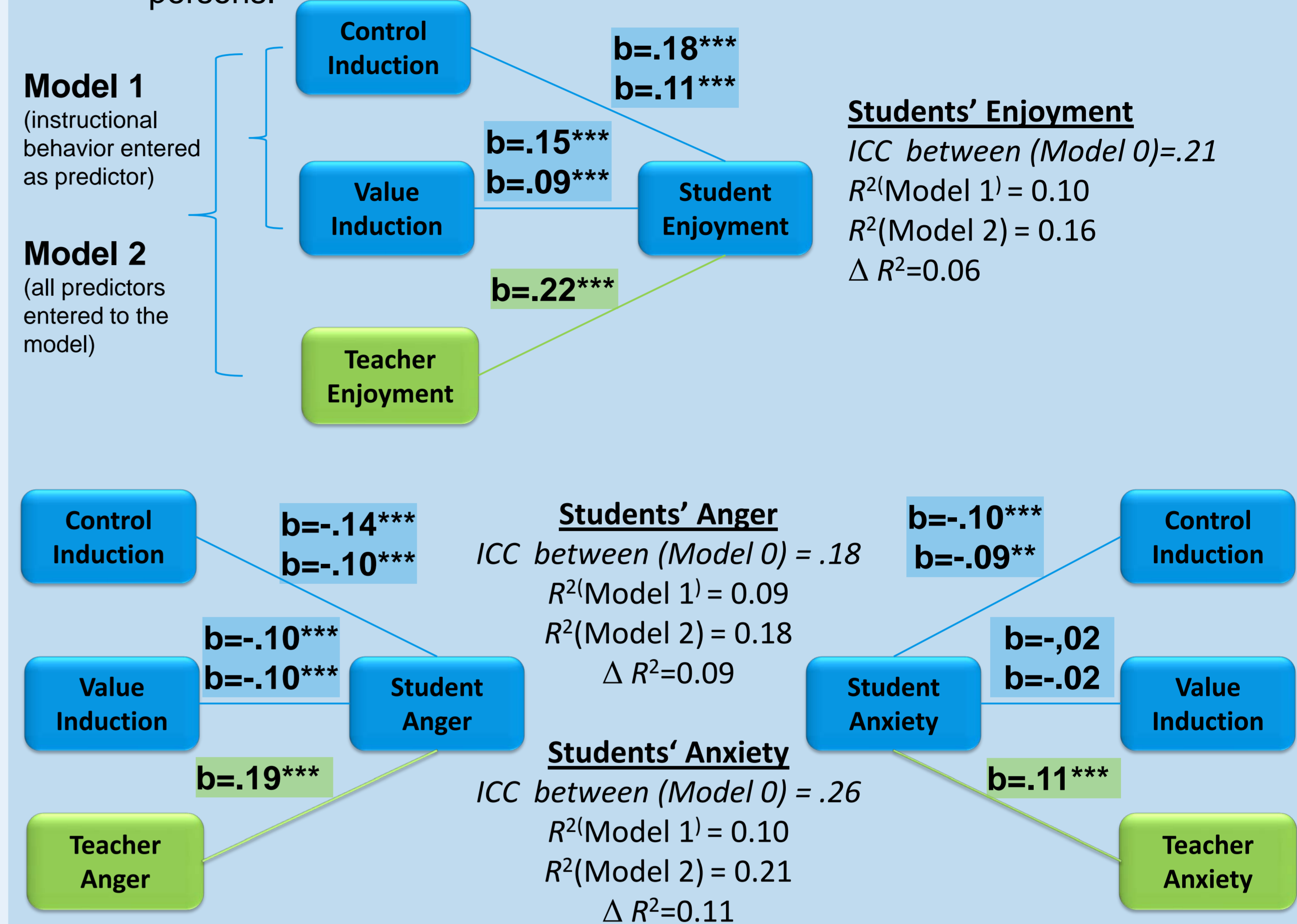
Literature:

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Data Analysis & Results

- 2-level data structure: 2459 measurement points (Level 1) are nested in 130 students (Level 2) → Multilevel analyses were conducted with HLM 6.06
- Hypothesis 1: random regression coefficient models

- Group-mean-centered predictor variables on Level-1 (perceived teacher emotions, instructional behavior), because analyses focus on effects within persons.



Note: Regression weights (b) are standardized; Intraclass-correlation coefficient (ICC) was calculated as follows: $ICC(\text{between}) = \tau_{00} / (\tau_{00} + \sigma^2)$; R^2 (proportion reduction in variance) was calculated as follows: $(\tau_{00}(\text{Model-0}) - \tau_{00}(\text{Model-1 or Model-2})) / \tau_{00}(\text{Model-0})$; * $p < .05$ ** $p < .01$ *** $p < .001$.

- Hypothesis 2:** intercept-and-slope-as-outcome models ("cross-level-interactions") to test whether the level-1 slope (teacher emotion on student emotion) varies as a function of a level-2 measure (positive and negative affect intensity).

Level-1 Model

$$\text{Student Emotion} = \beta_{0j} + \beta_{1j} \text{Perceived Teacher Emotion} + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \beta_{00} + \beta_{01} \text{Affect Intensity} + r_{ij}$$

$$\beta_{1j} = \beta_{10} + \beta_{11} \text{Affect Intensity} + r_{1i}$$

→ level-2 predictor was regressed on the intercept and slope (see Nezlek, 2012).

	STUDENTS' ANGER		STUDENTS' ANXIETY		STUDENTS' ENJOYMENT	
	b	SE	b	SE	b	SE
Intercept	1.80	0.05	1.42	0.04	2.84	0.04
Teacher's Emotion (Ang/Anx/Enj)	0.25***	0.03	0.10***	0.03	0.31***	0.03
Level-2 Predictor						
Affect Intensity	0.74***	0.12	0.74***	0.10	0.93***	0.07
Interaction Terms						
Affect Intensity × Teacher Emotion	0.04	0.08	0.15†	0.07	-0.09	0.09

Note: Regression weights (b) are unstandardized. Level-2 predictors were entered grand-mean centered in order to interpret the intercept; † $p < .10$

Discussion

- Teachers' and Students' Emotions are significantly related. This effect also occurred, when adjusting for instructional behavior – indicating that there are direct and indirect crossover processes
 - Results show that instructional behavior explains approximately 10% of variance in students' discrete emotions. By including perceived teacher emotions, explained variance increases between 6-11%.
- Students' affect intensity did not moderate the crossover effect
 - Assessment period might have been too short for a reliable estimate → Future studies should use the well-established affect intensity measure (see Larsen & Diener, 1987)

Implications

- Teachers should acknowledge the "power of emotions"; they are significantly and even stronger related to students' emotions than teachers' instructional behavior
- Most variance is on the within-person-level, which means that discrete emotions during classes are more influenced by the specific lessons than by stable personal attributes → in most cases, it should be possible for teachers to influence students' academic emotions by creating comprehensible, valuable lessons and transporting one's own emotions.

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