The dynamics of emotion regulation in daily life

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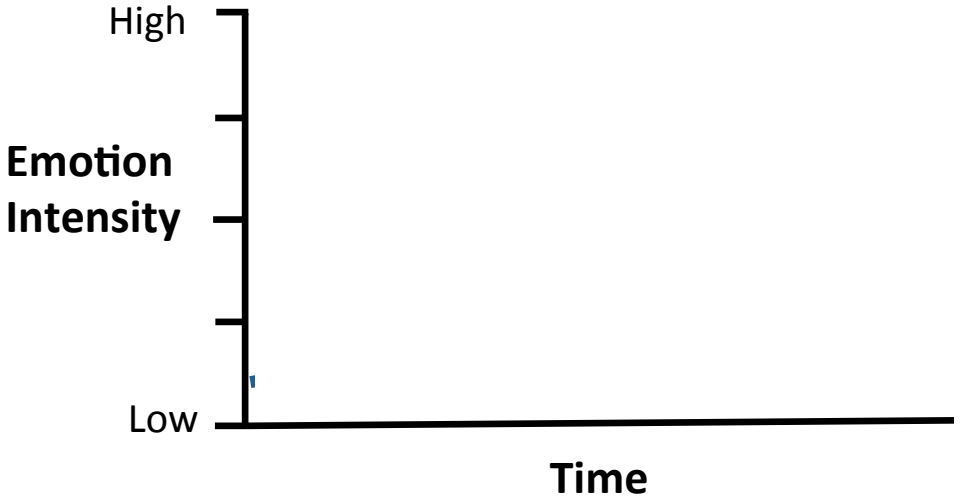
Emotion regulation (ER)

ER: Processes that influence how emotions unfold over time

increase ↑ decrease ↓ maintain →



Adapted from Koole (2009)

Traditional approach

Please indicate **what you generally think or do** *when trying to regulate / manage your emotions / respond to unpleasant events / …*

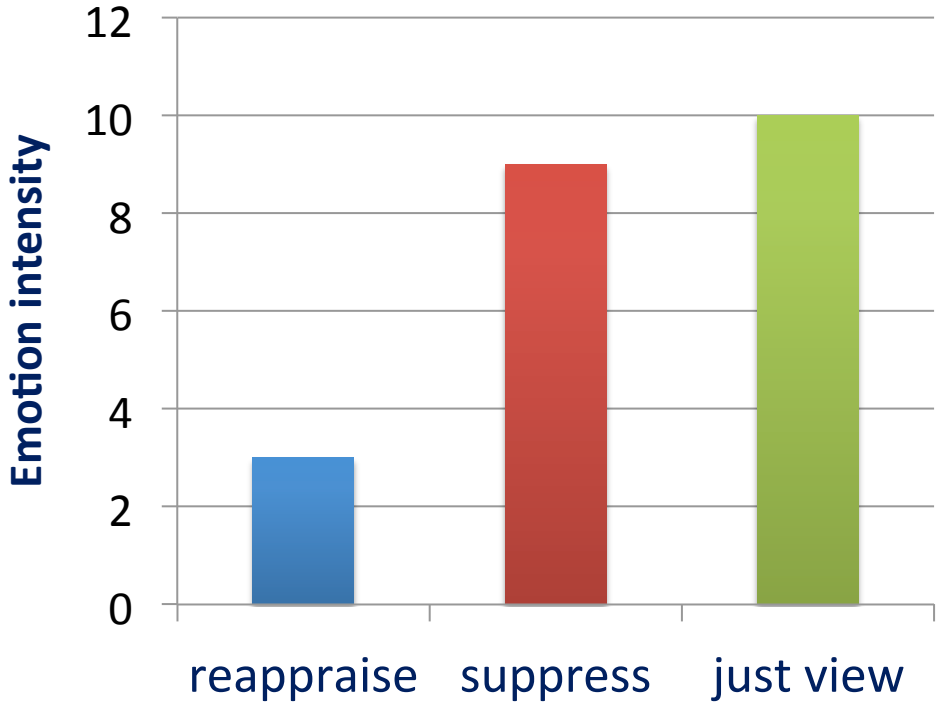
	Not at all		*Moderately*		*Very Much*
I control my emotions by changing the way I think about the situation I'm in.	☐	☐	☒	☐	☐
I keep my emotions to myself.	☐	☐	☐		☐
I continually think how horrible the situation has been	☐	☐	☐		☐
I think "Why do I always react this way?"	☐	☐	☐		☐
I think "Why can't I handle things better?"	☐	☐	☐		☐

Traditional approach

"reappraise" condition

"suppress" condition

"just view" condition



Traditional view of ER

ER str

➢ T *erpreting*
a *t*

(Gross, 2007)

Healthy and Unhealthy Emotion Regulation: Personality Processes, Individual Differences, and Life Span Development

Oliver P. John
University of California, Berkeley
James J. Gross
Stanford University

ABSTRACT Individuals regulate their emotions in a wide variety of ways. Are some forms of emotion regulation healthier than others? We focus on two commonly used emotion regulation strategies: *reappraisal* (changing the way one thinks about a potentially emotion-eliciting event) and *suppression* (changing the way one responds behaviorally to an emotion-eliciting event). In the first section, we review experimental findings showing that reappraisal has a healthier profile of short-term affective,

(Gross & John, 2003; John & Gross, 2004)

ER Flexibility

optimal functioning

requires flexibility

(Kashdan & Rottenberg, 2010; Hollenstein, 2013)

→ Contextualized/transactional approach to ER:

→Healthy ER is not merely about using the "right" strategies

→**Flexible** deployment of ER strategies following contextual demands

Bonnano & Burton (2013); Aldao et al. (2015)
Gross (2015); Koole (2009); Troy et al. (2013)

Psychological Science

The Wisdom to Know the Difference

Strategy-Situation Fit in Emotion Regulation in Daily Life Is Associated With Well-Being

Simon J. Haines, John Gleeson, Peter Kuppens, Tom Hollenstein, Joseph Ciarrochi, Izelle Labuschagne, Caitlin Grace, Peter Koval

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Abstract

The ability to regulate emotions is central to well-being, but healthy emotion regulation may not merely be about using the "right" strategies. According to the *strategy-situation-fit hypothesis*, emotion-regulation strategies are conducive to well-being only when used in appropriate contexts. This study is the first to test the strategy-situation-fit hypothesis using ecologi l momentary assessment of cognitive reappraisal—a putatively adaptive strategy. We expe eople who used reappraisal more in uncontrollable situations and less in controllable situat ve greater well-being than people with the opposite pattern of reappraisal use. Heal ts (n = 74) completed measures of well-being in the lab and used a smartphone app

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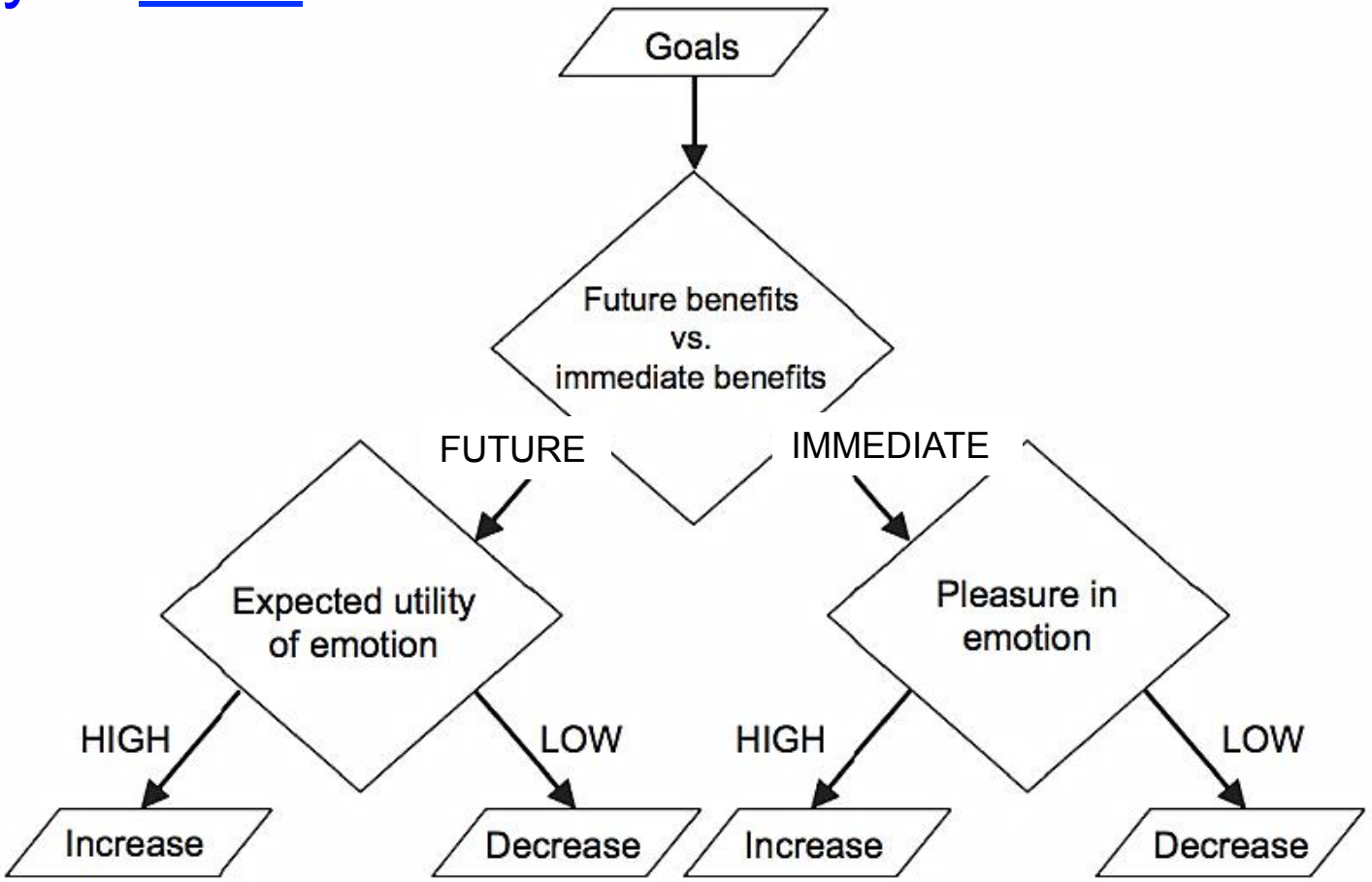
Healthy emotion regulation is not just about using the "right" strategies, it also involves matching ER strategies to the context in which they're used.

ER Goals

How do you **want** to feel?



Tamir (2009)

FEEL Project (Study 1)

SEMA 2

FEEL Project (Study 1)

Age	
Range	18 – 69
Mean	27.17
SD	9.22

Gender	
Male	35%
Female	65%
Other	<1%

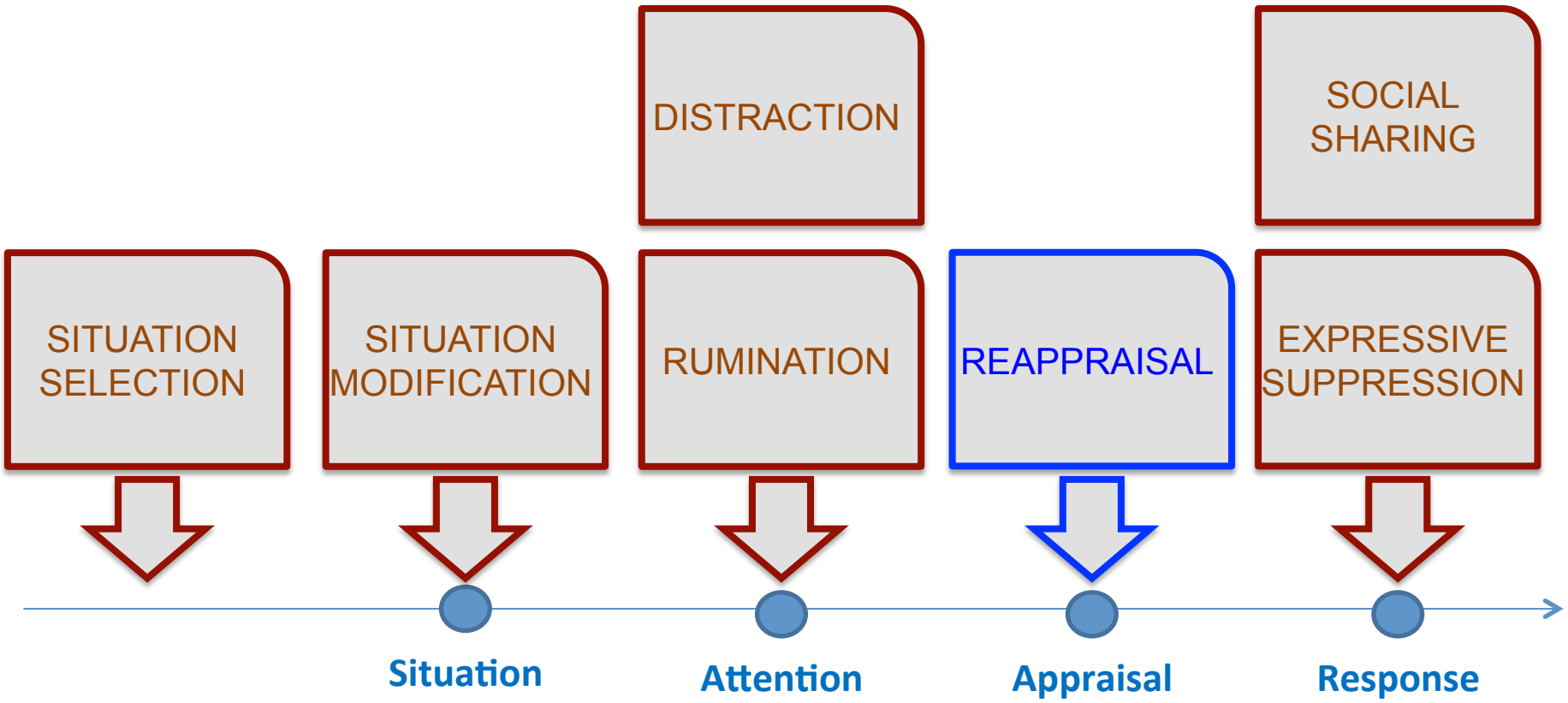
Highest Education	
Secondary school	35.5%
Trade / Apprenticeship	14.0%
Bachelor's degree	37.6%
Master's degree	11.8%
Doctoral degree	1.1%

Political views	
0=progressive <-> 100=conservative	
Mean	33.16
SD	22.49

Relationship status	
in a relationship	45%
Single	55%

Employment status	
Full-Time	15.1%
Part-Time	10.2%
Casual	11.8%
Student	45.7%
Unemployed	11.9%
Other	7%

FEEL Project (Study 1) – ER strategies



FEEL Project (Study 1) –Affect & ER Goals

Negative Affect

- Sad
- Angry
- Stressed

Positive Affect

- Happy
- Relaxed
- Confident

INCREASE (1)	DECREASE (-1)	MAINTAIN (0)

NA Goal = MEAN (SAD_G, Angry_G, Stressed_G) per occasion

→ 0 = maintain current NA

→ Positive score = increase NA (contra-hedonic)

→ Negative score = decrease NA (pro-hedonic)

FEEL Project (Study 1) – appraisals / context

CONTROLLABILITY

IMPORTANCE

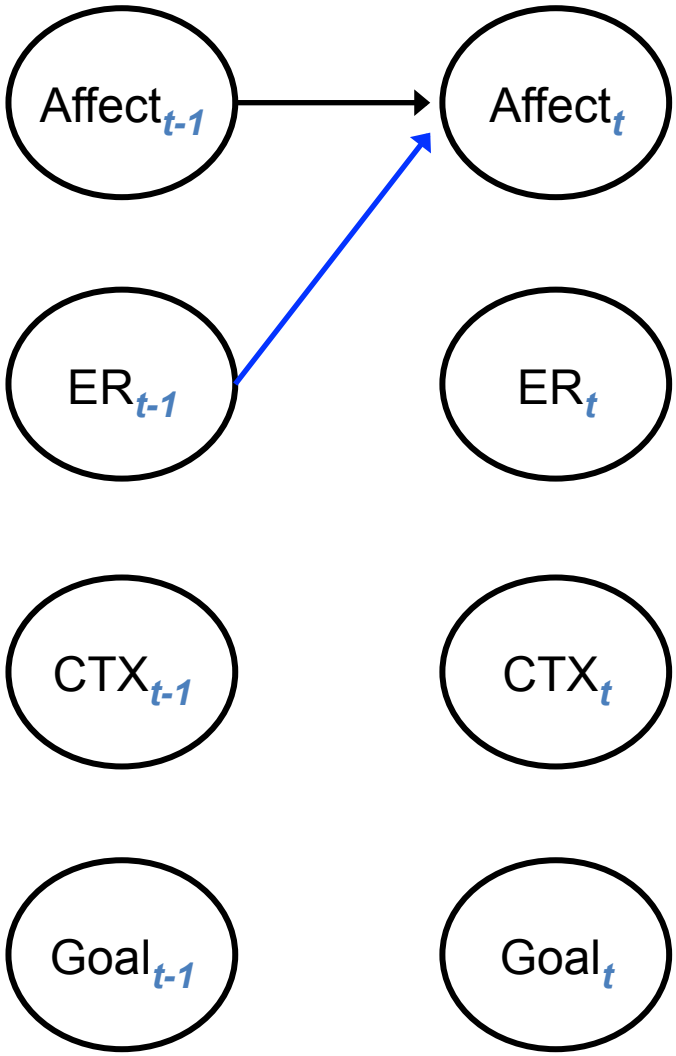
SOCIAL SUPPORT

VALENCE

COPING POTENTIAL

SOCIAL INTERACTION PARTNER

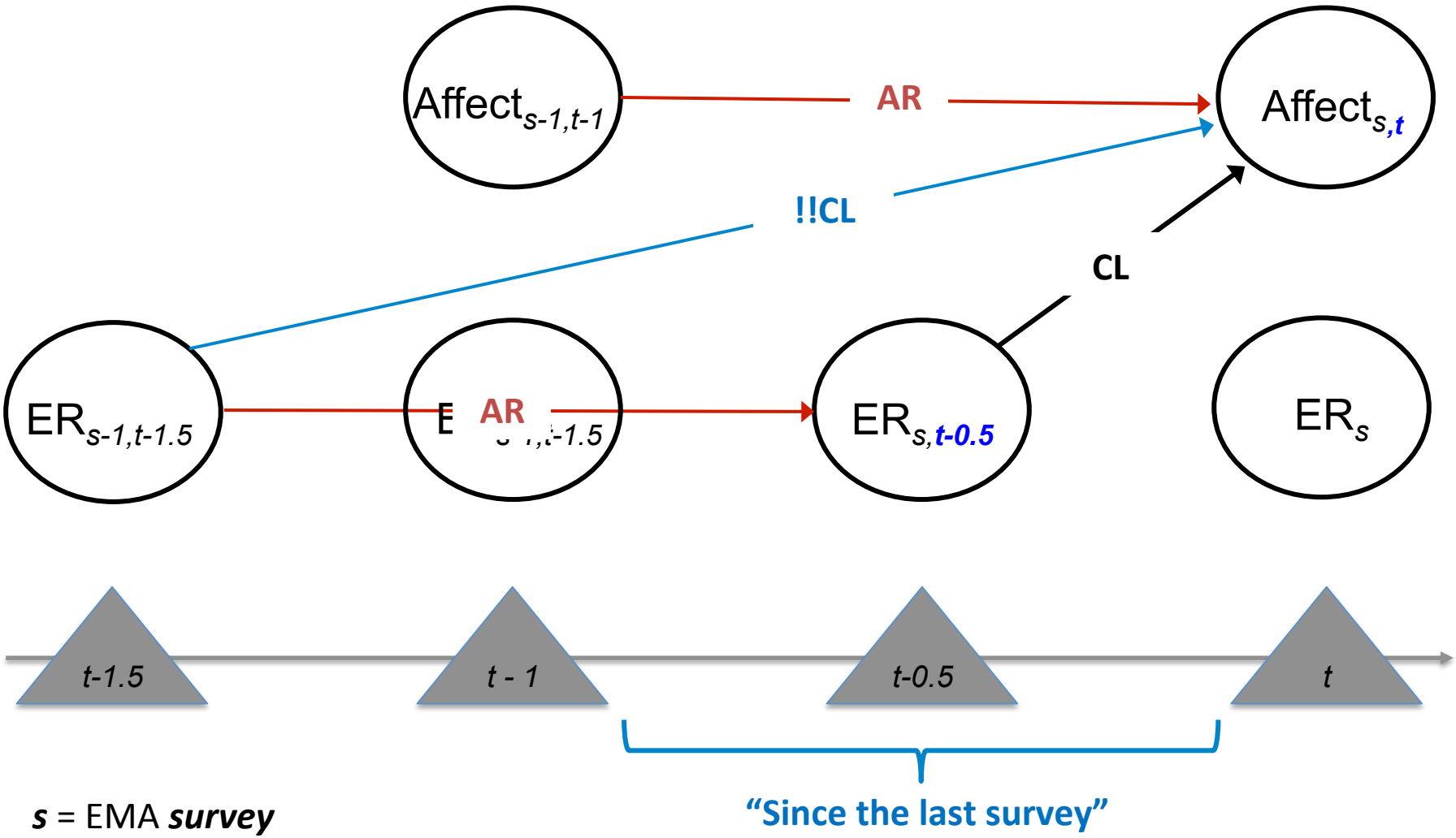
Within-person dynamics of ER in daily life



What is the emotional impact of using a particular ER strategy?

e.g., *does reappraisal decrease NA*?
(Controlling for previous NA)

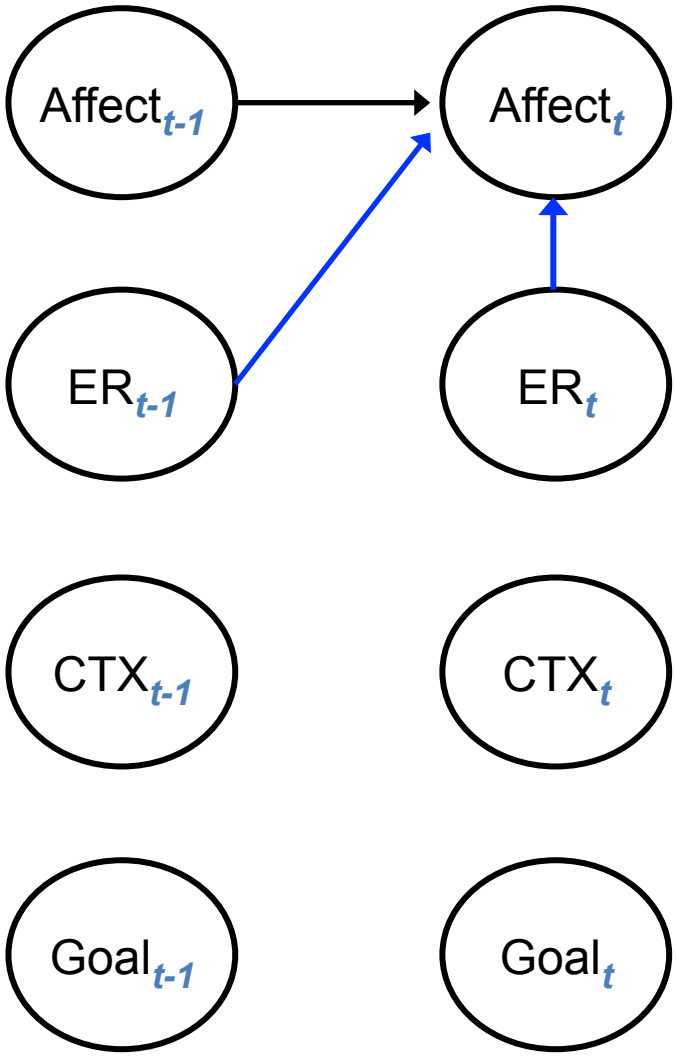
But…ER use reported "since last survey"



s = EMA ***survey***

t = conceptual ***time***

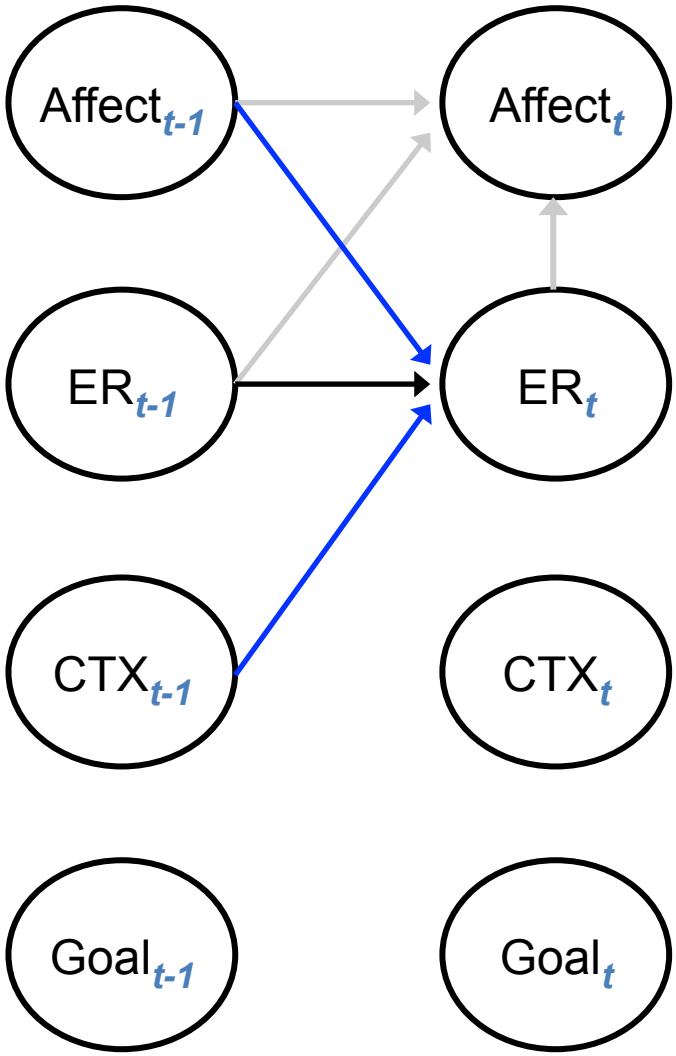
Within-person dynamics of ER in daily life



What is the emotional impact of using a particular ER strategy
e.g., *does reappraisal predict lower NA*?
(Controlling for previous NA)

Should this be estimated as "contemporaneous effect"?

Within-person dynamics of ER in daily life

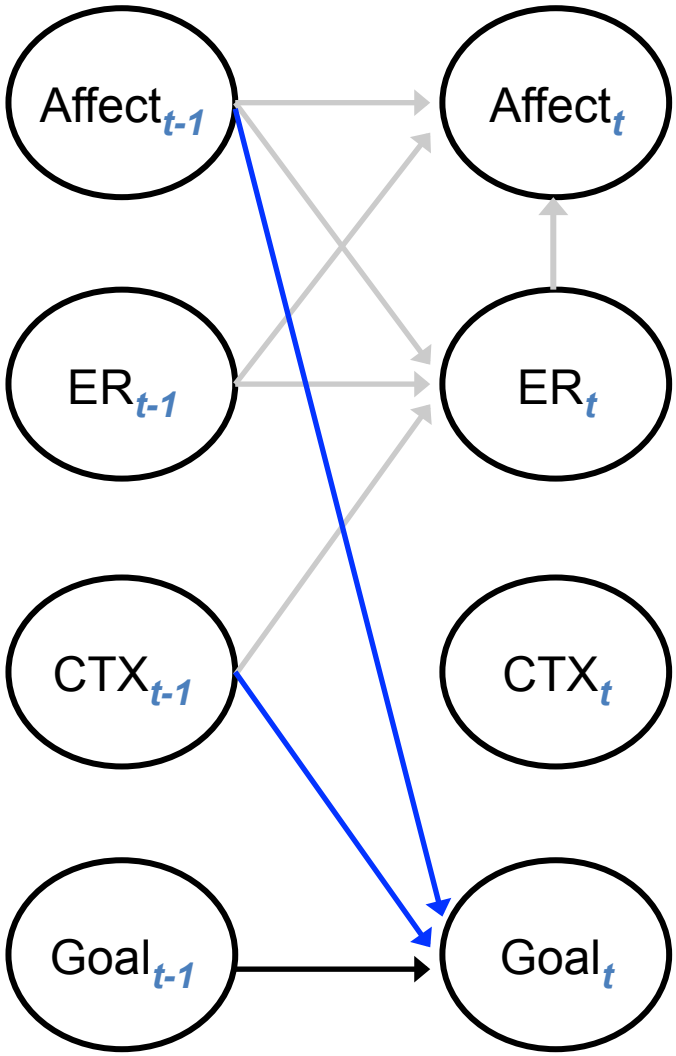


ER Flexibility?

To what extent is the use of ER strategies contingent on the context?

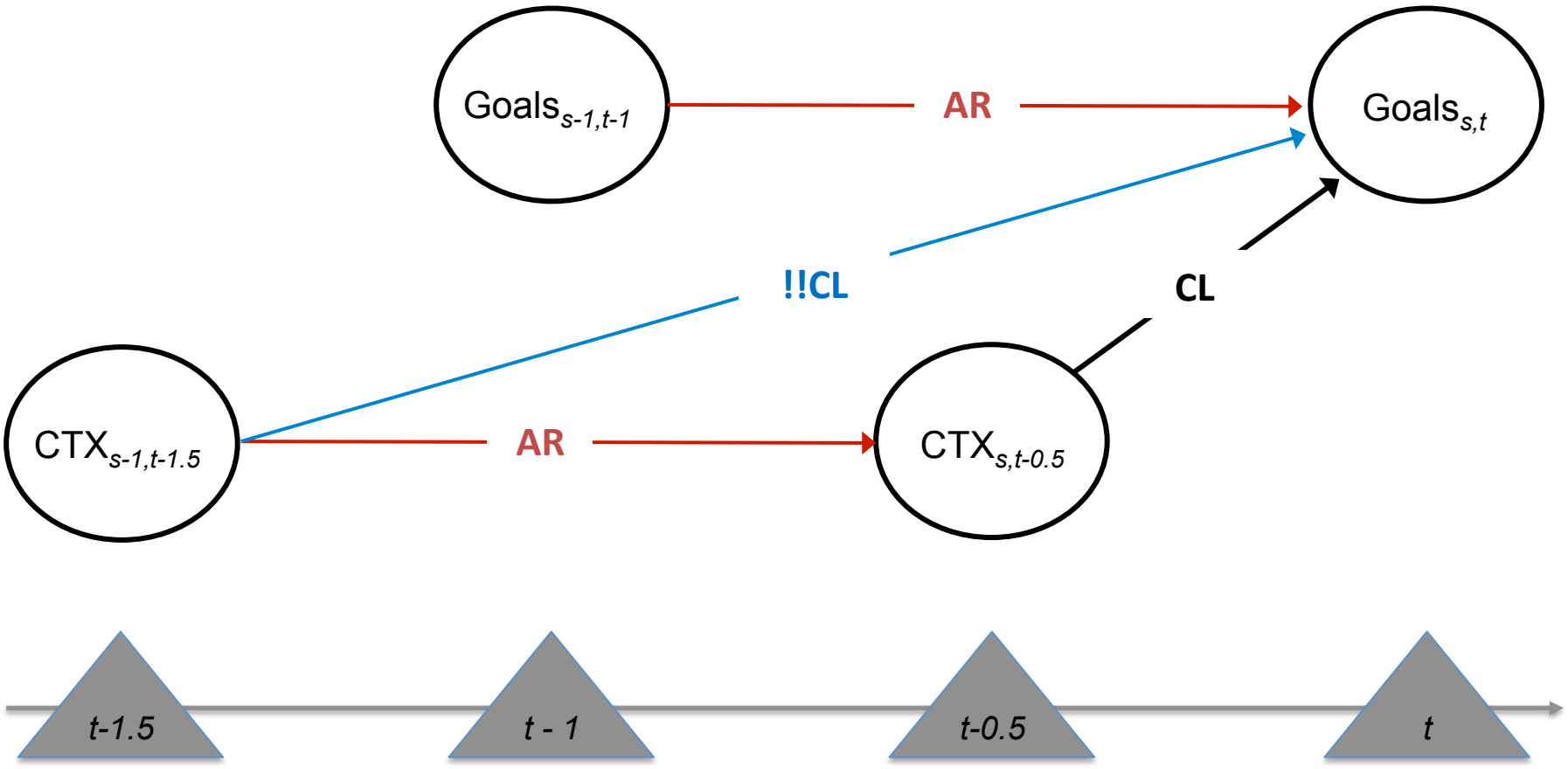
e.g., *do people tend to use reappraisal more in uncontrollable contexts*
OR
when experiencing high levels of NA?
(controlling for previous ER use)

Within-person dynamics of ER in daily life



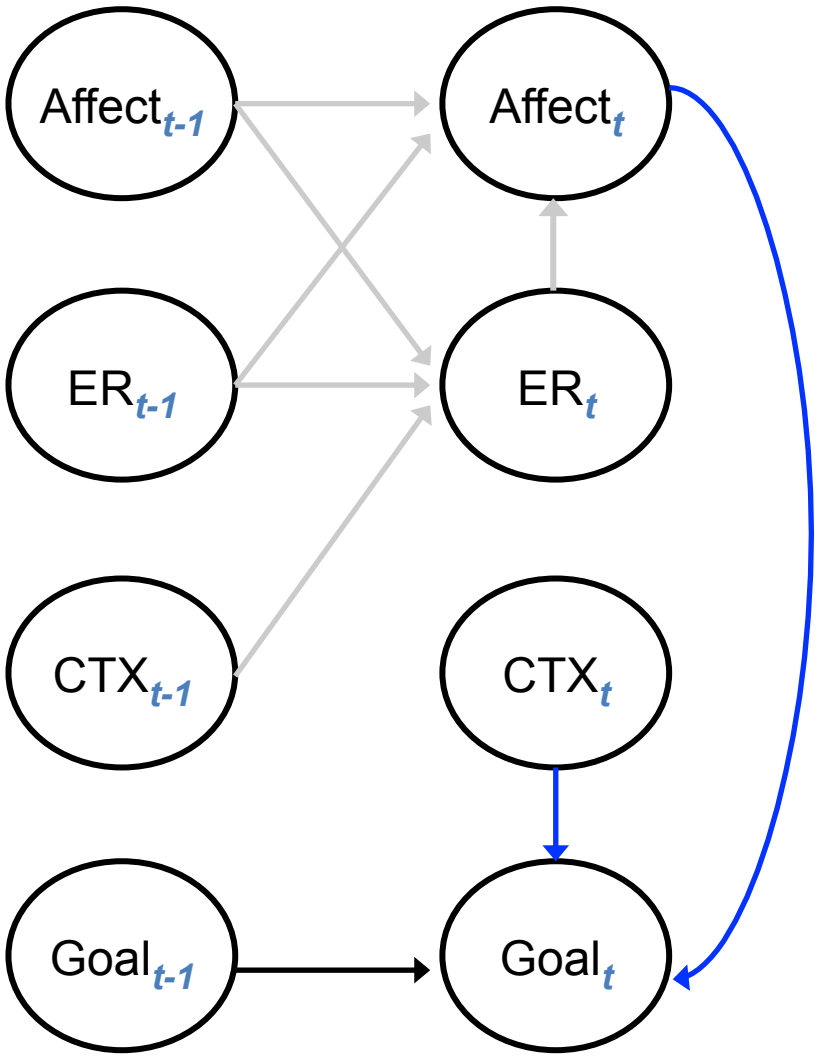
Similarly, to what extent are people's ER Goals contingent on the context?
e.g., *do people want to down-regulate NA more in uncontrollable contexts?*
OR
when experiencing high levels of NA?
(controlling for previous ER Goals)

Double-lag problem again



s = EMA ***survey***
t = conceptual ***time***

Within-person dynamics of ER in daily life



Estimate as “contemporaneous” ?

All cross-lagged effects

Between

Within

CL1: Affect→ER (*context-contingent ER*)

CL2: Affect→CTX

CL3: Affect→Goal (*context-contingent ER goal*)

CL4: ER→Affect (*ER effectiveness*)

CL5: ER→CTX

CL6: ER→Goal

CL7: CTX→Affect

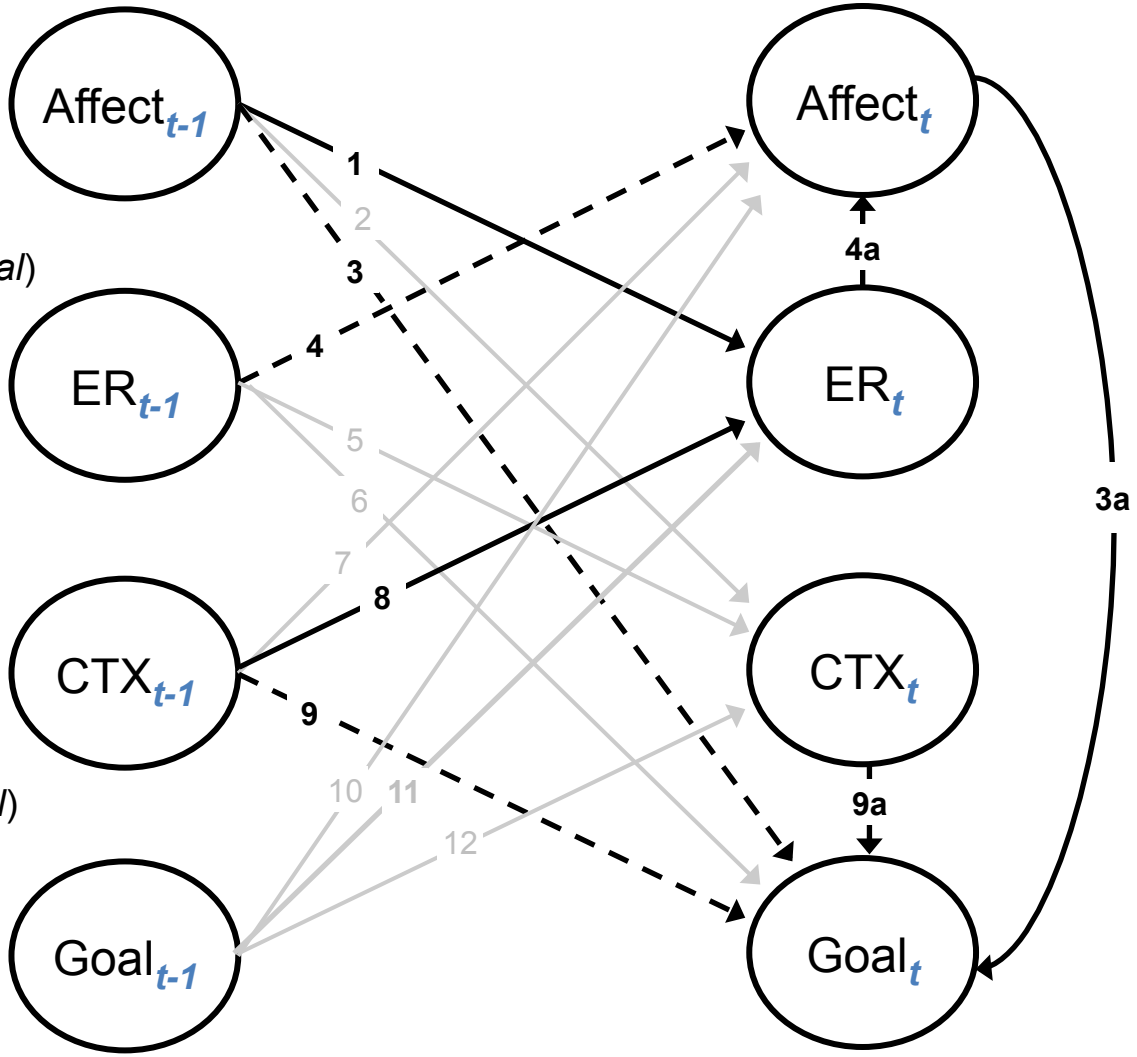
CL8: CTX→ER (*context-contingent ER*)

CL9: CTX→Goal (*context-contingent ER goal*)

CL10: Goal→Affect

CL11: Goal→ER

CL12: Goal→CTX



Autoregressive effects

Between

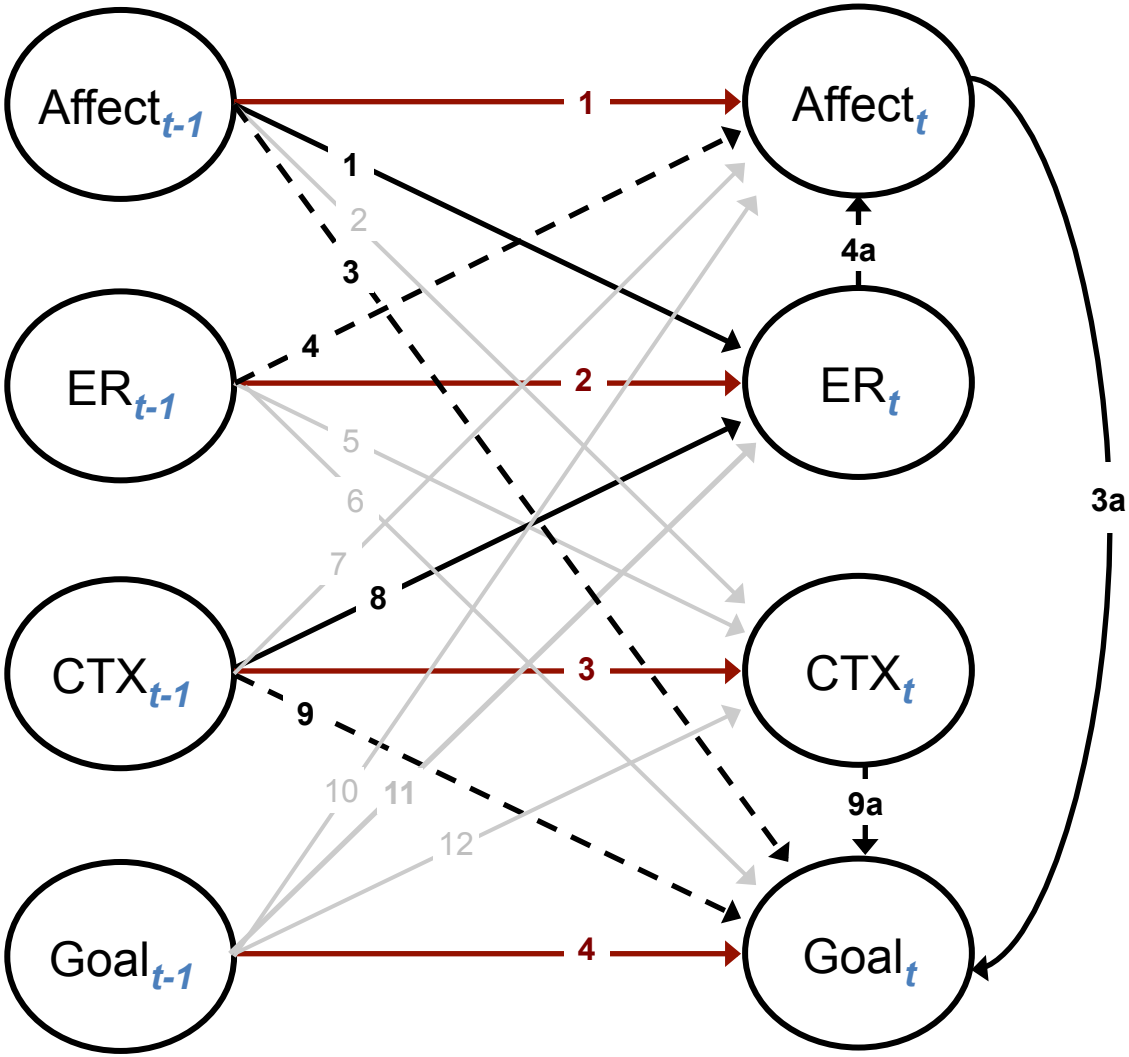
Within

AR1: Affect→Affect (*emotional inertia*)

AR2: ER→ER (*ER inertia?*)

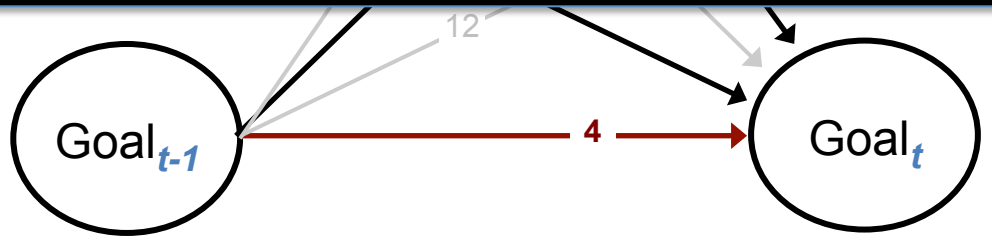
AR3: CTX→CTX

AR4: Goal→Goal

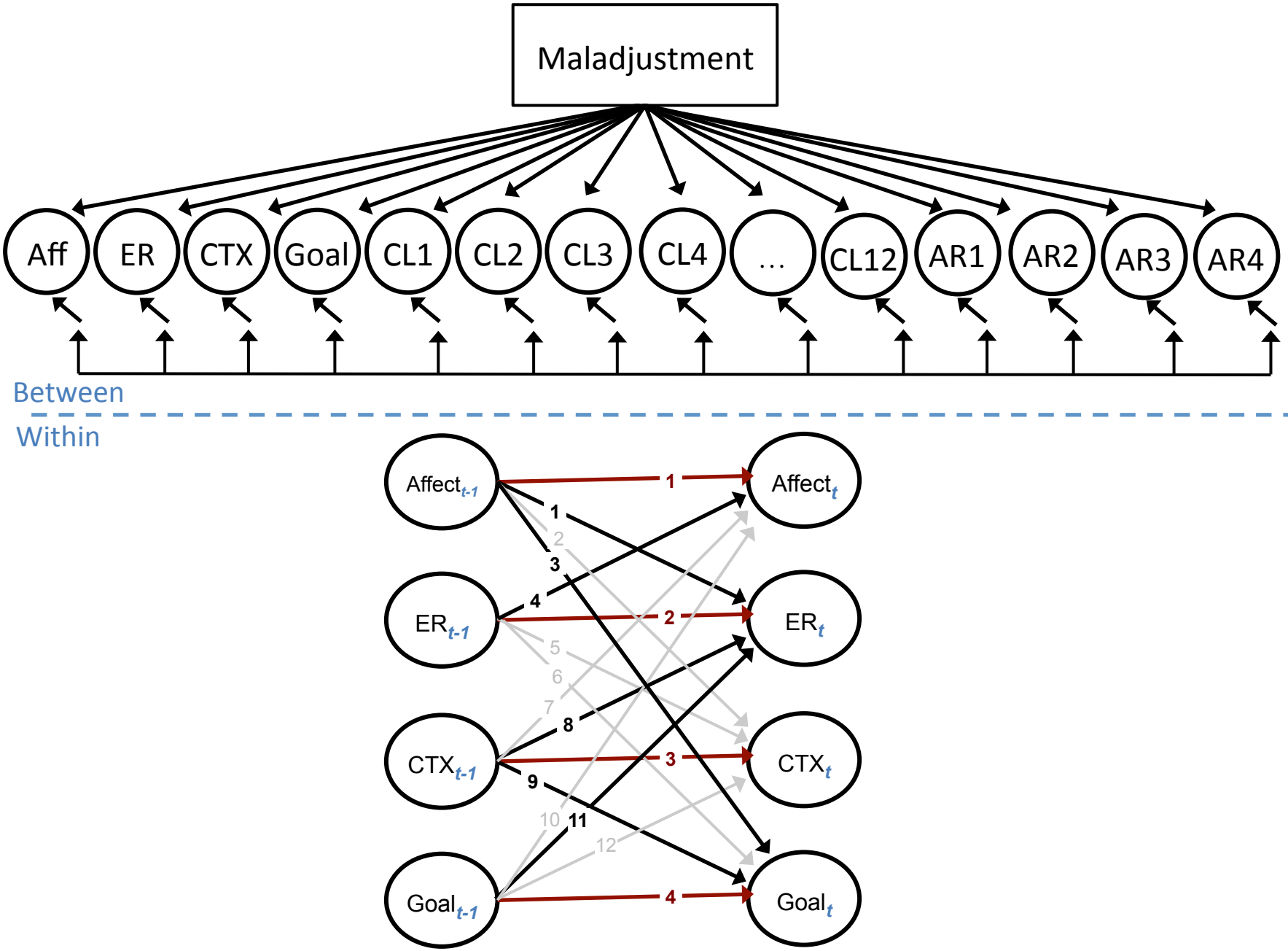


Problem with contemporaneous effects

*** ERROR in MODEL command
Models with random slopes for dependent variables with missing values cannot be estimated with the BAYES estimator unless the variable is defined as WITHIN.
One or more observations has missing values for a dependent variable on the right-hand side of an ON statement in a random slope definition.



Between-person differences in within-person dynamics



Mplus input (within)

```
ANALYSIS:
TYPE = TWOLEVEL RANDOM;
ESTIMATOR=BAYES;
FBITERATIONS=2000;
PROCESSORS=2;
MODEL:
%WITHIN%
!>>>Cross-Lagged Paths<<<!
CL1|ER ON Affect&1;
CL2|CTX ON Affect&1;
CL3|GOAL ON Affect&1;
CL4|Affect ON ER&1;
CL5|CTX ON ER&1;
CL6|GOAL ON ER&1;
CL7|Affect ON CTX&1;
CL8|ER ON CTX&1;
CL9|GOAL ON CTX&1;
CL10|Affect ON GOAL&1;
CL11|ER ON GOAL&1;
CL12|CTX ON GOAL&1;
!>>>contemporaneous covariances<<<!
ER Affect GOAL CTX with ER Affect GOAL CTX;
!>>>Auto-Regressive Paths<<<!
AR1|Affect ON Affect&1;
AR2|ER ON ER&1;
AR3|CTX ON CTX&1;
AR4|GOAL ON GOAL&1;
```

Mplus input (between)

```
%BETWEEN%

!>>>covariances between random effects<<<!
ER Affect CTX GOAL CL1-CL12 AR1-AR4
WITH
ER Affect CTX GOAL CL1-CL12 AR1-AR4;

!>>>Maladjustment predicting random effects<<<!
ER Affect CTX GOAL CL1-CL12 AR1-AR4 ON MALADJ;

OUTPUT:
TECH1 STANDARDIZED(CLUSTER) CINTERVAL(hpd) TECH8;
```

Mplus output

```
THE MODEL ESTIMATION TERMINATED NORMALLY

     USE THE FBITERATIONS OPTION TO INCREASE THE NUMBER OF ITERATIONS BY A FACTOR
     OF AT LEAST TWO TO CHECK CONVERGENCE AND THAT THE PSR VALUE DOES NOT INCREASE.


MODEL FIT INFORMATION

Number of Free Parameters                       260

Information Criteria

          Deviance (DIC)                  918513.067
          Estimated Number of Parameters (pD)  26737.453
```

Mplus output – average within-person effects

STANDARDIZED MODEL RESULTS
STDYX Standardization

	Estimate	Posterior S.D.	One-Tailed P-Value	95% C.I. Lower 2.5%	Upper 2.5%	Significance
Within-Level Standardized Estimates Averaged Over Clusters						
CL1 | ER ON	Higher NA predicts greater use of reappraisal					
AFFECT&1	**0.040**	**0.008**	**0.000**	**0.025**	**0.056**	*
CL8 | ER ON						
CTX&1	0.004	0.007	0.331	-0.011	0.017	
CL3 | GOAL ON	Higher NA predicts greater down-regulation goals					
AFFECT&1	**-0.068**	**0.008**	**0.000**	**-0.083**	**-0.053**	*
CL9 | GOAL ON	Higher Controllability predicts lower down-regulation goals					
CTX&1	**0.016**	**0.008**	**0.021**	**0.001**	**0.033**	*
CL4 | AFFECT ON	Reappraisal predicts increases in NA – ***IS THAT REALLY POSSIBLE?***					
ER&1	**0.020**	**0.007**	**0.002**	**0.007**	**0.033**	*
AR1 | AFFECT ON						
AFFECT&1	0.311	0.008	0.000	0.298	0.327	*
AR2 | ER ON						
ER&1	0.200	0.007	0.000	0.186	0.215	*
AR3 | CTX ON						
CTX&1	0.194	0.007	0.000	0.180	0.209	*
AR4 | GOAL ON						
GOAL&1	0.224	0.008	0.000	0.207	0.239	*

Negative contemporaneous effect of REAP → NA

Reappraisal → NA (within and between)

Outcome = NA Estimates are standardized

	ER(t) --> NA(t)				BETWEEN			
					ER --> NA			
	Est.	SD	95% CI		Est.	SD	95% CI	
ER strategy			LL	UL			LL	UL
REAPPRAISAL	**-0.030**	**0.008**	**-0.045**	**-0.014**	-0.013	0.172	-0.393	0.286

Here, reappraisal predicts DECREASES in NA
→ **double-lag may be the issue here**

	Estimate	Posterior S.D.	One-Tailed P-Value	95% C.I. Lower 2.5%	Upper 2.5%	Significance
Within-Level Standardized Estimates Averaged Over Clusters						
S1 | AFFECT ON						
ERX	**-0.030**	**0.008**	**0.000**	**-0.045**	**-0.014**	*****
CL2 | AFFECT ON						
ERX_1	**0.006**	**0.006**	**0.176**	**-0.006**	**0.019**	

```
ANALYSIS:
  TYPE = TWOLEVEL RANDOM;
  !ESTIMATOR=MLR;
  ESTIMATOR=BAYES;
  FBITERATIONS=10000;
  PROCESSORS=2;

  MODEL:
  %WITHIN%
  S1|Affect ON ERx;
  CL1|ERx ON Affect_1;
  CL2|Affect ON ERx_1;
  AR1|Affect ON Affect_1;
  AR2|ERx ON ERx_1;
  TIMES1|Affect ON TIME;
  TIMES2|ERx ON TIME;

  %BETWEEN%
  Affect ON ERxMEAN; !between-effect
  Affect ON S1 CL1 CL2 AR1 AR2 TIMES1 TIMES2;
  S1 CL1 CL2 AR1 AR2 TIMES1 TIMES2 ON ERxMEAN;
  S1 CL1 CL2 AR1 AR2 TIMES1 TIMES2 with S1 CL1 CL2 AR1 AR2 TIMES1 TIMES2;

  OUTPUT:
  STANDARDIZED CINTERVAL(hpd) TECH8;
```

Mplus output – between-person effects

```
Between Level

 ER         ON
    MALADJ                0.023      0.054      0.333     -0.080      0.127

 AFFECT     ON
    MALADJ                0.291      0.051      0.000      0.185      0.390    *

 CTX        ON
    MALADJ               -0.192      0.053      0.000     -0.289     -0.087    *

 GOAL       ON
    MALADJ               -0.136      0.051      0.004     -0.238     -0.042    *
```

Maladjustment is associated with:

- Higher mean NA
- Lower mean controllability
- Increased down-regulation goals for NA
- **But not with lower mean use of reappraisal!**

```
CL1         ON
    MALADJ               -0.138      0.065      0.017     -0.275     -0.018    *
```

Maladjustment is associated with a weaker Affect→ER cross-lagged slope.

i.e., less context-contingent ER!

Conclusions

→ Flexible (context-contingent) use of reappraisal may be related to lower maladjustment / greater well-being

→ Just using "good" ER strategies (e.g., reappraisal) more (across contexts) is not related to greater well-being, contrary to many previous studies.

→ On average, higher NA predicts greater use of reappraisal at the next occasion, BUT, reappraisal does not predict decreased NA at the next occasion (only when measured at same occasion!)

→ People's ER goals also vary across contexts − e.g., in more controllable contexts people are less motivated to down-regulate NA.

→ I've only just scratched the surface…lots more work to do!