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Reappraising reappraisal: an expanded view

Andero Uusberg [a], Brett Ford [b], Helen Uusberg [a] and James J. Gross[c]

aInstitute of Psychology, University of Tartu, Tartu, Estonia; bDepartment of Psychology, University of Toronto, Toronto, Canada; cDepartment of Psychology, Stanford University, Stanford, USA

ABSTRACT

Reappraisal is a frequently used and often successful emotion regulation strategy. However, its underlying cognitive mechanisms are not well understood. In this paper, we seek to clarify these mechanisms by expanding upon our recently proposed reAppraisal framework. According to this framework, reappraisal consists of appraisal shifts that arise from changes to the mental construal of a situation (reconstrual) or from changes to the goals that are used to evaluate the construal (repurposing). Here we propose that reappraisal can target both object-level construals and goals representing states in the environment as well as meta-level construals and goals about different states in the mind. We also propose that reappraisal can operate by facilitating decommitment from a dominant construal or goal as well as by facilitating commitment to alternative construals or goals. We demonstrate that the $2 \times 2 \times 2$ matrix formed by crossing the three distinctions between reconstrual and repurposing, between object-level and meta-level representations, and between decommitment and commitment operations forms a useful map of different reappraisal tactics. We draw examples of each of the 8 reappraisal tactics from basic and clinical research. We conclude by considering future research inspired by the expanded reAppraisal framework.

Reappraisal is a common and effective form of emotion regulation that has the power to change how we respond emotionally to situations. For instance, when feeling frustrated by missing a train, it's helpful to change one's interpretation of what just happened from "This is a prime example of my constant failures" to "Stuff happens, it's actually nice to relax until the next train". Even though reappraisal has been thoroughly studied, we know surprisingly little about the specific cognitive mechanisms that underlie it (McRae, 2016; Uusberg et al., 2019). In this paper, we hope to help address this challenge.

To this end, we build upon our recently proposed *reAppraisal* framework that, as its name suggests, uses appraisal theory to model component processes of reappraisal (Uusberg et al., 2019). According to this framework, reappraisal works by altering either the mental representations of states of the world (i.e. construals), in a strategy we call *reconstrual* or the mental

representations of desired states of the world (i.e. goals), in a strategy we call *repurposing*. Here, we supplement the distinction between reconstrual and repurposing with two further distinctions drawn from cognitive psychology. The first is the distinction between *object-level* representations that denote states in the environment (e.g. "I failed to catch a train") and *meta-level* representations that denote states in the mind (e.g. "I notice I'm upset about failing to catch the train"). The second is the distinction between *decommitting* from currently dominant representations (e.g. "On second thought, missing the train doesn't actually ruin my day") and *committing to* alternative representations (e.g. "Missing the train opens up new possibilities").

Combining these distinctions leads to an expanded reAppraisal framework that we introduce in this paper. We first spell out in more detail how we define reappraisal and then review the core

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reAppraisal framework. Next, we expand the core framework by incorporating the distinction between object-level and meta-level representations as well as the distinction between decommitment and commitment operations. We illustrate each cell of the resulting $2 \times 2 \times 2$ matrix with examples drawn from basic as well as clinical research. We conclude by considering how the expanded reAppraisal framework can guide future research of reappraisal.

Reappraisal and its consequences

Reappraisal may be defined as the process of intentionally changing the motivational meaning of a situation in order to change the emotional reaction to that situation (Gross, 2015). This definition assumes that emotions consist of loosely-coupled changes in physiological, expressive and subjective components that are typically orchestrated by changes in appraisals (Mulligan & Scherer, 2012; Scherer & Moors, 2019). This definition also assumes that the processes that change the motivational meaning of a situation can be elicited intentionally, in service of a goal to respond emotionally in some way (Tamir, 2015). Such goals about emotions often include hedonic desires to reduce negative emotions and increase positive emotions. Goals about emotions can also be counter-hedonic, for instance, when people wish to avoid inappropriate flippancy at a serious event or wish to become angry in order to perform better in a sport. Goals about emotions may or may not be conscious, as is true for the reappraisal processes they initiate (Braunstein et al., 2017). The scope of reappraisal thus extends from fast and unconscious goal-directed corrections of initial appraisals to deliberate efforts to change appraisals such as those practiced in psychotherapeutic contexts.

Rigorous scientific work on the age-old idea that emotions can be changed by thinking differently about situations began largely with the work of Richard Lazarus (Smith & Kirby, 2011). For instance, he demonstrated experimentally that emotional responses, including in physiological components of emotions, depend on manipulations of the motivational meaning of otherwise identical situations (Lazarus & Alfert, 1964). He also identified how coping with stressful situations depends on the way people intentionally change how they appraise these situations (Lazarus, 1966). These studies helped establish the ideas that emotions depend on appraisals and that these appraisals can change as a

result of, among other mechanisms, intentional emotion regulation.

In recent decades, reappraisal research has flourished within the broader field of emotion regulation research (Gross, 2015). Much of this work has established that reappraisal is not only a correlate (Aldao et al., 2010) but also a cause of mental health and wellbeing. Laboratory manipulations of reappraisal can bring about robust changes to most components of emotions (Webb et al., 2012). Instructed reappraisal can also improve emotional experiences in real-life settings (Wang et al., 2021) and produce sustained improvements in well-being (Denny & Ochsner, 2014). Reappraisal is not a panacea against all challenges to wellbeing as there are known boundary conditions on its effectiveness (Ford & Troy, 2019). Nevertheless, we now know that reappraisal is a broadly helpful emotion regulation strategy.

As we learn about the effects of reappraisal, it is also important to learn about the mechanisms underlying these effects at different levels of analysis. In this regard, we know more about the neural correlates of reappraisal than about the cognitive computations these correlates reflect. Engaging in reappraisal tends to correlate with increased activity in the prefrontal and parietal cortices coupled with decreased activity in subcortical regions such as amygdala and ventral striatum (Buhle et al., 2013; Morawetz et al., 2017). This neural pattern is consistent with the idea that reappraisal hinges upon cognitive processes that shape affective responding, but it does not on its own reveal the cognitive operations performed by the brain during reappraisal.

At first sight, explaining the cognitive mechanisms of reappraisal may seem simple: reappraisal is, by definition, the intentional changing of appraisals. However, understanding what this means requires further elaboration of what it means to change appraisals. What are the cognitive structures involved in appraisal? What processes govern their formation and change? In the present paper, we seek to make progress in answering these questions.

A clearer model of the cognitive mechanisms underlying reappraisal would be useful beyond the inherent value of improved understanding. Not everyone benefits from reappraisal as much as they could and it's not clear why (Suri et al., 2015, 2018). A model of reappraisal could be used to pinpoint where these limitations arise from and how to remedy them. For instance, it could indicate how to

tailor psychoeducational tools to different levels of ability to generate reappraisals (Weber et al., 2014).

A clearer account of reappraisal mechanisms may also aid efforts to taxonomically organise the specific ways people use reappraisal i.e. reappraisal tactics. Several partially overlapping lists of reappraisal tactics have been documented in experimental studies (McRae et al., 2012) and self-report instruments (Carver et al., 1989; Garnefski & Kraaij, 2007; Haynes et al., 2009). For instance, the Cognitive Emotion Regulation Questionnaire (CERQ) includes factors for self-blame, other-blame, acceptance, rumination, positive refocusing, positive reappraisal, refocus on planning, putting things into perspective, and catastrophizing (Garnefski & Kraaij, 2007). Although very useful, these largely atheoretical taxonomies make it difficult to know the extent to which they cover the full range of existing reappraisal tactics. A related question is whether strategies such as distancing and acceptance that are sometimes seen as alternatives to reappraisal can in fact be considered at least in part as forms of reappraisal. We believe that the reAppraisal framework we present and expand on in the next sections can generate principled hypothesis about different reappraisal tactics that are possible and build a theoretical space to draw together different research programmes.

The reappraisal framework

To begin, we first review the core tenets of the reAppraisal framework (see Figure 1; Uusberg et al., 2019). Assuming that reappraisal indeed involves appraisal change, the framework leverages the conceptual tools developed for understanding *appraisal* to better understand *reappraisal*. Appraisal may be defined as a representation of the motivational meaning of a situation that shapes an emotional response (Moors et al., 2013; Scherer et al., 2001). For instance, not being able to attend a party can elicit sadness when the situation is taken to mean being deprived of valuable experiences. Even though appraisals are tethered to situations, they often vary considerably from one instance of a similar situation to the next as well as from one person to the next. For instance, the motivational meaning of missing a party can also be seen as only an inconsequential setback and an opportunity to rest. The possibility to appraise the same situation in more than one way is what allows people to intentionally replace one appraisal with another, that is to

engage in reappraisal. Taking a closer look at the appraisal process should thus help uncover the mechanisms of reappraisal.

Appraisal shift profiles as a description of reappraisal

Viewing reappraisal through the lens of appraisal first suggests that an instance of reappraisal can be described using the idea of appraisal dimensions. Appraisal dimensions refer to abstract characteristics that collectively represent the motivational meanings of situations, similar to how the red, green and blue dimensions collectively represent colours in the RGB system. Most efforts to specify appraisal dimensions include some version of the following five dimensions (Moors et al., 2013): (a) *Goal relevance* reflects how much a situation matters to various goals. (b) *Goal congruence* reflects the extent to which a situation is helpful rather than harmful for achieving these goals. (c) *Certainty* reflects the confidence a person has about what a situation entails. (d) *Accountability* reflects the distribution of responsibility for the situation between oneself and others. (e) Finally, *control* reflects the amount of power a person perceives to have to change the situation.

According to the reAppraisal framework, each instance of reappraisal can be described in terms of how a situation is appraised on different appraisal dimensions before and after reappraisal (i.e. as a profile of shifts along appraisal dimensions). For instance, *goal relevance* would be reduced when a person trying to feel less bad about missing a party tells themselves that attending this party is not that important. *Goal congruence* would improve when the person realises they can watch a TV show they would have missed if they went to the party. *Certainty* would be reduced when the person thought that there is no guarantee that the party will be fun. *Accountability* would shift when they emphasised that they miss the party due to no fault of their own. And *control* would increase when they remind themselves that if they really wanted to, they could still go to the party.

Supporting the idea that appraisal shift profiles are useful for describing reappraisal, we have found that such profiles statistically mediate emotion changes accompanying reappraisal (Uusberg et al., 2023). Participants used reappraisal to successfully reduce negative feelings elicited by reactivation of a recent distressing event. They also reported how they
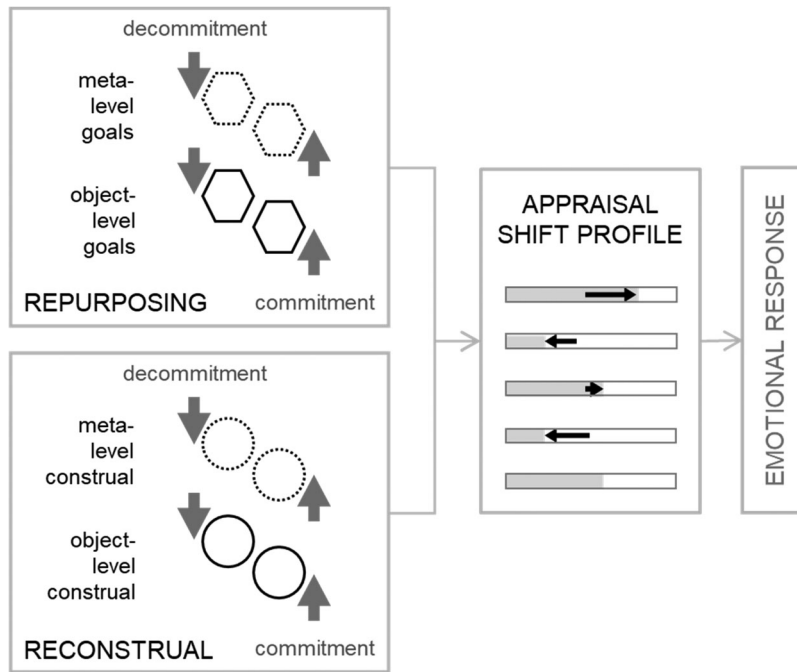
Figure 1. The expanded reAppraisal framework. An emotional response is shaped by a profile of values on abstract appraisal dimensions that reflect what a mental construal of a situation means in light of salient goals. When people seek to alter the emotional response using reappraisal, they can produce appraisal shifts by using *reconstrual* to change some of the ways in which a situation is construed or *repurposing* to change some of the goals that are used to evaluate the construal. Reconstrual can target *object-level construals* that denote states in the environment as well as *meta-level construals* that denote states in the mind such as emotions. Likewise, repurposing can target *object-level goals* that denote desired states of the environment as well as *meta-level goals* that denote desired mental states. Reconstrual can begin either with *decommitting* from the current construal or with *committing* to an alternative construal. Likewise, repurposing can begin either with *decommitting* from the currently pursued goals or with *committing* to alternative goals.

appraised these events and responded emotionally to them before as well as after using reappraisal. Analysing these data, we found that from a fifth to half of reappraisal-related changes to emotions were statistically mediated by shifts along different appraisal dimensions. In a conceptual replication using experience sampling data, we also found that appraisal shifts explained a similar proportion of the changes in how people felt about an event within an hour vs in the evening of the same day, but only if they had used reappraisal in the interim. These initial findings demonstrate the potential of using appraisal shift profiles to efficiently measure instances of reappraisal.

Construal and goal change as an explanation of reappraisal

Beyond *describing* reappraisal using appraisal shift profiles, we also need a way to *explain* how these shifts arise. After all, merely declaring to oneself that a situation is not relevant, not that bad, or not one's

fault without deeper cognitive changes tends to have only limited impact on emotion. The reAppraisal framework thus argues that impactful appraisal shifts arise further upstream among the cognitive processes involved in producing appraisals. Specifically, it focuses on the processes of mentally representing the emotion-eliciting situation that produce a *construal* of the situation and on the processes of mentally representing the motives that the situation is relevant for yielding a set of active *goals*.

The focus on construals and goals arises from viewing appraisals as constructive representations that are formed by integrating these two types of representations (Frijda, 2007; Moors et al., 2017). The term construal is used here to cover different kinds of mental representations such as concepts, beliefs, schemas and narratives that are involved in representing the state of the emotion-eliciting situation on different levels of abstraction (Gilead et al., 2020; Lieberman, 2022). The term *goal* is used here to cover different kinds of representations such as motives,

norms, values and identity that are involved in representing the states that the person seeks to approach or avoid (Elliot & Fryer, 2008; Heylighen, 2022). We refer to a *set of goals* because the same situation can be relevant to several goals at once.

Viewing appraisal as a constructive process that involves construals and goals implies that there are two main pathways to bring about appraisal shifts: one could either *reconstrue* the situation by altering the situational construal or *repurpose* the situation by altering the set of goals that are used to evaluate the construal. For instance, the person missing a party could reconstrue the situation by thinking that the party is probably going to be less fun than it initially might have seemed it would be. This thought would impact the construal of the situation of not being at a party without necessarily changing goals i.e. any of the reasons why the person wished to be there. Alternatively, the person missing a party could repurpose the situation by realising how staying home allows them to get some long overdue rest. This thought would activate previously disregarded goals that happen to be congruent with the situation without necessarily changing how the situation is construed.

Both forms of reappraisal have been shown to be effective in regulating negative emotions (Wang et al., 2021). Participants from 87 countries and regions ($n = 21,644$) viewed images depicting different distressing aspects of the COVID-19 pandemic. They were randomised to receive either one of two control instructions or one of two instructions guiding them to use reconstrual or repurposing while viewing the images. On average – as well as in the vast majority of countries – both strategies reduced negative emotions and increased positive emotions not only in relation to the images but also in relation to the pandemic more broadly. We hope that this impressive demonstration of the effectiveness of both reconstrual and repurposing spurs further research into the antecedents and consequences of these strategies.

Expanding the reappraisal framework

The distinction between reconstrual and repurposing opens the door for further specifying the types of mental representations these processes target as well as the mental operations that these processes consist of. Specifically, in this section, we first consider how both reconstrual and repurposing can target object-level and meta-level representations. Next, we consider how both reconstrual and repurposing involve the operations of decommitting from a currently dominant representation and committing to an alternative representation.

Object-level versus meta-level representations as reappraisal targets

Representations can denote states of the environment (i.e. object-level representations), or states of the mind (i.e. meta-level representations; Flavell, 1979). Object-level representations include any form of mental representation that signifies things and events within the external or internal environment outside of the mind. Meta-level representations, by contrast, are representations about things and events in the mind such as thoughts, memories and feelings. Examples of meta-level representations include "I can't stop thinking about it", "I keep having flashbacks about it" and "I don't like the way it makes me feel". Although meta-level representations are more reliably conscious than object-level representations, both levels can in principle enter awareness or stay outside of it.

We propose that there are object-level and meta-level versions of both construals and goals with interesting implications for reconstrual and repurposing. When mentally construing complex situations, people often use both object-level and meta-level representations. For instance, the mental construal of an impending end of a good party probably includes an object-level construal denoting being alone as well as a meta-level construal denoting the state of the mind that accompanies being alone such as feeling sad. Likewise, the goals that are used to evaluate these construals during the appraisal process can be both object-level and meta-level representations of desired states. For instance, the object-level construal of being alone may be incongruent with the object-level goal of being in a good company, leading to negative emotions such as sadness. Meanwhile, the meta-level construal of feeling sad about being alone may be incongruent with the meta-level goal of being an independent person, leading to negative emotions such as shame.

The distinction between object-level and meta-level representations can thus be applied to the construals and goals envisioned within the core reAppraisal framework (see symbols with solid and dashed outlines in Figure 1). Extending the reAppraisal

framework in this manner suggests that there can be four different targets for reappraisal in any given situation. First, the person could attempt two versions of reconstrual. To feel less sad about being alone, they could use object-level reconstrual to change the object-level construal of being alone, e.g. by reminding themselves that they can continue socialising via text messages even after the party has ended. To feel less ashamed about feeling sad, they could use meta-level reconstrual to change the meta-level construal of their emotional reaction, e.g. by attributing their unpleasant feelings to being tired and intoxicated rather than being alone. In addition to reconstrual, the person could also attempt two versions of repurposing. To feel less sad about being alone, they could use object-level repurposing to change the object-level goals that are incongruent with being alone, e.g. by prioritising the desire to get some sleep over the desire to socialise. To feeling less ashamed about feeling sad, they could use meta-level repurposing to change the meta-level goals that are incongruent with being sad, e.g. considering sadness not as a sign of weakness but as a natural reaction worth observing.

Decommitment and commitment as reappraisal operations

We have now identified four types of target representations that reappraisal seeks to alter. In addition to different targets, we argue that instances of reappraisal can also be differentiated based on the mental operations they rely upon to initiate changes in the targeted representations (see arrows in Figure 1). Specifically, changes in construals as well as goals can be initiated in one or both of two ways: *decommitting* from a currently selected construal or goal or *committing* to an alternative construal or goal. *Decommitment* reappraisal works by undermining initial construals or goals without intentionally amplifying specific alternatives. *Commitment* reappraisal works by amplifying alternative construals or goals without intentionally undermining the initial ones. Both operations can in principle operate on both object-level and meta-level representations.

For instance, consider again the person who is trying to use reconstrual to feel less sad about losing enjoyable social contacts when a party ends. They could use decommitment reconstrual and actively undermine their present construal of the situation without necessarily knowing what will take its place. For instance, they may question whether the party

will really end at the designated time. Alternatively, they could use commitment reconstrual and actively promote an alternative construal of the situation without necessarily questioning the initial construal. For instance, they may think about who they might converse with via text message once the party ends.

Similarly, goal changes can be brought about by decommitment and commitment versions of repurposing. To use decommitment repurposing, the person at the party may actively devalue the goal of continued interaction without necessarily knowing which alternative goals would take its place. For instance, they may tell themselves that they don't really enjoy socialising with increasingly intoxicated people. Alternatively, to use commitment repurposing, the person may actively value an alternative goal without necessarily devaluing the original goal. For instance, they may think about the benefits of getting some sleep after the party has ended even while they miss their friends.

The notion of decommitment and commitment operations relies on the parsimonious assumption that the mind does not have separate purpose-built systems for changing construals and goals. Instead, construals and goals change as emotion regulation processes bias the general mechanisms that give rise to construals and goals.

Construals arise from inferential processes that construct a coherent experience out of less coherent sensory and contextual information (Lieberman, 2022). As demonstrated by bistable stimuli such as the Necker cube, we usually perceive a single version of reality at a time even if the available information is consistent with several versions (Brascamp & Shevell, 2021). Construals are thus selected through competitive processes that can turn a slight advantage of one construal over alternatives into a temporary dominance of perceptual experience (Lieberman, 2022). We suggest that reconstrual operates by biasing these competitive processes. In broad strokes, it can do so either by undermining the competitive advantage of the currently dominant construal, corresponding to decommitment reconstrual, or by amplifying an alternative construal, corresponding to commitment reconstrual.

Goals are selected by similarly competitive processes that determine which goals people commit to pursuing. Goal commitment is largely a function of expected subjective value or the extent to which attaining a goal would serve salient motives weighted by the probability of its attainment (Klein et al., 1999). Instead of pursuing all valuable goals afforded by a

situation, people usually commit to pursuing only one or a few at a time. Thus, goal selection also relies on competitive mechanisms that can amplify slight advantages in value of one goal over alternatives into temporary goal commitment. We suggest that repurposing operates by biasing these goal selection processes. It can do so either by undermining the value of the currently committed goal, corresponding to decommitment repurposing, or by amplifying the apparent value of alternative goals, corresponding to commitment repurposing.

Mapping reappraisal tactics

The preceding section expanded the initial 2-way distinction between reconstrual and repurposing offered by the core reAppraisal framework into a $2 \times 2 \times 2$ matrix of three distinctions yielding eight unique combinations (see Figure 2). In this section, we argue that the cells in this matrix can be used to taxonomically organize different reappraisal tactics. Each cell identifies a core mechanism that allows an instance of reappraisal to succeed. Some reappraisal tactics rely upon a single mechanism whereas others rely upon more than one mechanism. To illustrate the value of this taxonomy, we will offer a selective review of basic and clinical literature to demonstrate that the eight types of reappraisal envisioned by the expanded framework have been at least partially documented, although under different labels and within different contexts.

Some emotion regulation strategies discussed below such as distancing and acceptance have not always been considered forms of reappraisal. A major reason we view them as at least in part forms of reappraisal is the importance of meta-level construals and goals for human emotions. Strong emotions can arise from object-level appraisals about events in the environment such as missing a party as well as from meta-level appraisals about events in the mind such as being sad about missing a party. Cognitive strategies designed to alleviate the distress associated with emotions about events in the mind (e.g. shame about sadness) often differ from strategies designed to alleviate the distress associated with emotions about events in the environment (e.g. fear of heights). However, insofar as both types of strategies rely on altering the appraisal process, they may fall within the scope of reappraisal.

Object-level decommitment and commitment reconstrual

Someone using object-level reconstrual seeks to alter some aspect of how they perceive or understand what is going on in the situation, including how it came about and how it might evolve in the future. When they do so relying on the decommitment operation they seek to undermine their initial construal of the situation, for instance, by thinking "Are things really that bad?" (Figure 2, box A). When they do so relying on the commitment operation they seek to promote an alternative construal, by thinking for instance that "I can fix this" (Figure 2, box B).

In the context of basic research, object-level reconstrual is often used by participants of emotion

Type of targeted representation	Level of targeted representation	Type of operation	
		decommitment	commitment
construal	object-level	A Object-level decommitment reconstrual "Are things really that bad?"	B Object-level commitment reconstrual "I can fix this."
construal	meta-level	C Meta-level decommitment reconstrual "Is feeling this way really that bad?"	D Meta-level commitment reconstrual "I can change how I feel about it."
goal	object-level	E Object-level decommitment repurposing "I didn't really want this anyway."	F Object-level commitment repurposing "This is bad, but I can learn from it."
goal	meta-level	G Meta-level decommitment repurposing "It's fine not to be happy all the time."	H Meta-level commitment repurposing "I feel bad, but it shows that I care."

Figure 2. A taxonomy of reappraisal tactics with example thoughts. The letters A to H are used to refer to this figure in the text.

regulation experiments instructed to find alternative interpretations of emotional stimuli such as images or videos (McRae et al., 2012). For instance, viewing an image of a physical injury, a participant may tell themselves that the injury is not as bad as it looks. This participant would engage in *object-level decommitment reconstrual* as they question the evidence in favour of their initial construal without necessarily committing to an alternative construal. Alternatively, another participant may tell themselves that the depicted person will make a full recovery or will soon receive help. That participant would engage in *object-level commitment reconstrual* as they embrace an alternative construal to replace the initial one without necessarily making direct efforts to undermine it.

Object-level reconstrual is also captured in questionnaires designed to measure individual differences in cognitive emotion regulation. One relatively extreme example of *object-level decommitment reconstrual* is "denial" which is assessed with items such as "I pretend that it hasn't really happened" (COPE; Carver et al., 1989). Examples of *object-level commitment reconstrual* can be found in the CERQ (Garnefski & Kraaij, 2007) that assesses the ways people think when they are experiencing unpleasant events, some of which fall under the definition of reappraisal. Among other factors, this instrument assesses "other blame" using items such as "I feel that others are to blame for it" and "refocusing on planning" using items such as "I think about how I can best cope with the situation". These factors represent object-level commitment reconstrual as shifting blame from oneself to others and considering ways to cope with the situation constitute alternatives to a presumed original construal.

In the context of clinical research, targeting of object-level representations is a hallmark of the "second wave" of behavioural therapies such as cognitive behavioural therapy (CBT; Beck, 1976). A typical therapeutic goal of CBT is to challenge automatic thoughts (Longmore & Worrell, 2007), which can be facilitated with techniques that fall under both decommitment and commitment reconstrual. An example *object-level decommitment reconstrual* technique is "checking the facts" (Neacsiu et al., 2014) that involves asking the patient to elicit additional facts in relation to a maladaptive automatic construal under the assumption that these will help undermine the construal. An example *object-level commitment reconstrual* technique, by contrast, is "attributional retraining" (Försterling, 1985) wherein the patient is instructed to revisit and challenge their initial attributions for successes and failures. For instance, a person attributing failures to lack of ability is instructed to consider the role of external factors, of temporary states, and ways to control their performance in the future.

Meta-level decommitment and commitment reconstrual

Someone engaging in meta-level reconstrual seeks to change some aspect of how they perceive or understand their own mental reactions to a situation, including sensations, memories, thoughts and feelings. When they do so relying on the decommitment operation, they seek to undermine their initial construal of their reactions, for instance, by thinking "Is feeling this way really that bad?" (Figure 2, box C). When they do so relying on the commitment operation, they seek to promote an alternative construal of their reactions, for instance by thinking that "I can change how I feel about it" (Figure 2, box D).

An example of a *meta-level decommitment reconstrual* from the basic research literature is increased metaphorical distance between a reaction and the self (Kross & Ayduk, 2011). Psychological distance is often revealed in linguistic features that represent third vs first person perspective, and temporal, spatial, as well as social distance (Moran & Eyal, 2022). Demonstrating the efficacy of self-distancing as a reappraisal tactic, instructing people to adopt these features when expressing themselves can reduce the intensity of their emotions (Nook et al., 2017). We suggest that the key ingredient in self-distancing is decommitting from an initial construal of one's reactions as being integral and highly relevant to the self.

A basic research example of *meta-level commitment reconstrual* is altering construals about emotions. Construing emotions as more vs less controllable is associated with higher wellbeing (Ford & Gross, 2019). There is also preliminary evidence that changing this construal can be an effective reappraisal tactic. For instance, when a small sample of people were told that a drug they had taken improves the controllability of their emotions, they were more successful in regulating their emotions (Bigman et al., 2016). We suggest that the main active ingredient in reconstruing one's emotions as more controllable is commitment to a different construal.

In the context of clinical research, targeting the meta-level is a hallmark of the "third wave" of

behavioural therapy that includes approaches such as Mindfulness Based Cognitive Therapy (MBCT; Segal et al., 2013) and Acceptance and Commitment Therapy (ACT; Hayes et al., 1999). Whereas the "second wave" exemplified by CBT is said to focus on the *content* of cognitions as a source of distress and thus a target of intervention, the "third wave" focuses on the *context* of cognitions (Flaxman et al., 2010). In terms of this paper, the distinction between content and context overlaps with the distinction between object-level and meta-level representations.

A clinical research example of *meta-level decommitment reconstrual* is the broad construct of *decentring*, which involves construing one's thoughts and feelings as temporary events in the mind rather than true reflections of the self, such as switching from "I am anxious" to "I feel anxiety" (Bernstein et al., 2015). Decentring overlaps with distancing but is a more comprehensive construct that commensurately is developed through more comprehensive practices. Improvements in the ability to adopt a decentred perspective mediates the effectiveness of several therapies including CBT, MBSR and ACT (Bennett et al., 2021). We suggest that an instance of adopting a decentred perspective is an example of meta-level decommitment reconstrual as its focus is on dislodging the automatically generated construal of emotions as true reflections of the self.

Clinical research examples of *meta-level commitment reconstrual* can be found among the broad range of psychoeducational techniques that help patients acquire new knowledge and skills in service of different therapeutic goals (Lukens & McFarlane, 2004). Often, the knowledge obtained includes novel or more elaborate ways to think about bodily sensations or emotions. For instance, patients with health anxiety or panic disorder may learn how excessive attention can generate sensations that may seem like symptoms of imminent health problems (Wright et al., 2000). We suggest that such instances of psychoeducation involve meta-level commitment reconstrual as they teach people specific construals they can commit to with the goal of dethroning initial and less helpful meta-level construals.

Object-level decommitment and commitment repurposing

Someone using object-level repurposing seeks to alter the nature or importance of the goals they use to evaluate what the emotional situation means to them. When they do so relying on the decommitment operation, they seek to devalue the goals that dominated their initial evaluations, for instance, by thinking "I didn't really want this anyway" (Figure 2, box E). When they do so relying on the commitment operation, they seek to promote an alternative goal that happens to align with the situation, for instance by thinking that "This is bad, but I can learn from it" (Figure 2, box F).

The basic research literature offers several examples of *object-level decommitment repurposing*. For instance, self-conscious emotions such as guilt and shame can be down-regulated by lowering the commitment to the goal of being positively regarded by particular people (Leary & Gohar, 2014). Some people have also been found to engage in defensive pessimism whereby they intentionally lower their performance expectations with the aim of pre-emptively reducing anxiety (Norem, 2001). Related examples are a pair of factors within a questionnaire assessing coping with ailments in older age (Haynes et al., 2009). The factors labelled "downgrading expectations" (e.g. "Tell yourself that you mustn't set your goals too high") and "downgrading importance" (e.g. "Tell yourself the task is not necessary") capture instances of reappraisal wherein negative emotions are reduced by reducing the ambitiousness or the value of the goals that cast a situation in an unfavourable light.

Basic research examples of *object-level commitment repurposing* can be found among the thoughts reported by participants in experimental reappraisal studies such as thinking of a lesson being learned from a bad experience or a deceased person being in a better place (McRae et al., 2012). A similar mental operation is captured by the "positive reappraisal" factor of CERQ (e.g. "I think I can learn something from the situation"), "Positive reinterpretation & growth" factor in COPE (e.g. "I try to grow as a person as a result of the experience") and "positive reappraisal" factor in the coping with aging scale ("Tell yourself that good things often come from hard times"). In these instances, participants activate novel desirable states that match the depicted situation.

A clinical research example of *object-level decommitment repurposing* is the "big picture" technique used in CBT for perfectionistic thinking (Egan et al., 2016). Individuals with perfectionistic tendencies set overly high and inflexible standards that incentivize unreasonable efforts and can generate negative

affect when the standards are not met. The "big picture" technique encourages the individual to ask questions such as "Will this still matter tomorrow, next week, next year?". We suggest this technique is an example of object-level decommitment repurposing as it involves lowering the value of an initial goal by suggesting it will be much less relevant in the future without necessarily increasing the value of an alternative goal.

Clinical research examples of *object-level commitment repurposing* can be found among CBT techniques that deal with social comparisons. One such technique is recommended to patients who compare themselves unfavourably to others and includes guiding them to identify alternative comparison targets, such as oneself in the past (Beck, 2021). We suggest this technique involves commitment repurposing as it activates a specific alternative comparison standard to gradually dethrone the initial less adaptive standard.

Meta-level decommitment and commitment repurposing

Someone using meta-level repurposing seeks to alter the goals they use to evaluate their thoughts, feelings and other reactions to a situation. When they do so relying on the decommitment operation, they seek to devalue the goals that dominated their initial evaluations, for instance, by thinking "It's fine not to be happy all the time" (Figure 2, box G). When they do so relying on the commitment operation, they seek to promote an alternative goal that happens to align with the situation, for instance by thinking that "I feel bad, but it shows that I care" (Figure 2, box H).

A basic research example of *meta-level decommitment repurposing* can be found in studies of accepting emotions without judging or regulating them, i.e. emotional acceptance. Acceptance can be assessed with self-report questionnaires using items such as "I tell myself I shouldn't be feeling the way that I'm feeling" (reverse coded; Baer et al., 2006) as well as manipulated in experiments using similar instructions. People higher on dispositional emotional acceptance as well as people instructed to respond in an accepting manner tend to experience less intense negative emotions and enjoy better mental health (Ford et al., 2018). We suggest that using emotional acceptance as an emotion regulation strategy constitutes meta-level decommitment repurposing as it devalues the otherwise spontaneously activated goals about emotions such as the desire to avoid negative emotions and experience positive emotions.

A basic research example of *meta-level commitment repurposing* is arousal reappraisal that involves teaching people that stress can be beneficial for performance (Jamieson et al., 2017). A key ingredient of this intervention is linking of a performance goal to the construal of an arousal experience. For some people, this may be a new goal that starts to compete with the initially activated hedonic goal to avoid unpleasant experiences such as stress. For others, the performance goal might have been part of the goal set but seemed incongruent with the stressful experience. We suggest that in either case, the effect of arousal reappraisal relies in part on commitment repurposing as it activates or promotes a specific goal.

A clinical research example of *meta-level decommitment repurposing* is *mindful acceptance* cultivated across several third wave therapies such as the MBCT and ACT, usually in conjunction with mindful attention. Mindful acceptance includes emotional acceptance but is a broader and more multifaceted construct that involves observing all mental event without judging or trying to guide them (Lindsay & Creswell, 2017). We suggest that mindful acceptance operates in part through meta-level decommitment repurposing because a key outcome of this strategy is reduction in the motivation to avoid unpleasant experiences, i.e. experiential avoidance (Flaxman et al., 2010). Without acceptance, many impulses, cravings, and other emotional reactions would compare unfavourably to goals about emotions leading to meta-level negative emotions that motivate often unnecessary efforts to avoid, change, or suppress the initial emotional reactions. Practicing mindful acceptance can devalue these goals about emotions and thus prevent the emotional and behavioural avoidance cascade from following. Even though other mechanisms can be involved in mindful acceptance, we suggest that one of them is decommitment repurposing.

A clinical research example of *meta-level commitment repurposing* is the practice of *self-compassion* (Neff, 2011) often associated with Compassion Focused Therapy. Among the goals of this approach is a shift from judgement to compassion in relation to the largely meta-level concept of self (Dixon & Gross, 2021; McAdams, 2013). This shift can facilitate various subjective, bodily and cortical indicators of mental health and well-being (Gilbert,

2010). The change cultivated in compassion-based interventions is in large part motivational – a shift from pursuing survival or achievement goals to pursuing affiliation goals. We therefore suggest that engaging in self-compassion is a form of commitment repurposing as it activates a set of alternative meta-level goals.

Future directions

In the expanded reAppraisal framework, we have integrated the reconstrual versus repurposing distinction with a pair of additional distinctions, one concerning the cognitive structures involved in appraisal (object-level and meta-level representations), and the other concerning the cognitive processes involved in appraisal (decommitment and commitment operations). We have also demonstrated the usefulness of this expanded framework for mapping different forms of reappraisal, irrespective of whether they have been labelled as such in previous literature. We would like to end by exploring other ways in which the proposed framework could spur future research.

First, key predictions could be empirically tested to further support the reAppraisal framework. For instance, the framework predicts that people should engage in reconstrual when the construals are easier to change than goals and in repurposing when the goals are easier to change than construals. This idea could be tested experimentally by systematically varying the malleability of construals (e.g. by providing multiple performances evaluations that are more vs less consistent) and the malleability of goals (e.g. by highlighting one or more criteria in the performance evaluations). The framework also predicts that meta-cognitive ability (Rouault et al., 2018) should correlate with preferences for and benefitting from meta-level reappraisal. Finally, experiments could be designed to test the prediction that engaging in decommitment reconstrual decreases the perceptual confidence associated with the dominant construal and increases it for alternative construals whereas commitment reconstrual has the opposite effects. To address these and other hypothesis in field studies, novel questionnaires could be developed to assess constructs identified in the reAppraisal framework (cf. Olderbak et al., 2022).

The expanded reAppraisal framework may also help explain why some forms of reappraisal are more effective than others. There appears to be therapeutic value in shifting self-relevant thoughts from object-level to the meta-level (Fisher & Wells, 2009). This suggests that reappraisals that tap into meta-level representations may have an advantage over reappraisals that operate exclusively on the object level. Another hypothesis is that reappraisal tactics that fall into more than one cell in our $2 \times 2 \times 2$ matrix are generally more effective. For instance, even though we associated decentring with meta-level decommitment reconstrual and acceptance with meta-level decommitment repurposing, these broad and powerful techniques probably also activate other mechanisms within our taxonomy.

The representations and operations we have highlighted can also be seen as candidate mechanisms that prevent people with certain traits from attempting and benefitting from certain forms of reappraisal. For instance, people high on perfectionism may find it easier to use reconstrual than repurposing. Perfectionists set high goals and find it difficult to not meet them (Egan et al., 2016). This suggests that they may also find it difficult to use repurposing, especially with the decommitment operation. Likewise, people with low tolerance for cognitive uncertainty (Rosen et al., 2014) may find it difficult to use decommitment reappraisal because they are motivated to find a construal to commit to and stay committed to.

These are just a few of many possible predictions that could be derived from the expanded reAppraisal framework we have offered here. We hope readers will find it useful for cataloguing and understanding the diverse ways people change thinking with the aim of changing emotions. We also hope that it will inspire researchers and practitioners to craft new, individually tailored reappraisal interventions for those in need.

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ORCID

Andero Uusberg http://orcid.org/0000-0002-7327-9503
Brett Ford http://orcid.org/0000-0002-7943-4447
Helen Uusberg http://orcid.org/0000-0001-8832-7195

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