Pain and Rationality*

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[B]ecause he suffers hunger or cold or other pain he is only the more determined to persevere and conquer. His noble spirit will not be quelled until he either slays or is slain; or until he hears the voice of the shepherd, that is, reason, bidding his dog bark no more.

— Plato, Republic IV, 440d

1 Introduction

Pain plays many roles in our mental lives. It motivates, protects, and is often a source of negative moral and pragmatic value. Moreover, and perhaps more surprisingly, pain has a number of interesting, and interestingly incomplete, connections with rationality.

A few caveats are in order before we begin to survey some of these connections. First, and though we intend to remain as agnostic as we can about the nature of pain so as to make our discussion maximally general, we will assume in what follows that pains are complex states, and that they involve sensory-discriminative, affective-motivational, and cognitive components. We'll also be assuming that pains ordinarily involve a negatively valenced affect, which we refer to as *painfulness*, though we set aside the question of what account of pain best accounts for its painfulness.¹

One of the most important reasons for thinking of pain as importantly connected to human rationality is that experienced pains seem to provide reasons to the subjects in whom they occur — reasons that can be both practically motivating and rationally justifying (at the personal level).²

In saying that pains provide *justifying* (or, sometimes, *normative*) reasons, we mean that they provide considerations that objectively count in favor of an action for a subject (whether or not they are appreciated by the subject). Even if Sasha believes sunscreen

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¹For more discussion of such questions about the proper characterization of pain itself, see the chapters of §1 of this volume.

²We won't worry here about whether pain provides one reason that is both motivating and justifying, or whether it provides two separate reasons (one motivating, one justifying). Nor will we enter into the many complicated disputes about the structure and nature of action explanations, motivating reasons, and rational justification (for an entry into this literature, see, e.g. Mele 2003; Parfit and Broome 1997; Smith 1987). See also Pereplytochik, this volume. We hope what we say here about theses issues will be sufficiently truistic to be accepted by all sides.

is unnecessary and has no intention or desire to use it, one might think there is still a very good justifying reason for her to do so (to prevent UV skin damage). In saying that pains provide *motivating* (or, sometimes, *explanatory*) reasons, we mean that they provide the (often causal) explanations for why an action was undertaken, given from the perspective of the agent. Perhaps Sasha sprays herself with sunscreen at the beach mistakenly thinking that it's insect repellent. While she still has a justifying reason for putting on the sun screen, that wasn't her motivating, explanatory reason. The motivating reason was something like: she wanted to put on insect repellent and she believed that the sun screen was insect repellent.

As we say, it is pre-theoretically plausible that pains can supply both of these sorts of reasons for the subjects in whom they occur. Thus, consider Lucy the distracted machinist, who strikes her thumb hard with a ball-peen hammer. First, the pain Lucy feels provides her with a motivating reason to tend to her injured thumb — perhaps holding or squeezing it, or applying ice to it. After all, without the pain she wouldn't have undertaken these actions, and that she does undertake them is a direct consequence of her experienced pain. Additionally, however, Lucy's pain seems to count as a justifying reason for Lucy. Whether or not Lucy holds her thumb and applies ice to it, her pain justifies her doing so: that is what she objectively ought to do in the circumstance, given the pain, but not otherwise (Corns:15).

In this entry we will explore some of the connections between pain and rationality in terms of these two sorts of reasons that pain plausibly provides. We'll begin by considering the nature of the connection between pain and motivation, principally by reference to long-standing philosophical disputes about the nature of the connection between reasons and motivation (§2). And then we'll ask whether and in what ways pains are like other justification-providing rational elements of our psychologies in being responsive to reasons and rationally evaluable (§3).

2 Motivational internalism: from reasons to pain?

We begin with pain's capacity to provide motivational reasons. It seems hard to deny that pains do provide highly salient reasons of this type: indeed, the most natural person-level explanations of why Lucy shakes, presses, or ices her thumb after hitting it with a hammer will advert to her pain. But this leaves open a suite of interesting questions about the nature of the connection between pain and motivation. We can begin to probe this connection indirectly by reference to the more widely discussed issue of what connections to motivation are exhibited by (not pain, but) reasons.

On a family of views we'll call *motivational internalism about reasons* (also sometimes referred to by the less than perfectly perspicuous label 'reasons internalism'), there is an essential, or constitutive, connection between justifying reasons and practical motivation.^{3 4} While there are many versions of motivational internalism about reasons, perhaps the most widely discussed version of the view is the so-called *Humean Theory of Reasons* (HTR), according to which there is a constitutive connection between reasons and desires. HTR claims, for example, that if Tony has a justifying reason to ϕ , then

³Caution: 'internalism' is used in a various ways in the literature; our usage is slightly idiosyncratic.

⁴It is perhaps worth observing that this is, in fact, a substantive thesis. Whereas it is trivially true that there is a necessary connection between motivating reasons and motivation (since, after all, motivating reasons just are whatever actually motivated a subject to act), it is not so obvious that there is a similar connection between justifying reasons and motivation.

Tony must also have a desire to ϕ . (Note that the opposite entailment is clearly false — and not assumed by HTR: having a desire to ϕ does not secure a justifying reason to ϕ .) HTR is controversial both as a substantive thesis (see Setiya 2004; Smith 1995; Williams 1979), and as an interpretation of Hume's own views (see Persson 1997; and the essays in Pigden 2009). We want to put these debates aside for now in order to ask a different question suggested by the consideration of HTR in the present setting: might there be an analogous motivational internalist view about pains, on which there is a similarly constitutive connection between pain and desire?

2.1 Two forms of motivational internalism about pain

We can imagine answering this question affirmatively in at least the following two different ways, corresponding to different articulations of motivational internalism about pain. A first, indirect, affirmative answer would begin with the assumption, bruited above, that being in pain automatically confers on a subject justifying reasons (as it might be, a justifying reason to ϕ). If (controversially) this assumption is not only true but necessary, and if we additionally accept HTR, then this would yield the affirmative conclusion we were after, that being in pain necessarily/constitutively confers on the subject a desire (as it might be, a desire to ϕ). Alternatively, one might accept motivational internalism about pain independently of any connections to justifying reasons: one might simply think that genuine pains could not occur without the presence of concomitant desire-like internal states.

While both of these possibilities would end up connecting pains to desires or desirelike states, and so sustaining forms of motivational internalism about pain, the first possibility makes this connection indirectly, via (alleged) constitutive links both pain and motivation bear to justifying reasons. Accordingly, we'll call this view *indirect motivational internalism about pain* so as to contrast it with the latter view, which we'll call *direct motivational internalism about pain*. Since the connection to reasons is our immediate target here, we'll focus on indirect motivational internalism about pain in the rest of this section, and will return to direct motivational internalism in §??.

2.2 Motivations for motivational internalism about pain

As we sketched the view, indirect motivational internalism about pain depended on assuming a theory like HTR or some other form of motivational internalism about reasons. One possible attraction of this position is that it could be used to argue for particular accounts of the nature of pains that are suited to the provision of justifying reasons. For example, some writers (Bain 2013; Helm 2002; O'Sullivan and Schroer 2012) have argued on such grounds against theories on which pains are identified with mere causes or motivating reasons; the thought is that pains, construed as mere causes, would not, by themselves, provide the justifying reasons that they must. Such theorists have typically, therefore, advocated an alternative *evaluative* theory of pains as rich states with evaluative contents which, when veridical, are suitably poised to provide the needed justifying reasons. However, as Cohen and Fulkerson (2013) urge, this line of argument presupposes two controversial theses: (i) that HTR is true, and (ii) that pains qua mere causes cannot amount to justifying reasons. Moreover, since the latter

⁵Of course, appealing to HTR will produce a view that links pains constitutively to desires as opposed to other motivating states; slotting in other versions of reasons internalism will result in views on which pains are linked to other intrinsically motivating states or dispositions.

of these theses is typically rejected both by proponents of causal accounts of pain and even by evaluativists themselves, the argument in question is probably of limited utility in actually changing anyone's views about the nature of pain. Still, it does highlight a rich set of dependencies between one's theories of pains, reasons, and motivation.

A different possible attraction of motivational internalism about pain (of either indirect or direct flavors) is that such views make available an especially simple explanation of the apparent fact that pains do seem to come with practical motivation. Thus, to return to the example above, it is extremely plausible that when Lucy undergoes pain after hitting her thumb with a hammer, she has a practical motivation for her subsequent action of icing her thumb. The pain internalist will have a ready explanation of this co-occurrence in Lucy's psychology: she will claim that pains and practical motivations co-occur necessarily, because the two sorts of state are constitutively linked. Indeed, one way of working out (direct) pain internalism might be found in so-called "attitudinal" views of pain (e.g. Heathwood 2006), according to which pains (more precisely, painfulness) just is the result of a motivational attitude (typically a desire or similar con-attitude) being directed toward a noxious sensation.⁶

2.3 Motivational internalism about pain reconsidered

Unfortunately, and whatever one thinks of the motivations discussed above, it is unclear whether pains and practical motivation are constitutively linked in the way envisaged by motivational internalism about pain

To bring this issue into relief, it may be helpful to consider a parallel question about the relation between moral judgment and moral motivation. It is more or less uncontroversial that a subject in normal circumstances who judges (sincerely, reflectively) that she ought to ϕ will have a moral motivation to ϕ ; this is to say that these two states of the subject seem to co-occur. But it is much more controversial whether this co-occurrence should be explained by positing a constitutive connection between the two types of states. Some (e.g. Smith 1994) hold that it's essential to moral judgments that subjects who have them ipso facto have (possibly defeasible) moral motivation; extending the terminology we've been using in the obvious way, we can call this view motivational internalism about moral judgment. Other theorists, however, hold the view, which we can call motivational externalism about moral judgment that moral judgment is only contingently (though perhaps universally) connected to moral motivation (Brink 1997; Railton 1986; Shafer-Landau 2000; Svavarsdottir 1999, e.g.). Thus, on the latter sort of view, a subject who judges that she ought to ϕ will only be morally motivated to ϕ in the presence of some numerically distinct conative state — say, a disposition to do what she judges to be right — that is typically but inessentially linked to her judgment.

Much of the dispute between motivational internalists and externalists about moral judgment has centered on the possibility of what Brink (1997) labels an "amoralist" — a subject who, after undergoing frontal lobe trauma, makes all of the same moral evaluative judgments as before the brain damage, but no longer feels motivated to act appropriately on the basis of these judgments. Such cases, if indeed possible, seem to provide a serious impediment to any full-throated internalism about moral motivation. As Brink notes, "Where there is such physical and psychological interference, practical judgment does not produce motivation. If so, we must deny that judgments of practical reason entail motivation" (Brink 1997, p. 17).

⁶There are of course many details and subtleties to be worked out in such views, and some ways might fall outside the proper scope of the internalism we're considering here.

Given this backdrop, what should we say about the relation between pain and practical motivation? When Lucy undergoes her pain, most theorists would agree that she will evaluate her bodily state negatively, and that she will be motivated to act in certain ways. But by analogy to the dispute about moral motivation, we can imagine two different understandings of how this instance of practical motivation is related to Lucy's practical evaluation. On the one hand, we have seen that motivational internalists about pain will hold that it's essential to Lucy's undergoing pain including having a negatively valenced practical evaluation of her bodily state — that it bring about in Lucy a (possibly defeasible) practical motivation to act. That is to say that, without bringing about this motivation, the pain wouldn't include the sort of negative evaluation that such motivational internalists take to be essential to a state's being a pain. On the other hand, a motivational externalist about pain will hold that practical evaluation is only contingently (though perhaps universally) connected to practical motivation. Thus, for a motivational externalist about pain, Lucy's negatively valenced evaluation of her bodily state will only practically motivate Lucy to undertake remediative action in the presence of some numerically distinct conative state — say, a disposition to remediate those states of her body she evaluates negatively — that is typically but inessentially linked to her evaluation.

As before, we can bring out this disagreement by considering the possibility of what we might call an "apracticalist" who, after brain trauma, forms all of the same practical evaluations of her bodily condition as before the injury, but who no longer feels motivated to act appropriately on the basis of these evaluative states. Motivational internalists will hold that an apracticalist of this sort is impossible, while motivational externalists will hold that the apracticalist is possible.

These concerns can easily be applied to pain.

There are several well-known pathologies, similar in structure and scope to the sorts of amoralist and apracticalist cases considered above, that involve a clear disconnect between pain experience, pain evaluation, and pain motivation. The most discussed of these pathologies is pain asymbolia. The pain asymbolic is indistinguishable from control subjects in assessing and describing painful stimuli. For instance, an asymbolic can clearly discriminate between a sharp, shooting pain, and a dull, burning ache. More impressively, when asked to rate the intensity of the pain on a scale (from 1-10, say), an asymbolic will rate the pains in a manner indistinguishable from that of control subjects. Unlike control subjects, however, the asymbolic claims not to care or be motivated by these pain experiences, even when they rate them as extremely intense. Asymbolics suffer immense practical disadvantage from this condition, since they remain completely unconcerned even while undergoing extremely damaging interactions with the world. For instance, when cooking they will simply reach out and touch hot foods, completely unconcerned by the resulting skin damage. They also fail to move appropriately when sleeping in awkward or stressful positions, often resulting in severe injuries and even disfigurement. An asymbolic thus seems to experience and undergo pain, form judgments about the nature and severity of the signal, and seems to understand the connection of such signals to the actual damage it portends, and yet finds himself with no motivation to act in ways typical of pain experiences. Prima facie, this suggests that painful experiences and even painful evaluations (if we choose

to consider intensity judgments as a kind of evaluation) can in these cases become disconnected from the motivations typically generated by painful episodes.⁷

Some have indeed taken these and similar cases to be straightforward counterexamples to motivational internalism about pain (see esp. Grahek 2007). Others have urged that the cases at issue are not counterexamples to the latter view, but only cases in which the subjects experience a mitigated, incomplete, or inauthentic form of pain. Still others (Klein 2015) have defended motivational internalism about pain by holding that asymbolics robustly undergo pain, but simply lack a capacity to show care or concern for their own well-being.

Asymbolia is not the only interesting pathology, of course. In addition to asymbolia, cases of interest include congenital insensitivity to pain, allodynia, morphine pain, and certain diseases like leprosy (cf. Hardcastle 1999). Each of these cases suggest a way in which pain experiences and motivation can come apart. While appeal to such cases doesn't settle the issue immediately (as above), they do raise interesting questions and offer some novel ways of putting pressure on motivational internalism about pain.

3 Pain and justifying reasons

So far our discussion has centered on pain's capacity to provide motivating reasons. In this section, we want to consider pain's capacity to provide normative, justifying reasons.

3.1 Reasons-responsiveness and pain

As noted, it is pretheoretically plausible that pains do provide justifying reasons for creatures like us, and that this counts as an interesting way in which pains are connected to our rationality. Interestingly, however, though pains are (justifying) reasons-providing in subjects who have them, such as Lucy, pains also tend to be stubbornly resistant to rational considerations — they are not *reasons-responsive* in the way that other reasons-providing states typically are. Thus, when Lucy undergoes pain as a result of eating a modestly pungent curry, her (correct) belief that her pain is not signaling any imminent danger — that she is not under threat of any further bodily harm as a result of eating the food — is strangely ineffective in mitigating either the intensity of her pain or its action-guiding force.

Of course, Lucy can ordinarily reason herself out of being guided by other kinds of justifying reasons. For example, Lucy might hold a desire for relaxation and a belief that going to the beach would afford relaxation, and these might be counted a reason for Lucy to go to the beach. But when reflections about impending deadlines lead her to stay at home and work, she (by an exercise of her practical deliberation) brings it about that other considerations overwhelm the first reason, and consequently (unlike cases involving pain) makes the latter cease to be action-guiding for her. Pains (and other forms of suffering) stand in contrast to these ordinary cases of rational mitigation of (justifying) reason-providing states because pains are much less robustly responsive to other reasons.

⁷This makes asymbolia doubly interesting, for it puts pressure both on views according to which the motivational aspect is internal to pain itself (our direct views), and also on views that connect motivation to a related but distinct state from the pain.

Now, we don't want to overstate this point. Our claim is not that pain is *completely* unresponsive to other reasons: on the contrary, there is good evidence of certain kinds of reasons-based modulation of suffering (e.g., through anticipation or social context, and perhaps some forms of therapy). Still, this sort of modulation is strikingly different from the modulation of other of our reasons-providing internal states: in cases of suffering in particular, modulation by reasons is relatively limited in its efficacy, relatively effortful (whence the need to seek out professional help), and relatively temporary (whence the need to continue the therapeutic interventions). It is this apparent break in kind between the two types of influence by reasons that we have in mind in saying that pains are not reasons-responsive in the way that other justifying reasons-providing states typically are.

It would seem, then, that pains, despite providing justifying reasons for subjects, are sticky in the face of countervailing considerations in a way that other reasons (/reason-providing states) are not. Moreover, as we have argued elsewhere (Fulkerson+Cohen:15), it's plausible that this very stickiness is itself deeply disturbing — that it can lead in creatures like us to a kind of further, second-order harm, over and above the first-order pain, which can be extremely serious and deleterious to the creatures in whom it arises.^{8 9}

3.2 Rational evaluability

A final consideration concerns the question of whether pains can be rationally evaluable

It is standard to suppose that we can rationally evaluate our ordinary doxastic and conative states. For instance, consider Ashley, who, with no evidence, forms the belief that Elvis Presley is alive and living secretly in Germany. Her belief is evaluable with respect to its rationality: given that she has no evidence for forming this belief, we can evaluate it negatively. It is *irrational* for her to hold this belief. This means, on many plausible accounts of responsibility, that we can hold her responsible for this belief, at least to the extent that her holding of this belief impacts her overall rationality. She herself is in part irrational to the extent that she holds irrational beliefs like the one described above. The evaluability of this belief and the assessment of irrationality does not depend on the truth of doxastic voluntarism, the idea that our beliefs are formed voluntarily. Given the nature of belief, we can and do hold subjects rationally responsible for their beliefs.

⁸To be fair, pain is plausibly not unique in being reasons-providing but not reasons-responsive (or, at any rate, not reasons-responsive to the extent typical of states that are reasons-providing). On many views, such extra-psychological entities as states, events, facts, and states of affairs can share this same combination of features: thus, if Theo is thirsty and heads to the fridge because he knows there is water there, there's a good, if minimal, sense in which the water's being in the fridge counts as a reason for his action; but of course, the water's being in the fridge is completely immune to influence by Theo's broader reasons and motivational profile. But the case of pains is more interesting than the case of the water's being in the fridge (etc.) both because it reveals that there can be failures of reasons-responsiveness in elements internal to (and, indeed, highly salient and intense in) the thinker's own psychology.

⁹There are a number of other types of case in which our reasons-providing states are or seem to be oddly resistant to the influence of our reasons; these would include (at least) cases of akrasia, non-intentional actions, rapid redeliberation, and failures of deliberative decisiveness. Fulkerson+Cohen:15 introduce and consider these cases, and argue that the reasons-resistance exhibited by pains is interestingly different from each of them, hence that it deserves its own explanation.

Similarly, it is natural to think our conative states like desires and wishes can be targets of rational evaluation. Thus, Davidson (1963, p. 686) gives the example of Paul, a man who has had a yen his whole life to drink a can of paint. This yen, like a belief, seems rationally evaluable: we can say with confidence that Paul has no good reason for this yen and therefore evaluate it negatively. We can say it is an irrational desire that Paul has, and that he himself is irrational in part because of his possession of this desire. And we can imagine here a range of desires and wishes that fail a test of rationality.¹⁰

These considerations invite us to ask: can we, similarly, treat a subject's pain state as rationally evaluable, and can we hold the subject rationally responsible for that state?

One possible avenue to an affirmative answer to this question comes from extending to the case of pain arguments offered by Corns (forthcoming) to the effect that at least some affective states can indeed be rationally evaluated. Corns invites us to consider a subject with an irrational desire for symmetry; and she imagines that, if this subject is presented with a highly asymmetric flower arrangement, the non-satisfaction of her (ex hypothesi, irrational) desire might cause her extreme distress. Corns goes on to urge that, given its etiology in irrational desire, the subject's distress is also rationally evaluable. We can, just as with false and unsupported beliefs and irrational wants and desires, hold this subject responsible for her distress. We can say, like a caring parent, that her distress is inappropriate to the circumstances, that it arises from a lack of adequate coping strategies or supporting beliefs on the part of the subject, and that it doesn't, in some straightforward sense, cohere with the subject's other mental states. And this lack of coherence gives us a robust sense of (negative) rational evaluation that applies to the subject's distress even if we don't construe the latter in overtly/overly intellectualist terms. If we are sympathetic to this treatment of Corns's subject's distress, we might extend similar conclusions to pain. After all, we might imagine (as Corns does not) that the presentation of the asymmetric flower arrangement produces in the symmetry-lover not only distress, but an experience of diffuse pain. If so, then all the considerations offered about the distress will apply to the pain as well. It, too, has an irrational source. We would reasonably hold the subject responsible for the pain, might think of the pain as circumstantially inappropriate, as something that arises from a lack of coping strategies, and as something that fails to cohere with her other mental states. Thus, these considerations appear to make available a good (but not intellectualized) sense in which the subject's pain, too, is rationally evaluable.

Evidence from child development and pain learning may also support an affirmative answer to our question. Thus, when a young child has a modest fall or slight injury, parents often suggest an evaluation of the pain itself, in terms of whether the appropriate amount of hurt the noxious stimuli *should* have generated (note the normative language throughout). For instance, suppose a child touches a warm but not hot cup of coffee. Perhaps because of previous warnings and expectations, the child responds to this mild thermal insult with extreme wincing, screams, and distress. A parent, confirming the mere warmth of the cup, might gently suggest that the child is overreacting, with soothing admonitions that "it doesn't really hurt so much," and "it's not that bad, the cup was just a little warm," etc. This seems initially to be a case where a parent is rationally evaluating his child's pain — suggesting that some pain states are irrational, without reason in a straightforward sense, while allowing that other pains

¹⁰There are, of course, different accounts of what it is in virtue of which such states are evaluable. On some views, for instance, what makes them irrational is that an ideal subject under rational reflection would disavow such a desire or wish. On another view, such a state counts as irrational because it fails to cohere with a subject's other sincerely held beliefs and desires.

can be more appropriate to the circumstances (for discussion of such cases, see Helm 2001).

On the other hand, one might respond that in these sorts of cases, rather than evaluating the rationality of pain states themselves, we're instead evaluating numerically distinct negative emotional reactions (say, sadness, upset, worry, concern) to the pain. Brady (2009) argues plausibly that these and other felt emotions can be rationally evaluable (like beliefs and desires). If so, then perhaps the locus of evaluation in the asymmetric flower arrangement case or the parental soothing case, is not the pain, but instead the causally downstream emotional and other secondary reactions pain produces.¹¹

A further line of support for the idea that pains may be rationally evaluable comes from recent studies suggesting that learned coping strategies for dealing with painful episodes can generate strong differences in pain tolerance and subjective reports of pain intensity (Lu et al. 2007; Piira et al. 2002, see also ch. 11–12 of the present volume). Subjects who have learned *self-efficacy* and *cognitive intervention* strategies (e.g., subjects who have strong beliefs in their ability to cope with pains and who have learned to distract themselves during pain) typically have much higher pain tolerances than subjects who (for example) *catastrophize* their pains (for instance, subjects who express pain reactions in order to trigger emotional and other support from others). Seeking aid from others instead of managing it oneself tends to decrease pain tolerance and increase subjective reports of discomfort.¹²

It's tempting to read these results as showing evaluations and learning can have a strong impact on pain itself (as measured by pain tolerance and self-reports of pain intensity) rather than pain behaviors. However, this evidence is open to a version of the reply we already considered in connection with the asymmetric flower arrangement case or the parental soothing case. Namely, one might insist that what subjects rationally evaluate here, and what shows up in measures of their pain tolerance and self-reports of pain intensity, is not the pain itself, but reactions to the pain.

(We can see a rough parallel here with accounts of the rational evaluability of perceptual states (though the point is rarely put in these exact terms). Many theorists have held that perceptual states have contents that can be assessed for truth and falsity (e.g. Byrne 2002; Siegel 2010). If so, then their having such contents provides one natural way of thinking about the states themselves as being rationally evaluable. There are views of perception, however, that deny that perceptual states have content or are subject to such evaluation (e.g. Martin 2006; Travis 2004). On these views (Travis especially), it is not the perception itself that is the locus of assessment but the downstream judgments and beliefs formed on the basis of the perceptual experience. So, too, those who treat pains as having truth-evaluable contents will hold that the pains themselves can be rationally assessed in terms of their content; however, one might reject this view by holding that rational assessment applies to downstream psychological consequences of pains rather than pains themselves.)

It would seem, then, that there is suggestive evidence of the rational evaluability of pains, but that the evidence to date is so far not completely decisive by itself.

¹¹In the case of the asymmetric flower arrangement, we might additionally evaluate the upstream desire for symmetry that, when violated, is a partial cause of the subject's pain.

¹²Indeed, it appears that parents can significantly increase their children's pain tolerances and decrease their reports of pain intensity by employing distraction and empowerment responses, while parents who treat even minor stimuli as serious matters tend to cause their children to have lower pain tolerance and an increase in subjective intensity ratings (cf. Bearden et al. 2012; Gonzalez et al. 1993).

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Related Topics

For more discussion about the proper philosophical, psychological, and neuroscientific characterization of pain, see the chapters in part I of this volume.

Pereplytochik (chapter 18) discusses the structure of action explanations.

Williams (chapter 11) and Hadjistavropoulos (chapter 12) discuss interpersonal differences in pain tolerance and subjective pain reports.

Biographical notes

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