
Philosophical Psychopathology: Disorders in Mind
Owen Flanagan and George Graham, editors

The Myth of Pain, by Valerie Gray Hardcastle, 1999.

Divided Minds and Successive Selves: Ethical Issues in Disorders of Identity and Personality, by Jennifer Radden, 1996.

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The Myth of Pain

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The Nature of Pain

Common sense, though all very well for everyday purposes, is easily confused, even by such simple questions as "Where is the rainbow? When you hear a voice on a gramophone record, are you hearing the man who spoke, or a reproduction? When you feel a pain in the leg that has been amputated, where is the pain?" If you say it is in your head, would it be in your head if your leg had not been amputated? If you say yes, then what reason have you for ever thinking you have a leg?

—Bertrand Russell

It is time we ask the central question: what is pain? How should we explain it? Answering these questions should explain how we should conceive of psychogenic pains, among other things. However, true to my warning in the last chapter, the best I can do is present a hodgepodge of perspectives here. I shall outline both feature-detector and dynamical systems views of pain. In some sense, for our purposes, it does not matter which side wins in the end, because my conclusion would be the same either way: philosophers (and others) have misunderstood the fundamental complexity of pain processing and, as a result, often say or write silly things about pain.

Pain as a Sensory System

Philosophers regularly take pain to be an unproblematic and simple example of a phenomenological experience. And philosophy's influence is spreading. Much to my surprise, a recent review article in neuroscience began with the following quotation from Hilary Putnam: "The typical concerns of the Philosopher of Mind might be represented by three questions: (1) How do we know that other people have pains? (2) Are

pains brain states? (3) What is the analysis of the concept pain?²¹ Upon reflection, I decided that the quotation was entirely apt after all. Philosophers do take pain as their paradigm case in quite a number of projects, and the fact remains that we do not know exactly how pain processing works in the brain, so there is lots of room for wild and rampant speculation.

A little digging into the philosophical literature uncovered a wide range of opinions and arguments regarding how we think about pain. Indeed, I daresay just about every conceivable position is currently held today by some leading thinker or other. We find some philosophers and neurophysiologists arguing that pain is completely objective; it is either intrinsic to the injured body part, a functional state, a set of behavioral reactions, or a type of perception. We also find some philosophers and psychologists arguing that pain is completely subjective; either it is essentially private and completely mysterious, or it does not correlate with any biological markers but is completely nonmysterious. Finally, we find a few philosophers who disagree with both conceptions and hold that pain is not a state at all; it either does not exist as we commonly conceive of it or it is an attitudinal relation. (See figure 5.1.) Furthermore, each of these positions has become grist for someone's mill in arguing either that pain is a paradigm instance of a conscious state or that pain is a special case and should not be included in any general theory of consciousness.

We are left with several significant questions and puzzles. Among them are Putnam's. In this chapter and the next two, I do try to answer Putnam's three questions, but I also want to do more than merely carve out my niche among the myriad of positions. Here I aim to offer a diagnosis for why we have so little agreement concerning the nature of our pain states. In brief, I believe that there are two reasons. First, for many philosophers, there is a basic failure to appreciate the fundamental complexity of our neuronal processing. This is the less interesting cause. My claim is that philosophers are enamored with dissociation experiments but fail to understand their purpose, which is to individuate the component pieces of our larger systems. I argue that our pain sensory system functions according to the same basic rules of all our sensory systems.

Second, for many psychologists, neurophysiologists, and philosophers alike, there is an explicit or an implicit reliance on some sort of gate-

Eliminativist			Averill Churchland Dennett
Completely Objective	Intrinsic to Part of Body		Armstrong Bogen Holly Newton O'Shaughnessy Pritchett Wilkes
	Behaviorist		Malcolm Natsoulas Wittgenstein
	Functional State		Davis Edwards Gillett Lycan Shoemaker Timmen Walkup Wilson
	Perception		Everitt Hall Handcock Tye Pitcher
Relation			Conee Graham Kaufman Langsam Nelkin Stephens
Purely Subjective	Mysterious or Agnostic		Addis Daintyple Ehlich Harrison Kripke Leder McGinn Ornstein Sharpe
	Nonmysterious		Blum Carasso DeGrazia Gennaro Grahek Leighton Mayberry Trigg

Figure 5.1
Possible philosophical positions regarding the nature of pain, with the names of a few of the more prominent adherents listed. See the references for bibliographic information.

control theory of pain. Though theories of this ilk can account for several “low level” puzzling cases involving pain (why it is that stimulating our nociceptors under certain conditions can alleviate pain instead of causing more, for instance), they are notoriously vague when it comes to discussing the central gating mechanisms. This vagueness, I believe, obscures the fact that we actually have two separate systems involved in our perceptions of pain. One functions as a pain sensory system (PSS), quite analogous to our other sensory systems. The other (PIS), which developed independently of our PSS, actively inhibits its functioning.

Differentiating between the two systems helps explain the remaining controversies surrounding the basic nature of pain. While a PSS supports a perceptual view of pain as a completely objective phenomena, adding in a PIS (without explicitly recognizing that fact) accounts for the strongly subjective aspects of pain. I shall claim that a PSS functions according to the same basic rules of all our sensory systems and insofar as the pain system is a simpler system than, say, vision or audition, it makes sense to take pain perception as a paradigm instance of a conscious experience. But, insofar as we also have a PIS, pain also becomes a special case in our collection of conscious phenomena. Hence, contra Putnam, we should not be using the experience of pain as an intuitive and unproblematic example of conscious experience.

However, as a final conclusion emerging from my understanding of pain, we shall see that the sensation of pain—what most philosophers of mind focus upon as absolutely central to being in pain—is neither a particularly fundamental nor a particularly important component to our pain processing. One current popular research question in philosophy of mind is determining whether some philosophical approach or other (identity theory, functionalism, weak supervenience, etc.) can capture in an appropriate way what sensations feel like. If I am right about how we should understand pain, then the fervor devoted to this project might better be spent elsewhere, for what something is like becomes less important in explaining our mind.

The Complexity of Our Sensory Systems

Let me begin by outlining a few facts regarding our other sensory systems. I do this as a preliminary to discussing pain not because we understand,

for example, visual processing, so much better than pain processing—we do not—but because many of the facts of perceptual processing regarded as commonplace (even among philosophers of mind) are the same sort of facts that seem to confuse philosophers and psychiatrists when theorizing about pain.

Our visual system is quite complex, spans many areas in the brain, and is comprised of several subsystems whose interactions remain a mystery. It is widely known that different aspects of visual processing occur in different processing streams, at least from the feature-detection perspective. For example, color is processed in the intralaminar pathway, while motion is processed in the magnocellular. The auditory system works in an analogous fashion (though the interactions of its subsystems are not as mysterious). The medial superior olive of our auditory system probably computes sound location using interaural time differences. The lateral superior olive, on the other hand, computes sound location by using differences in interaural frequency.

What is important to notice is that it is quite all right for there to exist more than one processing stream in each modality. We might be mystified how color gets joined with shape and motion so that we have a unified visual experience of particular objects.² But we are not confused about whether the neuronal paths involved in computing an object's color are visual, or whether computing interaural time differences is auditory. We are perfectly happy to have each modality be involved in several, maybe ultimately unrelated, computations. We say (or, at least, I say) the parts of the brain that normally respond to impinging photons are part of the visual system, and the parts of the brain normally sensitive to air compression trains are part of the auditory system.

Naturally, this is a gross oversimplification of how our sensory modalities are actually individuated: without unpacking what is meant by “normal functioning,” the definitions are virtually unworkable. By way of partially rectifying this gloss, let me briefly touch upon the top-down and bottom-up investigative methodologies in neuroscience (and in psychology, to some degree), since these analytic tools help disambiguate what counts as normal functioning. More important, they allow us to make claims about which computational algorithms and cell assemblies are and are not included in our brain systems and subsystems.

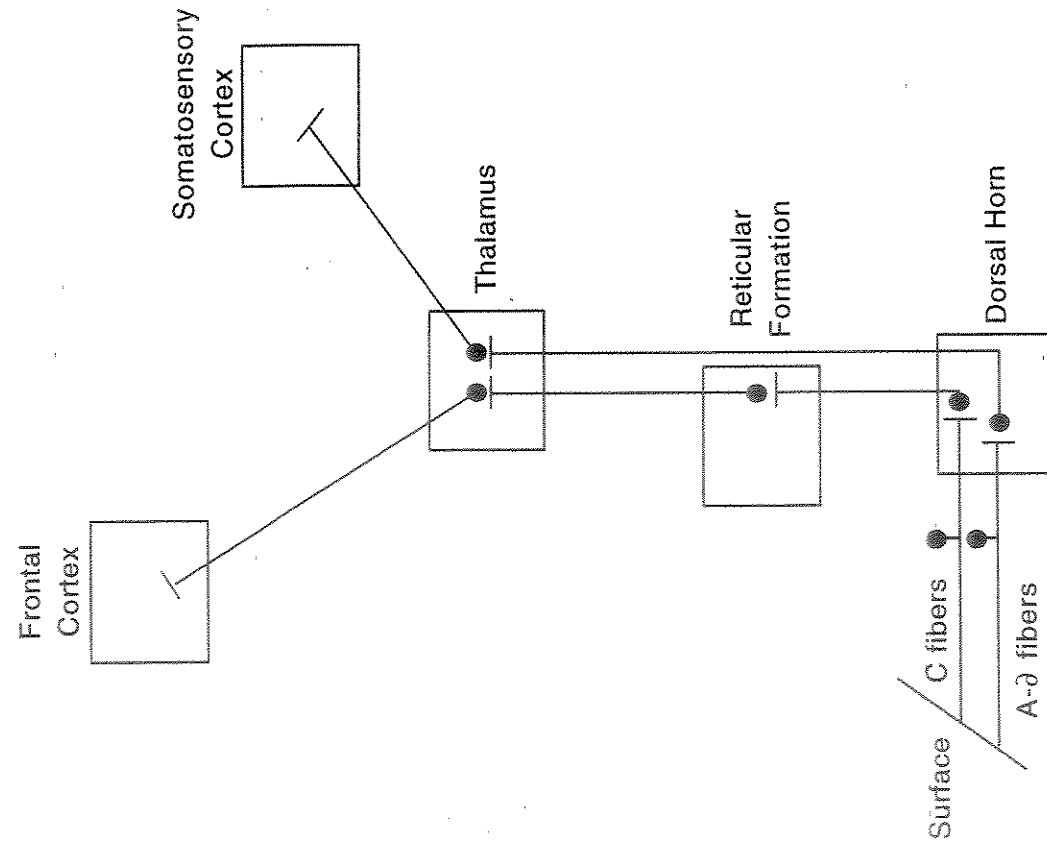


Figure 5.2
Diagram showing our pain sensory system. The first set of neurons take in information from the periphery and then synapse with a second set of neurons in the dorsal horn. These neurons ascend, some terminating in the reticular formation of the brain stem, others traveling to the thalamus. Axons that terminate medially in the thalamus synapse with a third set of neurons that project to the frontal cortex. Those that terminate laterally synapse with neurons that project to the somatosensory cortex.

motor response systems and is considered to be phylogenetically older than other aspects of our multifaceted pain system. This polymodal subsystem begins with the well-known unmyelinated C-fibers. Once they are activated, they will continue to fire for some time, even after the noxious event has ceased. This subsystem gives rise to what is known as “slow pain” or “second pain,” so called because this is what we feel second whenever we are injured—a diffuse and persistent burning pain. The traditional view is that when someone has chronic pain, a protracted second pain might be what is being referred to.

Similar to the color and form processors in the visual system, the A- δ fiber and C-fiber pathways remain largely segregated. For example, generally speaking, they terminate in different layers on the dorsal horn. However, there is more interaction than what we find in either the visual or auditory system. The dorsal horn contains “wide-dynamic range” (WDR) neurons that respond to both A- δ and C neurons, as well as to other peripheral stimuli. WDR neurons are also sensitive to visceral stimuli. It is possible that referred and sympathetic pains depend upon this sort of visceral-somatic convergence.¹⁴

Once nociceptive information exits the dorsal horn, it travels either to the reticular formation in the brain stem or to the thalamus. Laminae I and V project to the lateral nuclei in the thalamus,¹⁵ and laminae II, IV, and VI project to the medial nuclei. Each type of nuclei underwrites a different sort of information; the lateral nuclei process discriminative information (fast pain), while the medial nuclei and reticular connections process affective-motivational information (slow pain). The two thalamic streams remain separate on their trip to cortex as well. Nociceptive neurons in the lateral nuclei synapse in somatosensory cortex, which then can compute the location and characteristics of the pain; those in the medial nuclei synapse in the anterior cingulate gyrus in the frontal lobe, which figures in our emotional reactions to pain. The frontal lobe (and its connections) process our actual suffering.

Philosophy’s Error

Now we can see how and why several philosophers are mistaken in their conclusions that there are no such things as pains,¹⁶ or that pains are located in our limbs,¹⁷ or that pains are purely subjective¹⁸ or that pains

are reactive behaviors.¹⁹ Each of these positions identifies pain with one of the neuronal groups within the classic pain system, while failing to recognize that our pain system is complex and contains at least a duality of subsystems,²⁰ each of which processes a different sort of information. (See figure 5.3.)

In general, philosophers make these mistakes because they misunderstand the double dissociation methodology. We can, either through purposeful intervention or accidents of Nature, dissociate our discriminative pain processing from our affective-motivational pain processing. Ingestion of morphine (or other opiates), lesions to the medial thalamus, and prefrontal lobotomies all result in sensations of pain without a sense of suffering and without producing characteristic pain behaviors (wincing, moaning, complaining, etc.).²¹ In these cases, patients can localize their pains but are not upset by the fact that they are in pain. We can also get reverse effects, to a degree. Fentanyl causes one to react in pain yet inhibits our discriminatory abilities for the pain.²² Lesion studies and studies using hemispherectomies show that even with cortex completely missing, we can still have a pain sensation; we simply lack fine localization and intensity discrimination.²³ Patients with Parkinson's disease and Huntington's chorea often have pain sensations but are unable to indicate exactly where they feel the pains.²⁴

We also find instances of the nociceptive centers in the thalamus and cortex being activated without corresponding activations of A- δ or C fibers. Fully 80 percent of lower back pain sufferers present no external or internal injury.²⁵ Phantom limbs and phantom pains in phantom limbs are quite common experiences in new amputees.²⁶ Stimulating the medial periaqueductal gray region, tectum, or thalamus directly can also result in painful experiences.²⁷ Finally, as we have seen in chapter 2, our emotional states heavily influence the degree of pain we feel, quite independent of actual injury. Indeed, "psychogenic" pains have been documented since the late 1800s, when D. H. Tuke reported the case of a butcher who got fouled up on a meat hook and appeared to be in agony. However, when examined by the local chemist, it was discovered that the meat hook had only penetrated his jacket sleeve and, even though the butcher was screaming in "excessive pain," he was completely unharmed.²⁸

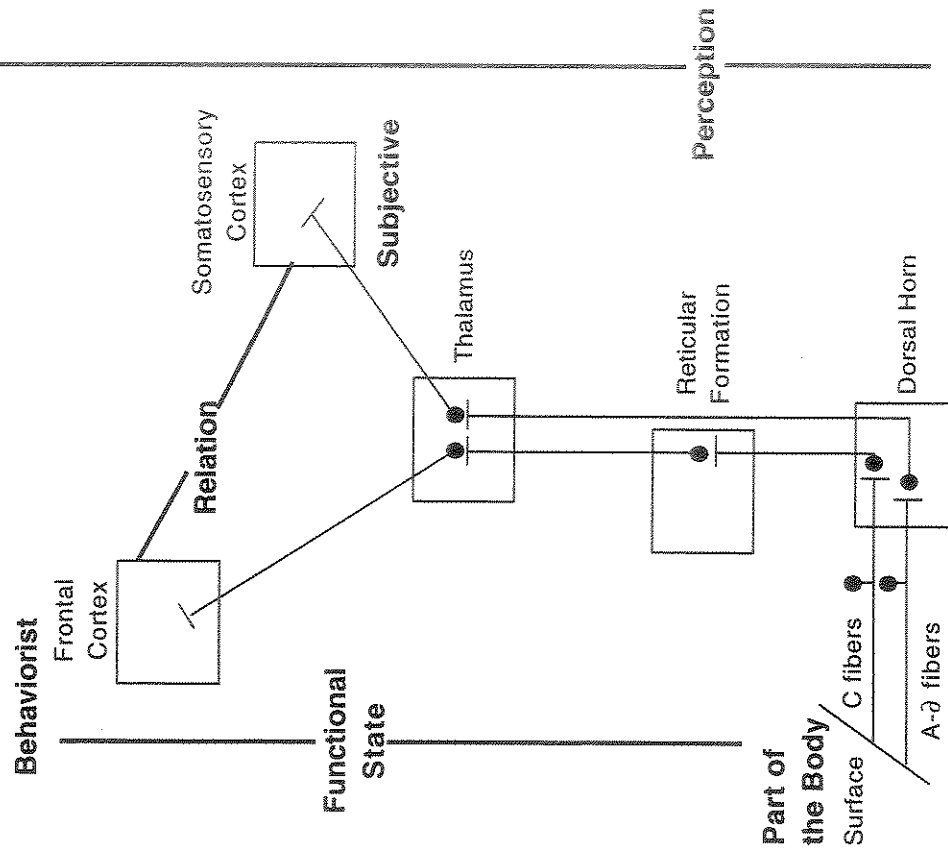


Figure 5.3

Part of the pain system identified with different philosophical views regarding the basic nature of pain. Most views identify pain with one subsystem or with one sort of neural processor. Two exceptions are functional state and perceptual views of pain, though perceptual views of pain often overlook or underestimate the motor component of pain processing.

“But Is It Going to Hurt?”

English, which can express the thoughts of Hamlet and the tragedy of Lear, has no words for the shiver or the headache . . . The merest schoolgirl when she falls in love has Shakespeare or Keats to speak her mind for her, but let a sufferer try to describe a pain in his head to a doctor and language at once runs dry.

—Virginia Woolf

Pain is not equivalent to a phenomenological experience, damaged tissue, or bodily or emotional reactions. Each of these items is a single component within a more complex system. This fact should not be surprising, for all of our sensory systems operate this way. In each case, many individual pieces work in tandem to process information about the world. Our pain system is no different. Its components take pressure, temperature, and chemical readings of our tissues in order to figure out what is happening to our bodies that might be damaging. Just like all our sensory systems, the pain processing system is a complex but well-honed system evolved to monitor some aspect of the world in order to promote our welfare.

But, we must issue an important caveat: Pains are the product of a complex sensory system that has to struggle to get itself heard. Our conscious sensations are the product of both nociception and activity of a pain inhibitory system (PIS). Even though nothing about painful experiences is deeply mysterious—they are neither random, nor inexplicable, nor tied to our psychological whims—they still are poorly correlated with actual tissue damage. What is interesting and different about our pains is the PIS. It is geared to suppress or enhance the activity of a single sensory system, and there is no other system quite like it in our nervous

system. We do have general inhibitory and excitatory systems in the brain, but none of these are specific to a particular neural tract. The PIS entails that our sensations of pain are almost independent of nociception.

This perspective on pain might be disturbing, for it greatly diminishes the importance our conscious experiences have to whether we are, in fact, in pain. This is counterintuitive at least, oxymoronic at most. Nevertheless, if chapters 5 and 6 are correct, then, contrary to how things seem to us, the sensation of pain is not what is most important in pain processing. It is but one minor aspect of our entire pain and pain-inhibitory systems, which themselves are geared to help us flee, fight, or nurse ourselves, depending upon the circumstances. Just like the rest of our perceptual systems, they help us get around in our environment as effectively as possible. From an evolutionary perspective, visual sensations are not the *raison d'être* of our visual system, and auditory sensations are not the ultimate goal for our auditory system. Sensations of pain are no different.

However, regardless of how I analyze pain scientifically or philosophically, how it feels is of great importance to us in our everyday lives. I too am a qualiphile, so I too want to know when something is going to hurt and by how much. This chapter is aimed at explaining why, even if we just focus on our sensations of pain, asking whether something is going to hurt is an ill-formed query. Part of the answer is that our seemingly simple sensations of pain are actually quite complex; part of the answer is that there is something right about the philosophical arguments for an eliminativism about our pain language, especially if we take the IASP recommendation that we define pain as a purely subjective state seriously.

The Complexity of Pain Sensations

My main point is that the story of pain is yet more complicated. Even if we restrict our purview to one tiny aspect of pain processing—subjective experience—we find several independent dimensions to pain phenomenology, including the sensory-discriminative and the affective aspects of our pain sensations, as well as our judgments of suffering, memories of previous pain experiences, and our beliefs about the causes and prognosis of the current pain.

Just as we can dissociate the various subsystems of pain processing in the body, so too can we dissociate the various dimensions of our pain sensations. For example, we can distinguish discriminative pain processing from affective-motivational pain processing phenomenologically as well as physically. We can have sensations of pain without them feeling awful and without acting as though we are in pain. In these cases, we can localize our pains but are not upset by the fact that we have them. As Barber concluded: "Apparently, the 'sensation of pain', in itself, is not necessarily 'painful'."¹

We can also get reverse effects. Certain drugs can cause us to wince in pain, yet if pressed, we would be unable to locate where the alleged pain is. Lesion studies and studies using hemispherectomies show that even with cortex completely missing, we can still have pain sensations; we just can't articulate exactly where or how bad they are. Various degenerative diseases can also provoke nonspecific pain sensations.

As alluded to in the previous chapters, important interactions exist among these dimensions, too. The sensorium fades into the emotive and the cognitive. This blending is not specific to pain processing, though. We see connections between affect and experience in our other perceptual systems, especially our systems involved in processing taste, temperature, and smell.² Even vision shows this effect, for we perceive objects we value to be bigger than neutral objects of the same size.³

Nevertheless, we need to distinguish the different dimensions of our pain sensations conceptually. How we treat pain clinically depends on which aspect of the pain sensation we want to affect. In only rare cases (and in cases of only a little pain) can we simply eliminate the entire phenomenological experience. More typical are instances in which only one or a few dimensions are affected. For example, if a doctor administers diazepam, then one's affective discomfort is reduced, while the sensory qualities of the pain remains the same. In contrast, fentanyl diminishes sensory intensity but increases the unpleasantness of pain.⁴

However, basic experimental research on pain often overlooks the complexity of pain sensations and assumes that feeling pain refers to some unique or simple experience. Experimental scientists require quantifiable stimuli and simple, repeatable, behavioral responses in order to produce analyzable data. They, like all other scientists, simplify and

abstract from the phenomena they study. Their task protocols assume that they can control nociception and that (contrary to fact) there is a tight correlation between a stimulus and subsequent behavior. Consequently, if they recognize the affective or cognitive dimensions of pain at all, they treat them as contaminants or as sources of experimental error.⁵

Happily, in distinction to most basic research on pain, clinical pain assessment techniques make none of these simplifying assumptions. As Melzack remarks: "To describe pain solely in terms of intensity is like specifying the visual world only in terms of light flux without regard to pattern, color, texture, and the many other dimensions of visual experience."⁶ Typically, modern psychiatrists look at four major components when evaluating a pain patient: nociception, sensation, suffering, and behavior.⁷ The best clinicians attend to historical, environmental, and interpersonal influences on pain perception, as well as the more standard cognitive, emotional, and behavioral dimensions.⁸ They believe that understanding the total experience of pain necessitates understanding the physiology, subjective experiences, behavioral responses, and psychosocial environment of the subject.⁹

Clinicians have devised pain rating scales that reflect the affective, intensity, and reactive dimensions of our pain experiences. These scales have been validated using cross-modality matching, which verifies that the magnitude of the descriptors remains (relatively) constant across tests and situations. Figure 7.1 gives one example of this sort of scale.¹⁰

Perhaps the best of the lot is the McGill Pain Questionnaire, one of the most common diagnostics used for pain and reproduced as figure 7.2. This survey charts seventy-eight adjectives for pain along twenty different dimensions. A self-report instrument, it lists numerous words that patients can use or rank to describe the intensity of their sensory, affective, and evaluative experiences.

Though these scales are quite robust across subjects and across time within individuals, their difficulty is that they only measure the intensity and not the qualitative character of pain itself, which is what those suffering from chronic and other pains care most about. (On the other hand, focusing only on intensity does give scientists a way to compare experimental and clinical results.) Nevertheless, despite the limitations of our diagnostics, we can understand pain sensations in terms of locations, affective and somatic qualities, and the intensity of these feelings. Each

Intensity	Reaction	Sensation
Excruciating	Agonizing	Piercing
Intolerable	Intolerable	Stabbing
Very intense	Unbearable	Shooting
Extremely strong	Awful	Burning
Severe	Miserable	Grinding
Very strong	Distressing	Throbbing
Intense	Unpleasant	Cramping
Strong	Distracting	Aching
Uncomfortable	Uncomfortable	Stinging
Moderate	Tolerable	Squeezing
Mild	Bearable	Numbing
Weak		Itching
Very weak		Tingling
Just noticeable		
Extremely weak		

Figure 7.1
Adjective scales derived from the McGill Pain Questionnaire and validated by cross-modality matching. (From Tursky 1976.)

can act independently of the others, or each could affect the others, depending on circumstances.

Quite trivially, we can see that if we merely ask how much something hurts, then it is not clear what we are talking about. Does an intense pain that doesn't bother you hurt more than a mild pain that troubles you greatly? Does a well-localized stabbing pain hurt more than a diffuse aching? A multidimensional perspective on our complex sensory experiences of pain is clearly called for. However, at the moment, our folk and research notions of pain bundle together the bodily location of the

sensation, its somatic quality, the feeling of suffering, and negative reaction to the feeling of suffering under the single heading of "pain."

Some may argue that pain then is just a simple term for a complex sensation. That is, we have just uncovered different aspects to a single perception, instead of entirely different experiences. Hence, it would make good folk and scientific sense to keep one name for the complex percept.

I disagree. The four dimensions of our pain sensations should be kept distinct. They are not like the color and shape of an object or the pitch and loudness of a sound. Our perceptions of objects and sounds are comprised of complex units. We cannot see a shape without also seeing that shape as some color. We cannot hear a loud noise without also hearing that noise at some pitch. If a brain is not given some of the information regarding the structure of an object or a sound, then it simply fills in what it is missing.

In distinction, pain sensations function quite differently. We quite often get one aspect of pain without the others. Moreover, if we are lacking an aspect—say, we have the somatic quality without the suffering or negative reaction—then our brains feel no obligation to fill in the missing pieces. Though our commonsense views tie the different aspects of pain sensations into single complex percepts, our brains don't.

There is a second reason for redesigning our ways of understanding our experiences of pain. The language we have for expressing our propositions concerning pain sensations is very crude. Unlike words for hue or pitch, we have few words that speak directly about the qualitative aspects of pain itself. Instead, pain is "described by illustration."¹¹ The adjectives we do use (e.g., cutting, dull, hot) are metaphorical.¹² In addition, we give short shrift to the emotional side of pain. Ronald Melzack comments that "the affective dimension [of pain] is difficult to express—words such as exhausting, sickening, terrifying, cruel, vicious, and killing come close but are often inadequate descriptions."¹³ We simply cannot express in a clear and unambiguous fashion how pain, in all its complexity, feels.

Eliminating Pain

But there is more at issue here than simply cleaning up our workaday language. I hold that adopting a biological perspective on pain entails an

McGill Pain Questionnaire

Patient's Name _____ Date _____ Time _____ am/pm

PRI: S (1-10) A (11-16) E (17-20) PRI(T) (1-20) PPI _____

BRIEF MOMENTARY TRANSIENT		RHYTHMIC PERIODIC INTERMITTENT		CONTINUOUS STEADY CONSTANT	
1 FLICKERING	11 TIRING				
2 GUILTY	12 EXHAUSTING				
3 PULSING	13 SICKENING				
4 THROBBING	14 SUFFOCATING				
5 BEATING	15 FEARFUL				
6 POUNDING	16 FRIGHTFUL				
7 JUMPING	17 TERRIFYING				
8 FLASHING	18 PUNISHING				
9 SHOOTING	19 GRUELLING				
10 PRICKING	20 VICIOUS				
11 BORING	21 KILLING				
12 DRILLING	22 WRETCHED				
13 STABBING	23 BLINDING				
14 LANCINATING	24 SHARP				
15 CUTTING	25 ANNOYING				
16 LACERATING	26 TROUBLESOME				
17 PINCHING	27 MISERABLE				
18 PRESSING	28 INTENSE				
19 GRABING	29 UNBEARABLE				
20 CHAMPING	30 SPREADING				
21 CRUSHING	31 RADIATING				
22 TUGGING	32 PENETRATING				
23 PULLING	33 PIERCING				
24 WRENCHING	34 TIGHT				
25 HOT	35 NUMB				
26 BURNING	36 DRAWING				
27 SCALDING	37 SOUZEING				
28 SEARING	38 TEARING				
29 TINGLING	39 COOL				
30 ITCHY	40 GOLD				
31 SMARTING	41 FREEZING				
32 STINGING	42 NAGGING				
33 DULL	43 NAUSEATING				
34 SORE	44 AGONIZING				
35 HURTING	45 DREADFUL				
36 ACHING	46 TORTURING				
37 HEAVY	47 PPI				
38 TENDER	48 NO PAIN				
39 TAUT	49 MILD				
40 RASping	50 DISCOMFORTING				
41 SPLITTING	51 DISTRESSING				
	52 HORRIBLE				
	53 EXCRUCIATING				

COMMENTS:

E = EXTERNAL
I = INTERNAL

Figure 7.2
The McGill Pain Questionnaire.

ve materialism espouses the
anding the mind is false and
to explaining our everyday
xist. Hence, the language of
d—eliminated—from future
to eliminate most folk expres-
g that our ways of discussing
t reflect what we know to be
reflect the complexity of our
dualism. Our best strategy is

taken to get to the elimina-
l more popular approach to
science developed by David
ilfred Sellars. That argument

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our theoretical language), for
works shape all observations
s. Our observations are "the-
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interactions comprises a rough-
attitudes of our commonsense
folk theory are defined by the

tivist position in its starkest
of psychological phenomenon

constitutes a radically false theory, a theory so fundamentally defective
that both the principles and the ontology of that theory will eventually be
displaced, rather than smoothly reduced, by completed neuroscience."¹⁴
Discussion of beliefs, desires, perceptions, and the like should go the way
of all discussions using wrongheaded ideas. Just as we no longer talk
about dephlogistonating wood or luminiferous ether, so too should we
no longer bother talking about our minds and what is happening in them.

This essentially recapitulates the earlier argument about the complexity
of pain sensations: our folk ways of talking about pain comprise a
rough-and-ready theory of pain. This theory assumes that pains are
identical to the sensations of pain and that the word "pain" can capture
the essence of that sensation. Both assumptions are false.¹⁵ Pain process-
ing is enormously complicated, and our sensations of pain form only a
tiny subset of what these processors do. But even if we focus exclusively
on our sensations, since these are most important to our folk ways of
being, our folk theory is still inadequate. We simply do not have the lan-
guage to express all the dimensions of our pain experiences. The descrip-
tors are either metaphorical or nonexistent. Our folk theory of pain needs
to be replaced by something commensurate with the phenomenology.

The Referents of Pain Terms Attacks on this version of eliminative
materialism generally have come from three fronts, either on premise
two, premise three, or premise four. Premise two asserts meaning holism
and a particular theory of reference. If that theory were false, then the
eliminativist's second argument would be undermined.¹⁶ There are alter-
native approaches to reference that do not assume holism; for example,
causal-historical accounts do not.¹⁷ If meaning is not holistic, then even
if folk psychology were incorrect, the terms used in that theory could
still refer, and elimination of folk psychological terms would not be
warranted.

Though an interesting and important rebuttal, deciding here whether
meaning holism is true would take us too far afield. However, even if it
were to turn out that a causal-historical account of meaning is correct,
this would not change the basic substance of the eliminativist's charge:
the alleged referents of folk psychology do not exist as assumed. Of
course, one might prefer to keep the folk language with new referents,
but this is only a semantic patch for a deeper metaphysical problem.