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Normal Narcissism and Its Pleasures

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Normal narcissistic functioning has to do with the regulation of a coherent set of meta-representations of the acting agent. That set of meta-representations has its own interior architecture and dynamics. Normal narcissistic functioning is an adaptive form of inter-psychic processing which can be given a general account by integrating views of it drawn from the clinical traditions of psychoanalysis, empirical psychology, and contemporary cognitive and neurosciences. This is not to be confused with any form of organized psychopathology, though pathological forms of narcissism are relevant to understanding normal narcissism. Neural correlates of normal narcissism, as also the characteristic emotions and pleasures/displeasures that accompany its operations, are also explored. It is proposed that this allostatic regulatory system plays a prominent role in a wide range of human behaviors. It also closes the gap between social norms governing such behaviors and the minds of the agents performing them. This integrative interpretation of the scientific material is offered as an exercise in "philosophy in cognitive science" and belongs to the tradition of naturalistic philosophical accounts of the human mind.

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Modern study of narcissism begins with essays on the subject by Otto Rank (1911) and Sigmund Freud (1914/1957). Thinking about narcissism thus found a prominent place in the psychoanalytic tradition from its early days. Rank's and Freud's thinking on the subject was driven by clinical experience with patients who seemed to be suffering from maladaptive or unhealthy narcissism. Clinical work in the various traditions of psychoanalysis that emerged later has considerably modified the early approach to the issues. What follows owes a great deal to this tradition (notably Kernberg, 1974; Miller, 1981; Solan, 1991, 1998, 1999; Stolorow, 1975). What emerges is an account of a significant regulatory system implicated in a wide range of ordinary psychological experiences as well

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as in a wide range of psychopathology. In calling this system "normal narcissism" I emphasize that such functioning is entirely non-pathological in its central features. That is, I am not now concerned with the various pathological forms of self-involvement, self-absorption or self-aggrandizement that we find commonly in social life and usually find so disagreeable, and that may rise to the level of grievous psycho-social dysfunction. The reference here is, rather, to a coherent set of parameters of normal psychological functioning that is found in all psychologically and neurologically intact adult members of our species. Those parameters have to do with our capacity to maintain a self-representation that is adaptive in our social environment. This account thus parts company decisively with those psychologists who use the term "normal narcissism" for pathological conditions (e.g., Campbell, Rudick, and Sedikides, 2002; Sedikides, Campbell, Reeder, Elliot, and Gregg, 2002; Sedikides, Gregg, Rudick, Kumashiro, and Rusbult, 2004). It is now also possible to draw some connections between the findings of clinical psychoanalytic psychotherapy (especially with so-called personality disorders) and contemporary scientific psychology. One of the aims of this paper is to suggest the outlines of that rapprochement, which I take to be vital to the continued development of a viable theory of normal narcissistic functioning.

Critics of the traditions of psychoanalysis often complain that it is not really a scientific approach to the mind at all. We may think of good scientific theories as characterized by four broad requirements: (a) they *unify* relevant bodies of information otherwise seen as disparate; (b) they are *data-driven*; (c) they are *useful*, in so far as they are the basis for predictions that can be tested and make for practically valuable applications; and (d) they can be *quantified* in some relevant fashion (see Eliasmith and Anderson, 2003, p. 24). Psychoanalytic treatments of narcissistic functioning have some claim to being scientific under the first three headings. In particular, they have helped to unify our understanding of serious forms of psychopathology, and they have been useful in clinical settings where the main aim is successful therapeutic intervention. Indeed, vigorous discussion of psychoanalytic conceptions of narcissism by clinicians constitutes a form of empirical testing.[1] The fourth parameter, however, is difficult to satisfy while remaining solely within the idioms of psychoanalytic language and concepts. A related criticism is that psychoanalytic treatments of mental functioning do not furnish us with biologically realistic models. I believe that these last two criticisms can be met. In particular, recent work by psychoanalytically oriented investigators of the neurobiology of affective regulation, and its import for our

[1]Popper (1963, p. 39) argued that genuinely scientific statements "must be capable of conflicting with possible or conceivable observations." The criterion of falsification has fallen out of favor among philosophers of science, as adequate to demarcate science from pseudo-science (see Hansson, 2006, 2008). The point all along, however, was to require that scientific statements be testable (Landau, 1983).

understanding of "the self," has generated an integrative framework that is both psycho-dynamically and biologically realistic (see, e.g., Schore, 1994, 2003a, 2003b). As Schore has shown, such biological realism requires extensive interaction between the clinical traditions of psychoanalysis and contemporary neurobiology. A further aim of this paper is to suggest that further developments in neural network modeling may allow us to continue that integration down to the neuronal level and to furnish it with mathematically precise models. The extent to which those models can be scaled up to include normal narcissistic functioning is not yet known, but the outlines of a promising research program are now evident. It must also be said that the psychoanalytic treatment of narcissism is too closely tied to vague notions of "self-esteem" and other affective states. Affects have important roles to play in normal narcissistic functioning, as I hope to show, but are secondary to more fundamental matters.

A final aim of this essay has to do with the intersection of analytic philosophy of mind with contemporary neurobiology and empirical psychology. Normal narcissistic functioning implicates concepts of the "self." And this has been, of course, not only a vital issue in neuroscience but also in philosophy. An ancient theologian once asked, *apropos* of philosophy and theology, "What does Jerusalem have to do with Athens?" We might also ask "What does neuroscience have to do with philosophy?" Does our science proceed autonomously without any particular need for philosophical inquiry, and without any particular implications for philosophy? Not, I think, when it comes to the self. For, if some philosophical views about the self are true, then there is no science of the self, nor is there any science of mental functions that subserve that concept. Thus, if Descartes is right that the self (which he knew under the rubric of "soul") is an immaterial entity capable of living independently from any physical body and only temporarily associated with any particular kind of body, then there is no science of the self, for immaterial "objects" or entities are beyond the reach of empirical science. Similarly, if Hume is right that there is no "self" but only a continuing series of conscious experiences, then there is no science of the self, for there is no such subject to investigate. Either way, if these philosophical theses are correct, then there is no science of the self, nor of self-related mental functions. This conditional sentence can be the opening premise in either a *modus ponens* argument (with the consequent proposition as its conclusion) or a *modus tollens* argument (with the negation of the antecedent as conclusion). Both arguments are valid. Since I agree that scientific investigation of the self and of self-related functions is possible (because actual), I think both Descartes and Hume were wrong. But here is one global sense in which metaphysics matters to science.

It is also true that science matters to philosophy, at least for those of us philosophers who stand in the traditions of "naturalistic" philosophy of mind (reaching back to Alfred the Great, and eventually to Aristotle). In this tradition, philosophical analysis of the mind seeks to be responsive to the best science

available, notably the best science of the brain and the central nervous system. We also seek to be fully responsive to what may be known from ethological studies about the operations of the brains of our closest primate relatives, and to place all this in a realistic evolutionary framework.

The intersection of philosophy of mind and science entails "integrative interpretation" of scientific findings (see Brook, 2009; Dennett, 2009; Eliasmith, 2007; Thagard, 2009; and cf. Thagard and Litt, 2008). As Brook has pointed out, quoting the philosopher Wilfrid Sellars, it is a characteristic function of philosophy to show how "things in the broadest possible sense of the term hang together in the broadest possible sense of the term" (2009, p. 221). The broadest possible sense is too broad for me, but to achieve some level of such integrative interpretation of scientific findings relevant to normal narcissistic functioning is one aim of this essay.

Selves, Brains, and Representations

There is widespread discussion in contemporary neuroscientific literature about "self-referential processing" of both exteroceptive and interoceptive stimuli. Such processing appears to occur in a wide range of domains, one of which is normal narcissistic functioning. It is further argued that such processing occurs in distinctive regions of the brain. Thus, when human subjects are asked to take a first-person point of view or to ascribe traits to themselves, or are asked to take a third-person point of view or ascribe traits to another person, they use distinctively different brain circuits to carry out both kinds of tasks. Self-representational tasks appear to involve the prefrontal cortex, and especially its medial regions, together with other various cortical areas and posterior parts of the anterior cingulate cortex, a limbic structure (David et al., 2006; Johnson et al., 2002; Schmitz, Kawahara–Baccus, and Johnson, 2004; Vogeley et al., 2004). Third-person point of view and ascription of mental states to others (so-called "theory of mind" tasks) characteristically engage the left hemispheric anterior cingulate cortex, supported by temporal and parietal cortices and other areas of the anterior cingulate cortex (David et al., 2006; Platek, Keenan, Gallup, and Mohamed, 2004; Vogeley et al., 2001). Right hemispheric dominance or laterality in self-referential tasks is consistent with the early maturation of that hemisphere and its role in early emotional regulation (Schore, 1994). The dorsomedial area of the prefrontal cortex appears also to be a key nexus for self-referential and emotional information such as may be involved in remembering emotionally charged personal life-events (e.g., those offenses that evoke vengeance), attending to one's own subjective feeling, both of which are "tasks [that] can be characterized as requiring access to, or manipulation of, explicit representation of different aspects of the self and integration of these aspects with emotional reactions and experience" (Fossati, Hevenor, Graham, Grady, Keightley, Craik, and Mayberg,

2003, p. 1943). Other self-referential tasks, such as distinguishing between one's own face and the faces of others, distinguishing between one's own voice and the voices of others, similarly cause robust activity in the right hemispheric prefrontal cortex (Feinberg and Keenan, 2005; Keenan, McCutcheon, and Pascal–Leone, 2001). It seems plausible, then, to think that normal narcissistic functioning may be lateralized to the right hemisphere.

Northoff and his colleagues have reached similar results in their comprehensive review of brain imaging studies of self-referential behavior: such processing appears to be a function of "cortical midline structures," including notably various regions of the frontal cortex, the cingulate cortex, retrosplenial cortex, parietal lobes and the hippocampus (Northoff and Bermpohl, 2004; Northoff et al., 2006). They argue, further, that this cortical midline system is both an anatomical unit and a functional unit (though, of course, "unit" here should not be understood as implying sharp boundaries between regions), and that affective components are irreducibly present in most forms of self-referential tasks. It thus appears to many investigators that self-referential processing occurs across a variety of domains, and engages distinctive brain regions. Such results give rise to further speculations about whether there is a unified "self" that undergirds and organizes such processing, and which might be provided with a complete and distinctive neural architecture. If so, of course, then the self that this neurobiological system supports, would be very "special" indeed. However, such broader conclusions can be challenged.

In a pair of important recent papers, Gillihan and Farah (2005a, 2005b) have challenged these findings. They suggest four different criteria for finding neurobiological systems to be "special": anatomical (engaging distinctive brain regions); functional uniqueness (how information is processed in the system); functional independence (one system's processing not depending on the processing in others); and species specificity (the claim that self-processing is unique to human beings, for example). Their argument is that self-referential processing studies are often flawed (notably with regard to uncontrolled confounding variables) and thus often do not succeed in showing that such processing is special with regard to the first three criteria (the exception to this finding will concern us further below). They also argue that self-referential processing can be shown not to be unique to our species and thus fails the fourth criterion. Gillihan and Farah acknowledge, however, that we have a "compelling intuition that the self is a distinct and unitary entity" (2005a, p. 94), but that this intuition may be grounded not so much in the information-processing activities of the brain but in the qualitative and subjective nature of consciousness. If so, then this intuition belongs more to philosophy than it does to science.

The analysis offered by Gillihan and Farah is very valuable for our understanding of self-referential processes. It is unfortunate that more recent investigations have not taken it into account as fully or as often as is warranted.

Indeed, especially with regard to their fourth criterion, I believe that a stronger argument is now open to us. To the evidence they review for self-referential processing (especially recognition of the "own-face") in non-human species can now be added evidence for such recognition in elephants (Plotnik, De Waal, and Reiss, 2006), bottle-nosed dolphins (Reiss and Marino, 2001; and cf. Marino, 2002), and one species of corvid (Prior, Schwarz, and Güntürkün, 2008). If these findings continue to be confirmed, then it seems clear that self-recognition of the own-face is not unique to humans. However, Gillihan and Farah's other findings are less secure.

A series of studies by Georg Northoff and his colleagues, have taken these issues into account explicitly, and continue to give evidence of activity in cortical midline structures as a distinctive neural underpinning for what they call "the core-self" (see Northoff et al., 2006, 2009; Northoff and Panksepp, 2008; Panksepp and Northoff, 2009; Schneider et al., 2008). This group argues that the core-self is essentially affective, is grounded in our capacity to integrate interoceptive information from sub-cortical systems (which will concern us further), and belongs to neural structures that can be found homologously in other animals. This generates a phylogenetic view of the self that is attractive in its own right. It also begins to posit a structure to the array of self-referential processing that goes on in our species. In these studies, I believe that Gillihan and Farah's call has been fairly answered, while preserving our "compelling intuition" that the self is indeed "a distinct and unitary entity."

Other studies have also sought to respond to Gillihan and Farah's criticisms. D'Argembeau et al. (2005) conducted PET investigations showing increased activity in distinctive cortical midline structures during self-reflective tasks. Moran, Macrae, Heatherton, Wyland, and Kelley (2006) found evidence for increased activation of the prefrontal cortex and the anterior cingulate cortex during emotionally charged self-reflection. Similarly, Ochsner, Beer, Robertson, Cooper, Gabrieli, Kihsltrom, and D'Esposito (2005) found cortical midline structure activation during self-appraisals. This is consistent with Uddin, Iacoboni, Lange, and Keenan (2007) on the role of mirror neurons in the cortical midline structures supporting formation of self-evaluative representations.[2] These studies are especially relevant to normal narcissistic functioning, which has primarily to do with self-evaluation. Tsakiris (2008) also takes Gillihan and Farah into account in his study of the dynamics of self-face recognition under the impact of the integration of multi-sensory information. The Northoff–Panksepp hypothesis is also supported by studies of autistic persons in whom dysfunctions

[2]For a general review of mirror neuron systems, see Pineda (2009). However, Lingnau, Gesierich, and Caramazza (2009) found no evidence of mirror neurons in humans. For a reply see Kilner, Neal, Weiskopf, Friston, and Frith (2009). Grafton (2009) doubts that we need to invoke a "mirror neuron system" to explain relevant data.

of self-representation and cortical midline structures have been found (see Kennedy and Courchesne, 2008; and Uddin, Davies, Scott, Zaidel, Brookheimer, Iacoboni, and Dapretto, 2008). The upshot of all this activity is to show, on the one hand, the value of Gillihan and Farah's perceptive and hard-hitting criticisms of earlier work, and to suggest very strongly, on the other hand, that self-referential processing is, indeed, special. Before going any further, I would like to draw one further lesson from their work.

Gillihan and Farah argue that agency is a central notion involved with self-representations. Agency is commonly taken to involve a compound of recognition that one's body is indeed one's own (as a whole), that one's actions are actually initiated by the self, rather than by any other person, and that the actions we initiate belong to us. They go on to argue that our sense of agency is, indeed, special in the anatomical sense (cf. Farrer and Frith, 2002). This finding is consonant with Northoff and Panksepp's proposal of a core-self that rests upon sub-cortical activity, especially sensori-motor and integrated interoceptive processing, and that sponsors higher-order self representations based in the network of connections between frontal cortical regions and limbic regions. Agency, as will be argued below, is also central to normal narcissistic functioning.

But does all this show that there really is a distinct and unitary self? And do these considerations suggest anything further about the nature of that self? These are vexed issues, both in neuroscience and in philosophy, and a modest agnosticism would be entirely in order. Moreover, whatever else there is to be said, a homunculus fallacy must be avoided (hard to resist as it may be: see Searle, 2005), for it generates at once an infinite and vicious regress of explanation. The general direction of the studies mentioned above suggests that any biologically defensible conception of the self will be representational through and through. Representations have recently been given a perspicuous and attractive characterization in the "neural engineering framework" posited by Thagard, Eliasmith, and Anderson. This view is so promising for generating biologically realistic models of how brains give rise to behavior (including self-regulatory functions of normal narcissism) that it is worth describing further.

Eliasmith and Anderson take the central problem of neuroscience to be "explaining how neurobiological systems represent the world, and how they use those representations, via transformations, to guide behavior" (2003, p. 5; for what follows cf. Eliasmith, 2003, 2005, 2007; Thagard and Litt, 2008; for an earlier similar view see Sloman, 1993). Representations are understood here to be symbolic, causal, and irreducibly statistical. These notions are further developed in terms of codes. Codes can be understood in terms of something so simple as Morse code. Morse code converts Roman alphabet letters into sequences of dots and dashes (which, in turn, can be given physical form as electro-magnetic pulses of varying duration), which is the encoding function. When we receive the encoded signals, we re-convert them into Roman alphabetic letters: the

decoding function. The code itself thus stands for a two-way causal relation between two alphabets. In the case of neurons and neural populations, the two alphabets are the firing rates of the neurons (or the aggregate rate of firings in a population) and the physical properties of stimuli (whether exteroceptive or interoceptive). By application of a set of mathematical functions judiciously adapted from control theory, Eliasmith and Anderson described these relations. Moreover, their mathematical model takes into account both the statistical and the temporal qualities of neuronal populations, thus lending it a dynamic dimension. The model can be simulated on a computer and can be scaled up (so far) to populations of 7200 neurons. What is truly arresting is how well the model predicts the actual behavior of real neuronal systems (e.g., the system by means of which a lamprey eel swims). What is not yet known is whether the model can continue to be scaled up to larger and larger neuronal networks or populations.

Now, where there are representations, there may be representations of representations. We can expect to find in the human brain capacities for second-order (and higher) representations. By no other means could we succeed in representing the dynamic qualities of our internal and external environments; and neither could we represent the changing qualities of our self-representations. Moreover, those self-representations (the products of self-referential processing) are not mere congeries. Rather, they have a deep form of coherence. Nothing else will seem to account for our sense of personal identity, as individuals who remember their past and forecast their future. Our sense of agency seems to require a cohesive set of self-representations, also. How else will we maintain our deep sense that our actions are our own and due to our own initiative? Similar considerations arise from our capacity coherently to project our values and purposes forward in time by virtue of creative actions. This capacity for establishing an arc between values, purposes, goals and actions, oriented simultaneously to the past and the future, is what Kohut called "the nuclear programme of the self" (see Kohut, 1984, pp. 42–43, 99–100, 147–148). Whether any of these capacities requires a strict unity of the self is debatable. But they certainly seem to require an organized, cohesive, and dynamical set of second-order self-representations. That seems to me to improve on Churchland's idea of the self as a set of self-representations "coordinated on an 'as-needed' basis, and arranged in a loose and loopy hierarchy" (2002, p. 309), while sacrificing nothing when it comes to being biologically realistic (and thus somehow beyond the reach of empirical science). Such a conception of the self avoids the homunculus fallacy, avoids Cartesian dualism, and also avoids Humean skepticism about the self. The model of neural representation provided by Eliasmith and his colleagues may well be extended to such a high-order dynamic functional organization.

The results of contemporary developmental studies converge on two findings that are compatible with this view of the self as a meta-representational capacity of the brain. The first is that while a rudimentary form of the self appears early

in human ontogeny, and may even be present in human neonates (McClelland, 1993; cf. Gallagher, 1996; Kernis, 2003), it is unlikely that the self is fully developed until age five or even much later (Gopnik, Meltzoff, and Kuhl, 1999, pp. 52–59; Hobson, 2004, pp. 206–274; Sroufe, 1997, pp. 195–200, 218–222). The second is that a full self-concept emerges gradually during infancy and childhood, starting with a notion of the self as a "physical agent," and advancing to more sophisticated notions of the self as "autobiographical," that is, as possessing a substantial degree of unity over time and awareness of the self as having such a diachronic unity (Fonagy, Gergely, Jurist, and Target, 2002, pp. 203–251). We come to be selves gradually and as a result of a complex developmental process that is subject to a wide range of vicissitudes. Some investigators specify five types of self-concept or five stages of such self-development (Boyer, Robbins, and Jack, 2005; Carruthers, 2007; Neisser, 1988, 1991; Rochat, 2003). Such a multi-staged process is compatible with our conception of the self as a functional organization of second-order (and higher) self representations, here understood in terms of a sequence of such organizations. Almost all investigators suppose that the "physical" or "bodily" self is the earliest. Recent neuroscience finds that the anterior insular cortex and the anterior cingulate cortex support a capacity for integrating interoceptive stimuli, an integrating function that may well be foundational for second-order self-representations (see Craig, 2003, 2004, 2009; Critchley, Mathias, and Dolan, 2001; Critchley, Wiens, Rotshtein, Öhman, and Dolan, 2004; Devue, Collette, Balteau, Degueldre, Luxen, Maquet, and Brédart, 2007; Gray, Harrison, Wiens, and Critchley, 2007; Karnath, Baier, and Nägele, 2005).

The self, of course, does not stop developing either in childhood or in adulthood. Rather, it continues to undergo development and transformation throughout the life-span (Erikson, 1982; Kegan, 1982). But that self-structure that requires normal narcissistic functioning is fully in place, barring organic brain damage or other severe developmental deficits, by approximately age five (when the rapid growth of the brain has also reached a plateau: see Locke and Bogin, 2006, p. 261). It is to those functions that I now turn.

Normal Narcissistic Functions

If meta-representational capacities are found in normal human agents, then it makes sense to suppose that the self-system will also give evidence of a capacity to monitor and evaluate its various essential parameters. This is what I take normal narcissistic functioning to do. The operations of normal narcissism occur largely outside of conscious awareness. We are thus not normally aware of the system as such, though we do become aware, from time to time, of its products. The over-arching function of the system is to regulate the self-representation with regard to a number of basic parameters. And it is these parameters

that give the system its more fine-grained functionality. I will discuss these more fine-grained functions under six headings.

The Temporal Coherence of the Self

Implicit in the meta-representational self is the cohesion or coherence of that representation over relatively short periods of time (short enough to be available with the aid of working memory alone). This is the *synchronic* unity of the self-representation. It is what allows an agent to understand that her actions are *initiated* by her (rather than by someone or something else) and that these actions *belong* to the agent (rather than to someone or to something else). Without these features of the relationship between agent and action, there will be no higher-order sense of agency or autonomy, both of which are supra-ordinate capacities of normal narcissism. According to what seems to be the emerging consensus among brain scientists, working memory is distributed over frontal and limbic areas of the brain, with especially important contributions from the prefrontal cortex and the anterior cingulate cortex (Kendo, Osaka, and Osaka, 2004; Mottaghy, 2006; Postle, 2006; Schacter, 1996, pp. 40–43, 80–82). These areas of the brain will be implicated in narcissistic functioning more directly, as will be shown. It is very difficult to see how any type of animal could develop a self-concept or a self-representation without this kind of synchronic coherence.

It is a further matter to develop a sense of the cohesiveness of the self across more substantial periods of time. This will entail the full functioning of autobiographical memory, a particular type of long-term memory that allows us to connect events from the past to ourselves — to have a subjective biography at all. There is disagreement among researchers about when this memory system matures, with some arguing vigorously for its possession by age two years (Courage and Howe, 2004; Howe, 2004; Howe, Courage, and Edison, 2003; Howe, Courage, and Rooksby, 2009), and many others arguing for onset at about age four years, with full operation by age five to six years (Levine, 2004; for general discussions see Hermans, Raes, Philipott, and Kremers, 2006; Proudhomme, 2005). The coherence of the self that emerges with autobiographical memory will be referred to as the *diachronic coherence* or the *continuity* of the self. It is this which can be eroded, damaged or lost in such neuro-psychiatric disorders as schizophrenia, depression, confabulatory disorders (e.g. Korsakov's syndrome, for which see Schacter, 1996), and the various forms of dementia (for which see Fujiwara and Markowitsch, 2005). Perhaps the most tragic of these is Alzheimer's dementia, the advanced stages of which often cause us to say that the sufferers are "no longer themselves." It is noticeable that in their study of delusional misidentification and reduplication syndromes, which also entail autobiographical disturbances, Feinberg and Keenan (2005) found that 97% of

individuals reported in the literature suffered from right hemispheric damage (e.g., due to stroke) and that such deficits resulted in loss of self-related functions (cf. Devinsky, 2000).

Synchronic coherence and diachronic coherence of the self depend on our capacities to integrate and represent temporally complex events. Indeed, autobiographical memory (and even merely episodic memory) will not be possible without these capacities. Recent neurobiological investigations find that regions of the prefrontal cortex and the parietal cortex are involved in these activities (Browning and Gaffan, 2008; Wheeler, Stuss, and Tulving, 1997; Yarkoni, Braver, Gray, and Green, 2005; Yarkoni, Gray, Chrastil, Barch, Green, and Braver, 2005). These regions of the brain are also intimately involved in determining the expected reward value of action-outcomes, which also is part of normal narcissistic functioning.

On this view of it, then, the self-system is capable of monitoring the on-going status of these temporal parameters of self-coherence, and also of representing and evaluating threats to them, whether endogenous or exogenous to the agent. It is, however, dubious to suppose that the cohesion and continuity of the self is simply the same as (or extensionally equivalent to) personal identity. Rather, a sense of personal identity arises from and depends upon the two kinds of temporal unity in the self and its representations, but is not identical with them (Marcia, 2006). Threats to identity, or loss of identity, will entrain narcissistic consequences. What I think all of this does imply for the notion of personal identity is that such identity is not static, but rather a dynamic tension, at once capable of sustained stability over long periods of time, but also capable of even fundamental changes under the pressures of ordinary developmental crises (see Kegan, 1982 for the image of the "evolving self" as a spiral). A similar kind of dynamic stability is involved with self-esteem and narcissistic hedonic states.

Self-Esteem and Narcissistic Pleasure/Displeasure

It is thought by some that to establish and maintain a positive emotional tone towards the self is a further function of normal narcissism (Stolorow, 1975). But positive feelings of affection towards the self do not seem adequate to capture the full meaning of valuing the self. Indeed, freely and fully to feel very negative affects towards the self (e.g., guilt, shame, sadness, despair) is clearly appropriate in many situations, whether these reflect judgments reached by the individual about herself or judgments made by significant social alliance partners. Moreover, this seems to get the causal relationship backwards, suggesting that self-worth arises from relevant affective states, rather than the other way round. It is now customary to distinguish between explicit self-esteem, comprised of conscious feelings or judgments of self-liking, self-acceptance, self-value; and implicit self-esteem, comprised of automatic, nonconscious, associational patterns

of preference for the self (Lebel, 2010; Oakes, Brown and Cai, 2008; Pelham, Koole, Hardin, Hetts, Seah, and DeHart, 2005; Zeigler–Hill, 2006). It is possible for explicit and implicit self-esteem to be congruent (Kernis, 2003; Koole and Kuhl, 2003; Oakes et al., 2008), but very commonly they are not. Perhaps for this reason, implicit self-esteem seems to be the most fundamental measure of how the self is valued and also seems to be most fundamental to healthy psychosocial functioning. This may explain why self-esteem is best understood as a "quiet" condition, usually lying deep in the background of an agent's total mental state, and most likely to come to notice only when it is disturbed. That is, ". . . optimal health is more likely when self-esteem is not a concern because the worth of the self is not at issue" (Ryan and Brown, 2003, p. 71). In a similar fashion, Kernis has emphasized that what is most important about self-esteem is not whether it is high or low, but whether it is *stable* (Foster, Kernis, and Goldman, 2007; Kernis, 2003, 2005). In these several respects, then, recent investigations suggest that it is not conscious affective states that represent our deepest preference for the self. Rather, what we see in the narcissistically healthy agent is a disposition (or set of dispositions) to advance the agent's own values and projects, to assert, that is, what Kohut called "the nuclear program of the self."[3] This is a form of aggressive self-assertion, especially in social contexts, that strikes a well-functioning balance between egoistic solipsism and utter dependence on social partners' approval (Hodgins, Brown, and Carver, 2007). That is, narcissistically healthy agents are neither too independent of their social environment nor too dependent upon them. Miller puts the point this way: "He knows not only what he does not want but also what he wants and is able to express this, irrespective of whether he will be loved or hated for it" (1981, p. 33). Persons who function in this way are fully responsive to their social partners, especially those involved in valued alliances, and will not avoid either positive or negative feedback from their social surrounds. These epistemic conditions of self-assertion are emphasized in several recent investigations (Kernis, 2003; Koole and Kuhl, 2003; Kuhl and Kazen, 1994). Self-assertion can also be compared with some other constructs recently discussed in the literature on self-esteem.

The connection between self-esteem and *autonomy* has been extensively explored by Richard Ryan and his colleagues (Moller, Deci, and Ryan, 2006; Niemic, Ryan and Brown, 2008; Ryan and Deci, 2006, 2008; Ryan, Deci, and Grolnick, 1995). On this view, autonomy is the capacity of agents to shape actions according to their own values and for the furtherance of their own pur-

[3]Dispositional properties have been the subject of intense philosophical discussion. I take dispositional properties to require analysis in terms of sets of counter-factual conditionals (Choi, 2006, 2009; Molnar, 1999). For defense of the causal relevance of dispositions, see McKitrick, 2005; and for a general defense of realism about dispositions see Cross, 2005 and Malzkorn, 2000.

poses, "acting in accord with one's values, preferences and needs as opposed to acting merely to please others or to attain rewards or avoid punishments" (Kernis, 2003, p. 14). Autonomy is not, on this view, mere detachment or independence from social relationships. Autonomous persons are not free from environmental influences. This concept of autonomous functioning is very similar to what I am calling self-assertion. My concept is also closely related to what some call "self-activation," an important form of affect-regulation (Koole and Coenen, 2007; Koole and Kuhl, 2003; Schwinghammer and Stapel, 2006). According to this analysis, activation of "extended networks of cognitive-affective representations of autobiographical experiences, motives, and emotional preferences" has the power to very quickly (within 600 milliseconds) down-regulate negative emotions and moods (Koole and Kuhl, 2003, p. 44). This affect-regulatory function further supports the view that self-assertion/self-esteem is not constituted by affective states, but rather that affects *follow* assertion of the self and its nuclear program (Erber and Erber, 2000; Koole and Coenen, 2007; Koole and Jostmann, 2004; Oakes et al., 2008; Schwinghammer and Stapel, 2006; Van Dillen and Koole, 2007). What I am referring to as normal narcissistic functioning entails the capacity to establish and (relatively) freely to exercise the disposition for self-assertion, especially in the form of the agent's own actions and plans. Effectively and autonomously to shape the world within the agent's reach, while remaining epistemically close to the social environment, is part of functioning well in narcissistic terms.[4] Self-assertion is just as fundamental to normal narcissism as are the two forms of temporal continuity of the self discussed earlier. For, without this dispositional property we are unlikely to be able to exercise any meaningful form of agency, especially over long periods of time. Exercise or actualization of the disposition (at least often successfully) will be among our most basic psychological needs.

The existence of such narcissistic needs leads to narcissistic desires, which will be our desire to have those needs (on balance) satisfied. If an agent is effectively to monitor the satisfaction and/or dissatisfaction of specifically narcissistic needs, then he must be capable of generating narcissistic pleasure or displeasure. Such pleasure and displeasure (narcissistic hedonic tone) can be understood along the lines suggested by Schroeder's representational theory of pleasure:

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[4]The ancient Roman poet Ovid is our earliest source to bring the stories of Echo and Narcissus together (*Metamorphoses* III. 339–510). Both stories are deeply bound together by a common theme: the loss of self-determination (to the point that Echo is only able to repeat what others say and Narcissus pines away to death). This may be a literary anticipation of the importance of autonomy to adaptive psychological functioning. Ovid may also anticipate the connection between self-esteem (as a product of self-assertion) and our fear of death. See Schmeichel, Gailliot, Filardo, McGregor, Gitter, and Baumeister, 2009 for a recent study of that connection.

> To be pleased is (at least) to represent a net increase in desire satisfaction; to be displeased is to represent a net decrease in desire satisfaction. Intensity of pleasure or displeasure represents a degree of change in desire satisfaction. (2004, p. 90)

Narcissistic pleasures and displeasures, then, will be representations of the status of net narcissistic need-satisfaction or dissatisfaction at any given time or over any given period of time. Of course, most of the time, the agent will be in a neutral condition, experiencing neither pleasure nor displeasure. But the capacity to be narcissistically pleased or displeased (another dispositional property or set of dispositional properties) is an important element of the regulatory system I am describing (compare Ryan and Deci, 2008, pp. 702–707, and Muraven, Rosman, and Gagné, 2007 for autonomy heightening "vitality"). For, negative and positive hedonic states are among the most informationally rich signals to the agent of her own functional condition. Having a range of hedonic states available to us, while generally remaining in a hedonically neutral condition, implies a further notion of narcissistic balance or equilibrium and with it the issue of homeostasis. This will allow for somewhat closer specification of the dynamic tensions involved in normal narcissistic functioning.

Narcissistic Dynamics: Homeostasic or Allostastic?

Homeostatic systems are familiar from ordinary experience with various kinds of automatic control devices. Heating and cooling systems, for example, commonly operate automatically under the control of a thermostat. Here "set points" determine the range of desired temperature fluctuation, such that when the ambient temperature falls outside of that range the system activates automatically to raise or lower it as needed. Some basic physiological systems in the human body also operate in the same fashion. Thus, the acidity of the blood, the level of oxygen present in the blood, as also the level of glucose in the blood, are all controlled within a very narrow range of values. Similarly, overall internal body temperature is kept within a narrow range by a complex interaction of sweating, kidney function, constriction or expansion of blood vessels, and the like. Fundamental to the control of homeostatic systems is more or less elaborate processes of feed-back. The well-functioning of these systems is vital for continued physiological life.

It has been common to understand normal narcissistic functioning as a homeostatic system analogous to these physiological systems, only one that is vital for continued psychological health (e.g., Cicchetti and Tucker, 1994; Schore, 1994, pp. 355–369). This has proved to be a fruitful analogy, inviting investigations into the manner in which the "set-points" of the system arise from socialization, how the system responds emotionally to disturbances in its functional equilibrium, and so on. However, for various reasons it seems better to describe normal narcissism as an allostatic system.

The concept of allostatic systems was first developed by Sterling and Eyer (1988; cf. Sterling, 2004). The concept has been considerably extended and elaborated by Bruce McEwan and his associates, and has now emerged as a full-fledged scientific research paradigm (McEwen, 2003; McEwen and Wingfield, 2003; Schulkin, 2004). Allostatic systems operate, in the main, just like homeostatic systems do, except they also allow for two further meta-functions: *change* of the set-points within which homeostatic equilibrium is maintained, and capacity for *anticipatory* responses that do not depend on feedback (i.e., so-called "feed-forward" mechanisms: see Schulkin, 2004, pp. 346–351; and for a neural engineering model of such mechanisms see Eliasmith and Anderson, 2003, chapter 6). A variety of lines of evidence converge on these requirements of the theory: clinical results from treatment of narcissistic disturbances, in which set-points are changed to a more adaptive range; studies of what happens when agents undergo heightened and chronic stress, which may shift the set-points of the system to a maladaptive range; and neurobiological studies of anticipatory anxiety, the relevance of which to normal narcissism will be considered below (McEwen and Magarinos, 2001; McEwen and Olié, 2005; McEwen and Seeman, 1999; Rosen and Schulkin, 2004; Schulkin, McEwen, and Gold, 1994). It is also possible to conceptualize major depressive disorders as maladaptive setting of the set-points of major regulatory systems (including ours) under conditions of trauma or other psychological stress (Fales et al., 2008; Holmes and Pizzagalia, 2008; Luu and Tucker, 2004; Tucker, Luu, Frishkoff, Quiring, and Poulsen, 2003). Before leaving this subject I should say a little more about the psychological meaning of the set-points of the narcissistic system.

Implicit in the basic dimensions of narcissistic equilibrium (self-cohesion, self-continuity, self-assertion, stable neutral hedonic tone) is a set of *values* that structure the system. These are acquired in the normal course of socialization and affect regulation, largely at the hands of the nurturing environment and its wider culture. They are foundational for what Kohut called "the nuclear program" of the self. In the psychoanalytic tradition these are commonly referred to under two closely related concepts: that of the *ego ideal* and of the *ideal ego*. Here is one standard definition of the ego ideal:

> The images of the self to which the individual aspires consciously and unconsciously, and against which he measures himself. It is based on identification with the parents and other early environmental figures [e.g. siblings], as they actually are, were in the past, or as they have been idealized [to be]. (Moore and Fine, 1967, p. 93)

Representations of the self in which the self is (consciously or otherwise) conceived to be satisfying such ideals constitute the *ideal ego*, i.e., an ideal condition for the ego. Ego ideals have a curious "push–pull" quality. In so far as they represent an idealized object, person, relationships, or other states, they furnish the agent with a mental representation that stands over and against her self-representation

as a standard to be met. But they also represent performances, relationships, and states that are possible and desirable for the agent. Edith Jacobson called this "the double face of the ego ideal," and traced its motivational power to our (developmentally) archaic desire "to be one with the love object" (1964, p. 96).

Disturbances to narcissistic equilibrium are very common. It is not part of normal narcissistic well-functioning to avoid narcissistic threats. Rather, narcissistically healthy persons fully experience such threats, evaluate them appropriately, representing their weight of disruption to the system accurately by means of appropriate affective and hedonic states (compare the "sensitivity function" defined by Koole and Kuhl, 2003, p. 44). They can take effective action to recover from narcissistic disequilibrium. They can also do the vital but difficult work of re-structuring the system (this is one way to conceive the work of many psychotherapeutic treatments). The manner in which the individual both incurs and recovers from narcissistic disturbances represents well the overall functionality of the system and generates the concept of *narcissistic resilience*, which should be compared closely with other notions of psychological resilience in the face of trauma (Curtis and Cicchetti, 2007; Luthar and Brown, 2007; Waugh, Tugade, and Fredrickson, 2008). *Narcissistic vulnerability* is a measure of our sensitivity to narcissistic threats, in particular, and the likelihood that those threats will result in outright insults or wounds. This notion of narcissistic vulnerability should be compared to "rejection sensitivity," defined as "the disposition to anxiously expect, readily perceive, and intensely react to [social] rejection" (Berenson et al., 2009, p. 1064). Adults who are high-rejection sensitive tend more readily than low-rejection sensitive adults to abandon pursuit of personal and inter-personal goals under the threat of rejection (Berenson et al., 2009; Downey, Mougios, Ayduk, London, and Shoda, 2004). I would describe such readiness as disruption of self-assertion or autonomous functioning and thus a failure of normal narcissism. Imaging studies suggest strongly that regions of the anterior cingulate cortex and the prefrontal cortex regulate responses to perceived or actual social rejection (Eisenberger and Lieberman, 2004; Eisenberger, Lieberman, and Williams, 2003; Kross, Egner, Ochsner, Hirsch, and Downey, 2007). These studies imply involvement of these same brain regions in normal narcissism, an implication I will strengthen below.

It is tempting to think of narcissistic disturbances solely in negative terms. But we also register, evaluate, and monitor positive disturbances in our narcissistic equilibrium: when the system exceeds the upper bound of its allostatic set-points. Thus it is not only stress and trauma that create "allostatic load," but also those positive experiences and states of consciousness that lead to more positive affective and hedonic conditions. It will be convenient to address the full range of these disequilibria (and especially the more positive kinds) by giving a brief treatment of some of the emotions that typically accompany them.

Narcissistic Emotions

The conceptual analysis and general significance of emotions to human behavior has finally captured the attention of a wide range of philosophers. This is not the place for a review of the "affective revolution," but I will briefly indicate my own commitments. I take it that emotions are representations, as that term has already been understood in this essay, and that emotions are thus the results of information processing in the human brain (especially implicating the right hemisphere and its prefrontal cortical connections to the limbic system and the basal ganglia). I further suppose that they are, in a broad sense of that term, cognitive (see, e.g., Helm, 2001; Lazarus, 1991; Roberts, 2003; Stocker and Hegemann, 1996; and for a general review Deigh, 1994).[5] I suppose that emotions give very fast evaluations of their intentional objects (including interoceptive states of the agent), and that these evaluations do not depend on conscious, propositional, and step-wise reasoning. Furthermore, some range of "basic" emotions (such as fear or joy) are innate to human infants, but all emotions are subject to a complex process of regulation that is acquired mainly in the first two years of life (see Schore, 1994 for a masterly treatment). Emotions are quasi-perceptual in character, and depend vitally on our capacity to read the physiological conditions of our own bodies (Damasio, 1994; Prinz, 2004). All these properties also attach, *ceteris paribus* and *mutatis mutandis*, to narcissistic emotions.

Particularly under conditions of allostatic load, the system of normal narcissism engages a wide range of human emotions. We can see this especially clearly in connection with three emotions that occur commonly in the course of ordinary narcissistic functioning and which have special relevance to the narcissistic significance of a wide range of human behavior: anxiety, rage, and elation. It will be convenient to take them in that order.

Perceived threats to narcissistic equilibrium, especially expectations of aversive events, will provoke anxiety. The emotion construes its object as an aversive outcome (for the agent) that has some specifiable probability of occurrence (Roberts, 2003, pp. 198–199). Here it is aversive outcomes for narcissistic values. The expectation that one may fail to satisfy, in one's performance, some basic ingredient of the ego ideal, may elicit narcissistic anxiety. Like other forms of anxiety, narcissistic anxiety tends to activate release of stress hormones (McEwen, 2000; McEwen and Stellar, 1993). It can become so intense as to take the form of a "nameless dread," a fear so intense as to appear to the agent to be formless, without bounds, a threat to the very coherence of the self. D.W.

[5]Here is another area where further conceptual sharpening is needed, both on the side of philosophy and on the side of cognitive science: exactly what is the most appropriate range of meanings assigned to "cognition" and related terms. Lack of clarity on this point contributes to a good deal of mutual misunderstanding between philosophers and scientists.

Winnicott once called these "the archaic anxieties" (1989, pp. 139, 196, 260). They are characteristic in normally constituted persons only under extreme and traumatic conditions. But in borderline personality disorder, they occur much more frequently and can even become the default form of anxiety, especially when it touches on the narcissistic equilibrium of the agent. Indeed, the connection in borderline patients between narcissistic disturbances and anxiety is so characteristic as to merit further comment.

It is widely agreed that borderline personality disorder involves severe disturbances to self-referential functions, almost certainly due to early developmental trauma. This involves all four of the narcissistic dimensions: cohesion and continuity of the self, self-assertion, and hedonic tone. Any clinician who has treated a borderline patient will recognize immediately the following general description of the core of this grave disorder:

> Borderline disorders highlight many issues in character pathology generally, and they represent a prototypic example of the structural damage to the self that has been associated with failure in autonomy support and involvement of early caregivers. The core of borderline disorders is the lack of a cohesive and stable sense of self. Among the central features that are associated with this lack of a consistent and organized self are emotional, interpersonal, and self-esteem lability. Borderline individuals show the externalizing attributes of impulsivity, along with some of the features of internalizing disorders such as susceptibility to depression, anxiety, and fragmentation in the face of self-esteem-related losses. (Ryan, Deci, Grolnick, and La Guardia, 2006, p. 836; cf. Robbins, 1989, 1996; and Ryan, 2005)

Weak self-cohesion allows for further instability in the borderline's sense of identity, including confusions about gender-identity and sexual orientation. It is not uncommon for borderlines to present with a bewildering array of intimate relationships that are heterosexual, homosexual, or bisexual in character (Adler and Buie, 1995; Rey, 1995). Personal relationships are particularly problematic for borderline patients, whether with their therapists or with others (lovers, spouses, children, friends, colleagues, mentors). Stable commitments are very difficult for them to maintain, and this often spills over into difficulty in maintaining jobs or careers. As a therapist, one often has the uncanny feeling that every session with the patient involves starting the process of making emotional contact all over again from scratch. More importantly, the borderline patient herself finds even slight disruptions to important relationships the occasion for degrees of anxiety that can be crippling. Ordinary separations from the therapist, for example for vacations, medical emergencies, or other disruptions to the rhythm of sessions, may occasion anxiety bordering on or turning into panic. Unfortunately, closeness also brings its own terrors (of the self disappearing into a fusion with the other), and the patient finds herself trapped between abandonment-terror and fusion-terror, either way fearing the disintegration of the self:

> Without a conception and the experience of a mind of one's own, and a mind in others, that thinks about desires, thoughts, wishes, and fantasies, the boundaries between self and other remain poorly developed and the borderline person experiences terrifying threats of fusion, abandonment, and loss of identity. (Taylor, Bagby, and Parker, 1997, p. 165)[6]

Such anxieties reveal not only that the typical borderline person has poor emotional regulation, with notably poor modulation of fear-states, but they also reveal something characteristic about narcissistic anxieties generally: their intensity. My view is that narcissistic emotions generally have this feature: they are unusually (and often inappropriately) intense, of unusual (or inappropriate) duration, and often attaching to the wrong objects, all common types of emotional errors (Roberts, 2003, pp. 314–318). They are also unusually refractory to normal regulation. It is not surprising, in this regard, that there is evidence in borderline personality disorders of dysfunction in limbic regions specific to emotional regulation: e.g., the amygdala, anterior cingulate cortex and the hippocampus (Fulbright, Lacadie, Skudlarski, Gore, Olson, McGlashan, and Wexler, 2003; Juengling, Schmahl, Heßlinger, Ebert, and Lieb, 2003; Minzenberg, Fan, New, Tang, and Siever, 2008).

The impulsivity of borderlines also finds expression in rage states, often as an extension of the narcissistic anxieties noted above. Indeed, it was out of his treatment of a borderline man that Horowitz came to give what has become the classic description of narcissistic rage:

> Not thinking, all feeling. He wants to demolish and destroy persons who frustrate him. He is not aware of ever loving or even faintly liking the object [of his rage]. He has no awareness that his rage is a passion that will decline. He believes he will hate the object forever. (1992, p. 80)

Such intense rage is more familiar to us in the form of temper tantrums or rage-storms characteristic of toddlers. In borderline adolescents and adults, poor modulation of rage-states often gives rise to poor regulation of *aggression*, whether aimed at others or at the self (Critchfield, Levy, Clarkin, and Kernberg, 2008; Gollan, Lee, and Coccaro, 2005; Goodman and New, 2001; Soloff, Meltzer, Becker, Greer, Kelly, and Constantine, 2003). We see here, also, the characteristic intensity and durability of narcissistic emotions. Schore, in his analysis of borderline narcissistic rage, hypothesizes that it is caused by excessive early cell-death (apoptosis) affecting the functionality of the right frontal cortex and its connections to the limbic system (1994, pp. 416–423 and 2003a, pp. 266–306; cf. Fonagy et al., 2002, pp. 360–362). Such structural accounts should perhaps be supplemented with recent emerging evidence of neurotransmitter dys-

[6]For similar treatments of this issue see: Adler, 1994, pp. 39–45; Fonagy, 1991; and Fonagy et al., 2002, pp. 359–360. Berenson et al., 2009, pp. 1068, 1071 associate high rejection-sensitivity with borderline conditions.

function in borderline patients (Gurvits, Koenigsberg, and Siever, 2000; Nickel et al., 2006; Posner et al., 2003; Silva et al., 2007; Skodol et al., 2002; however, Friedel, 2004 is more cautionary). The other side of narcissistic anxiety and narcissistic rage is narcissistic *elation*, which also has a deep connection to revenge. And where narcissistic anxiety and rage arise from the threat of helplessness and the experience of helplessness, elation arises from the experience of efficacy and autonomy both of which are among the most positive of narcissistic experiences and conditions of the self.

Just as we expect agents to be sensitive to narcissistic threats and losses, we also expect them to be sensitive to narcissistic rewards. This is the positive aspect of narcissistic hedonic tone, and it will engage the usual brain circuits involved in reward phenomena. Narcissistic rewards tend to evoke narcissistic elation. Schore describes this as "a state of pleasure plus the urge toward exuberance and contact-seeking" (1994, p. 83). Elation characteristically brings with it feelings of vigor, strength, and a general readiness for action. Elation construes the elated agent as full of power and able effectively to project this power into the future, turning despair into hope, shame and humiliation into grandiosity, expansiveness and effective action. Elation can be among the most intense (and durable) of human affective states, and is often the direct result of the agent's demonstration (both to self and to emotionally significant others) of competence, with consequent satisfaction of internal norms in the ego ideal. Elation is among the least well studied of narcissistic emotions, but it is possible to point to early developmental achievements that may serve as its ontogenetic basis.

Jean Piaget made careful observations of his own children, at early ages, as they discovered their abilities to function as causes in their own environments. One day, Piaget hung a rattle, made up of celluloid balls, above his son Laurent's crib, and attached his watch chain to it, so that Laurent (aged 3 months) might be able to cause the rattle to move by pulling on the chain. Eventually, more or less by trial and error, Laurent discovers that he can do this. The result is carefully described by Piaget:

> . . . while looking at the rattle, Laurent let go with his right hand the sheet which he was sucking . . . and searched for the chain, his right hand open and the thumb opposed; as soon as he made contact with the chain he grasped and shook it. After a few moments of this, he resumes sucking his fingers. But when the chain touches him lightly he at once removes his right hand from his mouth, grasps the chain, pulls it very slowly while looking at the toys and apparently expecting a noise: after a few seconds during which he still pulls the chain very gently, he shakes much harder and succeeds. *He then bursts into peals of laughter, babbles and swings the chain as much as possible.* (1936/1977, p. 186)

The pleasure derived from these early experiences of competence, mastery, or efficacy is more precisely described by Broucek:

> It is not simply the discovery of any contingency between event A and event B which produces such vigorous smiling and cooing but the awareness of a contingent relationship between one's own initially spontaneous behavior and an event in the external world and the subsequent ability to produce at will the external event through repetition of the antecedent act. The conclusion seems inescapable that the infant's pleasure in this situation is *pleasure in being the cause*. (1979, p. 312)

Laughter, excited babbling, and intense motility are among the most characteristic marks of pre-verbal elation in children. This is "efficacy elation," and it is a phenomenon replicated in developmental studies of infants since Piaget's day (Frodi, Bridges, and Grolnick, 1985; Mittelmann, 1954; Papousek and Papousek, 1975; Watson, 1972; White, 1959). Such early experiences of causal efficacy appear also to be fundamental to achievement of a sense of the self as a competent physical agent.[7] It is also a fundamental element in self-assertion or autonomy (Fonagy et al., 2002, pp. 207–209; Rochat and Striano, 2000; Vignemont and Fournet, 2004). Such experience of causal efficacy is the early developmental matrix for narcissistic elation. And efficacy is among the most intense and rewarding of narcissistic experiences commonly available to animals of our type.

This view of the early emergence of the self as a physical agent, with the capacity regularly to effect changes in the environment, depends also on the infant's capacity to detect and represent cause–effect relationships. Gergely and Watson (1999) have argued that this depends, in turn, on an innate capacity to detect contingency between events. Indeed, they have gone so far as to postulate the existence in the developing infant of a "contingency detection module" (Fonagy et al., 2002, pp. 162–174; Gergely, 2001; Gergely and Watson, 1999; and cf. Blakemore, Boyer, Pachot–Clouard, Meltzoff, Segebarth, and Decety, 2003; Rochat, 2001). Of course, such "contingency detection" is more basic than causal perception or thinking. And it may well be that contingency detection is the work of a Fodorian module, but it does not follow that more sophisticated mental experience of causation is modular (Saxe and Carey, 2006; Saxe, Carey, and Tzelnic, 2007). There are alternative ways (chiefly algorithmic) of understanding causal processing that do not require Fodorian modules (Gopnik, Glymour, Sobel, Schulz, Kushnir, and Danks, 2004; McClelland and Thompson, 2007; Sobel, Tenenbaum, and Gopnik, 2004). What matters for normal narcissistic functioning is that very young infants have a rich experience discovering themselves as effective causal agents in the world, and that these early forms of narcissistic elation are an important affective component of that

[7]Such efficacy is arguably central to our most basic conceptions of causality (see Thagard and Litt, 2008, pp. 560–562). For the importance of manipulation to our understanding of causation, see the comprehensive treatment of Woodward (2003). I have written about causation before (McClelland and Deltete, 2000), but would now place greater emphasis on this issue and also on the importance of probabilistic models. I stand by my earlier critique of Humean theories of causation.

self. To experience narcissistic elation in later life is to recapitulate those early elative experiences. The intensity and salience of narcissistic elation, even in adults, then, is not surprising. Neither is it surprising that such emotions have considerable motivational power (Clore and Ortony, 2000; Helm, 2001, pp. 161–198; Lazarus, 1991, pp. 92–104; Roberts, 2003, pp. 157–170).

Indeed, so close is the association between emotion and action that it is tempting to suppose that emotions are *intrinsically* motivational. However, this is a mistake: there are excellent reasons for thinking that the motivational power of emotions is contingent, and that some form of motivational externalism is the best view. One reason for thinking so arises from basic facts about emotional development in the first two years of life. As I noted earlier, normal human infants probably come into the world already equipped for a range of basic emotional responses to stimuli. But, although most of us come into the world ready to respond emotionally, no one comes into the world able to regulate their emotions. Emotional or affective regulation is the result of a complex process of socialization that goes on between infant and caretakers. Eventually, if all goes well, the child becomes able to regulate its own emotions. Such auto-regulation of emotions is normally achieved by two years of age (Fonagy et al., 2002; Green, 2003; Hobson, 2004; Schore, 1994; Sroufe, 1997; Taylor et al., 1997). The point here is simply that this process depends on the contingent properties of infant, caretakers, and their wider social milieu. Emotions, when they appear in later childhood, adolescence and adulthood, carry with them the specific manner in which the individual agent regulates their onset, valence, intensity, duration, and choice of objects. In later psychological life, then, there are no wholly unregulated emotions (such would be beyond our capacity to represent). And the specific manner in which emotions motivate action will likewise be marked by these contingencies.

Moreover, in some pathological conditions, emotions may lack motivational power. This is evident in autism and in cases of moderate to severe alexithymia (Hobson, 1993, pp. 61–72, 196–202; Taylor et al., 1997, pp. 10–12, 78–80, 108–113). We also know that well-functioning of the prefrontal cortex (especially the orbito-frontal cortex) and its limbic connections, is a necessary (but not sufficient) condition for emotions to have their motivational power. Cases of "acquired sociopathy" show that moderate to severe deficits in prefrontal functioning commonly strip emotions of their motivational power (Blair 2001; Blair and Cipolotti, 2000; Damasio, 1994, pp. 3–51; Schore, 1994, p. 353 and 2003a, pp. 161–166): "Efficient orbitofrontal operations organize the expression of a regulated emotional response and an appropriate motivational state for a particular social environmental context" (Schore, 2003a, p. 166). Efficient brain function is normal and thus strongly expectable in most cases, but it remains the case that the motivational power of emotions is contingent and not intrinsic — a form of motivational externalism (for general defenses of

externalism see Brink, 1986, 1997; Shafer–Landau, 1998, 2000, 2003; and Zangwill, 2003).

Further Neurobiological Correlates for Normal Narcissism

To date there have been no scientific investigations directly aimed at determining the neural correlates of normal narcissistic functioning. However, much of what was reviewed earlier in this paper concerning possible neural underpinnings of self-referential processing (in various domains), and especially the Northoff–Panksepp model of the "core-self" as belonging to cortical midline structures (together with their limbic projections) has obvious application to this problem. If it becomes possible to extend the models of "neural engineering" to such high-level meta-representations as those implicated in normal narcissism, then we may also gain a neurally realistic way to investigate the biological underpinnings of this monitoring system. Meanwhile, there are further results in neuro-biological cognitive science which may help direct efforts. Three such results will be considered here: the role of the anterior cingulate cortex, the reward system as a basis for narcissistic pleasures, and possible connections between normal narcissism and the so-called "social brain."

Narcissism and the Anterior Cingulate Cortex

It is commonly agreed that the anterior cingulate cortex, in conjunction with other limbic structures (especially the thalamus and amygdala) and the prefrontal cortex (including its orbital sub-region), plays a broad regulatory role engaging both cognitive and emotional processes (Bush, Luu, and Posner, 2000; Critchley et al., 2003; Morecraft and Hoesen, 2003; Paus, 2001; Wang, Ulbert, Schomer, Marinkovic, and Halgren, 2005). This regulatory function involves monitoring of performance that entails detection of errors and violations of expectancy (Cunningham, Raye, and Johnson, 2004; Lütcke and Frahm, 2008; Oliveira, McDonald, and Goodman, 2007; Velanova, Wheeler, and Luna, 2008). Of special interest is the rostral region of the anterior cingulate cortex, which is commonly designated as the cortex's "affective" region, in contradistinction from its "cognitive" region above and slightly behind it, and the "motivational" area yet further posterior to both. I think that this division of the cingulate cortex is over-simplified (see David et al., 2005; Eisenberger and Lieberman, 2004). Nevertheless, the cingulate cortex appears now to be an important top–down modulator of the amygdala and thus plays an important meta-role in emotional processing (Engner, Etkin, Gale, and Hirsch, 2008; Etkin, Engner, Peraza, Kandell, and Hirsch, 2006; Fan, Hof, Guise, Fossella, and Posner, 2008; Mohanty et al., 2007; Van Veen and Carter, 2002; Yücel, Wood, Fornito, Riffkin, Velakoulis, and Pantelis, 2003). The rostral region of

the anterior cingulate cortex (still in interaction with other limbic and cortical areas) generates representations of "anticipated affective impact of outcomes," or what some have called "strategic modulation" of affective processes (Lungu, Liu, Waechter, Willingham, and Ashe, 2007; Ursu and Carter, 2005; cf. Kennerley, Walton, Behrens, Buckley, and Rushworth, 2006; Onoda et al., 2008; Straube, Mentzel, and Miltner, 2007; Ullsperger and Cramon, 2004). Such anticipatory and affect-laden information has distinct relevance to normal narcissism, for narcissistic threats are partially constituted by such information. Similarly, narcissistic anxiety often has to do with anticipated outcomes of actions (by the agent or by others acting on the agent). Here, too, we expect engagement of the anterior cingulate, especially in its rostral and dorsal sub-regions. It is notable that damage to the circuitry connecting the cingulate with prefrontal and orbital frontal regions is implicated in major depressive disorder and other patterns of disturbed emotionality and social decision making (Hornak et al., 2003; Lee, Rushworth, Walton, Watanabe, and Sakagami, 2007; Tucker, Luu, Frishkoff, Quiring, and Poulsen, 2003). It seems highly likely, then, that normal narcissistic functioning recruits the anterior cingulate cortex (especially its rostral region), the amygdala and frontal cortical areas. Furthermore, it is predictable that disturbances in narcissistic functioning will regularly show dysfunctionality in these areas.

Narcissistic Pleasures and the Rewarding Brain

It is probable that all kinds of pleasures, whether conscious or unconscious, engage what many brain scientists regard as the "reward system." Narcissistic pleasures probably do so as well. And the lineaments of this reward system are reasonably clear. Berridge and his colleagues have characterized reward in terms of three dimensions: learning, liking, and wanting. Liking, they say, is "the actual pleasure component or hedonic impact of a reward," whether consciously felt or not and with special regard to its role in decision making. Wanting is the motivational aspect of reward; and learning has to do with "associations, representations, and predictions about future rewards based on past experience" (Berridge and Kringelbach, 2008; Berridge and Robinson, 2003; Kringelbach, 2005, 2009). This approach to pleasure is compatible with the representational theory of pleasure advanced earlier. Pleasure, understood in this way, is the emergent and distributed product of interactions between the orbitofrontal cortex and more (phylogenetically) primitive parts of the brain, notably elements of the limbic system and the basal ganglia (Knutson, Wimmer, Kuhnen, and Winkielman, 2008; MacLean, 1990, pp. 247–268).

Among the limbic structures engaged in reward/pleasure functioning are the anterior cingulate cortex (especially its dorsal sub-region) and the amygdala, which seems to have a special role in establishing the intensity of emotions

generally and pleasure as well (Bush et al., 2002; Lewis, Critchley, Rotshtein, and Dolan, 2007; Schultz, 2000). Basal ganglia structures involved in reward processing include the striatum (especially its ventral region) and the ventral pallidum (Dreher, Kohn, and Berman, 2006; Peciña, Smith, and Berridge, 2006; Schultz, Tremblay, and Hollerman, 2000; Smith and Berridge, 2005, 2007). The nucleus accumbens appears to play an especially prominent role in motivation, establishing both the valence (positive/negative) and salience (a representation of the degree to which an action is needed) of the expected reward value of a prospective action relative to the agent's goal (Berridge and Kringelbach, 2008; Cooper and Knutson, 2008; Knutson et al., 2008; Reynolds and Berridge, 2008). It is thus by way of the nucleus accumbens that goal-directed behavior occurs at all in animals of our type. Here is part of what allows things like cultural and social norms to get a grip on the agent's actual behavior. It is predictable, then, that persons who have difficulty internalizing such norms (i.e., of forming a well-functioning ego ideal) will exhibit dysfunction of this basal region. And recent investigations suggest that psychopaths, for example, who show difficulty in social cooperation (itself a function of integrated brain regions reaching all the way up to the prefrontal cortex), also exhibit dysfunctions of the reward system, including weak activation of the nucleus accumbens, the amygdala and the rostral-anterior cingulate cortex (Fallon, 2006; Goldman and Ducci, 2007; Higgins and George, 2007, pp. 133–145; Rilling et al., 2002, 2007). Borderline personalities are similarly notorious for their pattern of impulsive behaviors, and in such a fashion as to suggest dysfunction of the reward system.[8] This may underlie the difficulty borderline patients have internalizing social norms for cooperation (King–Casas, Sharp, Lomax–Bream, Lohrenz, Fonagy, and Montague, 2008). To date there seems to be no direct evidence of accumbens dysfunction in borderline personality disorder, but such is to be expected. Of course, the probability of reward occurring, in particular settings and for a particular agent, will also be the result of activity higher up in the reward system, notably in the prefrontal cortex.

The reward system engages dopamine-processing neurons, which project into many areas of the basal ganglia, including the striatum and accumbens, as well as into the prefrontal cortex, thus binding together the (phylogenetically) most primitive parts of the brain with the more recently evolved parts (Berridge, 2007; Heien and Wightman, 2006; Niv, 2007; Schultz, 2002). There is some evidence for specialization in the dopaminergic neuronal system itself,

[8]Impulsivity in borderlines almost certainly involves dysfunction in both the dopaminergic and serotonergic systems (see Friedel, 2004; Gutknecht et al., 2007; Koch et al., 2007; Posner et al., 2003; Skodol et al., 2002; and Strobel et al., 2007). Litt, Eliasmith, and Thagard (2006) have argued persuasively that we should regularly expect the dopamine and serotonin systems to interact with one another in the reward system. The locus of borderline neurotransmitter dysfunction may be this interaction.

with different neural substrates representing different aspects of reward (Schultz, 2007; Schultz, Tremblay, and Hollerman, 2000). Narcissistic rewards (and associated pleasures), however, are distinctly abstract, and such rewards/pleasures require participation of the prefrontal system, notably the orbitofrontal cortex (Kringelbach and Rolls, 2004; Wallis, 2007a, 2007b). It is here, also, that predictions of the expected reward value of future actions occurs (Furuyashiki and Gallagher, 2007; Gottfriend, O'Doherty, and Dolan, 2003; Padoa–Schioppa, 2007; Padoa–Schioppa and Assad, 2008). One can expect, then, that narcissistic rewards would also engage these frontal systems in conjunction with the limbic and basal ganglia regions. A recent study showed that a similar set of brain regions were activated in instances of taking pleasure in music, itself a highly abstract form of pleasure (Blood and Zatorre, 2001). De Greck and his colleagues, in a seminal paper, showed that self-relatedness tasks also regularly engage the reward system, especially the nucleus accumbens, the ventral tegmental area and the ventral-medial prefrontal cortex (De Greck et al., 2008).

These results from recent neuroscientific investigations strongly support the hypothesis that normal narcissistic functioning is a distributed and emergent function of a set of brain regions including prefrontal cortices (notably the medial prefrontal and the orbital frontal regions), limbic structures (notably the amygdala, the anterior cingulate cortex and the hippocampus), and the reward system rooted in structures of the basal ganglia (especially the striatum, pallidum and nucleus accumbens). As such, following MacLean's thesis of the triune brain, normal narcissism represents one of the full flowerings of the fully evolved human brain. The adaptive value of normal narcissism will be to make animals of our type better functioning in certain complex social circumstances, notably those structured by and driven by social norms (e.g., coalitions or alliances). This raises the question of the relationship between narcissism, social cognition, and its neural correlates.

Normal Narcissism and the Social Brain

There are several reasons for thinking that normal narcissism is essentially social. In the first place, its normal functioning requires the full exercise of affective auto-regulation, including regulation of moods and other sustained affective states (e.g., hedonic states). And, as we know, affect regulation, which is itself an essential part of the ontogeny of the self, depends on socialization. In the second place, computation of reward or expected value of actions also implies responsiveness to social norms and expectations, whether deeply internalized in the ego ideal or remaining as relatively external factors to which the agent is responsive. More particularly, no one learns to anticipate rewards without reference to socially transmitted and socially embedded norms. In the case of normal narcissistic functioning we have also to reckon

with the social environment when it comes to the set-points of the allostatic system and changes that occur to them. Such changes are often caused by changes in the external social environment, which can generate its own "allostatic load," by virtue of the demands it may make on an agent to conform to a different set of values constraining the system to change. Therapeutic settings in which patients struggle, often at great expense to themselves, to alter the set-points of the narcissistic system (e.g., to ameliorate old patterns of inappropriate degrees of narcissistic emotions), are similarly irreducibly social (even if only in respect of the therapeutic dyad itself). Narcissistic valuations, whether first person or third, or of events or states of affairs, also implicate sociality, for they measure how we stand with regard to important figures in our social environment as well as how we stand with regard to our fully internalized norms and expectations. For all of these reasons, then, normal narcissism is through and through social in character.

Recent neurobiological studies have generated the concept of "the social brain": the set of brain regions and circuits which are activated during decision-making processes having to do with matters of kinship, personal moral obligations, decisions about trustworthiness, and other emotionally laden social decisions. A number of investigations have converged on the description of this "social brain," with special attention to the medial region of the prefrontal cortex, the amygdala, the temporal cortex, parietal cortices, and the insula. Given its probable role as modulator of the amygdala, the anterior cingulate cortex may be involved here as well (Adolphs, 2006; Amodio and Frith, 2006; Frith and Frith, 2001, 2003; Insel and Fernald, 2004; Mitchell, Banaji, and Macrae, 2005). In keeping with earlier findings regarding pleasure, the reward system, with its limbic and basal ganglia engagements, will also be involved. It is thus not surprising that lesions in the medial prefrontal cortex, the amygdala, or the cingulate cortex typically give rise to deficits in social cognition and decision making, both in humans and other primates (Bar-On, Tranel, Denburg, and Bechara, 2003; Rudebeck, Buckley, Walton, and Rushworth, 2006). A similar pattern of dysfunctions, together with severe narcissistic disturbances and deficits in social cognition, can be found in schizophrenics (Brunet–Gouet and Decety, 2006; Lee, Farrow, Spence, and Woodruff, 2004; MacDonald et al., 2005; McIntosh et al., 2008; Snitz et al., 2005; Wood et al., 2007). Patients who suffer frontal lobe lesions or fronto-temporal dementia also characteristically fail to adhere to social norms (Berthoz, Armony, Blair, and Dolan, 2002). Parallel phenomena apply in most cases of borderline personality disorder, as mentioned previously. These investigations of normal and pathological forms of social cognition represent convergent evidence for our association of normal narcissism with distributed functioning of prefrontal, limbic, and basal ganglia systems.

A Way Forward

Normal narcissistic functioning, as proposed here, constitutes a significant human regulatory system that connects axiological mental contents with behavior. The account given here is incomplete, notably with regard to ethological evidence for narcissistic behavior among our fellow primates. If it is actually true that species other than our own have selves, then it is predictable that they also will exhibit some forms of normal narcissistic functioning. To date, there has been no attempt to find evidence for such functioning. Consequently, neither are we within eye-shot of an account of the ontogeny of normal narcissism in other species.[9] There is much other work that also has yet to be done if the account given here is to be fully developed and adapted to the full range of relevant evidence. The prospects of scaling up to higher functions the "neural engineering" approach to neural representations need to be tested. The predictions made here and by others regarding brain dysfunctions in various forms of serious psychopathology (notably borderline personality disorder) also need to be confirmed or disconfirmed. Our capacities to examine live brain functions in real time have expanded enormously in recent years. But we would still like to see the resolution of such techniques vastly increased, if ways of doing so can be found. We also need a much more detailed and comprehensive view of various biochemical transactions in the brain, notably those involving neurotransmitters and stress hormones. There are a variety of more standard philosophical issues yet to be resolved: e.g., development of more standard accounts of the contents of mental representations, of more widely supported accounts of irreducibly probabilistic causal relationships, of analysis of the conceptual architecture of narcissistic emotions; all of these tasks await prosecution. There needs to be much more discussion of the conceptual basis for the involvement of philosophy in cognitive science, generally, and the relevance to philosophical analysis of human mentation and behavior of our scientific findings.

The account sketched here, however, is compatible with recent brain science, is faithful to the clinical traditions from which it first arose, and is also compatible with contemporary scientific or empirical psychology. Indeed, one main aim of this essay is to demonstrate those compatibilities. Moreover, if the modeling power of "neural engineering" can be scaled up to such high-level functions, it may well be possible eventually to give a highly precise and powerfully predictive (i.e., useful) representation of these functions. Such predictions may well suggest new ways to intervene therapeutically where narcissism is pathologically organized.

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[9]Neither are we able to give a detailed account of the adaptive value of normal narcissism. One possible way to get such an account might be to adapt the theory of "internal regulatory variables" (Tooby and Cosmides, 2008; Tooby, Cosmides, Sell, Lieberman, and Sznycer, 2008). My account of the narcissistic emotions is partly designed to facilitate such an adaptation, which, however, is beyond the scope of the present essay.

Moreover, pathological forms of narcissism often implicate the manner in which we organize our larger social lives, in terms of institutions and conventions. That is, on this view it is possible that social institutions or conventions themselves may constitute or contribute to pathologically narcissistic behavior. Elsewhere, I have treated certain forms of pathological mentoring in this light (McClelland, 2009) and have also argued for the narcissistic significance of certain forms of philosophical speculation (McClelland, 2004). A forthcoming study (McClelland, in press) will examine the narcissistic pleasures of revenge. Other explanatory applications of the theory seem entirely likely. Continued success in these ventures is one way to test the adequacy of the theory. In all these respects, I contend, the time is ripe for normal narcissism to emerge from the obscurity in which it has hitherto remained immured, and to take its rightful place in a scientifically rigorous and fully naturalized account of human nature and of characteristic forms of human social behavior.

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