

Between Constructionism and Neuroscience

The Societal Co-constitution of Embodied Subjectivity

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ABSTRACT. Social constructionist psychology has no adequate notion of embodied subjectivity, a situation causing conceptual errors, raising methodological issues, and serving to entrench within constructionism the dualisms that structure mainstream psychology. The outline of a solution to this problem is offered, drawing on contemporary work in neuroscience. A framework from Harré of three ‘grammars’ of causality and influence (P, or persons; O or organisms; and M or molecules) is described and used to structure the integration of Shotter’s notion of subjectivity with two brain systems. Damasio’s ‘somatic marker’ hypothesis enables the feelingful, sensuous aspects of ‘joint action’, whilst Gazzaniga’s ‘interpreter’ enables their discursive aspects. The benefits of theorizing embodied subjectivity in this way are illustrated by a study of the phenomenon of ‘depression’, and it is concluded that such an integration makes constructionism more coherent, credible and critical.

KEY WORDS: embodiment, grammars of causality, joint action, social constructionism, subjectivity

Social constructionist psychology is a heterogeneous mosaic of philosophy, theory and research characterized by ‘family resemblances’ rather than conceptual or methodological consistency, but a substantive commonality within this diverse assemblage is the rejection of the Cartesian subject of mainstream psychology. Alongside a focus on language and a view of society as the prime mover, the guarantor of knowledge and root of experience, constructionist psychology rejects the atomistic, bounded, coherent, rational psychological subject endorsed, at least implicitly, by most mainstream approaches. Instead, constructionists observe that notions of the person are culturally obtained and promulgated (Harré, 1987). They propose that thought has a discursive, argumentative or dialogical character that utilizes the ‘common sense’ themes and dilemmas of a culture (Billig, 1987;

Billig et al., 1988). Emotion, too, displays marked historical and cross-cultural variation in form and expression, and is given meaning by language (Edwards, 1997). Consequently, experiences taken by mainstream psychology to be phenomenally private, individual and bounded typically appear within constructionism as societally constituted, intersubjectively shared and fragmented. The conceptual inadequacy and empirical failings of the asocial Cartesian subject have in such ways been convincingly demonstrated.

However, congruent with these analyses, constructionist psychology is suspicious of explanations that posit embodied, generative or cognitive processes, and as a consequence is, on balance, ambivalent towards subjectivity. Many constructionists simply do not theorize or study subjectivity, focusing instead on the discursive forms and processes whereby it is displayed, managed and made to serve functional goals. With the exception of John Shotter, whose work will be addressed later, constructionists who do theorize subjectivity typically deploy psychodynamic formulations wherein embodied needs and desires appear as the product of metaphorical entities or processes, or as the unspeakable residue which continues outside of and after language and its colonization of subjectivity. Thus, even where subjectivity is theorized, it is often somewhat disembodied, in that the particularities of the body are disregarded, downplayed, added in later, or made adjunctive to other supposed mental-linguistic entities or processes. Hence the body tends either to be omitted from constructionism, or only to appear as surface of inscription, metaphor or text—rather than as a fleshy organ bearing both enablements and constraints. Consequently, the embodiment of subjectivity is not adequately addressed.

Recently, this omission has been highlighted, for example, in a volume by Bayer and Shotter (1998), who present numerous relevant discussions. These include a contribution by Sampson (1998), who accuses social constructionism of an 'ocularcentrism' that negates the role of embodied experience. He calls for a 'politics of embodiment' that recognizes embodied difference rather than glossing it 'on behalf of some universalistic appeal for oneness that in itself must of necessity be built upon a preliminary duality and hierarchy (e.g. of mind or spirit over body)' (p. 31). In the same volume, Morawski (1998) suggests that in failing to specify a notion of subjectivity and agency, many constructionists implicitly smuggle into their work an unreconstituted notion of the autonomous human actor freely and rationally choosing between discourses and subject positions. She calls instead for a constructionism wherein researchers acknowledge and reflexively address their embodied situatedness within their own practice. Elsewhere, Standen and I have argued that constructionism requires a notion of the embodied subject to maintain ecological validity, ground analyses with reference to materiality and embodiment, facilitate analysis of continuity in human experience, enable critical-political analysis, and facilitate constructionism's

future development as a thorough explanation of human experience (Cromby & Standen, 1999).

Such discussions demonstrate that in subordinating embodied subjectivity to language and discourse, constructionism has generated problems. Downplaying the embodied materiality of human existence makes constructionism unconvincing, implying that our worlds, or at least all that is humanly important in them, consist of nothing other than discourse and its effects. It requires an untenable 'uniform plasticity' of the body (Nightingale, 1999), wherein all aspects of all bodies are assumed to be equally amenable to discursive construction. Moreover, emphasizing the discursive-social at the expense of the embodied-material *conceals*, rather than addresses, Cartesian dualism. Indeed, tendencies within constructionism that do not acknowledge the embodied materiality of our existence, but instead consistently conflate discourse and materiality, may work to further entrench dualism since their very existence problematizes attempts to address it.

Failing to include subjectivity within constructionist psychology reifies 'the social', creating a depopulated psychology (Billig, 1998) devoid of much that is significantly and recognizably human. The concrete particulars of actual human lives are systematically downplayed, diluted or disallowed, in favour of a superficially social perspective that actually omits the interplay of structure, culture and subjectivity that must be fundamental to any properly social psychology. Critical psychologists have described the ideological effects of the exclusion of subjectivity from mainstream psychology (Tolman, 1994); it is paradoxical that constructionism, with its avowed liberatory intent, should in this regard mirror the mainstream. Omitting subjectivity also raises methodological issues. For example, in the analysis of discourse it must of necessity be assumed that observable features of the situated interaction wholly determine its course. This assumption allows the pro-social aspects of discourse to be foregrounded but also, on occasion, might conceal or omit important trajectories to which participants' discourse is not explicitly oriented (Cromby & Standen, 1997; Nightingale & Cromby, 1999).

Moreover, just as the omission of embodied materiality may actually reinforce Cartesian dualism, so the omission of subjectivity may covertly retrench the individual–society binary. Not theorizing subjectivity produces a conflation to social structure that mirrors, yet simply inverts, the individualist reductionism of mainstream psychology. Just as other psychologies reduce human sociality to variables within the individual (motivation, personality, etc.), constructionist psychology that fails to theorize subjectivity reduces the rich texture of embodied human life to its discursive expression. It is as though talking about an orgasm were equivalent to experiencing one, reading about drug experiences the same as having them, or hearing another describe their experience of music the same as listening in person. 'Sex & Drugs & Rock & Roll' is a song title (Dury, 1977)—but

neither the character of such experiences, nor their personal and societal significance, are simply a matter of how we talk and write about them.

So, constructionist psychology with no notion of embodied subjectivity is ecologically invalid, reifies 'the social', implicitly treats all bodies as though they were identical, generates methodological errors, and furthers an ideological agenda that contradicts its own liberatory premises. Moreover, paradoxical as it might at first appear, by not explicitly engaging with the 'troublesome inner', constructionists have *deferred*, not transcended, Cartesian and agency–structure dualisms. However, it is simultaneously clear that constructionist psychology *with* a notion of embodied subjectivity is also prone to dualisms—and additionally encounters the troubling spectres of individualism, essentialism and biological reductionism. Indeed, in a context where mainstream psychology largely maintains its hegemony (notwithstanding that it is a 'discipline with fraying boundaries'—Danziger, 1997, p.400), *any* attempt to theorize embodied subjectivity might seem to threaten the gains that constructionism has made. Thus, there is something of an impasse here: reinstating the Cartesian subject would be neither helpful nor desirable; nevertheless, social constructionist psychology seems to require a suitable notion of embodied subjectivity to further its progression.

The remainder of this paper attempts to outline such a notion by integrating the subjectivity of Shotter's rhetorical-responsive constructionism with some current work in neuroscience. First, the potential compatibility of these disciplines is discussed and it is argued, following Harré (2002), that such a synthesis is not only possible but also desirable. A brief sketch of Shotter's notion of subjectivity is followed by a description of two neural systems (Damasio's 'somatic marker hypothesis' and Gazzaniga's 'interpreter'), the interaction of which (with each other, and with social structures and interpersonal processes) might co-constitute the subjectivity that Shotter describes. This is followed by a discussion of the phenomenon of depression, which illustrates that the inclusion of embodied subjectivity within constructionism makes it more thoroughly critical, allowing it to generate stronger challenges to the individualistic reductionism of other approaches.

The aim is to begin outlining a notion of embodied subjectivity that is neither individualist, essentialist nor disembodied. Any such notion needs to be consonant with relevant evidence, including: studies of the effects of brain lesions; constructionist studies of situated interaction; and cross-cultural and historical variation in notions of the person. Clearly, not all such relevant evidence can be presented here, and it must also be emphasized that very many brain functions, social processes and subjective experiences are not addressed. Rather than a comprehensive socio-neural account, then, the following is a first outline of a notion of embodied subjectivity that might address the problems described above.

A (Critical) Realist Constructionism

At first glance any synthesis of constructionism and neuroscience appears to founder upon a fundamental incompatibility which, in large part, derives from the common understanding of social constructionism as an exclusively relativist endeavour. This understanding is supported by constructionism's emphasis on discourse, its denials that reality is accessible in direct and unmediated ways, and its consequent focus upon the social processes whereby knowledge is generated, legitimated and circulated (Edwards, Ashmore, & Potter, 1995; Gergen, 1985). This relativism has been the focus of lengthy, heated debate (e.g. McLennan, 2001; Parker, 1998, 1999a, 1999b; Potter, Edwards, & Ashmore, 1999) which has, amongst other things, revealed that the polarity between realism and relativism is not absolute. On the one hand, some supposed relativists themselves deny this charge, preferring instead to characterize themselves as 'anti-realist' (Gergen, 2001) or even to deny that they are making ontological claims (Potter, 1996). On the other hand, careful analysis of constructionism reveals, lurking within its relativism, strands of realism. For example, Still (2001) observes that some constructionists deploy a form of experiential realism that characterizes meaning in terms of embodiment and collective biological capacities. Moreover, since almost the start of the constructionist 'movement' there have been attempts to assert the viability and necessity of a critical realist social constructionism (Parker, 1992; Willig, 1999). Whilst constructionism is typically understood as relativist, then, such discussions show that its relativism is neither naïve, global, consistently applied, nor (in the universal fashion commonly presupposed) necessary.

If constructionism is not thoroughly and exclusively relativist, then it is in principle amenable to integration and synthesis with other disciplines. This is the position of Harré (2002), who lays the foundation for a future 'cognitive science' by deploying three grammars (in Wittgenstein's sense of that term, as systems and clusters of rules ordering human activity). Harré argues that a truly scientific psychology must be a hybrid discipline composed of a P, or persons, grammar, an O, or organisms, grammar and an M, or molecules, grammar. We typically use P grammar in everyday life to order and mark the powers and responsibilities of responsive, reflexive agents. Such agentive activity is fundamentally normative in character, its ordering predicated upon and played out within local ethical-moral conventions, legitimated narrative forms and discursive accounting practices. P grammar, in other words, captures and exemplifies the meaningful, negotiated flux of socially constructed human life. O grammar refers to aspects of human life 'that seem to fall outside the domain of well trained habit and the following of explicit rules' (Harré, 2002, p.149) and includes many capacities we share with higher animals. It refers to things our bodies provide, enable or do for us, rather than things we intentionally choose or

have learned to do. M grammar refers to the impact of molecules and molecular clusters such as neurotransmitters and hormones and their powers to regulate, mediate and enable activities such as sleep and cognitive function.

Harré proposes that each of the P, O and M grammars is a necessary way of speaking about human activity, since causality resides in and flows from three dimensions of activity: causal effects, purposive organismic actions and intentional meaningful acts: 'Mosquitoes act purposively but not intentionally, and so do babies. Acids act causally but neither purposively nor intentionally' (Harré, 2002, p. 152). Only human beings, then, whose activity includes a symbolic, meaning-laden dimension, are the proper subject of the P grammar of social constructionism and discursive psychology. However, their activity *cannot* be wholly accounted for in terms of this grammar alone because it is always grounded in and enabled by bodily features, brain structures and neural processes. Hence alongside the P grammar we require O grammar to describe and account for things that our bodies provide and enable, and M grammar for the mediating and causal powers of chemical agents such as aspirin, ecstasy, serotonin and dopamine.

With this shift from things or entities to grammars or discourses, Harré proposes 'a dissolution' of the mind-body problem. This problem is predicated upon two realms, the material and the mental, set contrastively against each other and constituted of entities and processes so radically different in kind as to problematize any causal relations between them. In their place, Harré offers the hybridity of P, O and M grammars and the possibility of a human science that examines the ways in which they are related one with another. He proposes two ways in which the investigation of these relationships could be ordered. The first is through a task/tool metaphor: discursive tasks defined in P grammar are materially enabled by embodied structures and neural processes that serve as tools, but which are meaningfully describable only in terms of O and M grammars. The second is through adopting a 'taxonomic priority principle' wherein 'states, processes and structures of the P discourse exercise "taxonomic dominance" over the criteria of identity for neural states and processes relevant to psychology, that is, for the O and M discourses' (Harré, 2002, pp. 160–161). More simply put, we can only study the brain structures and neural processes that might enable a specific activity if the person studied can confidently be said to be engaged in that activity.

So not only can forms of constructionism be compatible with elements of neuroscience, but in Harré's view both approaches are necessary since:

Human beings are present to the world and to each other in three forms: as persons, as organisms and as complex clusters of molecules. None of the grammars grounded in these ontologies can be dispensed with, and none

can be extended to comprehend the others without incoherence. (Harré, 2002, p. 167)

In what follows, Shotter's rhetorical-responsive constructionism will provide the P grammar, whilst the work of neuroscientists Damasio and Gazzaniga will provide the O grammar. Some reference will also be made to elements of M grammar, in relation to the role of neurotransmitters in depression, but it is to Shotter's constructionism that we now turn.

Subjectivity and Shotter's Rhetorical-Responsive Constructionism

Two processes inform Shotter's notion of subjectivity: 'joint action' and 'knowing of the third kind'. Joint action refers to the 'zone of uncertainty' within which responsive, intentional acts create consequences unforeseen by participants. Actors co-create the evolving interactional context 'into which' they each must act, within which each must (re)make and (re)discover what they think, what they jointly agree, disagree, promise, dispute, desire, refuse, and so on. This 'practical-sensuous activity' resides in the disordered, mundane background of social life. Shotter's concern is to make 'rationally visible' this co-created context, not by fixing it in a theory, but through deploying 'conceptual prosthetics' which illuminate aspects of its character. Its recognition means we must acknowledge that subjectivity emerges as a 'boundary phenomenon', discursive or dialogic in form and open to completion and elaboration through successive interactions within which we both make and find ourselves to be particular persons. Joint action is supplemented by 'knowing of the third kind', which refers to an 'embodied form of practical-moral knowledge in terms of which people are able to influence each other in their being, rather than just in their intellects' (Shotter, 1993, pp. 41–42). Shotter draws on Vygotsky to characterize this knowledge as an 'affective attitude', a 'transmuted version of a social relationship' lending to our words and verbalized thoughts their 'dynamic', their 'particular motives and valencies'. Shotter locates the origins of this affective attitude in 'instructional' social relations, typically where children are being assisted to acquire or develop concepts. It appears within interactions as feelings which 'are not properly called emotions' (Shotter, 1993, p. 29) but are called out within streams of activity and functional within them, supplying sensuous practical-moral guidance and 'rooting' our actions synchronously with others.

Thus, for Shotter, subjectivity has two conjoined aspects, one primarily discursive and the other primarily embodied. The two are analytically separable but actually unitary, co-occurring in the exchange and creation of

meaning that defines the fundamentally moral character of human sociality. Speakers act into and must tailor their responses to an evolving context partly but not entirely of their own making; this context determines for them the meaning of what is said. Moreover, this context is always open-ended, to-be-determined, so utterances are not just *responsive* to it but also *rhetorical* within it, striving to shape it in particular directions. The meaning of an utterance is not just a matter of grammar, syntax and vocabulary; it is also dependent upon embodied para-linguistic communication that conveys emotional character and interactional import.

[It] does not inhere in the formal pattern of syntax it can be seen as matching (or approximating), but in its responsive voicing, the temporal unfolding of its intoning: as angry, indignant, confident, arrogant, apologetic, indifferent, as inviting or repulsing reply, and so on. (Shotter, 1993, p. 52)

Since subjectivity develops through the course of such successive interactions, its character will reflect the broad pattern of previous interactions, particularly instructional ones, where what is taught is not just a way of thinking but also, implicitly and epigenetically, an affective attitude, a way of feeling about situation and self. This is because thought consists of both 'inner speech' (Vygotsky, 1962) and related affective flows: 'words also work in a noncognitive, formative way to "shape" our unreflective, embodied, sensuous ways of looking and acting—in short, to "move" us' (Shotter, 1993, p. 41). These affective flows, like the words they accompany, have their origins in social relationships. Thus our ways of being and relating, our inner lives, come to cumulatively mirror in transmuted form our previous transactions with others, in both their verbalized and affective aspects:

. . . one's task in developing into a morally autonomous adult in one's own society is not just that of learning to direct one's own mental processes with the aid of words or signs, but of doing so in a way that makes sense and is considered legitimate by others. In this view, then, our 'inner' lives are structured by us living 'into' and 'through', so to speak, the opportunities or enablements offered us by the 'others' and 'otherness' both around us and within us. Thus our mental life is never wholly our own. (Shotter, 1993, pp. 44–45)

So, Shotter's (P grammar) notion of subjectivity is clearly an embodied subjectivity, but he does not specify how this embodiment might be conducted. Accordingly, we now turn to O (organism) grammar to explicate two neural mechanisms that might do so. A description of Damasio's 'somatic marker' hypothesis will be followed by an account of Gazzaniga's left-brain 'interpreter'.

The Somatic Marker Hypothesis

Damasio (1994; Damasio, Tranel, & Damasio, 1991) proposes a neural mechanism for decision-making in social settings based upon work with people who have injury or damage to the ventro-medial sectors of the frontal lobes. His evidence suggests these sectors are critical nodes in a system that integrates into consciousness feelings about the body; these feelings then get utilized to guide decisions in social settings. Feelings, here, are the raw material of bodily states (muscular tension, posture, arousal levels, visceral activity, etc.) derived from information gathered by the brain to assist in the vital function of homeostasis.¹ Importantly, this is not a cryptophrenological account—this is not ‘the bit of the brain that makes decisions’. Rather, an array of information (perceptual, remembered and sensory) from numerous brain areas is collated here and utilized to assist decision-making. The frontal lobes are strong candidates for such activity since their neural pathways receive information from all the sensory cortices of the brain: those which assimilate perceptions of the external world, those which represent bodily states, and those which give rise to images that constitute thought. It is generally accepted that the frontal lobes are not implicated in routine, learned activities, even those that are relatively complex. However, lesion studies show that damage typically gives rise to arousal and attentional problems, impulsivity and disinhibition in social settings (Stuss, 1996). There is also evidence that the frontal lobes contain what Damasio calls ‘convergence zones’, areas which organize the dispositional representations by which individuals categorize and organize their experience with respect to their social and material environment (Petrides & Milner, 1982). In short, the frontal lobes ‘contain some of the few brain regions to be privy to signals about virtually any activity taking place in our beings’ mind or body at any given time’ (Damasio, 1994, p. 181) and so have the requisite information to perform the kind of function postulated.

Injury to the ventro-medial sector of the frontal lobes, in the absence of other lesions, produces two distinct outcomes. First, emotional repertoires are flattened or truncated: individuals are prone to occasional, unpredictable bursts of strong emotions such as anger, but otherwise seem to have shallow, superficial or even no emotions. Second, they are chronically unable to take effective decisions in social settings. Even apparently simple matters, such as which day to book a future appointment, become deeply problematic (Damasio, 1994 pp. 193–194). The consistent and exclusive co-occurrence of these two deficits with ventro-medial prefrontal damage (a ‘double dissociation’) suggests that decision-making is related to emotion and feeling. Damasio proposes that the brain generates a continual baseline of feelings, which varies subtly as neural representations of various outcomes are invoked. As we contemplate the likely consequences of possible actions, the neural representations created fleetingly call out associated patterns of

feelings. These patterns are *somatic markers*: somatic because they are to do with the body, and markers because they stamp options with valences that influence decision-making.

Somatic markers give each putative option a positive or negative value that influences its treatment: 'When a negative somatic marker is juxtaposed to a particular future outcome the combination functions as an alarm bell. When a positive somatic marker is juxtaposed instead, it becomes a beacon of incentive' (Damasio, 1994, p.174). They rule out unacceptable options in decision-making, and simultaneously direct attention towards favourable alternatives. They are brain states, derived from dynamically updated information about the body, which we use to quickly assess whole sets of alternatives. They do not *make* decisions, but simplify and accelerate them, since rational consideration is only necessary for the residue of options remaining after somatic guidance has occurred.

Somatic markers are acquired from experience: they 'were created in our brains during the process of education and socialization, by connecting specific classes of stimuli with specific classes of somatic state' (Damasio, 1994, p. 177). Their neural basis is parasitic upon hardwired regulatory systems that achieve homeostatic balance and maintain life. These systems constitute an internal preference system that is biased away from pain and towards pleasurable bodily states, and to this extent somatic markers are oriented towards well-being. But their origins lie in the individual's personal-social history of relationships and transactions. As Damasio (1994) puts it:

Somatic markers are thus acquired by experience, under the control of an internal preference system and under the influence of an external set of circumstances which include not only entities and events with which the organism must interact, but also social conventions and ethical rules. (p. 179)

There are two further relevant aspects of Damasio's hypothesis. First, he proposes a mechanism whereby the actual body is by-passed by 'as-if body' loops in the brain, further accelerating decision-making. In the basic mechanism 'the body is engaged by the prefrontal cortices and amygdala to assume a particular state profile, whose result is subsequently signalled to the somatosensory cortex' (Damasio, 1994, p. 184), whereas in this alternative mechanism 'the body is bypassed and the prefrontal cortices and amygdala merely tell the somatosensory cortex to organize itself in the explicit activity pattern that it would have assumed had the body been placed in the desired state and signalled upward' (Damasio, 1994, p. 184). Second, somatic markers may operate covertly, outside of consciousness. At any given moment many brain processes potentially accessible to consciousness are not attended; attention, which has limited capacity, is elsewhere. So although many important choices seem not to involve feelings:

That does not mean that the evaluation that normally leads to a body state has not taken place; or that the body state or its vicarious surrogate has not been engaged; or that the regulatory dispositional machinery underlying the process has not been activated. Quite simply, a signal body state or its surrogate may have been activated but not been made the focus of attention. (Damasio, 1994, p. 185)

Hence, somatic markers can guide decision-making without our noticing their contribution; although not in principle inaccessible, they do not need to enter consciousness to function. They can therefore introduce *patterned irrationality* into decision-making, patterns related to aspects of personal-social history. This seems more likely when faster, more subtle ‘as-if body’ loops operate, but could potentially occur at any time, especially in highly charged or complicated situations where the demands of interaction command the full capacity of consciousness.

So, Damasio posits a neural representation of the body, updated in real time on the basis of information about bodily states (states themselves influenced by neural activity in complex, interconnected feedback loops), and implicates this representation in decision-making. When we become aware of them these representations appear phenomenologically as *feelings*, called out within streams of activity and functional within them to guide us towards appropriate choices. In short, Damasio seems to be describing in O grammar just the embodied ‘knowing of the third kind’, the responsive orientation to the ‘sense’ of an interaction, which Shotter describes in P grammar. But there is also a discursive aspect to Shotter’s account of subjectivity, and we now turn to a possible O grammar account of this.

Split Brains, Anasognosia and ‘the Interpreter’

What follows is a partial neuroscientific account of language production. Aspects such as the mechanics of language production will not be considered—for example, how phonemes are stored, ordered and produced, or how speech is articulated between the various linguistic and motor cortices of the brain to coordinate movements of the larynx, tongue and mouth. Instead, a general account of the localization of functional characteristics of language, particularly in relation to subjectivity and social interaction, is offered. Based upon work with split-brain patients, Michael Gazzaniga (1998b) proposes a left-hemisphere system (or collection of systems) he calls ‘the interpreter’,² which generates a continual, more-or-less coherent narrative of activity, constantly generating explanations for events and displaying ‘a unique capacity to interpret behaviour and unconsciously driven emotional states’ (p. 225). These findings emerge from studies of patients who, to control otherwise intractable epilepsy, have had a commissurotomy, separating the higher cortices of the brain at the midline by

cutting their connecting fibres (the corpus callosum). Superficially, this procedure does not change general cognitive functioning, affect or sense of self. However, studies have revealed that afterwards the right hemisphere is superior at face recognition, some sensorimotor tasks and attentional processes, whilst the left excels at reasoning and speaking, giving it the capacity to 'interpret'.

A simple demonstration of 'the interpreter' involved telling the speechless right hemisphere to 'take a walk', without the left hemisphere knowing about the instruction. When the patient did so and was asked why, the (left-hemisphere) response was, 'Oh, I need to get a drink' (Gazzaniga, 1998b, p. 133). There is also extensive experimental evidence (Gazzaniga, 1998a, 1998b, 2000). In one study, pictures were separately presented to each hemisphere using a screen. Participants were asked to make associations between these pictures and other pictures on cards, chosen with their hands. One example involved showing a chicken claw to the left hemisphere and a snow scene to the right hemisphere. The correct picture cards corresponding to these images were a chicken to go with the claw and a shovel for the snow. One participant responded correctly by choosing the shovel with his (right-hemisphere-controlled) left hand, and the chicken with his (left-hemisphere-controlled) right. But when asked why he replied, 'Oh that's simple. The chicken claw goes with the chicken, and you need a shovel to clean out the chicken shed.' Observing the left hand's response, the left brain thus 'interpreted' it consistent with its own knowledge—which excluded the snow scene. Gazzaniga (1998a) comments:

What is amazing here is that the left hemisphere is perfectly capable of saying something like 'Look, I have no idea why I picked the shovel—I had my brain split, don't you remember? You probably presented something to the half of my brain that can't talk; this happens to me all the time. You know I can't tell you why I picked the shovel. Quit asking me this stupid question.' But it doesn't say this. The left brain weaves its story in order to convince itself and you that it is in full control. (p. 25)

Further evidence emerges from studies of memory. Participants see a series of pictures depicting a probable sequence of events. Some hours later they see the series again with the inclusion of distracter pictures (some that might plausibly have been in the original series, and others clearly irrelevant) and are asked if they have seen each picture before. Controls display a characteristic pattern of errors, including many distracter pictures consistent with the original series. But when the two hemispheres of split-brain patients are tested separately, the right hemisphere makes few such errors whilst the left makes many, suggesting that the 'left hemisphere, with its capacity for making inferences and associations, was more strongly influenced by the expectations for actions common to a scene' (Gazzaniga, 1998b, pp. 225–226). Other studies have shown that affective changes produced by manipulating the right hemisphere lead the left to produce consonant

interpretations of emotionally neutral situations: 'A positive mood shift triggered by the right hemisphere finds the left interpreting its current experience in a positive way. Similarly, when the right triggers a negative mood state, the left interprets a previously neutral situation in negative terms' (Gazzaniga, 1998b, p. 225).

These experimental findings are consistent with observations of people with anosognosia, or 'literal lack of knowledge of disease' (Prigatano, 1996). People with right-hemisphere brain lesions often lose sensation and control in their left sides. A frequent additional consequence is that when attention is drawn to these disabled parts, for example a left hand, they will claim that the hand belongs to someone else (Gazzaniga, 2000, pp. 134–135; Prigatano, 1996). Damasio (1999) suggests that anosognosia occurs because, in addition to sensorimotor deficits, dynamic real-time body representations of the affected area are also subjectively unavailable. Consequently, *all* information relating to this part of the body—not just that it is damaged, but also the fact that it even exists—simply disappears (Damasio, 1999, pp. 209–213). Although those affected may eventually learn from repeated confrontations that something is wrong, this 'external' knowledge is obtained slowly and remains fragile by comparison with the 'automatic', ever-present baseline of somatic knowledge that their body-brain system continues to supply. Since this baseline knowledge is now erroneous, excluding somatosensory reference to parts of the left side (because right-hemisphere regions that would signal their existence are missing), it appears plain to the person that no such parts exist. Therefore the 'interpreter' spontaneously generates explanations and accounts that exclude them, just as accounts in the above experiments exclude information presented only to the speechless right hemisphere.

So, accounts generated by the left hemisphere incorporate somatic feedback, are subject to interference by context and expectation, and can be influenced by induced affective changes. For our purposes, two aspects of these accounts produced by brain-injured people need to be emphasized. First, they are linguistically constituted, discursively structured and organized into legitimated narratives. Second, they are situated and occasioned, tailored to a particular evolving interactional context within which they gain their functionality and become meaningful. Thus, the interpreter might allow us to address in O grammar the discursive, dialogic aspects of subjectivity that Shotter's constructionism addresses in P grammar.

Neuroscience, Embodied Subjectivity and Society

These grammars are not mutually reducible since causality and influence operate differently within each of them. Not only do P and O grammars offer different languages with which to describe embodied subjectivity; both

grammars are *necessary* since distinct orders of influence can sensibly be recognized only within one or other of them. Putting this another way, consonant with his realist orientation, Harré's grammars allow constructionism to become an ontology, not merely an epistemology. The two O grammar systems outlined above do not by themselves produce embodied subjectivity since they fundamentally require immersion in successive sociocultural milieus, but they do co-constitute it (*co-constitution* because there are two interacting neural systems, each with causal powers, themselves interacting with other influences). Our experience of ourselves as aware, embodied, reflective beings is provided partly by our dynamic positioning within open-ended webs of relating wherein we are morally accountable (Shotter's P grammar). But it is simultaneously provided by (O grammar) neural systems that engage with such interpersonal activity, generating both discursive forms and embodied feelings appropriate to, and causally influential within, the unfolding trajectories that emerge. Analytically, we might posit a constant movement between P and O grammars, as specific influences within each become most pertinent to our understanding of particular micro-segments of activity. Phenomenologically, we can posit a subjectivity that is of the body and thoroughly informed by its somatic character, and yet simultaneously a 'boundary phenomenon', rhetorically responsive to (and open to tentative 'completion' by) the unfolding interpersonal situations we occupy:

. . . it is in adopting different 'voices'—addressed or directed towards others, and spontaneously calling out from them responsive understandings of one kind or another—that we essentially argue within ourselves as to how best we might formulate and respond to our sense (our own embodied 'feelings') of how, currently, we are situated or positioned in relation to the others around us and our circumstances. (Shotter, 1997, p. 13)

An embodied subjectivity formed in this way is, as Shotter describes, the emergent product of successive social acts: its generation is temporally organized, and its character at any given time is a property of the interaction between its previous character and the transactions just experienced. In other words, it is *morphogenetic*: existing features lend form to future development in an unfolding trajectory, where each successive interaction is potentially transformative and might itself contribute to the shaping of future actions. But because interactions are always to-be-determined, new trajectories might always emerge: morphogenetic causation is probabilistic, not deterministic.

Interactions between people are always already societal as well as interpersonal. They are spatio-temporally situated in history and culture; they mobilize discursive and other resources acquired through enculturation; and they proceed according to normative expectations proffered by actual (sub)cultures at specific historical junctures. In this regard, it is worth emphasizing that each of the O grammar systems described here is societally

conditioned: somatic markers by individuals' accumulated history of ethical-moral interactions; the 'interpreter' by the language, narrative forms and discursive habits acquired. That the symbolic, semantic or linguistic aspects of subjectivity are socioculturally influenced and acquired through the medium of interpersonal relations is unsurprising, but on this account its corporeal aspects are also enculturated. Whilst relatively unusual in psychology, in social theory such ideas are well established. The emphasis in both Shotter and Damasio upon the enculturation of embodied aspects of subjectivity resonates with such sociological accounts as Elias's (1978) notion of figuration and Bourdieu's (1977) notion of 'habitus'. Each of these implicates repertoires of socioculturally determined, interpersonally perceptible somatic ordering, patterns of socialization that become embodied characteristics. Damasio's hypothesis is broadly compatible with both notions, but extends them in two ways. First, it incorporates non-visible bodily aspects such as the state of the viscera or blood vessels. Second, it provides a neural basis for correspondences and bi-directional influences between somatic ordering and subjectivity. So despite the inclusion of neuroscience, the notion of embodied subjectivity advanced here is neither essentialist nor individualized, but thoroughly societal.

The Societal Co-constitution of Embodied Subjectivity

The value of integrating constructionism with neuroscience will now be illustrated by considering the example of depression. Depression is very widespread (sometimes described as the 'common cold' of psychiatry), so this example both demonstrates the range of convenience of these ideas and facilitates their critical assessment. Additionally, it illustrates how including embodied subjectivity within constructionism sharpens its critical edge, mounting a stronger challenge to individualism and reductionism.

Depression refers to diagnoses within both major Western psychiatric nomenclatures, the *DSM-IV* (American Psychiatric Association, 1994) and the *ICD-10* (World Health Organization, 1992). Such diagnoses constitute a terminological-conceptual minefield that must be carefully traversed. Here, depression is conceptualized as an experience of profound, enduring unhappiness afflicting significant numbers of people in Western societies (Hagnell, 1982; Lewis, 1993). Evidence suggests that such unhappiness is intrinsic to industrialized, stratified societies where power, resources and normative expectations are differential and unevenly distributed according to factors such as socio-economic status, gender, ethnicity, sexuality and disability (Smail, 1984, 1987, 1993). When it encounters psychiatry, this unhappiness typically gets medicalized, individualized and re-presented as a constellation of biomedical symptoms. The actual status of such 'symptoms' as the to-be-expected consequence of toxic life experiences is consequently

masked, and the mystification and disempowerment that helped produce them are reinforced (Osterkamp, 1999).

Because some people are indeed much unhappier than others, for reasons that are not always readily apparent, psychiatric accounts that causally implicate biomedical dysfunctions gain superficial credibility. Two bodies of empirical evidence challenge this credibility: the associations between societal change and levels of subjective misery (e.g. James, 1997; Morrell, Page, & Taylor, 2002); and the relationships between factors such as social class, life events and the occurrence of distress (e.g. Fan & Eaton, 2001; Harrison, Gunnell, Glazebrook, Page, & Kwiecinski, 2001). However, interpretation of this evidence is often seen as problematic because not all those exposed to such experiences become profoundly unhappy. Below is offered a constructionist account broadly consonant with this evidence and deploying the notion of embodied subjectivity described earlier. This account also allows us to conceptualize why the effects of adverse social influences are not displayed uniformly.

Discussing depression in P grammar, Wiener and Marcus (1994) show how discursively structured, relationally ordered variation in social practices within Western culture bears transactional patterns with potentially harmful consequences. They suggest that such variation might account for contradictions in the criteria that specify relevant diagnostic categories. They describe three social transactional 'scripts' (Helpless–Helpful, Powerless–Powerful and Worthy–Worthless) that, if they predominate in a particular subcultural niche, might generate distinctive constellations of responding that psychiatrists would categorize uniformly as depression. Such scripts characterize patterns of 'concurrent, interdependent, mutual activities' (Wiener & Marcus, 1994, p. 217) and are designated transactions (not interactions) to emphasize their focus upon people acting collaboratively, not sequentially or independently. The Helpless–Helpful script characterizes subcultural niches wherein individuals gain recognition and reward for discursively and socially positioning themselves as inferior and incapable. The Powerless–Powerful script characterizes niches where individuals are rewarded for placating others and ingratiating themselves, and the Worthy–Worthless script characterizes niches where individuals gain benefits for apologizing and deploying self-deprecating discourses. Individuals socialized within any of these three niches might agree with statements such as 'I can't make decisions at all any more' (Beck, 1967), but in each case the meaning of their agreement would differ. Those from the Helpless–Helpful niche would mean something like 'I don't know how to manage responsibility'; those from the Powerless–Powerful niche, 'I am not permitted to make meaningful decisions'; and those from the Worthy–Worthless niche, 'I am not good enough to make decisions' (see Wiener & Marcus, 1994, p. 223).

Wiener and Marcus say that their aim is 'to shift the focus to the description of the kinds of sociocultural transaction that are identified and

deemed significant for a group' (p. 217), and so do not directly relate their transactional scripts to the embodied subjectivity of individuals. However, here the notion of embodied subjectivity elaborated above will be related to these scripts and their associated social practices, which will be treated as analytical categories summarizing dominant modes of relating. Vygotsky (and Shotter) locate the origins of metacognition and acquired affective attitudes in modes of instruction, providing a theoretical framework associating transactional scripts to both individuated affective repertoires and discursive activity. Shotter (1989) puts this succinctly when he suggests that, over time, telling a child what to do is, simultaneously, instructing her or him in how to be. Transactional scripts, social practices and the expressed contents of subjectivity are properly discussed in P grammar; the neural systems described above simultaneously allow us to conceptualize, in O grammar, how such patterns of socialization become quite literally embodied within individuals.

Through enculturation, discourses with utility within specific (sub)cultural niches get taken up and deployed by individuals. In niches characterized by the transactional scripts that Wiener and Marcus describe, legitimated discourses will consistently invite persons to understand themselves as helpless, worthless or powerless, and regularly make germane dimensions of efficacy, power and self-worth. Alongside these discourses, and reinforcing devalued subject positions within them, will be affective flows conveyed by means such as posture, gesture, intonation and facial expression. Expressing this in O grammar, such transactions will generate patterns of somatic markers which influence subsequent activity by attaching negative or low values to options sensitively intertwined with self-image, or by making options which would affirm personal worth, power or efficacy *feel* impossible. Discursive constructions generated by the 'interpreter' using resources acquired through such transactions will gain salience because of these associated somatic markers, which will typically be called out in social settings where discourses of power, efficacy or worth are deployed. Somatic markers will condition the positions individuals 'unthinkingly' occupy *within* these discourses, simultaneously underscoring the continued relevance of the discourses themselves. Their (sometimes covert) operation helps explain the relative intransigence of unhappiness and shows how the experience of powerlessness, say, is not *just* a thought, linguistic trope or discursive construction. Alongside its discursive aspect, powerlessness acquires an embodied, feelingful character composed of facial expression, posture, gaze direction and duration, breathing, head inclination, muscle tone and less visible characteristics such as visceral and blood vessel activity.

Briefly drawing now upon M grammar, these embodied phenomena could be organized under the influence of neurotransmitters such as serotonin and norepinephrine, the availability of which could be pathways whereby the brain and body states that characterize profound unhappiness are generated

and maintained. Raleigh, McGuire, Brammer, and Yuwiler (1984) demonstrated that serotonin levels in vervet monkeys changed after their social status was altered, not before. Similarly, Weiss, Glazer, and Pohoresky (1976) showed that levels of norepinephrine in rats were lowered after helplessness was induced. Serotonin and norepinephrine are targeted by tricyclic anti-depressants; serotonin is targeted by drugs such as Prozac. Such evidence suggests that these neurotransmitters might be implicated in unhappiness, but not in a naïvely reductionist manner. Instead, neurotransmitter levels might reflect and mediate the impact upon individuals of societal forces and stressful events, for example through their interaction with levels of cortisol in the hypothalamic-pituitary-adrenal axis (Dinan, 1994).

Such M grammar influences could potentiate further P grammar trajectories of social transaction wherein power becomes salient. People who discursively position themselves as powerless and (however unwittingly) physically present themselves consonantly may invite responses from others that accord with their self-construction. Such responses will increase, through rehearsal and reflection, the salience of the 'powerless' mode of relating and being. Additionally, because of the hyper-relevance that power thereby acquires, such individuals may be primed to perceive abuses of power where no abuse was intended. Such trajectories could, morphogenetically, further embody 'powerlessness' as a mode of being, each successive transaction wherein it is conspicuous increasing the probability of future salience. A vicious spiral may ensue: transactional scripts and social practices (P grammar) generate somatic markers and discursive repertoires (O grammar), leading to lowered levels of relevant neurotransmitters (M grammar), which in turn make further disempowering transactions and self-perceptions (P grammar) more likely.

Wiener and Marcus (1994) relate their transactional scripts to contradictions in the diagnostic criteria for depression, suggesting that socialization within each produces subtly different patterns of 'depressive symptomatology' that the unitary diagnostic category must contain:

. . . an individual who reports depressed mood . . . manifests psychomotor retardation, reports low energy, hypersomnia and weight gain, is diagnosed with major depressive syndrome, as is an individual with psychomotor agitation . . . insomnia, weight loss, feelings of worthlessness and indecisiveness. Although these people do not share a single action in common, and in many respects appear to be behavioural opposites, both are identified as belonging to the same diagnostic category. (p. 219)

Psychiatry sometimes acknowledges such variation (e.g. Tyrer, 2001), but does not routinely theorize its occurrence, implicitly ascribing it to variations in underlying biomedical pathology. In contrast, by combining Wiener and Marcus's P grammar transactional scripts with the notion of embodied subjectivity described above, we might generate an account that recognizes

this variation, locates its origin in modes of enculturation, and systematically associates it with distinctive patterns of 'depressive symptomatology'.

For example, for individuals whose maturation was typified by the Helpless–Helpful script, most possibilities may *feel* unavailable because of a somatic repertoire that evaluates the self as globally incapable in relation to them. Apathy and listlessness might then ensue, accompanied by excessive sleeping and weight gain due to decreased activity. Conversely, if it *feels* that all possibilities threaten further invalidation or denigration (because of somatic markers acquired in settings where power or self-worth were consistently at issue), then agitation and defensiveness might be more likely, alongside insomnia, restlessness and consequent weight loss. Difficulty concentrating or deciding is a prominent feature in many accounts of profound unhappiness. This could be the product of a somatic repertoire that marks all options as similarly negative, unavailable, dangerous or difficult, a repertoire that positions the person as powerless, worthless or helpless in relation to all thinkable possibilities. Such a person would be attempting to decide without effective somatic guidance; consequently, rational consideration would be laborious, time-consuming and difficult, and the act of choosing *feel* either impossible or irrelevant. Somatic markers that position individuals as worthless, helpless or powerless within relevant discourses could also underpin other features of depression listed in *DSM-IV* and *ICD-10*, including: a perceptual bias toward negative events; negative views of world, self and future; excessive guilt; inability to experience pleasure; irritable mood; anxiety and apprehension.

Because the morphogenetic character of these interacting neural and social processes creates contingency and variation, embodied subjectivity is ever open to tangent or change through rhetorical responsive engagement in open-ended joint action. Transactional scripts such as these potentially generate trajectories that produce forms of subjectivity characterized by profound unhappiness, but they need not. Meanings are negotiated through them rather than determined by them; the intrinsic indeterminacy of joint action means that alternate individual trajectories are always possible. Consequently, the vicious spiral into unhappiness does not occur for everyone exposed to adverse life events or unhelpful transactional scripts, because the causal associations between societal forces, situated transactions and modes of subjectivity are *necessarily* probabilistic rather than deterministic.³

Accordingly, this account is not intended to illuminate more clearly the nature and boundaries of 'depression', paving the way for more precise psychiatric diagnosis in future. Rather, it highlights the inadequacy of an empiricist approach that isolates, abstracts and de-contextualizes elements of personal-social history and subjectivity, removing their societal meaning and embodied significance and re-categorizing them as discrete, isolable 'causes', 'symptoms' and 'illnesses'. It situates depression on a continuum

with 'everyday' unhappiness, emphasizing the constitutional and functional similarities of both. Depression, here, is a mode of embodied subjectivity consequent upon particular interpersonal-societal trajectories, not a biological flaw, and hence (although it can never be 'unlived') is amenable to societal and interpersonal amelioration.

Conclusion

This paper has outlined how Shotter's notion of subjectivity can be integrated with two O grammar neural systems consonant with the phenomenological and behavioural features Shotter describes in P grammar. The discussion of depression then illustrates how constructionism becomes more thoroughly critical as a consequence of this integration. The account systematically theorizes patterns of depressive symptomatology, relating them to specific transactional patterns rather than submerging them within internally contradictory diagnostic criteria. Such transactional patterns are played out within morphogenetic and hence indeterminate 'joint action', explaining why constant conjunctions between these and other societal influences are rare. In both these respects, this account is arguably more coherent and powerful than the individualized biomedical one that predominates. Moreover, the notion of a 'vicious spiral' across three nested levels of explanation (P, O and M grammars) increases the explanatory force of this notion of embodied subjectivity over and above the discursive analysis of transactional scripts that it utilizes.

Nevertheless, it must be emphasized that this example is merely suggestive of the potentials that might arise from the integration of constructionism and neuroscience; if this direction of research proves acceptable, further work is needed to elaborate and refine the view of subjectivity it provides. The 'fleshing out' of Shotter's notion of embodied subjectivity with elements of neuroscience could have many consequences. It could facilitate future constructionist work in ways ranging from the generation of testable empirical hypotheses to the development of constructionist accounts of the interpersonal-societal ontogenesis of other aspects of embodied experience. It has numerous other implications which have not been elaborated here: for example, for the relative primacy of affect and discourse; for the explanatory (as opposed to descriptive) status of some psychodynamic accounts; for the embodiment of gender difference and its relationship to both cognitive neuroscience (Wilson, 1996) and constructionism; and for the way in which constructionists consider issues such as embodiment, materiality and power. Exploration of these issues might further enrich the constructionist endeavour, and bolster its status with respect to the rest of psychology. One of the strengths of social constructionism is that it is a truly interdisciplinary achievement. The integration of elements of neuroscience, in creative

tension with its focus on interpersonal, societal processes, may allow constructionism to offer accounts that more profoundly challenge the cognitivism and individualism of mainstream approaches.

Notes

1. Subsets of these feelings get organized, through enculturation, into culturally sanctioned patterns of legitimate responses to classes of external events, constituting the complexes of bodily, discursive, physiological responses we call emotions. Damasio uses the language of secondary emotions to describe these patterns, distinguishing them from the primary emotions postulated by Ekman (1992, pp. 550–553). Ekman's notion of universal, hardwired emotions has been challenged on empirical and conceptual grounds and criticized by constructionists (e.g. Edwards, 1997, pp. 170–197). However, for the present argument this controversy can be sidestepped. Damasio's point is that social interaction influences the brain, inducing brain states that in turn generate body states we call 'feelings' or 'emotions'. These body states then feed back into social interaction, shaping its course and direction. Disagreements over the precise number or character of any evolutionarily hardwired responses called out within this process are not directly relevant to Damasio's hypothesis, which is that the brain utilizes bodily feedback of various kinds, gathered originally for homeostatic purposes, to guide decision making.
2. Some theorists argue that language is 'hardwired' in the form of specific adaptations; others propose that language is simply a by-product of large brains. This question bears upon the controversy over evolutionary psychology and the strong modularity of mind program promoted by Cosmides and Tooby (see Barkow, Cosmides, & Tooby, 1992), amongst others. Recently, Gazzaniga (1998a) has used the language of modularity and evolutionary psychology to present his ideas, a problematic paradigm (Rose & Rose, 2001) largely inconsistent with constructionism. But his contention is supported by extensive empirical evidence independent of the modularity paradigm, and so can be utilized without endorsing the evolutionary psychology with which he has recently associated it.
3. Archer (1995, pp. 50–54) describes how morphogenetic processes necessarily fail to produce constant conjunctions, even though causal influences operate within them.

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ACKNOWLEDGEMENTS. The author would like to thank Alan Carling, Rachel Fyson, Leeat Granek, Anna Plodowski and three anonymous reviewers for helpful comments on an earlier version of this paper. Thanks are also due to Charles Antaki, Michael Billig, Steve Brown, Dave Nightingale and Paul Stenner.

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