Notes on Joshua Greene and Jonathan Haidt, How (and where) does moral judgment work? *TRENDS in Cognitive Science* 6.12 (Dec 2002): 517-523.

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Abstract: The article discusses the neuroanatomy of moral judgment, specifically the interplay of reason, emotion, and "affective intuition" therein. The authors propose that affect is most important, though reason plays a role in certain cases. They also propose that "many brain areas make important contributions to moral judgment although none is devoted specifically to it."

The "cognitive revolution" in psychology: until the 50s and 60s, little attention was paid to conscious mental processes. Behaviorists put them in a "black box" and just studied input / output functions, restricting the mind to simple association and conditioning. Psychoanalysts stressed unconscious processes, with consciousness for the most part epiphenomenal (though of course the site of symptoms and the avenue by which transference could be provoked / effectuated).

But with Piaget and Kohlberg et al., moral psychology came to be seen as study of development of rational capacities for role taking and hence development of "post-conventional" perspective. But the "affective" revolution of the 80s and 90s called attention to emotion.

Very brief preview of split between 1) care about welfare (kin altruism / sympathy) and 2) co-operation, cheating, norm-following (reciprocal altruism / shame, gratitude, vengeance). Much more on this with the Joyce and DeWaal books.

G & H now mention H's "social intuitionist" model: moral judgment is like aesthetic judgment, i.e., the result of affect-laden intuition.

They then mention Damasio and the somatic marker hypothesis: affect serves to structure decision space for use of reason.

1. With adult-onset injuries to prefrontal cortices, you can have preserved abstract social knowledge but be unable to function effectively, bcs of problems with affect.
2. Early-onset damage to prefrontal areas prevents proper assimilation of abstract social knowledge. So these areas are for both on-line decision making and for acquisition of social knowledge.
3. Trauma and lowered thresholds.
    a. Patients with PTSD related ventromedial prefrontal damage tend toward violence and aggression.

b. Anti-social personality disorder.

c. Violent criminals with childhood abuse and frontal damage.

4. Psychopaths and raised thresholds. Reduction in empathy: tendency toward instrumental rather than aggressive violence.

Neuroimaging results.

Here we find Greene's dual judgment system of hot, personal, affective judgment and cool, impersonal, rational judgment. In "Secret Joke of Kant's Soul," he shows that deontological judgments in the trolley problem arise from the hot, personal, affective system and that utilitarian judgments arise from the cool, impersonal, rational system. Thus Kant's "pure reason" comes from affect!

Personal moral dilemmas lead to involvement of social / emotional processing areas. Criterion = ME HURT YOU. The "hurt" = personal injury (assault, stealing food, deprivation in social rank): something a chimp could understand. The "you" means the victim has to be "vividly represented as an individual." Gallagher and the phenomenologists would point to "intercorporeality," that is, shared bodily presence (proprioception of physical entrainment, quick resonance via mirror neurons, etc.). Multi-modal visual / auditory / olfactory processing is going to heighten intensity. The "me" implies attribution of personal agency. Zahavi has done lots of work here with pre-reflective self-awareness.

Impersonal moral dilemmas lead to involvement of working memory areas. Little difference in neural activity between impersonal moral dilemmas and non-moral practical judgment.

We don't need to get into the details of the specific brain areas.

G & H link introspection and resting brain tonic activity: "high-level social-emotional processing involved in moral judgment may be a 'turbo-charged' version of the personal rumination in which we engage when otherwise unengaged" (522).

Amygdala and race perception.

Conclusions: they repeat the nuancing of the social intuitionist model via Greene's findings of personal vs impersonal moral judgment. They also invoke Theory of Mind, which is idea that we infer mental status of others via observation of their behavior. "Theory theory" holds we do this directly, like scientists. "Simulation theory" holds that we run a model of that behavior onboard ourselves (usually said to occur via mirror neurons) and then make an inference about mental states of others. Gallagher's fine article "Simulation Trouble" (on his website) lays out phenomenological answer: most of the time we have direct perception of meaning of other's action. No inference is necessary. The "hidden simulation" dodge doesn't work either, for technical reasons. Mirror neurons are involved as neural mechanism for intercorporeality, but not

as basis for simulations. Now once in a while we might need Theory of Mind, but it's not needed in the vast majority of cases.

The authors strongly insist that there is "no specifically moral part of the brain." Like many others, they still have to fight the ghost of phrenology! The problem is they are afraid (and perhaps rightfully so) that some researchers still try to separate emotion to get to the "true" remnant of moral reasoning as the core of moral judgment. But this just means they can't think emergence as construction of functional focus / unity from heterogeneous components, in this case, specialized brain areas for affect, body state imaging, visual perception, etc. But even this way of putting it is problematic. IOW, there is no specialized brain area for moral judgment bcs it is an emergent function, most likely of some sub-functions, themselves emergent from function of specialized areas. It's all about neurodynamics as production of temporary "functional clusters" (Edelman and Tononi) or "resonant cell assemblies" (Varela) from the synchronization of firing patterns in distributed brain areas (parallel re-entry in convergence zones). IOW, we have to learn to think in time, not in space!