KELLY ROE (AUDITING): ASSIGNMENT SIX

Affect program responses have been useful for bridging ethology and anthropology[1]. Affect program responses are interesting because they share a number of properties in common that are useful for induction: They are fast, short lived, have distinctive patterns of (fairly) involuntary bodily and behavioral response, they are pan-cultural, and they have homologues in other mammals. There seem to be good prospects for explaining how affect program responses can be modified so as to be elicited in response to novel social and non-social cues. There also seem to be good prospects for explaining how affect program responses are modified by a variety of social and non-social reinforcements. One can thus investigate how non-social and social factors influence their production and expression both in humans and in other mammals. This seems a promising approach to grounding the variety of more culturally specific emotional responses in the biological sciences.

With respect to production humans seem hard wired (or at least prepared) to respond to non-social cues such as insects and heights with fear. We also seem hard wired (or at least prepared) to respond to social cues such as expression of fear in another with fear. Both the non-social and the social cues that trigger an emotion can be modified (e.g., generalized to apply to different stimuli or overcome) as a function of learning. This can arise from non-social forms of feedback (e.g., nausea after eating a certain food), or from social forms of feedback (e.g., another responding to us with disgust when we eat a certain food[2]). While affect program responses are fairly automatic and involuntary, culture seems to influence not only whether an emotional response is produced in response to a stimulus, but also the intensity, and type of response. The finding that subjects from eastern cultures produce a display that is less intense than that produced by subjects from western cultures has often been interpreted as indicating that subjects from eastern cultures engage in 'suppression' of their emotional response. One might conversely interpret the finding as indicating that subjects from western cultures engage in 'magnification' of their emotional response, however. Whether the differences arise from different intensity of emotion or different display rules remains to be seen[3]. Cultural differences can also result in different emotional responses to the same stimulus as when personal achievement tends to elicit pride in one cultural group and humility in another. Similarly, which affect program response is elicited can depend on whether the behavioral stimulus was produced by a subordinate or dominant. There are also differences in the display rules in different cultural groups or sub-cultural groups (e.g., displays of violence are obligatory in some subcultures).

Despite their utility for ethology and anthropology, affect program responses haven't turned out to be very useful (or recoverable) from the perspective of neuroscience thus far. This is surprising to me as there clearly are distinctive patterns in behavioral and bodily response for the different affect programs[4]. Unless we are simply missing something I suppose it must follow that the different affect programs are implemented on the same (or very similar) neural circuitry. We may have been suspicious about their being implemented on different circuitry at any rate since double dissociations between distinct affect program responses didn't seem forthcoming[5]. Perhaps they simply aren't as distinct as we had supposed on the basis of the behavioral evidence. It might be that instead of starting the story with affect program responses and building up to the socially constructed emotions and socially sustained pretenses (where an emotional display is elicited because of its accepted meaning in a culture e.g., possession by a wild pig syndrome) we need to start the story further back with how physiological arousal and approach / avoidance build up to the affect program responses (preferably by way of valence). Someone looked at the difference between fear and anger production in rats (either Damasio or Le Doux). It seemrd that

[1]I know there has been some controversy over precisely how many there are and also some questioning of how significantly cross-cultural they are. The findings for Ekman's 7 do seem fairly robust, though.

[2]Much to the consternation of the New Zealand Dairy Board who is trying to figure out a way of marketing dairy products to the segment of the Chinese population that don't have lactose intolerance but find dairy disgusting nevertheless.

[3]I think one should be wary of describing eastern subjects as 'suppressing' their emotion as the implication seems to be that this is the same variety of 'suppression' that has been found to be a maladaptive coping strategy. I'd be interested to know if intensity of SCR between the eastern and western subjects was correlated with the degree of display. If so then this would suggest that the cultural differences resulted in different intensities of emotions being produced rather than that the cultural differences were solely a matter of display rule.

[4]Perhaps closer to the motor cortex?

[5]Though perhaps this is still surprising as it has been found that you can get double dissociations out of a neural network that has been trained to compute two different tasks / contents. I'm not sure how many hundreds or millions or billions of trials that required, however.

when escape was impossible or the threat could be reduced by anger display then anger was produced, whereas when escape was possible or the threat couldn't be reduced by anger display then flight was produced. I can't remember how closely this was tied to neurological circuitry, however, or whether the only discovered dimensions of difference were the different features I listed. I do think that it is fairly important to recover something along the lines of affect program responses, however, even if they are implemented on the same neural circuitry, as they have turned out to be immensely useful for integrating the biological and social sciences of emotion. I'm not at all sure how SCR and fMRI correlations (that seem fairly non-specific) are going to be able to play a similar role for neuroscience and social psychology[6].

The dispute over whether cognition and social cognition involve different contents / stimuli or consist in different processing mechanisms reminds me a lot of the dispute over whether endogenous and exogenous attention involve different contents / stimuli or consist in different processing mechanisms. Cues differ from symbols on a number of different dimensions such as where the stimuli was located (centrally vs peripherally) etc. It would be interesting to see what would happen if the dimensions of difference were systematically varied (morphing a cue into a symbol, in effect) in order to measure whether the effect on both neurological processing of the stimuli, and the pattern of behavioral response. The difference in stimuli is a matter of degree and it would be interesting to see whether neurological processing and the behavioral profile were similarly a matter of degree or whether they turned out to be more categorical. With respect to the distinction between social and non-social cognition it would similarly seem that we can morph uncontroversially non-social cues into cues that are uncontroversially social. I am supposing that the interest in the relationship between emotion and social cognition is thought to be a distinct problem from the problem of the relationship between emotion and cognition more generally. Whether this is so remains to be seen.

Returning to SCR one theory (controversial to be sure) is that the Capgras delusion is a reverse dissociation of prosopagnosia. Subjects with the Capgras delusion maintain that someone close to them (e.g., partner, child, canary) has been replaced by an impostor that looks 'just like' the original. It has been found that subjects who develop the Capgras delusion in response to cerebral trauma have a loss of SCR to familiar faces (and canaries, one supposes). I don't know that anyone has tested psychotic individuals with the Capgras delusion to see whether they similarly have reduced SCR. There has been some puzzlement over how the Capgras delusion differs from the Cotard delusion where people maintain they are dead. People with the Cotard delusion similarly have loss of SCR to familiar faces, though a lot else besides since it typically occurs in the context of untreated depression.

Marsha Linehan (University of Washington) developed a treatment for borderline personality disorder which is now considered paradigmatic of emotion dysregulation. Dialectical Behavior Therapy (DBT) was found to outperform CBT and psychodynamic therapy[7]. It consists three components: mindfulness meditation, emotion regulation, interpersonal skills. She has said that future research will need to determine which aspects (or which components of which aspects) are responsible for its efficacy. One thing that is interesting about abnormal SCR in delusion is that it may turn out that that delusions are more appropriately regarded as disorders of emotion rather than disorders of cognition. DBT doesn't focus on reappraisal / cognitive restructuring so much as acceptance of emotional response. Since cognitive restructuring results in high drop out rates and low rapport with psychotic subjects (as it did for subjects with borderline personality disorder) applying DBT techniques to the treatment of psychotic individuals might be promising[8].

---

[6]I would think it would be preferable to keep ones distance from people who are proclaiming to have found the 'neural basis of racism' after such fiascos as the bell curve, the 'fundamental attribution error', the 'finding' that indigenous people couldn't perform modus ponens, and the last sociobiological effort that led to eugenics. Anthropology provides a way of keeping our generalizations from a very culturally specific subset of humanity in check.

[7]Trauma re-experiencing is not a part of DBT. The thought is that these people struggle enough with whatever happened to them that morning. Asking them what happened that morning probably wouldn't count as asking them to remember their trauma. One would be expected to get an intense response nevertheless.

[8]Anti-psychotics are also often given to people with borderline personality disorder (or anxiety) for the purposes of muting emotional responses. I suppose it is a significant problem assessing the emotional responses of psychotic individuals compared to the emotional responses of psychotic individuals on emotion altering anti-psychotic medication. It is a strange situation indeed when running an efficacy study of therapy (and no medication) compared to medication (and no therapy) is considered unethical for a medication that was only approved because its side effects were 'less severe' than those discovered (thus far) to obtain to those of the previous generation...