

# USING DISCRIMINATION TRAINING TO ASSESS MENTAL STATES

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In humans, excessive pessimism is strongly indicative of a depressive mental state. The negative outlook demonstrated by the depressed person is seen as the result of the depression in some way biasing the person's thinking in a negative direction (Beck 1967). This negative thinking is most clearly manifested as biases in attention to, and memory for, negative information (Gotlib & Krasnoperova 1998). Conversely, an individual in an elated, positive mood is likely to perceive and recall information in a more 'optimistic' manner and be less prone to focusing on negative stimuli. Here we have a situation where an emotional state (positive or negative affect) and a cognitive state (a bias for mood-congruent information) appear closely linked. Assuming a similar link in animals, we are trying to use operant training techniques to derive systematic tests of cognitive bias which may reveal subjective emotional states which are, themselves, very difficult to measure directly. The rationale behind the technique is to train animals to expect positive or negative outcomes to two training tones of differing frequency. Rats were trained on a go, no-go task where one tone signalled pending reward and the animals were required to make an operant lever press in order to receive it, and the other tone signalled a short, unavoidable period of white noise which the animals quickly stopped responding to. Thus, animals were trained to signal what they 'expected' to happen given a particular predictive cue. According to cognitive theories of depression, a depressed individual should show a greater level of expectancy of negative events, especially when presented with ambiguous stimuli, ie they should act pessimistically. Positive mood is associated with positive expectations, thus we would expect an individual in such a mood state to evaluate an ambiguous situation in a more optimistic way. We presented our trained animals with novel tones and recorded their responses before and after a period of housing in an 'enriched' environment which is often assumed to be a positive treatment for animals.

Development of the technique and preliminary results were presented.

## References

- Beck A T 1967 *Depression: Clinical, Experimental and Theoretical Aspects*. Harper and Row: New York, USA
- Gotlib I H and Krasnoperova E 1998 Biased information processing as a vulnerability factor for depression. *Behaviour Therapy* 29: 603-617