

From Ethological Displacement to Psychodynamic Defense Through the Lens of Attachment Modelling

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This talk is a position paper which looks to extend some initial results.

Using attachment phenomena as a candidate domain for computational psychiatry provides several benefits. First is the broad scope of attachment phenomena. Attachment Theory provides detailed descriptions of many phenomena of interest to a computational modeller. These range from: normative attachment development through the lifespan; and classifications of secure, insecure-avoidant, insecure-ambivalent and insecure-disorganised behaviour patterns in infancy; to measurement of analogous individual differences categories in adolescents, adult caregivers and adults in romantic relationships. Infant classifications are made in response to mostly non-verbal behaviour. So infant attachment behaviour patterns can sometimes be compared to phenomena described in comparative psychology and ethology. For example, in disorganised attachment classification, infants neither approach nor avoid their caregivers and resolve apparent conflict by producing behaviours that seem out of place. These disorganised responses in human infants have been compared to displacement behaviour in ethological studies of birds, where birds in confrontations neither fight or flee but instead preen. Adult attachment classification typically occurs through interpretation of verbal behaviour. For example, in the Adult Attachment Interview (AAI) it is the quality of discourse in terms of appropriate quantity, relevance and coherence, rather than its content, that allows patterns in verbal behaviour to be interpreted as autonomous, dismissing, preoccupied, or unresolved/disorganised. Whilst avoidance in infancy has been described as an organised response that involves managed disengagement from a caregiver, avoidance in dismissing adults, as observed in the AAI, may be better presented as a form of psychodynamic defense, with dismissing adults producing verbal responses that minimise discussion or description of emotionally uncomfortable content. Secondly, the attachment domain is very helpfully circumscribed for the computational modeller interested in simulating psychiatric phenomena. For example, developmental trajectories from infancy to adulthood define the boundaries of the attachment domain. In addition, through lifespan attachment development, goal structures are comparable because there is continuity of motivational systems. Also, behavioural and cognitive manifestations are analogous. So that later in development we represent what we enacted in sensorimotor interactions earlier in development. The third benefit is that the same cognitive architecture may simulate normal attachment interactions and pathological attachment relationships and internal states, depending on what environment and experiences are included in the model. In addition, a simulation of pathological processing should be able to engage with therapeutic interventions, such as interventions to change behavioural patterns, or modelling a response to talking therapies. Taken together these benefits reinforce each other so that whilst it is not practical to model the whole brain or whole mind, designing 'broad and shallow' complete architectures for attachment suggests a promising approach in computational psychiatry.