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David P. Schmitt

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Commentary Title: On sociosexual cognitive architecture

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Abstract: Schmitt has equivocated about the underlying psychology of sociosexuality but from the data presented in his target article it would appear that he has drawn out the underlying cognitive architecture. This paper describes this architecture and discusses two emerging hypotheses about heterosexual and homosexual male sociosexuality.

Main Text: Schmitt's investigation of sociosexuality across 48 nations firmly embeds itself within an evolutionary perspective of human sexual behaviour and cognition. However, there appears to be some equivocation in Schmitt's use of evolutionary theory between the perspectives offered by human behavioural ecology and evolutionary psychology. The former position tends to analyse behavioural responses to contingent ecological demands and seeks evidence of optimality in the face of adaptive challenges. Such a position can lead either to no commitment about the underlying cognitive architecture that delivers optimal behaviours, or to the view that aspects of cognition are somewhat global in their processing capabilities. Evolutionary psychology, on the other hand, explicitly argues for a cognitive architecture composed of domain specific modules, each selected to solve specific adaptive problems. Such modules deliver conditional algorithms that take particular inputs, p , and deliver appropriate outputs, q , such that $p \rightarrow q$. Whilst the two approaches can co-exist at the level of describing the task demands that confront a particular agent, they can clash over psychological commitments (see Hampton, 2004, for a discussion).

Schmitt's equivocation becomes apparent toward the end of his paper:

The current perspective, in which sociosexuality is seen as resulting from a collection of psychological adaptations, is quite limited in scope. Still, this evolutionary framework may have some use as a heuristic for the future theorising on the psychology of human sexual strategies. (p. 56)

Prior to this Schmitt discussed the notion of adaptive responsiveness to local ecologies and raised issues of socialization and experience with regard to Eagly and Wood's (1999) social structural theory. What is more, Schmitt's data partially support the predictions made by the social structural theory demonstrating a reduction of magnitude in sex differences as a consequence of socio-political and relational freedom. It is possible to view such flexibility as contradictory to the view that human psychology consists of a suite of adapted cognitive mechanisms. Surely, responses would be rigid in the face of ecological change?

I see no reason to adopt an ecological perspective on the underlying psychology of sociosexuality. This is in part due to theoretical commitments. Not only can there be no selection for a general psychological mechanism, for there are no general psychological problems, but also modularity renders the numerous problems facing an agent computationally tractable (Tooby & Cosmides, 1992). More importantly, in this case, Schmitt's own evidence of sociosexuality shaping up differently under various local ecologies in fact lends itself to evolutionary psychology. This is because Schmitt has presented clear data that strongly suggests distinct patterning within the human sociosexual response, and not infinite flexibility. Indeed it would appear that Schmitt has isolated the conditional architecture of an aspect of sociosexual cognition, and that it looks something like this:

- **If** (p : male biased sex ratio) **then** (q : adopt monogamy, i.e. long-term single partner investment)
- **If** (p : female biased sex ratio) **then** (q : adopt (male) promiscuity and (female) tolerance of promiscuity)
- **If** (p : high stress local environment) **then** (q : adopt monogamy)
- **If** (p : low stress local environment) **then** (q : adopt unrestricted sociosexuality)

These conditional rules are, of course, to be taken as descriptions of the kinds of computation that it is necessary for a sociosexual cognitive architecture to implement; they represent a functional decomposition. It can be further hypothesized that these conditional rules set the parameters for sociosexual behaviour. Such rules will have been selected for over long historical time, in response to adaptive demands, and the combined effect of these four rules accounts for the cultural variance and consistency described by Schmitt.

If the four rules outlined above capture human sociosexual cognition then we can begin to extend Schmitt's analysis in the hope of further refining our knowledge. One obvious question to ask is how sociosexual cognition interacts with other related cognitions such as mate preference or targeting systems. Would mate preferences be different when there is a male biased sex ratio compared with preferences under female biased sex ratios? For example you might expect to see male monogamy leading to much choosier males, but under Schmitt's analysis, rather than seeing this as an expression of an individual difference this might actually be the best choice under the circumstances. If the same males are put in a different situation, where the sex ratio is female biased, you might see a change in their behaviour. It would be interesting to map this potential dynamic.

Another route to understanding sociosexuality is through studying homosexual behaviours. One might speculate that homosexual males share the basic sociosexual cognitive architecture with heterosexual males; all that differs is the targeting or preference cognitions. However, homosexual exposure to sex ratios is somewhat hard to define and it is not immediately clear how to understand the operation of sociosexual cognition in homosexual males. On the one hand, it could be that functionally speaking, although homosexual males are operating in an all male 'mating' environment it is equivalent to existing in a situation with a female biased sex ratio. In heterosexual males this leads to promiscuity, according to Schmitt, and in many groups of homosexual males we see promiscuity. On the other hand, it is not always clear in some cultures which men are homosexual and this might actually lead to a situation that is functionally equivalent to male biased sex ratios. In this case 'monogamy' would emerge. Homosexual promiscuity can also be explained in terms of the absence of a possible pregnancy – where no offspring can result sexual psychology is freed from investment calculations. This might be a sufficient explanation, however, long-term partner investment also occurs within homosexual populations and this is not so readily explained. Schmitt's analysis may help us to explain this.

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