

# Innateness

Reconciling 'instinct' with biological reality may require a recasting of evolutionary metaphors.

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In its everyday use, the word 'innate' says something about origins. If we claim some attribute is innate (or inborn, or inherited), we are saying that it originates internally — its cause is located inside the organism. What is not innate originates in the external world. When behaviours or capacities to behave are innate, the word 'instinct' is applied. If a behaviour or capacity is not instinctive, then its origin must be outside the organism. The metaphor has no room for the complexities of ontogenesis. Saying that Raskolnikov had a criminal instinct labels his criminality as having an internal genesis, but does not explain how it developed, because everyone agrees that instincts can be overcome (a left-handed child can be taught to use his or her right hand instead).

The notion of 'innate ideas', which is evident in philosophy from Plato to Leibnitz and beyond, divides ideas into those that spring from within and those that are caused by anything else. The idea thus amounts to little more than an opposition to learning theory — to call an idea or principle 'innate' is to claim that it is unlearned. The folk-psychological metaphor of innateness exhibited in classical philosophy can perhaps be forgiven for its explanatory failure, but science cannot. Do terms such as 'innate' and 'instinct' embody at least the beginnings of a coherent explanatory concept? Or do they occur in contemporary psychological and biological literature as fossilized folk labels with no explanatory function?

We see the concept of instinct used with at least some explanatory force when Darwin wrote, in *The Descent of Man*, that instincts are "gained step by step, through the variability of the mental organs and natural selection, without any conscious intelligence on the part of the animal during each successive generation". He was saying that, as long as there is variation of heritable propensities for behaviour within a population, the distal causes of instincts are environmental. This does more than label the source of instinct. It provides an explanation of how innate behavioural capacities arise: they are the result of selective pressures on a population. The metaphor suggested by the prefix 'in-' of 'inborn', 'instinct' and 'innate' is thus attenuated somewhat.

But there is also a weakening of the folk-psychological idea that what is innate is unlearned; in fact, this idea does not really survive at all in the darwinian view. Darwin

wrote that he was "very far from wishing to deny that instinctive actions may lose their fixed and untaught character, and be replaced by others performed by the aid of free will". He noted in *On the Origin of Species* that 'instinct' is not definable, and does not denote a natural class. Instead, 'instinct' represents a cluster concept — some, but not all, instincts are unlearned.

It is not going too far to say that Darwin explains the origin of instincts at the cost of being unable to characterize what is being explained. Instinctive behaviours no longer clearly originate inside the organism, nor are they uniformly unlearned.

By the late nineteenth century, 'instinct' was being used by psychologists to label a vast collection of behaviours and capacities; one disgruntled critic counted 280 examples. Someone had to try to make a science out of this burgeoning catalogue. That was the task taken on by the anti-behaviourist Konrad Lorenz — disregarding Darwin's warning that instincts are not a natural class. Lorenz's theory of instincts aimed to identify genetically determined, species-specific traits that can be explained by natural selection. As far as he was concerned, the internal origins of instincts are genetic, and this fact alone can explain how individual organisms come to develop stable, developmentally fixed behaviours. They would therefore be manifest in isolation experiments, which were supposed to show what an organism did when deprived of any opportunity to learn a behaviour through interaction with an external environment. With Lorenz, then, the internal/external dichotomy of folk-psychology returns in force. But the underlying assumption that there is a vast difference between instincts and all other behaviours remains unexplored.

Lorenz was widely criticized for his failure to understand the relationship between genes and behaviour, and for simply labelling this relationship "maturation". Early critics such as Daniel Lehrman complained that not only did Lorenz misconceive organism-environment interactions, but more importantly, he used the concept of maturation as a way of ignoring developmental complexity.

It would seem, then, that if the folk-psychological idea of what is innate is to be fitted into a biologically grounded psychology, it will have to be based on a dichotomy between genetic information on the one hand and everything else on the other.

The recent trend known as developmen-



**Criminal creation: the misdeeds of *Crime and Punishment's* Raskolnikov (here in a 1935 film) were probably born of both 'instinct' and society.**

tal systems theory (DST) rejects such dichotomizing. In fact, it rejects the entire internal/external distinction that is endemic in folk-psychological ideas of innateness, and recommends the abandonment of such unhelpful metaphors. In the DST view, nature/nurture disputes cannot be resolved by research into how much must be attributed to internal factors and how much to external ones. Such investigations merely rehash the dispute. It is not news that organisms select their environments, and that environments are inherited by organisms. Nor should it be news that focusing obsessively on which parts are innate and which are not obscures understanding of developmental processes. What is news is that dichotomous metaphors must be dissolved by recasting our conceptions of heritability and natural selection to include both what is within and what is without.

For the proponents of DST, in other words, Raskolnikov was a criminal neither solely because of a criminal instinct within him, nor solely because the environment of St Petersburg criminalized him. Yet somehow, he developed into a criminal, nonetheless. The complex, web-like processes of that development could be a profitable subject for science as well as novels. ■

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## FURTHER READING

Oyama, S., Griffiths, P. E. & Gray, R. D. *Cycles of Contingency: Developmental Systems and Evolution* (MIT Press, Cambridge, Massachusetts, 2001).  
Oyama, S. *Evolution's Eye: A Systems View of the Biology-Culture Divide* (Duke Univ. Press, Durham, North Carolina, 2000).