Quarterly Journal of Experimental Psychology, 41B, (1989) 409-12

Davey, G. and Cullen, C. (Eds) *Human Operant Conditioning and Behaviour Modification*. Chichester:John Wiley & Sons. 1988. Pp. x+270. ISBN 0-471-91637-4. £29.50.

Although B.F. Skinner's assertions about animal and human behaviour have never been very widely accepted, they are extremely well-known, and the "Operant" techniques which he developed have remained in use in animal laboratories to this day. Adherents to some of Skinner's claims for human behaviour have also made contributions, under the heading of Behaviour Modification, to several kinds of applied psychology, notably in work with client groups such as the severely retarded or chronically mentally ill for whom alternative psychological approaches have offered little. The pattern of Skinner's approach was to study intensively in the laboratory restricted examples of animal behaviour, then making strong generalizations, based on a few supposedly universal principles (mainly on the single principle that all behaviour is controlled by its environmental consequences), to the human condition. Davey and Cullen's collection of chapters is intended to provide a review of recent trends in the study of human operant behaviour, with suggestions for future developments.

Clearly a major question is the status of extrapolations from animal data to human applied psychology, and the answers given vary. A continuing source of embarrassment for Skinnerians is the finding that the direct empirical test, of running human subjects under conditions superficially analogous to those for laboratory animals, usually indicates that humans are strikingly different, on purely behavioural grounds. Davey, in a brief but comprehensive introduction, suggests that an obsession with controlling variables in operant conditioning has been counter-productive, and that the way ahead is to recognize the importance of species differences in the mechanisms responsible for sensitivity to reinforcement contingencies, the understanding of human operant performance thus requiring theories about the cognitive processes involved in determining performance, which may benefit from contact with contemporary theories of animal learning, since these include reference to sophisticated mechanisms for gathering information about contingency relationships between behaviours and their consequences, and other ecological and economic aspects of behavioural regulation and choice which have hitherto been ignored in human operant theory. By contrast, Cullen assumes that findings from the animal laboratory are of decreasing importance for the applications of operant methods, and appears to retain both the traditional Skinnerian optimism that "procedures which have evolved from a conditioning perspective" will come to dominate all fields of applied psychology, and the equally distinctive distrust of "causes of behaviour inside the organism rather than in the environment", which tempt academics to drift back to cognitivism and the old mentalistic psychologies.

Given this dual editorial perspective, it is not surprising that the remaining chapters are divided fairly evenly between revisionists who wish to include discussion of special goings on inside the person, and traditionalists sticking with the doctrine of exclusive environmental control. The other central issue, which interestingly does not map neatly on to the cognitive/non-cognitive question, is whether the unique ability of human subjects to develop verbal descriptions of real or imagined task requirements is the source of their idiosyncratic performance on schedules of reinforcement under laboratory conditions. It is possible to give an affirmative answer from within the Skinnerian orthodoxy, by thereafter appealing to an operant account of verbal behaviour - this has been done most forcefully by Fergus Lowe, who unfortunately did not contribute to this collection, but who is frequently cited. It is clearly also an option to suppose that people's cognitive specializations remove them from the sphere in which operant conditioning is relevant (or that the operant conditioning approach is inadequate across the board).

Schwartz and Lacely explicitly propose a teleological alternative to behaviour theory, in which human goal-directed actions, involving plans, intentions and purposes, are distinguished from (and preferred to) behaviours stamped in by repetitive reinforcement, making the point that the modern workplace, as it developed under the influence of pre-Skinnerian Scientific Management Theory, indicates that imposing environmental control on human activity is possible, but not therefore desirable. Wearden, by clearly dissecting out sources of variation in empirical findings, concludes that animal work should be jettisoned before a rigorous account of human learning can begin, since the psychological effects of the contingent events delivered for human button-pushing have little in

common with hedonic properties of food given to hungry animals, and the non-verbal response itself may be epiphenomenal - interesting only as a reflection of more important inner cognitive realities.

For the traditionalists, Bradshaw and Szabadi have developed experimental techniques with which human performance on variable interval schedules turns out to be quantitatively reasonably similar to that of laboratory animals, and similarly describable in terms of Herrnstein's equation relating response rates to reinforcement rates; while Perone *et al*'s review concludes that it is premature to suppose that there are any fundamental differences underlying operant behaviour in humans and animals - we should not be distracted by human verbal capacities but adhere to the unified view that everything will fall into place when all the environmental influences over behaviour have been properly identified and controlled.

The disagreements so far concern the behaviour of normal human subjects in the laboratory, which has never been of much concern to those practicing behaviour modification with clinical populations. Two chapters on applications of operant conditioning continue this dissociation. Woods discusses the use of operant techniques with severely brain-damaged patients, where, paradoxically, the methods may be useful but the ideology of looking only to the environment for explanations is insupportable. Reduced *speed* of learning (ignored by operant "steady state" accounts) may be appropriately attributed to impairments of internal mechanisms of attention in Wood's brain-damaged patients, as well as in the mentally retarded (Zeaman and House, 1963), brain-lesioned animals (Oakley, 1983) and the aged (Baron et al, this volume). Woods supposes also that brain damage may result in disorders of internal mechanisms responsible for reward specifically and motivation and personality more generally. He classifies these things as constraints on conditioning processes, but goes so far as to suggest that severe frontal lobe damage may result in "loss of insight" such that a patient may fail to perceive a reinforcement contingency.

On the other hand a review of token economies by Kazdin (previously published in 1983), resists this sort of appeal to internal variables: when chronic psychiatric patients fail to respond to a token economy programme one should look more closely at the reinforcement contingencies. It is perhaps a strength of the applied operant approach that no client is ever regarded as irredeemably beyond the reach of environmental intervention, and varying contingencies may indeed be required. But such expedients as placing expiry dates on tokens to promote spending are difficult to incorporate into a unified view of animal and human reinforcement.

The token economy (or indeed the monetary economy), while problematical as a therapeutic technique, serves as a reminder that much human behaviour is goal-directed, and that most human behaviour is learned. A special case of this competitive sport. Buskist and Morgan begin with Vince Lombardi's "Winning isn't everything, it's the only thing", pointing out that the feedback of being a winner is often supplemented by very large sums of money for professional athletes, before reviewing human and animal experiments on competition. Running rats down alleys in pairs and only rewarding the winner leads to results predictable in terms of individual contingencies (the slower rat loses and runs more and more slowly) but running pairs of human subjects on FI or DRL schedules competitively may provide a useful addition to Prisoner's Dilemma games for the examination of human motives which are both social and directed towards response consequences.

Clearly, none of the major problems within the operant conditioning treatment of human behaviour are resolved in this book, but it serves the purpose of bringing together current opposing views. Much greater attention is given to cognitive and internal variables that would have been the case in a book with this title 20 years ago, but perhaps it is still not enough. A notable area of agreement is the Matching Law, which is referred to with approval by Epling and Pierce and in several other chapters. A notable omission is anything on "Cognitive Behaviour Modification"(e.g. Meichenbaum, 1977; Mahoney, 1983) - since Wearden and many others have now come close to recommending introspective techniques to go with reinforcement schedules in the laboratory one would expect there to be no barrier to discussing the wider applications of a cognitive/behavioural approach.

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References

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Zeaman, D. and House, B.J. (1963) The role of attention in retardate discrimination learning. In N.R. Ellis (ed), *Handbook of Mental Deficiency*, New York: McGraw-Hill. Stephen Walker