THE DEVELOPMENT OF OBJECTIVE METHODS OF GAME ANALYSIS IN SQUASH Rackets

F. H. SANDERSON & K. I. M. WAY

Liverpool Polytechnic

The development of a notation system for the sequential recording of strokes in the game of squash rackets was outlined. The rationale is based on the hypothesis that even the perceptive coach using traditional subjective observation will not be able to provide such detailed information. Further, it is maintained that the information will be functional in the sense of having a positive effect on both the individual's knowledge of his game and his performance.

A movement notation system directly suited to this investigation does not exist although useful ideas emerge from an examination of notation in expressive movement (e.g. Hutchinson, 1954; Curl, 1966), and game analysis techniques in basketball and soccer, (e.g. Messersmith & Bucher 1939; Brooke & Knowles, 1974). As analysis of a game of squash is dependent upon the speed of play, a system was required which enabled the relevant information to be recorded quickly and accurately. Illustrative symbols were found to be more suitable for recording strokes than word-initials, and the use of court plans solved the problem of extracting reasonably accurate positional information. Using each court plan to record only one stroke enabled precise monitoring of the stroke sequence during games. In addition to the seventeen stroke symbols employed, a system for recording winners and forced or unforced errors was developed. What was initially a demanding task became relatively straightforward for the notator after several hours practice, reflected to the extent that the initially neglected volley information was recorded without difficulty.

Much useful descriptive data is generated by this system, (e.g. the backhand drive is by far the most favoured stroke; the drop-shot is the most erratic — a high incidence of both winners and errors), but the primary emphasis is on the individual's "pattern of play". Present analysis is directed at testing the hypothesis that an individual exhibits a pattern of play which is relatively stable over time and independent of the opponent. Using the product-moment correlation analysis in a context outlined by Burt (1937), an assessment of the similarity of stroke frequencies of individual players in different matches and against different opponents was made. Results indicate that players show a higher degree of consistency (in terms of similarity between measured parameters) when winning rather than losing.

Cattell, (1957) has suggested that the profile matching statistic, \( r_p \), is preferable to the product-moment correlation coefficient in that it accounts for the distance between profiles as well as shape similarity. Analysis of the data in terms of \( r_p \) and the related 'D' statistic (Cronbach & Gleser, 1953) continues. The possibility of using the Markov Chain System of analysis is also being investigated. In this method, the data is considered in terms of sequential probabilities, i.e. the probability of a specific stroke following another specific stroke, etc.

Players, assigned randomly to one of two groups, will be monitored during the forthcoming season. One group will be provided with concurrent feedback based on the information obtained from the notation system. It is suggested that this latter group will show greater improvement than the control group when the two are compared in a final assessment at the end of the season.

REFERENCES


Cattell, R. B., 1949, \( r_p \) and other coefficients of pattern similarity. Psychometrika, 14, 279-298.


The development of objective methods of game analysis in squash rackets [proceedings]
F. H. Sanderson and K. I. May

doi: 10.1136/bjsm.11.4.188

Updated information and services can be found at:
http://bjsm.bmj.com/content/11/4/188.citation

These include:

Email alerting service
Receive free email alerts when new articles cite this article.
Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/