EDITORIAL

Official and private organizations have been using or considering different combinations of human analysis and computer statistics to guide investigations of cheating. This guest Editorial considers how administrators should evaluate, select and make use of these approaches. The author, an economist who specializes in the analysis of strategies, is an expert-level player of many decades' standing.

Cheating Detection: Towards a Workable System
by Richard Zeckhauser

The current methods for coping with the possibility of cheating fail miserably at accomplishing what is necessary. Any such procedures must punish those who have cheated, deter those (including past cheaters) who may be tempted to cheat in the future, and clear those unjustly accused.

No one could sensibly think that a goodly fraction of past cheaters have been or, as things stand, will be caught. Given that, if we do not significantly improve our methods, deterrence will be modest. To be sure, there have been some salient successful cases—mostly dealing with top players—but run-of-the-mill cheaters know that it is unlikely that they are being watched. They recognize that the authorities do not have the resources to engage in the intense study now required to catch, much less punish, most crooks. It is not enough merely to deter misbehavior in the highest-level events; miscreants with lesser objectives must fall within the scope of any security system.

The bridge world needs an inexpensive, readily-scalable way to detect pairs likely to be transgressing. (Self-kibitzing is now excluded in most high-level online contexts, so conspiratorial thievery comes to the fore.) Probably, the only cost-effective approach is one based on an automated system using computer programs as initial investigators. Perhaps an appropriate metaphor is the "scoring system" used by the Internal Revenue Service to detect taxpayers whose deductions look out of line, have wildly skewed income, etc.; this program selects candidates for audits.

What characteristics should such a system have? It should be secret, to avoid evasion. It should be created by a group with strong legitimacy. It should not be intended as a final arbiter; humans must be involved to address subtleties that a programmed machine might miss and to handle counterarguments from suspects. The output should be graduated; for example, some pairs might be told that their results have been flagged as suspicious, as a means of deterrence; possibly, a pair might be encouraged to stand down for a certain period to avoid further official action. Graduated responses would facilitate plea bargaining, an important way of lowering costs. Independent systems may be in use simultaneously, applied by different organizations, or rotated among cooperating jurisdictions. A pair that one system flags might be checked by another system as a form of verification. The different methods should enable sharing of data and results.

Markers

How might a computer-based filter that can economically be applied to thousands of players work? One way is to use markers, comparing a pair's performance in the bidding and in the defense against its performance in dummy play. Significantly-better results when partner is involved is a ground for suspicion. Bidding results in situations involving preempts (where collusion would yield big dividends) might be compared with other bidding outcomes. A pair's results in any area could be compared with other pairs' results in that area. A committee that included both expert players and information-processing professionals could produce a large set of relevant markers that, collectively, would be informative. Feedback could be used to determine how to weight the importance of each marker and to develop new markers.

Pairs that know that Big Computer is watching will be much less likely to cheat. And when Big Computer does suspect cheating, the evidence will be more objective and less likely to be tainted by home-town preferences or human antagonisms. Of course, before any pair is subject to punishment, human judgment is essential. A good detection system will reduce the need for such judgment without relying on human observation to generate suspicion. We must avoid expending immense numbers of hours by top players to review records to catch a single cheating pair. Retaining that inefficiency would force us to settle for modest deterrence by catching only a puny percentage of miscreants.

Test Your Defense

Rubber bridge
West dealer
Neither side vulnerable

North *(dummy)*
♠ 10 8 6 3
♥ 9 4
♦ 10 9 6
♣ Q J 9 8

East *(you)*
♠ 4 2
♥ 7 5 2
♦ K Q 3 2
♣ 10 6 3 2

SOUTH	WEST	NORTH	EAST
—	2 ♥	Pass	3 ♥
3 NT	Pass	Pass	Pass

Heart queen, four, seven, *king*.
Spade ace, five, three, deuce.
Spade king, seven, six, four.
Spade queen, nine, eight, diamond deuce.
Club seven, four, eight, ?

Plan your defense.

(Solution on page 36.)