NEUBERG SCORING

In duplicate bridge pairs tournaments, the **Neuberg formula** is a method of adjusting match point scores achieved on boards which have been played fewer times than other boards. This is best illustrated by an (extreme) example.

Suppose an event contains board 'x' played 10 times, and board 'y' played 3 times. The top on board 'x' is '18', and the top on board 'y' is '4'. Now suppose player 'a' scores a top on board 'x' and another player 'b' scores a top on board 'y'. Whose top is the more deserving/valuable? Player 'a' on board 'x' has beaten nine other pairs, whereas player 'b' on board 'y' has only beaten two other pairs; clearly player 'b' should have his top slightly devalued. Effectively what we are saying is that if board 'y' **had** been played the same number of times as board 'x' (i.e. a further 7 plays), there is a probability that the top originally scored by player 'b' may be beaten. The Neuberg formula attempts to quantify this probability

(If we apply the formula to this situation, player 'y' instead of getting 4 out of 4 (100%) on board 'b' would actually get 16.7 out of 18 (92.77%)).

So the Neuberg formula is generally adopted when, within an event there are some boards played fewer times than others. These boards have their top factored up, and also any scores actually received are slightly reduced in value (note - the use of the formula is not encompassed in either the Laws of Bridge, or in the EBU (WBU) Regulations - **but it is strongly recommended that it should be used)**.

The Neuberg formula (for Match Pointed pairs) is:

Adjusted Match Points = ((MxE) + (E-A)) / A

Where:
M = match points considering the board scores in isolation
E = the expected number of scores (i.e. the number of scores of the board played the most number of times in the event)
A = the actual number of scores on the board

- all scores rounded to nearest .1

(Neuberg should only be used for A>3 or A>E/3)

(A similar approach can be used for x-imp scoring)

There are primarily five situations that give rise to this situation:

1. In FtoF, the movement may have an inherent difference in the number of times boards are played, particularly when the movement is not completed. This is usually as a result of a half table in some movements (i.e. when the board is at that table it isn't actually played). For example an 8.5 table Mitchell playing only 8 rounds - 27 boards in play. Three boards would be played 8 times, whereas 24 boards would be played 7 times.
This generally doesn't apply in any form of Barometer scoring (there is no particular movement as regards the board - boards are completed within a particular round - as is the case with online bridge).

2. The addition of a late entry pair. In FtoF bridge this would probably involve modifying of replacing the movement, so in principle is not relevant.
With Barometer scoring (online bridge), pairs can be more easily be added. So if a pair is added in

round 2, the board results on round 1 need to be retrospectively factored up by an extra play (to bring them up to the same number of plays as boards for round 2 onwards).

3. A pair leaves the event. This affects both FtoF and online bridge. With online bridge, boards played after the pair leaves now need their scores factored up to those of earlier rounds.

4. The pairs 'playing' a board are given an artificial score (Av, A+, Av, 60%, 50%, 40% etc.), for whatever reason. These boards are not actually played, so any board in this situation should automatically be 'Neuberged' (a point often not realised by Scorers/Directors). This is fairly common in StepBridge (more so than with BBO or RealBridge), in which if time expires the faster/slower pairs are awarded an artificial 60%/40% (this of course may be altered by the Director in the case of a partially played board). At the time of occurrence these boards should be Neuberged, but if the Director does subsequently award an actual replacement score, there is no need to Neuberg.

5. Simultaneous events. In FtoF many clubs will be using different movements. Usually there is no direct effect from lower numbered boards - all clubs will probably play boards 1-21. However where the occasional club decides to play extra boards (a common example is a club with 10 tables having 30 boards in play - probably only playing 27 (or 24) of them. However boards 28,29,30 are played a few times, but this will not be the case in most other clubs). These 'extra' boards can give rise to the extreme situations illustrated in the above example.
However this is not of major concern to the particular online platform, since in practice an .xml file is taken from each club, and the scores from these boards (not the Match-point results) are subsequently consolidated within a general scoring program (EBUScore), and it is this software which then applies the Neuberg formula.

The Home Unions now all employ Neuberg scoring in their major pairs' events. It is built-in to all major scoring software (although it can optionally be turned off).

Criticisms

There are some valid criticisms of the use of the formula (for simplicity full reasoning is not included):

- mistaken objective (no *a priori* reason to give equal weight to boards played fewer times). Is it right to suggest that making the less-played board equally significant increases fairness ?
(the opposite may in fact be true)

- failure to account for varying partnership strengths - Neuberg doesn't compensate if a strong pair should play a board against a weak pair (i.e. the expectation is that the strong pair should 'win' the board)

- very rarely, the method of rounding per board can give rise to some odd rankings. It would be better to round the overall results, rather than per-board.

Hope this makes it a bit clearer (or has it done the opposite!)

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