

## Some remarks on calculations

### Weighted scores

Since L12C3 is given free to be applied by TD's there are more weighted scores being given. A weighted score exists when more than one result on a board is awarded to a pair, the scores being related with a probability of occurrence. When the TD deems the chance to defeat 4♠ as too small to award a full 4♠ minus one but still considers it a real possibility to defeat it he could decide to award 2/5 of - 100 and 3/5 of 620. And it could become more complicated. Due to an infraction a pair doesn't reach a game, the denomination not being obvious. And in 3NT, with a chance of 30% to be reached, there will always be 9 tricks but in 4♥, taking care for another 30% there is only a change of 1/3 to make it. In the remaining 40% the TD supposes the pair to double the contract reached by the opponents.

To convert these scores to a result in matchpoints we add these scores to the frequency table one by one and calculate the matchpoints for each of these results. Then we multiply with the expectancy as estimated. The question what to do with the scores of all the other participants is hardly touched. It is worse, I suspect that quite often those matchpoints are calculated with a score less, the weighted score. It would be an improvement to use the Neuberg formula but there is a much better solution.

Let me show what should be done. To keep it easy we assume a frequency table with only 2 scores: 2 times +620 for 4♠ just made and 5 times - 100 for 4♠ minus 1. There are 8 tables and for the missing one the TD assigns a weighted score based on 40% making 4♠ and 60% going one off.

What we have to do now is to add these frequencies: 0.4 times 620 and 0.6 times - 100 to the frequency table, giving:

frequency	score	matchpoints
2.4	+ 620	12.6
5.6	- 100	4.6

The matchpoints are calculated by adding 5.6 to -1 giving 4.6 and adding (2.4 + 5.6) to 4.6 giving 12.6. The same way as it could be done to calculate the matchpoints for any frequency table.

And the matchpoints for the weighted score are found by taking 0.4 times 12.6 (5.04) and 0.6 times 4.6 (2.76) giving 7.8. This is of course the same result as adding both scores one by one to the frequency for the seven scores: 6 scores of -100 give 0.6 times 5 = 3 and 3 scores of + 620 give 0.4 times 12 = 4.8, which sums up to the same 7.8.

I am interested to know which software programme will be the first to calculate results this way. And for future EBL (WBF) events I consider it mandatory to do the calculation like this.

### consequent versus subsequent damage

When a pair gets a good result because it might have used UI, the advantage is taken away. For the opponents normally the disadvantage or damage is compensated. 'Normally', because TD's make a distinction in consequent and subsequent damage. The first caused by the infraction, the latter the result of an action taken by the damaged pair itself. When opponents infringe the laws a pair has to keep up a certain standard of bridge to be eligible for compensation. When damage could easily have been avoided we don't consider it to be consequent and no redress will be given. Though there is no universal approach in the distinction of consequent and subsequent damage, this principal is universally indeed.

While some use the word ‘egregious’ or ‘wild and gambling’ to describe when compensation should not be given many appeal committees appear to be more demanding to the non offending side. Or they consider actions by others to be egregious calling them normal mistakes when made by themselves. Certainly worth more consideration but not the issue in this paper.

We will discuss some calculation to be done when the distinction between consequent and subsequent damage has been made.

Let us take the following example. A top-bottom event. A pair reaches a small slam and the TD decides that there is a fair chance it wouldn't have reached this slam without the UI that was created by this pair. So the slam has to be taken away, adjusting the score to a game result with some overtricks. But the opponents have revoked, which caused one trick, bringing the actual result on 13 tricks. We consider a revoke as not being caused by the opponents bidding the slam so the damage resulting from it as subsequent. If nobody else has bid the slam this pair would have received a zero even when it had not revoked, so the subsequent damage resulting from the revoke doesn't cost this pair anything, it still should be compensated fully. But if 60% bids the slam and makes 12 tricks and 40% makes 12 tricks in a game contract we need to split the result of this pair in consequent and subsequent damage. Suppose there are 10 results: 4 times 680, 5 times 1430 and 1 result of 1460 (the one with the revoke). Without the revoke the results would have been 4 times 3 mp and 6 times 13 mp, depending the decision on this board. With an extra result of 680 (adjusted score) the damage can be calculated as 9 mp. Including the revoke the combination of consequent and subsequent damage is  $18 - 4 = 14$  mp. Thus the offending side loses these 14 mp's and the damaged pair will only be compensated for the consequent part of it, being 9 imps.

And I am willing to consider the suggestion to penalize the offending pair for the same 9 mp's instead of 14. Then it still profits from the revoke by the opponents, which as we assumed had nothing to do with the infraction.

This is not a refinement that can be programmed easily, we need the TD to tell the result room what to do.

Let us take one more case. East opens 3♠ followed by 2 passes and a double, he passes and South now bids 4♦. Time for West to start a long thinking pause after which he passes. North passes and East now bids 4♠, which he makes. North with Kxx in trumps plays the K in second hand on which South has to play the bare Ace and the same happens in clubs where south plays the K from Kxx and North has the bare Ace. Nobody will be surprised that the TD doesn't allow the 4♠-bid. But he also decides that NS should have avoided the loss of at least one trick, after which the result would have been + 50.

The frequency table shows (for NS): 1 time - 420 (this result), 2 times - 140 (3♠ made); 2 times + 150 (in 4 diamonds plus 1), 1 time + 300 (4♠X - 2) and 4 times + 400 (5♦ made).

The frequency table becomes

frequency	scores	matchpoints
4	+ 400	15
1	+ 300	10
2	+ 150	7
2	- 140	3
1	- 420	0

Without the infraction NS would have received 6 mp ( -140 gives 1 mp then). With a normal result after the infraction ( + 50) it would have received 4 mp. So the consequent damage is 2 mp and the subsequent damage is 4 mp, the latter not compensated. The offending side will loose 6 mp: the difference in mp between + 150 and - 420 for its opponents.

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