INTERNATIONAL ORIENTEERING FEDERATION
TRAIL ORIENTEERING COMMISSION

TECHNICAL NOTE 10/01 (Discussion Paper)

NATIONAL RANKING POINTS SCHEME

A very simple ranking scheme, which has seen use, is to award points for place order in the results list, starting from the top (e.g. first gets 100 pts, second gets 99 points, and so on). This scheme has serious disadvantages in that it does not reflect the quality of the performances. A single point separates adjacent competitors, irrespective of how close or how far apart their results are. At the bottom of the list, poor performance is unfairly rewarded. For example, as an example of *reductio ad absurdum,* an absolute novice who had a zero score in a 25 competitor event would get 76 points. There is also the problem of how to rank a 100+ competitors event.

This technical note proposes a scheme more related to merit. Competitors with the same scores and separated by only a few seconds receive points that are close together.

Trail orienteering results are ranked in terms of two parameters, the primary ranking in order of correct answers and secondary ranking in terms of time awarded at the timed controls to separate those with the same number of correct answers.

In this proposed ranking scheme the primary ranking points are the percentage ratios of eligible competitors' scores compared with the winning eligible score, which is awarded a primary score of 100 points.

These points are then reduced according to the time taken at the time controls, compared with the maximum time penalty (under current rules, 120 seconds per timed control, if no answer given). This is scaled such that a maximum time penalty is equivalent to the points score for a correct answer so that, for example, a competitor with 13 controls correct but with maximum time penalty would receive points equivalent to 12 controls correct and no time penalty.

The algorithm is as follows:

Competitor's ranking **RP** = **A** - **B** points

where

$$\mathbf{A} = \frac{\text{Competitor's score}}{\text{Winner's score}} \times 100$$

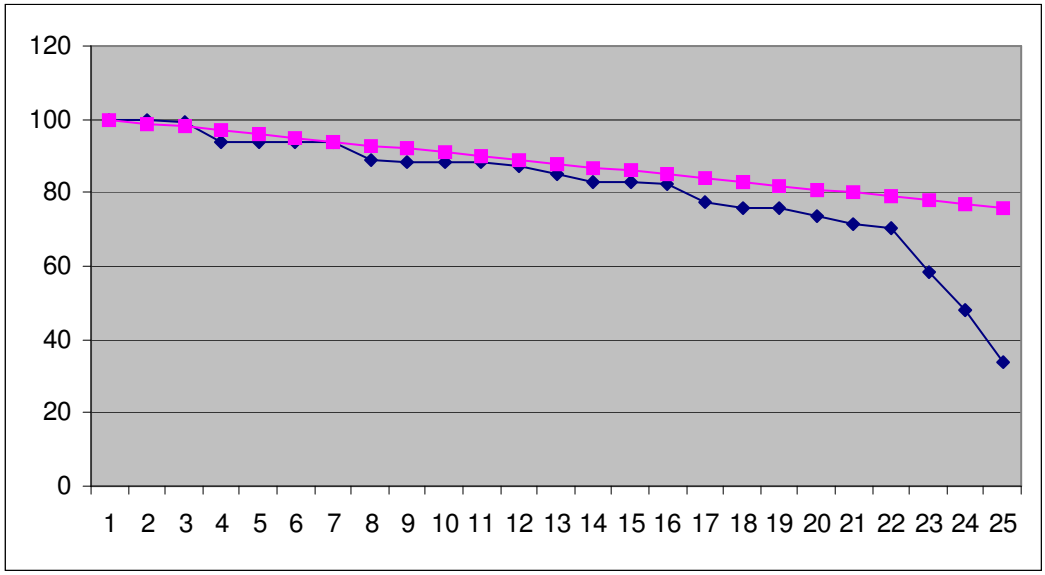
$$\mathbf{B} = \frac{\text{Competitor's time}}{\text{Maximum time penalty}} \times \frac{100}{\text{Winner's score}}.$$

Here is a single example. A competitor has 17 controls correct and a time of 155 seconds. The winner had 20 controls correct and there were two time controls.

$\mathbf{A} = \frac{17}{20} \times 100 = 85.0$; $\mathbf{B} = \frac{155}{240} \times \frac{100}{20} = 3.25$; $\mathbf{RP} = 85 - 3.5 = 81.5$ pts

The following is an example based on a national ranking event in Norway which had two timed controls. You might find the totals of 5 seconds and 7 seconds for the two timed controls somewhat remarkable, but the purpose here is to demonstrate the use of the algorithm and compare it with the simple one point for each place system.

		Score	Time	**A**	**B**	**RP=A-B**	Simple Ranking Points
1	KW	18	7	100.00	0.16	99.84	100
2	LJW	18	10	100.00	0.23	99.77	99
3	KO	18	23	100.00	0.53	99.44	98
4	GMØ	17	18	94.44	0.41	94.03	97
5	AA	17	20	94.44	0.46	93.98	96
6	MO	17	24	94.44	0.56	93.84	95
7	JEH	17	27	94.44	0.62	93.82	94
8	MJ	16	5	88.89	0.12	88.77	93
9	AS	16	16	88.89	0.37	88.52	92
10	OJW	16	17	88.89	0.39	88.50	91
11	OAS	16	19	88.89	0.44	88.45	90
12	ER	16	74	88.89	1.71	87.18	89
13	BP	16	162	88.89	3.75	85.14	88
14	TAA	15	15	83.33	0.35	82.98	87
15	BEP	15	27	83.33	0.62	82.71	86
16	MB	15	31	83.33	0.72	82.61	85
17	KI	14	19	77.78	0.44	77.34	84
18	HI	14	82	77.78	1.90	75.88	83
19	II	14	87	77.78	2.01	75.77	82
20	PF	14	180	77.78	4.13	73.65	81
21	TAO	13	24	72.22	0.56	71.66	80
22	OH	13	74	72.22	1.71	70.51	79
23	JF	11	125	61.11	2.89	58.22	78
24	EP	9	93	50.00	2.15	47.85	77
25	LM	7	210	38.89	4.86	34.03	76



The results table and the graph show the clear difference between the proposed scheme (blue) and the simple scheme (magenta). The latter is simply ranking order, and takes no account of the detail of the performances. The proposed scheme, on the other hand, shows that the better competitors are grouped according to their correct control scores and, because their times are close to each other, their ranking points are also close, which is the intention.

Note also that, at the poorer end of the results, the points fall away and poor performances are not artificially inflated.

Conclusion

Although the proposed ranking scheme has been shown to be workable (it has been adopted by one federation), there could be concern that the effect of the secondary ranking in terms of time is considerably reduced by the 120 seconds possible total penalty per control. Since the time differences between good competitors are usually small, only a few seconds or few tens of seconds (as shown in the example list above), the comparison of these with the possible maximum 120 seconds produces relative differences that might be considered too small.

Perhaps it is appropriate to re-visit rule 25.2 for timed controls in which a wrong answer is awarded no points and an additional time penalty.

Possible alternatives are:

- Continue with awarding points for correct timed controls but abolish the additional 60 seconds time penalty for each incorrect timed control answer;
- Do not award points at timed controls, these to be scored as time taken plus penalty time for wrong answer (as for TempO).

What do you think?

2010 Update

The algorithm suggested here has been adopted by British Orienteering for its team selection.

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This document has been issued for discussion, particularly with respect to the rule 25.2 alternatives. Please be free to feed back any comments.