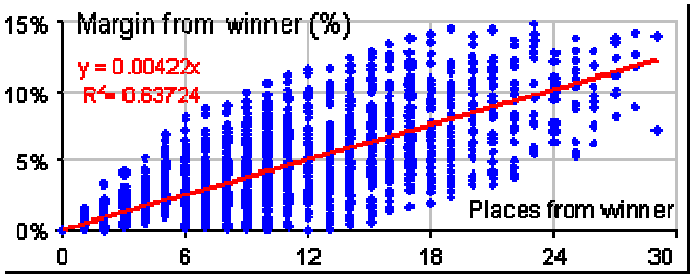
Q&A

Q: Wilson Reeberg, president of the Brazilian Rowing Federation asked: "I plan to send to the Worlds Championships only crews with possibilities to classify among the top twelve. Do you have a table with the times to classify a boat among 7th and 12th (Final B) for seniors, juniors and U23, men and women? What percentage should I add to prognostic times of WC winners to have a real chance to stay among the best 12 crews?"

A: To answer these questions we used our database of results of World Championships and Olympic Games from 1993 till 2009 (n=3760). The problem was that often finals A, B, C and others were held in different days, which means the weather conditions were different and it is not possible to compare the boat speed reliably. We plotted margins of all place takers (ratio of their time to the winners time) relative to their ranking, calculated the linear trend and filtered outliers within the limit of ±3SD of the trend line:



The slope of the trend line tells us that, on average, every one place lower in ranking means 0.42% slower boat speed (i.e. 11 places difference between the 1st and 12th places should have 4.64% (=0.42%*11) difference in the boat speed). This value varies among different events, which reflects homogeneity of competitors (M2x with the most uniformity, without strong leaders, W2- with the biggest margins from leaders):

M2x	M4x	M4-	LM2x	M8+	LW2x	LM4-
0.30%	0.36%	0.39%	0.40%	0.42%	0.42%	0.43%
W8+	M1x	M2-	W2x	W4x	W1x	W2-
0.44%	0.44%	0.45%	0.48%	0.49%	0.50%	0.53%

The tables below show average margins in finals:

Table 1. Average margins from winners in World Championships and Olympics during 1993-2009.

Final\Place	1st	2nd	3rd	4th	5th	6th
Final A	0.0%	0.5%	0.8%	1.4%	2.1%	3.0%
Final B	2.8%	3.1%	3.4%	3.8%	4.3%	5.1%
Final C	4.8%	5.2%	5.8%	6.9%	7.7%	8.1%
Final D	7.6%	8.2%	8.9%	9.4%	10.6%	12.6%

Table 2. Average margins in men's events

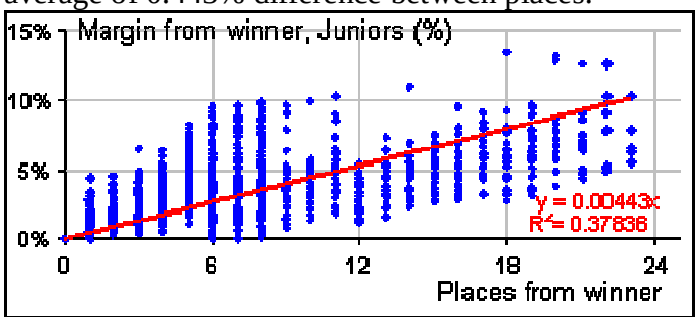
Men	1	2	3	4	5	6
FA	0.0%	0.4%	0.8%	1.3%	2.0%	2.9%
FB	2.5%	2.9%	3.2%	3.5%	4.0%	4.7%
FC	4.5%	4.9%	5.5%	6.5%	7.1%	7.3%
FD	6.8%	7.7%	8.2%	9.2%	9.7%	10.4%

Table 3. Average margins in women's events

Women	1	2	3	4	5	6
FA	0.0%	0.5%	0.9%	1.5%	2.3%	3.2%
FB	3.1%	3.5%	3.8%	4.1%	4.8%	5.5%
FC	5.0%	5.5%	6.2%	7.3%	8.4%	9.0%
FD	8.3%	8.8%	9.7%	9.6%	11.4%	14.9%

The winners of finals B are usually faster than the slowest crews in final A, which reflects tougher competition for the first place in a final. Similar thing can be found when comparing finals C-B, D-C and others. The margins in men's events are a little tighter than in women. No significant time-trend of this data was found over the last 17 years.

In juniors we have data only for the first two finals for most of years, so the trend is less reliable. The slope is similar with adults, just a bit steeper with an average of 0.443% difference between places:



Interestingly, the highest homogeneity of results in juniors was found in M2x and M4x, the same as in the adults:

JM2x	JM4x	JM2-	JW1x	JM4-	JM1x	JM4+
0.29%	0.33%	0.34%	0.38%	0.38%	0.39%	0.42%
JW4x	JW2x	JM8+	JW2-	JW8+	JM2+	JW4-
0.43%	0.51%	0.52%	0.53%	0.67%	0.74%	0.82%

Table 4. Average margins from winners in Junior World championships during 1993-2009.

Finals	1	2	3	4	5	6
FA	0.0%	0.8%	1.3%	2.0%	3.0%	4.1%
FB	3.2%	3.9%	4.4%	4.3%	4.2%	5.1%
FA boys	0.0%	0.6%	1.2%	1.8%	2.7%	3.8%
FB boys	2.7%	3.4%	4.0%	3.4%	3.9%	4.8%
FA girls	0.0%	0.9%	1.6%	2.4%	3.4%	4.5%
FB girls	3.8%	4.6%	4.9%	5.5%	4.8%	5.6%

A brief analysis in the U23 category give us similar results to adults and juniors, but statistics was less reliable because we have data only from 2001.

Concluding, **a crew has chances to get into final B if their speed is no more than 4.5% slower than the winners' speed in men's events and 5.0% in women, in both adults and junior categories.** These numbers vary between events from 3.3% in M2x up to 5.8% in W2 and even up to 9.0% in JW4-.

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