

*Alternative Scoring
System For Chess*

Juhan Puhm

Alternative Scoring System For Chess

It has long been considered in chess that white has a modest or even telling advantage by having the first move. This is borne out by the names of different openings. Some of white's openings are called attacks (Rubinstein, Yugoslav etc), while very many of black's openings are called defenses (Sicilian, Caro-Kann, French, Indian etc). White's first move allows him to go immediately on the offensive, something that black can't easily do. Black usually has to defend for a while before hoping to equalize many moves down the road.

Historically databases of games have been tabulated to determine exactly white's first move advantage. It can clearly be seen that white, on average, wins more games than black. There is a definite advantage to playing white. For black to draw against white is at the very least a relief for black. For black to win against white is definitely a triumph. For white to draw against black is considered a lost opportunity. To lose against black can be a significant blow. Not only has white just lost against black but now white has to play black in the next game as well. Chances favour white.

The points allotted for each of these games however remains the same. A win by either colour is awarded a single point and a draw by half a point each. The standard scoring system does not reflect white's inherent advantage or black's inherent disadvantage. A possible idea to offset white's first move advantage is to weigh the scoring system in favour of black. Simply, a black win over white should be worth more than a white win over black. A draw should point wise reflect also in black's favour.

Exactly how to do this and what significance it might have is a complicated question. There is a wonderful comfort and asymmetry with the current scoring system. Comfort, as there is always the ability of white to fall back on a draw if possible. Change the asymmetry by awarding more points to black takes away the comfort zone and can make the over the board situation much more desperate. A win or draw by black is worth more than a win or draw by white!

Somewhere around a third of database recorded games are drawn, give or take a few percentage points. In the highest levels of championship play nowadays, the number of draws can even approach 100 percent. If all games are drawn then any alternative scoring systems would be pointless as each player plays white and black an equal number of times.

A simple search online reveals a number of online sources as concerning white's first move advantage. A good place to start of course is Wikipedia, under the title "First-move advantage in chess". As well Chessgames.com currently has a database of almost a million games in different time formats.

The first question is how to interpret the data. Statistically around 34% of games all are drawn. If we compare only wins and losses for white and black, an approximate average emerges. Different databases all vary slightly depending on format, history etc. Of the remainder of games that aren't drawn, a good approximation is 57.5% of games are won by white as compared to 42.5% of games for black, give or take a percentage point or so. Even with machines we can see more games are won with white than with black. Many databases also include draws in the final percentages. Draws however don't give any information as to white's advantage over black.

We can now start thinking about how to create an alternative scoring system. A single game for simple and obvious reasons should always still be worth a single point. This makes the most logical sense and is easy to tabulate. The only possibility then is to expand upon the standard scoring system that uses the fractions 1/1, 0/1 and 1/2. Fractions with denominators greater than 2 must be used e.g. 3, 4, 5 etc

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The first logical set of fractions we can use are fifths, e.g. $5/5$, $4/5$, $3/5$, $2/5$, $1/5$, $0/5$. We have here enough terms to create a weighted scoring system in favour of black, to compensate for white's first move advantage. A win for black and loss for white is divided $5/5$ to $0/5$. A win for white however is divided $4/5$ to $1/5$. Likewise a draw is divided $3/5$ to $2/5$ in favour of black. We can see that a win or draw for black is worth more than a win or draw for white. Using fifths, all five fractions ($5/5$, $4/5$, $3/5$, $2/5$, $1/5$, $0/5$) are utilized. The score for each game still totals one.

Using fifths, the scoring advantage in favour of black is a little high at 60% to 40%. The scoring advantage is also the same for both wins and draws. If we use sevenths instead of fifths, the scoring advantage is more in line with the above statistics, 57.14% to 42.86% in favour of black. The fractions for sevenths will be $7/7$, $6/7$, $4/7$, $3/7$, $1/7$ and $0/7$, paired in the same way as with the fifths. We can see now how we are compensating for white's first move advantage, determined by win/lose statistics, by adjusting the scoring system in black's favour.

This first scoring system would seem to be perfectly workable. That black has the same scoring advantage for both a draw or a win is problematic though. Also in a two player match, where opponents are always alternating colours, the scoring advantage evens out and the results are no different as compared to the standard scoring system. In a multi-player, multi-round tournament this scoring system does however seem to be workable.

In the second scoring system black's scoring advantage for a win is twice black's scoring advantage for a draw. This makes much more sense. For black to win is a greater accomplishment than a draw. The second scoring system is also workable for two player matches and large tournaments. Higher number fractions are used but the percentage advantages are all comparable to the above statistics.

For each scoring system a number of fractional possibilities are given. Black's scoring advantage can be subtly adjusted up or down. Odd fractions work better than even fractions. Even fractions are possible but require decimal fractions, e.g. $6.5/12$. Closest to the above 57.5% to 42.5% statistics as laid out above, are sevenths for the first scoring system and thirteenths for the second scoring system.

Interesting is comparing the two different scoring systems to the standard scoring system. Using the results of a recent classical tournament we can see how they compare. While the final results remain almost the same there is a finer detail in the scoring. We can also see that the players who had to play one more black game than white game are compensated score wise. This is very interesting itself.

It is hard to imagine that these alternative scoring systems wouldn't psychologically affect the players and game. White's first move advantage is now countered by black's scoring advantage. A simple draw favours black point wise. Point wise black has even greater incentive to win. The alternative scoring systems are definitely not to white's advantage! White has a greater struggle at hand for less reward. But that is the point. Giving black incentive creates a new dynamic and new asymmetry. This can only lead to more dynamic chess!

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Alternative Scoring System For Chess

Alternative Scoring System 2

Black win advantage = 2x Black draw advantage

	<u>X</u>		<u>Sevenths</u>		<u>Ninths</u>		<u>Elevenths</u>		<u>Thirteenths</u>		<u>Fifteenths</u>	
	<u>White</u>	<u>Black</u>	<u>White</u>	<u>Black</u>	<u>White</u>	<u>Black</u>	<u>White</u>	<u>Black</u>	<u>White</u>	<u>Black</u>	<u>White</u>	<u>Black</u>
White wins, Black loses	$(x-2)/x$	$2/x$	$5/7$	$2/7$	$7/9$	$2/9$	$9/11$	$2/11$	$11/13$	$2/13$	$13/15$	$2/15$
White loses, Black Wins	$0/x$	x/x	$0/7$	$7/7$	$0/9$	$9/9$	$0/11$	$11/11$	$0/13$	$13/13$	$0/15$	$15/15$
White draws, Black draws	$(x-1)/2x$	$(x+1)/2x$	$3/7$	$4/7$	$4/9$	$5/9$	$5/11$	$6/11$	$6/13$	$7/13$	$7/15$	$8/15$
Wins + Losses Ratio	$(x-2)/x$	$(x+2)/x$	$5/7$	$9/7$	$7/9$	$11/9$	$9/11$	$13/11$	$11/13$	$15/13$	$13/15$	$17/15$
Percentage Advantage (%)	$(x-2)/(x-2)*100$	$(x+2)/(x+2)*100$	35.71	64.29	38.89	61.11	40.91	59.09	42.31	57.69	43.33	56.67
Draws Ratio	$(x-1)/2x$	$(x+1)/2x$	$3/7$	$4/7$	$4/9$	$5/9$	$5/11$	$6/11$	$6/13$	$7/13$	$7/15$	$8/15$
Percentage Advantage (%)	$(x-1)/(x-1)*100$	$(x+1)/(x+1)*100$	42.86	57.14	44.44	55.56	45.45	54.55	46.15	53.85	46.67	53.33
Overall Scoring Ratio	$(3x-5)/2x$	$(3x+5)/2x$	$8/7$	$13/7$	$11/9$	$16/9$	$14/11$	$19/11$	$17/13$	$22/13$	$20/15$	$25/15$
Percentage Advantage (%)	$(3x-5)/(3x-5)*100$	$(3x+5)/(3x+5)*100$	38.10	61.90	40.74	59.26	42.42	57.58	43.59	56.41	44.44	55.56
			<u>Eighths</u>		<u>Tenths</u>		<u>Twelfths</u>		<u>Fourteenths</u>		<u>Sixteenths</u>	
White wins, Black loses			$6/8$	$2/8$	$8/10$	$2/10$	$10/12$	$2/12$	$12/14$	$2/14$	$14/16$	$2/16$
White loses, Black Wins			$0/8$	$8/8$	$0/10$	$10/10$	$0/12$	$12/12$	$0/14$	$14/14$	$0/16$	$16/16$
White draws, Black draws			$3.5/8$	$4.5/8$	$4.5/10$	$5.5/10$	$5.5/12$	$6.5/12$	$6.5/14$	$7.5/14$	$7.5/16$	$8.5/16$
Wins + Losses Ratio			$6/8$	$10/8$	$8/10$	$12/10$	$10/12$	$14/12$	$12/14$	$16/14$	$14/16$	$18/16$
Percentage Advantage (%)			37.50	62.50	40.00	60.00	41.67	58.33	42.86	57.14	43.75	56.25
Draws Ratio			$3.5/8$	$4.5/8$	$4.5/10$	$5.5/10$	$5.5/12$	$6.5/12$	$6.5/14$	$7.5/14$	$7.5/16$	$8.5/16$
Percentage Advantage (%)			43.75	56.25	45.00	55.00	45.83	54.17	46.43	53.57	46.88	53.13
Overall Scoring Ratio			$9.5/8$	$14.5/8$	$12.5/10$	$17.5/10$	$15.5/12$	$20.5/12$	$18.5/14$	$23.5/14$	$21.5/16$	$26.5/16$
Percentage Advantage (%)			39.58	60.42	41.67	58.33	43.06	56.94	44.05	55.95	44.79	55.21

Alternative Scoring System For Chess

2 Player / 4 Game Comparison

Scoring

Standard

	White	Black	White	Black	Total
A	1	1/2	0	1/2	2
B	0	1/2	1	1/2	2
	Black	White	Black	White	

Percentage Advantage

50%
50%

White wins Black loses	White loses Black wins	White draws Black draws
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1	0	1/2
0	1	1/2

Sevenths

(Black win advantage =
Black draw advantage)

	White	Black	White	Black	Total
A	6/7	4/7	0/7	4/7	14/7
B	1/7	3/7	7/7	3/7	14/7
	Black	White	Black	White	

50%
50%

6/7	0/7	3/7
1/7	7/7	4/7

Thirteenths

(Black win advantage =
2x Black draw advantage)

	White	Black	White	Black	Total
A	11/13	7/13	0/13	7/13	25/13
B	2/13	6/13	13/13	6/13	27/13
	Black	White	Black	White	

48.08%
51.92%

11/13	0/13	6/13
2/13	13/13	7/13

Alternative Scoring System For Chess

Tournament - Standard Scoring

White wins 1
Black loses 0
White loses 0
Black Wins 1
White draws 1/2
Black draws 1/2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Totals	Games played as:	
																White	Black
A	█	1/2 w	1/2 b	1/2 b	1/2 b	1/2 w	1 w	1 b	1 w	1/2 b	1/2 b	1/2 b	1 w	1/2 w	8.5	6	7
B	1/2 b	█	1/2 b	1/2 w	1/2 b	1/2 b	1/2 w	1 w	1 w	1/2 b	1 w	1 w	1/2 b	1/2 w	8.5	7	6
C	1/2 w	1/2 w	█	1/2 b	1/2 b	1 w	1/2 b	0 b	1/2 w	1/2 w	1/2 w	1 b	1 w	1 b	8	7	6
D	1/2 w	1/2 b	1/2 w	█	1/2 w	0 b	1 b	1/2 b	1/2 b	1 w	1/2 b	1/2 w	1 w	1 b	8	6	7
E	1/2 w	1/2 w	1/2 w	1/2 b	█	1/2 w	1/2 b	1/2 b	1/2 b	1/2 w	1 w	1 b	1/2 w	1 b	8	7	6
F	1/2 b	1/2 w	0 b	1 w	1/2 b	█	1/2 w	1/2 w	1 w	1/2 b	1 w	1/2 b	1/2 b	1/2 w	7.5	7	6
G	0 b	1/2 b	1/2 w	0 w	1/2 w	1/2 b	█	1/2 w	1 b	1/2 b	1/2 w	1/2 w	1/2 b	1 w	6.5	7	6
H	0 w	0 b	1 w	1/2 w	1/2 w	1/2 b	1/2 b	█	1/2 b	1/2 w	1/2 b	1/2 w	1/2 b	1/2 b	6	6	7
I	0 b	0 b	1/2 b	1/2 w	1/2 w	0 b	0 w	1/2 w	█	1 b	1 w	1/2 w	1/2 b	1 w	6	7	6
J	1/2 w	1/2 w	1/2 b	0 b	1/2 b	1/2 w	1/2 w	1/2 b	0 w	█	1/2 b	1/2 b	1/2 w	1/2 b	5.5	6	7
K	1/2 w	0 b	1/2 b	1/2 w	0 b	0 b	1/2 b	1/2 w	0 b	1/2 w	█	1/2 b	1/2 w	1 w	5	6	7
L	1/2 w	0 b	0 w	1/2 b	0 w	1/2 w	1/2 b	1/2 b	1/2 b	1/2 w	1/2 w	█	1/2 w	1/2 b	5	7	6
M	0 b	1/2 w	0 b	0 b	1/2 b	1/2 w	1/2 w	1/2 w	1/2 w	1/2 b	1/2 b	1/2 b	█	1/2 w	5	6	7
N	1/2 b	1/2 b	0 w	0 w	0 w	1/2 b	0 b	1/2 w	0 b	1/2 w	0 b	1/2 w	1/2 b	█	3.5	6	7

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Alternative Scoring System For Chess

Tournament - Scoring in Sevenths

Black win advantage = Black draw advantage

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	<u>7ths</u> <u>Totals</u>	<u>Standard</u> <u>Totals</u>	Games played as:		
																		<u>White</u>	<u>Black</u>	
White wins 6/7 Black loses 1/7	A	████	3/7 w	4/7 b	4/7 b	4/7 b	3/7 w	6/7 w	7/7 b	6/7 w	4/7 b	4/7 b	4/7 b	6/7 w	3/7 w	58/7	8 2/7	8.5	6	7
	B	4/7 b	████	4/7 b	3/7 w	4/7 b	4/7 b	3/7 w	6/7 w	6/7 w	4/7 b	6/7 w	6/7 w	4/7 b	3/7 w	57/7	8 1/7	8.5	7	6
White loses 0/7 Black Wins 7/7	C	3/7 w	3/7 w	████	4/7 b	4/7 b	6/7 w	4/7 b	1/7 b	3/7 w	3/7 w	3/7 w	7/7 b	6/7 w	7/7 b	54/7	7 5/7	8	7	6
	D	3/7 w	4/7 b	3/7 w	████	3/7 w	1/7 b	7/7 b	4/7 b	4/7 b	6/7 w	4/7 b	3/7 w	6/7 w	7/7 b	55/7	7 6/7	8	6	7
White draws 3/7 Black draws 4/7	E	3/7 w	3/7 w	3/7 w	4/7 b	████	3/7 w	4/7 b	4/7 b	4/7 b	3/7 w	6/7 w	7/7 b	3/7 w	7/7 b	54/7	7 5/7	8	7	6
	F	4/7 b	3/7 w	1/7 b	6/7 w	4/7 b	████	3/7 w	3/7 w	6/7 w	4/7 b	6/7 w	4/7 b	4/7 b	3/7 w	51/7	7 2/7	7.5	7	6
Percentage Advantage White / Black	G	1/7 b	4/7 b	3/7 w	0/7 w	3/7 w	4/7 b	████	3/7 w	7/7 b	4/7 b	3/7 w	3/7 w	4/7 b	6/7 w	45/7	6 3/7	6.5	7	6
	H	0/7 w	1/7 b	6/7 w	3/7 w	3/7 w	4/7 b	4/7 b	████	4/7 b	3/7 w	4/7 b	3/7 w	4/7 b	4/7 b	43/7	6 1/7	6	6	7
Wins + Losses 42.86 / 57.14	I	1/7 b	1/7 b	4/7 b	3/7 w	3/7 w	1/7 b	0/7 w	3/7 w	████	7/7 b	6/7 w	3/7 w	4/7 b	6/7 w	42/7	6	6	7	6
	J	3/7 w	3/7 w	4/7 b	1/7 b	4/7 b	3/7 w	3/7 w	4/7 b	0/7 w	████	4/7 b	4/7 b	3/7 w	4/7 b	40/7	5 5/7	5.5	6	7
Draws 42.86 / 57.14	K	3/7 w	1/7 b	4/7 b	3/7 w	1/7 b	1/7 b	4/7 b	3/7 w	1/7 b	3/7 w	████	4/7 b	3/7 w	6/7 w	37/7	5 2/7	5	6	7
	L	3/7 w	1/7 b	0/7 w	4/7 b	0/7 w	3/7 w	4/7 b	4/7 b	4/7 b	3/7 w	3/7 w	████	3/7 w	4/7 b	36/7	5 1/7	5	7	6
Overall 42.86 / 57.14	M	1/7 b	3/7 w	1/7 b	1/7 b	4/7 b	3/7 w	3/7 w	3/7 w	3/7 w	4/7 b	4/7 b	4/7 b	████	3/7 w	37/7	5 2/7	5	6	7
	N	4/7 b	4/7 b	0/7 w	0/7 w	0/7 w	4/7 b	1/7 b	3/7 w	1/7 b	3/7 w	1/7 b	3/7 w	4/7 b	████	28/7	4	3.5	6	7
																637/7	91	91		

Alternative Scoring System For Chess

Tournament - Scoring in Thirteenths		Black win advantage = 2x Black draw advantage													<u>13ths</u> <u>Totals</u>		<u>Standard</u> <u>Totals</u>		Games played as: <u>White</u> <u>Black</u>		
		A	B	C	D	E	F	G	H	I	J	K	L	M	N						
White wins 11/13	Black loses 2/13	A	6/13 w	7/13 b	7/13 b	7/13 b	6/13 w	11/13 w	13/13 b	11/13 w	7/13 b	7/13 b	7/13 b	11/13 w	6/13 w	106/13	8 2/13	8.5	6	7	
		B	7/13 b	7/13 b	6/13 w	7/13 b	7/13 b	6/13 w	11/13 w	11/13 w	7/13 b	11/13 w	11/13 w	7/13 b	6/13 w	104/13	8	8.5	7	6	
		C	6/13 w	6/13 w	7/13 b	7/13 b	11/13 w	7/13 b	2/13 b	6/13 w	6/13 w	6/13 w	13/13 b	11/13 w	13/13 b	101/13	7 10/13	8	7	6	
White loses 0/13	Black Wins 13/13	D	6/13 w	7/13 b	6/13 w	6/13 w	2/13 b	13/13 b	7/13 b	7/13 b	11/13 w	7/13 b	6/13 w	11/13 w	13/13 b	102/13	7 11/13	8	6	7	
		E	6/13 w	6/13 w	6/13 w	7/13 b	6/13 w	7/13 b	7/13 b	7/13 b	6/13 w	11/13 w	13/13 b	6/13 w	13/13 b	101/13	7 10/13	8	7	6	
		F	7/13 b	6/13 w	2/13 b	11/13 w	7/13 b	6/13 w	6/13 w	11/13 w	7/13 b	11/13 w	7/13 b	7/13 b	6/13 w	94/13	7 3/13	7.5	7	6	
White draws 6/13	Black draws 7/13	G	2/13 b	7/13 b	6/13 w	0/13 w	6/13 w	7/13 b	6/13 w	13/13 b	7/13 b	6/13 w	6/13 w	7/13 b	11/13 w	84/13	6 6/13	6.5	7	6	
		H	0/13 w	2/13 b	11/13 w	6/13 w	6/13 w	7/13 b	7/13 b	7/13 b	6/13 w	7/13 b	6/13 w	7/13 b	7/13 b	79/13	6 1/13	6	6	7	
		I	2/13 b	2/13 b	7/13 b	6/13 w	6/13 w	2/13 b	0/13 w	6/13 w	13/13 b	11/13 w	6/13 w	7/13 b	11/13 w	79/13	6 1/13	6	7	6	
		J	6/13 w	6/13 w	7/13 b	2/13 b	7/13 b	6/13 w	6/13 w	7/13 b	0/13 w	7/13 b	7/13 b	6/13 w	7/13 b	74/13	5 9/13	5.5	6	7	
Wins + Losses 42.31 / 57.69			K	6/13 w	2/13 b	7/13 b	6/13 w	2/13 b	2/13 b	7/13 b	6/13 w	2/13 b	6/13 w	7/13 b	11/13 w	70/13	5 5/13	5	6	7	
		L	6/13 w	2/13 b	0/13 w	7/13 b	0/13 w	6/13 w	7/13 b	7/13 b	7/13 b	6/13 w	6/13 w	7/13 b	7/13 b	67/13	5 2/13	5	7	6	
Draws 46.15 / 53.85			M	2/13 b	6/13 w	2/13 b	2/13 b	7/13 b	6/13 w	6/13 w	6/13 w	7/13 b	7/13 b	7/13 b	6/13 w	70/13	5 5/13	5	6	7	
		N	7/13 b	7/13 b	0/13 w	0/13 w	0/13 w	7/13 b	2/13 b	6/13 w	2/13 b	6/13 w	7/13 b	7/13 b	7/13 b	52/13	4	3.5	6	7	
Overall 43.59 / 56.41															1183/13	91	91				