

THE VALUE OF ACES IN COUNTING POINTS

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The counting of the points of a hand is very similar to the shopping cart, you can find everything there and its total value corresponds to an infinity of different compositions. It is the ultimate compression of information constrained by the austerity of auction language.

There are three main types of accounts: high-card points (HCP), points which combine honors and distribution (HLP) and so-called support points which re-evaluate the hand when a fit is acquired (SP), and many ways of naming and coding them: SEF (French system of education) and variants of this or that pedagogue, Charles-Gigault, Kaplan-Rubens, Zar systems, etc. Each high-level pair has its system which is never fully explained, especially since certain provisions can be hidden under the rubric of judgment.

Point count has two types of functions that do not have the same constraints:

- 1) informing the partner of the strength of the hand, and
- 2) helping to make the final decision: pass, double or overbid. Thus, a robot that makes its final decisions with a sample of simulated hands in double death (double dummy solver) is more sensitive to the precision of the description than to the adjustment to the contracts. For SA contracts, the PHs are robust and very predictive of success when the games are regular, for suit contracts, it's more complicated.

Many authors denounce the imprecision of the simple count: A = 4; K = 3; Q = 2; J = 1.

The reasons for this are various and relate in particular to the devaluation of the Aces and the overvaluation of the small honors (forgetting moreover the Xs and the 9s). We present here a method of empirical evaluation of the influence of Aces. It simply consists in answering the following question:

Do Aces have an influence on the success of a trump contract by holding constant the value of the hand's evaluation in PHS?

We evaluated the 4 tricks (major game) contract out of 120,000 random deals showing 27 PS in the line. We extract the percentages of success at this threshold that we usually require to request the contract at the level of 4, and we index them to the number of Aces of the declaring line. We compare two types of PS calculation: the classic SEF system and the Zar system that we have rescaled to make them comparable.

Here are the results, given in percentages. The table intersects the tricks taken and the number of aces in the line; %R is the % of contracts of 4 made (with 10,11,12, or 13 tricks); Tr is the average number of tricks made with a given number of Aces:

	27 PS according to the SEF account										27 PS according to the Zar account									
	6	7	8	9	10	11	12	13	% R	Tr	7	8	9	10	11	12	13	% R	Tr	
0 A	1	16	47	31	5				5	9	12	39	43	6				6	9.2	
1 A	1	10	33	41	14	1			19	9.5	7	26	44	22	2			23	9.7	
2 A		3	20	42	27	8			35	10	3	16	42	31	8			39	10	
3 A		1	11	30	38	17	3		58	10.5	1	10	33	38	15	3		56	10.5	
4 A			7	24	40	21	7	1	69	10.8		5	23	38	22	10	2	72	10.9	

Observations.

There are very few differences between the SEF account and the Zar account.

The games are asked with 35 to 40% success depending on the context, we see that this constraint is perfectly respected for 27 PS with two Aces in the line, resp. 35% and 39%. The chances of success of a contract at the level of 4 with 27 PS are well approximated with a function of the type:

$$\% \text{ of success} = 19 \times \text{number of Aces}$$

We see that almost linearly, each Ace counts for a half-trick (Tr. column), which justifies a discount of one point below 2 and an identical premium above.

For slams this effect becomes so noticeable (hence the Blackwood) that counting points no longer makes much sense.

Finally, asking for a contract at 4 to 37% with 27 PS does not mean that only 37% of contracts of 4 are successful since we also ask a lot with 28, 29, 30, 31 PHS and sometimes more.

Consequences.

The balance is reached with 2 As in the line, let us report in a new table the % of success of the contract of 4 with 27 PS according to the As, for the North-South line.

Columns are assigned to North, rows to South.

In the left part, the table gives the % of success of the contracts according to the number of Aces of the players.

In the central part, the table gives the bonus-malus (in PS) which should be applied to the line according to the Aces of the two players, in order to reflect the true value of their game. The right part gives this value for each player, cumulated, it respects the global penalty.

	number of Ace of North							number of Ace of North							bonus-malus of North				
	0	1	2	3	4			0	1	2	3	4			-1	0	1	2	3
0	5	19	35	58	69		0	-2	-1	0	1	2		-1	-2	-1	0	1	2
1	19	35	58	69			1	-1	0	1	2			0	-1	0	1	2	
2	35	58	69				2	0	1	2				1	0	1	2		
3	58	69					3	1	2					2	1	2			
4	69						4	2						3	2				
	% of succes of the contracts							bonus-malus of North-South							bonus-malus of North-South				

Simple practical application:

Without an Ace, a player deducts one point from his PHS total.

With an Ace it does nothing.

He adds one point per number of Aces greater than 1 in his hand, ie 1,2,3 for 2,3 and 4 Aces. The total of the line thus respects the boxes of the table.

27 PS without Aces is worth 25 and gives 36% success of a contract at the level of 3.

27 PS with 1 Ace is worth 26 and gives 57% success at level 3 and 15% at level 4.

27 PS with 2 Aces is worth 27 and gives 35% success at level 4.

27 PS with 3 Aces is worth 28 and gives 58% success at the level of 4.

27 PS with 4 Aces is worth 29 and gives 69% success at level 4 and 29% at level 5.

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