

**CRITICAL REGIONS FOR THE BARNARD'S TEST
IN THE COMPARATION
OF TWO INDEPENDENT BINOMIAL PROPORTIONS**

Use of the tables

Sample 1	x_1	y_1	n_1
Sample 2	x_2	y_2	n_2
	a_1	a_2	n

Given a 2×2 table like the above, in which $x_i \rightarrow B(n_i, p_i)$ and :

$$n_1 + n_2 \leq 50, \quad n_1 \leq n_2, \quad \hat{p}_1 = x_1/n_1 > x_2/n_2 = \hat{p}_2$$

the test for $H_0: p_1 = p_2$ is significant if $x_2 \leq C$, where C is the number indicated within the table for the combination of values of n_1, n_2, x_1 , the number of tails in the test and error α (in that order). The absence of a value for C (or the presence of "-") is indicative of "non-significant test" for the error α selected.

For further details see:

- 1) Silva Mato, A. and Martín Andrés, A. (1995). 'Optimal unconditional tables for comparing two independent proportions'. *Biometrical Journal* 37 (7), 821-836.
- 2) Martín Andrés, A. and Silva Mato, A. (1994). 'Choosing the optimal unconditioned test for comparing two independent proportions'. *Comp. Stat. and Data Anal.* 17, 555-574.

n1= 5 CONT.					n1= 5 CONT.					n1= 5 CONT.					n1= 6 CONT.					n1= 6 CONT.							
n2	x1	ONE TAIL	TWO TAILS		n2	x1	ONE TAIL	TWO TAILS		n2	x1	ONE TAIL	TWO TAILS		n2	x1	ONE TAIL	TWO TAILS		n2	x1	ONE TAIL	TWO TAILS				
**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**			
9	3	1	0	-	1	1	0	-		27	2	3	1	0	3	1	0	-		19	6	14	12	9	11	10	7
10	5	6	5	3	5	4	2		28	5	19	17	12	16	14	10			44	5	30	27	19	25	23	18	
11	5	7	6	4	6	5	3		29	5	20	17	12	16	14	11			45	5	31	27	20	26	23	18	
12	5	8	6	4	6	6	3		30	5	21	18	13	17	14	11				21	6	15	13	10	13	11	8
13	5	8	7	4	7	6	3		31	5	21	18	13	17	14	11				22	6	16	14	10	14	11	8
14	5	9	8	5	8	6	4		32	5	22	19	13	18	16	12			7	6	4	3	2	4	3	1	
15	5	10	8	5	8	7	4		33	5	23	20	14	19	16	13			8	6	5	4	2	4	3	2	
16	5	11	9	6	9	7	5		34	5	23	20	14	20	17	13			9	6	6	5	3	5	4	2	
17	5	11	10	6	10	8	5		35	5	24	21	15	20	17	14			10	6	7	6	4	5	3	2	
18	5	12	10	7	10	8	6		36	5	25	22	15	20	18	14			11	6	7	6	4	5	3	2	
19	5	13	11	7	10	9	6		37	5	26	23	16	22	19	15			12	6	8	7	5	6	4	3	
20	5	14	11	8	11	10	7		38	5	26	23	16	22	19	15			13	6	9	8	5	7	6	4	
21	5	14	12	8	12	10	7		39	5	27	23	17	22	20	15			14	6	10	8	6	8	7	5	
22	5	15	13	9	13	11	8		40	5	28	24	17	24	20	16			15	6	10	9	6	8	8	5	
23	5	16	13	9	13	11	8		41	5	29	25	18	24	21	16			16	6	11	10	7	9	8	6	
24	5	16	14	10	14	12	8		42	5	29	25	18	24	21	17			17	6	12	11	7	10	9	6	
25	5	17	15	10	14	12	9		43	5	30	26	19	25	22	17			18	6	13	11	8	11	10	6	
26	5	18	15	11	15	13	9																				

n1= 7
 ** ** ** ** ** ** ** ** **
 7 7 4 4 2 4 3 2
 6 3 2 1 2 1 0
 5 2 1 0 1 0 0
 4 1 0 0 0 0 0

n1=11 CONT.								n1=11 CONT.								n1=12 CONT.								n1=12 CONT.								n1=12 CONT.							
n2	x1	ONE	TAIL	TWO	TAILS	ONE	TAIL	n2	x1	ONE	TAIL	TWO	TAILS	ONE	TAIL	n2	x1	ONE	TAIL	TWO	TAILS	ONE	TAIL	n2	x1	ONE	TAIL	TWO	TAILS	ONE	TAIL	n2	x1	ONE	TAIL	TWO	TAILS	ONE	TAIL
**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
25	4	3	2	0	3	2	0	33	4	5	3	1	4	3	1	20	4	2	1	0	2	1	0	20	4	2	1	0	2	1	0								
20	4	2	1	0	2	1	0	20	4	2	1	0	2	1	0																								

n1=18 CONT.													n1=18 CONT.													n1=19 CONT.													n1=19 CONT.													n1=19 CONT.												
n2	x1	ONE	TAIL	TWO	TWO	TAILS	TAILS	TAILS	TAILS	TAILS	n2	x1	ONE	TAIL	TWO	TWO	TAILS	TAILS	TAILS	TAILS	TAILS	TAILS	n2	x1	ONE	TAIL	TWO	TWO	TAILS	TAILS	TAILS	TAILS	TAILS	TAILS	n2	x1	ONE	TAIL	TWO	TWO	TAILS	TAILS	TAILS	TAILS	TAILS	n2	x1	ONE	TAIL	TWO	TWO	TAILS	TAILS	TAILS	TAILS	TAILS								
**	**	10%	5%	1%	10%	5%	1%	10%	5%	1%	**	**	10%	5%	1%	10%	5%	1%	10%	5%	1%	**	**	10%	5%	1%	10%	5%	1%	10%	5%	1%	10%	5%	1%	10%	5%	1%	10%	5%	1%	10%	5%	1%	**	**	10%	5%	1%	10%	5%	1%	**	**	10%	5%	1%	10%	5%	1%				
24	18	21	20	18	20	19	17				28	6	4	3	1	3	2	1				19	15	11	9	7	9	8	6																																			

