

The best known (n, r) -arcs in PG(2, 19)

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After the absurd death of Axel Kohnert in 2013 several hardware errors on the site of the University of Bayreuth have occurred and the database for (n, r) -arcs is no longer available. For that reason we decided to reconstruct the database.

Lower and upper bounds on $m_r(2, 19)$ [1]

$r = 2$	$r = 3$	$r = 4$	$r = 5$	$r = 6$	$r = 7$	$r = 8$	$r = 9$	$r = 10$
20	31–39	52–58	68–77	86–96	105–115	126–134	147–153	172
$r = 11$	$r = 12$	$r = 13$	$r = 14$	$r = 15$	$r = 16$	$r = 17$	$r = 18$	
191	204–210	225–230	243–250	265–270	286–290	305–310	324–330	

1. A (31,3)-arc [2]

The points in the arc are

(0, 1, 18), (1, 10, 2), (1, 15, 3), (1, 2, 10), (1, 13, 14), (1, 3, 15), (1, 14, 13), (1, 10, 14), (1, 15, 2), (1, 14, 10), (1, 13, 3), (1, 2, 15), (1, 3, 13), (1, 10, 5), (1, 15, 17), (1, 5, 10), (1, 13, 16), (1, 17, 15), (1, 16, 13), (1, 12, 16), (1, 18, 5), (1, 16, 12), (1, 8, 17), (1, 5, 18), (1, 17, 8), (1, 12, 18), (1, 18, 8), (1, 18, 12), (1, 8, 12), (1, 8, 18), (1, 12, 8)

The secant distribution of the arc is $\tau = (99, 71, 84, 127, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

The arc is found by prescribing the group generated by

$$\left\langle \left(\begin{pmatrix} 1 & 0 & 0 \\ 0 & 11 & 0 \\ 0 & 0 & 11 \end{pmatrix}, \begin{pmatrix} 12 & 0 & 0 \\ 0 & 0 & 12 \\ 0 & 12 & 0 \end{pmatrix}, \begin{pmatrix} 11 & 0 & 0 \\ 0 & 11 & 0 \\ 0 & 0 & 11 \end{pmatrix} \right) \right\rangle.$$

The order of the group is 18.

2. A (52,4)-arc (Daskalov)

The points in the arc are

(0, 1, 5), (0, 1, 13), (0, 1, 14), (0, 1, 15), (1, 0, 3), (1, 0, 4), (1, 0, 14), (1, 0, 15), (1, 1, 2), (1, 1, 3), (1, 1, 5), (1, 1, 6), (1, 2, 1), (1, 2, 4), (1, 2, 10), (1, 2, 15), (1, 3, 1), (1, 4, 4), (1, 5, 0), (1, 5, 1), (1, 5, 10), (1, 5, 17), (1, 6, 1), (1, 6, 2), (1, 6, 7), (1, 6, 8), (1, 8, 9), (1, 9, 7), (1, 10, 3), (1, 10, 7), (1, 10, 9), (1, 10, 10), (1, 11, 4), (1, 11, 7), (1, 11, 9), (1, 11, 15), (1, 12, 15), (1, 13, 0), (1, 13, 12), (1, 13, 13), (1, 13, 16), (1, 14, 0), (1, 14, 2),

(1, 14, 9), (1, 14, 16), (1, 15, 0), (1, 16, 16), (1, 17, 3), (1, 17, 10), (1, 17, 16), (1, 17, 18), (1, 18, 2)

The secant distribution of the arc is $\tau = (31, 100, 6, 48, 196, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

3. A (68,5)-arc (Daskalov, Manev)

The points in the arc are

(0, 1, 3), (0, 1, 6), (0, 1, 13), (0, 1, 15), (0, 1, 17), (1, 0, 3), (1, 0, 9), (1, 0, 13), (1, 0, 14), (1, 0, 16), (1, 1, 2), (1, 1, 3), (1, 1, 13), (1, 1, 14), (1, 1, 18), (1, 2, 1), (1, 2, 11), (1, 2, 14), (1, 2, 15), (1, 3, 0), (1, 3, 1), (1, 3, 3), (1, 3, 7), (1, 6, 0), (1, 6, 2), (1, 6, 7), (1, 6, 15), (1, 7, 3), (1, 7, 8), (1, 7, 10), (1, 7, 11), (1, 7, 14), (1, 10, 3), (1, 10, 7), (1, 10, 9), (1, 10, 10), (1, 11, 7), (1, 11, 9), (1, 11, 14), (1, 11, 15), (1, 11, 18), (1, 12, 7), (1, 12, 8), (1, 12, 11), (1, 12, 16), (1, 13, 0), (1, 13, 1), (1, 13, 13), (1, 13, 15), (1, 13, 16), (1, 14, 1), (1, 14, 2), (1, 14, 8), (1, 14, 9), (1, 14, 11), (1, 15, 0), (1, 15, 10), (1, 15, 11), (1, 15, 13), (1, 15, 15), (1, 17, 0), (1, 17, 10), (1, 17, 16), (1, 17, 18), (1, 18, 1), (1, 18, 2), (1, 18, 8), (1, 18, 18)

The secant distribution of the arc is $\tau = (48, 8, 40, 0, 153, 132, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

4. A (86,6)-arc (Daskalov)

The points in the arc are

(0, 1, 2), (0, 1, 10), (0, 1, 14), (0, 1, 15), (0, 1, 16), (1, 0, 2), (1, 0, 6), (1, 0, 10), (1, 0, 15), (1, 1, 1), (1, 1, 2), (1, 1, 3), (1, 1, 4), (1, 1, 15), (1, 2, 0), (1, 2, 1), (1, 2, 5), (1, 2, 6), (1, 2, 7), (1, 2, 17), (1, 3, 1), (1, 3, 2), (1, 3, 4), (1, 3, 5), (1, 3, 7), (1, 3, 10), (1, 4, 1), (1, 4, 2), (1, 4, 3), (1, 4, 8), (1, 4, 12), (1, 4, 15), (1, 5, 2), (1, 5, 3), (1, 5, 5), (1, 5, 7), (1, 5, 14), (1, 5, 15), (1, 7, 3), (1, 7, 6), (1, 7, 7), (1, 7, 8), (1, 7, 13), (1, 7, 17), (1, 8, 4), (1, 8, 7), (1, 9, 4), (1, 9, 6), (1, 9, 11), (1, 9, 12), (1, 9, 18), (1, 10, 6), (1, 10, 10), (1, 10, 11), (1, 10, 12), (1, 11, 3), (1, 11, 12), (1, 11, 14), (1, 11, 17), (1, 11, 18), (1, 12, 2), (1, 12, 4), (1, 12, 7), (1, 12, 8), (1, 12, 10), (1, 12, 11), (1, 13, 8), (1, 13, 10), (1, 13, 13), (1, 13, 18), (1, 14, 0), (1, 14, 14), (1, 15, 1), (1, 15, 13), (1, 15, 18), (1, 16, 0), (1, 16, 3), (1, 16, 8), (1, 16, 11), (1, 16, 13), (1, 16, 17), (1, 18, 4), (1, 18, 5), (1, 18, 6), (1, 18, 8), (1, 18, 10)

The secant distribution of the arc is $\tau = (30, 12, 11, 27, 53, 95, 153, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

5. A (105,7)-arc [2]

The points in the arc are

(0, 0, 1), (0, 1, 0), (1, 0, 0), (1, 1, 1), (1, 11, 7), (1, 7, 11), (1, 1, 2), (1, 2, 1), (1, 11, 14), (1, 10, 10), (1, 3, 7), (1, 7, 3), (1, 15, 13), (1, 14, 11), (1, 13, 15), (1, 1, 4), (1, 4, 1), (1, 11, 9), (1, 5, 5), (1, 6, 7), (1, 7, 6), (1, 17, 16), (1, 9, 11), (1, 16, 17), (1, 1, 10), (1, 10, 1), (1, 11, 13), (1, 2, 2), (1, 15, 7), (1, 7, 15), (1, 3, 14), (1, 13, 11), (1, 14, 3), (1, 1, 12), (1, 12, 1), (1, 11, 8), (1, 8, 8), (1, 18, 7), (1, 7, 18), (1, 12, 18), (1, 8, 11), (1, 18, 12), (1, 1, 13), (1, 13, 1), (1, 11, 15), (1, 3, 3), (1, 10, 7), (1, 7, 10), (1, 14, 2), (1, 15, 11), (1, 2, 14), (1, 12, 5), (1, 2, 8), (1, 18, 16), (1, 4, 10), (1, 3, 18), (1, 8, 17), (1, 6, 13), (1, 14, 12), (1, 9, 15), (1, 12, 15), (1, 6, 8), (1, 18, 10), (1, 14, 16), (1, 9, 18), (1, 8, 13), (1, 2, 17), (1, 4, 12), (1, 3, 5), (1, 12, 16), (1, 14, 8), (1, 18, 17), (1, 6, 15), (1, 2, 18), (1, 8, 5), (1, 9, 10), (1, 3, 12), (1, 4, 13), (1, 10, 14), (1, 9, 2), (1, 15, 3), (1, 15, 17), (1, 4, 14), (1, 13, 2), (1, 13, 5), (1, 6, 3), (1, 10, 16), (1, 16, 4), (1, 5, 6), (1, 5, 9), (1, 5, 4), (1, 17, 4), (1, 17, 6), (1, 17, 9), (1, 16, 9), (1, 16, 6), (1, 10, 9), (1, 18, 2), (1, 15, 6), (1, 17, 18), (1, 8, 14), (1, 13, 4), (1, 16, 12), (1, 12, 3), (1, 5, 8)

The secant distribution of the arc is $\tau = (12, 9, 30, 12, 18, 48, 81, 171, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

The arc is found by prescribing the group generated by

$$\left\langle \begin{pmatrix} 11 & 0 & 0 \\ 0 & 11 & 0 \\ 0 & 0 & 11 \end{pmatrix}, \begin{pmatrix} 13 & 0 & 0 \\ 0 & 13 & 0 \\ 0 & 0 & 13 \end{pmatrix}, \begin{pmatrix} 17 & 0 & 0 \\ 0 & 17 & 0 \\ 0 & 0 & 17 \end{pmatrix}, \begin{pmatrix} 0 & 16 & 0 \\ 0 & 0 & 16 \\ 16 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 7 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 11 \end{pmatrix} \right\rangle.$$

The order of the group is 162.

6. A (126,8)-arc (Kohnert, 2008)

The points in the arc are

(0, 0, 1), (0, 1, 0), (0, 1, 4), (0, 1, 5), (0, 1, 6), (0, 1, 9), (0, 1, 16), (0, 1, 17), (1, 0, 0), (1, 0, 4), (1, 0, 5), (1, 0, 6), (1, 0, 9), (1, 0, 16), (1, 0, 17), (1, 1, 3), (1, 1, 6), (1, 1, 7), (1, 1, 8), (1, 1, 9), (1, 1, 11), (1, 1, 14), (1, 2, 6), (1, 2, 7), (1, 2, 8), (1, 2, 11), (1, 2, 12), (1, 2, 15), (1, 2, 18), (1, 3, 1), (1, 3, 4), (1, 3, 8), (1, 3, 10), (1, 3, 11), (1, 3, 12), (1, 3, 18), (1, 4, 0), (1, 4, 7), (1, 4, 10), (1, 4, 11), (1, 4, 13), (1, 4, 15), (1, 5, 0), (1, 5, 3), (1, 5, 12), (1, 5, 15), (1, 5, 16), (1, 5, 17), (1, 6, 0), (1, 6, 1), (1, 6, 10), (1, 6, 11), (1, 6, 13), (1, 6, 15), (1, 7, 1), (1, 7, 2), (1, 7, 4), (1, 7, 7), (1, 7, 9), (1, 7, 12), (1, 7, 14), (1, 8, 1), (1, 8, 2), (1, 8, 5), (1, 8, 6), (1, 8, 16), (1, 8, 17), (1, 8, 18), (1, 9, 0), (1, 9, 1), (1, 9, 7), (1, 9, 10), (1, 9, 13), (1, 9, 15), (1, 10, 4), (1, 10, 13), (1, 10, 15), (1, 10, 18), (1, 11, 1), (1, 11, 2), (1, 11, 3), (1, 11, 4), (1, 11, 6), (1, 11, 11), (1, 11, 18), (1, 12, 4), (1, 12, 5), (1, 12, 7), (1, 12, 12), (1, 12, 14), (1, 12, 16), (1, 12, 17), (1, 13, 6), (1, 13, 8), (1, 13, 10), (1, 13, 13), (1, 14, 1), (1, 14, 7), (1, 14, 8), (1, 14, 9), (1, 14, 12), (1, 14, 13), (1, 14, 18), (1, 15, 9), (1, 15, 10), (1, 15, 12), (1, 15, 15), (1, 16, 0), (1, 16, 5), (1, 16, 13), (1, 16, 14), (1, 16, 16), (1, 16, 18), (1, 17, 0), (1, 17, 2), (1, 17, 5), (1, 17, 8), (1, 17, 10), (1, 17, 17), (1, 18, 3), (1, 18, 5), (1, 18, 8), (1, 18, 9), (1, 18, 11), (1, 18, 16), (1, 18, 17)

The secant distribution of the arc is $\tau = (3, 9, 21, 18, 0, 36, 27, 63, 204, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

7. A (147,9)-arc [2]

The points in the arc are

(0, 0, 1), (0, 1, 0), (1, 0, 0), (1, 1, 1), (1, 7, 11), (1, 9, 16), (1, 11, 7), (1, 6, 5), (1, 5, 9), (1, 17, 6), (1, 4, 17), (1, 16, 4), (1, 1, 3), (1, 7, 14), (1, 9, 10), (1, 11, 2), (1, 6, 15), (1, 5, 8), (1, 17, 18), (1, 4, 13), (1, 16, 12), (1, 1, 6), (1, 7, 9), (1, 9, 1), (1, 11, 4), (1, 6, 11), (1, 5, 16), (1, 17, 17), (1, 4, 7), (1, 16, 5), (1, 1, 7), (1, 7, 1), (1, 9, 17), (1, 11, 11), (1, 6, 16), (1, 5, 6), (1, 17, 4), (1, 4, 5), (1, 16, 9), (1, 1, 8), (1, 7, 12), (1, 9, 14), (1, 11, 18), (1, 6, 2), (1, 5, 15), (1, 17, 10), (1, 4, 3), (1, 16, 13), (1, 1, 11), (1, 7, 7), (1, 9, 5), (1, 11, 1), (1, 6, 17), (1, 5, 4), (1, 17, 9), (1, 4, 16), (1, 16, 6), (1, 1, 12), (1, 7, 18), (1, 9, 2), (1, 11, 8), (1, 6, 3), (1, 5, 13), (1, 17, 15), (1, 4, 14), (1, 16, 10), (1, 1, 13), (1, 7, 10), (1, 9, 18), (1, 11, 15), (1, 6, 8), (1, 5, 3), (1, 17, 2), (1, 4, 12), (1, 16, 14), (1, 10, 10), (1, 13, 15), (1, 14, 8), (1, 2, 1), (1, 15, 13), (1, 3, 12), (1, 3, 7), (1, 12, 14), (1, 15, 6), (1, 14, 11), (1, 18, 16), (1, 2, 18), (1, 8, 2), (1, 13, 4), (1, 8, 17), (1, 10, 9), (1, 12, 5), (1, 18, 3), (1, 10, 17), (1, 13, 16), (1, 14, 6), (1, 2, 15), (1, 15, 5), (1, 3, 9), (1, 3, 10), (1, 12, 1), (1, 15, 14), (1, 14, 13), (1, 18, 12), (1, 2, 4), (1, 8, 11), (1, 13, 3), (1, 8, 8), (1, 10, 2), (1, 12, 18), (1, 18, 7), (1, 10, 12), (1, 13, 18), (1, 14, 2), (1, 2, 5), (1, 15, 8), (1, 3, 3), (1, 3, 16), (1, 12, 13), (1, 15, 11), (1, 14, 17), (1, 18, 4), (1, 2, 14), (1, 8, 10), (1, 13, 1), (1, 8, 9), (1, 10, 7), (1, 12, 6), (1, 18, 15), (1, 10, 13), (1, 13, 10), (1, 14, 18), (1, 2, 7), (1, 15, 15), (1, 3, 8), (1, 3, 11), (1, 12, 3), (1, 15, 4), (1, 14, 1), (1, 18, 17), (1, 2, 12), (1, 8, 14), (1, 13, 9), (1, 8, 5), (1, 10, 6), (1, 12, 16), (1, 18, 2)

The secant distribution of the arc is $\tau = (18, 0, 3, 0, 0, 9, 45, 27, 81, 198, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

The arc is found by prescribing the group generated by

$$\left\langle \begin{pmatrix} 7 & 0 & 0 \\ 0 & 11 & 0 \\ 0 & 0 & 1 \end{pmatrix}, \begin{pmatrix} 1 & 0 & 0 \\ 0 & 7 & 0 \\ 0 & 0 & 11 \end{pmatrix}, \begin{pmatrix} 18 & 0 & 0 \\ 0 & 18 & 0 \\ 0 & 0 & 18 \end{pmatrix}, \begin{pmatrix} 1 & 0 & 0 \\ 0 & 9 & 0 \\ 0 & 0 & 16 \end{pmatrix}, \begin{pmatrix} 0 & 18 & 0 \\ 18 & 0 & 0 \\ 0 & 0 & 18 \end{pmatrix}, \begin{pmatrix} 6 & 0 & 0 \\ 0 & 16 & 0 \\ 0 & 0 & 1 \end{pmatrix} \right\rangle.$$

The order of the group is 324.

8. A (172,10)-arc (Barlotti's construction)

The points in the arc are

(0, 0, 1), (0, 1, 0), (0, 1, 2), (0, 1, 4), (0, 1, 5), (0, 1, 9), (0, 1, 10), (0, 1, 14), (0, 1, 15), (0, 1, 17), (1, 0, 0), (1, 0, 2), (1, 0, 4), (1, 0, 5), (1, 0, 9), (1, 0, 10), (1, 0, 14), (1, 0, 15), (1, 0, 17), (1, 1, 2), (1, 1, 3), (1, 1, 8), (1, 1, 9), (1, 1, 10), (1, 1, 11), (1, 1, 16), (1, 1, 17), (1, 2, 0), (1, 2, 1), (1, 2, 2), (1, 2, 5), (1, 2, 7), (1, 2, 12), (1, 2, 14), (1, 2, 17), (1, 2, 18), (1, 3, 1), (1, 3, 4), (1, 3, 5), (1, 3, 8), (1, 3, 11), (1, 3, 14), (1, 3, 15), (1, 3, 18), (1, 4, 0), (1, 4, 3), (1, 4, 5), (1, 4, 7), (1, 4, 8), (1, 4, 11), (1, 4, 12), (1, 4, 14), (1, 4, 16), (1, 5, 0), (1, 5, 2), (1, 5, 3), (1, 5, 4), (1, 5, 6), (1, 5, 13), (1, 5, 15), (1, 5, 16), (1, 5, 17), (1, 6, 5), (1, 6, 6), (1, 6, 8), (1, 6, 9), (1, 6, 10), (1, 6, 11), (1, 6, 13), (1, 6, 14), (1, 7, 2), (1, 7, 4), (1, 7, 7), (1, 7, 9), (1, 7, 10), (1, 7, 12), (1, 7, 15), (1, 7, 17), (1, 8, 1), (1, 8, 3), (1, 8, 4), (1, 8, 6), (1, 8, 13), (1, 8, 15), (1, 8, 16), (1, 8, 18), (1, 9, 0), (1, 9, 1), (1, 9, 6), (1, 9, 7), (1, 9, 9), (1, 9, 10), (1, 9, 12), (1, 9, 13), (1, 9, 18), (1, 10, 0), (1, 10, 1), (1, 10, 6), (1, 10, 7), (1, 10, 9), (1, 10, 10), (1, 10, 12), (1, 10, 13), (1, 10, 18), (1, 11, 1), (1, 11, 3), (1, 11, 4), (1, 11, 6), (1, 11, 13), (1, 11, 15), (1, 11, 16), (1, 11, 18), (1, 12, 2), (1, 12, 4), (1, 12, 7), (1, 12, 9), (1, 12, 10), (1, 12, 12), (1, 12, 15), (1, 12, 17), (1, 13, 5), (1, 13, 6), (1, 13, 8), (1, 13, 9), (1, 13, 10), (1, 13, 11), (1, 13, 13), (1, 13, 14), (1, 14, 0), (1, 14, 2), (1, 14, 3), (1, 14, 4), (1, 14, 6), (1, 14, 13), (1, 14, 15), (1, 14, 16), (1, 14, 17), (1, 15, 0), (1, 15, 3), (1, 15, 5), (1, 15, 7), (1, 15, 8), (1, 15, 11), (1, 15, 12), (1, 15, 14), (1, 15, 16), (1, 16, 1), (1, 16, 4), (1, 16, 5), (1, 16, 8), (1, 16, 11), (1, 16, 14), (1, 16, 15), (1, 16, 18), (1, 17, 0), (1, 17, 1), (1, 17, 2), (1, 17, 5), (1, 17, 7), (1, 17, 12), (1, 17, 14), (1, 17, 17), (1, 17, 18), (1, 18, 2), (1, 18, 3), (1, 18, 8), (1, 18, 9), (1, 18, 10), (1, 18, 11), (1, 18, 13), (1, 18, 16), (1, 18, 17)

The secant distribution of the arc is $\tau = (19, 1, 0, 0, 0, 0, 0, 0, 0, 171, 190, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

8. A (172,10)-arc (Daskalov)

The points in the arc are

(0, 1, 0), (1, 1, 1), (1, 1, 3), (1, 1, 6), (1, 1, 7), (1, 1, 8), (1, 1, 11), (1, 1, 12), (1, 1, 13), (1, 1, 16), (1, 1, 18), (1, 2, 0), (1, 2, 1), (1, 2, 4), (1, 2, 5), (1, 2, 7), (1, 2, 12), (1, 2, 14), (1, 2, 15), (1, 2, 18), (1, 3, 0), (1, 3, 3), (1, 3, 7), (1, 3, 8), (1, 3, 9), (1, 3, 10), (1, 3, 11), (1, 3, 12), (1, 3, 16), (1, 4, 2), (1, 4, 3), (1, 4, 5), (1, 4, 6), (1, 4, 7), (1, 4, 12), (1, 4, 13), (1, 4, 14), (1, 4, 16), (1, 4, 17), (1, 5, 3), (1, 5, 4), (1, 5, 6), (1, 5, 8), (1, 5, 9), (1, 5, 10), (1, 5, 11), (1, 5, 13), (1, 5, 15), (1, 5, 16), (1, 6, 2), (1, 6, 3), (1, 6, 4), (1, 6, 5), (1, 6, 8), (1, 6, 11), (1, 6, 14), (1, 6, 15), (1, 6, 16), (1, 6, 17), (1, 7, 1), (1, 7, 5), (1, 7, 7), (1, 7, 8), (1, 7, 9), (1, 7, 10), (1, 7, 11), (1, 7, 12), (1, 7, 14), (1, 7, 18), (1, 8, 0), (1, 8, 2), (1, 8, 5), (1, 8, 8), (1, 8, 9), (1, 8, 10), (1, 8, 11), (1, 8, 14), (1, 8, 17), (1, 9, 1), (1, 9, 2), (1, 9, 3), (1, 9, 5), (1, 9, 9), (1, 9, 10), (1, 9, 14), (1, 9, 16), (1, 9, 17), (1, 9, 18), (1, 10, 0), (1, 10, 2), (1, 10, 6), (1, 10, 7), (1, 10, 9), (1, 10, 10), (1, 10, 12), (1, 10, 13), (1, 10, 17), (1, 11, 1), (1, 11, 2), (1, 11, 4), (1, 11, 7), (1, 11, 8), (1, 11, 11), (1, 11, 12), (1, 11, 15), (1, 11, 17), (1, 11, 18), (1, 12, 0), (1, 12, 1), (1, 12, 3), (1, 12, 5), (1, 12, 6), (1, 12, 13), (1, 12, 14), (1, 12, 16), (1, 12, 18), (1, 13, 0), (1, 13, 1), (1, 13, 3), (1, 13, 4), (1, 13, 9), (1, 13, 10), (1, 13, 15), (1, 13, 16), (1, 13, 18), (1, 14, 0), (1, 14, 1), (1, 14, 2), (1, 14, 6), (1, 14, 8), (1, 14, 11), (1, 14, 13), (1, 14, 17), (1, 14, 18), (1, 15, 0), (1, 15, 4), (1, 15, 5), (1, 15, 6), (1, 15, 8), (1, 15, 11), (1, 15, 13), (1, 15, 14), (1, 15, 15), (1, 15, 17), (1, 16, 4), (1, 16, 5), (1, 16, 6), (1, 16, 7), (1, 16, 9), (1, 16, 10), (1, 16, 12), (1, 16, 13), (1, 16, 14), (1, 16, 15), (1, 17, 1), (1, 17, 2), (1, 17, 4), (1, 17, 6), (1, 17, 9), (1, 17, 10), (1, 17, 13), (1, 17, 15), (1, 17, 17), (1, 17, 18), (1, 18, 0), (1, 18, 2), (1, 18, 3), (1, 18, 4), (1, 18, 7), (1, 18, 12), (1, 18, 15), (1, 18, 16)

The secant distribution of the arc is $\tau = (18, 2, 0, 0, 0, 0, 0, 0, 9, 154, 198, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)$

9. A (191,11)-arc (Barlotti's construction)

The points in the arc are

(0, 1, 0), (1, 0, 0), (1, 1, 1), (1, 1, 3), (1, 1, 6), (1, 1, 7), (1, 1, 8), (1, 1, 11), (1, 1, 12), (1, 1, 13), (1, 1, 16), (1, 1, 18), (1, 2, 0), (1, 2, 1), (1, 2, 4), (1, 2, 5), (1, 2, 6), (1, 2, 7), (1, 2, 12), (1, 2, 13), (1, 2, 14), (1, 2, 15),

(1, 2, 18), (1, 3, 0), (1, 3, 3), (1, 3, 4), (1, 3, 7), (1, 3, 8), (1, 3, 9), (1, 3, 10), (1, 3, 11), (1, 3, 12), (1, 3, 15),
(1, 3, 16), (1, 4, 2), (1, 4, 3), (1, 4, 5), (1, 4, 6), (1, 4, 7), (1, 4, 12), (1, 4, 13), (1, 4, 14), (1, 4, 16), (1, 4, 17),
(1, 5, 3), (1, 5, 4), (1, 5, 6), (1, 5, 8), (1, 5, 9), (1, 5, 10), (1, 5, 11), (1, 5, 13), (1, 5, 15), (1, 5, 16), (1, 6, 2),
(1, 6, 3), (1, 6, 4), (1, 6, 5), (1, 6, 8), (1, 6, 11), (1, 6, 14), (1, 6, 15), (1, 6, 16), (1, 6, 17), (1, 7, 1), (1, 7, 5),
(1, 7, 7), (1, 7, 8), (1, 7, 9), (1, 7, 10), (1, 7, 11), (1, 7, 12), (1, 7, 14), (1, 7, 18), (1, 8, 0), (1, 8, 2), (1, 8, 5),
(1, 8, 7), (1, 8, 8), (1, 8, 9), (1, 8, 10), (1, 8, 11), (1, 8, 12), (1, 8, 14), (1, 8, 17), (1, 9, 1), (1, 9, 2), (1, 9, 3),
(1, 9, 5), (1, 9, 9), (1, 9, 10), (1, 9, 14), (1, 9, 16), (1, 9, 17), (1, 9, 18), (1, 10, 0), (1, 10, 2), (1, 10, 3),
(1, 10, 6), (1, 10, 7), (1, 10, 9), (1, 10, 10), (1, 10, 12), (1, 10, 13), (1, 10, 16), (1, 10, 17), (1, 11, 1), (1, 11, 2),
(1, 11, 4), (1, 11, 7), (1, 11, 8), (1, 11, 11), (1, 11, 12), (1, 11, 15), (1, 11, 17), (1, 11, 18), (1, 12, 0), (1, 12, 1),
(1, 12, 3), (1, 12, 5), (1, 12, 6), (1, 12, 8), (1, 12, 11), (1, 12, 13), (1, 12, 14), (1, 12, 16), (1, 12, 18), (1, 13, 0),
(1, 13, 1), (1, 13, 3), (1, 13, 4), (1, 13, 5), (1, 13, 9), (1, 13, 10), (1, 13, 14), (1, 13, 15), (1, 13, 16), (1, 13, 18),
(1, 14, 0), (1, 14, 1), (1, 14, 2), (1, 14, 6), (1, 14, 8), (1, 14, 9), (1, 14, 10), (1, 14, 11), (1, 14, 13), (1, 14, 17),
(1, 14, 18), (1, 15, 0), (1, 15, 2), (1, 15, 4), (1, 15, 5), (1, 15, 6), (1, 15, 8), (1, 15, 11), (1, 15, 13), (1, 15, 14),
(1, 15, 15), (1, 15, 17), (1, 16, 4), (1, 16, 5), (1, 16, 6), (1, 16, 7), (1, 16, 9), (1, 16, 10), (1, 16, 12), (1, 16, 13),
(1, 16, 14), (1, 16, 15), (1, 17, 1), (1, 17, 2), (1, 17, 4), (1, 17, 6), (1, 17, 9), (1, 17, 10), (1, 17, 13), (1, 17, 15),
(1, 17, 17), (1, 17, 18), (1, 18, 0), (1, 18, 1), (1, 18, 2), (1, 18, 3), (1, 18, 4), (1, 18, 7), (1, 18, 12), (1, 18, 15),
(1, 18, 16), (1, 18, 17), (1, 18, 18)

The secant distribution of the arc is $\tau = (0, 20, 0, 0, 0, 0, 0, 0, 0, 0, 0, 171, 190, 0, 0, 0, 0, 0, 0, 0, 0)$

10. A (204,12)-arc [2]

The points in the arc are

(0, 1, 1), (0, 1, 18), (1, 1, 0), (1, 18, 0), (1, 0, 1), (1, 0, 18), (0, 1, 16), (0, 1, 3), (1, 16, 0), (1, 3, 0), (1, 0, 6),
(1, 0, 13), (0, 1, 14), (0, 1, 5), (1, 14, 0), (1, 5, 0), (1, 0, 15), (1, 0, 4), (0, 1, 13), (0, 1, 6), (1, 13, 0), (1, 6, 0),
(1, 0, 3), (1, 0, 16), (0, 1, 11), (0, 1, 8), (1, 11, 0), (1, 8, 0), (1, 0, 7), (1, 0, 12), (0, 1, 10), (0, 1, 9), (1, 10, 0),
(1, 9, 0), (1, 0, 2), (1, 0, 17), (1, 1, 1), (1, 18, 18), (1, 18, 1), (1, 1, 18), (1, 1, 14), (1, 18, 5), (1, 18, 14),
(1, 14, 1), (1, 1, 5), (1, 14, 18), (1, 5, 18), (1, 5, 1), (1, 15, 15), (1, 4, 15), (1, 15, 4), (1, 4, 4), (1, 1, 13),
(1, 18, 6), (1, 18, 13), (1, 13, 1), (1, 1, 6), (1, 13, 18), (1, 6, 18), (1, 6, 1), (1, 3, 3), (1, 16, 3), (1, 3, 16),
(1, 16, 16), (1, 1, 11), (1, 18, 8), (1, 18, 11), (1, 11, 1), (1, 1, 8), (1, 11, 18), (1, 8, 18), (1, 8, 1), (1, 7, 7),
(1, 12, 7), (1, 7, 12), (1, 12, 12), (1, 1, 10), (1, 18, 9), (1, 18, 10), (1, 10, 1), (1, 1, 9), (1, 10, 18), (1, 9, 18),
(1, 9, 1), (1, 2, 2), (1, 17, 2), (1, 2, 17), (1, 17, 17), (1, 16, 10), (1, 3, 9), (1, 3, 10), (1, 3, 6), (1, 16, 9),
(1, 3, 13), (1, 16, 13), (1, 16, 6), (1, 2, 13), (1, 17, 13), (1, 2, 6), (1, 17, 6), (1, 11, 16), (1, 8, 3), (1, 8, 16),
(1, 17, 7), (1, 11, 3), (1, 17, 12), (1, 2, 12), (1, 2, 7), (1, 6, 9), (1, 13, 9), (1, 6, 10), (1, 13, 10), (1, 12, 14),
(1, 7, 5), (1, 7, 14), (1, 17, 8), (1, 12, 5), (1, 17, 11), (1, 2, 11), (1, 2, 8), (1, 15, 9), (1, 4, 9), (1, 15, 10),
(1, 4, 10), (1, 10, 11), (1, 9, 8), (1, 9, 11), (1, 3, 2), (1, 10, 8), (1, 3, 17), (1, 16, 17), (1, 16, 2), (1, 7, 13),
(1, 12, 13), (1, 7, 6), (1, 12, 6), (1, 11, 13), (1, 8, 6), (1, 8, 13), (1, 15, 7), (1, 11, 6), (1, 15, 12), (1, 4, 12),
(1, 4, 7), (1, 3, 14), (1, 16, 14), (1, 3, 5), (1, 16, 5), (1, 10, 14), (1, 9, 5), (1, 9, 14), (1, 9, 2), (1, 10, 5),
(1, 9, 17), (1, 10, 17), (1, 10, 2), (1, 15, 17), (1, 4, 17), (1, 15, 2), (1, 4, 2), (1, 10, 12), (1, 9, 7), (1, 9, 12),
(1, 5, 2), (1, 10, 7), (1, 5, 17), (1, 14, 17), (1, 14, 2), (1, 8, 4), (1, 11, 4), (1, 8, 15), (1, 11, 15), (1, 12, 15),
(1, 7, 4), (1, 7, 15), (1, 6, 8), (1, 12, 4), (1, 6, 11), (1, 13, 11), (1, 13, 8), (1, 14, 16), (1, 5, 16), (1, 14, 3),
(1, 5, 3), (1, 12, 16), (1, 7, 3), (1, 7, 16), (1, 14, 8), (1, 12, 3), (1, 14, 11), (1, 5, 11), (1, 5, 8), (1, 6, 15),
(1, 13, 15), (1, 6, 4), (1, 13, 4), (1, 12, 11), (1, 7, 8), (1, 7, 11), (1, 12, 8), (1, 11, 12), (1, 8, 7), (1, 8, 12),
(1, 11, 7)

The secant distribution of the arc is $\tau = (12, 0, 0, 0, 0, 0, 0, 0, 20, 12, 24, 184, 129, 0, 0, 0, 0, 0, 0, 0, 0)$

The arc is found by prescribing the group generated by

$$\left\langle \left(\begin{pmatrix} 1 & 0 & 0 \\ 0 & 18 & 0 \\ 0 & 0 & 18 \end{pmatrix}, \begin{pmatrix} 18 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 18 \end{pmatrix}, \begin{pmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{pmatrix}, \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 18 \end{pmatrix} \right\rangle.$$

The order of the group is 24.

11. A (225,13)-arc [2]

The points in the arc are

(0, 0, 1), (1, 0, 0), (0, 1, 0), (0, 1, 1), (0, 1, 7), (1, 0, 1), (0, 1, 11), (1, 0, 7), (1, 0, 11), (1, 1, 0), (1, 11, 0), (1, 7, 0), (0, 1, 10), (0, 1, 13), (1, 0, 10), (1, 0, 2), (0, 1, 15), (1, 0, 13), (1, 0, 3), (1, 0, 15), (1, 2, 0), (0, 1, 2), (1, 10, 0), (1, 0, 14), (1, 3, 0), (0, 1, 3), (1, 13, 0), (1, 14, 0), (0, 1, 14), (1, 15, 0), (1, 1, 2), (1, 7, 3), (1, 10, 10), (1, 11, 14), (1, 13, 15), (1, 2, 1), (1, 15, 13), (1, 3, 7), (1, 14, 11), (1, 1, 3), (1, 7, 14), (1, 13, 13), (1, 11, 2), (1, 15, 10), (1, 3, 1), (1, 10, 15), (1, 14, 7), (1, 2, 11), (1, 1, 4), (1, 7, 6), (1, 5, 5), (1, 11, 9), (1, 16, 17), (1, 4, 1), (1, 17, 16), (1, 6, 7), (1, 9, 11), (1, 1, 5), (1, 7, 17), (1, 4, 4), (1, 11, 16), (1, 9, 6), (1, 5, 1), (1, 6, 9), (1, 17, 7), (1, 16, 11), (1, 1, 7), (1, 7, 1), (1, 11, 11), (1, 1, 9), (1, 7, 4), (1, 17, 17), (1, 11, 6), (1, 5, 16), (1, 9, 1), (1, 16, 5), (1, 4, 7), (1, 6, 11), (1, 1, 10), (1, 7, 15), (1, 2, 2), (1, 11, 13), (1, 14, 3), (1, 10, 1), (1, 3, 14), (1, 15, 7), (1, 13, 11), (1, 1, 11), (1, 7, 7), (1, 11, 1), (1, 1, 14), (1, 7, 2), (1, 15, 15), (1, 11, 3), (1, 10, 13), (1, 14, 1), (1, 13, 10), (1, 2, 7), (1, 3, 11), (1, 1, 16), (1, 7, 5), (1, 6, 6), (1, 11, 17), (1, 4, 9), (1, 16, 1), (1, 9, 4), (1, 5, 7), (1, 17, 11), (1, 1, 18), (1, 7, 8), (1, 18, 18), (1, 11, 12), (1, 12, 8), (1, 18, 1), (1, 8, 12), (1, 8, 7), (1, 12, 11), (1, 10, 12), (1, 13, 18), (1, 2, 5), (1, 8, 4), (1, 15, 8), (1, 3, 16), (1, 18, 6), (1, 14, 17), (1, 4, 8), (1, 12, 10), (1, 5, 2), (1, 12, 9), (1, 6, 18), (1, 18, 13), (1, 16, 3), (1, 9, 12), (1, 8, 15), (1, 17, 14), (1, 10, 17), (1, 13, 16), (1, 2, 15), (1, 9, 14), (1, 15, 5), (1, 3, 10), (1, 6, 2), (1, 14, 13), (1, 14, 9), (1, 17, 10), (1, 15, 2), (1, 4, 3), (1, 2, 6), (1, 16, 13), (1, 10, 3), (1, 3, 4), (1, 5, 15), (1, 13, 14), (1, 10, 4), (1, 13, 6), (1, 2, 8), (1, 5, 12), (1, 15, 9), (1, 3, 18), (1, 16, 18), (1, 14, 12), (1, 12, 5), (1, 4, 10), (1, 8, 2), (1, 17, 8), (1, 18, 16), (1, 6, 13), (1, 18, 3), (1, 8, 17), (1, 9, 15), (1, 12, 14), (1, 10, 14), (1, 13, 2), (1, 2, 9), (1, 15, 17), (1, 15, 3), (1, 3, 6), (1, 10, 16), (1, 14, 4), (1, 17, 15), (1, 14, 10), (1, 9, 2), (1, 13, 5), (1, 16, 10), (1, 2, 13), (1, 6, 3), (1, 5, 13), (1, 3, 15), (1, 4, 14), (1, 10, 8), (1, 13, 12), (1, 2, 16), (1, 12, 6), (1, 15, 18), (1, 3, 17), (1, 8, 9), (1, 14, 5), (1, 6, 12), (1, 8, 10), (1, 16, 2), (1, 18, 4), (1, 9, 8), (1, 12, 13), (1, 17, 3), (1, 4, 18), (1, 18, 15), (1, 5, 14), (1, 16, 4), (1, 17, 6), (1, 6, 5), (1, 5, 4), (1, 5, 9), (1, 9, 16), (1, 16, 6), (1, 4, 17), (1, 4, 5), (1, 4, 16), (1, 5, 6), (1, 17, 9), (1, 6, 16), (1, 6, 17), (1, 16, 9), (1, 9, 17), (1, 9, 5), (1, 17, 4)

The secant distribution of the arc is $\tau = (9, 0, 0, 0, 0, 0, 0, 0, 0, 0, 9, 27, 81, 57, 198, 0, 0, 0, 0, 0, 0, 0)$

The arc is found by prescribing the group generated by

$$\left\langle \left(\begin{pmatrix} 7 & 0 & 0 \\ 0 & 11 & 0 \\ 0 & 0 & 1 \end{pmatrix}, \begin{pmatrix} 1 & 0 & 0 \\ 0 & 7 & 0 \\ 0 & 0 & 11 \end{pmatrix}, \begin{pmatrix} 18 & 0 & 0 \\ 0 & 18 & 0 \\ 0 & 0 & 18 \end{pmatrix}, \begin{pmatrix} 17 & 0 & 0 \\ 0 & 5 & 0 \\ 0 & 0 & 16 \end{pmatrix}, \begin{pmatrix} 0 & 18 & 0 \\ 18 & 0 & 0 \\ 0 & 0 & 18 \end{pmatrix}, \begin{pmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix} \right\rangle.$$

The order of the group is 324.

12. A (243,14)-arc (Daskalov)

The complement of the (138, 6)-blocking set

(0, 1, 0), (0, 1, 3), (0, 1, 7), (0, 1, 8), (0, 1, 11), (0, 1, 12), (0, 1, 16), (1, 0, 0), (1, 0, 3), (1, 0, 7), (1, 0, 8), (1, 0, 11), (1, 0, 12), (1, 0, 16), (1, 1, 0), (1, 1, 1), (1, 1, 4), (1, 1, 6), (1, 1, 13), (1, 1, 15), (1, 1, 18), (1, 2, 3), (1, 2, 4), (1, 2, 9), (1, 2, 10), (1, 2, 15), (1, 2, 16), (1, 3, 2), (1, 3, 6), (1, 3, 7), (1, 3, 12), (1, 3, 13), (1, 3, 17), (1, 4, 1), (1, 4, 4), (1, 4, 6), (1, 4, 9), (1, 4, 10), (1, 4, 13), (1, 4, 15), (1, 4, 18), (1, 5, 1), (1, 5, 5), (1, 5, 7), (1, 5, 9), (1, 5, 10), (1, 5, 12), (1, 5, 14), (1, 5, 18), (1, 6, 2), (1, 6, 3), (1, 6, 4), (1, 6, 15), (1, 6, 16), (1, 6, 17), (1, 7, 1), (1, 7, 5), (1, 7, 6), (1, 7, 8), (1, 7, 11), (1, 7, 13), (1, 7, 14), (1, 7, 18), (1, 8, 0), (1, 8, 2), (1, 8, 5), (1, 8, 8), (1, 8, 11), (1, 8, 14), (1, 8, 17), (1, 9, 3), (1, 9, 5), (1, 9, 8), (1, 9, 11), (1, 9, 14), (1, 9, 16), (1, 10, 3), (1, 10, 5), (1, 10, 8), (1, 10, 11), (1, 10, 14), (1, 10, 16), (1, 11, 0), (1, 11, 2), (1, 11, 5), (1, 11, 8), (1, 11, 11),

(1, 11, 14), (1, 11, 17), (1, 12, 1), (1, 12, 5), (1, 12, 6), (1, 12, 8), (1, 12, 11), (1, 12, 13), (1, 12, 14), (1, 12, 18), (1, 13, 2), (1, 13, 3), (1, 13, 4), (1, 13, 15), (1, 13, 16), (1, 13, 17), (1, 14, 1), (1, 14, 5), (1, 14, 7), (1, 14, 9), (1, 14, 10), (1, 14, 12), (1, 14, 14), (1, 14, 18), (1, 15, 1), (1, 15, 4), (1, 15, 6), (1, 15, 9), (1, 15, 10), (1, 15, 13), (1, 15, 15), (1, 15, 18), (1, 16, 2), (1, 16, 6), (1, 16, 7), (1, 16, 12), (1, 16, 13), (1, 16, 17), (1, 17, 3), (1, 17, 4), (1, 17, 9), (1, 17, 10), (1, 17, 15), (1, 17, 16), (1, 18, 0), (1, 18, 1), (1, 18, 4), (1, 18, 6), (1, 18, 13), (1, 18, 15), (1, 18, 18)

The secant distribution of the blocking set is $\tau = (0, 0, 0, 0, 0, 0, 137, 144, 64, 22, 6, 0, 0, 0, 0, 0, 0, 0, 0, 0, 8)$

13. A (265,15)-arc (Daskalov)

The complement of the (116, 5)-blocking set

(0, 1, 2), (0, 1, 3), (0, 1, 9), (0, 1, 11), (0, 1, 13), (0, 1, 16), (0, 1, 18), (1, 0, 2), (1, 0, 3), (1, 0, 4), (1, 0, 7), (1, 0, 13), (1, 0, 16), (1, 1, 3), (1, 1, 10), (1, 1, 11), (1, 1, 14), (1, 1, 15), (1, 1, 16), (1, 1, 18), (1, 2, 2), (1, 2, 4), (1, 2, 6), (1, 2, 15), (1, 2, 17), (1, 3, 0), (1, 3, 1), (1, 3, 10), (1, 3, 12), (1, 3, 15), (1, 3, 17), (1, 4, 0), (1, 4, 2), (1, 4, 5), (1, 4, 9), (1, 4, 11), (1, 5, 1), (1, 5, 4), (1, 5, 5), (1, 5, 6), (1, 5, 9), (1, 5, 14), (1, 5, 18), (1, 6, 3), (1, 6, 4), (1, 6, 6), (1, 6, 12), (1, 6, 17), (1, 6, 18), (1, 7, 0), (1, 7, 3), (1, 7, 4), (1, 7, 8), (1, 7, 12), (1, 7, 13), (1, 7, 16), (1, 8, 3), (1, 8, 6), (1, 8, 7), (1, 8, 10), (1, 8, 15), (1, 8, 16), (1, 9, 0), (1, 9, 7), (1, 9, 12), (1, 9, 13), (1, 9, 14), (1, 10, 2), (1, 10, 10), (1, 10, 13), (1, 10, 14), (1, 10, 18), (1, 11, 1), (1, 11, 7), (1, 11, 10), (1, 11, 11), (1, 11, 12), (1, 11, 16), (1, 12, 1), (1, 12, 2), (1, 12, 4), (1, 12, 11), (1, 12, 18), (1, 13, 0), (1, 13, 1), (1, 13, 10), (1, 13, 13), (1, 13, 14), (1, 14, 0), (1, 14, 3), (1, 14, 5), (1, 14, 8), (1, 14, 9), (1, 14, 17), (1, 15, 2), (1, 15, 5), (1, 15, 8), (1, 15, 9), (1, 15, 14), (1, 15, 16), (1, 15, 18), (1, 16, 7), (1, 16, 8), (1, 16, 11), (1, 16, 15), (1, 16, 18), (1, 17, 0)

The secant distribution of the blocking set is $\tau = (0, 0, 0, 0, 0, 168, 117, 69, 16, 3, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 6)$

14. A (286,16)-arc (Daskalov)

The complement of the (95, 4)-blocking set

(0, 0, 1), (0, 1, 0), (0, 1, 1), (0, 1, 2), (0, 1, 3), (0, 1, 4), (0, 1, 5), (0, 1, 6), (0, 1, 7), (0, 1, 8), (0, 1, 9), (0, 1, 10), (0, 1, 11), (0, 1, 12), (0, 1, 13), (0, 1, 14), (0, 1, 15), (0, 1, 16), (0, 1, 17), (0, 1, 18), (1, 0, 3), (1, 0, 7), (1, 0, 12), (1, 0, 16), (1, 1, 4), (1, 1, 6), (1, 1, 12), (1, 1, 17), (1, 2, 3), (1, 2, 8), (1, 2, 9), (1, 2, 11), (1, 2, 12), (1, 3, 1), (1, 3, 12), (1, 3, 18), (1, 4, 6), (1, 4, 9), (1, 4, 12), (1, 4, 15), (1, 5, 0), (1, 5, 5), (1, 5, 12), (1, 5, 13), (1, 5, 18), (1, 6, 1), (1, 6, 2), (1, 6, 10), (1, 7, 1), (1, 7, 5), (1, 7, 8), (1, 7, 12), (1, 8, 8), (1, 8, 11), (1, 8, 12), (1, 8, 15), (1, 9, 2), (1, 9, 3), (1, 9, 11), (1, 9, 12), (1, 10, 10), (1, 10, 12), (1, 10, 14), (1, 11, 3), (1, 11, 12), (1, 11, 17), (1, 12, 1), (1, 12, 5), (1, 12, 12), (1, 12, 13), (1, 12, 18), (1, 13, 4), (1, 13, 12), (1, 13, 17), (1, 14, 0), (1, 14, 7), (1, 14, 12), (1, 14, 14), (1, 15, 5), (1, 15, 7), (1, 15, 10), (1, 15, 12), (1, 16, 4), (1, 16, 12), (1, 16, 13), (1, 16, 14), (1, 16, 15), (1, 17, 2), (1, 17, 6), (1, 17, 12), (1, 17, 16), (1, 18, 0), (1, 18, 9), (1, 18, 12), (1, 18, 16)

The secant distribution of the blocking set is $\tau = (0, 0, 0, 0, 159, 147, 60, 10, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 4)$

15. A (305,17)-arc (Daskalov)

The complement of the (76, 3)-blocking set

(0, 1, 8), (0, 1, 11), (1, 0, 12), (1, 1, 4), (1, 2, 9), (1, 2, 15), (1, 3, 7), (1, 4, 6), (1, 4, 18), (1, 5, 10), (1, 5, 14), (1, 6, 2), (1, 6, 3), (1, 7, 11), (1, 7, 13), (1, 8, 0), (1, 8, 5), (1, 9, 8), (1, 9, 16), (1, 10, 8), (1, 10, 16), (1, 11, 0), (1, 11, 5), (1, 11, 14), (1, 12, 11), (1, 12, 13), (1, 13, 2), (1, 13, 3), (1, 13, 17), (1, 14, 9), (1, 14, 10), (1, 14, 14), (1, 15, 1), (1, 15, 6), (1, 15, 18), (1, 16, 7), (1, 16, 12), (1, 16, 17), (1, 17, 4), (1, 17, 9), (1, 17, 15), (1, 18, 1), (1, 18, 4), (1, 18, 15), (1, 1, 1), (1, 3, 17), (1, 0, 7), (1, 9, 11), (1, 2, 10), (1, 5, 5), (1, 7, 8), (1, 12, 6),

(1, 10, 3), (1, 18, 7), (1, 6, 16), (1, 18, 6), (1, 3, 2), (1, 4, 13), (1, 18, 17), (1, 1, 18), (1, 18, 16), (0, 0, 1),
 (1, 18, 14), (1, 3, 10), (1, 18, 13), (1, 2, 0), (1, 18, 8), (1, 3, 18), (1, 18, 3), (1, 1, 12), (1, 18, 11), (1, 5, 8),
 (1, 12, 1), (1, 18, 2), (1, 16, 16), (1, 2, 6)

The secant distribution of the blocking set is $\tau = (0, 0, 0, 153, 149, 62, 12, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 3)$

16. A (324,18)-arc (Daskalov)

The complement of the (57, 2)-blocking set

(0, 1, 5), (0, 1, 8), (0, 1, 11), (1, 0, 7), (1, 0, 12), (1, 1, 1), (1, 1, 4), (1, 2, 9), (1, 2, 10), (1, 2, 15), (1, 3, 7),
 (1, 3, 17), (1, 4, 6), (1, 4, 18), (1, 5, 5), (1, 5, 10), (1, 5, 14), (1, 6, 2), (1, 6, 3), (1, 6, 16), (1, 7, 8), (1, 7, 11),
 (1, 7, 13), (1, 8, 0), (1, 8, 5), (1, 9, 8), (1, 9, 11), (1, 9, 16), (1, 10, 8), (1, 10, 16), (1, 11, 0), (1, 115),
 (1, 11, 14), (1, 12, 8), (1, 12, 11), (1, 12, 13), (1, 13, 2), (1, 13, 3), (1, 13, 17), (1, 14, 9), (1, 14, 10), (1, 14, 14),
 (1, 15, 1), (1, 15, 6), (1, 15, 18), (1, 16, 3), (1, 16, 7), (1, 16, 12), (1, 16, 17), (1, 17, 4), (1, 17, 9), (1, 17, 10),
 (1, 17, 13), (1, 17, 15), (1, 18, 1), (1, 18, 4)

The secant distribution of the blocking set is $\tau = (0, 0, 114, 209, 45, 10, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 2)$

References

[1] Ball S., Three-dimensional linear codes, Online table,
<http://mat-web.upc.edu/people/simeon.michael.ball/codebounds.html>.

[2] M. Braun, A. Kohnert, A. Wassermann, Construction of (n, r) -arcs in $PG(2, q)$, *Innov. Incid. Geometry*, **1**, 133–141, 2005.

[3] A. Barlotti, Some Topics in Finite Geometrical Structures, Institute of Statistics Mimeo Series, vol. 439, University of North Carolina, 1965, 439.