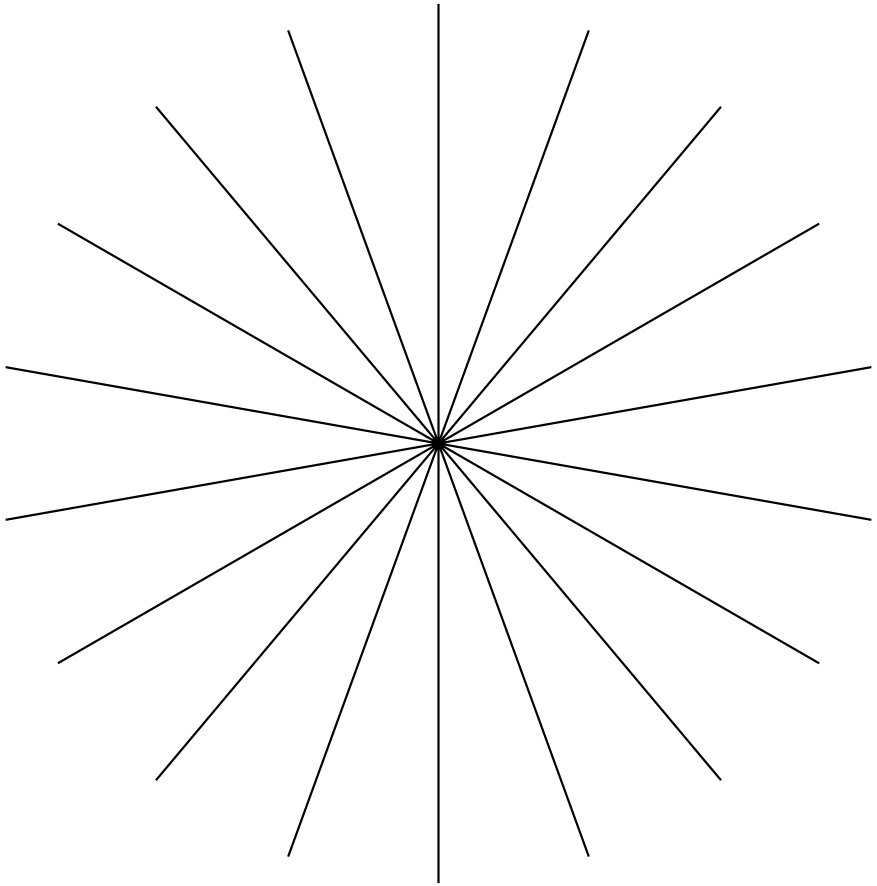
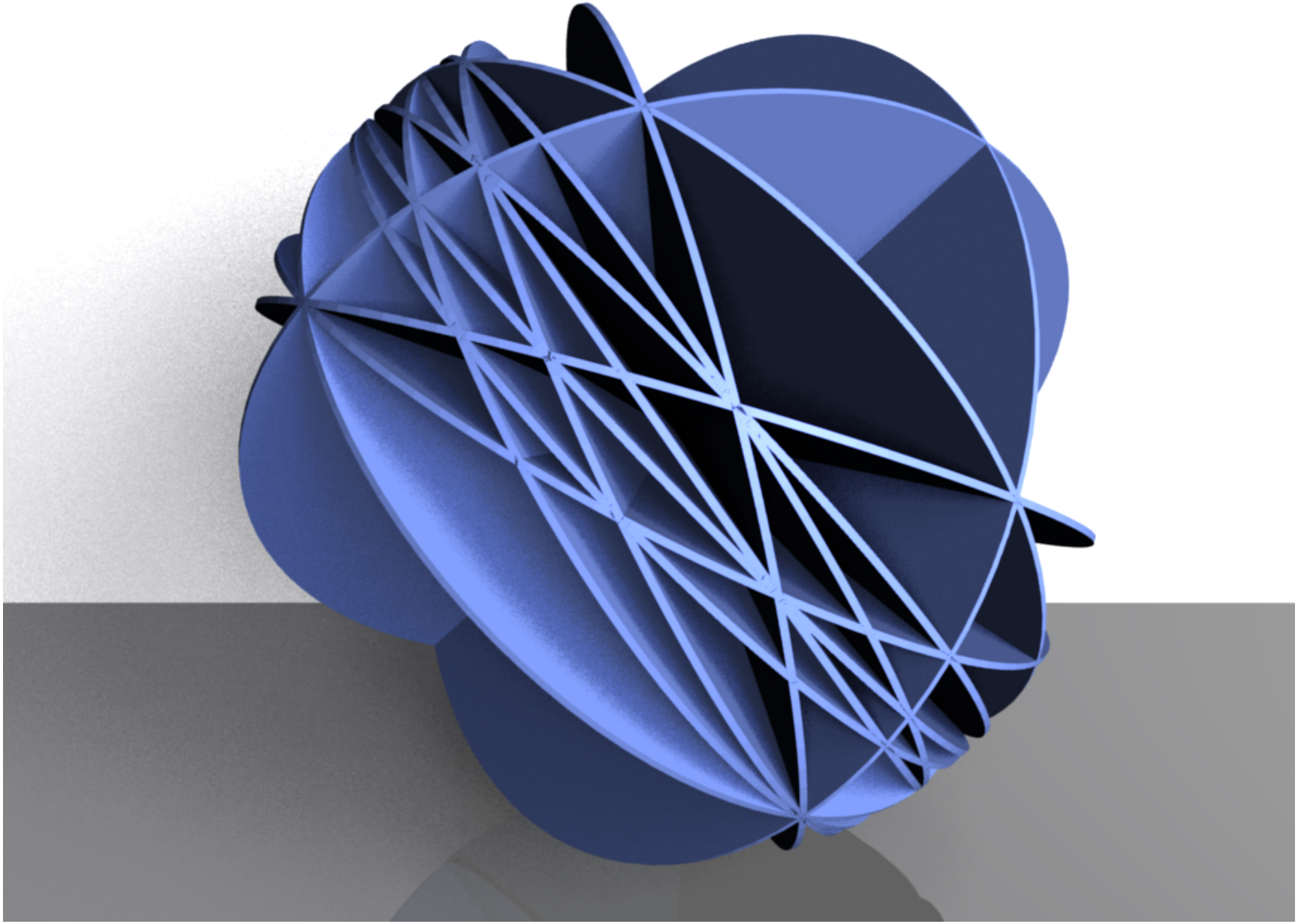
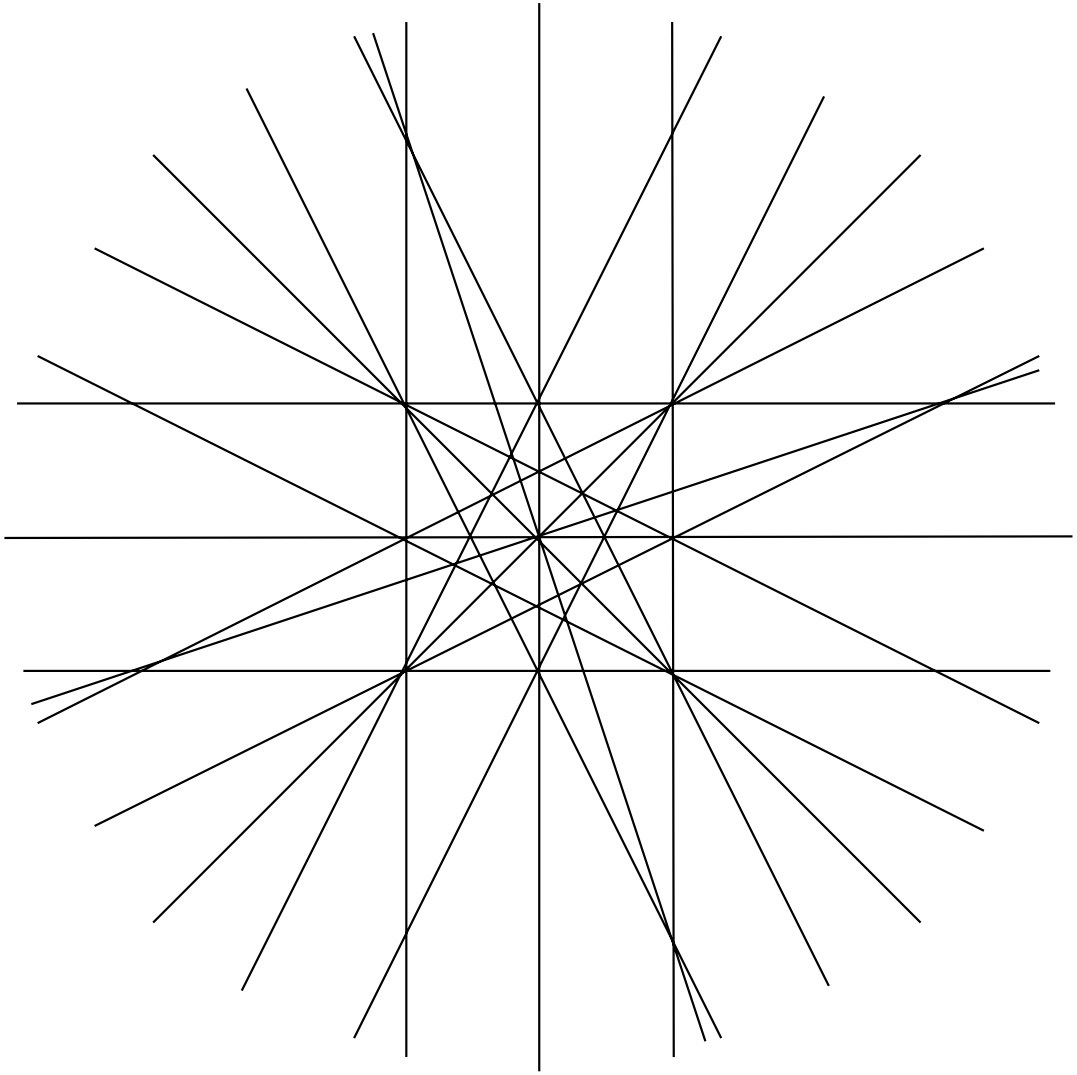
Simplicial arrangements with up to 27 lines

Simplicial arrangements

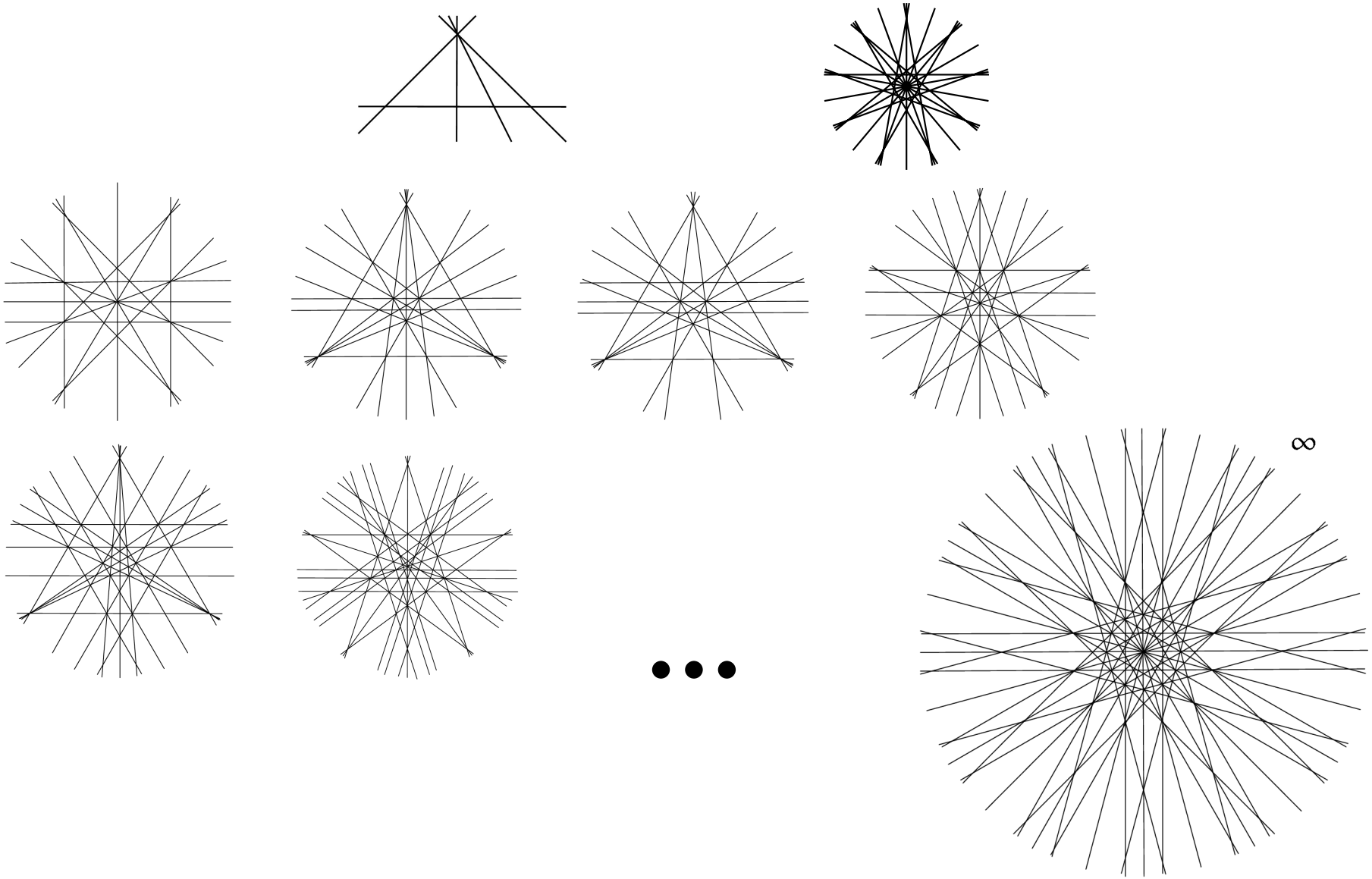




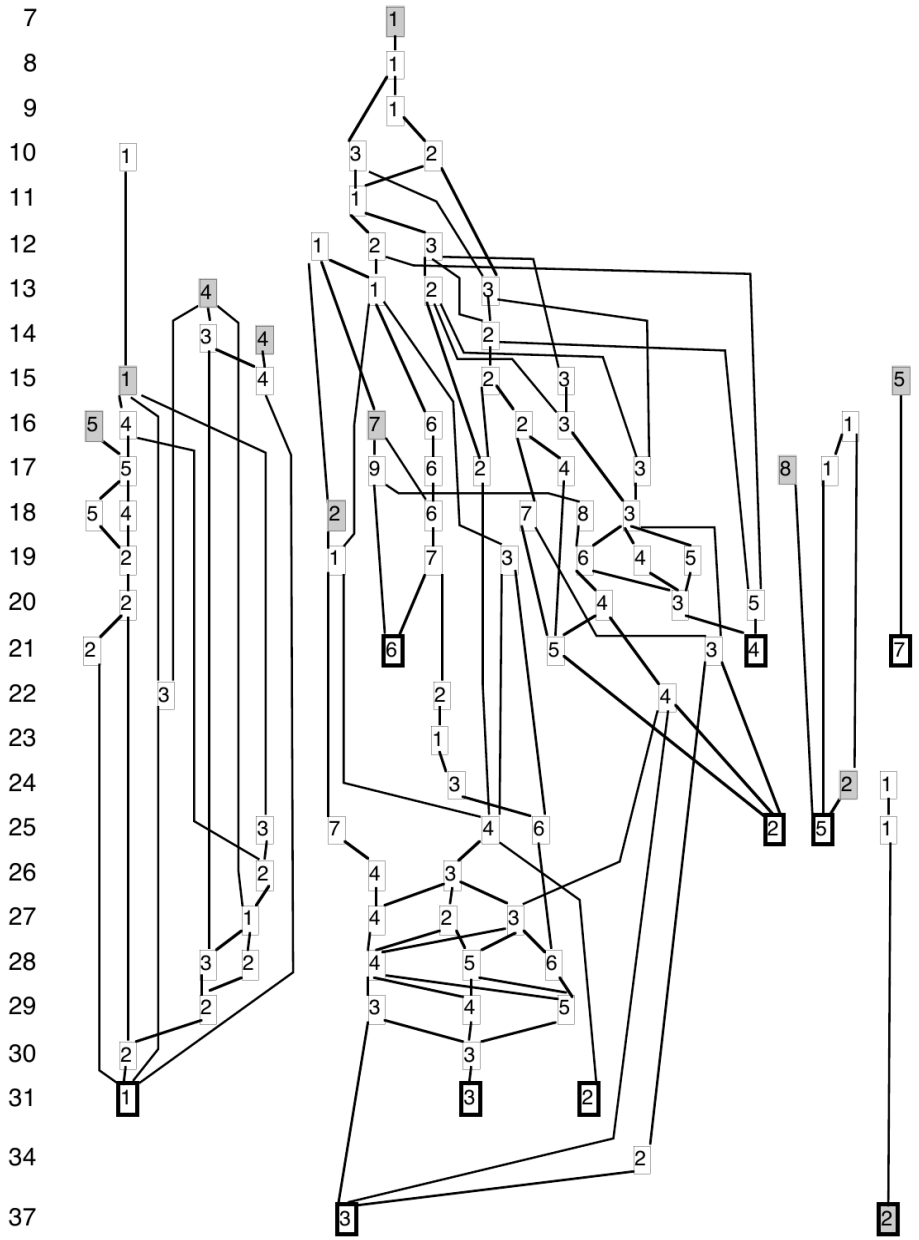


Source: Grünbaum, A catalogue of simplicial arrangements in the real projective plane.

Grünbaum's catalogue for the real projective plane

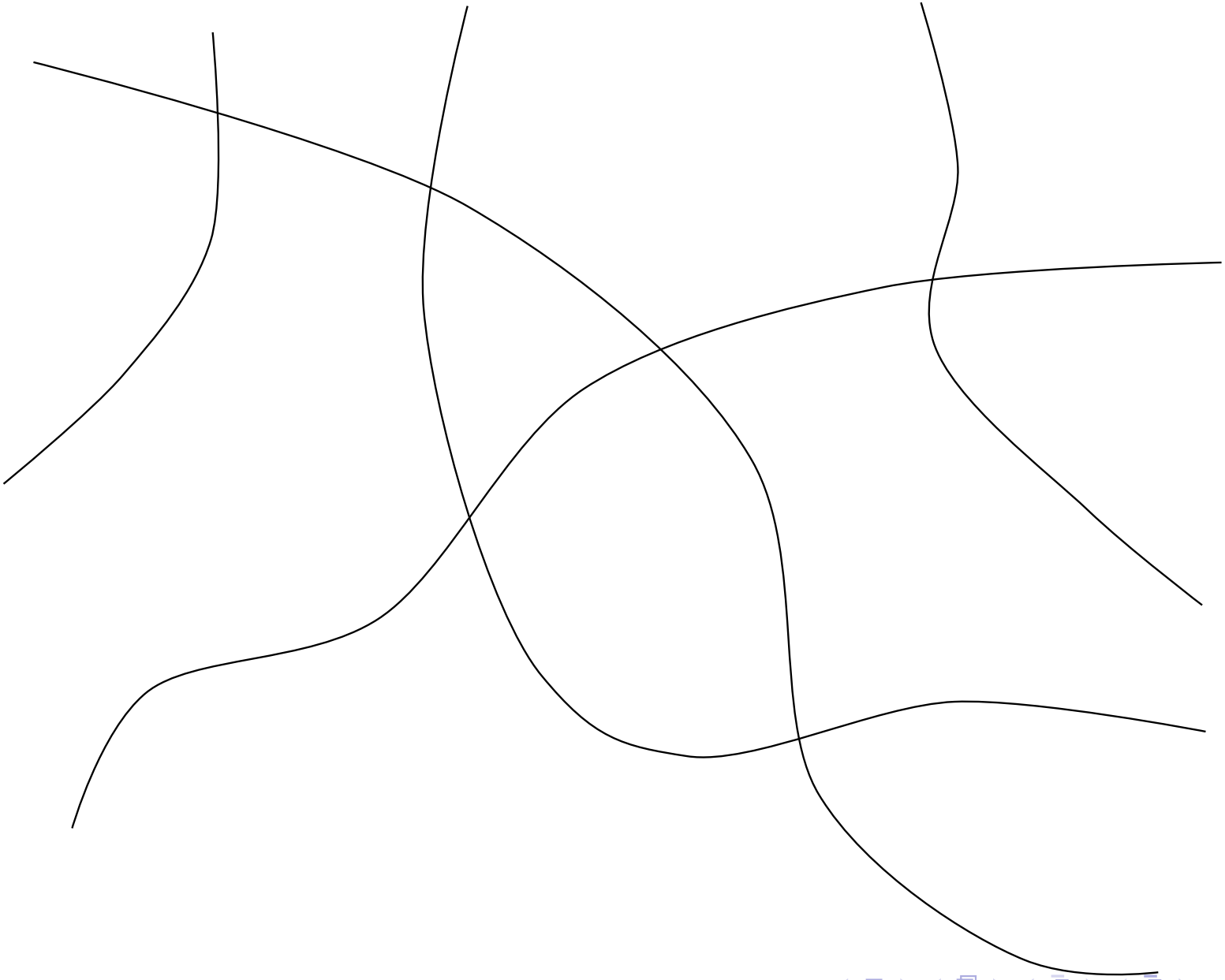


Source: Grünbaum, A catalogue of simplicial arrangements in the real projective plane.

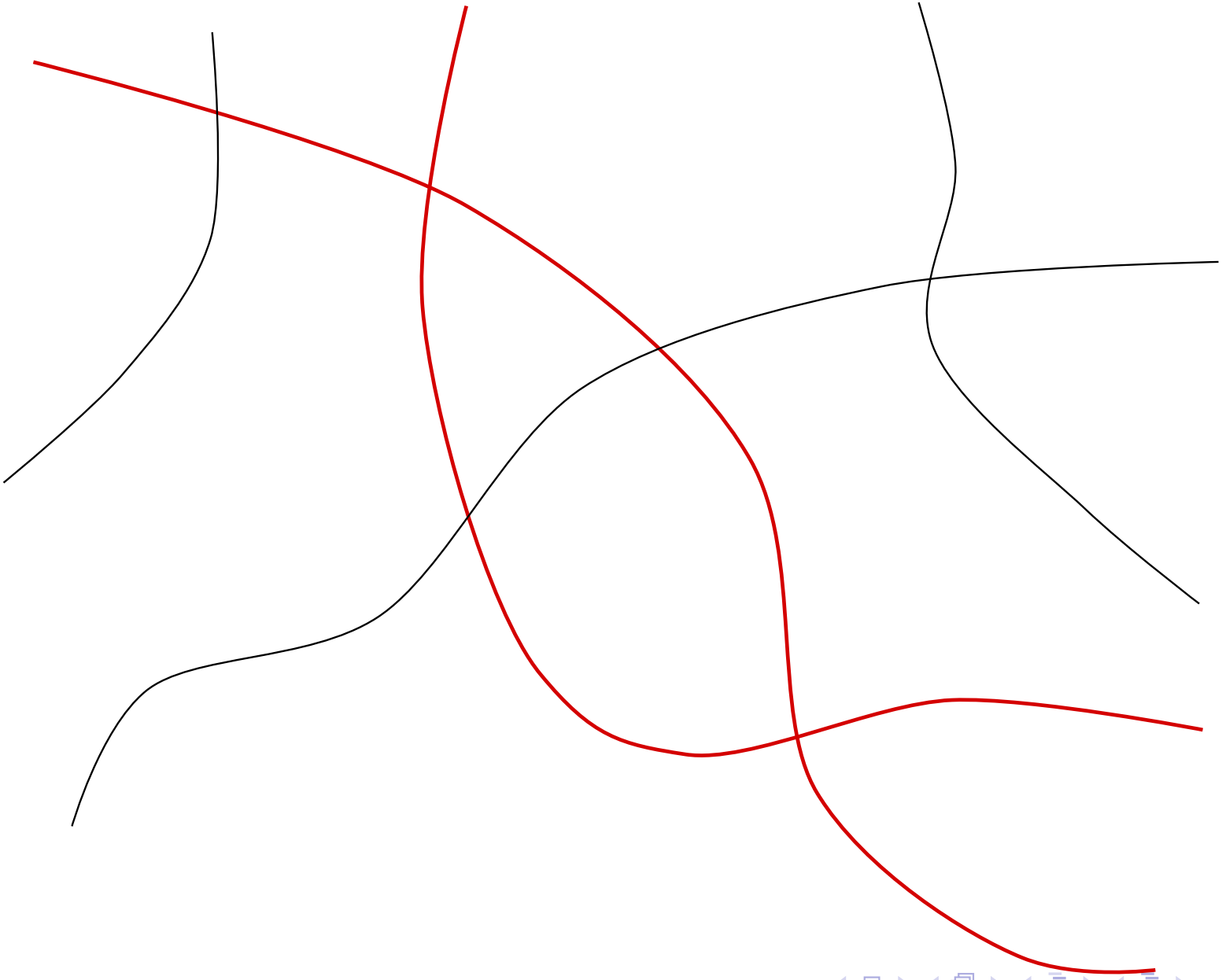


Source: Grünbaum, A catalogue of simplicial arrangements in the real projective plane.

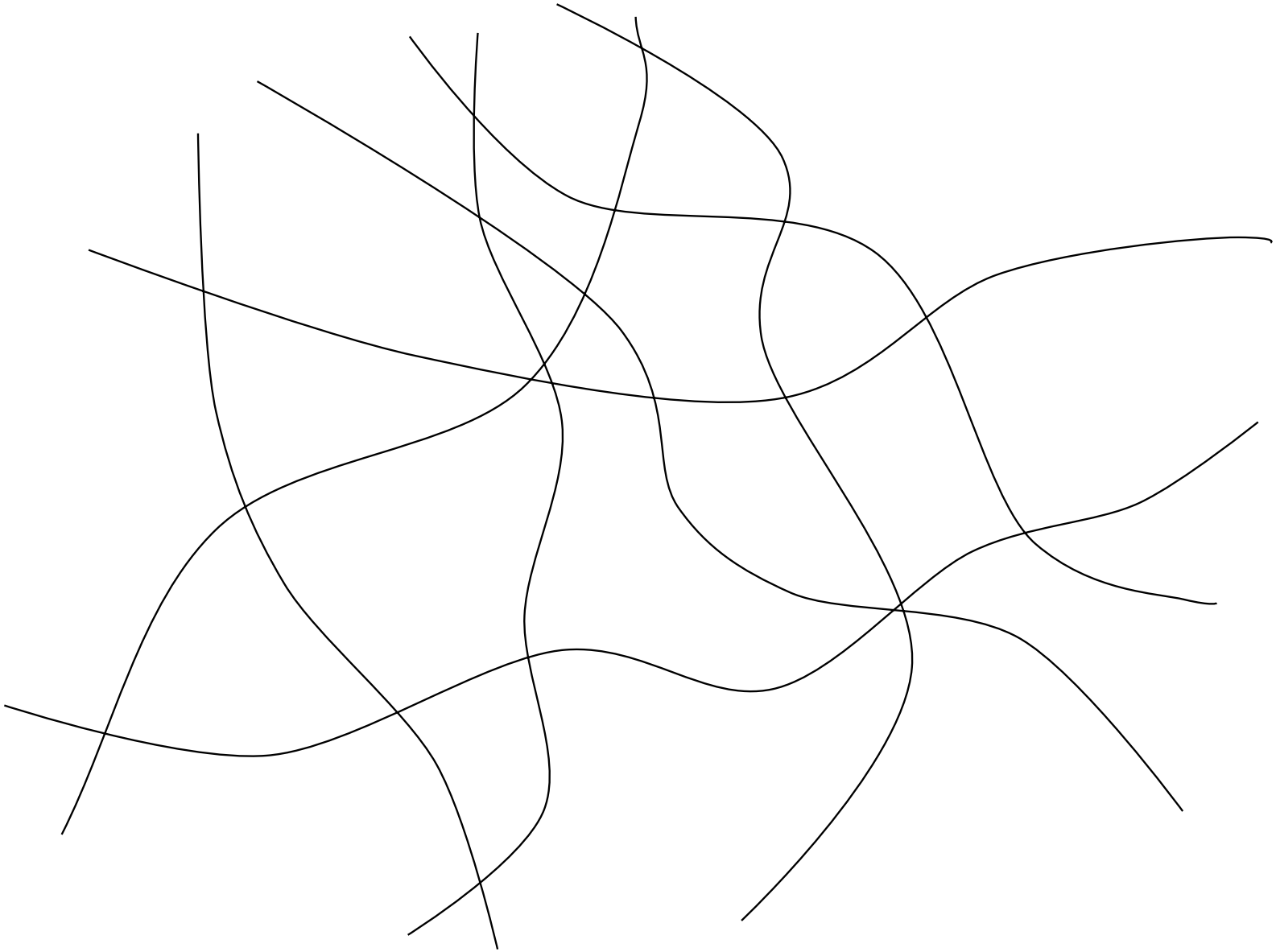
Pseudolines

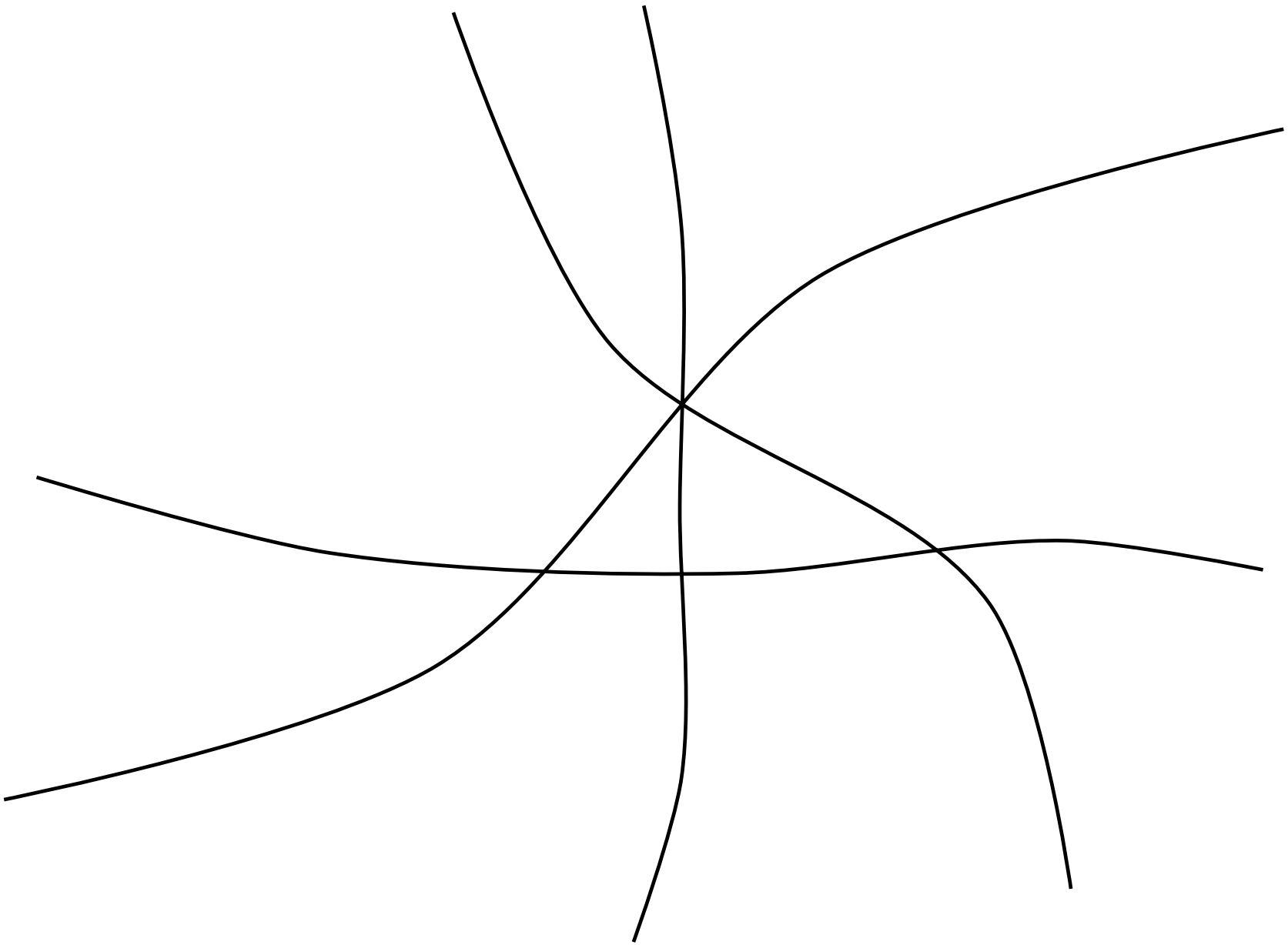


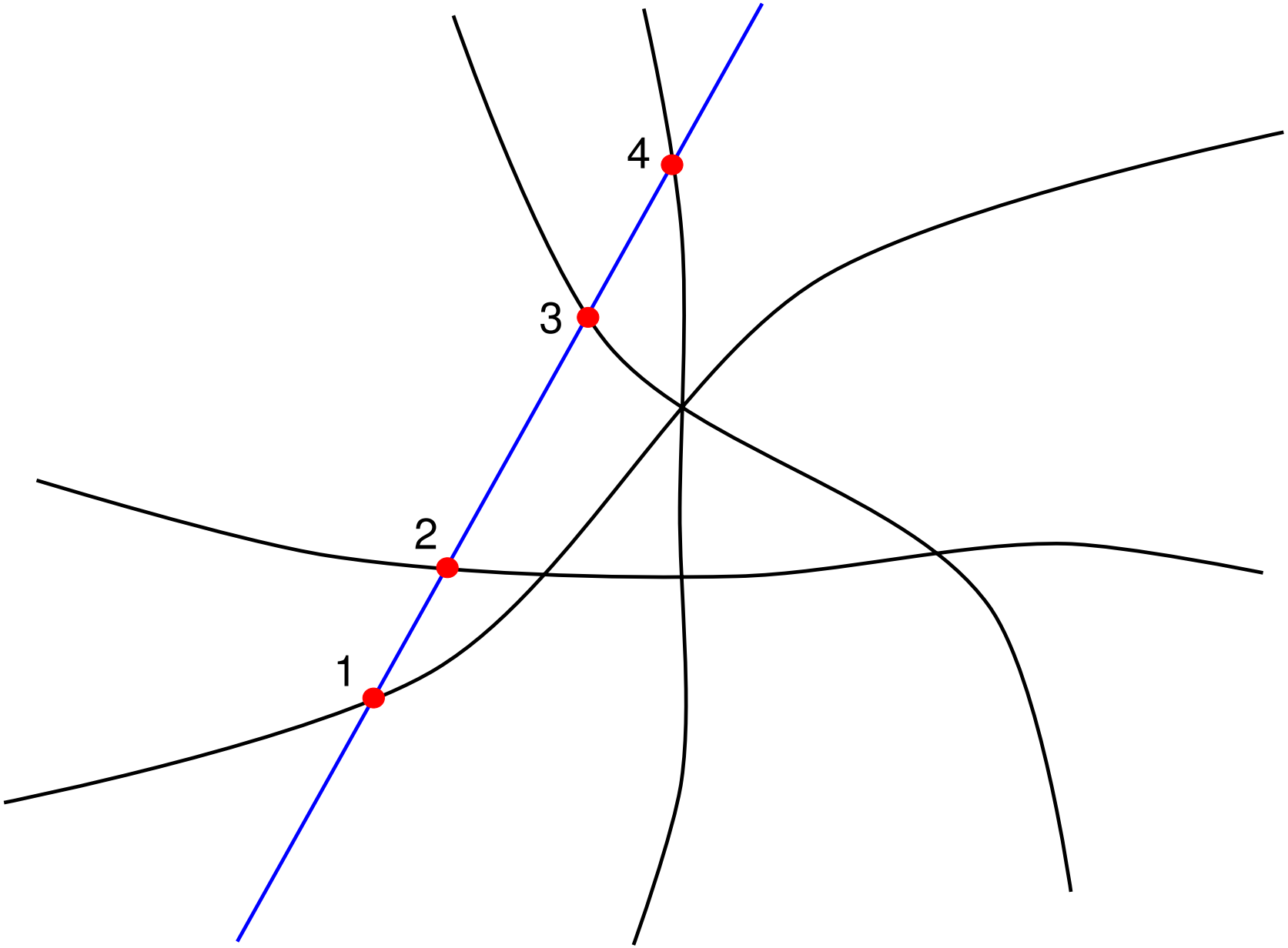
Pseudolines

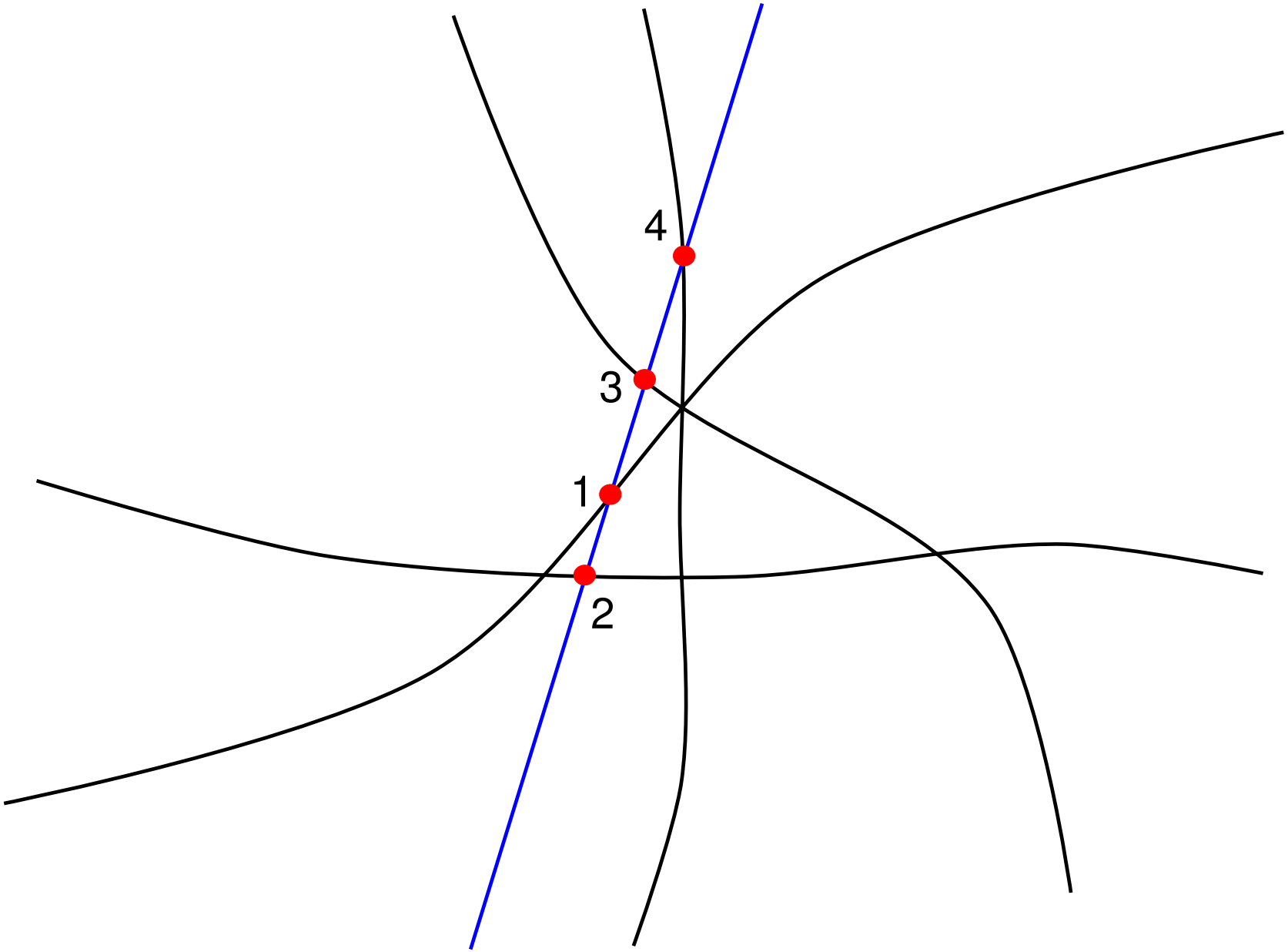


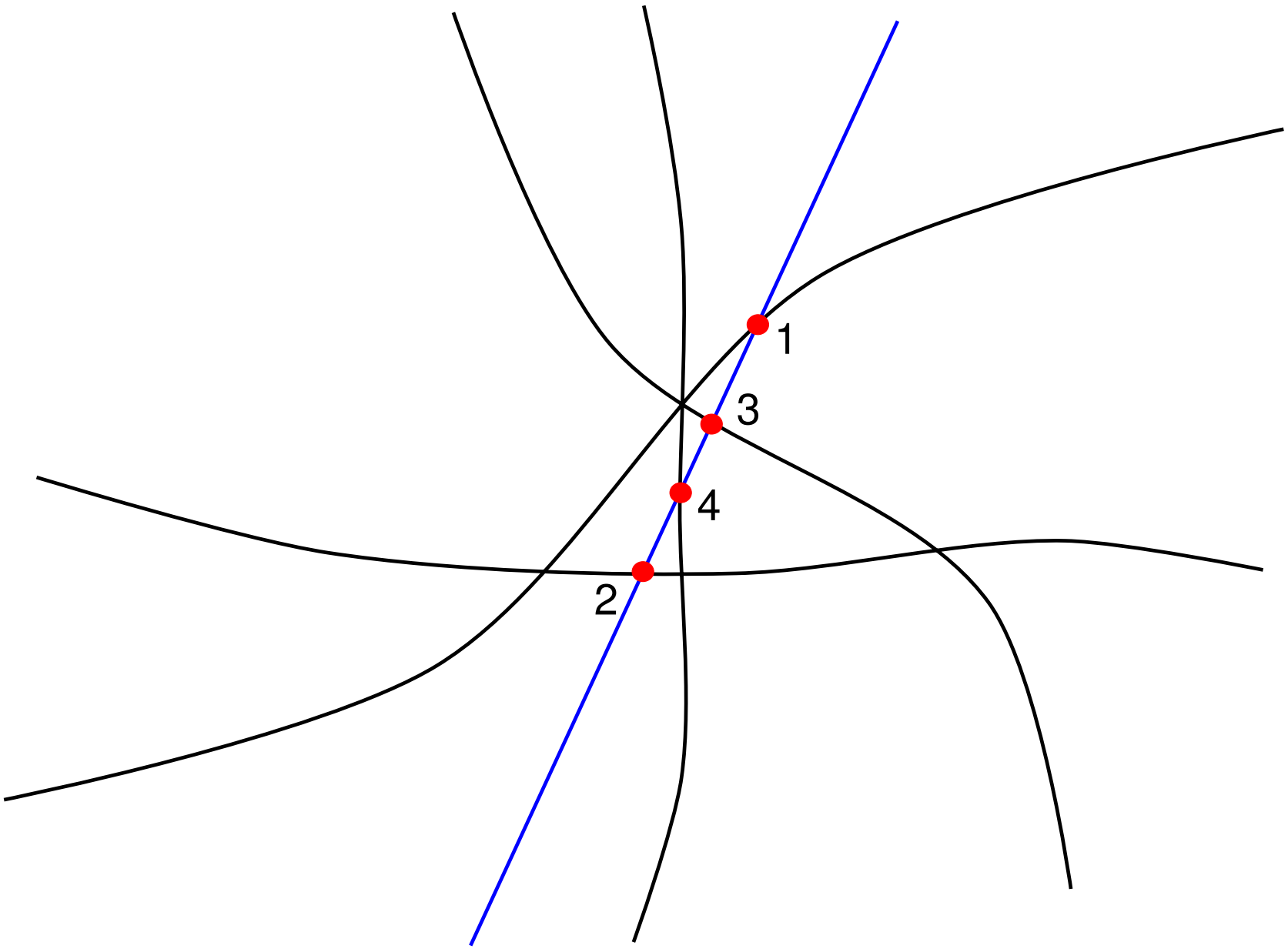
An arrangement of pseudolines

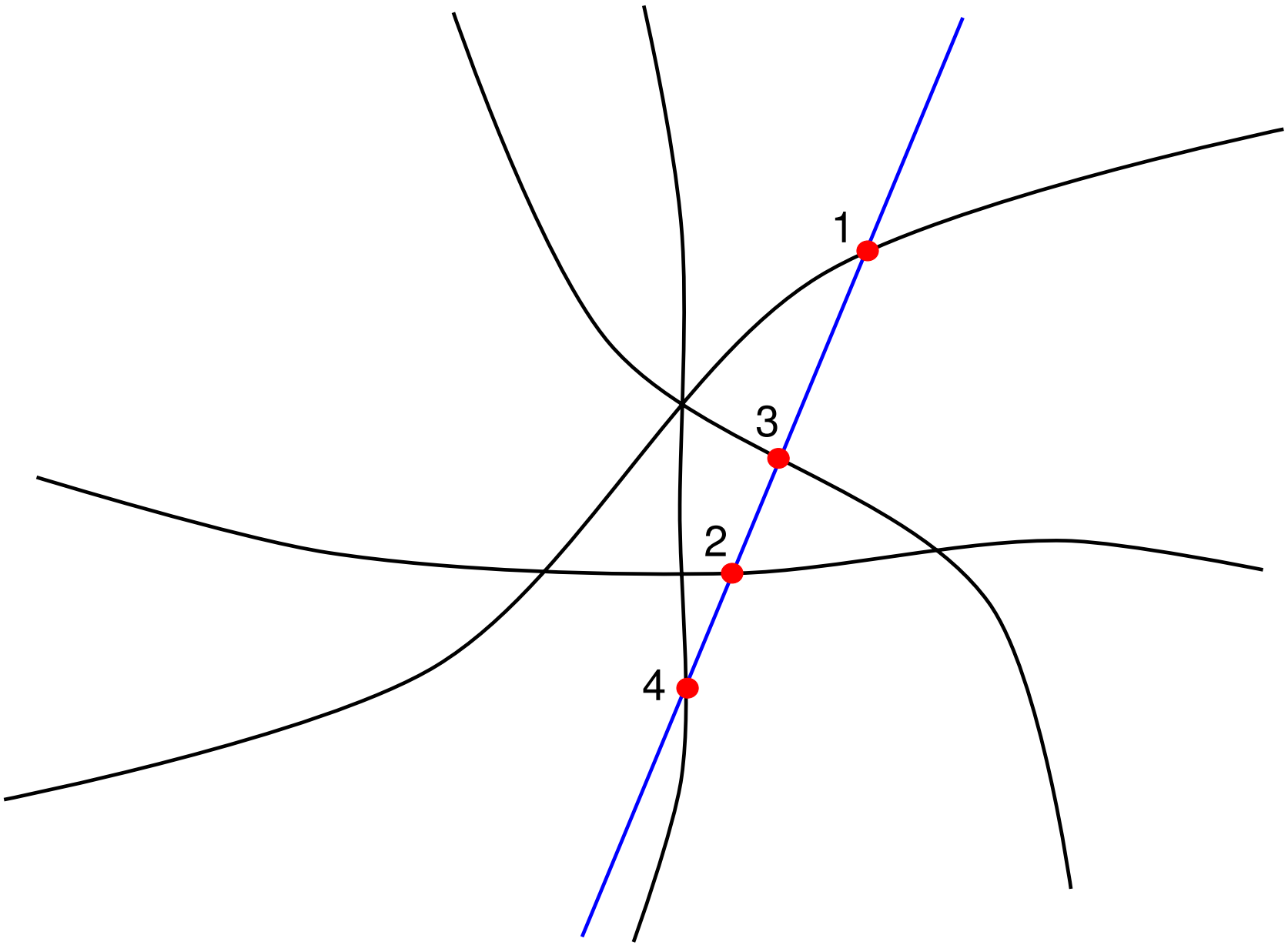


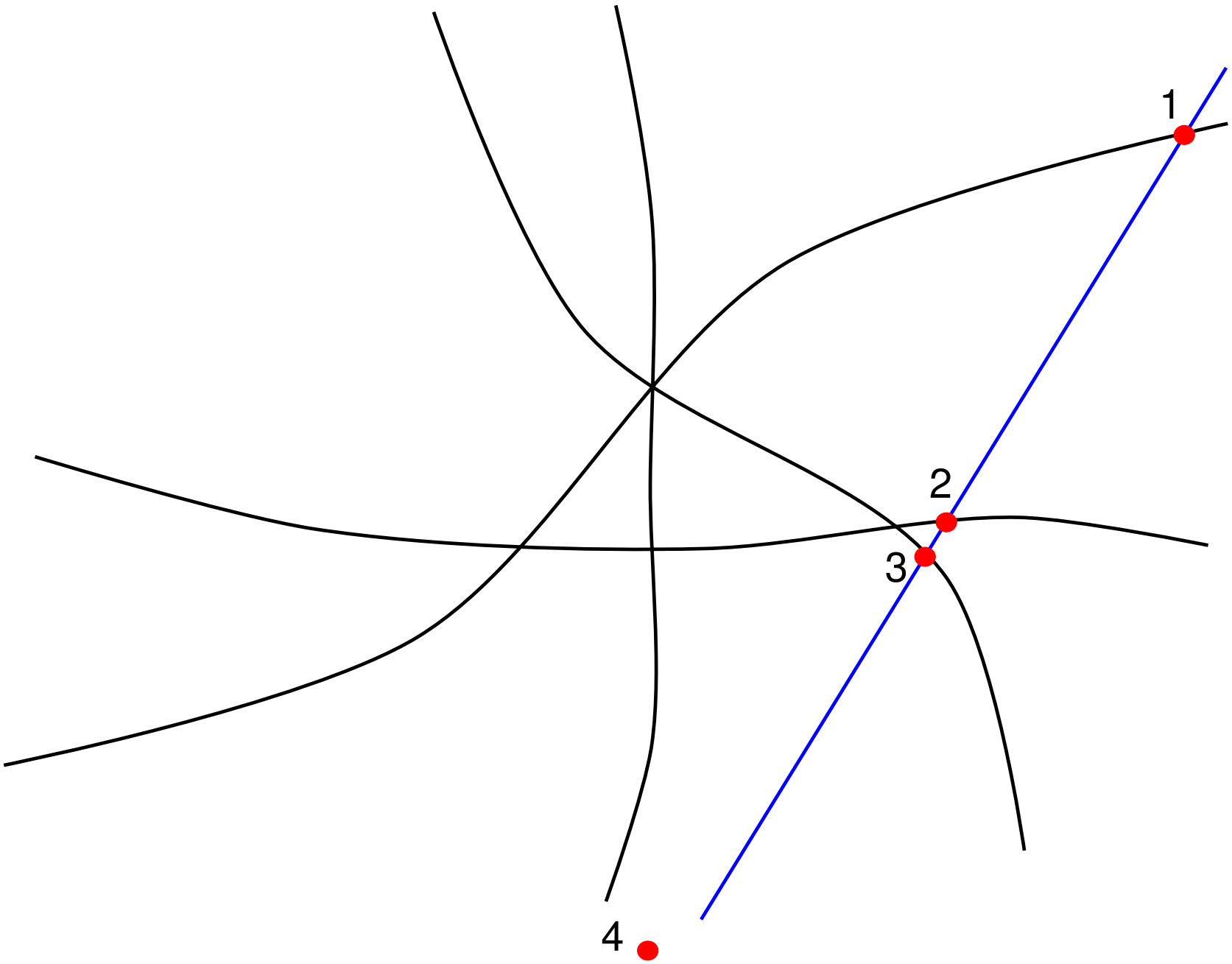



4
3
2
1

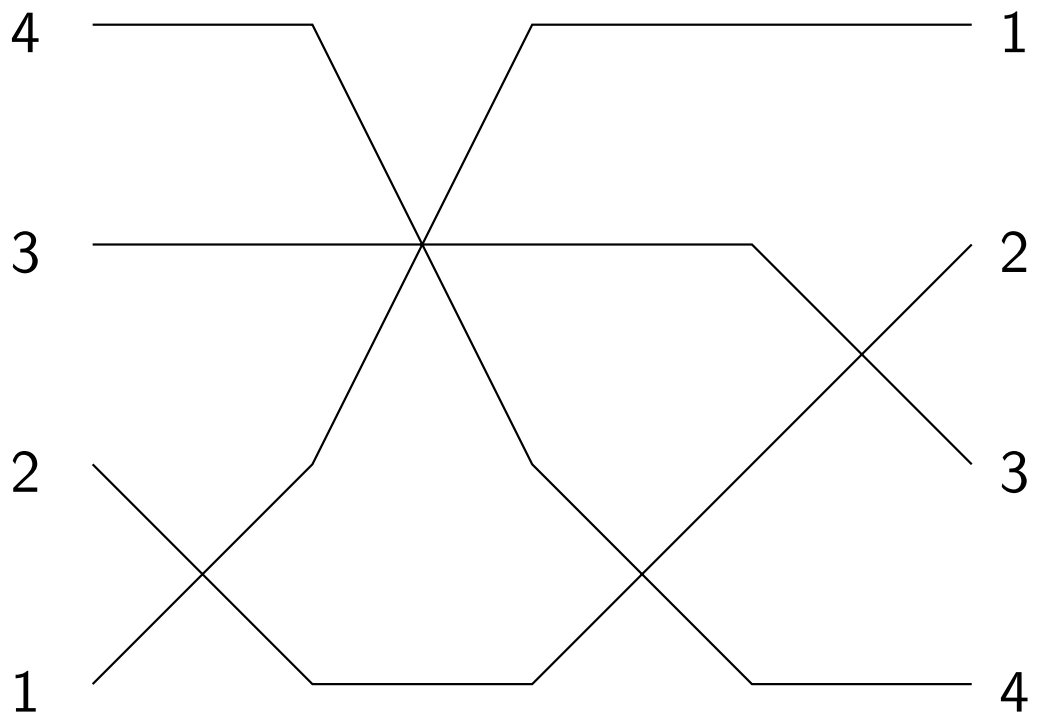

4
3
1
2


1
3
4
2

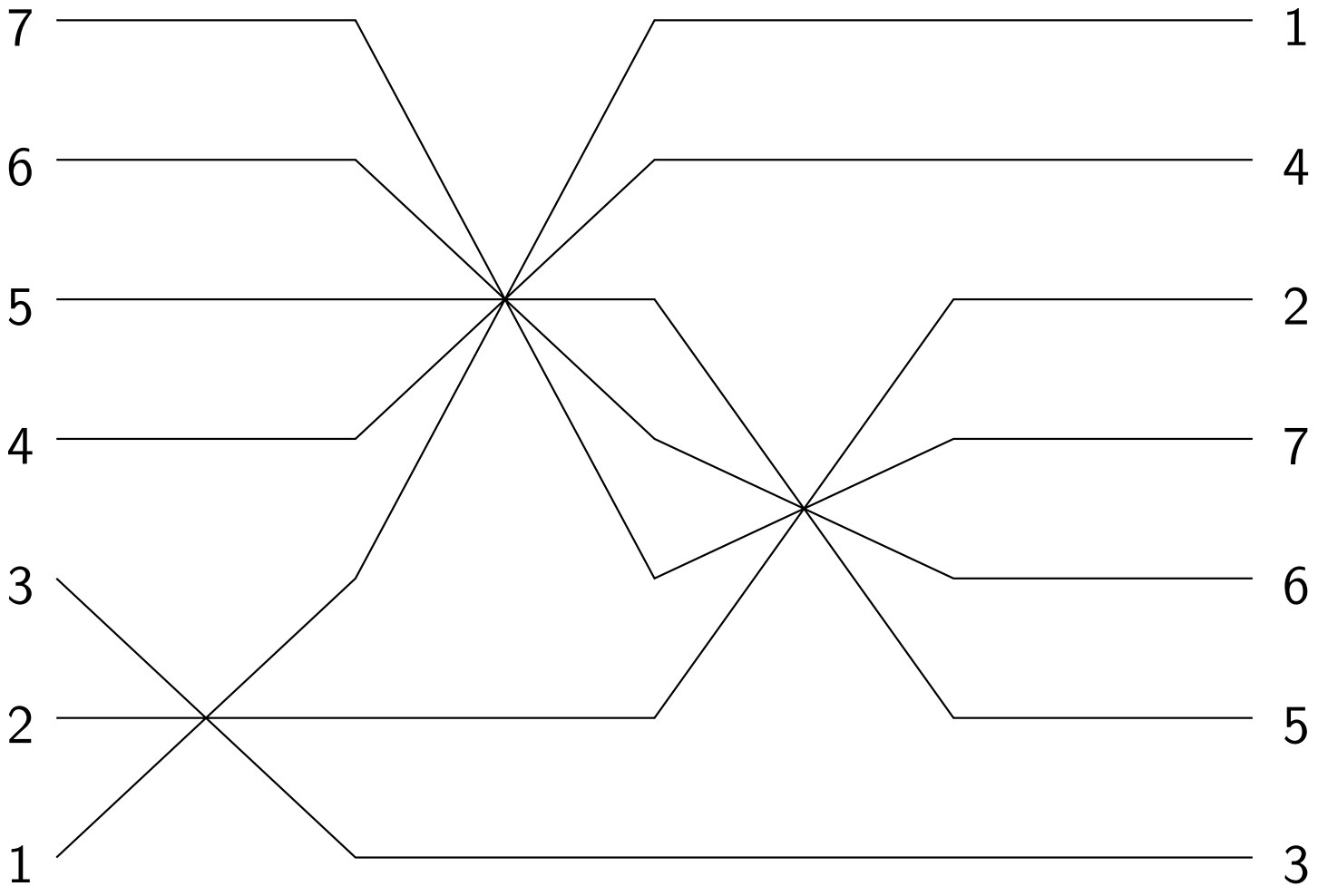

1
3
2
4


1
2
3
4

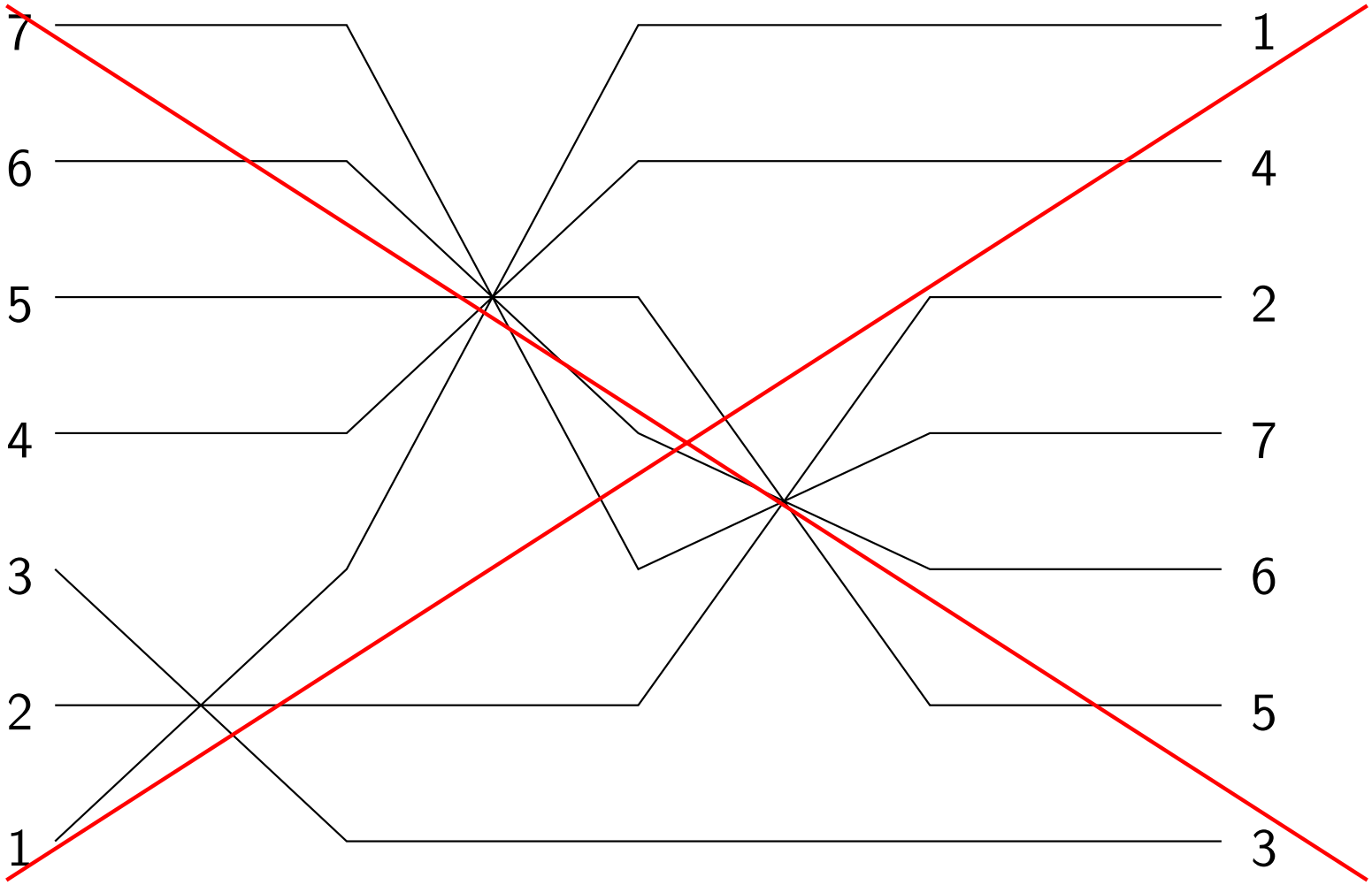
Wiring diagrams – Goodman and Pollack



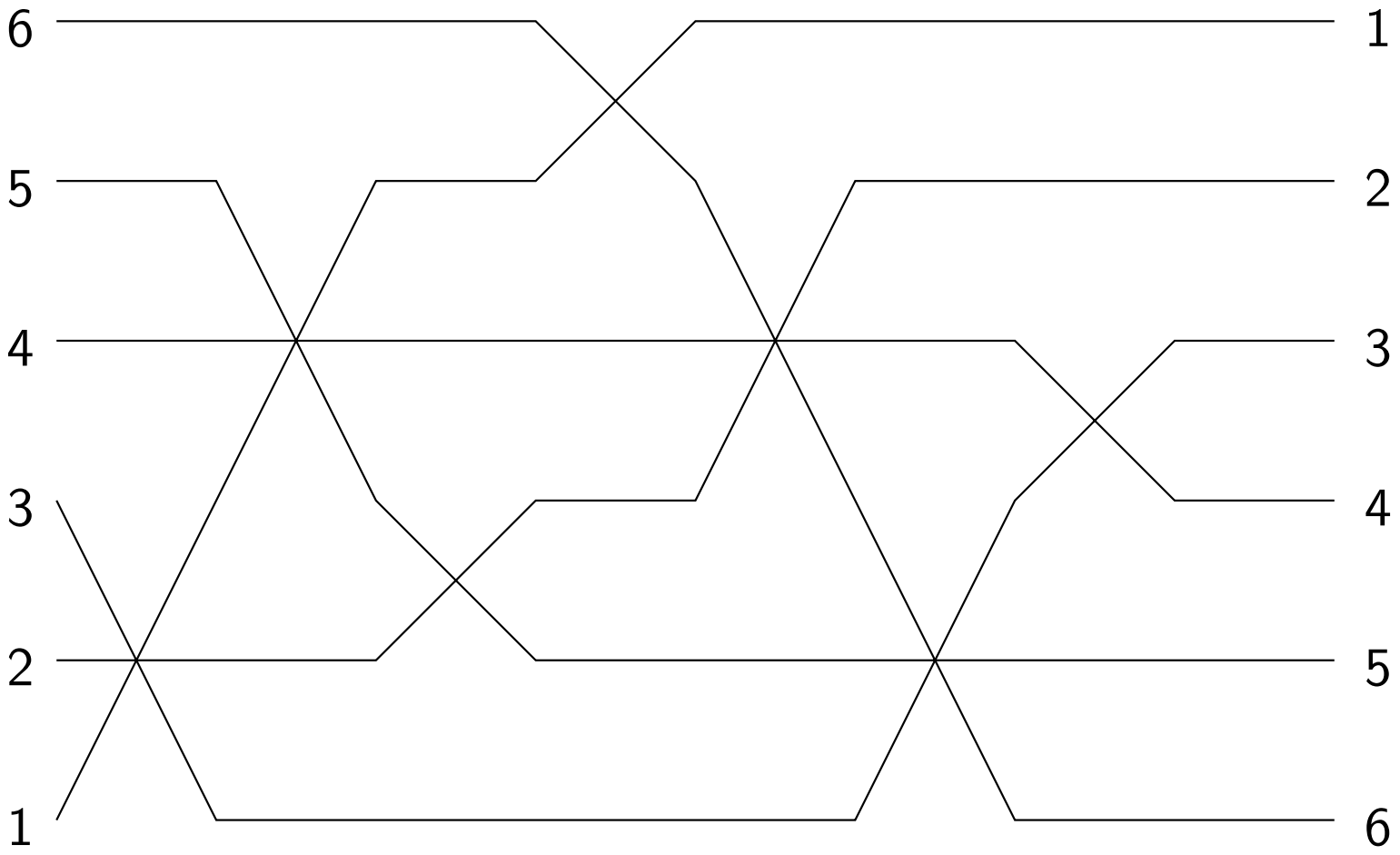
Wiring diagrams



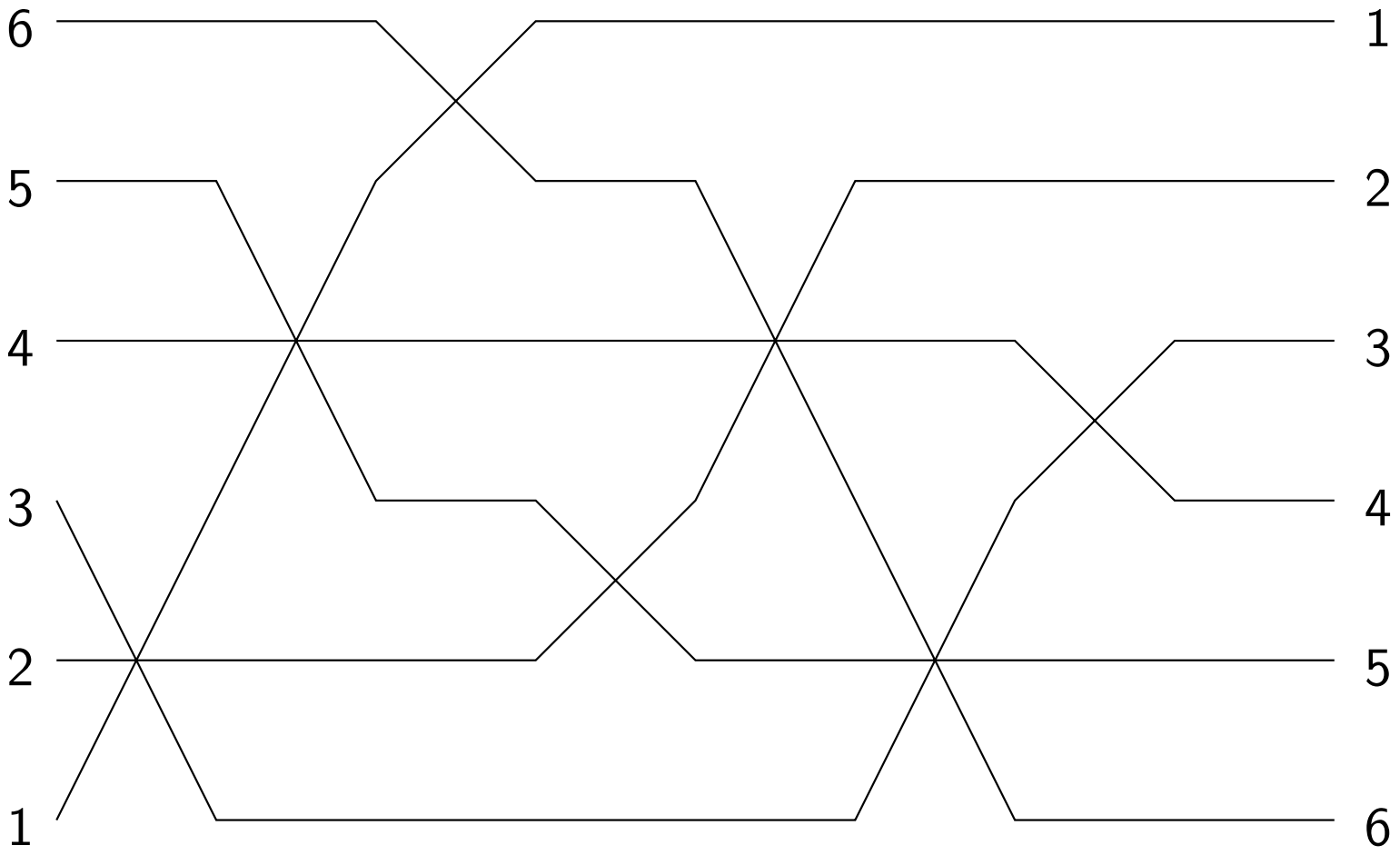
Wiring diagrams



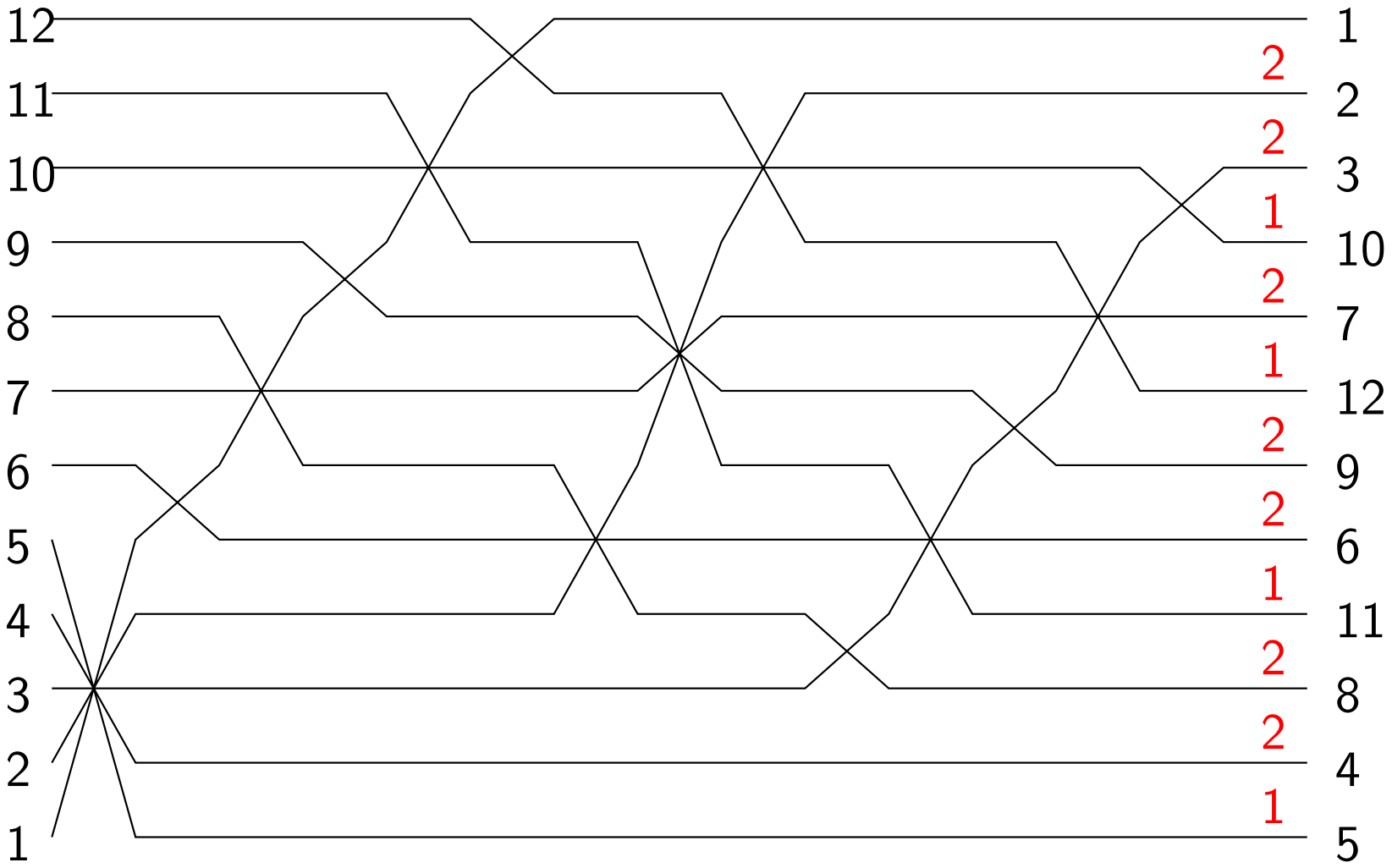
Wiring diagrams



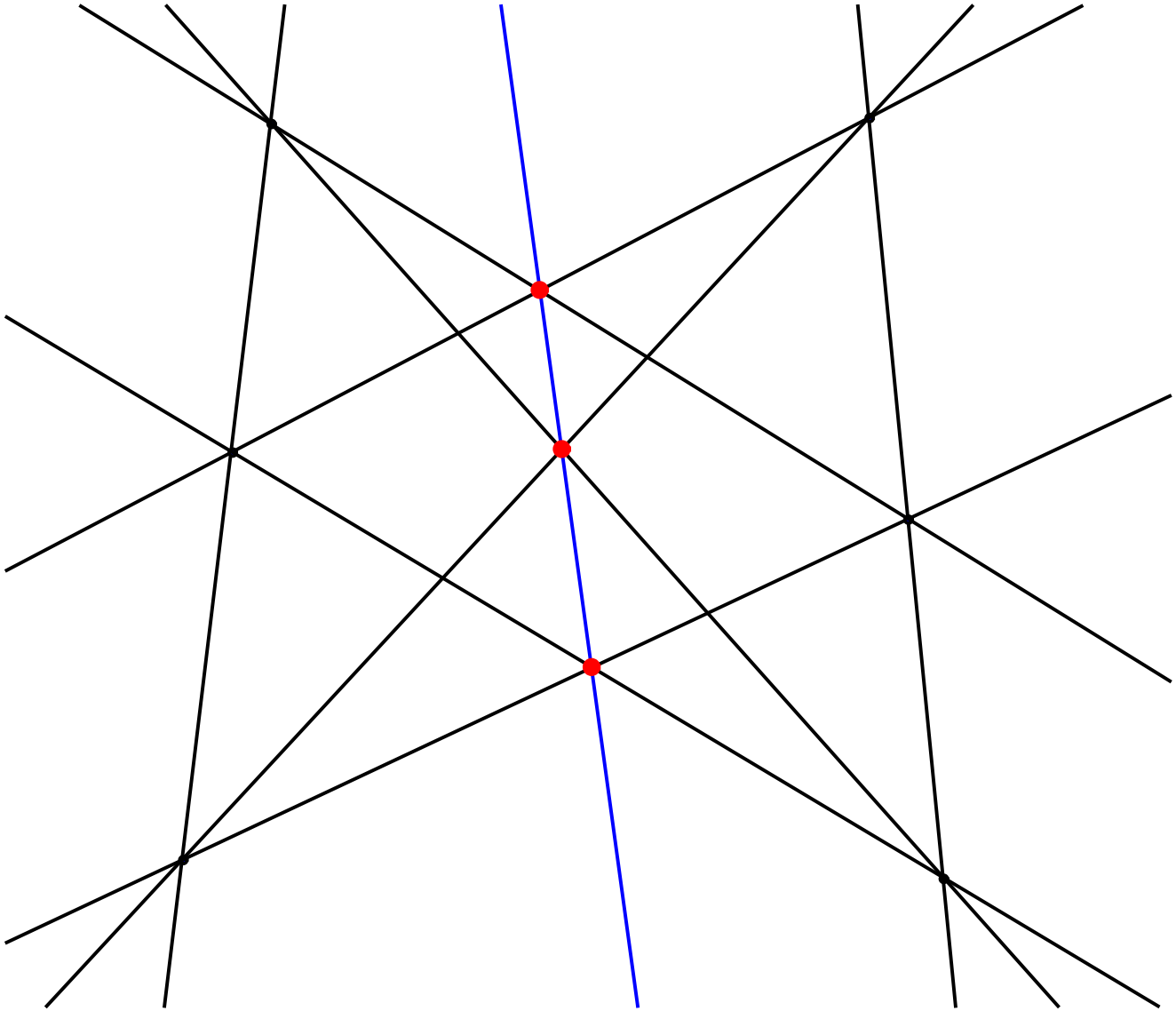
Wiring diagrams



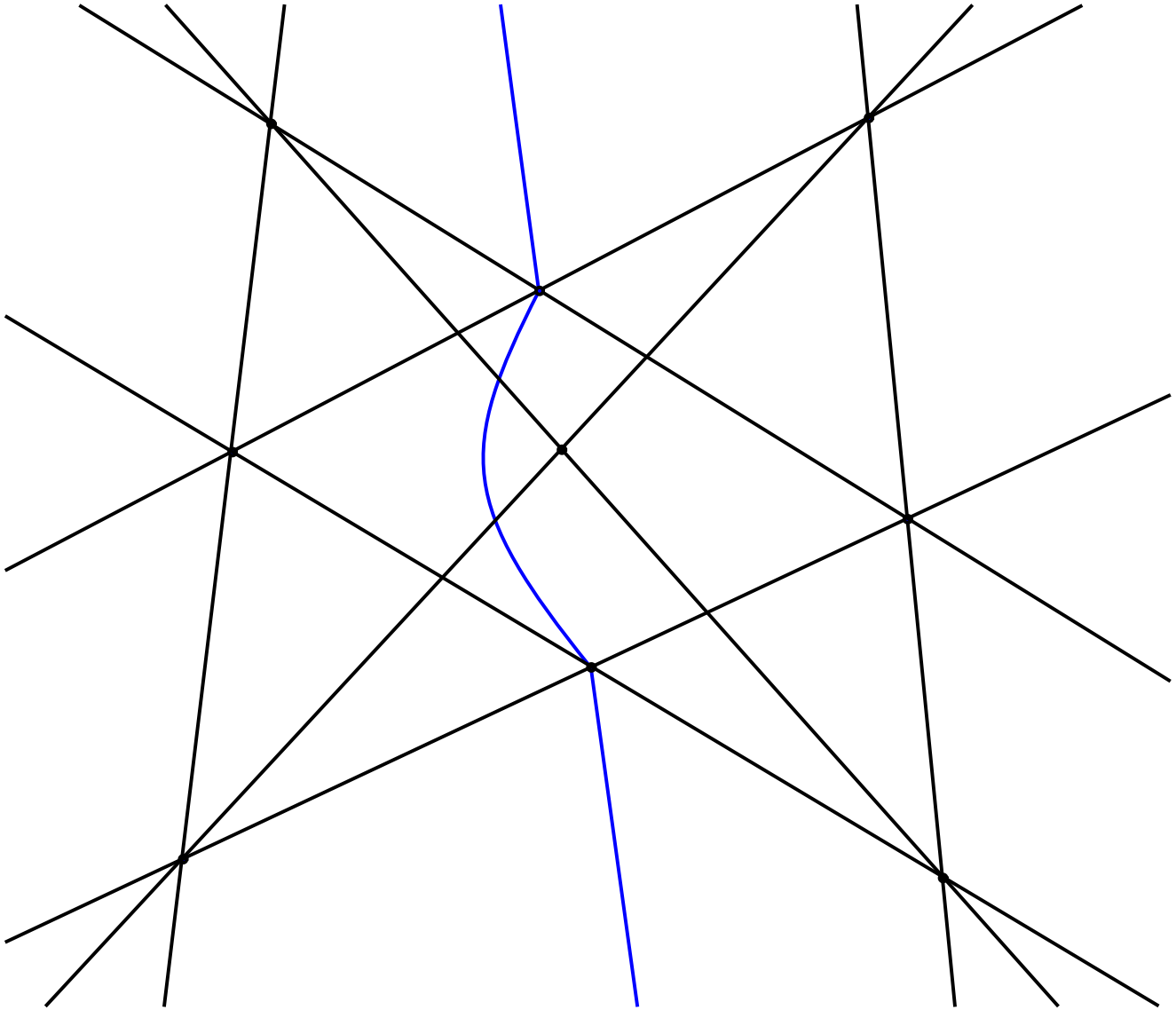
Simplicial wiring diagrams



Pappus' theorem



Stretchability



Isomorphism classes of simplicial wiring diagrams

(without the near-pencil arrangements)

number of lines	2	3	4	5	6	7	8
stretchable	0	0	0	0	1	1	1
unstretchable	0	0	0	0	0	0	0

number of lines	9	10	11	12	13	14
stretchable	1	3	1	3	4	4
unstretchable	0	0	0	0	0	0

Isomorphism classes of simplicial wiring diagrams

(without the near-pencil arrangements)

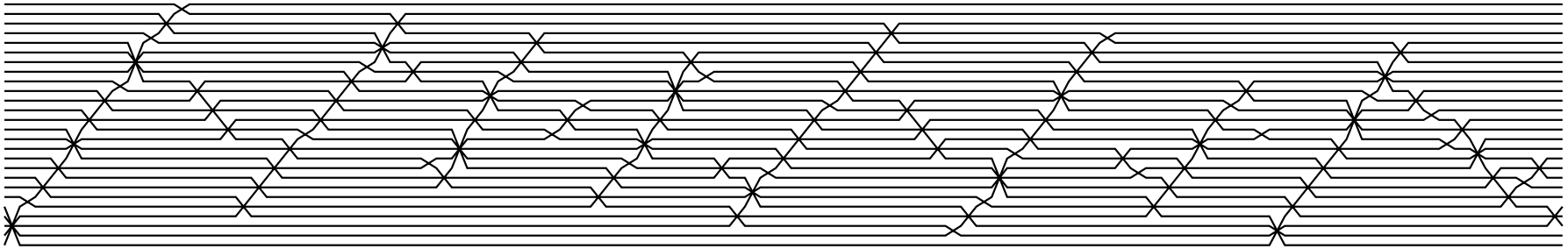
number of lines	2	3	4	5	6	7	8
stretchable	0	0	0	0	1	1	1
unstretchable	0	0	0	0	0	0	0

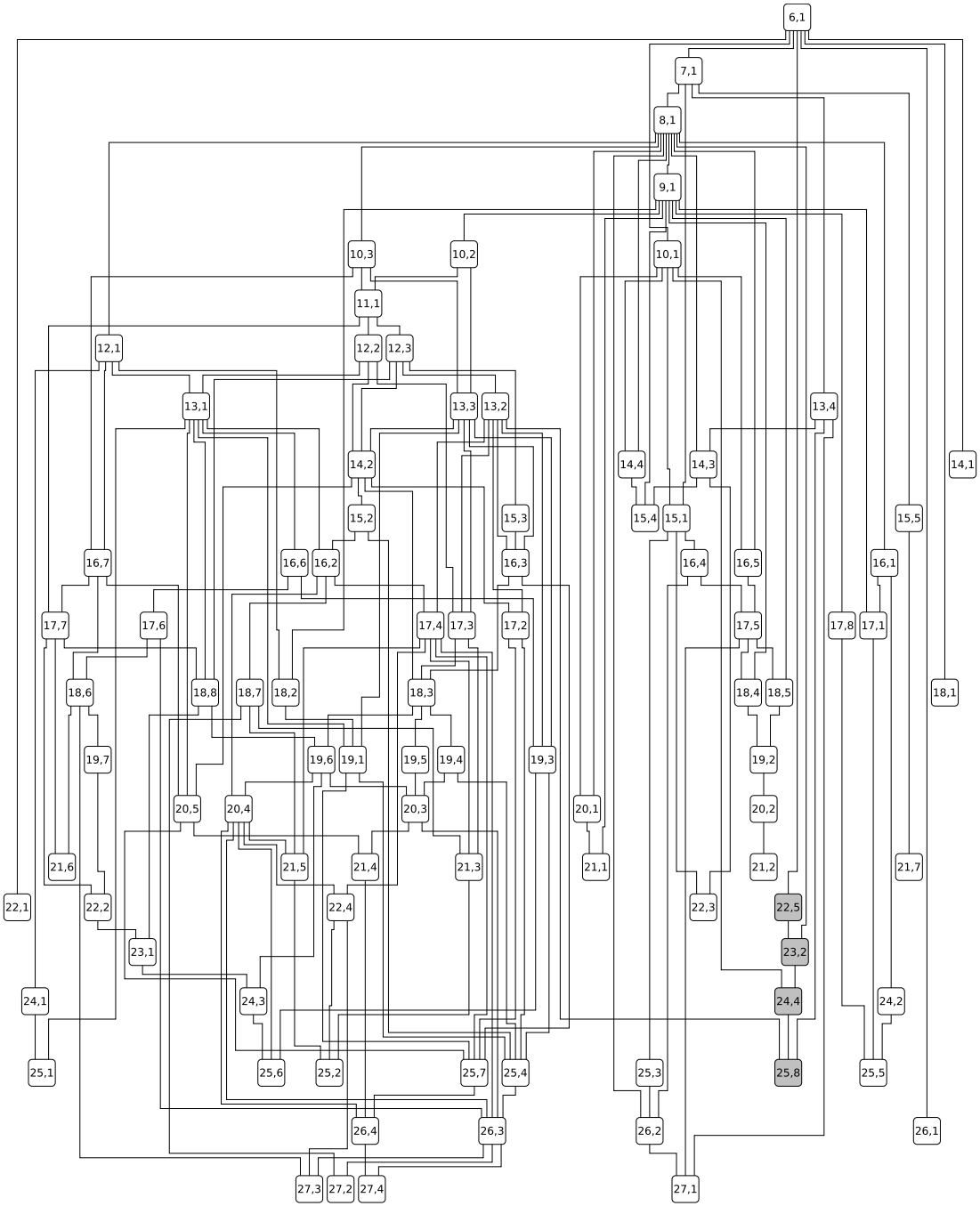
number of lines	9	10	11	12	13	14
stretchable	1	3	1	3	4	4
unstretchable	0	0	0	0	0	0

number of lines	15	16	17	18	19	20	21
stretchable	5	7	8	8	7	5	7
unstr. by Pappus	2	6	7	28	35	136	168
unstr. but Pappus	0	1	1	1	1	0	0

number of lines	22	23	24	25	26	27
stretchable	5	2	4	8	4	4
unstr. by Pappus	978	1276	12720	?	?	?
unstr. but Pappus	1	0	0	0	1	0

Unstretchable but Pappus (26 lines)




6,1
7,1
8,1
9,1
10,3
10,2
10,1
11,1
12,1
12,2
12,3
13,1
13,3
13,2
13,4
14,2
14,4
14,3
14,1
15,2
15,3
15,4
15,1
15,5
16,7
16,6
16,2
16,3
16,4
16,5
16,1
17,7
17,6
17,4
17,3
17,2
17,5
17,8
17,1
18,6
18,8
18,7
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18,4
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20,2
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21,1
21,2
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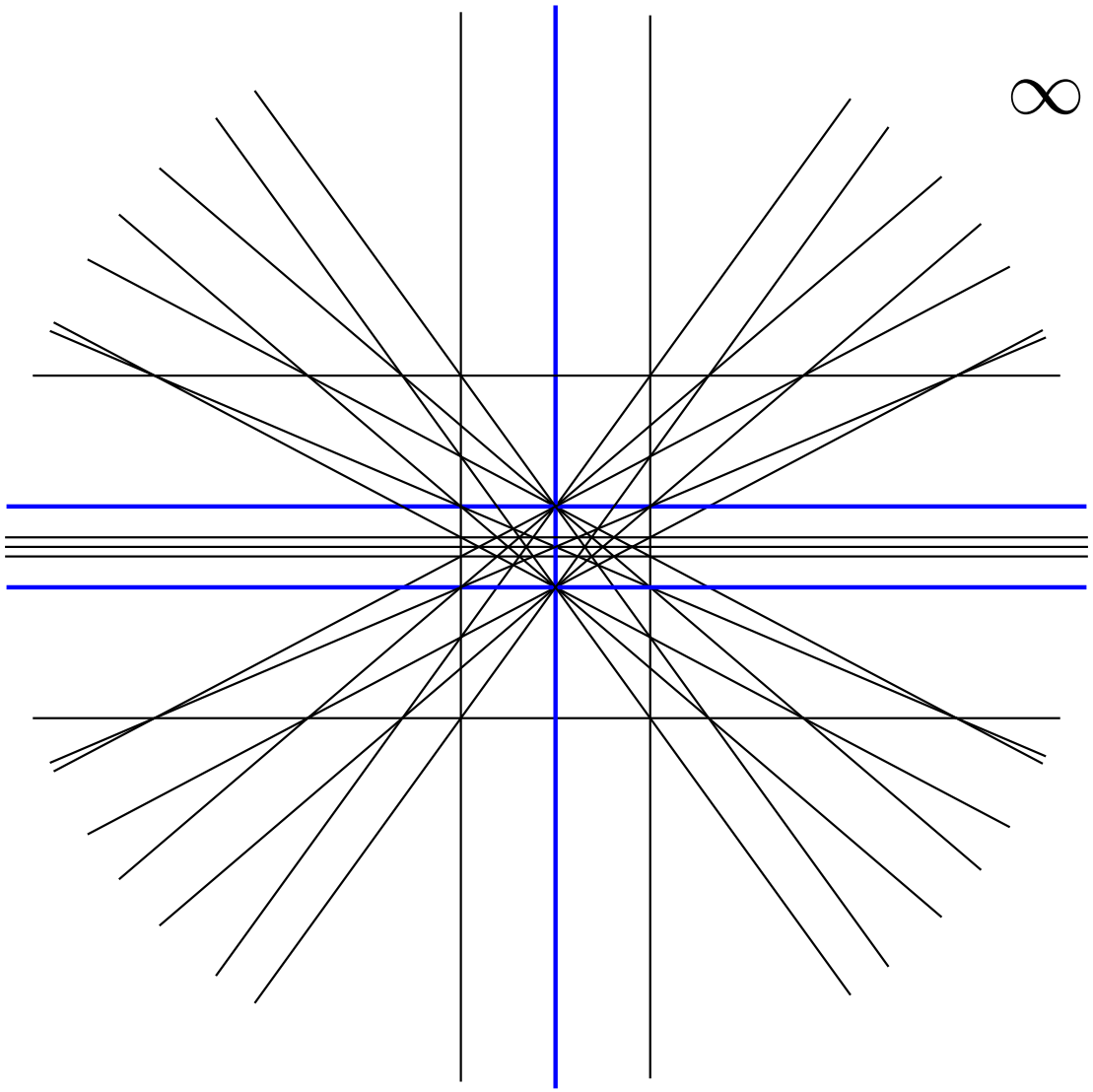
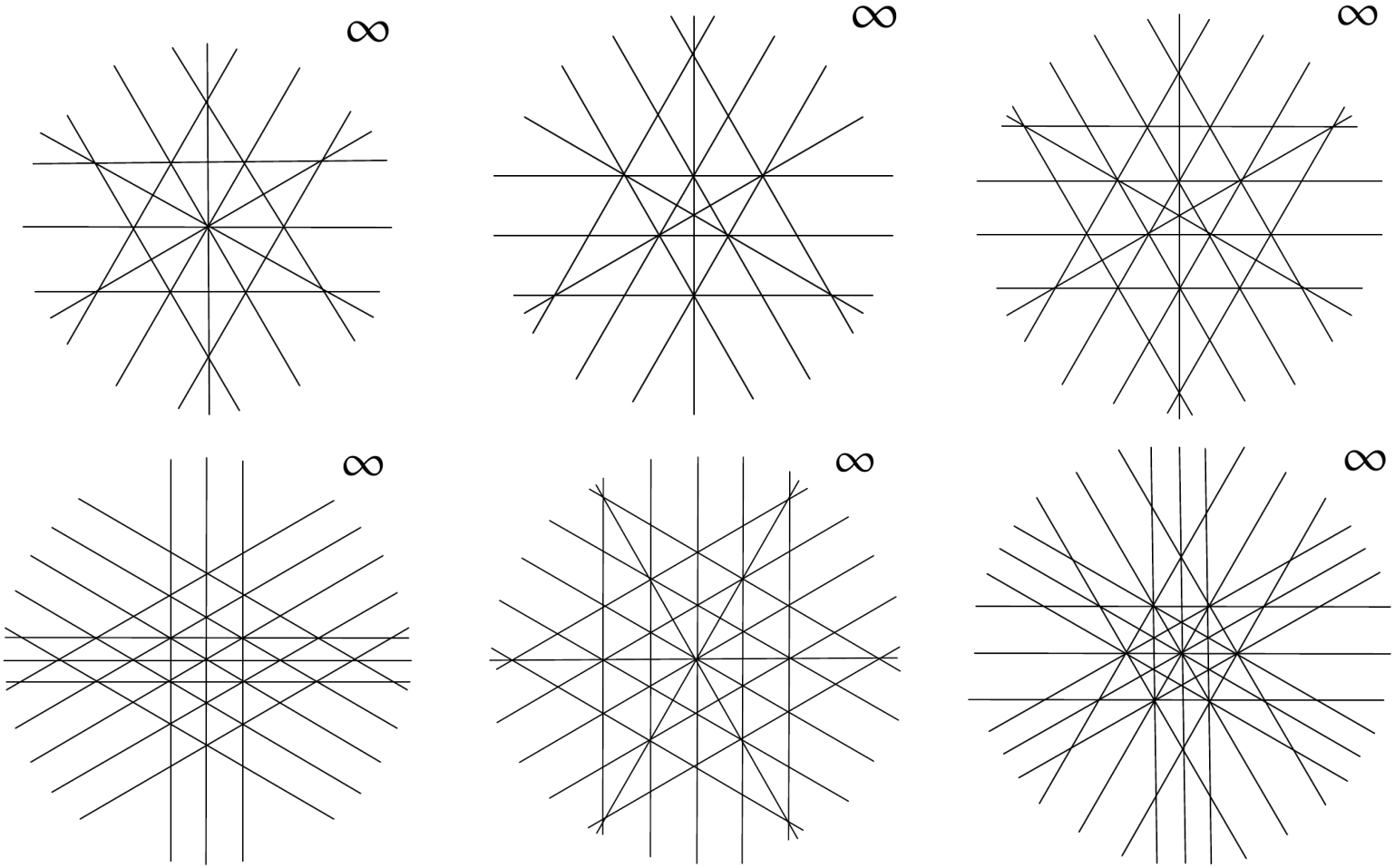
23,2
24,1
24,3
24,4
24,2
25,1
25,6
25,2
25,7
25,4
25,3
25,8
25,5
26,4
26,3
26,2
26,1
27,3
27,2
27,4
27,1

The new simplicial arrangements (22,23,24,25 lines)



Where is the monster?!

Where is the monster?!



Source: Grünbaum, A catalogue of simplicial arrangements in the real projective plane.