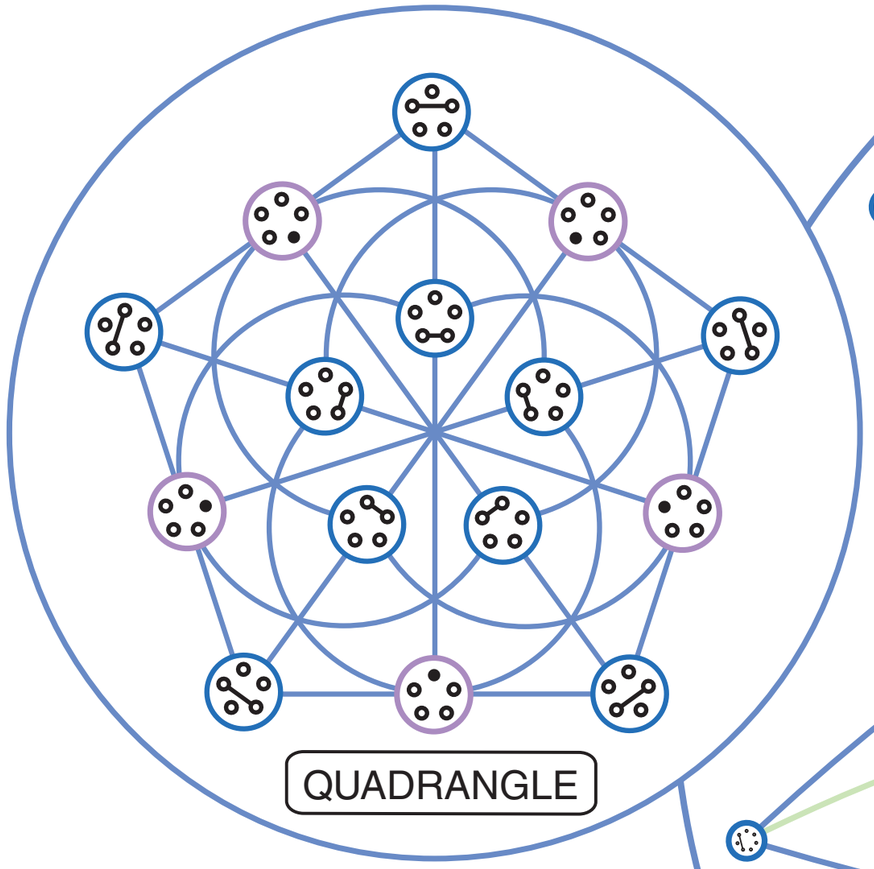
The POLYGONS



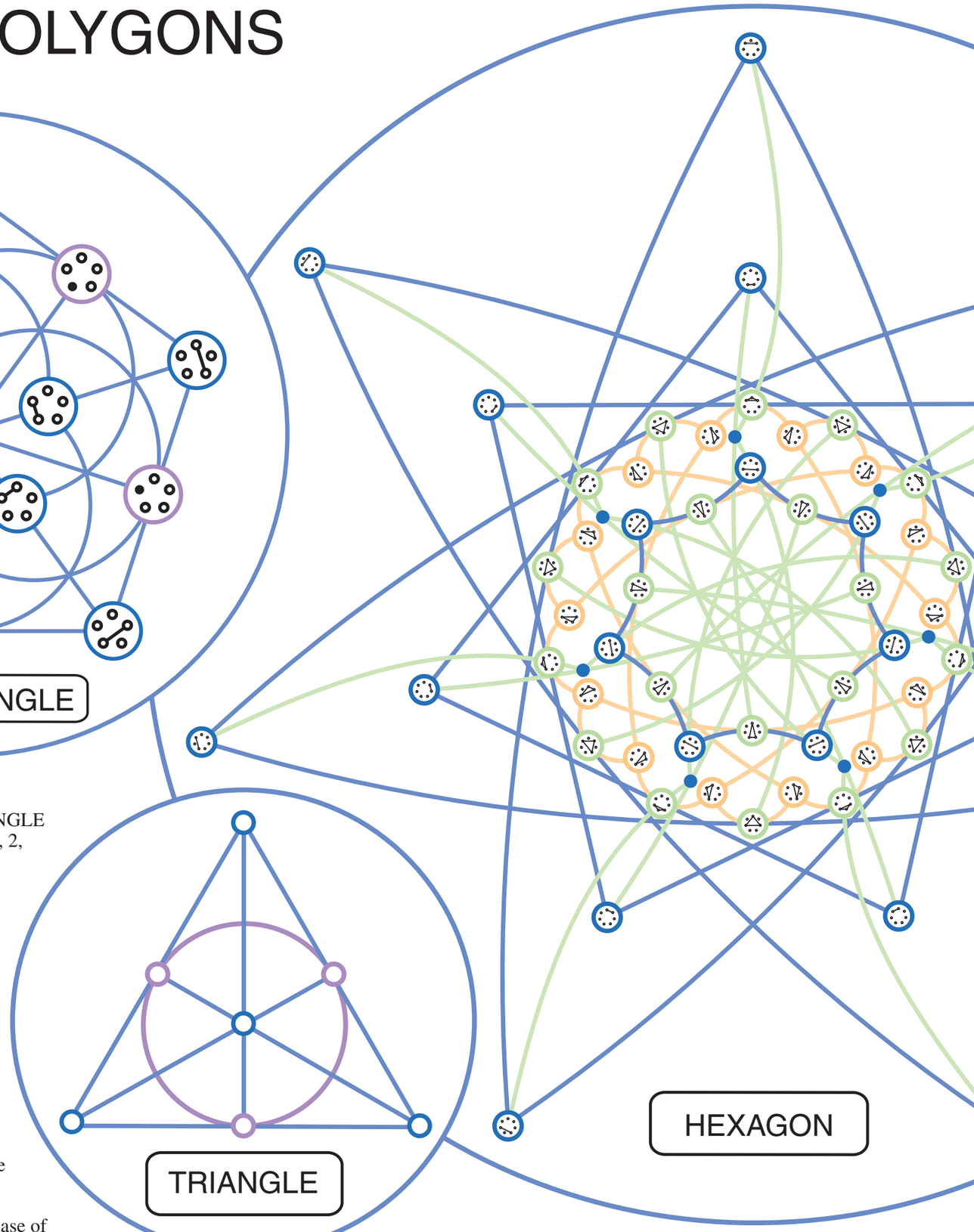


Figure 6: The points and lines of the QUADRANGLE (HEXAGON) correspond to the subsets of size 1, 2, (and 3) of a 5-gon (7-gon). To avoid a crowded appearance of the HEXAGON, the 1-element subsets of the 7-gon are represented by (small) solid blue points. The lines in the QUADRANGLE correspond to partitions of the 5-gon into 1- and 2-element subsets; see Figure 9. For the lines of the HEXAGON, in terms of the labels of its points see Figure 8. Highlighted in the diagrams are the points of a geometric hyperplane–purple (TRIANGLE and QUADRANGLE) and green (HEXAGON). After removing these geometric hyperplanes from these geometries, we are left with models of some of the most homogeneous graphs–the complete graph on four vertices in the case of TRIANGLE, the Petersen graph in the case of the QUADRANGLE, and the disjoint union of the Coxeter graph (blue points and lines) and the Heawood graph (yellow points and lines) in the case of the HEXAGON. Note that every point of the DIGON forms a geometric hyperplane.