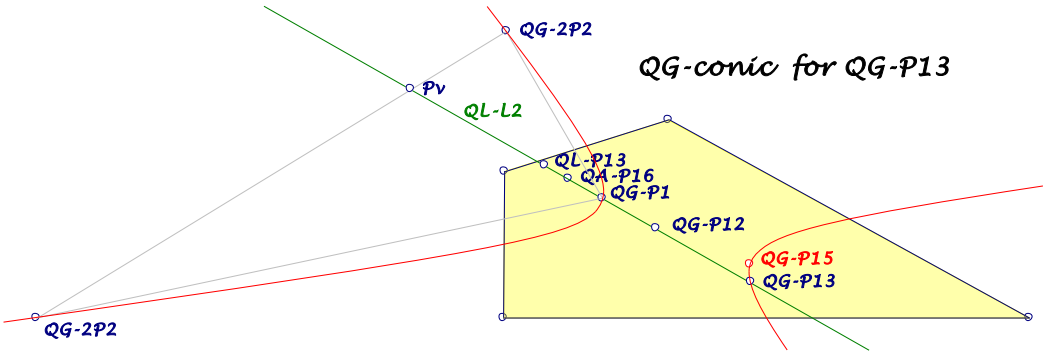
EQF-Note 2014-09-22

Background for these notes is:
Chris van Tienhoven: Encyclopedia of Quadri-Figures
http://www.chrisvantienhoven.nl/

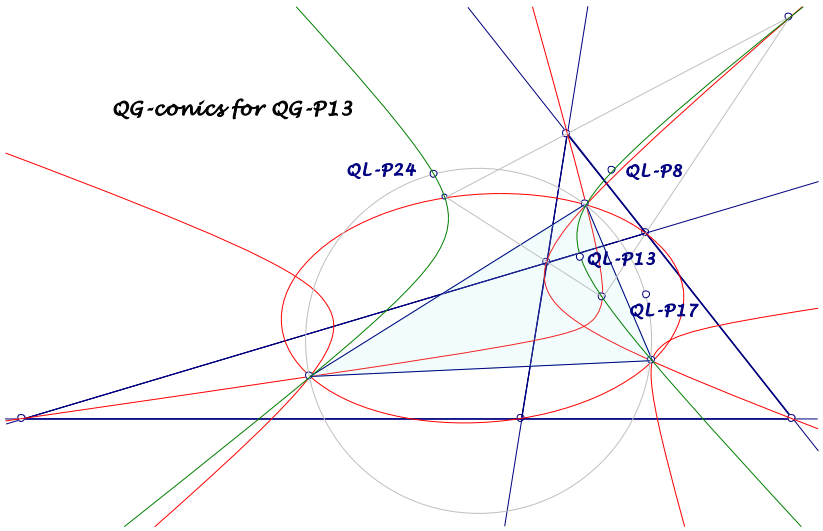
QG-conics wrt a perspective row on QG-L2

In EQF a perspective row of points on QG-L2 is described. QA-DT-circumscribed conics through QG-P15 and a point of this row lead to QG-conics, whose three versions for a quadrilateral give three common points. The geometry of the corresponding QL-triangles is worked out.



The perspective row of points on *QG-L2* has the vanishing point
$P_v = QG\text{-}L1 \cap QG\text{-}L2$.
Let $P_0 = QG\text{-}P1$ and $P_1 = QA\text{-}P16$, then we get as further points $P_2 = QL\text{-}P13$, $P_{-1} = QG\text{-}P12$, $P_{-2} = QG\text{-}P13$.
We consider *QA-DT*-circumconics Co_n through *QG-P15* and a point P_n ($n \neq 0$) of the row.

- For a quadrilateral the three versions of Co_n have three common points (for $P_{-2} = QL\text{-}P13$ the constellation degenerates).



- The three common points lie on a *QL-DT*-circumscribed conic through *QL-P8, QL-P13, QL-P24*.

- The circumcircle of the three common points contains *QL-P17, QL-P24*.

- For P_{-2} = *QG-P13* the common three points are the *S*-points on *QL-Ci6* (see *EQF*).

- For P_v the three common points are the vertices of *QL-DT* (degenerated conics).

- The triangle of the three common points has its centroid on *QL-L8*, dividing *QL-P12.QL-P8* with ratio –(n+2):4.

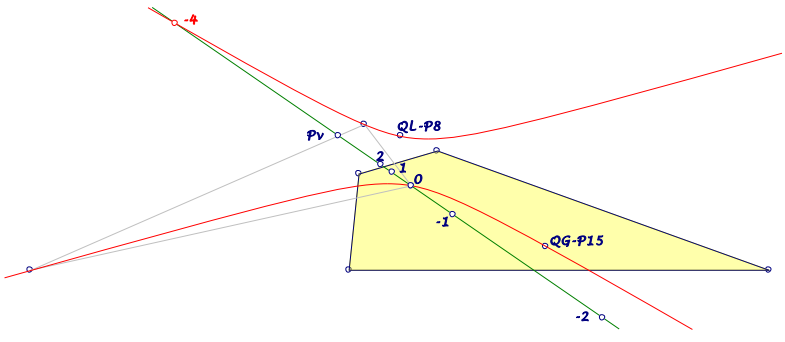
- The triangle of the three common points has its orthocenter on *QL-L6*, dividing *QL-P2.QL-P10* with the same ratio –(n+2):4.

- The triangle of the three common points has its circumcenter on *QL-P6.QL-P9*, dividing this line also with ratio –(n+2):4.

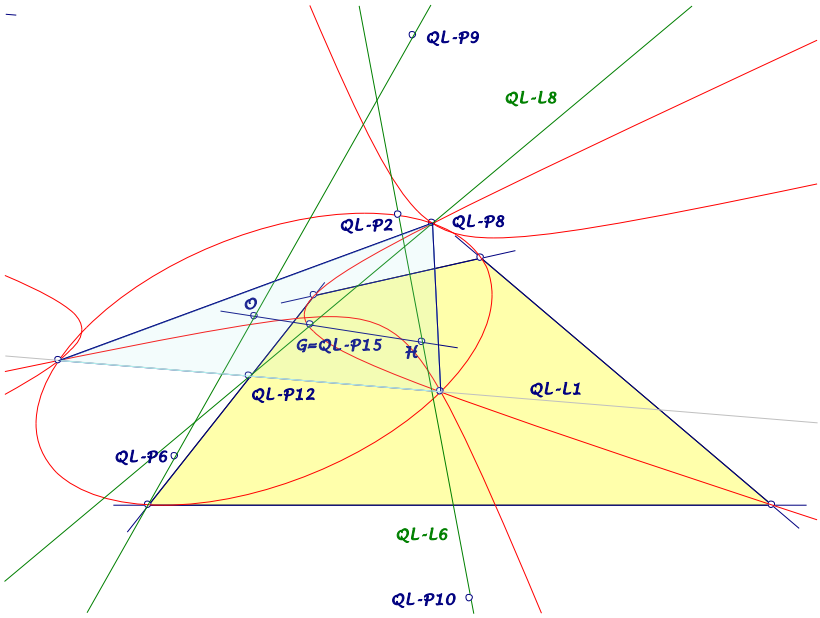
- The triangles of the three common points have the same Simson line for *QL-P17*: parallel to *QL-L6* half the distance to *QL-P17*.

Example for P_{-4}:

This point is the 2nd intersection of *QG-L2* and the *QA-DT*-circumconic through *QG-P15* and *QL-P8*.



The triangle of the three common points has the vertices *QL-P8* and the intersections of *QL-L1* with the circle through *QL-P8, QL-P17, QL-P24*. The centroid is *QL-P15* dividing *QL-P12.QL-P8* with ratio 1:2, the orthocenter divides *QL-P2.QL-P10* with ratio 1:2 and the circumcenter divides *QL-P6.QL-P9* with ratio 1:2.



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