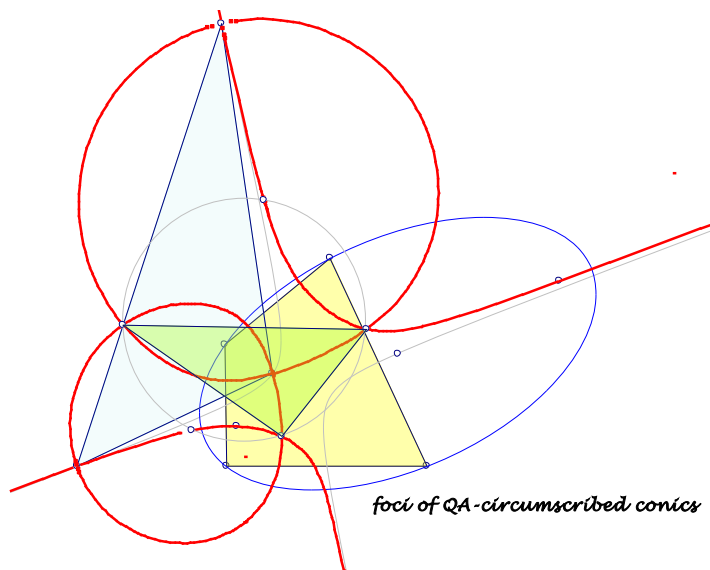


Background for these notes is:
Chris van Tienhoven: Encyclopedia of Quadri-Figures
<http://www.chrisvantienhoven.nl/>

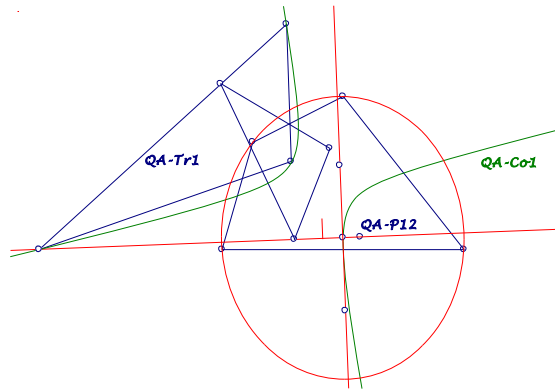
Foci of QA-Circumscribed Conics

For a quadrilateral the locus of foci for inscribed conics is the well known cubic QL-Cu1. What about the foci of QA-circumscribed conics? Here are gathered first Cabri-observations.



- The locus for the foci of QA-circumscribed conics seems to be a sextic.
- This sextic has six nodal points in the vertices of the diagonal triangle QA-Tr1 and its orthic triangle.
- The further intersections of the circle QA-Ci2 and the sextic are the foci of the two QA-circumscribed parabolas QA-2Co1.
- The two asymptotes of the sextic are parallel to the axes of the parabolas QA-2Co1, intersecting in the reflection of QA-P6 in QA-P1.
- The 2nd foci wrt the vertices of the orthic triangle of QA-Tr1 are the further intersections of the opposite side and the sextic.
- **The foci of QA-circumscribed conics are isogonal conjugates wrt the orthic triangle of the diagonal triangle QA-Tr1.**

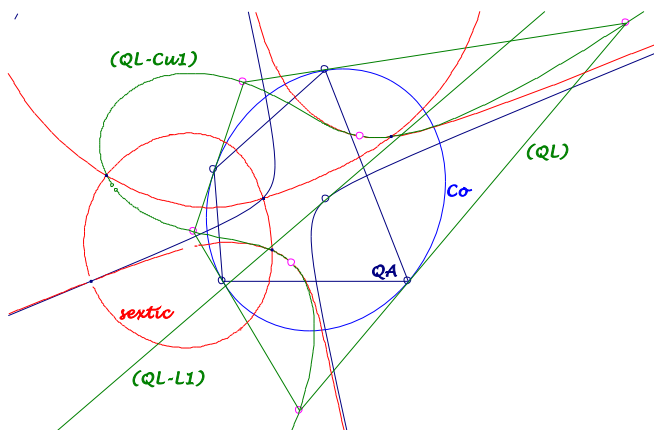
- The sextic is isogonal invariant wrt the orthic triangle of $QA-Tr1$.
- The sextic is the locus of isogonal conjugates wrt the orthic triangle of $QA-Tr1$, whose midpoints lie on the conic $QA-Co1$.



- For the 2nd intersection of an $QA-Tr1$ -altitude and the conic $QA-Co1$ as center of an QA -circumscribed conic the main axis is orthogonal to the altitude.

Now we consider for a quadrangle QA a circumscribed quadrilateral QL with sidelines tangent in the vertices to a circumscribed conic Co .

- The Newton line of the circumscribed quadrilateral QL is the tangent to $QA-Co1$ at the center of the conic Co .



- The cubic $QL-Cu1$ of the circumscribed quadrilateral QL is tangent to the sextic in the foci of the circumscribed conic Co . The intersections are the vertices of the orthic triangle of $QA-Tr1$.