

Background for these notes is:

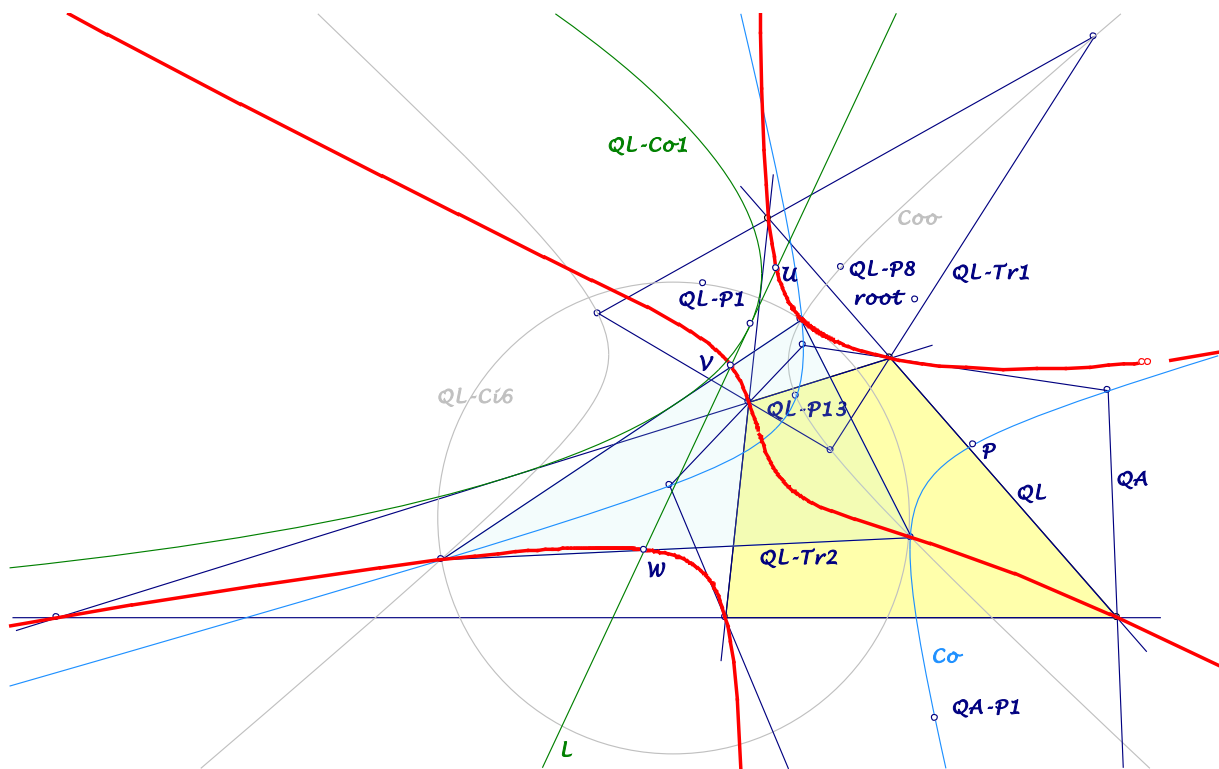
Chris van Tienhoven:

Encyclopedia of Quadri-Figures and Poly Geometry

<http://www.chrisvantienhoven.nl/>

Nonpivotal Isocubics for QA/QL

For a QA/QL constellation of dual quadrangle and quadrilateral (see EQF, QA-8/QL-8) cubics through the six QL-points and the three vertices of the triangle QL-Tr2 are described as nonpivotal isocubics.



Reference Triangle

The reference triangle is $QL-Tr2$ with vertices in the intersections of the circle $QL-Ci6$ and a circumconic $Co0$ of the common diagonal triangle $QL-Tr1 = QA-Tr1$ through $QL-P8$ and $QL-P13$, except $QL-P24$.

Every line L , tangent to the QL -inscribed parabola $QL-Co1$, leads to a nonpivotal isocubic, bearing the six QL -points and the vertices of the triangle $QL-Tr2$. The dual point P lies on a conic Co through $QL-P13$ and $QA-P1$, circumscribed $QL-Tr2$ and also circumscribed the dual quadrangle of the quadrilateral.

Isoconjugation *

The isoconjugation * wrt $QL-Tr2$ shall swap opposite points of the quadrilateral.

The line at infinity will be mapped by this isoconjugation to the conic Co . The Newton line $QL-L1$, which is the tripolar of $QL-P13$ wrt the diagonal triangle $QL-Tr1$, will be mapped to the conic Co_0 , mentioned above. The images of the vertices of $QL-Tr1$ are the intersections of $QL-L1$ and the $QL-Tr1$ -sidelines. For lines L , tangent $QL-Co1$, holds PP^* parallel L .

Root

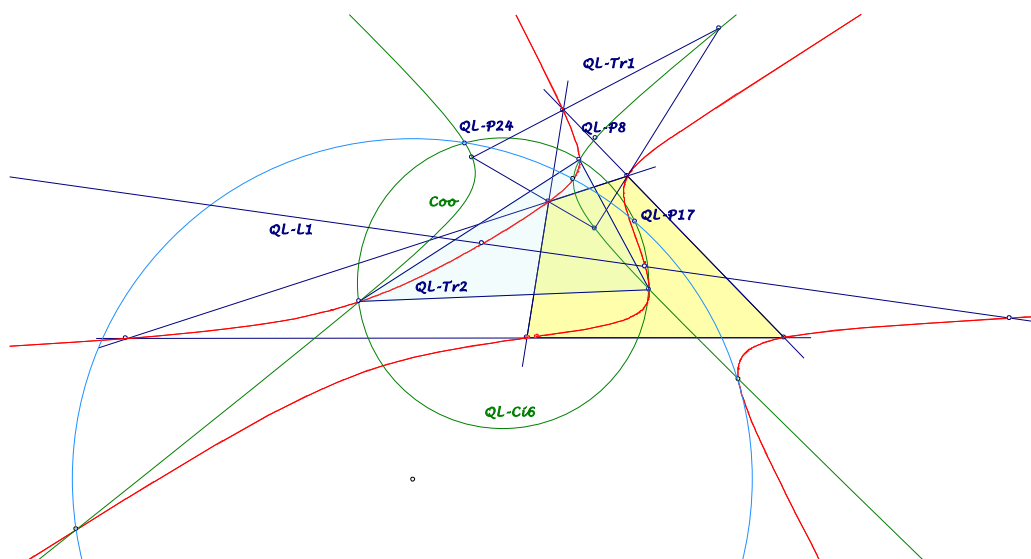
Let the tangent L at $QL-Co1$ intersect the sidelines of $QL-Tr2$ in U, V, W . The root of the searched nonpivotal cubic is the $QL-Tr2$ -tripole of L .

- **The nonpivotal isocubic wrt the described reference triangle, isoconjugation and root bears**
 - ... the six QL -points,
 - ... the three vertices of $QL-Tr2$
 - ... and the points U, V, W .

The cubic for the dual line of $QA-P1$ is already mentioned in $QFG\# 2835$ by Bernard Keizer and in $QFG\# 2838$.

The cubic for the dual line of $QL-P13$, which is the line at infinity, is a further interesting cubic:

The isoconjugation * maps the three intersections of the cubic and the Newton line $QL-L1$ to the three further intersections of the cubic and the conic Co_0 , which lie with $QL-P24$ and $QL-P17$ concyclic.



Eckart Schmidt

<http://eckartschmidt.de>
eckart_schmidt@t-online.de