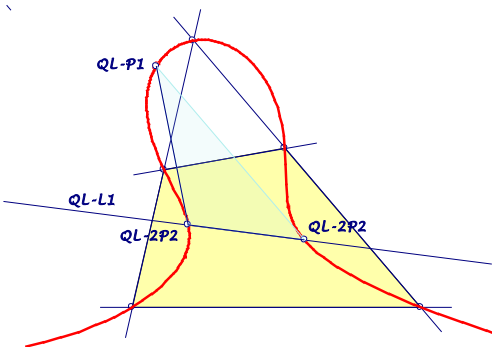
EQF-Note 2016-01-19

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

Another Reference Triangle for QL-Cu1

If QL-Cu1 is bipartite, there is already a reference triangle described in QFG-message 1425. Here a corresponding reference triangle for the unipartite case will be researched.



The Reference Triangle

For a quadrilateral *QL* with unipartite cubic *QL-Cu1* we consider a triangle *QL-Try* with vertices …

… in the Miquel point *QL-P1*
and the C*SC*-partners *QL-2P2* on *QL-L1*.

The *CSC*-partners on *QL-L1* are the intersections with *QL-Cu1*.

(1) The angle bisectors of *QL-Try* at *QL-P1* are the Steiner axes.

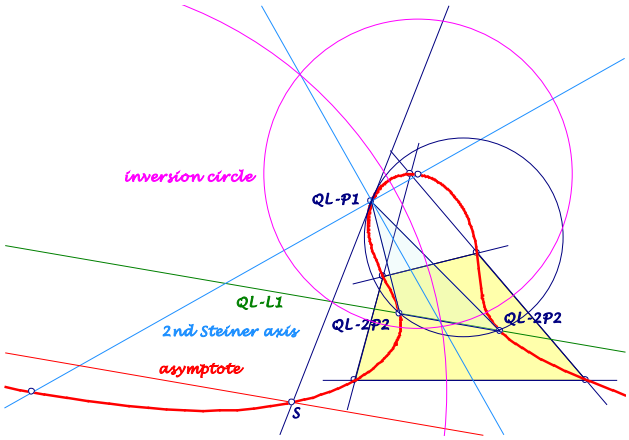
(2) The circumcircle of *QL-Try* is the *CSC*-image of *QL-L1* contacting *QL-Cu1* in *QL-P1*.

(3) The common tangent in *QL-P1* at the circumcircle of *QL-Try* and *QL-Cu1* contains the intersection *S* of *QL-Cu1* and its asymptote.

(4) *QL-Cu1* is anallagmatic with centers of inversion in the intersections (unequal *QL-P1*) of the 2nd Steiner axis and *QL-Cu1*.

(5) *QL-Cu1* is isogonal invariant wrt *QL-Try*.

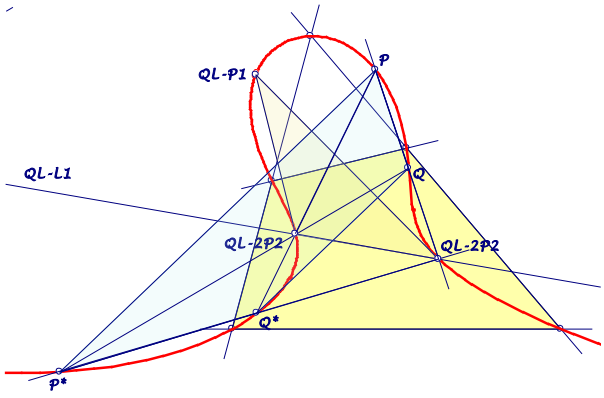
(6) The isogonal conjugate of points on *QL-Cu1* is the *CSC*-image.



(7) *QL-Cu1* is invariant wrt the *CSC*-analog transformations of *QL-Try*.

A point *P* on *QL-Cu1* and its *CSC*-analog images wrt *QL-Try* give a quadrangle on *QL-Cu1* – shortened *P*-quadrangle.

(8) A *P*-quadrangle is a trapezoid of two pairs of *CSC*-partners: *P, P and *Q, Q** with …**
… *PP parallel *QQ** and**
… *PQ* ∩ *P*Q*, PQ ∩ *P*Q* are *QL-2P2*.**



(9) The lines *PQ, P*Q*, PQ*, P*Q* give a quadrilateral with the same *QL-Cu1* as the reference quadrilateral.

(10) *QL-Cu1*-tangents in *P, P and *Q, Q** intersect on *QL-Cu1* collinear with *QL-P1*.**

(11) For the *P*-quadrangle the points *QA-P1, QA-P2, QA-P3* lie on *QL-L1, QA-P1* as center of a circle through *QA-P2, QA-P3, QL-P1*.

Eckart Schmidt
http://eckartschmidt.de
eckart_schmidt@t-online.de