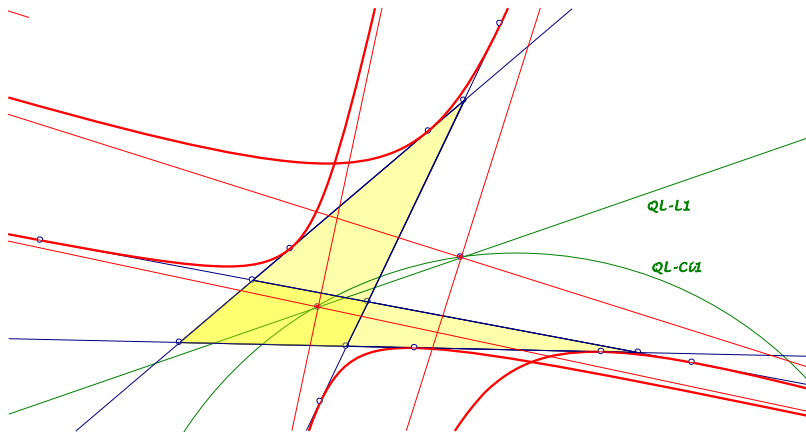


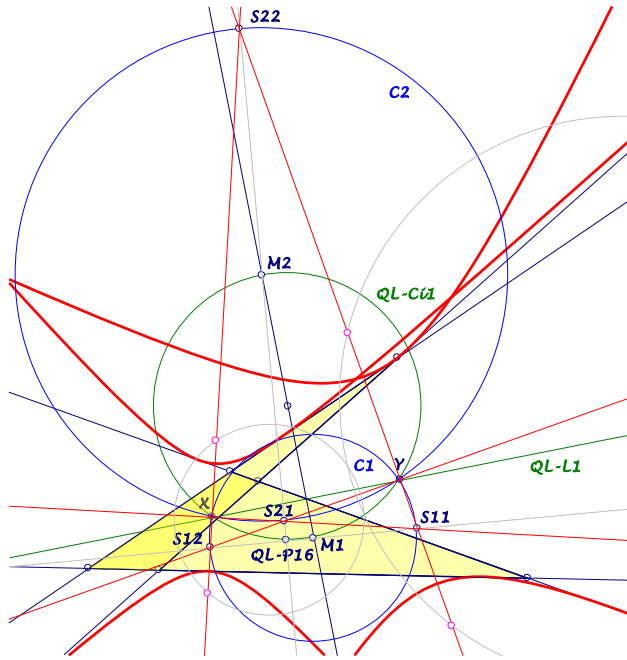
Background for these notes is:  
Chris van Tienhoven: Encyclopedia of Quadri-Figures  
<http://www.chrisvantienhoven.nl/>

### Inscribed Orthogonal QL-Hyperbolas

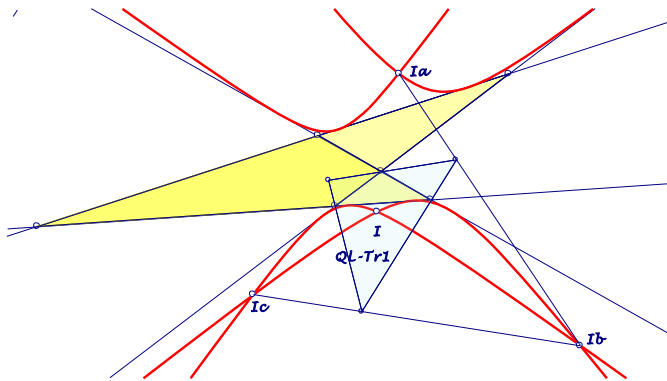
*A quadrangle has two circumscribed parabolas and one circumscribed orthogonal hyperbola, a quadrilateral has one inscribed parabola and two inscribed orthogonal hyperbolas (see [1] and QFG-messages sept. 2015). Here the two inscribed orthogonal QL-hyperbolas are described – Cabri controlled – in EQF-geometry.*



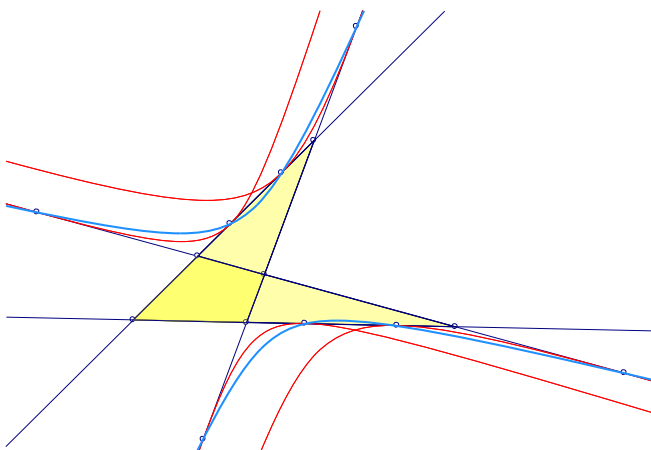
- **A quadrilateral has only two inscribed orthogonal hyperbolas, if the triangle components are obtuse angled (see [1]).**
- **The centers  $X, Y$  of these two hyperbolas are the intersections of the Newton line  $QL-L1$  and the circumcircle  $QL-Ci1$  of the  $QL$ -diagonal triangle (see # 1283).**
- **The axes can be constructed as follows:**
  - ... Let  $M_1, M_2$  be the intersections of  $QL-Ci1$  with the perpendicular bisector of the centers  $X, Y$ .
  - ... Let  $C_1$  and  $C_2$  be circles round  $M_1$  and  $M_2$  through  $X$  and  $Y$ .
  - ... Let  $S_{i,1}$  and  $S_{i,2}$  be the intersections of  $M_i, QL-P16$  and the circle  $C_i$ .
  - ... The lines  $S_{i,j}, S_{k,l}$  ( $i \neq k$ ) are two pairs of orthogonal lines through the centers  $X, Y$ , which are the axes of the hyperbolas.



- The foci are the intersections of axes and their *QL-Tr1* image circle.
- The intersections of the two hyperbolas are the in-/ex-centers of the *QL*-diagonal triangle *QL-Tr1* (see #1288).



- The 8 contact points of the two hyperbolas lie on a conic (see #1289).



Reference [1]:

[http://www.math.uoc.gr/~pamfilos/eGallery/problems/  
RectHyperbolasTangent4Lines.html](http://www.math.uoc.gr/~pamfilos/eGallery/problems/RectHyperbolasTangent4Lines.html)

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