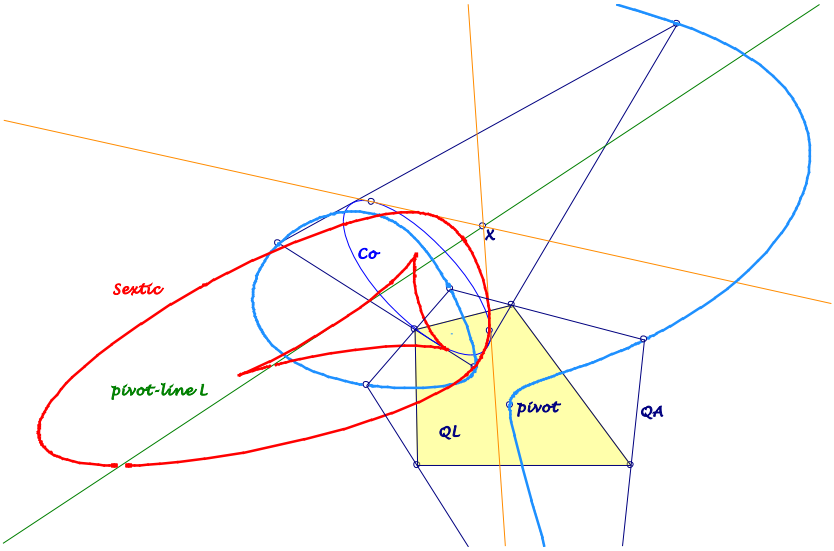
EQF-Note 2016-02-14

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

QL-DT Pivotal "Isosextics" wrt Lines

In QA-geometry there are the pivotal isocubics QA-Cu1, 2, 3, 4, 5 wrt the isoconjugation QA-Tf2 for the diagonal triangle QA-Tr1. This can be translated in QL-geometry wrt the isoconjugation for lines QL-Tf2 for the diagonal triangle QL-Tr1.



The mentioned pivotal *QA*-isocubics wrt a pivot *P* and the isoconjugation *QA-Tf2* for the triangle *QA-Tr1* can be constructed in the following way:
Let *l* be lines through the pivot *P* and *Co* the image-conic *QA-Tf2(l)*, then the intersections of *l* and *Co* give the cubic, circumscribed *QA* and *QA-Tr1*.

Translated in *QL*-geometry:

We start with a pivot-line *L* and the line isoconjugation *QL-Tf2* for the diagonal triangle *QL-Tr1*:
… Let *X* be points on the pivot-line *L*.
… The *QL-Tf2*-images of lines through *X* give a *QL-Tr1*-inscribed conic *Co*.
…The tangents from *X* to *Co* envelop a curve, which is a sextic.

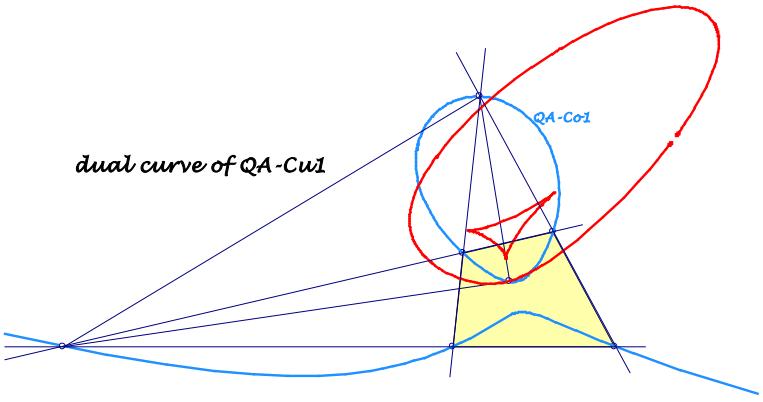
- **This *QL*-sextic is tangent to *QL* and *QL-Tr1* and the pivot-line *L* and *QL-Tf2*-invariant wrt its tangents.**

- **The dual curve (see *EQF*-message 1497) of this *QL*-sextic is a pivotal *QA*-isocubic of the corresponding *QA* (see *EQF*-message 1482) wrt the isoconjugation *QA-Tf2* and a pivot in *QA-Tf2* of the trilinear pole of the pivot-line *L*.**

- **The trilinear poles of tangents at the *QL*-sextic give the dual *QA*-isocubic.**

On the other hand: If we consider a *QA* (with corresponding *QL*) and a *QA*-pivotal isocubic with pivot *P* (as *QA-Cu1*, *2*, *3*, *4*, *5*), we get the dual *QL*-sextic for a pivot-line, which is the *QL-Tf2*-image of the trilinear polar of the pivot *P*. These pivot-lines are
… for *QA-Cu3* with pivot *QA-P10* the Newton line *QL-L1*,
… for *QA-Cu5* with pivot *QA-P1* a parallel to *QL-L9* through *QL-P19*.

- **The dual *QL*-sextic of a *QA*-pivotal isocubic (as *QA-Cu1*, *2*, *3*, *4*, *5*) is the envelope of trilinear polars of cubic-points.**



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