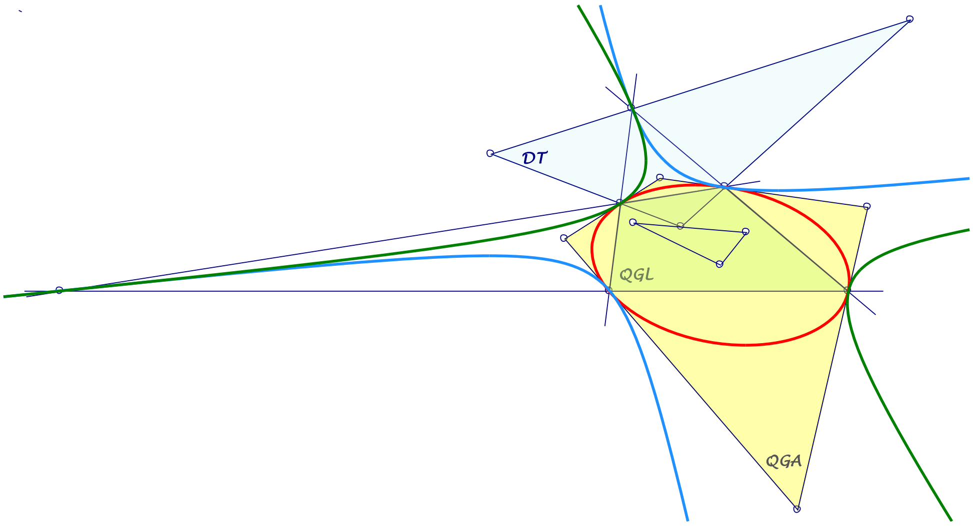
EQF-Note 2016-05-25

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

Three Self-dual Conics

Let QL be a quadrilateral and QA its dual quadrangle with common diagonal triangle DT (see QFG-message 1516). For corresponding quadrigons QGL and QGA there are three self-dual conics, circumscribed QGL and inscribed QGA.



For a reference *QL* we consider a quadrigon component *QGL*. The *DT*-trilinear poles of the *QGL*-lines give the dual quadrigon *QGA*.

- **For the quadrigons *QGL* and *QGA* there is a conic *Co*, circumscribed *QGL* (*QG-Co2* of *QGL*) and inscribed *QGA* (*QG-Co1* of *QGA*).**

In this constellation duality means:
… for lines *L* : dual(*L*) = *QA-Tf2*(*DT*-tripole of *L*),
… for points *P*: dual(*P*) = *QL-Tf2*(*DT*-tripolar of *P*).

- **The three conics *Co* are self-dual.**

- **The conics *Co* are centered**
  … in *QG-P13* of the quadrigons *QGL*,
  which are
  … the duals for the sides of the *DT*-medial triangle
  and give
  … the *DT*-anticevian triangle of
  ***QL-P13* = *QA-P16* = *DT*-tripole of *QL-L1*.**

This triangle is already mentioned as *QL-DDT* by Bernard Keizer (*EQF*-message 1458) with the property (6^{th} conic in *EQF*-messages 1488, 1535, 1707):

- **The triangle of the *Co*-centers and *QL-Tr2* have a common circumconic through *QL-P13*.**

- **The circumcircle of the *Co*-centers is centered on *QL-L6* (see *EQF*).**

- **The poles of an arbitrary line *L* wrt the three conics *Co* give the …**
  … *DT*-anticevian triangle of *DT*-tripole (*QL-Tf2(L))*.

- **The polars of an arbitrary point *P* wrt the three conics *Co* give the …**
  … *DT*-cevian triangle of *QA-Tf2(P)*.

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