Exercise 1

The following figure shows a triangulation T of point set P consisting of three triangles $\Delta_2, \Delta_3, \Delta_4$. It also shows the dual line arrangement P^* with the pseudoline Δ_3^* highlighted in blue (consisting of the dual points of all bisectors of the triangle Δ_3).



- (i) Draw the psedolines Δ_2^* and Δ_4^* of the other two triangles Δ_2 and Δ_4 .
- (ii) Draw the unique common strict bisector between the triangles Δ_2 and Δ_3 , and the unique crossing point between the corresponding pseudolines Δ_2^* and Δ_3^* . Do Δ_2^* and Δ_3^* have a contact point?
- (iii) Draw the unique common strict bisector between the triangles Δ_2 and Δ_4 , and the unique crossing point between the corresponding pseudolines Δ_2^* and Δ_4^* . Do Δ_2^* and Δ_4^* have a contact point?

Exercise 2

The following figure shows the sorting networks \mathcal{N}_P and \mathcal{N}_P^{*1} for the point set P in the previous exercise.



- (i) Label the commutators of \mathcal{N}_P by pairs *ij* corresponding to the edges connecting vertices *i* and *j* of *P*.
- (ii) Circle the commutators corresponding to the edges used in the triangulation T of the previous exercise.
- (iii) Draw the pseudoline arrangement supported at \mathcal{N}_P^{*1} corresponding to the triangulation T.

Exercise 3

The following figure shows a pointed pseudotriangulation T of point set P consisting of three triangles $\Delta_2, \Delta_3, \Delta_4$. It also shows the dual line arrangement P^* with the pseudoline Δ_3^* highlighted in blue (consisting of the dual points of all pseudobisectors of the pseudotriangle Δ_3).



- (i) Draw the psedolines Δ_2^* and Δ_4^* of the other two pseudotriangles Δ_2 and Δ_4 .
- (ii) Draw the unique common strict pseudobisector between the pseudotriangles Δ_2 and Δ_3 , and the unique crossing point between the corresponding pseudolines Δ_2^* and Δ_3^* . Do Δ_2^* and Δ_3^* have contact points? How many?
- (iii) Draw the unique common strict pseudobisector between the pseudotriangles Δ_3 and Δ_4 , and the unique crossing point between the corresponding pseudolines Δ_3^* and Δ_4^* . Do Δ_2^* and Δ_4^* have contact points? How many?

Exercise 4

The following figure shows the sorting networks \mathcal{N}_P and \mathcal{N}_P^{*1} for the point set P in the previous exercise.



- (i) Label the commutators of \mathcal{N}_P by pairs *ij* corresponding to the edges connecting vertices *i* and *j* of *P*.
- (ii) Circle the commutators corresponding to the edges used in the pseudotriangulation T of the previous exercise.
- (iii) Draw the pseudoline arrangement supported at \mathcal{N}_P^{*1} corresponding to the pseudotriangulation *T*.