OpenGeoProver Output for RC-Constructibility problem "Wernick 001 (A,B,O — C)"

Used algebraic method (with triangulation)

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1 Validation of Construction Protocol

Construction steps:

- Free point A
- Free point B
- Free point C
- Perpendicular bisector mc of segment AB
- Perpendicular bisector ma of segment BC
- Intersection point O of point sets ma and mc

Free points:

- A
- B
- O

Points to be constructed:

- C

Validation result: Construction protocol is valid.

2 Instantiation of points with symbolic variables

- Point C has been assigned following coordinates: (x_1, x_2)
- Point A has been assigned following coordinates: (u_1, u_2)
- Point B has been assigned following coordinates: (u_3, u_4)
- Point O is locus dependent on points: A, B

- Point O has been assigned following coordinates: (u_5, u_6)
- Locus dependency in polynomial form:

$$p \quad = \quad (2u_6u_4 - 2u_6u_2 + 2u_5u_3 - 2u_5u_1 - u_4^2 - u_3^2 + u_2^2 + u_1^2)$$

3 Transformation of geometry conditions for points to polynomial form

3.1 Transformation, step 1

Point to transform: A

Polynomial condition(s): N/A - free point

3.2 Transformation, step 2

Point to transform: B

Polynomial condition(s): N/A - free point

3.3 Transformation, step 3

Point to transform: C

Polynomial condition(s): N/A - free point

3.4 Transformation, step 4

Point to transform: O

Polynomial condition(s): One polynomial

- $$p \quad = \quad -x_2^2 + 2u_6x_2 - x_1^2 + 2u_5x_1 + (-2u_6u_4 - 2u_5u_3 + u_4^2 + u_3^2)$$

4 Triangulation of polynomial system

System is underconstarined - cannot proceed

5 Result of transformation of RC-constructibility problem to polynomial form

Success Message: Failed to transform the RC-constructibility problem to polynomial form - find more details in log file.

Space Complexity: The biggest polynomial obtained during application execution contains 0 terms.

Time Complexity: Time spent in execution is 0.02 seconds.