CIPS

Cinderella - **I**ntergeo - Geo**P**roof**S**cheme

Group 2

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CIPS

```
→ CIPS java -jar cips.jar --help
Missing required options: j, i, o
usage:
java -jar cips.jar -j c2i -i <cinderella file> -o <intergeo file>
java -jar cips.jar -j g2i -i <geoproofscheme file> -o <intergeo file> -p
            [default parameter file]
java -jar cips.jar -j vc -i <cinderella file> -o <visualization file>
java -jar cips.jar -j vi -i <intergeo file> -o <visualization file>
java -jar cips.jar -j vg -i <geoproofscheme file> -o <visualization file>
            -p [default parameter file]

 -h,--help                print this message
 -i,--input <arg>         input file path
 -j,--job-type <arg>      "c2i": cinderella to intergeo,
                          "g2i": geoproofscheme to intergeo,
                          "vc":  cinderella visualisation with jsxgraph,
                          "vi":  intergeo visualisation with jsxgraph,
                          "vg":  geoproofscheme visualisation with jsxgraph
 -o,--output <arg>        output file path
 -p,--parameter <arg>     default parameter file path
```

Convert GeoProofScheme to Intergeo

Usage:

```
java -jar cips.jar -j g2i
                   -i <path to geoproofscheme file>
                   -o <path to intergeo file>
                   -p [path to default parameter file]
```

Convert GeoProofScheme to Intergeo

Example: geoproofscheme_test.xml

```
<Construction>
<Title>geoproofscheme_test</Title>
<prooftype> constructive </prooftype>
<parameters>u1,u2,u3,u4</parameters>
<Points>
<Point id='$c1' type='free'>Point[0, 25]</Point>
<Point id='$c2' type='free'>Point[0, 19]</Point>
<Point id='$c3' type='free'>Point[14.82, 14.18]</Point>
<Point id='$c4' type='free'>Point[14.82, 8.18]</Point>
<Point id='$c5' type='free'>Point[8.88, -3.09]</Point>
<Point id='$c6' type='free'>Point[8.88, -9.09]</Point>
<Point id='$c7' type='free'>Point[-8.88, -3.09]</Point>
<Point id='$c8' type='free'>Point[-8.88, -9.09]</Point>
<Point id='$c9' type='free'>Point[-14.82, 14.18]</Point>
<Point id='$c10' type='free'>Point[-14.82, 8.18]</Point>
<Point id='$c11' type='free'>Point[u2, u3]</Point>
<Point id='$c12' type='free'>Point[90, u3]</Point>
<Point id='$c13' type='free'>Point[u2, -30]</Point>
<Point id='$c14' type='free'>Point[90, -30]</Point>
</Points>
```

Default parameters

u1	-1.58
u2	40
u3	-10
u4	0

```
<Assignments>
<Point id='$c31'>circle_slider[$c1, $c2, u1]</Point>
<Point id='$c32'>circle_slider[$c3, $c4, u1]</Point>
<Point id='$c33'>circle_slider[$c5, $c6, u1]</Point>
<Point id='$c34'>circle_slider[$c7, $c8, u1]</Point>
<Point id='$c35'>circle_slider[$c9, $c10, u1]</Point>
<Line id='$c36'>pp_line[$c31, $c33]</Line>
<Line id='$c37'>pp_line[$c31, $c34]</Line>
<Line id='$c38'>pp_line[$c32, $c34]</Line>
<Line id='$c39'>pp_line[$c32, $c35]</Line>
<Line id='$c40'>pp_line[$c33, $c35]</Line>
<Circle id='$c41'>p3_circle[$c31, $c32, $c33]</Circle>
<Point id='$c42'>midpoint[$c11, $c13]</Point>
<Point id='$c43'>midpoint[$c12, $c14]</Point>
<Circle id='$c44'>pc_circle[$c42, $c11]</Circle>
<Circle id='$c45'>pc_circle[$c43, $c12]</Circle>
<Point id='$c46'>circle_slider[$c42, $c11, u4]</Point>
<Point id='$c47'>circle_slider[$c43, $c12, u4]</Point>
<Line id='$c48'>pp_line[$c46, $c47]</Line>
<Line id='$c49'>ortho_line[$c11, $c48]</Line>
<Line id='$c50'>ortho_line[$c12, $c48]</Line>
<Point id='$c51'>intersection_point[$c48, $c49]</Point>
<Point id='$c52'>intersection_point[$c48, $c50]</Point>
<Point id='$c53'>midpoint[$c11, $c51]</Point>
<Point id='$c54'>midpoint[$c13, $c51]</Point>
<Point id='$c55'>midpoint[$c12, $c52]</Point>
<Point id='$c56'>midpoint[$c14, $c52]</Point>
<Line id='$c57'>pp_line[$c53, $c55]</Line>
<Line id='$c58'>pp_line[$c54, $c56]</Line>
<Point id='$c59'>midpoint[$c51, $c53]</Point>
<Point id='$c60'>midpoint[$c51, $c54]</Point>
<Point id='$c61'>midpoint[$c55, $c52]</Point>
<Point id='$c62'>midpoint[$c52, $c56]</Point>
<Line id='$c63'>pp_line[$c59, $c61]</Line>
<Line id='$c64'>pp_line[$c60, $c62]</Line>
</Assignments>
</Construction>
```

Convert GeoProofScheme to Intergeo

Convert GeoProofScheme to Intergeo
Example: geoproofscheme_test.xml

```
java -jar cips.jar -j g2i
                   -i geoproofscheme_test.xml
                   -o intergeo_from_geoproofscheme.xml
                   -p defaultparameters.txt
```

Visualize GeoProofScheme

Usage:

```
java -jar cips.jar -j vg
                   -i <path to geoproofscheme file>
                   -o <path to visualization file>
                   -p [path to default parameter file]
```

Visualize GeoProofScheme

Visualize GeoProofScheme

Example: Visualize geoproofscheme_test.xml

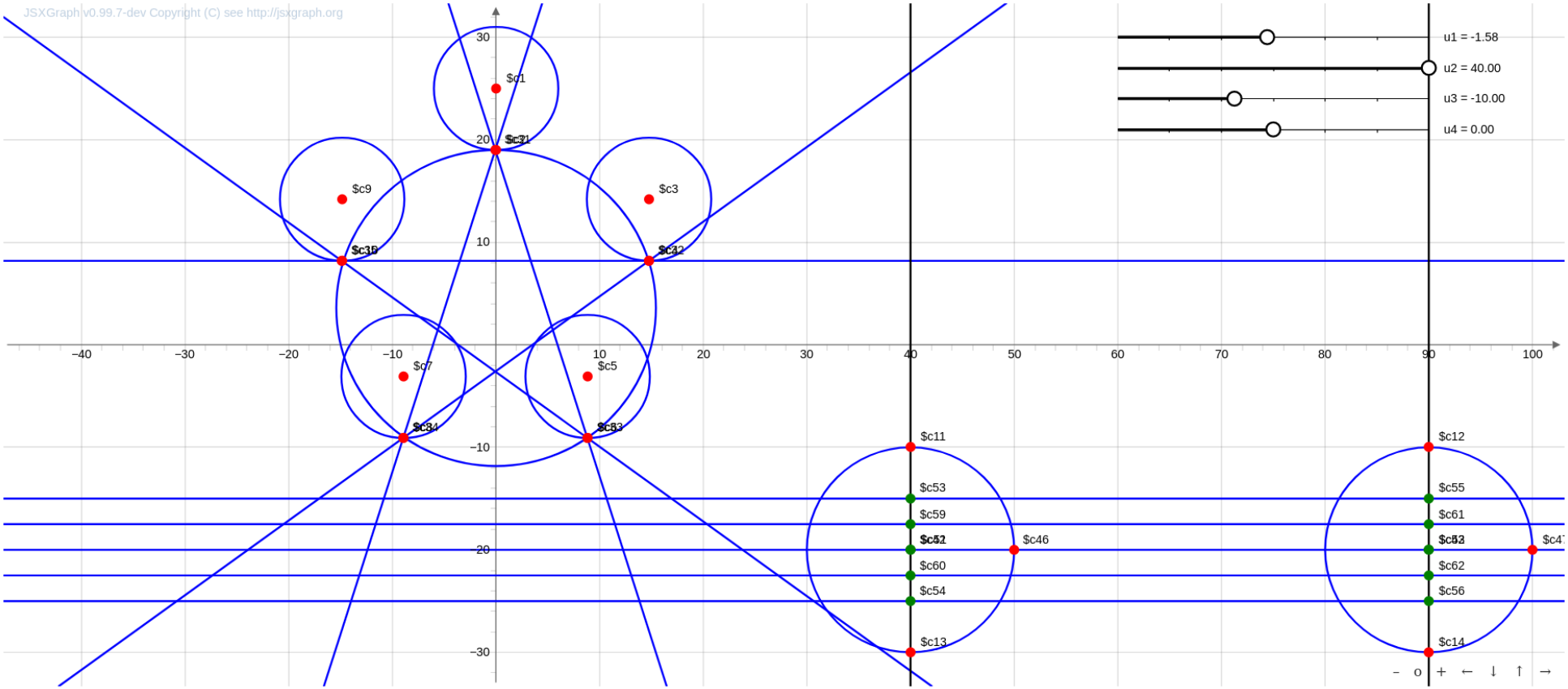
```
java -jar cips.jar -j vg
                   -i geoproofscheme_test.xml
                   -o geoproofscheme_test.html
                   -p defaultparameters.txt
```

Visualize GeoProofScheme

Visualize GeoProofScheme

Example: Visualize geoproofscheme_test.xml

geoproofscheme_test



Compare with the above converted Intergeo

Compare with the above converted Intergeo
Example: Visualize intergeo_from_geoproofscheme.xml

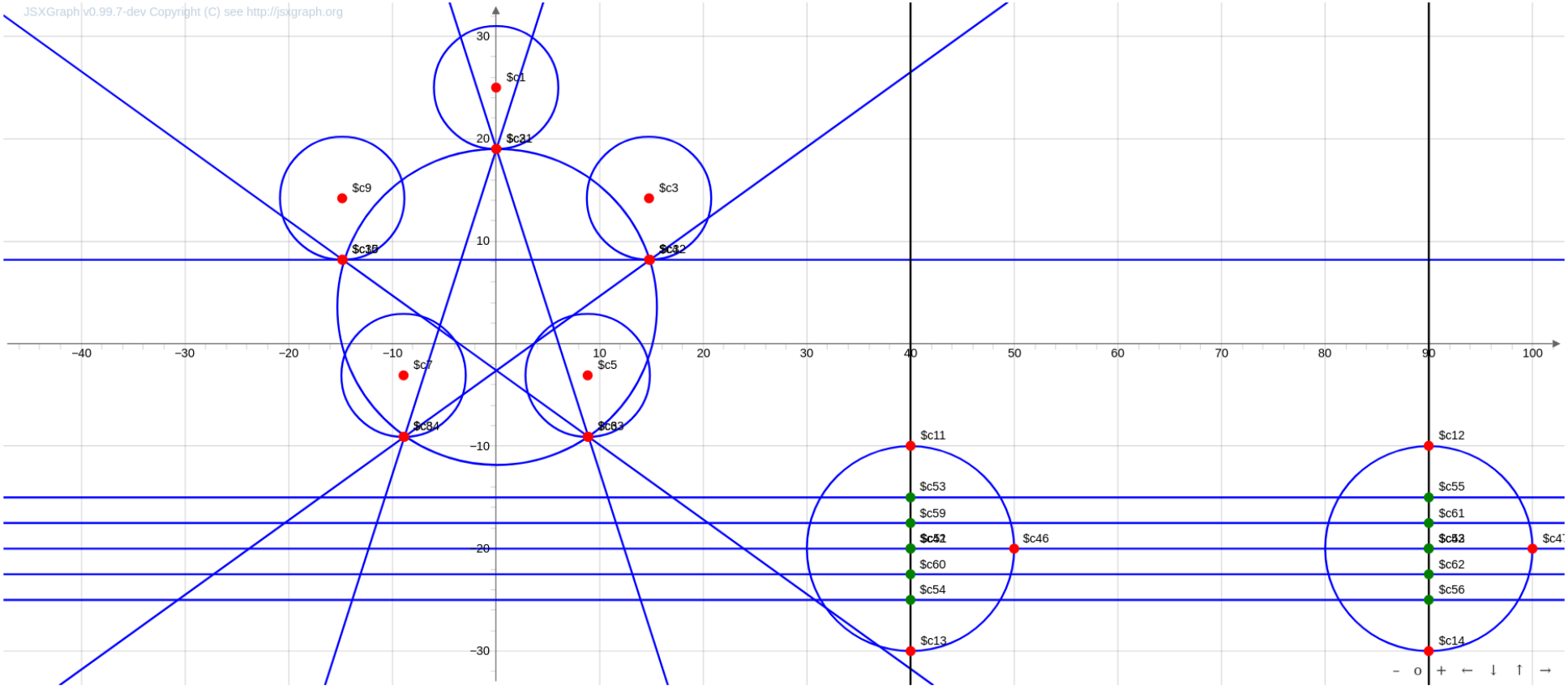
```
java -jar cips.jar -j vi
                   -i intergeo_from_geoproofscheme.xml
                   -o intergeo_from_geoproofscheme.html
```

Compare with the above converted Intergeo

Compare with above the converted Intergeo

Example: Visualize intergeo_from_geoproofscheme.xml

intergeo_from_geoproofscheme.html



G2I - Transformation Status

GeoProofScheme Elements that are convertible with CIPS:

GeoProofScheme Element	Corresponding Intergeo Element
free_point	free_point
intersection_point	point_intersection_of_two_lines
midpoint	midpoint_of_two_points
pp_line	line_through_two_points
par_line	line_parallel_to_line_through_point
ortho_line	line_perpendicular_to_line_through_point
pc_circle	circle_by_center_and_point
p3_circle	circle_by_three_points
line_slider	point_on_line
circle_slider	point_on_circle
p3_bisector*	line_angular_bisector_of_three_points

GeoProofScheme - Visualization Status

GeoProofScheme Elements that can be visualized with CIPS:

GeoProofScheme Element	Note
free_point	Free point
intersection_point	The intersection point of the lines a,b
midpoint	The midpoint of two points A,B
varpoint	The point D=(1-u)*A+u*B that slides on the line AB, with parameter u
fixedpoint	The point D=(1-u)*A+u*B on the line AB for a fixed value of u
pp_line	The line through two points A,B
par_line	The line through P parallel to line a
ortho_line	The line through P orthogonal to the line a
pc_circle	The circle with given center M and circumfere point A
p3_circle	The circle through 3 given points
line_slider	Chooses a point on a using parameter u
circle_slider	Choose a point on the circle with center M and point A on the perimeter using a rational parametrization with parameter u.
p3_bisector*	bisector of the angle ABC

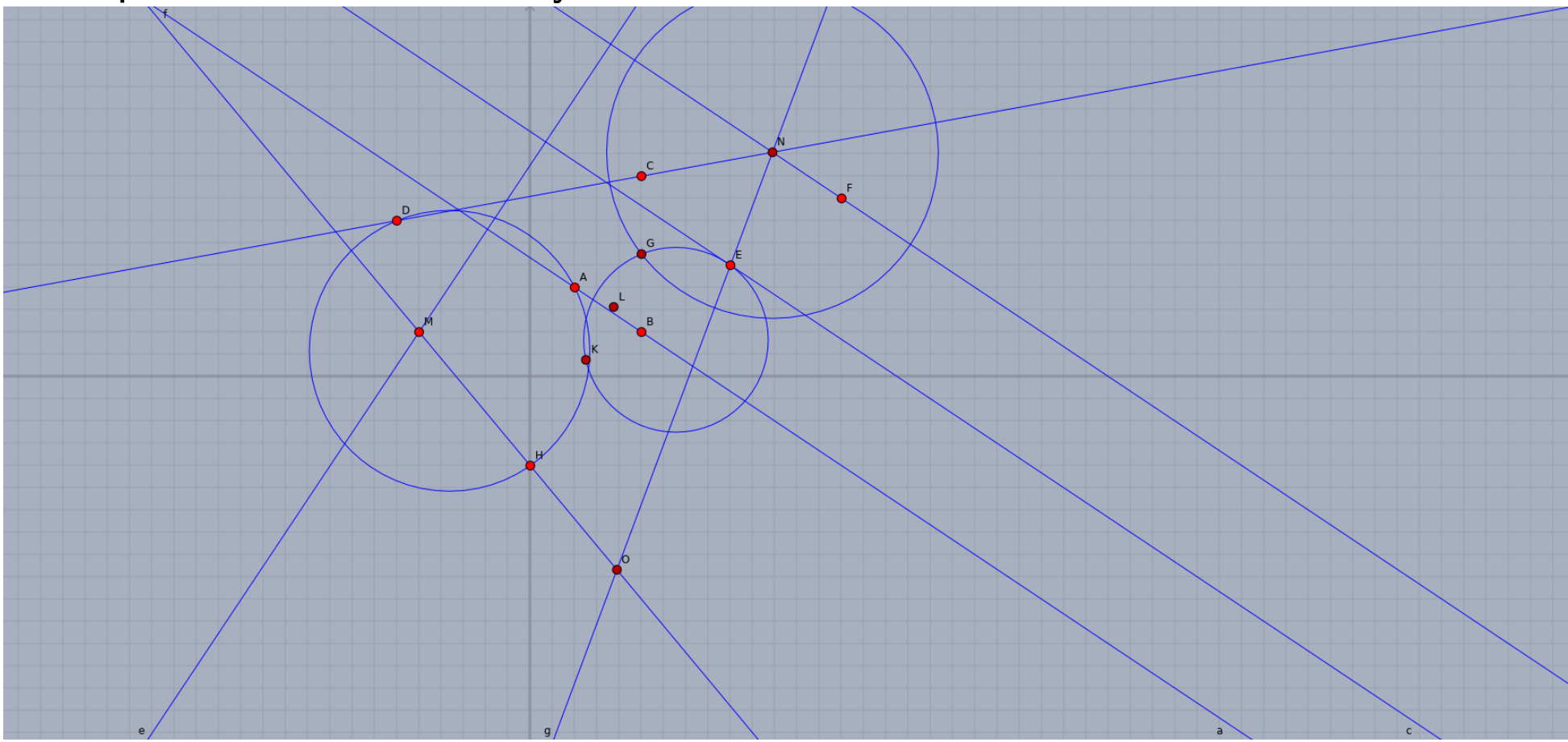
Convert Cinderella to Intergeo

Convert Cinderella to Intergeo
Example: cinderella_test.cdy

```
java -jar cips.jar -j c2i
                   -i cinderella_test.cdy
                   -o intergeo_from_cinderella.xml
```

Visualize Cinderella

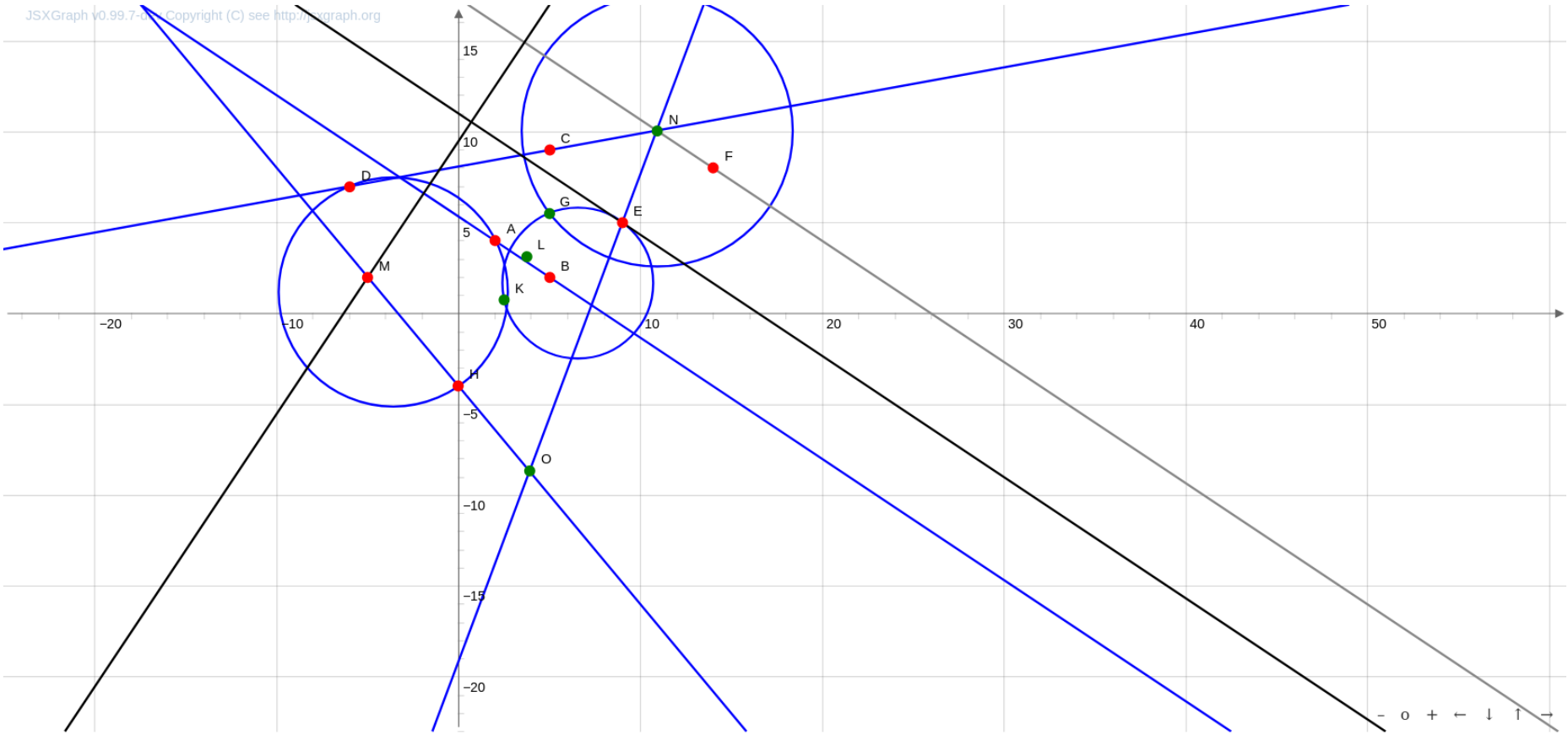
Example: cinderella_test.cdy



Visualize Cinderella

Visualize cinderella_test.cdy with CIPS

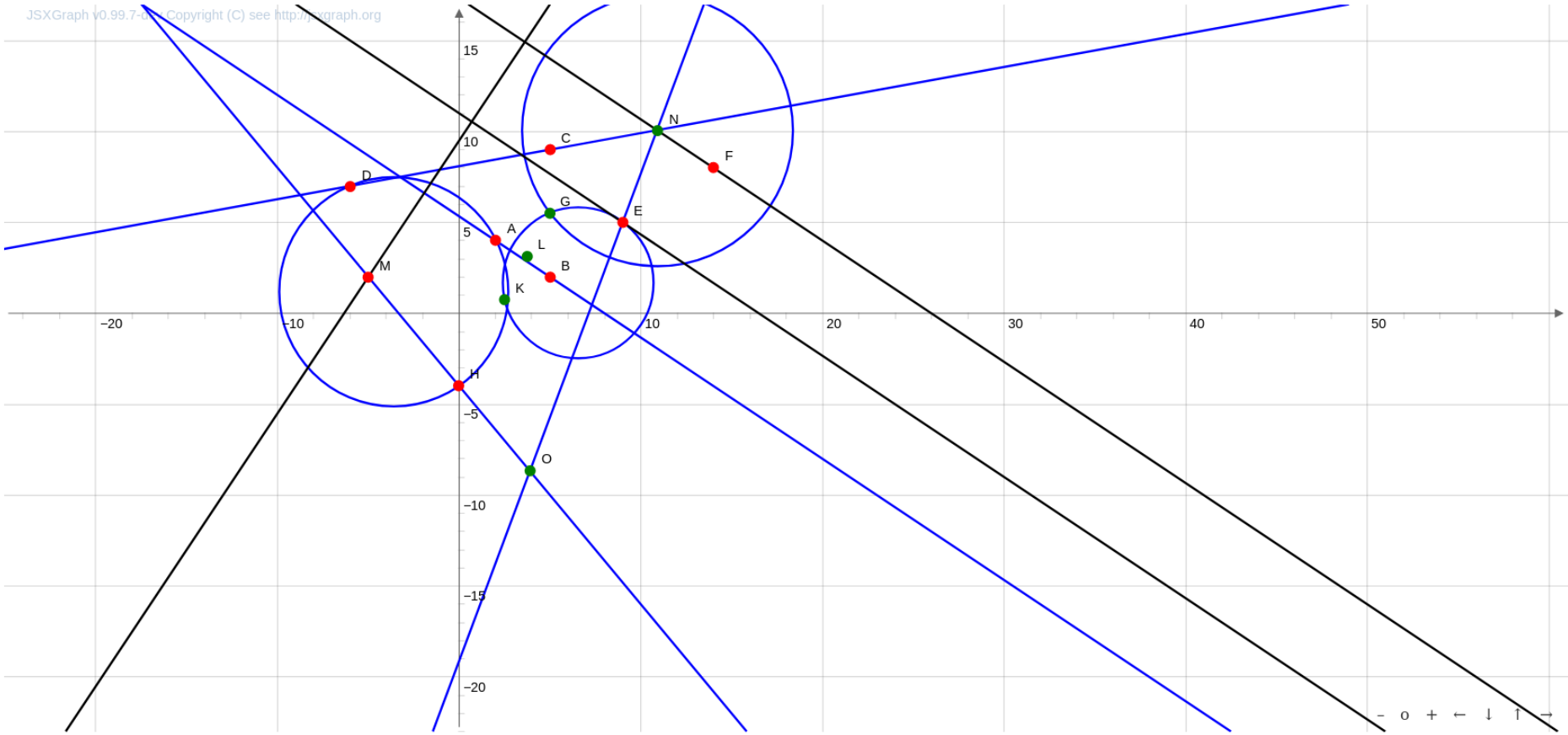
cinderella_test.cdy



Visualize Cinderella

Visualize the above converted intergeo_from_cinderella.xml

intergeo_from_cinderella.xml



C2I - Transformation Status

Cinderella Elements that are convertible with CIPS:

Cinderella Element	Corresponding Intergeo Element
FreePoint	free_point
Meet	point_intersection_of_two_lines
Mid	midpoint_of_two_points
Join	line_through_two_points
Parallel	line_parallel_to_line_through_point
Orthogonal	line_perpendicular_to_line_through_point
CircleMP	circle_by_center_and_point
CircleBy3	circle_by_three_points