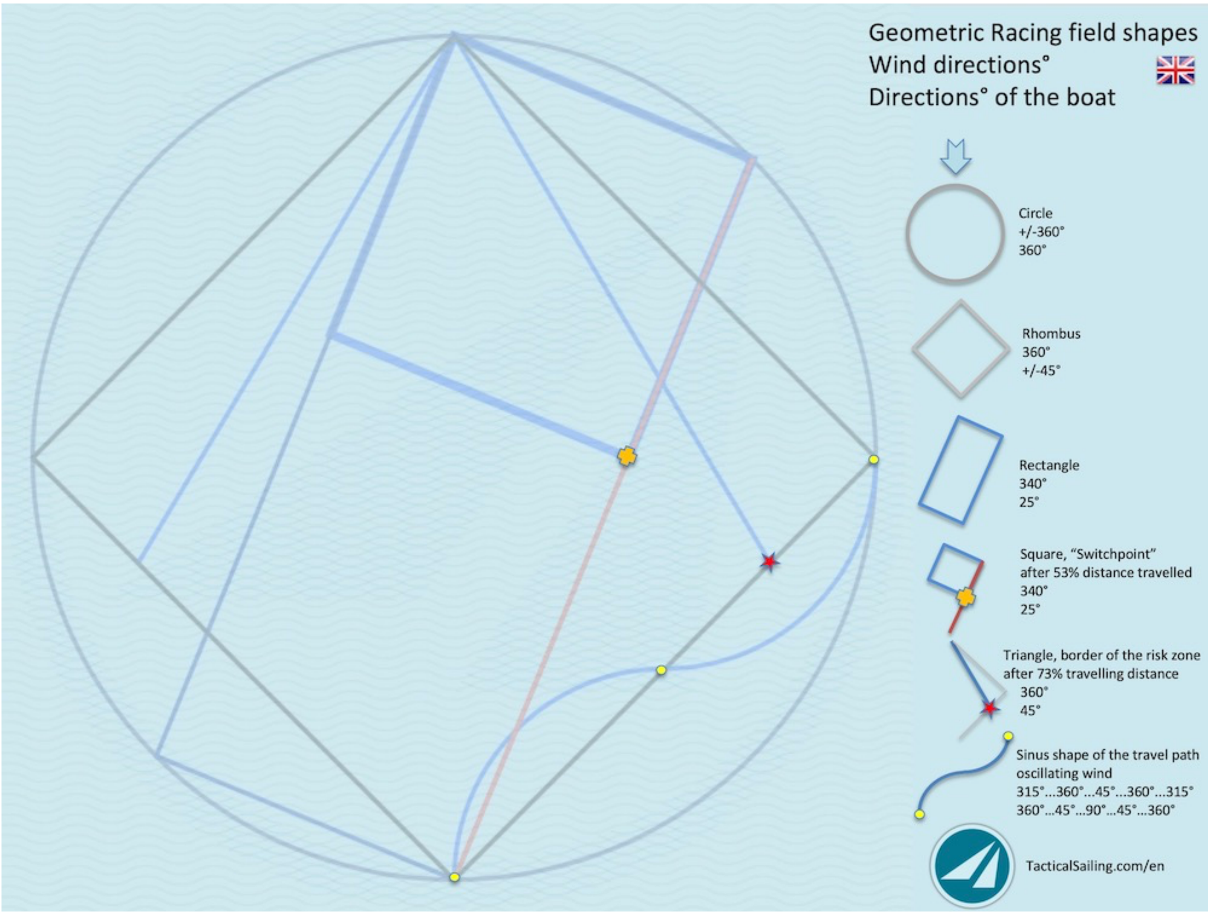
1. Shapes

Geometric shapes and figures, such as points, lines, and areas, additionally help us to make the right strategic/tactical decisions on the regatta course.
"Looking at the geometry of a course makes sense, because various changes in external conditions can be clearly visualized and understood."
© Tilo Schnekenburger: "The geometry of regatta sailing", chapters 3, 4 and 5.5 The playing field.

In the Tactical Sailing program, various geometric shapes are shown under the following conditions:
- the boundary of the racing field by two buoys,
- The influence of wind direction and wind shifts,
- the definition of a specific tacking/jibing angle of a boat.

(We use a J/70 with a 90° turning/neck angle to create comparable conditions for visualizing the geometric figures using a concrete example).



In the Tactical Sailing program, 6 basic geometric shapes can be displayed on the regatta field: Circle, rhombus, rectangle, square, triangle, sine line.

Circle:
The simplest geometric shape on a regatta course is the circle.
When laying out a regatta course, the windward and leeward buoys form the so-called course axis. The **course axis** also represents the **diameter** of the circle. The wind direction is orientated at 360°. A boat can reach any point on the circle, and it makes it possible to observe the entire regatta field: in the start area and in the finish area, on the left or right side of the course.

Rhombus:
When sailing against the wind with a wind direction of 360°, a new inner shape is formed within the circle: the rhombus. After the start, the sailor steers his course according to the direction of travel +/-45° at an optimum speed to windward. He steers the course - the "**height to windward**" - to the "layline" and then makes a "leeward tack" onto the course to the windward buoy.

Rectangle:
When the wind direction changes from 360° to 340°, the sailor must also change his course - a course that takes the boat closer to the windward mark. The diamond now becomes a new geometric figure: a rectangle. In this example, the sailor can steer the boat in a wind direction of 340° at an optimum speed to windward - the so-called "**reaching bow (Streckbug**)".

Square:
At the so-called "switch point" - the point at which the line of the "wind axis (340°)" and the line of the "course axis (25°)" of the boat intersect - a new distinctive shape is formed: the square. The "**switch point**" is an opportunity for the sailor to decide to change direction: he changes ("switches") his course from 25° by tacking to a course of 325° in the direction of travel towards the center of the field.

Triangle:
On the windward leg towards the "layline", a new figure is created from the previously sailed geometric figure of the diamond: a triangle that defines the boundary line to the "**risk zone**". Up to this boundary line, the sailor steers in the so-called "safe diamond"; it protects against getting "**offside**" when the wind shifts. The shape of a triangle is limited by the legs to the tacking point at the layline and from there to the windward buoy.

Sinusoidal line:
The assumption of a rhythmic change in wind direction in sinusoidal form can only be seen theoretically. A "straight" geometric boundary line then becomes a "curved" geometric boundary line, as with the rhombus. With **oscillating wind direction** changes, the sailor can adapt the course and direction of travel to the course of a "sine curve" and thus optimize his speed. Example:
Windrichtungen: **315**°...360°...45°...360°...315°
Fahrtrichtungen: **360**°…45°…**90**°…45°…**360**°
Starting from the wind direction 315°, the boat initially follows the direction of travel 360° and then falls further and further to the right in the direction of 45° and 90°. Then the wind direction begins to turn back to the left - and with it the direction of travel - at the same rhythm to 45° and 360°.