

Triangulation

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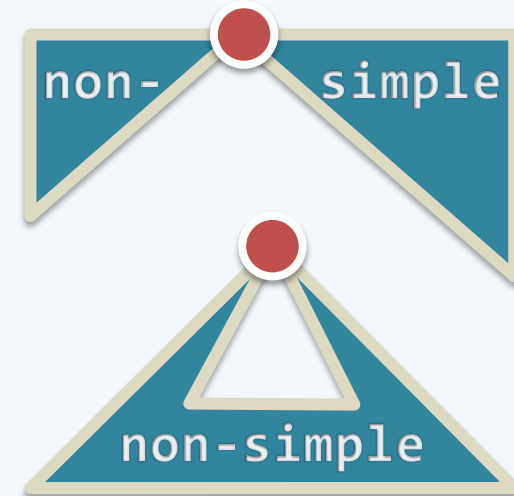
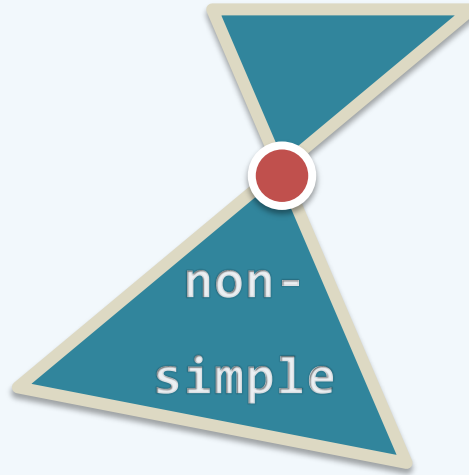
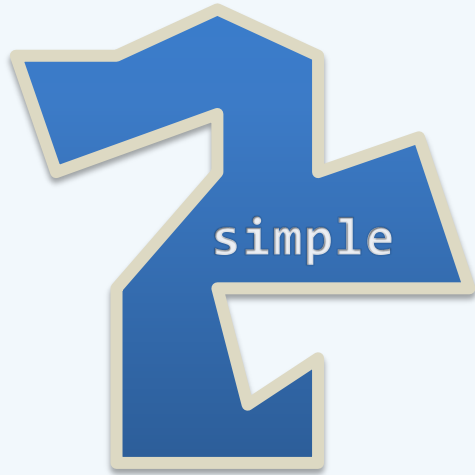
- Existence

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Simplicity

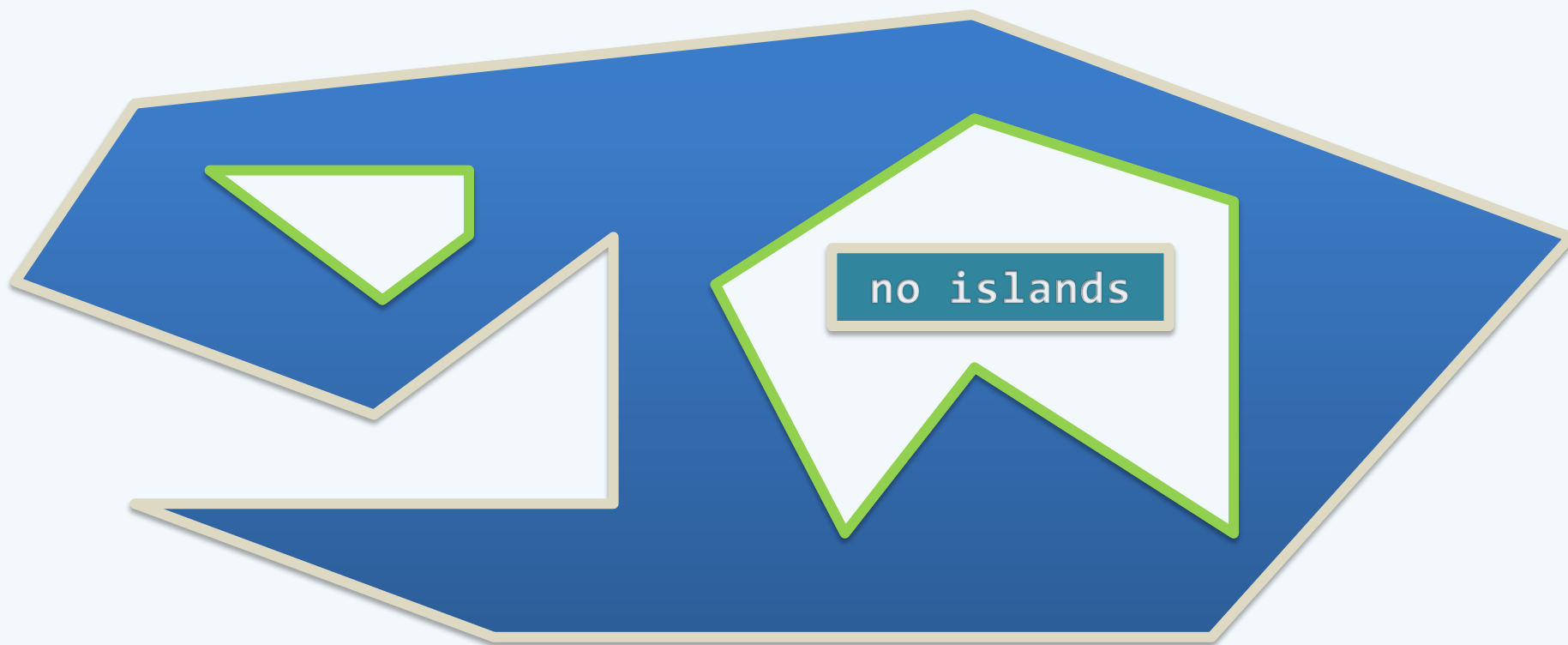
- ❖ A polygon is called **simple** if non-consecutive edges don't intersect



- ❖ Also called **Jordan polygon** for its boundary is a **Jordan curve** which divides the plane into **two** connected regions
- ❖ The **bounded**/**unbounded** one is called its **interior**/**exterior**

Holes

- ❖ The set of simple polygons can be extended to contain those with holes



- ❖ How, then, to define the `boundary`/`interior`/`exterior`?

Lenne's Theorem

- ❖ The following problem studied as early as a century ago:

Can every simple polygon, **with** or **without** holes, be triangulated?

- ❖ [Lenne, 1911]

Every simple polygon, with or without holes, **admits** a triangulation

- ❖ Lenne **"proved"** his theorem by presenting a recursive **"algorithm"**

- ❖ Unluckily, the algorithm contains fundamental errors

[Ho 1975] gave a series of counter-examples to Lenne's algorithm