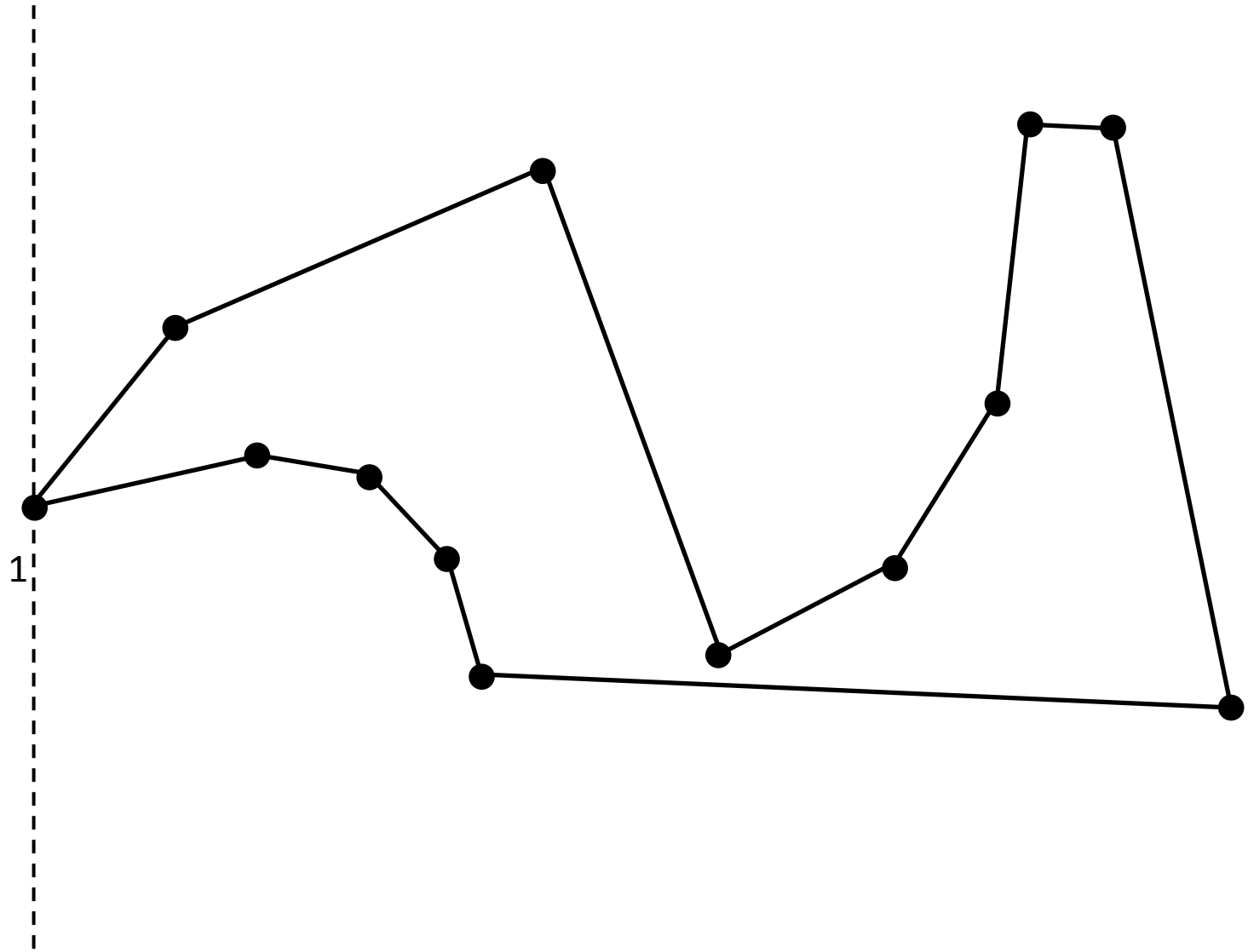
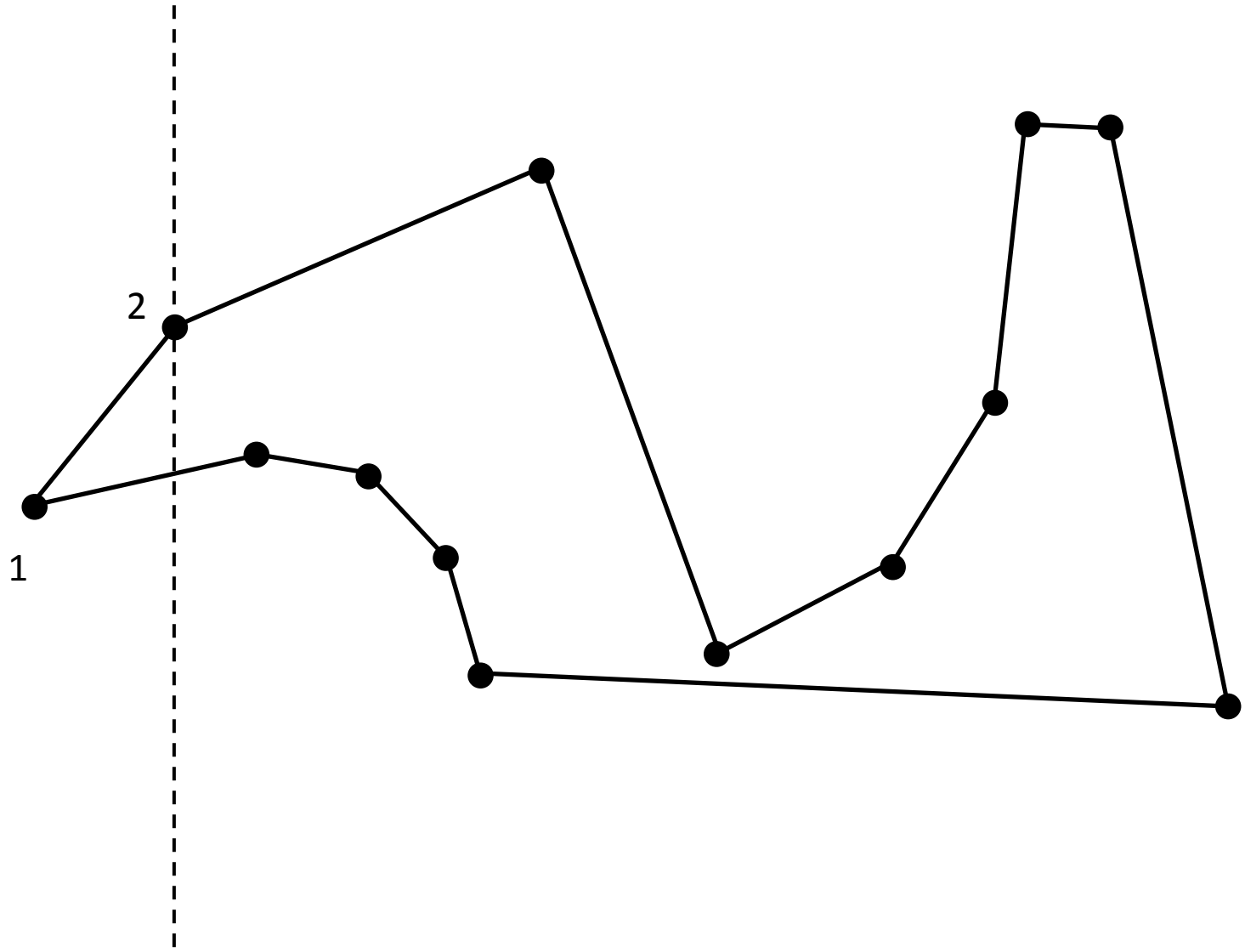
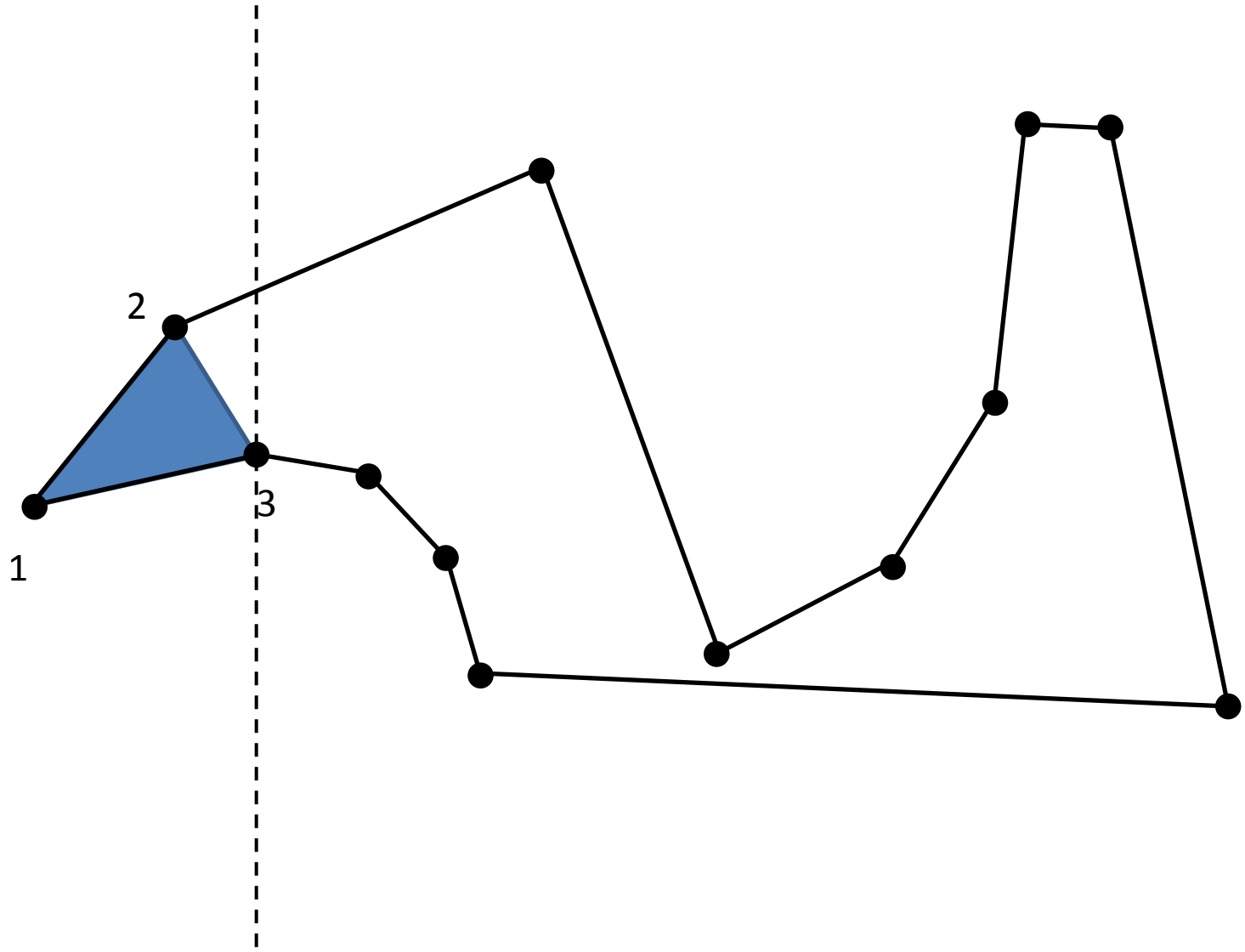
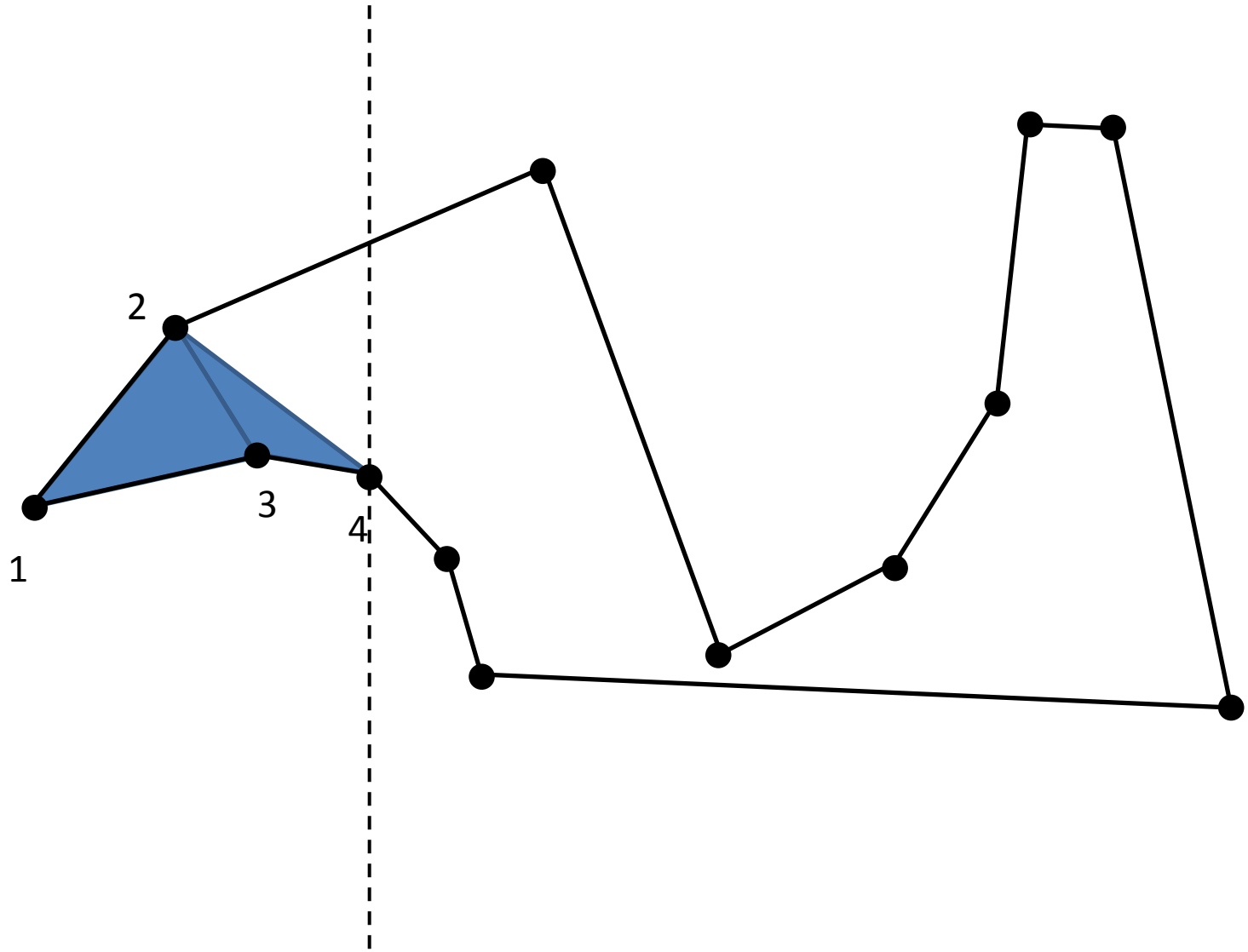
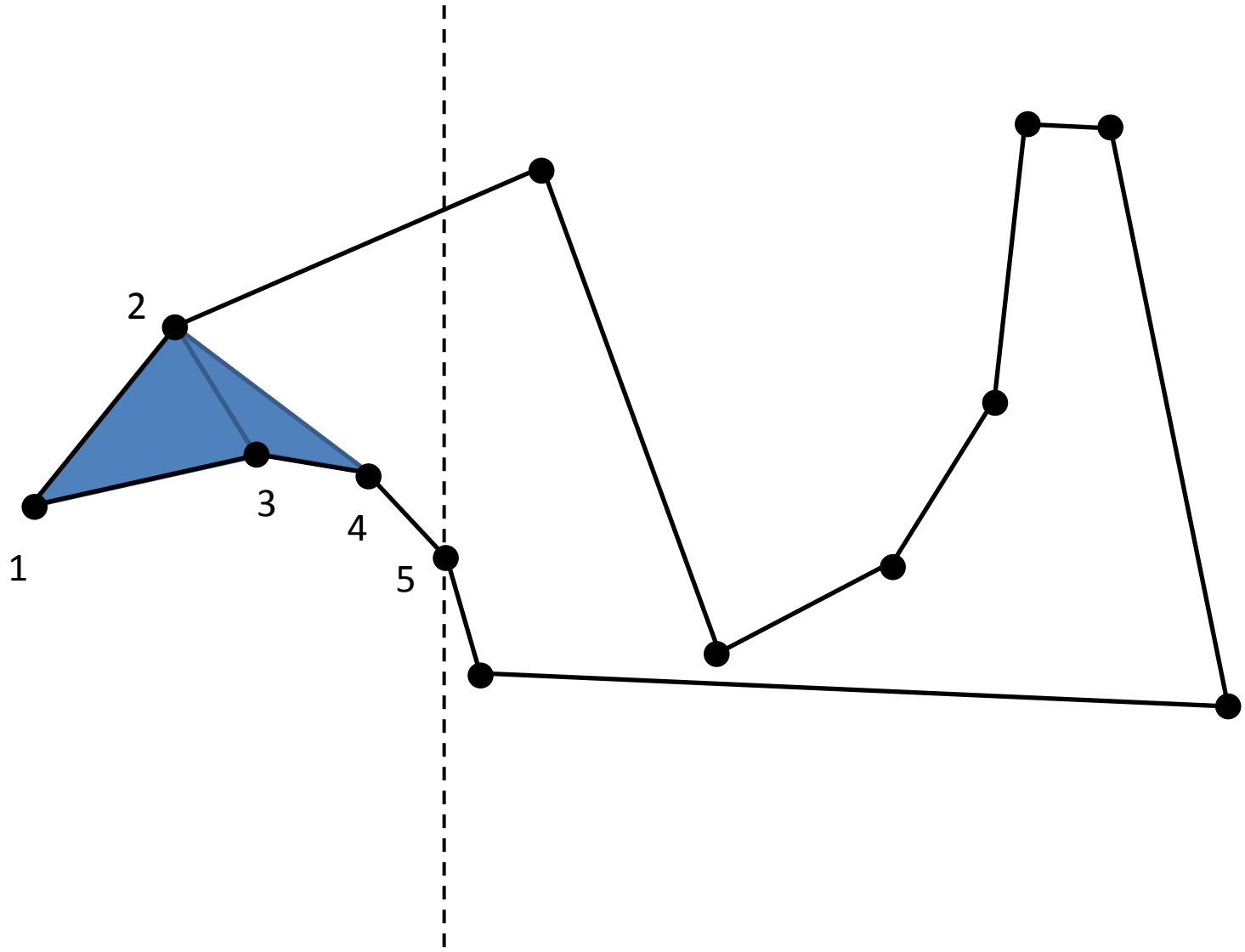
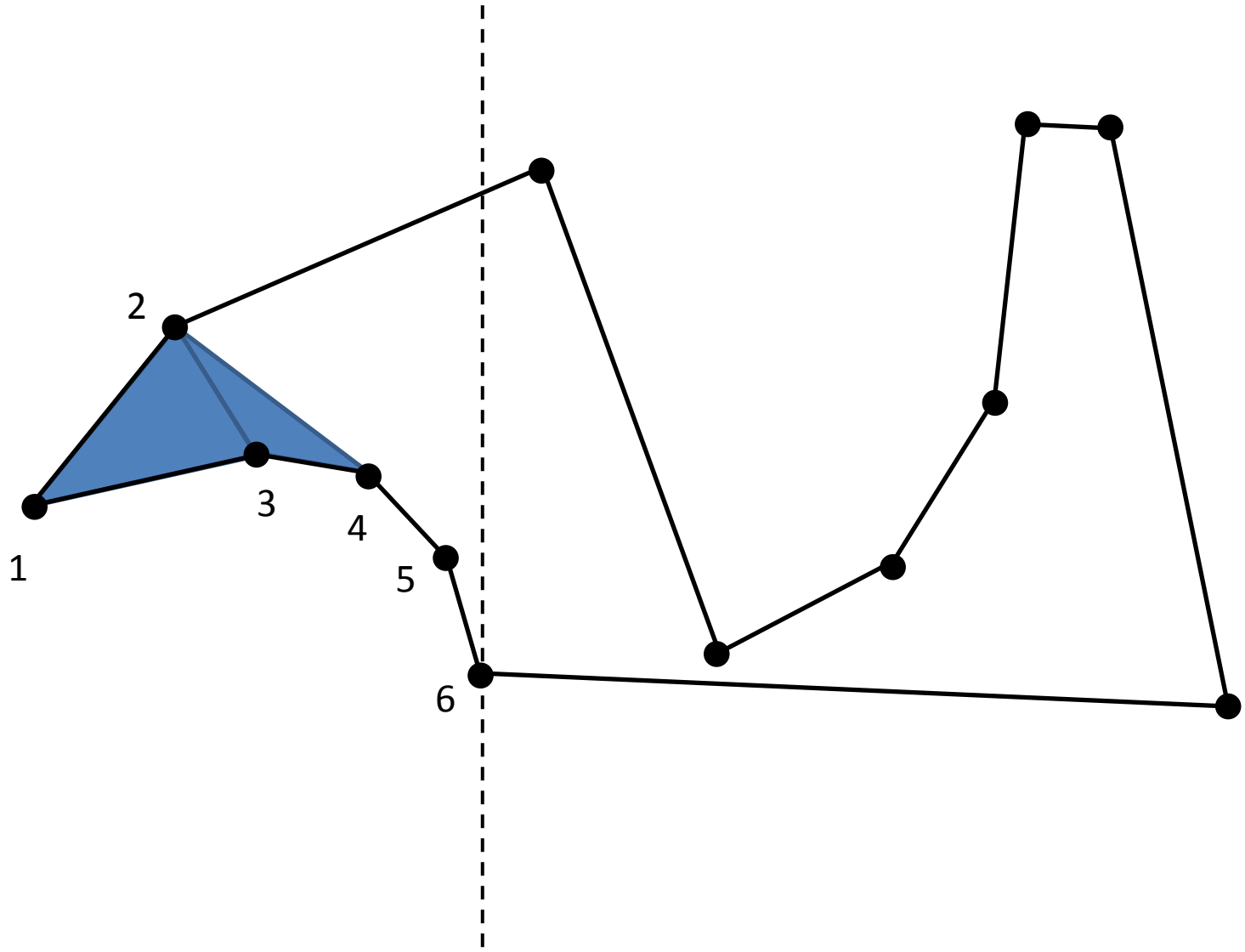

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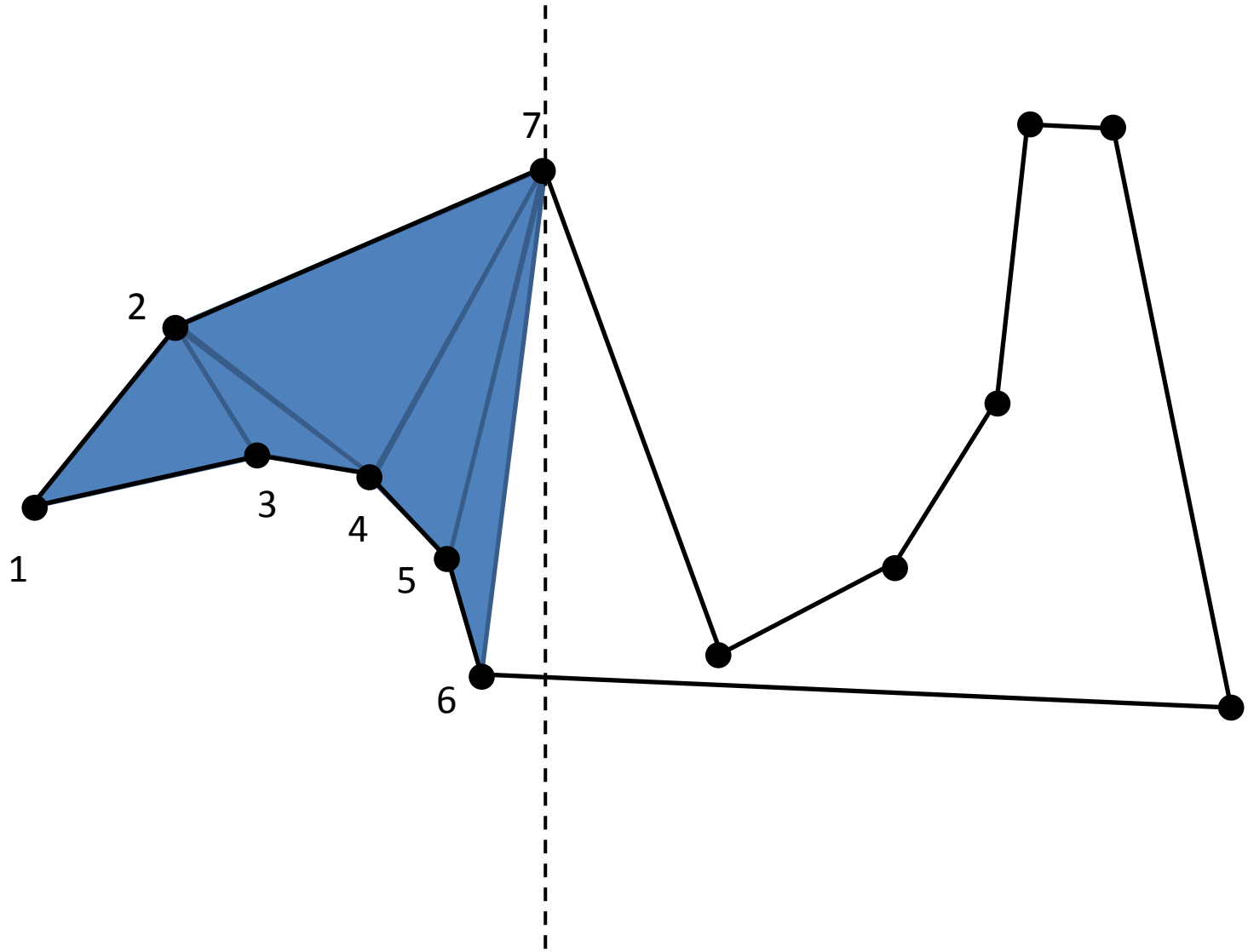

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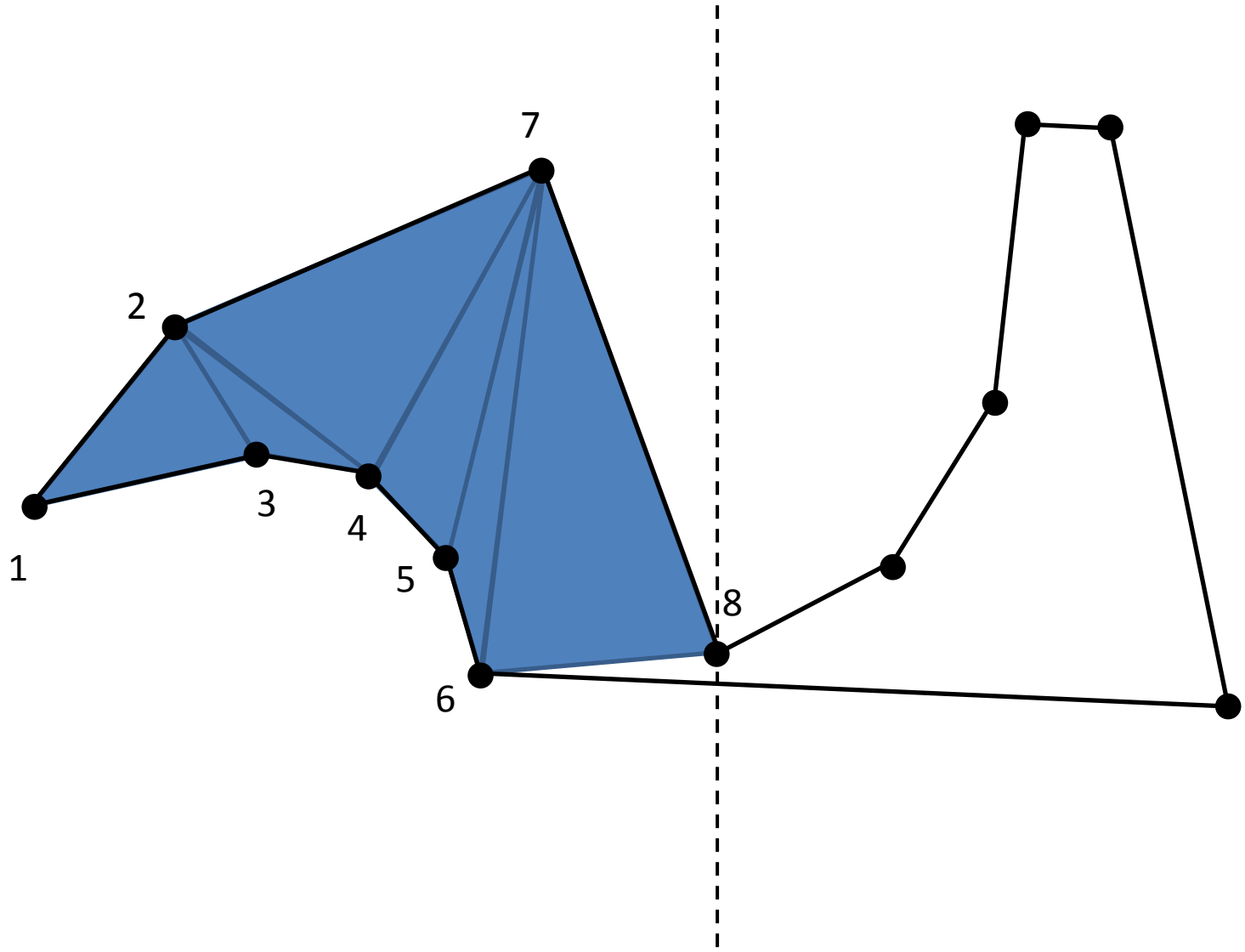

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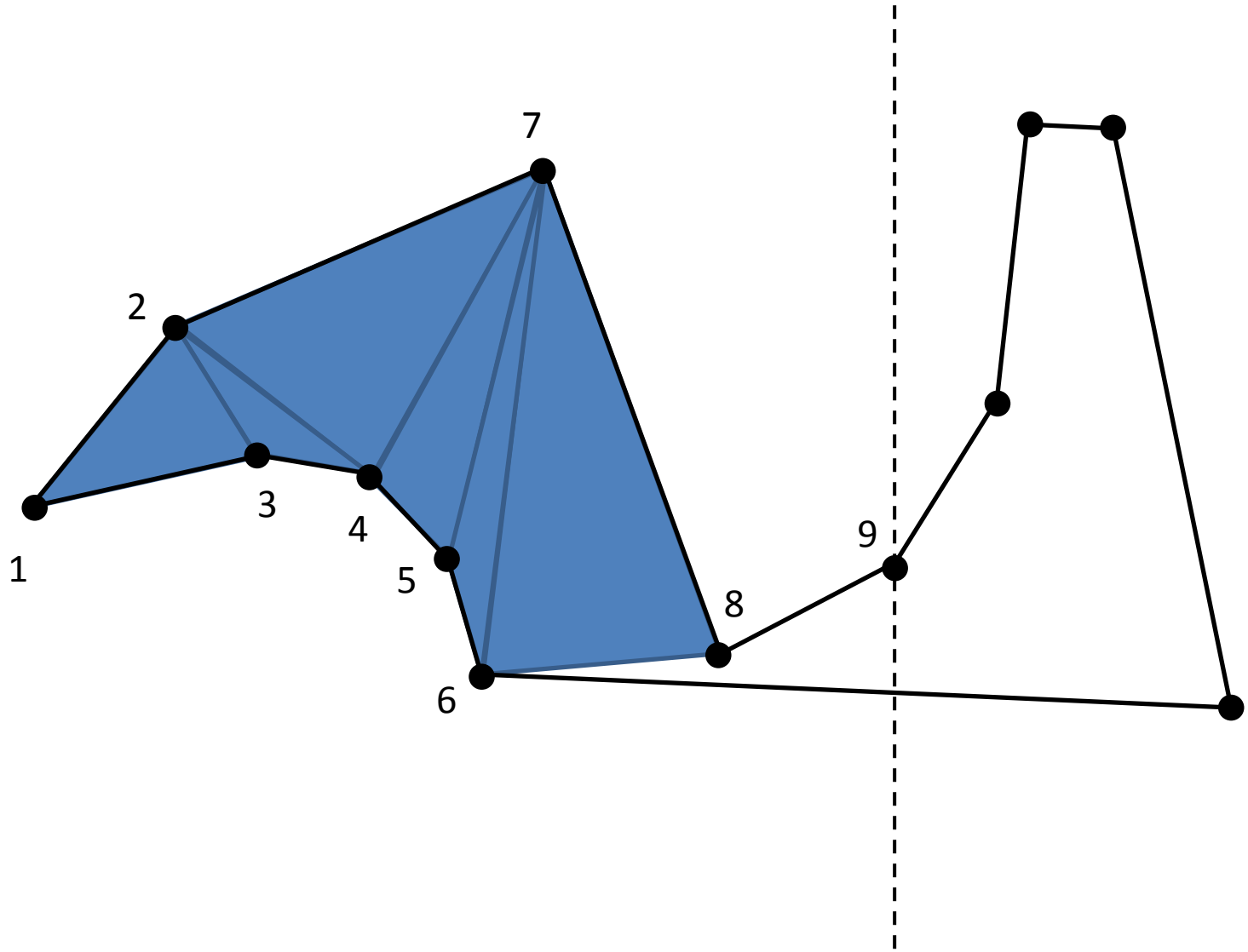

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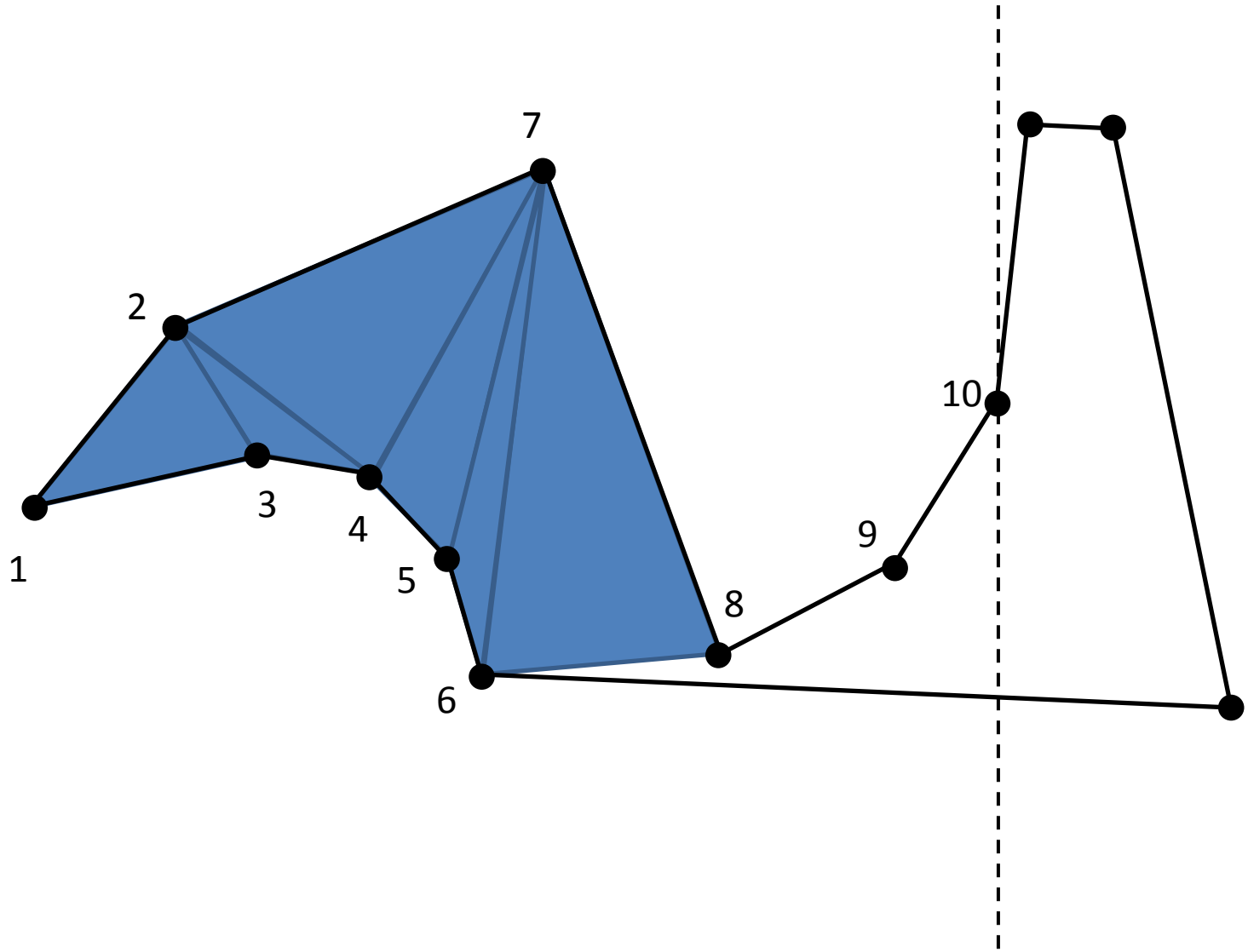

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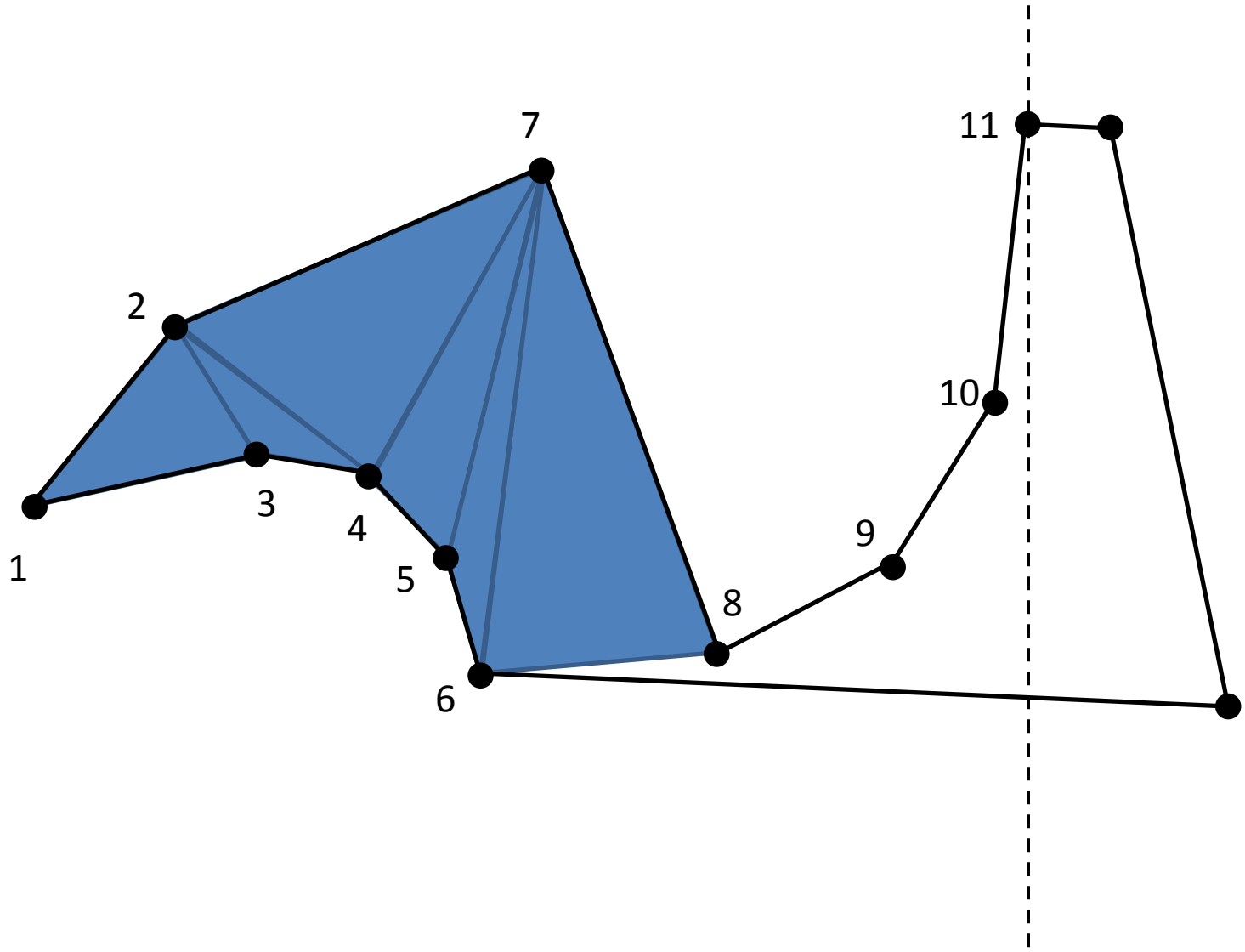

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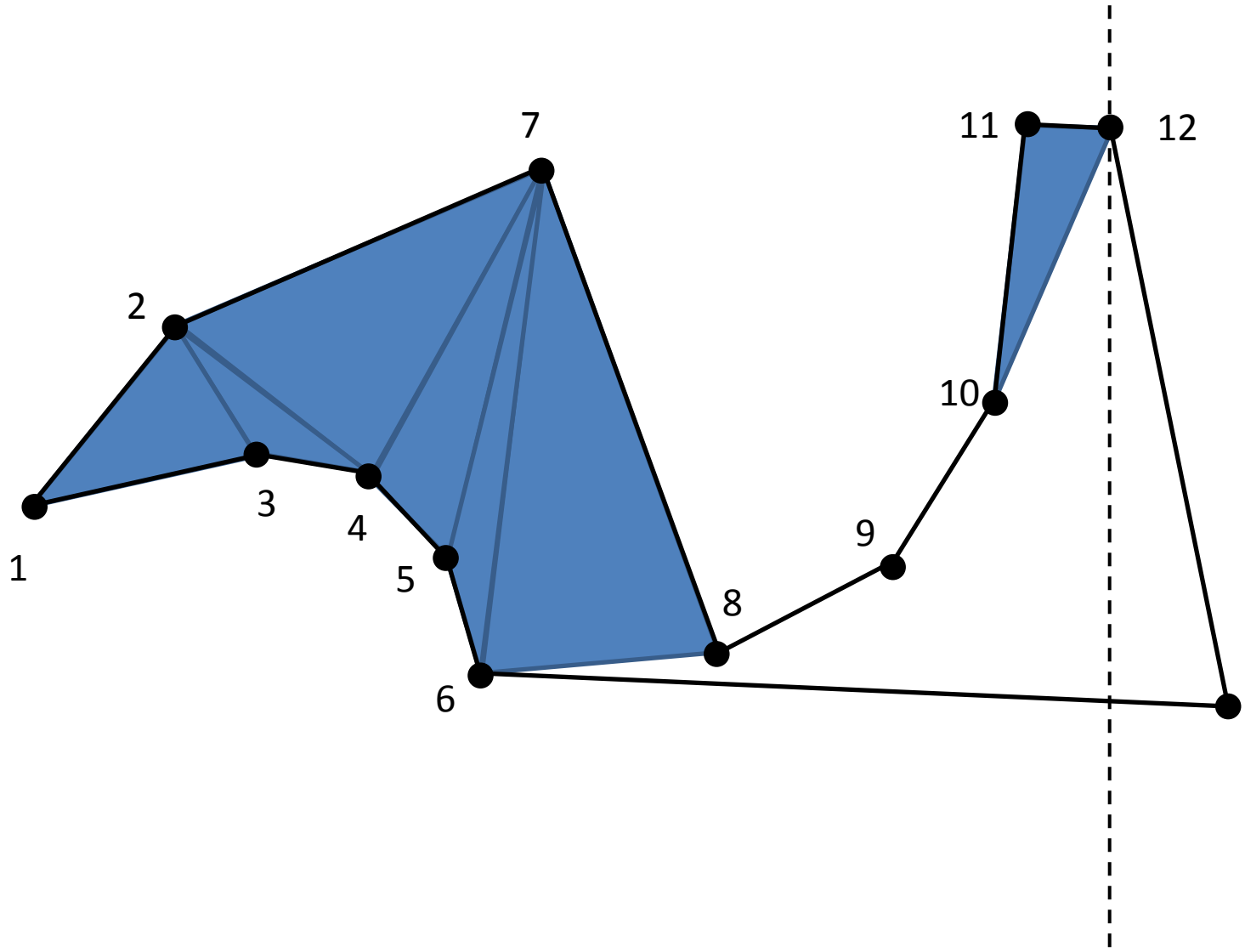

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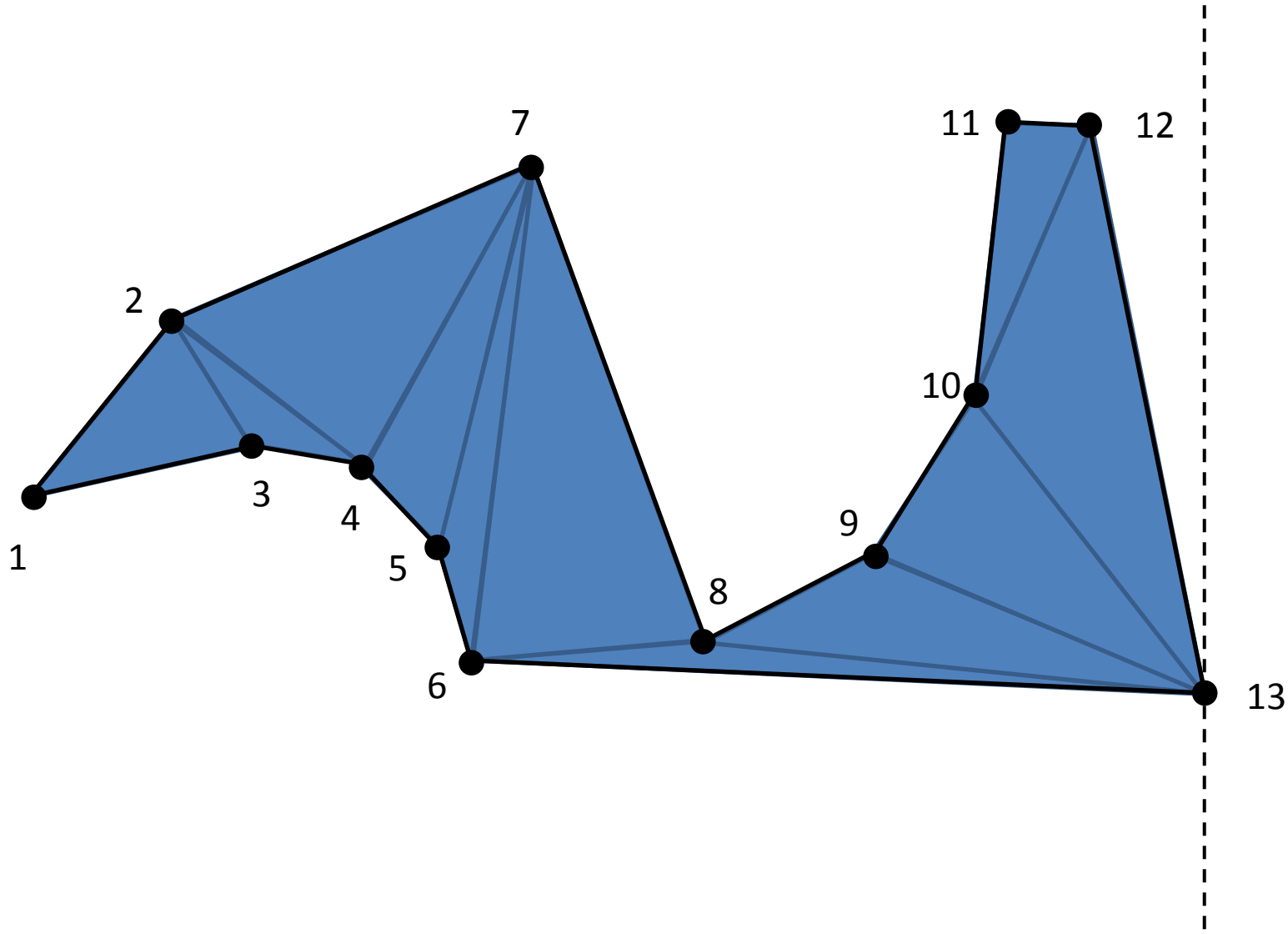

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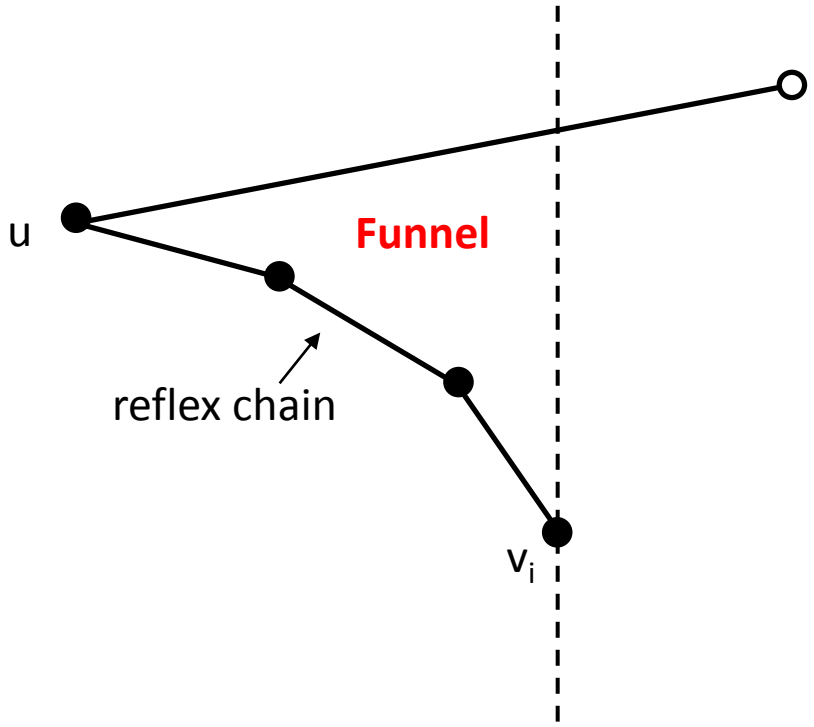

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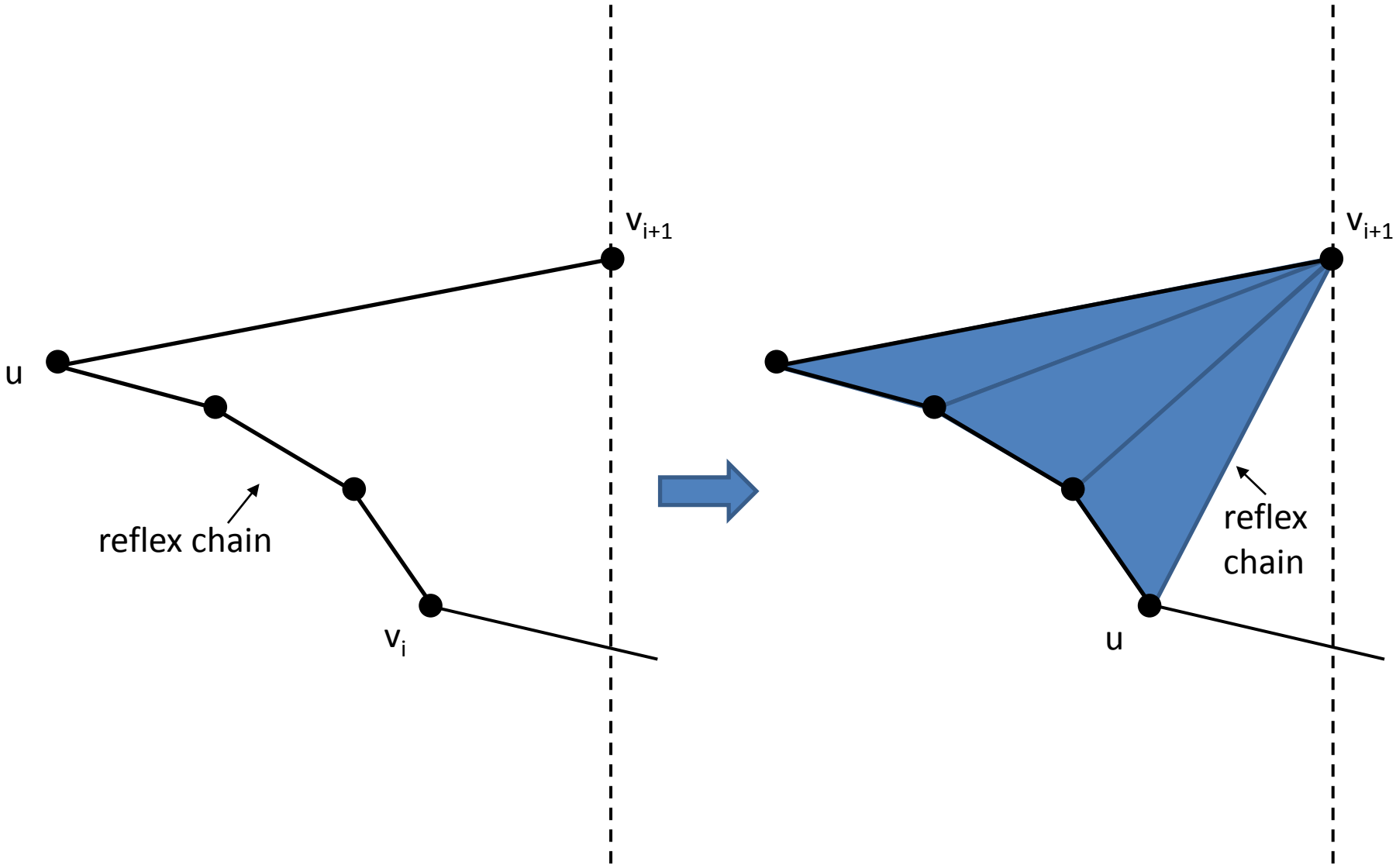

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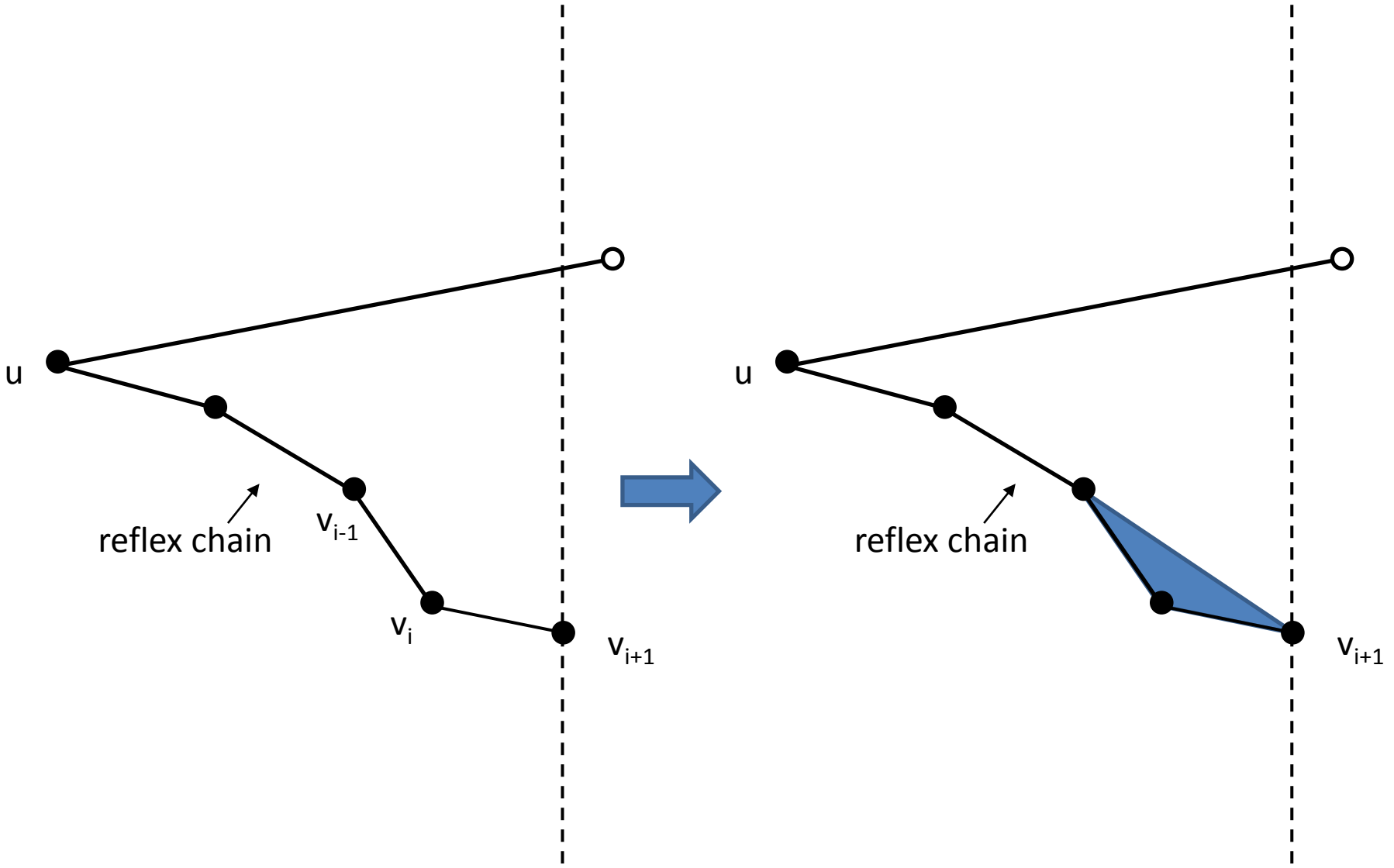
Shape of the region to the left of sweep line after processing v_i: "**Funnel**"

1. Two monotone chains (upper and lower) starting from the left-most vertex u
2. The chain that ends in v_i is a reflex chain
3. The other chain has one edge whose other vertex lies to the right of v_i





Case 1 (v_{i+1} not on reflex chain): add diagonals from v_{i+1} to all vertices on the reflex chain.



Case 2 (v_{i+1} on reflex chain): add diagonals from v_{i+1} to previous vertices on reflex chain until a reflex vertex is formed.

Algorithm:

- Sort all vertices of the x-monotone polygon by ascending x coordinates as v_1 ,…, v_n — O(n)
- Initialize a stack S (reflex chain), push v_1 and v_2 into S — O(1)
- For i=2 to n-2 — O(n)
  - If v_{i+1} and top of S are on different chains (i.e., Case 1)
    - Pop all vertices from S
    - Create a diagonal from each popped vertex (except last one) to v_{i+1}
    - Push v_i and v_{i+1} into S
  - Else (i.e., Case 2)
    - Pop a vertex from S
    - Pop vertices from S and create diagonal to v_{i+1} as long as no new reflex vertices are formed
    - Push v_{i+1} to S

