

Computergrafik

COMPUTERGRAPHIK

Übung: Besprechung 3. Übungsblatt

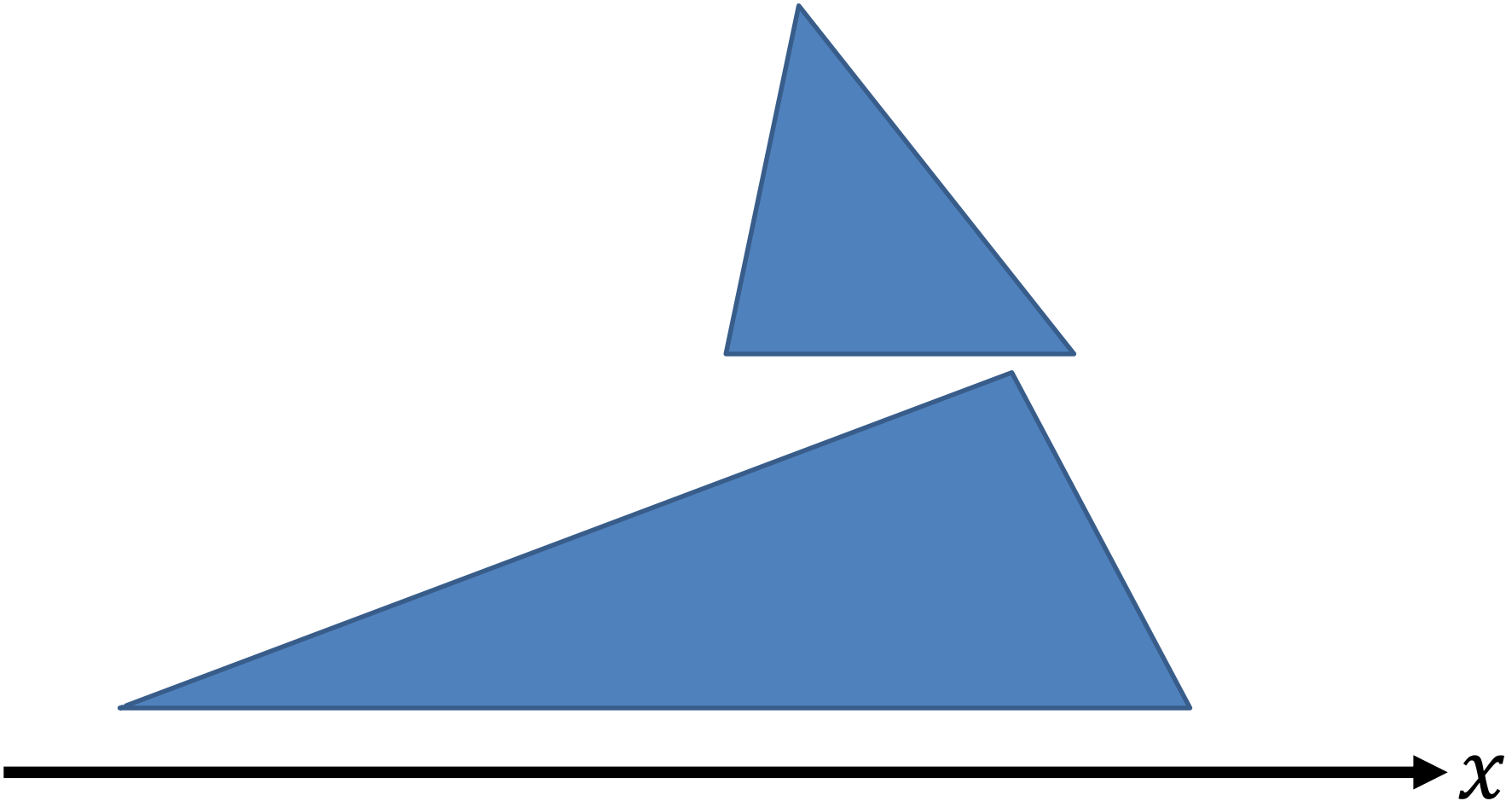
Prof. Dr.-Ing. Carsten Dachsbacher
Lehrstuhl für Computergrafik
Karlsruher Institut für Technologie



- ▶ Wir benutzen BVHs als Beschleunigungsstruktur für Dreiecke
- ▶ Median-Split
 - ▶ Objekt-Median: Partitioniert Menge M in zwei Teilmengen M_1 und M_2 mit $||M_1| - |M_2|| \leq 1$ anhand eines Medians m
 - ▶ Für alle Objekte $x \in M_1$ gilt $x \leq m$
 - ▶ Für alle Objekte $x \in M_2$ gilt $x \geq m$
- ▶ Was ist “ $\leq$ ” für Dreiecke?

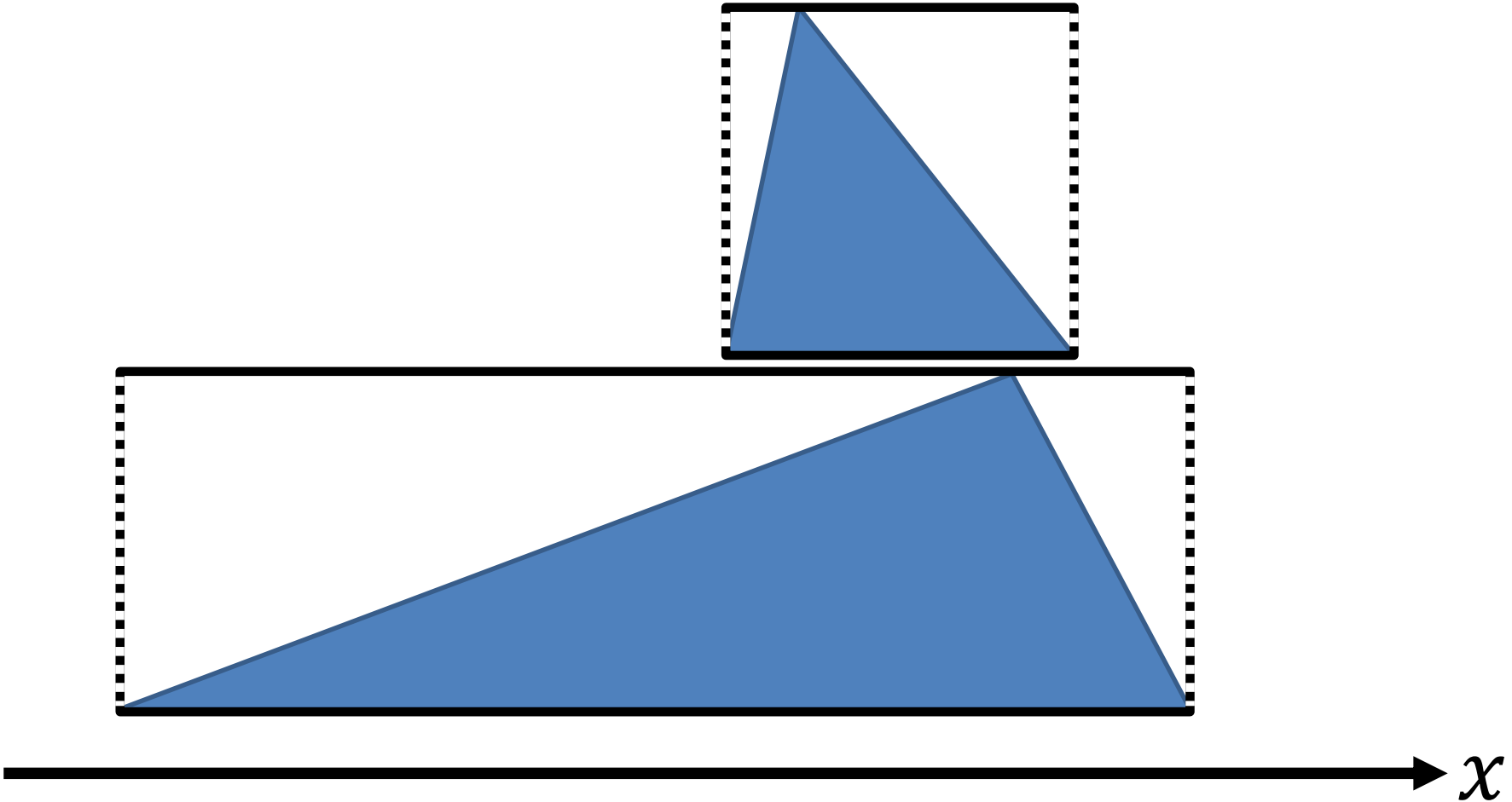
Bounding Volume Hierarchies

► Was ist " $\leq$ " für Dreiecke?



Bounding Volume Hierarchies

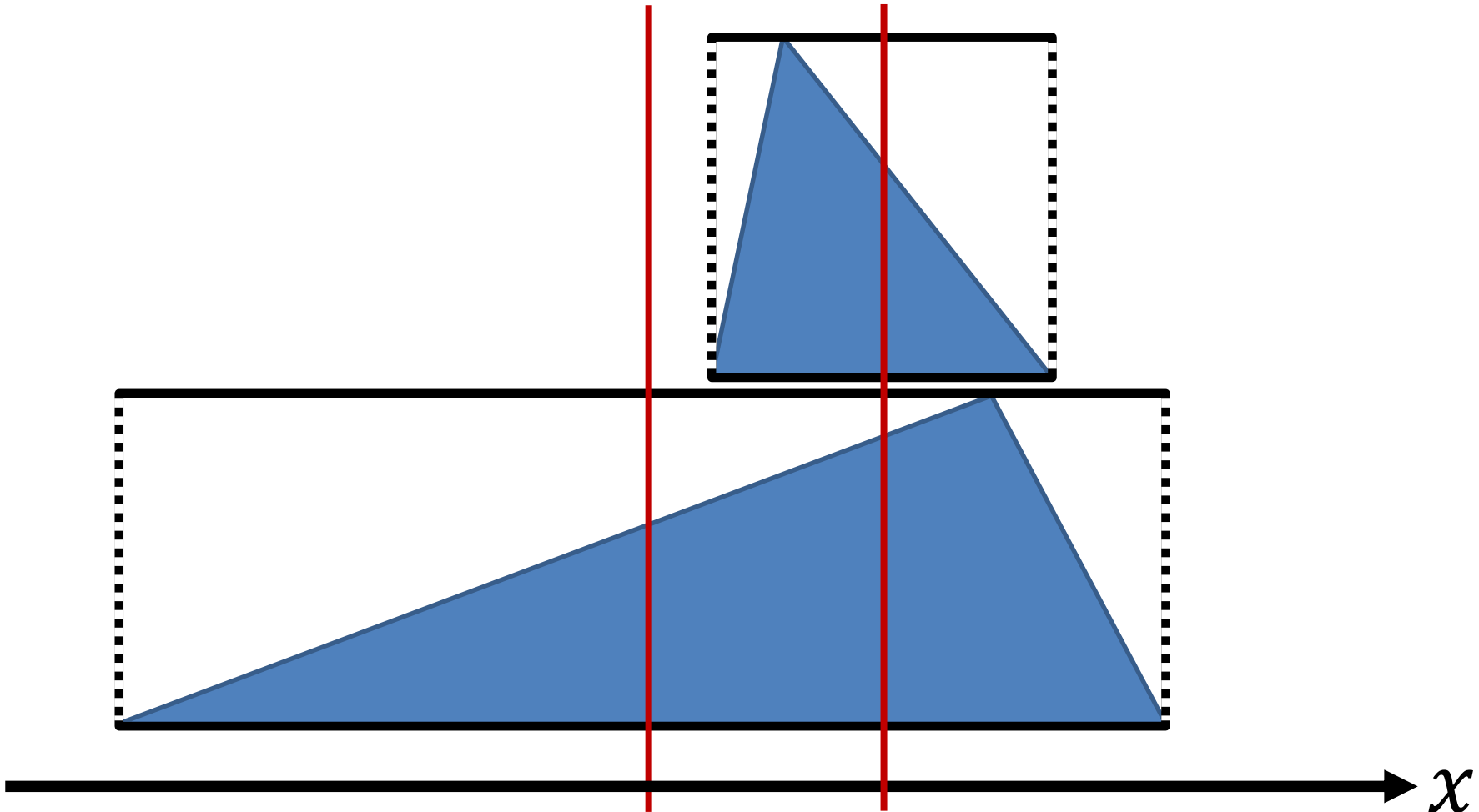
► Was ist “ $\leq$ ” für Dreiecke?



Bounding Volume Hierarchies

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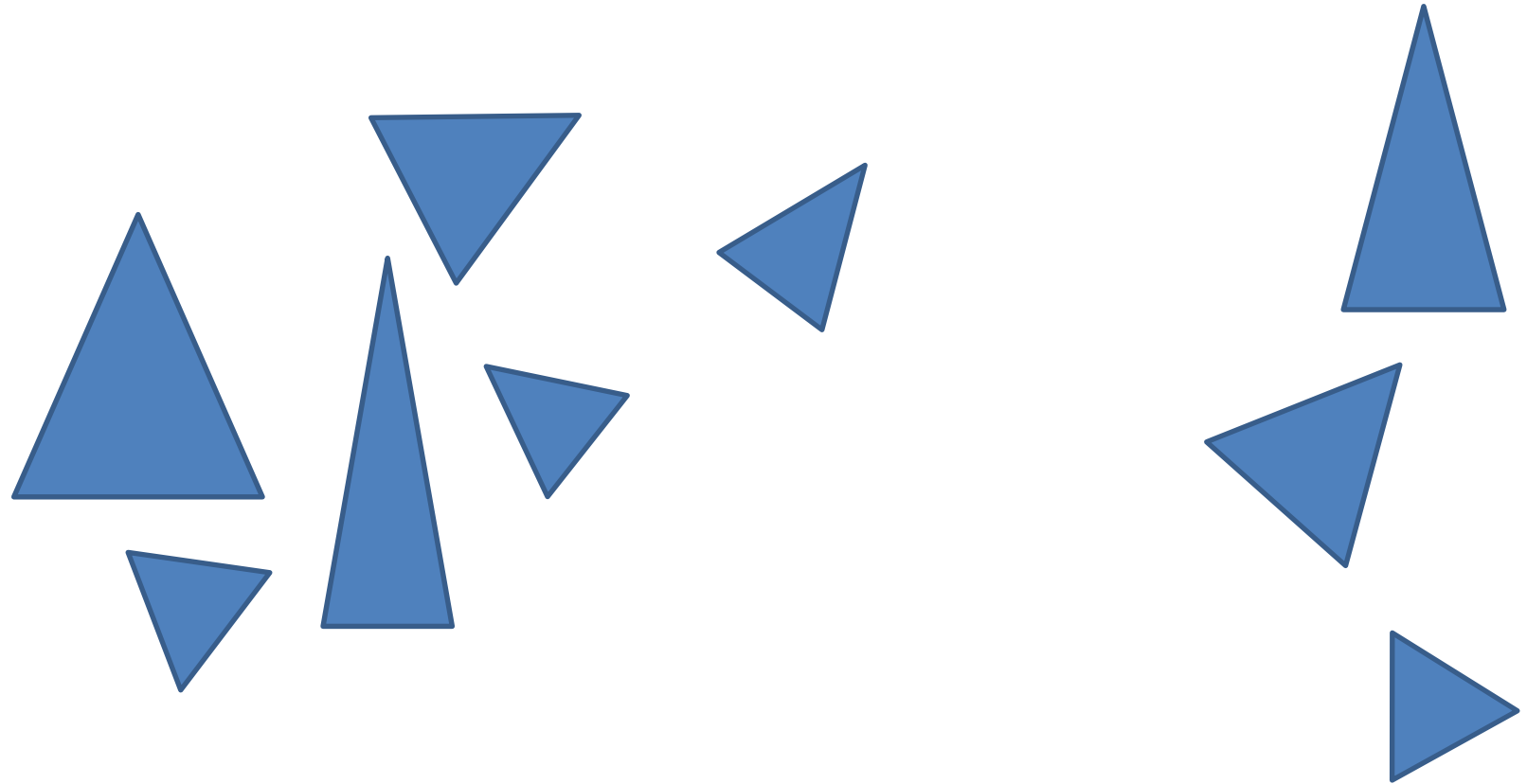
► Entscheidung anhand der Mittelpunkte der AABBs der Primitive

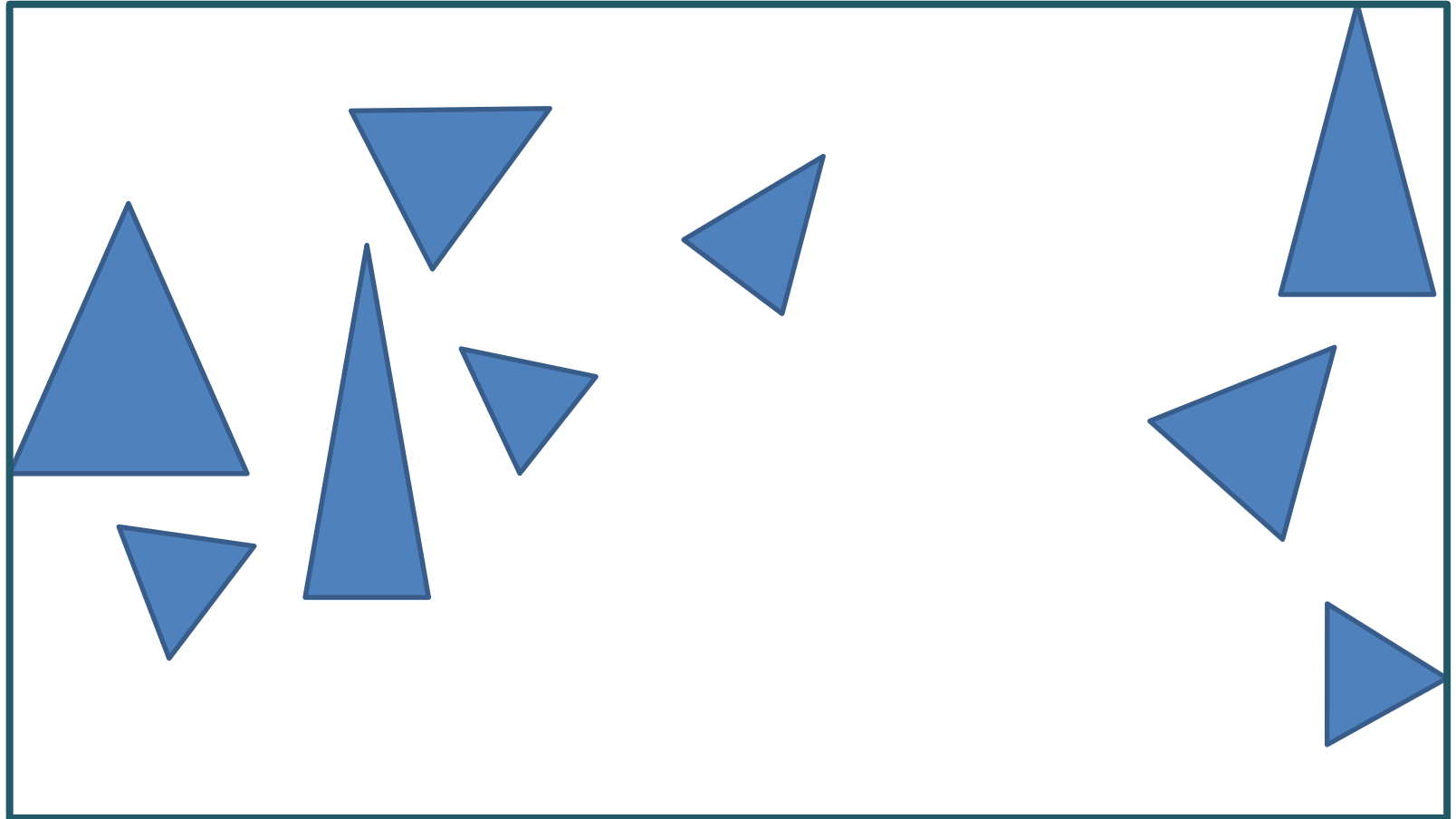


- ▶ Es dürfen STL Funktionen zum Sortieren verwendet werden
 - ▶ `std::sort`, `std::nth_element`, `std::stable_sort`, ...
- ▶ Eigene Datentypen sortieren mit Funktoren (hier Lambdas):

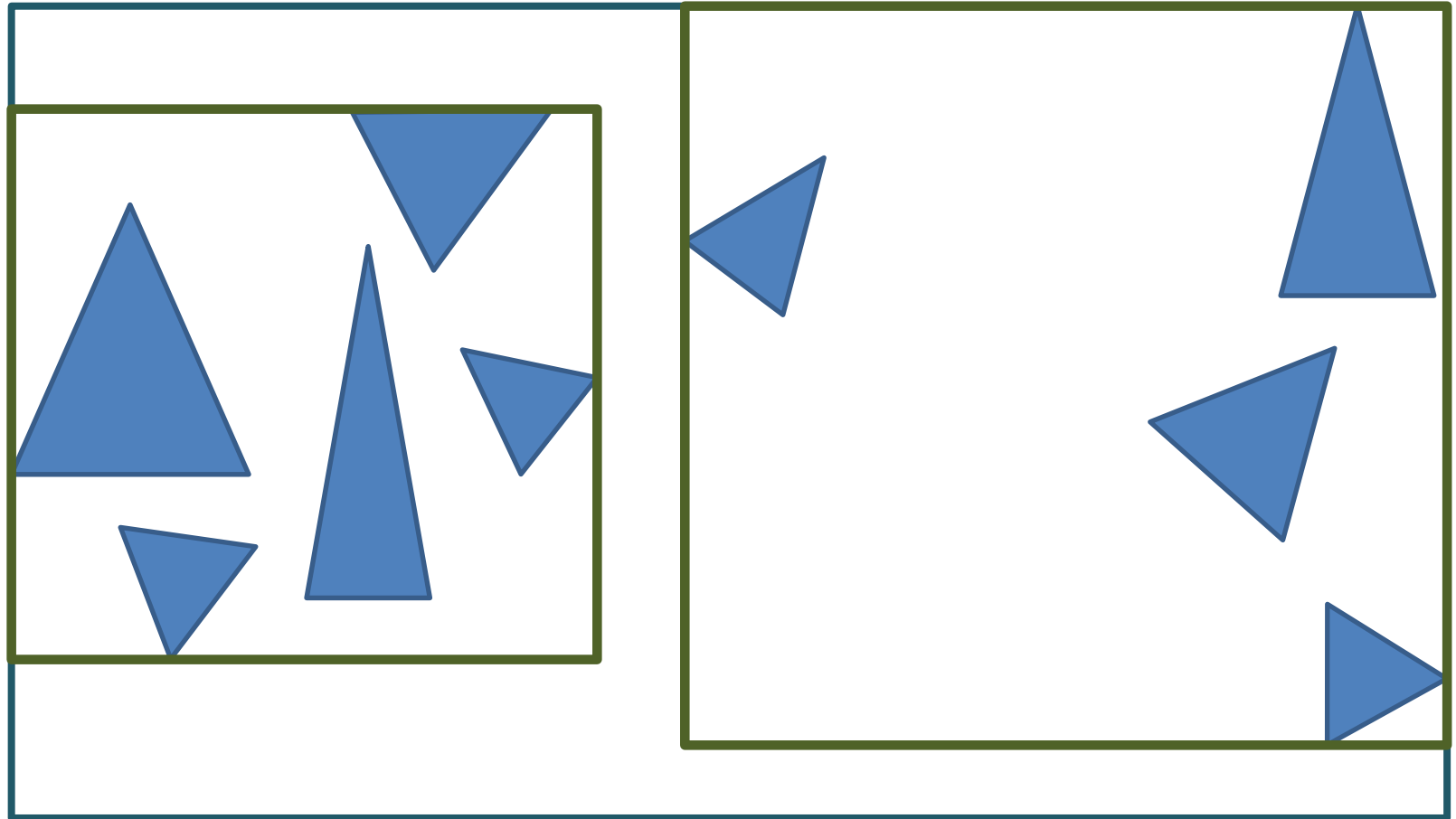
```
Struct Vec2 { float x, float y};  
std::vector<Vec2> vector = ...;  
std::sort(vector.begin(), vector.end(),  
    [](Vec2 const& a, Vec2 const& b) -> bool {  
        return a.x < b.x;  
    })  
);
```

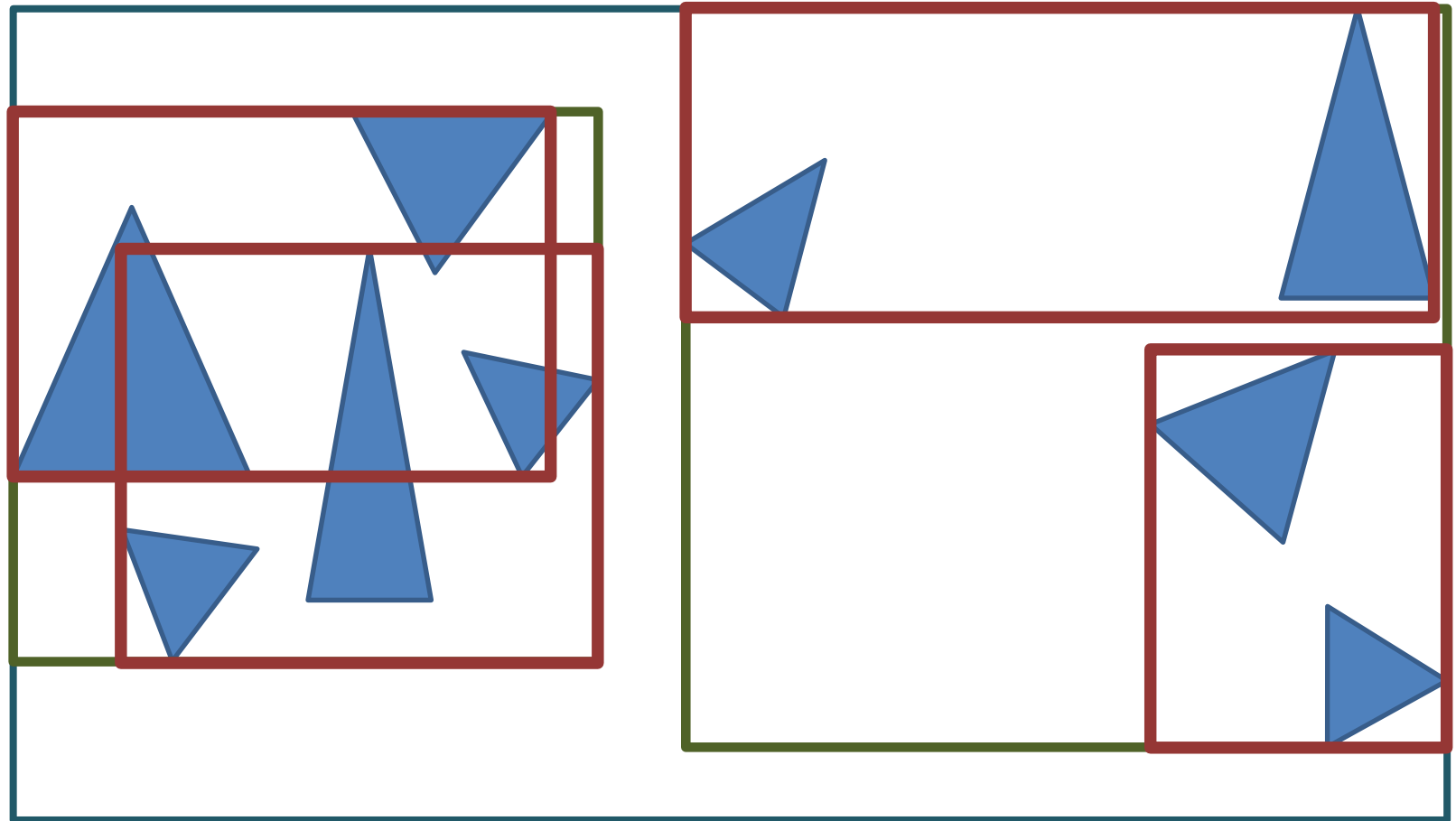
Bounding Volume Hierarchies - Aufbau

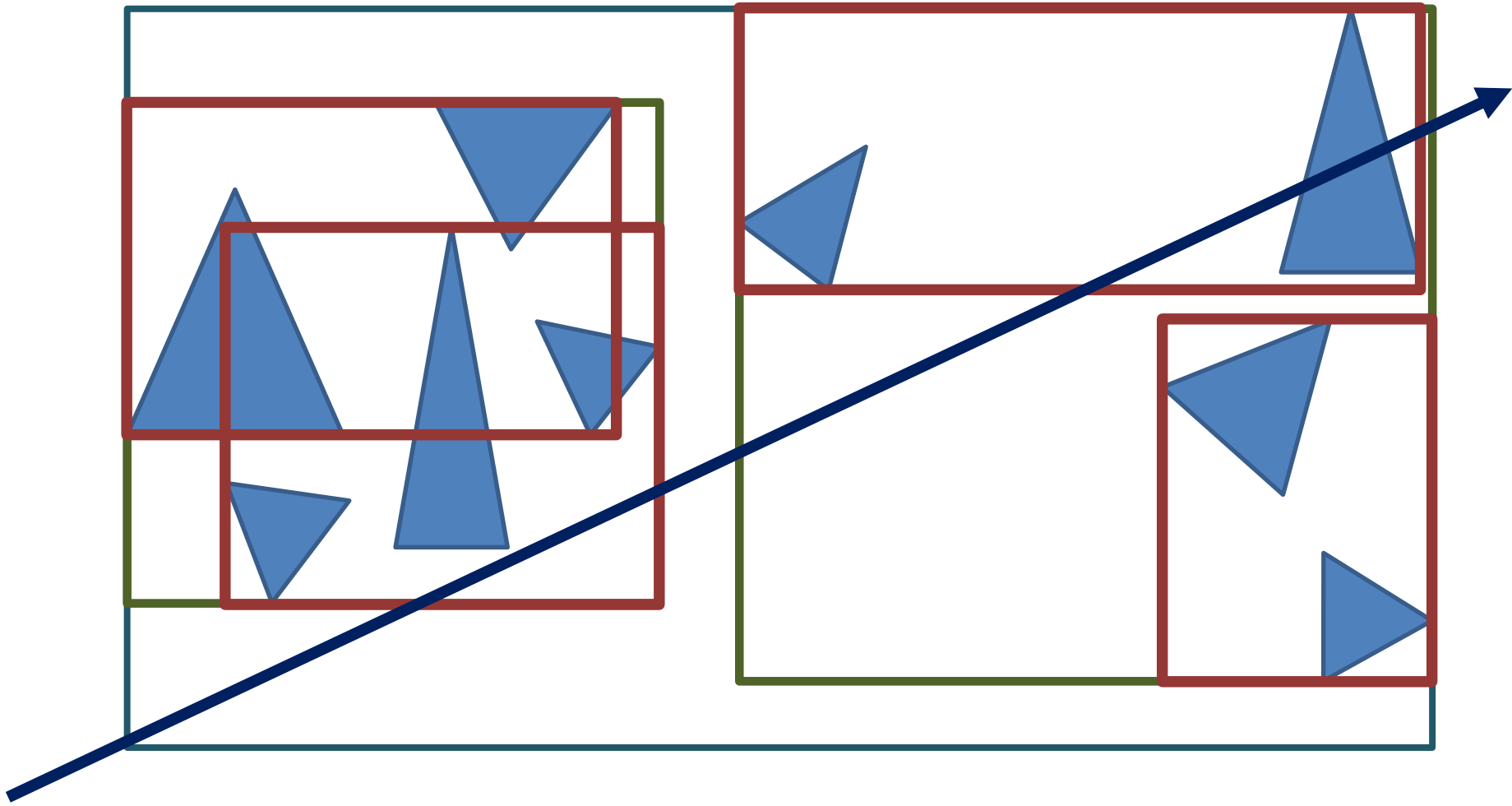




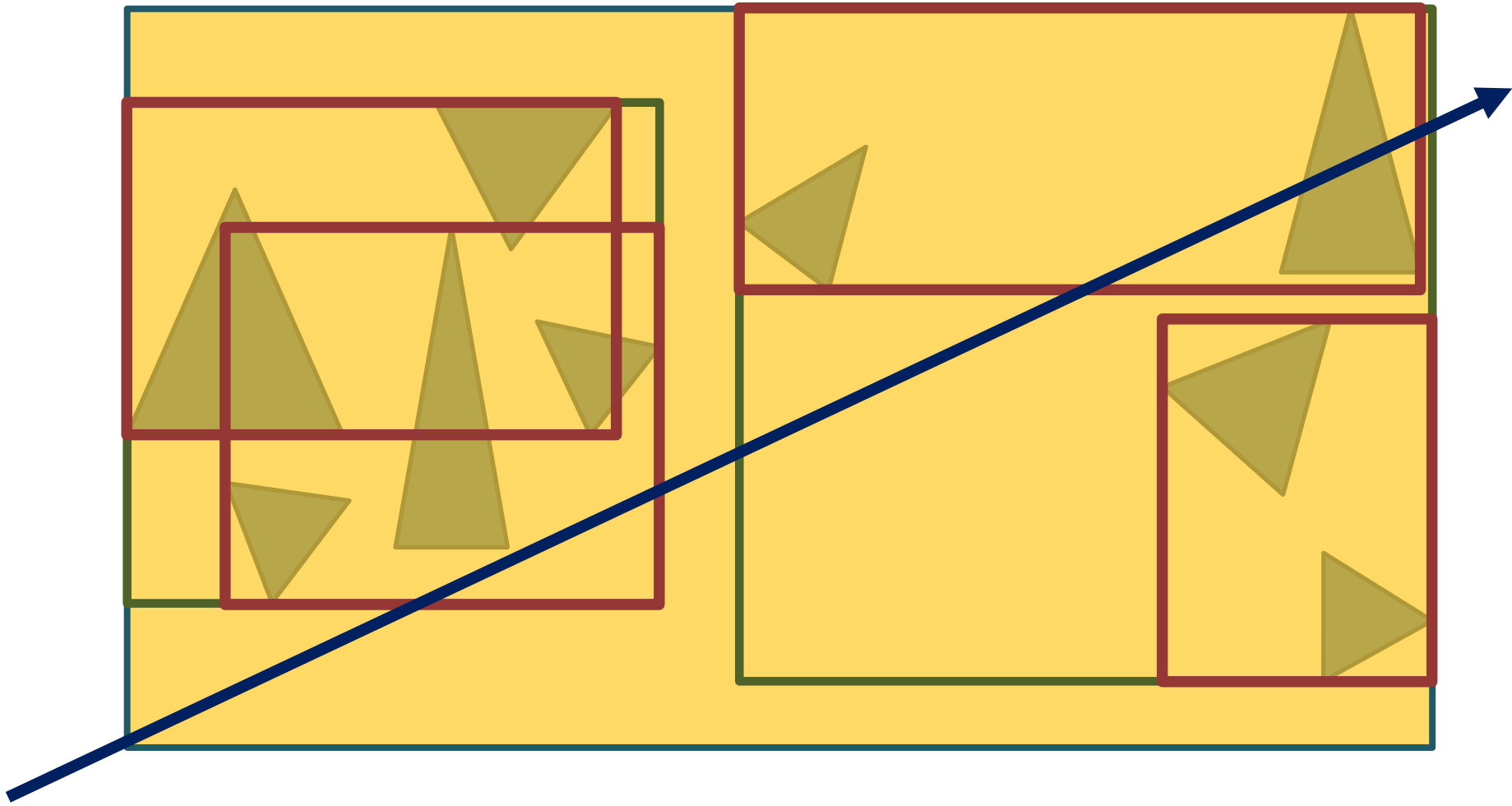
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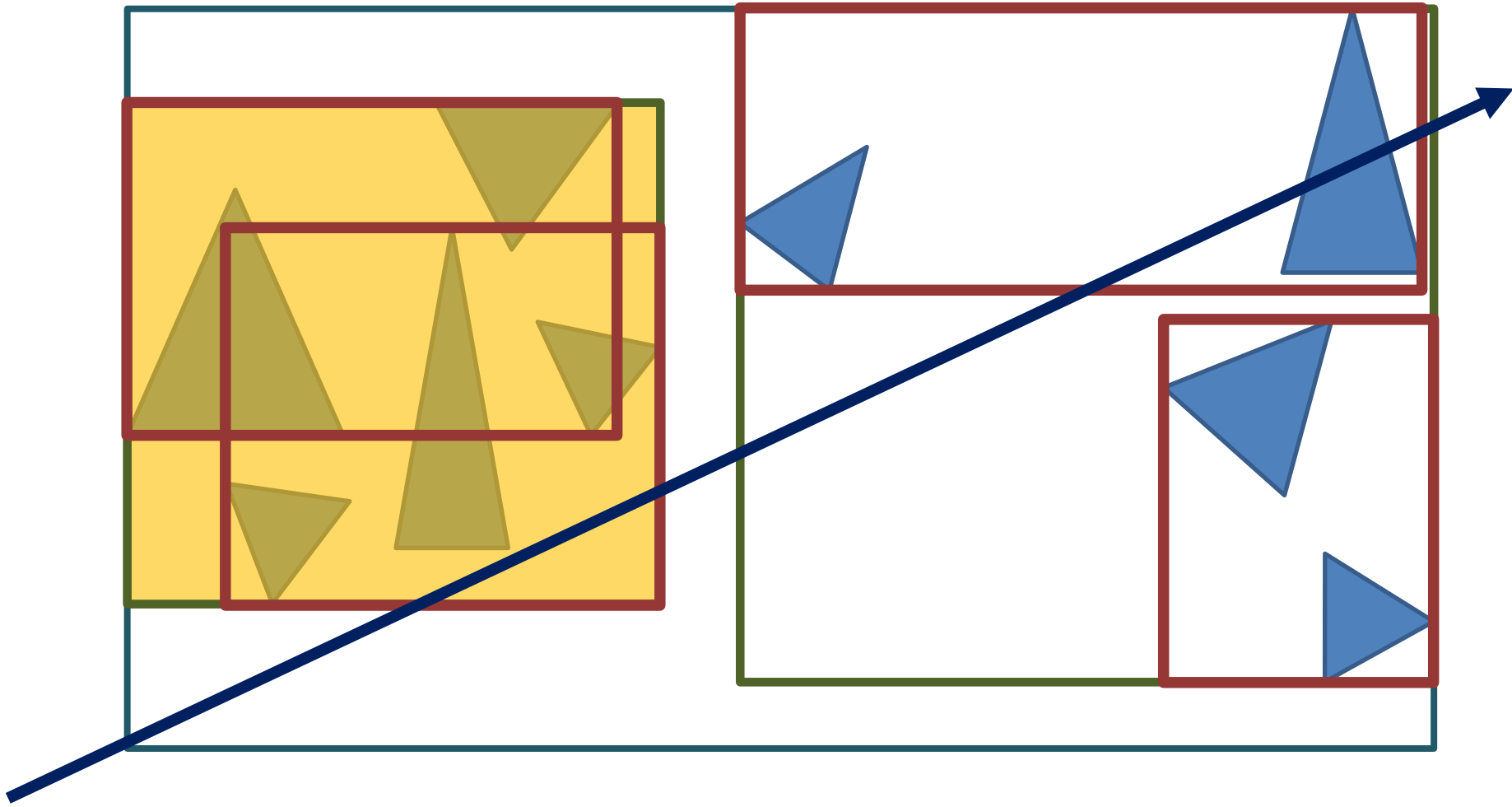




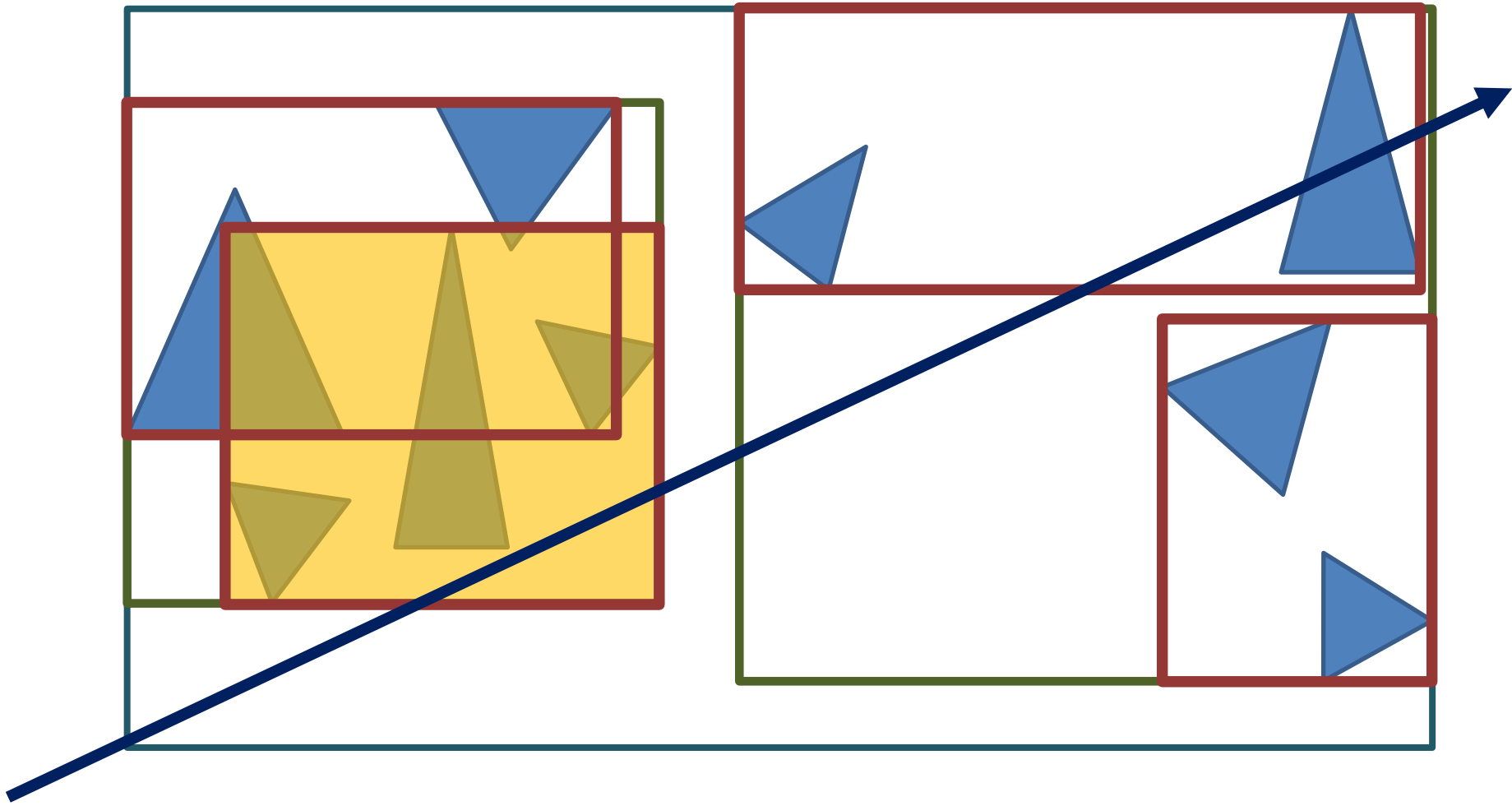
Bounding Volume Hierarchies



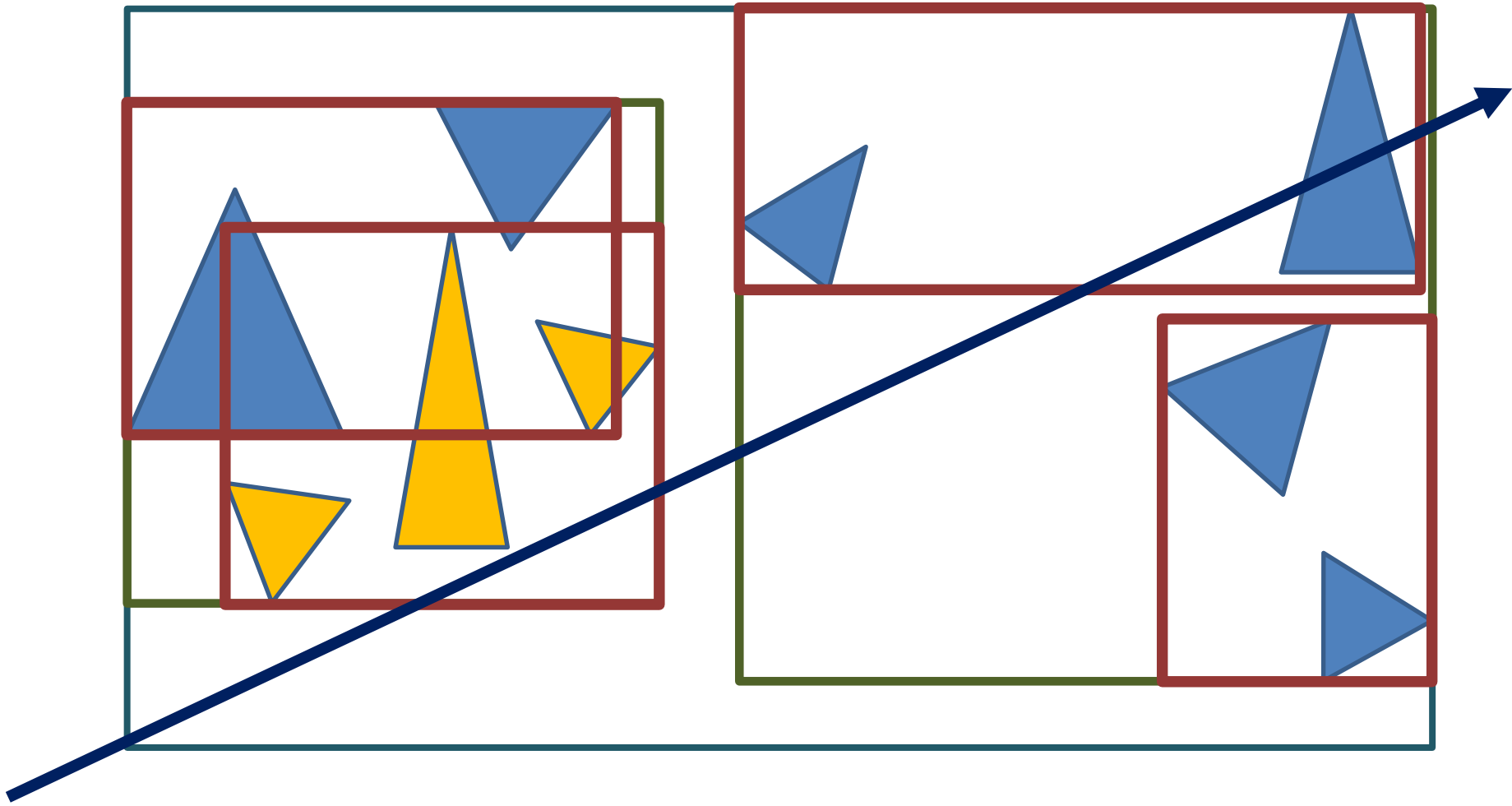
Bounding Volume Hierarchies



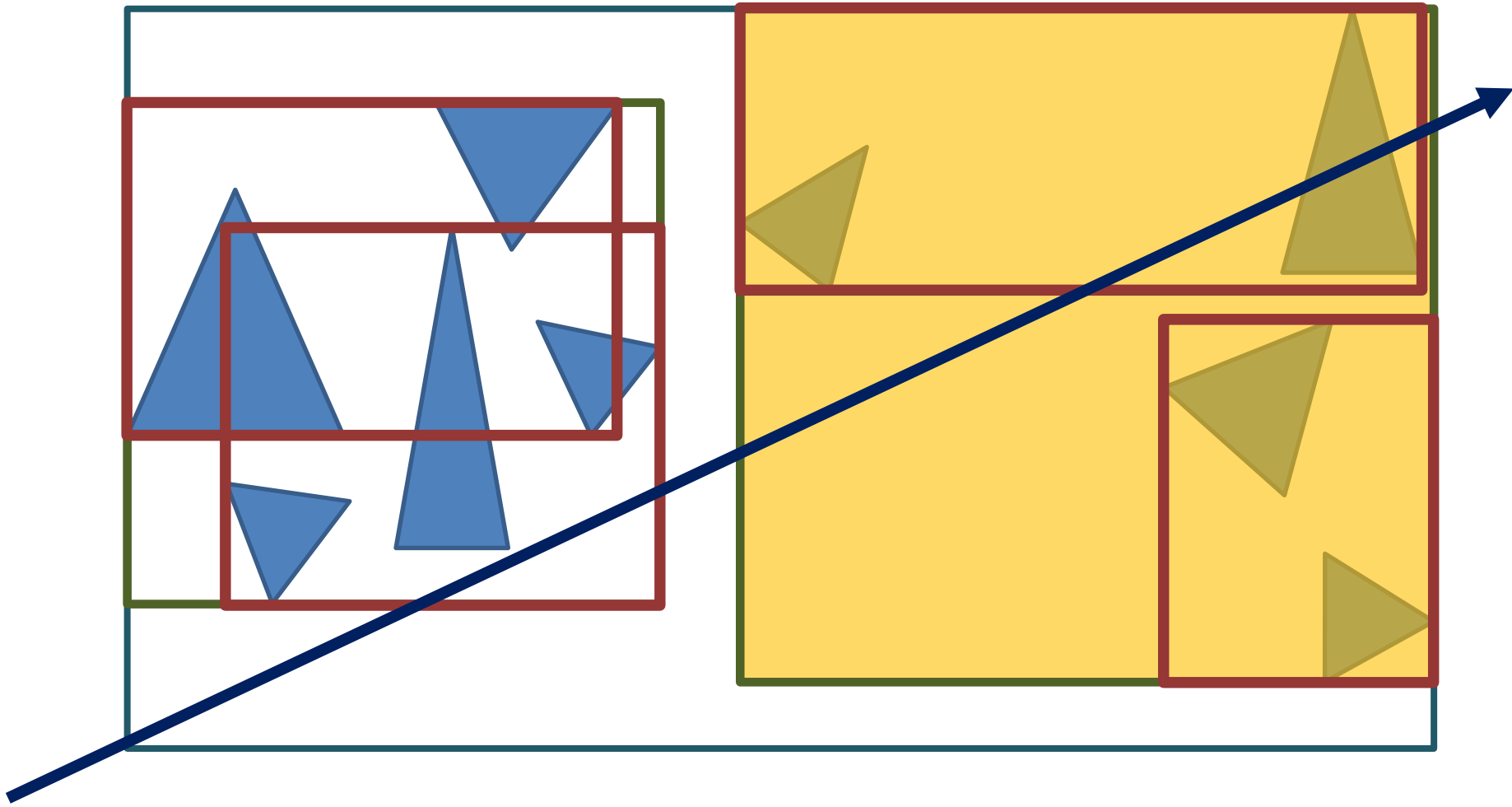
Bounding Volume Hierarchies



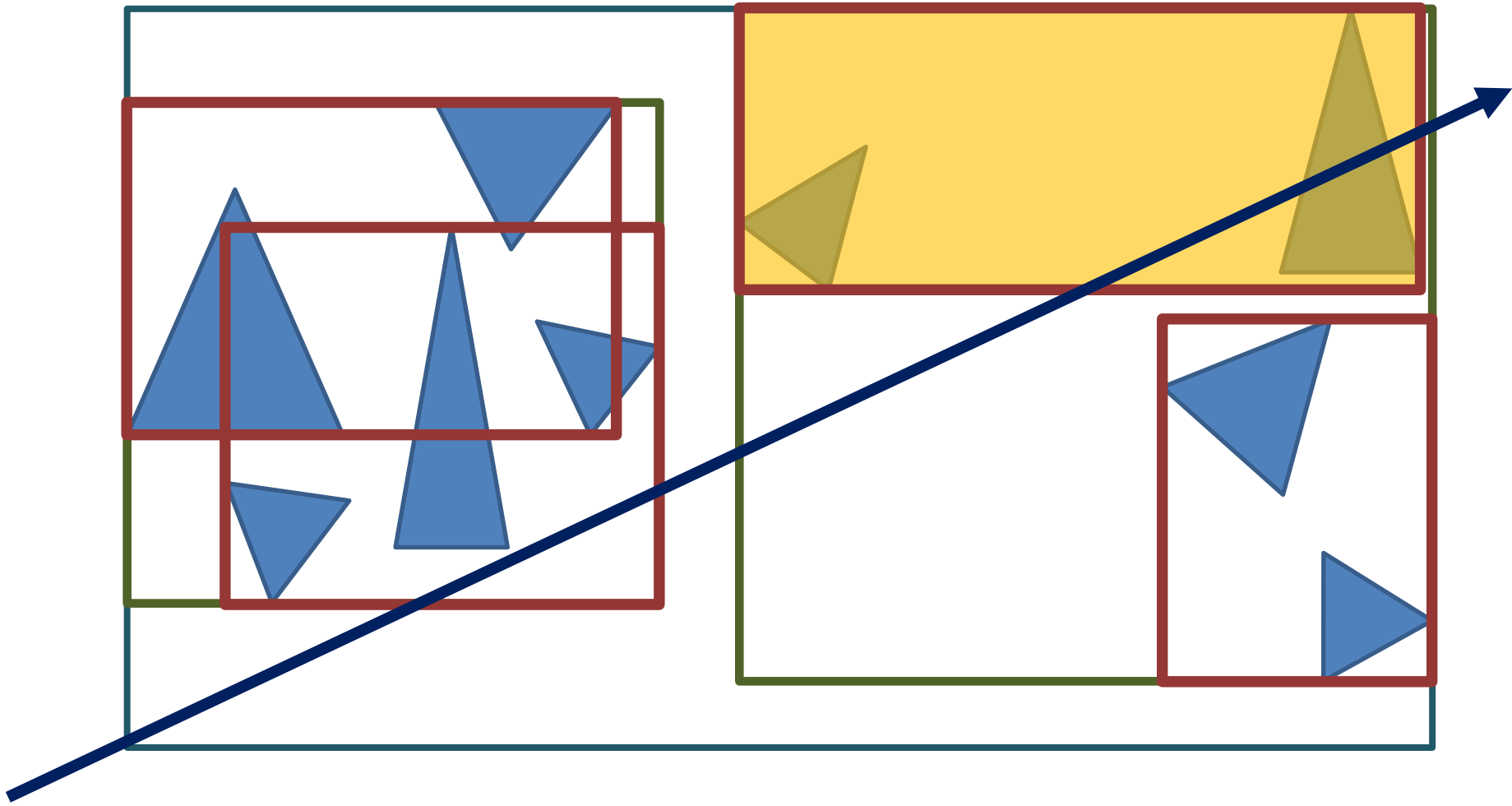
Bounding Volume Hierarchies



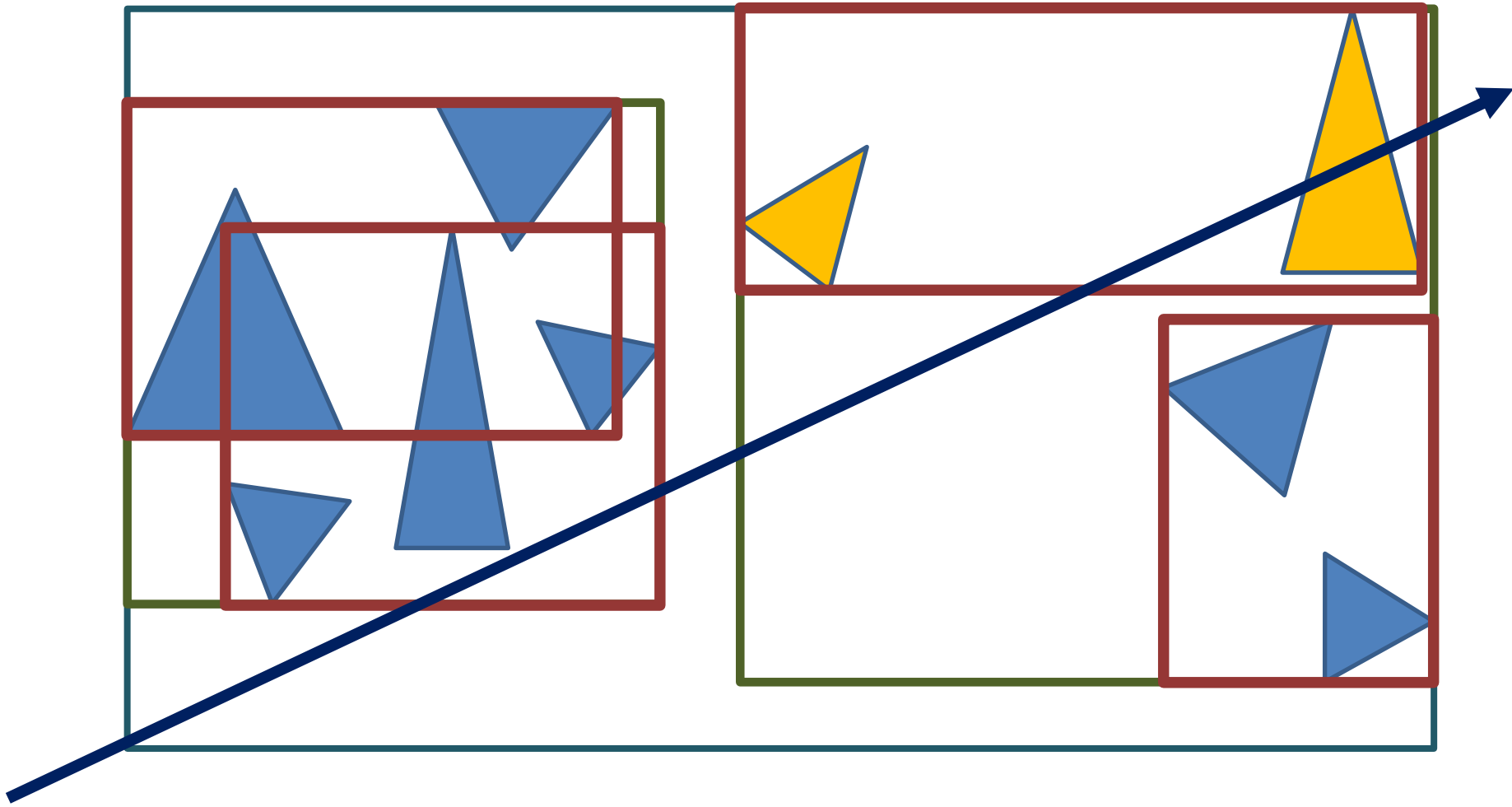
Bounding Volume Hierarchies



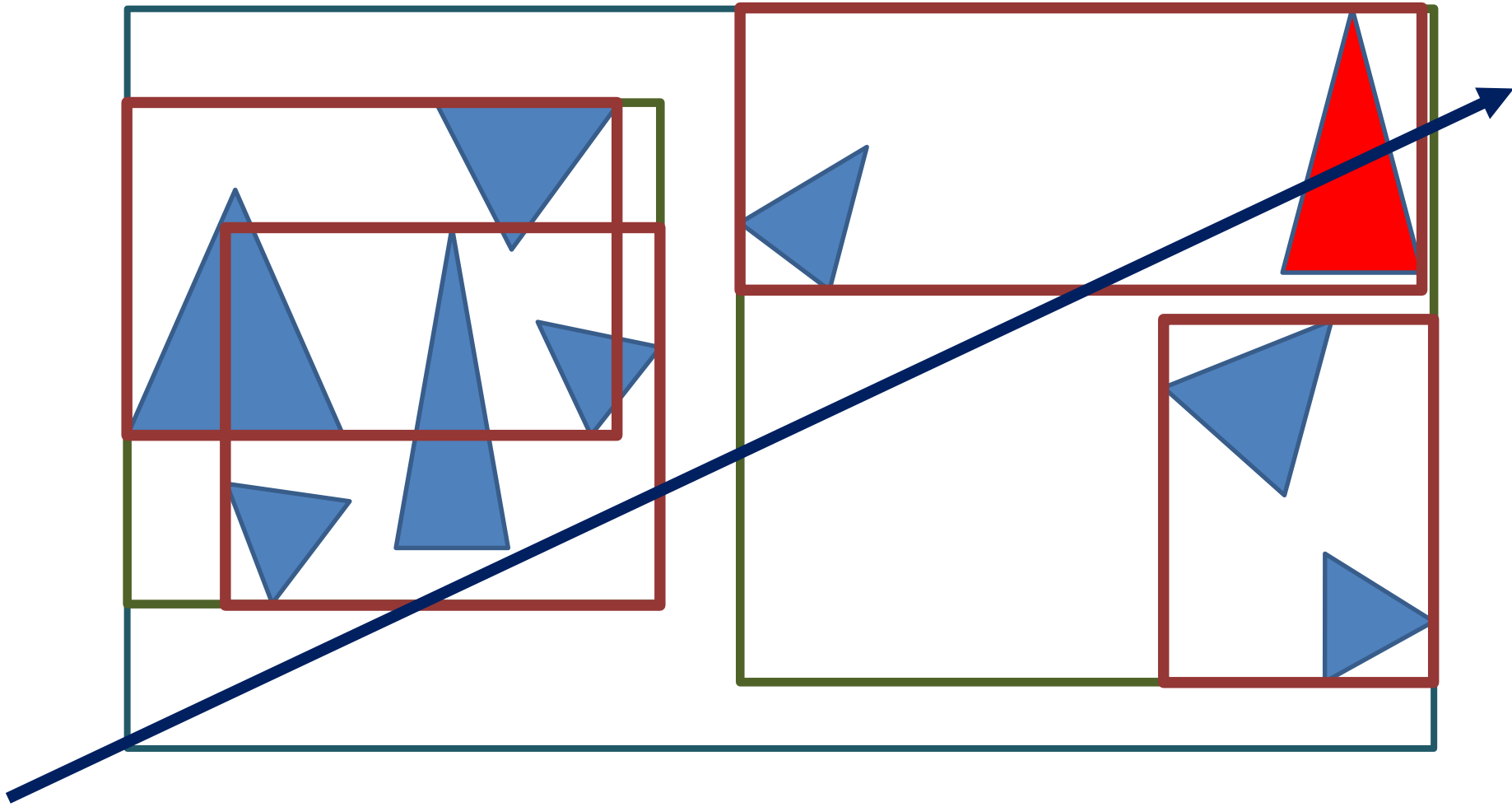
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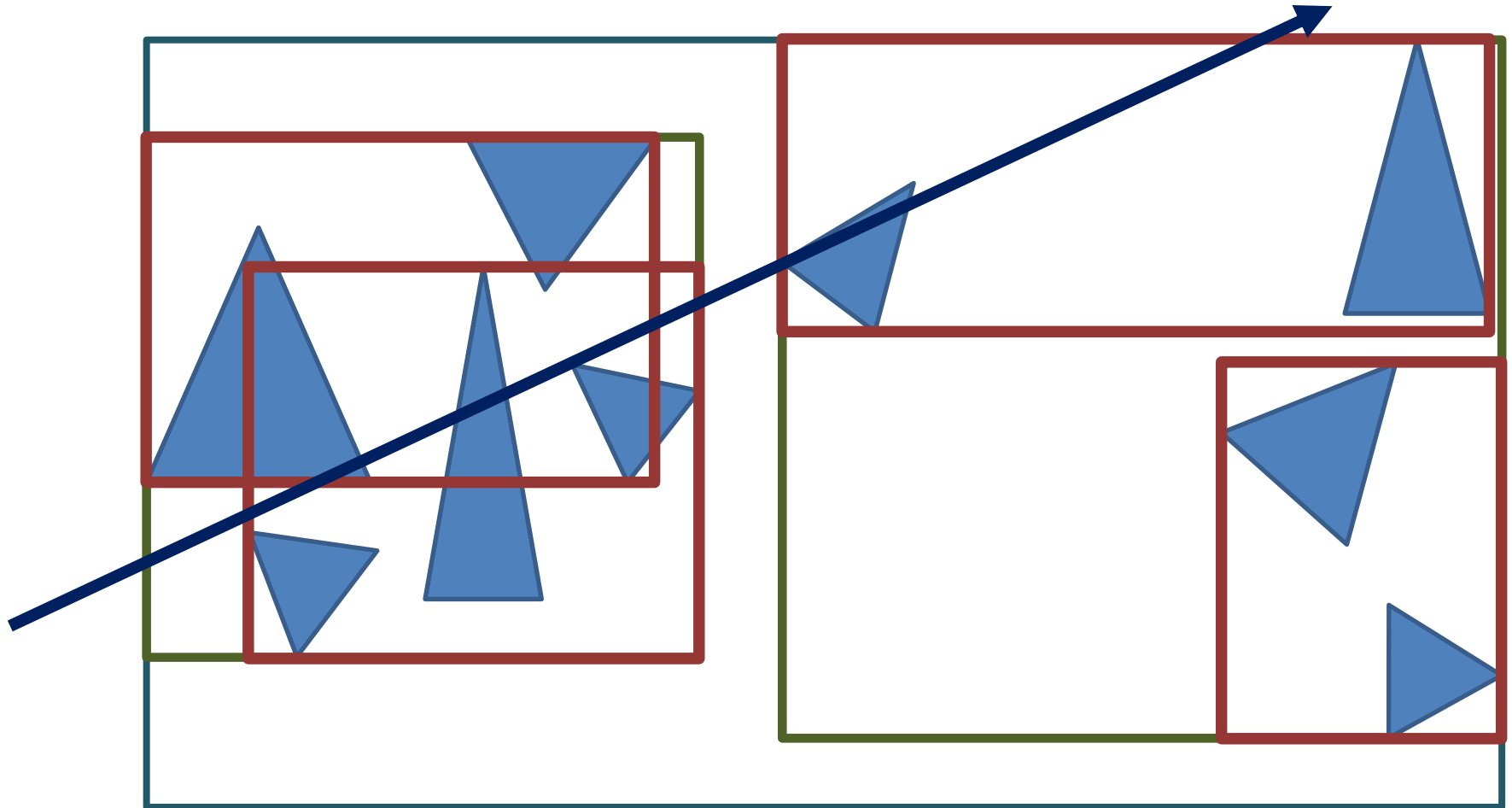
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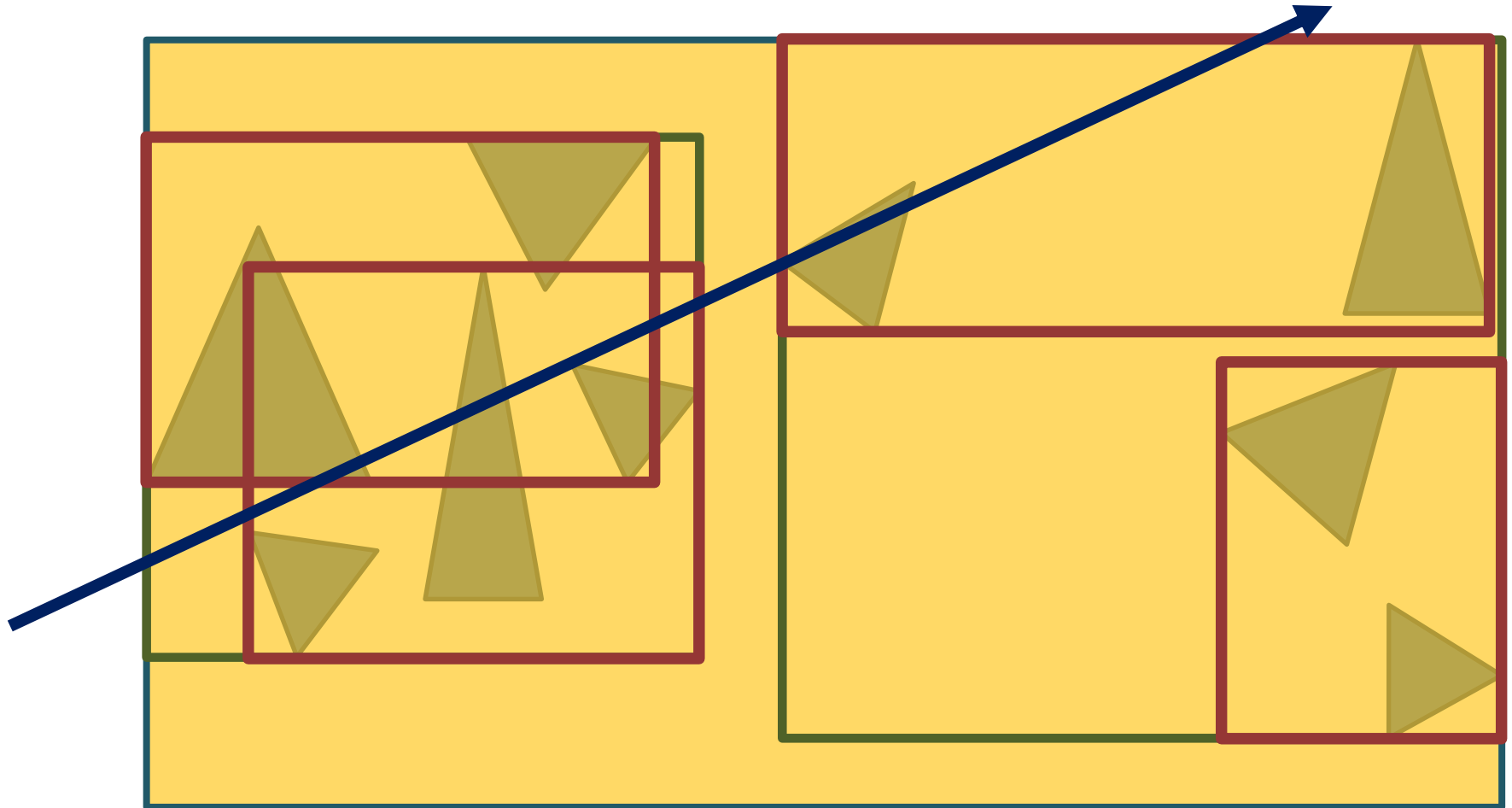
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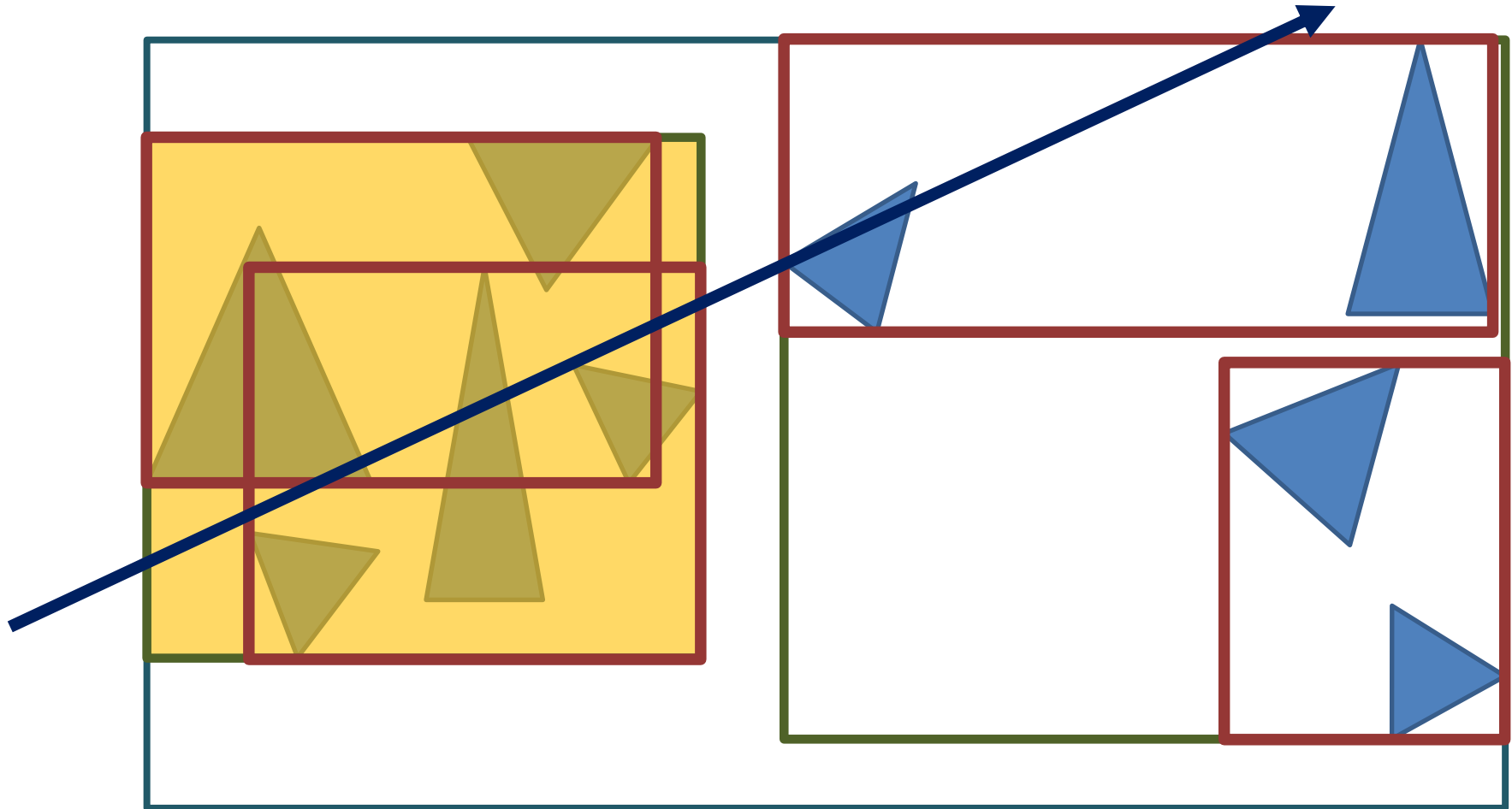
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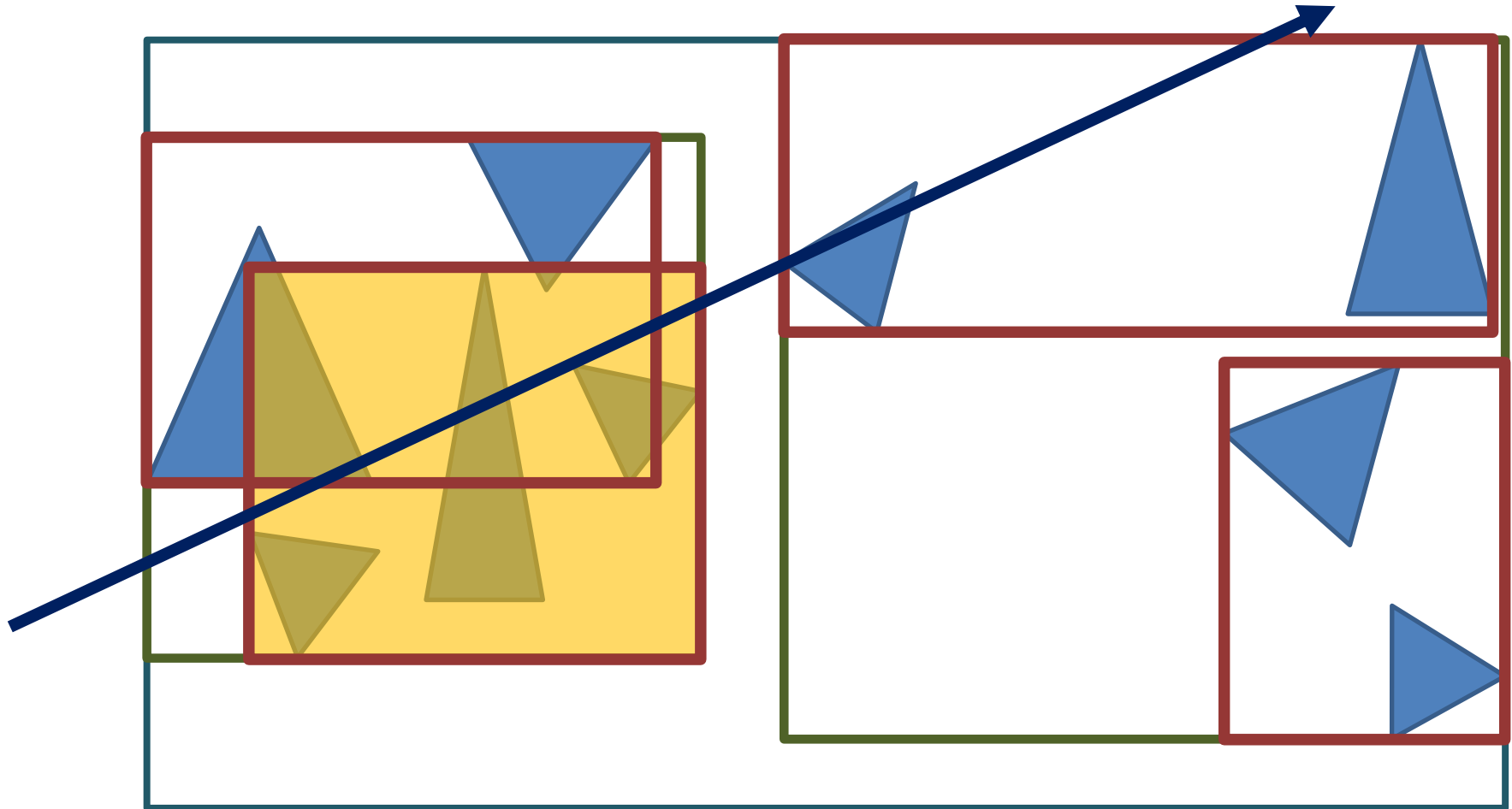
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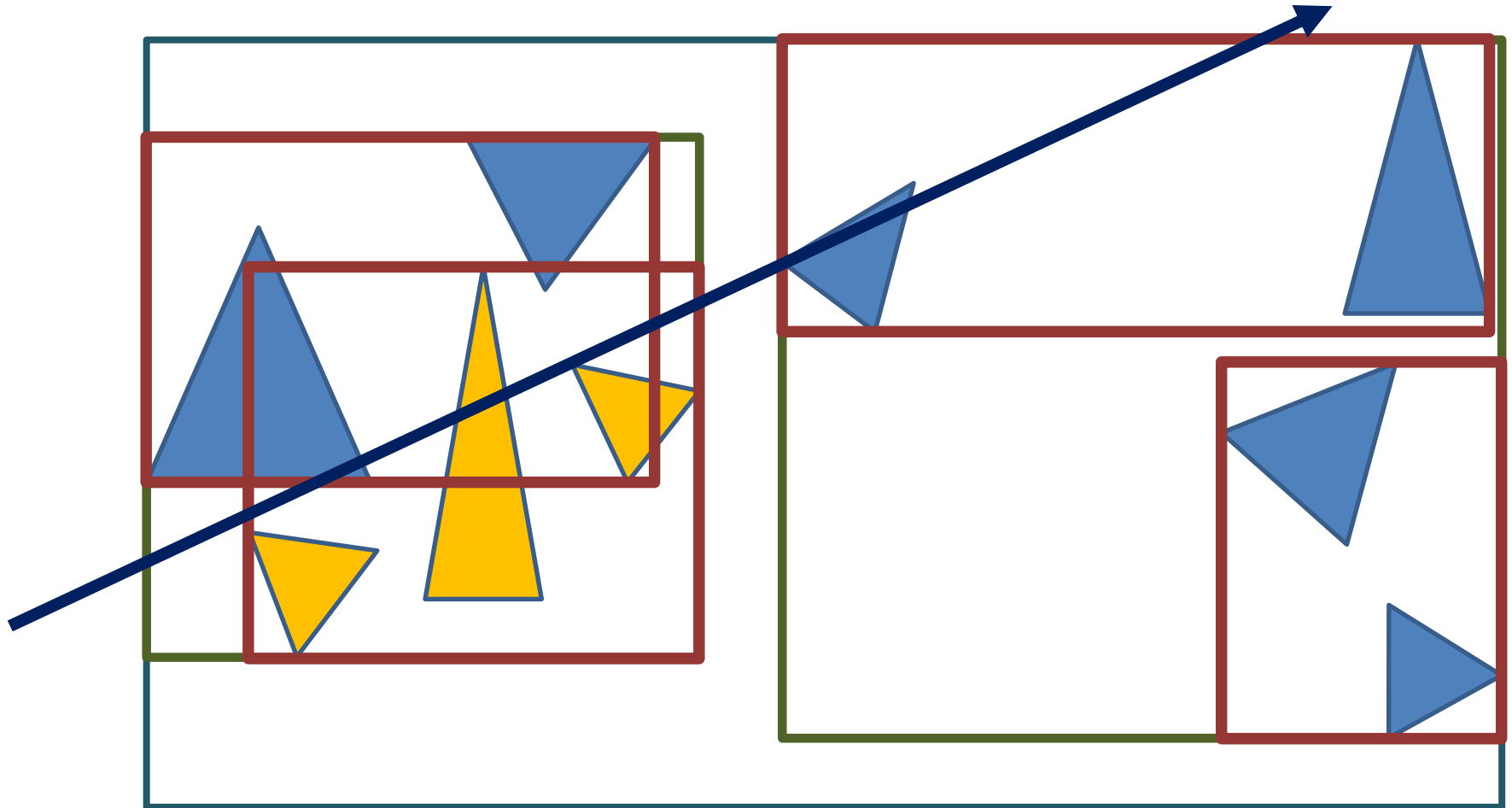
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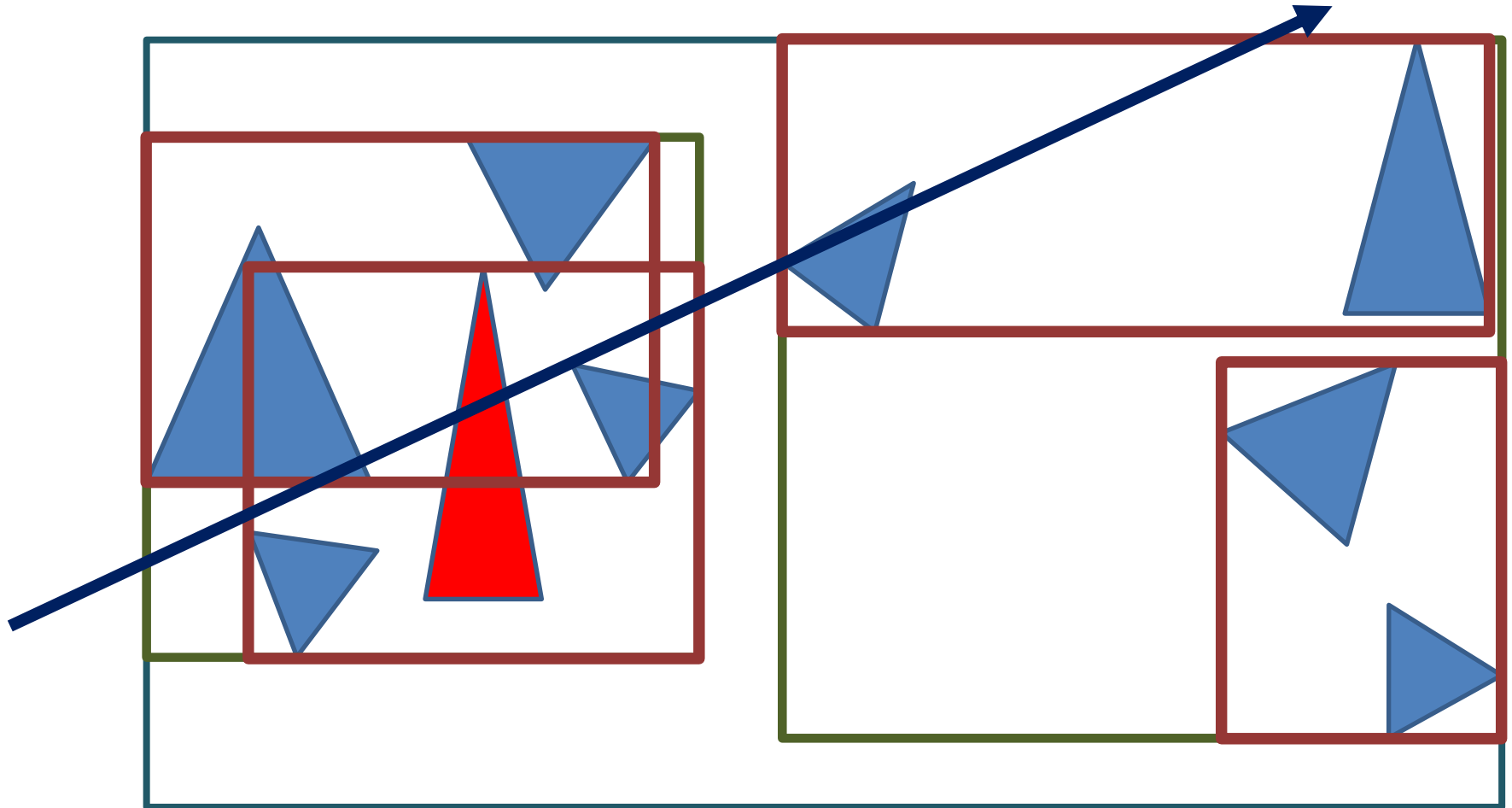
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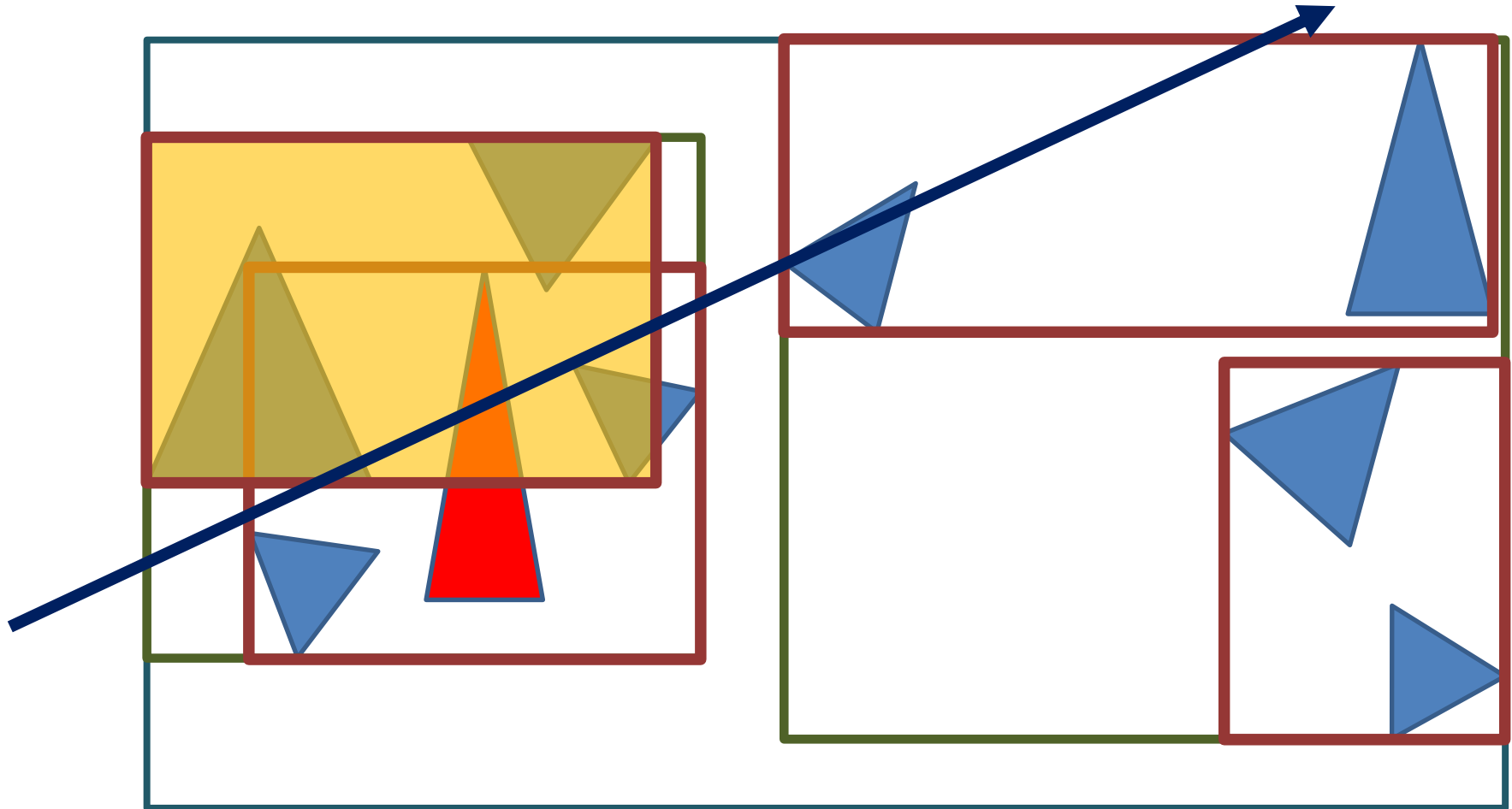
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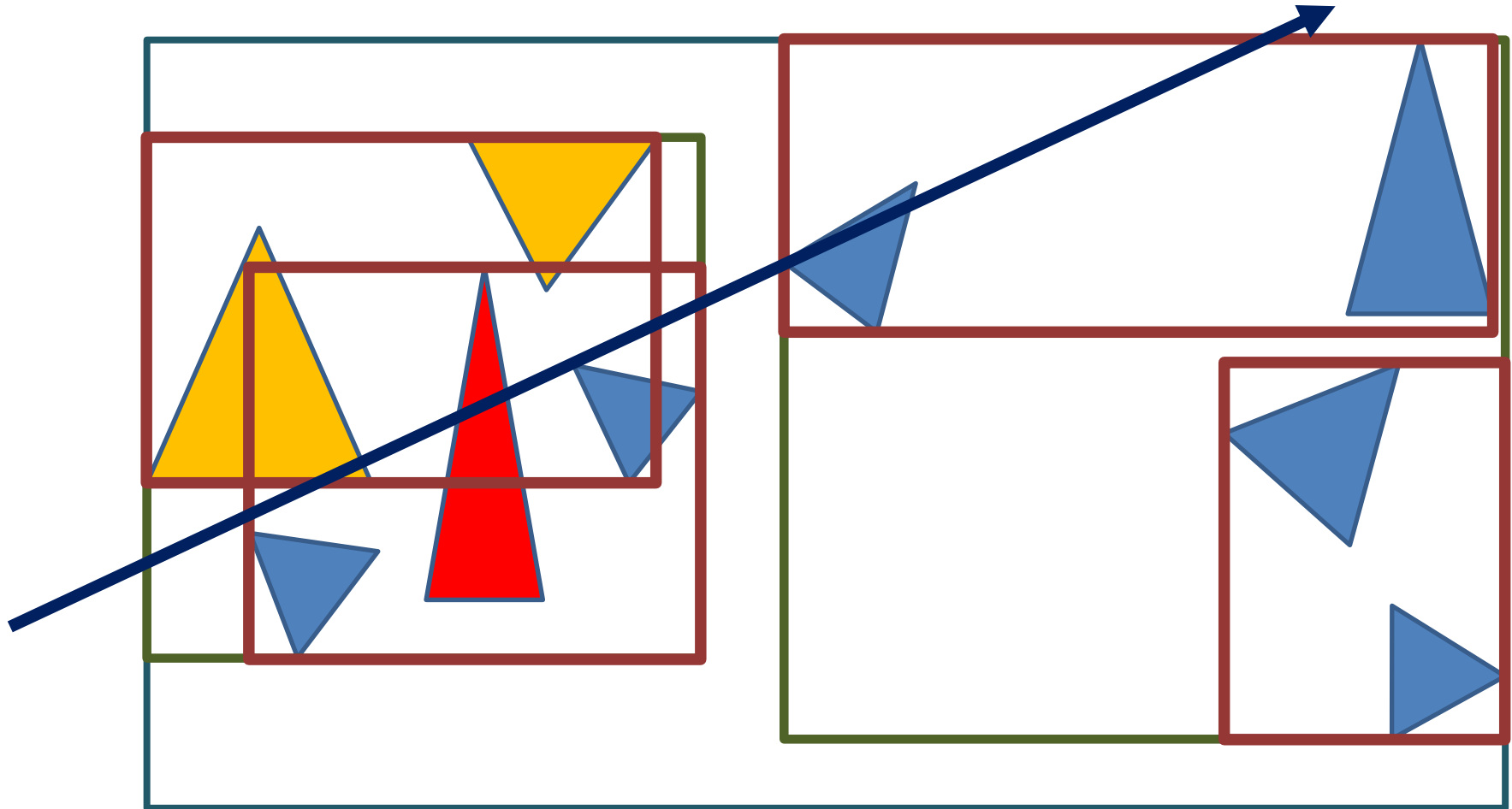
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