The Structure of Convexity

Internal Theory

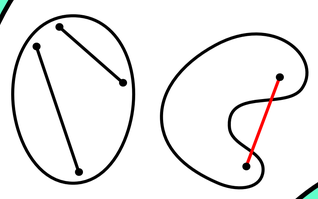
Definition

$(X, \mathcal{C})$ — ***convex space:***

(1) $\emptyset,\ X \in \mathcal{C}$

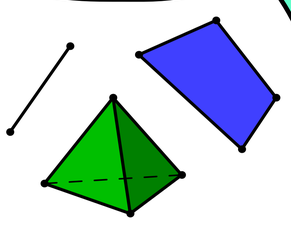
(2) $\mathcal{A} \subset \mathcal{C} \Rightarrow \cap\mathcal{A} \in \mathcal{C}$

(3) $\mathcal{N} \subset \mathcal{C} \Rightarrow \cup\mathcal{N} \in \mathcal{C}$

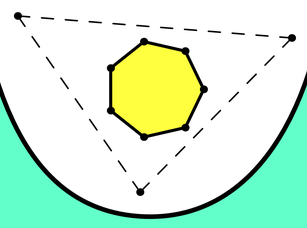


Idea

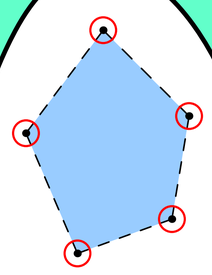
Polytope



Dimension

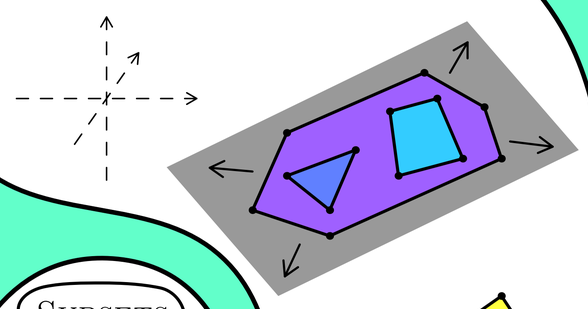


Freedom

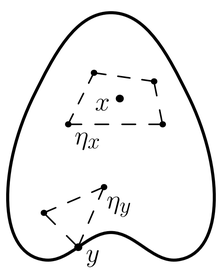


Hyperplane

(Maximal net of polytopes of same dim.)

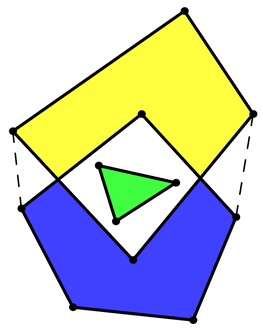


Subsets



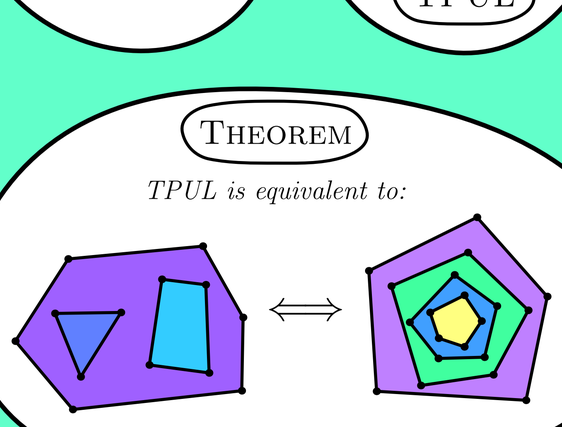
$\eta_x = \eta_y = \dim A$

TPUL



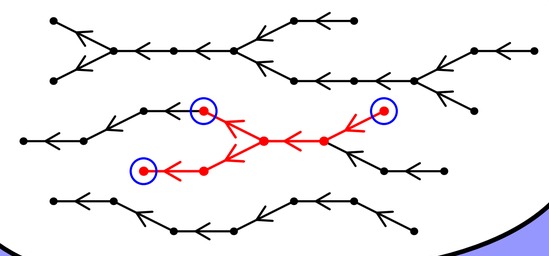
Theorem

TPUL is equivalent to:

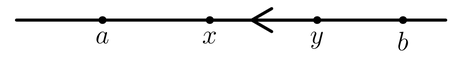


Inducing Structure

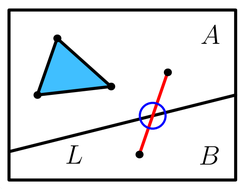
Order



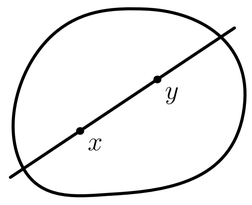
Linearity



n-Affinity



1-Affinity



Induced Structure

References

Uniquely Geodesic Spaces