Center of Gravity (COG)

Advantages: The COG method is the most prevalent and physically appealing of all the defuzzification methods. It provides a crisp value based on the center of gravity of the fuzzy set.

Disadvantages: The COG method is computationally intensive. It requires the calculation of the area and the center of gravity or centroid of each sub-area.

Center of Sums (COS)

Advantages: The COS method is the most commonly used defuzzification method. It considers the area of overlapping regions multiple times.

Disadvantages: In the COS method, the overlapping area is counted multiple times, which might not be desirable in some cases.

Center of Area (COA)

Advantages: The COA method is simple, computationally effective, and widely used. If the fuzzy set has two sub-regions, then the center of gravity of the sub-region with the largest area can be used to calculate the defuzzified value.

Disadvantages: The COA method might not be applicable when the height is not unique.

Mean of Maxima (MOM)

Advantages: The MOM method is simple, fast, and easily interpretable. It relies on the position of maximum membership of an element at a particular position in a fuzzy set.

Disadvantages: The MOM method might not be applicable to asymmetric functions.