## Usage

On the command line, run

python test\_model\_run.py

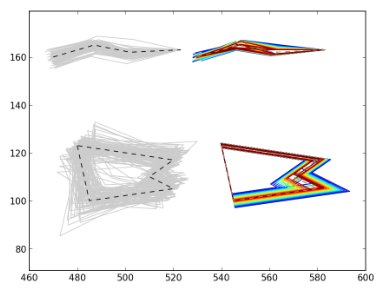
After executing, a series of figures will be displayed for A and P including: the minimum and maximum CDF for each alpha-level, the combined minimum and maximum (figure 1 and 2), and an interactive 3D plot of the combinied minimum and maximum. The file test\_model\_run\_uq results also contains the console output of the run used to create these figures

## Explanation

Let A and P be two models,

A = PA + FA + XF + YG + c P = (PP + FP)X^2+ cY + F + G

where PA , FA , PP , FP are the total area and total perimeter of all probabilistic and fuzzy shapes respectively, X and Y are probabilistic random variables, F and G are fuzzy numbers[[1]](#footnote-1), and c is a constant.



Figure

For this example, let the inputs to A and P consist of 4 shapes (figure 1). The definition of the shapes as well as the remaining parameters are shown in the tables below.

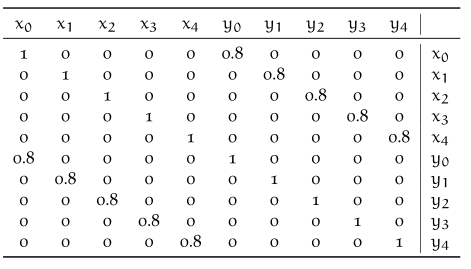
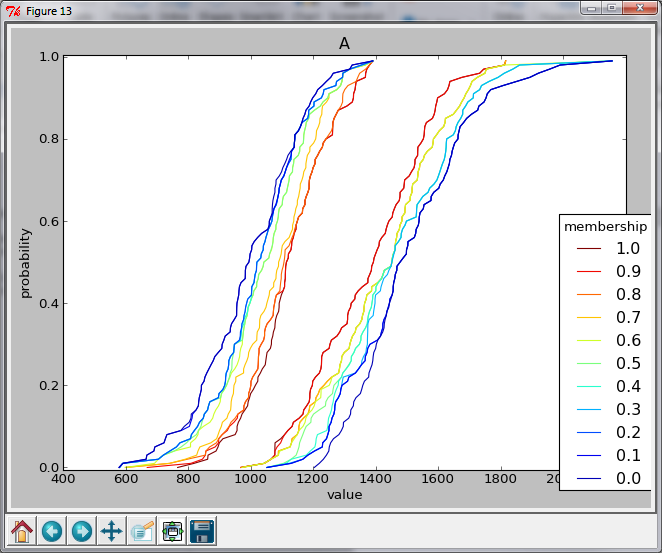
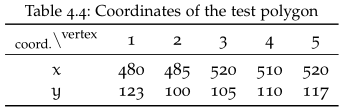


Table 4.8



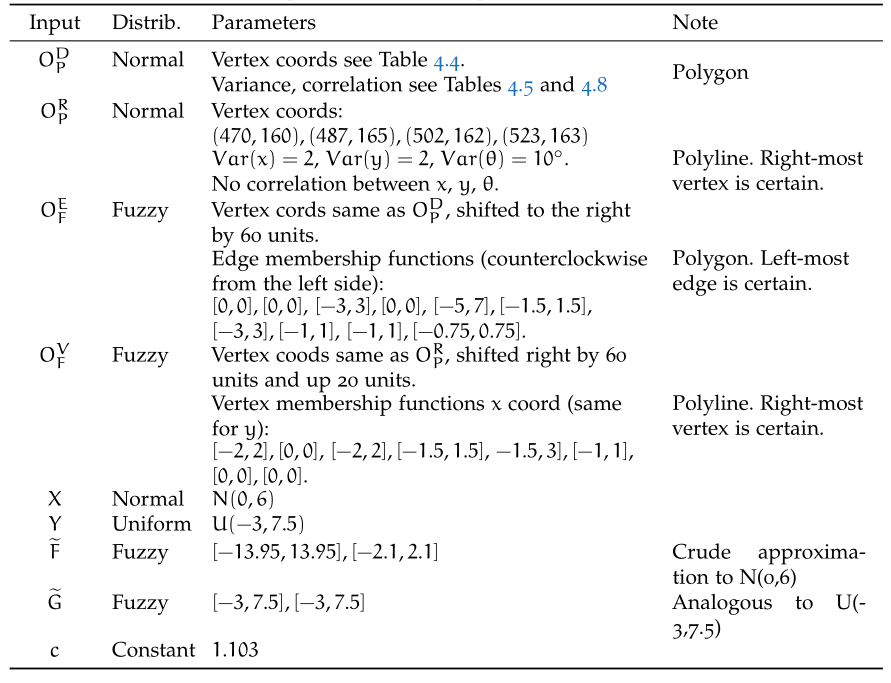


Table 1

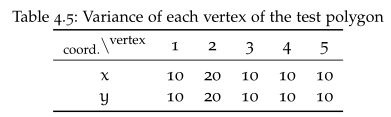


Table 4.5

Figure 2: Fuzzy CDF for A

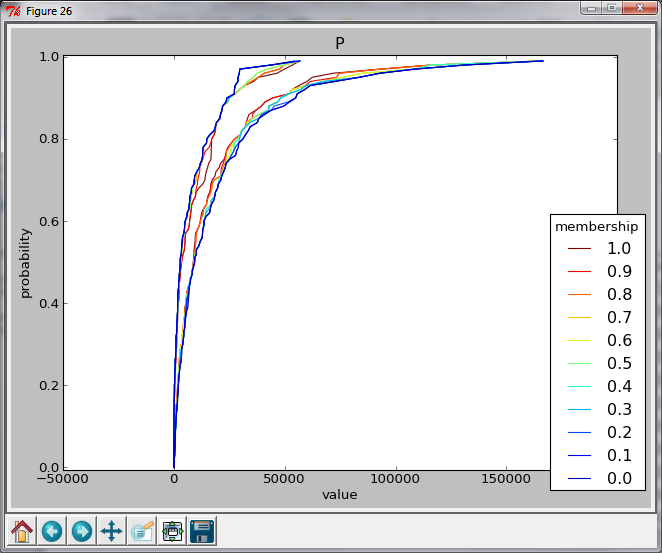


Figure 3: Fuzzy CDF for P

1. In table 1, fuzzy numbers are defined as [sl, su], [kl, ku] where sl, and su are the lower and upper bounds of the support and kl and ku are the same for the kernel. [↑](#footnote-ref-1)