Mary Wynne Warner
FUZZY mathematics

WHAT IS FUZZY LOGIC?

'Fuzzy' refers to things that are vague. Fuzzy logic mirrors real human decision-making methodology, based on degrees of truth rather than the binary true and false, shown by numbers 0-1, where 0 is completely false and 1 is completely true.

SO WHAT IS FUZZY MATHEMATICS?

In mathematics, fuzzy refers to a system that uses membership functions that specify to what degree a given input belongs to a set. It is useful for evaluating reservoirs and overcoming uncertainties by conventional methods. It is possible to turn a set of 'fuzzy' values into a defined set of 'crisp' values is called defuzzification, this is done by rounding off. Methods of this are shown to the right.

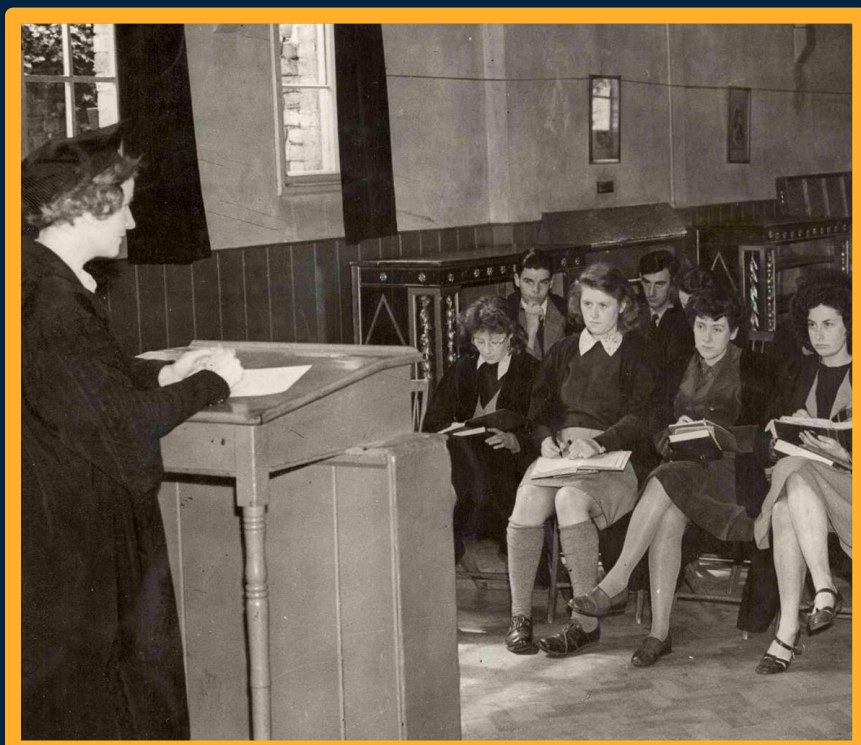**Weighted average method for defuzzification**

$$x^* = \frac{\sum \mu_{\tilde{A}}(\overline{x_i}) \cdot \overline{x_i}}{\sum \mu_{\tilde{A}}(\overline{x_i})}$$

Mean max membership for defuzzification

$$x^* = \frac{\sum_{i=1}^{n} \overline{x_i}}{n}$$

MOST IMPORTANTLY,,, WHO WAS SHE?

Born in Carmarthen, 1932, she was a pioneer in fuzzy mathematics; she was proud of her Welsh heritage and spoke Welsh fluently. She defended a Welsh poem that was mocked by academics - something taboo for women of her time! She later went on to become a governor at Lindisfarne College, Wrexham, transforming it from a boys school to a coeducational establishment. She also attended Oxford University to study Mathematics after winning numerous awards. Later in her career, she led the MSc course in mathematics in Rangoon University, Myanmar. After gaining her PhD, she became one of the most influential people in fuzzy topology. She died in her sleep, April 1998, buried alongside her family.

References:

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