

Fuzzy 11

Murat Osmanoglu

Introduction

USING FUZZY LOGIC METHODS FOR CARBON DIOXIDE CONTROL IN CARBONATED BEVERAGES

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ABSTRACT

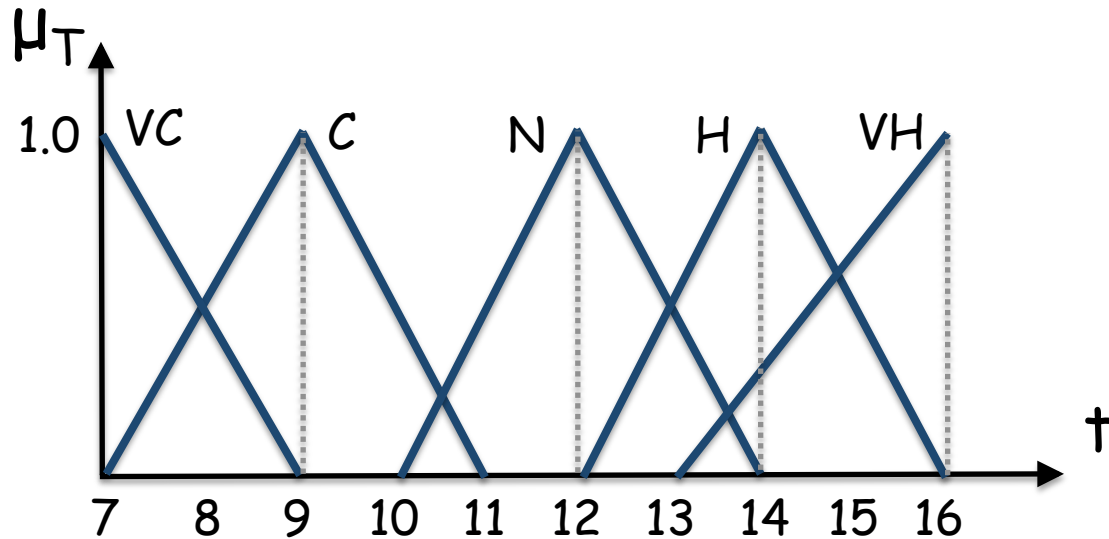
In this paper, this article is about one of the applications of fuzzy logic and neuro-fuzzy in field of control, it is how to measuring the percentage of carbon dioxide gas which is contained in sugary solution of Fizzy drink by using computer system depended on the concept of fuzzy logic and neuro-fuzzy mechanism, by these two methods the percentage of carbon dioxide can be measured in sugary solution of fizzy drink, at last the comparison can be done among result in order to know which one of methods has less ratio than another to measuring the real value of carbon dioxide of AL-TAMIM company for food stuff.

KEYWORDS

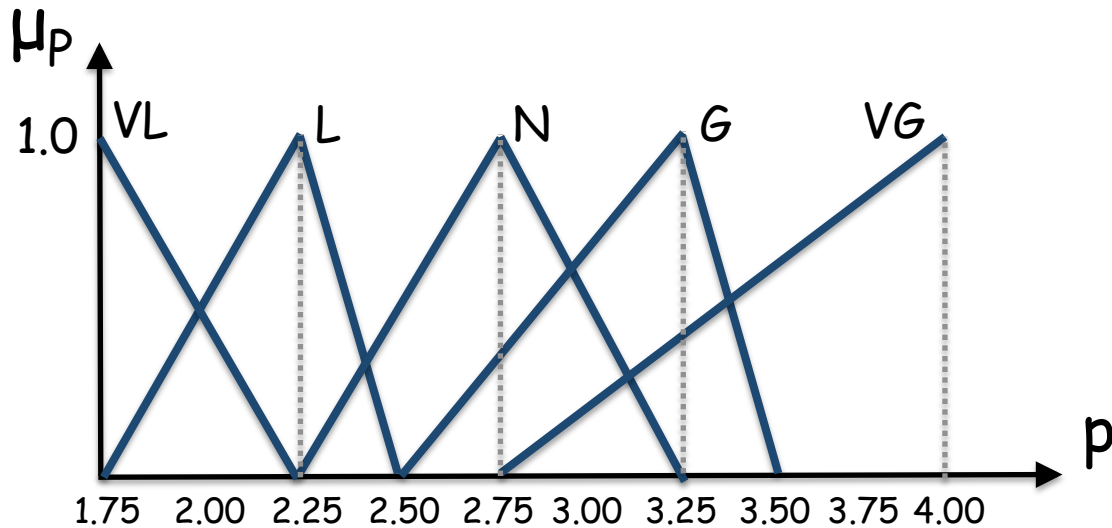
Fuzzy logic, adaptive network fuzzy inference system, carbonated beverages, control application.

Data Base

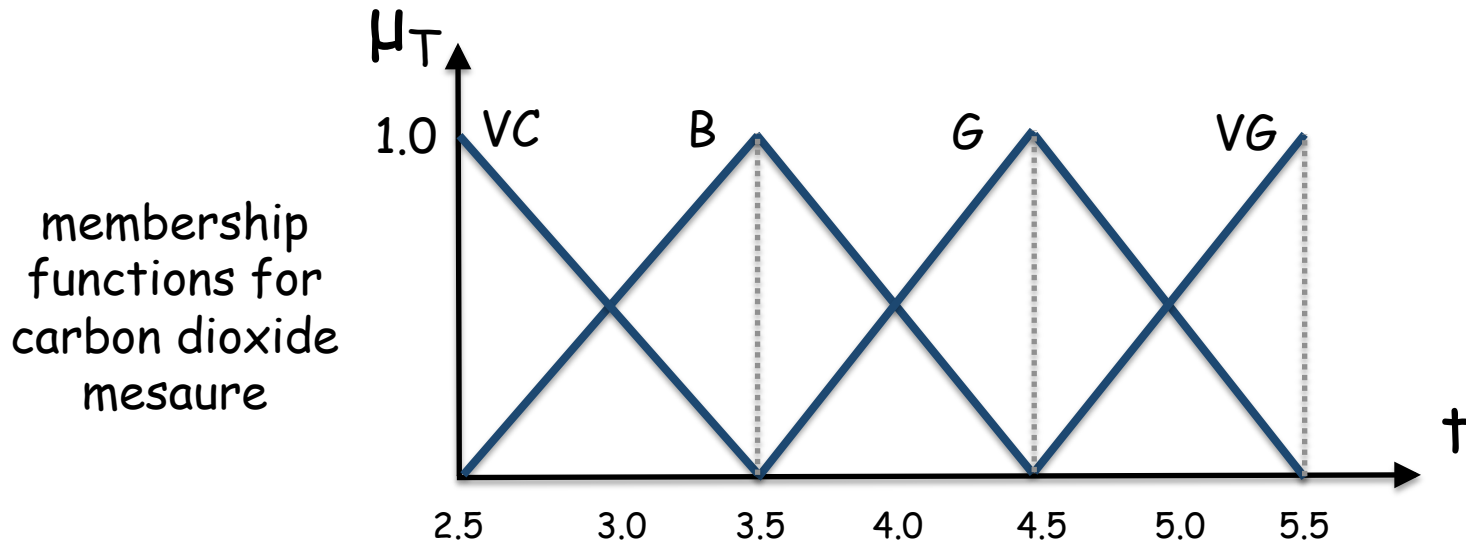
membership functions for temperature



membership functions for pressure



Data Base



Rule Base

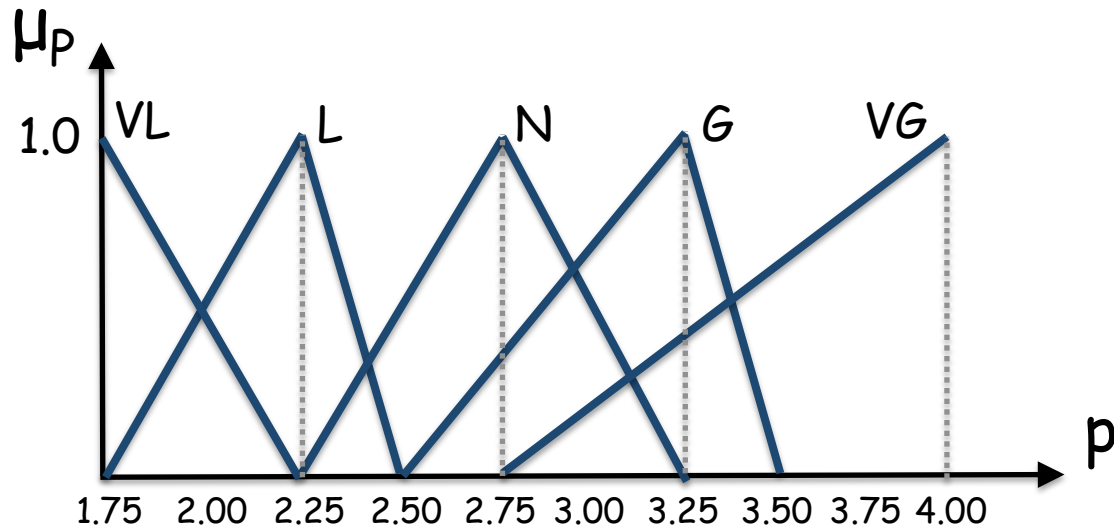
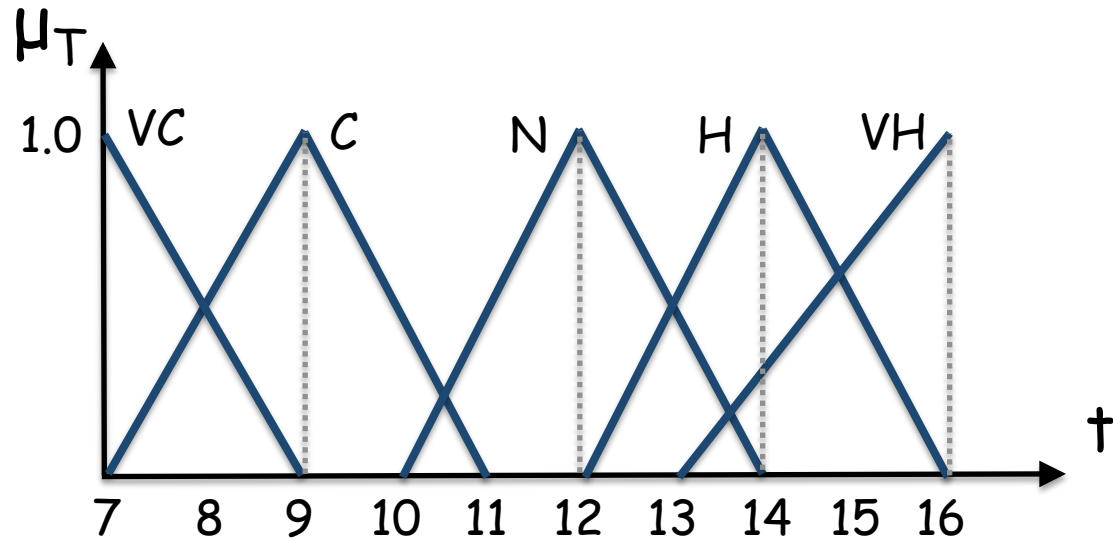
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Rule Base

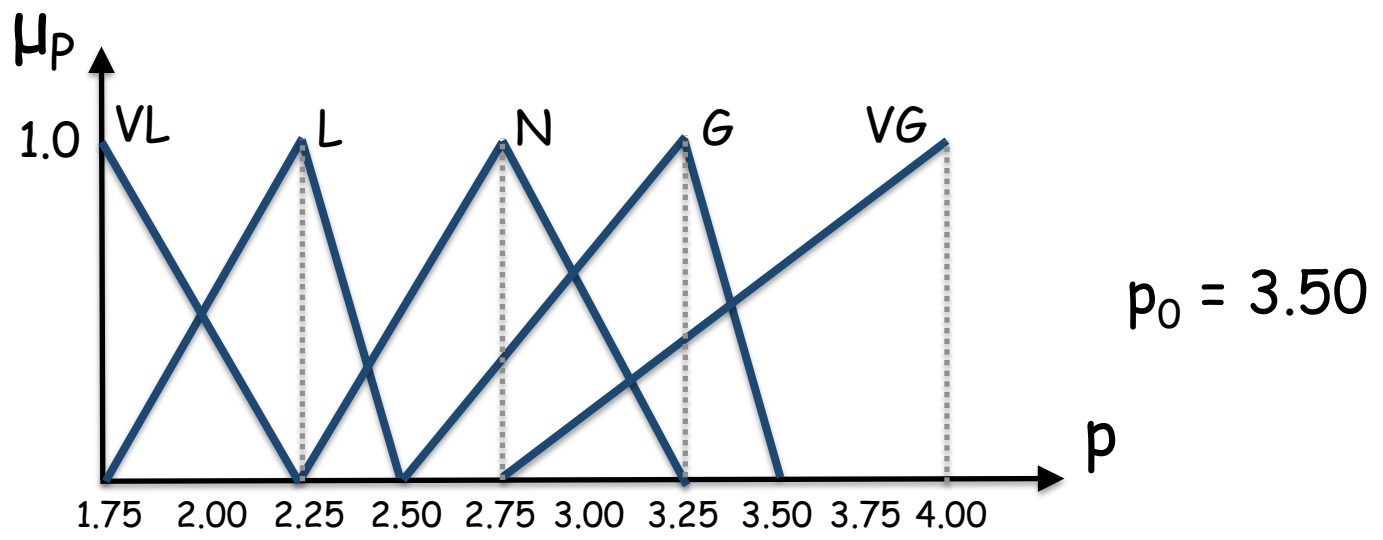
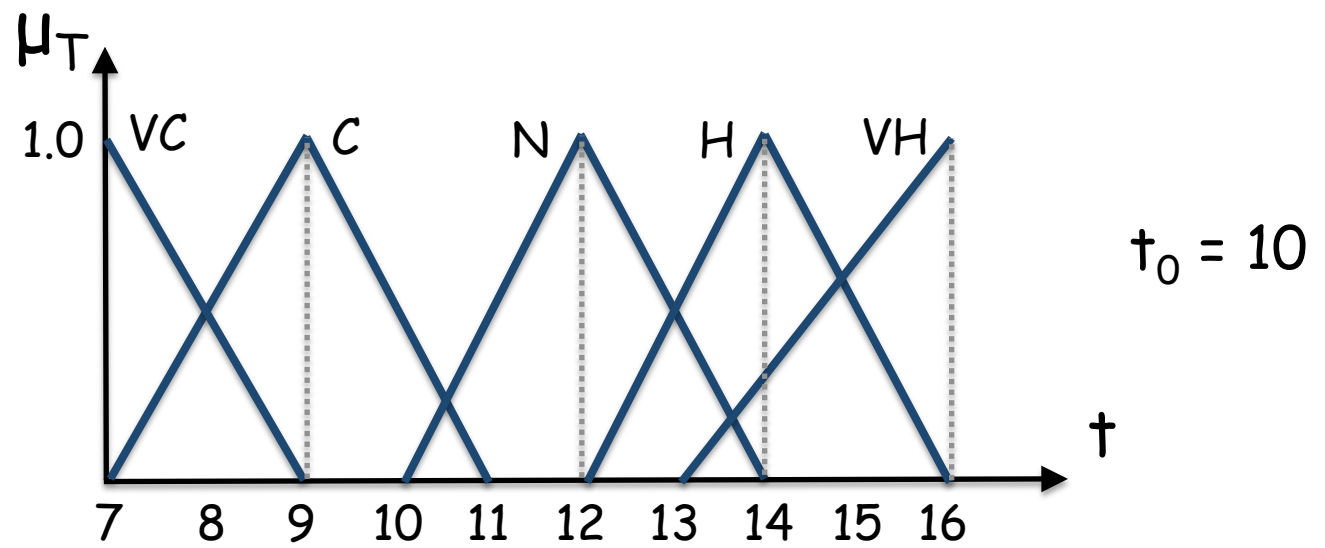
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If temperature is Hot and pressure is Normal
then carbon dioxide measure is Normal

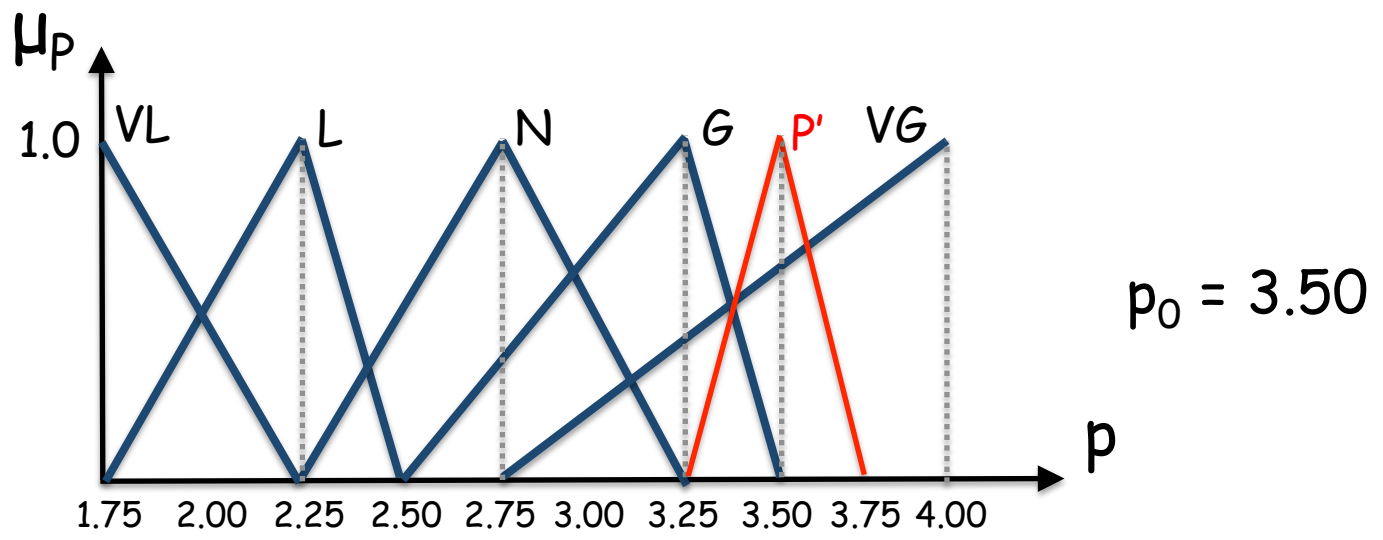
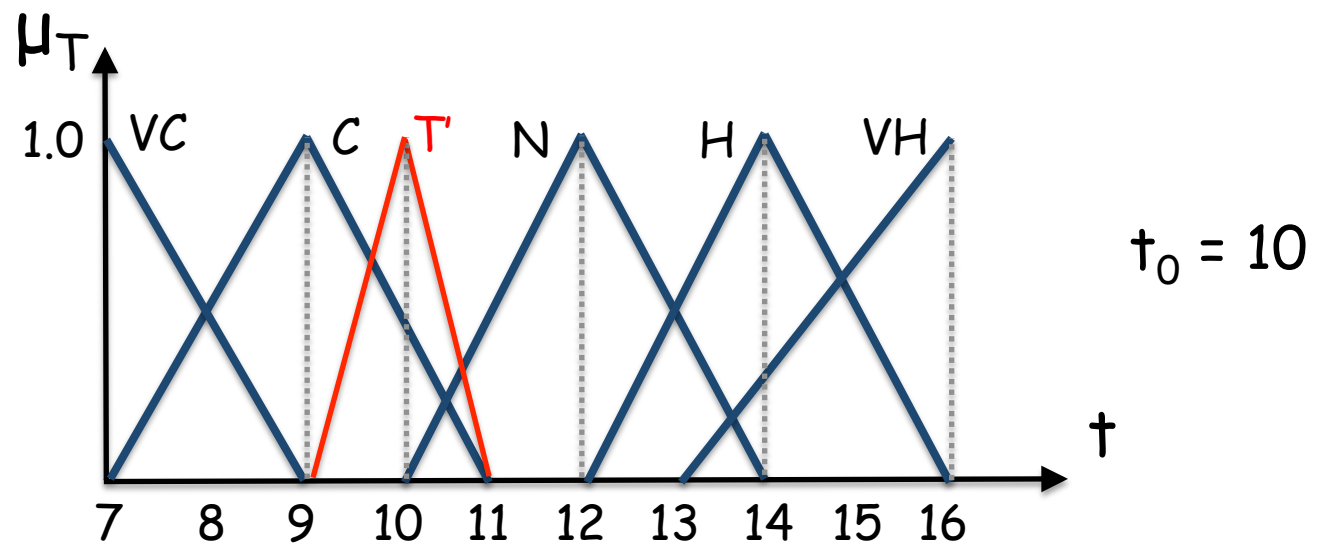
Fuzzification



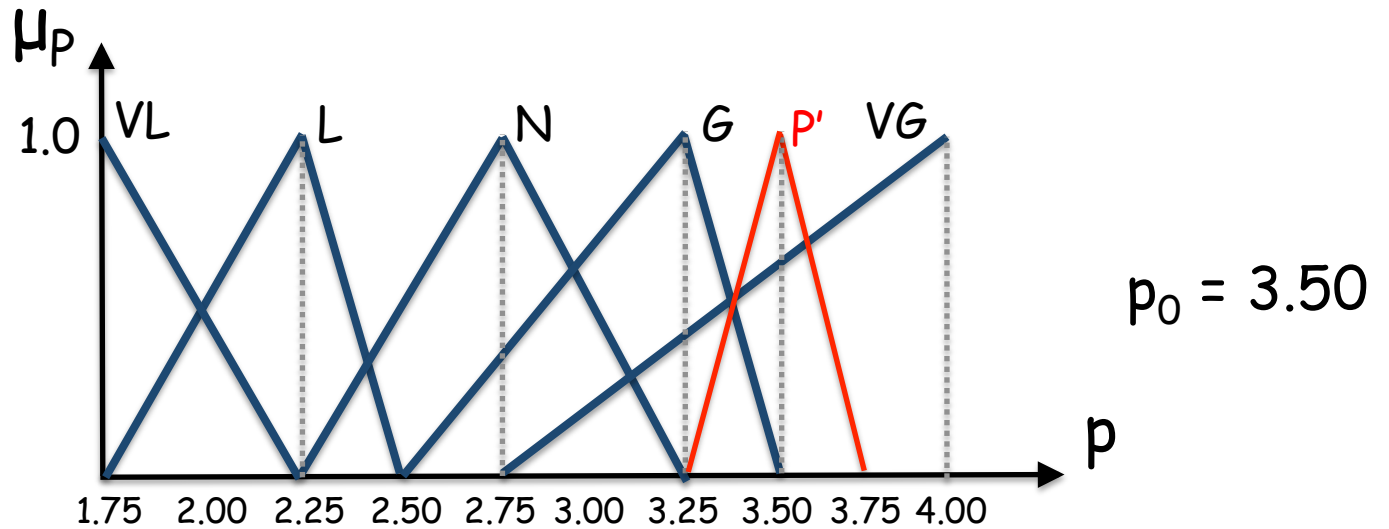
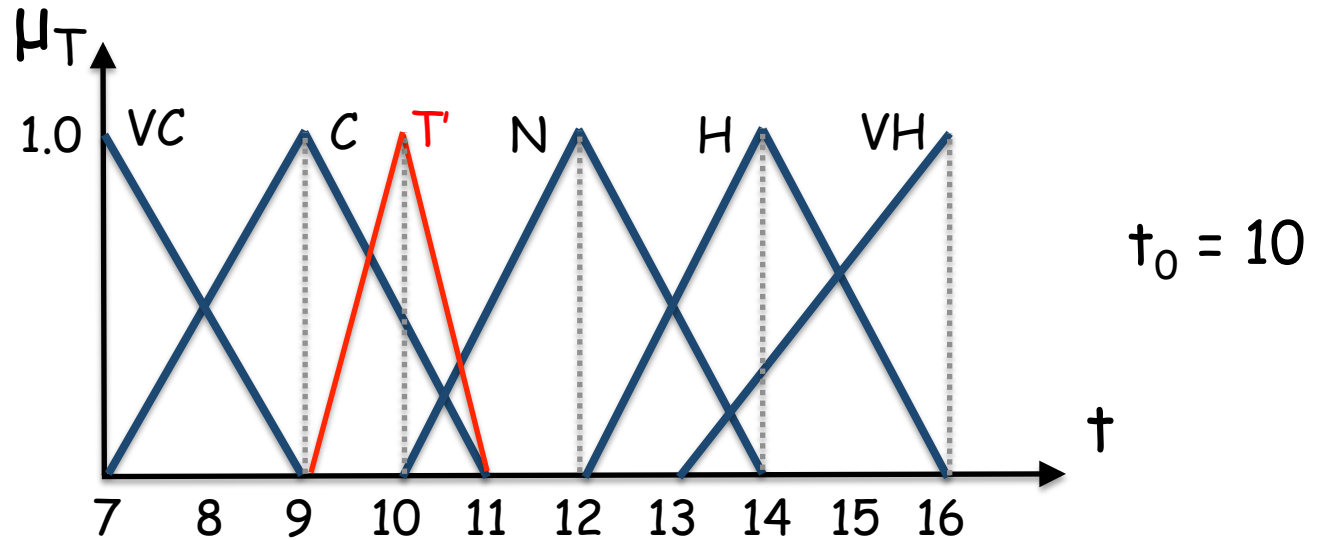
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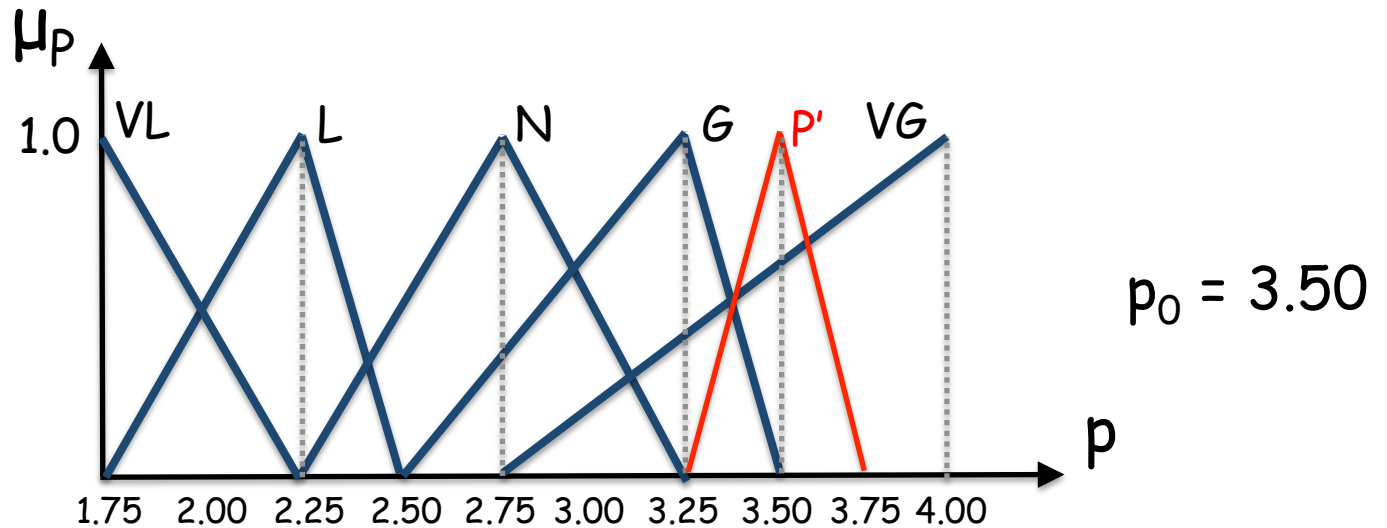
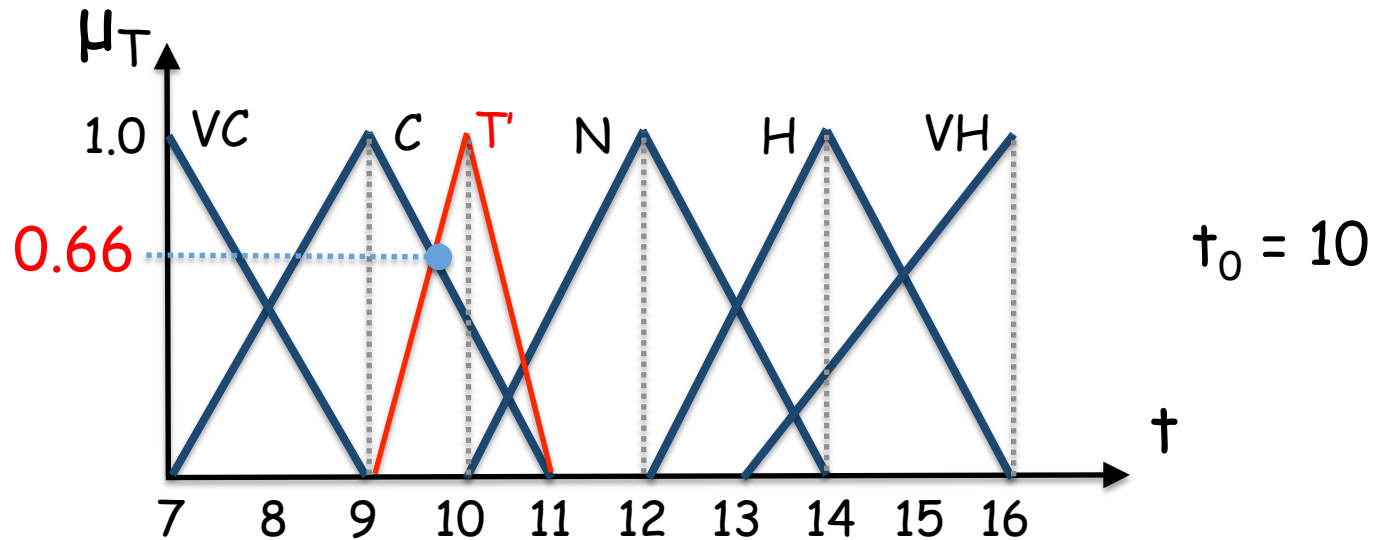
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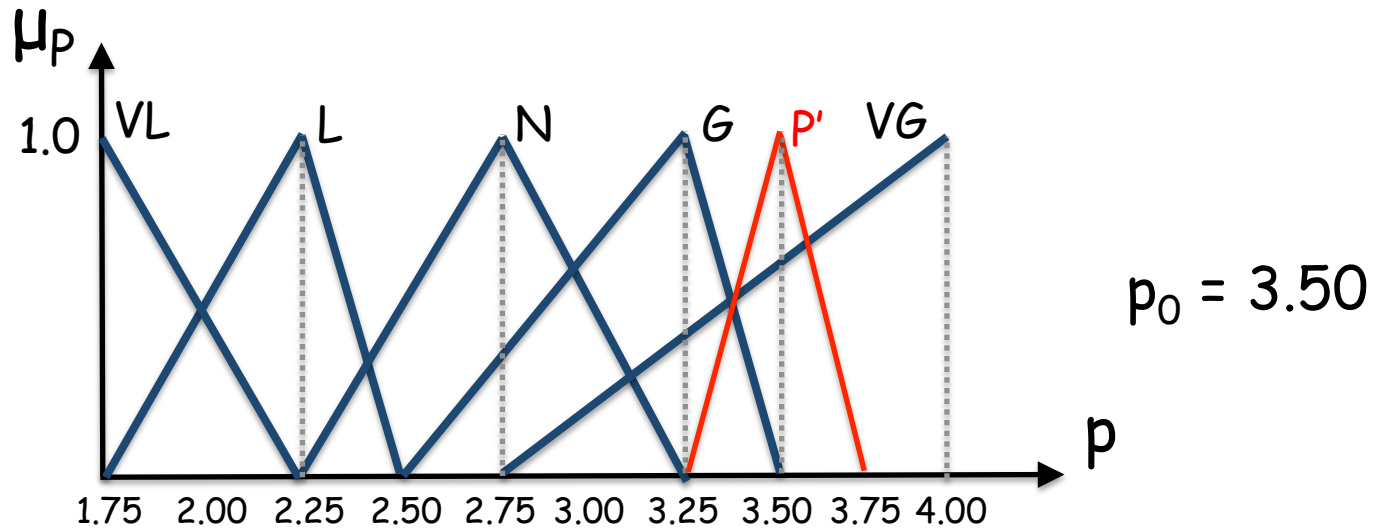
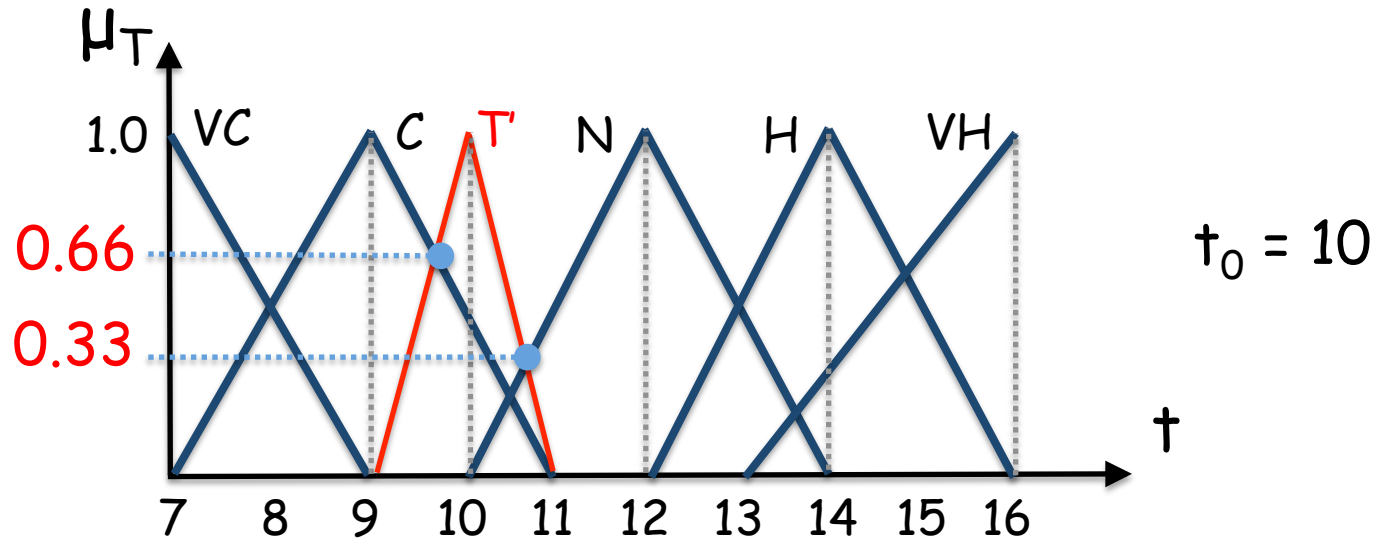
Inference



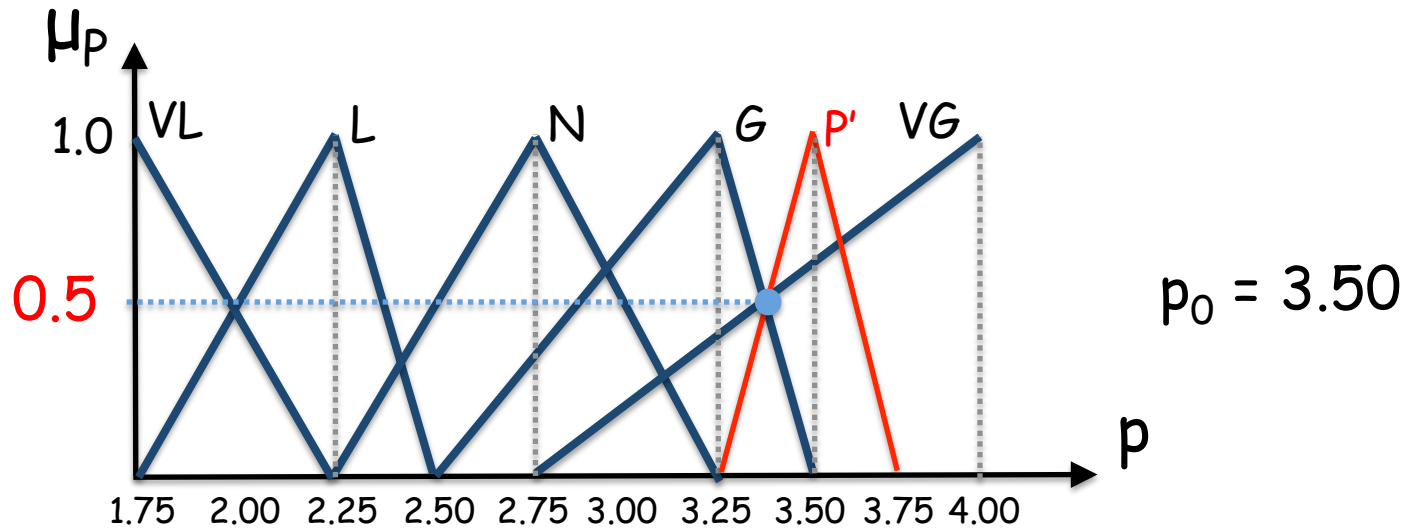
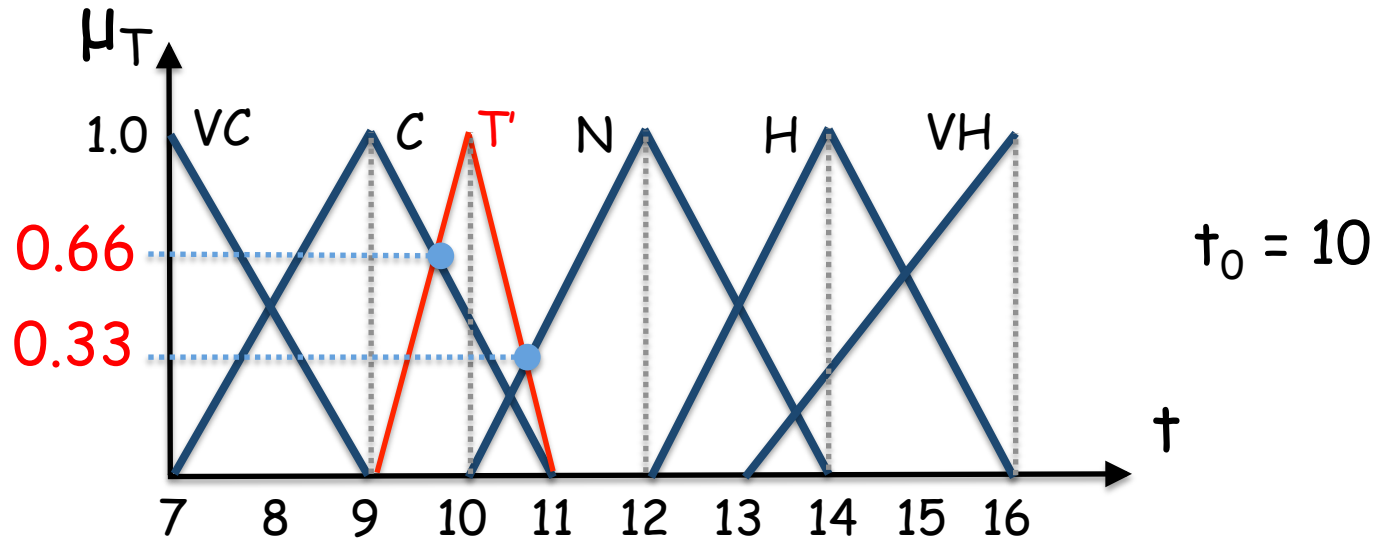
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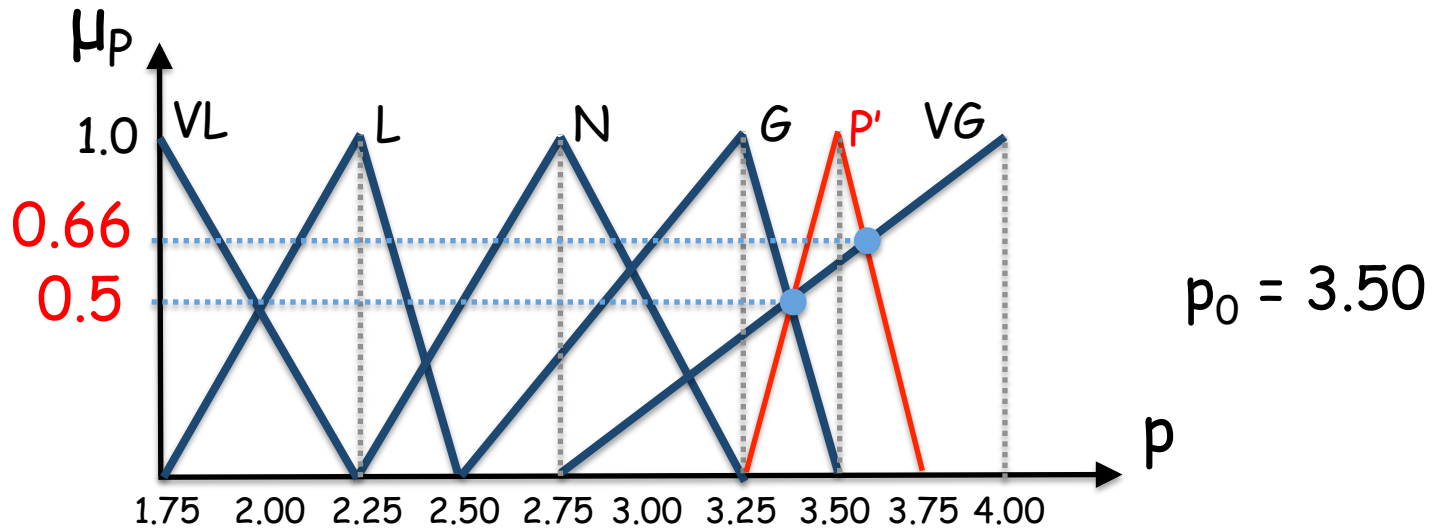
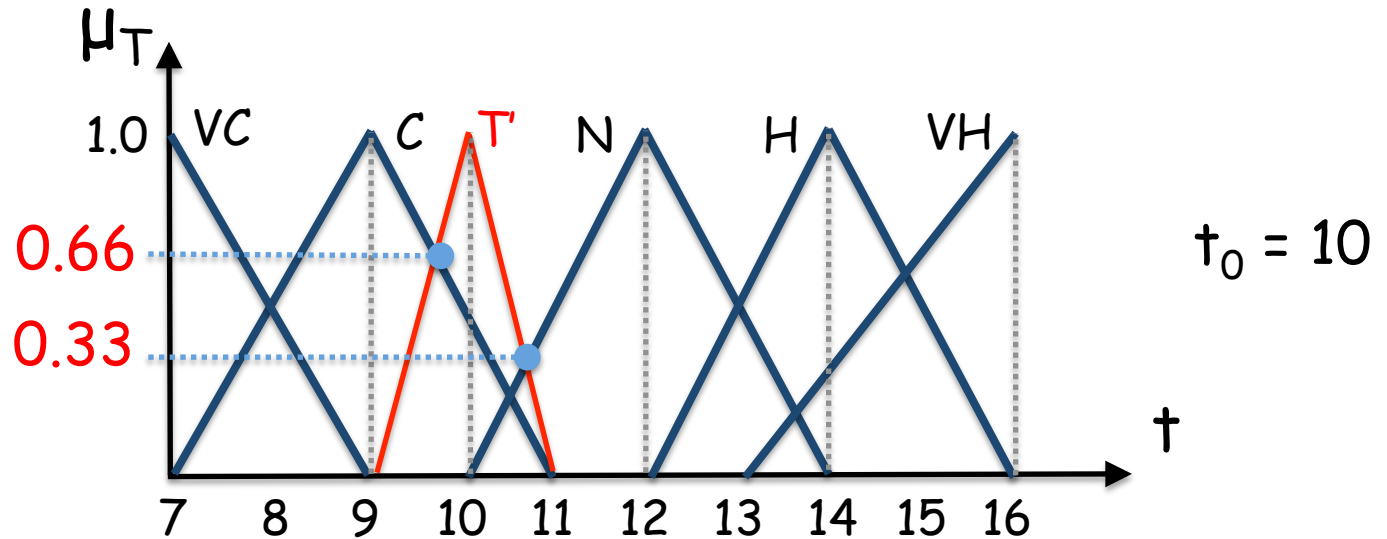
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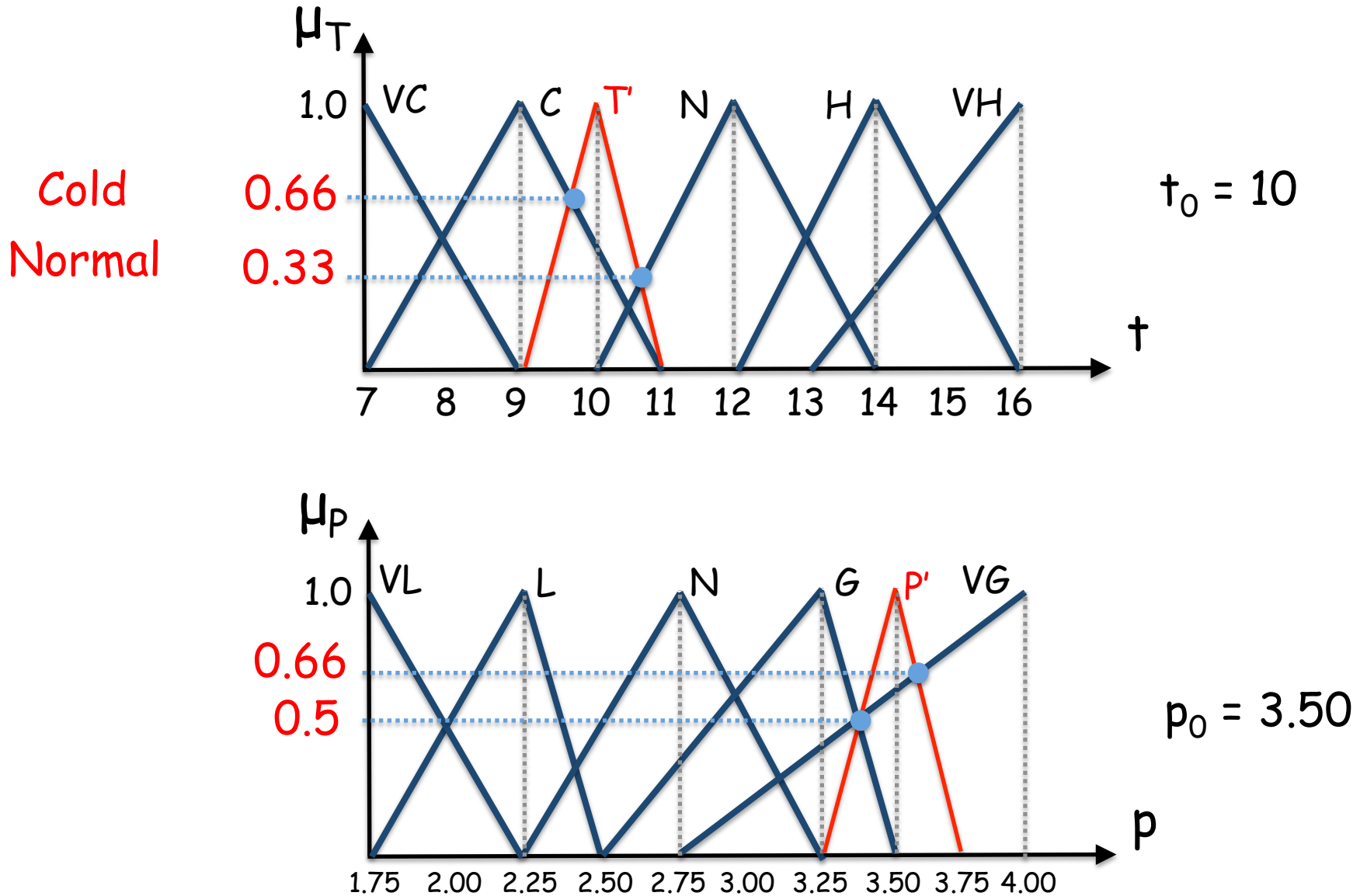
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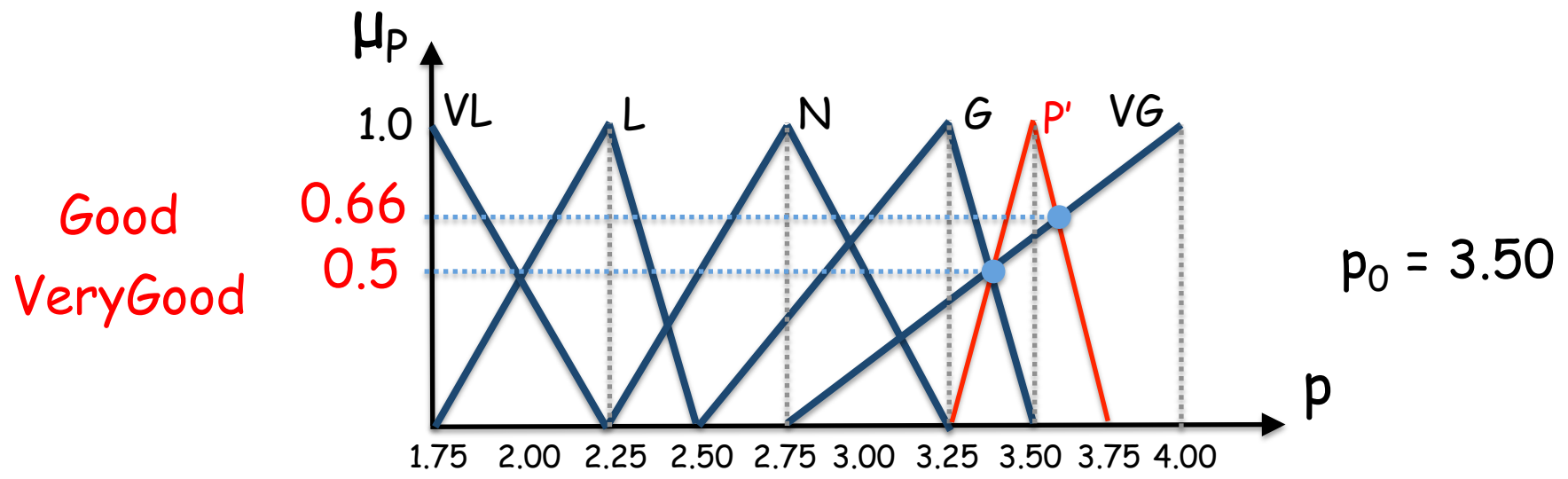
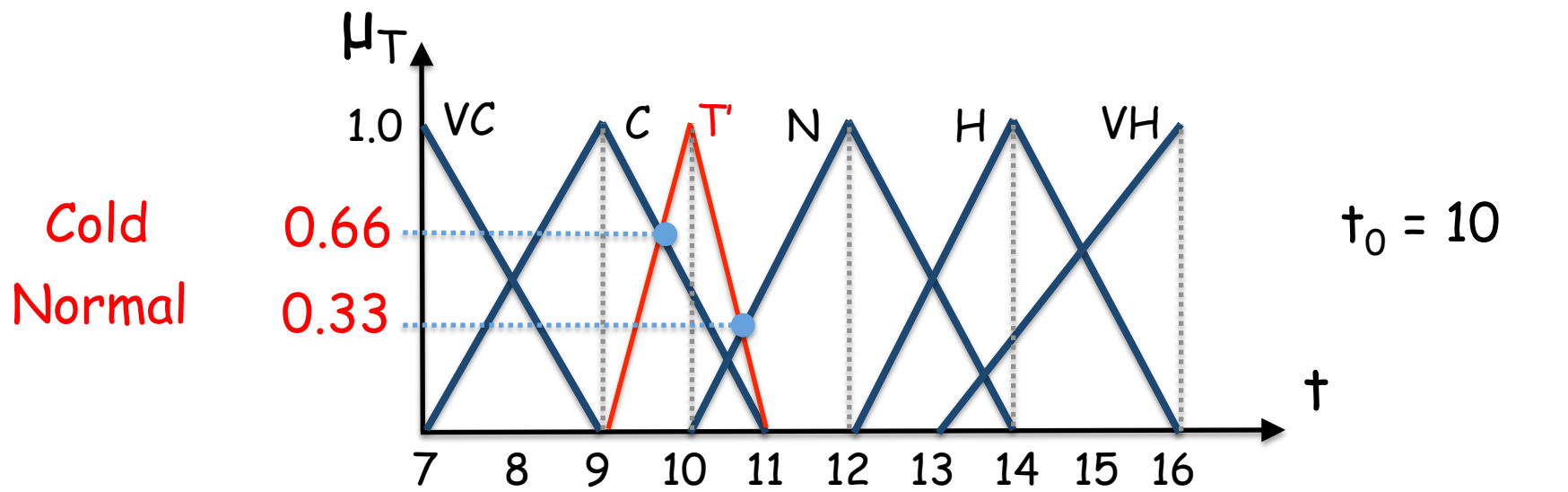
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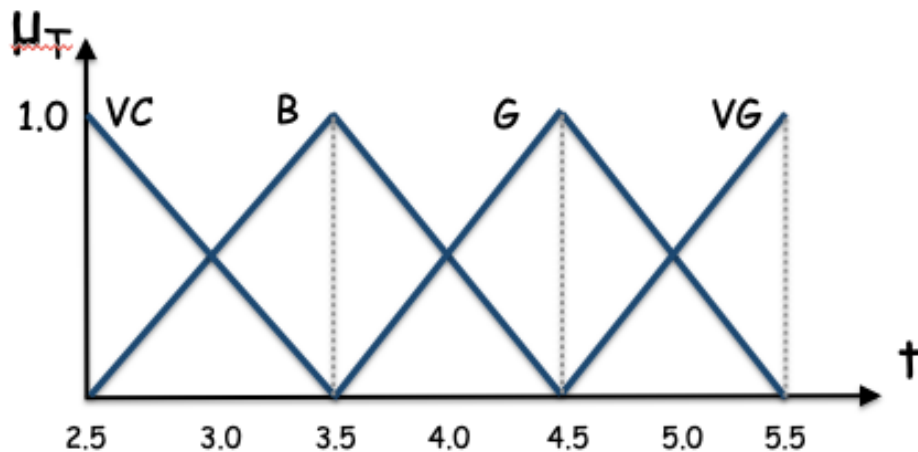


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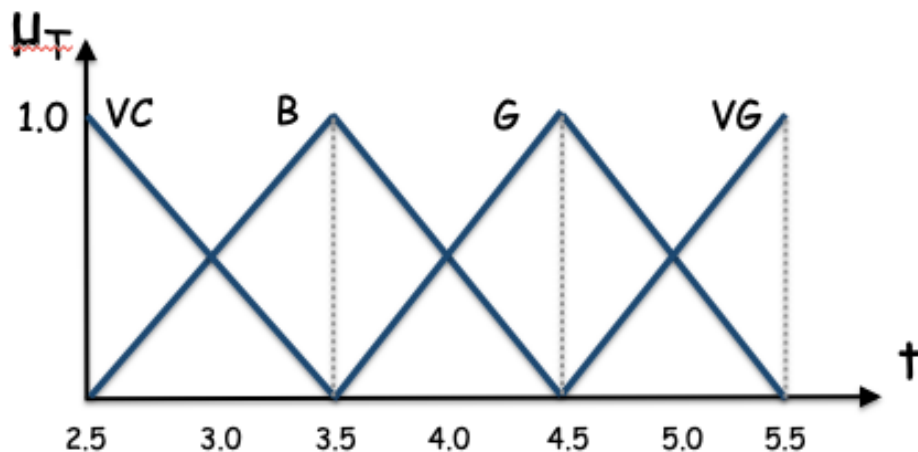
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Inference

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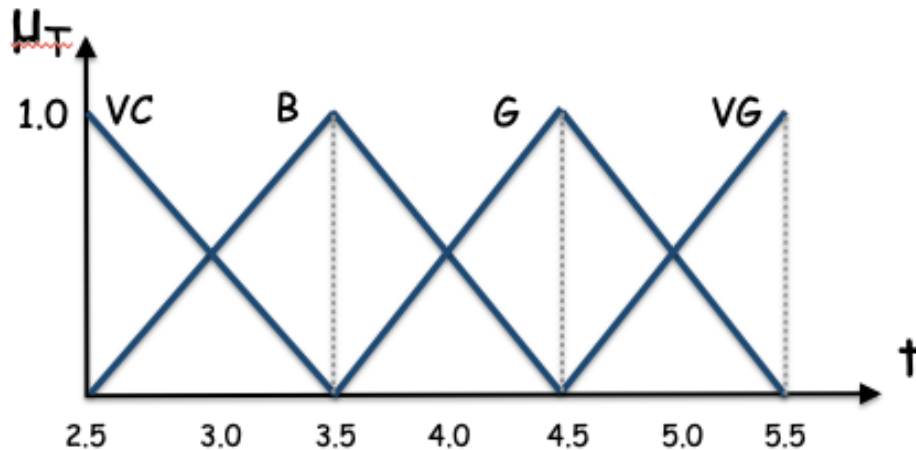
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Inference

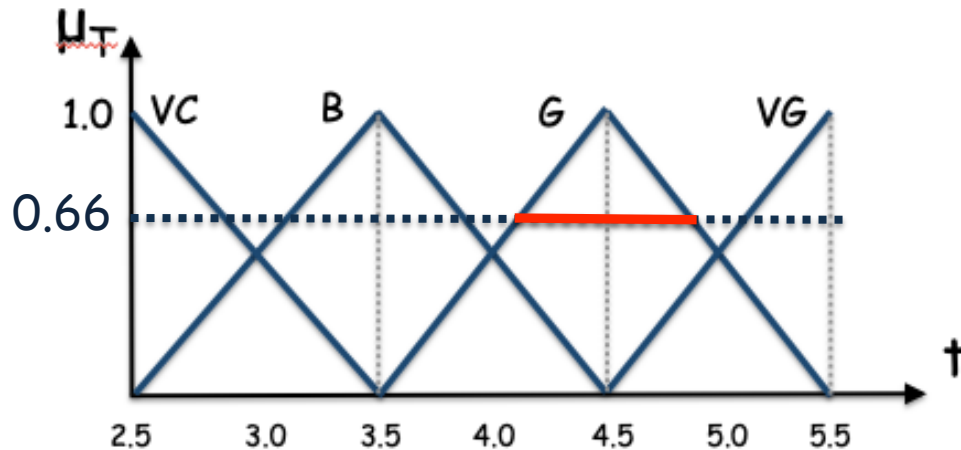
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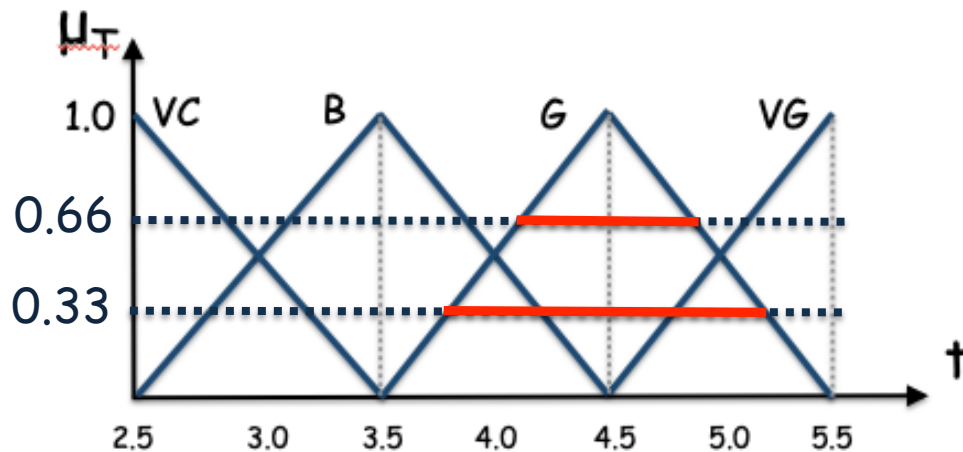
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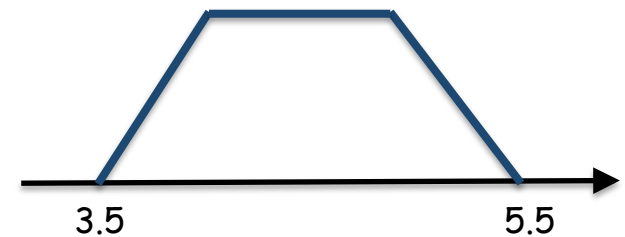
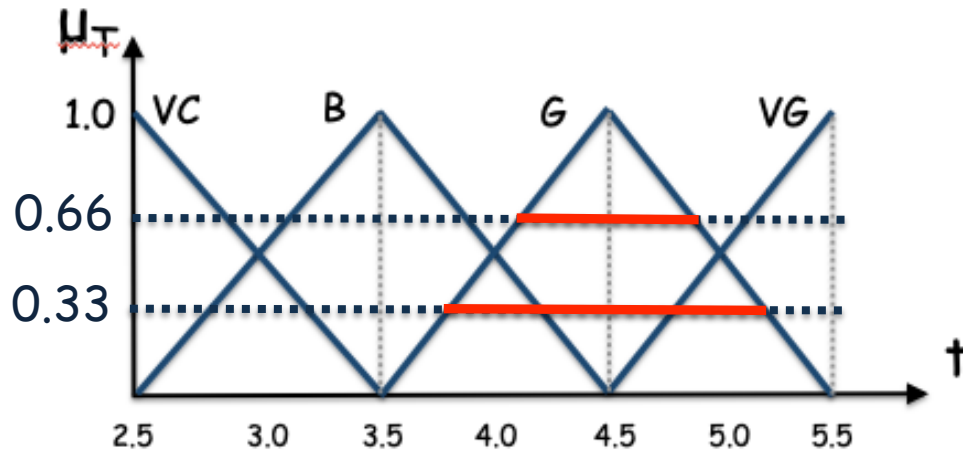
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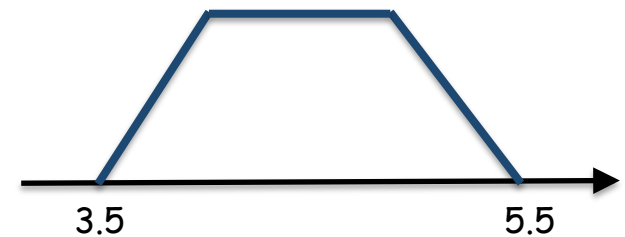
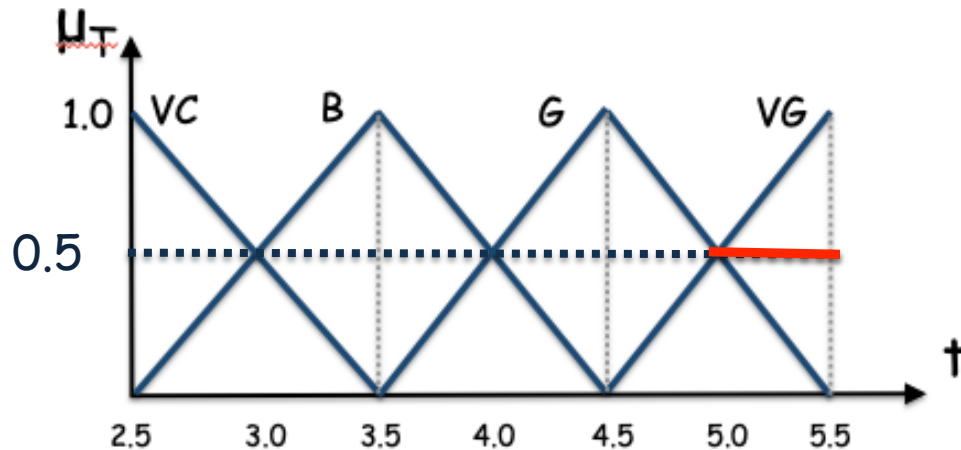
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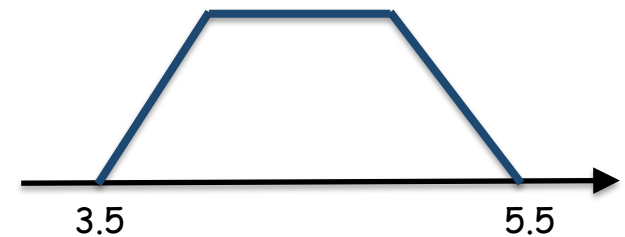
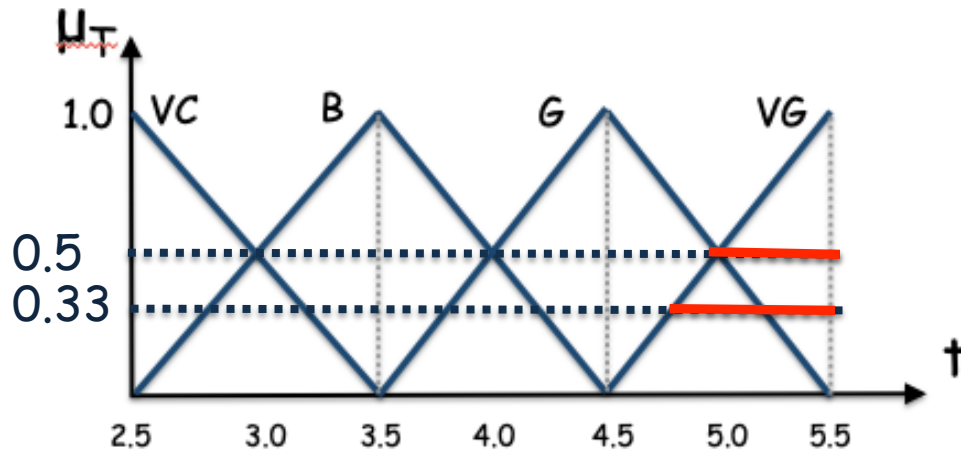
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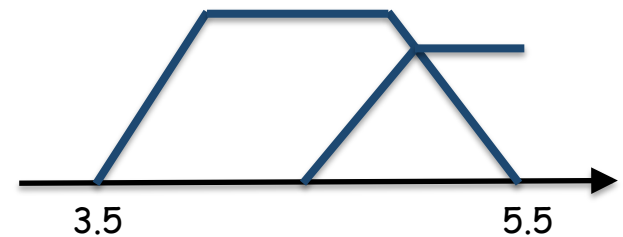
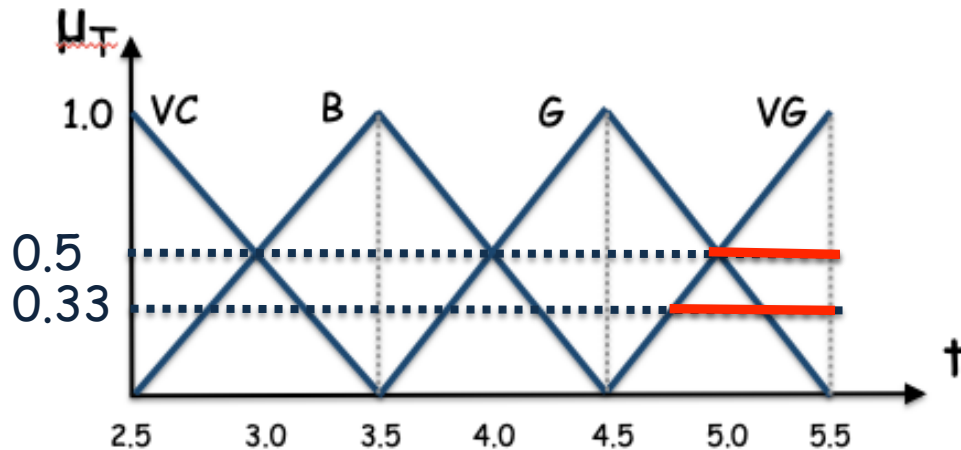


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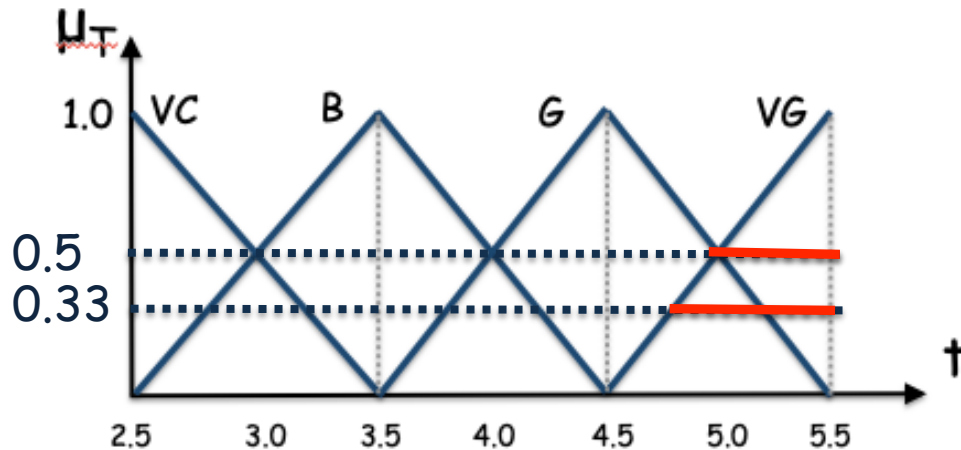
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Defuzzification

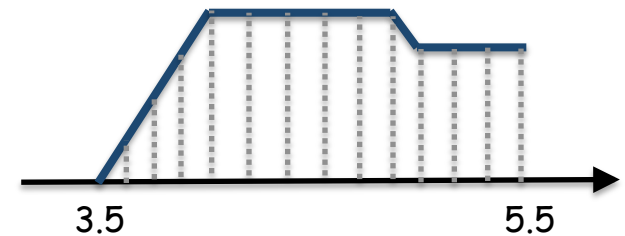
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0.66

0.5



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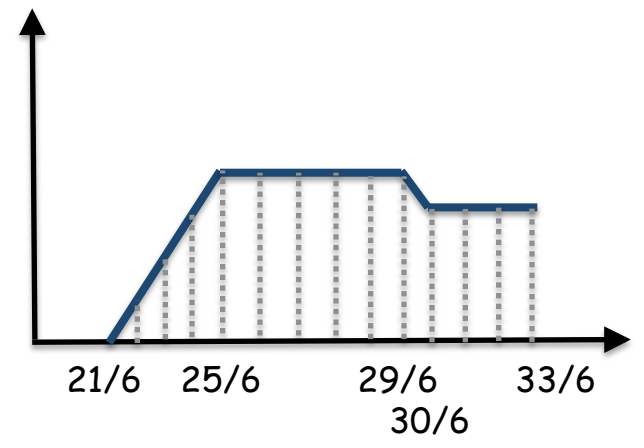
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0.66

0.5



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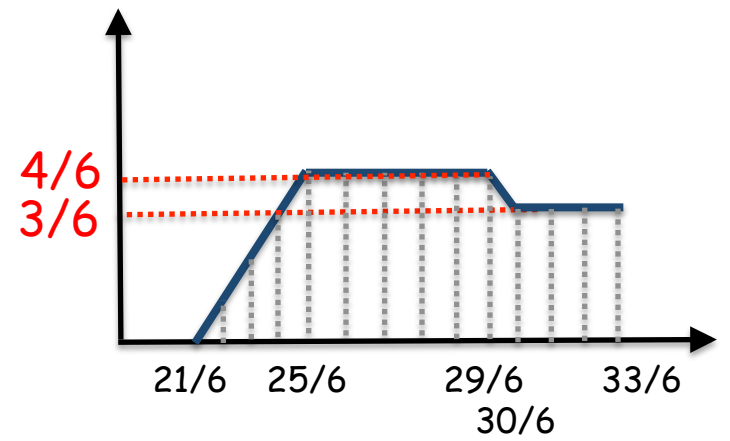
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0.66

0.5



Defuzzification

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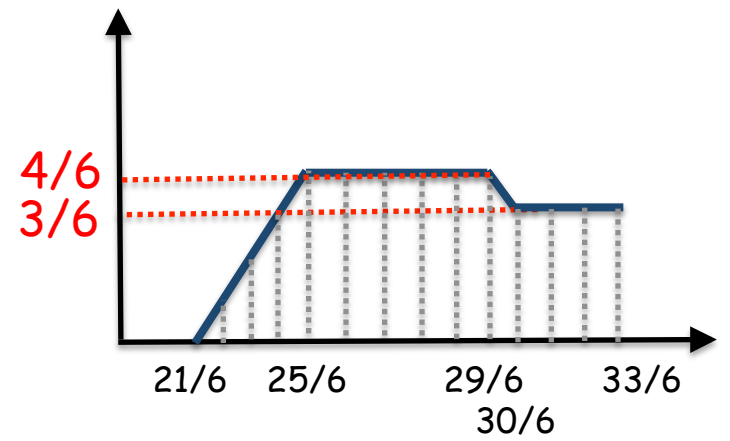
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0.5

Mean of Maximum



Defuzzification

0.66

0.33

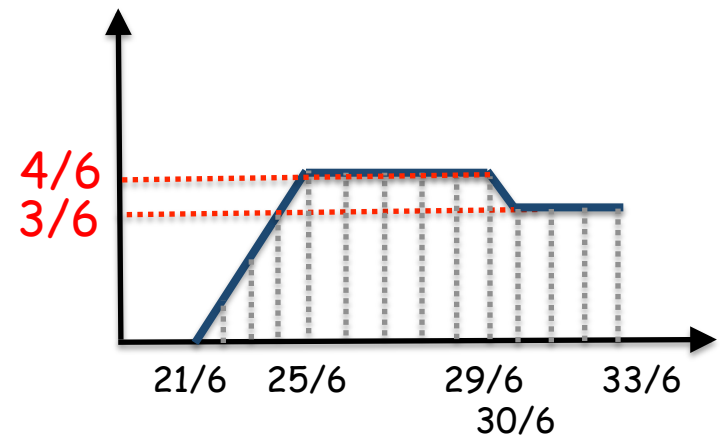
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0.66

0.5

Mean of Maximum

$$(25/6 + 29/6)/2 = 4.5$$



Defuzzification

0.66

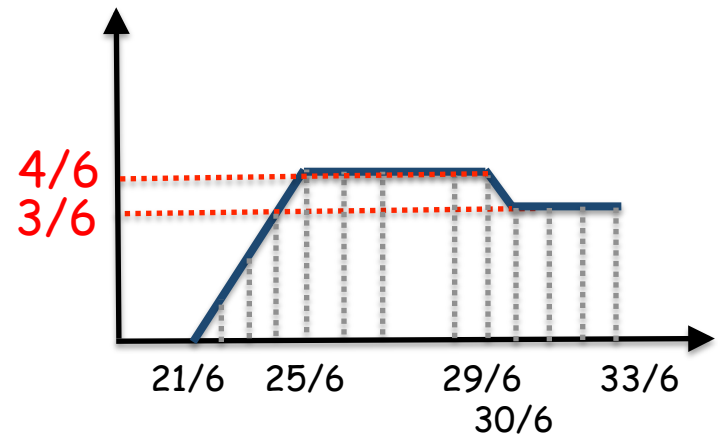
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0.66

0.5

Bisector of Area



Defuzzification

0.66

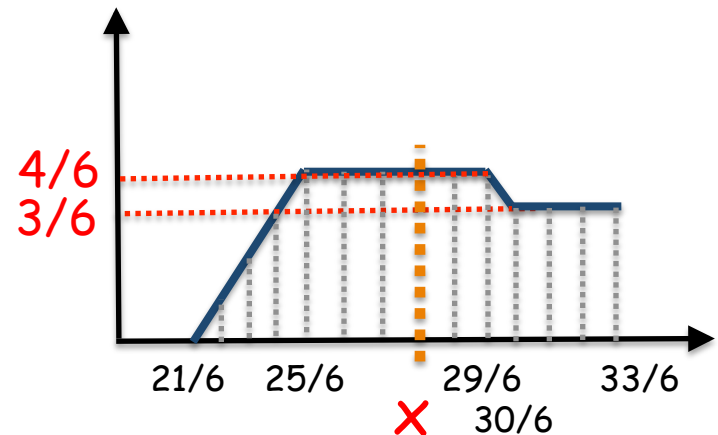
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0.66

0.5

Bisector of Area



Defuzzification

0.66

0.33

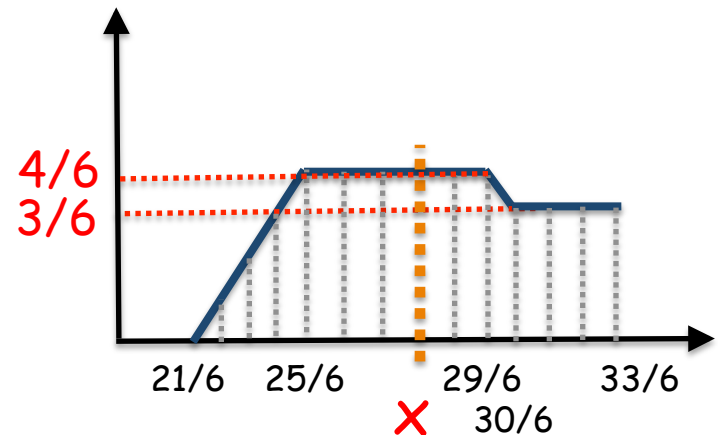
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0.66

0.5

Bisector of Area

$$2/9 + (x - 25/6) * 2/3 = (29/6 - x) * 2/3 + 7/72 + 1/4$$



Defuzzification

0.66

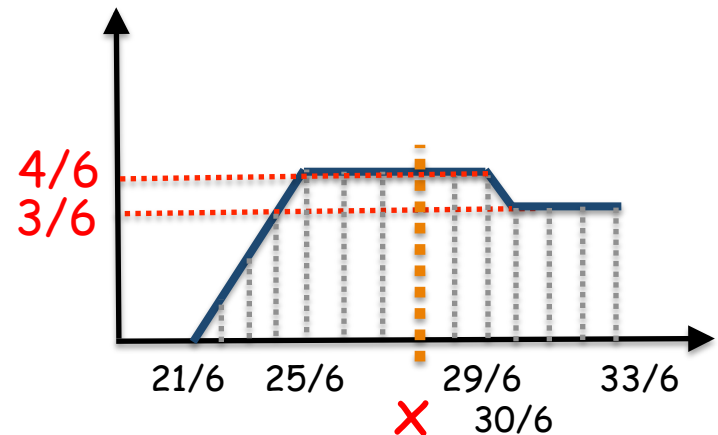
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Bisector of Area

$$2/9 + (x - 25/6) * 2/3 = (29/6 - x) * 2/3 + 7/72 + 1/4$$

$$4/3 * x = 49/8$$



Defuzzification

0.66

0.33

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0.66

0.5

Bisector of Area

$$2/9 + (x - 25/6) \cdot 2/3 = (29/6 - x) \cdot 2/3 + 7/72 + 1/4$$

$$4/3 \cdot x = 49/8$$

$$x = 147/32$$

