Fuzzy 8

Murat Osmanoglu

Mamdani Fuzzy Inference

Fuzzy Input

- the fact is : x is A'

  the rule is : If x is A, then z is C

  the result is : z is C'

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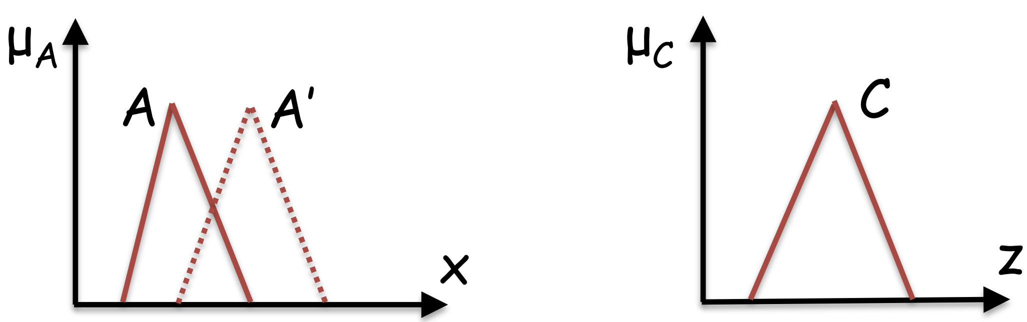

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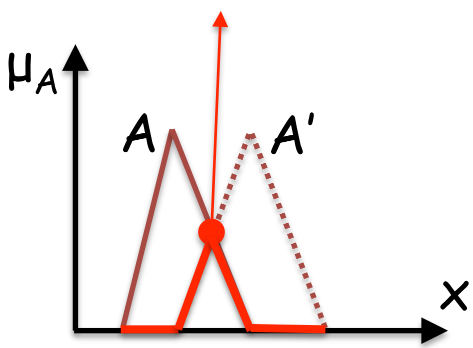

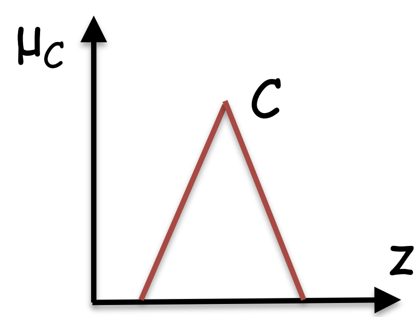

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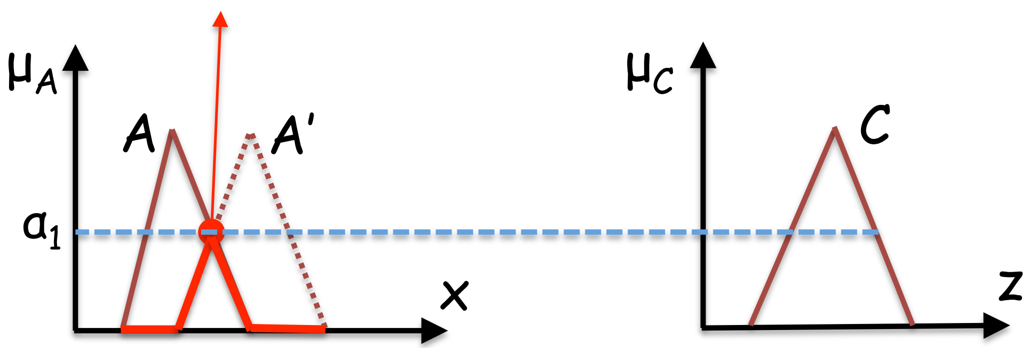

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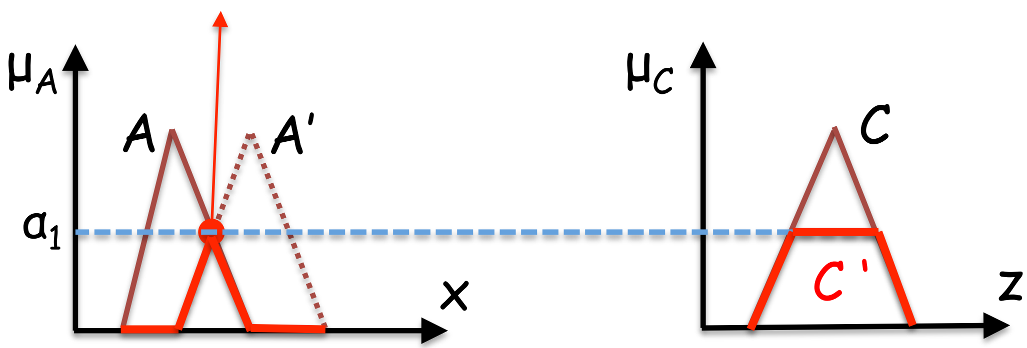

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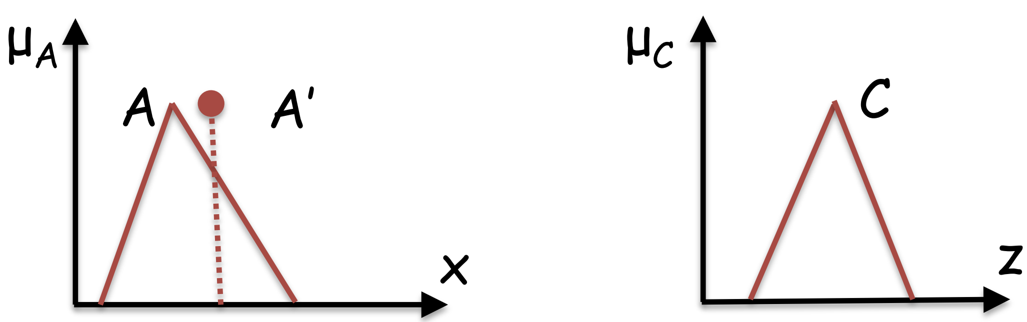

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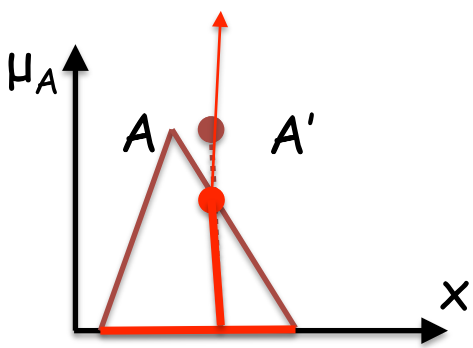

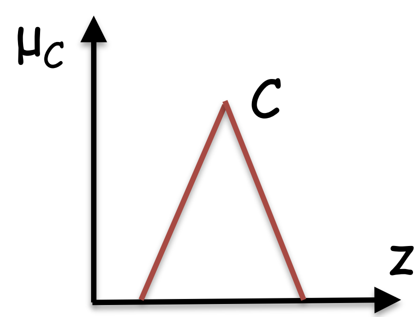

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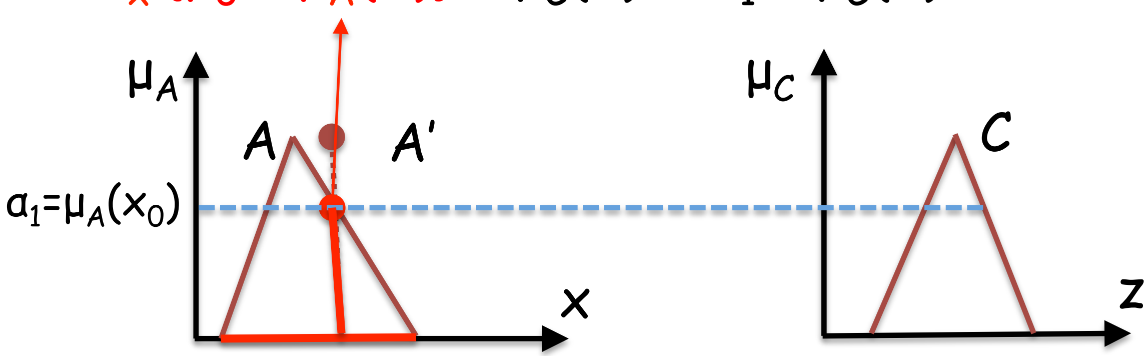

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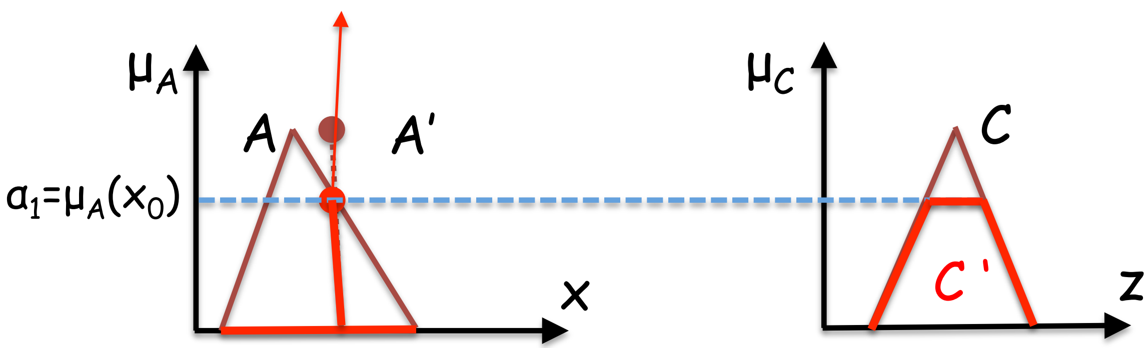

Mamdani Fuzzy Inference

Single Input Single Output

- input : x is A'

    R_1 : if x is A_1, then z is C_1 : $A_1 \rightarrow C_1$

    R_2 : if x is A_2, then z is C_2 : $A_2 \rightarrow C_2$

  output : z is C'

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  R_1 : if x is A_1, then z is C_1 : $A_1 \rightarrow C_1$

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- $C' = A' \circ (R_1 \cup R_2) = A' \circ [(A_1 \rightarrow C_1) \cup (A_2 \rightarrow C_2)]$

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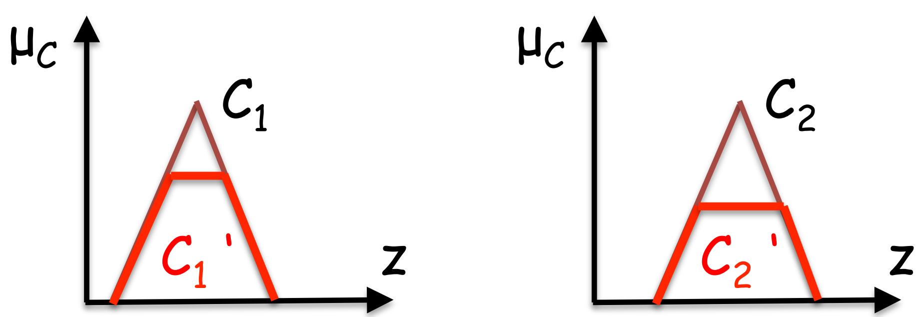

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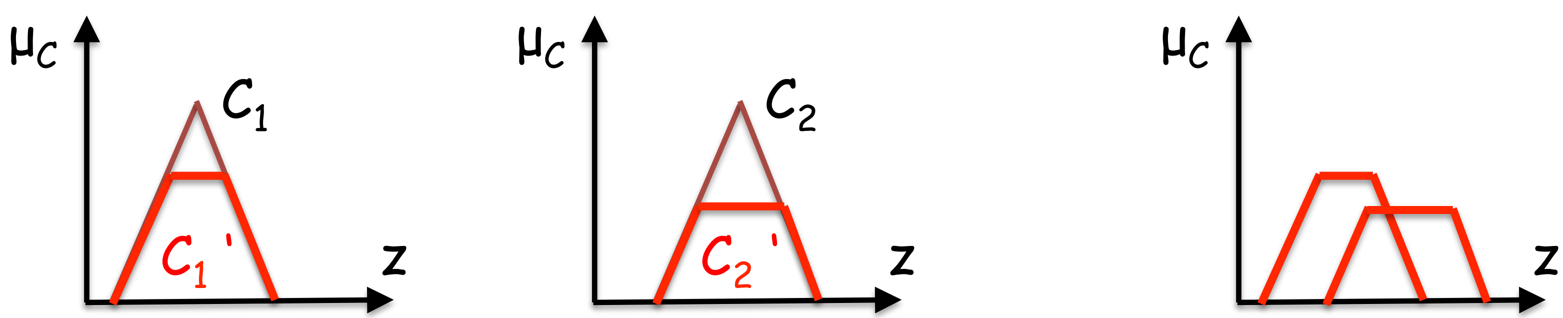

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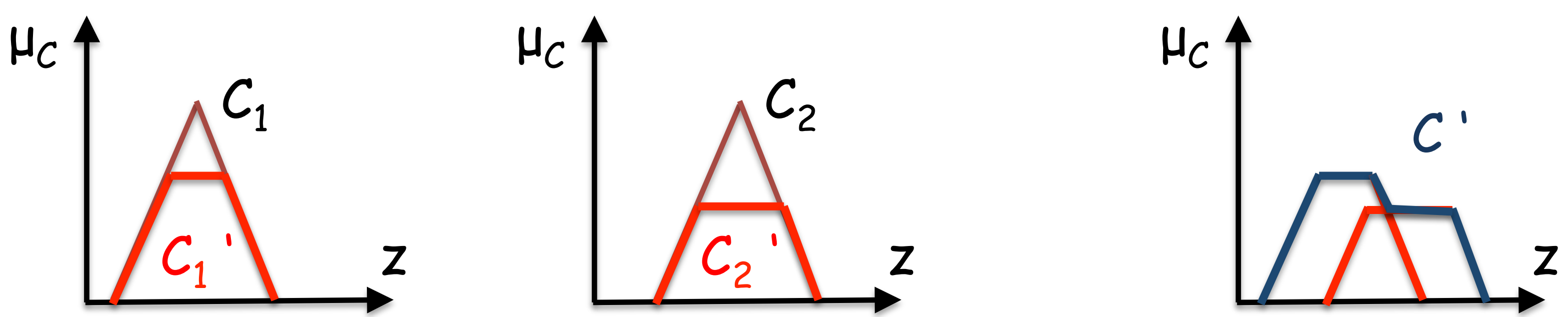

Mamdani Fuzzy Inference

Two Input Single Output

- input : x is A' and y is B'

  R : if x is A and y is B, then z is C : (A and B) ➔ C

  output : z is C'

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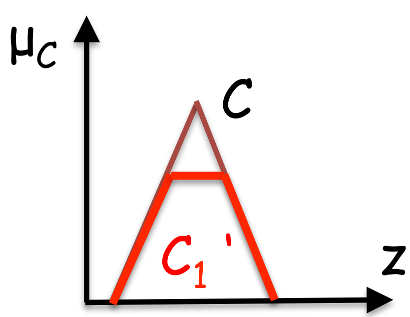

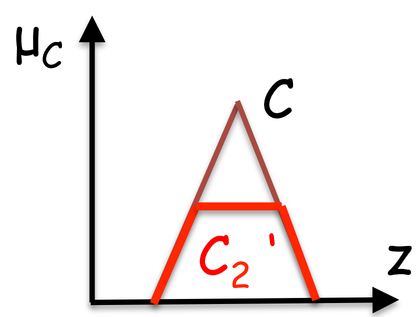

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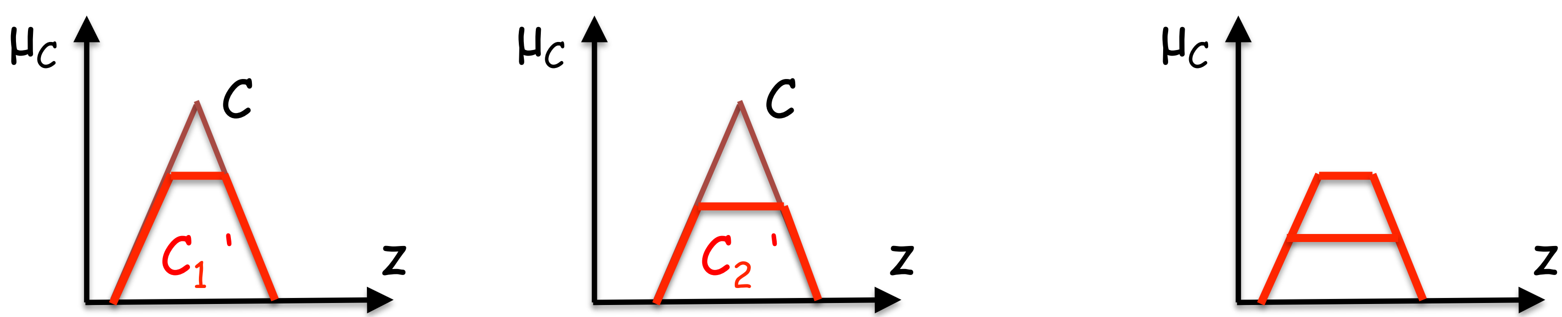

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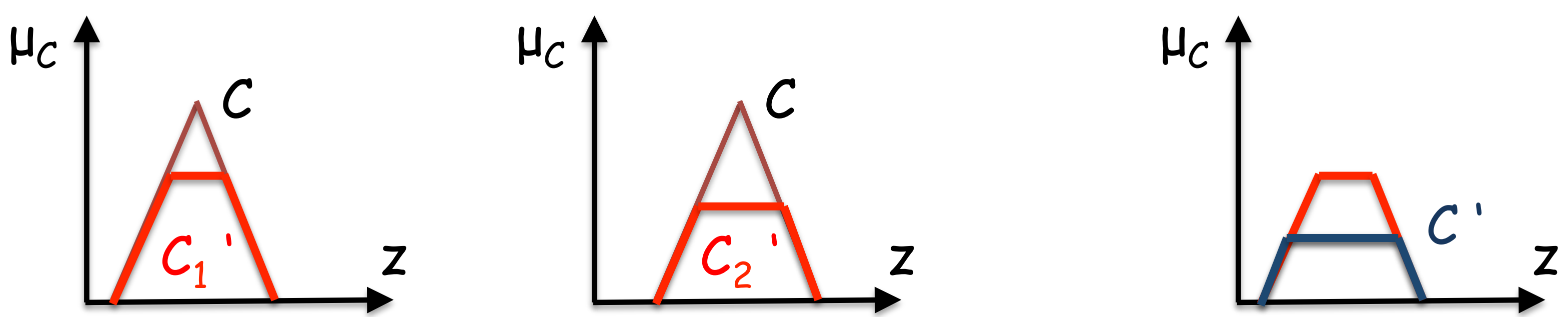

Mamdani Fuzzy Inference

Singleton Input

- the fact is : x is 3 and y is 4

  the rule is : If x is A and y is B, then z is C

  the result is : z is C'

where $A = (0, 2, 5)$, $B = (3, 5, 6)$, and $C = (1, 3, 5)$

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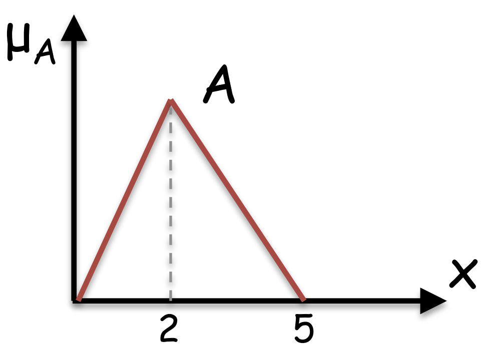

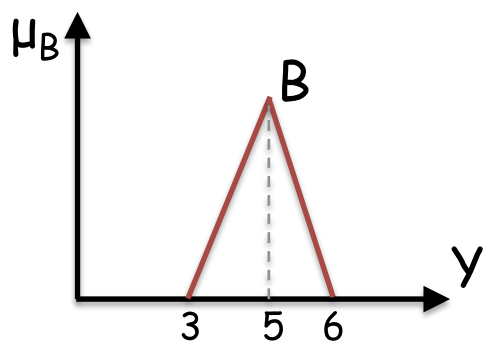

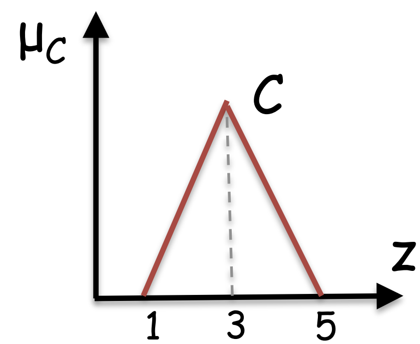

Mamdani Fuzzy Inference

Singleton Input

- the fact is : x is 3 and y is 4

  the rule is : If x is A and y is B, then z is C

  the result is : z is C'

where A = (0, 2, 5), B = (3, 5, 6), and C = (1, 3, 5)

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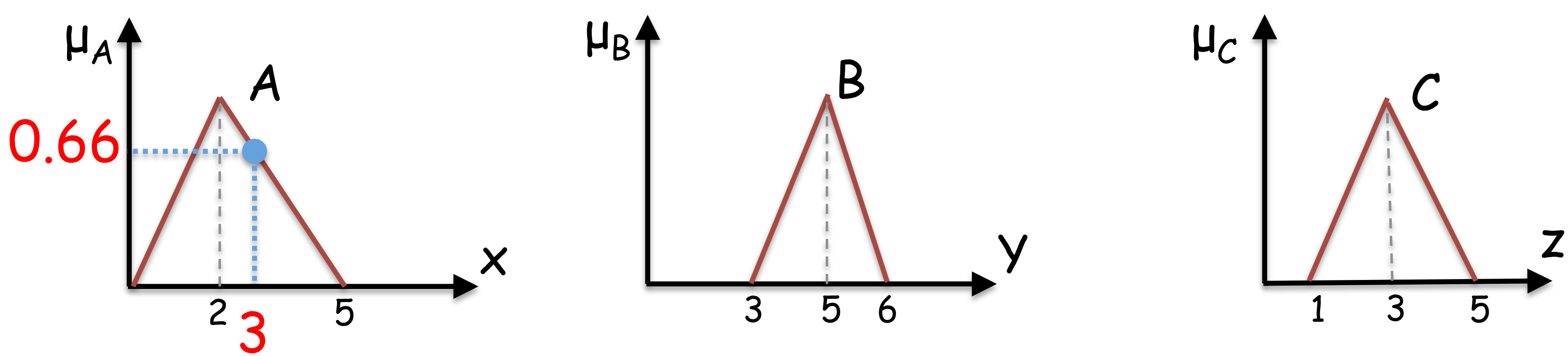

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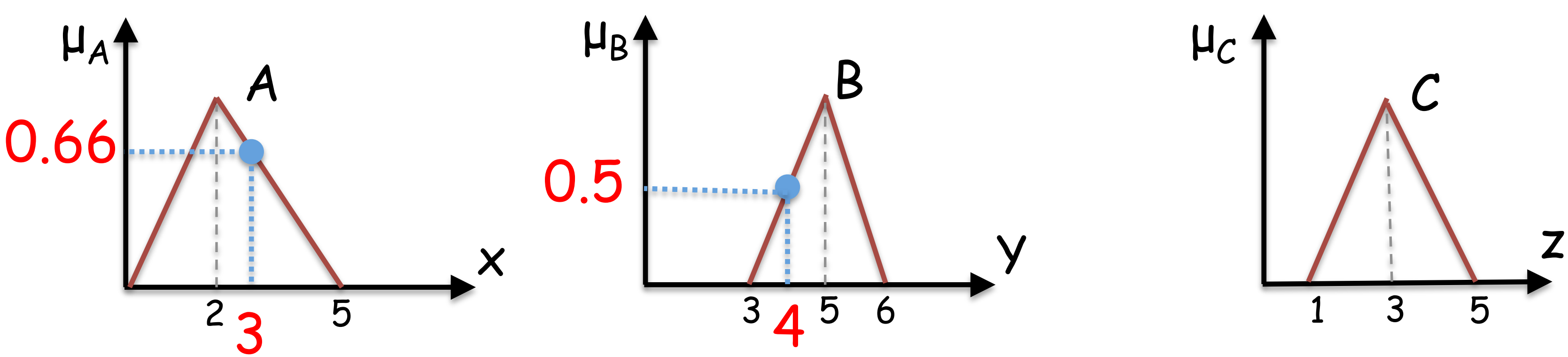

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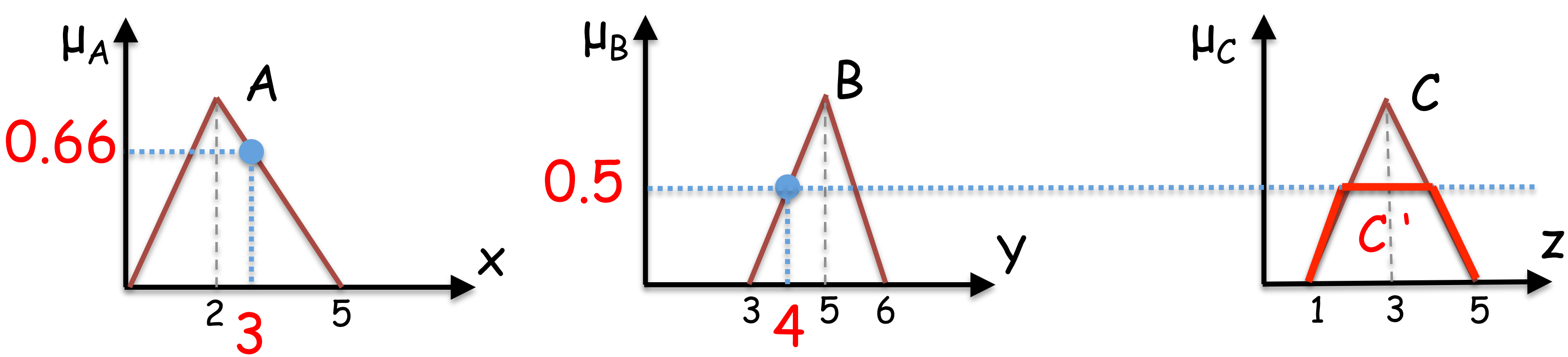

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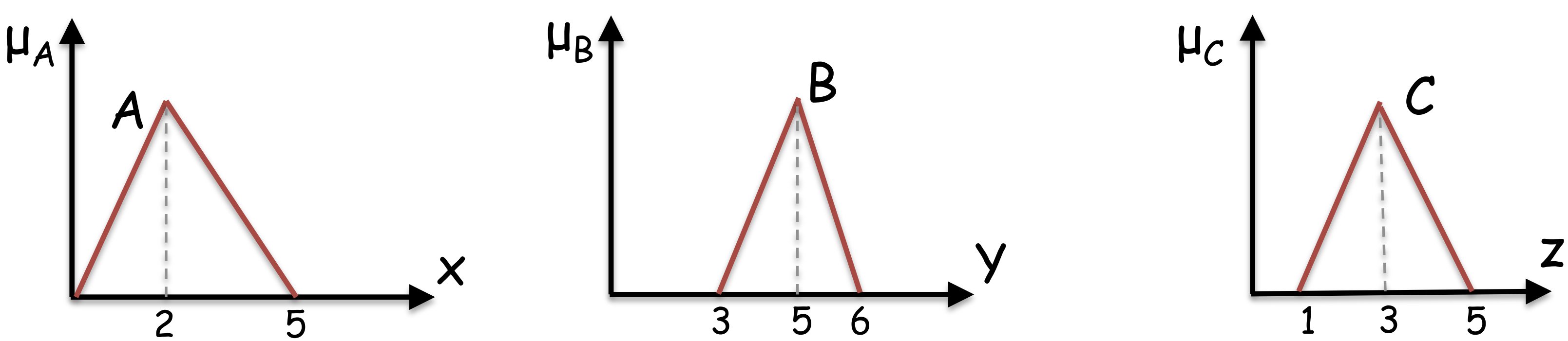

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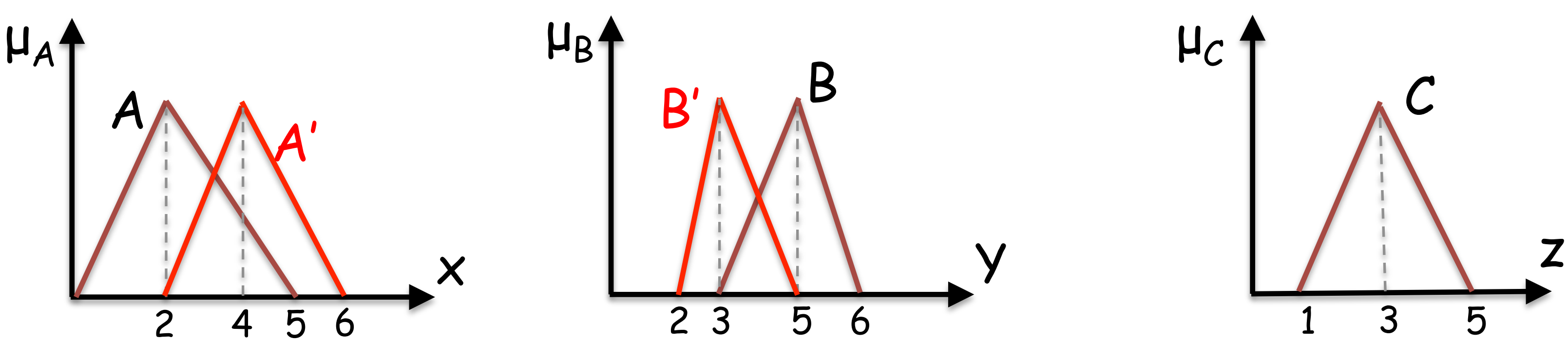

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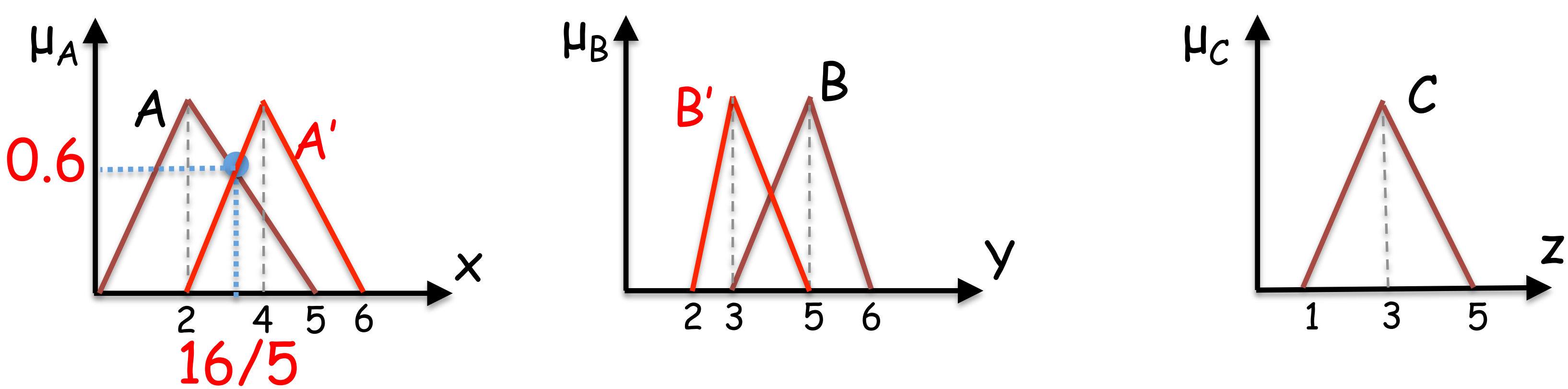

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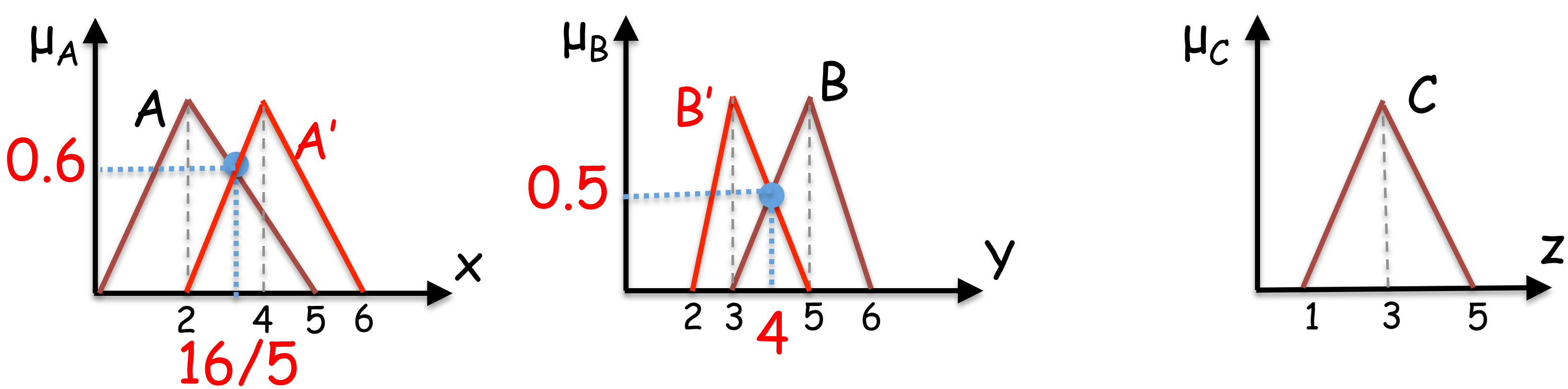

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