Case study: Country selection problem

Deadline: May 13, 1996

Choose 4 existing countries (Finland should be included), and rank them by the help of a t-norm, and-like OWA, or-like OWA, t-conorm!

	GDP/capita	warm days	safety	life expectancy	housing	food price
Finland	x_{11}	x_{12}	x_{13}	x_{14}	x_{15}	x_{16}
A_2	x_{21}	x_{22}	x_{23}	x_{24}	x_{25}	x_{26}
A_3	x_{31}	x_{32}	x_{33}	x_{34}	x_{35}	x_{36}
A_4	x_{41}	x_{42}	x_{43}	x_{44}	x_{45}	x_{46}

Table 1 The decision table.

Interpretation of criteria

- *GDP/capita*

  expressed in thousands (USD).

- *warm days*

  number of days a year when temperature is above 15 centigrade.

- *safety*

  percentage of wrongful death cases with respect to all deaths.

- *life expectancy*

  in years.

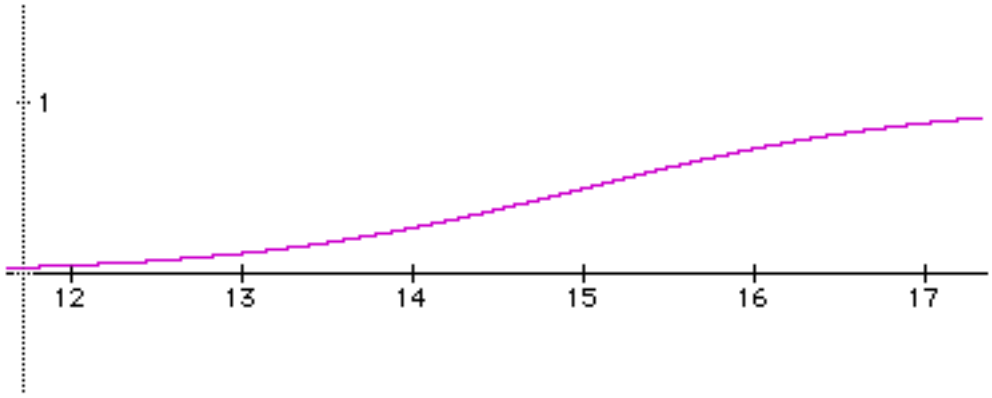
- *housing*

  average floorspace for flats (in square meters).

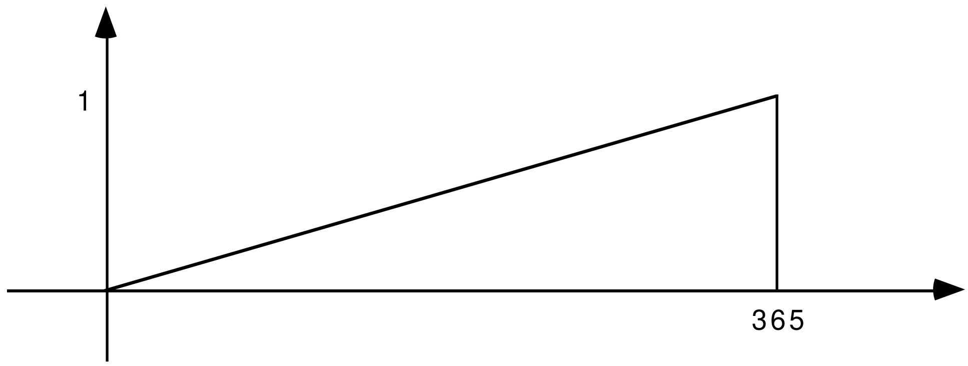
- *food price*

  percentage of salary spent for food by a person.

Design the membership functions for criteria satisfactions! **Examples:**



A membership function for GDP/capita (in thousands).



A membership function for warm days a year.

Furthermore, rank the countries using ratings from the following linguistic scale

very high (5), high (4), medium (3), low (2), very low (1)

Use a *window-type* OWA operator and an OWA operator with weights derived from the quantifier $Q(x) = x^2$.