Loffi Zadeh — fuzzy set theory

fuzzy — things not clear or are vague

flexibility for reasing

uncertainities & inacuracies allow

Crisp value (boolean)

means precise
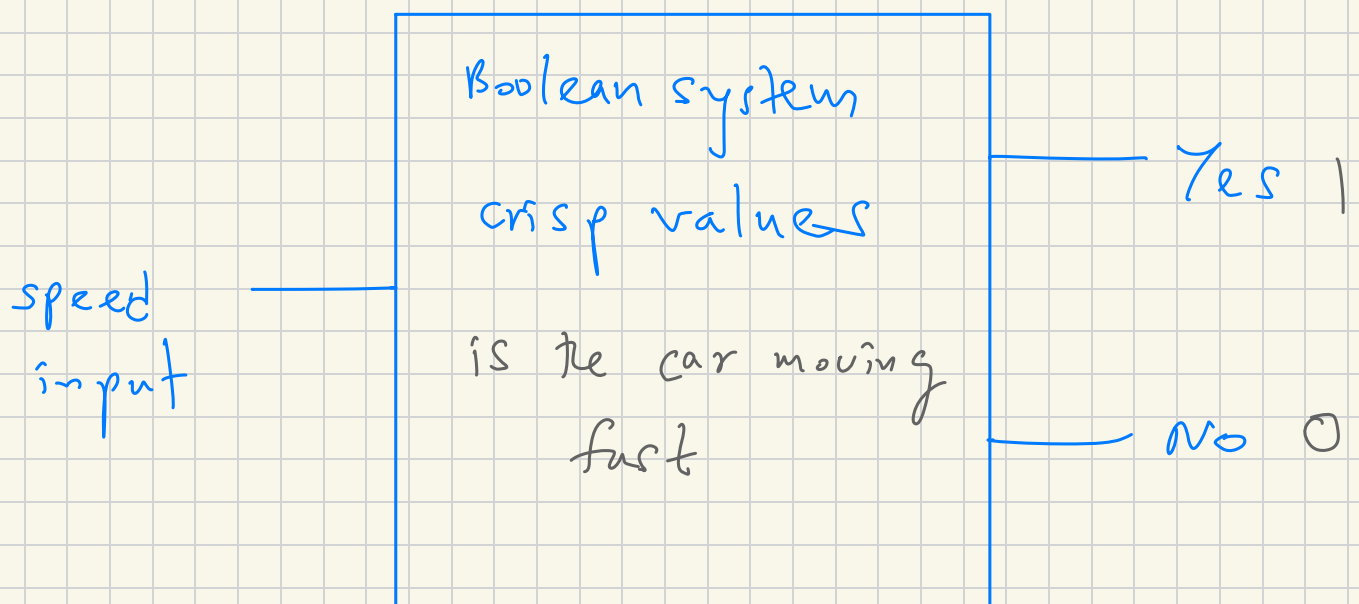values with strict boundaries ⟨ True
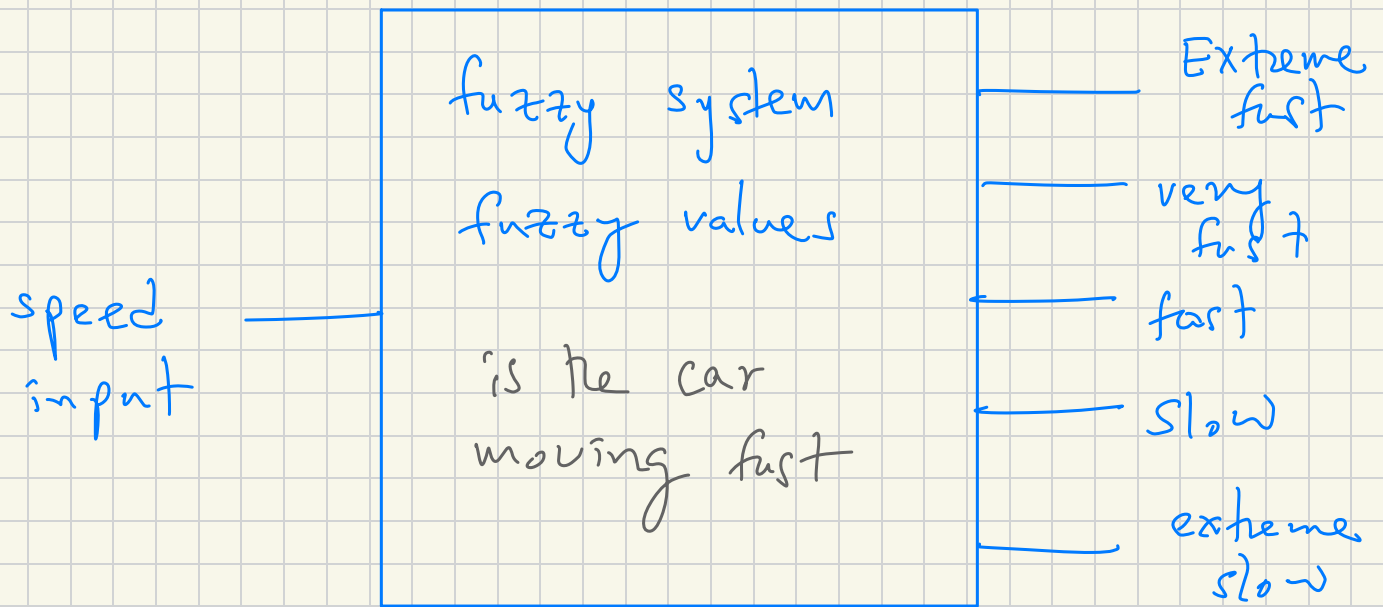   false

absolute true — 1
absolute false — 0

Boolean system

crisp values

speed
input

is the car moving
fast

Yes 1

No 0

fuzzy value

in between values ~ partially true
partially false

Inside the box:
fuzzy system
fuzzy values

is the car
moving fast

Left input: speed input

Right outputs:
Extreme fast
very fast
fast
slow
extreme slow

Membership fn

they characterize the fuzziness

crisp values ___ Yes   1
                ___ No   0

fuzzy values
___ extreme fast 0.9   close to abs true
___ very fast   0.8
___ fast   0.6
___ slow   0.3
___ extreme slow 0.1   close to abs false