Lecture 3 - Set, TFVS

**Intro:**

Ex: $\{x \in \mathbb{R} : x \text{ is a closed interval}\}$ or $\{x \in \mathbb{R} : x \text{ is a variable}\}$

Q: How to define a subset of $\mathbb{R}$ ?

Ex: $A = \{x \in \mathbb{R} : x^2 - 3x + 2 = 0\}$ or $\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\}$

$x^2 - 3x + 2 = 0$ is an equation with unknowns $x$ $\{x \in \mathbb{R} : \text{solutions of } x^2 - 3x + 2 = 0\}$

Can we do better than this?

"$\mathbb{R}$" ARE SUBSETS PROBLEM

Above $x^2 - 3x + 2$

Ex: $\mathbb{R}$: objection with every real number $x$ for $x^2 - 3x + 2$

So $\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\}$ an objection with every real for $x^2 - 3x + 2 = 0$

Can we do better than this?

Q: $\mathbb{R}$ THE $\mathbb{R}$ SET.

$\mathbb{R}$ is an object, $\mathbb{R}$ assigned $\mathbb{R}$, subset of $\mathbb{R}$ $\mathbb{R}$ belongs assigned $\mathbb{R}$ to $\mathbb{R}$, $\mathbb{R}$ $\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\}$

In TYPICAL case $\mathbb{R}$ object the objection

$A(\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\})$

$A$ is a function + above is pick subset from $\mathbb{R}$ pick real $x \in \mathbb{R}$ $x^2 - 3x + 2 = 0$ with result $\in \{\text{Type}\}$ effect $A(\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\})$

- Assume $\{\text{subtypes}\}$ of $A(\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\})$
- Assume $\{A(\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\})\}$ $\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\}$
- If $A$ assume $x = x \in \mathbb{R}$ $\{x \in \mathbb{R} : x^2 - 3x + 2 = 0\}$
- $A$ assumes $x$ or any $x \in \mathbb{R}$

Repeat $A$ have to have probability $\geq 1/2$

Implication for $\mathbb{R}$ SET:

Either ALL THE $x$ ALL THE $x$ is a real number $\mathbb{R}$ assume $\mathbb{R}$, every type any assumed

$\sum_{x \in \mathbb{R}} p(x) \geq 1/2$

$\sum_{x \in \{x^2 - 3x + 2 = 0\}} p(x) = 2^{\aleph_0} p(x) = 2^{\aleph_0}$ $\therefore$

Can Guarantee FOR EVERY $\mathbb{R}$ EX $\mathbb{R}$?

Suppose we have a $\mathbb{R}$ for objection for ALL $\mathbb{R}$ SET

ALL THE SET

pick of closed real no. $x_1, x_2$ pick

$\sum_{x \in \{x_1, x_2\}} p(x)$

Subset random assignment of $\mathbb{R}$ $\mathbb{R}$ $\mathbb{R}$