

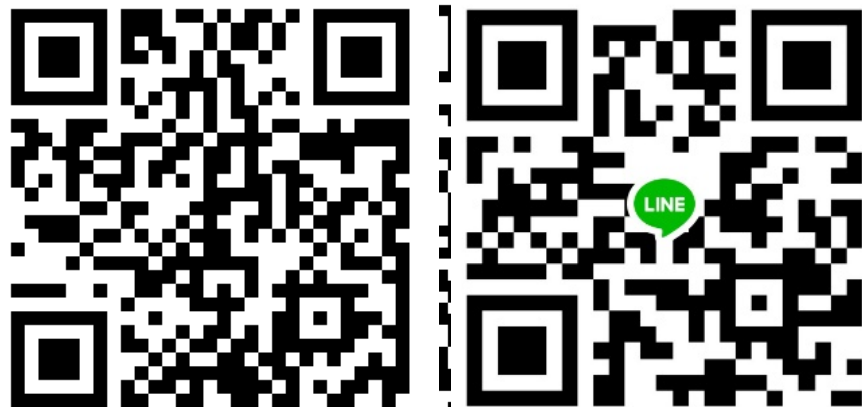
Probability and Random Processes

ECS 315

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2 Review of Set Theory



Office Hours:

BKD, 6th floor of Sirindhralai building

Wednesday 14:30-15:30

Friday 14:30-15:30

Hmmm...

When someone at Reuters designed this, they probably didn't expect that it would be interpreted as a Venn diagram.

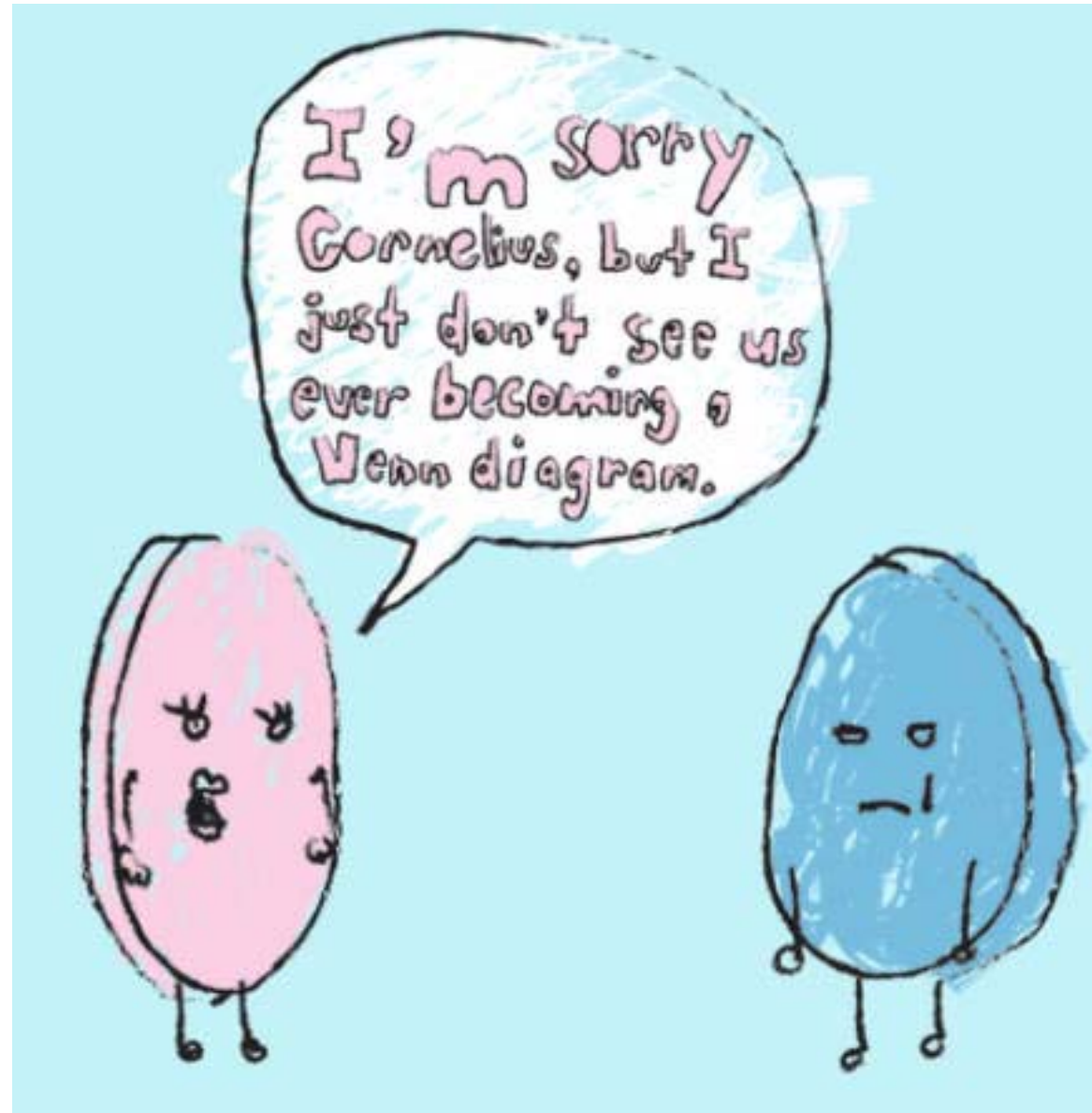


Just what are its values?

[<http://gizmodo.com/when-someone-at-reuters-designed-this-they-probably-di-1624314532>]

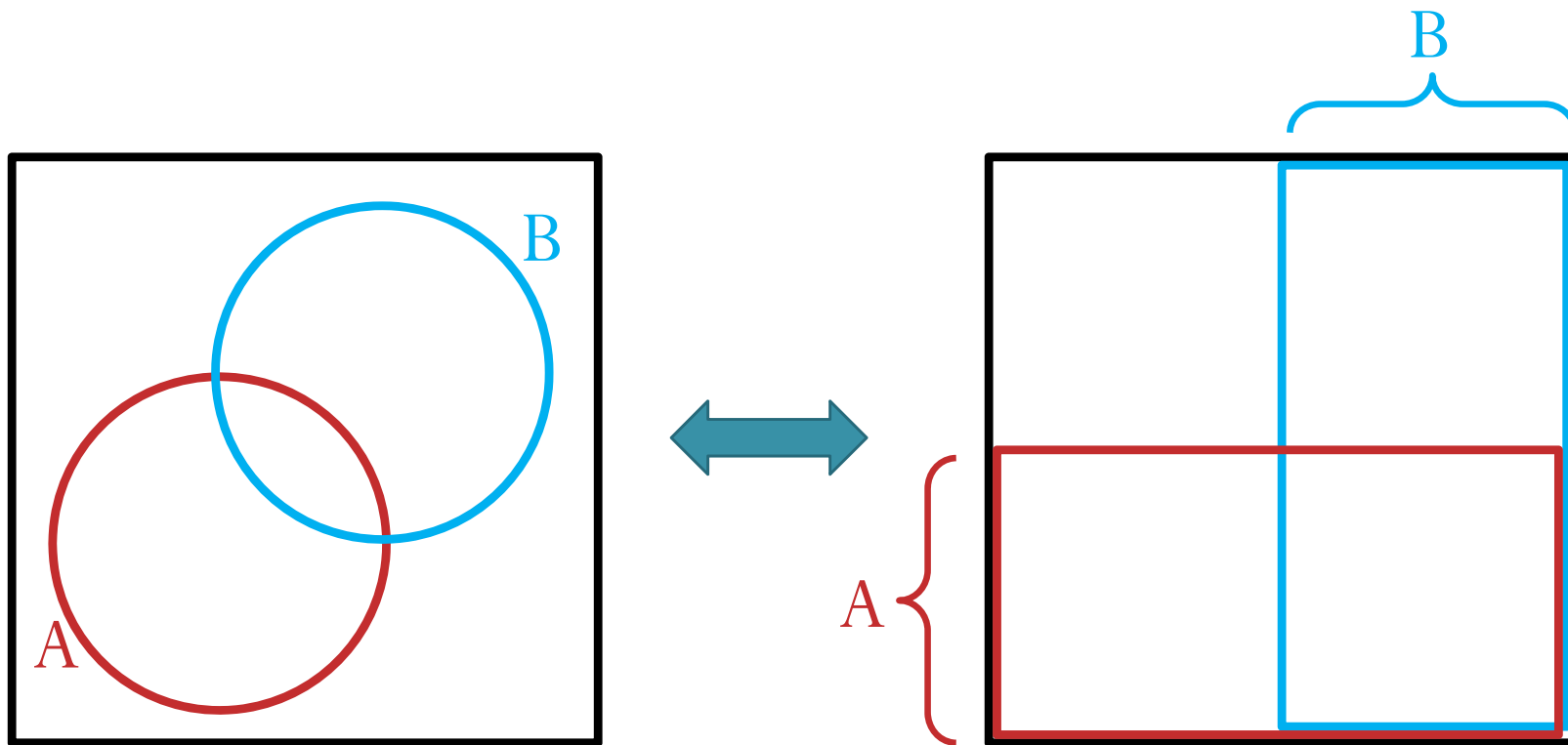


Breaking Up via Venn Diagram

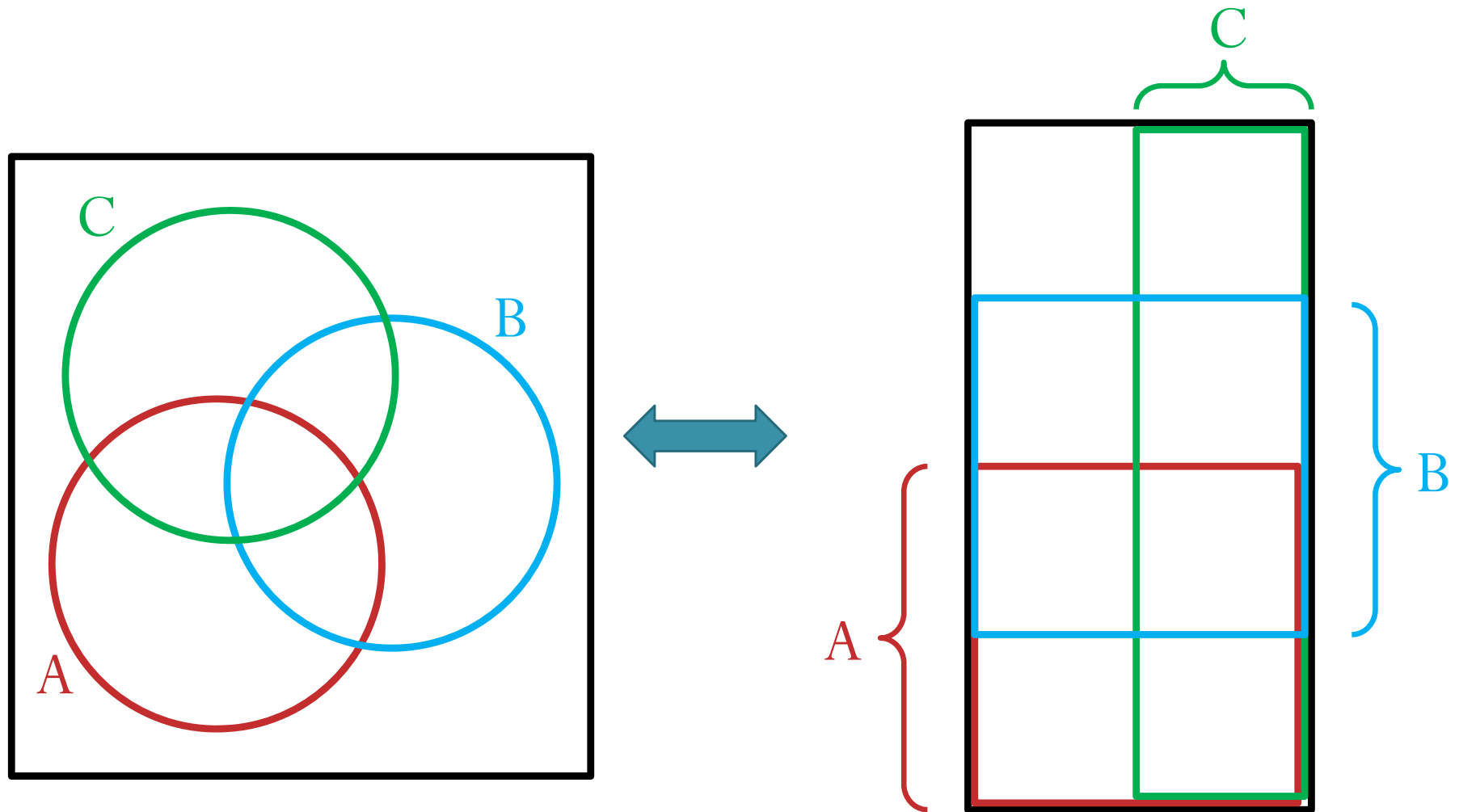




“K-Map”-Style Venn Diagram



“K-Map”-Style Venn Diagram



Font styles used in the lecture notes

- **Calligraphy** (calligraphic font)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- **Blackboard bold**

- Certain lines of the symbol (usually vertical or near-vertical lines) are doubled.
- Originated from the attempt to write bold letters on blackboards in a way that clearly differentiated them from non-bold letters.

A B C D E F G H I J K L M

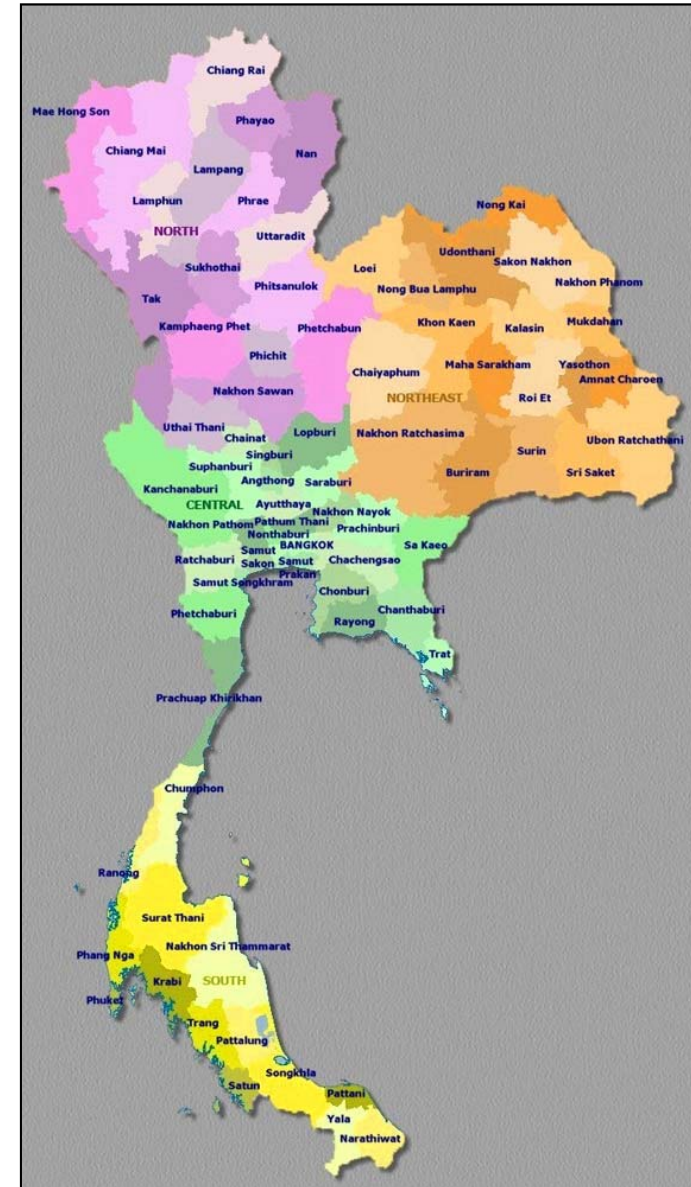
N O P Q R S T U V W X Y Z

https://en.wikipedia.org/wiki/Blackboard_bold

<https://proofwiki.org/wiki/Symbols:%5Cmathcal>



Partitions



Infinite Sets and Countable Sets

Collection of countable sets

Collection
of infinite
sets

Nothing in here.

Collection of
finite sets

This includes the empty set and any set whose element(s) can be listed in the form a_1, a_2, \dots, a_n for some $n \in \mathbb{N}$.

Collection of
uncountable
sets

Example of such sets are intervals of positive length and their unions.

Collection of
countably infinite sets

This includes any set whose element(s) can be listed in the form a_1, a_2, \dots .

Infinite Sets and Countable Sets

Collection of countable sets

Collection
of infinite
sets

Nothing in here.	\emptyset singletons such as $\{1\}, \{a\}$ $\{a, b\}$ $\{x, y, z\}$
$\mathbb{R} = (-\infty, \infty)$ $[0, 1)$ $[0, 1) \cup (5, 7)$	$\mathbb{N} = \{1, 2, 3, \dots\}$ $\{2, 4, 8, \dots\}$ $\{0, \pm 2, \pm 4, \pm 8, \dots\}$