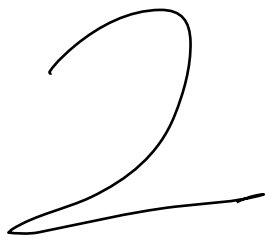
Discrete Maths



Barber Example

Set S containing all those who do NOT shave by themselves.

Does barber b belong to set S?

If barber b shaves himself,

$b \notin S$, and hence

Action $\Rightarrow$ b must not shave him.

$\equiv$

Because b only shaves from set S.

~~If barber b~~

does not shave himself

$b \in S$.

Barber b has to shave him.

Because, b shaves all belonging to S.

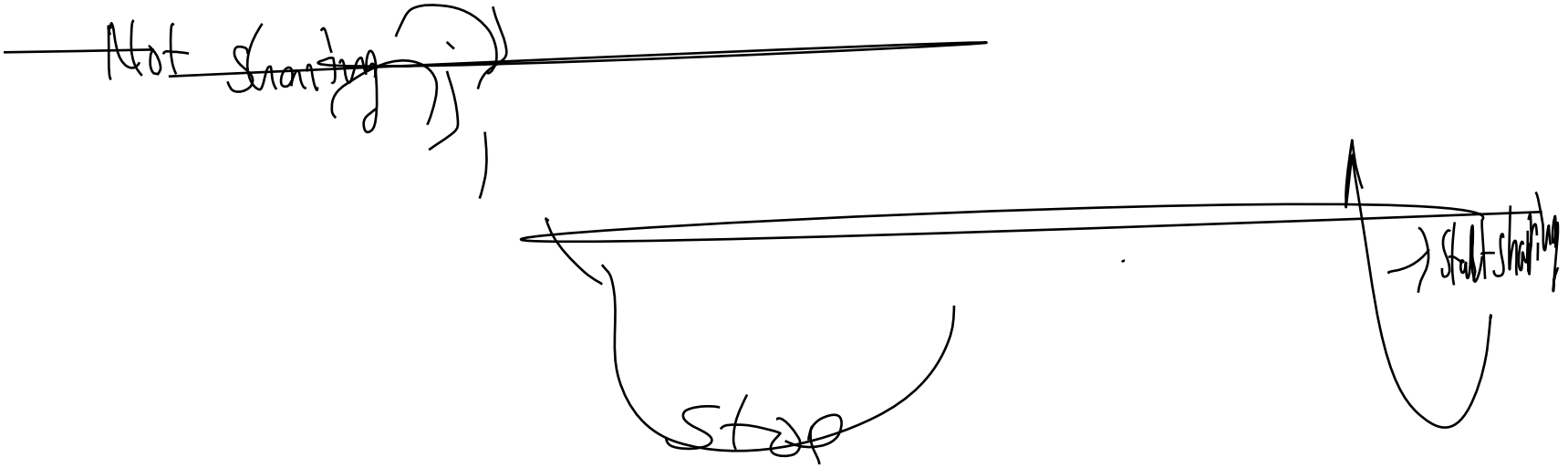
Does such barber b can exist?

~~If~~ he is shaving himself

stop him.

~~If~~ he is ~~not~~ shaving himself then

start shaving.



Such barber does not exist.

Russell's paradox will arise is present if we use as our ~~universe~~ (universal set) ~~——~~ containing all the sets ~~in the world.~~

This is because such set does NOT exist.

There will be No ~~confusion~~ in specifying a set by using characterizing properties of the elements of the set

"As long ~~as we~~ are confined to a certain universe of elements"

i.e. heterological

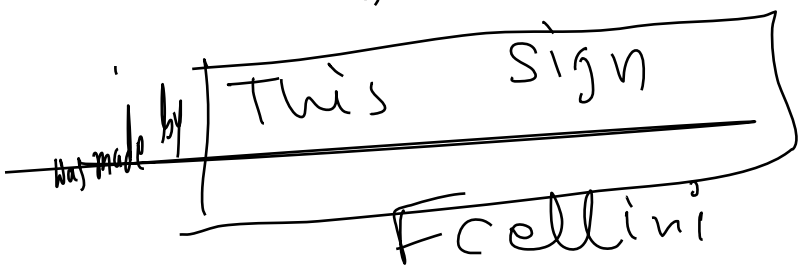
If we agree that a word with 5 or more letters is a long word.

"long" is short.

"short" is long.

1-C Two craftman

TBellini (says / ~~Part~~ Truth) — FCellini (say lie)



Who made this sign?

Ordered set

The importance of place in a set.

Regular set

$\{a_1, a_2\}$

$\simeq$

$\{a_2, a_1\}$

Ordered set

$\{a_1, a_2\}$ — place2

place1 different than

$\{a_2, a_1\}$

$\{a, a\}$

place1 place2

$\{a$ on place1 , a on place2$\}$

ordered

Set showcasing ranks in a single sport.

$\{a, a, a\}$

×

Set showcasing 1st rank in sports,

~~Sports, sports~~.

$\{a, b, a\}$ or $\{a, b, c\}$.

S_1

S_2

S_3

$\{a, a, a\}$ same person a might have stood first in all sports.

ordered triple

$((a,b),c)$

ordered ~~quadruple~~

$(((a,b),c),d)$

⋮

Languages

Let A = {a, b, c, ..., z}

Let B = {a, b, c, ..., z, A, B, C, ..., Z, ' ', ',', ..}

i.e. ~~Character~~ set of C language

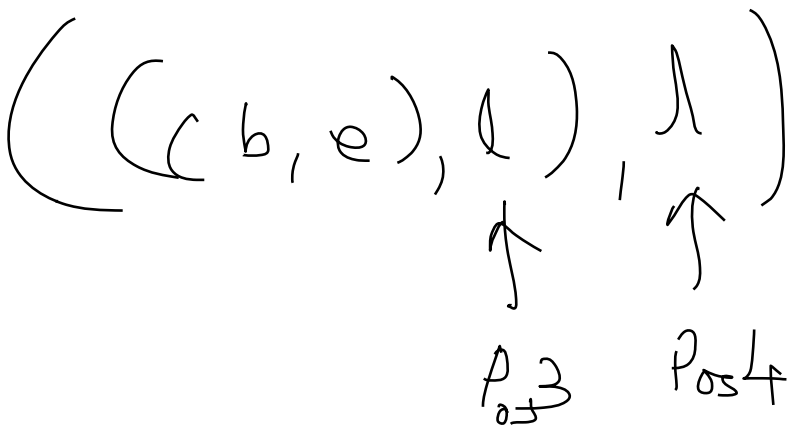
a word "bike"

((('b', 'i'), 'k'), 'e')

Why order is important?

That actual give meaning

bell



Word

n-letter, ~~word~~ lengthy is an ordered n-tuple of the letters in alphabet.

Statement :

Statement in any Prg. language is a sequence in C^* where C is a character set of that language.

phrase structure grammar

11 The way of specifying ~~elements~~ in a set

NOT quite suitable for defining languages ~~and hence~~

we now have

⇒ Phrase structure grammar

P.S.

LLM

chatGPT

OpenAI

Co-pilot

VS

~~Search~~ & search

~~Given~~ : specification of ~~language~~,

automatically generate one or more strings.

↳ validate string

↳