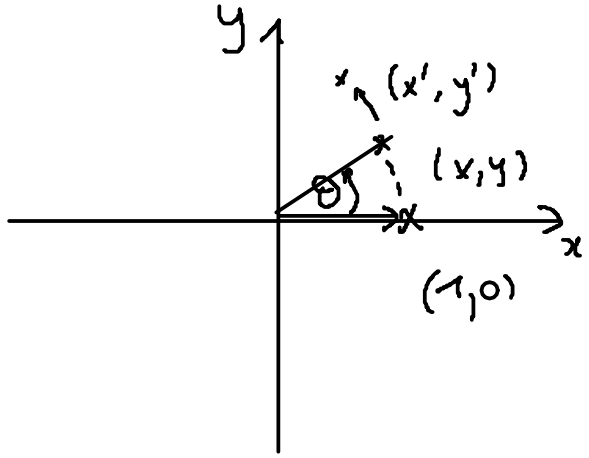


$$\theta = \frac{2\pi}{N}$$

$(x', y') = \underline{ROT}((x, y), \theta)$ Nx

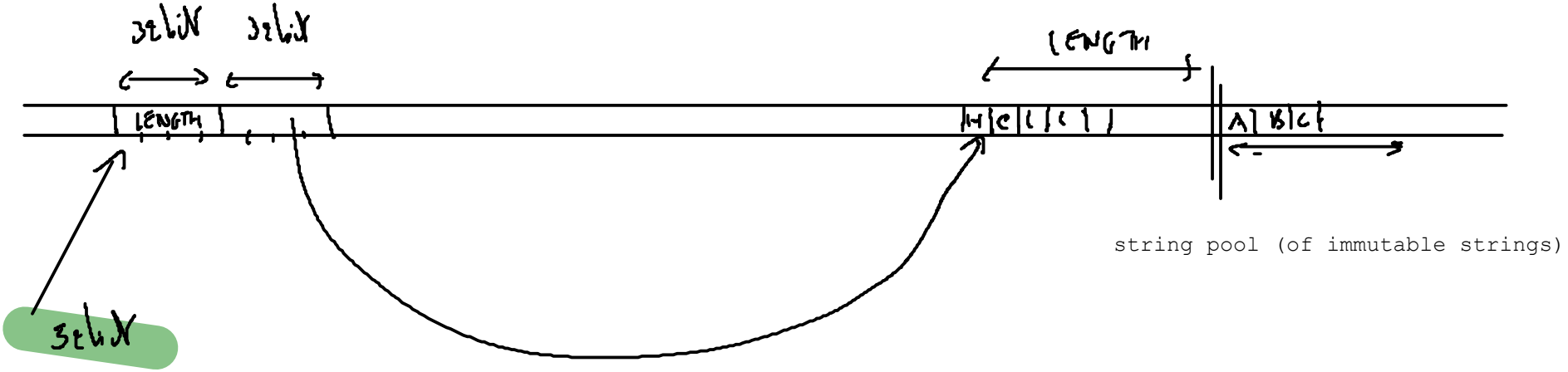
N >> x, y float

$\underline{1}$

$x' = R \times \cos\theta$

$y' = R^{*} \sin\theta$

∞ :



MAX LENGTH ? $2^{32}-1$

"" ?

len("") ? 8 (bytes)

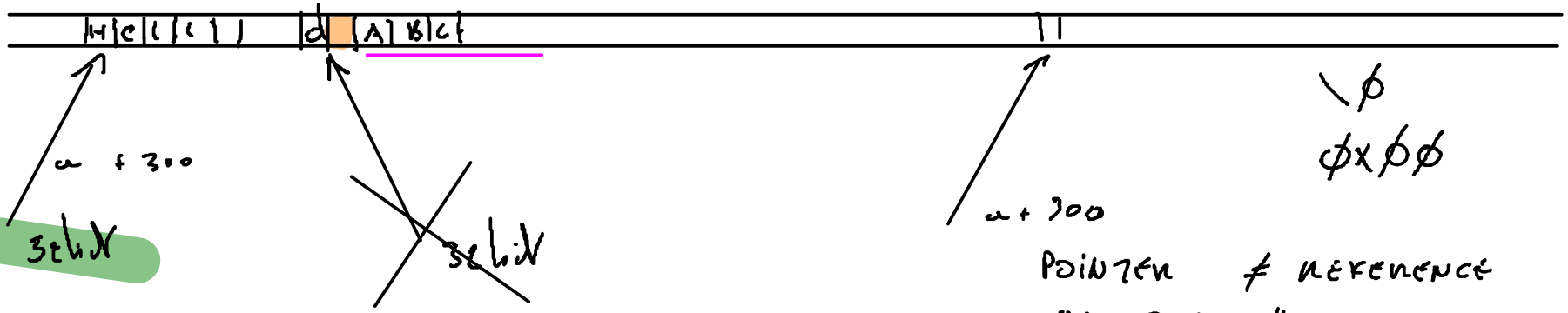
TIME TO COMPUTE len() $\Theta(1)$

TIME TO CONCATINATE $\Theta(N_2)$ "IN PLACE" vs. $\Theta(N_1+N_2)$ "OUT PLACE"

C-style

NULL-TERMINATED STRING

$\phi\phi_{16}$



NULL

$\phi\phi_{16}$

$\phi\phi_{HEX}$

$\backslash\phi$

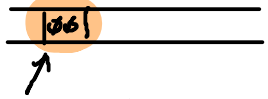
$\phi x \phi\phi$

POINTER ≠ REFERENCE

+ "ARITHMETIC"

MAX LENGTH ? ∞ (IN PRACTICE : BOUNDED BY MEM. SIZE)

"" ?



1 (byte)

len("") ?

len(" $\xleftrightarrow{N}$ ") N+1

TIME TO COMPUTE len() $\Theta(N)$

TIME TO CONCATINATE $\Theta(N1+N2)$

ABC中23

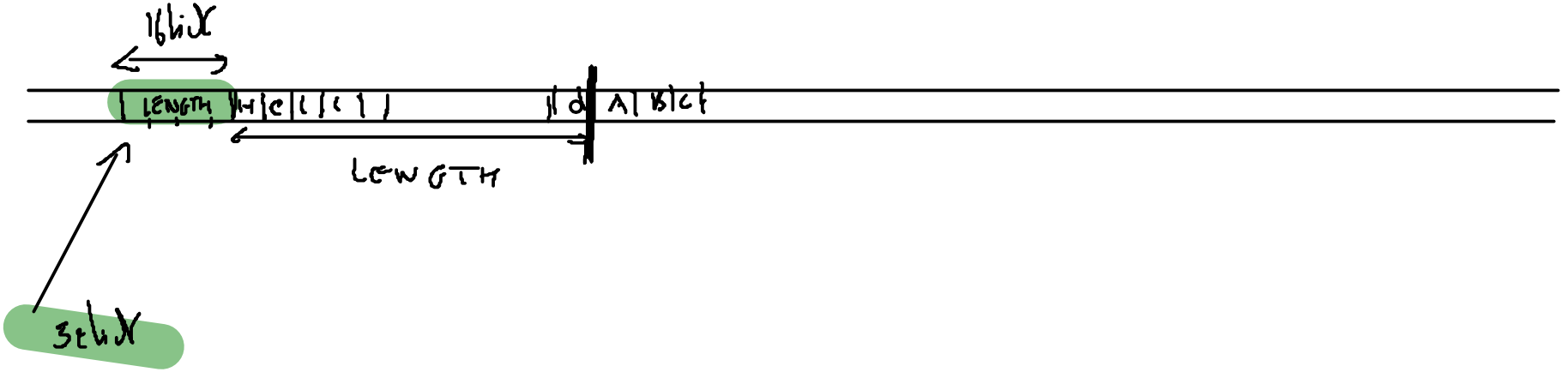
"ABC" + "123" → "ABC123"

"ABC": LEN 4, N2

"123": LEN 4, N1

"ABC123": LEN 7, N1 + N2 - 1

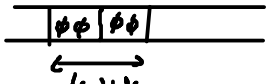
P-STRING (PASCAL)



MAX LENGTH ? $2^{16}-1$

"" ?

len("") ?



2 bytes

TIME TO COMPUTE len() $\Theta(1)$

TIME TO CONCATINATE $\Theta(N_2)$ vs $\Theta(N_1+N_2)$

MEMORY SAFE

str = "ABC"

str[6] = 'x'

BOUNDARY CHECKS
- STATIC
- RUN-TIME

MMU
EXCEPTION

MEANING

CHAR — UPPERCASE OMEGA

CODE POINT

≠

GLYPH

CHAR — UNIT OF RESISTANCE

CODE POINT

after-class question: optimizing function return-value re-use