category topic: csc 135

2022-04-18T2333-context-free

WW16.1 | Monday, April 18, 2022 | 11:34 PM

> **Problem**
>
> S → <AB
> A → aAb | b
> B → bB | >

Find the following:

1. First(S)
2. First(A)
3. First(B)

Because no lambdas there are no lambdas

STEP 01: Constraints - From bottom up...

> **VOCAB**
>
> Non-terminals are upper-case
> Terminals are lower-case and symbols

> **Constraint Rules**
>
> ω - Anything that follows the previous character, so either terminals or non-terminals

If you have...	you can deduce
$A \rightarrow \lambda$	nothing
$A \rightarrow x\omega$	$x \in First(A)$
$A \rightarrow B\omega$	$First(B) \leq First(A)$

If you have...	you can deduce
$A \rightarrow Bw$ and $\lambda \in L(B)$	$First(w) \leq First(A)$

First(S)

- <

First(A)

- a,b

First(B)

- b,>