

Unit C5 Supplement, 3/29/05

Slide 4: ww^R is not regular

After looking at the slide again, I realized that the slide is correct. The key is to choose $ww^R = 0^k 1 u u^R 1 0^k$ where $k > n_0$. This way, xy falls on the first 0^k . By pumping y (e.g., y^2), we introduce additional 0's, which will conflict with the 1 preceding the last 0^k .

Slide 12: Group Exercise 1 Problem A. $\{0^i 1^j 2^k \mid i = j + k\}$

The question was as follows. By choosing w in a way $bcd \leq i$, the falsifier could show that any decomposition of w would destroy the context-freeness. Wouldn't it suggest that the language is not context-free?

The Pumping Lemma for CFLs is slightly different from the version for regular languages in that the span of bcd can move around more flexibly due to the lack of constraints on a . So, for this case, the verifier will be able to slide bcd so that b and d would fall on parts of 0 and 1, respectively, to allow arbitrary pumping.

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