Q. 2.48

b) Show C_2 is not a CFL

Contradict with pumping Lemma

Assume C_2 is a CFL

$S = 0^{p+2} 1 0^{p-2} 1 0^{p+2} = uvxyz$

$u = 0^{p+2}, v = 1, x = 0^{p-2}, y = 1, z = 0^{p+2}$

If we would pump $\|uv^0xy^0z\| \leq p$ is not true

$vy > 0$

$|vxy| \leq p$ Therefore C_2 is not a CFL