

# Universal Algebra 1 - Homework 3

Deadline 7.12.2021, 17:20

$$\mathbf{C}_n := (\{0, 1, \dots, n-1\}, (0 \ 1 \dots n-1))$$

$$\mathbf{C}_n + 1 := (\{0, 1, \dots, n-1, n\}, (0 \ 1 \dots n-1)(n))$$

$$\mathbf{P}_n^l := (\{0, 1, \dots, n-1\}, f_n^l), \quad f_n^l(n-1) = n-1, \quad f_n^l(x) = x+1 \text{ for } x \neq n-1$$

$$\mathbf{P}_\infty^l := (\{0, 1, 2, 3, \dots\}, f_\infty^l), \quad f_\infty^l(0) = 0, \quad f_\infty^l(x) = x-1 \text{ for } x \neq 0$$

1. Show that  $\mathbf{C}_9$ ,  $\mathbf{C}_9 + 1$ ,  $\mathbf{P}_5^l$  and  $\mathbf{P}_\infty^l$  are subdirectly irreducible.