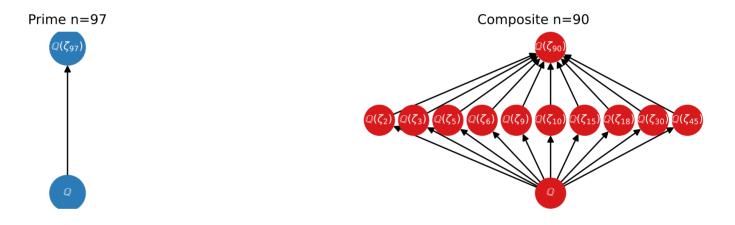
Cyclotomic Field Extension Structure

Field Extension Structure:

- For prime p, $\mathcal{Q}(\zeta_p)$ has no proper subfields containing roots of unity
- For composite n, $\mathcal{Q}(\zeta_n)$ contains multiple\n proper subfields $\mathcal{Q}(\zeta_d)$ for divisors d of n



This field structure explains why the minimal polynomial of C_n has exactly 2 irreducible factors for prime n, and more factors for composite n.