Simplification

A very useful, **machine independent** simplification:

- Basic steps take the same amount of time

Look at the growth of running time instead of absolute time.

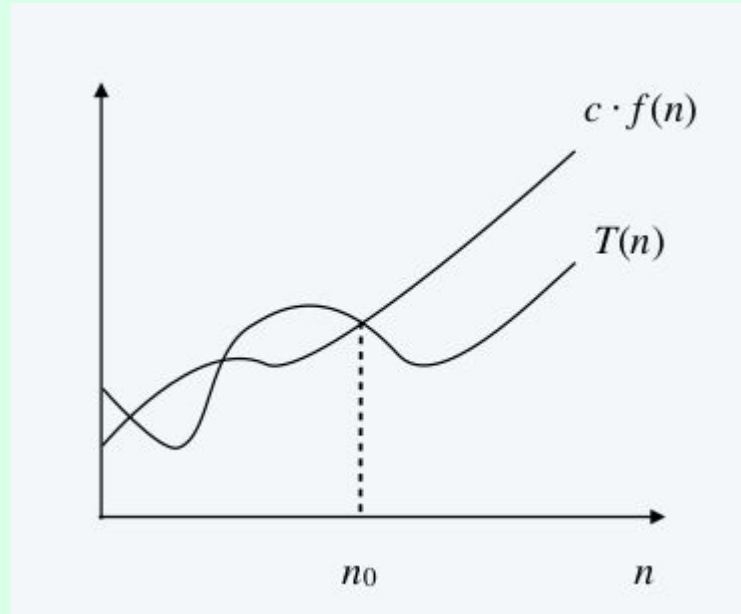# Complexity

Asymptotic analysis

The rate at which the storage or time grows as a function of the problem size.

O-notation (big-Oh)

$O(f(n))$ = {$T(n)$: there exist positive constants c and n_0 such that $0 <= T(n) <= cf(n)$ for all $n >= n_0$}

Constant time : O(1)

Logarithms and polynomials

For every $a > 1$ and $d > 0$, $\log_a n$ is $O(n^d)$.

Exponentials and polynomials

For every r > 1 and every d > 0, n^d is $O(r^n)$.