

# Indirection

"All problems in computer science can be solved by another level of indirection"

**Butler Lampson**

in *"fundamental theorem of software engineering"*

# Dependencies

- Class (internal, hard)
- Interface (internal, soft)
- Libraries (external, hard/soft)

# Class

- "Hard dependency"
- Knows implementation
- Cannot be replaced
- `new()` as indicator

# Interface

- "Soft dependency"
- Hides implementation
- Can be replaced
- Subset of functionality [ISP]

# Libraries

- "Hard dependency" or "Soft dependency"
- Knows or hides implementation
- Can partially be replaced
- Depending from 3rd party

# Freedom is independence

- Reduce (or remove) hard dependencies
- Use interfaces
- Watch your dependencies
- Define your dependencies

# Dependencies can be found

- nuget/references
- namespace usings
- constructor
- `new( )`
- properties