

CSCI 2132

Midterm 2

Review

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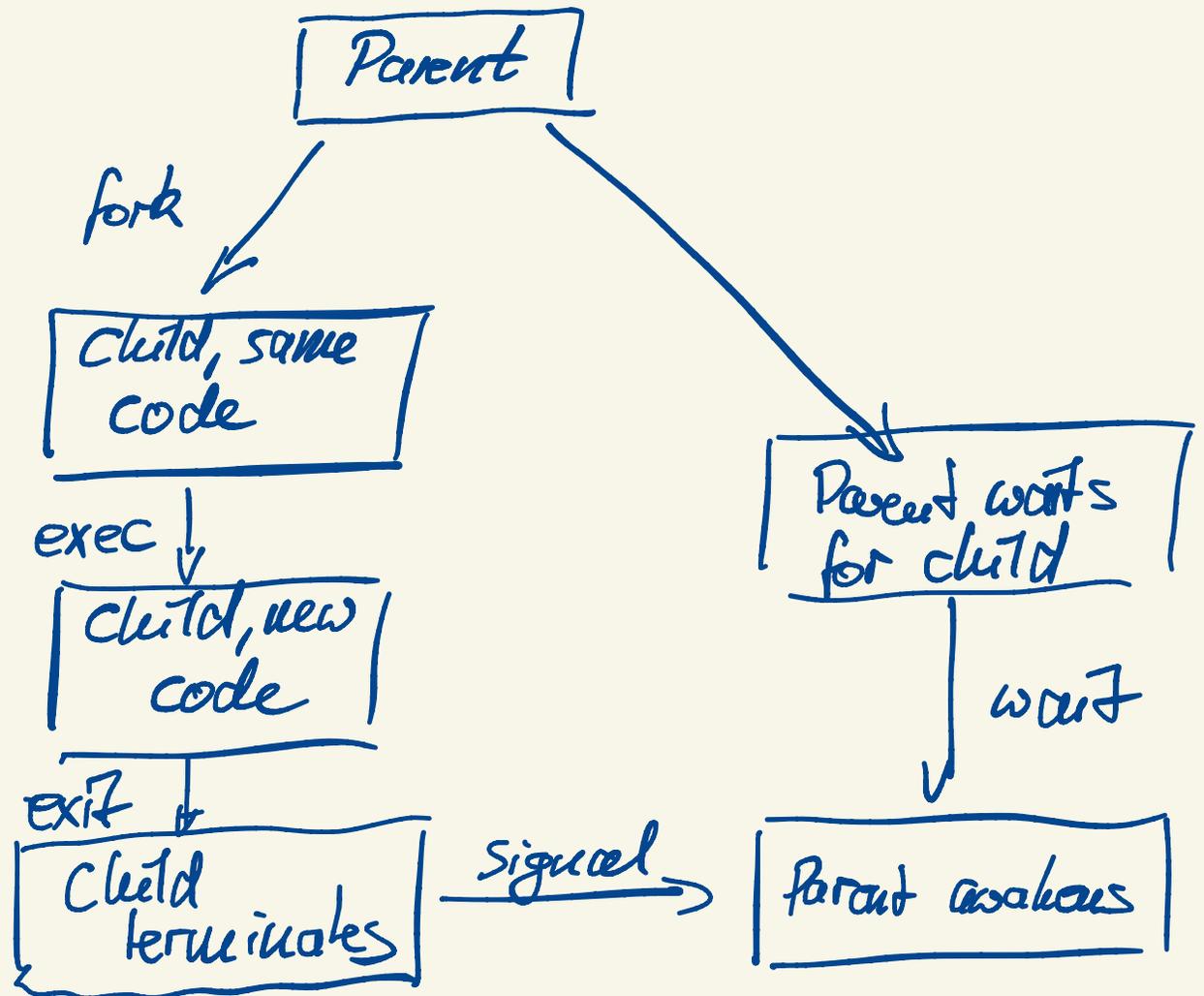
# Processes

- Difference between program and process
- Process memory space
- Threads vs processes
  - Possibly multiple threads per process
  - Threads are cheaper than processes
- Process control block

# Process Creation

- Every process created by a parent
  - Exception: Root process
- ⇒ Process tree

Process creation:



# Foreground and Background Processes

## Foreground process

- Access to terminal output
- Access to keyboard input
- Shell **cannot** start another process while this runs

## Background process

- Access to terminal output
- **No** access to keyboard input
- Shell can start another process while this runs

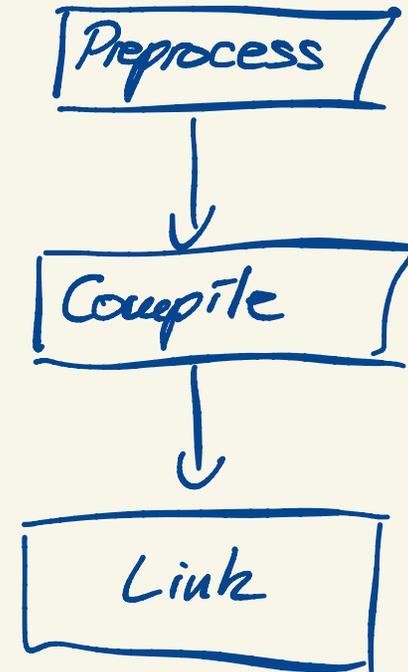
# Job and Process Control

- Job vs process
- Ctrl-Z to suspend
- fg, bg
- jobs, ps
- kill
- Start background process with &

# C Characteristics

- Systems language
- Maximum efficiency
- No safety checks
- No garbage collection

- Compilation process



# Basic C Syntax

- Functions as control abstractions
- Structure of a function
- Statements
- Variable declaration and initialization
- Operator precedence
- Macros = textual replacement
- Identifiers

## C Types

- Different-width integers and floating point types
- char can be signed, unsigned, used as 8-bit integers
- int used as Boolean type
- Width of most integer types is implementation-dependent
- Representation of floating point numbers is impl.-dep.  
Reason: efficiency
- 2's complement for integers

## Expressions in C

- Basic operators as in Java (some subtle differences)
- Behaviour of some operators implementation-defined
- Subexpression evaluation order unspecified
  
- || and && are short-circuited
- Pitfalls of int as Boolean
  
- Control structures as in Java (some subtle differences)
- Variable declaration in for-loop
- Comma operator
- goto statement