Web Programming

Week 2

Prof. D. König

Be Empowered

"Enlightenment is humankind's release from its self-incurred immaturity.
Immaturity is the inability to use one's own understanding without the guidance of another. This immaturity is self-incurred if its cause is not lack of understanding, but lack of resolution and courage."

Immanuel Kant

Retrospective

JS Goodie

What we did

Catching up with the snake game

Questions

Agenda

Improving the game

Core topic: JavaScript Scopes

Lambda Calculus: Brain training

Quiz

Practice

Completing Snake

Improving the tests

Simulate motion & gravity (ball)

Live Coding Log

https://github.com/
WebEngineering-FHNW/
webpr-hs-21

JavaScript Scopes

global   window (in Browser)

function   no matter where
                  defined, variables are
                  local to the enclosing
                  function (lambda)

JavaScript Variables

in scope after first use

~~x   = ...   mutable, global scope~~

~~var x   = ...   mutable, "hoisted" scope~~

let x   = ...   mutable,   local scope

const x = ...   immutable*, local scope

IIFE

immediately invoked function expression

function foo() {···}; foo()

(function foo() {···}) ()

(function() {···}) ()

(() => {···}) ()

Lambda Calculus

α alpha: Rename parameter

β beta: Apply argument
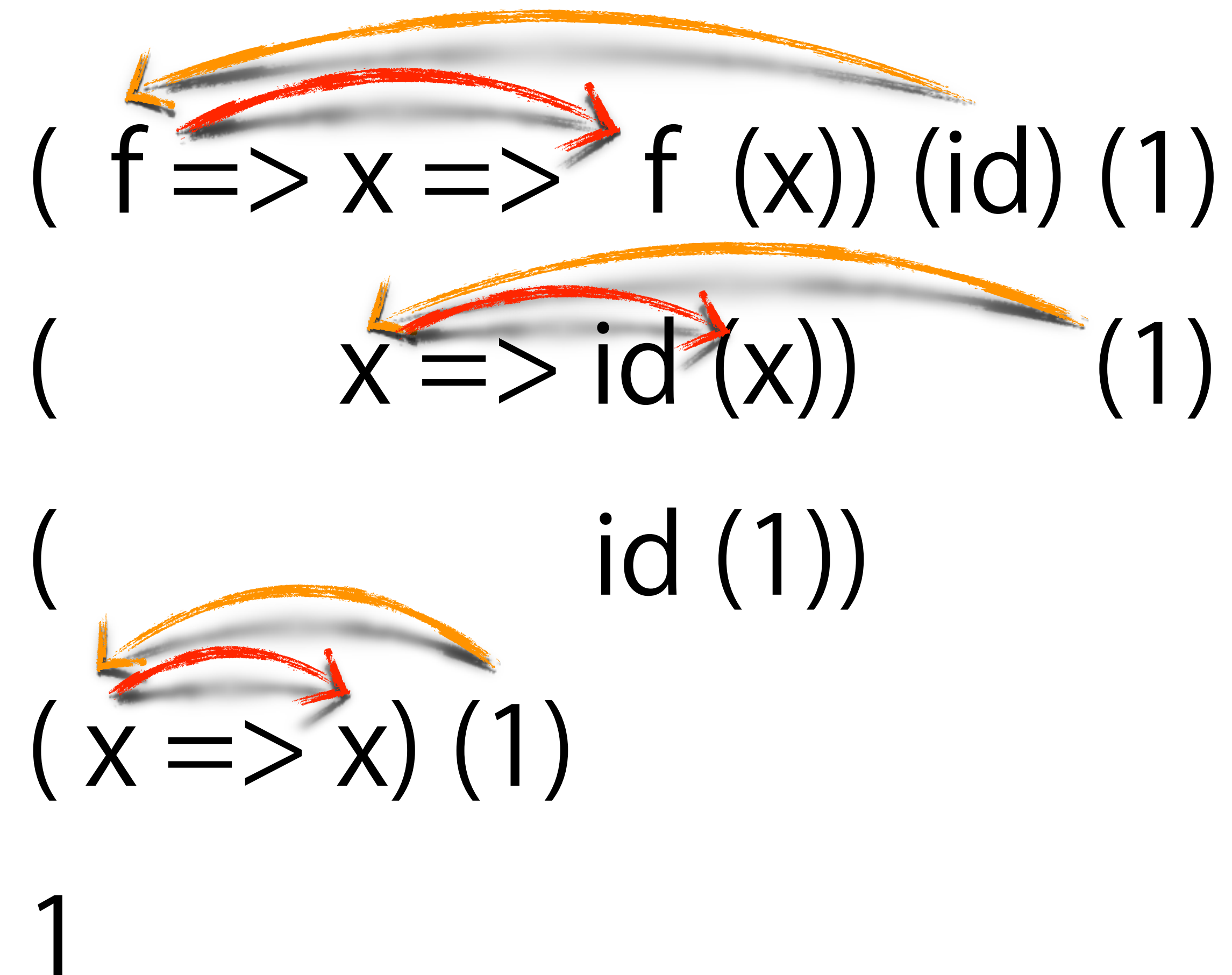
η eta: Cancel parameter

Alpha Translation

const id = x => x

const id = y => y

Beta Reduktion

(f => x => f (x)) (id) (1)

(x => id (x))   (1)

(id (1))

(x => x) (1)

1

Eta Reduktion

x => y => plus (x) (y)

x =>　　　　plus (x)

plus
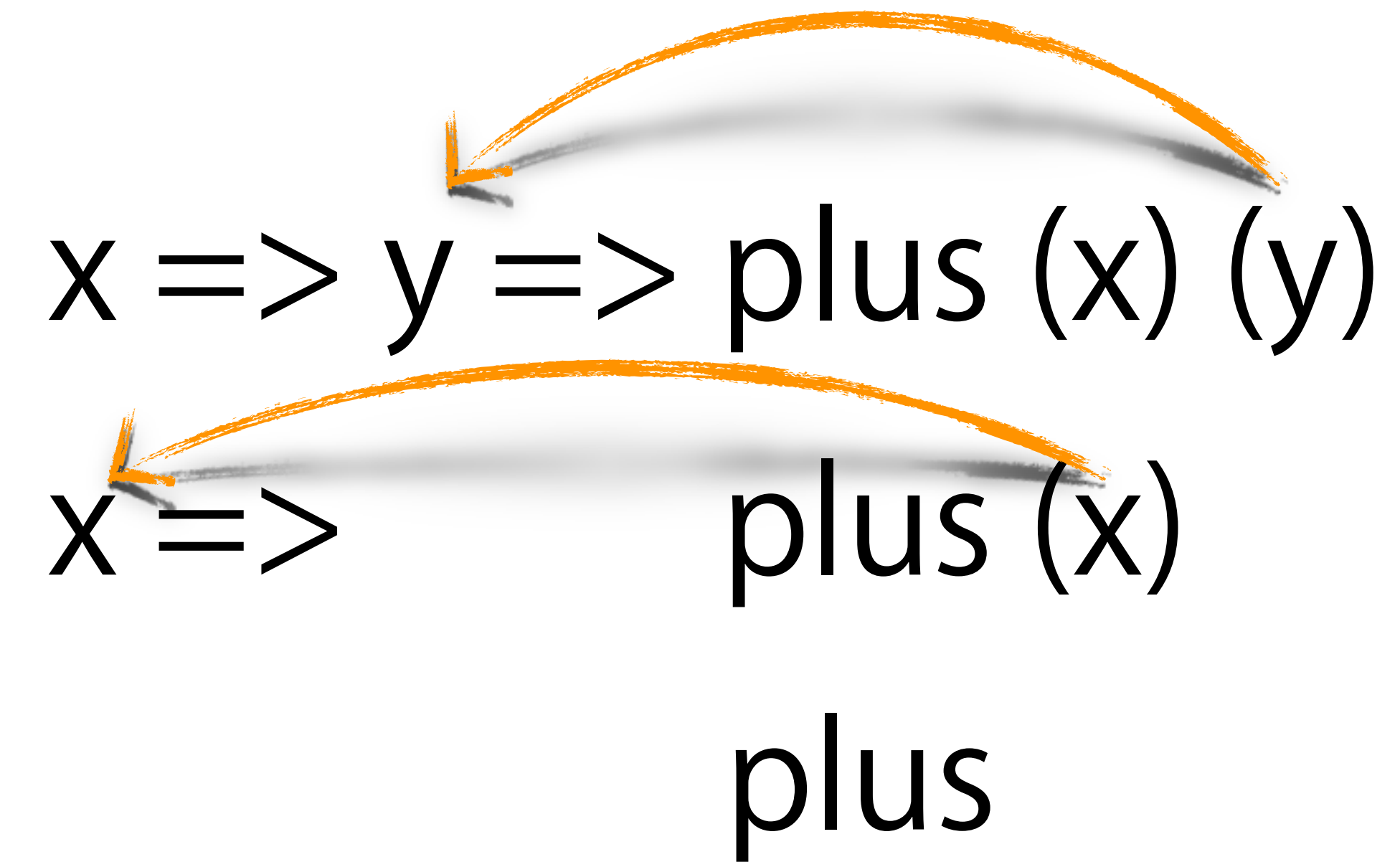
Homework

watch Gabriel Lebec (~1:40)

Fundamentals of Lambda Calculus & Functional Programming in JavaScript, Parts I and II.

https://www.youtube.com/watch?v=3VQ382QG-y4