CSE216
Foundations of Computer Science

State University of New York, Korea

Exercises

Small-1

- (λ x.x) a
- (λ x.y) a
- (λ x.xy) a
- (λ x. yx) a
- (λ x. xx) a
- (λ x. yy) a

Small-2

- (λ x.x) a b
- (λ x.y) a b
- (λ x.xy) a b
- (λ x. yx) a b
- (λ x. xx) a b
- (λ x. yy) a b

Small-3

- (λ x.x) λ a. b
- (λ x.y) λ a. b
- (λ x.xy) λ a. b
- (λ x. yx) λ a. b
- (λ x. xx) λ a. b
- (λ x. yy) λ a. b

Small-4

- (λ x.x) x
- (λ x.y) x
- (λ x.xy) x
- (λ x. yx) x
- (λ x. xx) x
- (λ x. yy) x

Small-5

- (λ x.x) x y
- (λ x.y) x y
- (λ x.xy) x y
- (λ x. yx) x y
- (λ x. xx) x y
- (λ x. yy) x y

Exercise: beta reduction

- (λz.z) (λz.z z) (λz.z q)

Exercise: beta reduction

- (λs.λq.s q q) (λa.a) b

Exercise: beta reduction

- (λs.λq.s q q) (λq.q) q

Exercise: beta reduction

- ((λs.s s) (λq.q)) (λq.q)

Exercise: beta reduction

- (λ x.λy.x) x y

Exercise: beta reduction

- (λ x. λ y. λ z. y (w y x)) λ s. λ z. z