OPLSS 1: Adjoint Functional Programming

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1 Lecture 1: Linear Functional Programming

Today, we will be describing the design and implementation of a language SNAX, featuring linearity, and overloading. We'll be building towards what we call a "proof-theoretic compiler" that is strongly based in an underlying type theory, where we keep our typing discipline through to the end, until we reach our final target (C).

1.1 Basic type system

We begin with the most basic type, $\mathbf{1}$.

$$\frac{}{() : \mathbf{1}}$$

$$\frac{k \in L \qquad e : A_k}{k(e) : +\{l : A_l\}_{l \in L}}$$