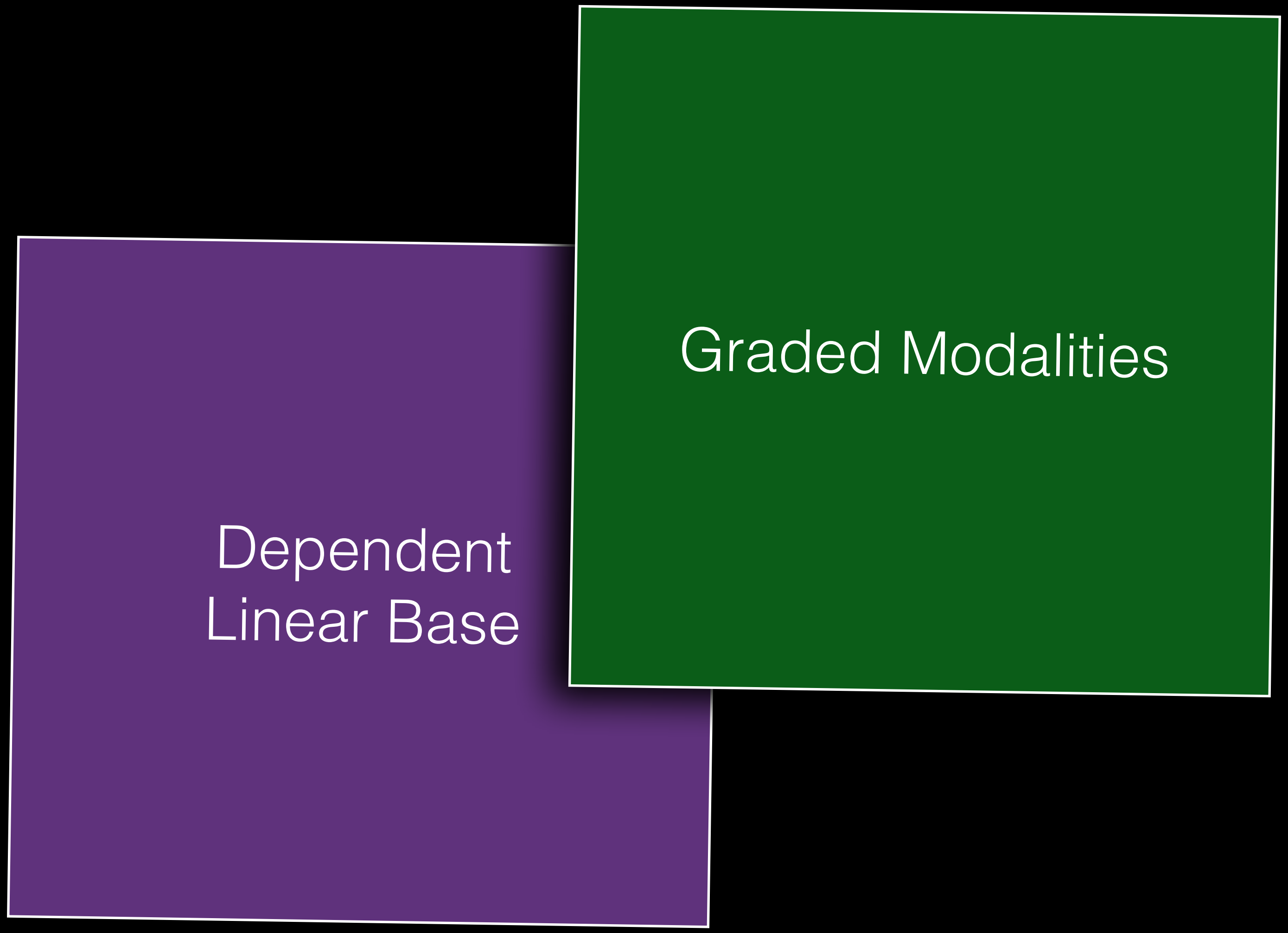
Why Dependent Types?

```
map : forall {a : Type, b : Type, n : Nat}
    . (a -> b) [n]
   -> Vec n a
   -> Vec n b
 map [f] Empty = Empty;
 map [f] (Cons x xs) = Cons (f x) (map [f] xs)
```

Graded Type Theory



Dependent Linear Base

Graded Modalities