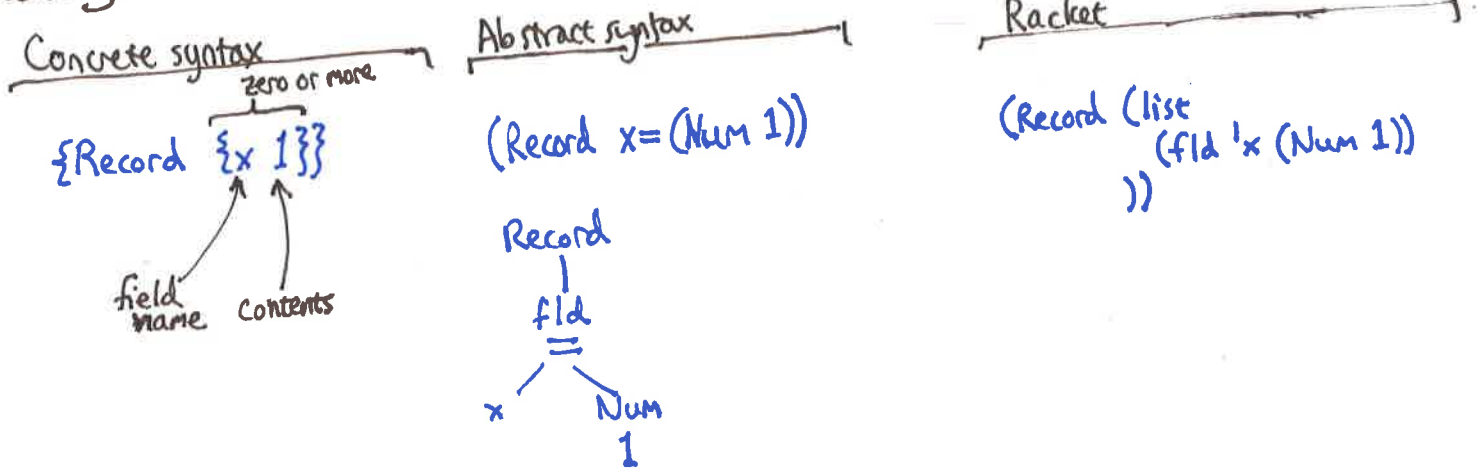
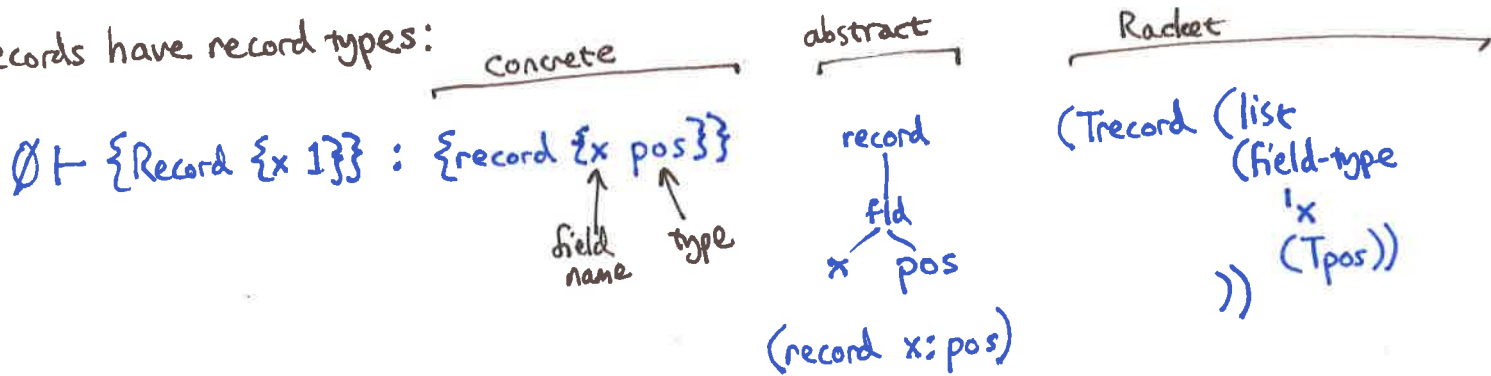


Records

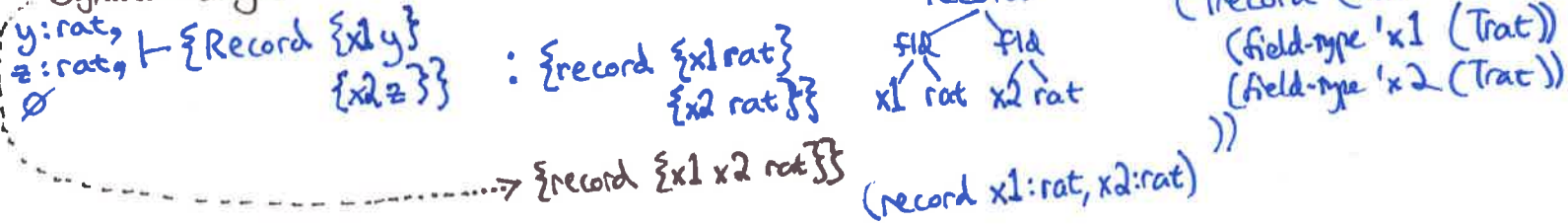
• Creating records:



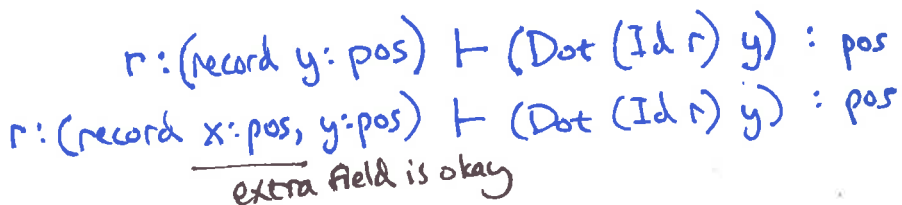
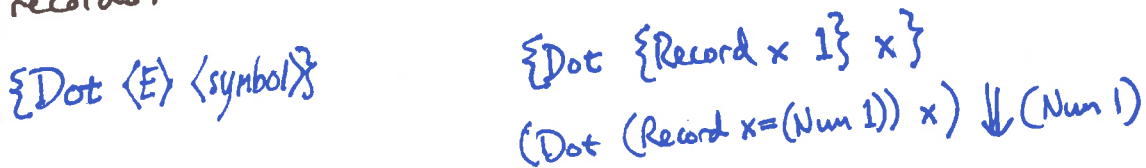
Records have record types:



Syntactic sugar:



• Accessing records:



Records: Width subtyping

eGety

$$\emptyset \vdash (\text{Lam } r \text{ (Record } y:\text{pos) (Dot (Id } r) \text{ y))} \\ \vdash (\text{record } y:\text{pos}) \rightarrow \text{pos}$$

(Assume I've shown this)

I need to show this

$$\emptyset \vdash \text{eGety} : (\text{record } y:\text{pos}) \rightarrow \text{pos}$$

$$\emptyset \vdash (\text{Record } x=(\text{Num } 1), \\ y=(\text{Num } 2)) : (\text{record } y:\text{pos})$$

Type-app

$$\emptyset \vdash (\text{App eGety (Record } x=(\text{Num } 1), \\ y=(\text{Num } 2))) : \text{pos}$$

assume I've shown this

$$\emptyset \vdash (\text{Record } x=(\text{Num } 1), y=(\text{Num } 2)) : (\text{record } x:\text{pos}, y:\text{pos}) \quad (\text{record } x:\text{pos}, y:\text{pos}) <: (\text{record } y:\text{pos})$$

Type-sub

$$\emptyset \vdash (\text{Record } x=(\text{Num } 1), \\ y=(\text{Num } 2)) : (\text{record } y:\text{pos})$$

"Width":



A record with more fields is a subtype of a record with fewer fields.

pos <: int

I know more about 'pos' ... than 'int' an expression of type

(record x:pos, y:pos) <: (record y:pos)

I know more about an expression with this record type than this one

Java analogy:

