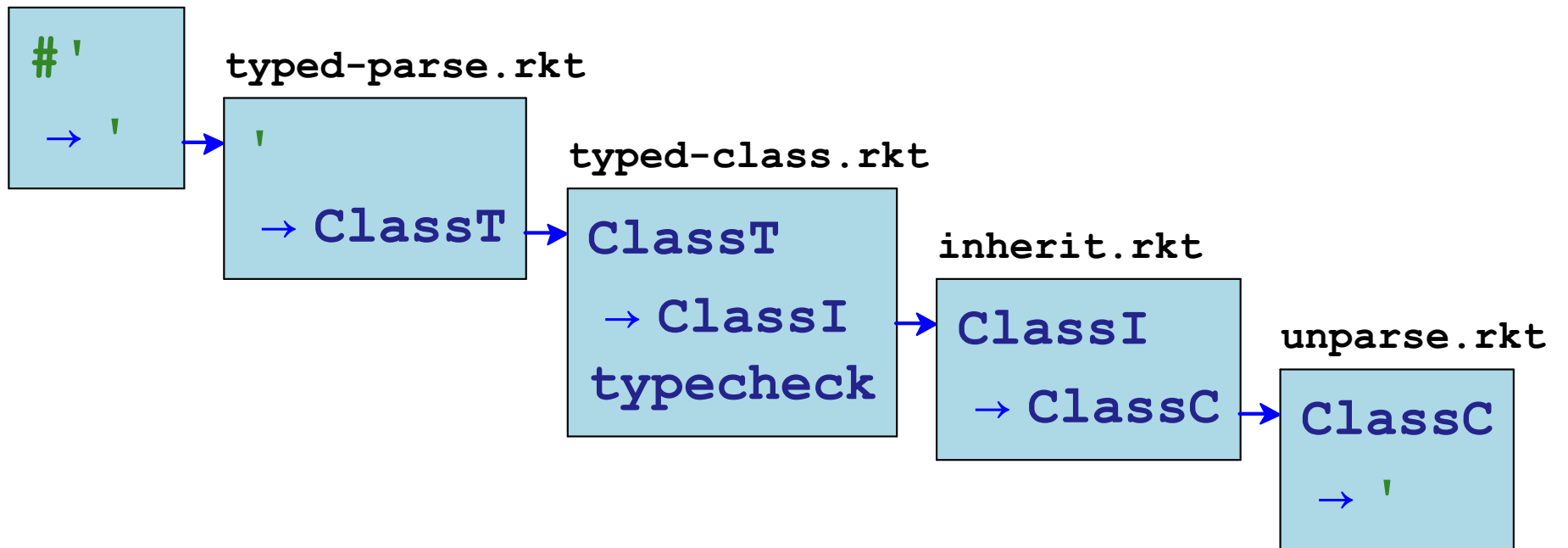


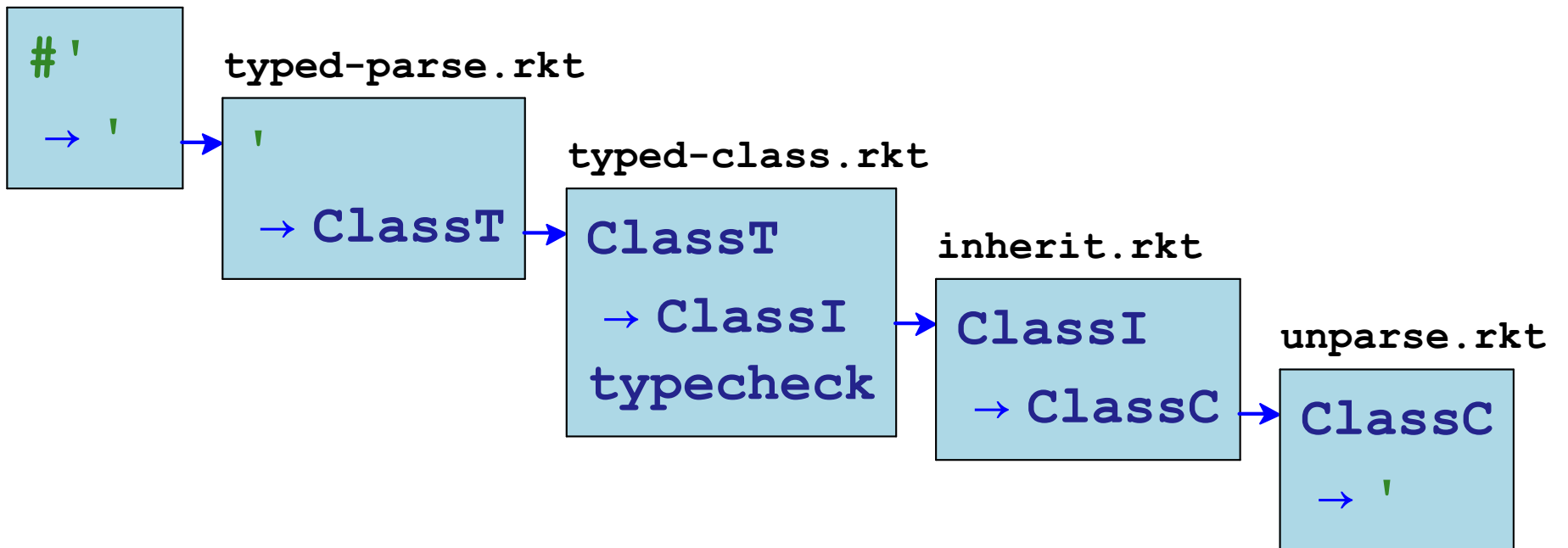
Part I

Typed Classes

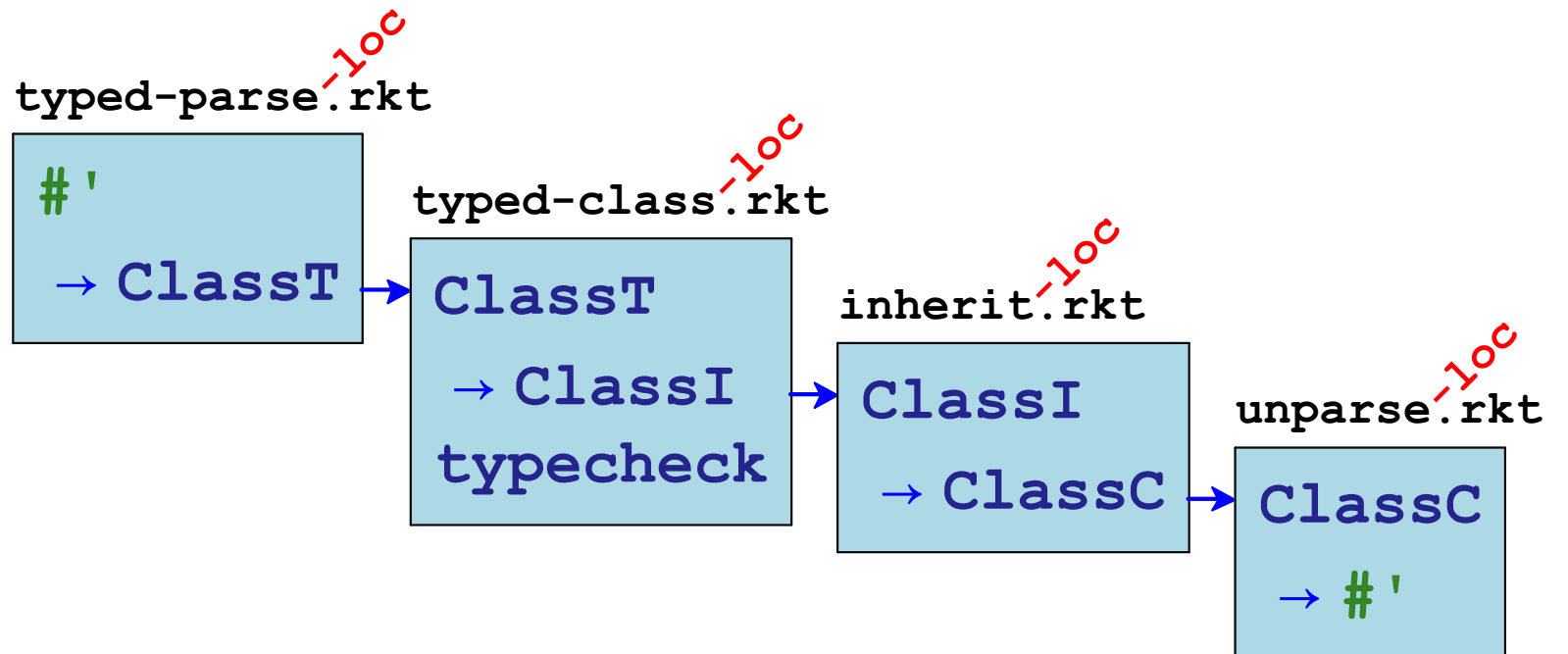


Part 2

Typed Classes with Source Locations



Typed Classes with Source Locations



Part 3

```
#lang typed-class
```

Right now, we have to write

```
typed-loc-posn.rkt
```

```
#lang s-exp "typed-class-lang.rkt"  
.....
```

We'd prefer to write

```
posn.rkt
```

```
#lang typed-class  
.....
```

Languages

A name like `typed-class` is used as a **collection** name

...and the collection's `main.rkt` module is used

In the simple case, a **package** implements a collection

In the simplest case, a **directory** implements a package

Languages

`#lang module-path`

- Find *module-path*

... adding `/main` if no `/`

- Look for a **reader** submodule

... to control `#lang module-path` expansion to

`(module name initial-import)`

Part 4

#lang typed-class

Right now, we write

posn.rkt

```
#lang typed-class
....
{class posn3D extends posn
  {[z : num]}
  {mdist : num -> num
    {+ {get this z}
      {super mdist arg}}}}
....
```

Conceivably, someone might prefer to write

infix-posn.rkt

```
#lang typed-class/infix
...
class posn3D extends posn {
  num z;
  num mdist(num arg) {
    return this.z + super.mdist(arg);
  }
}
...
```

Parsing Characters

- Is `posn3D` an identifier? Is `3Dposn` an identifier?

- Is

$$1+2*3$$

the same as

$$(1+2) * 3$$

or

$$1+ (2*3)$$

Parsing Characters

- Is `posn3D` an identifier? Is `3Dposn` an identifier?

- Is

`this.m(0) + this.n(1)`

the same as

`(this.m(0)) + (this.n(1))`

or

`(this.m(0) + this).n(1)`

- Is `class` a reserved word?

- Is `1+2` the same as `1 + 2`?

Lexing and Parsing

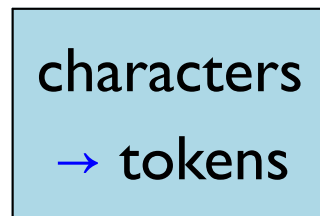
Characters:

```
c l a s s <space> p o s n 3 D ... { ...
```

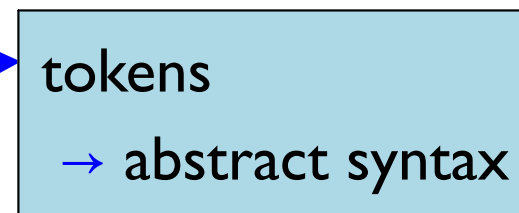
Tokens:

```
CLASS WHITESPACE posn3D ... OPENB ...
```

lexer.rkt



parser.rkt



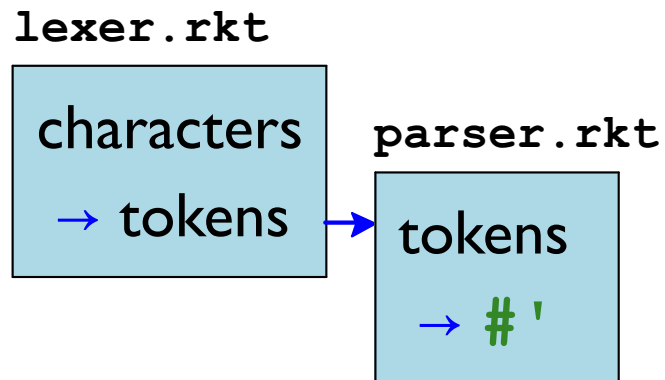
Lexing and Parsing

Characters:

```
c l a s s <space> p o s n 3 D ... { ...
```

Tokens:

```
CLASS WHITESPACE posn3D ... OPENB ...
```



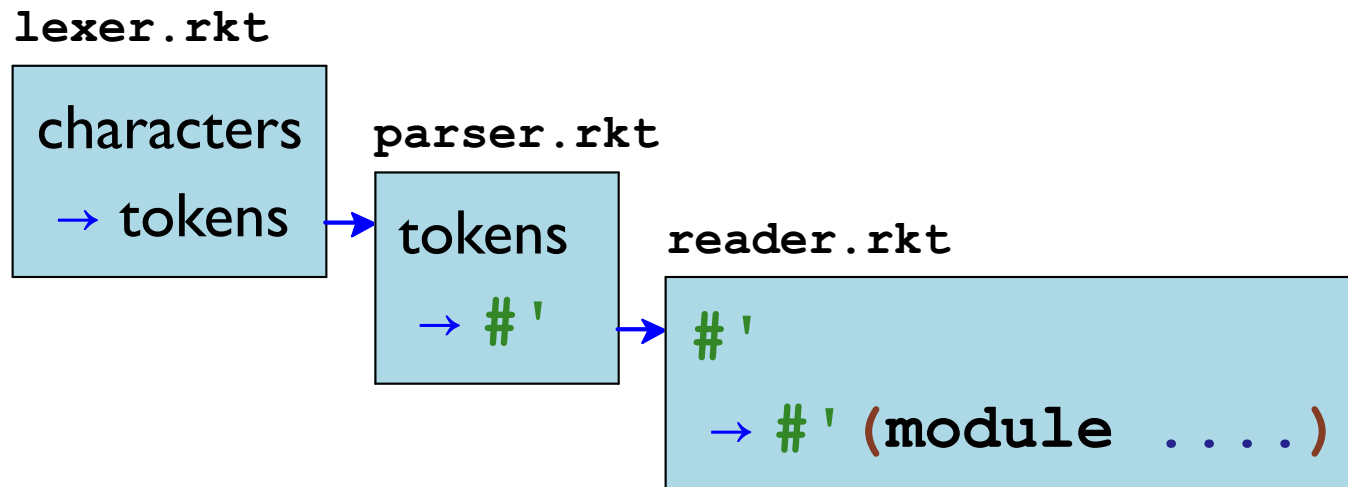
Lexing and Parsing

Characters:

```
c l a s s <space> p o s n 3 D ... { ...
```

Tokens:

```
CLASS WHITESPACE posn3D ... OPENB ...
```



Part 5

Languages

```
#lang module-path
```

- Find *module-path*
- Look for a **reader** submodule
 - ... which parses characters into **(module)** by providing a **read-syntax** function

Part 6

Syntax Coloring

```
#lang typed-class/infix0
```

```
....
```

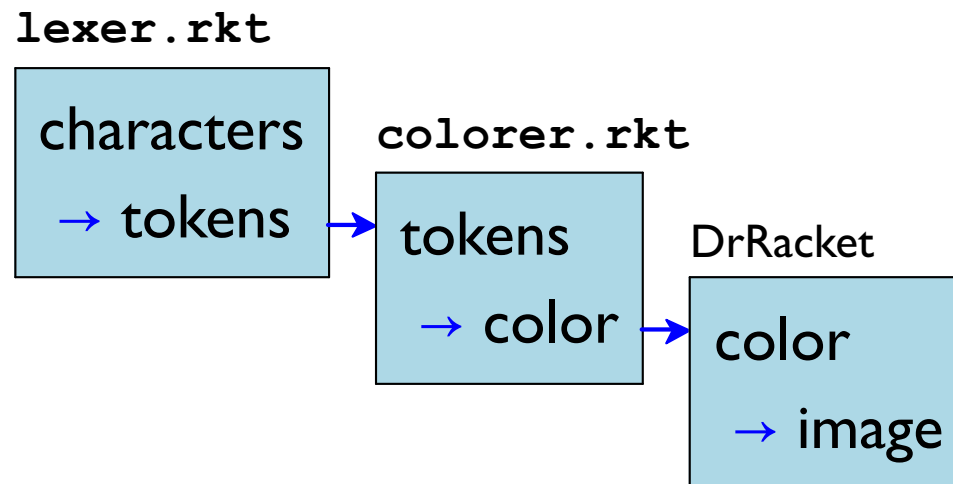
```
(new posn3D(5, 3, 1)).addDist(new posn(2, 7));
```

Syntax Coloring

```
#lang typed-class/infix
```

```
....
```

```
(new posn3D(5, 3, 1)).addDist(new posn(2, 7));
```



Languages

`#lang module-path`

- Find *module-path*
- Look for a **reader** submodule
 - ... which provides a **get-info** function to configure details such as
syntax coloring