Other Kinds of Data

Suppose we want to represent snakes:

• name
• weight
• favorite food

What kind of data is appropriate?

Not `num`, `bool`, `string`, `image`, or `posn`...
Data Definitions and define-struct

Here’s what we’d like:

A snake is

(make-snake string num string)

... but make-snake is not built into DrRacket

We can tell DrRacket about snake:

(define-struct snake (name weight food))

Creates the following:

- make-snake
- snake-name
- snake-weight
- snake-food
Data Definitions and define-struct

Here’s what we’d like:

A **snake** is

\[
\text{(make-snake string num string)}
\]

... but **make-snake** is not built into DrRacket

We can tell DrRacket about **snake**:

\[
\text{(define-struct snake (name weight food))}
\]

Creates the following:

\[
\begin{align*}
\text{(snake-name (make-snake X Y Z))} & \rightarrow X \\
\text{(snake-weight (make-snake X Y Z))} & \rightarrow Y \\
\text{(snake-food (make-snake X Y Z))} & \rightarrow Z
\end{align*}
\]
Values vs. define-struct

(make-snake "Slinky" 10 "rats")

(make-snake "Slimey" 8 "pudding")
Values vs. define-struct

(define-struct snake (name weight food))
Values vs. define-struct

(define-struct snake (name weight food))

(make-sprite "Slinky" 10 "rats")

(define-struct posn (x y))

(make-sprite "Slimey" 8 "pudding")

(make-posn 3 4)

(make-posn 8 -2)