

WEEK 12 STUDIO

AGENDA

- Meta Circular Evaluator (???)
- Studio

WHAT IS THE META-CIRCULAR EVALUATOR?

It is a Source program that evaluates Source programs.

WHERE TO START OFF?

- The first function you will encounter in the MCE is `parse_and_eval`.
- This is the function that executes the MCE when given its argument, which is a Source program that you want to evaluate, represented by a string.

```
parse_and_eval("1 + 2;"); // The program that you are evaluating is "1 + 2;"
```

- Let's call this string `program_string`.

WHAT'S NEXT? - ABSTRACT SYNTAX TREE (AST)

- The `program_string` is then parsed into an AST with the `parse` function.
- What does it look like?
- What is it for?
 - The parser simplifies and translates the `program_string` into a structure which contains only the important pieces of the program. This structure then allows for easy processing and handling of data by the MCE.

A LITTLE MORE ON AST

- Let's look at a **simple expression**: `20 + 30;`
 - Produces an AST, which represents a list of only 3 elements, namely:
 - tag name
 - operator
 - operands
 - This particular AST structure represents an "application" in Source. Different statements and expressions have different AST structures.
- What happens with multiple operators with precedence?
- Don't need to know exactly how it works, but a good intuition on its structure will help you with understanding why and how the MCE works.

WHAT'S NEXT?

Start tracing!

MORAL OF THE STORY

Read the code! Trace through it and play around with the MCE program.

ATTENDANCE

STUDIO SHEET 12

QUESTION 1

- Simpler Solution
- Alternative (one shown in class)

QUESTION 2

- [Solution](#)
- An alternative is to create a global list that keeps track of all the user defined constants, and check against them everytime you want to assign a value to a name. [Sample solution](#).

QUESTION 3

Solutions