

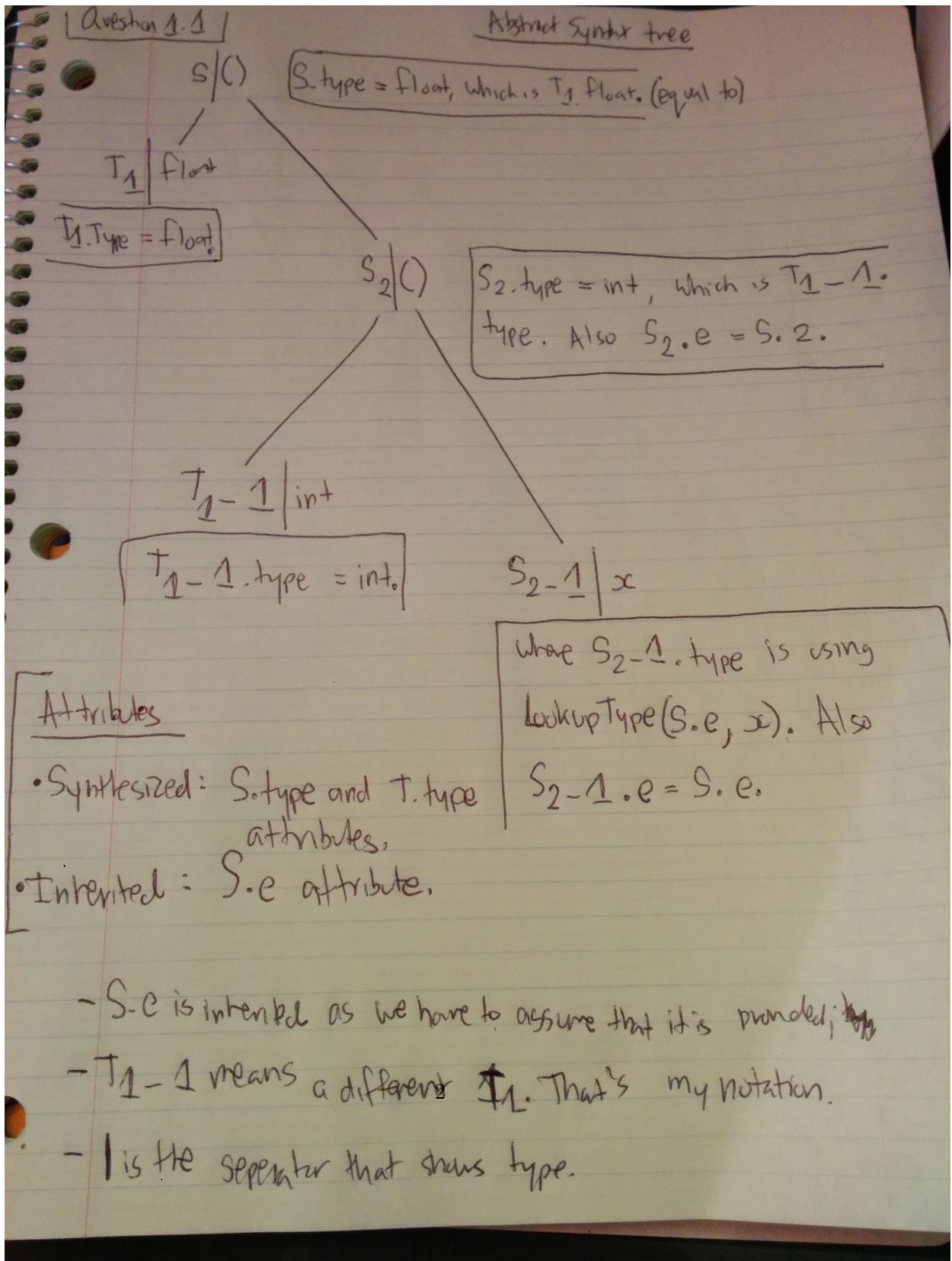
Homework 6

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Talked to Tyler Palsulich about this to discuss the ability to declare functions inside SDD. I also talked to him about Question 1.1. My primary mistake was misunderstanding the formats of T1.type, and S2.type and the positions they go in.

1 Casting

Question 1.1



Question 1.2

| Question 1.2 / | |
|---------------------------------|---|
| Production | Semantic Rules |
| $S \Rightarrow (T_1)S_2$ x | $S_2.e = S.e ; S.type = T_1.type ; \text{check}(S_1.type, S_2.type)$ |
| $T \rightarrow \dots$ | $\begin{array}{l} \text{byte} \rightarrow \text{short} \\ (\text{as above}) \quad \text{char} \end{array}$ $\xrightarrow{\quad \quad \quad \quad \quad}$ $\text{int} \rightarrow \text{long} \rightarrow \text{float} \rightarrow \text{double}$ unsafe widening |
| Short & short ✓ | Bad check (Type T, Type S) |
| Short & int ✗ | if T.type is short & S.type is int Warning() |
| Short & float ✗ | if T.type is short & S.type is float Warning() |
| Short & byte ✗ | if T.type is int & S.type is float Warning() |
| int & float ✗ | if T.type is float & S.type is byte Warning() |
| int & int ✓ | if T.type is short & S.type is byte Warning() |
| int & byte ✗ | if T.type is byte & S.type is int Warning() |
| float & float ✓ | |
| float & byte ✗ | |
| byte & byte ✓ | |
| x = unsafe | |
| ✓ = safe | |

2 Records

Question 2.1

Question 2.1

| | | | |
|-------|---------|----------|---|
| | | Whatever | |
| int | 4 bytes | x | int x → 4 bytes, T.size where T is int |
| byte | 1 byte | b | byte b → 1 byte, T.size where T is byte |
| float | 8 bytes | y | float y → 8 bytes, T.size where T is float |
| | | Whatever | |

Question 2.2

Note that there is no ; after `T.size` in my correction statement. I accidentally put that in. And the missing word is *command*. Also I'd like to add my reference for page 376, which has the exact situation here.

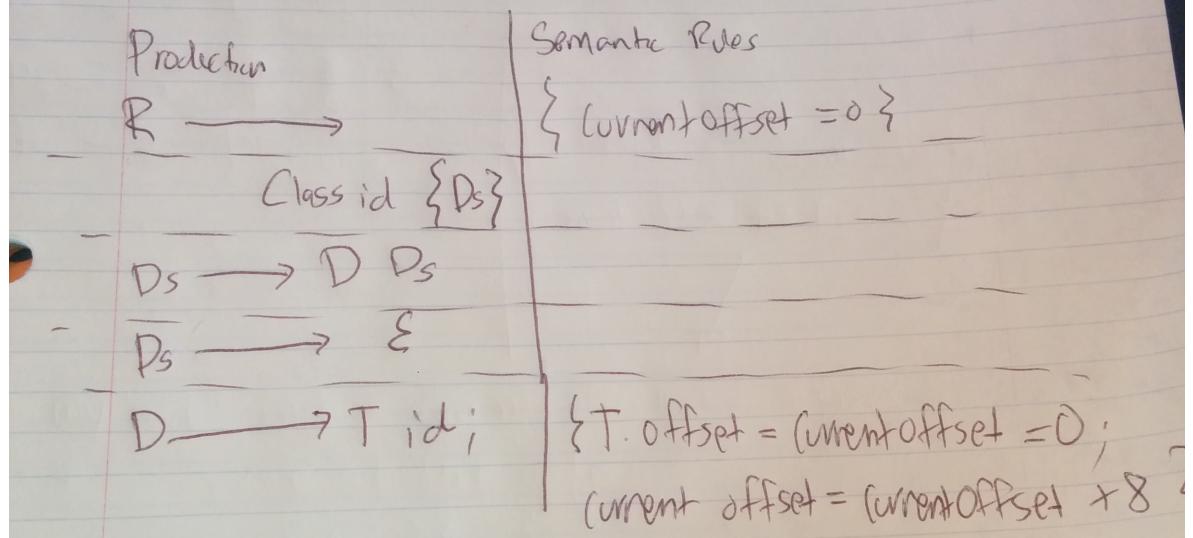
| Production | Initialization | Semantic Rules |
|---|----------------|---|
| $R \rightarrow$ | | $\{ \text{Current Offset} = 0 \}$ |
| $\text{Class id } \{ D_s \}$ | | |
| $D_s \rightarrow D D_s$ | | |
| $D_s \rightarrow \epsilon$ | | |
| $D \rightarrow T \text{ id} ;$ | | $\{ T.\text{offset} = \text{current offset};$ $\text{current offset} + T.\text{size} \}$ |
| | | |
| <ul style="list-style-type: none"> - my bad: in the current offset += T.size I used + =, please substitute with $\text{current offset} = \text{current offset} + T.\text{size};$ - Initialization is before we run the class id $\{ D_s \}$ command so I gave it its own line. - The {} are as page 383 denotes. | | |

Question 2.3

There is a } after +8 that you can't see here.

Qustion 23

In this problem T.size becomes not important as all individually addressable units must be aligned to an address, and so we such it to just being plus 8.



- Same deal applies here. I made & fixed my += mistake here.
- Source page 383 and 376.