Section 7 Quiz

测验 • 45 MIN

Section 7 Quiz

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截止时间 Jan 13, 3:59 PM CST **答题次数** 1/22 hours

开始

收到成绩

通过条件 80% 或更高

成绩

—

1. Check the box if the statement is true. 8 分

- [ ] ML is dynamically typed.
- [ ] ML is weakly typed.
- [x] Racket is dynamically typed.
- [ ] Racket is weakly typed.

2. Check the box if the statement is true. 8 分

- [ ] A "type system" that rejects every program is sound but useless.
- [ ] A "type system" that rejects every program is complete but useless
- [x] A "type system" that accepts every program is sound but useless.
- [ ] A "type system" that accepts every program is complete but useless.

3. For each of the following, check the box if and only if it is an accurate description of an advantage of (sound) static typing (for preventing the sort of things that ML's type system prevents). 8 分

- [x] If you change the argument type of a function, the type-checker can give you a list of callers that no longer type-check as a result.
- [x] If you "comment out" a function and the program still type-checks, then you can be sure that no execution of the program will "try" to call the function.
- [ ] If you add a function to a program and the program still type-checks, then you can be sure that the added function will always be called when the program is executed.
- [ ] There is no reason to have exceptions in a programming language with static typing, so programmers do not have to worry about handling exceptions.

4. For the remaining questions, we will consider changing ML's type system in the following way: We allow a function that takes a tuple argument `t1 * t2 * ... tn` to be called not only with a tuple of that exact type but also with *wider* tuples `t1 * t2 * ... tn * t(n+1) * t(n+2) * ...`. The typing rule for such calls is that the first *n* parts of the tuple must still have the "right" type for the call and the "extra" parts each need to have *some* type, but any type is fine. The evaluation rule for such calls is that the tuple argument is fully evaluated (including the "extra" parts) and the extra parts are simply inaccessible (ignored) by the function called. 8 分

Note the *only* typing rule we change is the one for function calls.

We assume the goals of the ML type system ("what it aims to prevent") are unchanged except that is okay to use these "too-wide tuples".

Check a box below if and only if the corresponding statement is true.

- [x] ML *without* the change described above has a *sound* type system.