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Programming Languages and Types
Group Exercise 3

G3.1 Simulating Lazy Evaluation

How can the 8-queens Haskell algorithm with lazy lists from last week's homework assignment be encoded in Scheme?

G3.2 Laziness and Side Effects

There are almost no lazy languages in the history of programming languages that also allowed implicit side effects (such as mutating variables). Why not?

Illustrate the problem with a short program (say, in a hypothetical version of Scheme with lazy evaluation).

G3.3 Fixed Point Combinators

In the lecture, the following fixed point combinator for FAE/L was presented.

```
{fun {f}
  {{fun {x} {f {x x}}}
   {fun {x} {f {x x}}}}}
```

Why can this fixed point combinator not work as expected in FAE?

Construct a fixed point combinator which does.