Project Euler #14

- "Which starting number, under one million, produces the longest chain?"
- Try it without memoization.

```
>>> collatz = [len(list(recurse_until(lambda n: n==1, syracuse2, i)))
... for i in range(1,11)]
>>> results = zip(collatz, range(1,11))
>>> max(results)
(20, 9)
>>> list(syracuse_iter(9))
[9, 28, 14, 7, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4,
2, 1]
```

- Will this scale to 100? 1,000? 1,000,000?

What do we need?

- A smarter ending function that plugs into **`recurse_until()`**
  - Checks a shared cache instead of testing for **`n==1`**
- A smarter overall loop that tracks sequence length in a shared cache