Puzzle 142. Ten sentences

In a list of 10 statements, the nth statement says there are exactly n false items in the list. Which of the statements, if any, are false?

1. In this list exactly 1 statement is false.

2. In this list exactly 2 statements are false.

3. In this list exactly 3 statements are false.

4. In this list exactly 4 statements are false.

5. In this list exactly 5 statements are false.

6. In this list exactly 6 statements are false.

7. In this list exactly 7 statements are false.

8. In this list exactly 8 statements are false.

9. In this list exactly 9 statements are false.

10. In this list exactly 10 statements are false.

Listing 13.12: Modelling ten tricky sentences

```
1  set(arithmetic).
2  assign(max_models,-1).
3  assign(domain_size,11).
4
5  formulas(assumptions).
6    m(x) = 0 | m(x) = 1.
7    NoSentences = 10.
8    NoTrue = NoSentences + -NoFalse.
9
10   m(x) = 1 <-> NoFalse = x.
11   m(1)+m(2)+m(3)+m(4)+m(5)+m(6)+m(7)+m(8)+m(9)+m(10) = NoTrue.
12 end_of_list.
```