

Things to watch out for when working with sml

Suppose we have written the following ML program in file `sum.sml` to compute the sum of elements of a list.

Note that the line numbers are here for your convenience, they are not actually in the file.

```
1. (* sumlist gets a list of numbers and
2.    returns the sum of its elements.
3. *)
4. fun sumlist([])=0;
5.   | sumlist(h::t)= h + sumlist t;
```

Now, let's load the file in SML and test it:

```
-use sum.sml;
stdIn:1.5-2.7 Error: unbound structure: sum in path sum.sml
```

Oops! The file name is a string, so we must use `"`". Next try:

```
-use "sum.sml";
[opening sum.sml]
sum.sml:1.1-5.36 Error: unclosed comment
val it = () : unit
```

Oops! There is an error in my `"sum.sml"` file. I forgot to close the comment in line 5. Let's fix it and try again:

```
1. (* sumlist gets a list of numbers and
2.    returns the sum of its elements.
3. *)
4. fun sumlist([])=0;
5.   | sumlist(h::t)= h + sumlist t;
```

```
-use "sum.sml";
[opening sum.sml]
sum.sml:4.1-4.18 Warning: match nonexhaustive
      nil => ...
val sumlist = fn : 'a list -> int
sum.sml:5.3 Error: syntax error: replacing BAR with EQUALOP
```

Not AGAIN! This time I have an extra `;"` at the 4th line. So, naturally, it ignores my definition for the rest of the function. Let's remove the extra `;"` and try again.

```
1. (* sumlist gets a list of numbers and
2.    returns the sum of its elements.
3. *)
4. fun sumlist([])=0
5.   | sumlist(h::t)= h + sumlist t;
```

```
- use "sum.sml";  
[opening sum.sml]
```

```
val sumlist = fn : int list -> int
```

```
val it = () : unit
```

Great! Finally! So now I can call this function to test it!

```
- Sumlist [];  
stdIn:29.1-29.8 Error: unbound variable or constructor: Sumlist
```

What's wrong? Oh, SML is case sensitive, I should have typed "sumlist" instead of "Sumlist". Try again:

```
- sumlist([]);  
val it = 0 : int
```

```
-sumlist([1,2,7]);  
val it = 10 : int
```

```
-sumlist([-3,2,1]);  
stdIn:21.10 Error: expression begins with infix identifier "-"  
stdIn:21.9-21.17 Error: operator and operand don't agree [literal]  
operator domain: 'Z * 'Z  
operand:         int  
in expression:  
  - 3
```

What's wrong with the last expression? Negative numbers must be represented by ~ symbol!

```
- sumlist([~3,2,1]);  
val it = 0 : int
```

```
- sumlist [2.0, 2.2, 3.0];  
stdIn:40.1-40.24 Error: operator and operand don't agree [tycon mismatch]  
operator domain: int list  
operand:         real list  
in expression:  
  sumlist (2.0 :: 2.2 :: 3.0 :: nil)  
GC #0.0.0.0.1.15:    (0 ms)
```

What's wrong? Ahh, right: the argument must be an `int list`. But what's the last weird **GC**... error message?

It's not an error message. You will get this message once in a while. When you least expect it. :) It says that ML is doing garbage collection.