

|    |              |   |                          |
|----|--------------|---|--------------------------|
| 56 | <i>term</i>  | → | <i>factor</i>            |
| 57 | <i>term</i>  | → | <i>term mulop factor</i> |
| 58 | <i>mulop</i> | → | *                        |
| 59 | <i>mulop</i> | → | /                        |
| 60 | <i>mulop</i> | → | div                      |
| 61 | <i>mulop</i> | → | mod                      |
| 62 | <i>mulop</i> | → | and                      |

|    |             |   |                           |
|----|-------------|---|---------------------------|
| 56 | <i>term</i> | → | <i>factor</i><br>\$\$=\$1 |
|----|-------------|---|---------------------------|

|                                                                                                                                                                                                                                                                                                                                      |             |   |                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---|--------------------------|
| 57                                                                                                                                                                                                                                                                                                                                   | <i>term</i> | → | <i>term mulop factor</i> |
| <pre> Exp* term(Exp* term,string* mulop,Exp* factor)   if *mulop=="*"    return term_1(term,factor)   if *mulop="/"     return term_2(term,factor)   if *mulop=="div"  return term_3(term,factor)   if *mulop=="mod"  return term_4(term,factor)   if *mulop=="and"  return term_5(term,factor)   else error("invalid mulop") </pre> |             |   |                          |

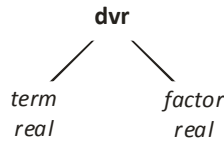
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |   |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---|--------------------------|
| 57                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <i>term</i>  | → | <i>term mulop factor</i> |
| 58                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <i>mulop</i> | → | *                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |              |   |                          |
| <p><i>Exp* term_1(Exp* term,Exp* factor)</i></p> <ol style="list-style-type: none"> <li>Semantics for term are dependent on <i>mulop</i>. The information given here is for rule 58 <i>mulop</i> → *.</li> <li>Four expressions are returned depending on the types of input parameters term and factor. <ol style="list-style-type: none"> <li>term has type real. factor has type real. <ol style="list-style-type: none"> <li>Create PCode P</li> <li>Return Expression E</li> </ol> </li> </ol> </li> </ol> |              |   |                          |
| <p>2.1. term has type real. factor has type real.</p> <p>2.1.1. Create PCode P</p> <p><b>mpr</b></p> <p>2.1.2. Return Expression E</p> <p>PCode P created in 2.1.1.</p> <p>Type real</p> <p>Left sub expression: parameter term</p> <p>Right sub expression : parameter factor</p>                                                                                                                                                                                                                              |              |   |                          |

2.2. term has type integer. factor has type real.  
2.2.1.Create PCode P  
**flt**  
2.2.2.Create Expression L  
PCode P created in 2.2.1.  
Type real  
Left subexpression: term  
2.2.3.Create PCode P  
**mpr**  
2.2.4.Return Expression E  
PCode P created in 2.2.3.  
Type real  
Left sub expression: expression L created in 2.2.2.  
Right sub expression : parameter factor

2.3. term has type real. factor has type integer.  
2.3.1.Create PCode P  
**flt**  
2.3.2.Create Expression R  
PCode P created in 2.3.1.  
Type real  
Right subexpression: factor  
2.3.3.Create PCode P  
**mpi**  
2.3.4.Return Expression E  
PCode P created in 2.3.3.  
Type real  
Left sub expression: parameter term  
Right sub expression : expression R created in 2.3.2.

2.4. term has type integer. factor has type integer.  
2.4.1.Create PCode P  
**mpi**  
2.4.2.Return Expression E  
PCode P created in 2.4.1.  
Type integer  
Left sub expression: parameter term  
Right sub expression : parameter factor

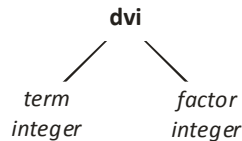
|    |              |   |                          |
|----|--------------|---|--------------------------|
| 57 | <i>term</i>  | → | <i>term mulop factor</i> |
| 59 | <i>mulop</i> | → | /                        |



*Exp\* term\_2(Exp\* term,Exp\* factor)*

1. Semantics for *term* are dependent on *mulop*. The information given here is for rule 60 *mulop* → /.
2. Define *mulop* to have the same semantic type has a token so that it is a pointer to a string (string\*).
3. Function *term\_2* returns an expression
4. Function *term\_2* accepts two parameters, *term* and *factor*, both expressions.
5. Both input parameters must have type real.
6. Create PCode P  
**dvr**
7. Return expression E having
  - 7.1. PCode P created in step 6
  - 7.2. Type real
  - 7.3. Left sub expression: parameter *term*
  - 7.4. Right sub expression: parameter *factor*.

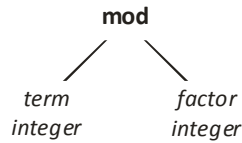
|    |              |   |                          |
|----|--------------|---|--------------------------|
| 57 | <i>term</i>  | → | <i>term mulop factor</i> |
| 60 | <i>mulop</i> | → | <b>div</b>               |



*Exp\* term\_3(Exp\* term,Exp\* factor)*

1. Semantics for *term* are dependent on *mulop*. The information given here is for rule 60 *mulop* → **div**.
2. Define *mulop* to have the same semantic type as a token so that it is a pointer to a string (string\*).
3. Function *term\_3* returns an expression
4. Function *term\_3* accepts two parameters, *term* and *factor*, both expressions.
5. Both input parameters must have type integer.
6. Create PCode P  
**dvi**
7. Return expression E having
  - 7.1. PCode P created in step 6
  - 7.2. Type integer
  - 7.3. Left sub expression: parameter *term*
  - 7.4. Right sub expression: parameter *factor*.

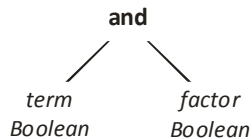
57 *term* → *term mulop factor*  
61 *mulop* → **mod**



*Exp\* term\_4(Exp\* term,Exp\* factor)*

1. Semantics for *term* are dependent on *mulop*. The information given here is for rule 61 *mulop* → **mod**.
2. Define *mulop* to have the same semantic type has a token so that it is a pointer to a string (string\*).
3. Function *term\_4* returns an expression
4. Function *term\_4* accepts two parameters, *term* and *factor*, both expressions.
5. Both input parameters must have type integer.
6. Create PCode P  
**mod**
7. Return expression E having
  - 7.1. PCode P created in step 6
  - 7.2. Type integer
  - 7.3. Left sub expression: parameter *term*
  - 7.4. Right sub expression: parameter *factor*.

57 *term* → *term mulop factor*  
62 *mulop* → **and**



*Exp\* term\_5(Exp\* term,Exp\* factor)*

1. Semantics for *term* are dependent on *mulop*. The information given here is for rule 62 *mulop* → **and**.
2. Define *mulop* to have the same semantic type has a token so that it is a pointer to a string (string\*).
3. Function *term\_5* returns an expression
4. Function *term\_5* accepts two parameters, *term* and *factor*, both expressions.
5. Both input parameters must have type Boolean.
6. Create PCode P  
**and**
7. Return expression E having
  - 7.1. PCode P created in step 6
  - 7.2. Type Boolean
  - 7.3. Left sub expression: parameter *term*
  - 7.4. Right sub expression: parameter *factor*.