

## Missing P4 Features in p4c-sdnet

### Base Types

Language Feature	Notes
error type	<ul style="list-style-type: none"><li>• Unsupported</li><li>• Use custom metadata fields instead</li></ul>
varbit<n>	<ul style="list-style-type: none"><li>• Unsupported</li><li>• For variable length bit strings</li></ul>

### Derived Types

Language Feature	Notes
tuple type	<ul style="list-style-type: none"><li>• Partial support</li><li>• Syntax: tuple&lt;bit&lt;&gt;, bit&lt;&gt;&gt;</li></ul>
extern objects	<ul style="list-style-type: none"><li>• Only packet_in, packet_out, packet_mod</li><li>• Extern <i>functions</i> are supported</li></ul>

### Expressions

Language Feature	Notes
On error types	<ul style="list-style-type: none"><li>• Because error type is not supported</li></ul>
Operands & expressions (varbit)	<ul style="list-style-type: none"><li>• Because varbit type is not supported</li></ul>
tuples of sets	<ul style="list-style-type: none"><li>• Unsupported</li></ul>

### Unsigned Binary Arithmetic

Language Feature	Notes
division	<ul style="list-style-type: none"><li>• / operator</li><li>• Only allowed if it evaluates to a constant at compile time</li></ul>
modulo	<ul style="list-style-type: none"><li>• % operator</li><li>• Only allowed if it evaluates to a constant at compile time</li></ul>

## Binary Arithmetic

Language Feature	Notes
multiplication	<ul style="list-style-type: none"><li>• * operator</li><li>• Partial support</li><li>• At least one operand must be compile time constant that is power of 2 (i.e. bit-shift)</li></ul>

## Bitwise Operators

Language Feature	Notes
Shift right	<ul style="list-style-type: none"><li>• &gt;&gt; operator</li><li>• Only for unsigned on LHS</li></ul>

## Statements

Language Feature	Notes
return	<ul style="list-style-type: none"><li>• Unsupported</li><li>• Used when a control blocks invokes other control blocks to return up one level</li><li>• <code>exit</code> statement is supported</li></ul>

## Parser Region

Language Feature	Notes
Extern method invocation	<ul style="list-style-type: none"><li>• Unsupported</li><li>• Except for <code>packet_in</code> extern methods</li></ul>
<code>verify</code>	<ul style="list-style-type: none"><li>• Unsupported</li><li>• Used for errors</li></ul>
<code>packet_in.extract(header, size)</code>	<ul style="list-style-type: none"><li>• Unsupported</li><li>• Used for variable length headers</li></ul>
<code>packet_in.length</code>	<ul style="list-style-type: none"><li>• Use the <code>sume_metadata.pkt_len</code> field instead</li></ul>

## Control Region

Language Feature	Notes
Mixed table match types	<ul style="list-style-type: none"><li>• All table match types must be the same</li></ul>
Static table entries	<ul style="list-style-type: none"><li>• Unsupported</li><li>• Must be populated from control-plane</li></ul>

## Annotations

Language Feature	Notes
@name	<ul style="list-style-type: none"><li>• Unsupported</li><li>• Used for control API to enforce user names</li></ul>
@atomic	<ul style="list-style-type: none"><li>• Unsupported</li></ul>

## Extern Function Invocation Limitations

- Not allowed in parser or deparser control block
- Not allowed in actions that are part of a Match + Action event