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## Source Model Bugs: XSpec models

### Caveats

1. *Version 11.3.1 of the XSpec models is supplied with CIAO 3.4.*

The XSpec model functions help file has a list of the available models, as well as a listing of XSpec components which *are not* included in CIAO 3.4.

2. *Using too many XSPEC models in a single session can cause Sherpa to crash.*

This occurred when we used about 80 models in our regression tests:

```
Memory Allocation Error: Too many blocks
Memory Allocation Error: Too many blocks
Memory Allocation Error: Invalid pointer, can't free memory
Failed to grab memory in IONSNEQS
error number = 101
```

Note that these are messages from the XSPEC library itself; this is not a Sherpa bug.

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### Bugs

1. *In the case of any XSPEC model, or Sherpa model that is not analytically integrable, flux calculation is restricted to the instrument model grid.*
2. *Sherpa provides the additive and multiplicative model components from XSPEC, but not the mixing model components (e.g. `project`).*
3. *Nesting a model stack "within" an XSPEC model causes a segmentation fault.*

```
sherpa> foo = const[cs]
sherpa> source = xsgauss[xg1]{foo}
sherpa> fit
Segmentation fault
```

