## Prototype Implementations

No implementations of this specific proposal yet exist. It is our intent to produce a working libSBML implementation next, and to incorporate that into the next version of Antimony within the year. However, Antimony and JigCell provide ways to modularize and combine existing SBML models in ways very similar to those proposed here, and the curious and anxious modeler is encouraged to experiment with those programs in anticipation of a libSBML implementation.

## Translation to SBML Level 2

Once a hierarchical model is flattened (see the ‘Validation’ section), it becomes valid SBML Level 3, and, from there, it can be translated as well or as poorly as any other Level 3 model. Any other packages may be used in conjunction with this package, and they too should survive the flattening procedure to a non-hierarchical version of the model. The only issue is that since a file using this package may define multiple models, deciding which model to translate may be an issue. If a translation request is ambiguous, it is recommended that the translator produce a flattened version of the main ‘model’ child of the SBML object, instead of trying to produce flattened versions of every ‘modelDefinition’ object in the file. A robust translator should provide a mechanism to produce these models if requested, however.

## Unresolved issues

We have addressed all known issues in the current proposal, but are still a bit concerned that the proposed conversion factors will be insufficient in some unforeseen way. Also, as currently structured, there is also no way to convert non-multiplicative conversions, such as the conversion of Celsius to Fahrenheit. We anticipate that this case will be rare enough that modelers will be able to find workarounds, such as replacing the odd parameter directly in the containing model, and then using an assignment rule for a new parameter that incorporates the appropriate conversion. It may be that this workaround will suffice for any unforeseen problems as well.

## References

All references in this document (in particular, those in the ‘History’ section) are included either as part of the text itself, or as a footnote on the page on which it is found.