

# Change Log — GPPG Scanner Generator

(Version 1.3.5 March 2009)

John Gough QUT

March 3, 2009

## Documentation Map

This paper is the changelog for the Gardens Point Parser Generator (*gppg*). The complete documentation for *gppg* consists of the following files —

- \* *Gppg.pdf* – the main documentation file.
- \* *Gppg-Changelog.pdf* – change log for *gppg* (this file).

## 1 Change Log

This section tracks the updates and bug fixes from version “0.9” of July 2006. Changes prior to that version were the addition of additional markers in the grammar files, and removing some runtime failures.

### Changes in version 1.3.5 (March 2009)

- \* The parsers generated by *gppg* have been carefully restructured so as to be *Fx-Cop*-friendly. This has involved the reduction in visibility of some class members, and the renaming of others. *Some of these changes may be breaking for existing applications.*
- \* The mechanisms for the instantiation of parser objects have been simplified and made safer. *This change may be breaking for existing applications.*
- \* A new feature in the definitions section of the grammar allows overriding of the default naming of the scanner base class *ScanBase*. This class is used by *gplex*-generated scanners. The change simplifies the design of applications that include multiple scanners and parsers. New sections in the *gppg* and *gplex* documentation discuss the use of such renamings.
- \* The *ShiftReduceParser* runtime component is now fully versioned, and has been systematically named as *QUT.ShiftReduceParser.dll*.
- \* All source code of *ShiftReduceParser* component has been consolidated into a single file to allow source inclusion as an alternative to referencing the *DLL*. Default visibility of the parser class has been reduced to internal.

**Changes in version 1.3.1 (November 2008)**

- \* The new frontend introduced in version 1.3.0 rejected some program constructs that were previously accepted. Version 1.3.1 corrects all such bugs that have been reported.
- \* The v1.3.0 parser wrongly rejected productions, notifying an error for productions that started with an action, but were not empty production. This is now fixed.
- \* The v1.3.0 parser wrongly rejected productions, notifying an error if a production had adjacent actions that were not separated by symbols. This is now fixed.
- \* The *gppg* input grammar allows a precedence marker to be attached to mid-rule actions, although such a marker cannot have a semantic effect. The warning message that *gppg* issues in such cases has been clarified.

**Changes in version 1.3.0 (October 2008)**

- \* The new release has a completely new frontend. The scanner and parser are constructed by *gplex* and *gppg* respectively.
- \* Error handling is based around an error buffer and a listing generator, and the parser attempts error recovery. Most error messages have changed, and a number of syntactic errors that were previously undetected are now reported.
- \* Type declarations for *YYSTYPE* and the `%union` declaration now allow arbitrary syntax including (even nested) generic types, and arrays. When both `%union` and *YYSTYPE* are defined *YYSTYPE* must be a simple identifier, naming the “union” type. Otherwise *YYSTYPE* may be an arbitrary type definition.
- \* An extended syntax for token list declarations has been implemented. Every token has the option of declaring a “display form” that is used in all diagnostic messages. All token declaration constructs allow for optional “kind” markers.
- \* Hexadecimal and unicode escapes are allowed in strings and character literals. Character literals are canonicalized before insertion in the dictionary.
- \* Literal strings for filenames may use either the verbatim or normal form, and escape characters are interpreted in filenames. However, the `*.y` input file is still an 8-bit byte-file.

**Changes in version 1.2.1 (August 2008)**

- \* The documentation has been revised.
- \* *YYLTYPE* has the constraint that it must have a no-arg constructor, if it is a reference type.
- \* With the `/gplex` flag, the visibility of the generated *ScanBase* class is controlled by the `%visibility` marker.
- \* Tests for grammars with non-terminating symbols have been implemented, with diagnostic messages for badly-formed grammars.

- \* Report output is now hyperlinked *HTML* file.
- \* New command-line option */diagnose* writes to the report file. New information is the shortest prefix leading to each automaton state, and shortest transition path leading to each state.

#### Changes in version 1.2.0 (November 2007)

- \* *YYSTYPE* may be a reference type *or* a value type.
- \* a number of minor bug fixes, particularly making the parsing of grammar files with errors more robust.

#### Changes in version 1.0.4 (August 2007)

- \* New semantic markers *YYACCEPT*, *YYABORT*, *YYERROR*, *YYRECOVERING* have been added.
- \* The indices of semantic value and location value references in semantic actions can now be arbitrary decimal numbers, and are bounds-checked at parser construction time.
- \* The default semantic action for productions of length greater than one has been changed for greater compatibility with *Bison*.
- \* The parsing code of *gppg* has been made more robust, eliminating several cases where syntactically incorrect input crashed the program.

#### Changes in version 1.0.3 (March 2007)

- \* New command line option */babel* added.
- \* Output with the */gplex* option expects to interface with version 0.5.1 or greater of *gplex*.

#### Changes in version 1.0.2 (February 2007)

- \* Assembly attributes in *main.cs* now set the version string.
- \* A bug in the string representation of productions with literal terminal symbols involving backslash-escapes has been fixed.
- \* A bug in the parsing of semantic actions involving terms such “*\$<kind>n*” has been fixed.
- \* Scanner variable *yylloc* defined in *IScanner* has become a property. This leads to better code in handwritten scanners.
- \* When invoked with the */gplex* option, *gppg* emits a *ScanBase* file that defines a private backing field for the *yylloc* property, and the accessor methods. *Existing gplex scanners will require recompilation to use the new wrapper semantics.*
- \* New command line option */conflicts* creates a file “*basename.conflicts*” that has complete production and item information for any conflicts in the grammar (see section ??).

**Changes in version 1.0.1 (January 2007)**

- \* New command line option */verbose* generates more informative warnings for shift/reduce and reduce/reduce conflicts.
- \* Default location-tracking behaviour for empty productions.
- \* Behavior of location-tracking when production starts with a nullable non-terminal symbol has been corrected.
- \* *Static* bounds checks for semantic action indices introduced so that erroneous usages are trapped at build time.
- \* Output stream was not correctly flushed when “%output=” marker used to redirect output from the specification file.
- \* Unmatched left braces in semantic actions caused *gppg* to loop. This now generates a “block ended by EOF” error.

**Changes in version 1.0 (October 2006)**

- \* Static grammar checking was added to the tool. *gppg* now checks that all non-terminals are reachable from the start symbol, and that all non-terminals possess at least one terminating production.
- \* Strange case of the shift-reduce parser looping during error recovery was fixed.
- \* New command line option */defines* added.
- \* New command line option */gplex* customizes parser output as expected by *gplex*-generated scanners.