Bison Mini Tutorial (Updated 12/2009)

0) Requirements

a) The guide below should work for Windows Vista and Windows XP

b) Visual Studio C++ Express edition must be installed on your machine. You can download this for free from: http://www.microsoft.com/express

1) Download and Install Bison

a) Download Bison from

http://gnuwin32.sourceforge.net/packages/bison.htm Choose the "Complete package, except sources <u>Setup</u>" . You will now download *bison-2.4.1.exe*.

b) Run the downloaded file to install Bison.

bi) Click Next, "Accept the license" and click Next

bii) For the install directory, you MUST modify this to the following: C:\GnuWin32

🖗 s	etup - Bison
9	Select Destination Location Where should Bison be installed?
	Setup will install Bison into the following folder.
	To continue, click Next. If you would like to select a different folder, click Browse.
	C:\GnuWin32 Browse
	At least 0.7 MB of free disk space is required.
	< Back Next > Cancel
ure 1:	Modify the Install Directory

biii) Just click Next with the default choices from now on.

2) Setting the System Path

See the Flex mini tutorial, you only need to do this once.

3) A simple Bison example

a) To use Flex/Bison you must use the Visual Studio 2008 Command Prompt. Click on Start -> All Programs -> Microsoft Visual C++ 2008 Express Edition -> Visual Studio Tools -> Visual Studio 2008 Command Prompt. (See Figure 1)



Figure 2: Use the Bison program

b) You may want to navigate to a folder in your home-directory. Type cd c:\Users\"Your User Name" (my user name is gjermundrod.h). Then you may want to create a separate folder for comp375 course; this is done with the *mkdir* command. In order to go to a new folder you use *cd*, to go back to the previous folder use *cd* .. (that is cd followed by two dots). To list all the files in a directory use *dir*. To see all the options that the Flex program provides to you can type *bison* -*h* (see Figure 2)

👞 Visual Studio 2008 Command Prompt				
C:\Program Files\Microsoft Visual Studio 9.0\VC>cd c:\Users\gjermundrod.h				
c:\Users\gjermundrod.h>mkdir comp375				
c:\Users\gjermundrod.h>cd comp375				
c:\Users\gjermundrod.h\comp375>bison -h GNU bison generates parsers for LALR(1> grammars.				
Usage: bison [OPTION] FILE				
If a long option shows an argument as mandatory, then it is mandatory for the equivalent short option also. Similarly for optional arguments.				
Operation modes: -h,help -U,version print-localedir -y,yacc	display this help and exit output version information and exit output directory containing locale-dependent data emulate POSIX yacc			
Parser: -S,skeleton=FILE -t,debug locations -p,name-prefix=PREFIX -1,no-lines -n,no-parser -k,token-table	specify the skeleton to use instrument the parser for debugging enable locations computation prepend PREFIX to the external symbols don't generate `#line' directives generate the tables only include a table of token names			
Output: -d,defines -r,report=THINGS -v,verbose -b,file-prefix=PREFIX -o,output=FILE -g,graph	also produce a header file also produce details on the automaton same as `report=state' specify a PREFIX for output files leave output to FILE also produce a VCG description of the automaton			
THINGS is a list of comma separated words that can include: 'state' describe the states 'itemset' complete the core item sets with their closure 'look-ahead' explicitly associate look-ahead tokens to items 'solved' describe shift/reduce conflicts solving 'all' include all the above information 'none' disable the report				
Report bugs to <bug-bison@gnu.org>.</bug-bison@gnu.org>				
c:\Users\gjermundrod.h\comp375>				

c) You can use an editor to create your bison specification or download the example (*calc3.rar*) from the website and save it in your *comp375* folder. You will then use the following three commands (**bison command is UPDATED**):

flex calc3.1

bison -dl -o y.tab.c calc3.y

cl lex.yy.c y.tab.c interpreter.c -o calc3.exe

calc3.exe argument (where argument is a source file like: test.cal)

See Figure 3 for an execution run.

🔤 Visual Studio 2008 Command Prompt	X
C:\Users\harald\tmp3\calc3}flex calc3.1	-
C:\Users\harald\tmp3\calc3>bison -dl -o y.tab.c calc3.y	
C:\Users\harald\tmp3\calc3>cl lex.yy.c y.tab.c interpet.c -o calc3.exe Microsoft (R) 32-bit C/C++ Optimizing Compiler Version 15.00.30729.01 for 80 Copyright (C) Microsoft Corporation. All rights reserved.	×86
cl : Command line warning D9035 : option 'o' has been deprecated and will be oved in a future release lex.yy.c y.tab.c interpet.c Generating Code	rem
c:\users\harald\tmp3\calc3\y.tab.c(1740) : warning C4700: uninitialized loca riable 'p' used c:\users\harald\tmp3\calc3\y.tab.c(1756) : warning C4700: uninitialized loca riable 'n' used	l va l va
c:\users\harald\tmp3\calc3\y.tab.c(1775) : warning C4700: uninitialized loca riable 'p' used Microsoft (R) Incremental Linker Version 9.00.30729.01 Copyright (C) Microsoft Corporation. All rights reserved.	l va
/out:lex.yy.exe /out:calc3.exe lex.yy.obj y.tab.obj interpet.obj	
C:\Users\harald\tmp3\calc3>calc3.exe test.cal 0 1 2 8 5	
C:\Users\harald\tmp3\calc3>_	-
Figure 3. Execution run	