

## The Birth of Yacc

I first worked with Dennis Ritchie on another computer algebra system, called Altran; Dennis wrote the compiler for the Altran language. It was a recursive descent compiler that he wrote in FORTRAN, which was an absolute tour de force--like building a skyscraper out of toothpicks. He has written a compiler for a simple language called B that ran on the Honeywell system--we used it to write some system programs. But when he and Ken began working on Unix, he abandoned his B compiler, and I sort of adopted it. There were a few things that I wanted in this language, for example, I added the exclusive-OR operator. I learned a ton of what I know about compilers from working with Dennis and looking at a really decent piece of work. I also became a believer in the idea that you can learn a great deal from reading other people's code. Reading a masterpiece. Great books.

Well, when I wanted to add this, I talked to Al Aho, because I had heard that he had an interest in new methods for handling expressions. This was quite a funny scene. Al kept on nodding and saying "Yes, I've read this paper by Knuth and it's a much better method." So we worked out a simple grammar for expressions in B, and he kept on saying "I'll make up the parsing table for you." But it got postponed a couple of times. Finally, he went up to the stockroom and got the biggest piece of paper they had, about two feet square, spread it out on the table, and divided it up into little, tiny squares. And then he started making little incantations over the thing and muttering and writing these little symbols in. And I watched him for a while, and he said "Why don't you go do something else, and I'll let you know when I'm done?" So I went away and came back every couple of hours and he was still muttering over this thing, as his pencil moved across. And eventually, at the end of the first day, he said, "I'll finish this up tomorrow." Finally, the next day, he said, "It's finished" and handed it to me. And I said, "What do I do with this?"

So he showed me how to make a parser, and we typed the table in. We parsed a couple of expressions correctly, and then we parsed another expression and it was wrong--there was a bug in the table. And Al said, "Oh no!" and then he spent another two or three hours erasing and we typed the new table in and got rid of that bug, and then there was another bug. So I said, "Al, why don't you tell me what you're doing?" And he said, "Well, OK, it's really not very hard." And he told me how to make the table. And I said, "Oh, well I can write a program to do that." He said, "Really?" So, that's how yacc was born.

-- Steve Johnson  
*The Creator of Yacc*