

Abstraction Mechanisms in CLU

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ABSTRACT

CLU is a new programming language designed to support the use of abstractions in program construction. Work in programming methodology has led to the realization that three kinds of abstractions, procedural, control, and especially data abstractions, are useful in the programming process. Of these, only the procedural abstraction is supported well by conventional languages, through the procedure or subroutine. CLU provides, in addition to procedures, novel linguistic mechanisms that support the use of data and control abstractions.

This paper provides an introduction to the abstraction mechanisms in CLU. By means of programming examples, we illustrate the utility of the three kinds of abstractions in program construction and show how CLU programs may be written to use and implement abstractions. We also discuss the CLU library, which permits incremental program development with complete type-checking performed at compile-time.

Key words and phrases: programming languages, data types, data abstractions, control abstractions, programming methodology, separate compilation.

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