SECTION E-1

AUTOMATED PROGRAM DEVELOPMENT

Maya S. Rainford
The Open University, Sri Lanka.

A goal of quality programming which meets international professional requirements inevitably leads on to the necessity of applying rigid rules and standards in programming design and methodology. Such canonical (Yourdon, 1978) methods are relatively successful due to their making less demands on reasoning power and presenting an otherwise proliferation of specification -> solution transformations, ranging from very poor to very clever. In order to formulate such methods and standards, a systematic study of the process of program development is required and this naturally leads to a better understanding of structure, the relationship between procedural and non-procedural and the identification of the fixed and variable primitives. As such, a problem defining meta-language language (PDL) can then be postulated according to formal language theory where the primitives are explicitly embedded in its syntax and much of the control is implicit in the resultant generation.

This paper describes such a PDL and a methodology for the generation of well structured programs for a large class of data processing problems. The original motivation for the research was two-fold:

i) to tackle the problem of program correctness;
ii) to eliminate much of the manpower requirements in the programming phase of the software development life-cycle.

When combined with a tool for production of a reverse engineered design specification and a human interface pre-processor, excellent results are obtained in respect of these two problem domains.

References: 1. Yourdon, E. & Constantine, L.(1978) - Structured Design, Yourdon Press.