FP programming assignment

Computer Engineering and Science
Case Western Reserve University
ECMP 424
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Due: 24 April 1990

In this assignment, you must write set-handling functions in Backus's functional programming language, FP. The top-level set functions are:

Set function	Definition
Member	$x \in S \rightarrow T; F$
Subset of	$R \subset S \rightarrow T; F$
Intersection	$R \cap S = \{x \mid x \in R \wedge x \in S\}$
Union	$R \cup S = \{x \mid x \in R \vee x \in S\}$
Difference	$S - R = \{x \mid x \in S \wedge x \notin R\}$

R and S are sets, x denotes an element of a set, and T and F represent the Boolean values **true** and **false**, respectively.

You should use an FP *sequence* to represent a set. The most difficult part of this assignment will be the removal of duplicate elements from the union set. Remember, the Backus FP language is described in his Turing Award paper: "Can programming be liberated from the von Neumann style?," *Communications of the ACM*, August 1978.

You will need an FP interpreter to complete the assignment. There are two interpreters available.

1. The C language version runs under Unix on Sun and DEC workstations and MSDOS. A limited number of 5.25 inch PC disks are available with both the executable and source.

2. The Prolog version is pretty much standard C&M Prolog. It is fairly compact and occupies about six printed pages. The Prolog version is more amenable to modification and extension.

Please e-mail me at "pjd@alpha.ces.cwru.edu" to obtain the source code.