

1987

Year of prog^s

I HAVE BEEN GRANTED THE PLEASURE OF SPEAKING TO YOU THIS EVENING ON THE LAST EVENING OF A VERY HAPPY YEAR WHICH I HAVE SPENT IN AUSTIN. THIS GIVES ME THE CHANCE TO EXPRESS MY THANKS TO MANY FRIENDS HERE WHO HAVE HELPED ^{ME} BOTH PROFESSIONALLY AND PERSONALLY. AMONG THEM I INCLUDE MANY VISITORS, ~~THE~~ SPEAKERS AND PARTICIPANTS AND ORGANISERS OF THE ^{SERIES OF} ~~INSTITUTES~~ ^{LIKETHIS ONE} ~~OF WHICH HAVE~~ MADE UP THE YEAR OF PROGRAMMING.

I HAVE BEEN PARTICULARLY HAPPY AT THIS PRESENT INSTITUTE, BECAUSE IT HAS DEMONSTRATED ~~DEVELOPED~~ AN EFFICIENT AND PRACTICAL APPROACH TO PROGRAMMING WHICH IS FIRMLY BASED ON THE ETERNAL VERITIES OF MATHEMATICS. ON THIS BASIS HAS BEEN DEVELOPED A ^{PROGRAMMING} ~~MATHEMATICAL~~ NOTATION OF GREAT EXPRESSIVE POWER ~~AND~~ WITH

A HIGHLY REGULAR STRUCTURE,
 MAKING IT PLEASANT BOTH TO LEARN
 AND TO USE. FURTHERMORE, IT IS

POSSIBLE BY PURE REASON TO EXPLORE CONSEQ
 PROGRAMMING
 OF OUR ~~DESIGN~~ DECISIONS AND DEDUCE ^(LOGICALLY) (THE

PROPERTIES OF OUR PROGRAMS. INDEED,
 WE HAVE LEARNT ^{THAT}
~~IN THE IDEAL~~, (OUR PROGRAMS SHOULD

ACTUALLY BE NOTHING BUT THE LOGICALLY

DEDUCED CONSEQUENCES OF OUR DESIGN

DECISIONS.

IT WAS MANY YEARS AGO THAT
^(AND DEVELOPED)
 I TOOK UP A BRILLIANT IDEA ~~#~~ OF FLOYD

AND NAUR THAT THE SAME KIND OF MATHE
 MATICAL APPROACH SHOULD BE TAKEN TO

THE DESIGN OF CONVENTIONAL PROCEDURAL
 PROGRAMS. MORE RECENTLY, FOLLOWING

THE INSPIRED LEAD OF ROBIN MILNER, I

HAVE LOOKED INTO ~~THE MAT~~ A PARTICULAR

MATHEMATICAL THEORY OF CONCURRENCY

AND COMMUNICATION. THESE HAVE BEEN THE TOPICS OF PREVIOUS INSTITUTES IN THE YEAR OF PROGRAMMING. SO THERE IS NO NEED ~~TO~~ HERE TO DISCUSS THE ~~OVERENTHUSIASM~~ CLAIM OF SOME EARLY ENTHUSIASTS OF FUNCTIONAL PROGRAMMING THAT OTHER STYLES OF PROGRAMMING HAVE NO MATHEMATICAL BASIS. NOR DO WE NEED TO BELIEVE THAT ALL KINDS OF PROGRAMMING CAN BE DONE IN A PURELY FUNCTIONAL STYLE — THOUGH IT IS ~~THE~~ MOST IMPORTANT TO CONDUCT THE BEST POSSIBLE EXPERIMENTS AT THE ~~ED~~ VERY BOUNDARIES OF ITS RECOGNISED AREAS OF APPLICABILITY. FINALLY, WE MUST BEWARE OF THE ENTHUSIASM OF THOSE WHO CLAIM OR HOPE THAT THE WHOLE OF MATHEMATICS RELEVANT TO COMPUTING SCIENCE CAN BE EXPRESSED IN FUNCTIONAL NOTATION

AND INPUT TO THE COMPUTER FOR EXECUTION, OR ~~AT LEAST~~ PERHAPS

FOR AUTOMATIC PROOF GENERATION. WHILE MECHANISATION OF LOGIC IS A VALUABLE AND SUCH CLAIMS ARE AS FRUSTRATING AS

~~ANY OTHER CLAIMS THAT THE~~

FASCINATING RESEARCH AREA, TO CONFINE

ONES MATHEMATICAL HORIZONS TO WHAT IS

COMPUTABLE - ~~EVEN~~ HOWEVER ELEGANTLY

EXPRESSED - ~~IS AS FR~~ WILL BE AS

TEDIOUS AND 'FRUSTRATING' AS IMPRISONMENT

IN ANY OTHER BRANCH OF MATHEMATICS -

SAY GRAPH THEORY.

NONE OF THE SPEAKERS AT THIS

EXCELLENT INSTITUTE ARE GUILTY

OF SUCH NAIVE ENTHUSIASM

BUT THEIR ENTHUSIASM IS STILL REAL

AND LIVE AND INFECTIOUS. THEY HAVE

GIVEN US A FASCINATING AND ~~PROF~~

INSIGHT INTO A WIDE RANGE OF

APPLICATIONS WHERE THE ELEGANT

USE OF MATHEMATICS PROVIDES EFFECTIVE SOLUTIONS. I LOOK FORWARD TO THE DAY WHEN THE SAME KIND OF MATHEMATICAL PRINCIPLES ARE APPLIED NOT ONLY TO THE DESIGN OF PROGRAMS AND PROGRAMMING NOTATIONS BUT ALSO TO OPERATING SYSTEMS, INTERFACES, COMMUNICATIONS, AND EVEN TEXT EDITORS.

~~BANG CD CARH~~ BANG SLASH VI

EN APS ABL JOY PRACT -

ESCAPE DD I . So sorry

(We all owe our profound gratitude to David Turner and his colleagues and friends for a seminal seminar and (inspiring institute) (2/6)

topics, in which the elegant use of mathematics provides efficient solutions. I look forward to the day when ~~such~~ the same kinds of mathematical principles are applied not only to the design of programs; language and programming systems but also to operating systems, communications protocols, and even editors.

For aps abe joy vact asses - escape
dd scococ i - so sorry, I'm ^{always forgetting} forget (to press

(the insert ^{on vi} key.) Then perhaps we should be able to enjoy our practical classes as much as - break-in, Edsger Dijkstra not responding, trying again, to connect, sorry - enjoy our practical classes as much we have enjoyed -

breakin empty coffee cup detected on table

four coffee ~~server~~ ^{carrier not activated} has been lost - enjoy our practical classes (as much as we have enjoyed our lectures

and ~~seminars~~ discussions

trying to reactivate server

And talking of practical matters,
 I don't know if you have not
 I expect you ^(may not) have noticed how smoothly
 (with or without the use of mathematics)
 this Institute has been organized and run.
 For that our gratitude must go to the
 sponsors of the year of programming
 the office of naval research, the lockheed
 company ^{at Austin,} and the university of texas at
 Austin. But even more, it must go
 to the people who have done all the work,
 Ham Richards, Suzanne Rhoads, and their
 many assistants and helpers from the University
 and the Hotel. Please join me in
 giving expression of our thanks.

Anna Mota
 Renee Lawless
 or