

HOW TO DESIGN PROGRAMS : PREFACEK-12

"tinker until it works"

vs

systematic thought, planning, understanding

good program comparable to time tested poem

satisfaction comes with creative design

SYSTEMATIC PROGRAM DESIGN

which functions are needed

how to connect them

how to build them — from basic ingredients

2 concepts

- design recipes
- iterative refinement

inspiration:

- michael jackson
creating COBOL programs
- daniel friedman
recursion
- robert harper
type theory
- daniel jackson
software design

design recipes (apply to)

- complete programs
- individual functions

iterative refinement

- stripping away all inessential details
- finding a solution for core problem

DRACKET AND THE TEACHING LANGUAGES

study of principles

acquisition of transferable skills

Using racket for

- gaming

- control of telescopic
arrays

SKILLS THAT TRANSFER

lets do

- analyze problem

- extract & express its essence

- try examples

- make outlines through analysis

- evaluate results vs target

- make revisions

analysis

precision

description

focus

attention to detail

(iterative development process)

THIS BOOK AND ITS PARTS

how to program

fixed size data

begining student language

arbitratily large data

quote, unquote

abstraction

Scope & abstraction

intertwined data

the nature of numbers

generative recursion

cost of computation

accumulators

moving on