# Scheme Tutorial Exercises

## *Fall 2003*

## Introduction

Here are the exercises to complement the Scheme tutorial sessions for cs173. Many are taken directly from How to Design Programs (`http://www.htdp.org/`). We depart from the book in one major way. Instead of using define-struct and cond for compound data and variants, we use **define-datatype** and **cases**. Documentation for these constructs can be found in DrScheme's Help Desk.

### Example

(**define-datatype** *vehicle vehicle?*
  [*taxi*]
  [*bus* (*seats number?*)
      (*hand-holds number?*)
      (*color string?*)]
  [*subway* (*cars number?*)
        (*seats-per-car number?*)
        (*line symbol?*)])

(**define** (*max-occupants v*)
  (**cases** *vehicle v*
    [*taxi* () 4]
    [*bus* (*seats handholds color*) (+ *seats hand-holds*)]
    [*subway* (*cars seats-per-car line*) (∗ *cars seats-per-car*)]))

(*max-occupants* (*subway* 10 25 'green))
> 250

## DrScheme

The webpage has full instructions for executing DrScheme on the CS department machines. It also explains how to install it on your home machines. Feel free to talk with the staff if you have any problems.