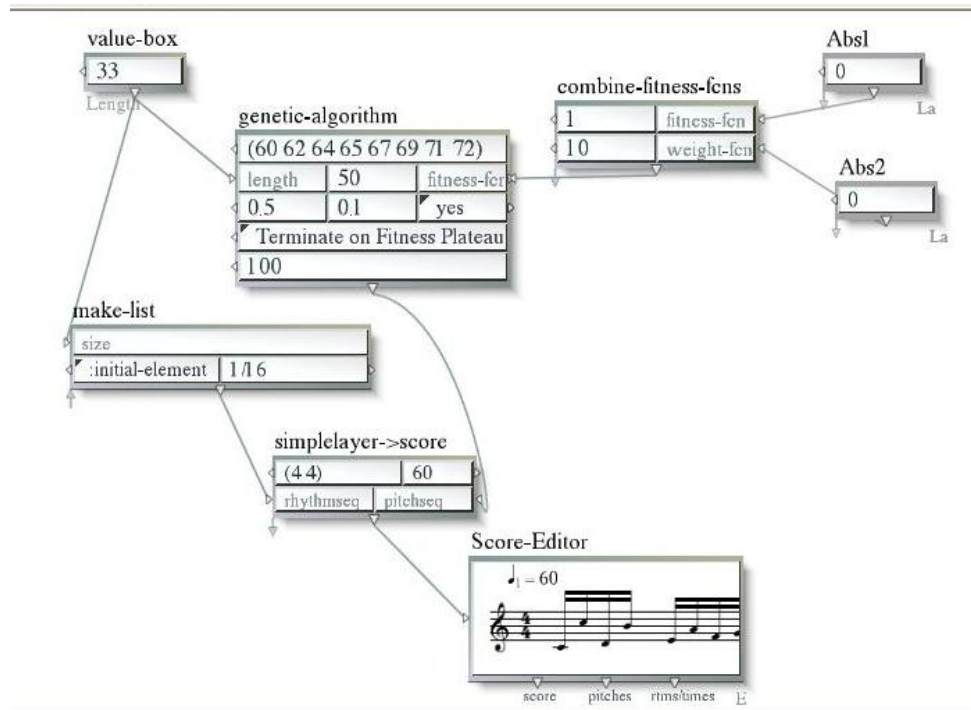# GeneticAlgorithm Workshop

1. GeneticAlgorithm Library

a) Import the "GeneticAlgorithm" library and the "flat" Library.

b) Construct the following patch:

The search space for this example is one octave of a C major scale. Ensure that the termination conditional of the genetic algorithm is changed to "Terminate on Fitness Plateau", and termination condition number (terminationparam) is about 100.

Your fitness functions will be defined in the abstract-boxes in the top right. Ensure that the abstract-boxes are in Lambda mode by pressing Shift+L with the box selected. The abstract-boxes should have an input left floating. This is the input used to access and evaluate the candidate sequences generated by the genetic algorithm.

c) Within the abstract box, create a function that breaks the list into 4 parts (use list-explode), then removes the duplicates from each list (remove-duplicates function) and returns the sum of the length of these 4 lists.

d) Now add another function that sums the absolute value of the difference between each note (use x->dx and apply #'+). Combine the two functions using the combine-fitness-fcns box as shown. Experiment with the relative weights of the two functions.