

Friday, May 7 -> Homework 6 Questions? Due Saturday night -> Homework 7 (Optional/Bonus) L) due at noon, a week from Monday Topic 20 - Genetic and Evolutionary Algorithms (vo 550 vers:

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Two point crossover doesn't work 14856723 16785234

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Four possibilities: * Partially Mapped Crossover - Choose two cutpoints - Form two children that swap the in-between parts - Try to keep the entries outside the middle as-is, but there will probably be problems. - To resolve these, replace them according to how the middles were subped (which may take multiple iterations.

 $P_{c} = 148 567 23$ $P_{z} = 167 852 34$ C, = 14885223 In the middle entries 8 -> 5 143 852 23 146852 23

146 852 73



* Order Grossover - Choose two cutpoints - Keep the parts in the middle - Starting from the right cutpoint fill in entries in the order of the other parent, skipping duplicaties.

P, order starting from second cutpoint 231 4 \$ \$67

(= 467 852 31

* Cycle Crossover be in the same place as one of the pavents. - Stevil by picking the first entry from one of the parents randomly. - That may fire a bunch of new entries to be decide. - Report if necessary. $\frac{P_{c} = 1 \ 4 \ 8 \ 5 \ 6 \ 7 \ 2 \ 3 \ 4}{P_{z} = 1 \ 6 \ 7 \ 8 \ 5 \ 5 \ 2 \ 3 \ 4}$ XXX (= メ XXX 14 x x *x* fevers 6 xXX 14 KK6 KXX 4 x 56 x x x 14856723 This child is a parent.

* Partition Crossover

Form a graph on the cities
containing both sets of edges.
Delete edges between cities that exist in both tours - Split vertices of degree 4 in half (city) - Now you're left with some connected components, hopefully more thay 1.

Form a tour starting with red edges in one, the blue in the next, etc.





