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ANSWERS:

Part 1:

1. The program generates long sentences because it has recursive grammar rules.  
   The responsible grammar rules are:  
   1 NP NP PP  
   1 PP Prep NP  
   This rules for example can generate the following:  
   NP -> NP PP -> NP PP PP -> NP PP PP PP -> …  
   and can be the same for the use of the PP rule.  
   The special rule is '1 NP NP PP', since we can use a noun phrase followed by a preposition phrase a lot of times in the same sentence, yet still get valid sentence (valid grammar).
2. It happens so rarely because of the rule 'Noun Adj Noun', which is a recursive rule that repeats the Noun with adjective, is one of 5 options to 'Noun',  
   all of the rules for 'Noun' has the same weight (equals 1) so the probability of using the recursive rule is 20%.
3. For making the sentences shorter, we changed the weight for the NP rule such that there is more weight, i.e. greater probability, for the non-recursive rule,  
   the rule ' NP NP PP ' still has weight of 1, but the 'NP Det Noun' has weight of 3, making the odds for recursive NP be 25%.  
   For making the adjectives more frequent, we set the weight of the  
   rule 'Noun Adj Noun' to 5, so now the odds for getting more adjectives are 50%.