

### 1. EXERCISE (7.1.pl)

Make a pattern that matches if any word (in the \w sense of word) ends with the letter a. Does it match “wilma” but not “barney”? Does it match “Mrs. Wilma Flintstone”? What about “wilma&fred”?

### 2. EXERCISE (7.2.pl)

Remember Exercise 6.5.pl. Create a pattern that now truly only accepts words with capital first letters and the rest in lower-case (like “Fred”). So e.g. “FreD” or “FreDdy” should not match anymore.

### 3. EXERCISE (7.3.pl)

Create a pattern that matches if the string starts with “blue”, but as part of a bigger word. So it should match “blues” and “blueberry”, but not “blue”, “bigblue”, “blue moon” or “sad blues”.

### 4. EXERCISE (7.4.pl)

Let’s find mRNAs! Download mrnas.txt. It contains five genomic sequences we believe contain regions that are transcribed into mRNAs. Check if they really do (read the file into an array using a filehandle). We know that mRNAs are organized (something) like this:

- Starts with a 5’ UTR of unknown length
- Contains a ribosomal binding site just before the start codon with the consensus sequence: GCC(G or A)CC
- Immediately followed by a start codon ATG
- An arbitrary number of codons (triplets)
- A stop codon (TAG,TGA,TAA)
- Followed by a 3’ UTR of at least 50 random nucleotides
- A polyadenylation signal AATAAA
- A spacer of 10 to 30 random nucleotides
- The poly(A) tail with a minimum length of 20 nt

Hint: Use the “x” modifier so you can type the RegEx for each motif nicely in a vertical fashion.

### 5. EXERCISE (7.5.pl)

Modify 7.4.pl so it saves the coding region (including start codon) into a match variable. Find out how long the coding region is and how many amino acids the protein has.

### 6. EXERCISE (7.6.pl)

Write a pattern test program. It should show witch part of a given string matched a pattern. But it should also show the parts of the string just before and just after the matched part, e.g.: if you match the pattern /ed/ with the string “Freddy” print:

Before: Fr

Match: ed

After: dy

If nothing matches, also tell the user. Try avoiding the automatic match variables!