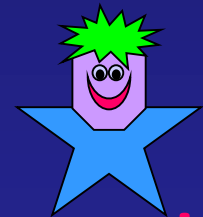
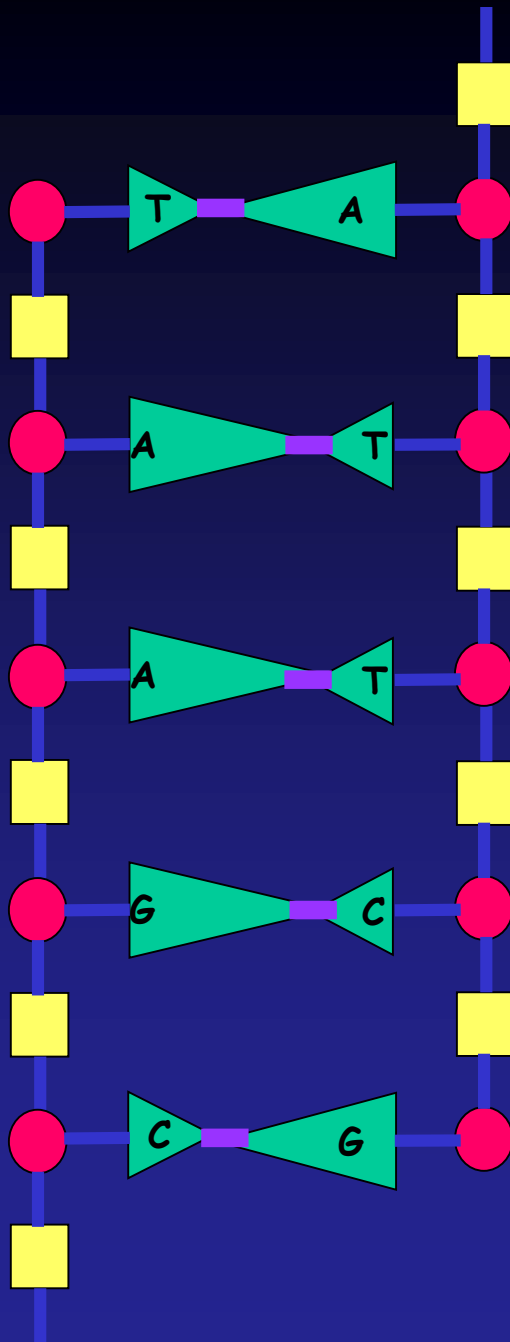


# Welcome to the PROTEIN SHOW!



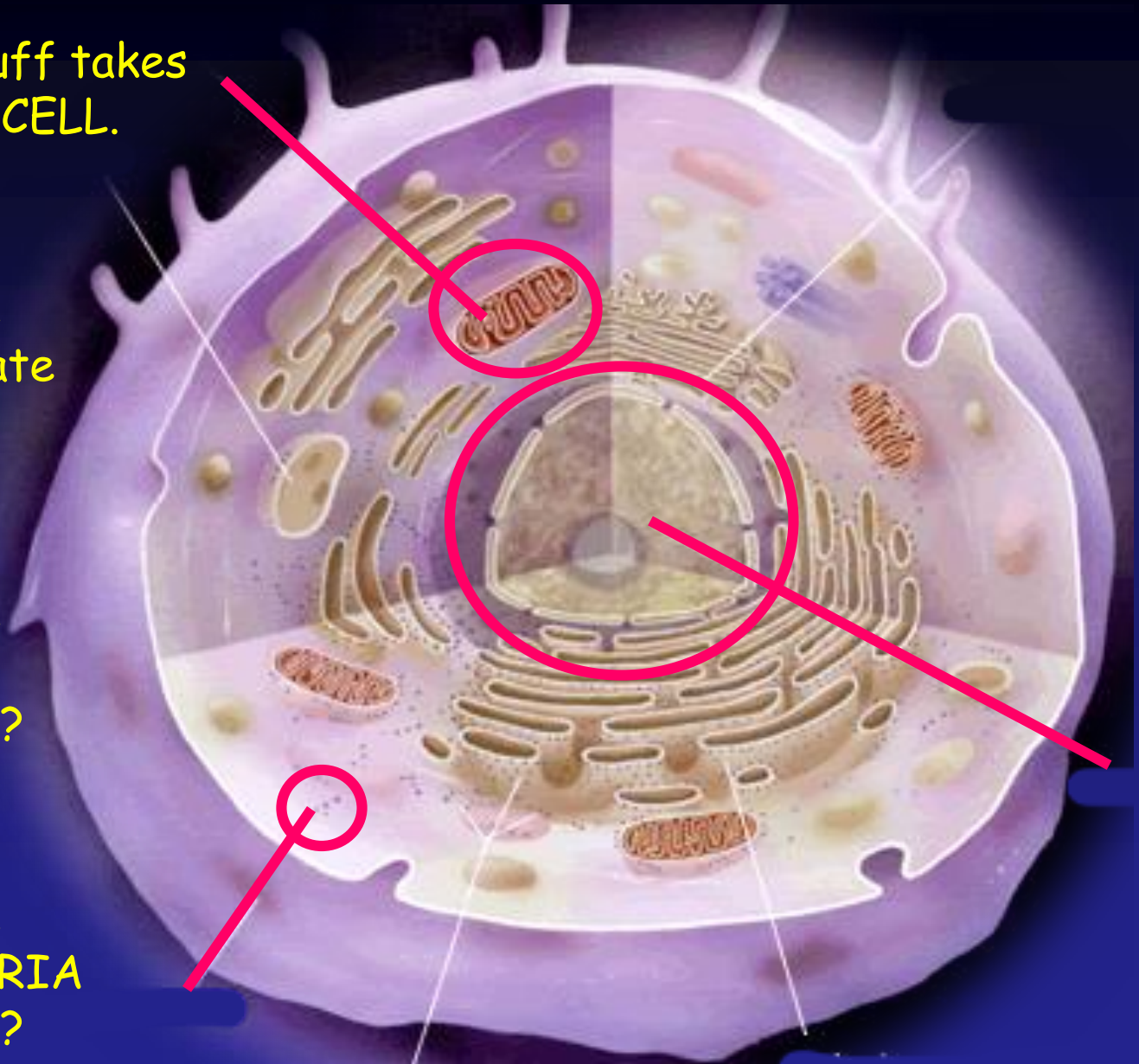
With your host,  
**RNA POLYMERASE!**

•All of this stuff takes place IN THE CELL.

•How does the NUCLEUS relate to DNA?

•How does the RIBOSOME relate to DNA?

•How does the MITOCHONDRIA relate to DNA?



# WHAT DOES DNA DO?

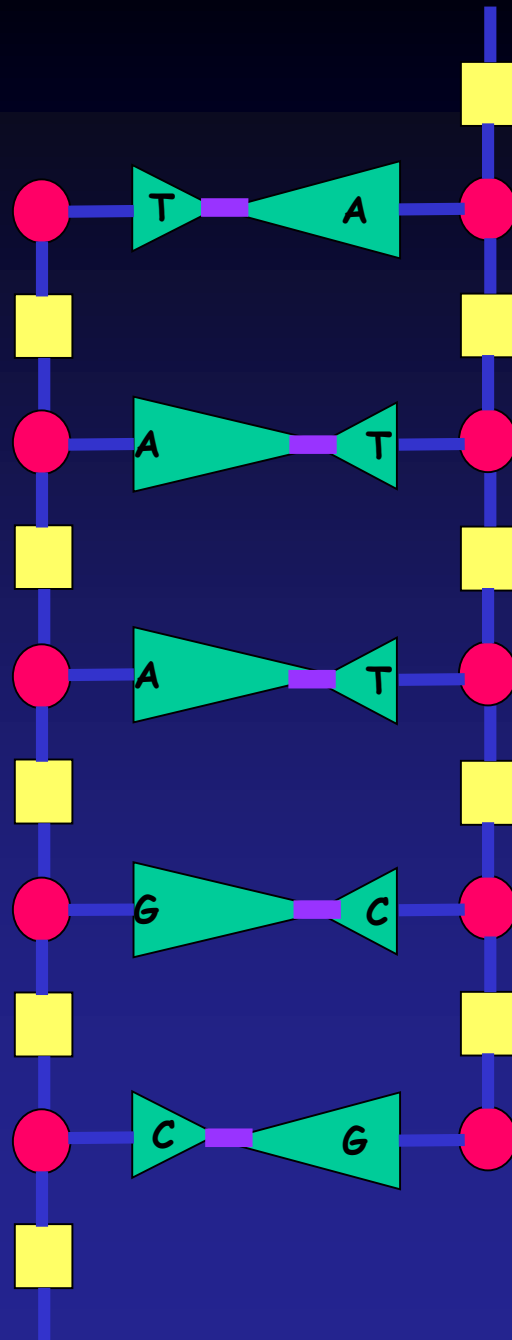
- DNA provides the instructions to BUILD PROTEINS.
- A gene is a piece of DNA that holds the instructions for how to build a certain protein.
- The sequence of nitrogen bases in the gene (or piece of DNA) determines the kind of protein that will be built

•Where is this DNA located?

•Who is responsible for building proteins in the cell?

•Where are the protein builders located?

•How will the instructions from the DNA get out of the nucleus and into the cytoplasm?



•NUCLEUS!

•RIBOSOMES  
are responsible for  
TRANSLATION

•CYTOPLASM!

•Messenger RNA  
(mRNA), which is  
made through the  
process of  
TRANSCRIPTION

- How does DNA code for protein?

- PROTEIN SYNTHESIS!**

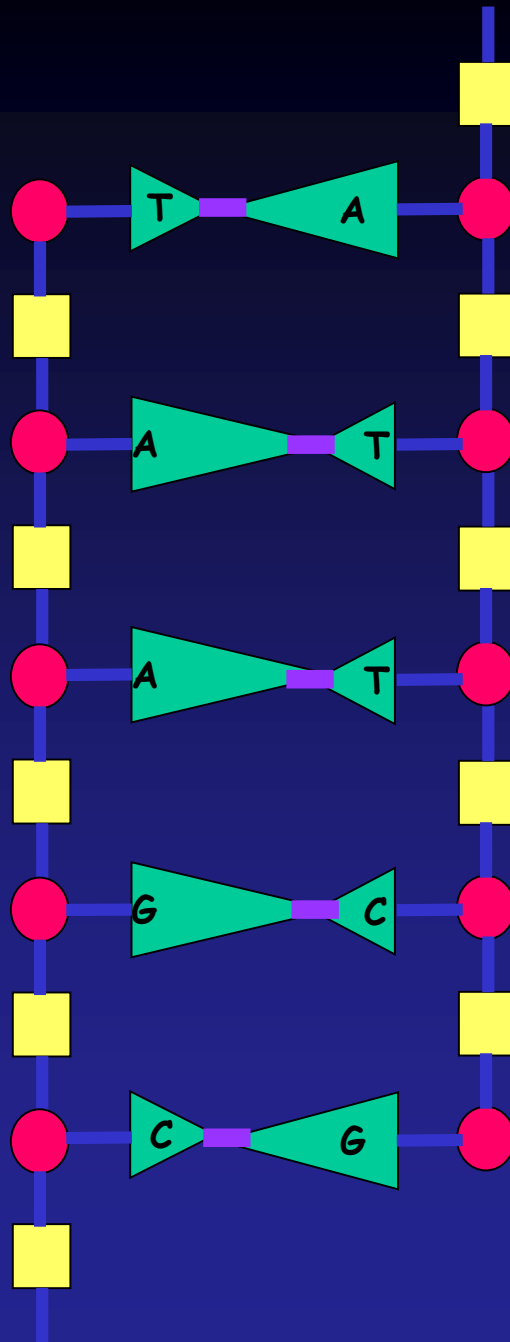
Two steps to protein synthesis.

1. Transcription...

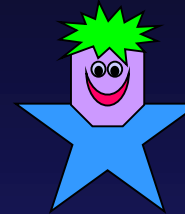
2. Translation...

- Someone has to MAKE the mRNA. Who does the job?

- How does RNA Polymerase do the job?

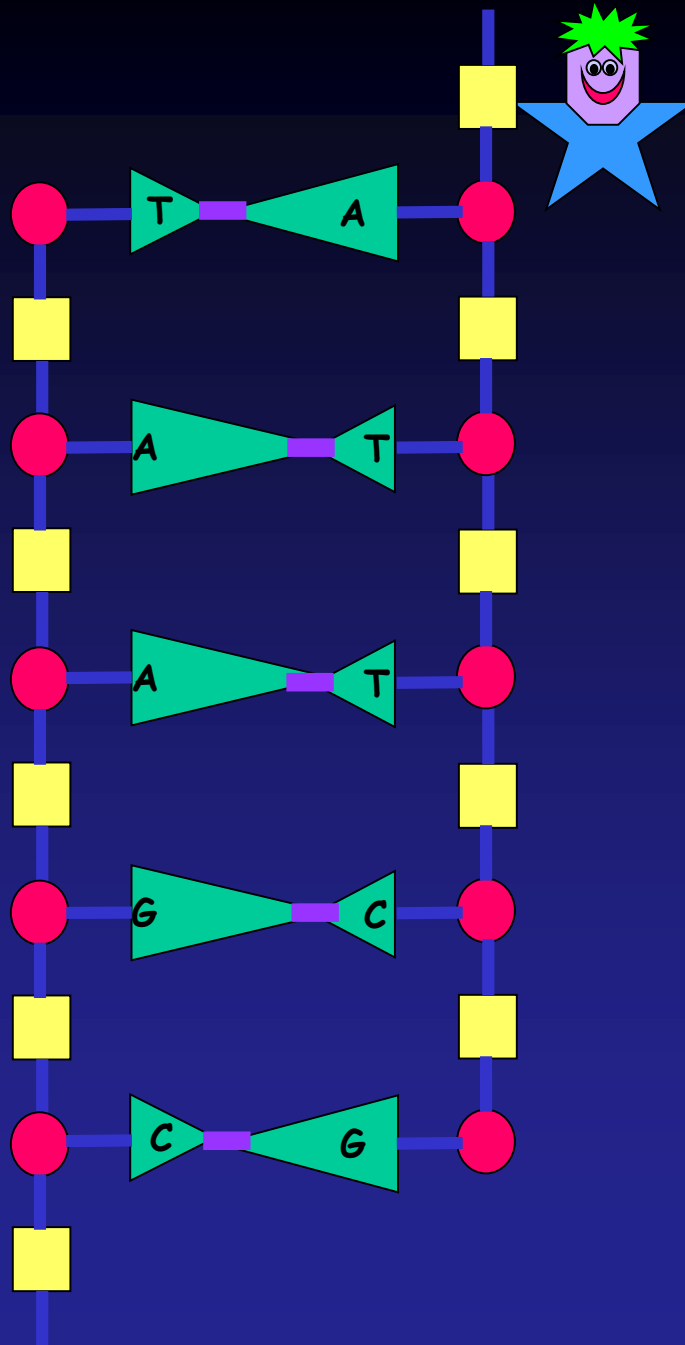


- RNA Polymerase!!!

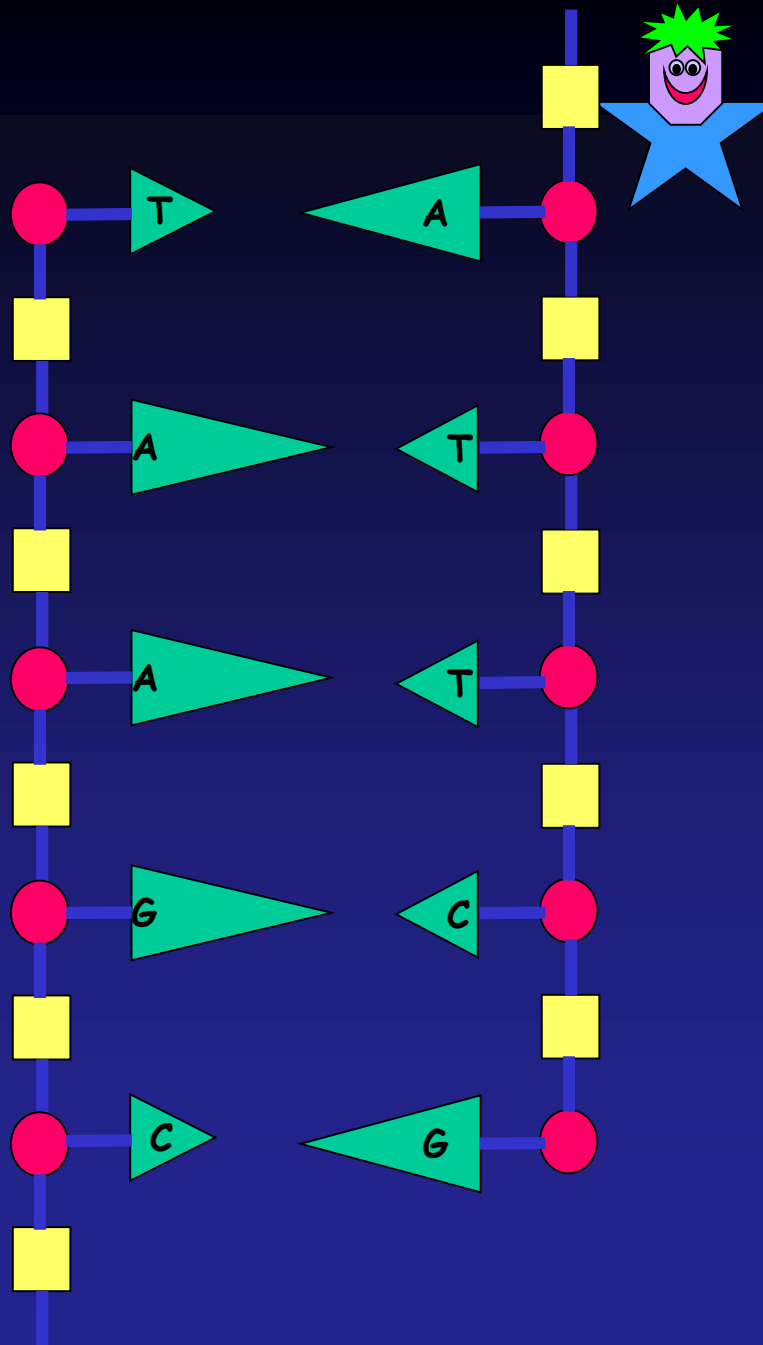


- TRANSCRIPTION

## • TRANSCRIPTION

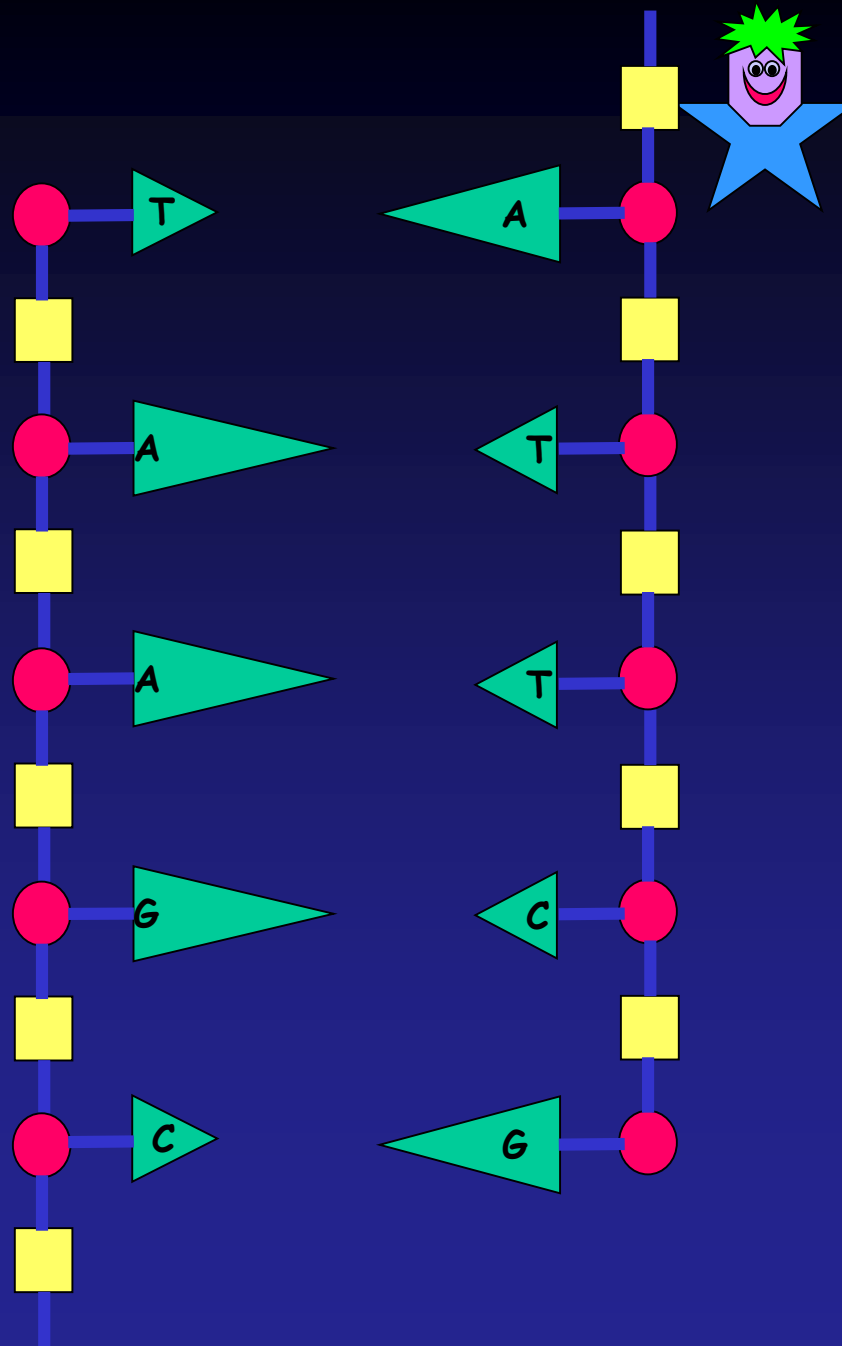


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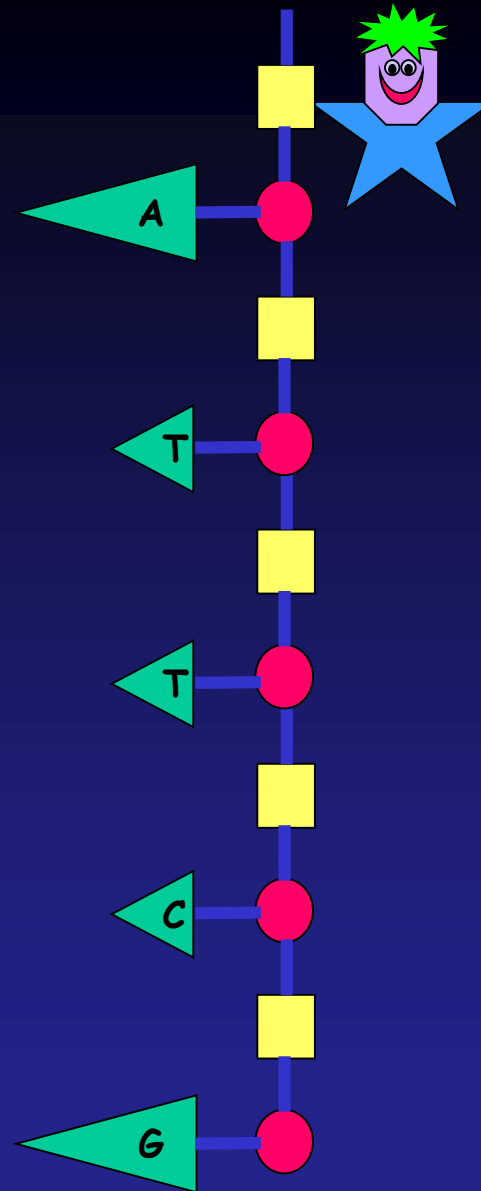
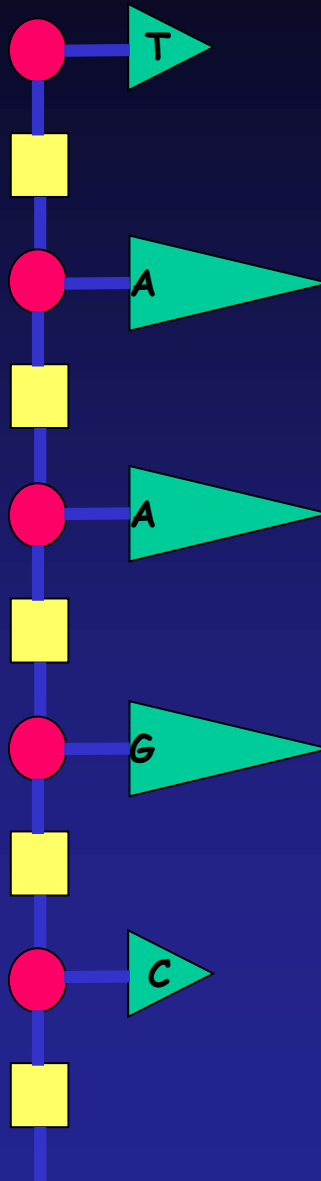




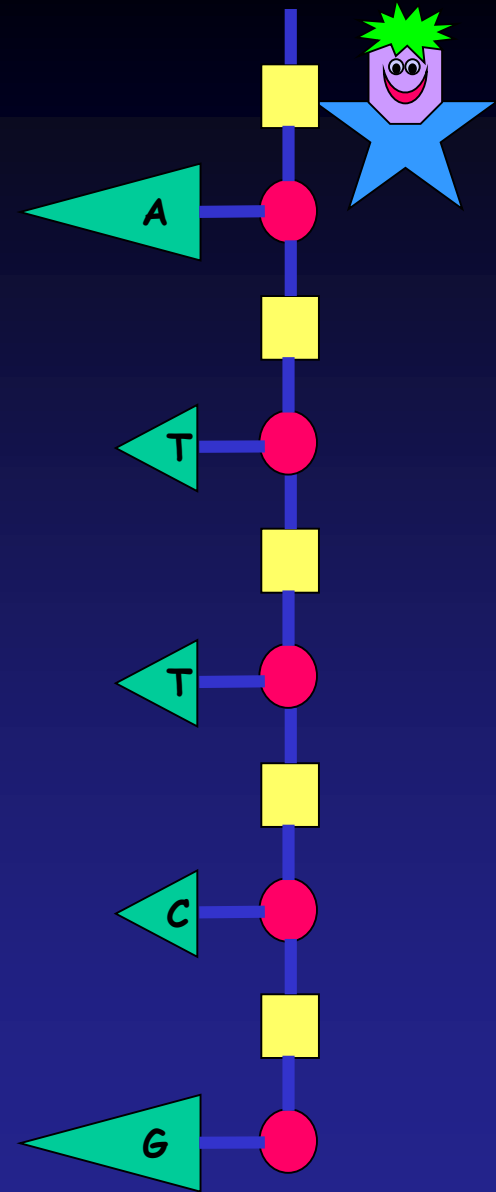
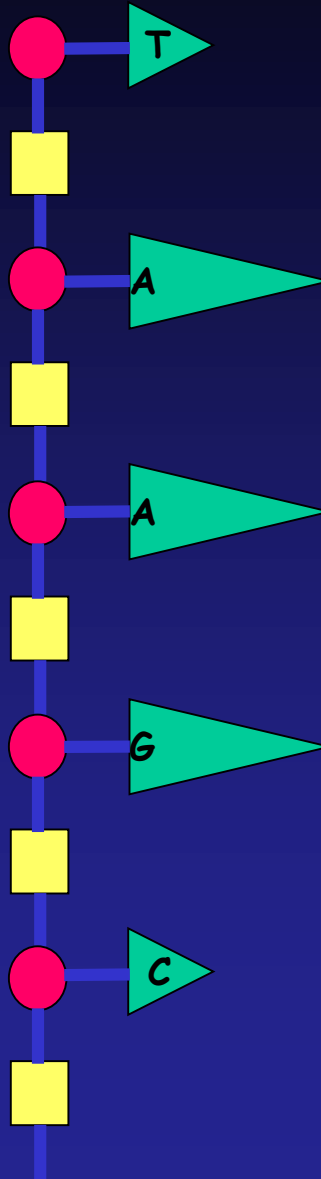
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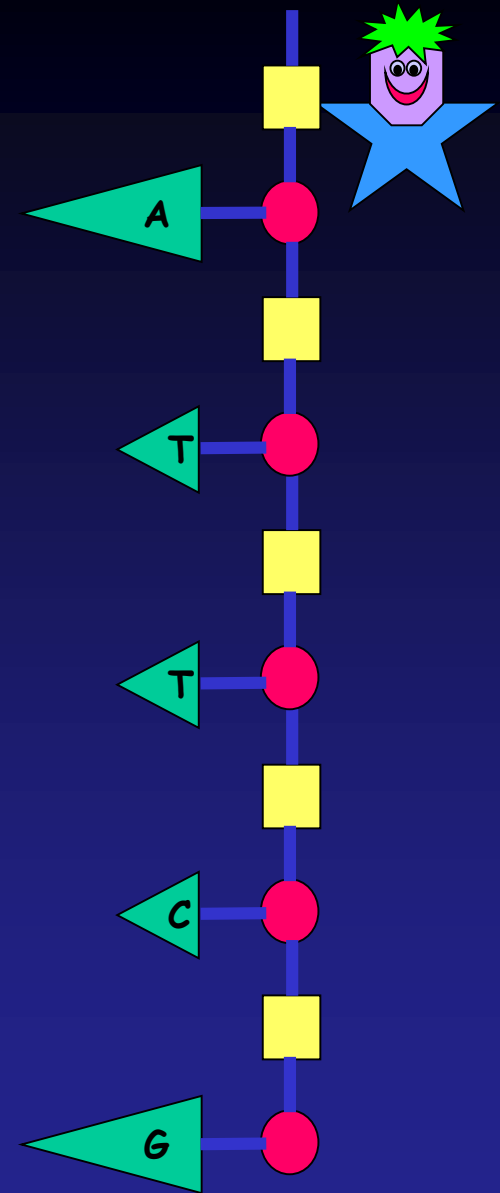
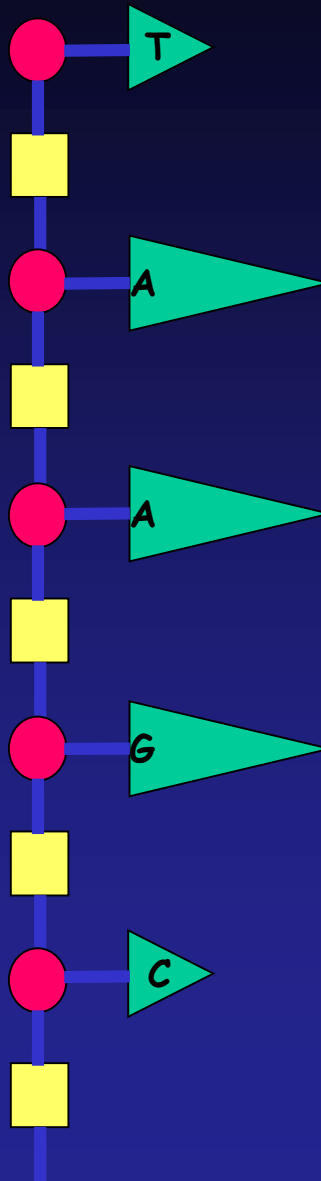
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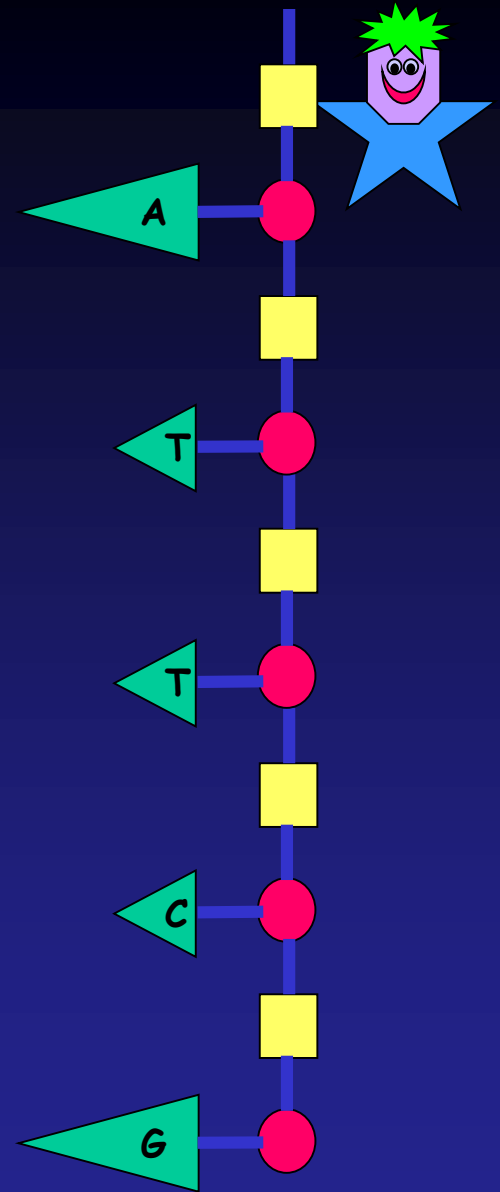
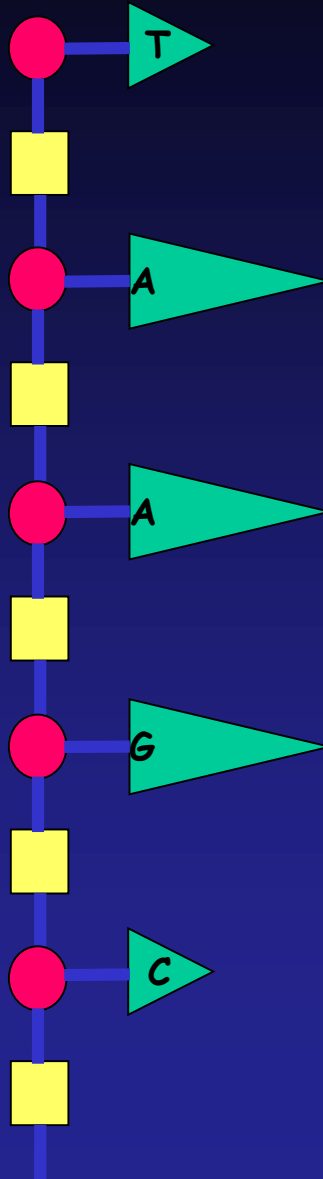
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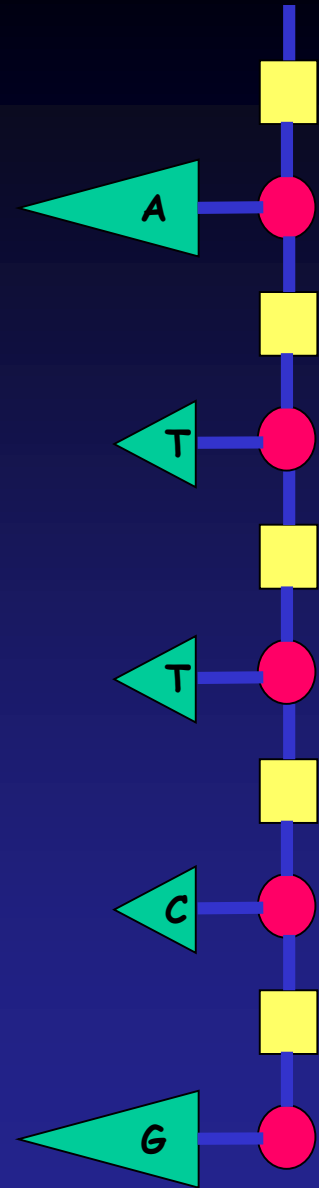
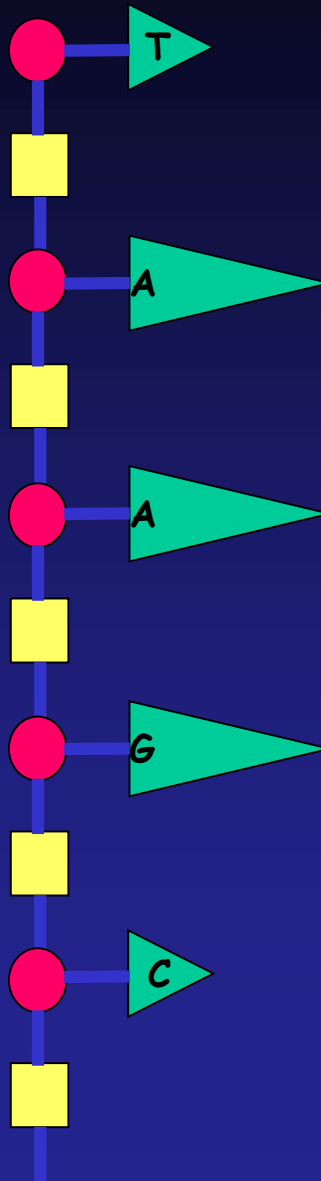
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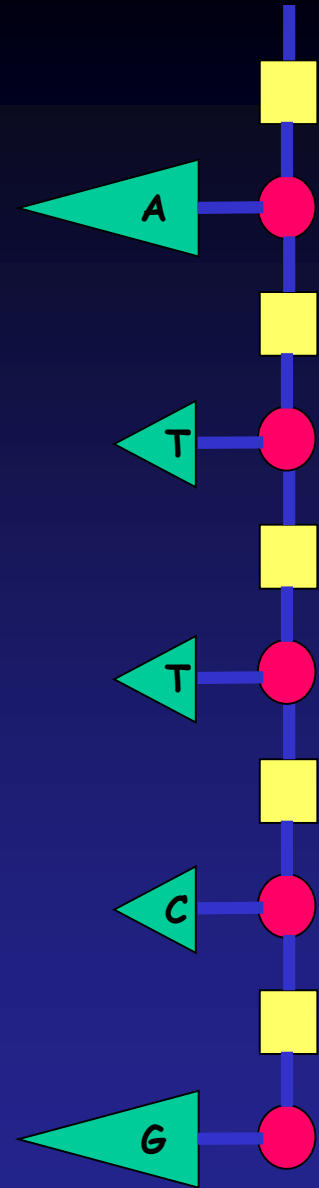
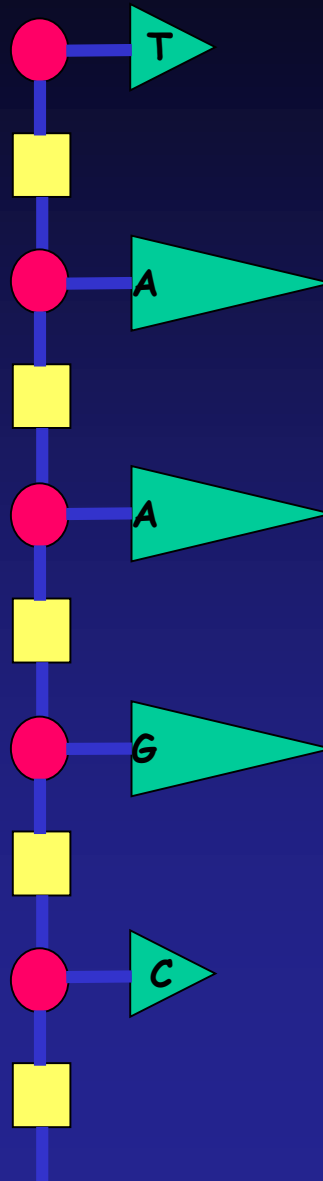
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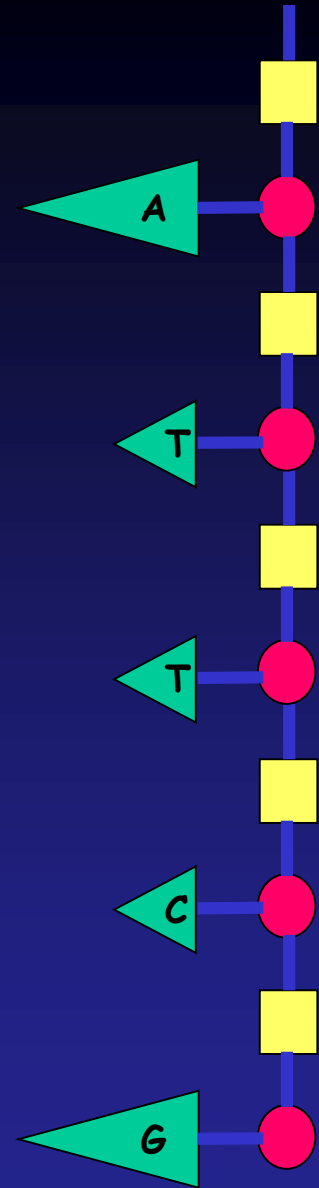
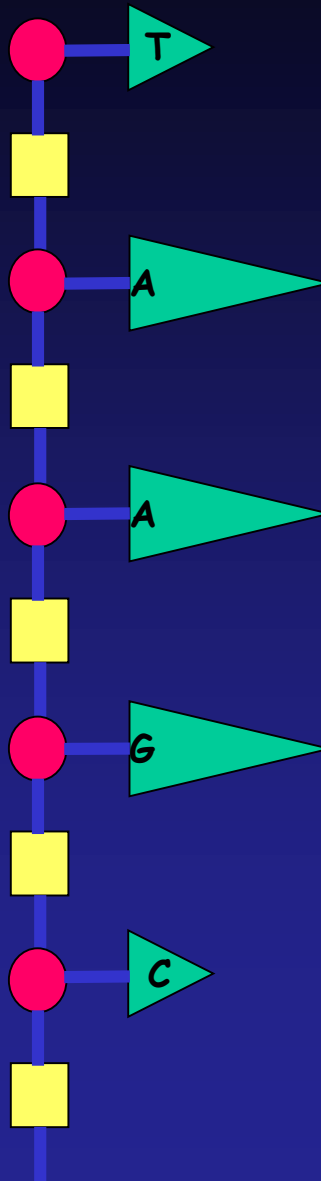
# TRANSCRIPTION



# TRANSCRIPTION

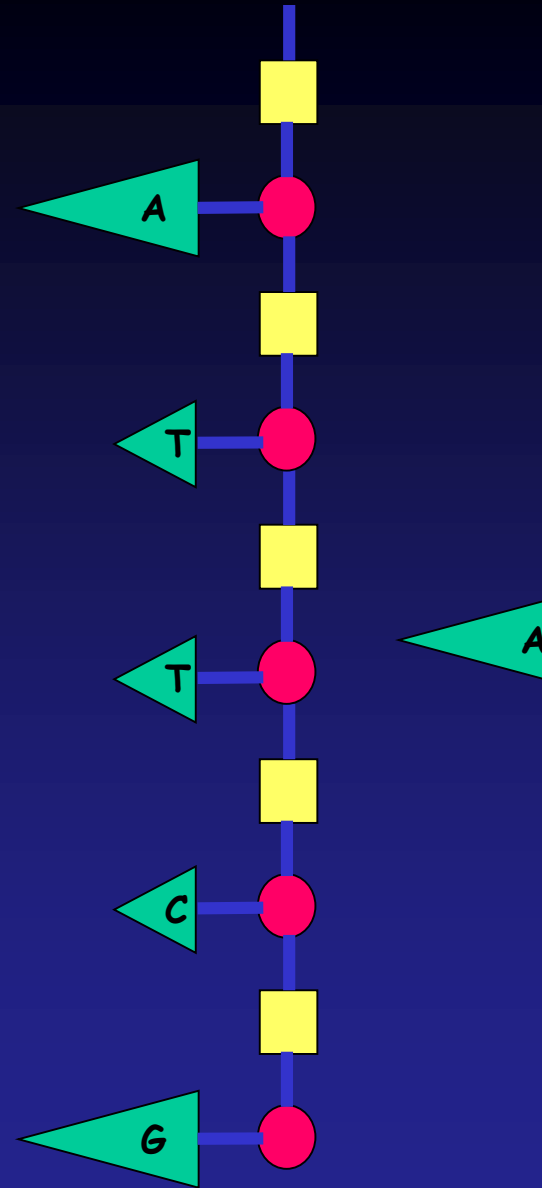
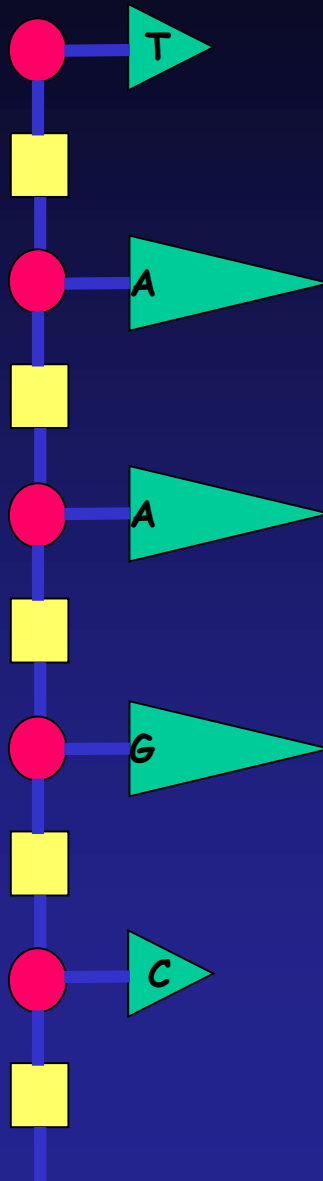


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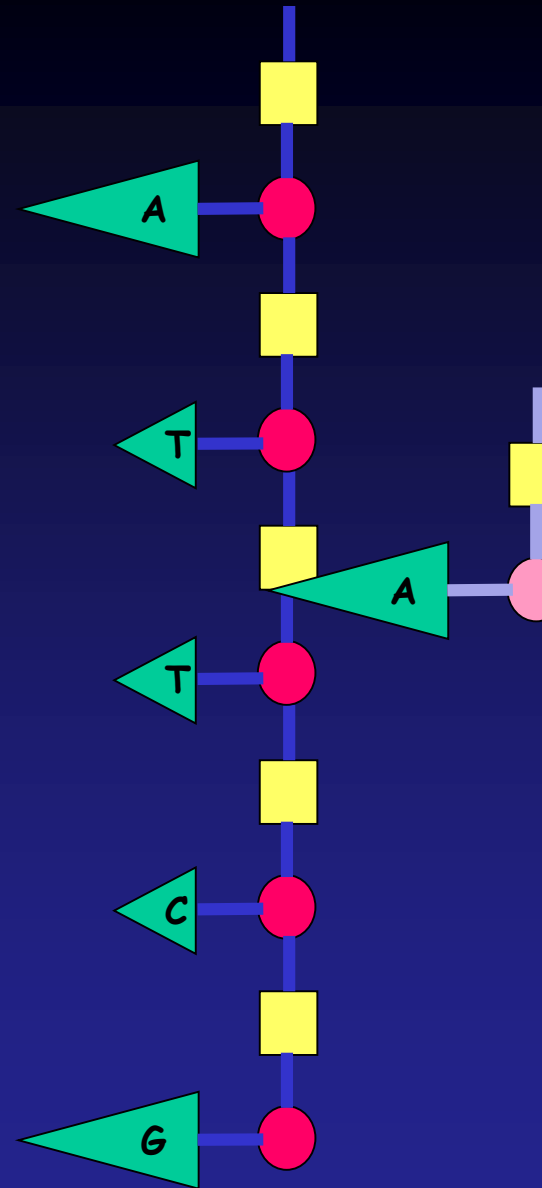
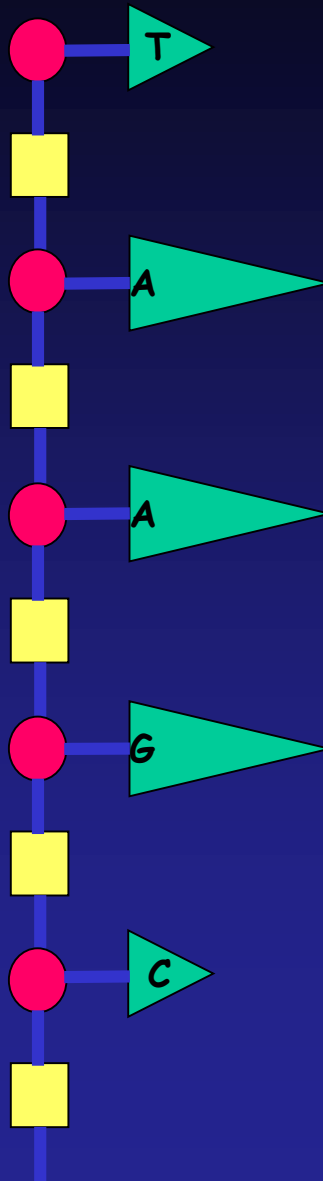




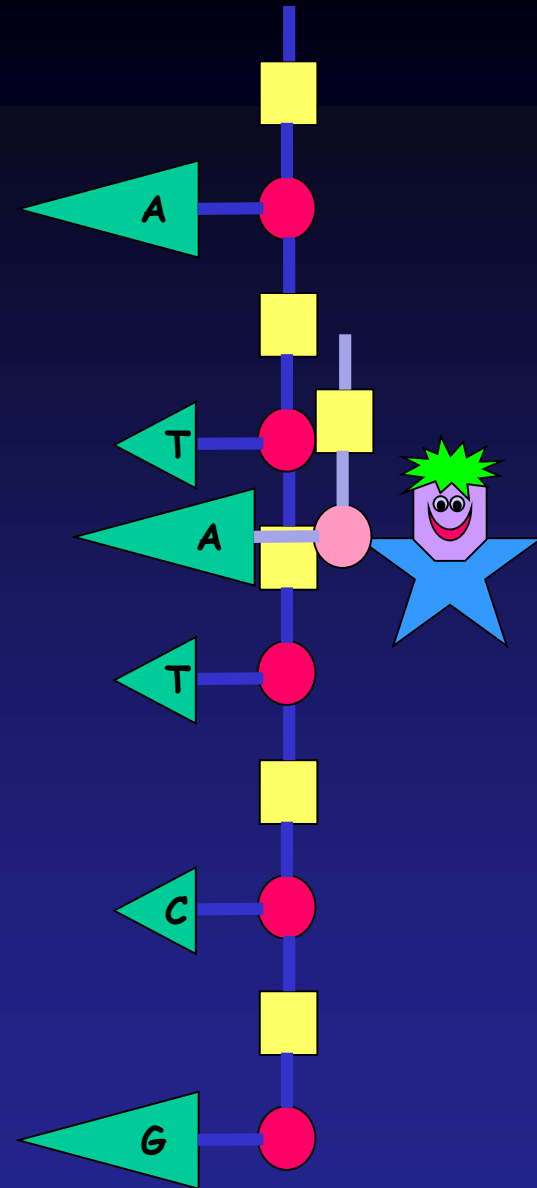
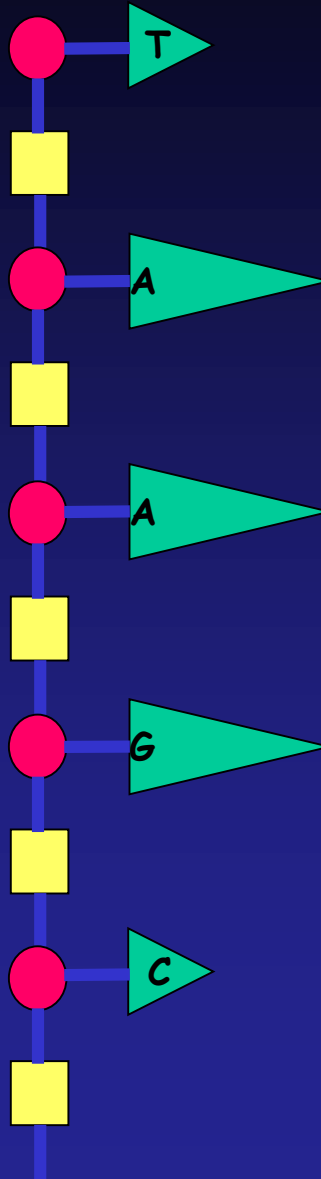
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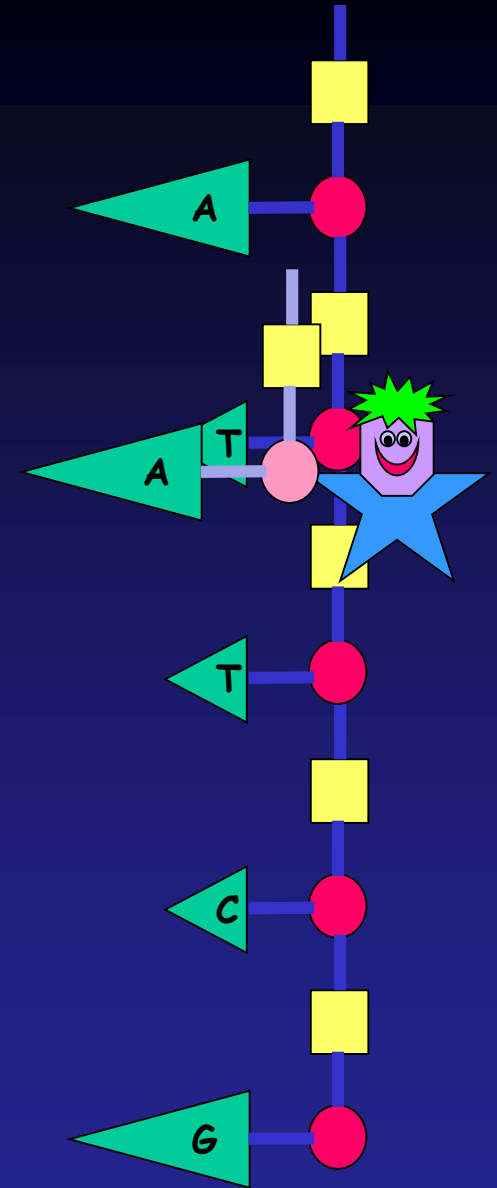
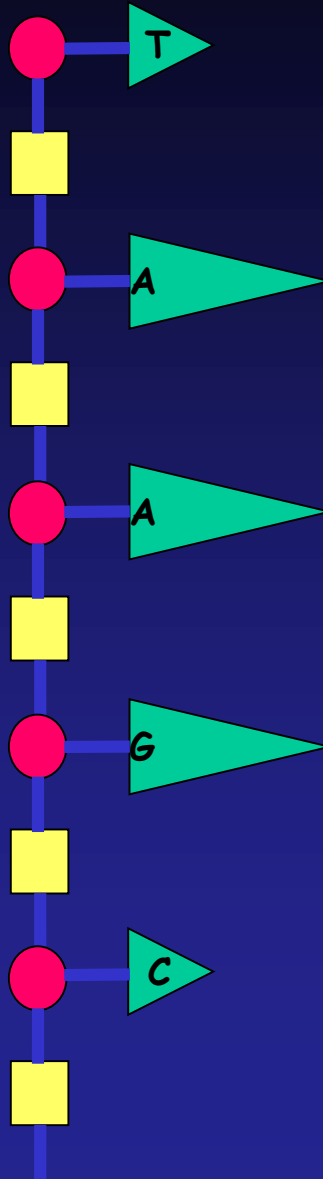
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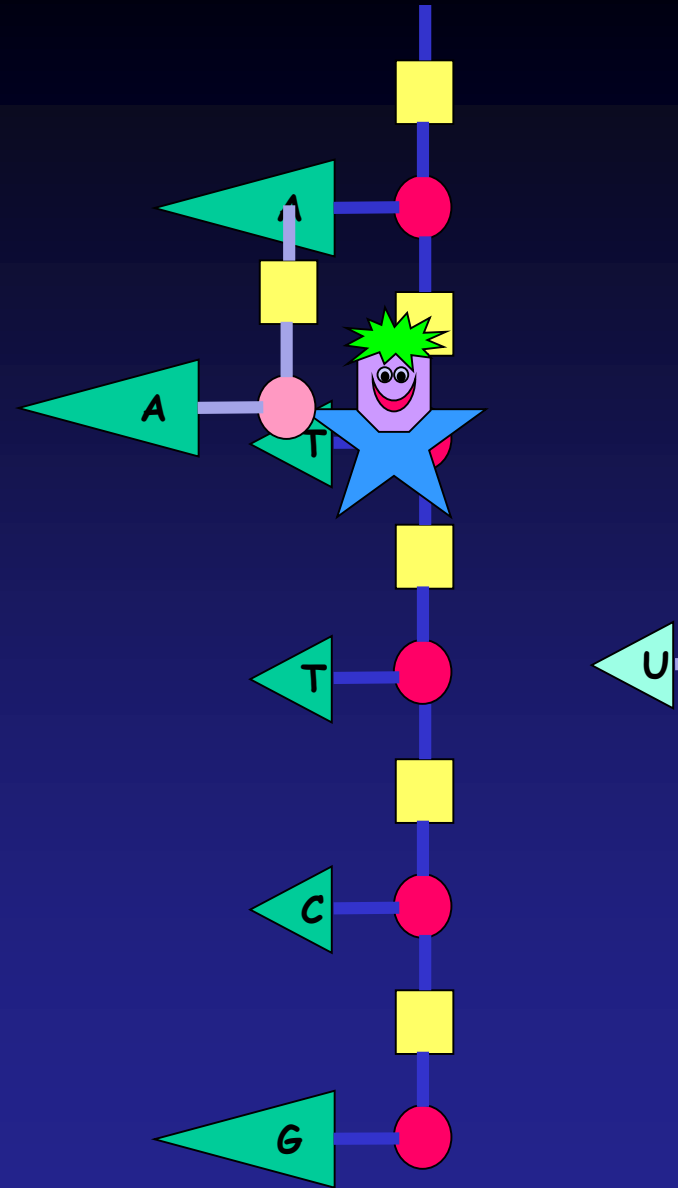
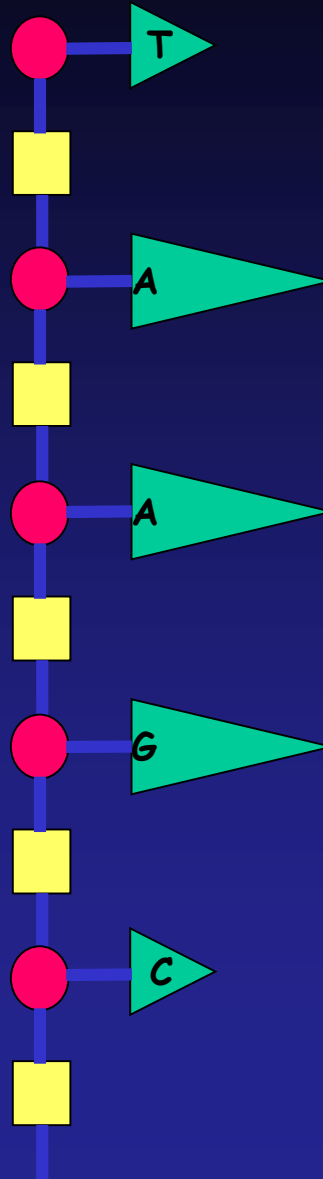
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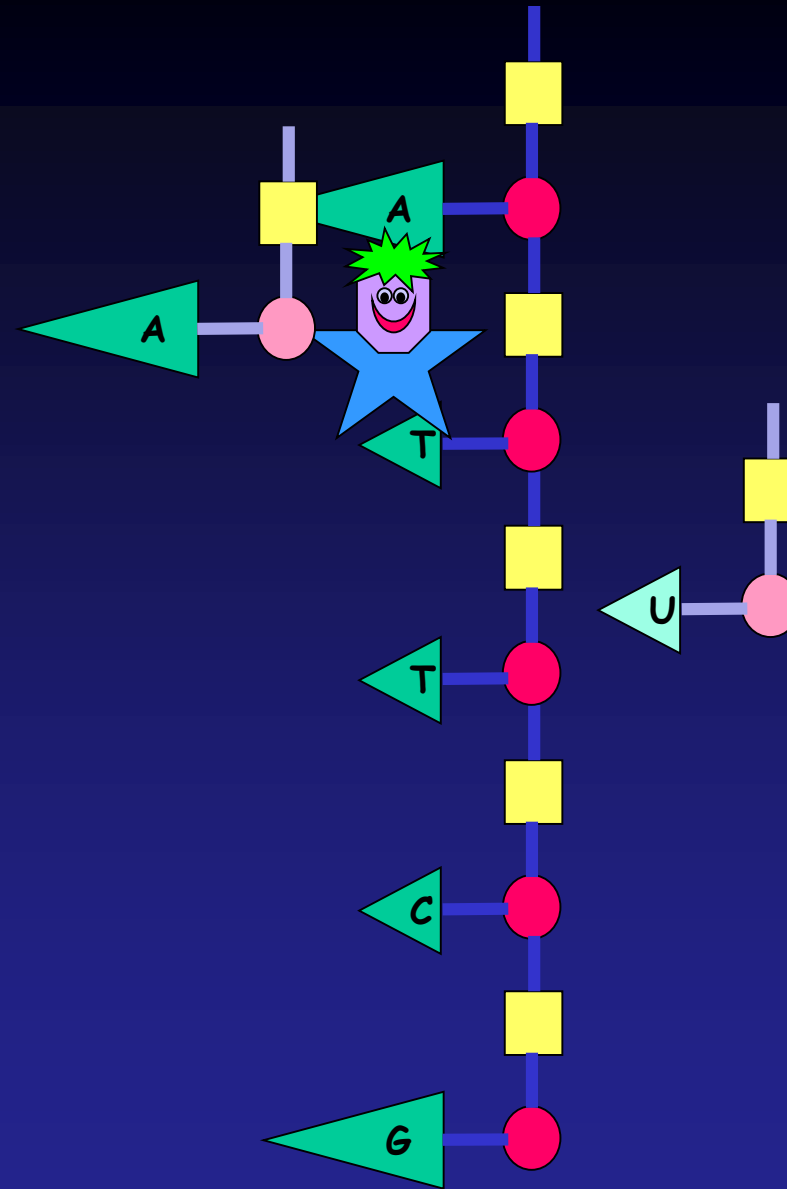
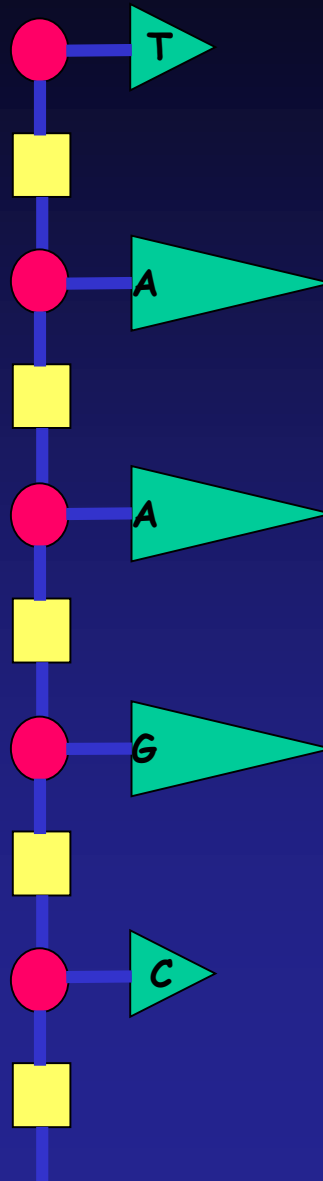
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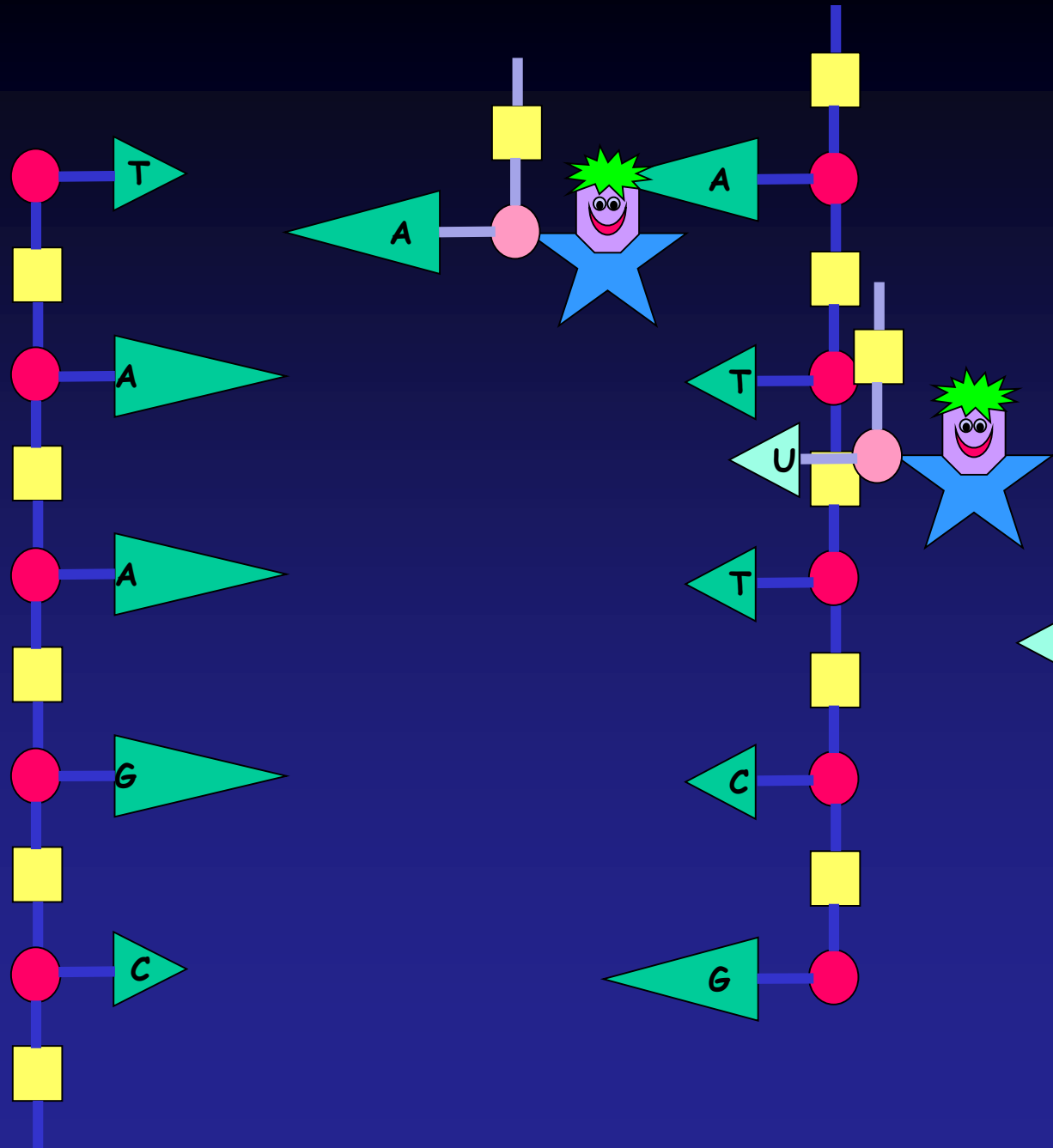
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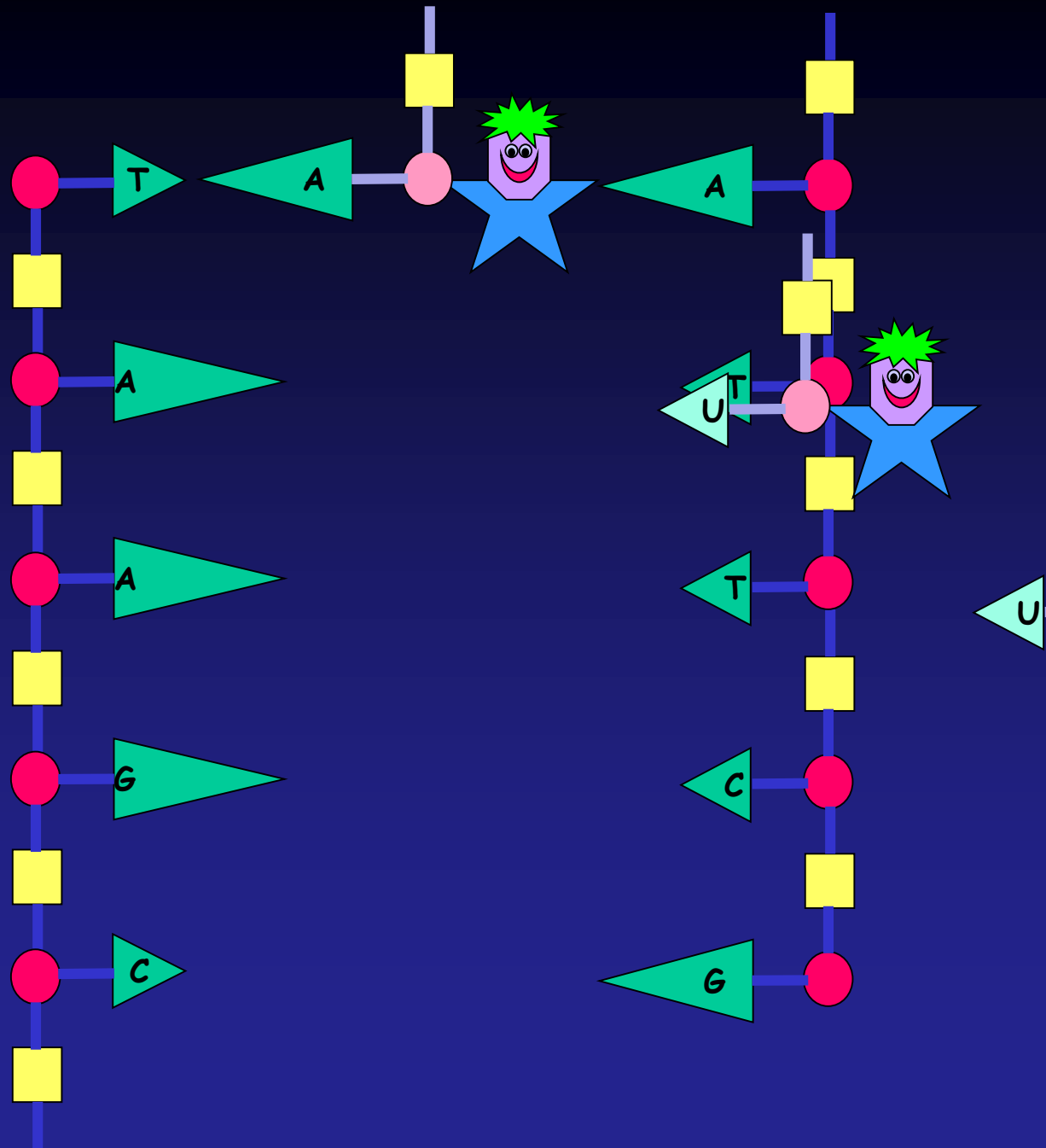
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# TRANSCRIPTION

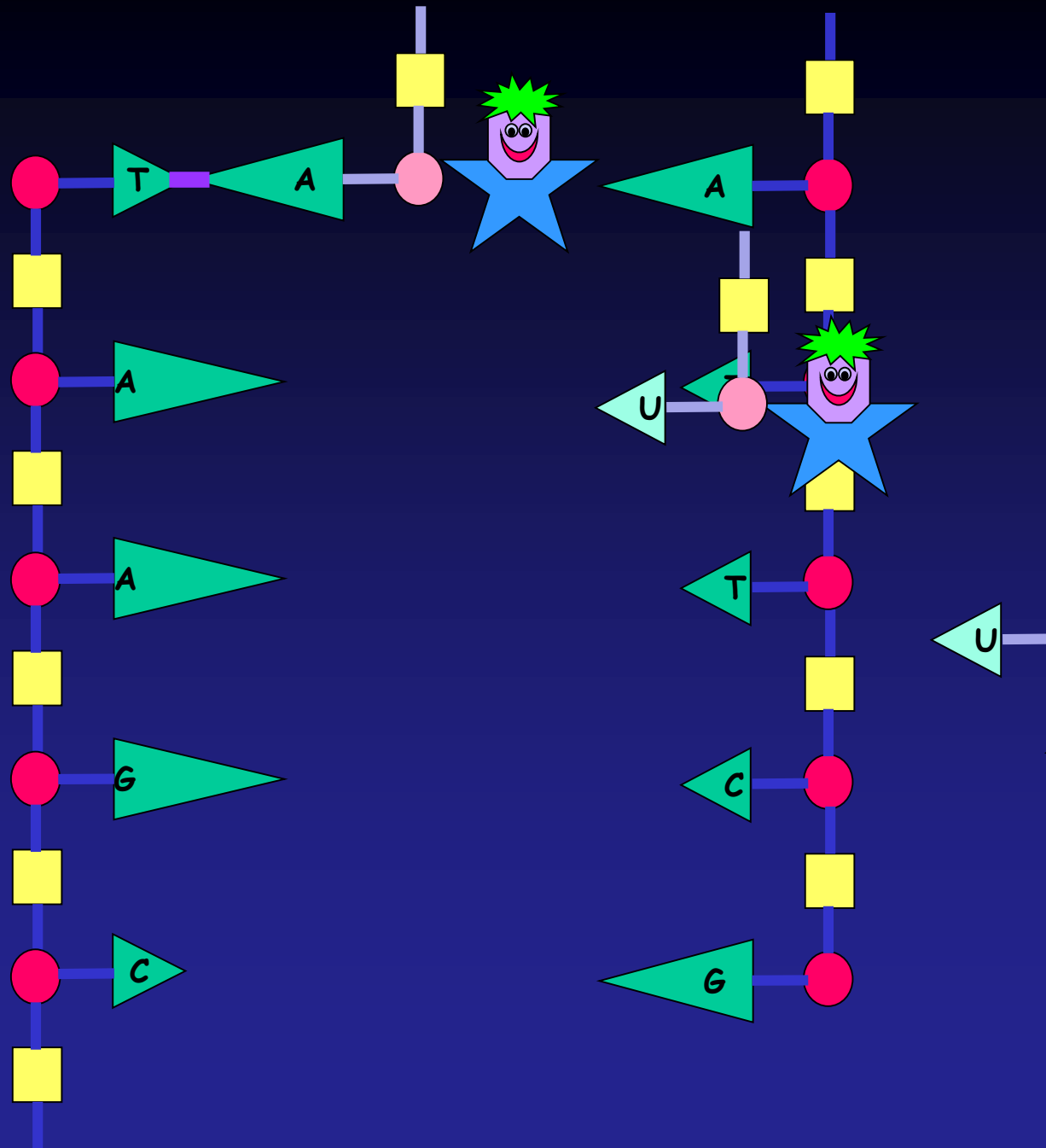


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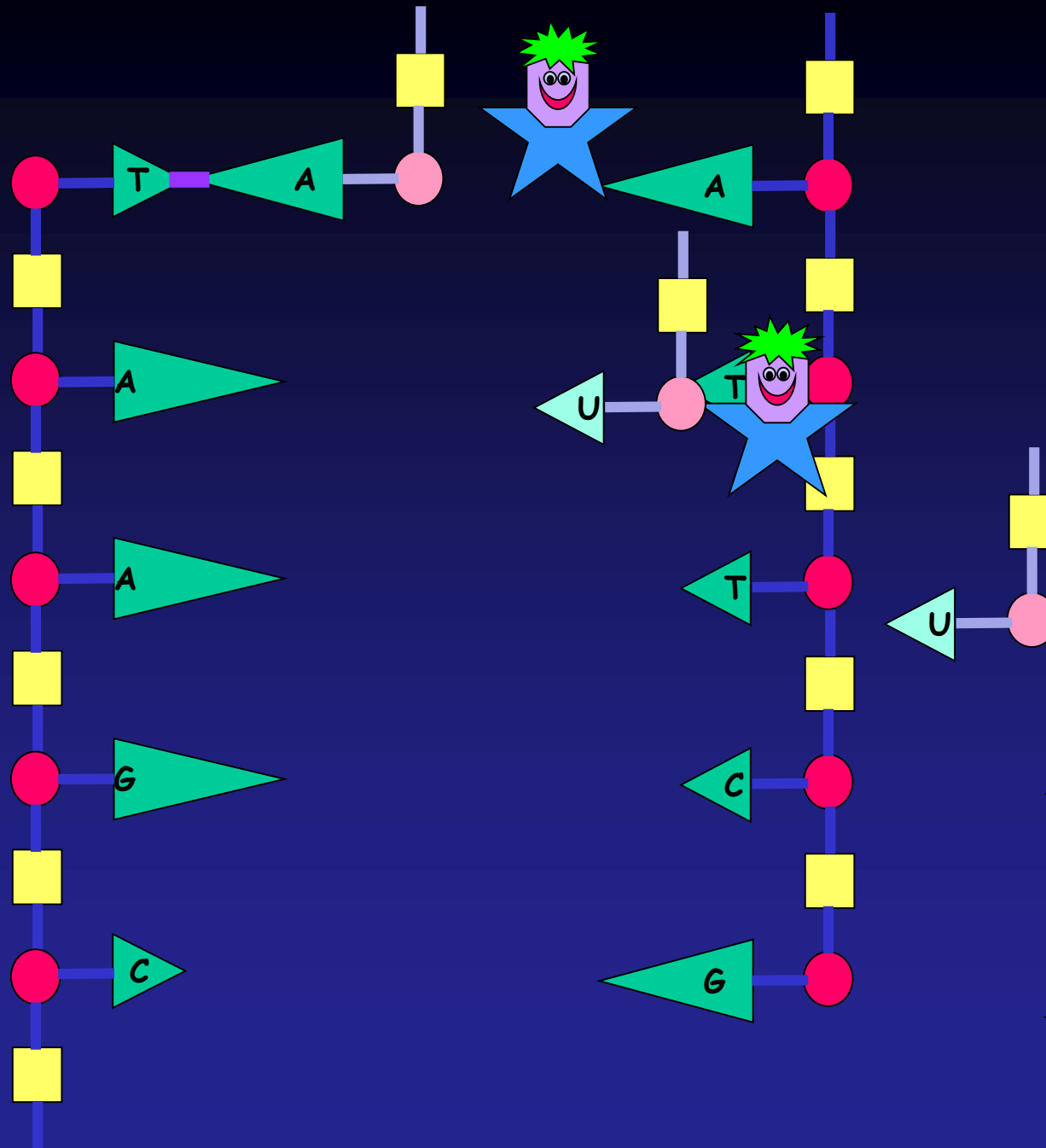




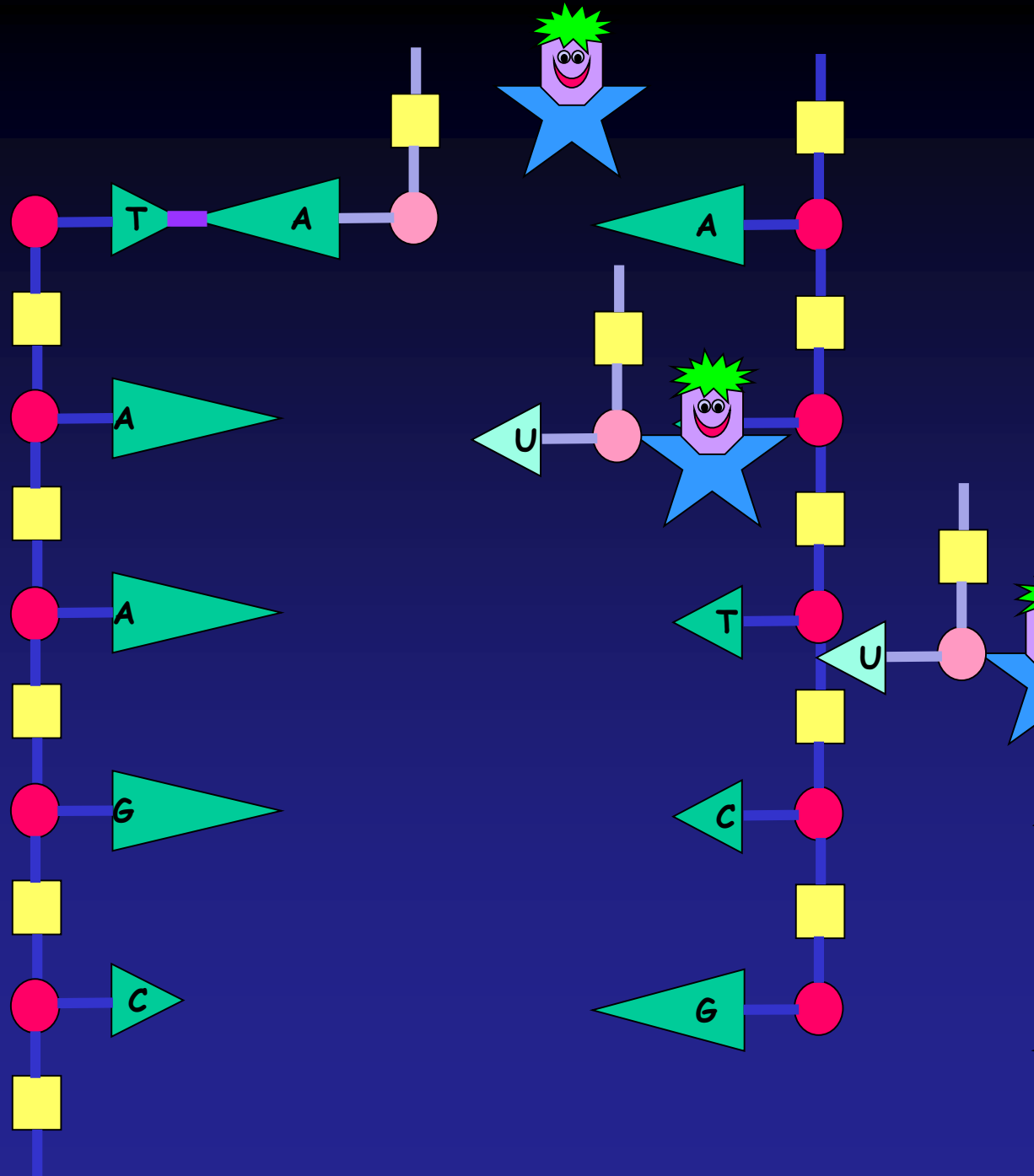
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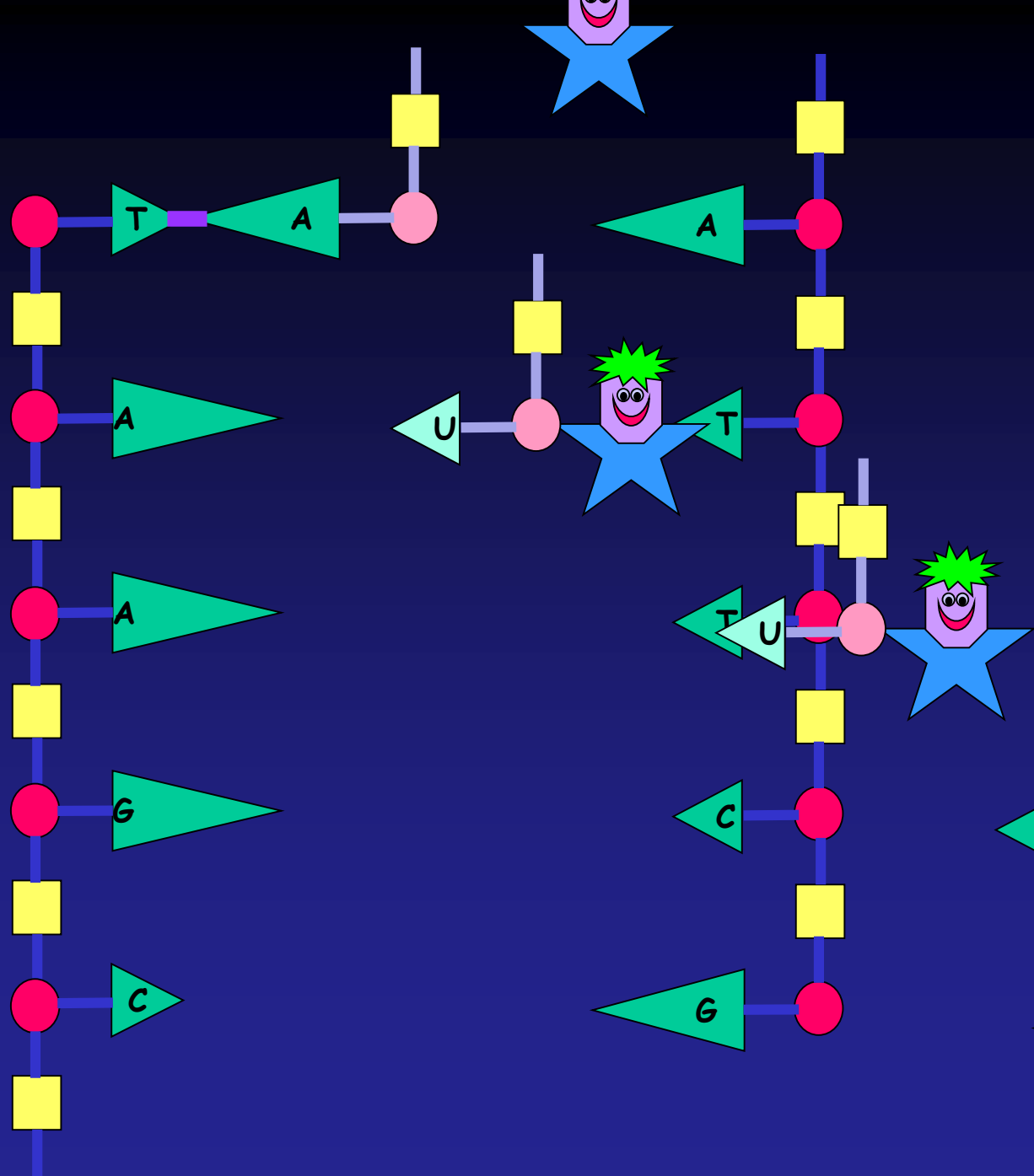
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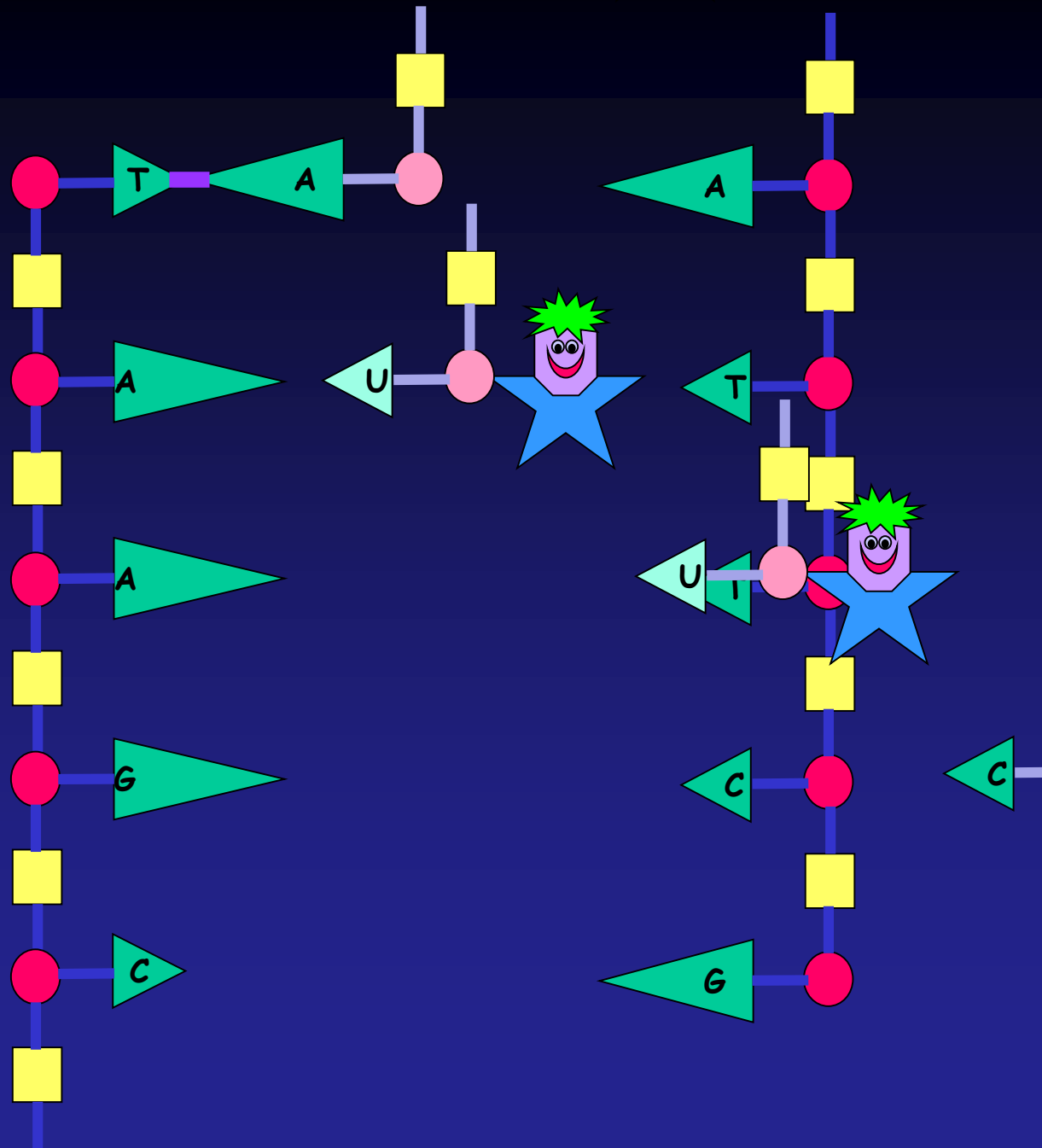
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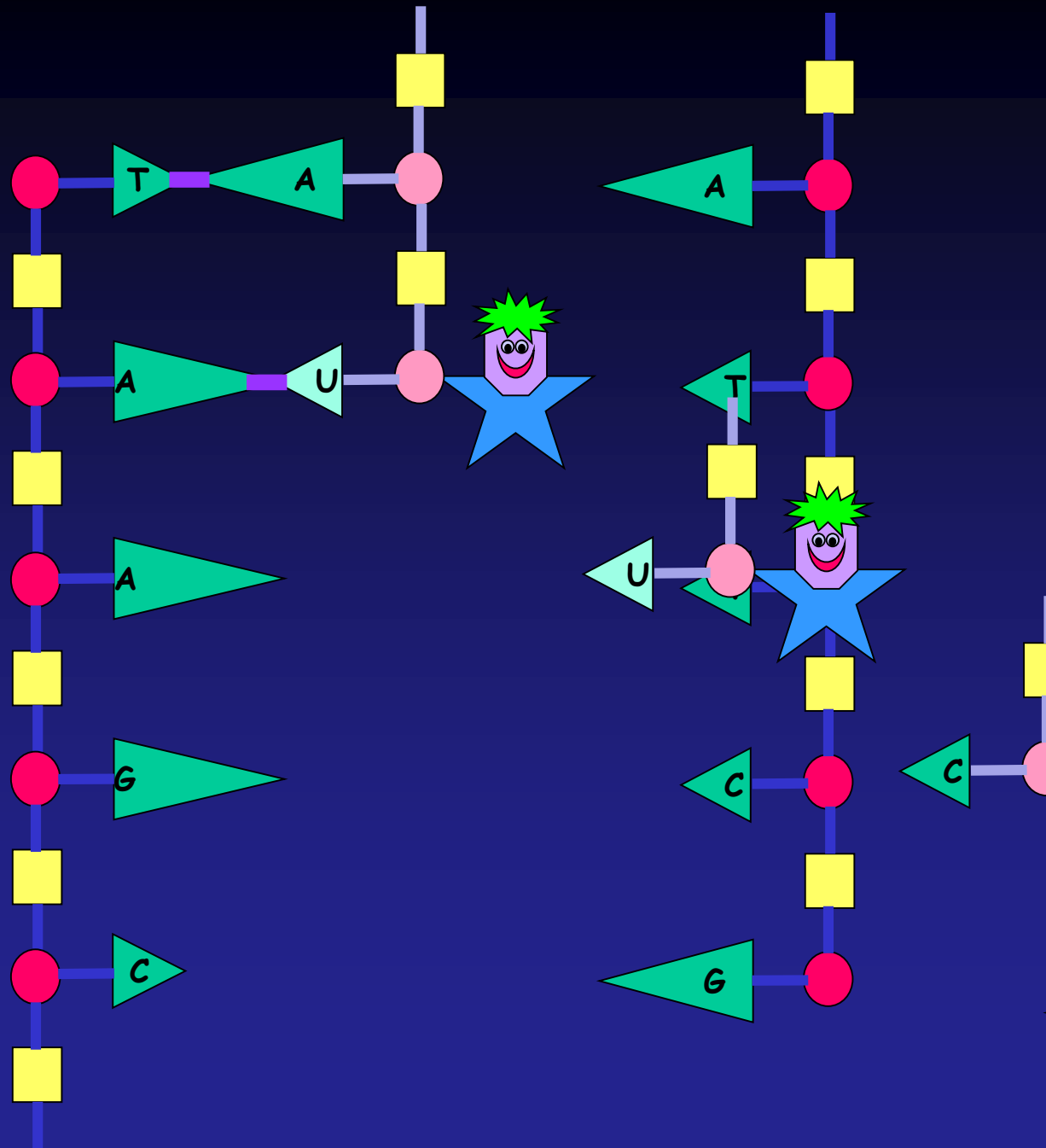
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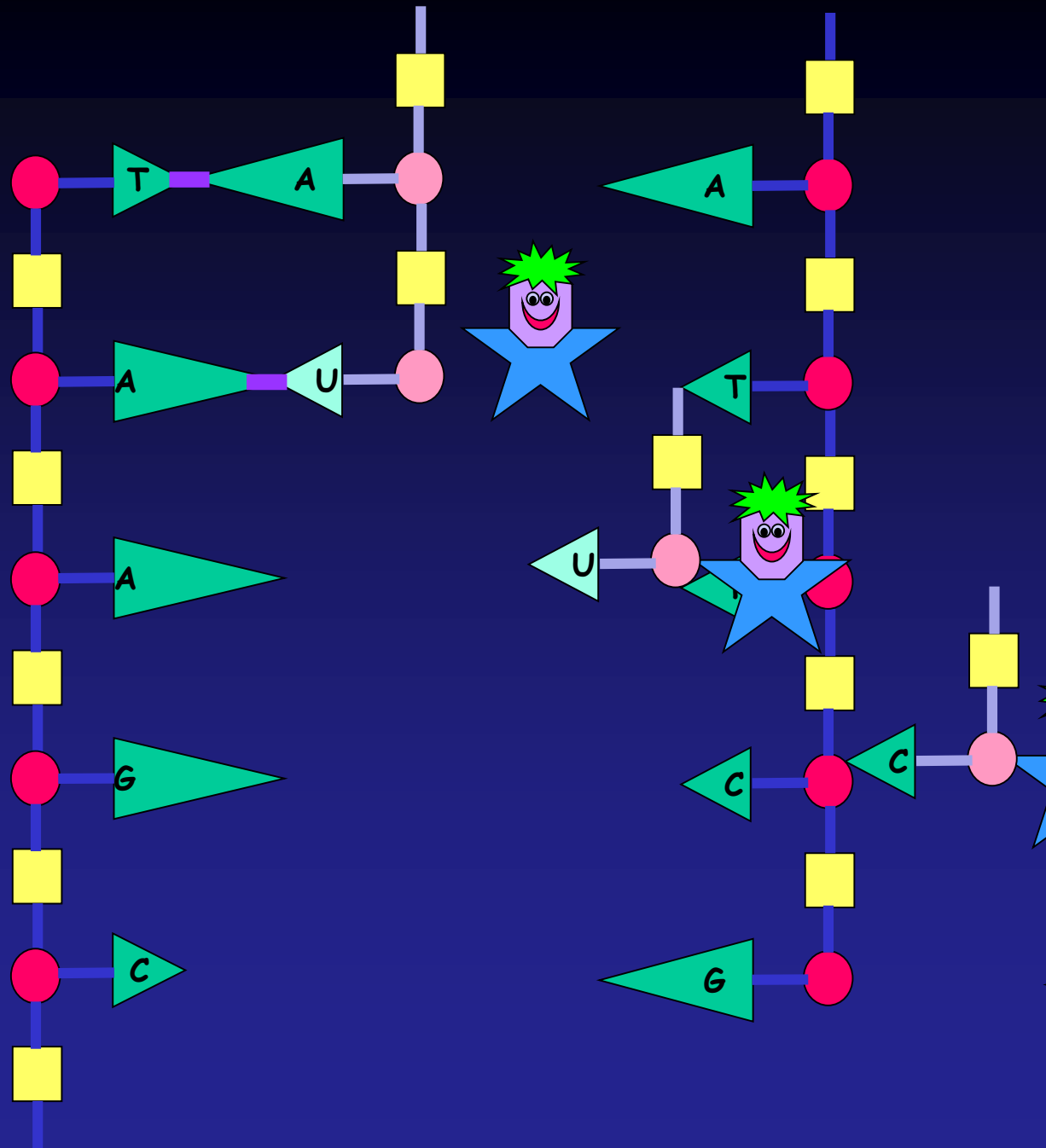
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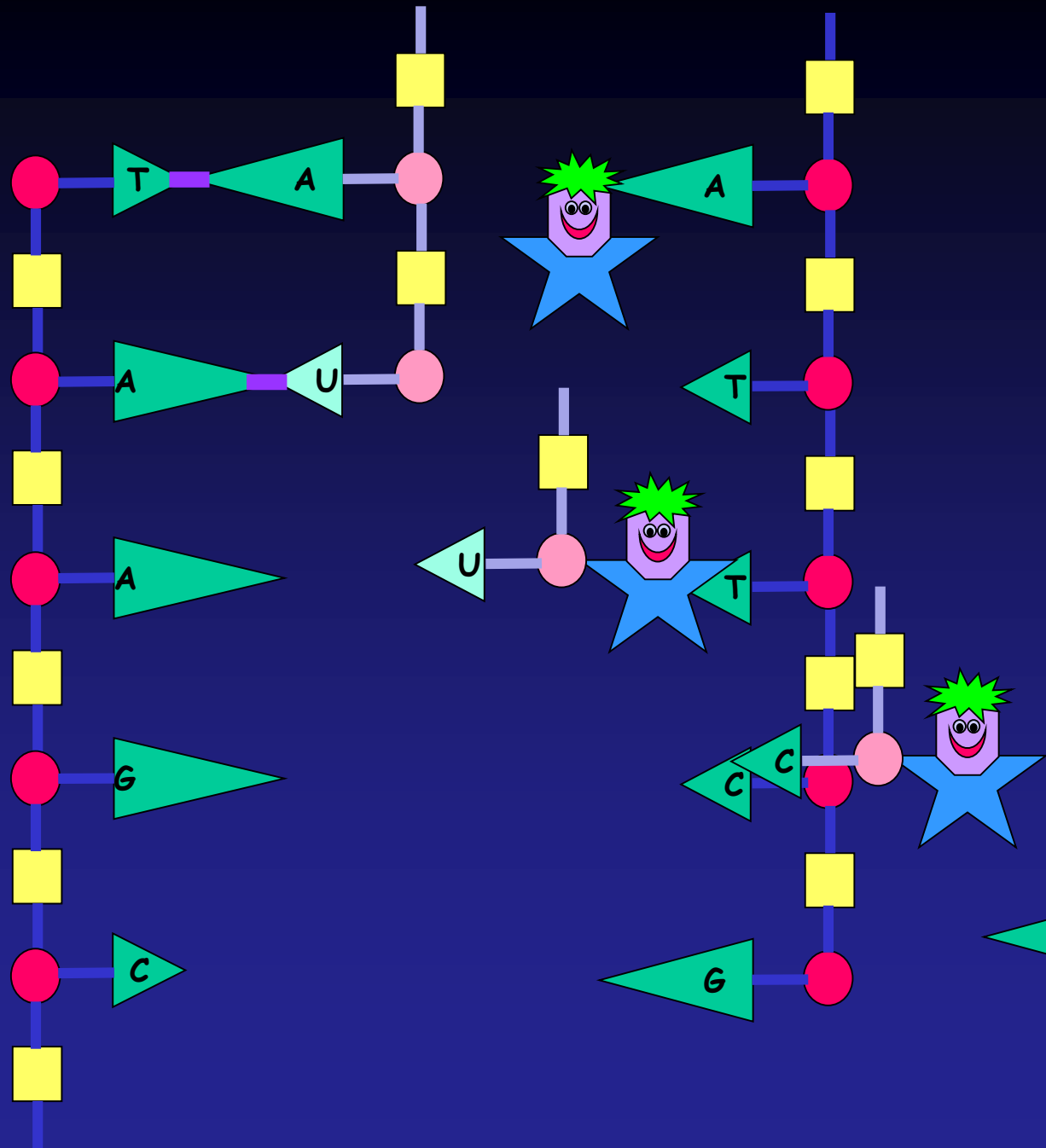
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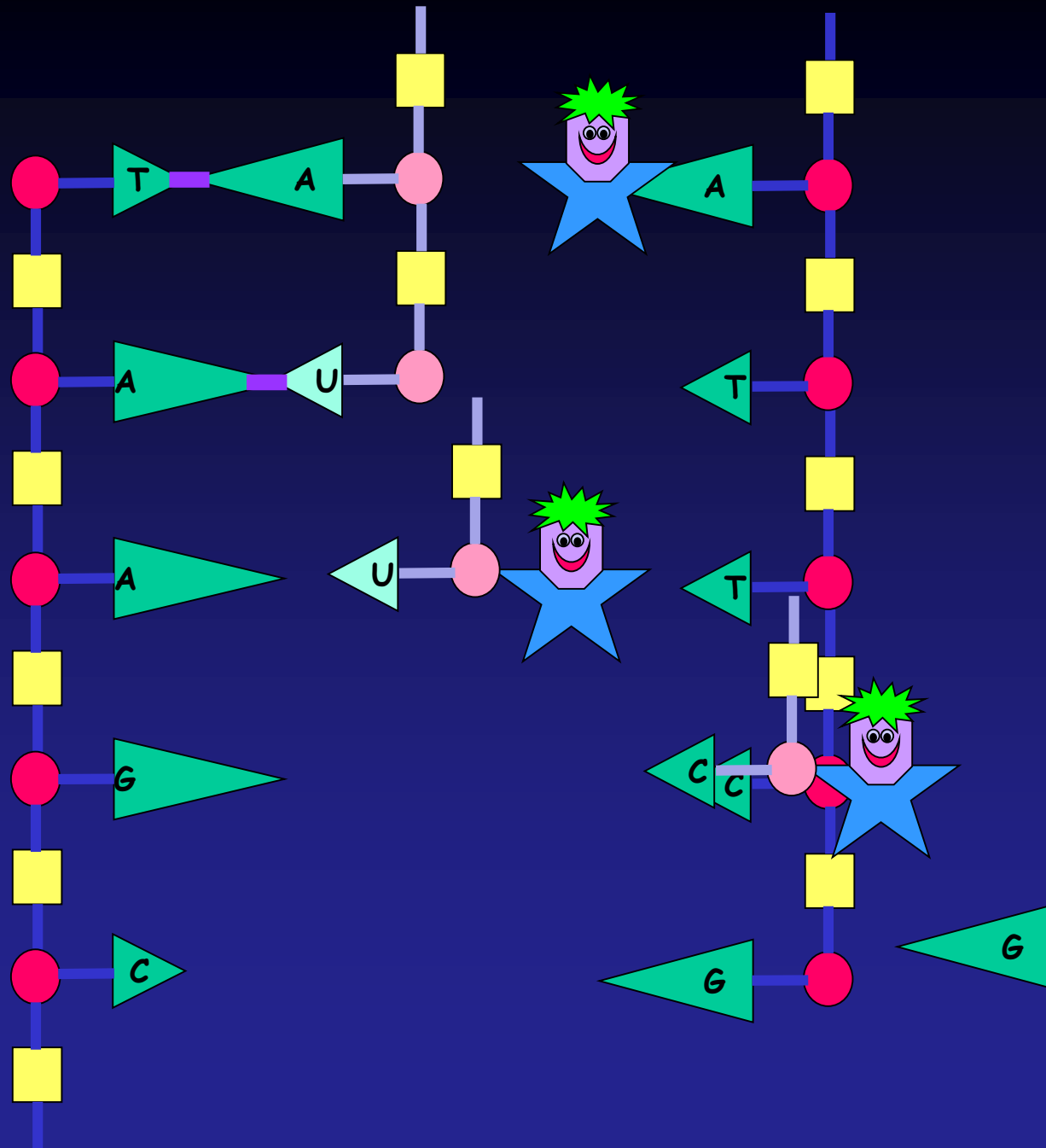


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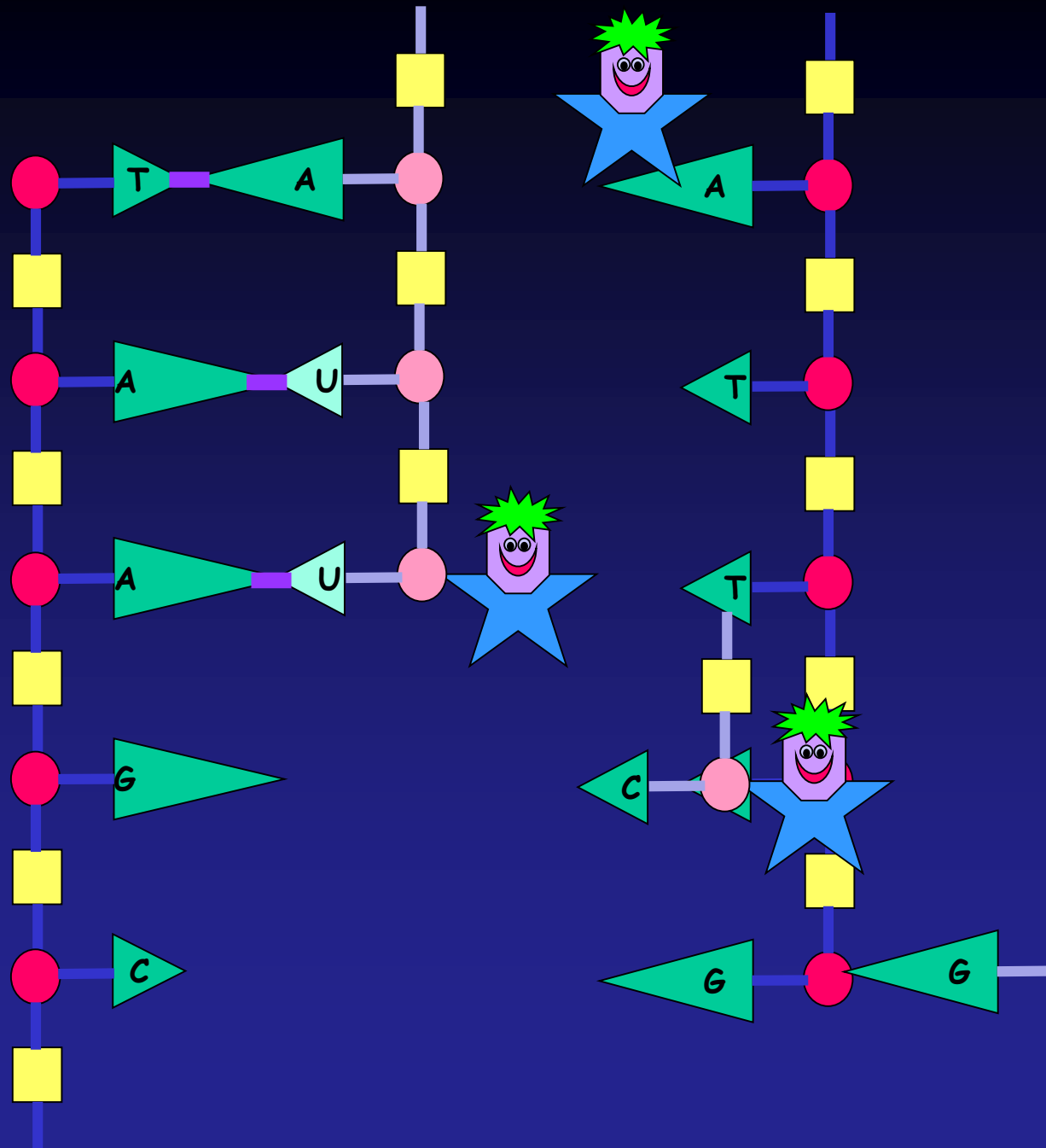




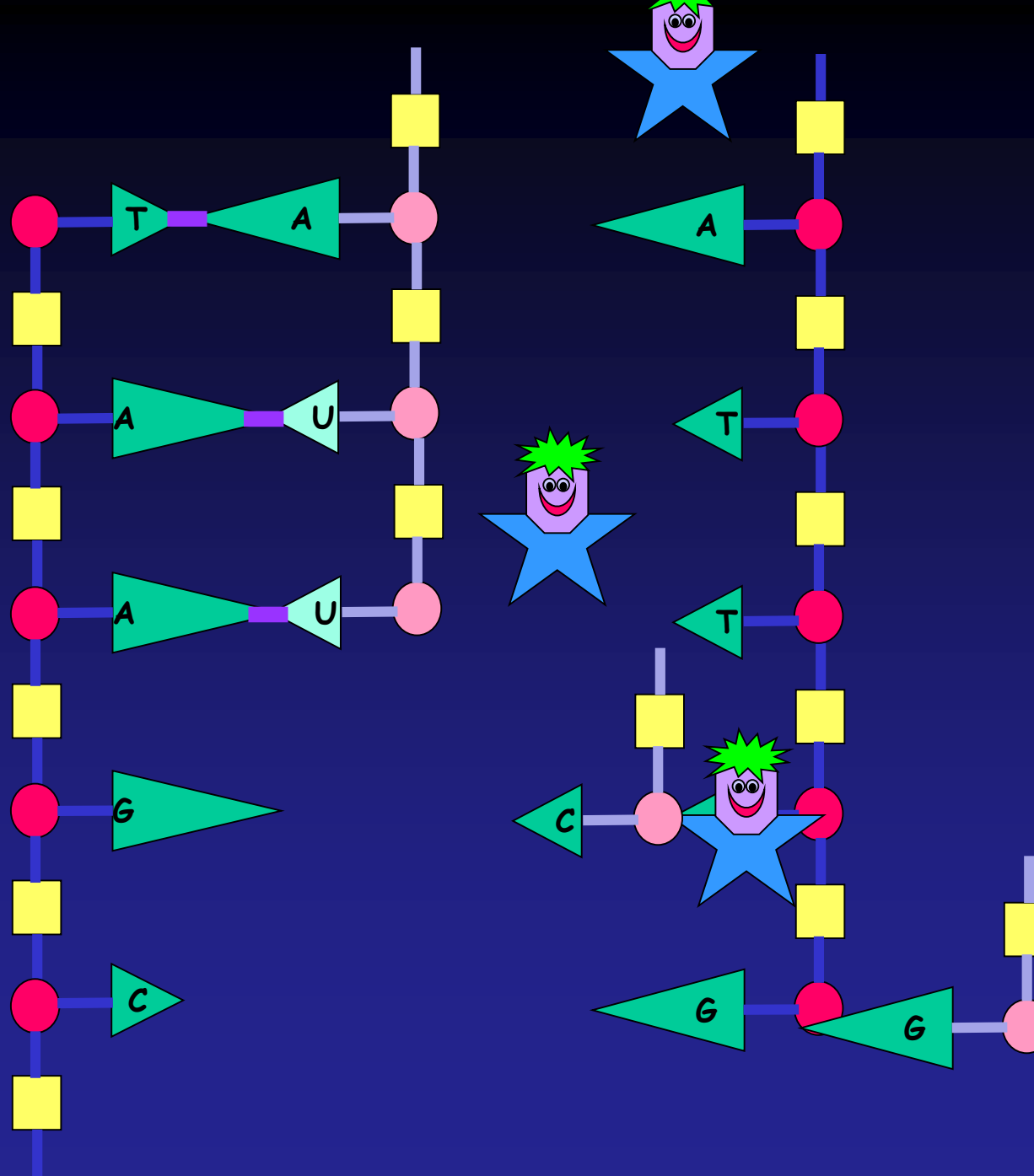
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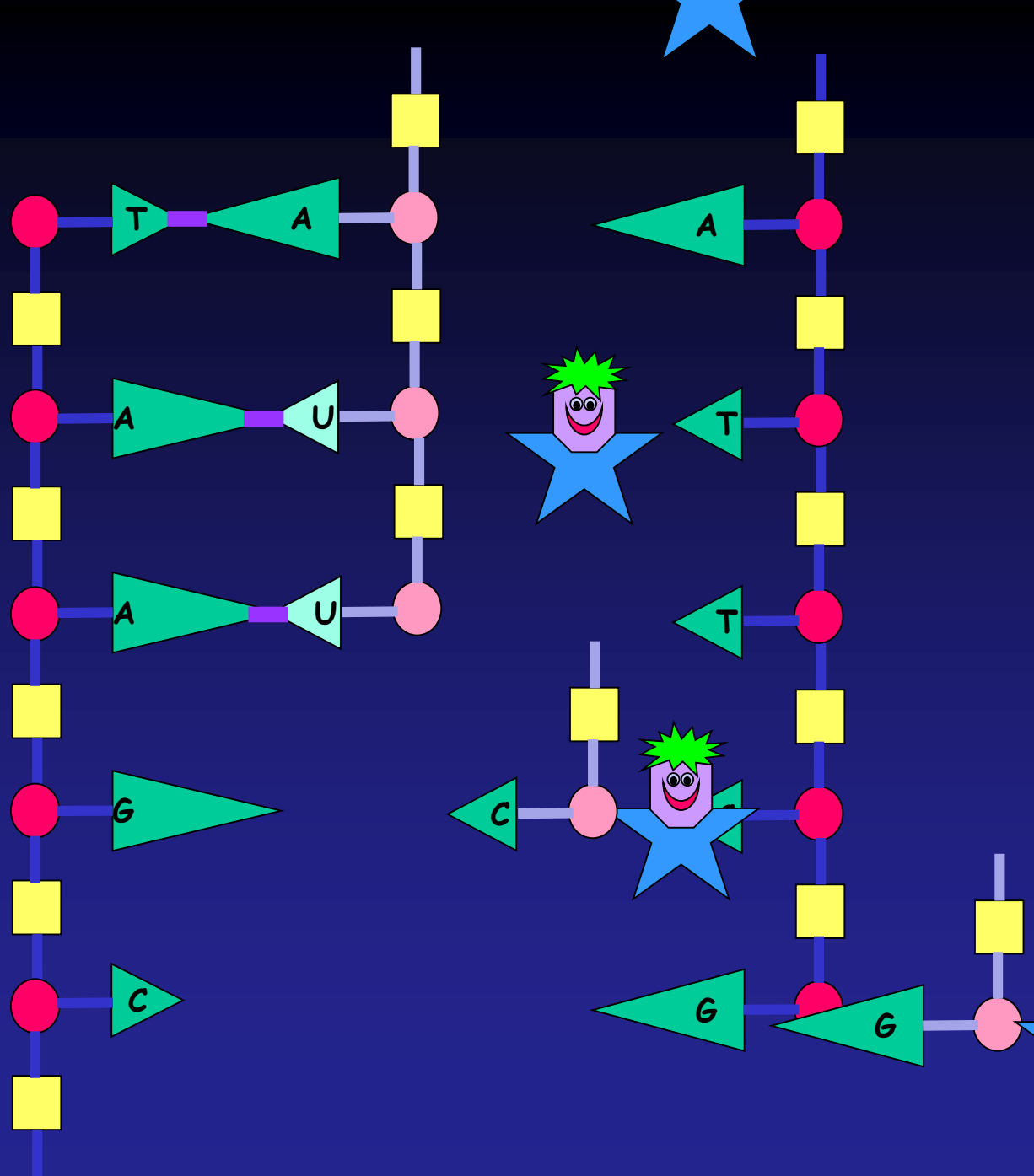
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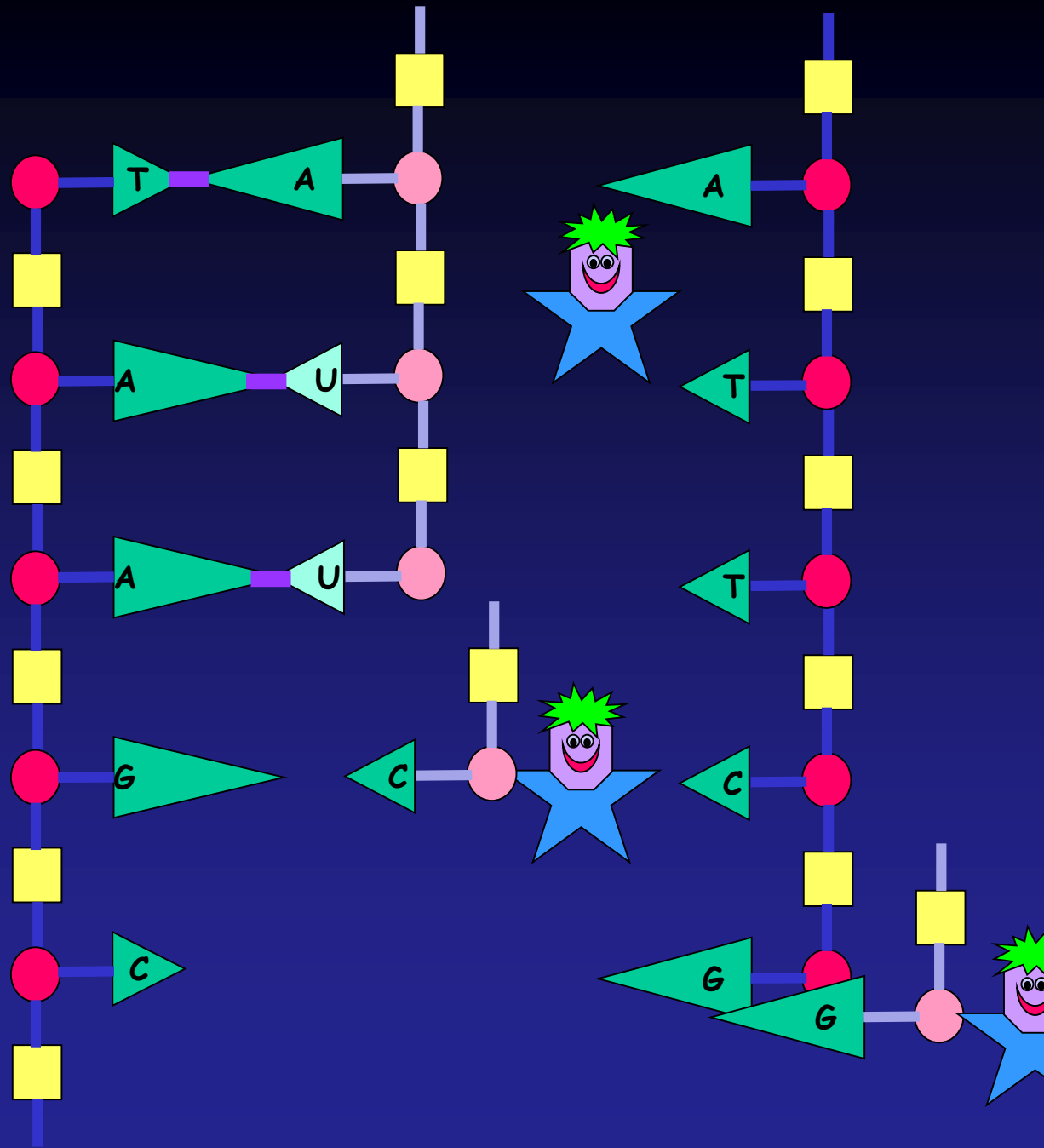
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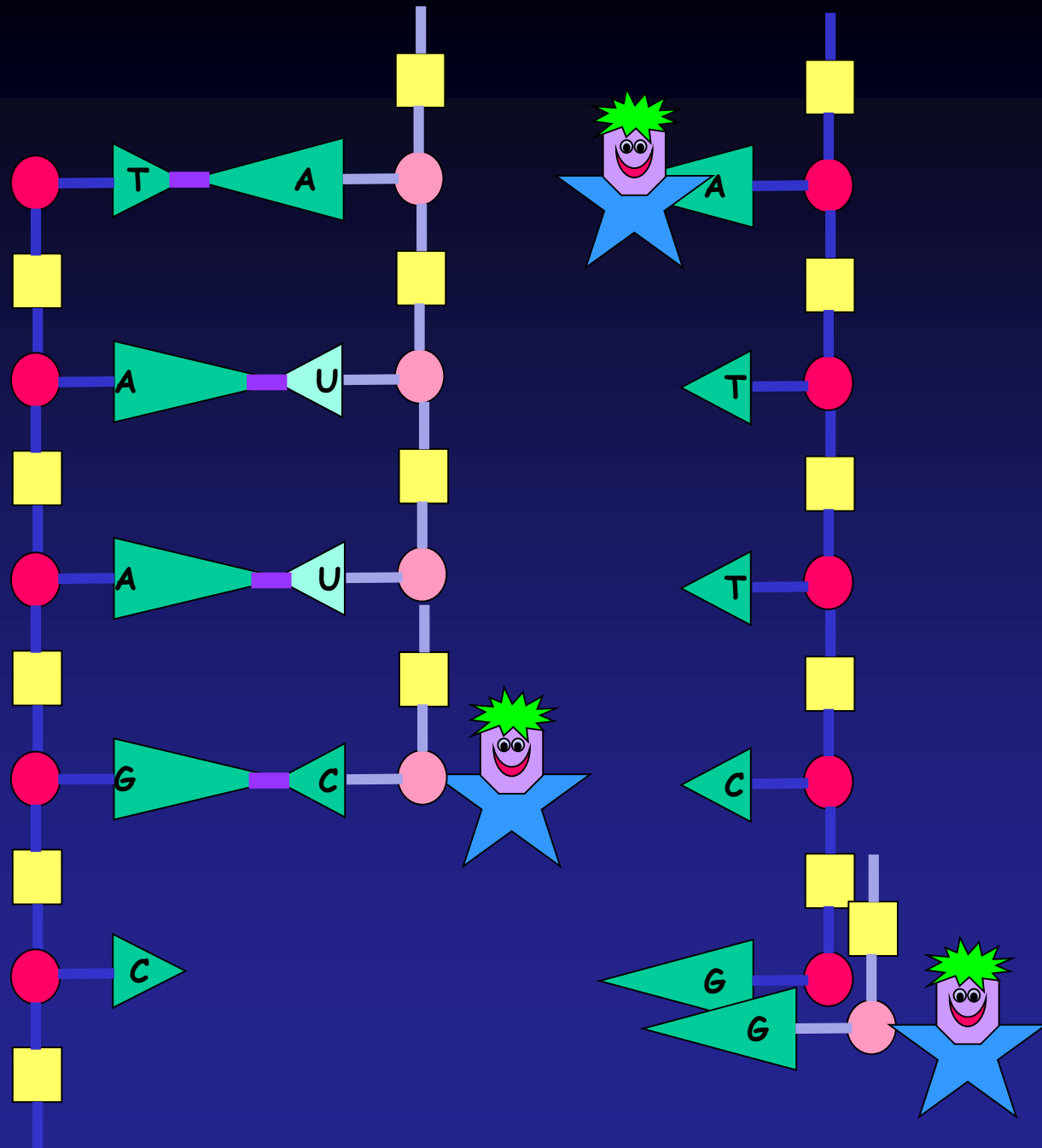
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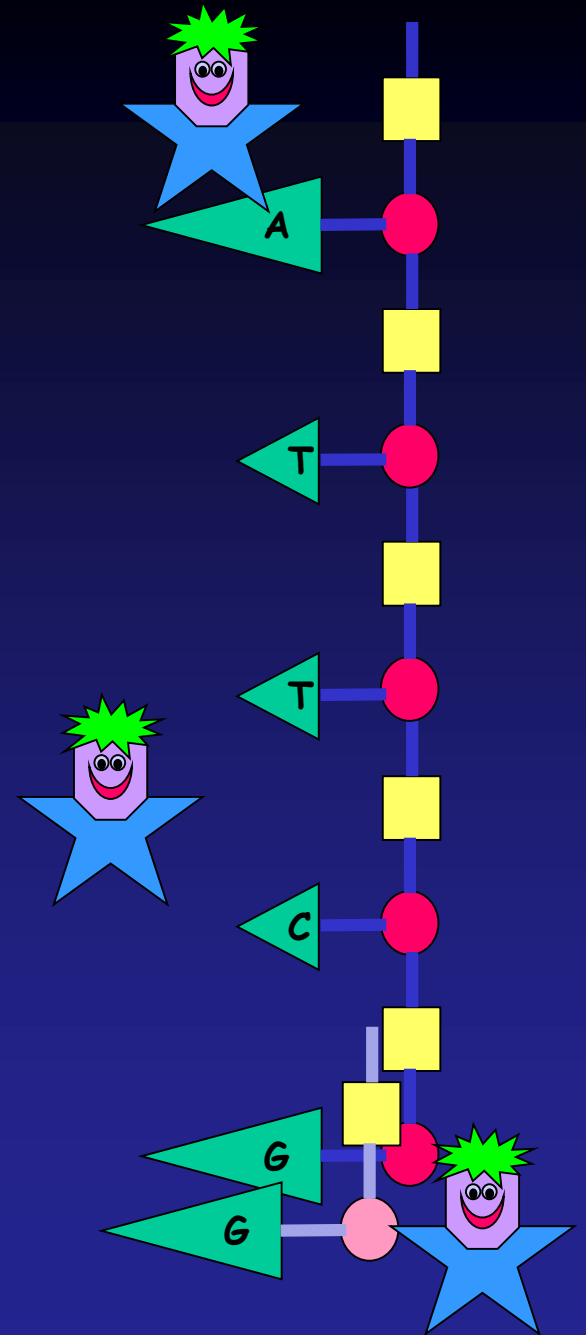
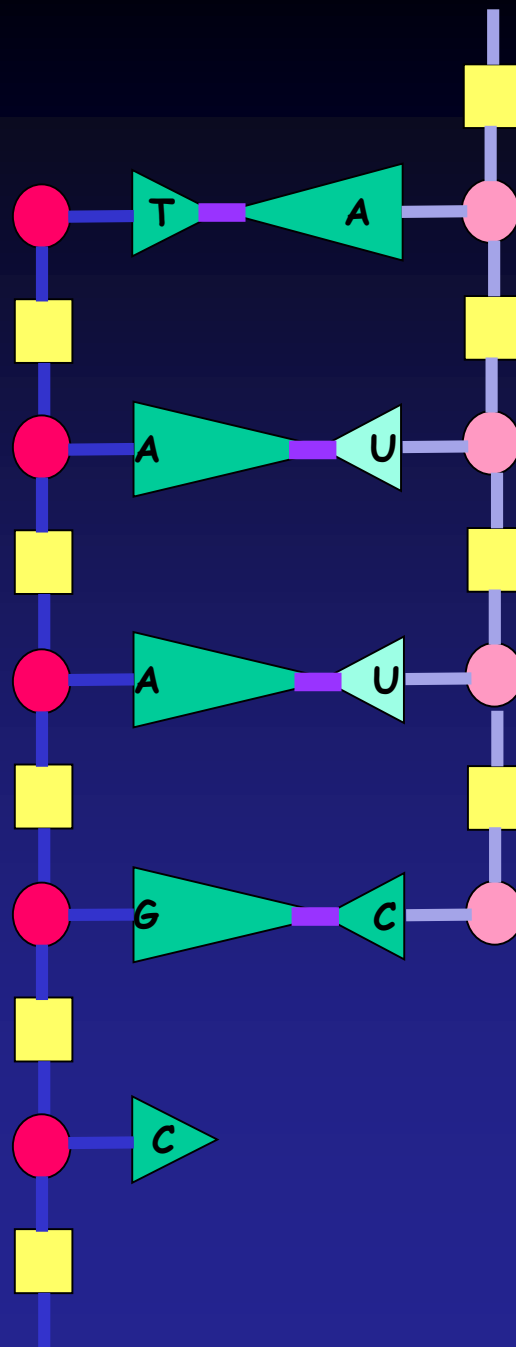
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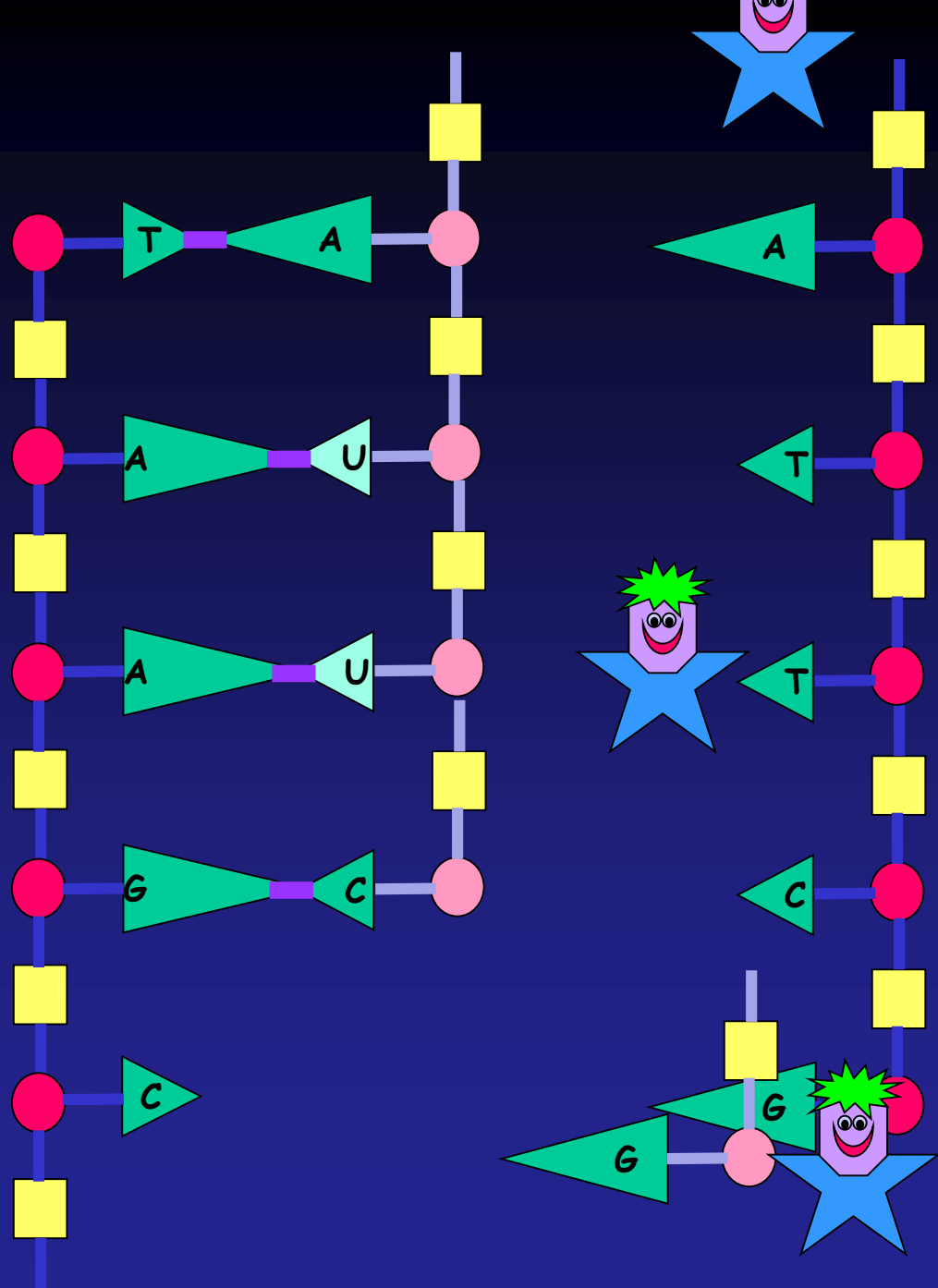
## • TRANSCRIPTION



## • TRANSCRIPTION

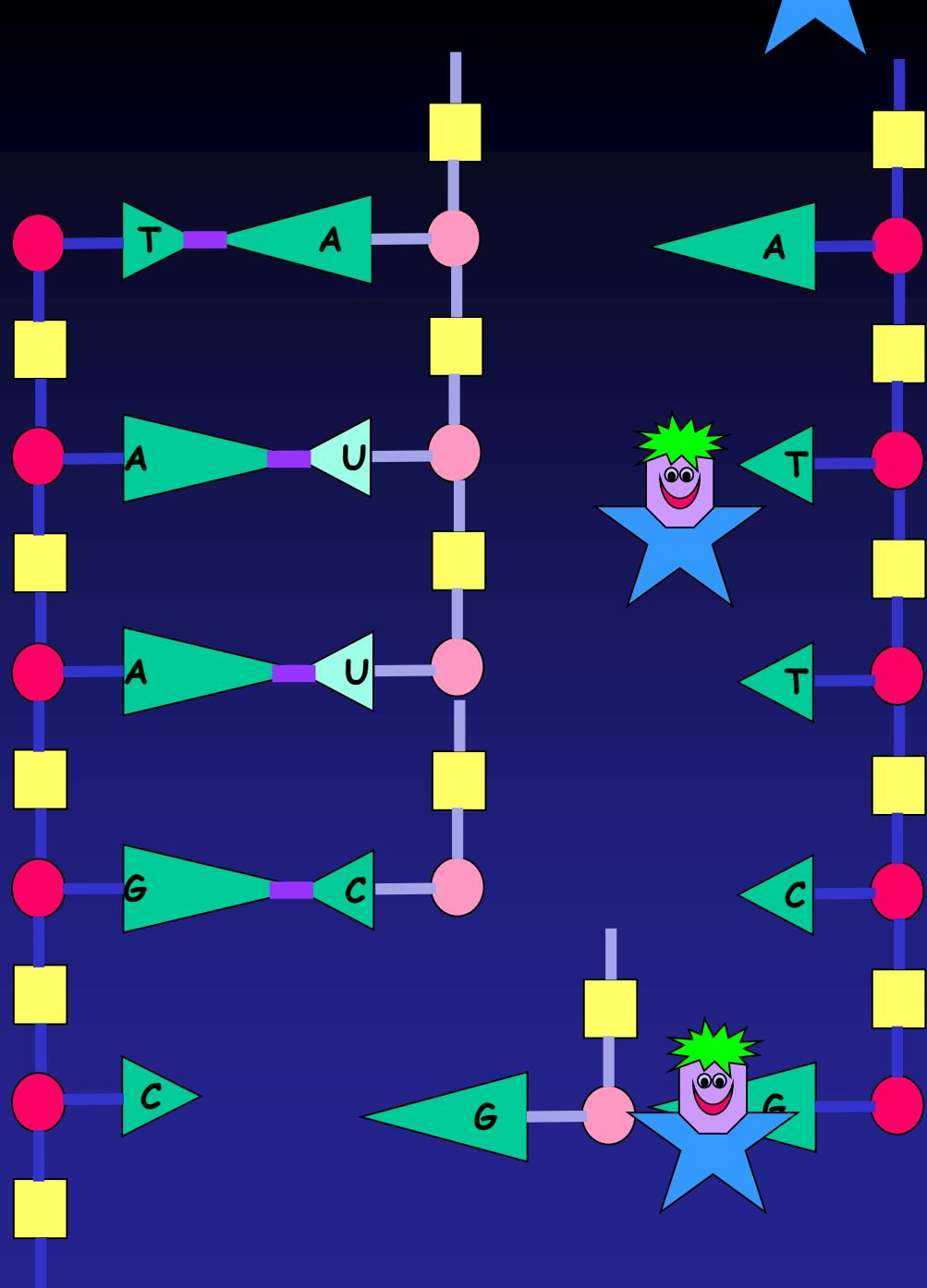


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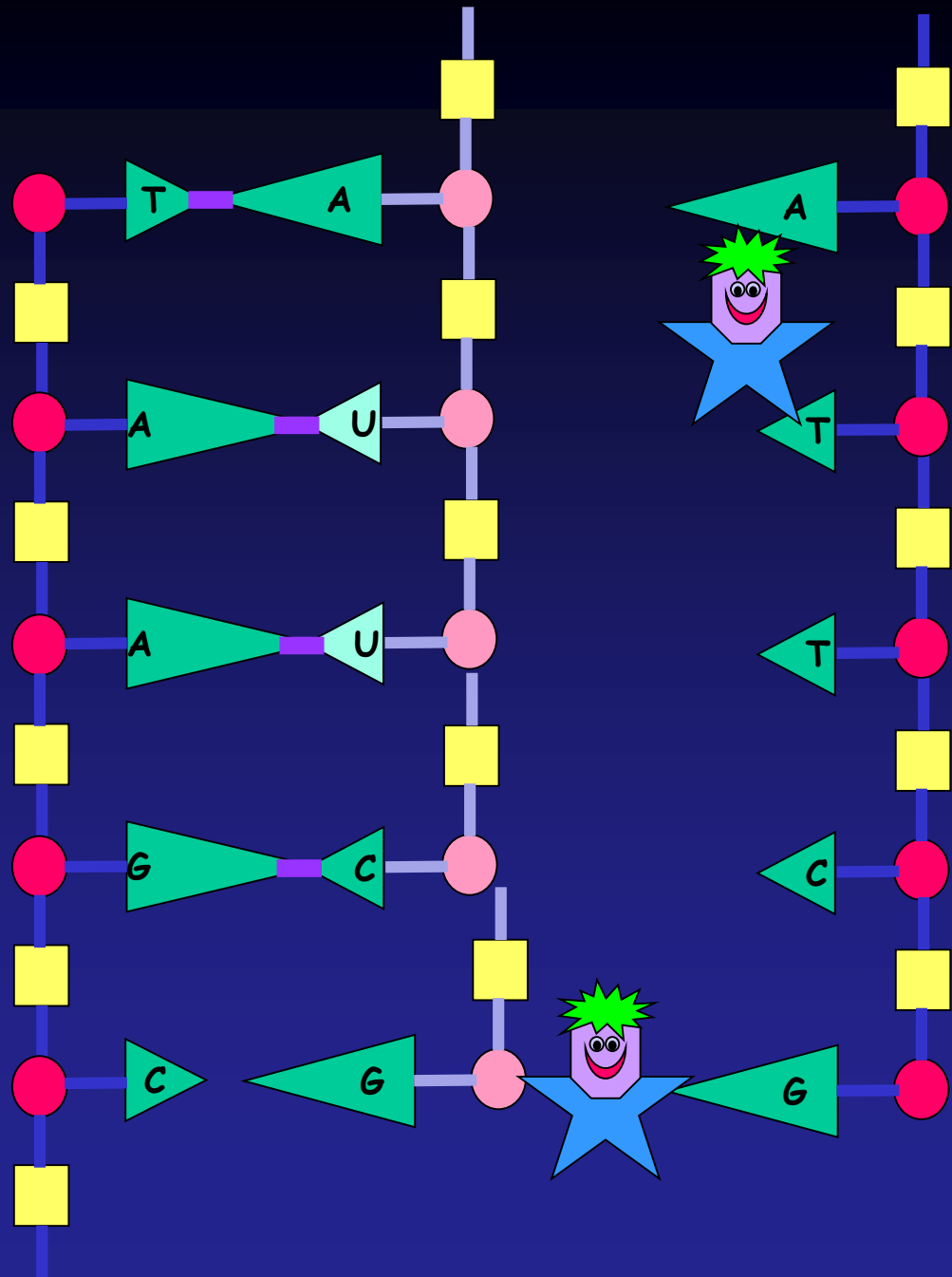




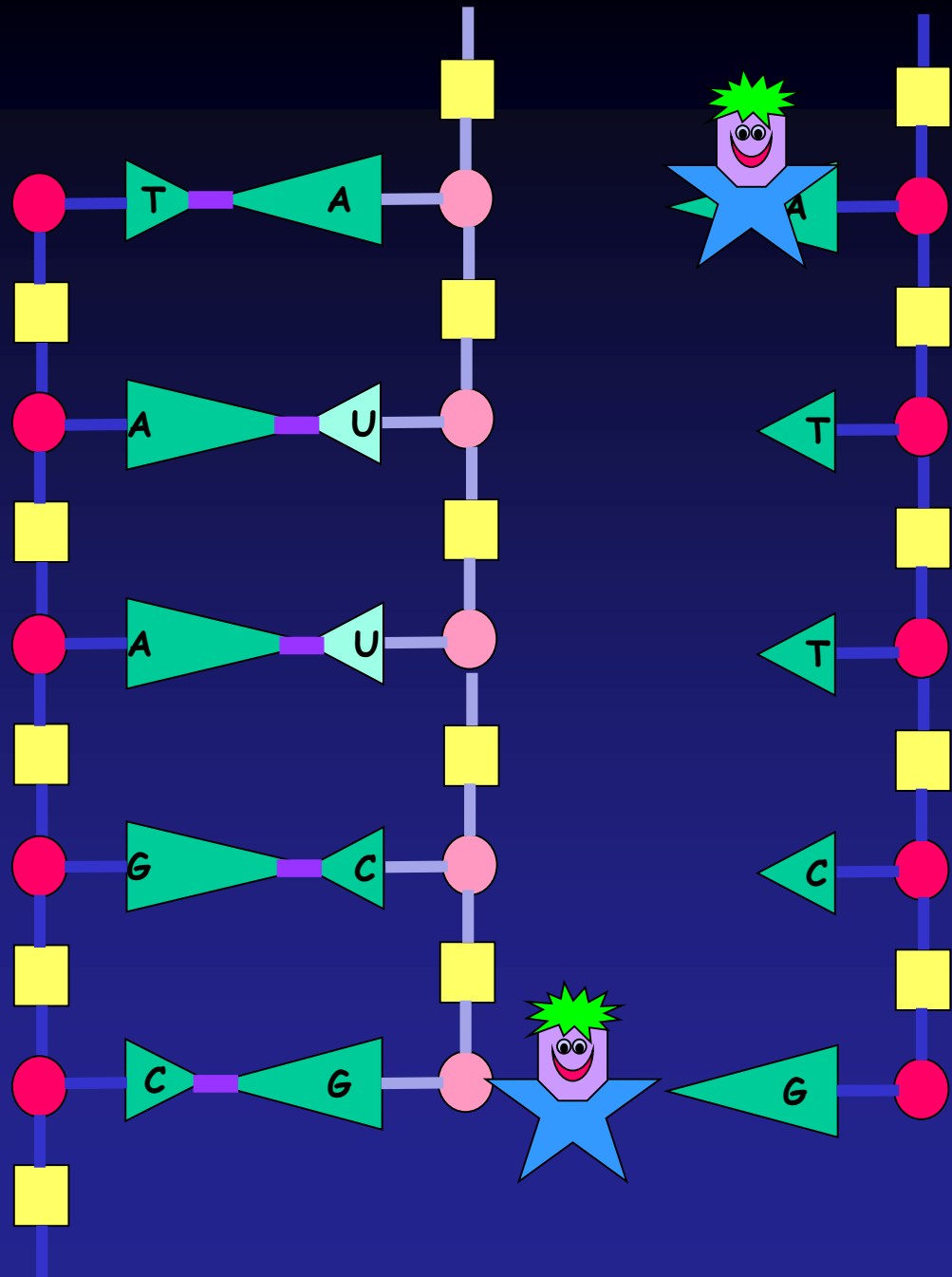
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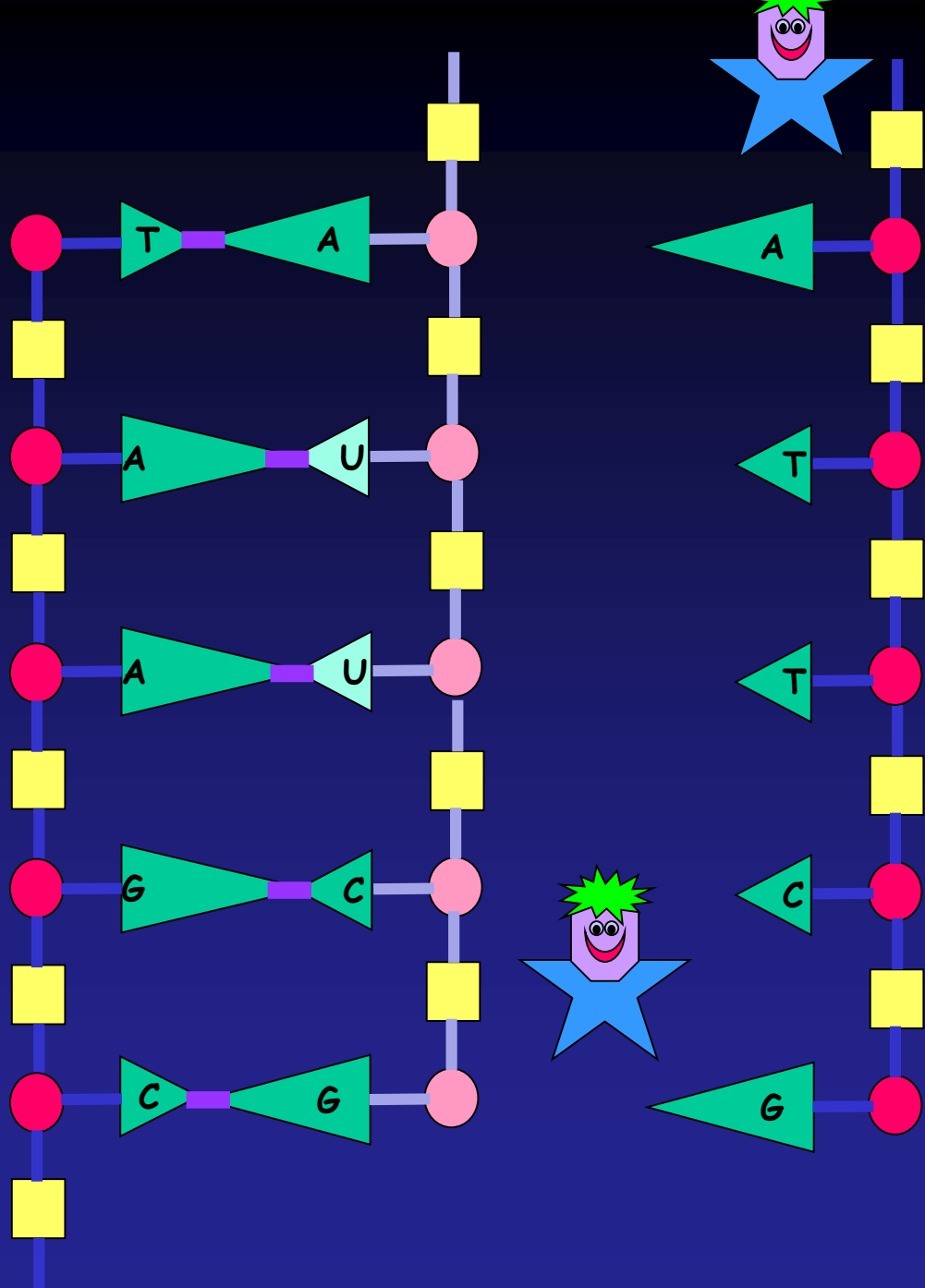
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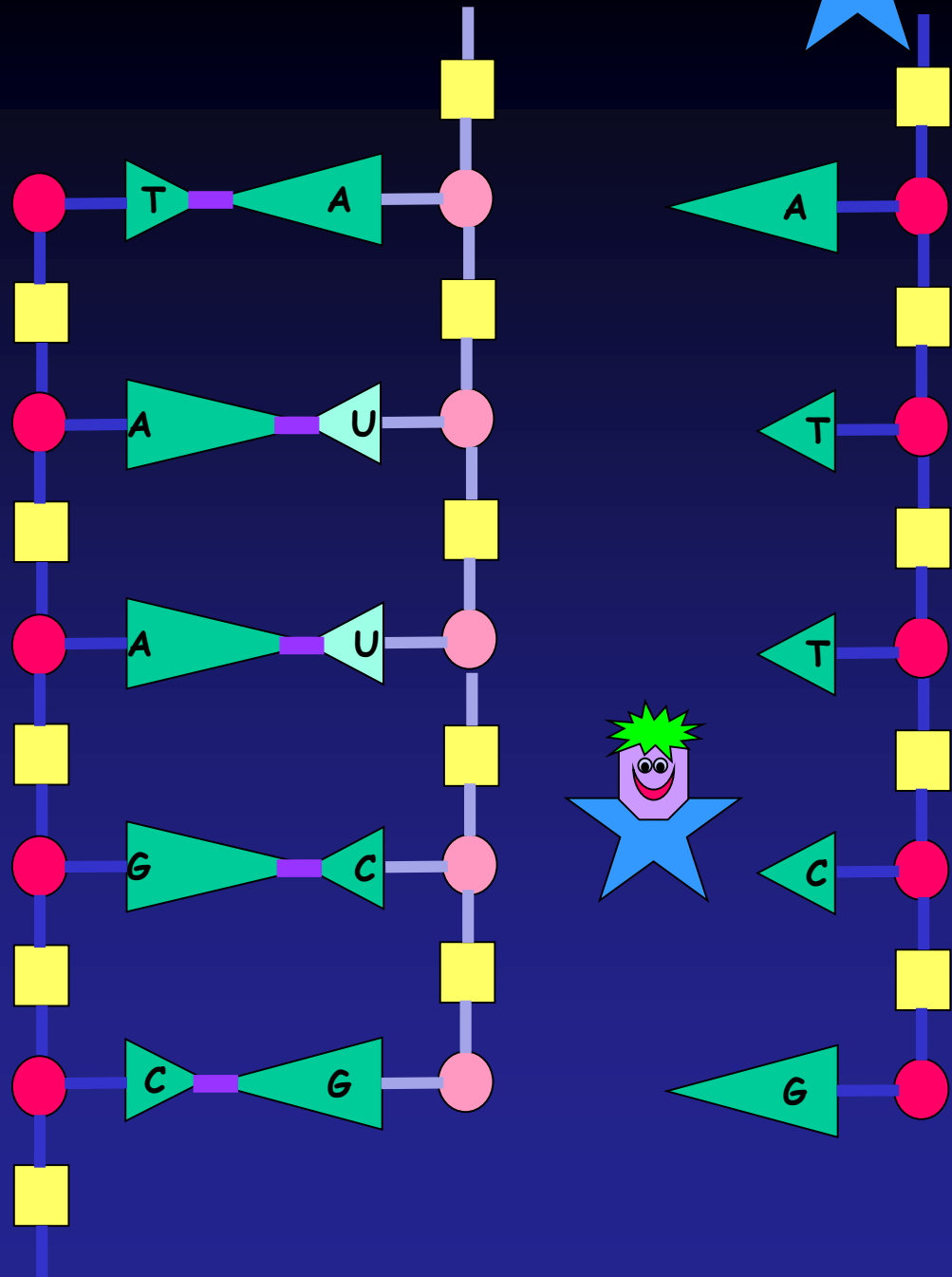
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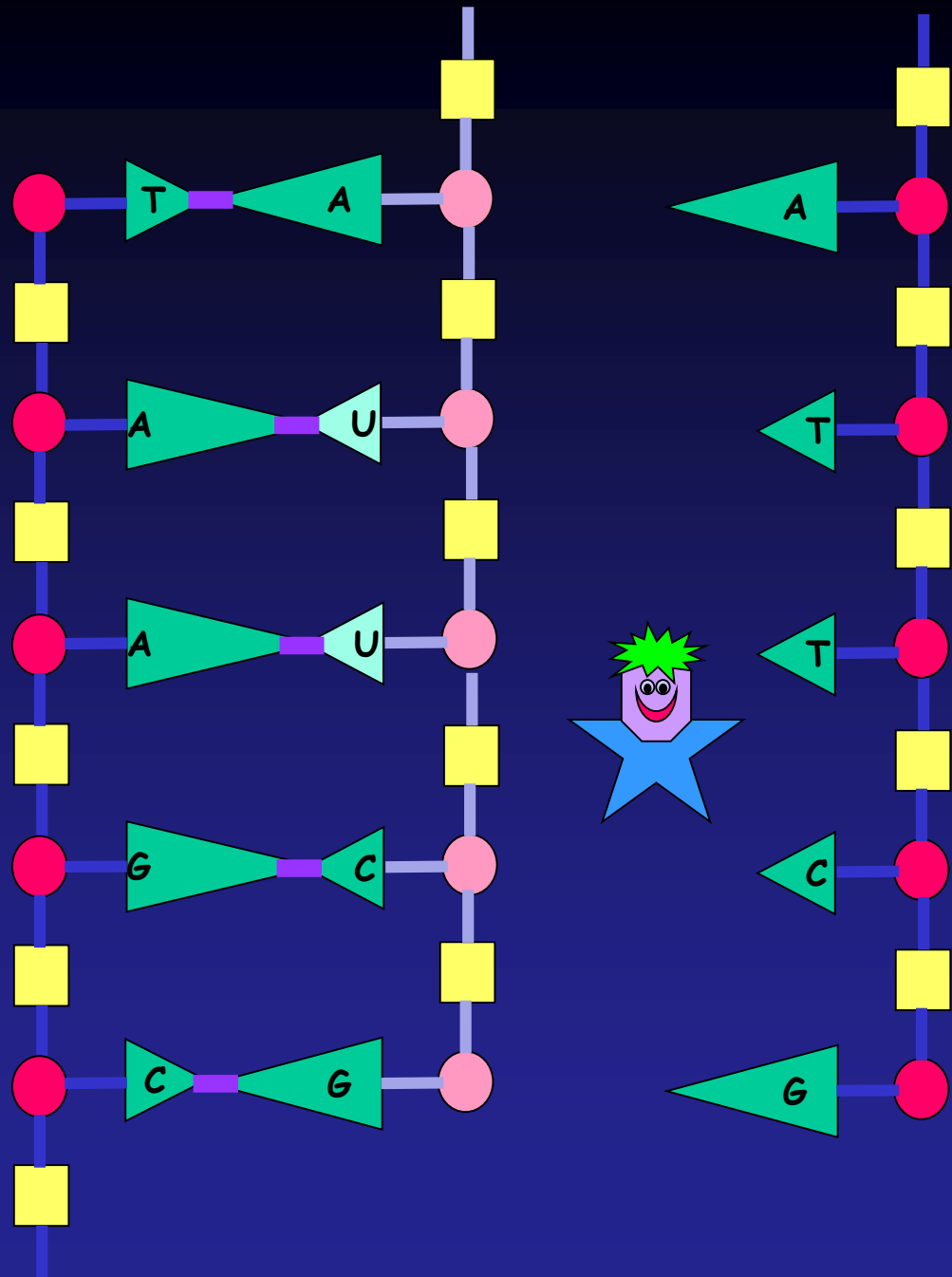
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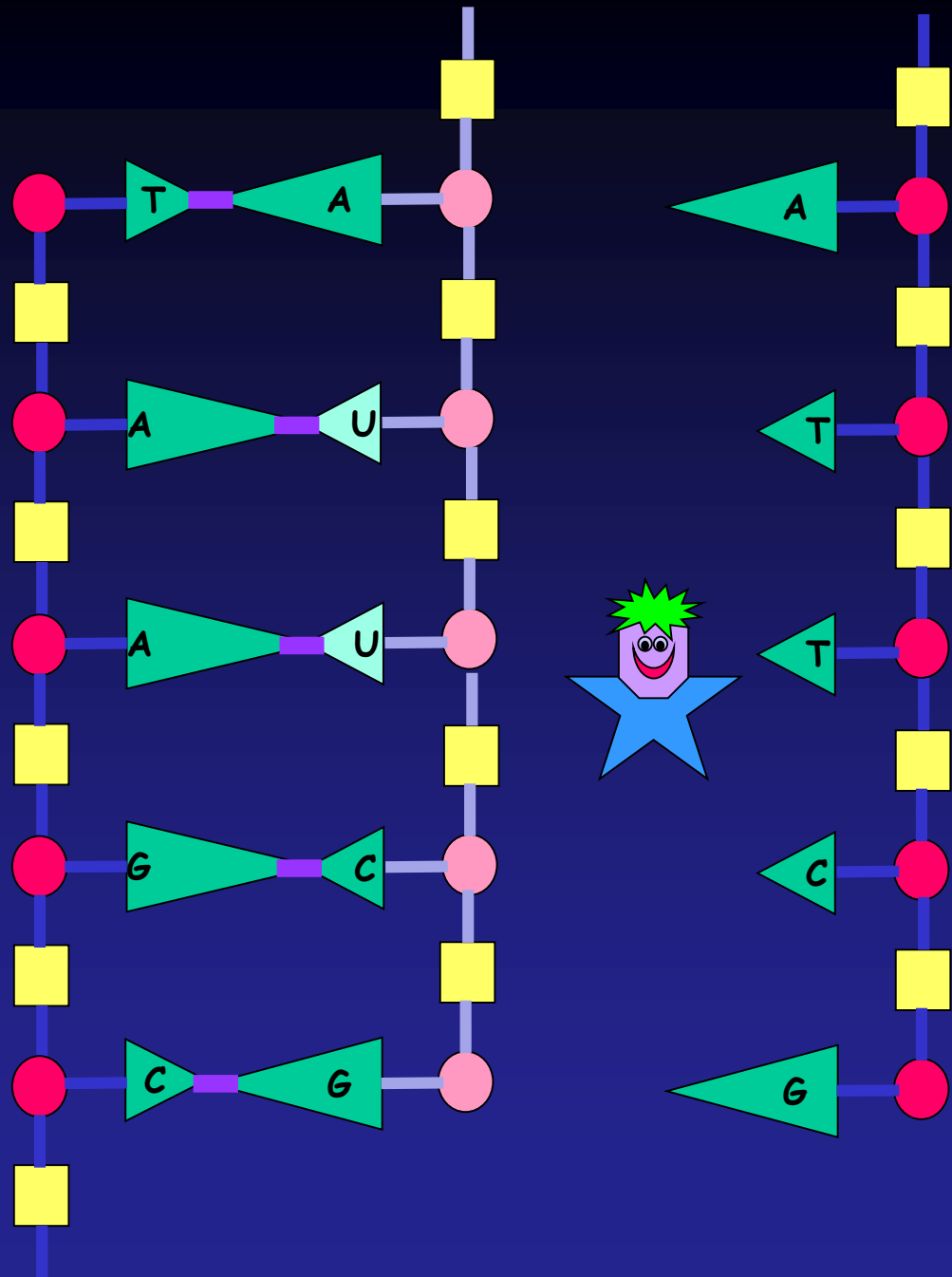
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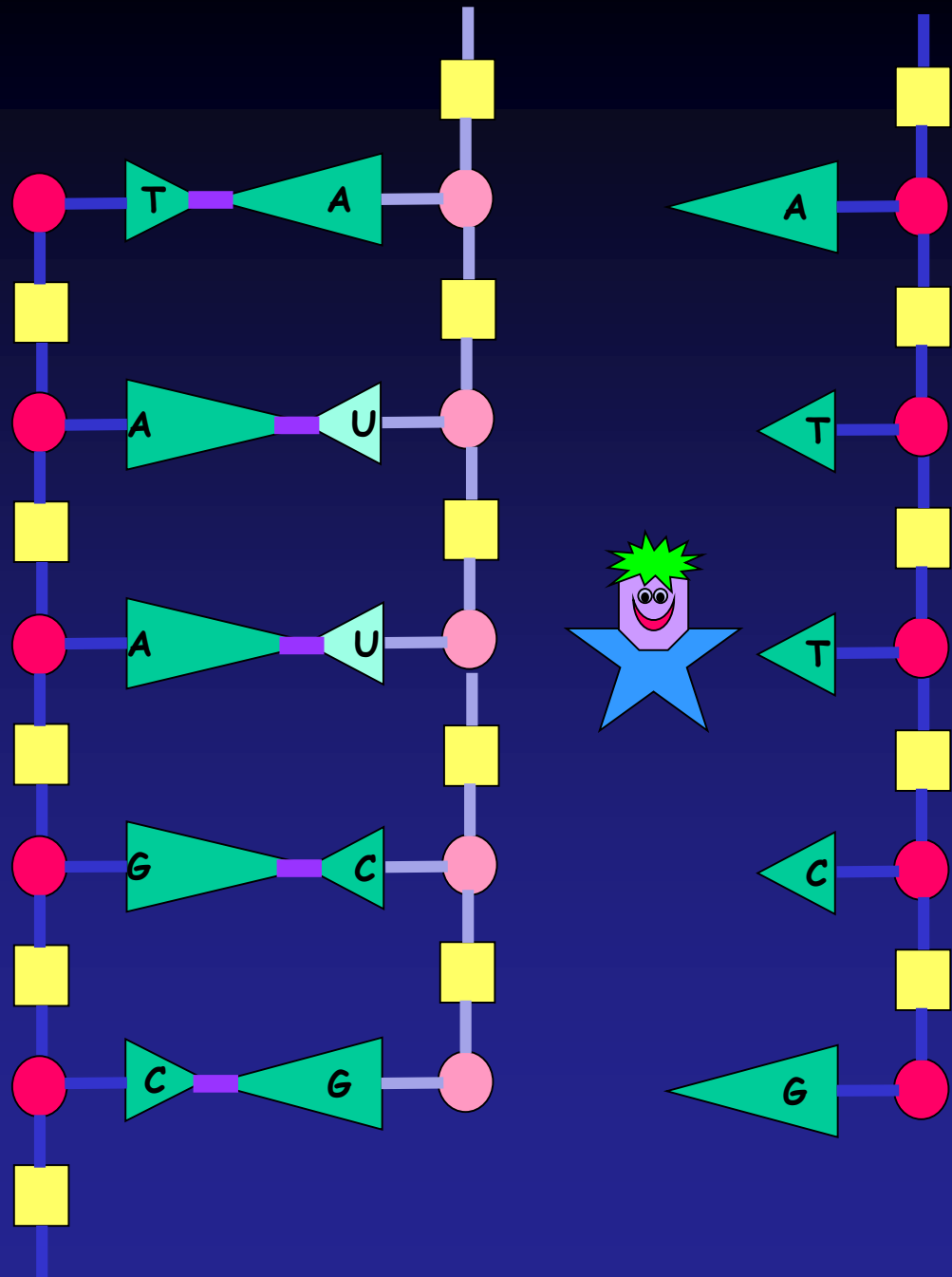
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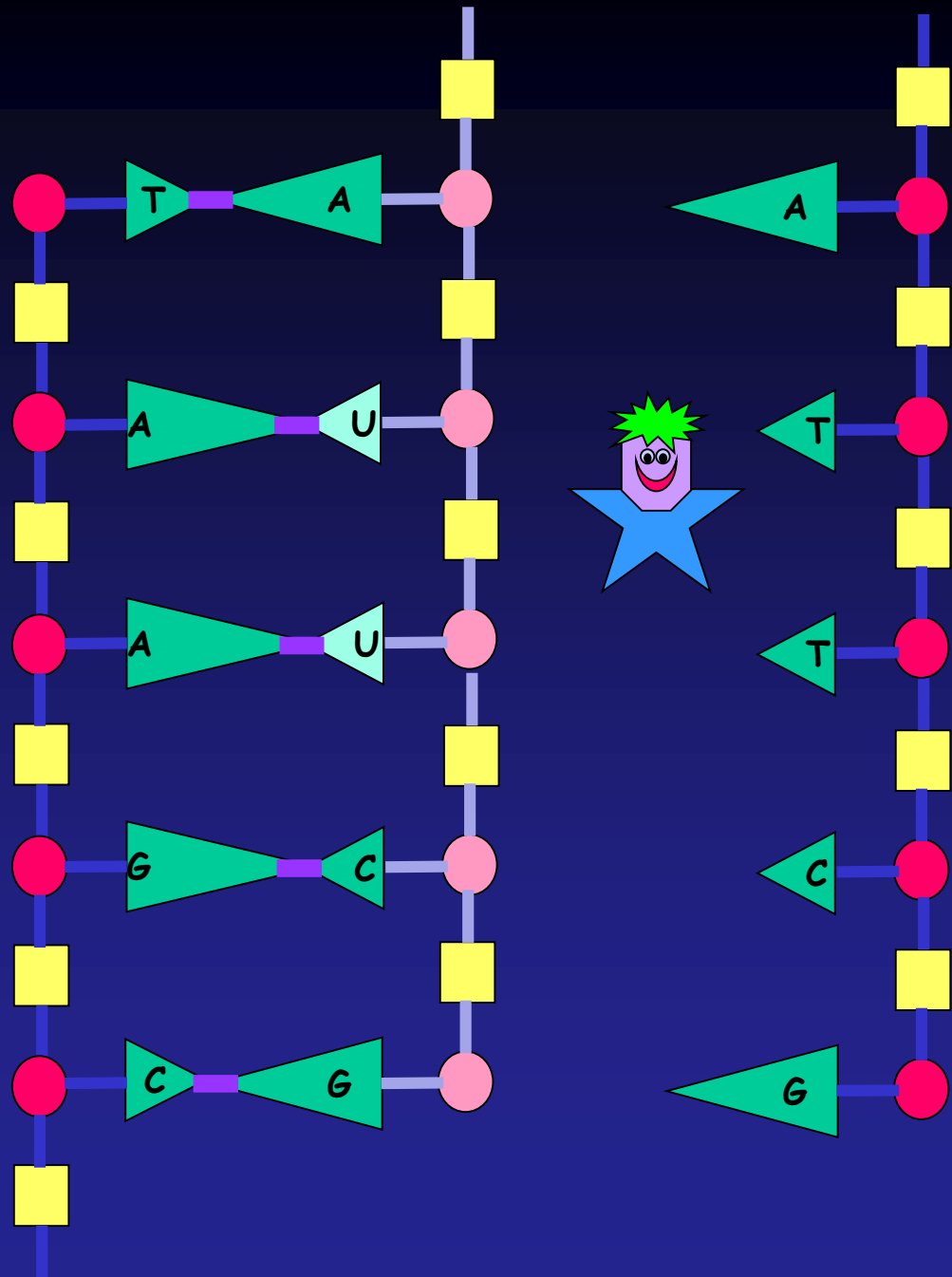


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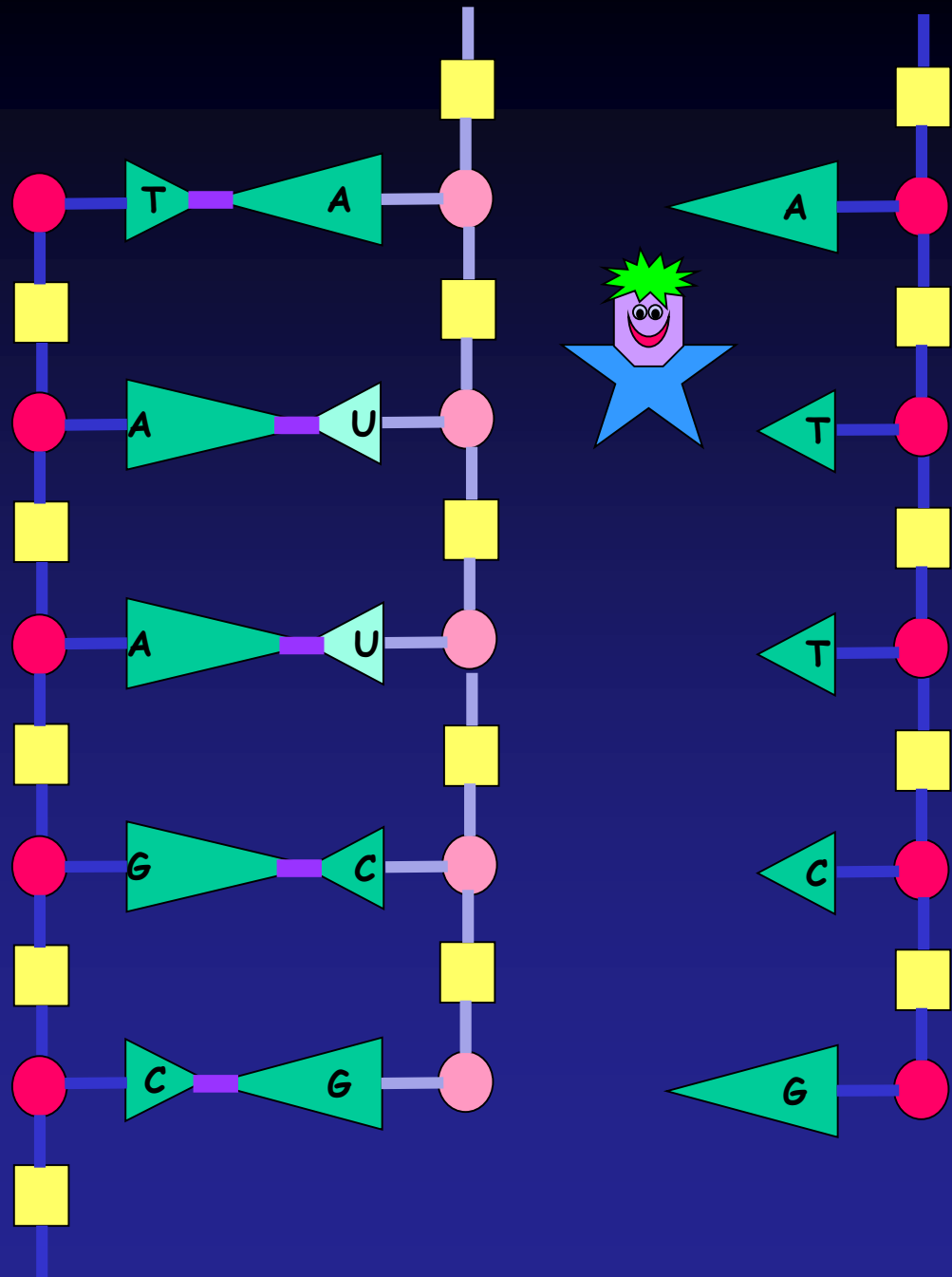




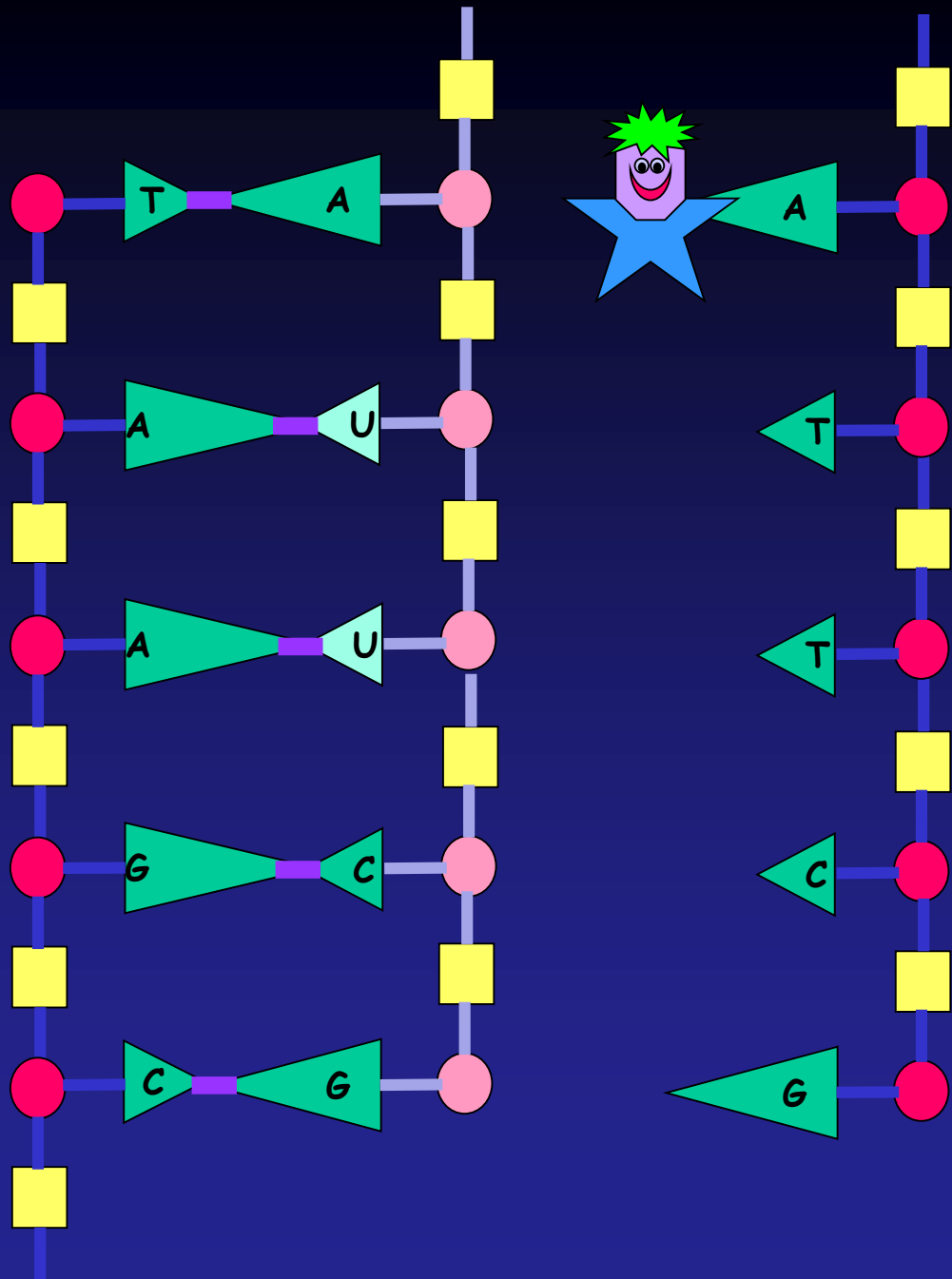
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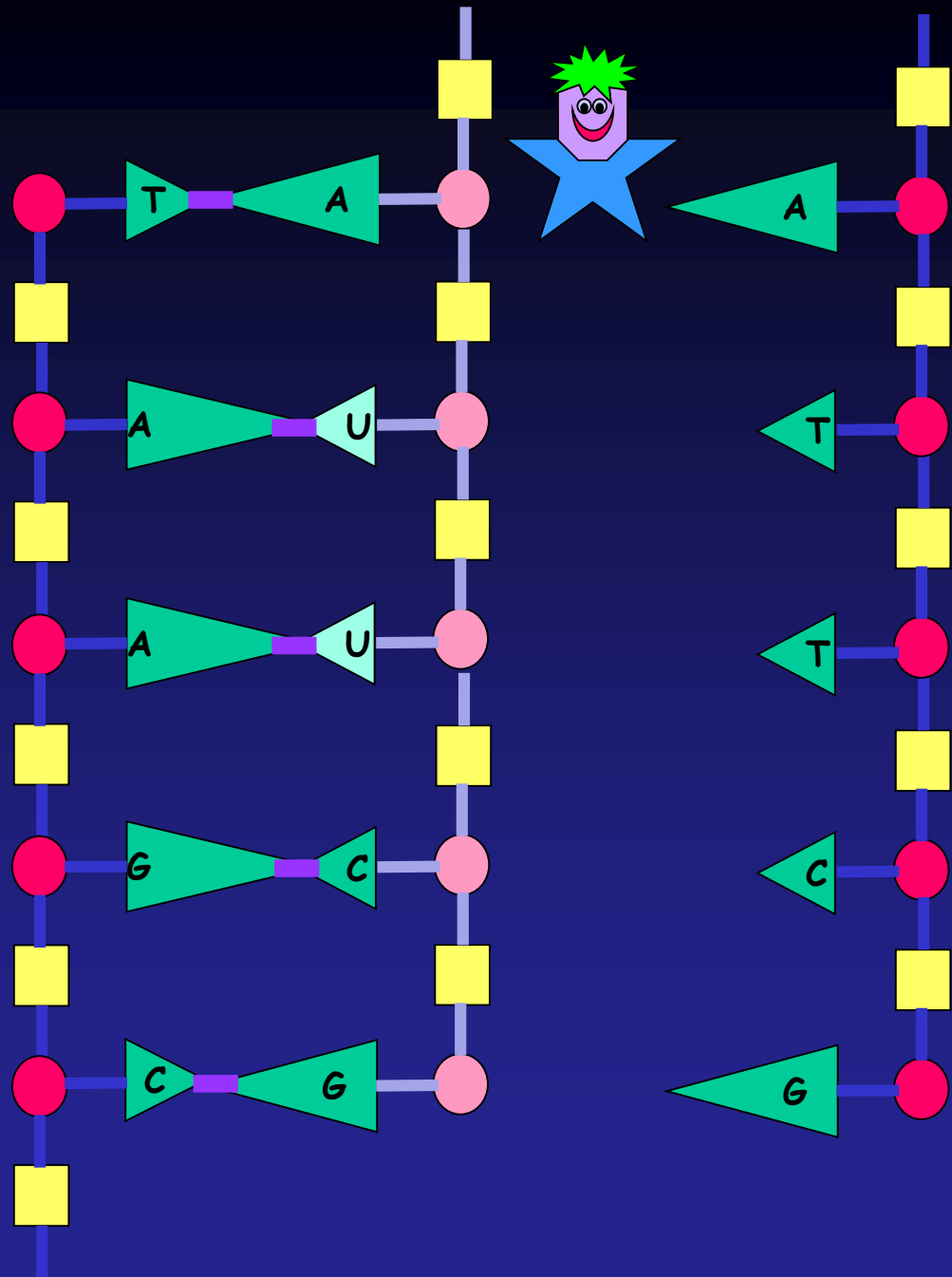
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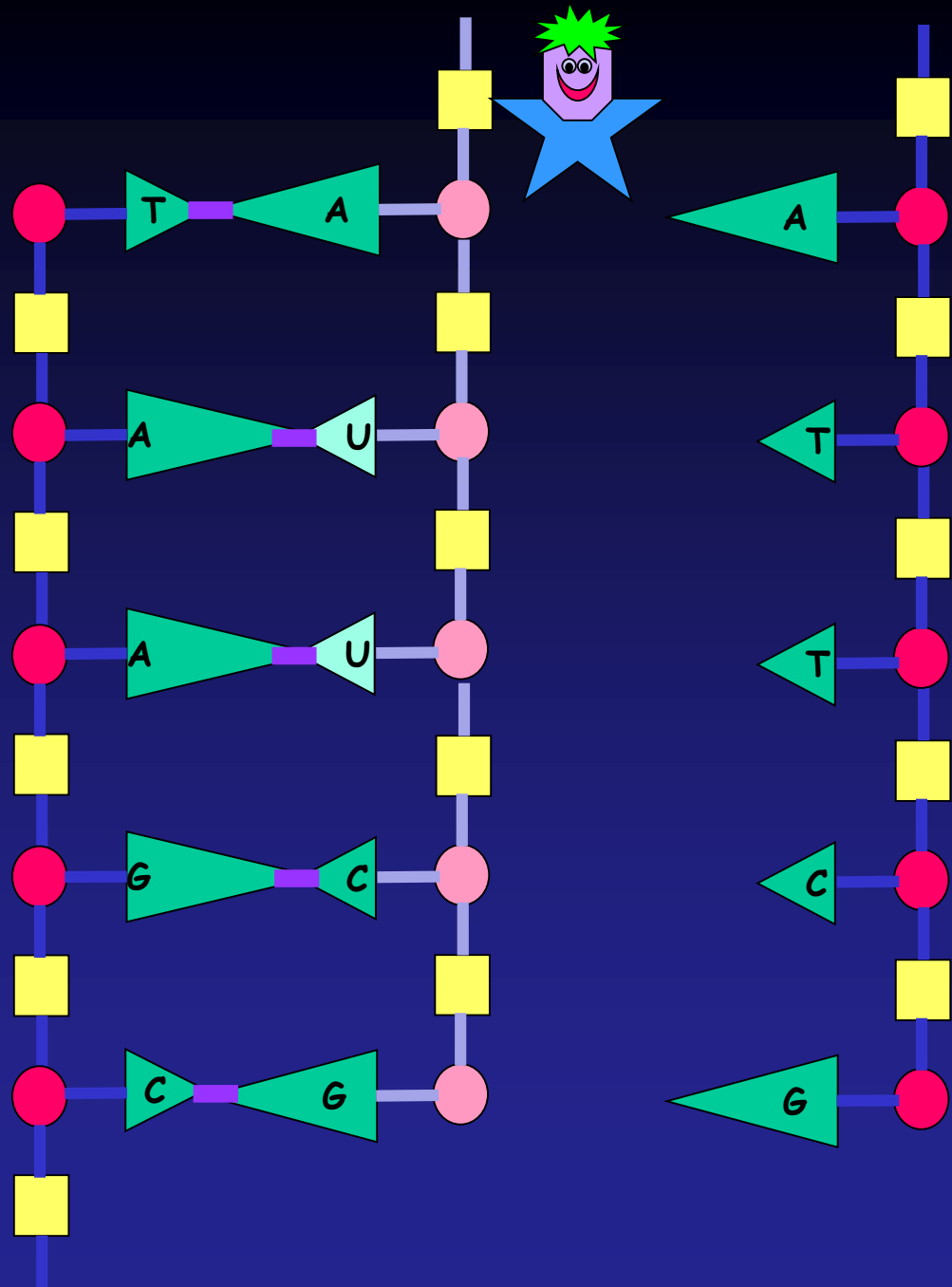
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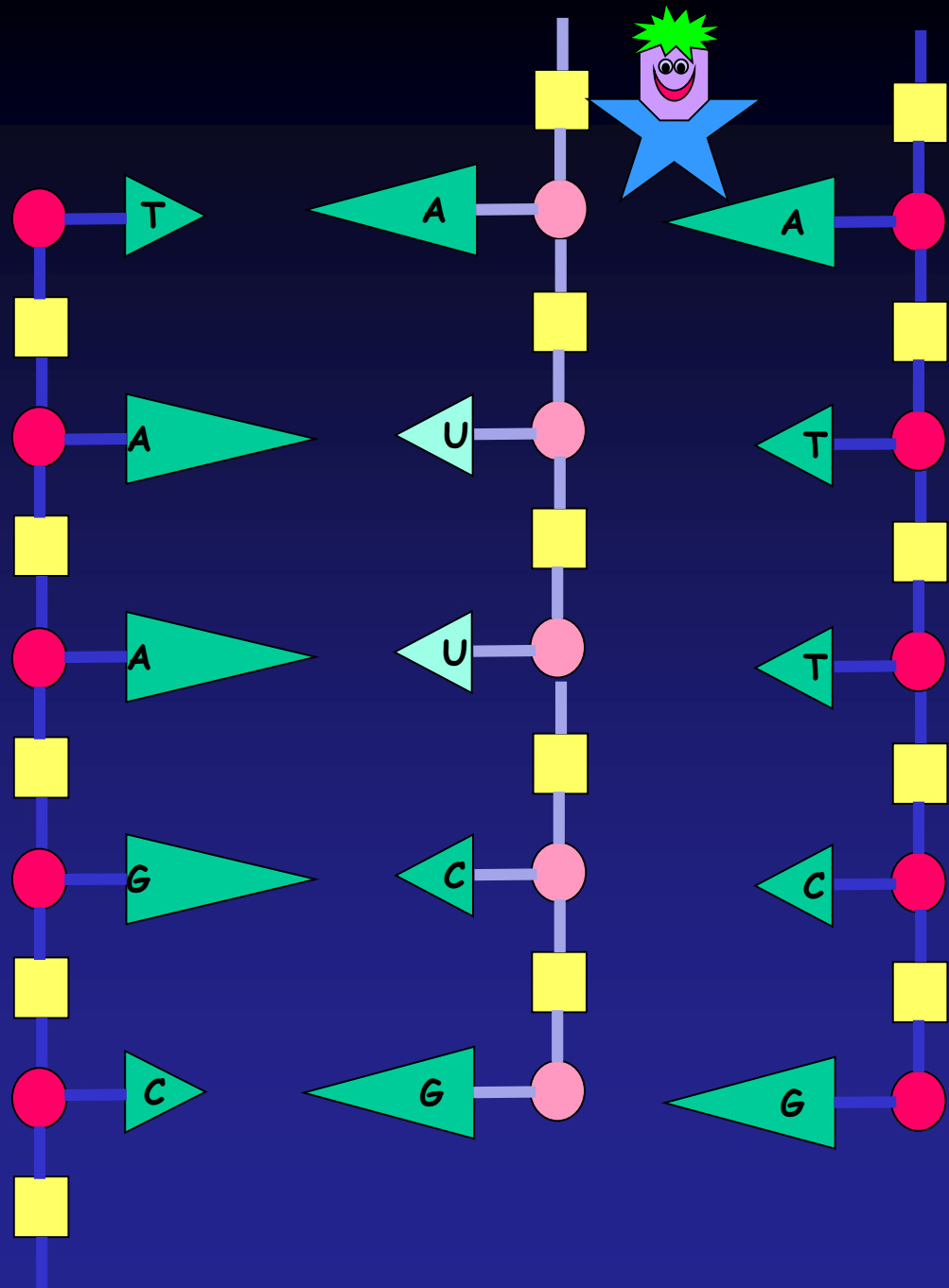
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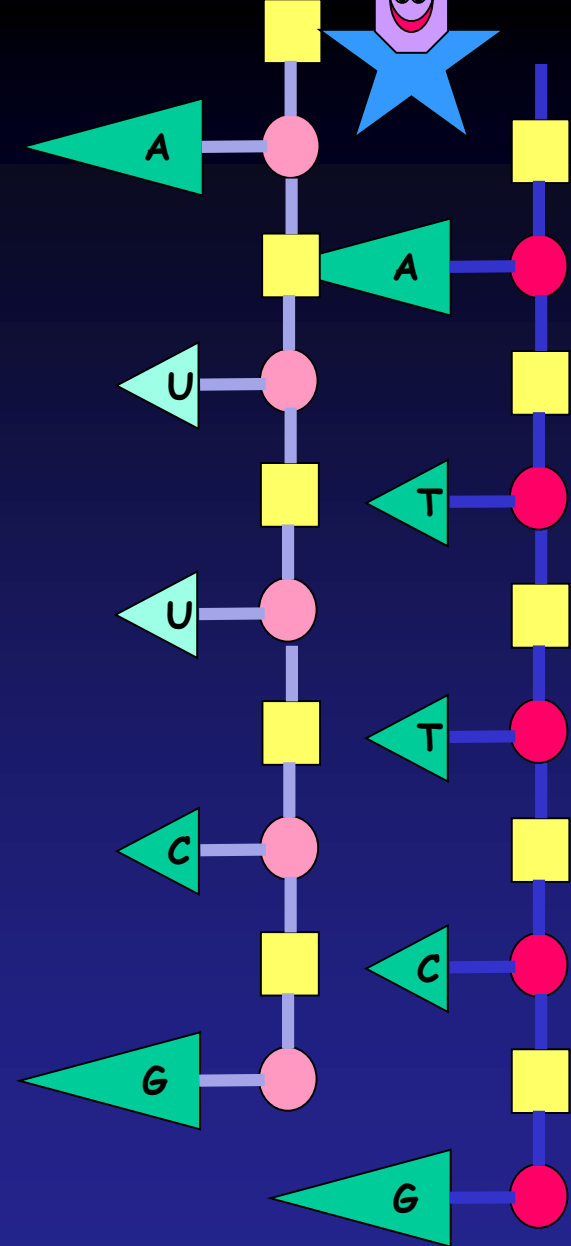
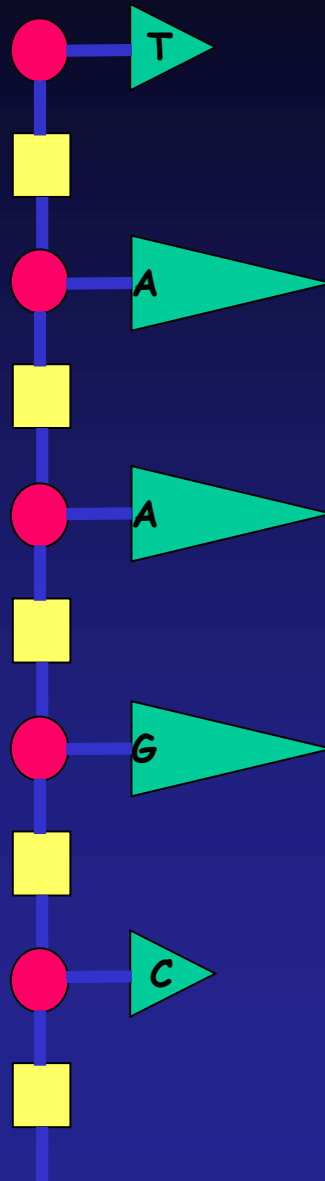
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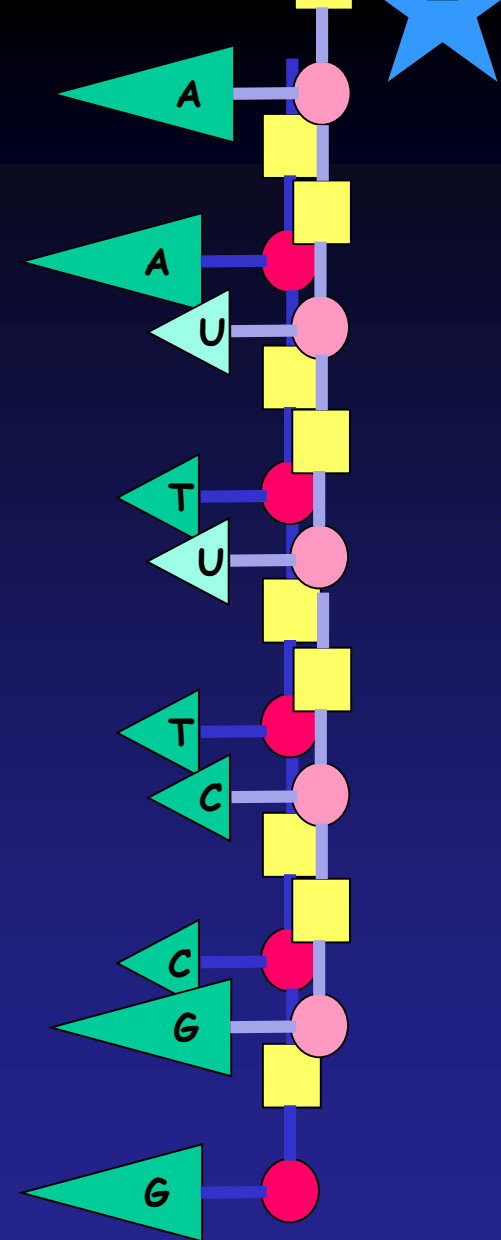
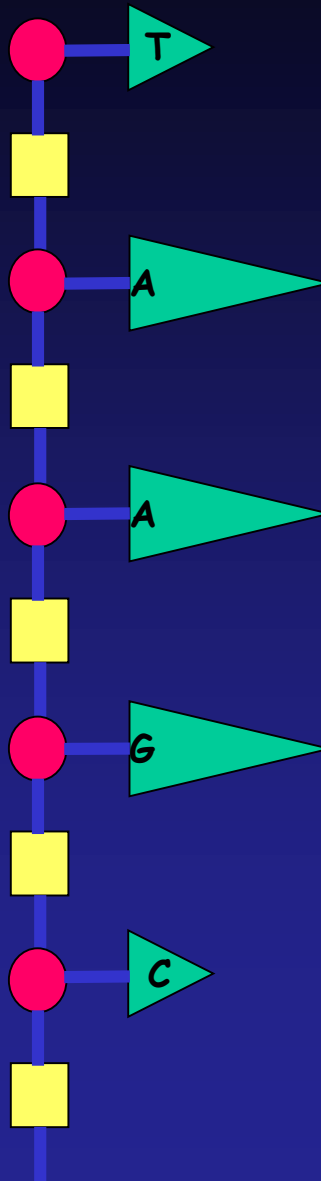
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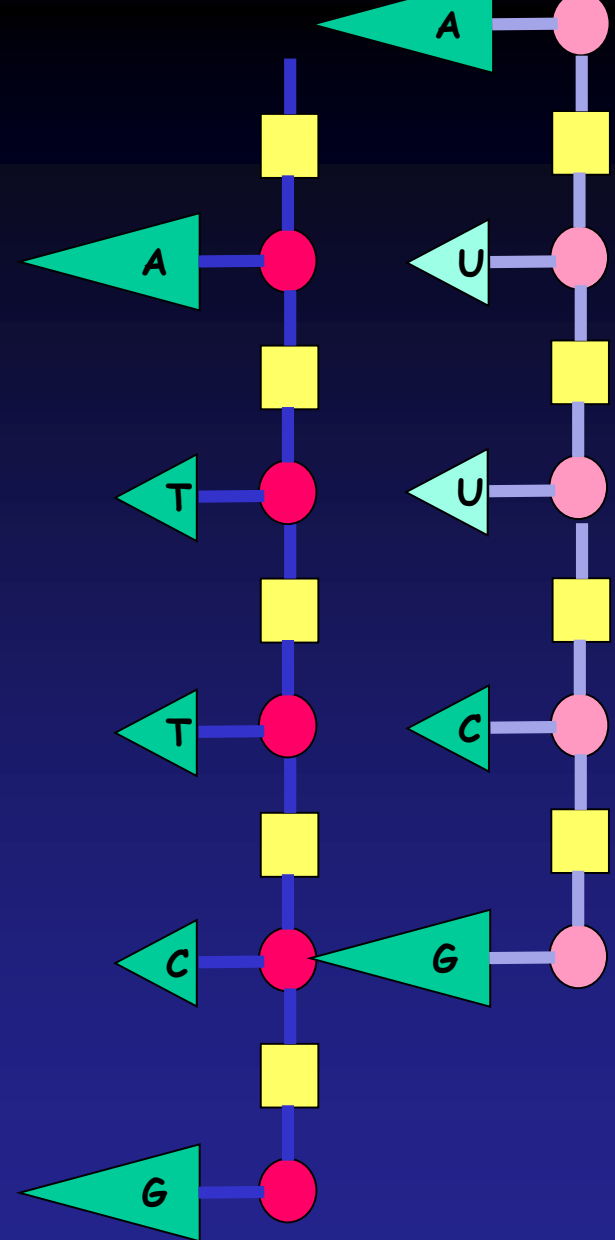
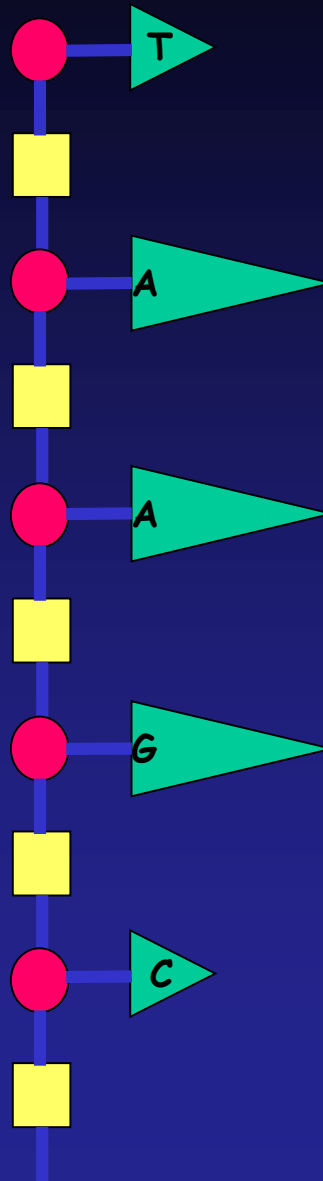


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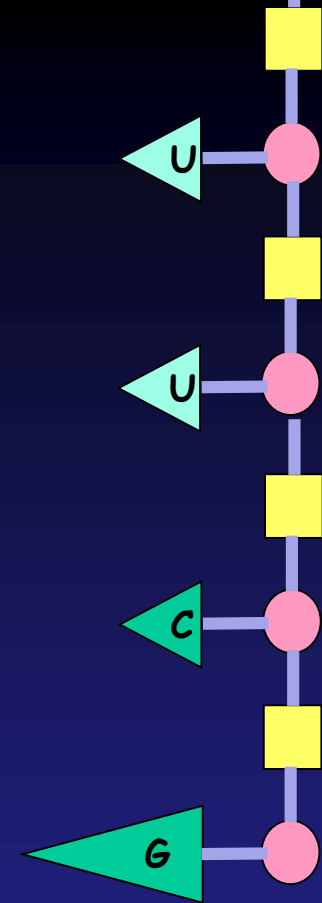
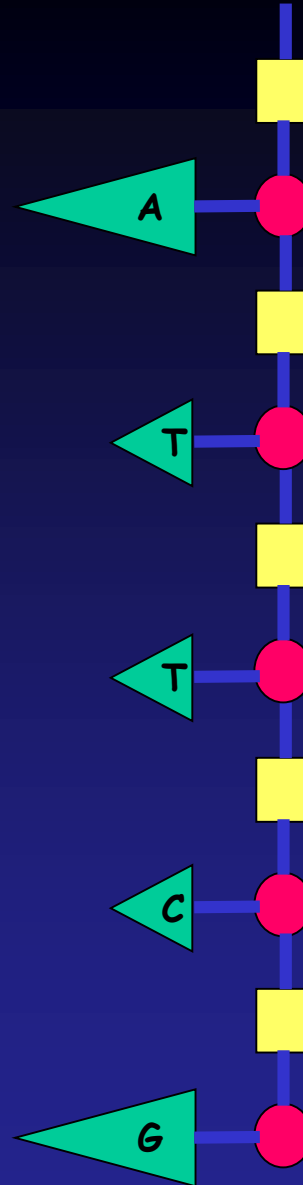
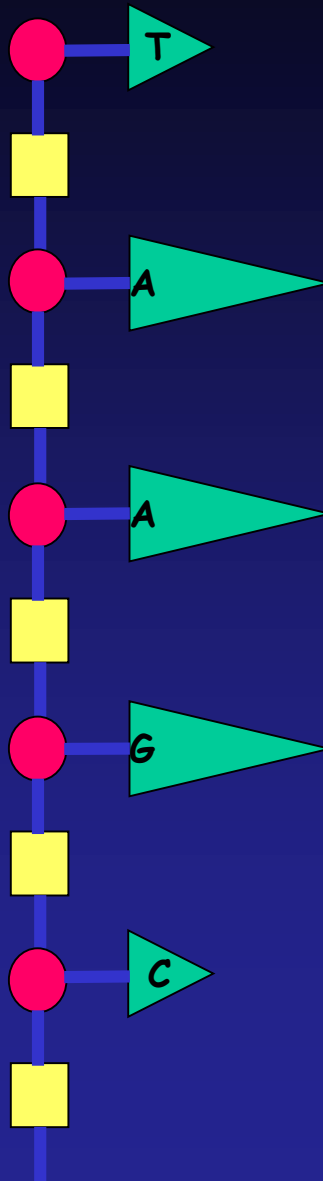




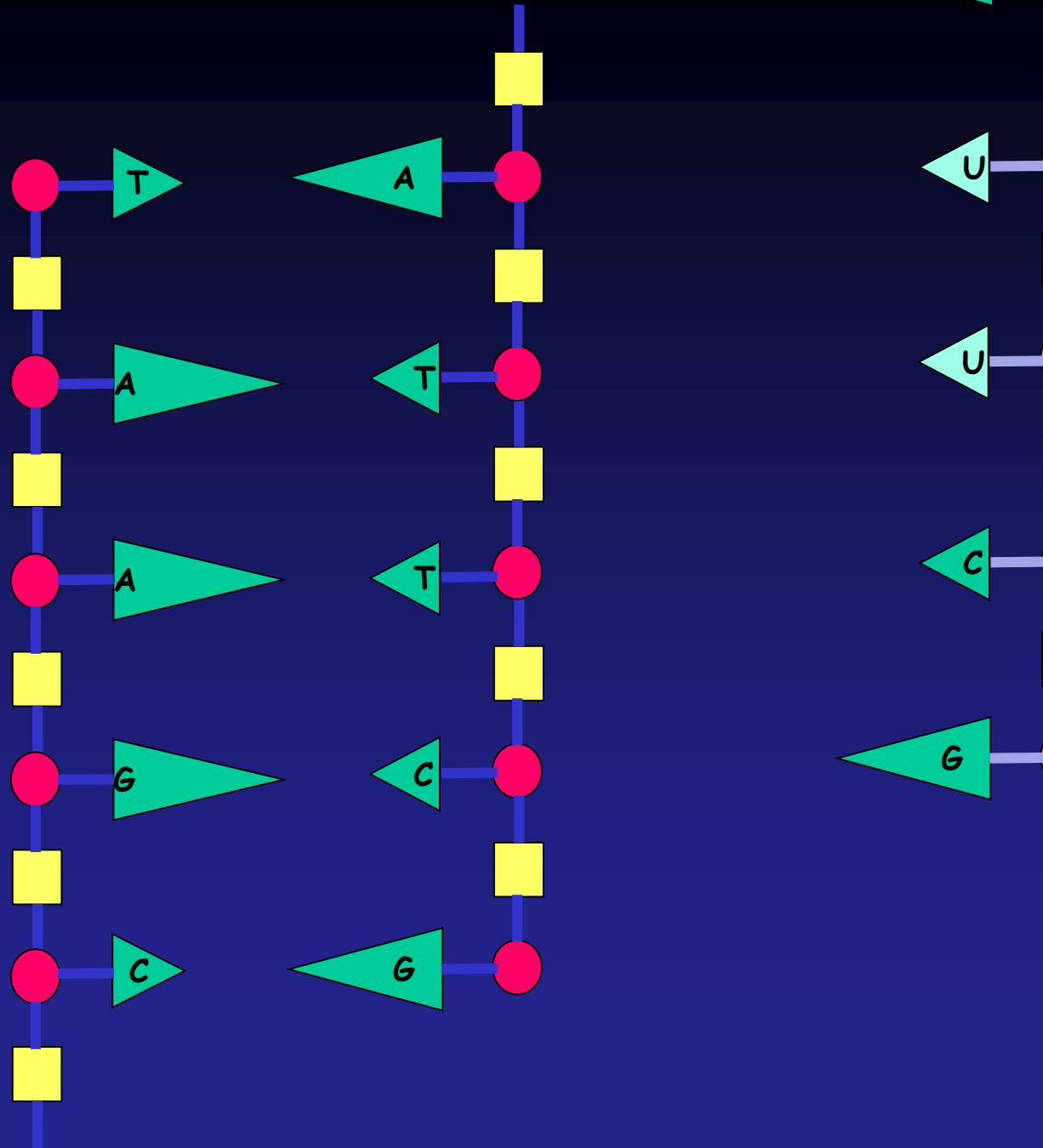
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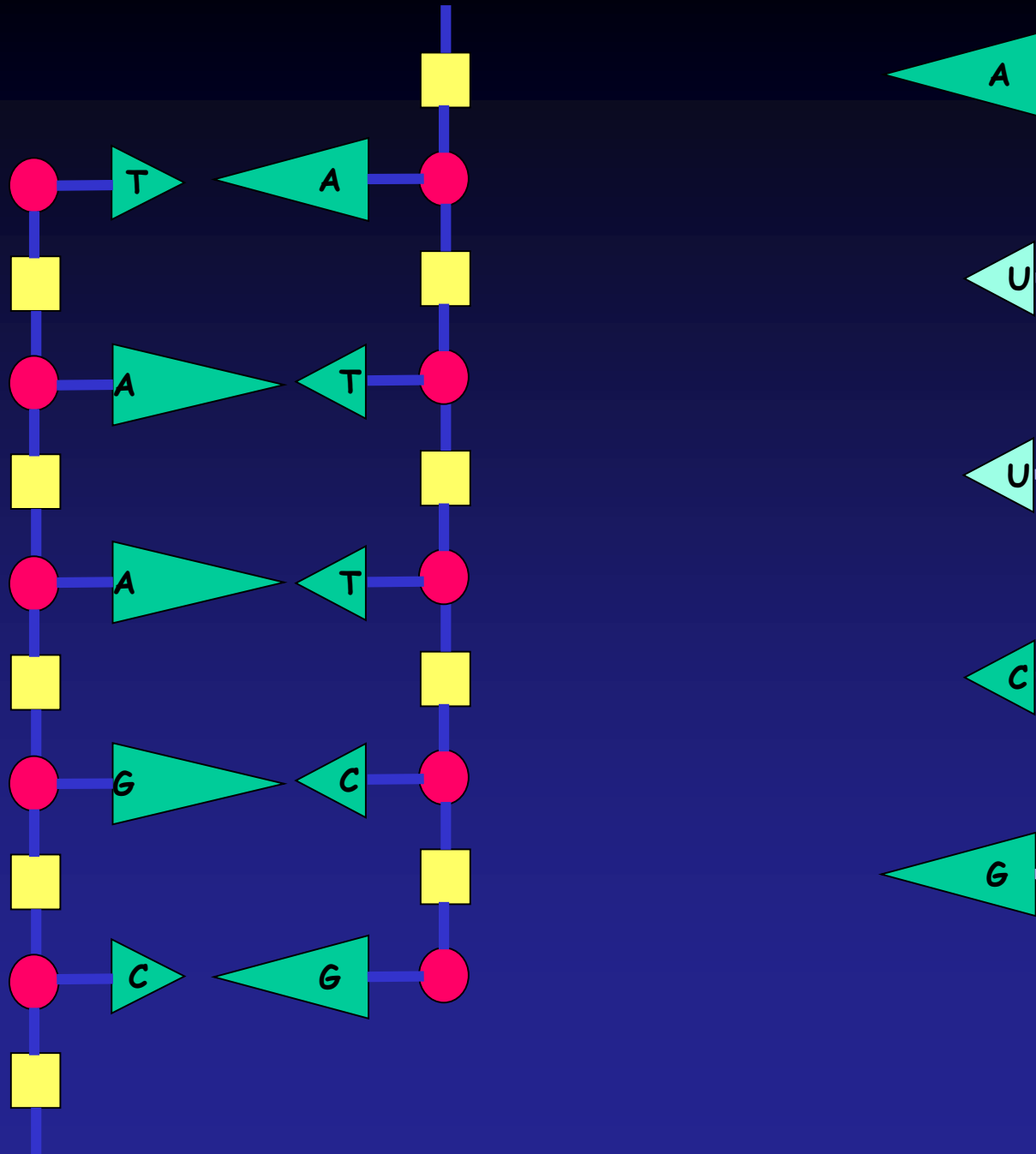
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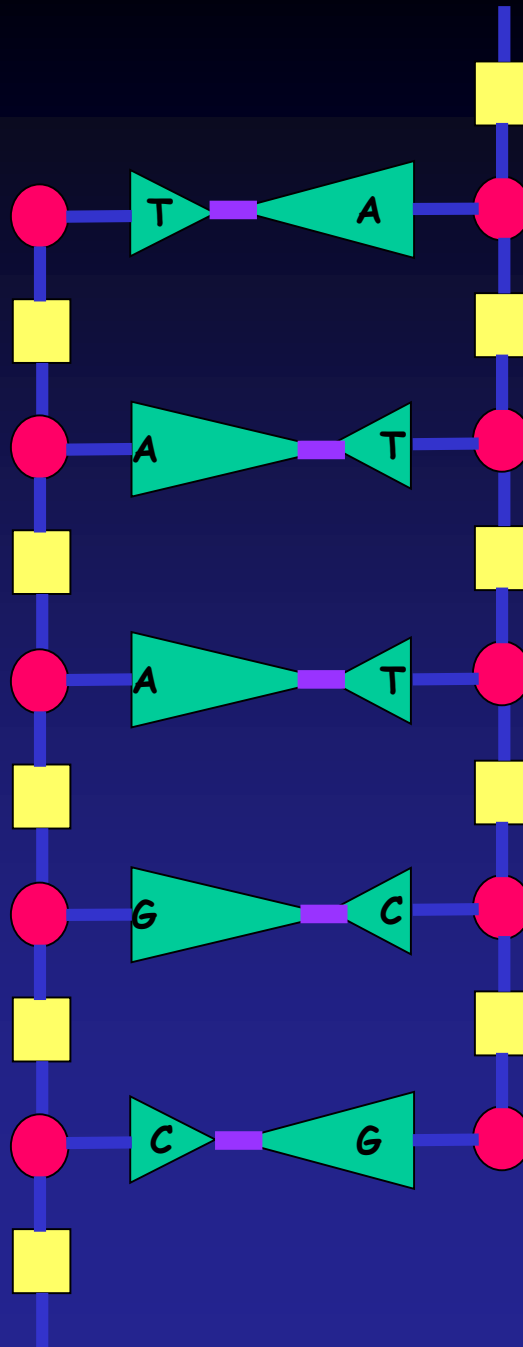
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# • TRANSCRIPTION



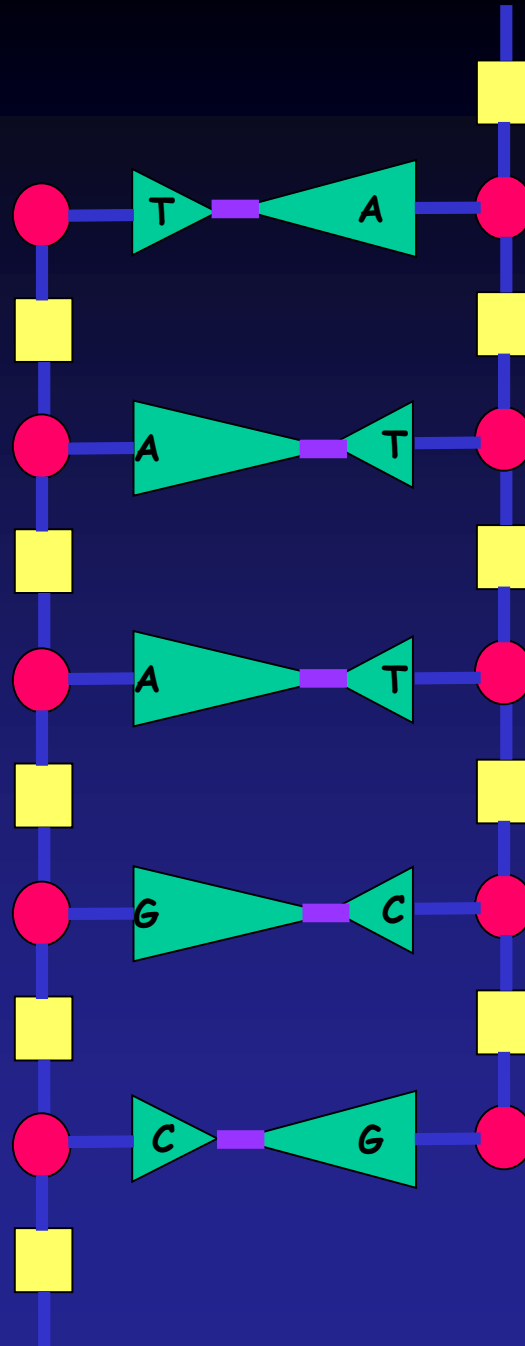
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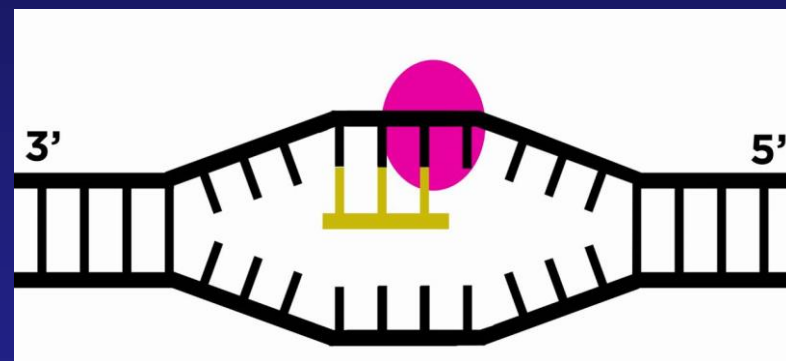
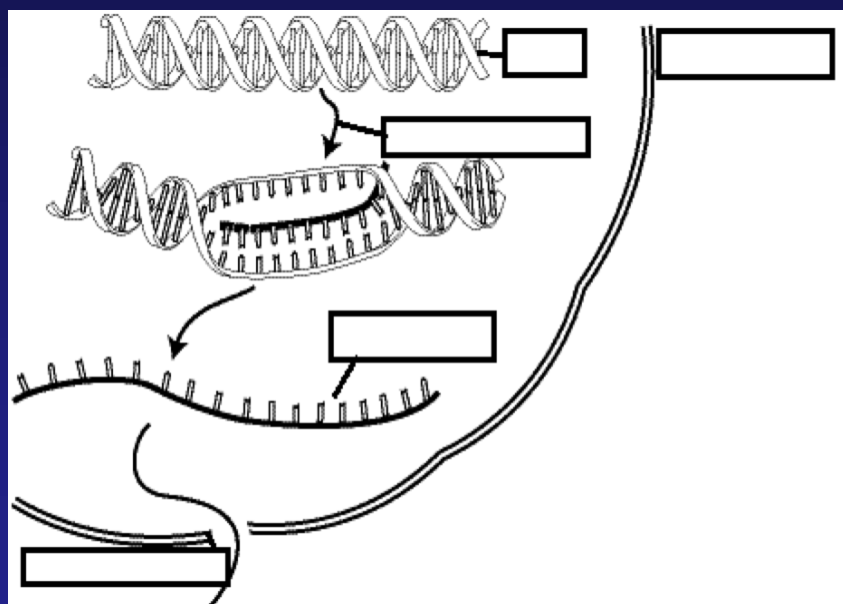
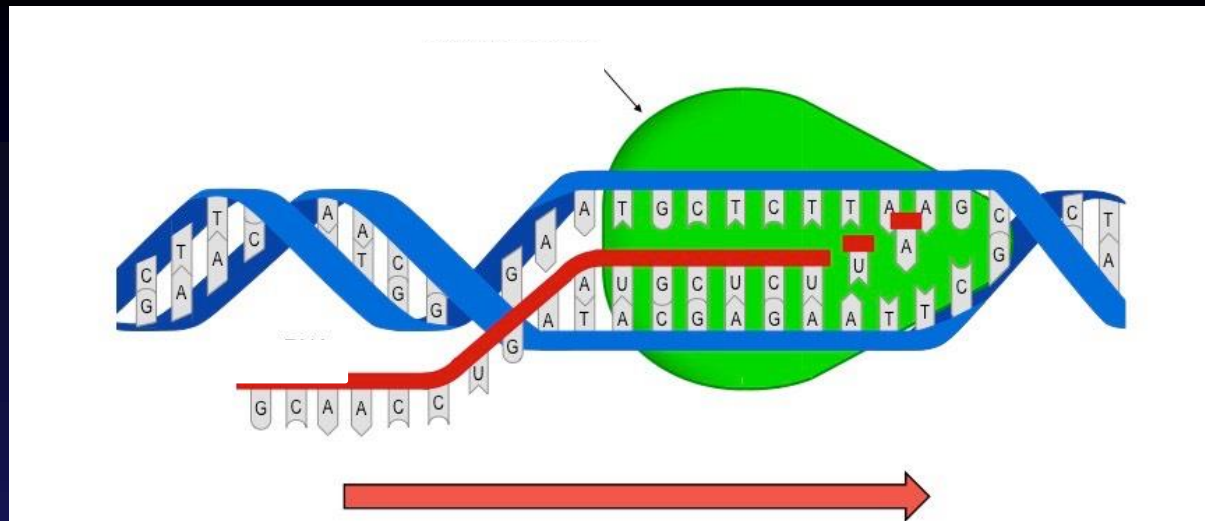
# TRANSCRIPTION

is finished!

• Now, where did the  
mRNA go?



• TO THE  
RIBOSOME, IN  
THE CYTOPLASM!



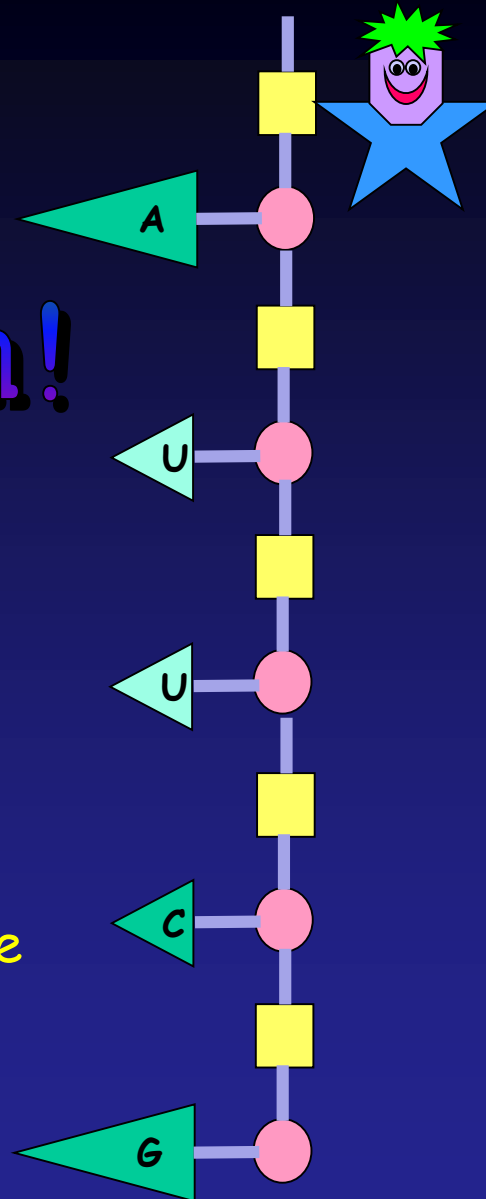
Cytoplasm



This Way!



# Welcome to the Cytoplasm!



Hello, my name is  
**RIBOSOME**

I am a  
**PROTEIN FACTORY**

•Now, why did we come  
to the cytoplasm?

•To find the  
**RIBOSOME**, so it  
will build the  
protein coded for  
by this piece of  
mRNA.

- Match the mRNA bases that would join to this DNA during transcription:

GCCGTAATAGCAAG