

► **Problem 11.3-1 (g)**

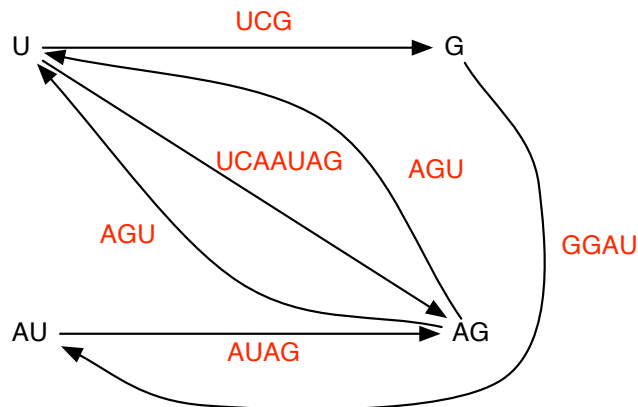
Answer the following question for each pair of fragment lists given.

- i. From how many RNA chains could the given list of G-fragment arise? From how many chains could the given list of U,C-fragment arise? Which of these number provides a better estimate of the number of RNA chains whose G-fragments and U,C-fragments are as described?
- ii. Find all RNA chains with the given complete enzyme digests.

G-fragments: UCG, AUAG, AG, UCAAUAG, G

U,C-fragments: C, AGU, AG, GGAU, C, AGU, AAU

Solution. The G-fragments arise from any of $5! = 120$ possible chains. Since the chain ends AG, the U,C-fragments arise from any of $6!/(2!2!) = 180$ chains. The better estimate is 120 chains. Note that there are four Eulerian circuits ending at AG, but only two of these represent different solutions (because arc AGU is repeated). The solutions are AGUCAAUAGUCGGAUAG and AGUCGGAUAGUCAAUAG.



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