Rna motivation

RNA is made up of strands of four different bases that encode genomic information in specific ways. The bases are elements of the set $B = \{A, C, U, G\}$.

Formally, to define the set of all RNA strands, we need more than roster method or set builder descriptions.

Recursive sets definition

New! Recursive Definitions of Sets: The set S (pick a name) is defined by:

Basis Step: Specify finitely many elements of S

Recursive Step: Give rule(s) for creating a new element of S from known values existing in S,

and potentially other values.

The set S then consists of all and only elements that are put in S by finitely many (a nonnegative integer number) of applications of the recursive step after the basis step.

Set recursive examples

Definition The set of nonnegative integers \mathbb{N} is defined (recursively) by:	
Basis Step: Recursive Step:	
Examples:	
Definition The set of all integers \mathbb{Z} is defined (recursively) by:	
Basis Step: Recursive Step:	
Examples:	
Definition The set of RNA strands S is defined (recursively) by:	
Basis Step: $A \in S, C \in S, U \in S, G \in S$ Recursive Step: If $s \in S$ and $b \in B$, then $sb \in S$	
where sb is string concatenation.	
Examples:	
Definition The set of bitstrings (strings of 0s and 1s) is defined (recursively) by:	
Basis Step: Recursive Step:	
<i>Notation:</i> We call the set of bitstrings $\{0,1\}^*$.	
Examples:	