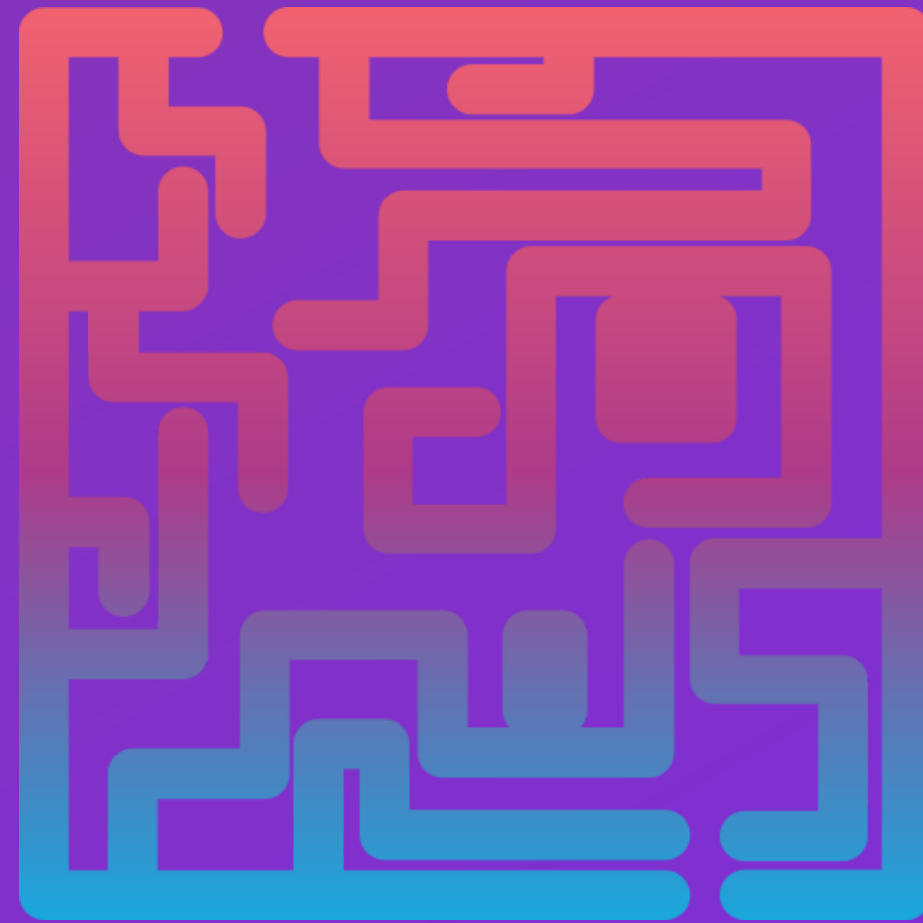
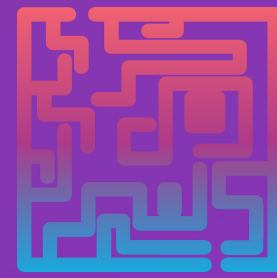


THE BIG-O NOTATION

In programming, the complexity of a given algorithm is given in what is called the "Big-O notation".

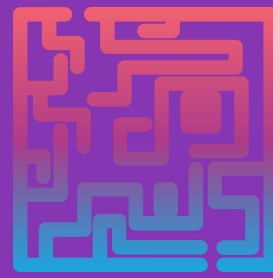


THE BIG-O



- **$O(1)$ or constant complexity.** The algorithm takes the same number of steps to execute regardless of how much data is passed in.
This is the best-case scenario for an algorithm.

THE BIG-O



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This is the best-case scenario for an algorithm.


$O(n)$ or linear complexity. The algorithm takes as many steps as there are elements of data as input. The algorithm takes proportionally longer to complete as the input grows.

THE BIG-O



Python sets are implemented as **Hash Tables** and have on average a complexity of **$O(1)$** for the lookup, insert or delete operations.

THE BIG-O

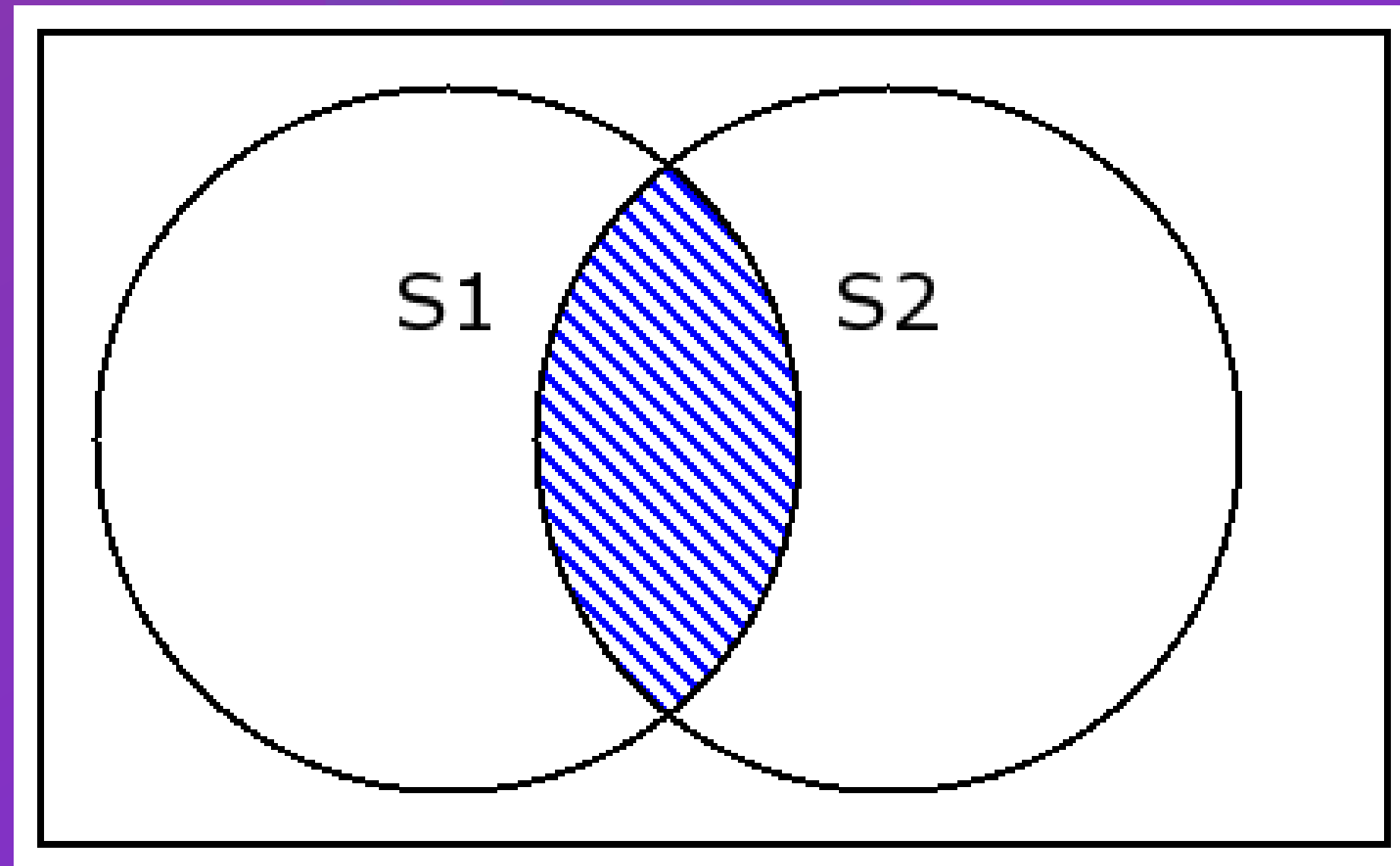


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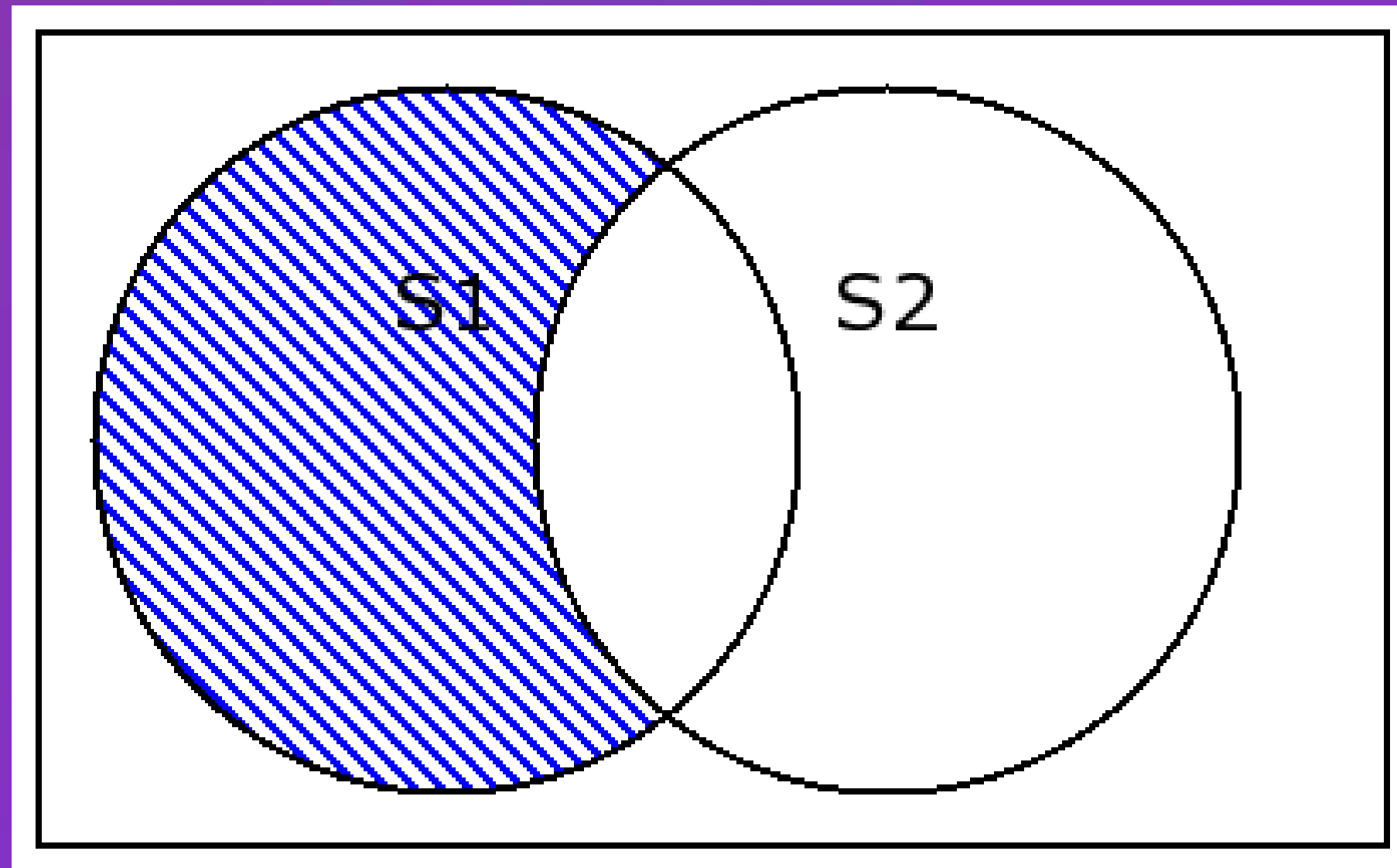


Python lists have on average an **$O(n)$** complexity for the same operations.

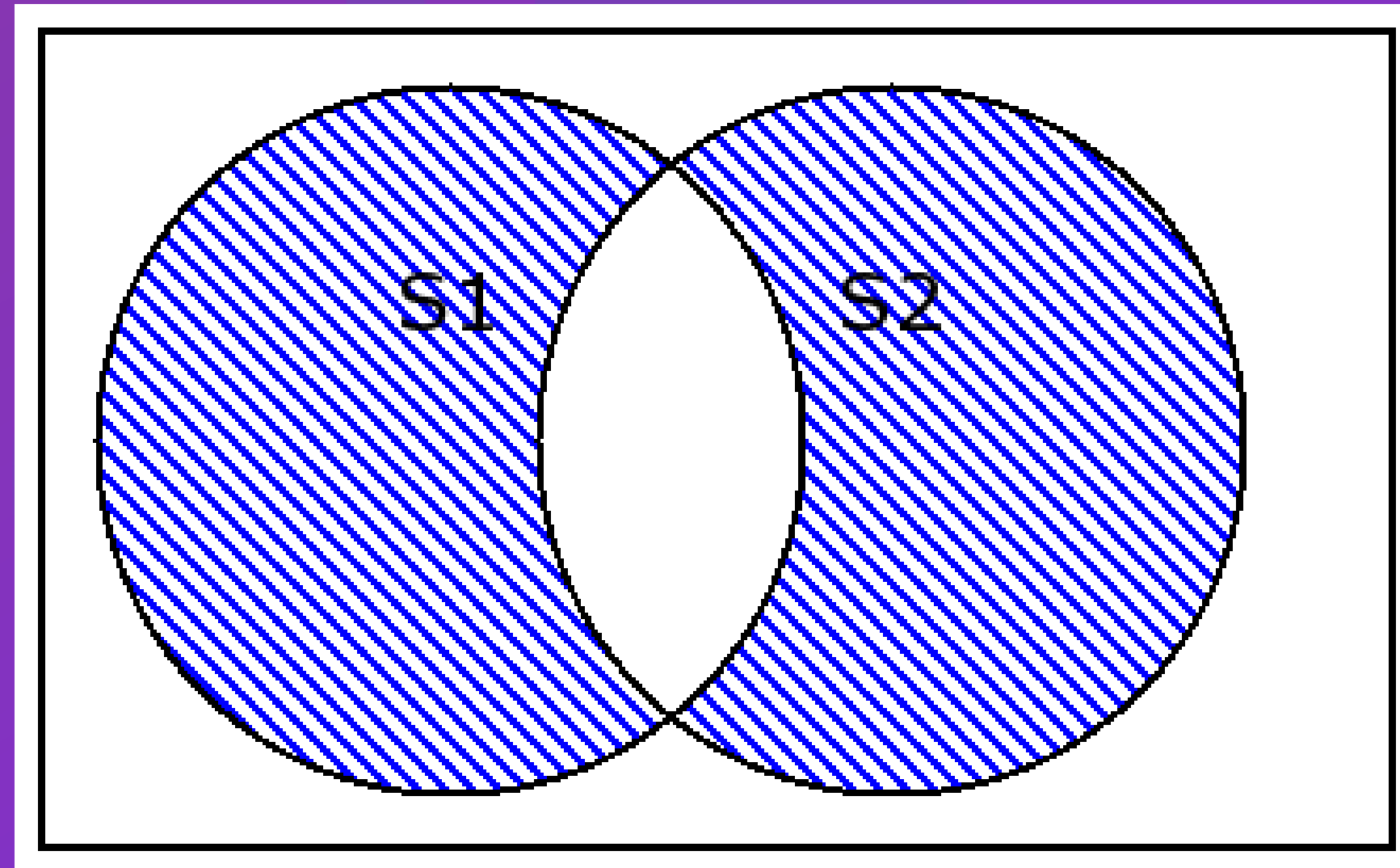
INTERSECTION (&)



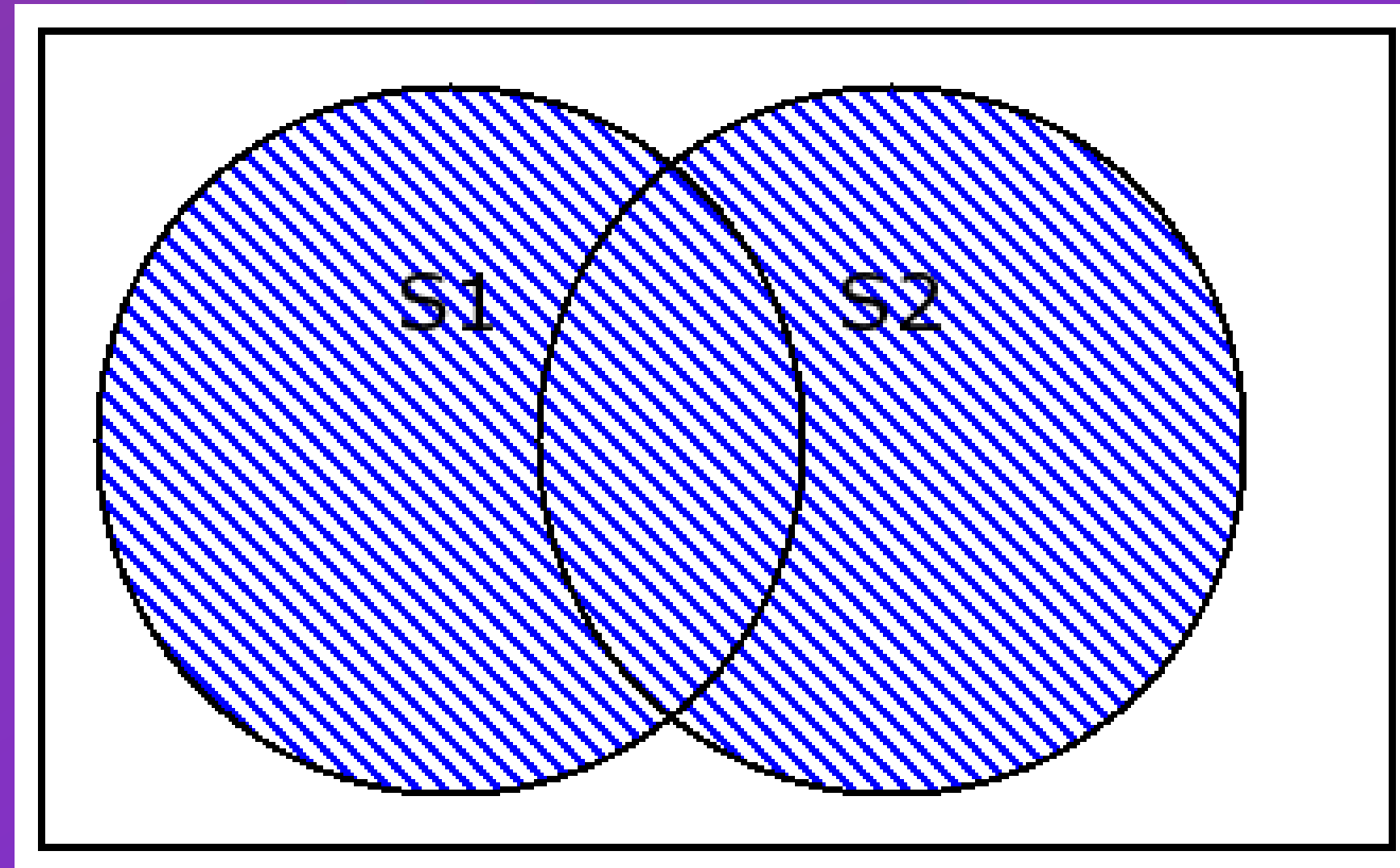
DIFFERENCE (-)



SYMMETRIC DIFFERENCE (^)



UNION (I)



FROZENSETS

Frozensets are immutable sets.



FROZENSETS

Being immutable, frozen sets can be used as keys in dictionaries or as elements in another set or frozenset.

