

Experiment 'p6_2_b_shift_right' Results

December 18, 2025

Experiment outcome: SUCCESS

Bad responses: 0

Responses containing assume : 0

Resolution attempts: 1

Hard fails (resolution): 0

Soft fails (resolution): 0

Verification attempts: 1

Problem Specification

Problem name: p6_2_b_shift_right

Natural language statement: Write a method to shift all elements of an array by one to the right and move the last element into the first position. For example, [1, 4, 9, 16, 25] would be transformed into [25, 1, 4, 9, 16].

Method signature: p6_2_b_shift_right(arr: seq<int>) returns (result: seq<int>)

Ensures

- `|result| == |arr|`
- `result[0] == arr[|arr| - 1]`
- `forall i :: 1 <= i < |arr| ==> result[i] == arr[i - 1]`

Requires

- `|arr| >= 1`

GenAI interactions

Below you will find all interactions between the ‘user’ (program) and the ‘assistant’ (OpenAI).

Program → GenAI

You are given the following task to perform in Dafny:

Write a method to shift all elements of an array by one to the right and move the last
→ element into the first position. For example, [1, 4, 9, 16, 25] would be
→ transformed into [25, 1, 4, 9, 16].

The signature should be:

```
method p6_2_b_shift_right(arr: seq<int>) returns (result: seq<int>)
```

The method should respect the following contract:

```
requires |arr| >= 1, ensures |result| == |arr|, ensures result[0] == arr[|arr| - 1],  
→ ensures forall i :: 1 <= i < |arr| ==> result[i] == arr[i - 1]
```

Produce and show only the Dafny body of this method, including the curly braces that
→ surround it. Do not show the signature nor contract. You must not use 'assume'
→ anywhere in your code.

GenAI → Program

System fingerprint:

ID: chatcmpl-Co55v8jul9vcrfoEhcFQ1AutfF23i

Model: gpt-5.1-chat-latest

Created at: 1766052019

Finish reason: stop

Usage: 444 tokens in, and 116 tokens out

```
{  
  var n := |arr|;  
  result := arr[n - 1 .. n] + arr[0 .. n - 1];  
}
```

Final Program

```
method p6_2_b_shift_right(arr: seq<int>) returns (result: seq<int>)  
  requires |arr| >= 1  
  ensures |result| == |arr|  
  ensures result[0] == arr[|arr| - 1]  
  ensures forall i :: 1 <= i < |arr| ==> result[i] == arr[i - 1]  
{  
  var n := |arr|;  
  result := arr[n - 1 .. n] + arr[0 .. n - 1];  
}
```

Total Token Usage

Input tokens: 444

Output tokens: 116

Reasoning tokens: 64

Sum of 'total tokens': 560

Experiment Timings

Overall Experiment started at 1766052020688, ended at 1766052024297, lasting 3609ms (3.61 seconds)

Iteration #1 started at 1766052020688, ended at 1766052024297, lasting 3609ms (3.61 seconds)