Parameter-Passing Methods (cont’d)

- Exercise 5.1 (Sethi, pp. 198):

1. int i, A[2]
2. i = 1
3. Procedure foo (int x, int y)
4. int temp
5. temp = x
6. x = y
7. i = 0
8. y = temp
9. end
10. A[0] = 0
12. foo(i, A[i])
13. write i, A[0], A[1]

The Outputs:

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>(a)</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(c)</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(d)</td>
<td>0</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>

Note that in pass-by-name, i in foo will not be renamed, since it is a global variable. You may write down the execution of the code step by step for each case.

- **pass-by-value**: (foo) x=1, y=2, temp=1, x=2, i=0, y=1; (main) i=0, A[0]=0, A[1]=2
- **pass-by-reference**: (foo) x=1, y=2, temp=1, x=2, i=0, y=1; (main) i=0, A[0]=0, A[1]=1
- **pass-by-value-result**: (foo) x=1, y=2, temp=1, x=2, i=0, y=1; (main) i=2, A[0]=0, A[1]=1
- **pass-by-name**: (foo) temp=1, x(i)=y(A[i]) → i=2, i=0, y(A[i])=temp → A[0]=1; (main) i=0, A[0]=1, A[1]=2