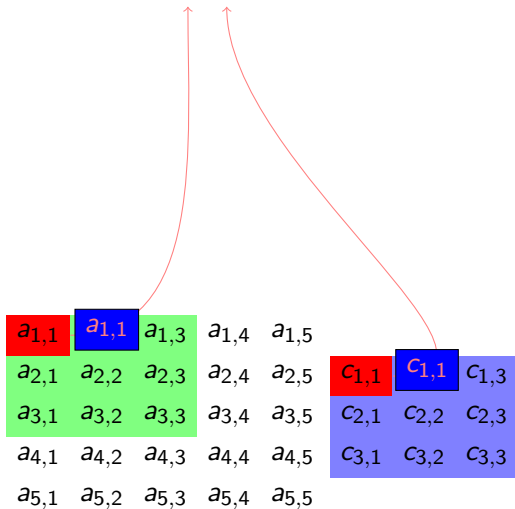
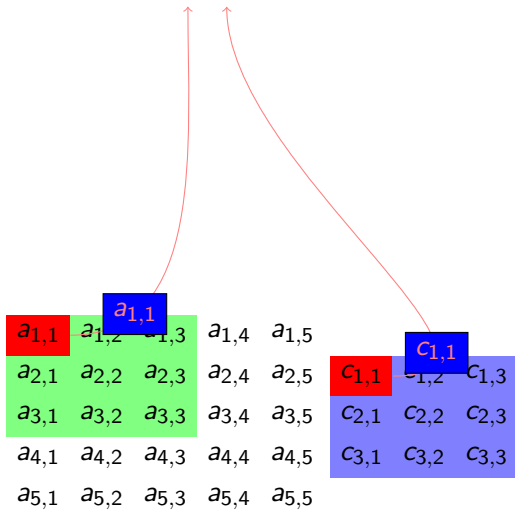
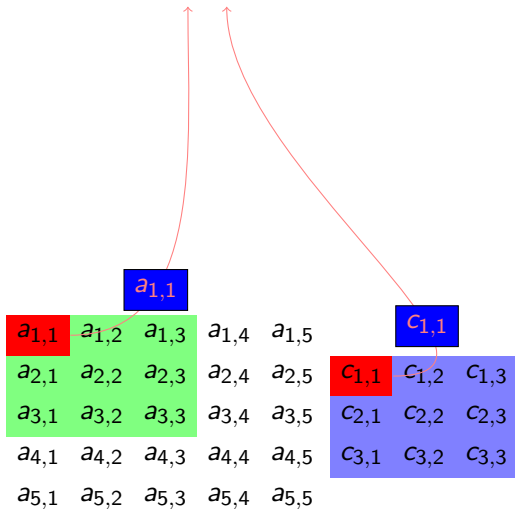
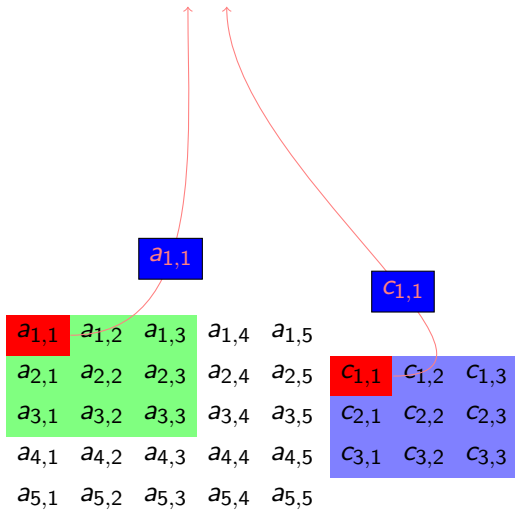


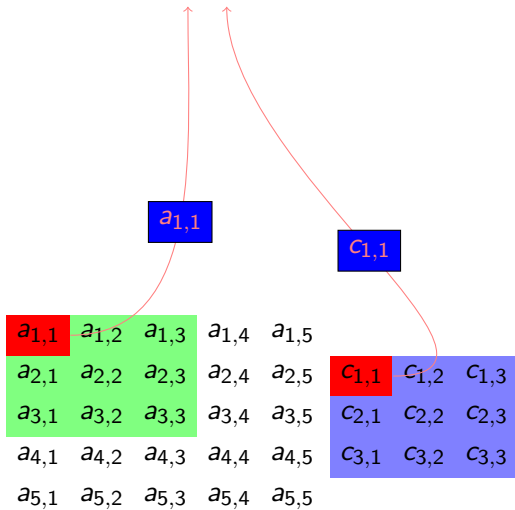
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

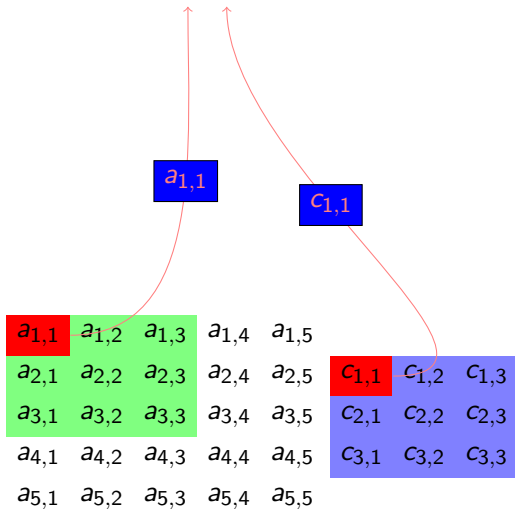


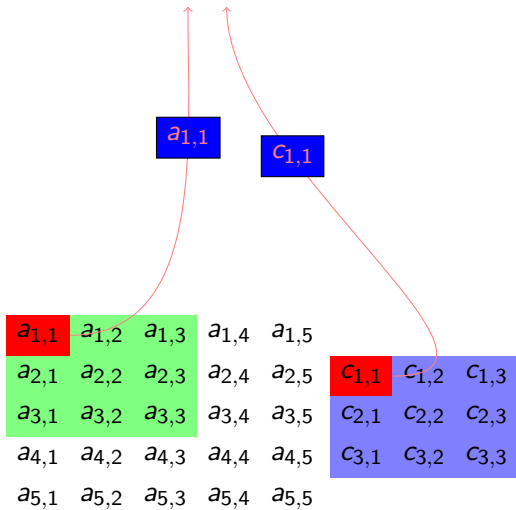


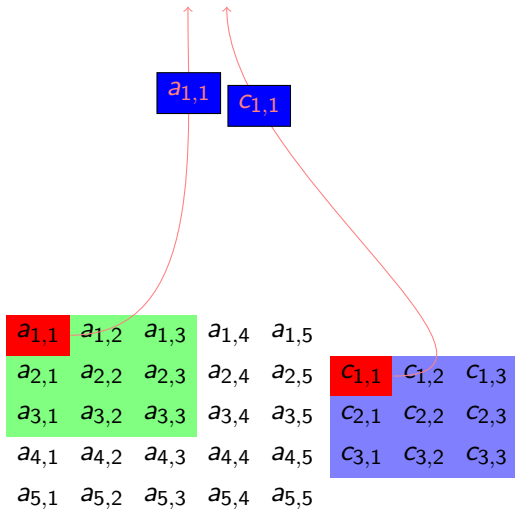


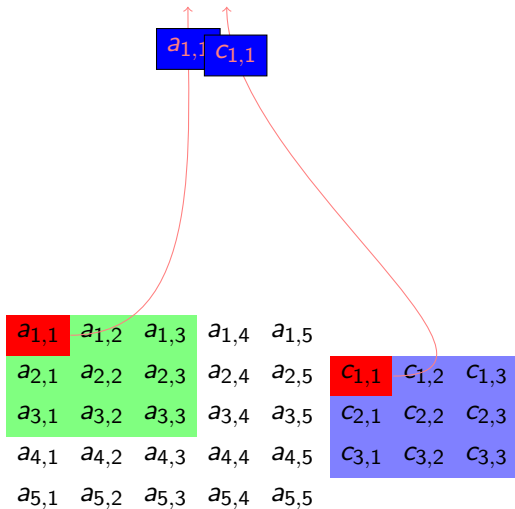












$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,2}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$$a_{1,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$$a_{1,1} \times c_{1,1} +$$

$$a_{1,2}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$a_{1,1} \times c_{1,1} +$$

$$a_{1,2}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} +$$

$$a_{1,2}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} +$$

$$a_{1,2}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} +$$

$$a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} +$$

$$a_{1,2} c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$c_{1,4}$	
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$a_{1,3}$

$c_{1,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$a_{1,3}$

$c_{1,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$a_{1,3}$

$c_{1,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$a_{1,3}$

$c_{1,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,3}$

$c_{1,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$$a_{1,3} \times c_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} +$$

$a_{1,3}$

$c_{1,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

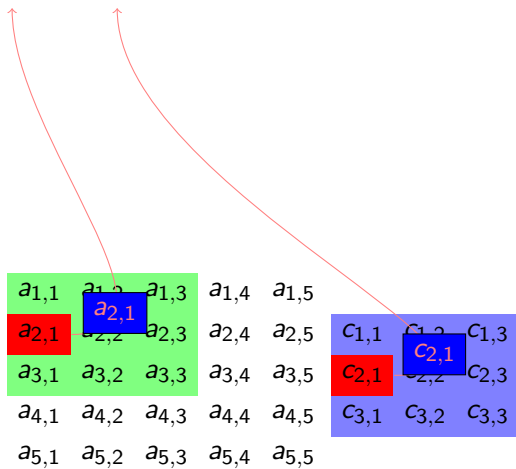
$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,1}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$



$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$
					$c_{3,3}$

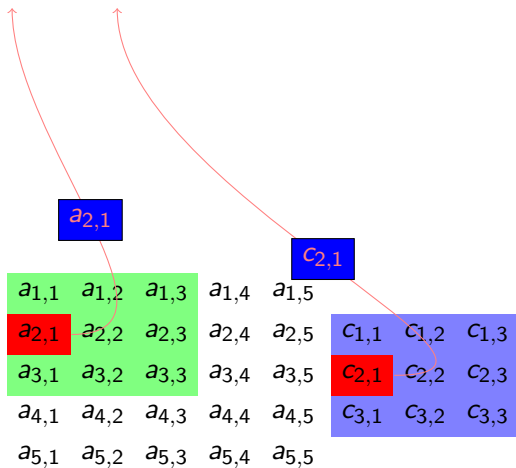
$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{2,1}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$
					$c_{3,3}$

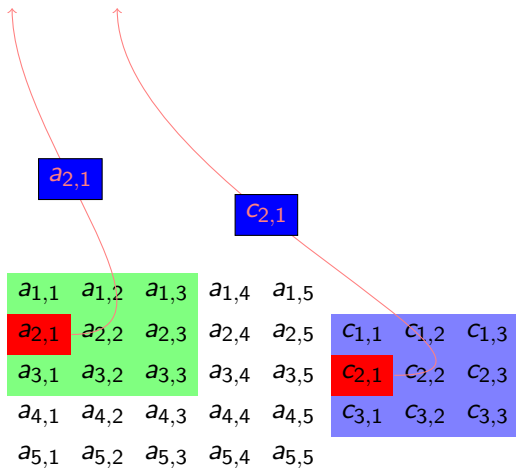
$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

The diagram illustrates the dot product of two vectors a and c . A 5x5 grid of elements $a_{i,j}$ is shown. The first column (elements $a_{i,1}$) is highlighted in red, and the second row (elements $a_{2,j}$) is highlighted in green. The intersection element $a_{2,1}$ is in a blue box. A red arrow points from this box to a blue box containing $c_{2,1}$ in a 3x3 grid of elements $c_{i,j}$. Another red arrow points from the blue box containing $c_{2,1}$ to the top of the page.

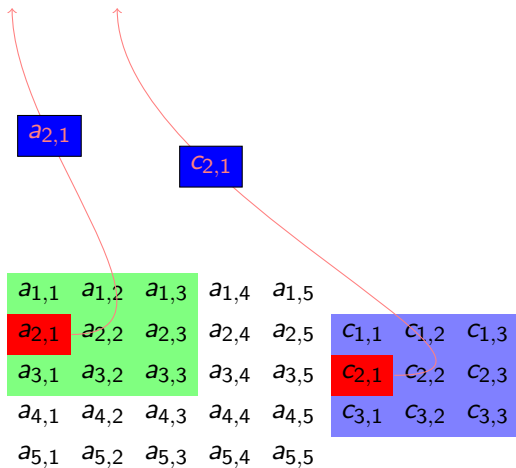
$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$



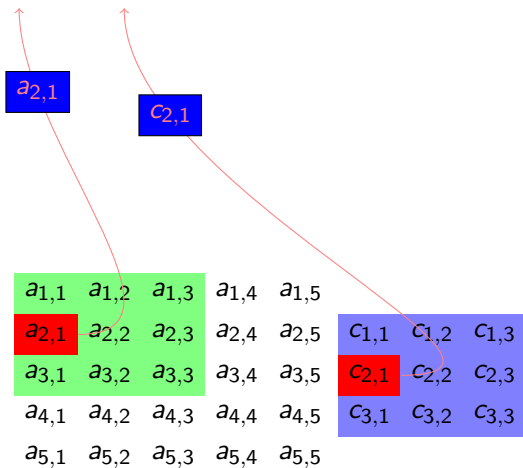
$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$



$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$



$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$



$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1}$$

$$c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,2}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

			$a_{2,2}$		
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$

$a_{2,2}$

$c_{2,2}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{2,2}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$a_{2,2}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$
					$c_{3,3}$

$$a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} +$$

$$a_{2,1} \times c_{2,1} +$$

$$a_{2,2}$$

$$c_{2,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,3}$				
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$		$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,3}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$		$c_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$a_{2,3}$

$c_{2,3}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$a_{2,3}$

$c_{2,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$a_{2,3}$

$c_{2,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$a_{2,3}$

$c_{2,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} +
 \end{aligned}$$

$$a_{2,3}$$

$$c_{2,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$
					$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

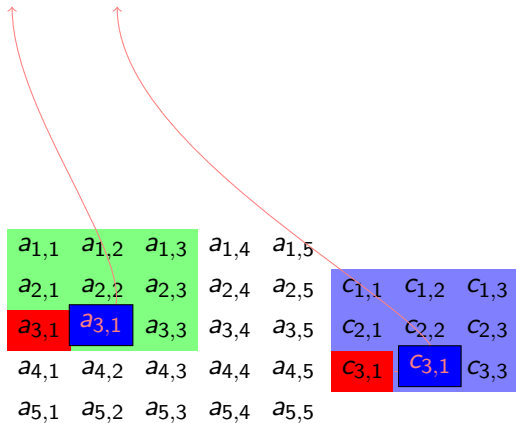
$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

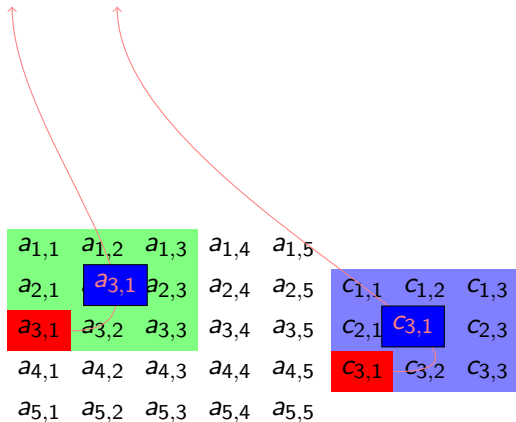


$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,1}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,1}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

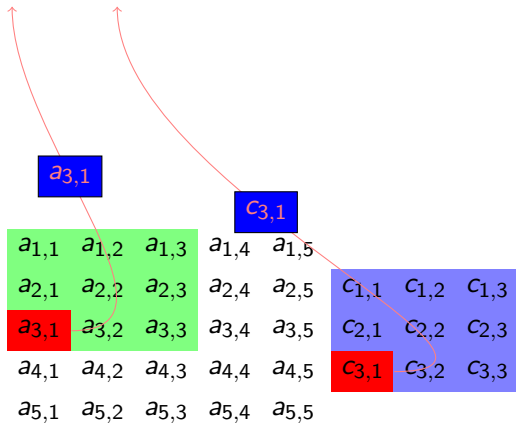


$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

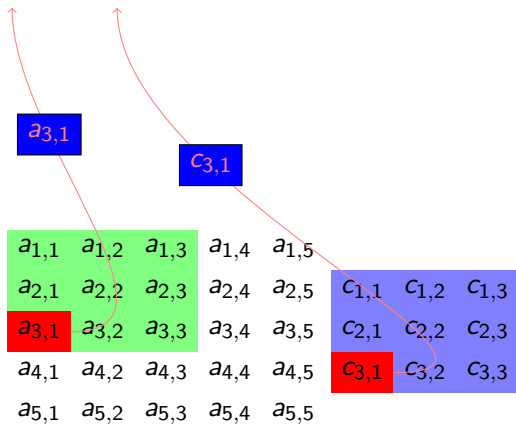
$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{3,1}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{3,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

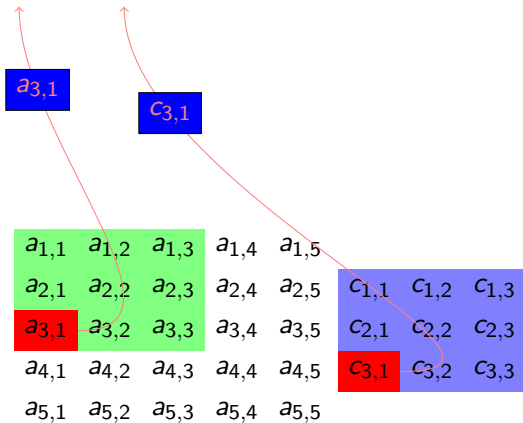
$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} +
 \end{aligned}$$

$a_{3,1}$

$c_{3,1}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$a_{3,2}$

$c_{3,2}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{3,2}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

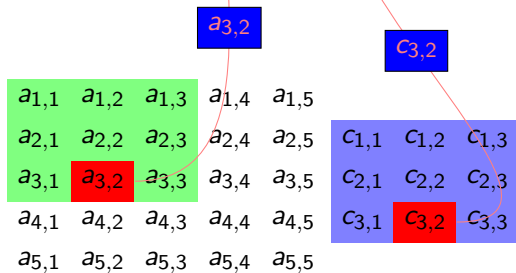
$c_{1,1}$	$c_{1,2}$	$c_{3,2}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

			$a_{3,2}$		
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

	$c_{3,2}$	
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$a_{3,2}$

$c_{3,2}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$a_{3,2}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} +
 \end{aligned}$$

$$a_{3,2}$$

$$c_{3,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$c_{3,4}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$
					$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$a_{3,3}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{3,3}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{3,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$				

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{3,3}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$a_{3,3}$

$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$a_{3,3}$

$c_{3,3}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$a_{3,3}$

$c_{3,3}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} +
 \end{aligned}$$

$a_{3,3}$

$c_{3,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow b_{1,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$b_{1,1}$$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow b_{1,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$b_{1,1}$$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$$b_{1,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$b_{1,1}$$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$$b_{1,1}$$

$$b_{1,1}$$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1}$$

$$b_{1,1}$$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

Diagram illustrating the calculation of the first element of the result vector b , $b_{1,1}$. The calculation involves the first row of matrix A (green boxes) and the first column of matrix C (blue boxes). The result is shown in a red box labeled $b_{1,1}$.

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

b
 $b_{1,1}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$
$b_{1,1}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$
$b_{1,1}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	<table> <tr><td>$c_{1,1}$</td><td>$c_{1,2}$</td><td>$c_{1,3}$</td></tr> <tr><td>$c_{2,1}$</td><td>$c_{2,2}$</td><td>$c_{2,3}$</td></tr> <tr><td>$c_{3,1}$</td><td>$c_{3,2}$</td><td>$c_{3,3}$</td></tr> </table>	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,1}$
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$													
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$													
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$													
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$											
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$											
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$											
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$											

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$

$$\begin{aligned}
 & a_{1,1} \times c_{1,1} + a_{1,2} \times c_{1,2} + a_{1,3} \times c_{1,3} + \\
 & a_{2,1} \times c_{2,1} + a_{2,2} \times c_{2,2} + a_{2,3} \times c_{2,3} + \\
 & a_{3,1} \times c_{3,1} + a_{3,2} \times c_{3,2} + a_{3,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

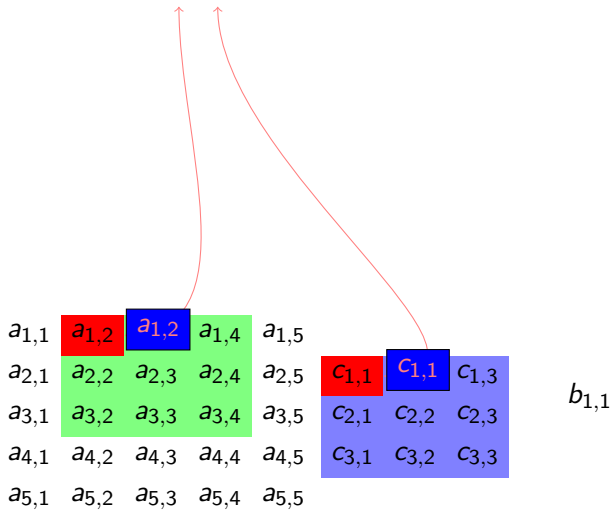
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

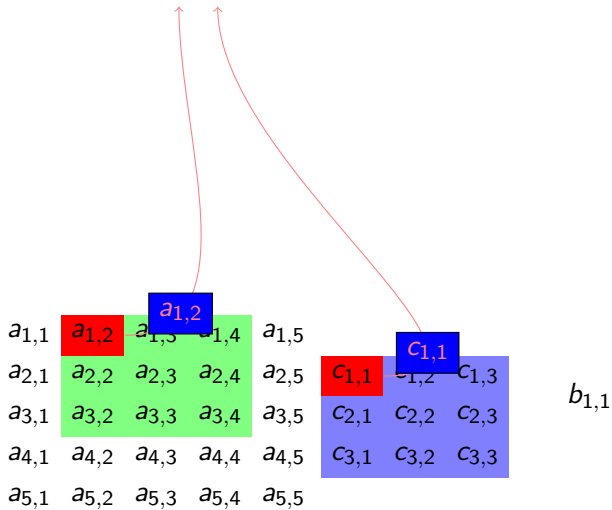
$b_{1,1}$

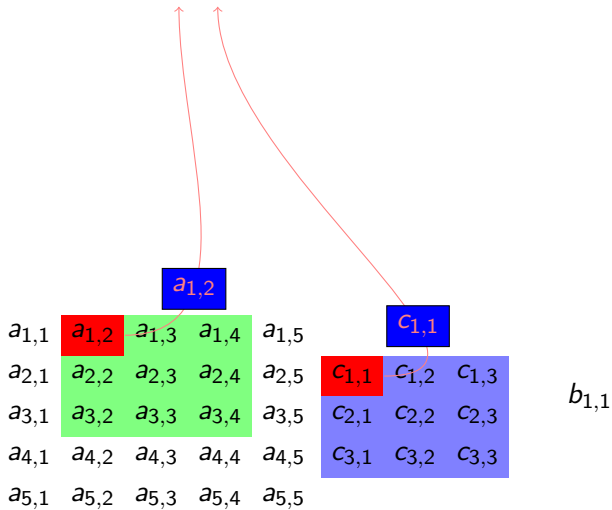
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

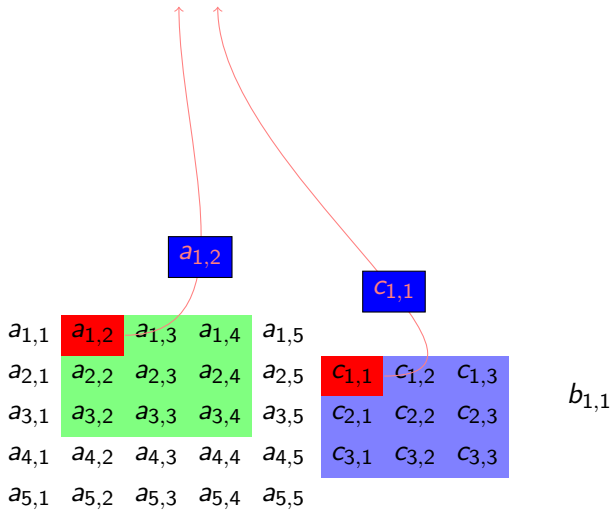
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

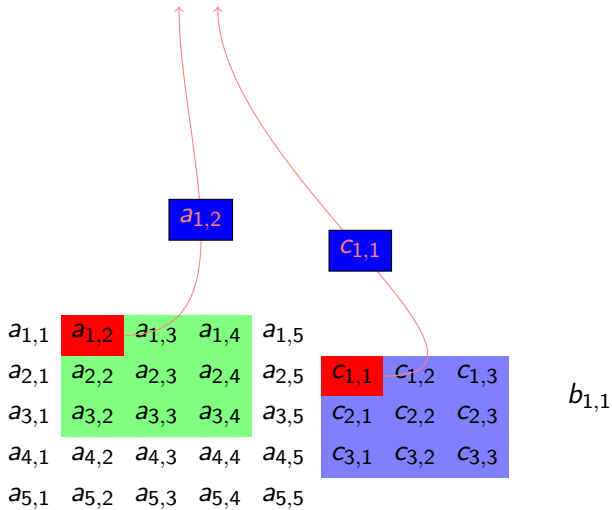
$b_{1,1}$

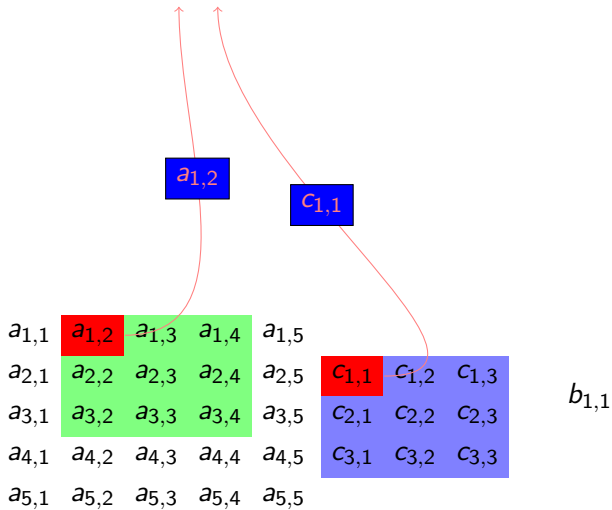


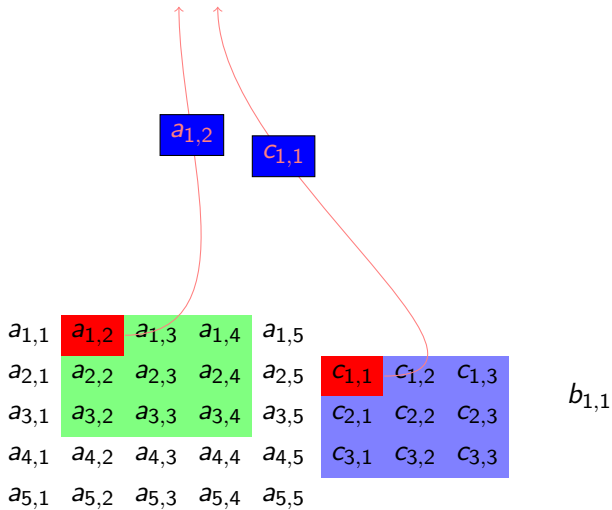


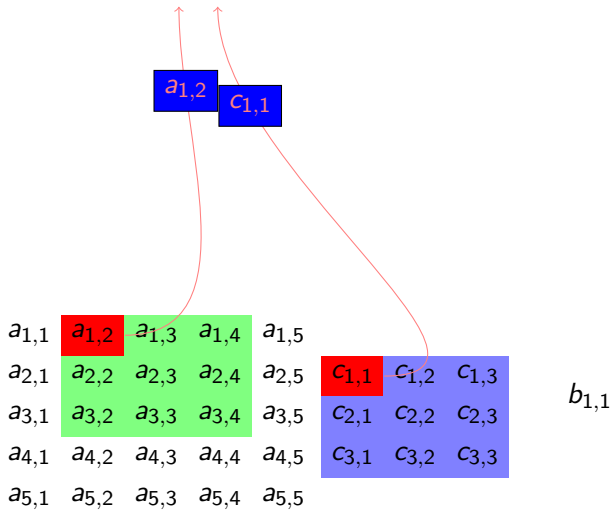


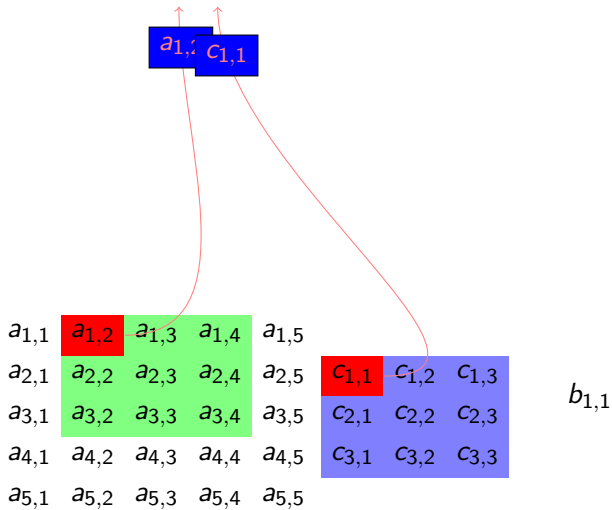












$$a_{1,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

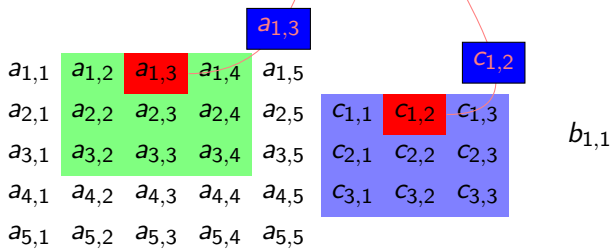
$b_{1,1}$

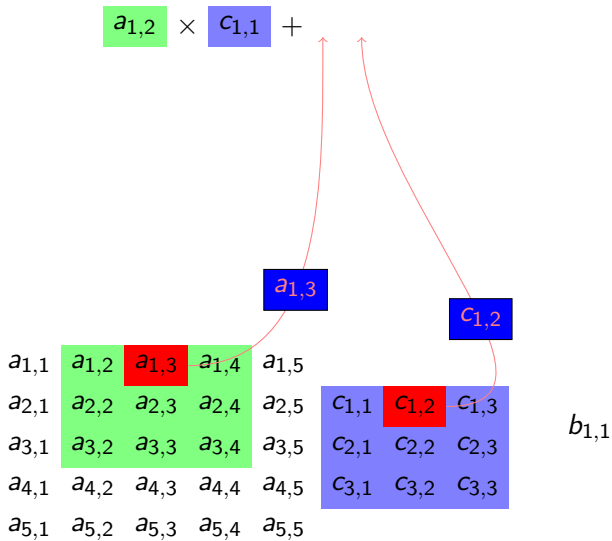
$$a_{1,2} \times c_{1,1} +$$

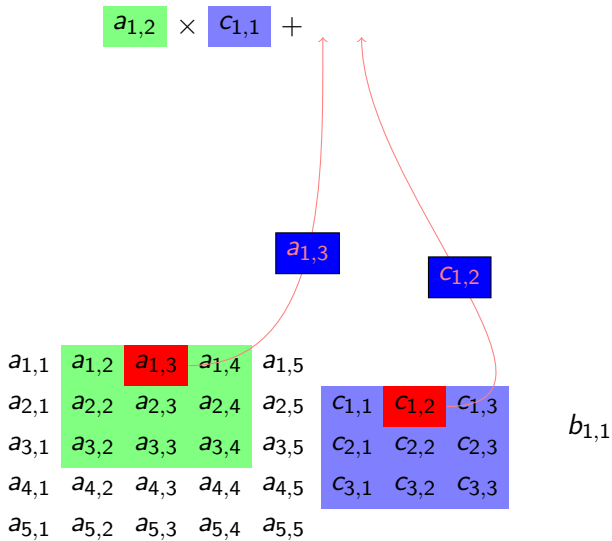
			$a_{1,3}$		
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

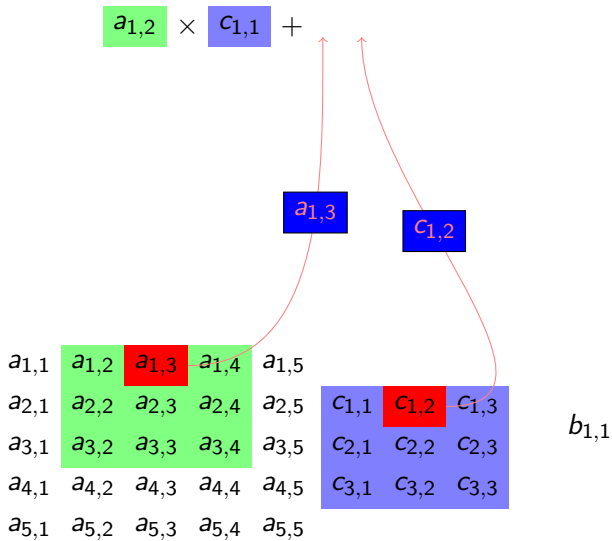
$b_{1,1}$

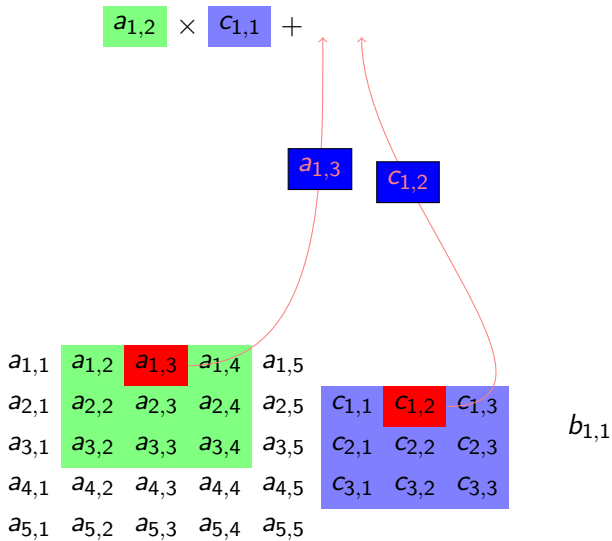
$$a_{1,2} \times c_{1,1} +$$











$$a_{1,2} \times c_{1,1} +$$

$$a_{1,3} c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} +$$

$$a_{1,3} \times c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

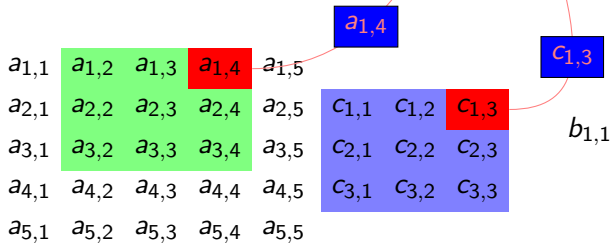
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

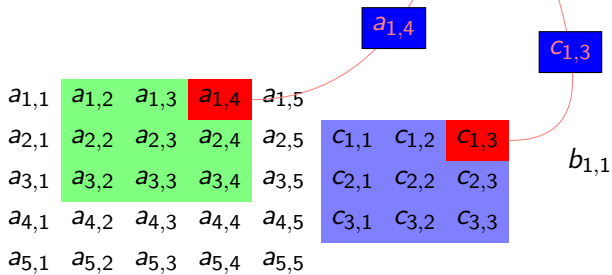
$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$c_{1,4}$	$d_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

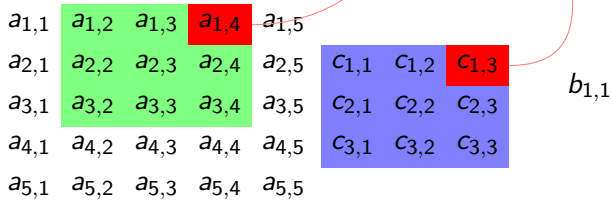
$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$

$a_{1,4}$

$c_{1,3}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

 $a_{1,4}$
 $c_{1,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

 $b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$$a_{1,4} \times c_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} +$$

$$a_{1,4} \times c_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{1,3}$	$c_{2,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,2}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,1}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

		$a_{2,2}$			
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

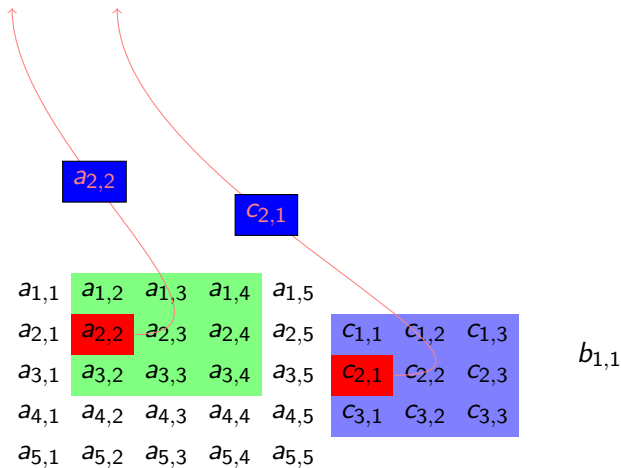
$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

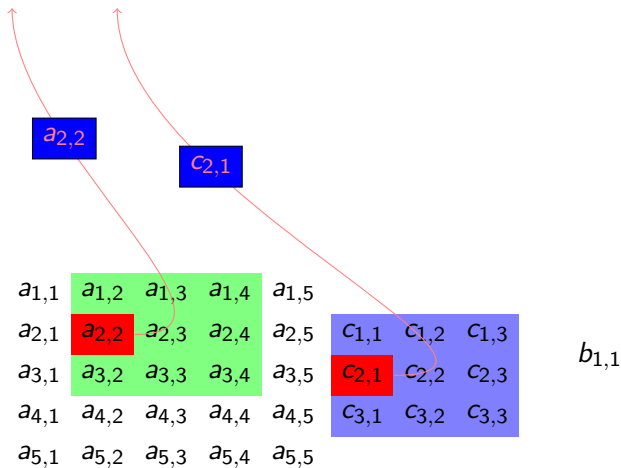
		$a_{2,2}$					
				$c_{2,1}$			
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$

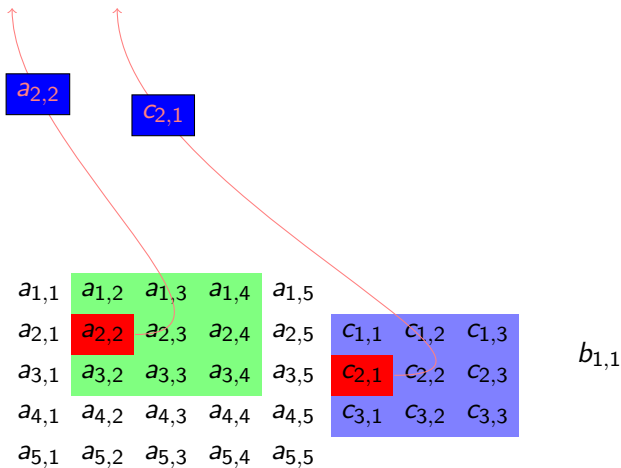
$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2}$$

$$c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{1,2}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

 $b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,3}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,2}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	

 $b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,2}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

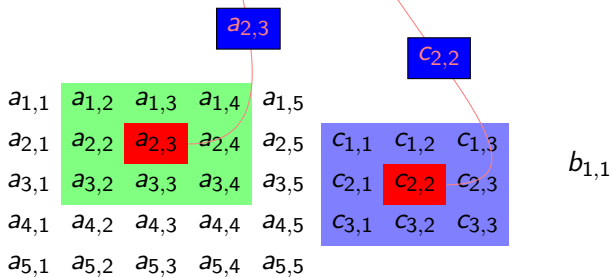
			$a_{2,3}$	
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

	$c_{2,2}$	
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

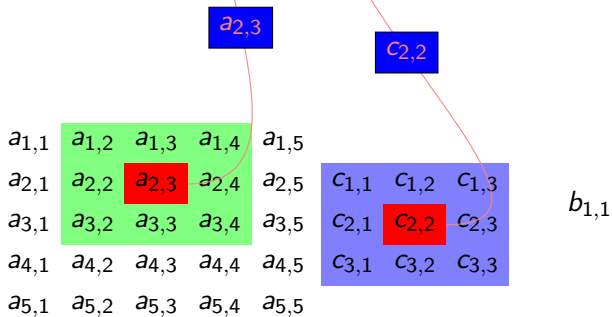
$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{2,3}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$a_{2,3}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} +$$

$$a_{2,3}$$

$$c_{2,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{1,3}$	$c_{2,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{1,3}$	$c_{2,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{2,4}$	$a_{1,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,4}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,2}$

				$a_{2,4}$	
					$c_{2,3}$
					$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$a_{2,4}$

$c_{2,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$

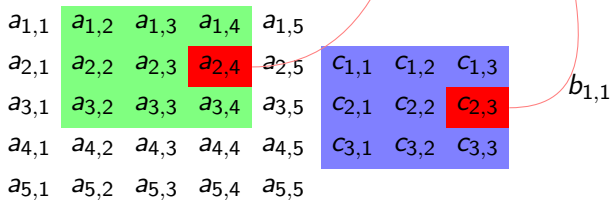
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$a_{2,4}$

$c_{2,3}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +
 \end{aligned}$$



$$a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} +$$

$$a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} +$$

$$a_{2,4}$$

$$c_{2,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

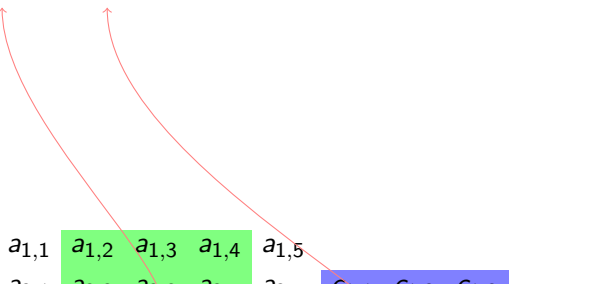
$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

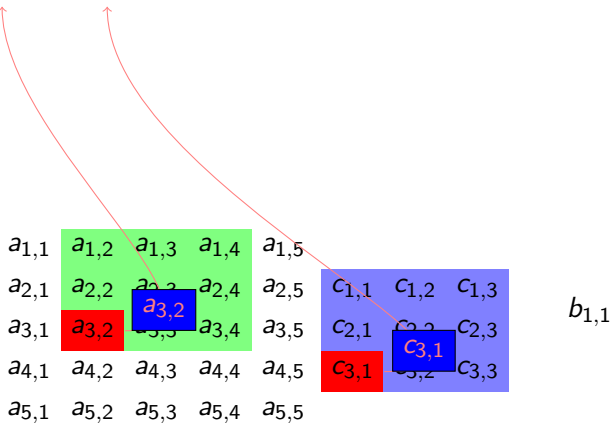
$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$



$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

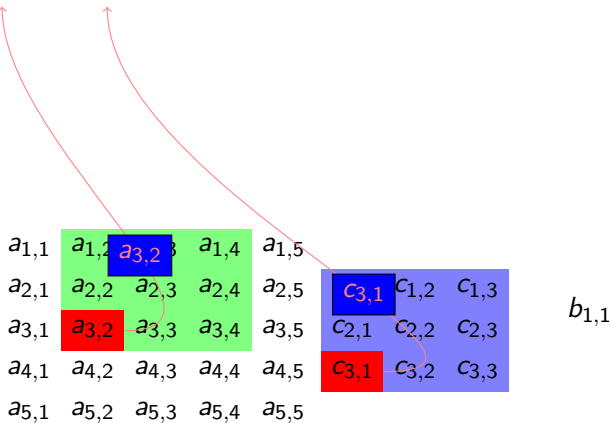


$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

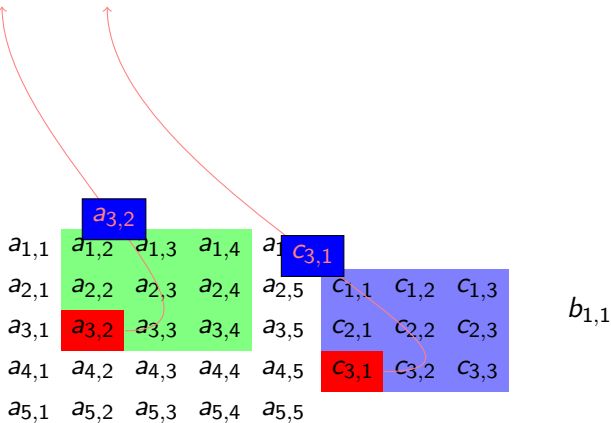
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{3,2}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

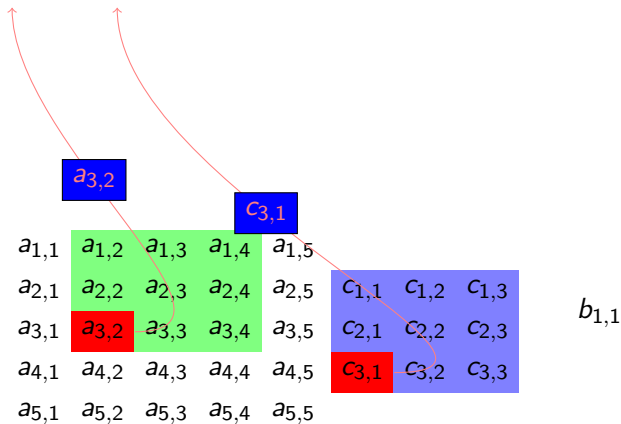
$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$



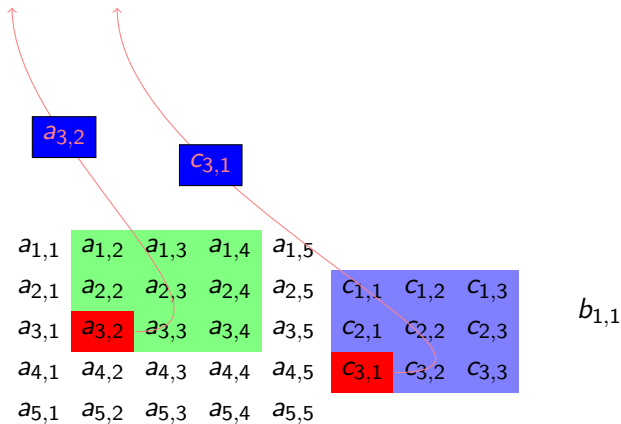
$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$



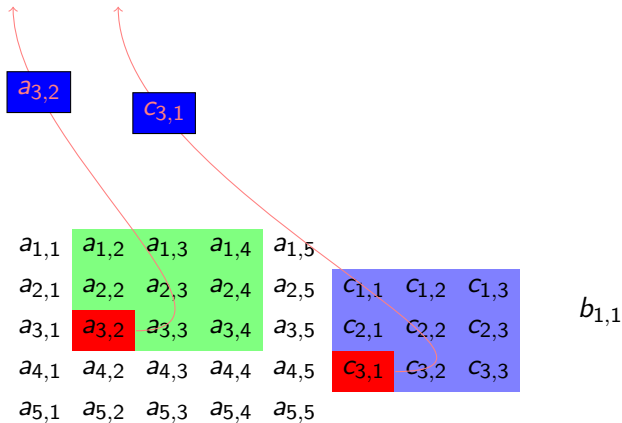
$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

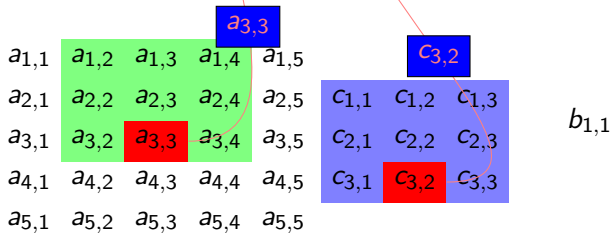
$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

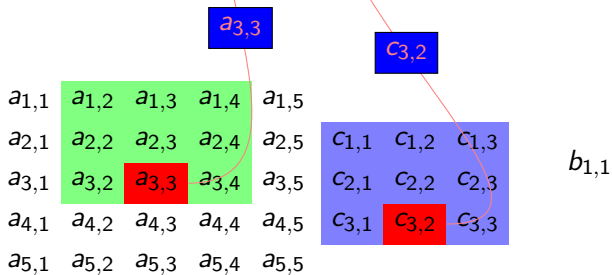
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$



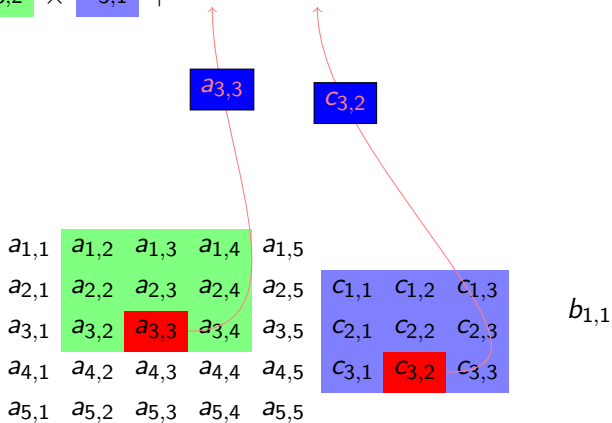
$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} +
 \end{aligned}$$

$a_{3,3}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$c_{3,4}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$a_{3,4}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		$c_{3,3}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{3,4}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$c_{1,1}$ $c_{1,2}$ $c_{1,3}$
 $c_{2,1}$ $c_{2,2}$ $c_{2,3}$
 $c_{3,1}$ $c_{3,2}$ $c_{3,3}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

Diagram illustrating matrix multiplication components:

- Matrix A (rows 1-5, columns 1-5) and Matrix C (rows 1-3, columns 1-3) are shown.
- Matrix A is partitioned into blocks: $a_{1,2}$ to $a_{2,4}$ (green), $a_{3,2}$ to $a_{3,4}$ (red), and $a_{4,2}$ to $a_{5,4}$ (blue).
- Matrix C is partitioned into blocks: $c_{1,1}$ to $c_{1,3}$ (green), $c_{2,1}$ to $c_{2,3}$ (blue), and $c_{3,1}$ to $c_{3,3}$ (red).
- Red arrows indicate the dot product of the $a_{3,2}$ to $a_{3,4}$ block with the $c_{1,1}$ to $c_{1,3}$ block, and the $a_{4,2}$ to $a_{5,4}$ block with the $c_{2,1}$ to $c_{2,3}$ block.

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$a_{3,4}$

$c_{3,3}$

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

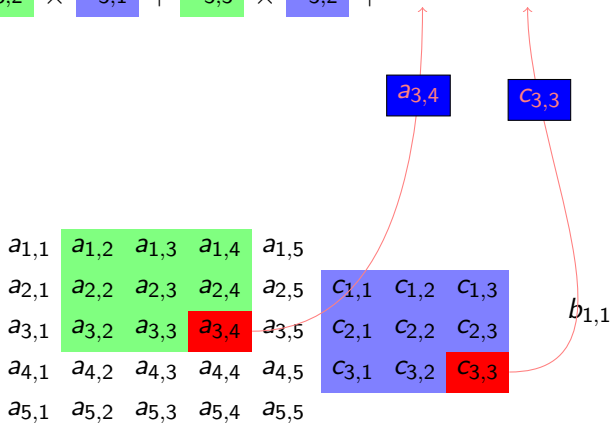
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$

$a_{3,4}$

$c_{3,3}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{3,4} \\
 & c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$
 $b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow b_{1,2}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow b_{1,2}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$b_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$b_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$
 $b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$
 $b_{1,2}$
 $b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{2,1}$
					$c_{2,2}$
					$c_{2,3}$
					$c_{3,1}$
					$c_{3,2}$
					$c_{3,3}$

$b_{1,1}$

$b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

 $b_{1,1}$
 $b_{1,2}$
 $b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$

$b_{1,2}$
$b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$
 $b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$
 $b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$
 $b_{1,2}$

$$\begin{aligned}
 & a_{1,2} \times c_{1,1} + a_{1,3} \times c_{1,2} + a_{1,4} \times c_{1,3} + \\
 & a_{2,2} \times c_{2,1} + a_{2,3} \times c_{2,2} + a_{2,4} \times c_{2,3} + \\
 & a_{3,2} \times c_{3,1} + a_{3,3} \times c_{3,2} + a_{3,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

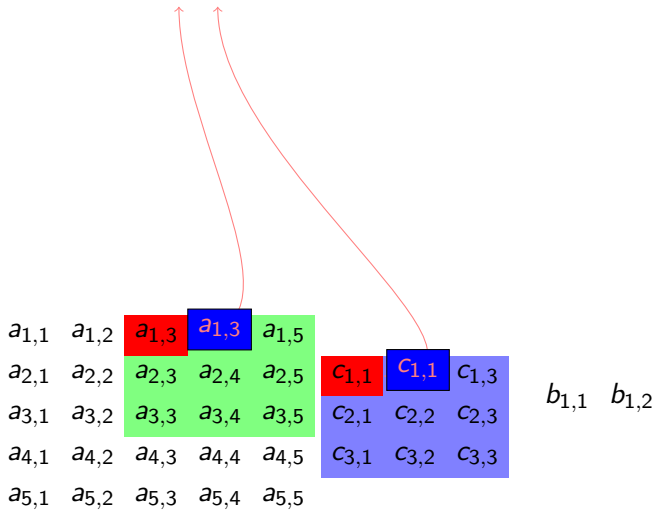
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

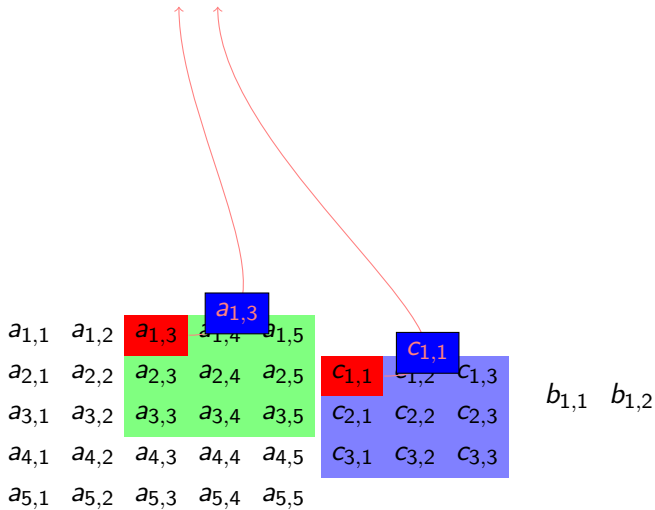
$b_{1,1}$
 $b_{1,2}$

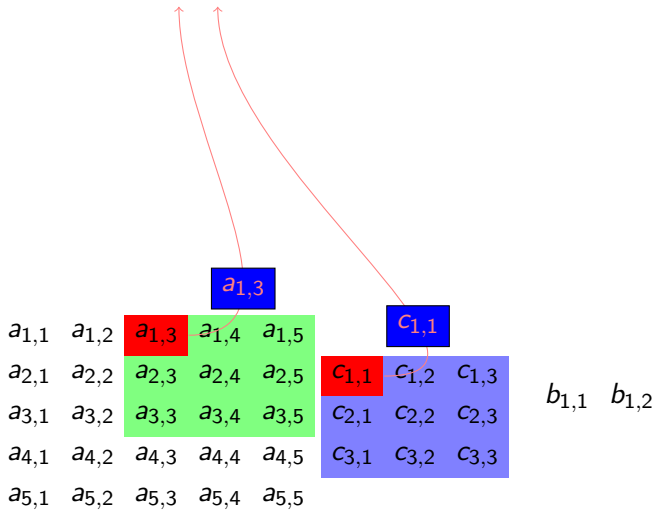
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

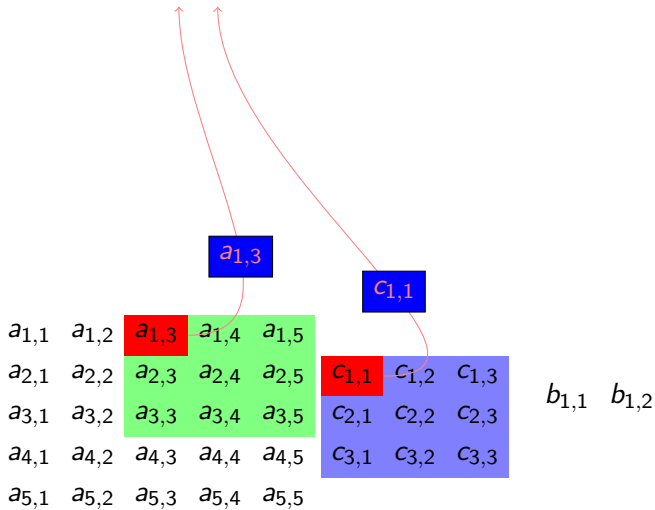
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

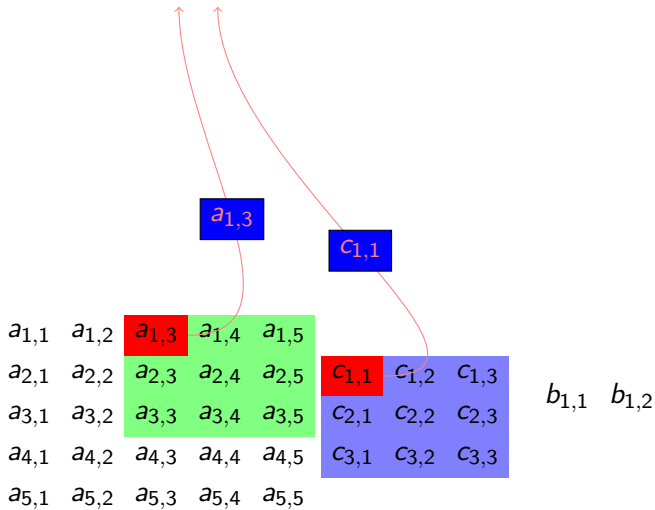
$b_{1,1}$ $b_{1,2}$

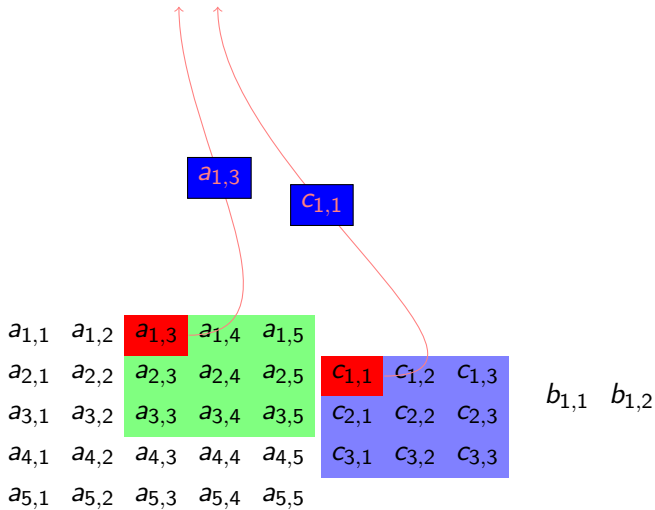


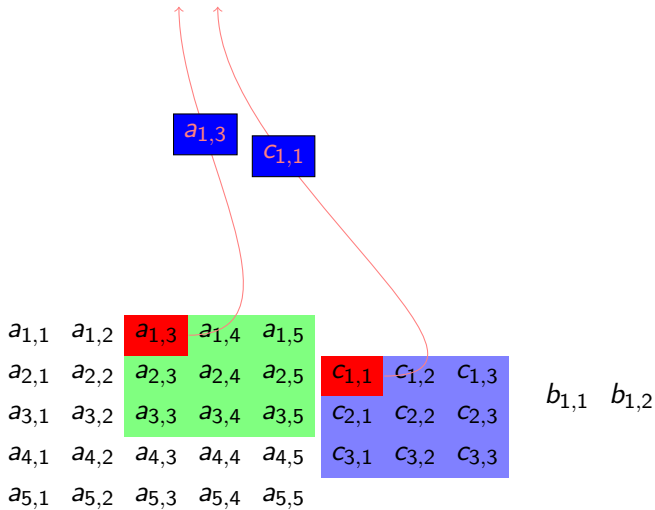


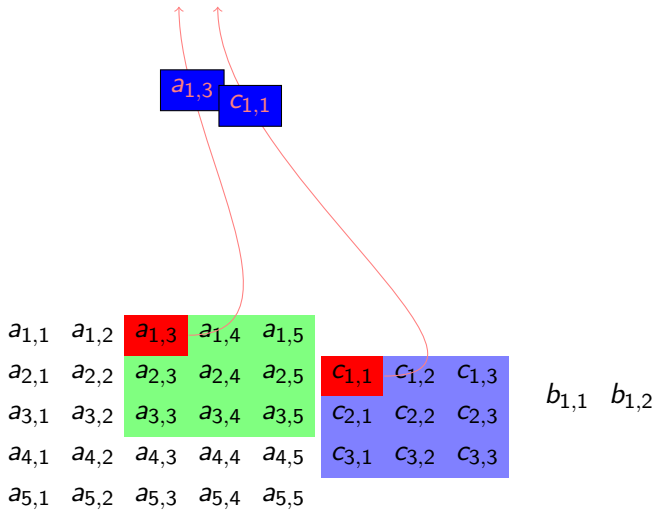


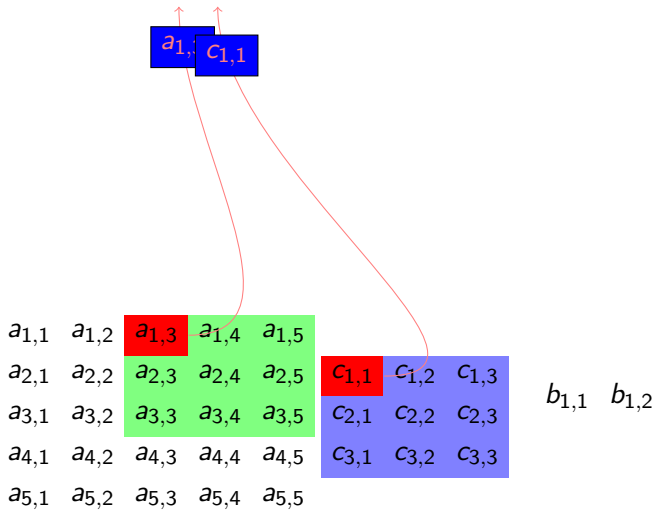












$$a_{1,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$$b_{1,1} \quad b_{1,2}$$

$$a_{1,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

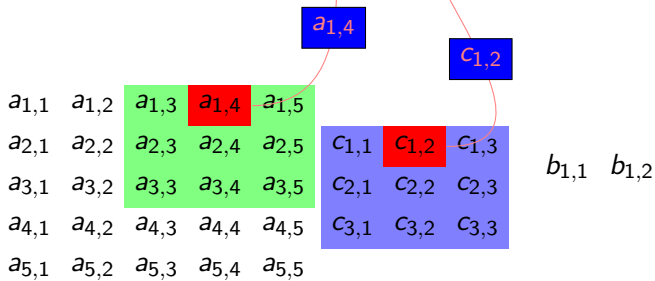
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

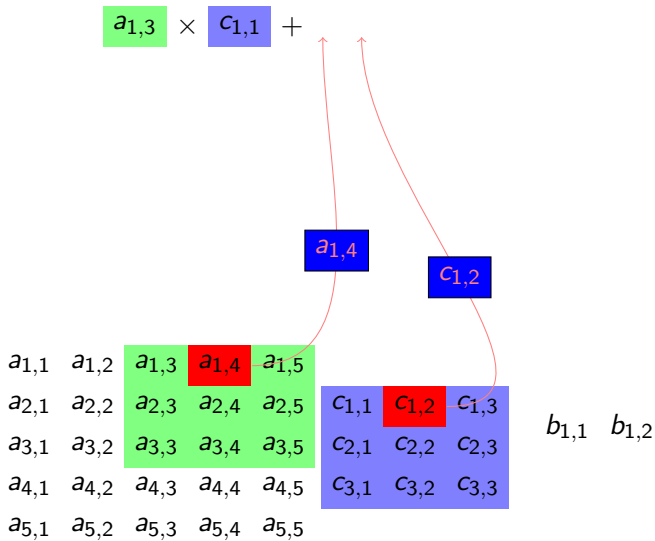
$$a_{1,3} \times c_{1,1} +$$

Diagram illustrating matrix multiplication with highlighted elements and arrows:

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$					
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,3} \times c_{1,1} +$$





$$a_{1,3} \times c_{1,1} +$$

$$a_{1,4}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

$$a_{1,4}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

$$a_{1,4} \times c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} +$$

$$a_{1,4} \times c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$d_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{2,1}$	$c_{2,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,1}$	$c_{3,2}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$a_{1,5}$

$c_{1,3}$

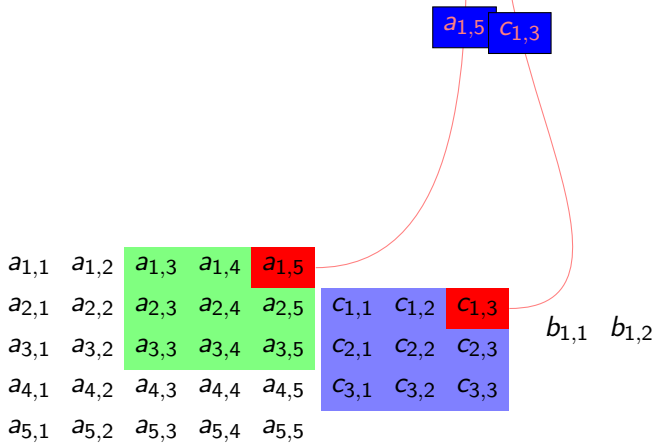
$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$$a_{1,5} \times c_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$



$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} +$$

$$a_{1,5} \times c_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	
						$b_{1,1}$
						$b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{2,3}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

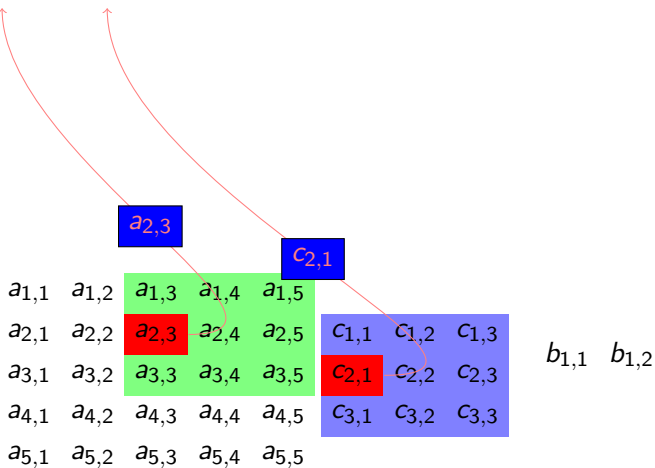
$c_{1,1}$	$c_{2,1}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

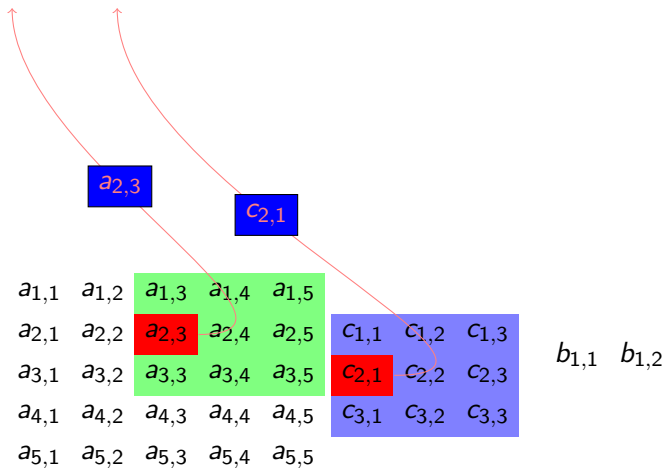
$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$					
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

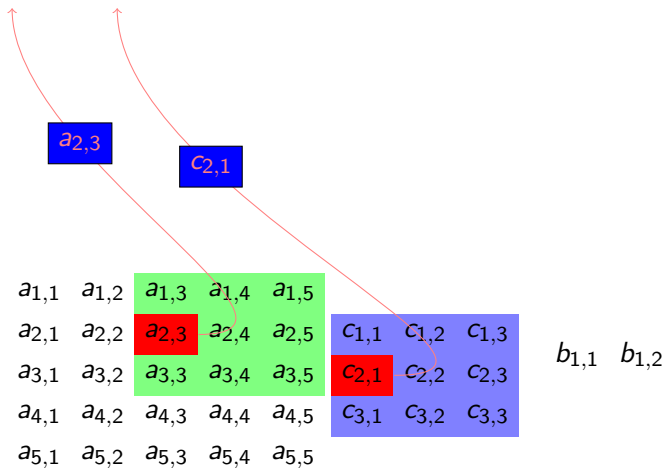
$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$



$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$



$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$



$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$a_{2,3}$

$c_{2,1}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3}$$

$$c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{1,3}$	$c_{2,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,4}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,4}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$		$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

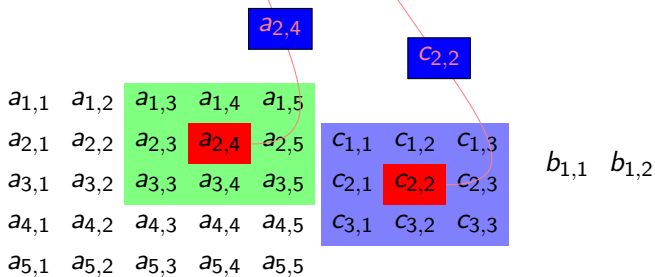
$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

				$a_{2,4}$					
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		$c_{2,2}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$



$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{2,4}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{2,4}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$a_{2,4}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} +$$

$$a_{2,4}$$

$$c_{2,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{1,3}$	$c_{2,3}$
					$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$a_{2,5}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{2,3}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$a_{2,5}$

$c_{2,3}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$a_{2,5}$

$c_{2,3}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +
 \end{aligned}$$

$a_{2,5}$

$c_{2,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} +$$

$$a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} +$$

$$a_{2,5}$$

$$c_{2,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$				
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$				

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{4,1}$	$c_{4,2}$

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

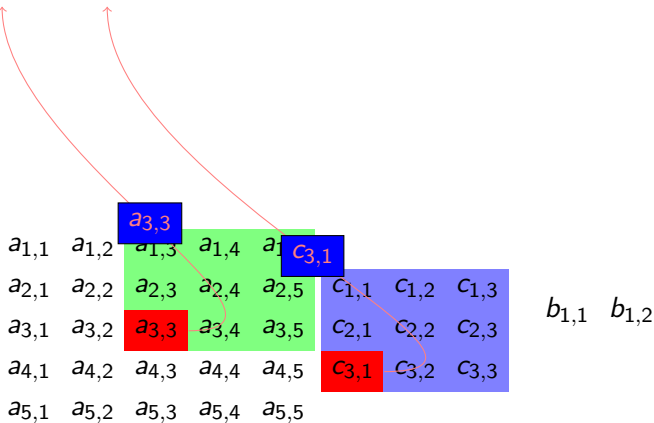
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{3,3}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{3,1}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

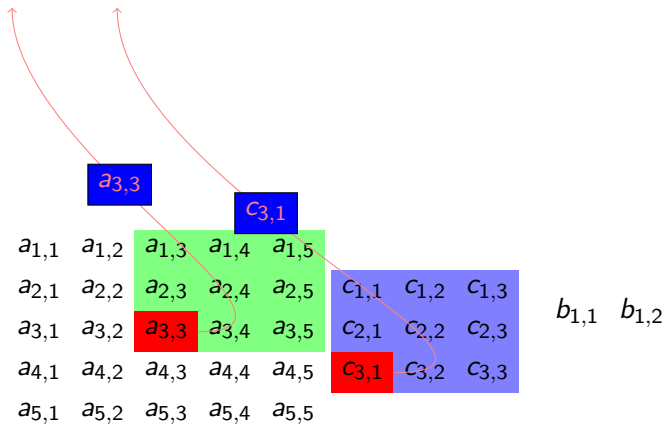
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

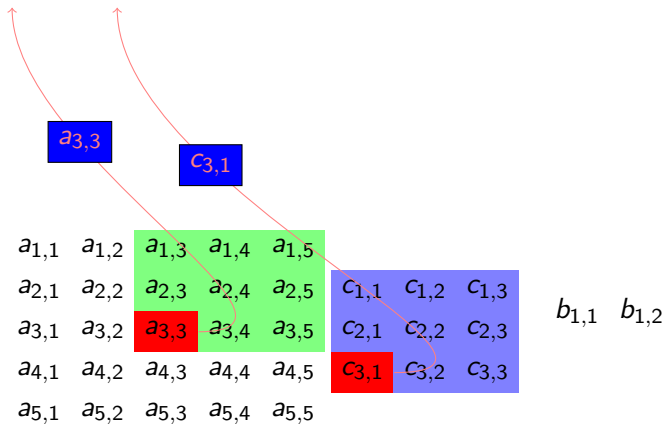
$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$



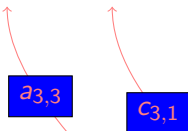
$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$



$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{3,3} \times c_{3,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	$c_{3,3}$	

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

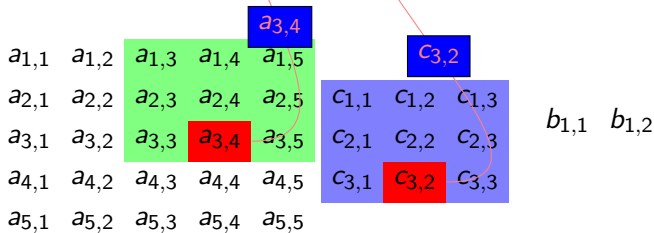
$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

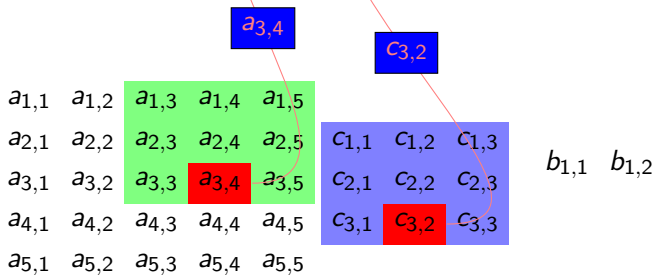
$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{3,4}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$a_{3,4}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{3,4} \quad c_{3,2}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$a_{3,5}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

					$b_{1,1}$	$b_{1,2}$
					$c_{3,3}$	

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

					$c_{3,5}$	
					$c_{1,1}$	$c_{1,2}$
					$c_{2,1}$	$c_{2,2}$
					$c_{3,1}$	$c_{3,2}$

						$c_{3,3}$
					$b_{1,1}$	$b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$a_{3,5}$

$c_{3,3}$

$b_{1,1}$

$b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$a_{3,5}$

$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$a_{3,5}$

$c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,1}$	$b_{1,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$a_{3,5}$

$c_{3,3}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{3,5} \\
 & c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$c_{1,1}$ $c_{1,2}$ $c_{1,3}$
 $c_{2,1}$ $c_{2,2}$ $c_{2,3}$
 $c_{3,1}$ $c_{3,2}$ $c_{3,3}$

$b_{1,1}$ $b_{1,2}$

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$			
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow b_{1,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$			
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow b_{1,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$$b_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		$b_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$b_{1,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		$b_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned} & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\ & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\ & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the dot product of two vectors. A 5x5 matrix of elements $a_{i,j}$ is shown. A 3x3 submatrix of elements $c_{i,j}$ is highlighted in blue. A 3x1 vector of elements $b_{i,j}$ is shown to the right. A red box highlights the element $b_{1,3}$ in the vector, with a red arrow pointing to it from above.

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned} & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\ & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\ & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B to produce a 5x5 matrix C .

Matrix A (rows 1 to 5, columns 1 to 5):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix B (rows 1 to 5, columns 1 to 3):

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$b_{4,1}$	$b_{4,2}$	$b_{4,3}$
$b_{5,1}$	$b_{5,2}$	$b_{5,3}$

Matrix C (rows 1 to 5, columns 1 to 3):

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$c_{4,1}$	$c_{4,2}$	$c_{4,3}$
$c_{5,1}$	$c_{5,2}$	$c_{5,3}$

The diagram shows that the dot product of the 3x5 submatrix of A (rows 1-3, columns 3-5) and the 5x3 submatrix of B (columns 1-3) results in the 3x3 submatrix of C (rows 1-3, column 3). This is highlighted by the green, blue, and red shaded regions and arrows.

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$			
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\
 & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\
 & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

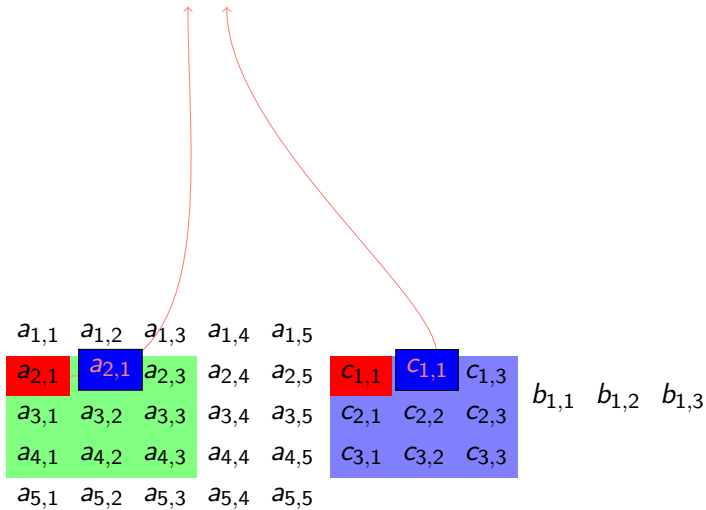
$$\begin{aligned} & a_{1,3} \times c_{1,1} + a_{1,4} \times c_{1,2} + a_{1,5} \times c_{1,3} + \\ & a_{2,3} \times c_{2,1} + a_{2,4} \times c_{2,2} + a_{2,5} \times c_{2,3} + \\ & a_{3,3} \times c_{3,1} + a_{3,4} \times c_{3,2} + a_{3,5} \times c_{3,3} \rightarrow \end{aligned}$$

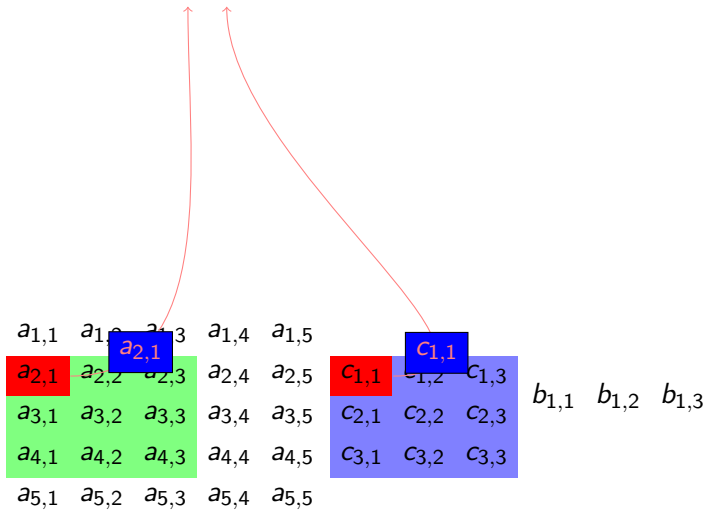
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

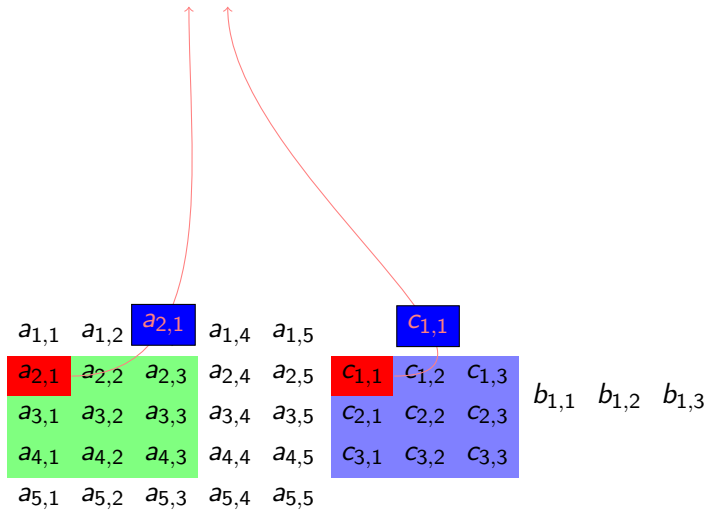
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

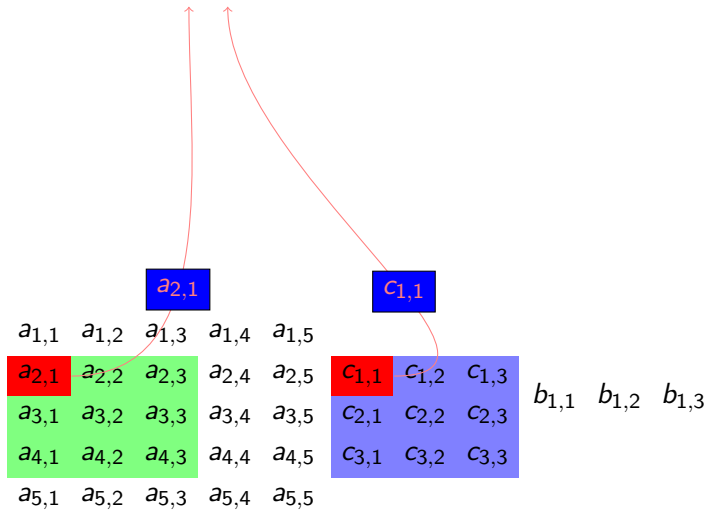
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

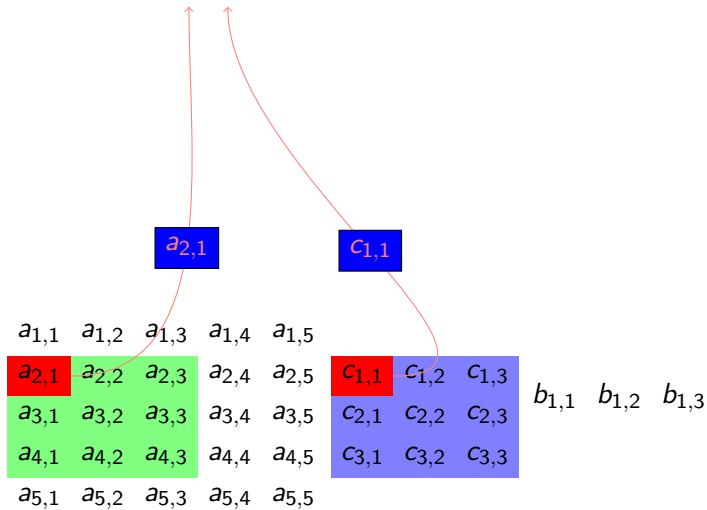
$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

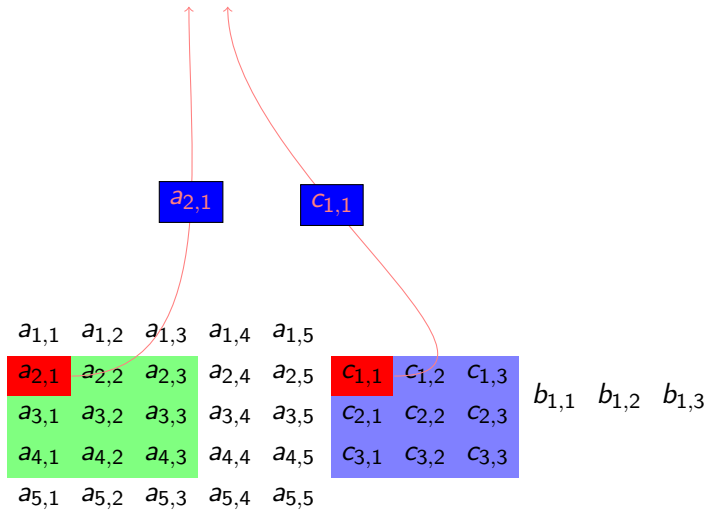


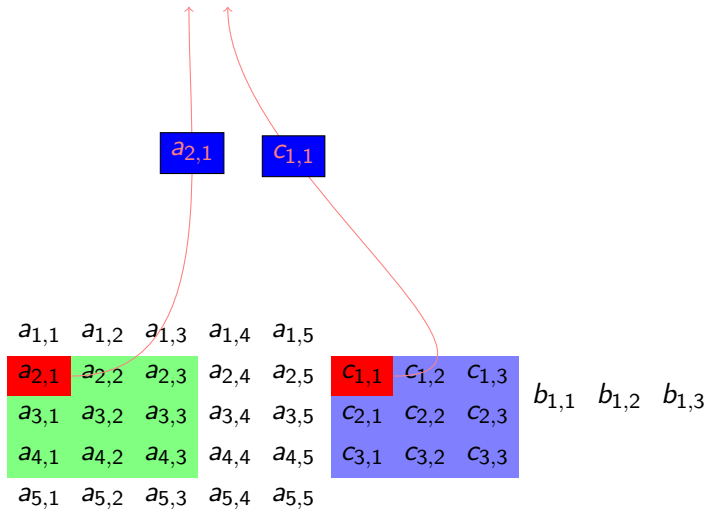


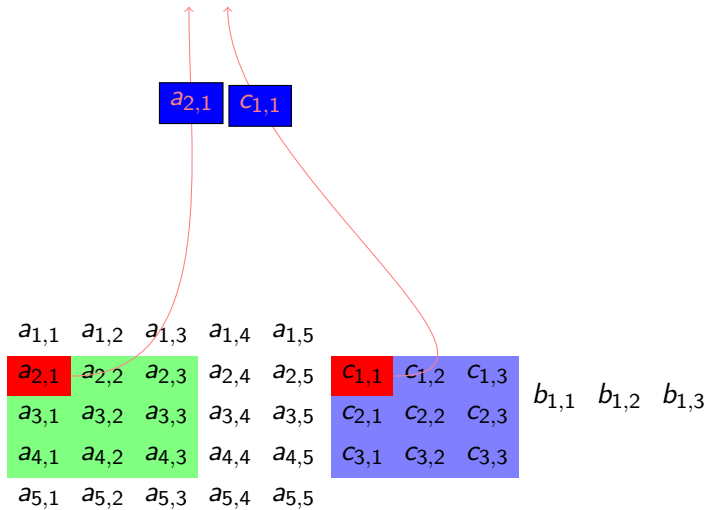


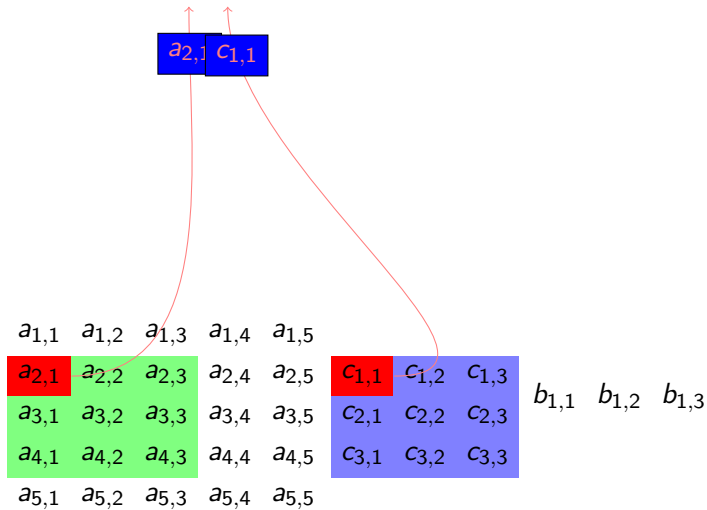












$$a_{2,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$a_{2,1} \times c_{1,1} +$$

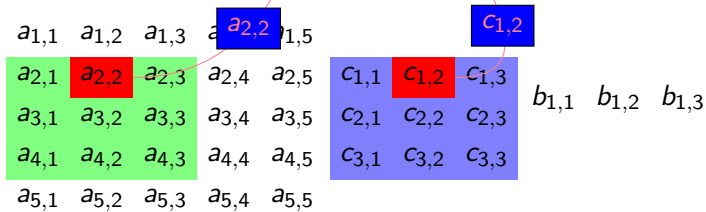
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,2}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,1} \times c_{1,1} +$$

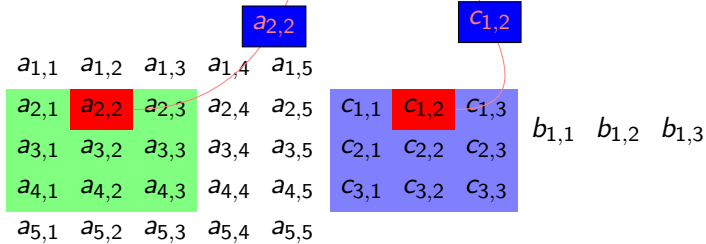
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} +$$



$$a_{2,1} \times c_{1,1} +$$



$$a_{2,1} \times c_{1,1} +$$

 $a_{2,2}$
 $c_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

 $b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} +$$

$$a_{2,2}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} +$$

 $a_{2,2}$
 $c_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

 $b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} +$$

$$a_{2,2} \times c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} +$$

$$a_{2,2} \times c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$	

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

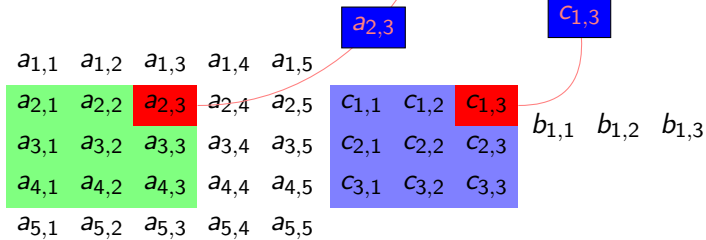
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$



$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$a_{2,3}$

$c_{1,3}$

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$a_{2,3}$

$c_{1,3}$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$a_{2,3}$

$c_{1,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$$a_{2,3} \times c_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} +$$

$$a_{2,3} \times c_{1,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

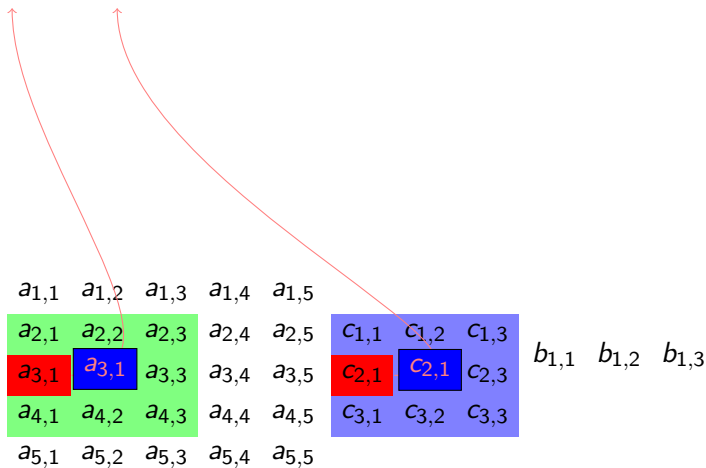
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

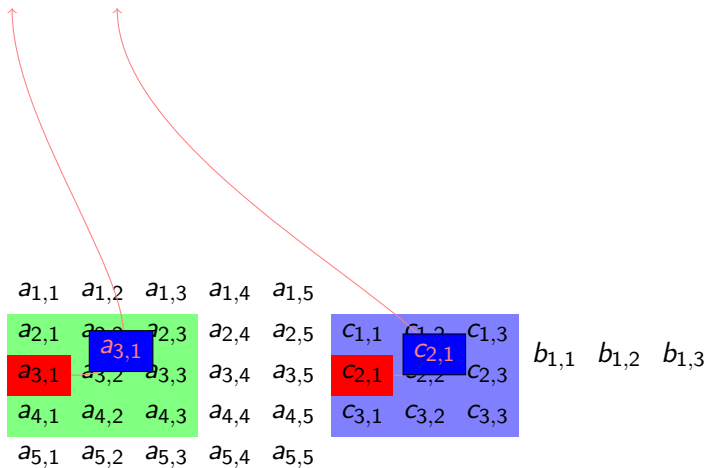
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

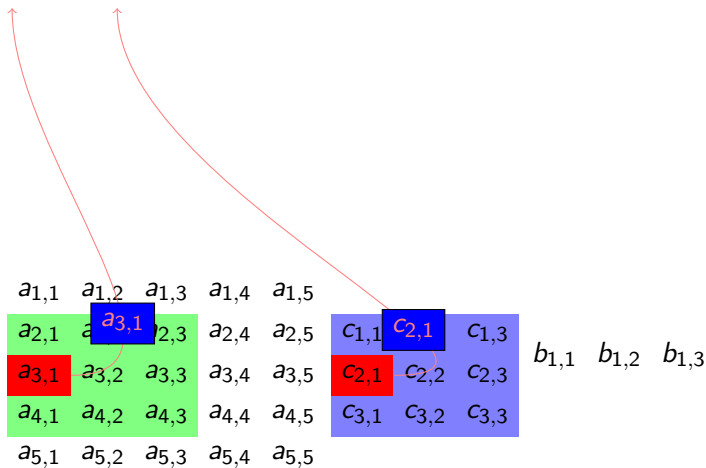
$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



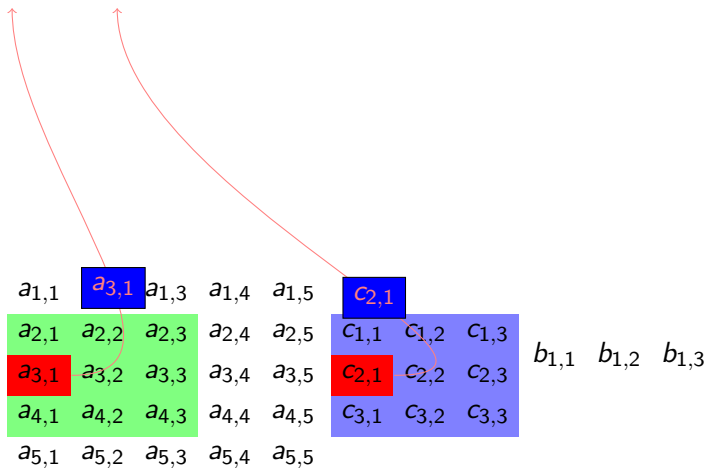
$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



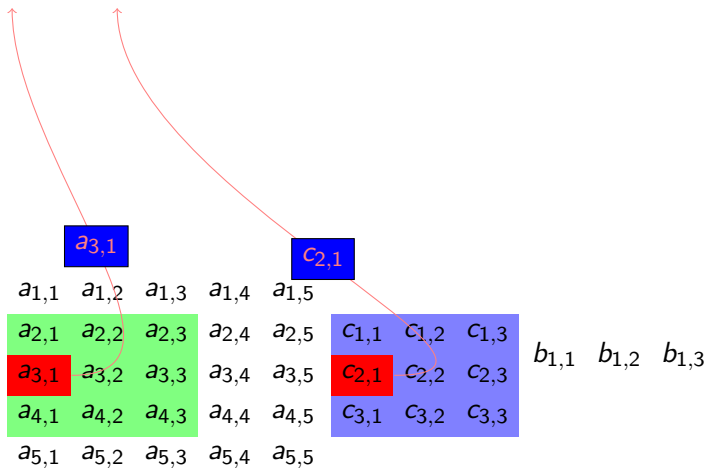
$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



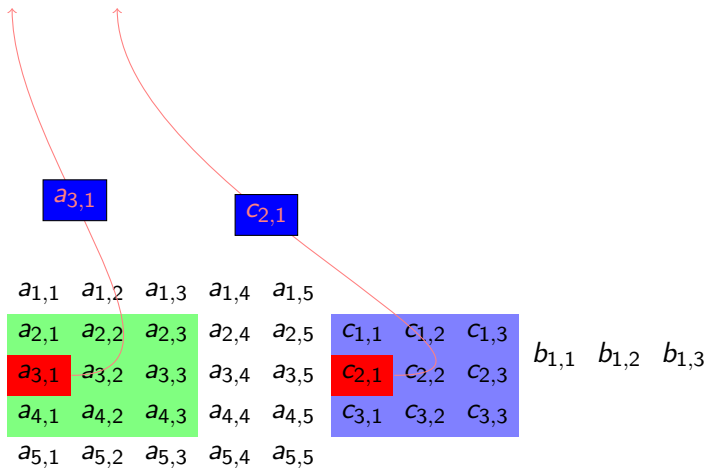
$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



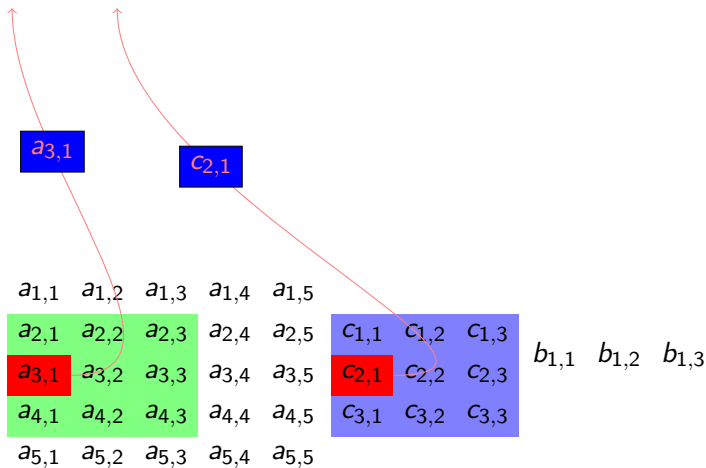
$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



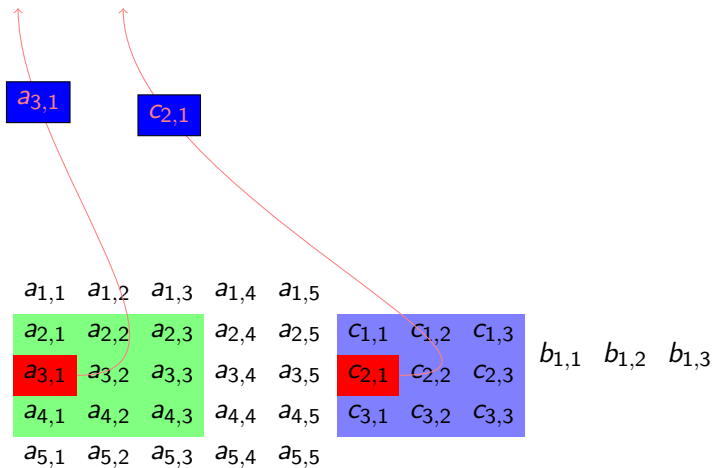
$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$



$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1}$$

$$c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,2}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,2}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{3,2}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{2,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{3,2}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

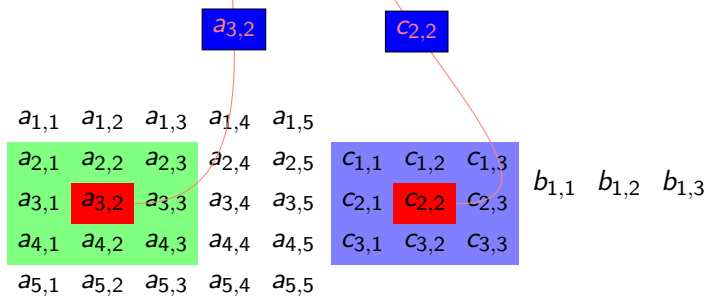
$$a_{3,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$		
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$		

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$



$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$

$a_{3,2}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$

$a_{3,2}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} +$$

$$a_{3,2}$$

$$c_{2,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{2,3}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		$b_{1,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned} & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\ & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + \end{aligned}$$

[illegible]

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$a_{3,3}$

$c_{2,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +$$

$a_{3,3}$

$c_{2,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} +$$

$$a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} +$$

$$a_{3,3}$$

$$c_{2,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
-----------	-----------	-----------

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
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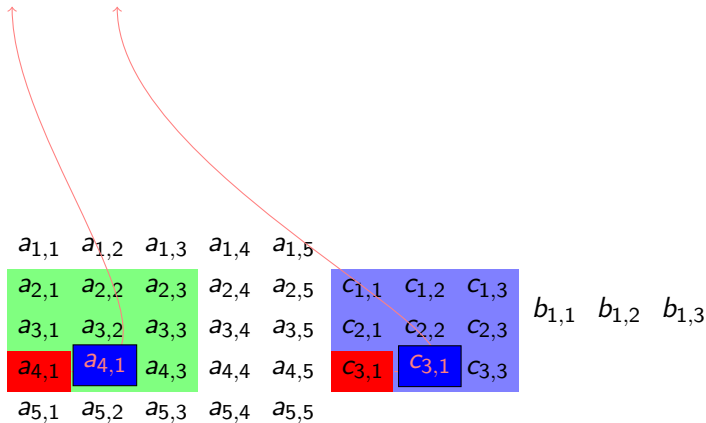
$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$



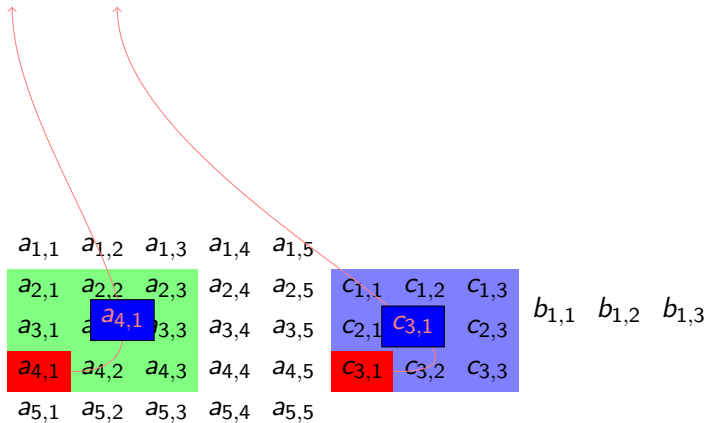
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,1}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,1}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$



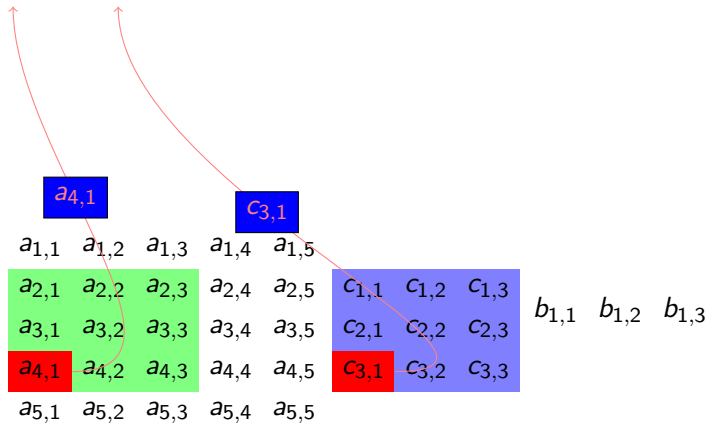
$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{4,1}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{3,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

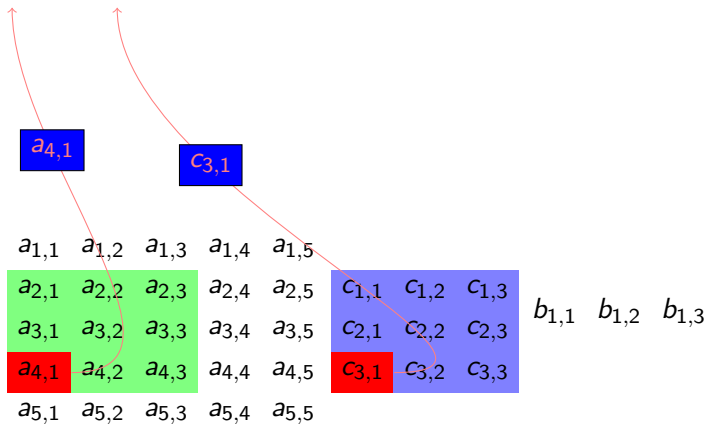
$$\begin{aligned} & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\ & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \end{aligned}$$

Diagram illustrating the storage of a sparse matrix A in a 5x5 grid. The matrix is partitioned into four 3x3 blocks. The top-left block (rows 1-3, columns 1-3) is green. The top-right block (rows 1-3, columns 4-6) is blue. The bottom-left block (rows 4-6, columns 1-3) is red. The bottom-right block (rows 4-6, columns 4-6) is blue. The matrix is stored in a 5x5 grid where the first three rows and columns are used for the blocks, and the fourth row and column are used for the vector b . The matrix A is stored in the first three rows and columns, and the vector b is stored in the fourth row and column. The matrix A is stored in the first three rows and columns, and the vector b is stored in the fourth row and column. The matrix A is stored in the first three rows and columns, and the vector b is stored in the fourth row and column.

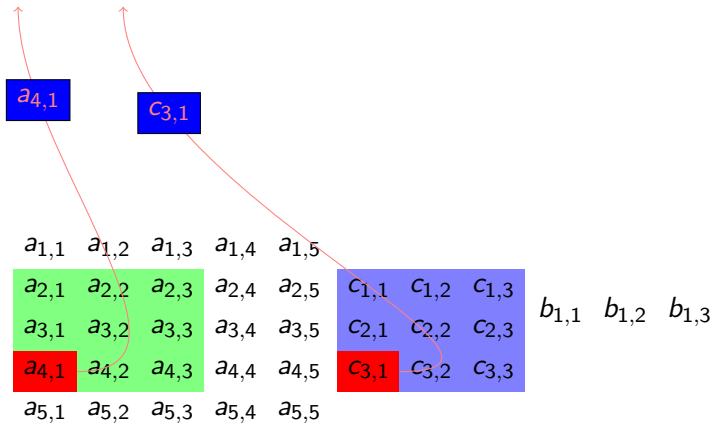
$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{4,1} \\
 & c_{3,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,2}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{4,2}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{3,2}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

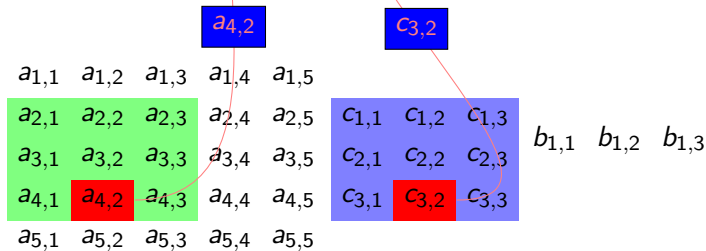
$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{4,2}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{3,2}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{4,2}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{4,2}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$a_{4,2}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} +
 \end{aligned}$$

$$a_{4,2}$$

$$c_{3,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1} \quad b_{1,2} \quad b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$a_{4,3}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$c_{3,3}$	$b_{1,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					$b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$a_{4,3}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{4,3}$	$c_{3,3}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{1,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$a_{4,3}$

$c_{3,3}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{4,3}$

$c_{3,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} +
 \end{aligned}$$

$a_{4,3}$

$c_{3,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned} & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\ & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\ & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow b_{2,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$b_{2,1}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$$b_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$b_{2,1}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

$b_{2,1}$

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{2,1}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 &a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 &a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 &a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$											
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$												
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$											
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$												
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

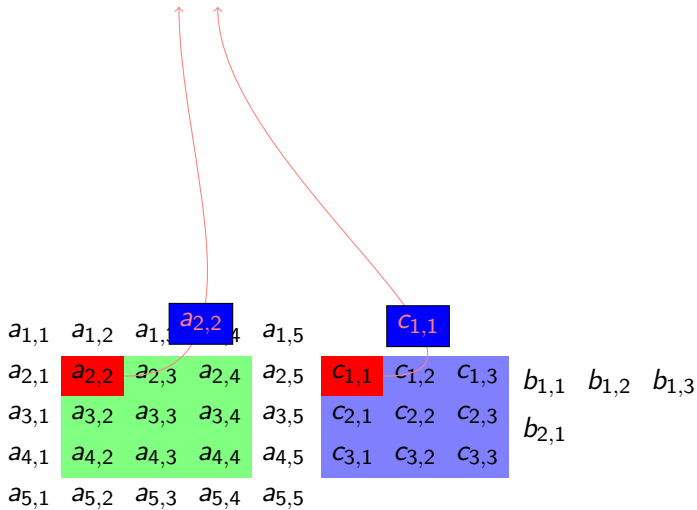
$$\begin{aligned}
 & a_{2,1} \times c_{1,1} + a_{2,2} \times c_{1,2} + a_{2,3} \times c_{1,3} + \\
 & a_{3,1} \times c_{2,1} + a_{3,2} \times c_{2,2} + a_{3,3} \times c_{2,3} + \\
 & a_{4,1} \times c_{3,1} + a_{4,2} \times c_{3,2} + a_{4,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

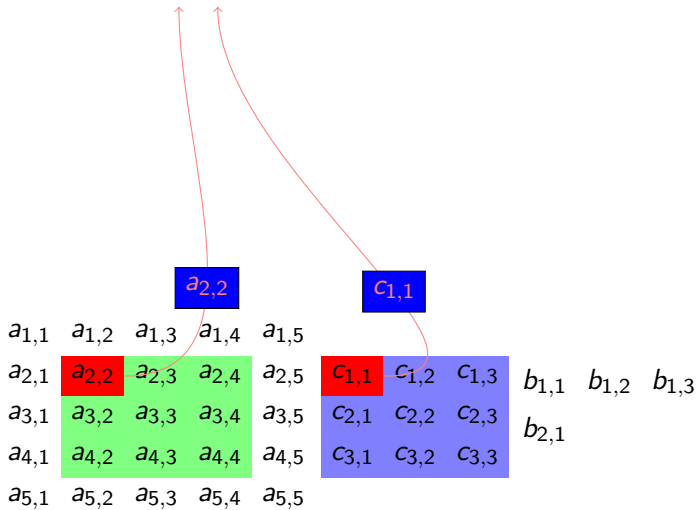
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$											
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$												
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

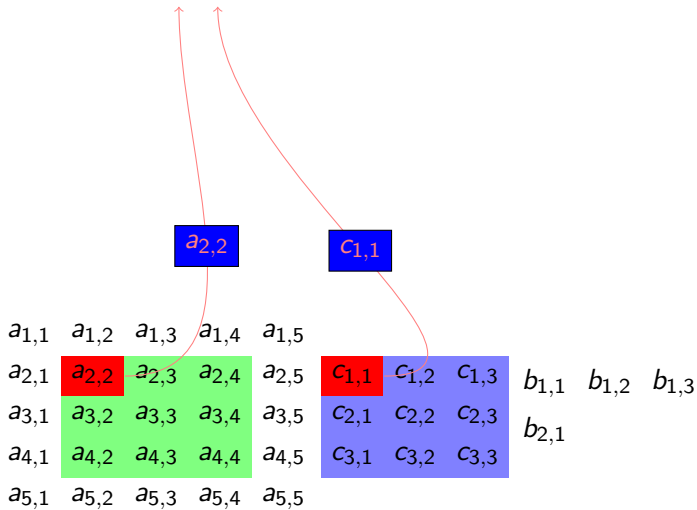
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

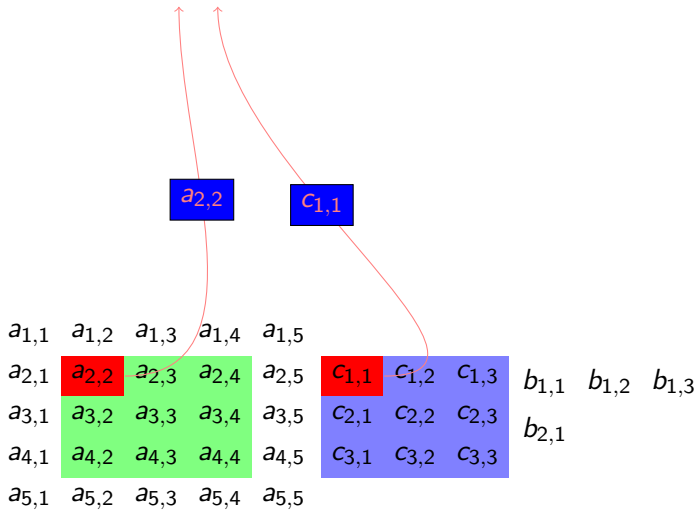
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,2}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,1}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

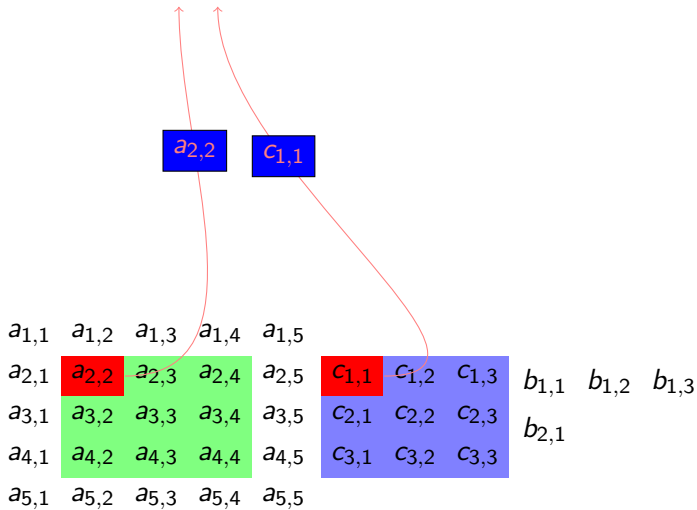
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

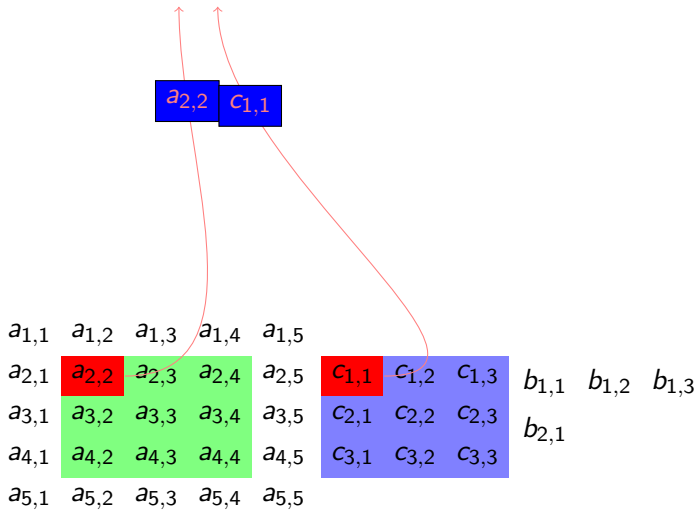


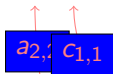












$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
 $b_{2,1}$

$$a_{2,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,3}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} +$$

Diagram illustrating the memory access pattern for a 2D array a . The array is 5x5. A 3x3 subarray is highlighted in green, and a 3x3 subarray is highlighted in blue. The element $a_{2,3}$ is highlighted in red. The element $c_{1,2}$ is highlighted in red. The element $b_{1,2}$ is highlighted in red. The element $b_{2,1}$ is highlighted in red.

$$a_{2,2} \times c_{1,1} +$$

$$a_{2,2} \times c_{1,1} +$$

$a_{2,3}$

$C_{1,2}$

$$a_{1,1} \quad a_{1,2} \quad a_{1,3} \quad a_{1,4} \quad a_{1,5}$$
$$a_{2,1} \quad a_{2,2} \quad a_{2,3} \quad a_{2,4} \quad a_{2,5}$$
$$a_{3,1} \quad a_{3,2} \quad a_{3,3} \quad a_{3,4} \quad a_{3,5}$$
 $a_{4,1} \quad a_{4,2} \quad a_{4,3} \quad a_{4,4} \quad a_{4,5}$
$$a_{5,1} \quad a_{5,2} \quad a_{5,3} \quad a_{5,4} \quad a_{5,5}$$


$C_{1,1}$ $C_{1,2}$ $C_{1,3}$

$$C_{2,1} \quad C_{2,2} \quad C_{2,3}$$
$$C_{3,1} \quad C_{3,2} \quad C_{3,3}$$
$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$
$$b_{2,1}$$

$$a_{2,2} \times c_{1,1} +$$

$a_{2,3}$

$C_{1,2}$

$$a_{1,1} \quad a_{1,2} \quad a_{1,3} \quad a_{1,4} \quad a_{1,5}$$
$$a_{2,1} \quad a_{2,2} \quad a_{2,3} \quad a_{2,4} \quad a_{2,5}$$
 $a_{3,1} \quad a_{3,2} \quad a_{3,3} \quad a_{3,4} \quad a_{3,5}$ $a_{4,1} \quad a_{4,2} \quad a_{4,3} \quad a_{4,4} \quad a_{4,5}$
$$a_{5,1} \quad a_{5,2} \quad a_{5,3} \quad a_{5,4} \quad a_{5,5}$$


$C_{1,1}$ $C_{1,2}$ $C_{1,3}$

$$C_{2,1} \quad C_{2,2} \quad C_{2,3}$$
$$C_{3,1} \quad C_{3,2} \quad C_{3,3}$$
$$b_{1,1} \quad b_{1,2} \quad b_{1,3}$$
$$b_{2,1}$$

$$a_{2,2} \times c_{1,1} +$$

$$a_{2,3}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} +$$

$$a_{2,3} c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} +$$

$$a_{2,3} \times c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

Diagram illustrating a 2D array layout with row-major and column-major traversal paths. The array is a 5x5 grid of elements $a_{i,j}$.

Row-major traversal (blue path) starts at $a_{1,1}$ and moves right to $a_{1,5}$, then down to $a_{2,1}$, and so on. Column-major traversal (red path) starts at $a_{1,1}$ and moves down to $a_{5,1}$, then right to $a_{5,2}$, and so on.

The diagram shows how the same element, $a_{2,4}$, is accessed at different positions in the traversal sequence.

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 5x3 matrix C and a 3x3 matrix B .

Matrix A is partitioned into three blocks:

- A_1 (5x3, green): $a_{1,1}, a_{1,2}, a_{1,3}, a_{2,1}, a_{2,2}, a_{2,3}, a_{3,1}, a_{3,2}, a_{3,3}, a_{4,1}, a_{4,2}, a_{4,3}, a_{5,1}, a_{5,2}, a_{5,3}$
- A_2 (5x2, red): $a_{2,4}, a_{3,4}, a_{4,4}, a_{5,4}$
- A_3 (5x1, blue): $a_{1,4}, a_{2,5}, a_{3,5}, a_{4,5}, a_{5,5}$

Matrix C (3x3, blue) and Matrix B (3x3, red) are shown as:

Matrix C contains elements $c_{1,1}, c_{1,2}, c_{1,3}, c_{2,1}, c_{2,2}, c_{2,3}, c_{3,1}, c_{3,2}, c_{3,3}$.

Matrix B contains elements $b_{1,1}, b_{1,2}, b_{1,3}, b_{2,1}, b_{2,2}, b_{2,3}, b_{3,1}, b_{3,2}, b_{3,3}$.

The decomposition is represented as:

$$A = \begin{bmatrix} A_1 & A_2 & A_3 \end{bmatrix} \begin{bmatrix} C & B \end{bmatrix}$$

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,4}$	$c_{1,3}$				
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
 $b_{2,1}$

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,2}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,1}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{3,2}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{2,1}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 5x3 matrix C_1 and a 3x3 matrix C_2 .

Matrix A (5x5):

$$A = \begin{bmatrix} a_{1,1} & a_{1,2} & a_{1,3} & a_{1,4} & a_{1,5} \\ a_{2,1} & a_{2,2} & a_{2,3} & a_{2,4} & a_{2,5} \\ a_{3,1} & a_{3,2} & a_{3,3} & a_{3,4} & a_{3,5} \\ a_{4,1} & a_{4,2} & a_{4,3} & a_{4,4} & a_{4,5} \\ a_{5,1} & a_{5,2} & a_{5,3} & a_{5,4} & a_{5,5} \end{bmatrix}$$

Matrix C_1 (5x3):

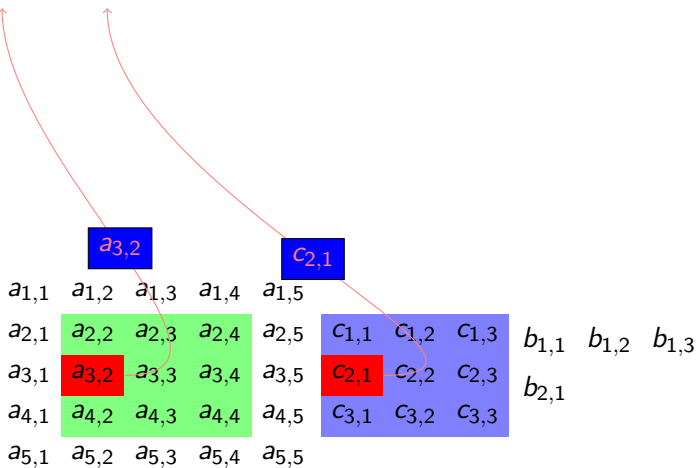
$$C_1 = \begin{bmatrix} c_{1,1} & c_{1,2} & c_{1,3} \\ c_{2,1} & c_{2,2} & c_{2,3} \\ c_{3,1} & c_{3,2} & c_{3,3} \\ c_{4,1} & c_{4,2} & c_{4,3} \\ c_{5,1} & c_{5,2} & c_{5,3} \end{bmatrix}$$

Matrix C_2 (3x3):

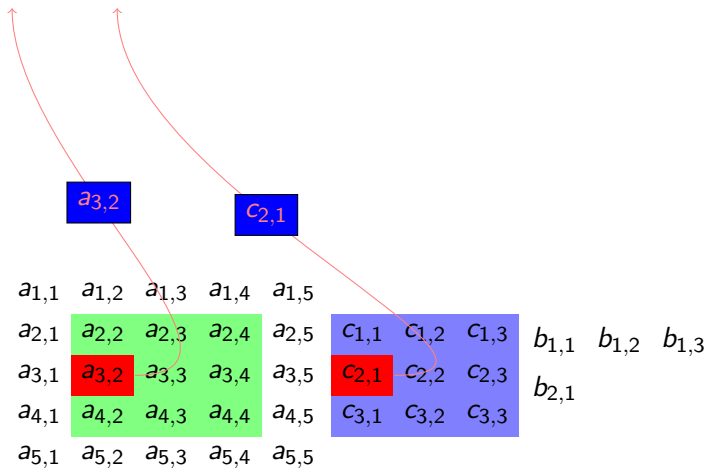
$$C_2 = \begin{bmatrix} c_{1,1} & c_{1,2} & c_{1,3} \\ c_{2,1} & c_{2,2} & c_{2,3} \\ c_{3,1} & c_{3,2} & c_{3,3} \end{bmatrix}$$

The decomposition is shown as $A = C_1 \cdot C_2$.

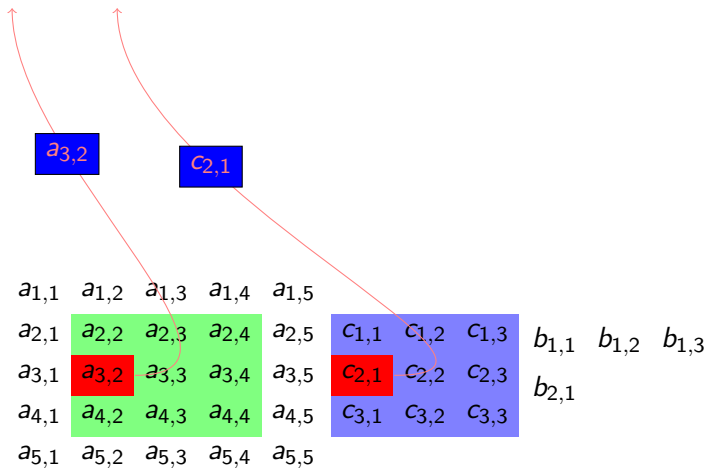
$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$



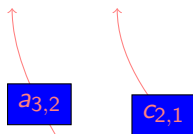
$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$



$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$



$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$



$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$							
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$a_{3,3}$	$c_{1,1}$	$c_{1,2}$	$c_{2,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$							

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1} +$$

$a_{3,3}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

$b_{2,1}$

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1} +$$

$a_{3,3}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1} +$$

$a_{3,3}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1} +$$

$$a_{3,3} \quad c_{2,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$a_{3,4}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{3,4}$	$c_{2,3}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$a_{3,4}$

$c_{2,3}$

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} +
 \end{aligned}$$

$a_{3,4}$

$c_{2,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{1,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,2}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,1}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{4,2}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{3,1}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

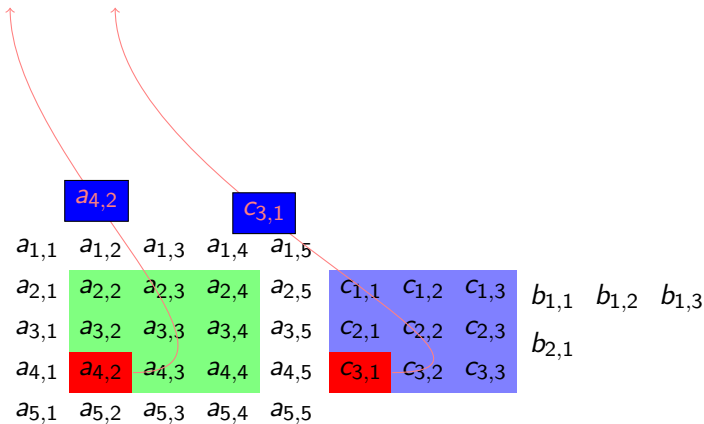
$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{4,2}$	$a_{2,4}$	$a_{2,5}$	$c_{3,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

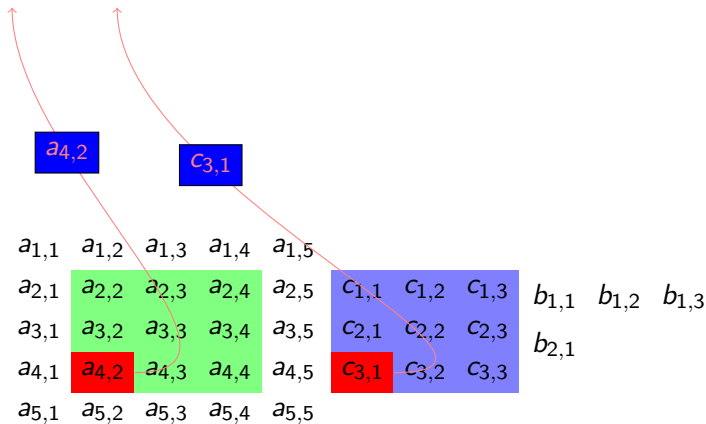
$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

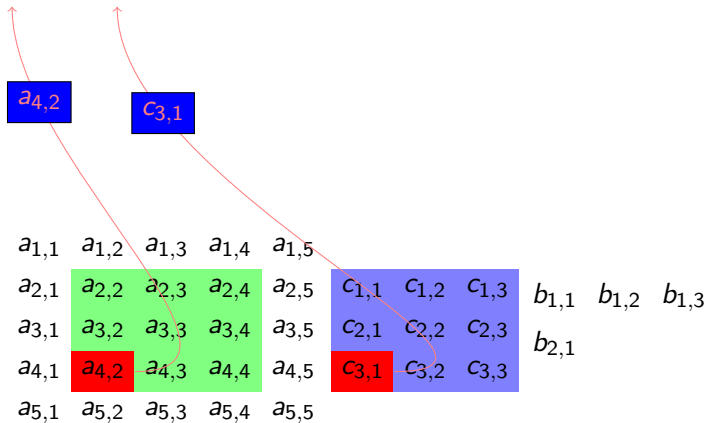
$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{4,2} \\
 & c_{3,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} +$$

$$a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} +$$

$$a_{4,2} \times c_{3,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\ & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\ & a_{4,2} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the mapping of a 5x5 input matrix A to a 3x3 output matrix C using a 3x3 kernel K .

The input matrix A is shown with rows $a_{1,1}$ to $a_{5,5}$. A 3x3 green region (rows 2-4, columns 2-4) is highlighted, with a 3x3 red region (rows 4-6, columns 2-4) overlapping it. The output matrix C is shown with rows $c_{1,1}$ to $c_{3,3}$. A 3x3 blue region (rows 1-3, columns 1-3) is highlighted, with a 3x3 red region (rows 3-5, columns 1-3) overlapping it. A red line connects the top-left corner of the green region ($a_{2,2}$) to the top-left corner of the blue region ($c_{1,1}$).

$$\begin{aligned} & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\ & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\ & a_{4,2} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the mapping of a 2D array a to a 3D array c via a 2D array b .

Array a (5x5):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Array b (3x3):

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$b_{3,1}$	$b_{3,2}$	$b_{3,3}$

Array c (3x3x3):

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

Red arrows indicate the mapping from a to b and from b to c . For example, $a_{4,3}$ maps to $b_{1,1}$ and then to $c_{1,1,1}$.

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

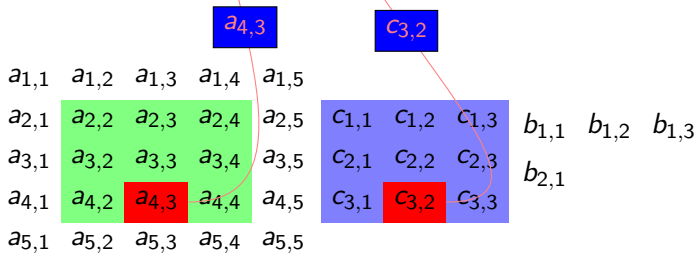
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$a_{4,3}$	$c_{1,1}$	$c_{1,2}$	$c_{3,2}$	$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned} & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\ & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\ & a_{4,2} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the mapping of a 5x5 matrix A to a 3x3 matrix C . The mapping is shown by connecting corresponding elements:

- $a_{4,3}$ (blue) maps to $c_{3,2}$ (blue).
- $a_{2,3}$ (green) maps to $c_{2,2}$ (green).
- $a_{4,3}$ (red) maps to $c_{3,2}$ (red).

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{4,3}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
 $b_{2,1}$

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{4,3}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
 $b_{2,1}$

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} +
 \end{aligned}$$

$a_{4,3}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$a_{4,4}$	$c_{2,2}$	$c_{2,3}$	$c_{3,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccccc} a_{2,2} & \times & c_{1,1} & + & a_{2,3} & \times & c_{1,2} & + & a_{2,4} & \times & c_{1,3} & + \\ a_{3,2} & \times & c_{2,1} & + & a_{3,3} & \times & c_{2,2} & + & a_{3,4} & \times & c_{2,3} & + \\ a_{4,2} & \times & c_{3,1} & + & a_{4,3} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C .

Matrix A is partitioned into four blocks:

- Top-left 3x3 block (green): $a_{2,2}, a_{2,3}, a_{2,4}, a_{3,2}, a_{3,3}, a_{3,4}, a_{4,2}, a_{4,3}, a_{4,4}$
- Top-right 2x2 block (blue): $a_{4,4}, a_{4,5}, a_{5,4}, a_{5,5}$
- Bottom-left 3x2 block (red): $a_{4,4}, a_{4,5}, a_{5,4}, a_{5,5}$
- Bottom-right 2x3 block (red): $a_{4,4}, a_{4,5}, a_{5,4}, a_{5,5}$

The 3x3 block matrix C is shown to the right, with its top-left 3x3 block containing elements $c_{2,2}, c_{2,3}, c_{2,4}, c_{3,2}, c_{3,3}, c_{3,4}, c_{4,2}, c_{4,3}, c_{4,4}$ and its bottom-right 2x2 block containing elements $c_{3,3}, c_{3,4}, c_{4,3}, c_{4,4}$.

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{4,4}$	$c_{3,3}$				
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccccc} a_{2,2} & \times & c_{1,1} & + & a_{2,3} & \times & c_{1,2} & + & a_{2,4} & \times & c_{1,3} & + \\ a_{3,2} & \times & c_{2,1} & + & a_{3,3} & \times & c_{2,2} & + & a_{3,4} & \times & c_{2,3} & + \\ a_{4,2} & \times & c_{3,1} & + & a_{4,3} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C and a 2x3 block matrix B .

Matrix A is partitioned into a 3x3 block of 3x3 submatrices (green) and a 2x3 block of 3x3 submatrices (blue).

The 3x3 block is labeled C , and the 2x3 block is labeled B .

The 3x3 block C is further partitioned into a 2x2 block of 2x2 submatrices (red) and a 1x2 block of 2x2 submatrices (blue).

The 2x3 block B is further partitioned into a 1x2 block of 2x2 submatrices (red) and a 1x2 block of 2x2 submatrices (blue).

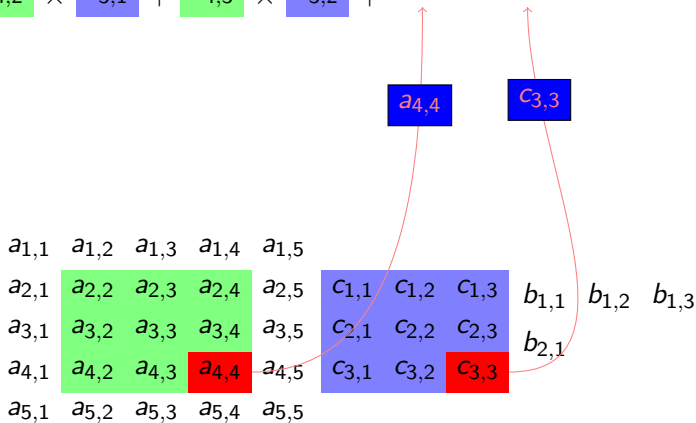
$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$

$a_{4,4}$

$c_{3,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} +
 \end{aligned}$$



$$\begin{array}{ccccccccc} a_{2,2} & \times & c_{1,1} & + & a_{2,3} & \times & c_{1,2} & + & a_{2,4} & \times & c_{1,3} & + \\ a_{3,2} & \times & c_{2,1} & + & a_{3,3} & \times & c_{2,2} & + & a_{3,4} & \times & c_{2,3} & + \\ a_{4,2} & \times & c_{3,1} & + & a_{4,3} & \times & c_{3,2} & + & & & & \end{array}$$



Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C and a 2x3 block matrix B .

Matrix A is partitioned into a 3x3 block of 3x3 submatrices ($A_{1,1}$ to $A_{3,3}$) and a 3x2 block of 3x3 submatrices ($A_{1,4}$ to $A_{3,5}$).

Matrix C is the 3x3 block of 3x3 submatrices, and matrix B is the 3x2 block of 3x3 submatrices.

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow b_{2,2}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow b_{2,2}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$b_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 &a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 &a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 &a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$		$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
 $b_{2,1}$ $b_{2,2}$

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 &a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 &a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 &a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\ & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\ & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

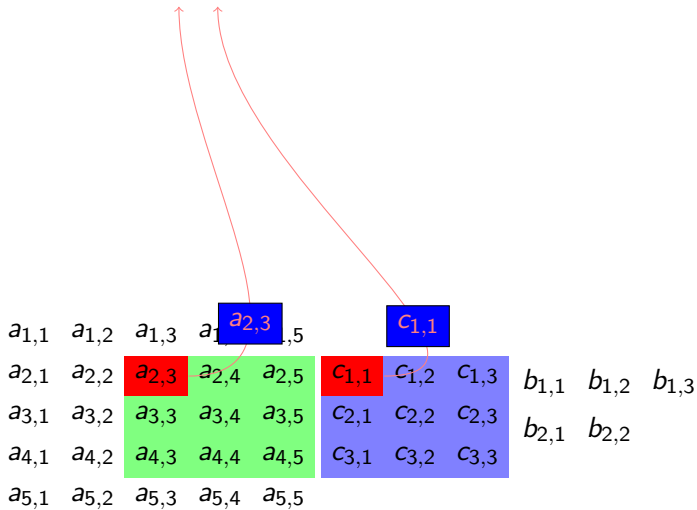
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

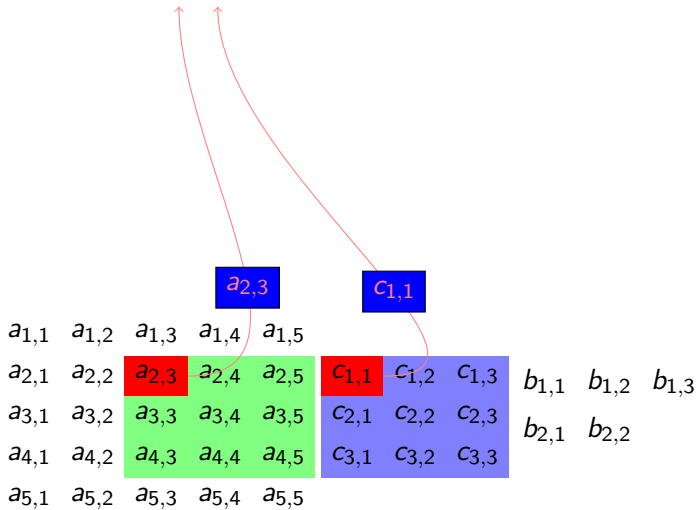
$$\begin{aligned}
 & a_{2,2} \times c_{1,1} + a_{2,3} \times c_{1,2} + a_{2,4} \times c_{1,3} + \\
 & a_{3,2} \times c_{2,1} + a_{3,3} \times c_{2,2} + a_{3,4} \times c_{2,3} + \\
 & a_{4,2} \times c_{3,1} + a_{4,3} \times c_{3,2} + a_{4,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

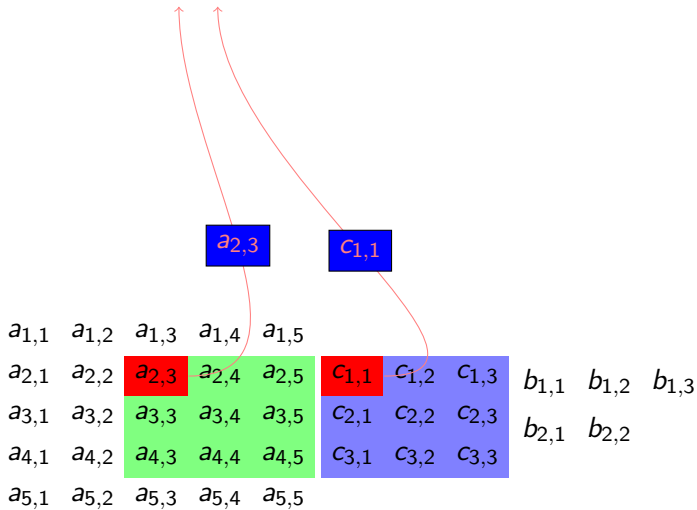
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

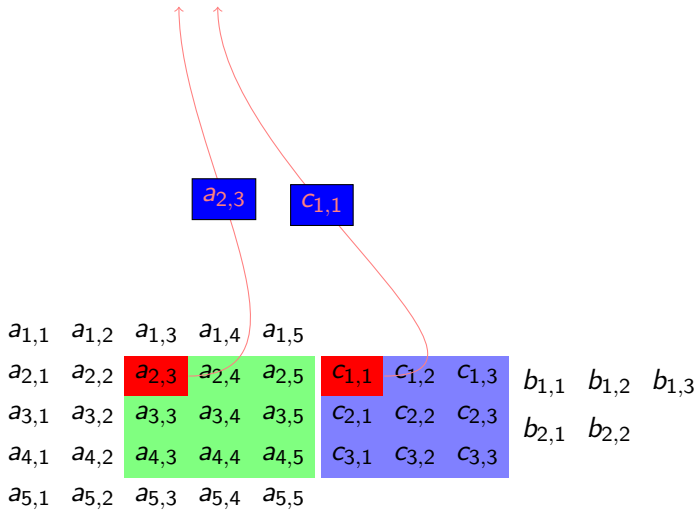
The diagram shows a 5x5 matrix A with elements $a_{i,j}$. The elements $a_{2,3}$ and $a_{1,4}$ are highlighted in red and blue boxes, respectively. The corresponding elements in matrix C are $c_{1,1}$ and $c_{1,1}$, also highlighted in red and blue boxes. The matrix C is a 3x3 matrix with elements $c_{i,j}$. The matrix B is a 3x3 matrix with elements $b_{i,j}$.

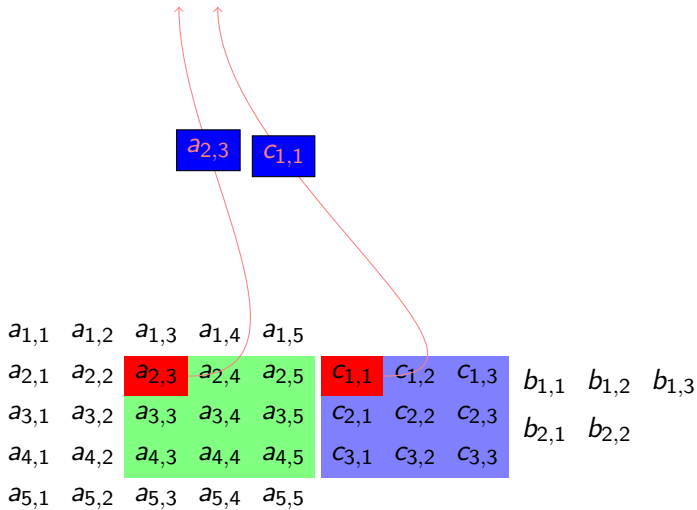
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$				
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,1}$	$c_{1,3}$	$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$ $b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$				

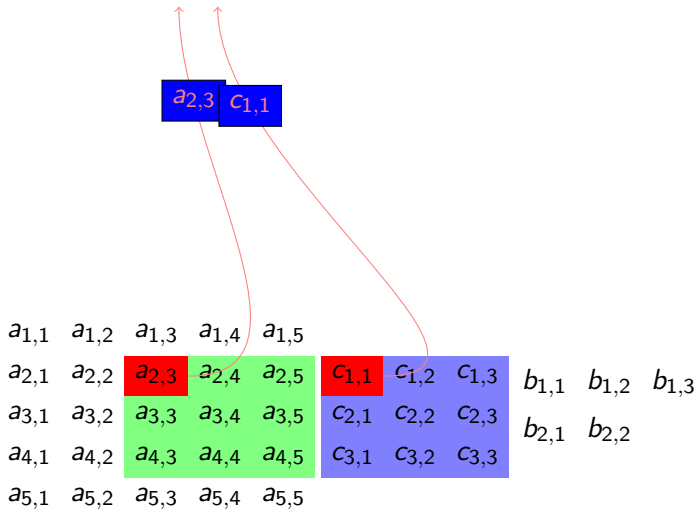












$a_{2,}$ $c_{1,1}$

$a_{1,1}$ $a_{1,2}$ $a_{1,3}$ $a_{1,4}$ $a_{1,5}$

$a_{2,1}$ $a_{2,2}$ $a_{2,3}$ $a_{2,4}$ $a_{2,5}$

$a_{3,1}$ $a_{3,2}$ $a_{3,3}$ $a_{3,4}$ $a_{3,5}$

$a_{4,1}$ $a_{4,2}$ $a_{4,3}$ $a_{4,4}$ $a_{4,5}$

$a_{5,1}$ $a_{5,2}$ $a_{5,3}$ $a_{5,4}$ $a_{5,5}$

$c_{1,1}$ $c_{1,2}$ $c_{1,3}$

$c_{2,1}$ $c_{2,2}$ $c_{2,3}$

$c_{3,1}$ $c_{3,2}$ $c_{3,3}$

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

$b_{2,1}$ $b_{2,2}$

$$a_{2,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} +$$

Diagram illustrating a 2D array structure with row and column indices. The array is a 5x5 grid of cells. The first row is labeled $a_{1,1}$ to $a_{1,5}$. The first column is labeled $a_{2,1}$ to $a_{5,1}$. The second row is labeled $a_{2,1}$ to $a_{2,5}$. The second column is labeled $a_{3,1}$ to $a_{5,1}$. The third row is labeled $a_{3,1}$ to $a_{3,5}$. The third column is labeled $a_{4,1}$ to $a_{5,1}$. The fourth row is labeled $a_{4,1}$ to $a_{4,5}$. The fourth column is labeled $a_{5,1}$ to $a_{5,5}$. The fifth row is labeled $a_{5,1}$ to $a_{5,5}$. The cells are colored: $a_{2,3}$ is green, $a_{2,4}$ is red, $a_{2,5}$ is blue, $a_{3,1}$ is green, $a_{3,2}$ is green, $a_{3,3}$ is green, $a_{3,4}$ is green, $a_{3,5}$ is green, $a_{4,1}$ is green, $a_{4,2}$ is green, $a_{4,3}$ is green, $a_{4,4}$ is green, $a_{4,5}$ is green, $a_{5,1}$ is green, $a_{5,2}$ is green, $a_{5,3}$ is green, $a_{5,4}$ is green, $a_{5,5}$ is green. The cells $c_{1,1}$ to $c_{3,3}$ are blue. The cells $b_{1,1}$ to $b_{1,3}$ are black. The cells $b_{2,1}$ to $b_{2,2}$ are black. The cells $c_{1,2}$ and $c_{1,3}$ are red. The cells $c_{2,1}$ to $c_{2,3}$ are blue. The cells $c_{3,1}$ to $c_{3,3}$ are blue. The cells $b_{1,1}$ to $b_{1,3}$ are black. The cells $b_{2,1}$ to $b_{2,2}$ are black.

$$a_{2,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,4}$		$c_{1,2}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} +$$

			$a_{2,4}$		$c_{1,2}$				
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} +$$

$$a_{2,4}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} +$$

$$a_{2,4}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} +$$

$a_{2,4}$	$c_{1,2}$
-----------	-----------

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} +$$

$a_{2,1}$	$c_{1,2}$
-----------	-----------

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$										
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$												
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$										
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$												
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$										
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$												
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

Diagram illustrating the mapping of a 5x5 input matrix A to a 3x3 output matrix C . The input matrix A has elements $a_{i,j}$ for $i, j \in \{1, 2, 3, 4, 5\}$. The output matrix C has elements $c_{i,j}$ for $i, j \in \{1, 2, 3\}$. The mapping is shown by colored boxes and arrows: $a_{3,3}$ (red) maps to $c_{2,1}$ (red), $a_{2,3}$ (blue) maps to $c_{2,1}$ (blue), and $a_{3,4}$ (green) maps to $c_{2,2}$ (green). The output matrix C is shown as a 3x3 grid of elements $c_{i,j}$.

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 5x3 matrix C_1 and a 3x3 matrix C_2 .

Matrix A (5x5):

$$A = \begin{bmatrix} a_{1,1} & a_{1,2} & a_{1,3} & a_{1,4} & a_{1,5} \\ a_{2,1} & a_{2,2} & a_{2,3} & a_{2,4} & a_{2,5} \\ a_{3,1} & a_{3,2} & a_{3,3} & a_{3,4} & a_{3,5} \\ a_{4,1} & a_{4,2} & a_{4,3} & a_{4,4} & a_{4,5} \\ a_{5,1} & a_{5,2} & a_{5,3} & a_{5,4} & a_{5,5} \end{bmatrix}$$

Matrix C_1 (5x3):

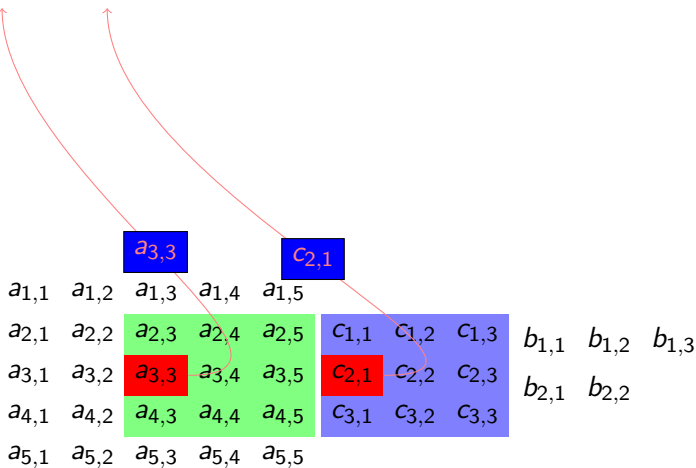
$$C_1 = \begin{bmatrix} c_{1,1} & c_{1,2} & c_{1,3} \\ c_{2,1} & c_{2,2} & c_{2,3} \\ c_{3,1} & c_{3,2} & c_{3,3} \\ c_{4,1} & c_{4,2} & c_{4,3} \\ c_{5,1} & c_{5,2} & c_{5,3} \end{bmatrix}$$

Matrix C_2 (3x3):

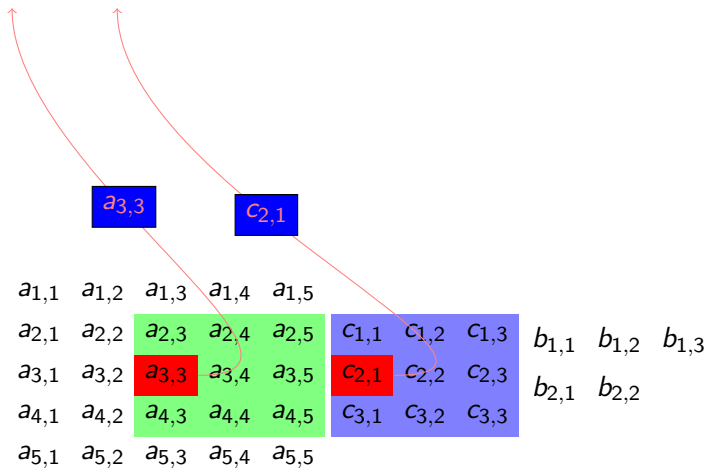
$$C_2 = \begin{bmatrix} c_{1,1} & c_{1,2} & c_{1,3} \\ c_{2,1} & c_{2,2} & c_{2,3} \\ c_{3,1} & c_{3,2} & c_{3,3} \end{bmatrix}$$

The diagram shows the multiplication $C_1 \cdot C_2$ resulting in a 5x3 matrix, which is then multiplied by a 3x3 matrix to produce the final 5x5 result matrix.

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$



$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$



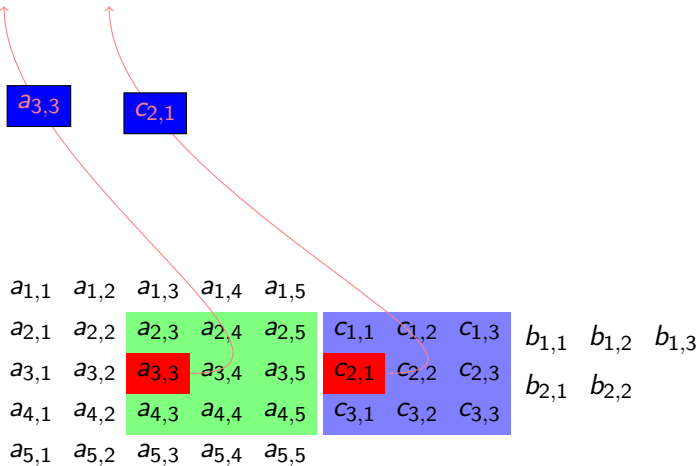
$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$a_{3,3}$

$c_{2,1}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$



$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3}$$

$$c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,3}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

Diagram illustrating the dot product of two 5x5 matrices A and B . The elements $a_{3,3}$, $a_{3,4}$, and $a_{3,5}$ from matrix A are highlighted in green. The elements $b_{2,1}$, $b_{2,2}$, and $b_{2,3}$ from matrix B are highlighted in blue. The product of each pair ($a_{3,3} \cdot b_{2,1}$, $a_{3,4} \cdot b_{2,2}$, $a_{3,5} \cdot b_{2,3}$) is shown in a red box. The final result, $a_{3,2}$, is shown in a blue box.

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{3,4}$	$c_{2,2}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$		$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{1,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$		$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					$b_{2,2}$

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{3,4}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{3,4}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} +$$

$$a_{3,3} \times c_{2,1} +$$

$a_{3,4}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{3,5}$

$c_{2,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} +
 \end{aligned}$$

$a_{3,5}$

$c_{2,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccc} a_{2,3} & \times & c_{1,1} & + & a_{2,4} & \times & c_{1,2} & + & a_{2,5} & \times & c_{1,3} & + \\ a_{3,3} & \times & c_{2,1} & + & a_{3,4} & \times & c_{2,2} & + & a_{3,5} & \times & c_{2,3} & + \end{array}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{4,3}$	$a_{3,5}$	$c_{2,1}$	$c_{3,1}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{3,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

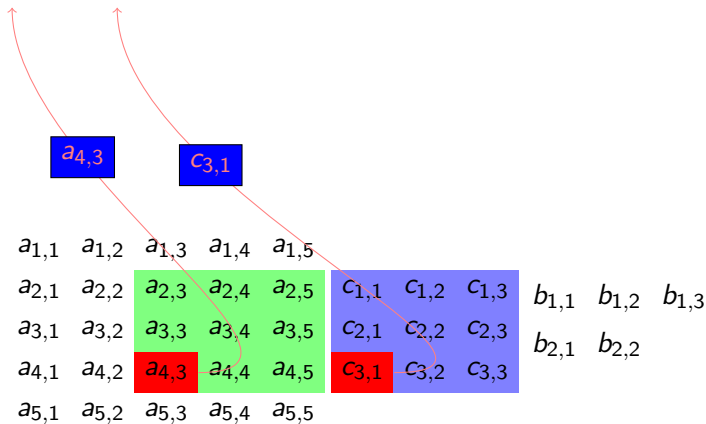
$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

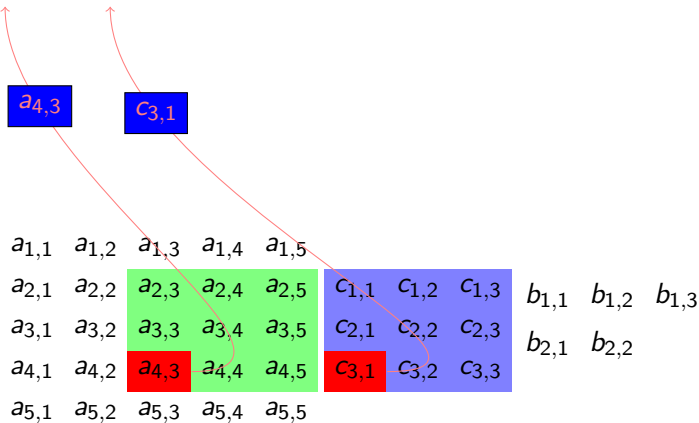
$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \end{aligned}$$

The diagram shows a 5x5 matrix A with elements $a_{i,j}$ and a 3x3 block matrix C with blocks $c_{i,j}$. The blocks $a_{4,3}$ and $c_{3,1}$ are highlighted in red and blue respectively, indicating their roles in the decomposition.

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{4,3} \\
 & c_{3,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

The diagram shows a 5x5 grid of elements $a_{i,j}$. The elements are arranged as follows:

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

The elements are grouped into three colored regions:

- Green Region:** $a_{2,3}, a_{2,4}, a_{2,5}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,3}, a_{4,4}, a_{4,5}$
- Blue Region:** $c_{1,1}, c_{1,2}, c_{1,3}, c_{2,1}, c_{2,2}, c_{2,3}, c_{3,1}, c_{3,2}, c_{3,3}$
- Red Region:** $a_{4,4}, c_{3,2}$

A red line highlights the path from the top-left element $a_{1,1}$ to the bottom-right element $a_{5,5}$.

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

[illegible]

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

Diagram illustrating a 5x5 matrix A with elements $a_{i,j}$ and their corresponding indices i and j . The matrix is partitioned into four quadrants, each highlighted with a different color:

- Top-left quadrant (green): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$
- Top-right quadrant (blue): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$
- Bottom-left quadrant (red): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$
- Bottom-right quadrant (yellow): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$

Specific elements are highlighted with colored boxes and labels:

- $a_{4,4}$ (blue box)
- $a_{3,5}$ (blue box)
- $a_{4,4}$ (red box)
- $a_{3,2}$ (red box)

The matrix is also partitioned into four quadrants, each highlighted with a different color:

- Top-left quadrant (green): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$
- Top-right quadrant (blue): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$
- Bottom-left quadrant (red): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$
- Bottom-right quadrant (yellow): $a_{1,1}, a_{1,2}, a_{1,3}, a_{1,4}, a_{1,5}, a_{2,1}, a_{2,2}, a_{2,3}, a_{2,4}, a_{2,5}, a_{3,1}, a_{3,2}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,1}, a_{4,2}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,1}, a_{5,2}, a_{5,3}, a_{5,4}, a_{5,5}$

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C . The matrix A is partitioned into four 3x3 blocks: A_{11} (green), A_{12} (blue), A_{21} (blue), and A_{22} (red). The matrix C is a 3x3 block matrix where the diagonal blocks are A_{11} , A_{12} , and A_{22} , and the off-diagonal blocks are zero matrices of size 3x3. The diagram shows the mapping from the blocks of A to the blocks of C .

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\
 & a_{4,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{4,4}$	$c_{3,2}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$ $b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$				

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\
 & a_{4,3} \times c_{3,1} +
 \end{aligned}$$

$a_{4,4}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
 $b_{2,1}$ $b_{2,2}$

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\
 & a_{4,3} \times c_{3,1} +
 \end{aligned}$$

$a_{4,4}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$			
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$			

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$
 $b_{2,1}$ $b_{2,2}$

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\
 & a_{4,3} \times c_{3,1} +
 \end{aligned}$$

$a_{4,4}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\
 & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$a_{4,5}$	$c_{3,2}$	$c_{3,3}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{l} a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{array}$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C .

Matrix A is partitioned into a 3x3 grid of blocks:

- Top-left 3x3 block (green): $a_{2,3}, a_{2,4}, a_{2,5}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,3}, a_{4,4}, a_{4,5}$
- Top-right 3x3 block (blue): $c_{1,1}, c_{1,2}, c_{1,3}, c_{2,1}, c_{2,2}, c_{2,3}, c_{3,1}, c_{3,2}, c_{3,3}$
- Bottom-left 3x3 block (red): $a_{4,3}, a_{4,4}, a_{4,5}$
- Bottom-right 3x3 block (red): $c_{3,1}, c_{3,2}, c_{3,3}$

The 3x3 block matrix C is shown to the right, with its elements being the 3x3 blocks of A .

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C .

Matrix A is partitioned into a 3x3 grid of blocks:

- Top-left 3x3 block (green): $a_{2,3}, a_{2,4}, a_{2,5}, a_{3,3}, a_{3,4}, a_{3,5}, a_{4,3}, a_{4,4}, a_{4,5}$
- Top-right 3x3 block (blue): $c_{1,1}, c_{1,2}, c_{1,3}, c_{2,1}, c_{2,2}, c_{2,3}, c_{3,1}, c_{3,2}, c_{3,3}$
- Bottom-right 3x3 block (red): $a_{4,5}, c_{3,3}$

The 3x3 block matrix C is shown to the right, with its elements corresponding to the blocks of A . The element $c_{3,3}$ is highlighted in blue.

$$\begin{array}{ccccccc} a_{2,3} & \times & c_{1,1} & + & a_{2,4} & \times & c_{1,2} & + & a_{2,5} & \times & c_{1,3} & + \\ a_{3,3} & \times & c_{2,1} & + & a_{3,4} & \times & c_{2,2} & + & a_{3,5} & \times & c_{2,3} & + \\ a_{4,3} & \times & c_{3,1} & + & a_{4,4} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating the data flow and storage for a 2D convolution operation. The input grid a (5x5) is shown with a 3x3 green region (rows 2-4, columns 3-5) and a 1x1 red region (row 4, column 5). The kernel grid c (3x3) is shown with a 1x1 blue region (row 4, column 5) and a 1x1 red region (row 3, column 3). The output grid b (3x3) is shown to the right, with $b_{1,2}$ and $b_{2,2}$ highlighted in blue and $b_{1,3}$ and $b_{2,1}$ highlighted in red. Red lines connect the green region of a to the blue region of c and the red region of a to the red region of c .

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$

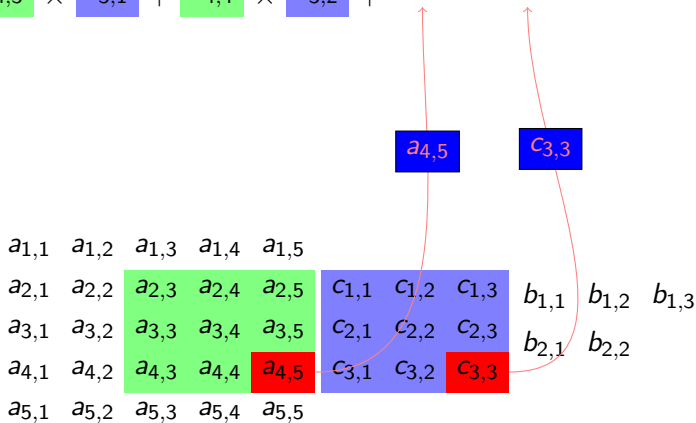
[illegible]

$$\begin{array}{ccccccccc} a_{2,3} & \times & c_{1,1} & + & a_{2,4} & \times & c_{1,2} & + & a_{2,5} & \times & c_{1,3} & + \\ a_{3,3} & \times & c_{2,1} & + & a_{3,4} & \times & c_{2,2} & + & a_{3,5} & \times & c_{2,3} & + \\ a_{4,3} & \times & c_{3,1} & + & a_{4,4} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating a 2D array structure with rows and columns. The array is divided into three colored regions: green (rows 2, 3, 4, columns 3, 4, 5), blue (rows 2, 3, 4, columns 1, 2, 3), and red (rows 4, 5, columns 4, 5). Red lines connect the green region to the blue region and the blue region to the red region.

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + \end{aligned}$$



$$\begin{aligned}
 &a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 &a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\
 &a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} +
 \end{aligned}$$

$a_{4,5}$

$c_{3,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$								
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$					
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$								

$$\begin{array}{ccccccc} a_{2,3} & \times & c_{1,1} & + & a_{2,4} & \times & c_{1,2} & + & a_{2,5} & \times & c_{1,3} & + \\ a_{3,3} & \times & c_{2,1} & + & a_{3,4} & \times & c_{2,2} & + & a_{3,5} & \times & c_{2,3} & + \\ a_{4,3} & \times & c_{3,1} & + & a_{4,4} & \times & c_{3,2} & + & & & & \end{array}$$



The diagram shows a 5x5 grid of elements labeled $a_{i,j}$ where i is the row index and j is the column index. The elements are arranged as follows:

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$					
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$					

Red annotations highlight the following:

- The element $a_{4,5}$ is highlighted in red.
- The entire row containing $a_{4,5}$ (row 4) is highlighted in green.
- The entire column containing $a_{4,5}$ (column 5) is highlighted in blue.
- The intersection of the highlighted row and column, which is the element $a_{4,5}$ itself, is highlighted in red.

$$\begin{array}{ccccccccc} a_{2,3} & \times & c_{1,1} & + & a_{2,4} & \times & c_{1,2} & + & a_{2,5} & \times & c_{1,3} & + \\ a_{3,3} & \times & c_{2,1} & + & a_{3,4} & \times & c_{2,2} & + & a_{3,5} & \times & c_{2,3} & + \\ a_{4,3} & \times & c_{3,1} & + & a_{4,4} & \times & c_{3,2} & + & a_{4,5} & \times & c_{3,3} & \end{array}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\
 & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\
 & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$										
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$												
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

$$\begin{array}{ccccccccc} a_{2,3} & \times & c_{1,1} & + & a_{2,4} & \times & c_{1,2} & + & a_{2,5} & \times & c_{1,3} & + \\ a_{3,3} & \times & c_{2,1} & + & a_{3,4} & \times & c_{2,2} & + & a_{3,5} & \times & c_{2,3} & + \\ a_{4,3} & \times & c_{3,1} & + & a_{4,4} & \times & c_{3,2} & + & a_{4,5} & \times & c_{3,3} & \end{array}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow b_{2,3} \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

$$b_{2,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$								
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$					
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$								

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the concept of a "row" in a matrix. The matrix is shown with elements $a_{i,j}$ for $i, j \in \{1, 2, 3, 4, 5\}$. The third row (elements $a_{3,1}$ to $a_{3,5}$) is highlighted in green. To the right, a 3x3 matrix of elements $c_{i,j}$ is shown. Further right, a 2x2 matrix of elements $b_{i,j}$ is shown, with the bottom-right element $b_{2,3}$ highlighted in red. A red arrow points from the red box to the green box, indicating a mapping or relationship between the two matrices.

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B to produce a 5x3 matrix C .

Matrix A (5x5):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix B (5x3):

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$

Resulting Matrix C (5x3):

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

The calculation for the element $c_{2,3}$ is highlighted in red, showing the dot product of row 2 of A and column 3 of B :

$$c_{2,3} = a_{2,1}b_{1,3} + a_{2,2}b_{2,3} + a_{2,3}b_{3,3} + a_{2,4}b_{4,3} + a_{2,5}b_{5,3}$$

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			$b_{2,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

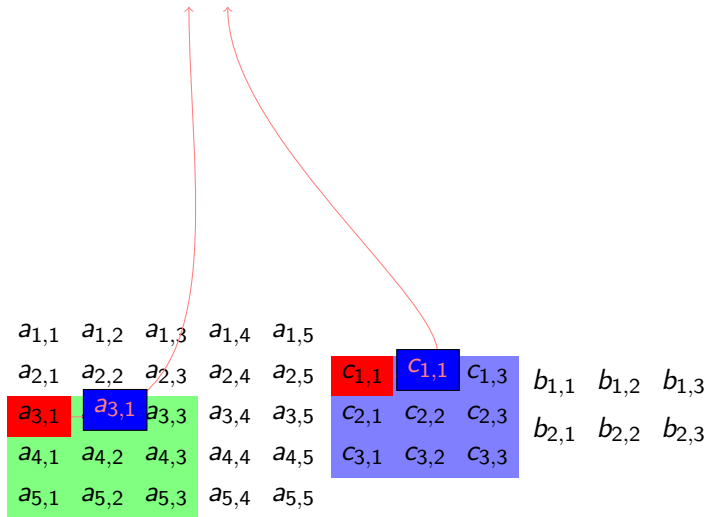
$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

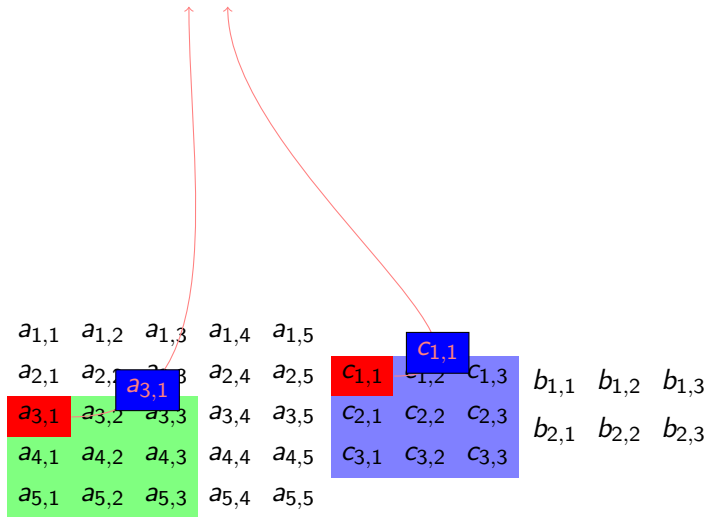
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

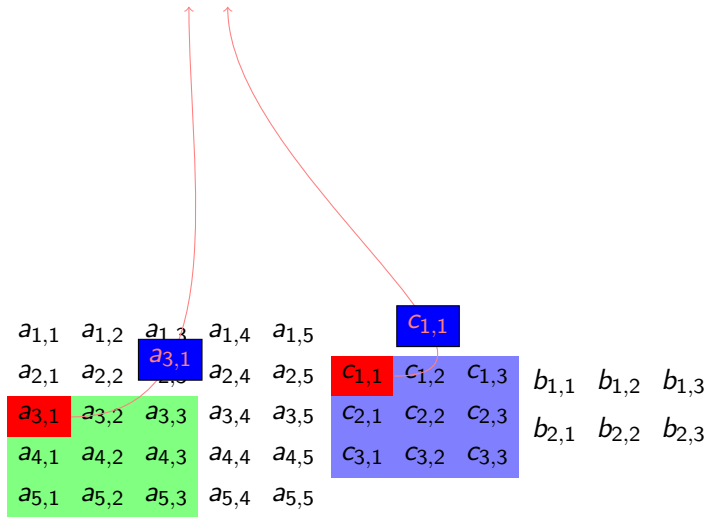
$$\begin{aligned} & a_{2,3} \times c_{1,1} + a_{2,4} \times c_{1,2} + a_{2,5} \times c_{1,3} + \\ & a_{3,3} \times c_{2,1} + a_{3,4} \times c_{2,2} + a_{3,5} \times c_{2,3} + \\ & a_{4,3} \times c_{3,1} + a_{4,4} \times c_{3,2} + a_{4,5} \times c_{3,3} \rightarrow \end{aligned}$$

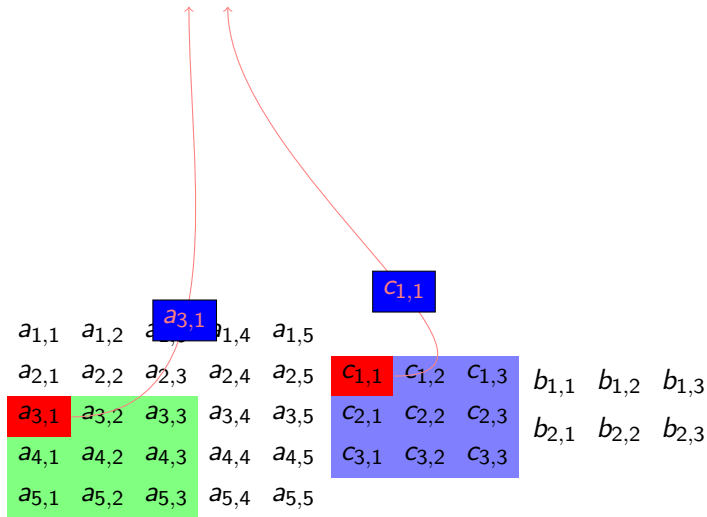
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

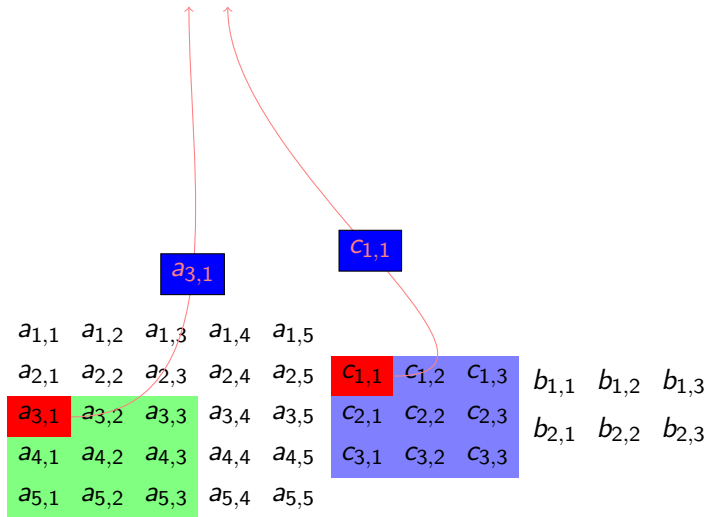
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

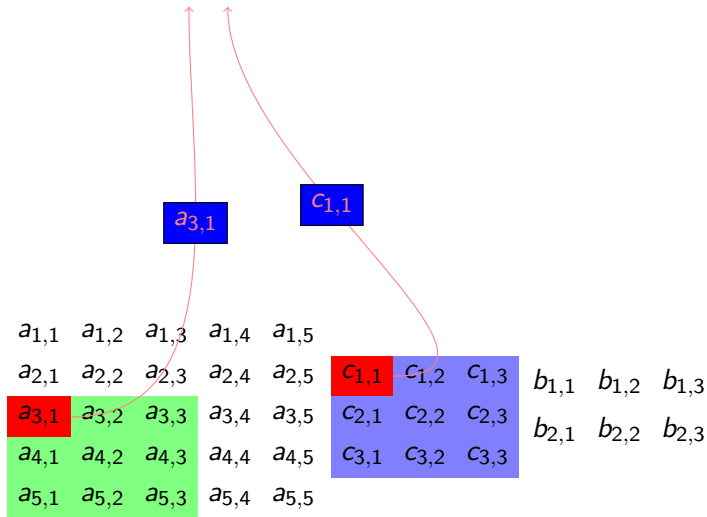


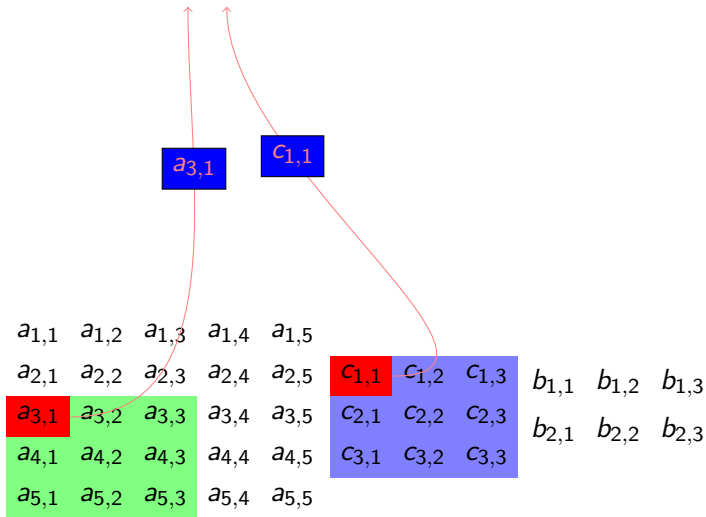


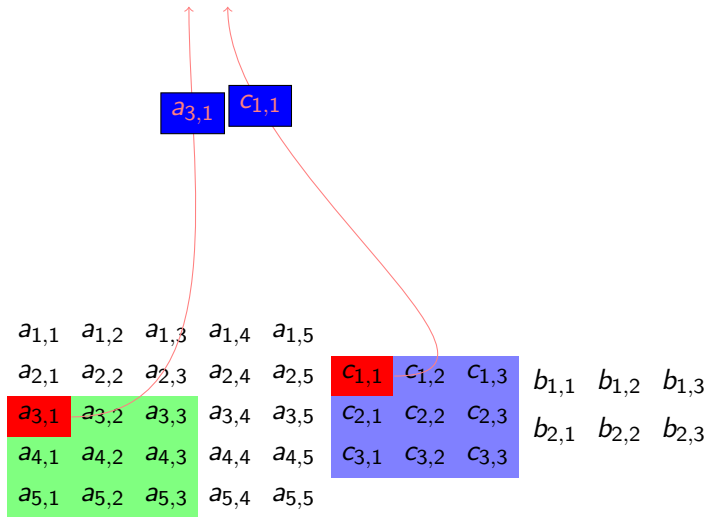


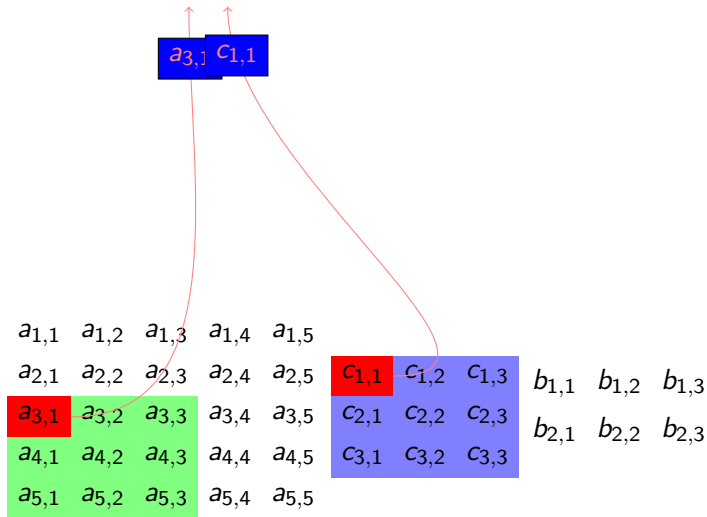












$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,2}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

Diagram illustrating the dot product of two 5x5 matrices A and C to produce a 5x3 matrix B . The element $a_{3,2}$ in A and $c_{1,2}$ in C are highlighted in red, and their product is shown as $a_{3,2}c_{1,2}$ in B . Red lines connect the highlighted elements in A and C to the corresponding element in B .

$$a_{3,1} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$$a_{3,2}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

 $a_{3,2}$
 $c_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$$a_{3,2}$$

$$c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} +$$

$$a_{3,2} \quad c_{1,2}$$

Diagram illustrating the dot product of two 5x5 matrices A and B to produce a 5x3 matrix C .

Matrix A (rows $a_{1,1}$ to $a_{5,5}$) and Matrix B (columns $b_{1,1}$ to $b_{1,3}$ and $b_{2,1}$ to $b_{2,3}$) are shown. The resulting matrix C (columns $c_{1,1}$ to $c_{1,3}$ and $c_{2,1}$ to $c_{2,3}$) is also shown.

The element $c_{1,2}$ is highlighted in red, and the elements $a_{3,2}$ and $a_{3,3}$ are highlighted in green, indicating their contribution to the calculation of $c_{1,2}$.

$$a_{3,1} \times c_{1,1} +$$

$$a_{3,2} \times c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

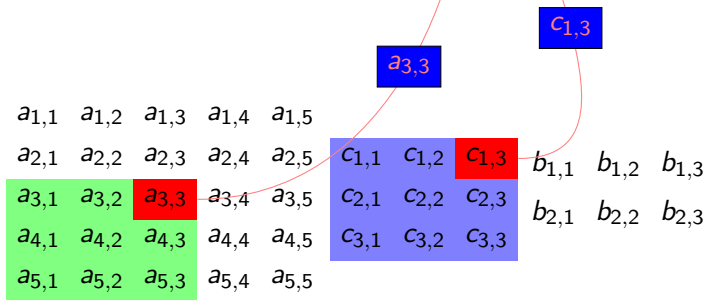
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

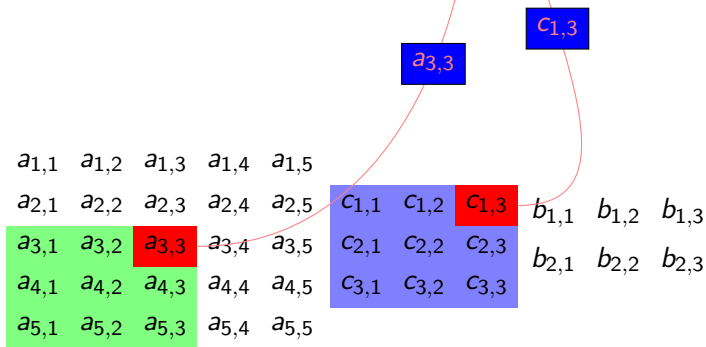
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$



$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$



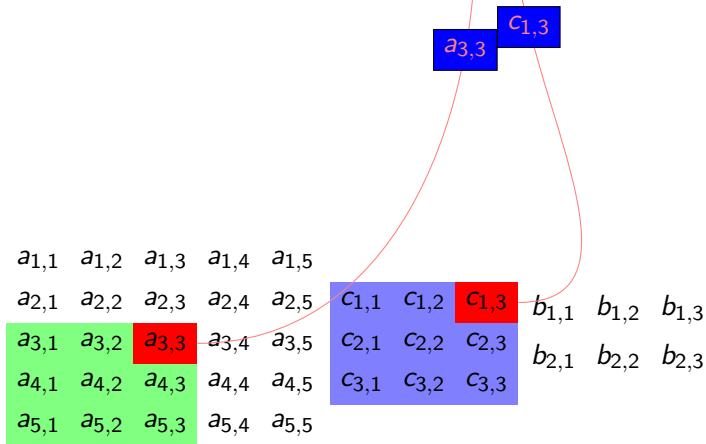
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$

$a_{3,3}$

$c_{1,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$



$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} +$$

$a_{3,3}$

$c_{1,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

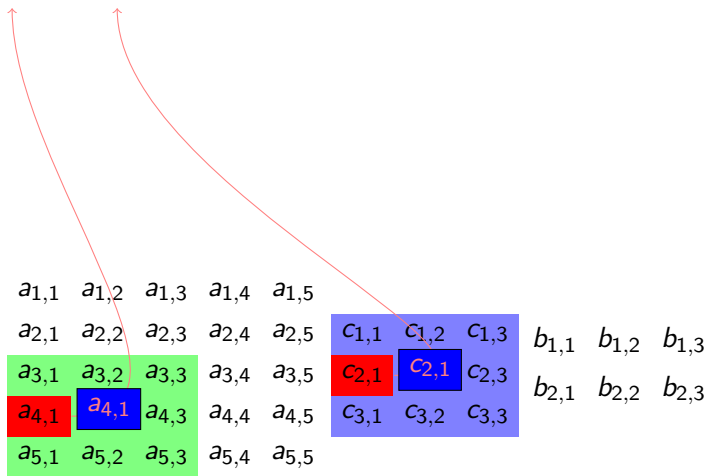
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

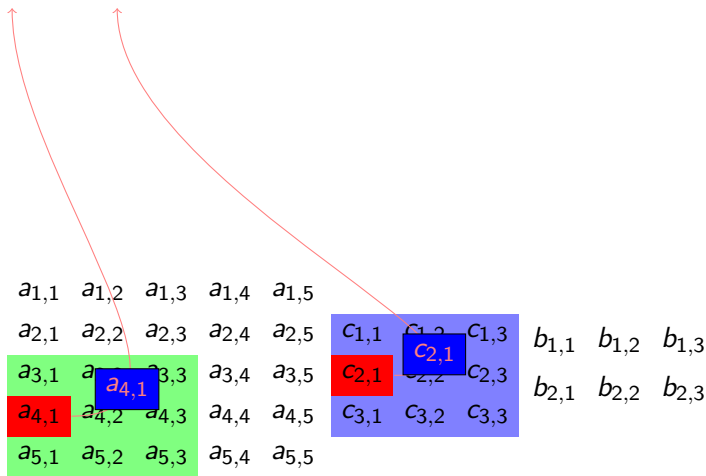
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$



$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

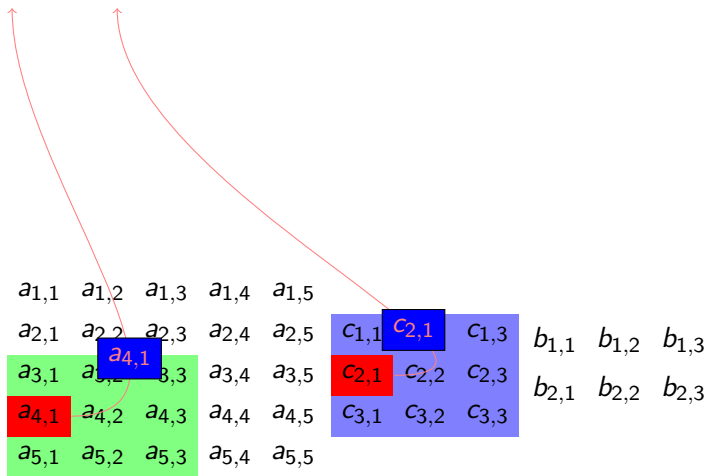
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$



The diagram illustrates the calculation of the element $c_{2,1}$ in the product matrix C . It shows three matrices: A (5x5), B (3x3), and C (5x5). The element $a_{3,1}$ from matrix A and the first row of matrix B (elements $c_{1,1}, c_{1,2}, c_{1,3}$) are highlighted in green. The element $a_{4,1}$ from matrix A is highlighted in red. The element $c_{2,1}$ in matrix C is highlighted in blue. Red arrows indicate the contribution of $a_{3,1} \times c_{1,1}$ and $a_{4,1} \times c_{1,1}$ to the calculation of $c_{2,1}$.

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$



$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

Diagram illustrating the dot product of two 5x5 matrices A and C to produce matrix B .

Matrix A (left):

$$\begin{matrix} a_{1,1} & a_{1,2} & a_{1,3} & a_{1,4} & a_{1,5} \\ a_{2,1} & a_{2,2} & a_{2,3} & a_{2,4} & a_{2,5} \\ a_{3,1} & a_{3,2} & a_{3,3} & a_{3,4} & a_{3,5} \\ a_{4,1} & a_{4,2} & a_{4,3} & a_{4,4} & a_{4,5} \\ a_{5,1} & a_{5,2} & a_{5,3} & a_{5,4} & a_{5,5} \end{matrix}$$

Matrix C (middle):

$$\begin{matrix} c_{1,1} & c_{1,2} & c_{1,3} \\ c_{2,1} & c_{2,2} & c_{2,3} \\ c_{3,1} & c_{3,2} & c_{3,3} \end{matrix}$$

Matrix B (right):

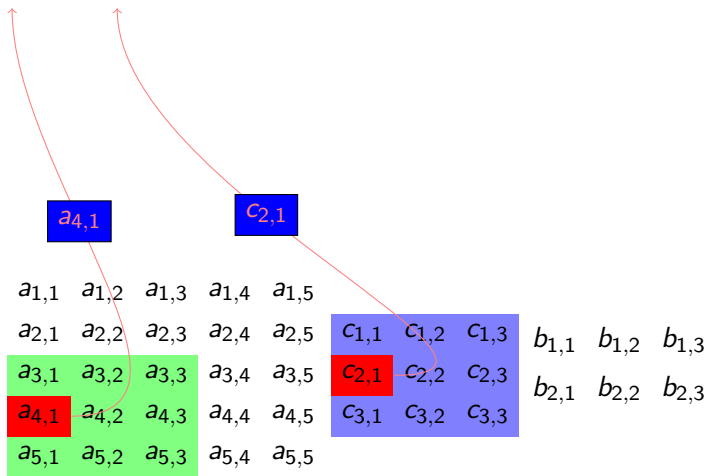
$$\begin{matrix} b_{1,1} & b_{1,2} & b_{1,3} \\ b_{2,1} & b_{2,2} & b_{2,3} \\ b_{3,1} & b_{3,2} & b_{3,3} \\ b_{4,1} & b_{4,2} & b_{4,3} \\ b_{5,1} & b_{5,2} & b_{5,3} \end{matrix}$$

The diagram shows the dot product of row 4 of A and column 1 of C resulting in $b_{2,1}$. The elements $a_{4,1}$ and $c_{2,1}$ are highlighted in red, and their product is shown as $b_{2,1}$ in the resulting matrix B .

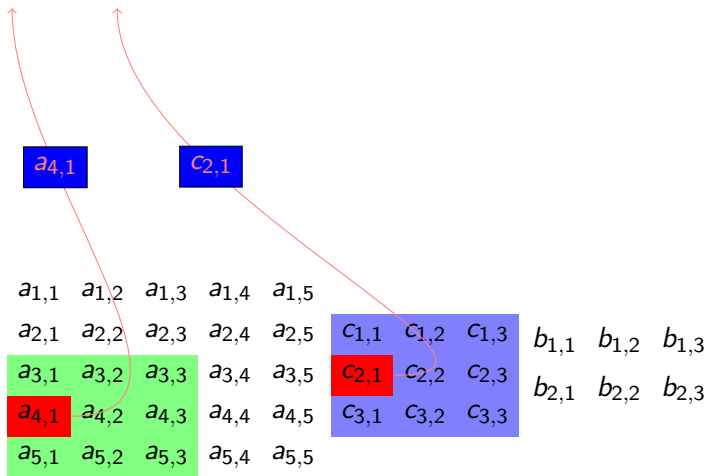
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

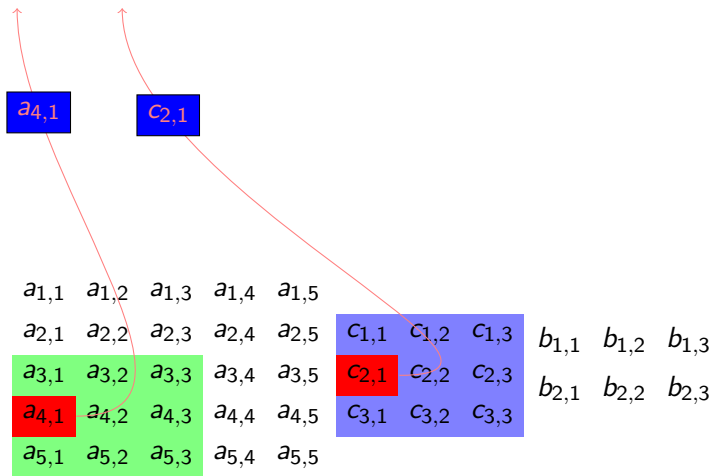
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$



$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$



$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$



$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \quad c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,2}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,2}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

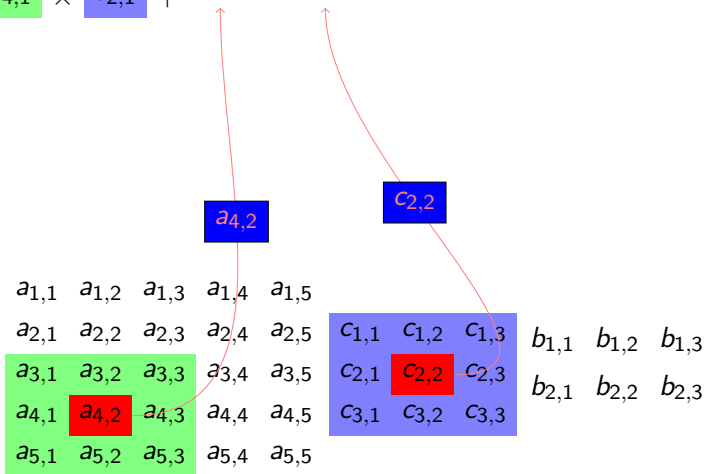
$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{2,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{4,2}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$



$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{4,2}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$a_{4,2}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} +$$

$$a_{4,1} \times c_{2,1} +$$

$$a_{4,2}$$

$$c_{2,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B to produce a 5x5 matrix C .

Matrix A (left):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix B (right):

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$	$b_{1,4}$	$b_{1,5}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$	$b_{2,4}$	$b_{2,5}$
$b_{3,1}$	$b_{3,2}$	$b_{3,3}$	$b_{3,4}$	$b_{3,5}$
$b_{4,1}$	$b_{4,2}$	$b_{4,3}$	$b_{4,4}$	$b_{4,5}$
$b_{5,1}$	$b_{5,2}$	$b_{5,3}$	$b_{5,4}$	$b_{5,5}$

Matrix C (center):

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$c_{1,4}$	$c_{1,5}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{2,4}$	$c_{2,5}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$c_{3,4}$	$c_{3,5}$
$c_{4,1}$	$c_{4,2}$	$c_{4,3}$	$c_{4,4}$	$c_{4,5}$
$c_{5,1}$	$c_{5,2}$	$c_{5,3}$	$c_{5,4}$	$c_{5,5}$

The diagram shows a 3x3 sub-region of A (rows 3-5, columns 1-3) highlighted in green, a 3x3 sub-region of B (rows 1-3, columns 4-6) highlighted in blue, and the resulting 3x3 sub-region of C (rows 3-5, columns 4-6) highlighted in red. Red lines connect the sub-regions of A and B to the sub-region of C , illustrating the dot product operation.

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$a_{4,3}$

$c_{2,3}$

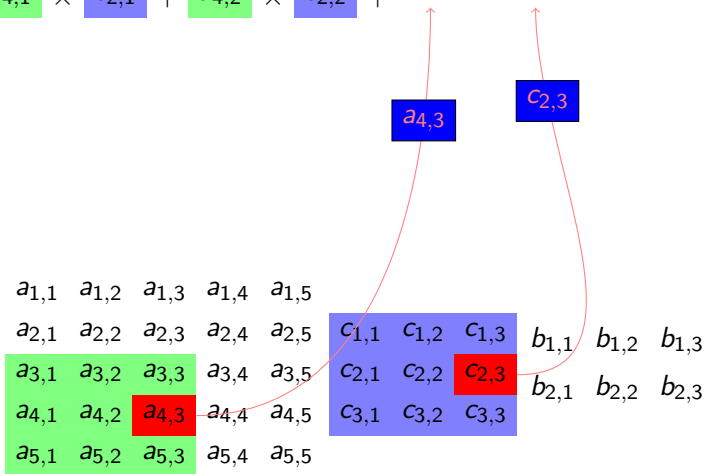
$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$a_{4,3}$

$c_{2,3}$

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{4,3} \quad c_{2,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

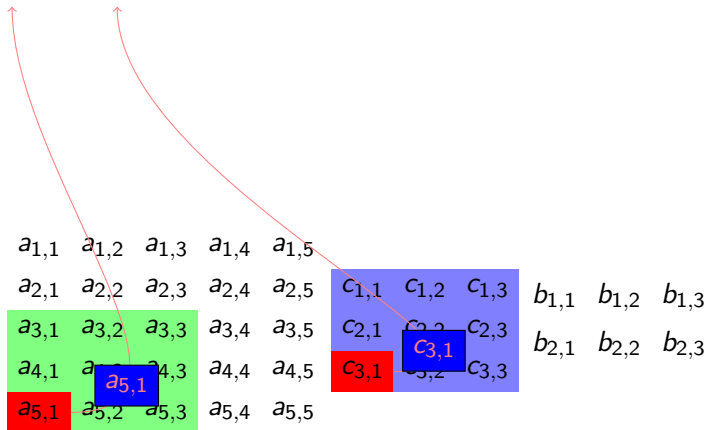
$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

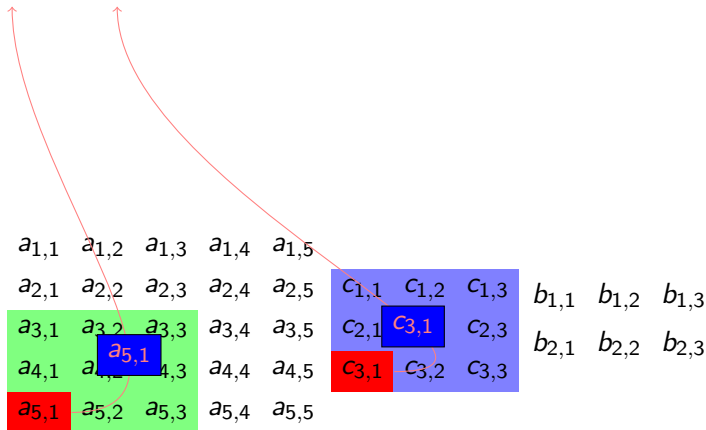
$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \end{aligned}$$

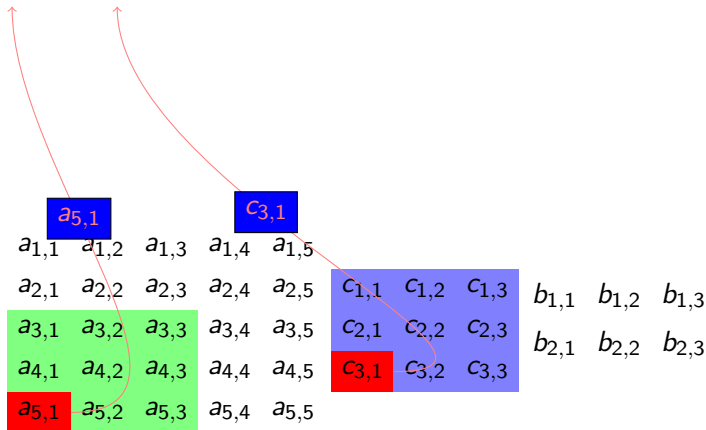
Diagram illustrating the dot product of two 5x5 matrices A and B . Matrix A is on the left, and matrix B is on the right. The element $a_{5,1}$ in matrix A is highlighted in blue, and the element $c_{3,1}$ in matrix B is highlighted in red. A red arrow points from $a_{5,1}$ to $c_{3,1}$, indicating the dot product of the 5th row of A and the 3rd column of B . The result of this dot product is the element $c_{5,3}$ in matrix C , which is highlighted in blue.

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$

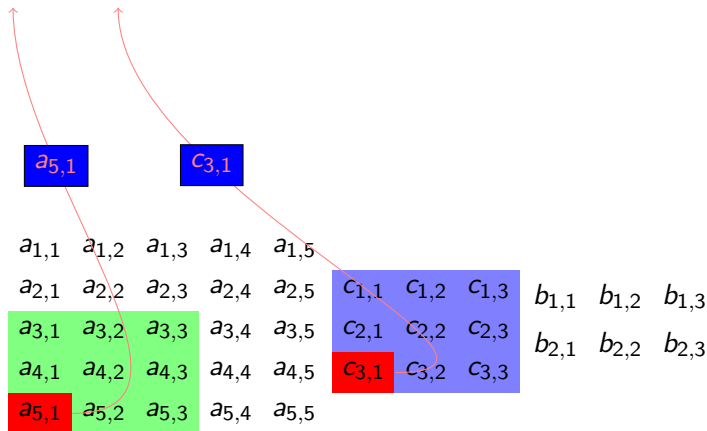
The diagram illustrates the calculation of the dot product of the third row of matrix A and the first column of matrix C. Red arrows point from the highlighted elements in the matrix to the corresponding terms in the equation above. The matrix A is a 5x5 grid where the third row is green and the fifth row is red. The matrix C is a 3x3 grid where the first column is blue and the third row is red. The result matrix B is shown to the right.

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

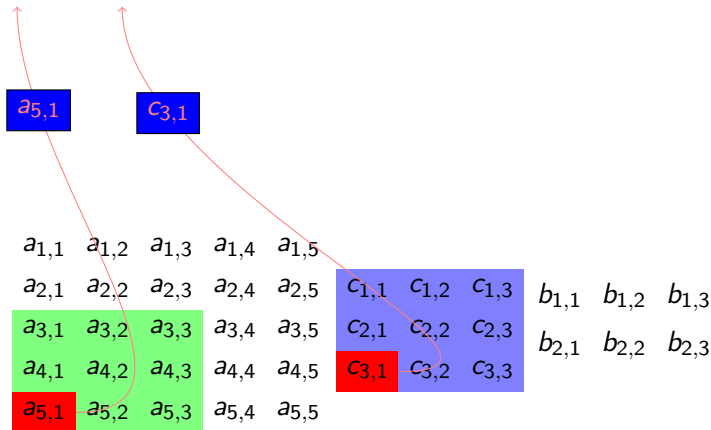
$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$



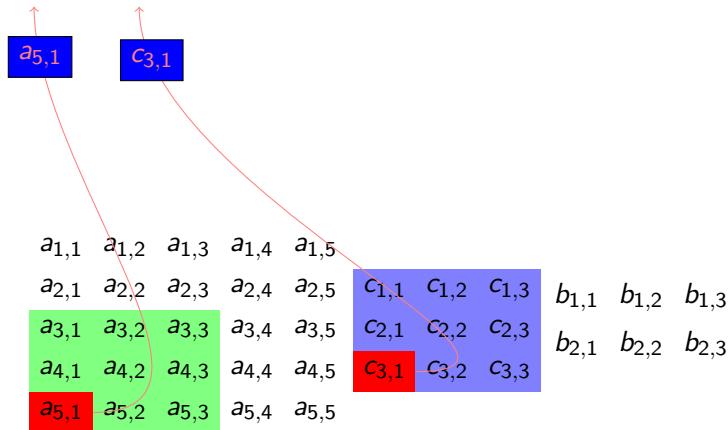
$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 &a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 &a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 &a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B . The result is a 5x5 matrix C . The element $c_{5,2}$ is highlighted in blue, and its calculation involves the dot product of the 5th row of A and the 2nd column of B . The elements $a_{5,2}$ and $b_{3,2}$ are highlighted with blue boxes, indicating they are the specific elements being multiplied together.

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B . The resulting matrix C is shown in the center. The element $a_{5,2}$ in matrix A is highlighted in red, and the element $c_{3,2}$ in matrix C is highlighted in blue. Red lines connect $a_{5,2}$ to $c_{3,2}$ and to the element $a_{5,3}$ in matrix A , which is also highlighted in red. The element $a_{5,3}$ is highlighted in red, and the element $c_{3,2}$ is highlighted in blue.

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{3,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{5,2}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

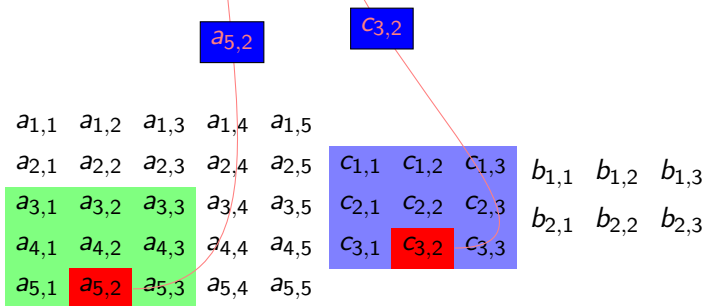
$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the concept of a "row" in a matrix. The matrix A is shown with elements $a_{i,j}$. A red box highlights the element $a_{5,2}$ in the 5th row and 2nd column. A red line connects this element to a blue box labeled $c_{3,2}$ in the matrix C . The matrix C is shown with its first two rows highlighted in blue, and its third row highlighted in red, with the element $c_{3,2}$ in the red box. The matrix B is shown to the right of matrix C , with its first two rows highlighted in blue and its third row highlighted in red.

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B . Matrix A is on the left, and Matrix B is on the right. The element $a_{5,2}$ in the 5th row and 2nd column of A is highlighted in red. The 3rd column of B is highlighted in blue, with the element $c_{3,2}$ in the 3rd row and 2nd column highlighted in red. A red line connects $a_{5,2}$ to $c_{3,2}$, indicating their contribution to the dot product for the element in the 5th row and 3rd column of the result matrix.

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{5,2}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} +
 \end{aligned}$$

$a_{5,2}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccccc} a_{3,1} & \times & c_{1,1} & + & a_{3,2} & \times & c_{1,2} & + & a_{3,3} & \times & c_{1,3} & + \\ a_{4,1} & \times & c_{2,1} & + & a_{4,2} & \times & c_{2,2} & + & a_{4,3} & \times & c_{2,3} & + \\ a_{5,1} & \times & c_{3,1} & + & a_{5,2} & \times & c_{3,2} & + & & & & \end{array}$$

The diagram shows a grid of elements arranged in rows and columns. The elements are labeled as follows:

- Row 1: $a_{1,1}$, $a_{1,2}$, $a_{1,3}$, $a_{1,4}$, $a_{1,5}$
- Row 2: $a_{2,1}$, $a_{2,2}$, $a_{2,3}$, $a_{2,4}$, $a_{2,5}$, $c_{1,1}$, $c_{1,2}$, $c_{1,3}$, $b_{1,1}$, $b_{1,2}$, $b_{1,3}$
- Row 3: $a_{3,1}$, $a_{3,2}$, $a_{3,3}$, $a_{3,4}$, $a_{3,5}$, $c_{2,1}$, $c_{2,2}$, $c_{2,3}$, $b_{2,1}$, $b_{2,2}$, $b_{2,3}$
- Row 4: $a_{4,1}$, $a_{4,2}$, $a_{4,3}$, $a_{4,4}$, $a_{4,5}$, $c_{3,1}$, $c_{3,2}$, $c_{3,3}$, $c_{3,3}$
- Row 5: $a_{5,1}$, $a_{5,2}$, $a_{5,3}$, $a_{5,3}$, $a_{5,5}$

Annotations and styling:

- A green box highlights the elements $a_{3,1}$, $a_{3,2}$, and $a_{3,3}$.
- A blue box highlights the elements $c_{1,1}$, $c_{1,2}$, and $c_{1,3}$.
- A red box highlights the element $c_{3,3}$.
- A blue box highlights the element $c_{3,3}$.
- A red box highlights the element $a_{5,3}$.
- A red box highlights the element $a_{5,3}$.
- A red line connects the element $a_{5,3}$ to the element $c_{3,3}$.

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B. Matrix A is on the left, and matrix B is on the right. The dot product of row 5 of A and column 3 of B is highlighted. Red boxes highlight the elements $a_{5,3}$ and $c_{3,3}$. Red lines connect these elements to the result $c_{5,3}$ in the output matrix C.

$$\begin{array}{ccccccc} a_{3,1} & \times & c_{1,1} & + & a_{3,2} & \times & c_{1,2} & + & a_{3,3} & \times & c_{1,3} & + \\ a_{4,1} & \times & c_{2,1} & + & a_{4,2} & \times & c_{2,2} & + & a_{4,3} & \times & c_{2,3} & + \\ a_{5,1} & \times & c_{3,1} & + & a_{5,2} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating the dot product of two 5x5 matrices A and C to produce matrix B .

Matrix A (left):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix C (middle):

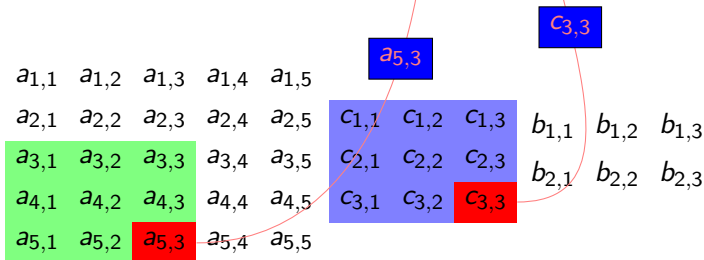
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

Matrix B (right):

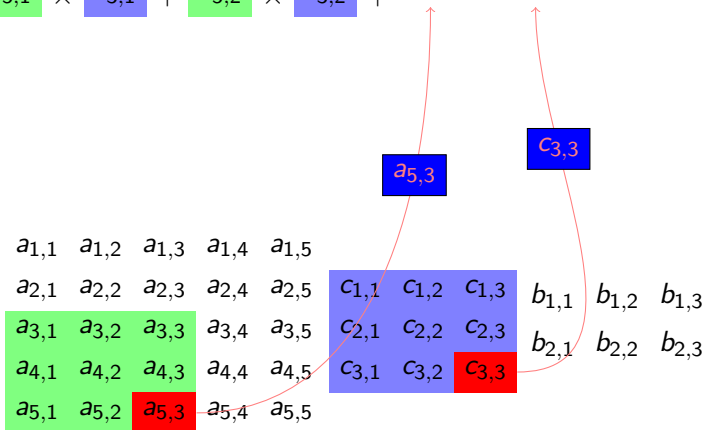
$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$

Red lines indicate the dot product operation: the third column of A is multiplied by the third row of C to produce the third column of B .

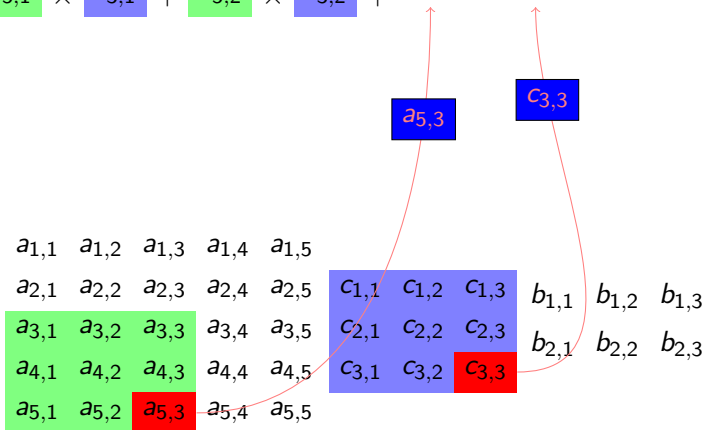
$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$



$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} +
 \end{aligned}$$

$a_{5,3}$

$c_{3,3}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$								
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$					
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$								

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$			
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow b_{3,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$								
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$				
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$								

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow \end{aligned}$$

$$b_{3,1}$$

Diagram illustrating the memory access pattern for a 2D array with row-major storage. The array is divided into blocks of size 3x3. The first block (green) contains elements $a_{1,1}$ to $a_{3,3}$. The second block (blue) contains elements $a_{3,4}$ to $a_{5,5}$. The third block (red) contains elements $b_{1,1}$ to $b_{3,3}$. The elements are arranged in a grid: $a_{1,1} a_{1,2} a_{1,3} a_{1,4} a_{1,5}$; $a_{2,1} a_{2,2} a_{2,3} a_{2,4} a_{2,5}$; $a_{3,1} a_{3,2} a_{3,3} a_{3,4} a_{3,5}$; $a_{4,1} a_{4,2} a_{4,3} a_{4,4} a_{4,5}$; $a_{5,1} a_{5,2} a_{5,3} a_{5,4} a_{5,5}$; $c_{1,1} c_{1,2} c_{1,3}$; $c_{2,1} c_{2,2} c_{2,3}$; $c_{3,1} c_{3,2} c_{3,3}$; $b_{1,1} b_{1,2} b_{1,3}$; $b_{2,1} b_{2,2} b_{2,3}$; $b_{3,1}$. A red arrow points from the bottom-right corner of the blue block to the red block, indicating the jump in memory access.

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$								
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$				
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$								

$b_{3,1}$

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B to produce a 5x5 matrix C .

Matrix A (rows 1-5, columns 1-5):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix B (rows 1-3, columns 1-3):

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$b_{3,1}$	$b_{3,2}$	$b_{3,3}$

Matrix C (rows 1-5, columns 1-5):

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$c_{1,4}$	$c_{1,5}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{2,4}$	$c_{2,5}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$c_{3,4}$	$c_{3,5}$
$c_{4,1}$	$c_{4,2}$	$c_{4,3}$	$c_{4,4}$	$c_{4,5}$
$c_{5,1}$	$c_{5,2}$	$c_{5,3}$	$c_{5,4}$	$c_{5,5}$

The diagram shows that the dot product of the 3x3 sub-region of A (rows 3-5, columns 1-3) and the 3x3 sub-region of B (rows 1-3, columns 1-3) produces the 3x3 sub-region of C (rows 3-5, columns 1-3).

$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B to produce a 5x5 matrix C .

Matrix A (left):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix B (right):

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$b_{3,1}$	$b_{3,2}$	$b_{3,3}$

Matrix C (center):

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

The diagram shows the calculation of the third row of C (highlighted in red) using the third row of A (highlighted in green) and the third column of B (highlighted in blue). A red arrow indicates the dot product operation.

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\
 & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\
 & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

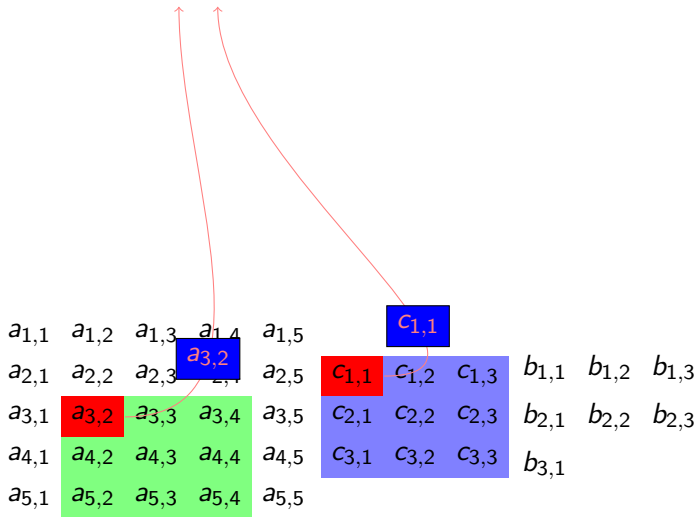
$$\begin{aligned} & a_{3,1} \times c_{1,1} + a_{3,2} \times c_{1,2} + a_{3,3} \times c_{1,3} + \\ & a_{4,1} \times c_{2,1} + a_{4,2} \times c_{2,2} + a_{4,3} \times c_{2,3} + \\ & a_{5,1} \times c_{3,1} + a_{5,2} \times c_{3,2} + a_{5,3} \times c_{3,3} \rightarrow \end{aligned}$$

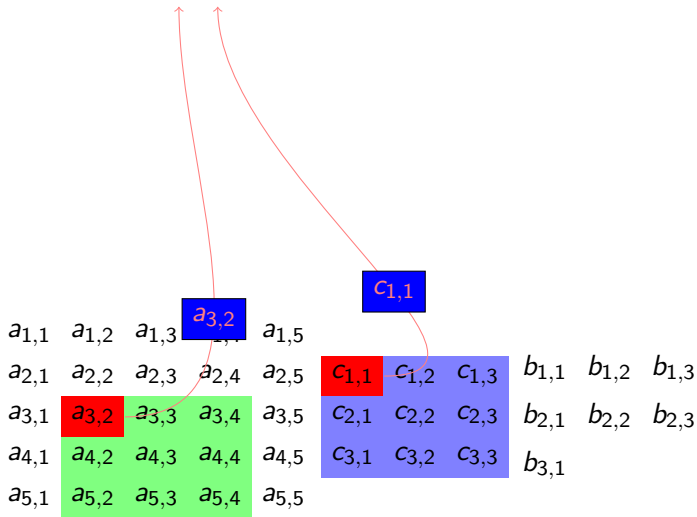
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

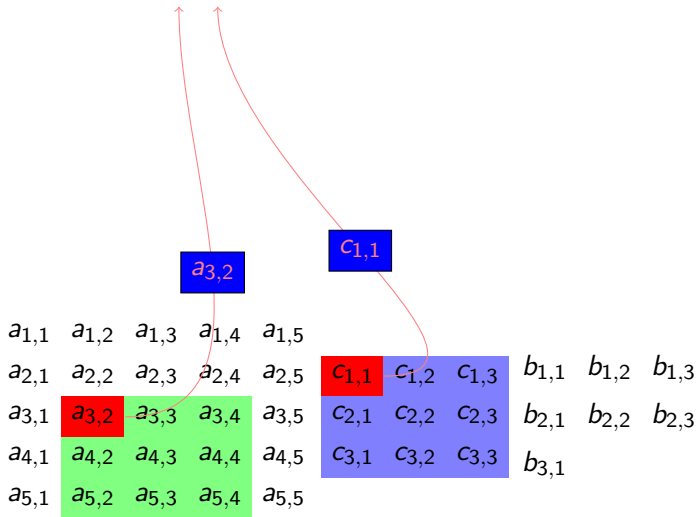
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

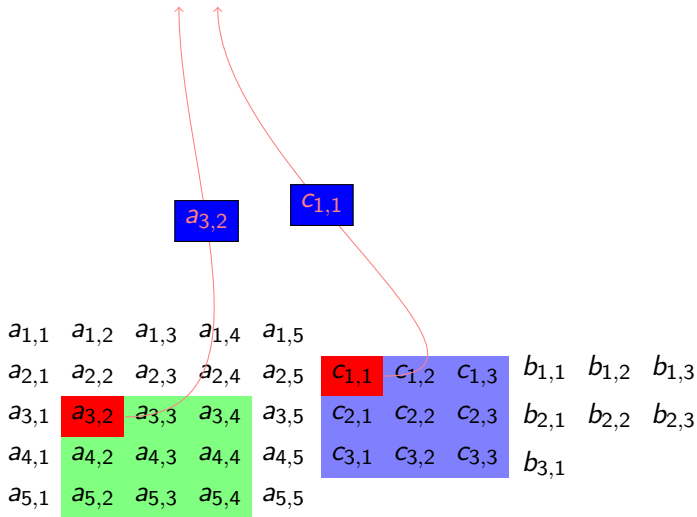
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,1}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,2}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

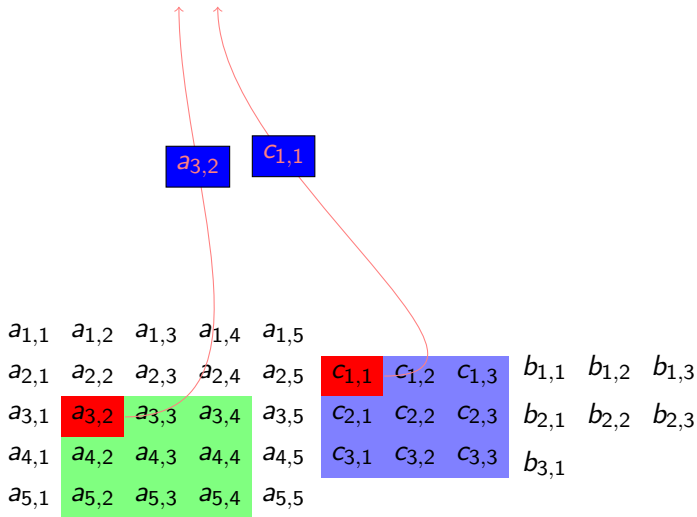
Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C . The matrix A is partitioned into blocks of size 3x3, 2x2, 3x2, 2x3, and 2x2. The central 3x3 block is highlighted in blue and labeled C . The surrounding blocks are highlighted in red, green, and blue. The matrix C is shown as a 3x3 block matrix with blocks of size 3x3, 2x2, 3x2, 2x3, and 2x2.

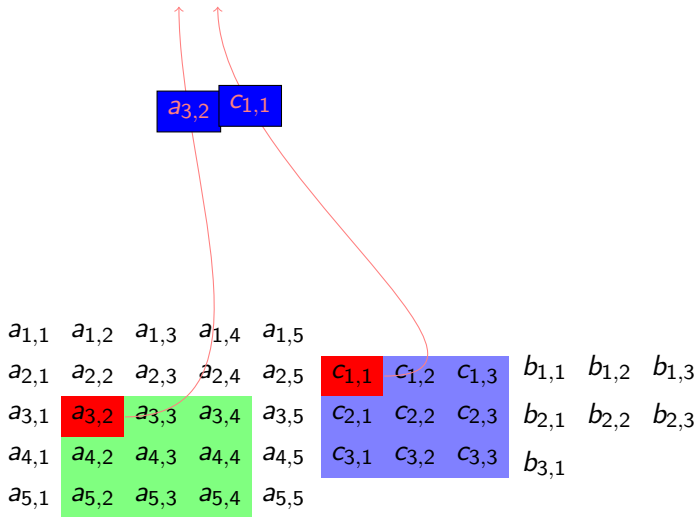


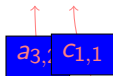












$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$b_{3,1}$		

$$a_{3,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} +$$

Diagram illustrating the decomposition of a 5x5 matrix A into a 3x3 block matrix C and a 2x2 block matrix B .

Matrix A is partitioned into four 3x3 blocks:

- A_{11} (green)
- A_{12} (red)
- A_{13} (blue)
- A_{22} (blue)

Matrix C is the 3x3 block matrix formed by A_{11} , A_{12} , and A_{13} .

Matrix B is the 2x2 block matrix formed by A_{22} and the bottom-right 2x2 block of A .

$$a_{3,2} \times c_{1,1} +$$

The diagram shows two 5x5 matrices, A and B, and their dot product result C. Matrix A is on the left, and Matrix B is on the right. The dot product of the third row of A and the third column of B is highlighted. The element $a_{3,3}$ in A is highlighted in red, and the element $c_{1,2}$ in B is highlighted in red. The result of the dot product, $c_{3,2}$, is shown in a blue box.

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

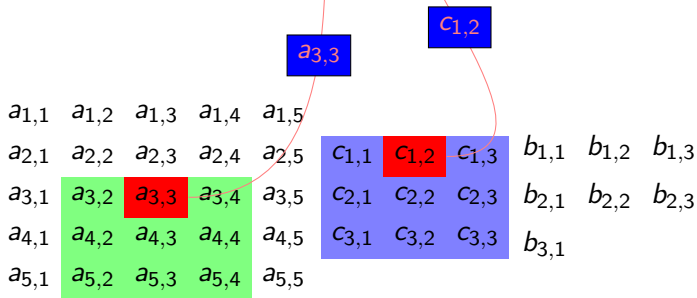
$$a_{3,2} \times c_{1,1} +$$

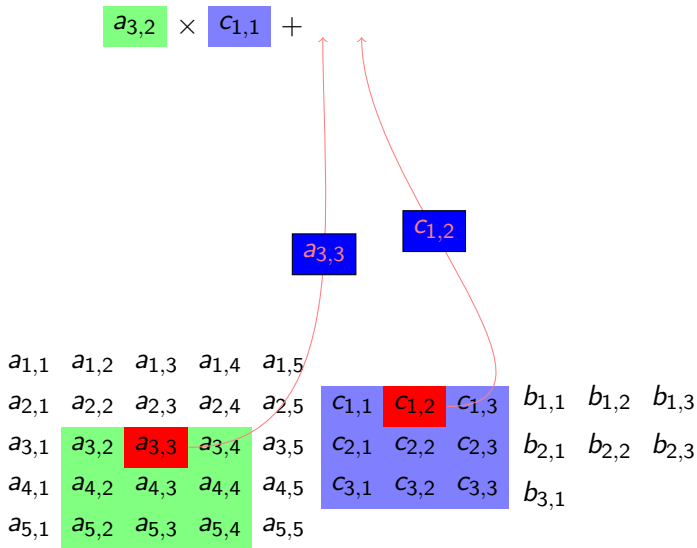
[illegible]

$$a_{3,2} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$		$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$		$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$							
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$							

$$a_{3,2} \times c_{1,1} +$$





$$a_{3,2} \times c_{1,1} +$$

Diagram illustrating the dot product of two 5x5 matrices A and B to produce a 5x5 matrix C .

Matrix A (left):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix B (right):

$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$b_{3,1}$	$b_{3,2}$	$b_{3,3}$

Resulting Matrix C (middle):

$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

The diagram shows the calculation of the element $c_{3,2}$ in matrix C , which is the dot product of the third row of A and the second column of B . The third row of A and the second column of B are highlighted in green. The element $c_{3,2}$ in matrix C is highlighted in red. Red circles and arrows indicate the specific elements being multiplied and summed to form $c_{3,2}$.

$$a_{3,2} \times c_{1,1} +$$

$$a_{3,3} \quad c_{1,2}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} +$$

$a_3, c_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} +$$

Diagram illustrating a 2D array with dimensions 5x10. The array is divided into three regions: a green region (rows 3-5, columns 1-4), a blue region (rows 1-3, columns 5-7), and a red region (row 3, column 8). The element $a_{3,4}$ is highlighted in blue, and the element $c_{1,3}$ is highlighted in red. The array is labeled with $a_{i,j}$ for rows 1-5 and columns 1-5, and $b_{i,j}$ for rows 1-3 and columns 6-10. The element $a_{3,4}$ is also labeled as $c_{2,4}$.

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

Diagram illustrating the mapping of a 2D array to a 1D array. The 2D array is a 5x5 grid of elements $a_{i,j}$. A 3x3 subgrid is highlighted in green, and a 2x2 subgrid within it is highlighted in blue. The 1D array is a 3x3 grid of elements $b_{i,j}$. A 2x2 subgrid within it is highlighted in blue. A red line connects the top-left element of the 2x2 subgrid in the 2D array ($a_{3,2}$) to the top-left element of the 2x2 subgrid in the 1D array ($b_{1,1}$).

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

Diagram illustrating the mapping of a 5x5 input matrix A to a 3x3 output matrix C via a 3x3 kernel B .

The input matrix A is a 5x5 grid of elements $a_{i,j}$. The kernel B is a 3x3 grid of elements $b_{i,j}$. The output matrix C is a 3x3 grid of elements $c_{i,j}$.

The diagram shows a 3x3 green region in A (centered at $a_{4,2}$) and a 3x3 blue region in C (centered at $c_{2,1}$). Red arrows indicate the mapping from the green region in A to the blue region in C , specifically from $a_{4,2}$ to $c_{2,1}$.

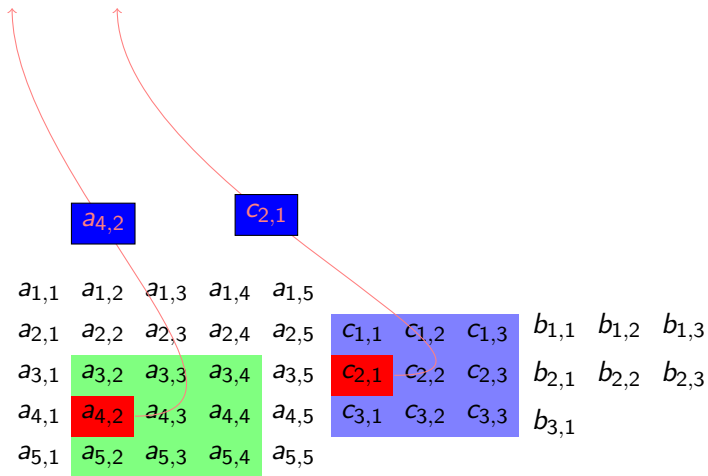
$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{2,1}$					
$a_{2,1}$	$a_{2,2}$	$a_{4,2}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$



$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$a_{4,2}$

$c_{2,1}$

$a_{1,1}$ $a_{1,2}$ $a_{1,3}$ $a_{1,4}$ $a_{1,5}$

$a_{2,1}$ $a_{2,2}$ $a_{2,3}$ $a_{2,4}$ $a_{2,5}$

$a_{3,1}$ $a_{3,2}$ $a_{3,3}$ $a_{3,4}$ $a_{3,5}$

$a_{4,1}$ $a_{4,2}$ $a_{4,3}$ $a_{4,4}$ $a_{4,5}$

$a_{5,1}$ $a_{5,2}$ $a_{5,3}$ $a_{5,4}$ $a_{5,5}$

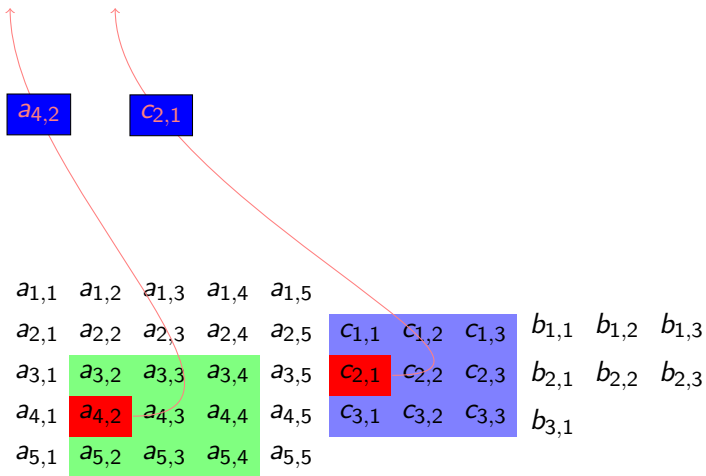
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

$b_{2,1}$ $b_{2,2}$ $b_{2,3}$

$b_{3,1}$

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$



$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$$a_{4,2} \quad c_{2,1}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$$a_{4,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$$a_{4,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$$a_{4,2} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$$a_{4,2} \times c_{2,1} +$$

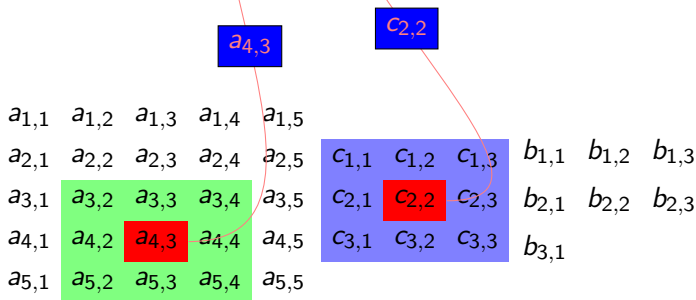
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$$a_{4,2} \times c_{2,1} +$$



$$a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} +$$

$$a_{4,2} \times c_{2,1} +$$

$a_{4,3}$

$c_{2,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$								
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$		
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$c_{2,3}$	$b_{2,2}$	$b_{2,3}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,4}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$				
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$								

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{3,1}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{3,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

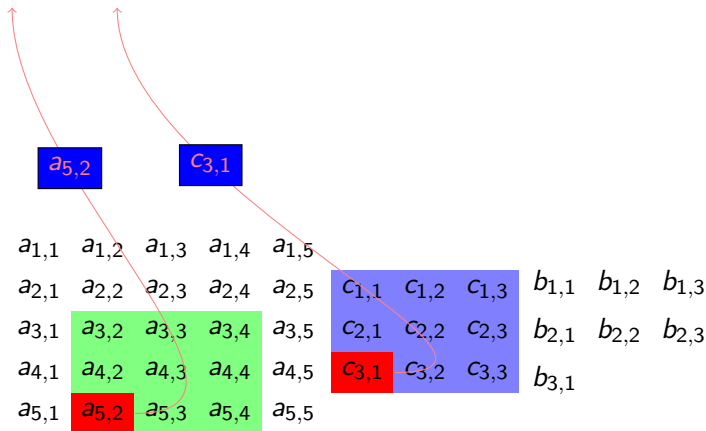
The diagram illustrates the calculation of the dot product of the third row of matrix A and the second column of matrix C. The elements $a_{3,2}$ and $c_{2,1}$ are highlighted in red, and their product is shown in the resulting matrix B. Arrows indicate the source of these elements from the original matrices.

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

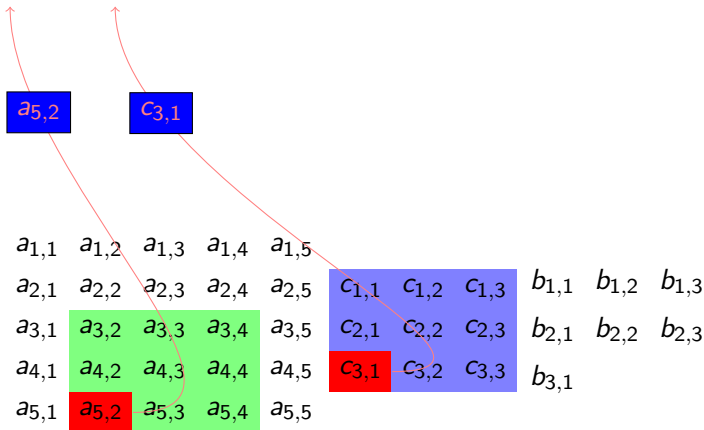
$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

	$a_{5,2}$		$c_{3,1}$							
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{5,2} \quad c_{3,1}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the selection of a pivot element in an array. The array is shown as a 5x5 grid of elements $a_{i,j}$. A red line indicates the selection of $a_{5,3}$ as the pivot. The pivot is highlighted in blue. The elements $a_{3,2}$, $a_{4,2}$, and $a_{5,2}$ are highlighted in red, indicating they are being compared to the pivot. The elements $a_{1,2}$, $a_{2,2}$, and $a_{3,2}$ are highlighted in green, indicating they are being swapped with the pivot. The elements $a_{1,3}$, $a_{2,3}$, and $a_{3,3}$ are highlighted in blue, indicating they are being swapped with the pivot. The elements $a_{1,4}$, $a_{2,4}$, and $a_{3,4}$ are highlighted in blue, indicating they are being swapped with the pivot. The elements $a_{1,5}$, $a_{2,5}$, and $a_{3,5}$ are highlighted in blue, indicating they are being swapped with the pivot.

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the concept of a "block" in a matrix. The matrix is partitioned into blocks, with elements $a_{i,j}$ and $c_{i,j}$ shown. A red line connects the element $a_{5,3}$ to the element $c_{3,2}$, indicating a mapping or relationship between the two matrices.

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the mapping of a 5x5 input matrix A to a 3x3 output matrix C . The input matrix A is shown with elements $a_{i,j}$ for $i, j \in \{1, 2, 3, 4, 5\}$. The output matrix C is shown with elements $c_{i,j}$ for $i, j \in \{1, 2, 3\}$. The mapping is defined by the following regions:

- Top-left 3x3 region of A (green) maps to the top-left 3x3 region of C (blue).
- Bottom-right 3x3 region of A (red) maps to the bottom-right 3x3 region of C (blue).
- Top-right 3x3 region of A (blue) maps to the top-right 3x3 region of C (red).

The element $a_{5,3}$ is highlighted in blue in A , and $c_{3,2}$ is highlighted in blue in C . Red arrows indicate the mapping from $a_{5,3}$ to $c_{3,2}$.

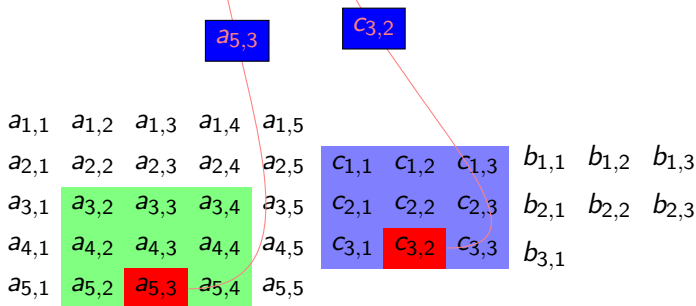
$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

			$a_{5,3}$		$c_{3,2}$					
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{5,3}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} +
 \end{aligned}$$

$a_{5,3}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccc} a_{3,2} & \times & c_{1,1} & + & a_{3,3} & \times & c_{1,2} & + & a_{3,4} & \times & c_{1,3} & + \\ a_{4,2} & \times & c_{2,1} & + & a_{4,3} & \times & c_{2,2} & + & a_{4,4} & \times & c_{2,3} & + \\ a_{5,2} & \times & c_{3,1} & + & a_{5,3} & \times & c_{3,2} & + & & & & \end{array}$$

[illegible]

$$\begin{array}{ccccccccc} a_{3,2} & \times & c_{1,1} & + & a_{3,3} & \times & c_{1,2} & + & a_{3,4} & \times & c_{1,3} & + \\ a_{4,2} & \times & c_{2,1} & + & a_{4,3} & \times & c_{2,2} & + & a_{4,4} & \times & c_{2,3} & + \\ a_{5,2} & \times & c_{3,1} & + & a_{5,3} & \times & c_{3,2} & + & & & & \end{array}$$

[illegible]

$$\begin{array}{ccccccccc} a_{3,2} & \times & c_{1,1} & + & a_{3,3} & \times & c_{1,2} & + & a_{3,4} & \times & c_{1,3} & + \\ a_{4,2} & \times & c_{2,1} & + & a_{4,3} & \times & c_{2,2} & + & a_{4,4} & \times & c_{2,3} & + \\ a_{5,2} & \times & c_{3,1} & + & a_{5,3} & \times & c_{3,2} & + & & & & \end{array}$$

The diagram illustrates the memory access pattern for a dot product operation involving a 5x5 matrix A , a 3x3 matrix C , and a 3x5 matrix B . The matrices are partitioned into blocks of size 3x3 and 3x2.

Matrix A is partitioned into blocks of size 3x3 (green) and 3x2 (red). The blocks are labeled $a_{1,1}$ through $a_{5,5}$. The green blocks are $a_{3,2}$ through $a_{5,3}$, and the red blocks are $a_{5,4}$ and $a_{5,5}$.

Matrix C is partitioned into blocks of size 3x3 (blue) and 3x2 (red). The blocks are labeled $c_{1,1}$ through $c_{3,3}$. The blue blocks are $c_{1,1}$ through $c_{3,2}$, and the red blocks are $c_{3,3}$ and $c_{3,2}$.

Matrix B is partitioned into blocks of size 3x3 (blue) and 3x2 (red). The blocks are labeled $b_{1,1}$ through $b_{3,1}$. The blue blocks are $b_{1,1}$ through $b_{2,2}$, and the red blocks are $b_{2,3}$ and $b_{3,1}$.

The diagram shows the sequence of memory accesses for a dot product operation. Red lines indicate the path from the blocks of A to the blocks of C and then to the blocks of B . The sequence of accesses is: $a_{1,1}$, $a_{1,2}$, $a_{1,3}$, $a_{1,4}$, $a_{1,5}$, $a_{2,1}$, $a_{2,2}$, $a_{2,3}$, $a_{2,4}$, $a_{2,5}$, $a_{3,1}$, $a_{3,2}$, $a_{3,3}$, $a_{3,4}$, $a_{3,5}$, $a_{4,1}$, $a_{4,2}$, $a_{4,3}$, $a_{4,4}$, $a_{4,5}$, $a_{5,1}$, $a_{5,2}$, $a_{5,3}$, $a_{5,4}$, $a_{5,5}$, $c_{1,1}$, $c_{1,2}$, $c_{1,3}$, $c_{2,1}$, $c_{2,2}$, $c_{2,3}$, $c_{3,1}$, $c_{3,2}$, $c_{3,3}$, $b_{1,1}$, $b_{1,2}$, $b_{1,3}$, $b_{2,1}$, $b_{2,2}$, $b_{2,3}$, $b_{3,1}$.

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + \end{aligned}$$

The diagram illustrates the mapping of a 5x5 grid of elements $a_{i,j}$ to a 3x3 grid of elements $b_{i,j}$ using a 3x3 kernel. The 5x5 grid has a green 3x3 region (a_{3,2} to a_{5,4}) and a red 1x1 region (a_{5,4}). The 3x3 grid has a blue 3x3 region (b_{1,1} to b_{3,3}) and a red 1x1 region (b_{3,3}). Red lines connect the green region to the blue region and the red region to the red region.

$$\begin{array}{ccccccccc} a_{3,2} & \times & c_{1,1} & + & a_{3,3} & \times & c_{1,2} & + & a_{3,4} & \times & c_{1,3} & + \\ a_{4,2} & \times & c_{2,1} & + & a_{4,3} & \times & c_{2,2} & + & a_{4,4} & \times & c_{2,3} & + \\ a_{5,2} & \times & c_{3,1} & + & a_{5,3} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating the dot product of two 5x5 matrices A and B to calculate the element $c_{5,3}$ in the resulting matrix C .

Matrix A (left):

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$

Matrix B (right):

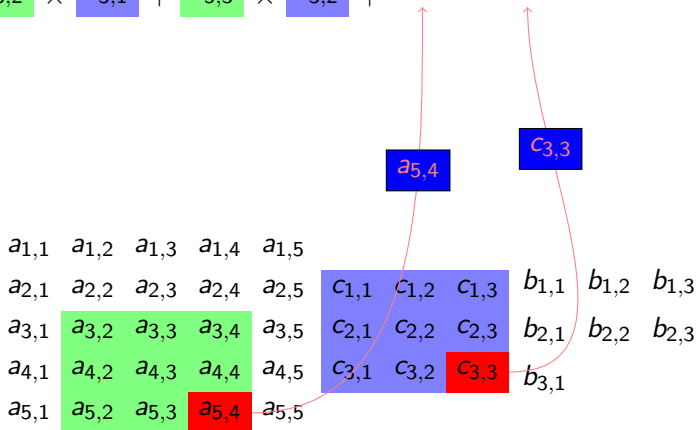
$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$b_{3,1}$	$b_{3,2}$	$b_{3,3}$

Resulting Matrix C (center):

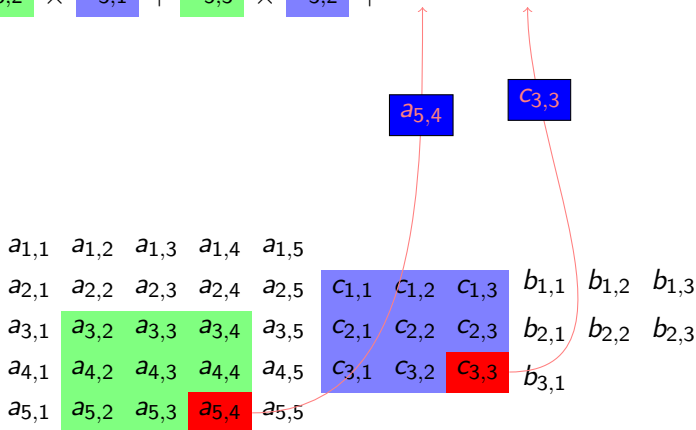
$c_{1,1}$	$c_{1,2}$	$c_{1,3}$
$c_{2,1}$	$c_{2,2}$	$c_{2,3}$
$c_{3,1}$	$c_{3,2}$	$c_{3,3}$

The element $a_{5,4}$ from matrix A and the element $c_{3,3}$ from matrix B are highlighted, indicating their contribution to the calculation of $c_{5,3}$ in matrix C .

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + \end{aligned}$$



$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + \end{aligned}$$



$$\begin{array}{ccccccc} a_{3,2} & \times & c_{1,1} & + & a_{3,3} & \times & c_{1,2} & + & a_{3,4} & \times & c_{1,3} & + \\ a_{4,2} & \times & c_{2,1} & + & a_{4,3} & \times & c_{2,2} & + & a_{4,4} & \times & c_{2,3} & + \\ a_{5,2} & \times & c_{3,1} & + & a_{5,3} & \times & c_{3,2} & + & & & & \end{array}$$

$a_{5,4}$

$C_{3,3}$

Diagram illustrating a 5x5 matrix A with elements $a_{i,j}$ and a 3x3 submatrix C with elements $c_{i,j}$. The submatrix C is highlighted in blue, and the element $a_{5,4}$ is highlighted in red. A red circle highlights the element $c_{3,3}$ and the element $a_{5,4}$.

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$		
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$b_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$									
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$										
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the concept of a 'block' in a matrix. A 5x5 matrix of elements $a_{i,j}$ is shown. A 3x3 submatrix of elements $c_{i,j}$ is highlighted in blue, representing a 'block'. A 3x3 submatrix of elements $b_{i,j}$ is highlighted in red, representing another 'block'. A red arrow points from the element $b_{3,2}$ in the red block to the element $b_{3,2}$ in the blue block, indicating a mapping or relationship between the two blocks.

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the dot product of two 5x5 matrices A and B . The elements $a_{3,2}$, $a_{3,3}$, $a_{3,4}$, $a_{3,5}$, $c_{2,1}$, $c_{2,2}$, $c_{2,3}$, $b_{2,1}$, $b_{2,2}$, and $b_{3,2}$ are highlighted in their respective colors (green for A , blue for B , and red for the result).

$$\begin{aligned}
 & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\
 & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\
 & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$															
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$									
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$									
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$									
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$															

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the dot product of two 5x3 matrices, A and B, to produce a 5x1 vector C.

Matrix A (5x5):

$$\begin{matrix} a_{1,1} & a_{1,2} & a_{1,3} & a_{1,4} & a_{1,5} \\ a_{2,1} & a_{2,2} & a_{2,3} & a_{2,4} & a_{2,5} \\ a_{3,1} & a_{3,2} & a_{3,3} & a_{3,4} & a_{3,5} \\ a_{4,1} & a_{4,2} & a_{4,3} & a_{4,4} & a_{4,5} \\ a_{5,1} & a_{5,2} & a_{5,3} & a_{5,4} & a_{5,5} \end{matrix}$$

Matrix B (3x3):

$$\begin{matrix} b_{1,1} & b_{1,2} & b_{1,3} \\ b_{2,1} & b_{2,2} & b_{2,3} \\ b_{3,1} & b_{3,2} & b_{3,3} \end{matrix}$$

Resulting Vector C (5x1):

$$\begin{matrix} c_{1,1} \\ c_{2,1} \\ c_{3,1} \\ c_{4,1} \\ c_{5,1} \end{matrix}$$

The diagram shows the calculation of the first element $c_{1,1}$ as the dot product of the first row of A and the first column of B.

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating the concept of a "block" in a matrix. A 5x5 matrix of elements $a_{i,j}$ is shown. A 3x3 submatrix of elements $a_{i,j}$ (rows 2-4, columns 2-4) is highlighted in green, representing a "block". To the right, a 3x3 submatrix of elements $c_{i,j}$ (rows 1-3, columns 1-3) is highlighted in blue, also representing a "block". Further right, a 3x3 submatrix of elements $b_{i,j}$ (rows 1-3, columns 1-3) is shown, with the element $b_{3,2}$ highlighted in red, indicating it is the current element being processed.

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow \end{aligned}$$

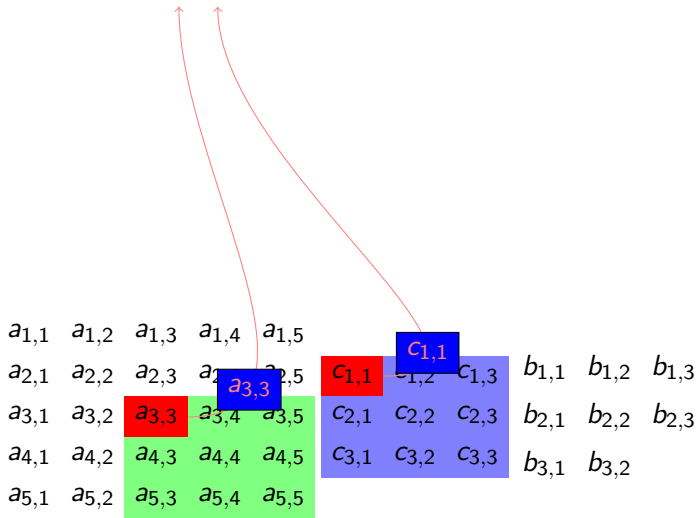
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

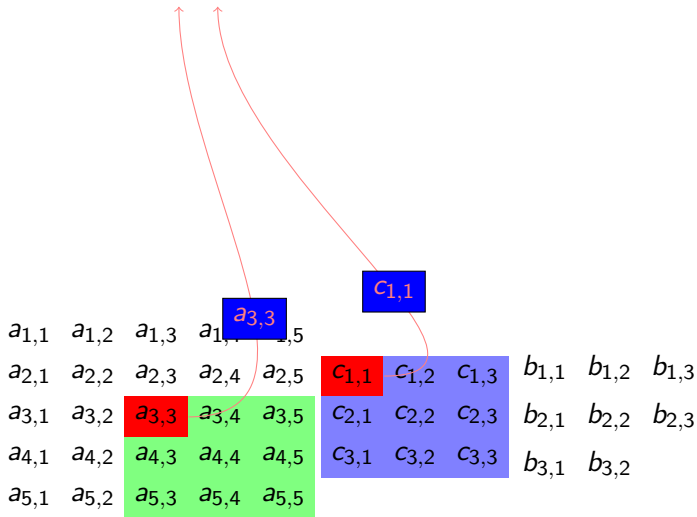
$$\begin{aligned} & a_{3,2} \times c_{1,1} + a_{3,3} \times c_{1,2} + a_{3,4} \times c_{1,3} + \\ & a_{4,2} \times c_{2,1} + a_{4,3} \times c_{2,2} + a_{4,4} \times c_{2,3} + \\ & a_{5,2} \times c_{3,1} + a_{5,3} \times c_{3,2} + a_{5,4} \times c_{3,3} \rightarrow \end{aligned}$$

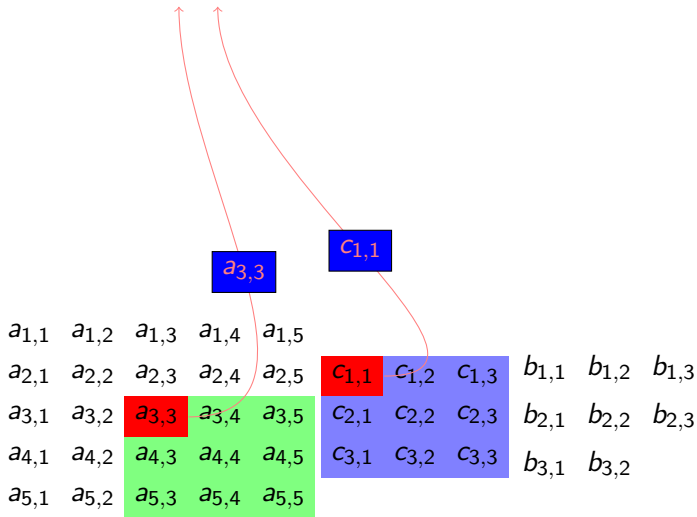
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

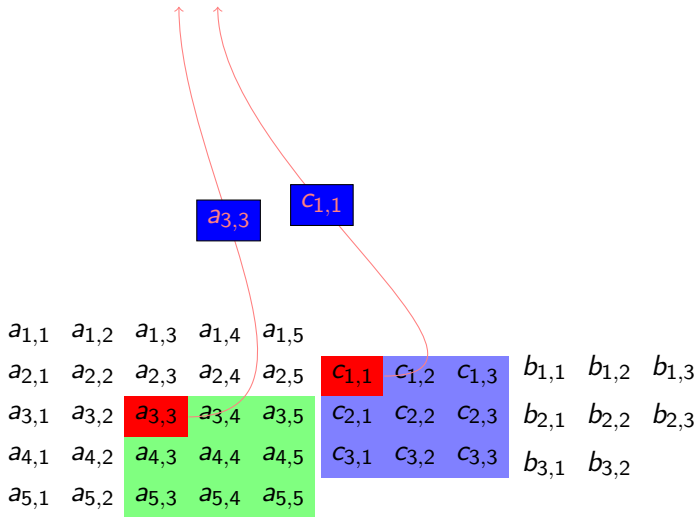
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

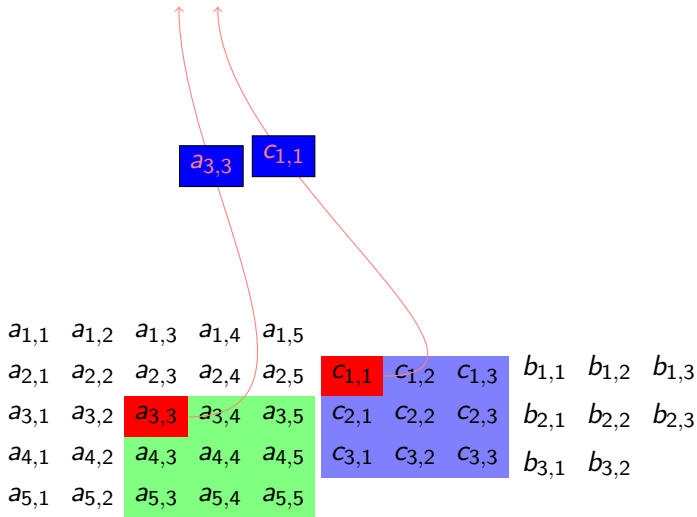
$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,1}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,3}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

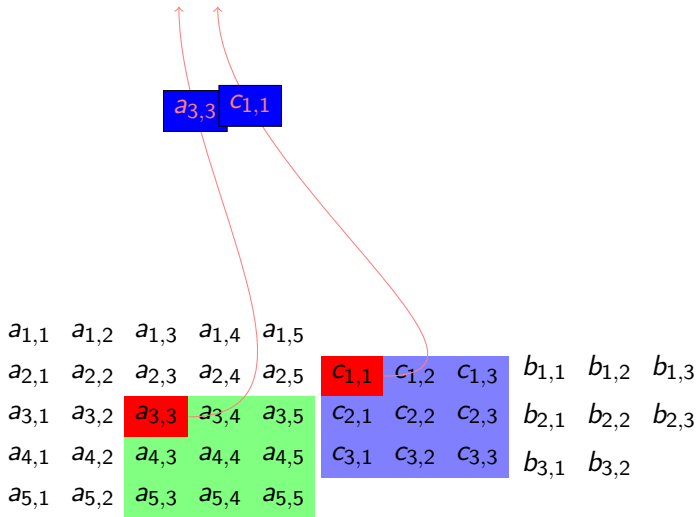


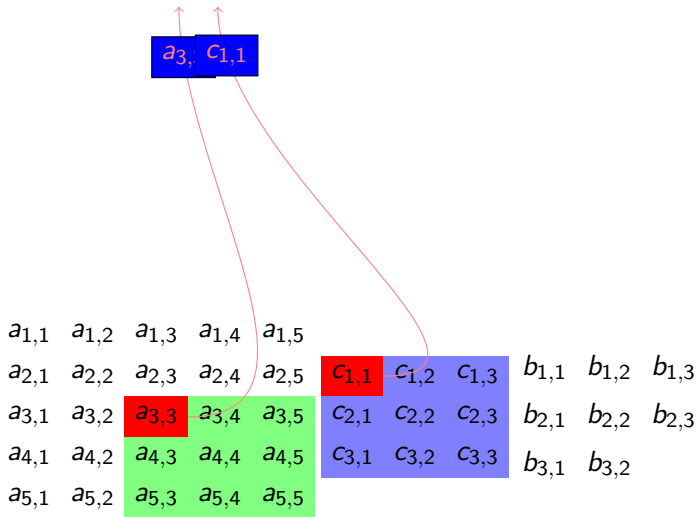












$$a_{3,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,2}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,4}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

Diagram illustrating the decomposition of a matrix A into two matrices C and B .

Matrix A is partitioned into four 5×5 blocks:

- A_{11} (green block)
- A_{12} (red block)
- A_{21} (blue block)
- A_{22} (light green block)

The resulting matrices C and B are:

- C (green block, containing A_{11})
- B (light green block, containing A_{22})

$$a_{3,3} \times c_{1,1} +$$

Diagram illustrating the iterative step of the LU decomposition algorithm. The matrix is partitioned into blocks a and b . The current state shows the first three rows of a and the first three columns of b . The pivot element $a_{3,4}$ is highlighted in red. The next step is to eliminate the elements below the pivot in column 4, which involves subtracting a multiple of row 3 from rows 4 and 5. The diagram shows the calculation of the multipliers $l_{4,4}$ and $l_{5,4}$, and the corresponding updates to the elements in row 4 and row 5.

$$a_{3,3} \times c_{1,1} +$$

Diagram illustrating the concept of a "block" in a matrix. A 5x5 matrix A is shown with elements $a_{i,j}$. A 3x3 submatrix C is highlighted in blue, with elements $c_{i,j}$. A 3x3 submatrix B is highlighted in red, with elements $b_{i,j}$. A 3x3 submatrix D is highlighted in green, with elements $d_{i,j}$. The submatrices are arranged such that C is a block of A , B is a block of C , and D is a block of B . Red lines connect the submatrices to their respective labels.

$$a_{3,3} \times c_{1,1} +$$

 $a_{3,4}$
 $c_{1,2}$
 $a_{1,1} \ a_{1,2} \ a_{1,3} \ a_{1,4} \ a_{1,5}$
 $a_{2,1} \ a_{2,2} \ a_{2,3} \ a_{2,4} \ a_{2,5}$
 $a_{3,1} \ a_{3,2} \ a_{3,3} \ a_{3,4} \ a_{3,5}$
 $a_{4,1} \ a_{4,2} \ a_{4,3} \ a_{4,4} \ a_{4,5}$
 $a_{5,1} \ a_{5,2} \ a_{5,3} \ a_{5,4} \ a_{5,5}$
 $c_{1,1} \ c_{1,2} \ c_{1,3}$
 $c_{2,1} \ c_{2,2} \ c_{2,3}$
 $c_{3,1} \ c_{3,2} \ c_{3,3}$
 $b_{1,1} \ b_{1,2} \ b_{1,3}$
 $b_{2,1} \ b_{2,2} \ b_{2,3}$
 $b_{3,1} \ b_{3,2}$

$$a_{3,3} \times c_{1,1} +$$

Diagram showing two blue boxes labeled $a_{3,4}$ and $c_{1,2}$ connected by red lines.

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

Diagram showing two blue boxes labeled $a_{3,4}$ and $c_{1,2}$ connected by a red line.

$$a_{3,3} \times c_{1,1} +$$

$a_{3,4}$ $c_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} +$$

$a_3, c_{1,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

Diagram illustrating the mapping of a 5x5 input matrix A to a 3x3 output matrix C . The input matrix A has elements $a_{i,j}$ for $i,j \in \{1,2,3,4,5\}$. The output matrix C has elements $c_{i,j}$ for $i,j \in \{1,2,3\}$. The mapping is shown by a red line connecting the element $a_{4,3}$ in A to the element $c_{2,1}$ in C . The elements $a_{4,3}$ and $c_{2,1}$ are highlighted with blue boxes. The elements $a_{4,3}$ and $c_{2,1}$ are highlighted with blue boxes. The elements $a_{4,3}$ and $c_{2,1}$ are highlighted with blue boxes.

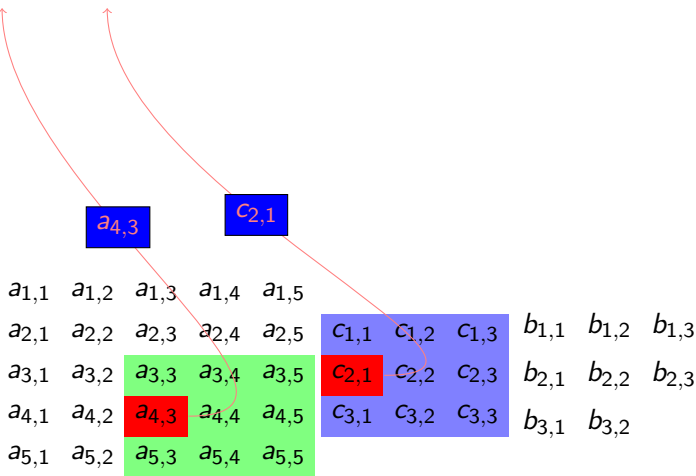
$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

Diagram illustrating the concept of a 'block' in a matrix. A 5x5 matrix of elements $a_{i,j}$ is shown. A 2x2 block of elements $a_{i,j}$ is highlighted in red, with a red box around it. A 2x2 block of elements $c_{i,j}$ is highlighted in blue, with a blue box around it. A 2x2 block of elements $b_{i,j}$ is highlighted in green, with a green box around it. The diagram shows how a single element $a_{i,j}$ can be part of multiple blocks, and how these blocks are used to represent a matrix structure.

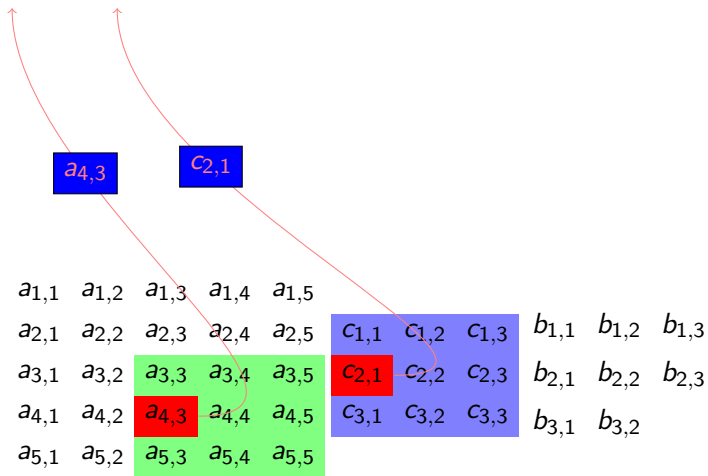
$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$



$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$



$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

$a_{4,3}$

$c_{2,1}$

$a_{1,1}$ $a_{1,2}$ $a_{1,3}$ $a_{1,4}$ $a_{1,5}$

$a_{2,1}$ $a_{2,2}$ $a_{2,3}$ $a_{2,4}$ $a_{2,5}$

$a_{3,1}$ $a_{3,2}$ $a_{3,3}$ $a_{3,4}$ $a_{3,5}$

$a_{4,1}$ $a_{4,2}$ $a_{4,3}$ $a_{4,4}$ $a_{4,5}$

$a_{5,1}$ $a_{5,2}$ $a_{5,3}$ $a_{5,4}$ $a_{5,5}$

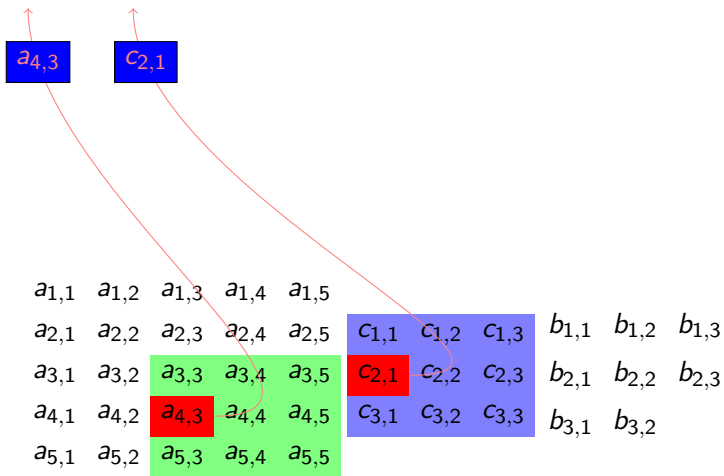
$c_{1,1}$ $c_{1,2}$ $c_{1,3}$
 $c_{2,1}$ $c_{2,2}$ $c_{2,3}$
 $c_{3,1}$ $c_{3,2}$ $c_{3,3}$

$b_{1,1}$ $b_{1,2}$ $b_{1,3}$

$b_{2,1}$ $b_{2,2}$ $b_{2,3}$

$b_{3,1}$ $b_{3,2}$

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$



$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

$$a_{4,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

$$a_{4,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

$$a_{4,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

$$a_{4,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} +$$

$$a_{4,3} \times c_{2,1} +$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccc} a_{3,3} & \times & c_{1,1} & + & a_{3,4} & \times & c_{1,2} & + & a_{3,5} & \times & c_{1,3} & + \\ a_{4,3} & \times & c_{2,1} & + & a_{4,4} & \times & c_{2,2} & + & a_{4,5} & \times & c_{2,3} & + \end{array}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{3,1}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{5,3}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

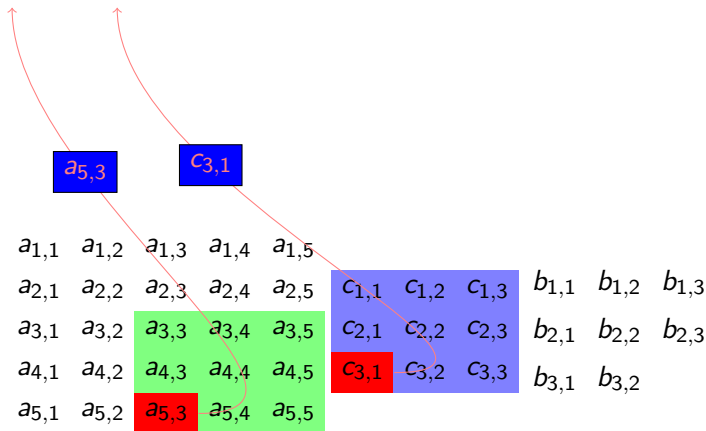
$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \end{aligned}$$

Diagram illustrating the iterative step of the algorithm. The matrix A is partitioned into four quadrants: top-left (green), top-right (blue), bottom-left (red), and bottom-right (yellow). The matrix C is partitioned into four quadrants: top-left (blue), top-right (yellow), bottom-left (red), and bottom-right (green). The current iteration is $i=3, j=1$. The element $a_{5,3}$ is highlighted in red, and the element $c_{3,1}$ is highlighted in blue. Red arrows indicate the flow of data from $a_{5,3}$ to $c_{3,1}$ and from $c_{3,1}$ to the next iteration.

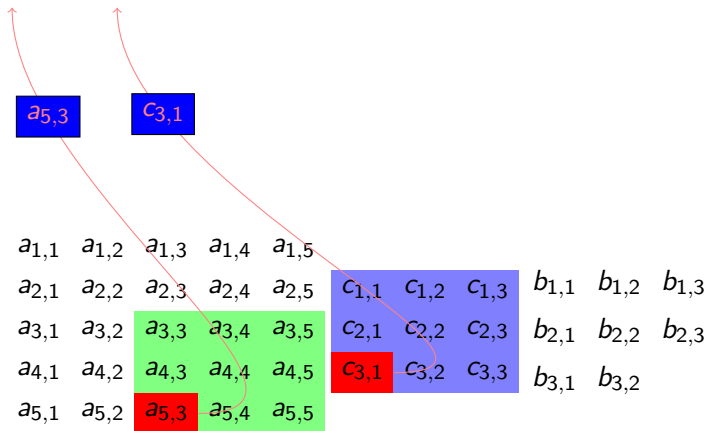
$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$						
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} +
 \end{aligned}$$



$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} +
 \end{aligned}$$

$$\begin{aligned}
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the iterative step of the Gauss-Jordan elimination algorithm. The matrix is partitioned into three blocks: a green block (rows 3-5, columns 3-5), a blue block (rows 1-3, columns 6-8), and a red block (row 4, column 6). The red block is the pivot element. The blue block is the pivot row. The green block is the pivot column. The pivot element is highlighted in red. The pivot row and pivot column are highlighted in blue. The pivot element is highlighted in red.

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + \end{aligned}$$

The diagram shows a 5x10 grid of elements. The first three columns are labeled $a_{i,j}$ and the last three columns are labeled $b_{i,j}$. The middle three columns (columns 4, 5, and 6) are labeled $c_{i,j}$. The grid is divided into three colored regions: a green region (rows 3-5, columns 1-3), a blue region (rows 1-3, columns 4-6), and a red region (rows 4-5, columns 4-5). A red line connects the element $a_{1,5}$ to the element $c_{3,2}$ in the blue region.

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the concept of a "block" in a matrix. A 5x5 matrix of elements $a_{i,j}$ is shown. A 3x3 submatrix of elements $c_{i,j}$ is highlighted in blue, representing a "block". The elements $a_{i,j}$ are arranged in a grid, with some elements highlighted in green ($a_{3,3}, a_{3,4}, a_{3,5}, a_{4,3}, a_{4,4}, a_{4,5}, a_{5,3}, a_{5,4}, a_{5,5}$) and others in red ($a_{5,4}$). The elements $c_{i,j}$ are arranged in a grid, with some elements highlighted in blue ($c_{1,1}, c_{1,2}, c_{1,3}, c_{2,1}, c_{2,2}, c_{3,1}, c_{3,3}$) and others in red ($c_{3,2}$). The elements $b_{i,j}$ are arranged in a grid to the right of the $c_{i,j}$ block.

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + \end{aligned}$$

[illegible]

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + \end{aligned}$$

Diagram illustrating the concept of a "block" in a matrix. A 5x5 matrix of elements $a_{i,j}$ is shown. A 3x3 submatrix of elements $c_{i,j}$ is highlighted in blue. A red box highlights the element $a_{5,4}$ in the 5x5 matrix. A red box highlights the element $c_{3,2}$ in the 3x3 submatrix. A red line connects the red box in the 5x5 matrix to the red box in the 3x3 submatrix, indicating that the element $a_{5,4}$ is part of the block $c_{3,2}$.

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + \end{aligned}$$

The diagram shows two matrices, A and C, with their elements labeled. Matrix A is a 5x5 matrix with elements $a_{1,1}$ to $a_{5,5}$. Matrix C is a 3x3 matrix with elements $c_{1,1}$ to $c_{3,3}$. A red line connects the element $a_{5,4}$ in matrix A to the element $c_{3,2}$ in matrix C, indicating that $a_{5,4}$ is the value of $c_{3,2}$.

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{5,4}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} +
 \end{aligned}$$

$a_{5,4}$

$c_{3,2}$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} +
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccccc} a_{3,3} & \times & c_{1,1} & + & a_{3,4} & \times & c_{1,2} & + & a_{3,5} & \times & c_{1,3} & + \\ a_{4,3} & \times & c_{2,1} & + & a_{4,4} & \times & c_{2,2} & + & a_{4,5} & \times & c_{2,3} & + \\ a_{5,3} & \times & c_{3,1} & + & a_{5,4} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating the storage of a sparse matrix A in a 2D array. The matrix A is 5x5, with non-zero elements highlighted in green (a3,3, a3,4, a3,5, a4,3, a4,4, a4,5, a5,3, a5,4, a5,5) and zero elements in blue (a1,1 to a1,5, a2,1 to a2,5, a3,1, a3,2, a4,1, a4,2, a5,1, a5,2). The non-zero elements are stored in a 3x3 block of the 2D array, with the first row containing a3,3, a3,4, a3,5; the second row containing a4,3, a4,4, a4,5; and the third row containing a5,3, a5,4, a5,5. The 2D array is 5x5, with the first three rows containing the non-zero elements and the last two rows containing zero elements. The 2D array is labeled with a1,1 to a5,5. The non-zero elements are labeled with a3,3 to a5,5. The zero elements are labeled with a1,1 to a1,5, a2,1 to a2,5, a3,1, a3,2, a4,1, a4,2, a5,1, a5,2.

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + \end{aligned}$$

[illegible]

$$\begin{array}{ccccccccc} a_{3,3} & \times & c_{1,1} & + & a_{3,4} & \times & c_{1,2} & + & a_{3,5} & \times & c_{1,3} & + \\ a_{4,3} & \times & c_{2,1} & + & a_{4,4} & \times & c_{2,2} & + & a_{4,5} & \times & c_{2,3} & + \\ a_{5,3} & \times & c_{3,1} & + & a_{5,4} & \times & c_{3,2} & + & & & & \end{array}$$

Diagram illustrating the mapping of a 5x5 input matrix A to a 3x3 output matrix C . The input matrix A has elements $a_{i,j}$ for $i, j \in \{1, 2, 3, 4, 5\}$. The output matrix C has elements $c_{i,j}$ for $i, j \in \{1, 2, 3\}$. The mapping is shown by colored regions: a 3x3 green region in A (rows 3-5, columns 3-5) maps to the 3x3 blue region in C (all rows, columns 1-3). A red region in A (row 5, column 5) maps to the red region in C (row 3, column 3). Red lines connect the green region in A to the blue region in C , and the red region in A to the red region in C .

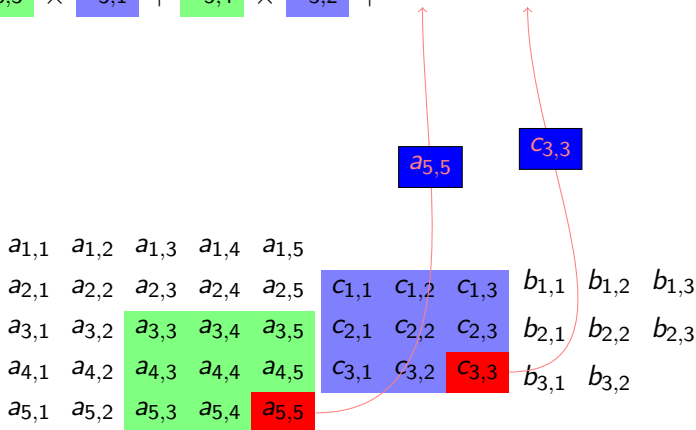
$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + \end{aligned}$$

Diagram illustrating the mapping of a 5x5 grid of elements $a_{i,j}$ to a 3x3 grid of elements $b_{i,j}$ using a 3x3 kernel. The 5x5 grid has a green 3x3 region (a_{3,3} to a_{5,5}) and a red 3x3 region (a_{3,1} to a_{5,5}). The 3x3 grid has a blue 3x3 region (b_{1,1} to b_{3,3}) and a red 3x3 region (b_{3,1} to b_{5,3}). A red line connects the green region to the blue region, and a blue line connects the red region to the red region.

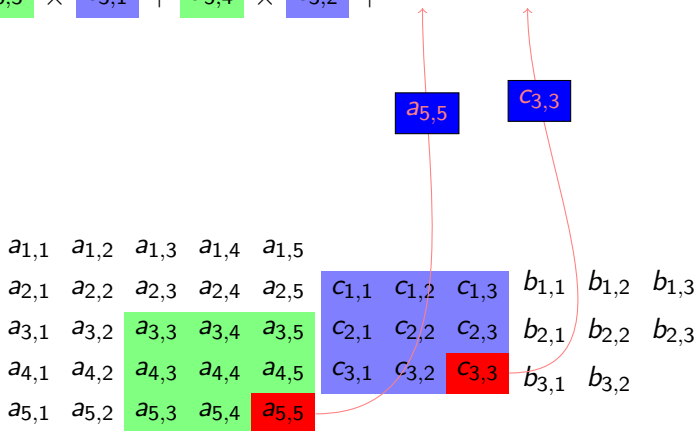
$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + \end{aligned}$$

The diagram shows a 5x5 grid of elements $a_{i,j}$ for $i, j \in \{1, 2, 3, 4, 5\}$. The elements are arranged in rows and columns. A specific element $a_{5,5}$ is highlighted in red. A blue box highlights the elements $c_{1,1}, c_{1,2}, c_{1,3}, c_{2,1}, c_{2,2}, c_{2,3}, c_{3,1}, c_{3,2}, c_{3,3}$ in a 3x3 grid. A red line connects the blue box to the red element $a_{5,5}$. The elements $b_{1,1}, b_{1,2}, b_{1,3}, b_{2,1}, b_{2,2}, b_{2,3}, b_{3,1}, b_{3,2}$ are arranged in a 3x2 grid to the right of the blue box.


$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + \end{aligned}$$



$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + \end{aligned}$$



$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + \end{aligned}$$



$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned}
 & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\
 & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\
 & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3}
 \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccccc} a_{3,3} & \times & c_{1,1} & + & a_{3,4} & \times & c_{1,2} & + & a_{3,5} & \times & c_{1,3} & + \\ a_{4,3} & \times & c_{2,1} & + & a_{4,4} & \times & c_{2,2} & + & a_{4,5} & \times & c_{2,3} & + \\ a_{5,3} & \times & c_{3,1} & + & a_{5,4} & \times & c_{3,2} & + & a_{5,5} & \times & c_{3,3} \end{array}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{array}{ccccccccc} a_{3,3} & \times & c_{1,1} & + & a_{3,4} & \times & c_{1,2} & + & a_{3,5} & \times & c_{1,3} & + \\ a_{4,3} & \times & c_{2,1} & + & a_{4,4} & \times & c_{2,2} & + & a_{4,5} & \times & c_{2,3} & + \\ a_{5,3} & \times & c_{3,1} & + & a_{5,4} & \times & c_{3,2} & + & a_{5,5} & \times & c_{3,3} & \end{array}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3} \rightarrow \end{aligned}$$

$$b_{3,3}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3} \rightarrow \end{aligned}$$

Diagram illustrating a 5x5 matrix A with elements $a_{i,j}$. The matrix is partitioned into three colored regions: a green 3x3 region (rows 3-5, columns 3-5), a blue 3x3 region (rows 1-3, columns 3-5), and a red 2x2 region (rows 4-5, column 3). The elements are labeled as follows:

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						$b_{3,3}$

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						$b_{3,3}$

$$\begin{aligned} & a_{3,3} \times c_{1,1} + a_{3,4} \times c_{1,2} + a_{3,5} \times c_{1,3} + \\ & a_{4,3} \times c_{2,1} + a_{4,4} \times c_{2,2} + a_{4,5} \times c_{2,3} + \\ & a_{5,3} \times c_{3,1} + a_{5,4} \times c_{3,2} + a_{5,5} \times c_{3,3} \rightarrow \end{aligned}$$

$a_{1,1}$	$a_{1,2}$	$a_{1,3}$	$a_{1,4}$	$a_{1,5}$						
$a_{2,1}$	$a_{2,2}$	$a_{2,3}$	$a_{2,4}$	$a_{2,5}$	$c_{1,1}$	$c_{1,2}$	$c_{1,3}$	$b_{1,1}$	$b_{1,2}$	$b_{1,3}$
$a_{3,1}$	$a_{3,2}$	$a_{3,3}$	$a_{3,4}$	$a_{3,5}$	$c_{2,1}$	$c_{2,2}$	$c_{2,3}$	$b_{2,1}$	$b_{2,2}$	$b_{2,3}$
$a_{4,1}$	$a_{4,2}$	$a_{4,3}$	$a_{4,4}$	$a_{4,5}$	$c_{3,1}$	$c_{3,2}$	$c_{3,3}$	$b_{3,1}$	$b_{3,2}$	$b_{3,3}$
$a_{5,1}$	$a_{5,2}$	$a_{5,3}$	$a_{5,4}$	$a_{5,5}$						