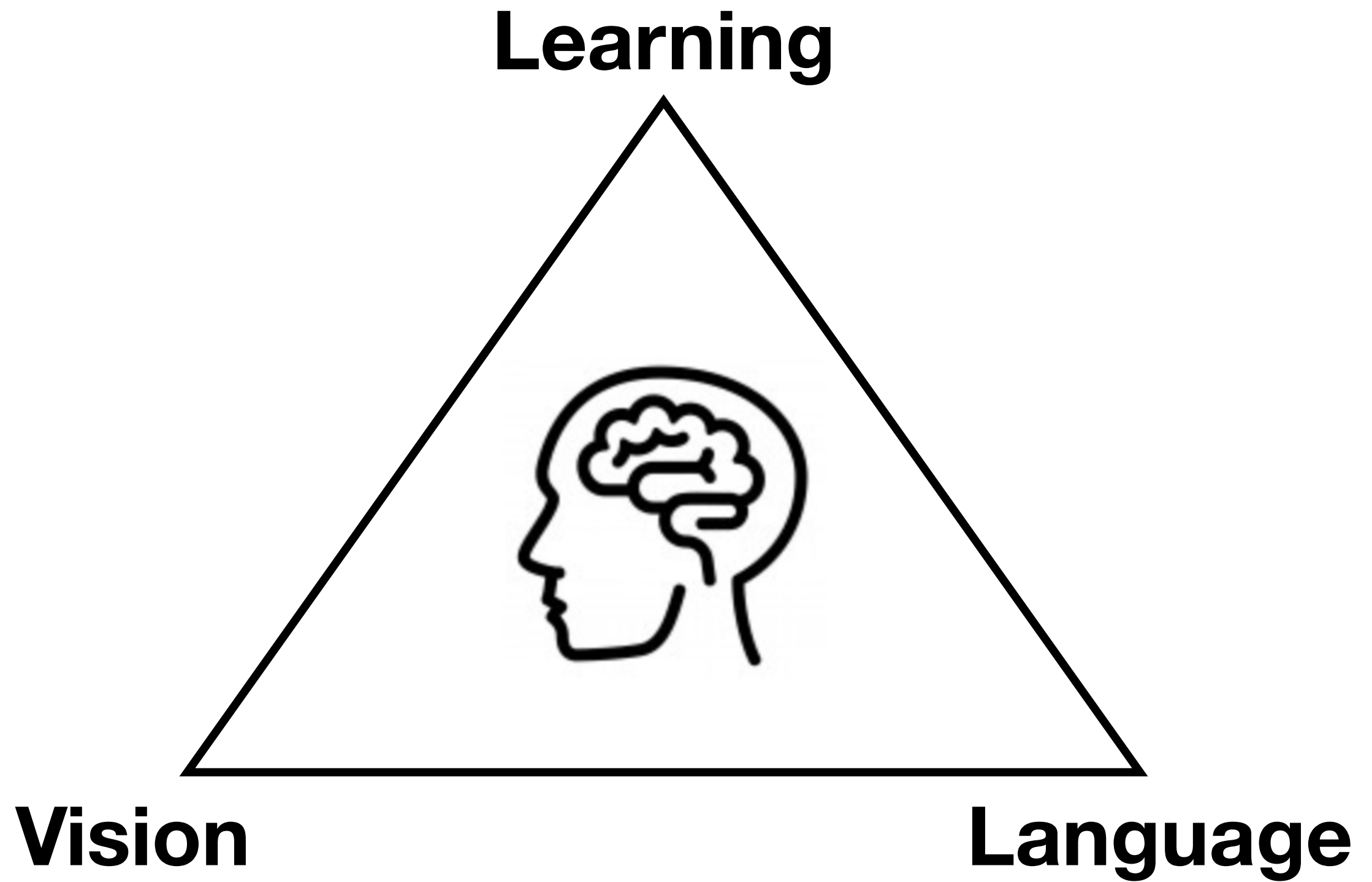


# SC201

## Lecture 11





or





**x**



**1 (cat)**

**0 (dog)**

**y**



**x**



**$\Phi(x)?$**



**1 (cat)**

**0 (dog)**

**y**

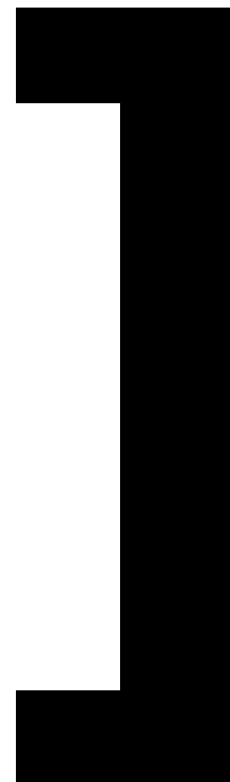


**1 (cat)**

**0 (dog)**

|     |     |     |     |     |     |     |    |    |
|-----|-----|-----|-----|-----|-----|-----|----|----|
|     |     |     |     | 211 | 144 | 142 | 84 |    |
|     |     |     |     | 57  | 31  | 109 | 27 | 58 |
| 122 | 255 | 214 | 99  | 9   | 166 |     |    |    |
| 230 | 250 | 231 | 199 | 35  | 66  |     |    |    |
| 187 | 230 | 40  | 76  | 49  |     |     |    |    |
| 111 | 23  | 75  | 90  |     |     |     |    |    |

**=**





**1 (cat)**

**0 (dog)**

**122**

|     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|----|
|     |     |     |     | 211 | 144 | 142 | 84 |
|     |     | 57  | 31  | 109 | 27  |     | 58 |
| 122 | 255 | 214 | 99  | 9   |     | 166 |    |
| 230 | 250 | 231 | 199 | 35  |     | 66  |    |
| 187 | 230 | 40  | 76  | 49  |     |     |    |
| 111 | 23  | 75  | 90  |     |     |     |    |

**=**





1 (cat)

0 (dog)

122

57

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     | 211 | 144 | 142 | 84  |
|     |     | 57  | 31  | 109 | 27  |     | 58  |
| 122 | 255 | 214 | 99  | 9   |     |     | 166 |
| 230 | 250 | 231 | 199 | 35  |     |     | 66  |
| 187 | 230 | 40  | 76  | 49  |     |     |     |
| 111 | 23  | 75  | 90  |     |     |     |     |

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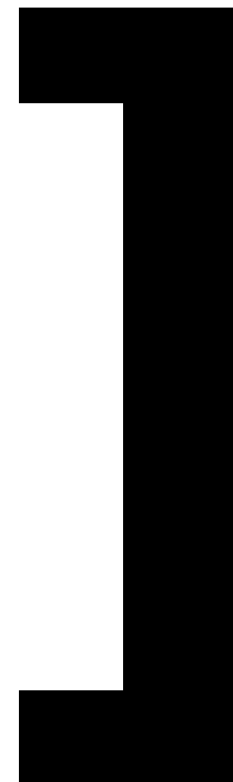
1 (cat)

0 (dog)

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     | 211 | 144 | 142 | 84  |
|     |     |     | 57  | 31  | 109 | 27  | 58  |
| 122 | 255 | 214 | 99  | 9   |     |     | 166 |
| 230 | 250 | 231 | 199 | 35  |     |     | 66  |
| 187 | 230 | 40  | 76  | 49  |     |     |     |
| 111 | 23  | 75  | 90  |     |     |     |     |

=

122  
57  
211





1 (cat)

0 (dog)

|     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|----|
|     |     |     |     | 211 | 144 | 142 | 84 |
|     |     |     | 57  | 31  | 109 | 27  | 58 |
| 122 | 255 | 214 | 99  | 9   | 166 |     |    |
| 230 | 250 | 231 | 199 | 35  | 66  |     |    |
| 187 | 230 | 40  | 76  | 49  |     |     |    |
| 111 | 23  | 75  | 90  |     |     |     |    |

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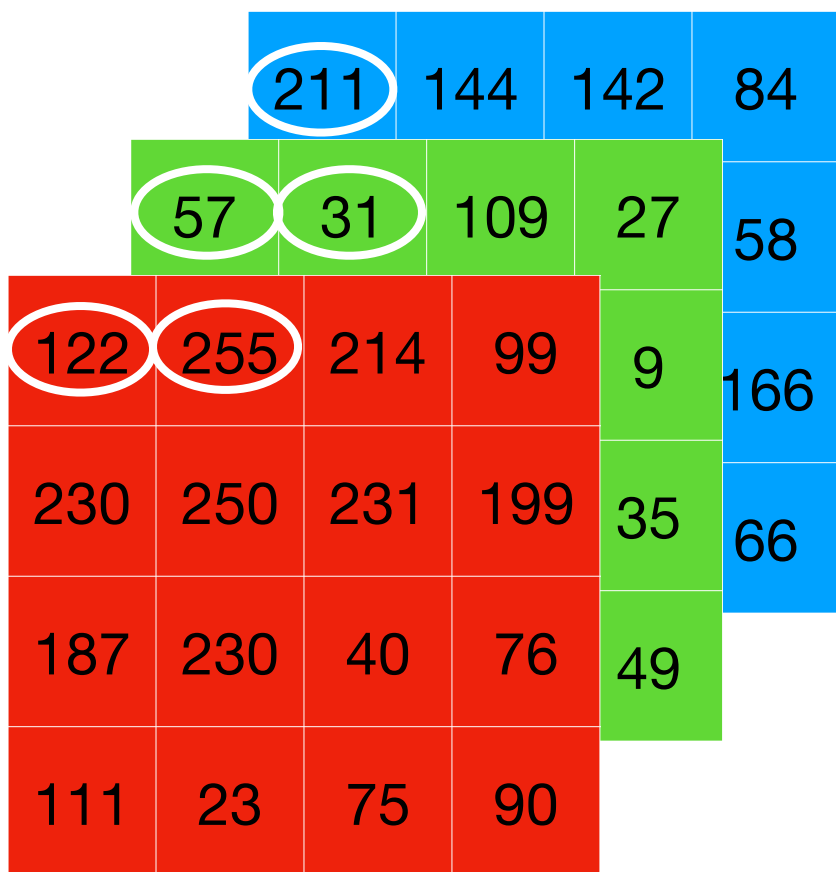
122  
57  
211  
255





1 (cat)

0 (dog)



=



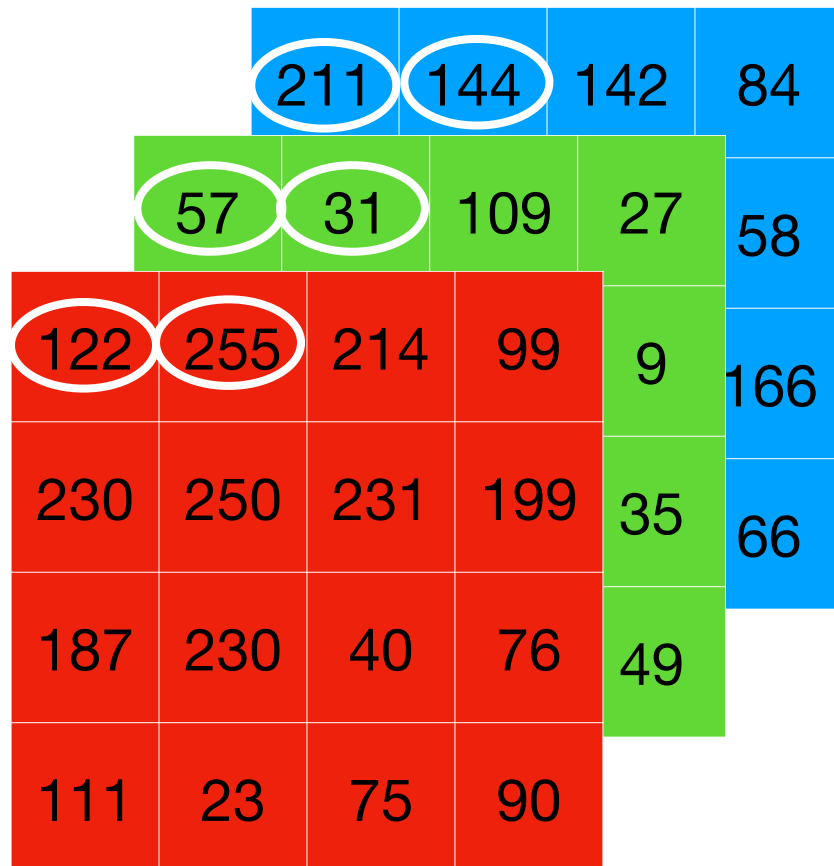
122  
57  
211  
255  
31





# 1 (cat)

**0 (dog)**



■

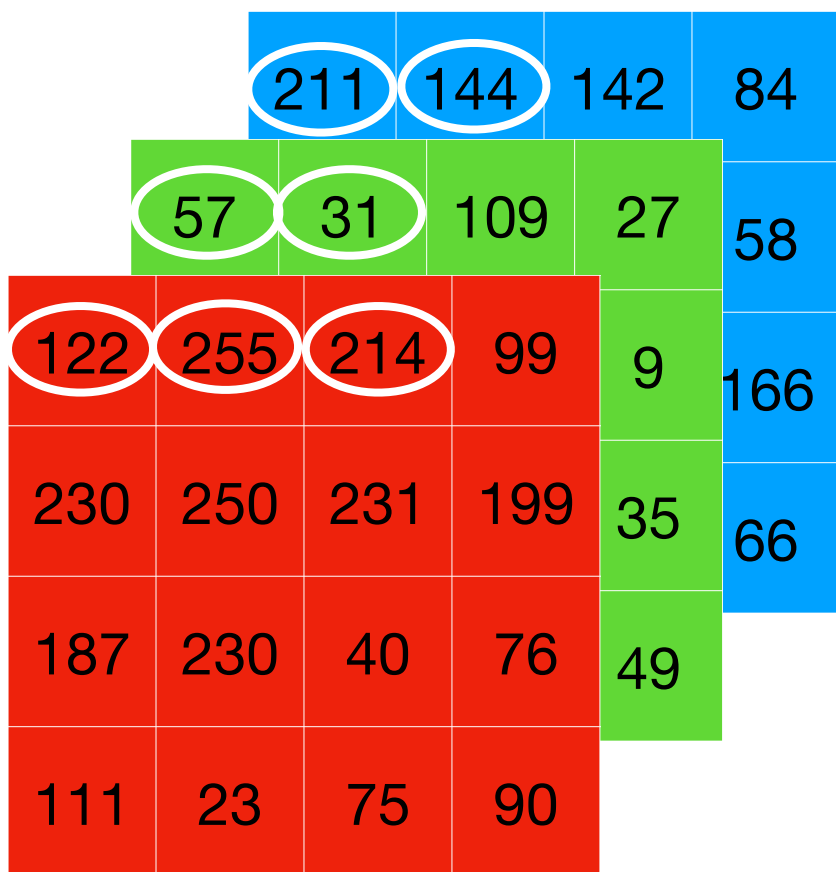


122  
57  
211  
255  
31  
144



1 (cat)

0 (dog)



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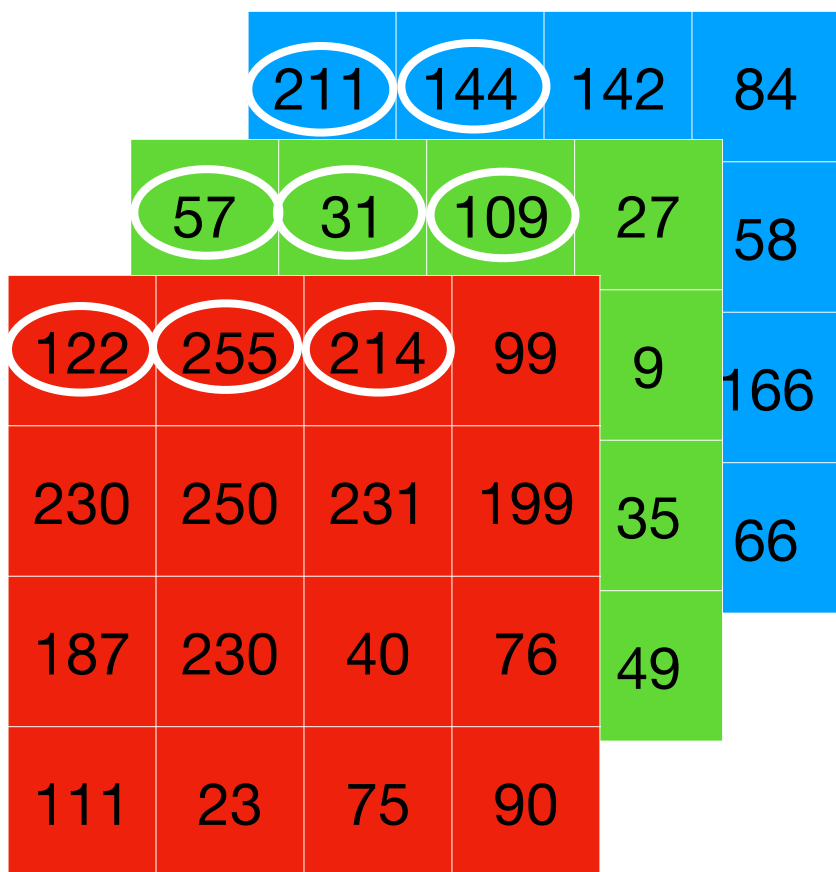
122  
57  
211  
255  
31  
144  
214



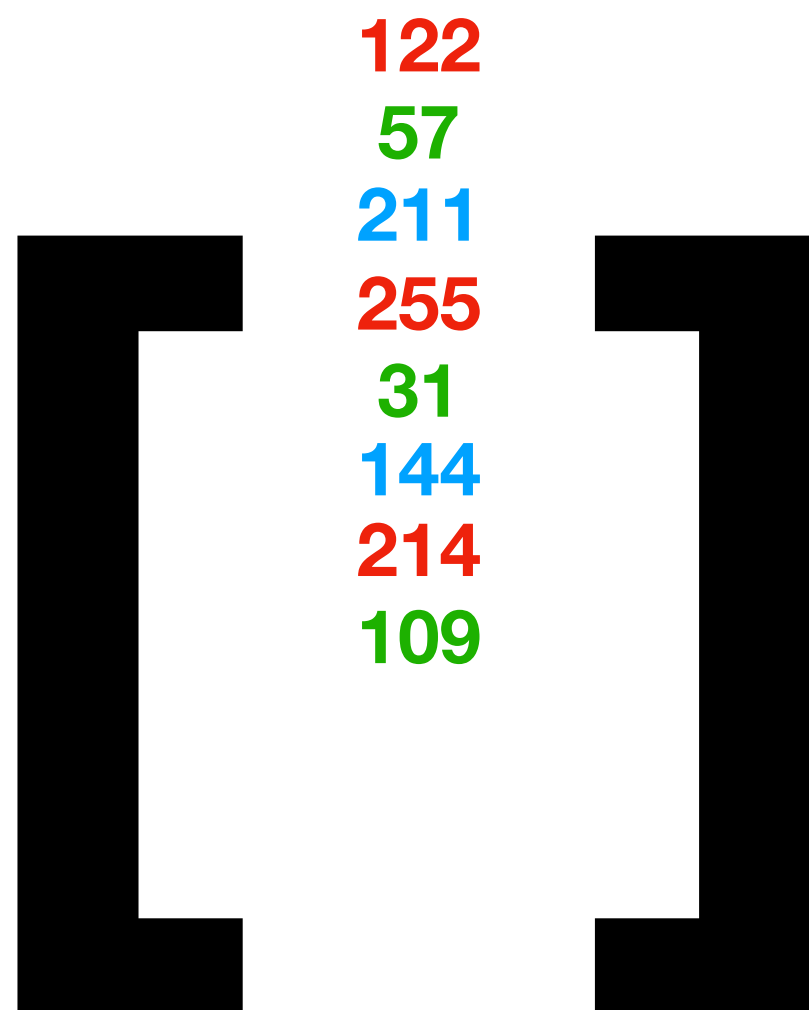


1 (cat)

0 (dog)



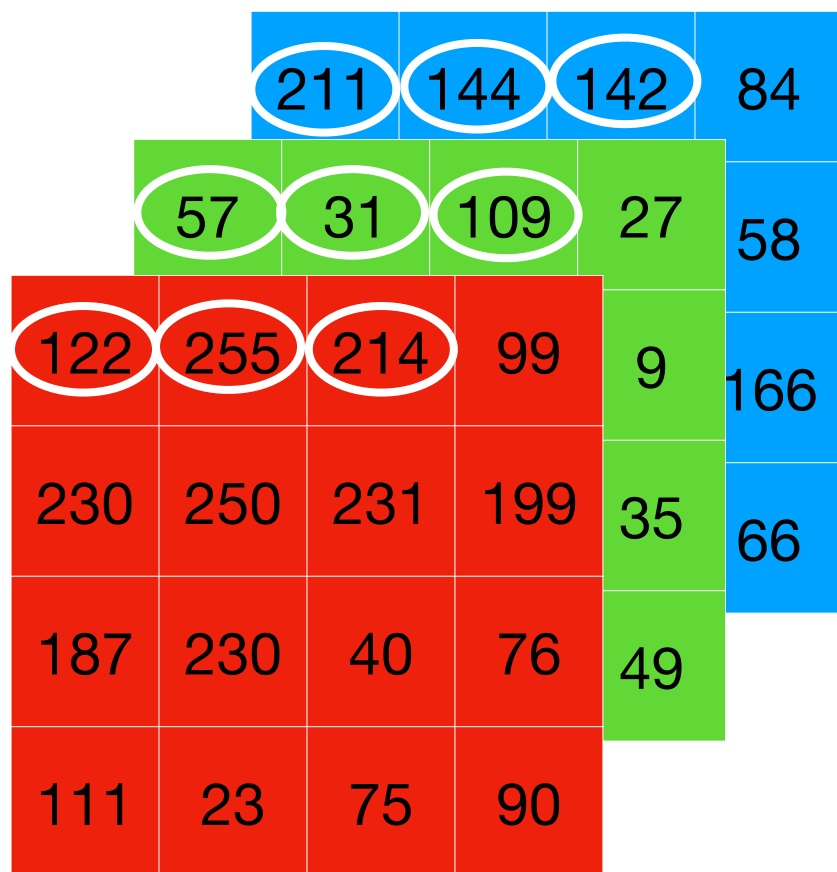
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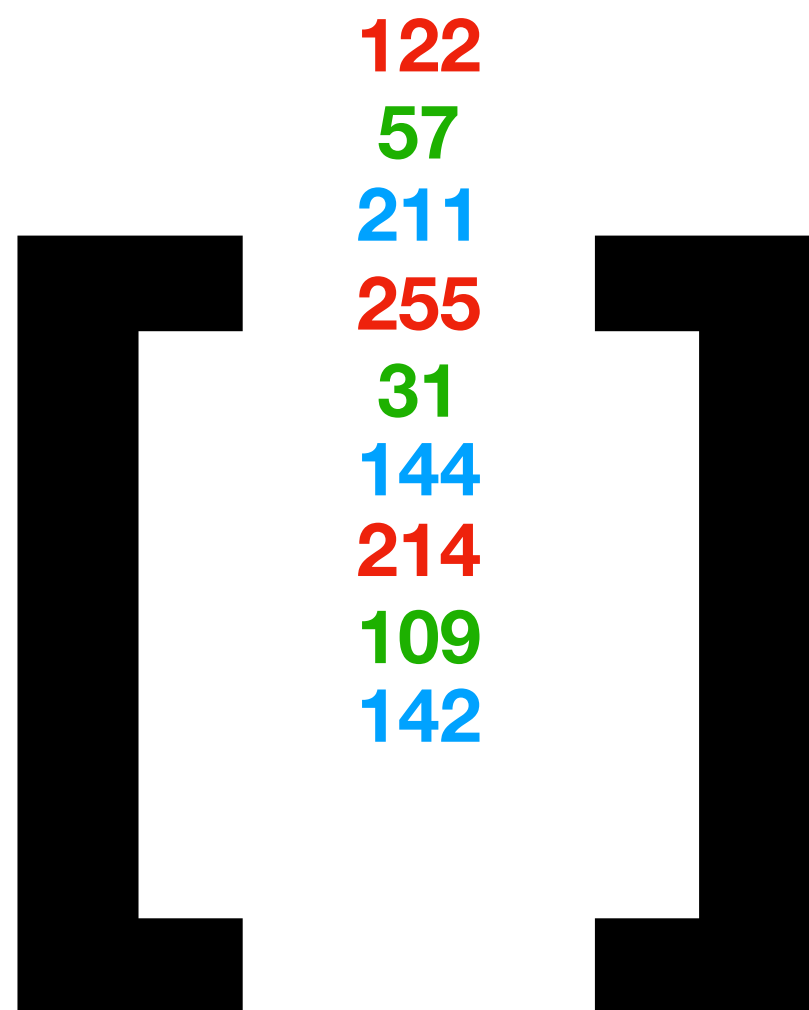


1 (cat)

0 (dog)



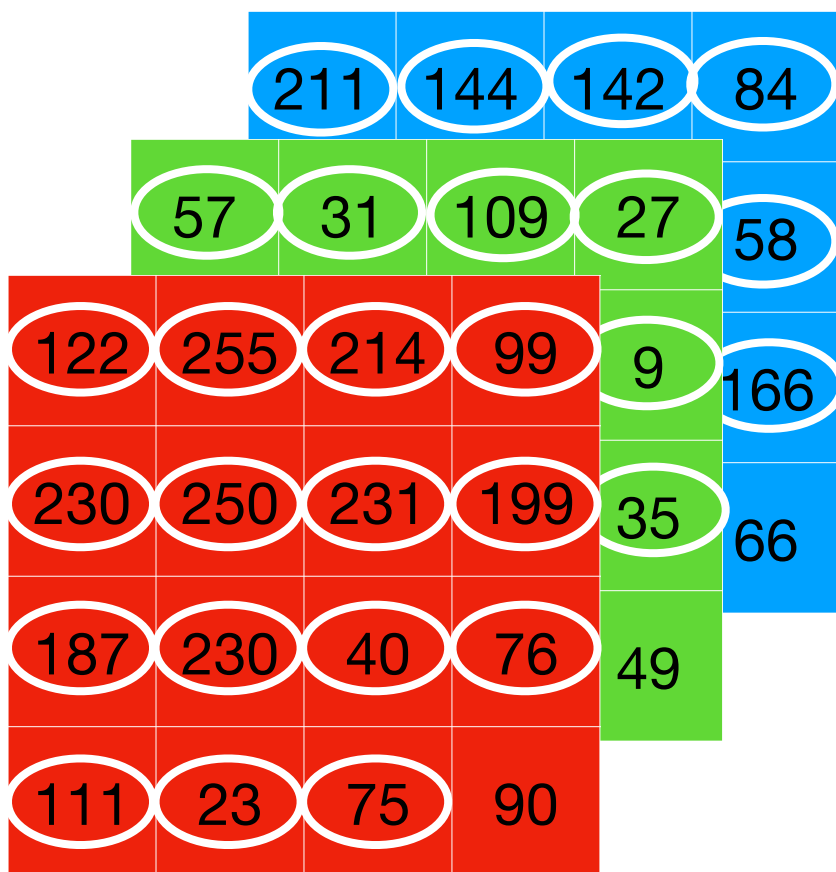
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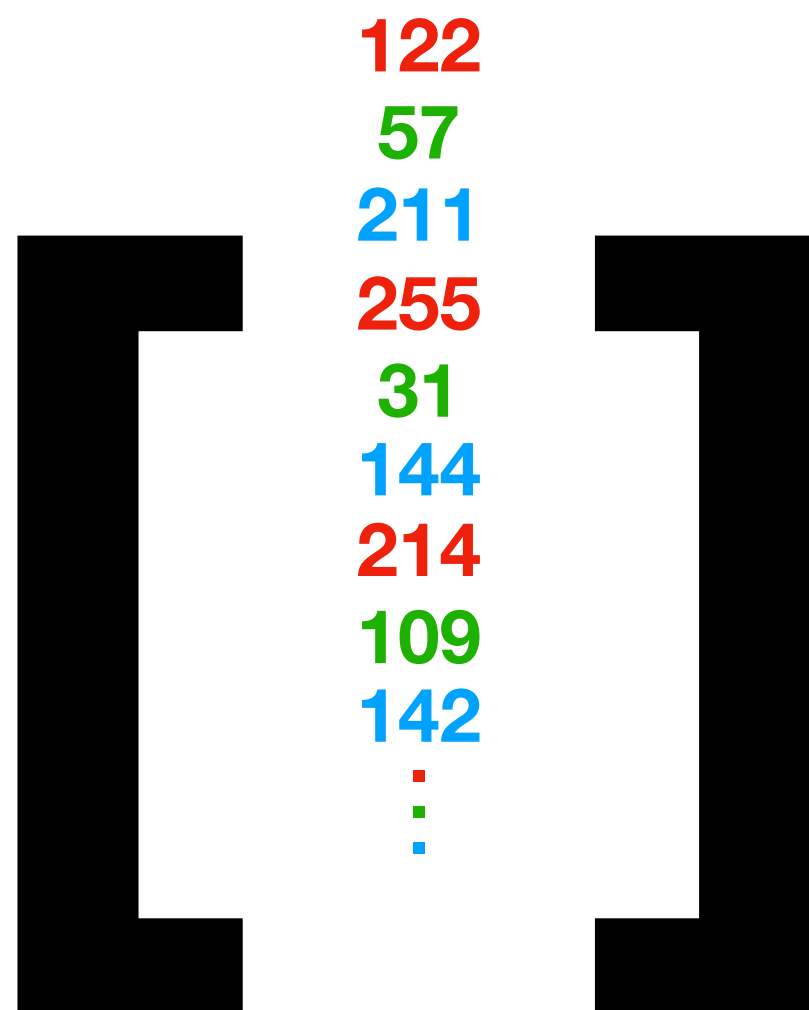


1 (cat)

0 (dog)



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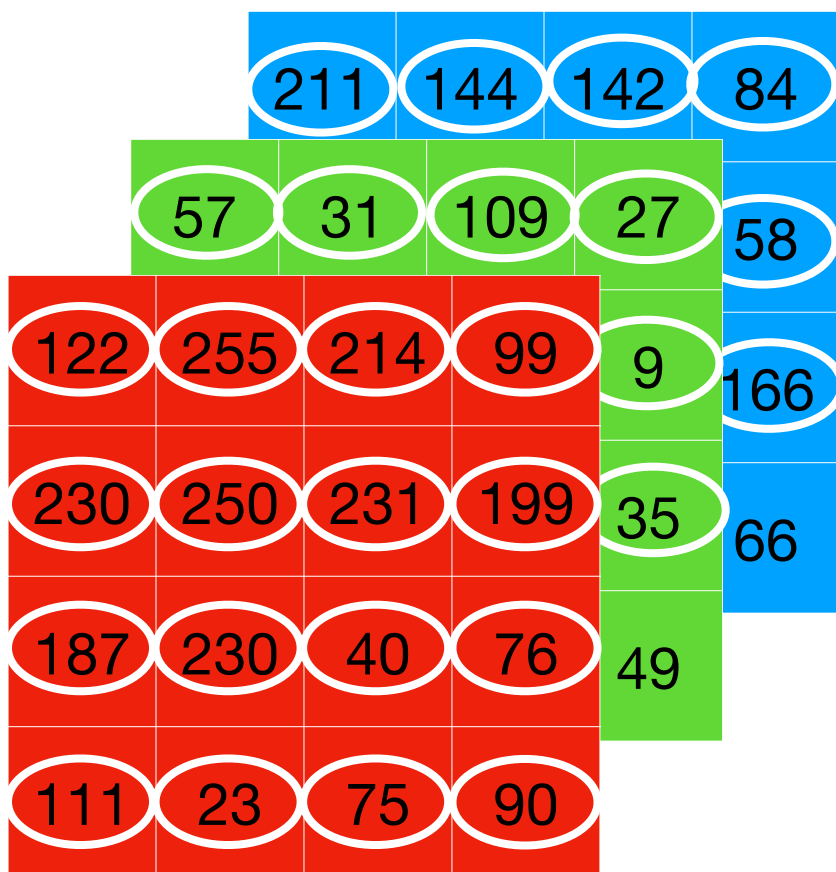




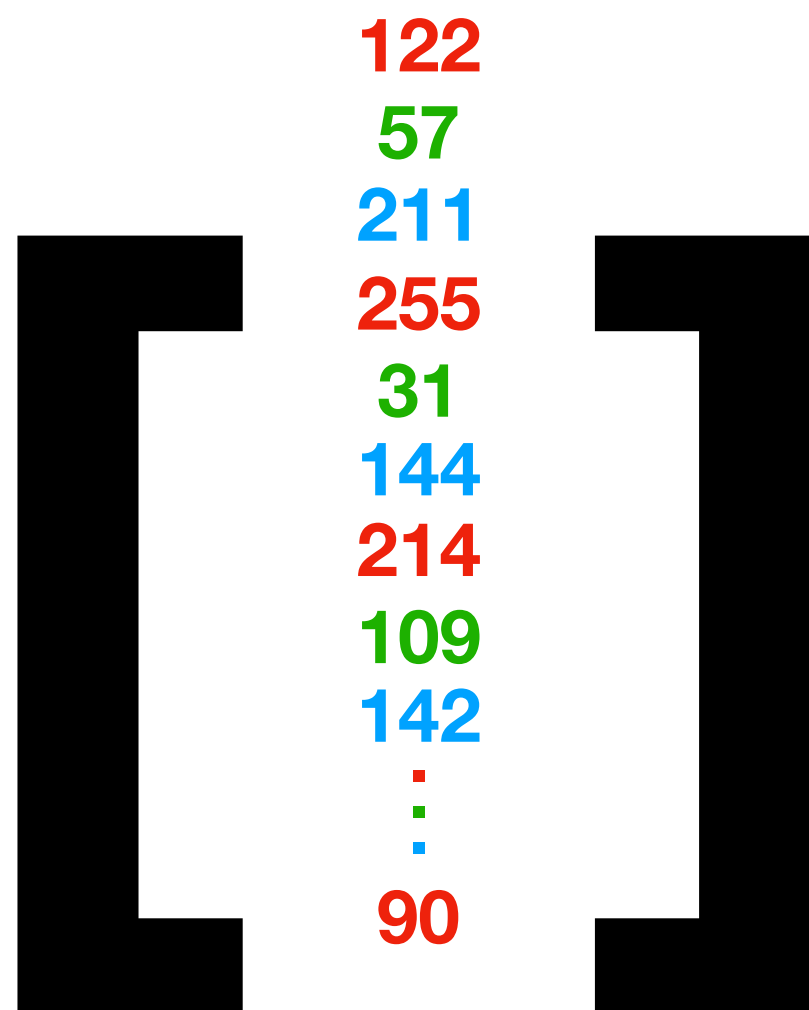


**1 (cat)**

**0 (dog)**



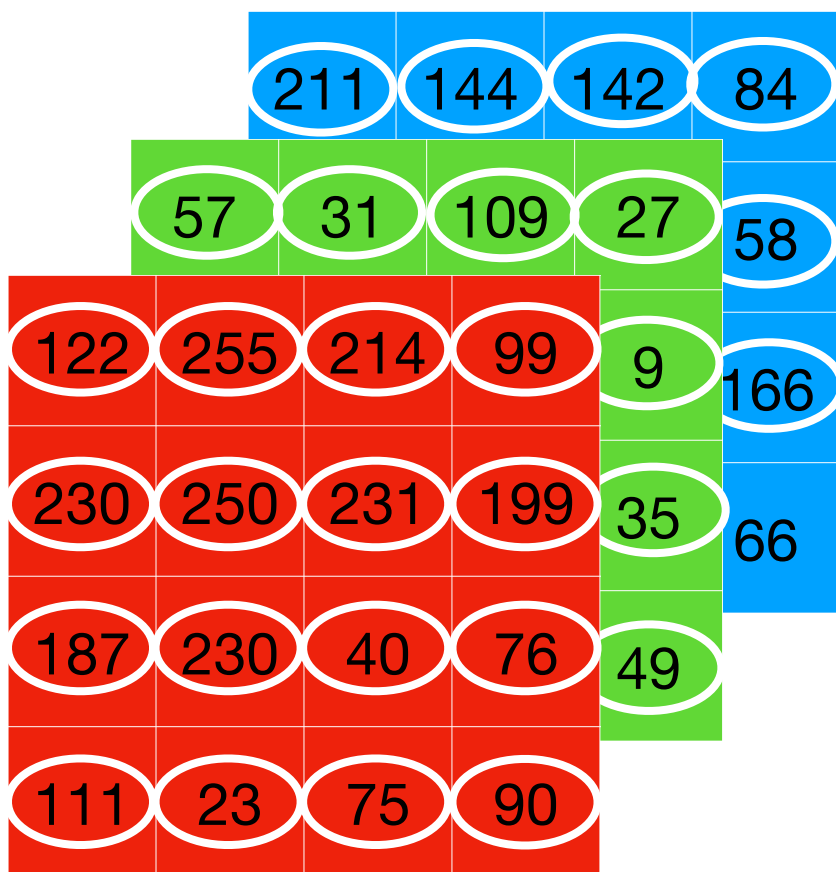
**=**



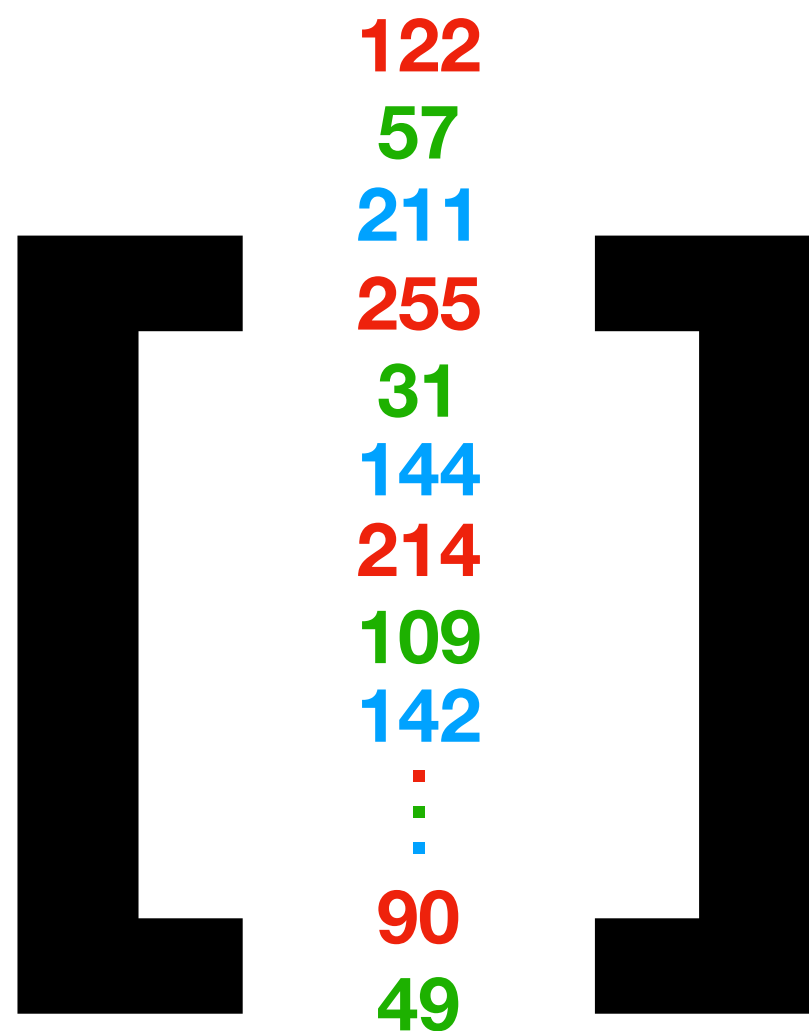


1 (cat)

0 (dog)



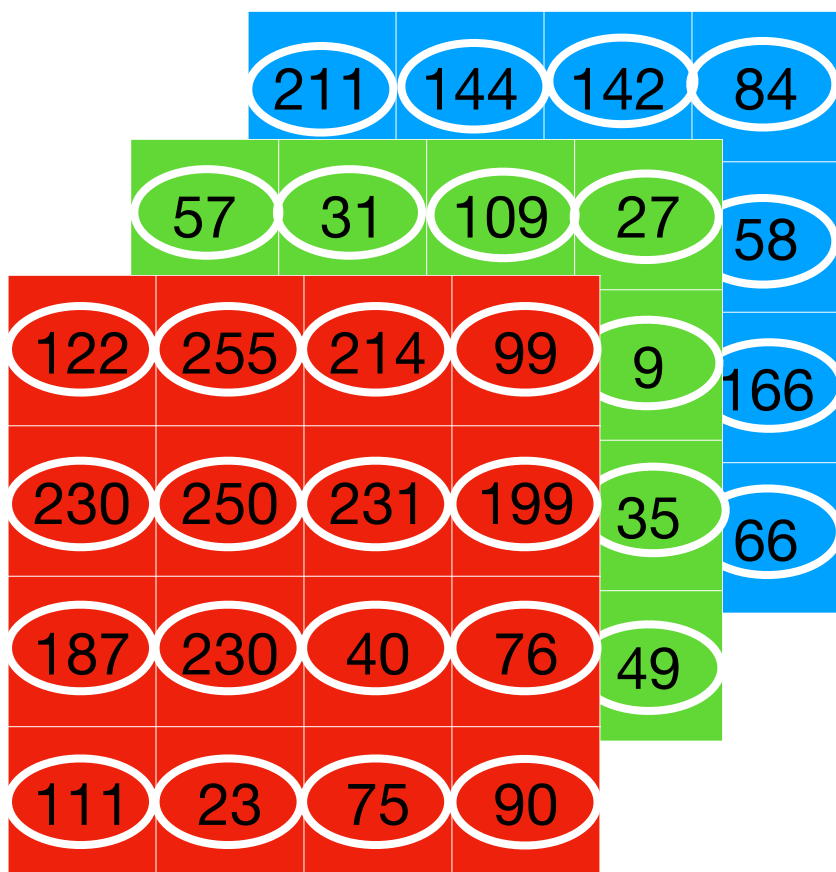
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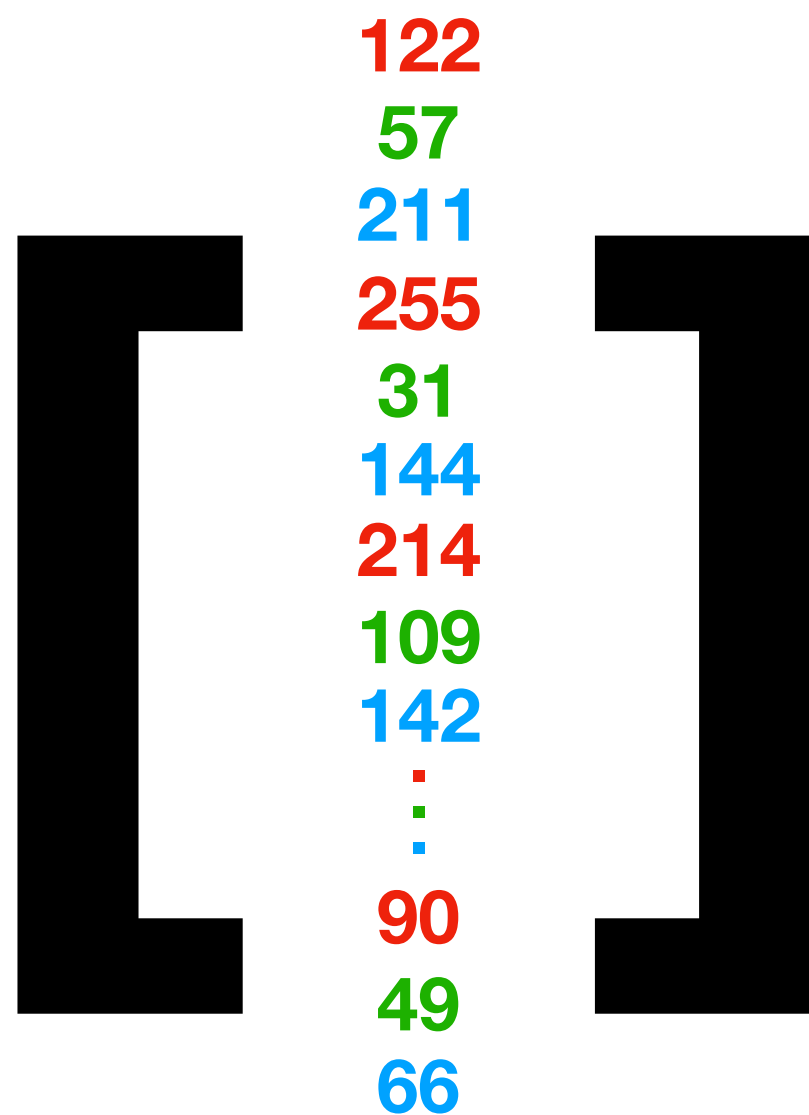


1 (cat)

0 (dog)



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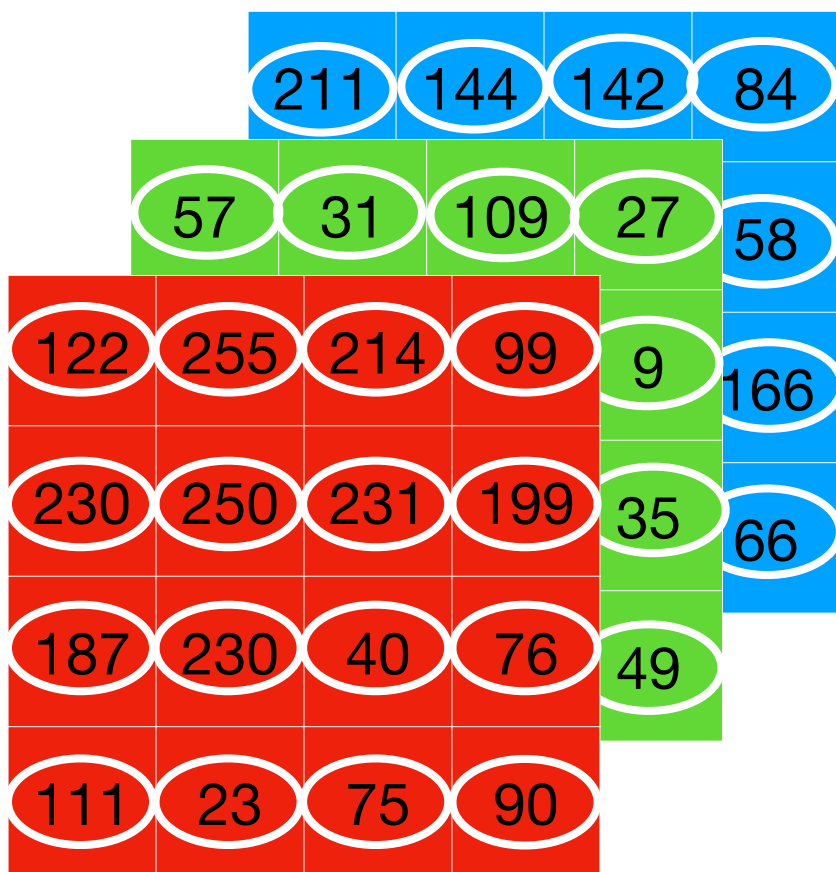


64 {

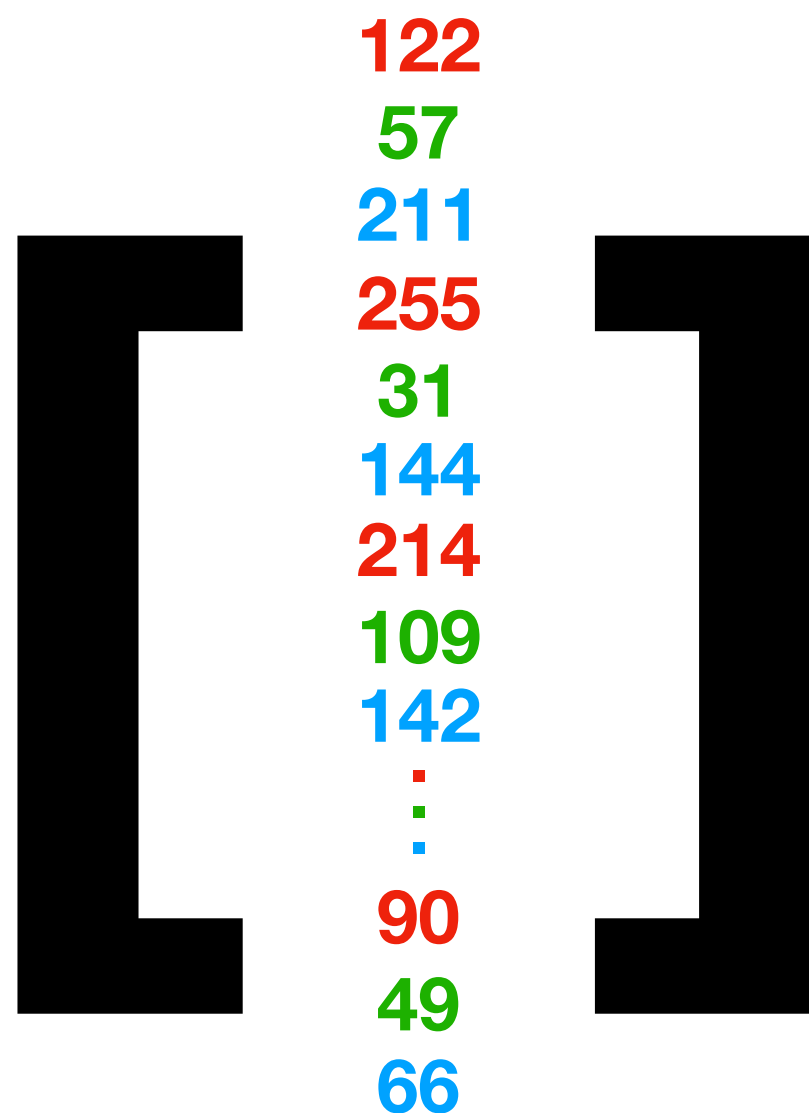


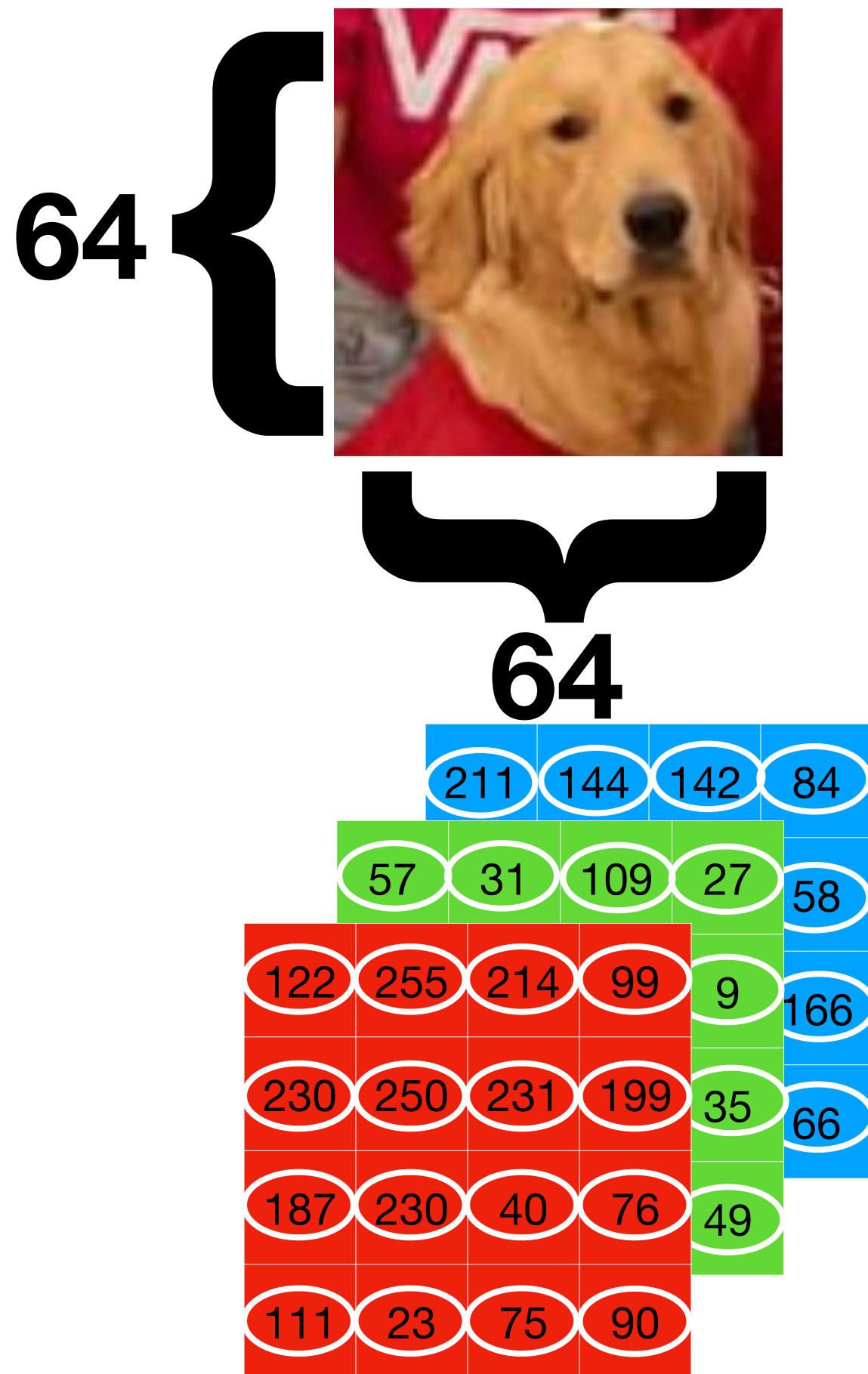
1 (cat)

0 (dog)



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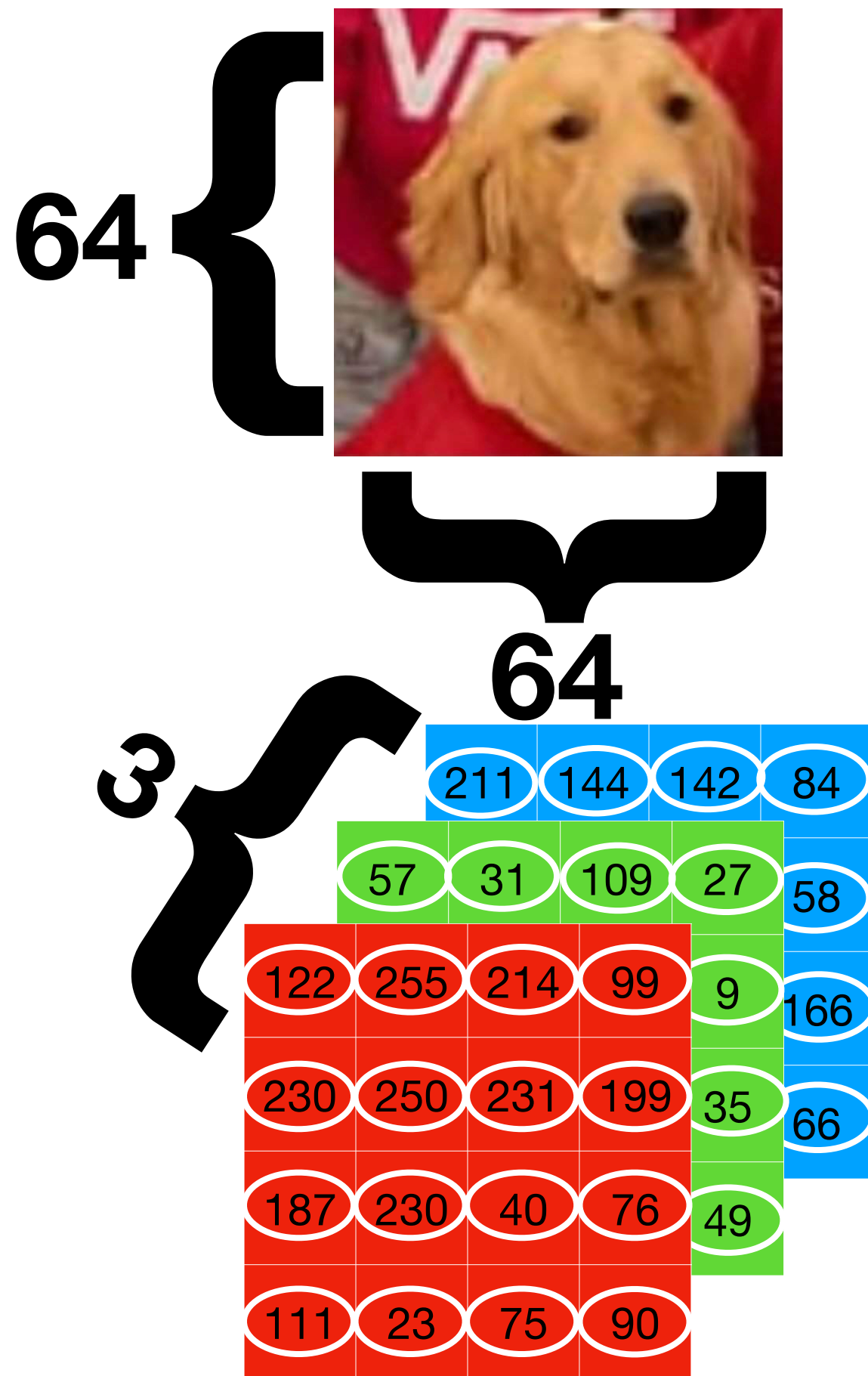
1 (cat)  
0 (dog)

=

[

122  
57  
211  
255  
31  
144  
214  
109  
142  
:  
:  
:  
90  
49  
66

]



→

1 (cat)  
0 (dog)

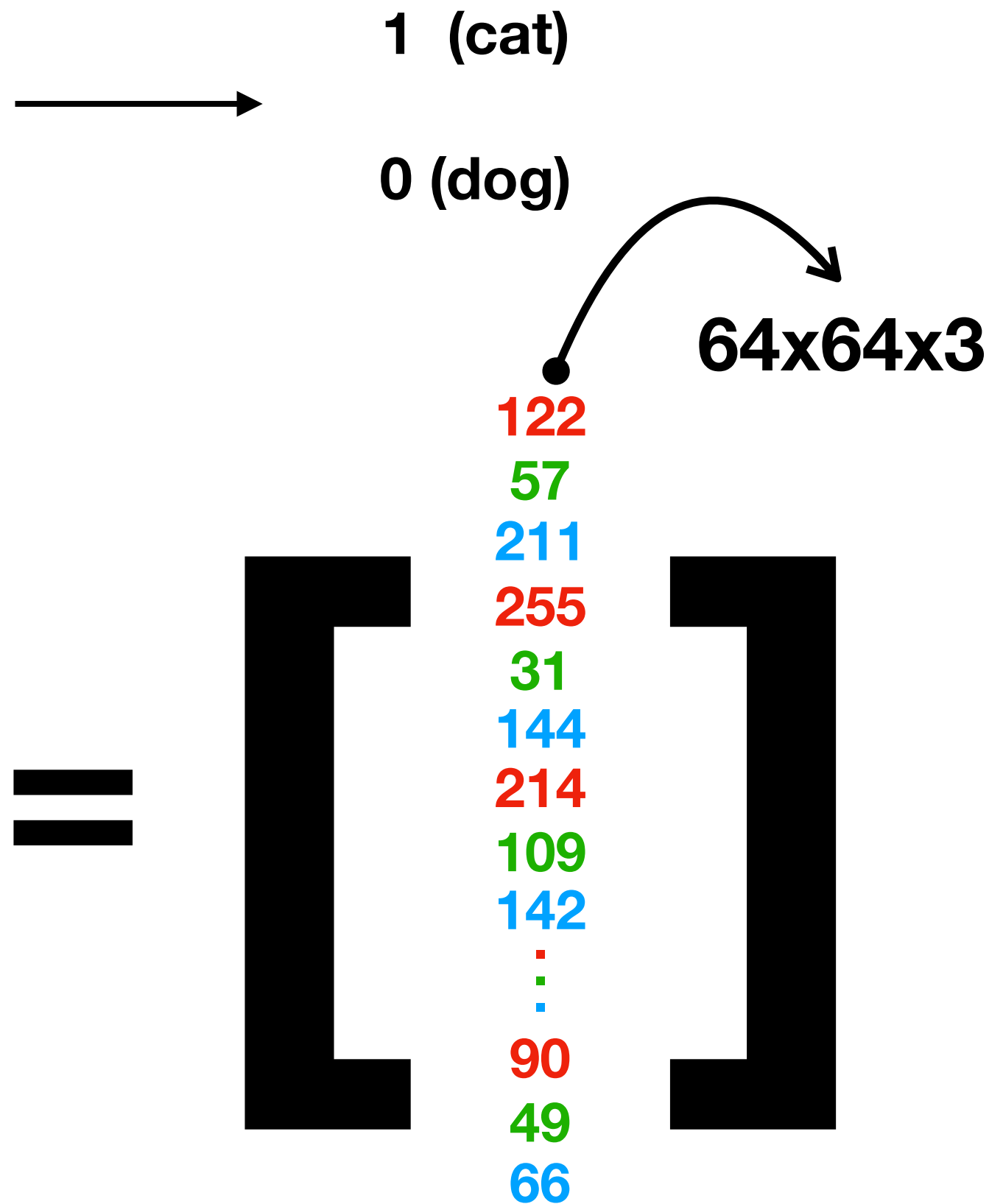
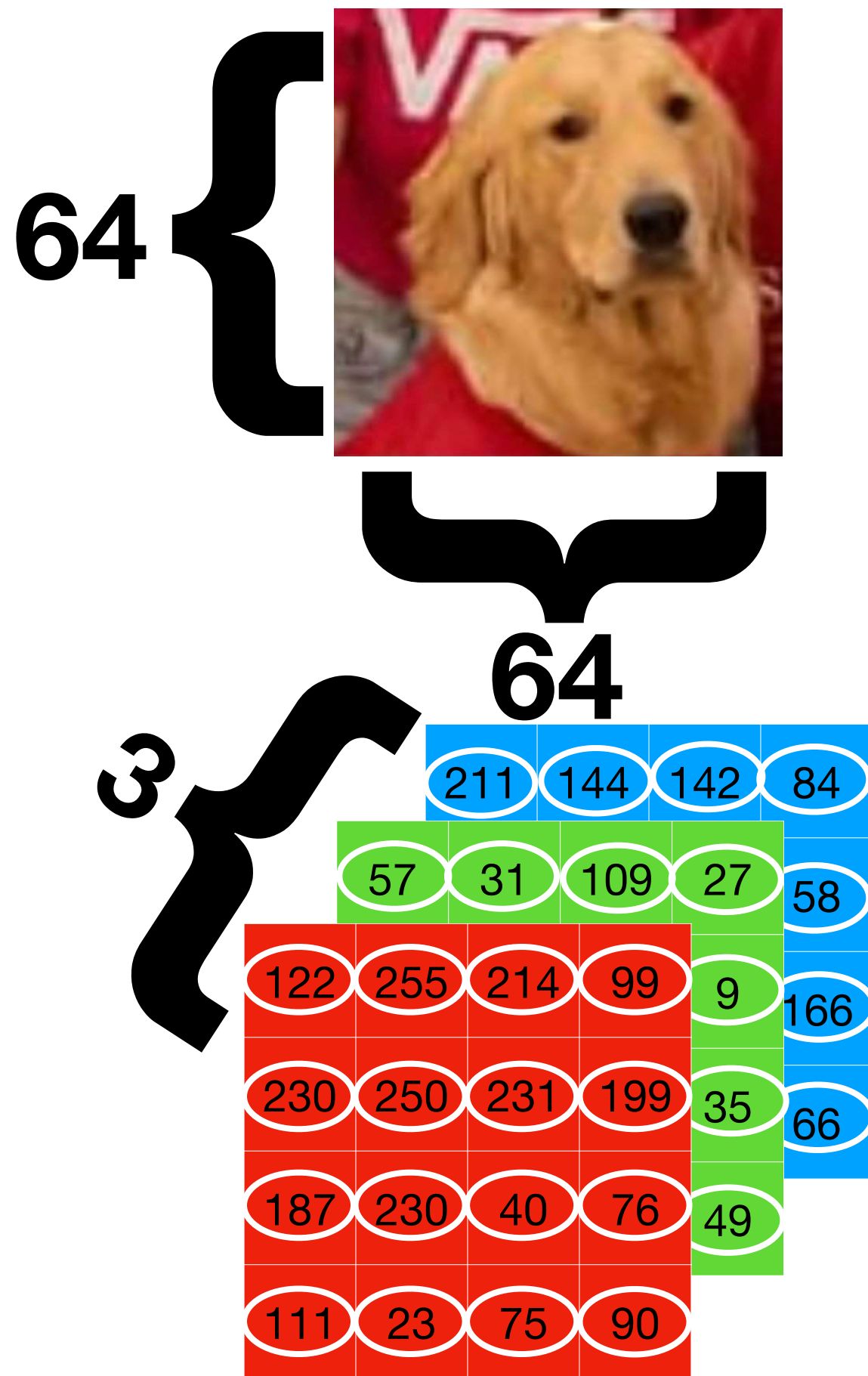
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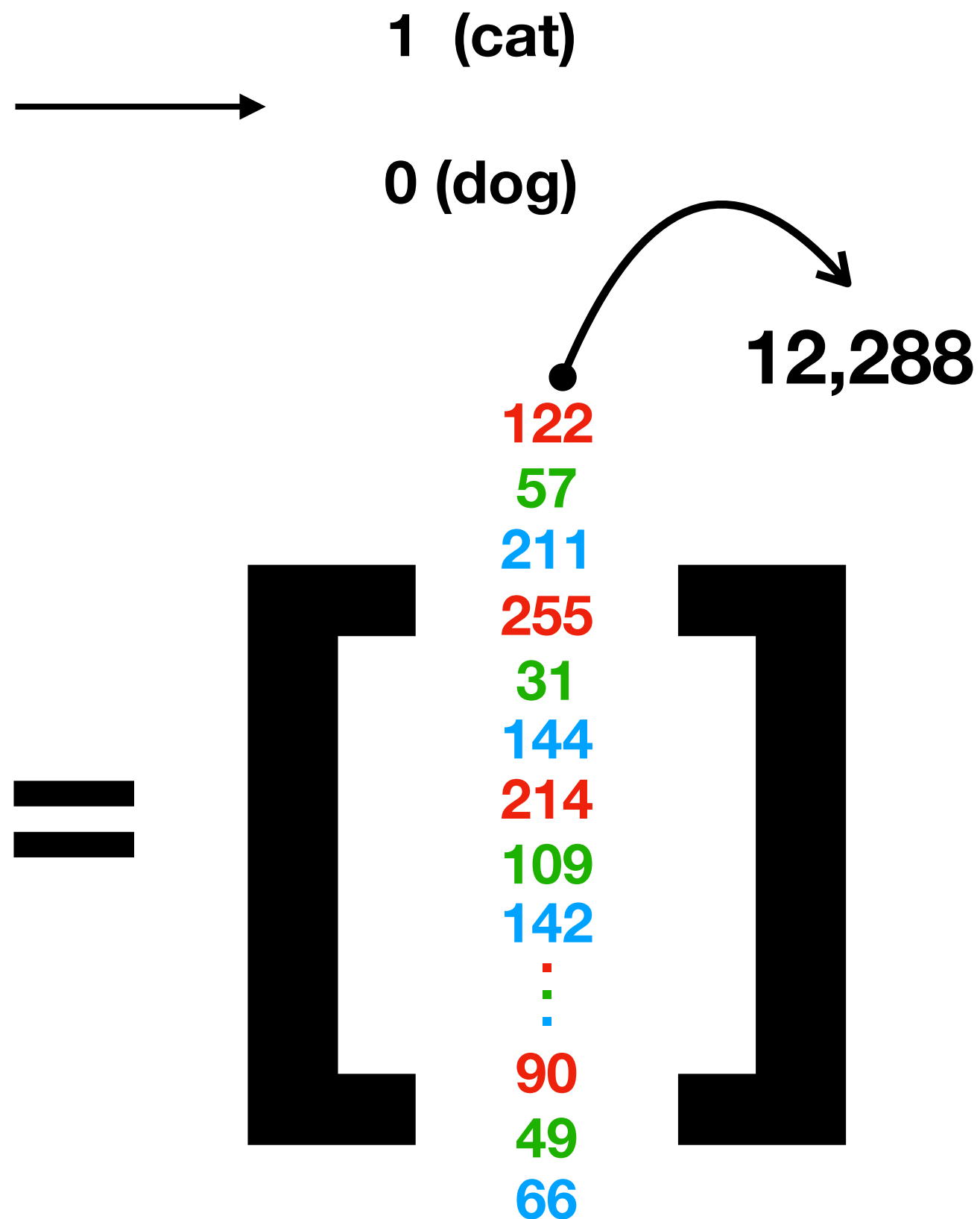
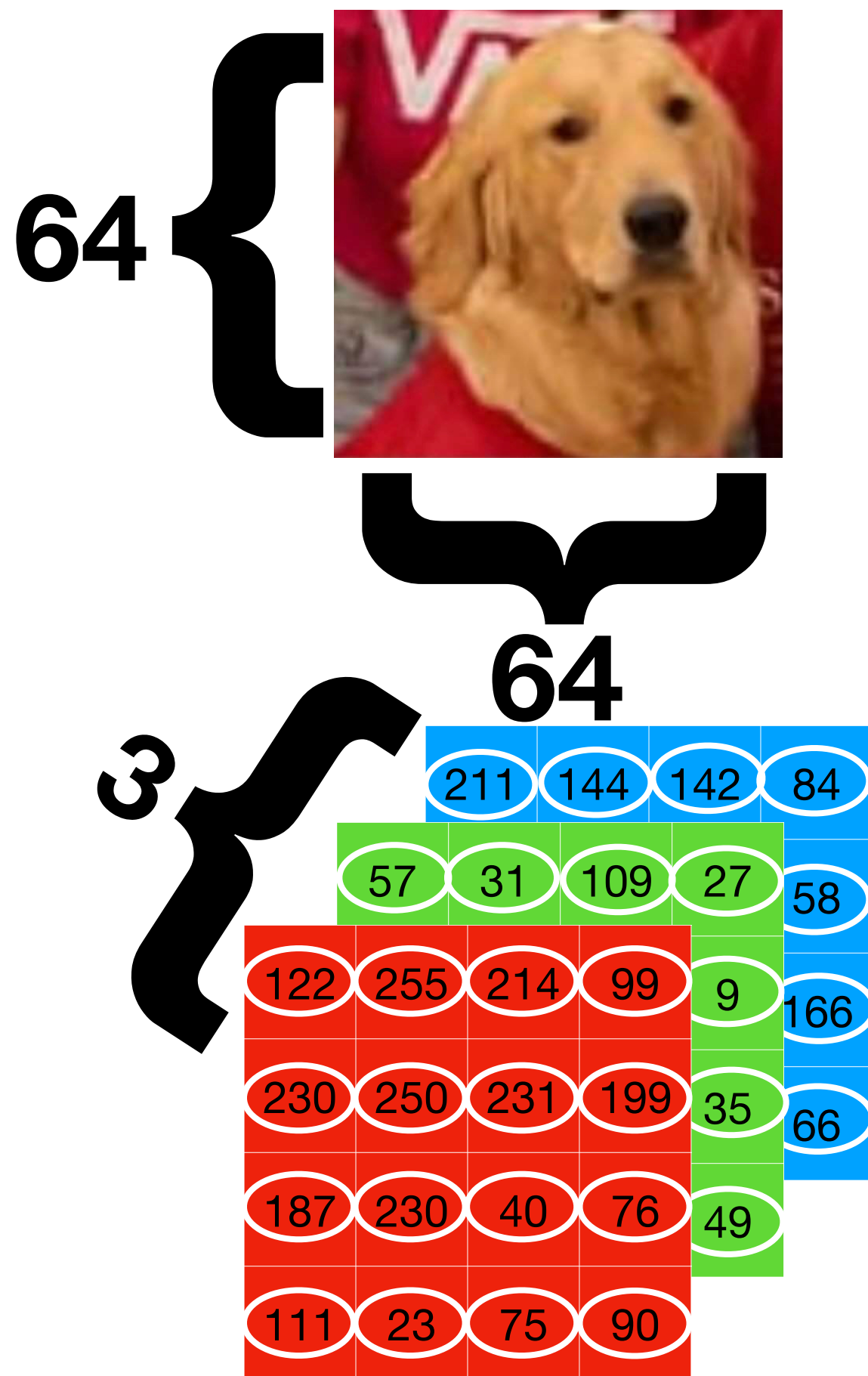
[

122  
57  
211  
255  
31  
144  
214  
109  
142  
⋮  
90  
49  
66

]



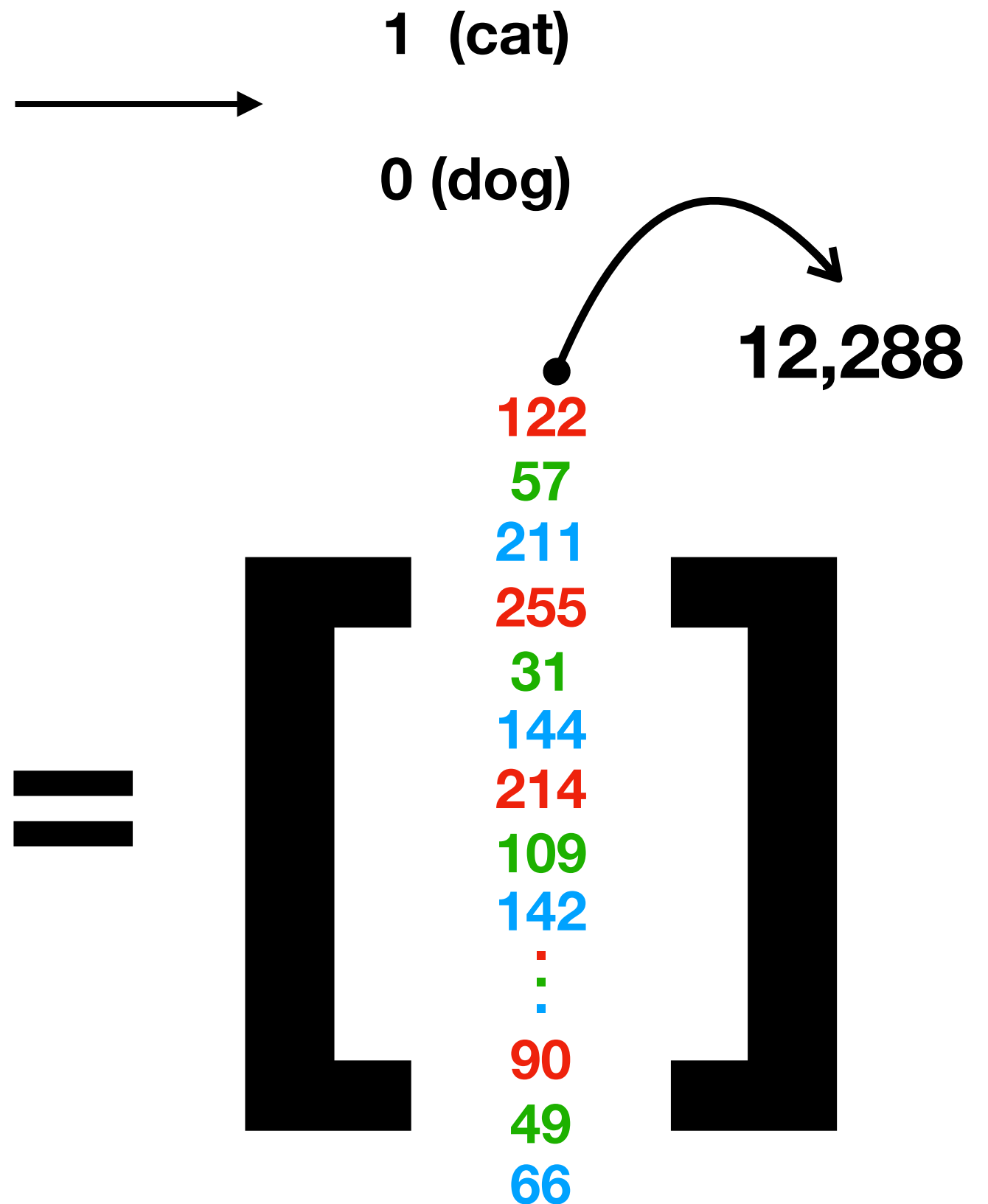
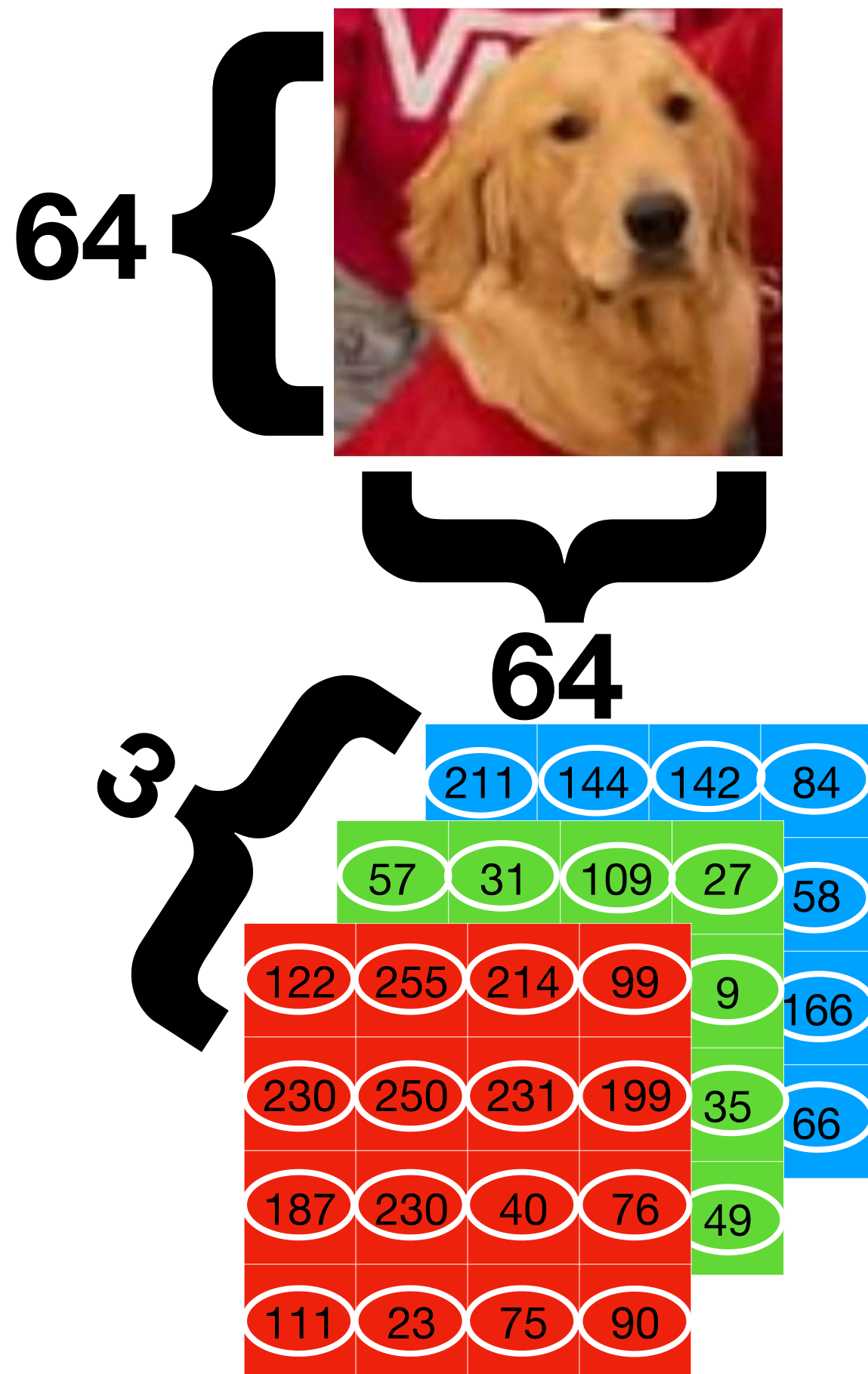






**$\Phi(x)$  萃取出 12,288 個特色**

**w 需要 12,288 個參數**





|   |     |   |
|---|-----|---|
| [ | 122 | ] |
|   | 57  |   |
|   | 211 |   |
|   | 255 |   |
|   | 31  |   |
|   | 144 |   |
|   | 214 |   |
|   | 109 |   |
|   | 142 |   |
|   | ⋮   |   |
|   | 90  |   |
|   | 49  |   |
|   | 66  |   |



|   |     |     |
|---|-----|-----|
| [ | 122 | 32  |
|   | 57  | 4   |
|   | 211 | 11  |
|   | 255 | 55  |
|   | 31  | 111 |
|   | 144 | 5   |
|   | 214 | 88  |
|   | 109 | 59  |
|   | 142 | 3   |
|   | ⋮   | ⋮   |
|   | 90  | 211 |
|   | 49  | 243 |
|   | 66  | 98  |
|   |     |     |
| ] |     |     |



|   |     |     |     |   |
|---|-----|-----|-----|---|
| [ | 122 | 32  | 199 | ] |
|   | 57  | 4   | 241 |   |
|   | 211 | 11  | 255 |   |
|   | 255 | 55  | 0   |   |
|   | 31  | 111 | 3   |   |
|   | 144 | 5   | 4   |   |
|   | 214 | 88  | 132 |   |
|   | 109 | 59  | 76  |   |
|   | 142 | 3   | 90  |   |
|   | ⋮   | ⋮   | ⋮   |   |
|   | 90  | 211 | 3   |   |
|   | 49  | 243 | 0   |   |
|   | 66  | 98  | 31  |   |
|   |     |     |     |   |





|   |     |     |     |    |   |
|---|-----|-----|-----|----|---|
| [ | 122 | 32  | 199 | 5  | ] |
|   | 57  | 4   | 241 | 10 |   |
|   | 211 | 11  | 255 | 1  |   |
|   | 255 | 55  | 0   | 20 |   |
|   | 31  | 111 | 3   | 1  |   |
|   | 144 | 5   | 4   | 7  |   |
|   | 214 | 88  | 132 | 0  |   |
|   | 109 | 59  | 76  | 0  |   |
|   | 142 | 3   | 90  | 0  |   |
|   | ⋮   | ⋮   | ⋮   | ⋮  |   |
|   | 90  | 211 | 3   | 4  |   |
|   | 49  | 243 | 0   | 3  |   |
|   | 66  | 98  | 31  | 2  |   |
|   |     |     |     |    |   |



|  |     |     |     |    |     |
|--|-----|-----|-----|----|-----|
|  | 122 | 32  | 199 | 5  | 200 |
|  | 57  | 4   | 241 | 10 | 189 |
|  | 211 | 11  | 255 | 1  | 30  |
|  | 255 | 55  | 0   | 20 | 51  |
|  | 31  | 111 | 3   | 1  | 181 |
|  | 144 | 5   | 4   | 7  | 190 |
|  | 214 | 88  | 132 | 0  | 90  |
|  | 109 | 59  | 76  | 0  | 254 |
|  | 142 | 3   | 90  | 0  | 255 |
|  | ⋮   | ⋮   | ⋮   | ⋮  | ⋮   |
|  | 90  | 211 | 3   | 4  | 41  |
|  | 49  | 243 | 0   | 3  | 199 |
|  | 66  | 98  | 31  | 2  | 235 |