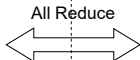




=>



=>



Device 1

Device 2

Device 1 (rank = 1)

```
 $x' = \text{split}(x)[\text{rank}]$   
 $w' = \text{split}(w)[\text{rank}]$   
 $z' = \text{matmul}(x', w')$   
 $z = \text{all\_reduce}(z', \text{rank})$ 
```

Device 2 (rank = 2)

```
 $x' = \text{split}(x)[\text{rank}]$   
 $w' = \text{split}(w)[\text{rank}]$   
 $z' = \text{matmul}(x', w')$   
 $z = \text{all\_reduce}(z', \text{rank})$ 
```