### **Multiple Paths**

Can we see one more example?

1. Let’s look at a different weight from the previous example, which would require multiple paths to perform the calculations
2. Here are the parameters of the network

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 0.1 | 0.3 | 0.8 | -0.4 |  |
| W1= | -0.3 | -0.2 | 0.5 | 0.5 |
|  | -0.3 | 0 | 0.5 | 0.4 |
|  | 0.2 | 0.5 | -0.9 | 0.7 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| W2 = |  | 0.5 | 0.8 | 0.2 | 0.4 |  |
| 0.5 | 0.2 | 0.3 | -0.5 |

* 1. x = [ 2 5 3 3 ] true distribution y = [ 1 0 ]

1. Now, we want to find the partial derivative w.r.t w212 as highlighted in the figure
2. a
3. The final split is
4. Let us sequentially solve both splits

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Path1: | Path1: |
| Sum of the paths is | |

1. Now we can calculate the updated value of w212
2. We can repeat this process for each weight