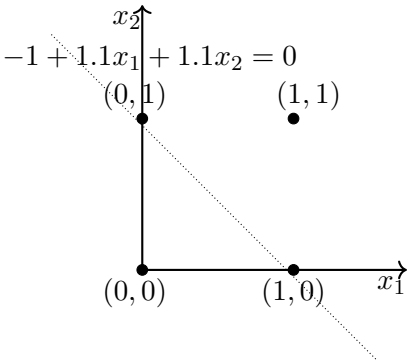
- Let us fix the threshold $(-w_0 = 1)$ and try different values of w_1, w_2



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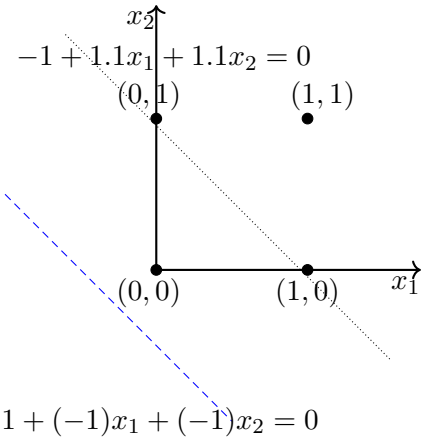
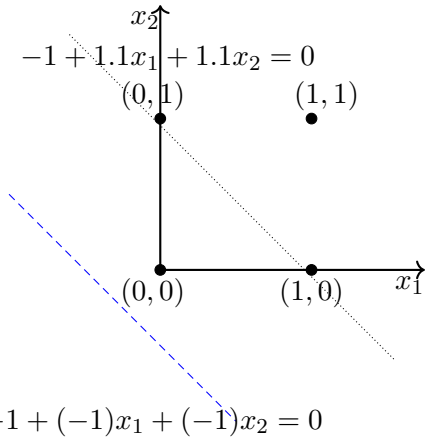
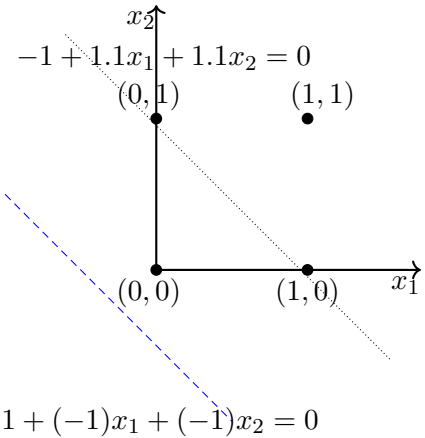
- Say, $w_1 = -1, w_2 = -1$



- Let us fix the threshold ($-w_0 = 1$) and try different values of w_1, w_2
- Say, $w_1 = -1, w_2 = -1$
- What is wrong with this line?



- Let us fix the threshold ($-w_0 = 1$) and try different values of w_1, w_2
- Say, $w_1 = -1, w_2 = -1$
- What is wrong with this line? We make an error on 1 out of the 4 inputs



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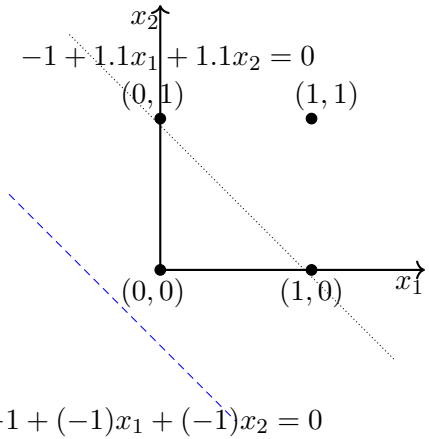
- Lets try some more values of w_1, w_2 and note how many errors we make



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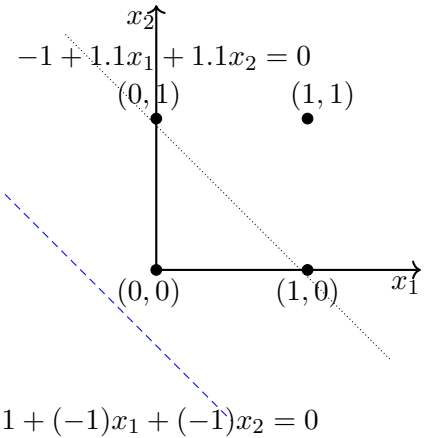
w_1	w_2	errors
-1	-1	1



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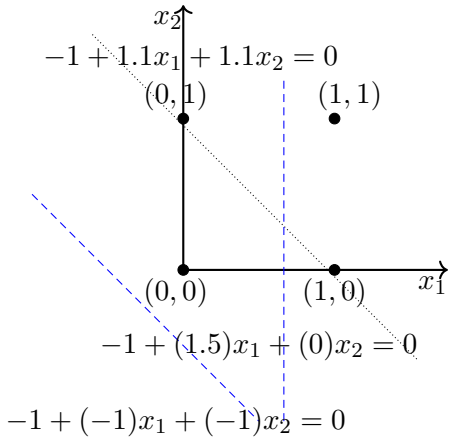
w_1	w_2	errors
-1	-1	1
1.5	0	1



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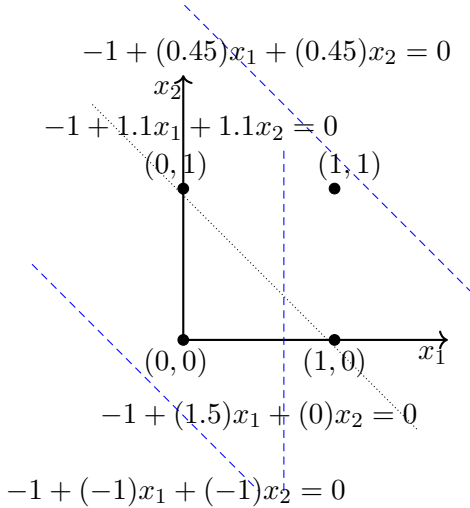
- What is wrong with this line? We make an error on 1 out of the 4 inputs
- Lets try some more values of w_1, w_2 and note how many errors we make

w_1	w_2	errors
-1	-1	1
1.5	0	1
0.45	0.45	3



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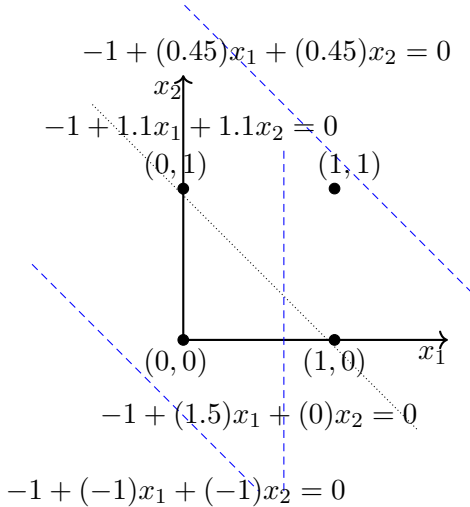
w_1	w_2	errors
-1	-1	1
1.5	0	1
0.45	0.45	3

- We are interested in those values of w_0, w_1, w_2 which result in 0 error



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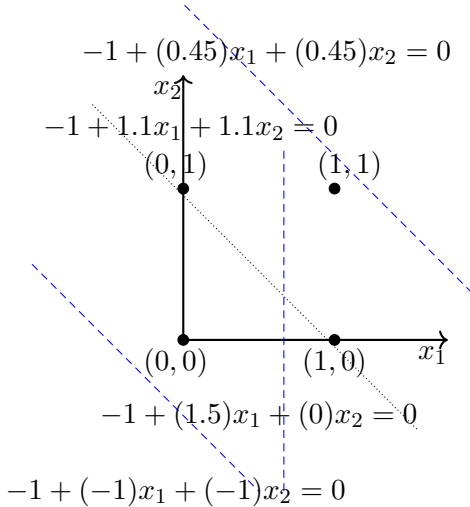
w_1	w_2	errors
-1	-1	1
1.5	0	1
0.45	0.45	3

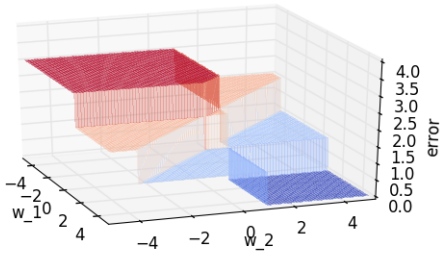
- We are interested in those values of w_0, w_1, w_2 which result in 0 error
- Let us plot the error surface corresponding to different values of w_0, w_1, w_2



- For ease of analysis, we will keep w_0 fixed (-1) and plot the error for different values of w_1, w_2

- For ease of analysis, we will keep w_0 fixed (-1) and plot the error for different values of w_1, w_2
- For a given w_0, w_1, w_2 we will compute $-w_0 + w_1 * x_1 + w_2 * x_2$ for all combinations of (x_1, x_2) and note down how many errors we make

- For ease of analysis, we will keep w_0 fixed (-1) and plot the error for different values of w_1, w_2
- For a given w_0, w_1, w_2 we will compute $-w_0 + w_1 * x_1 + w_2 * x_2$ for all combinations of (x_1, x_2) and note down how many errors we make
- For the OR function, an error occurs if $(x_1, x_2) = (0, 0)$ but $-w_0 + w_1 * x_1 + w_2 * x_2 \geq 0$ or if $(x_1, x_2) \neq (0, 0)$ but $-w_0 + w_1 * x_1 + w_2 * x_2 < 0$



- For ease of analysis, we will keep w_0 fixed (-1) and plot the error for different values of w_1, w_2
- For a given w_0, w_1, w_2 we will compute $-w_0+w_1*x_1+w_2*x_2$ for all combinations of (x_1, x_2) and note down how many errors we make
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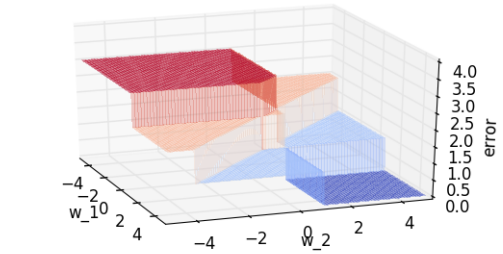

- For ease of analysis, we will keep w_0 fixed (-1) and plot the error for different values of w_1, w_2
- For a given w_0, w_1, w_2 we will compute $-w_0+w_1*x_1+w_2*x_2$ for all combinations of (x_1, x_2) and note down how many errors we make
- For the OR function, an error occurs if $(x_1, x_2) = (0, 0)$ but $-w_0+w_1*x_1+w_2*x_2 \geq 0$ or if $(x_1, x_2) \neq (0, 0)$ but $-w_0 + w_1 * x_1 + w_2 * x_2 < 0$
- We are interested in finding an algorithm which finds the values of w_1, w_2 which minimize this error