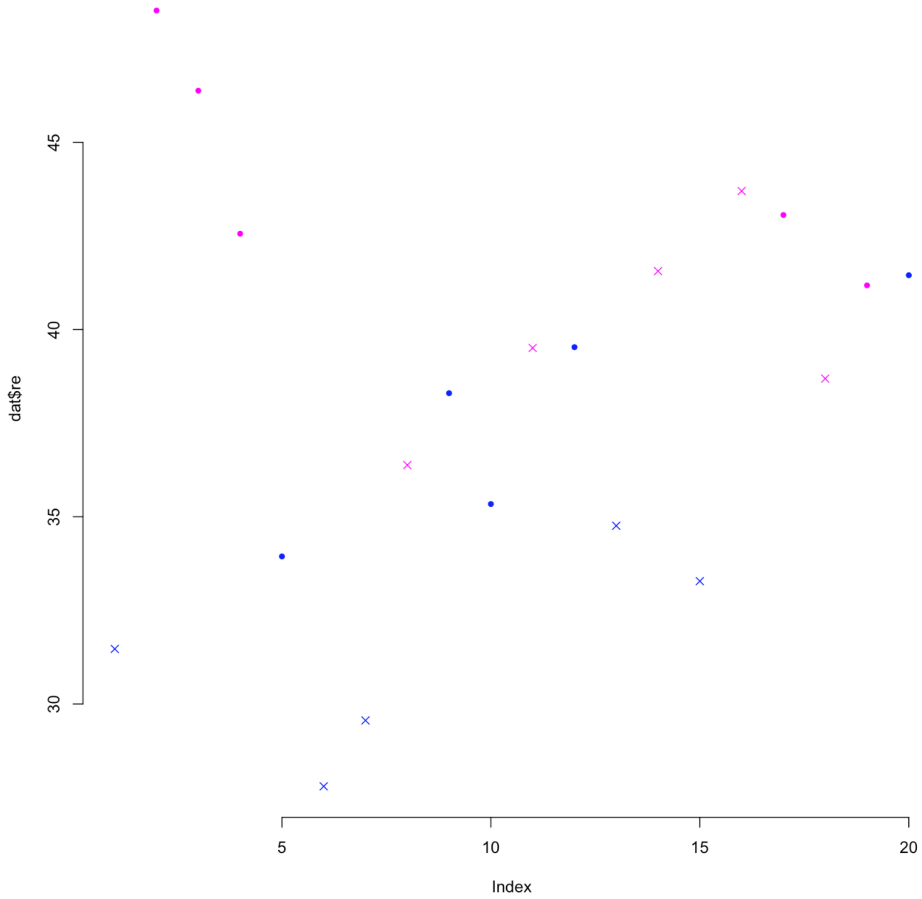
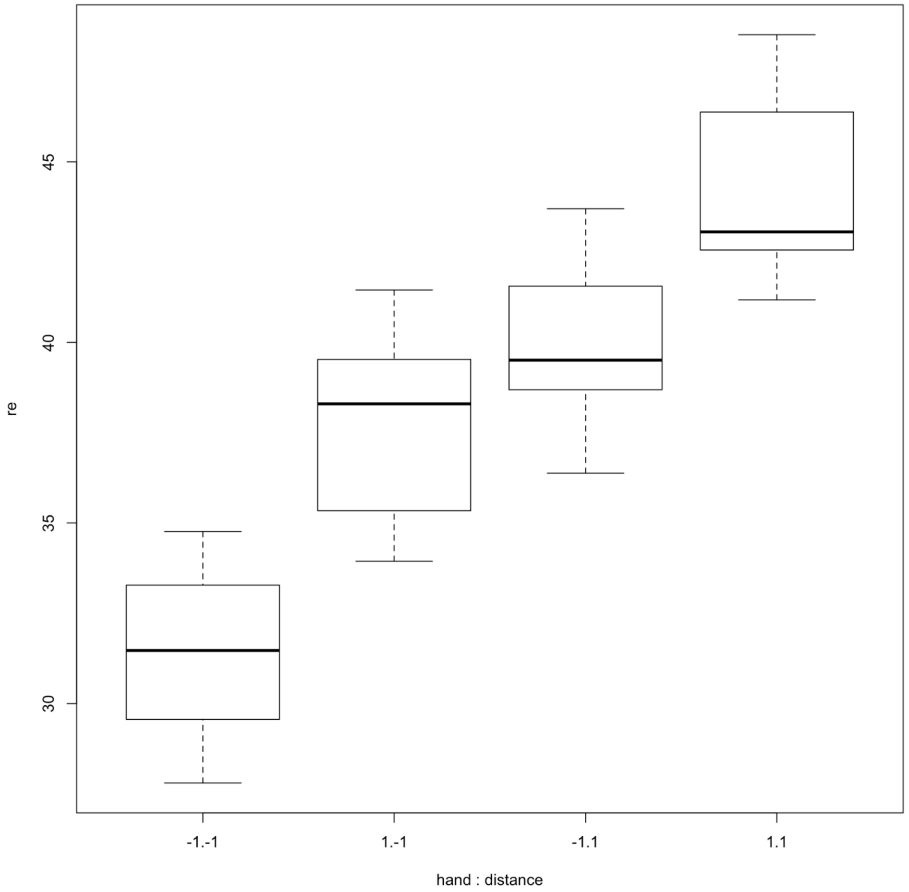
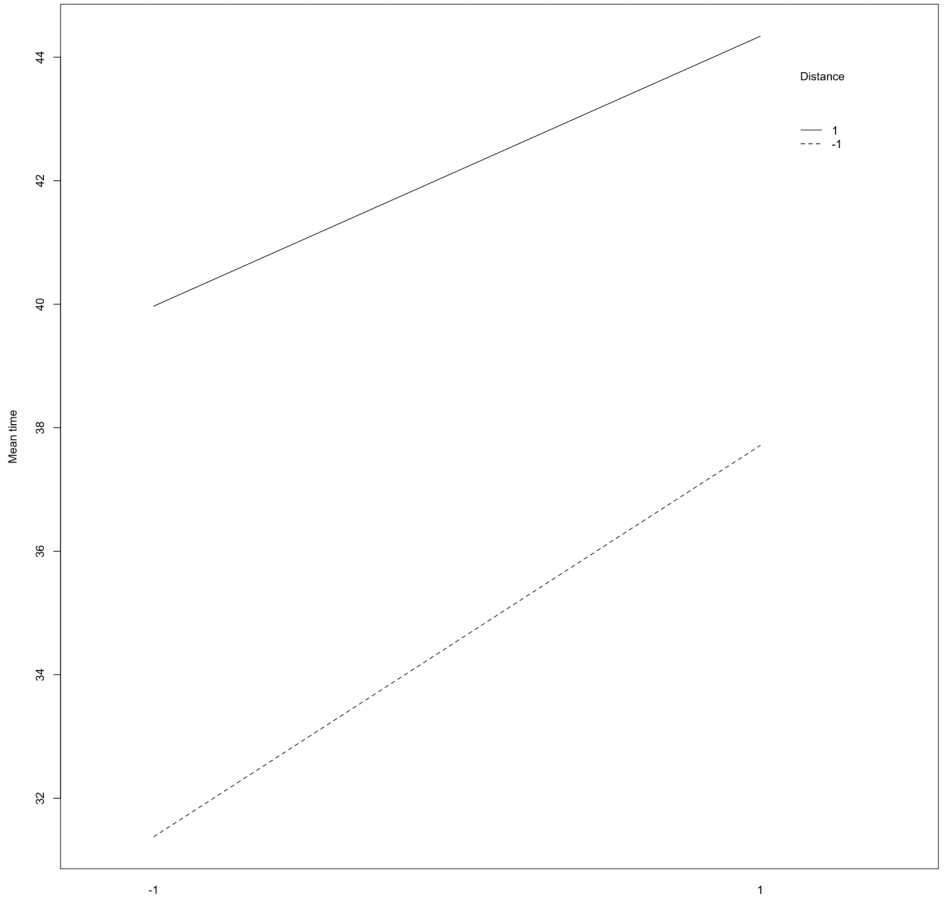


An **overview** of data.
The pink → the time taken in the case of 15cm distance
The blue → the time taken in the case of 10 cm distance
The point → the time taken in the case of left hand
The cross → the time taken in the case of right hand.
The time needed for the right hand to pick up beans seems to be shorter than the case for the left hand, and the time needed in the case of 10 cm distance is relatively shorter than in the case of 15 cm distance.

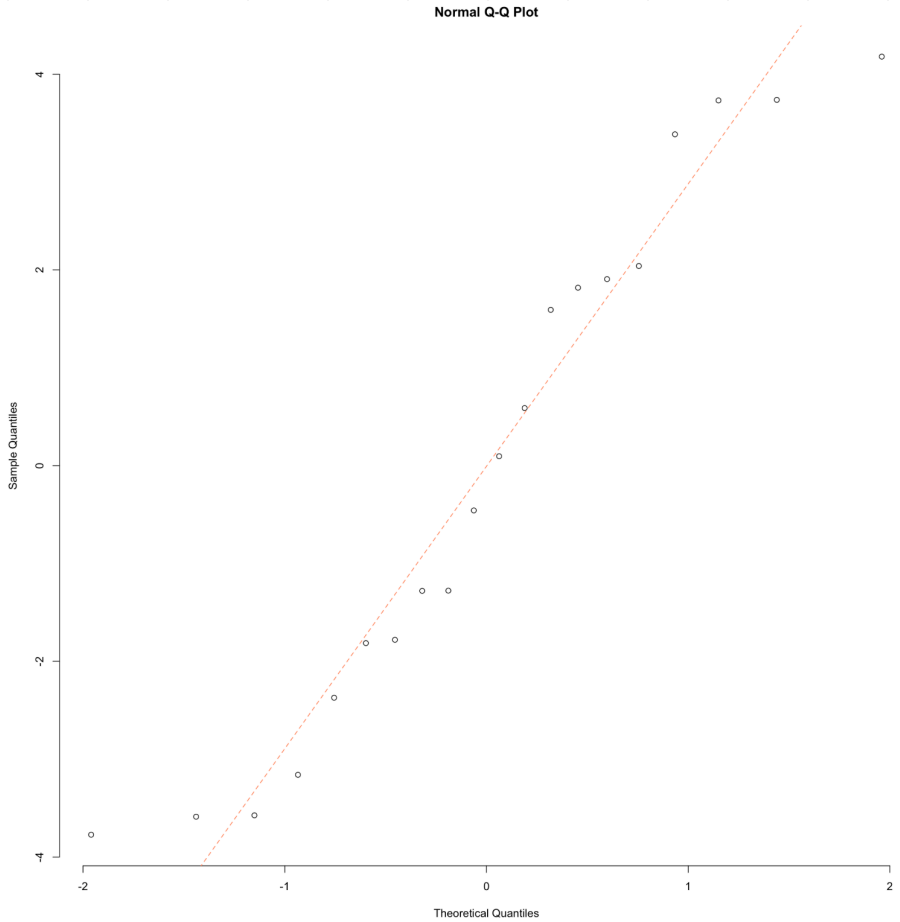


similar pattern, with some obvious overlaps of the outcomes
further analysis is necessary to see the significance



do not make an intersection, not strictly parallel either → little interactions between hand and distance factors

Hand effect



linear model
The deviation of some points not far enough from the qq line → an approximately normal distribution with a nearly constant variance.
Further tests can be conducted based on these Assumptions.

Table 1: Summary of linear model of total time with hands and distances

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	31.374	1.305060	24.0402783	0.0000000
hand1	6.338	1.845633	3.4340517	0.0034063
distance1	8.594	1.845633	4.6563965	0.0002634
hand1:distance1	-1.966	2.610120	-0.7532222	0.4622566

Table 2: confidence interval of hands,distances and their interactions

		2.5 %	97.5 %
hand1	12.68	4.85	20.50
distance1	17.19	9.36	25.01
hand1:distance1	-3.93	-15.00	7.13

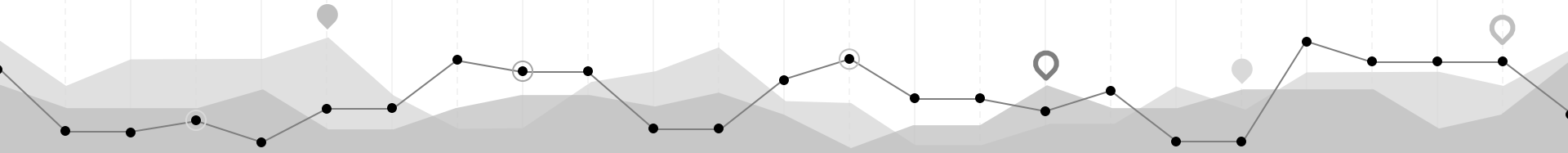
The main effect difference : p value is smaller than 0.05 → the left-or-right-hand has an effect on the outcomes.
The main effect of distance : p value of less than 0.05, significant
The interaction not significant.
0 is not in the confidence intervals of hand and distance→the left-or-right-hand and distances have a significant impact on the total time
0 is in the confidence interval of interaction effects

Table 3: T test results under different conditions

estimate	estimate1	estimate2	statistic	p.value	parameter	conf.low	conf.high
6.628	44.340	37.712	3.447964	0.0087209	8	2.195182	11.06082
8.594	39.968	31.374	4.867337	0.0012442	8	4.522410	12.66559
4.372	NA	NA	1.893597	0.1312047	4	-2.038351	10.78235
6.338	NA	NA	4.573469	0.0102339	4	2.490350	10.18565

left hand + distance differences, right hand + distance differences, 15cm + hand differences, 10cm + hand differences.
The less than 0.05 pvalue from the first row → mean of time under 15cm of distance is longer for about 6.6 sec compared to that of distance = 10 cm under the condition of using left hand.
Similar differences are shown under the condition of 10 cm between the left hand and the right hand due to the small p value.
The 15cm condition, the p value is greater, 0 is included in the confidence interval, insignificant differences

I tend to pick up beans more quickly with 10 cm distance all the time.
→ controlling small angles for the beans is easier with 10 cm compared to 15cm.
The interaction effect tends to be insignificant, the significance of the main effects of hands depends on the distances. Under the distance of 10 cm, I can pick up beans much faster using right hand than using left hand, whereas under 15 cm there's less evidence.
Might implies that the left part of my brain is more developed compared to the right part.
More experiments are still needed → there are many limitations for the experiments and I've made many assumptions that might not be true.



THANK YOU