

# The Mirror Effect in SDT

Not another Recognition Memory study

PAPIIT IN307214

# One single problem...

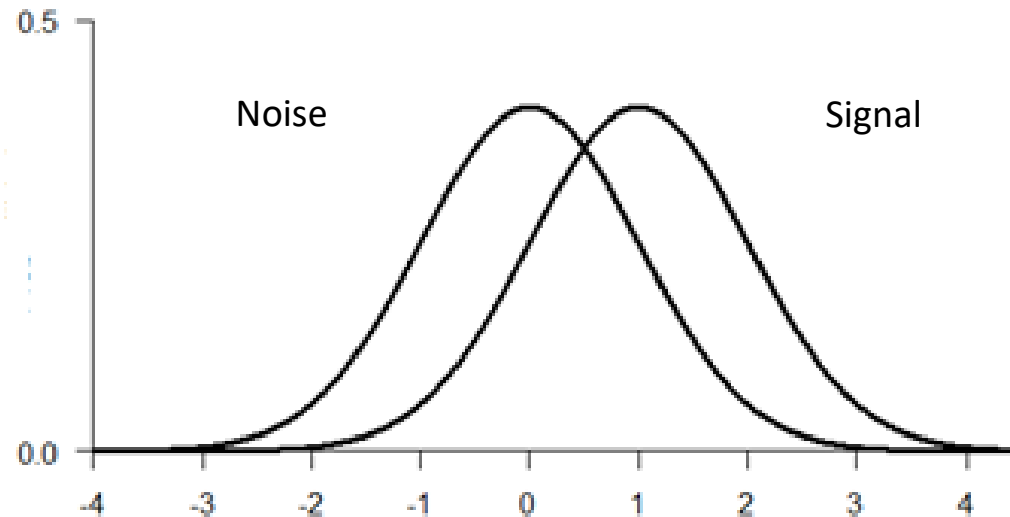
Is that the sound of a predator approaching?

Is this food edible?

Is my mom mad at me?

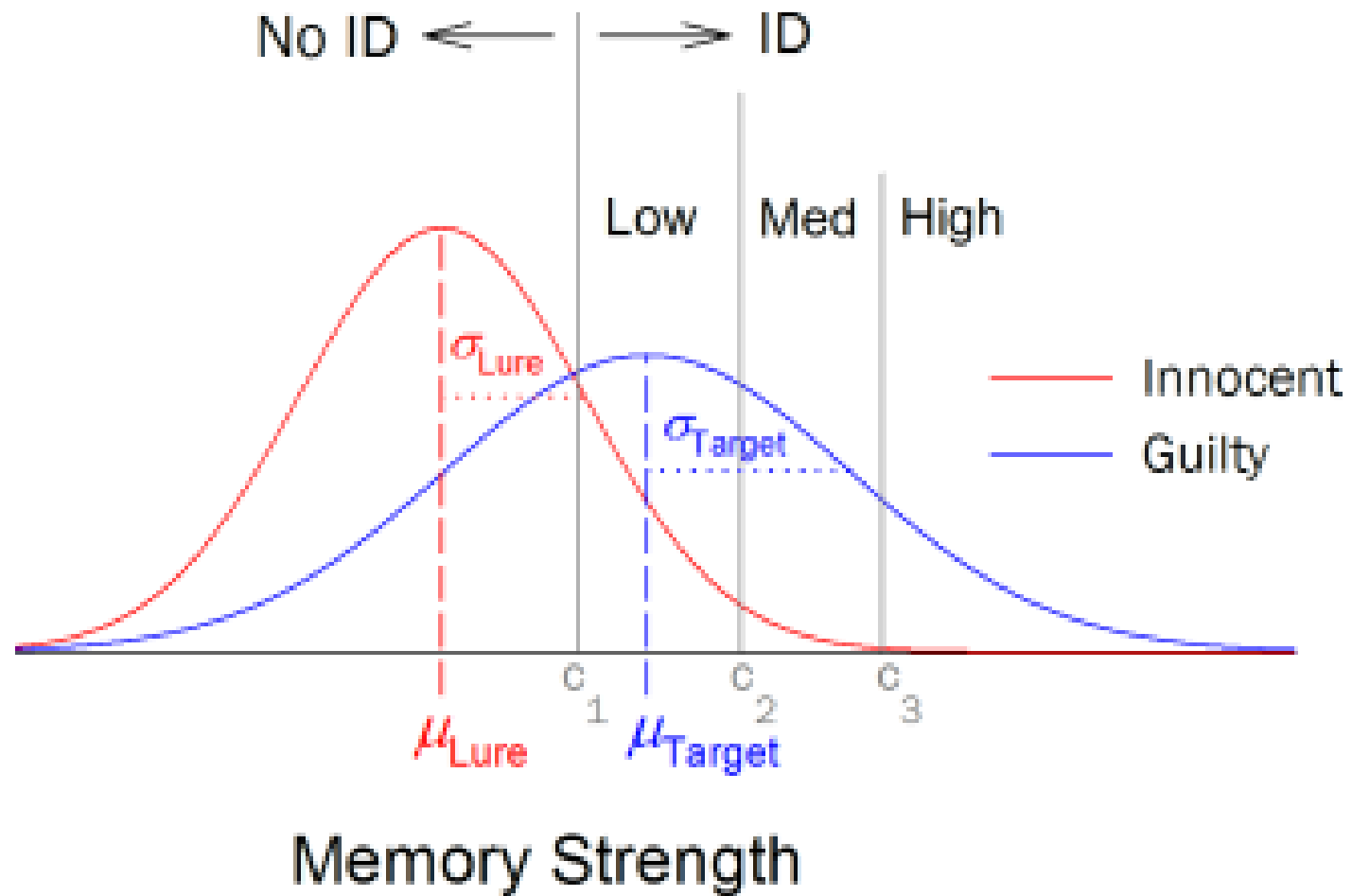
Is there a bomb in this bag?

**Is the target stimulus present?**



# The Reliability of Eyewitness Identifications from Police Lineups

Wixted, Miickes, Dunn, Clark & Wells, 2016



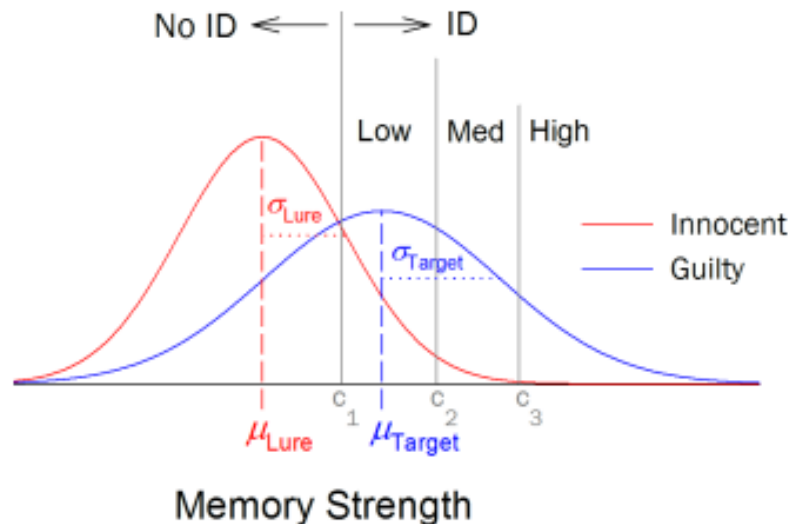
# Recognition Memory

## Study phase

- Incidental
- Intentional

## Recognition Task

Have I seen this stimulus before?



# Procedures

- 1. Yes | No Task
  - Have you seen this stimulus before?
- 2. Confidence Rating
  - How confident are you about your answer?

0	1	2	3	4	5
HIGH New	MEDIUM New	LOW New	LOW Old	MEDIUM Old	HIGH Old

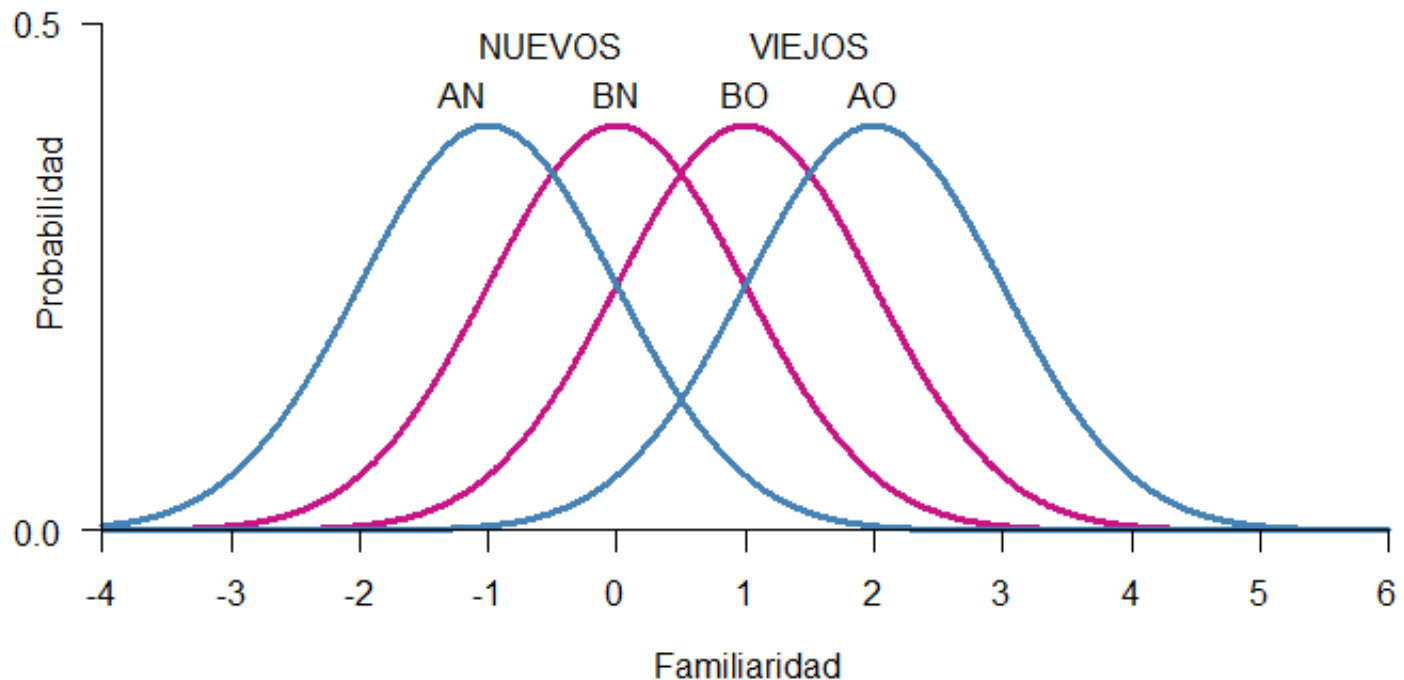
# Mirror Effect

- “If there are two classes of stimuli, and one is more accurately recognized than the other, then the superior class is **both** more accurately recognized **as old when old** and also more accurately recognized **as new when new** (...) means that the greater efficiency in recognizing is always twofold”

(Glanzer, Adams, 1990)

# Mirror Effect

- The greater efficiency in recognizing is always **twofold.**



# Evidence

Yes/No  
Procedure

$$fa(AN) < fa(BN) < h(BO) < h(AO),$$

Rate

Confidence  
Rating

$$R(AN) < R(BN) < R(BO) < R(AO),$$

Mean

$$P(BO, BN) < P(BO, AN), P(AO, BN) < P(AO, AN),$$

2AFC:

Preferences



# Multiplicity

“The experimenter can produce as many separate mirror orders within a single data set as wished. All that has to be done is to impose effective variables factorially on the presented material and have a sufficient number of items in the study list.”

# Extensiveness

“When two variables are used in a single experiment (...) produce an array of eight underlying distributions in mirror order”.

- The Mirror Effect has only been studied within Recognition Memory.
  - Can we find the Mirror Effect in other areas where SDT has been applied?

# Experiments

# Instrucciones

En la pantalla se te mostraran dos círculos en color claro cuyo tamaño deberás comparar. El círculo del lado izquierdo permanecerá aislado, como referencia. El círculo del lado derecho aparecerá rodeado de un conjunto de círculos de distinto tamaño

Presiona la **Tecla S** cuando los círculos claros SÍ sean del mismo tamaño.

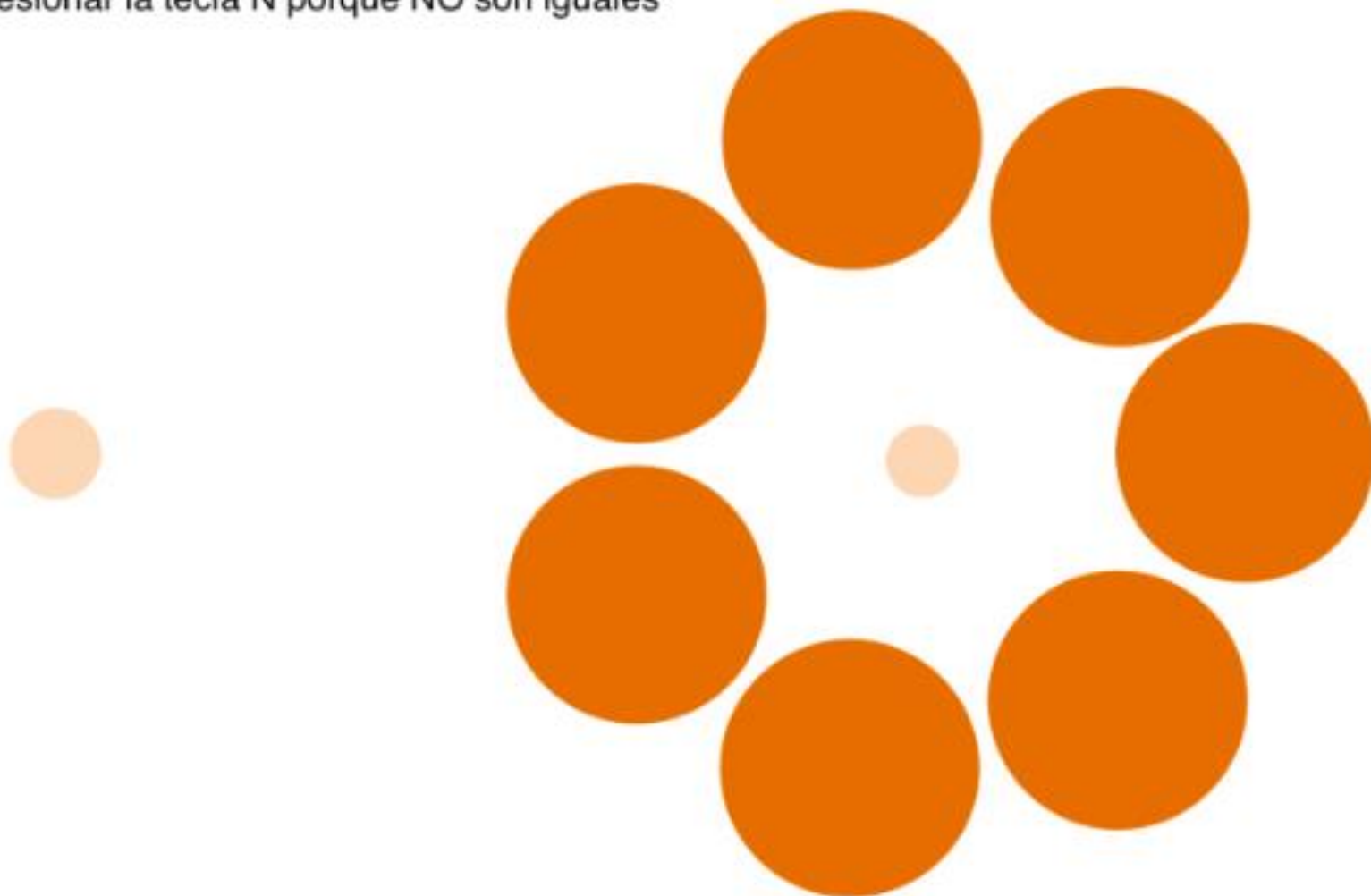
Presiona la **Tecla N** si NO son iguales.

*Presiona la barra espaciadora para continuar.*

Por ejemplo:

En este caso el círculo claro de la figura derecha (el círculo central) es mas chico que el círculo aislado del lado izquierdo.

Deberias presionar la tecla N porque NO son iguales



Presiona N

Posteriormente, se te presentara una escala como la siguiente:

1	2	3
<b>Poco</b> seguro (a)	<b>Más o menos</b> seguro (a)	<b>Muy</b> seguro (a)

Deberas teclear el numero 1, 2 o el 3, dependiendo de que tan seguro estas de tu respuesta.

Presiona la barra espaciadora para continuar

Cada pareja a comparar se te mostrará solo por un segundo.

No avanzarás al siguiente ensayo hasta que registres tus respuesta.

Una vez se registren tus respuestas, se te pedirá que indiques con la barra espaciadora cuando estés listo(a) para avanzar al siguiente ensayo.

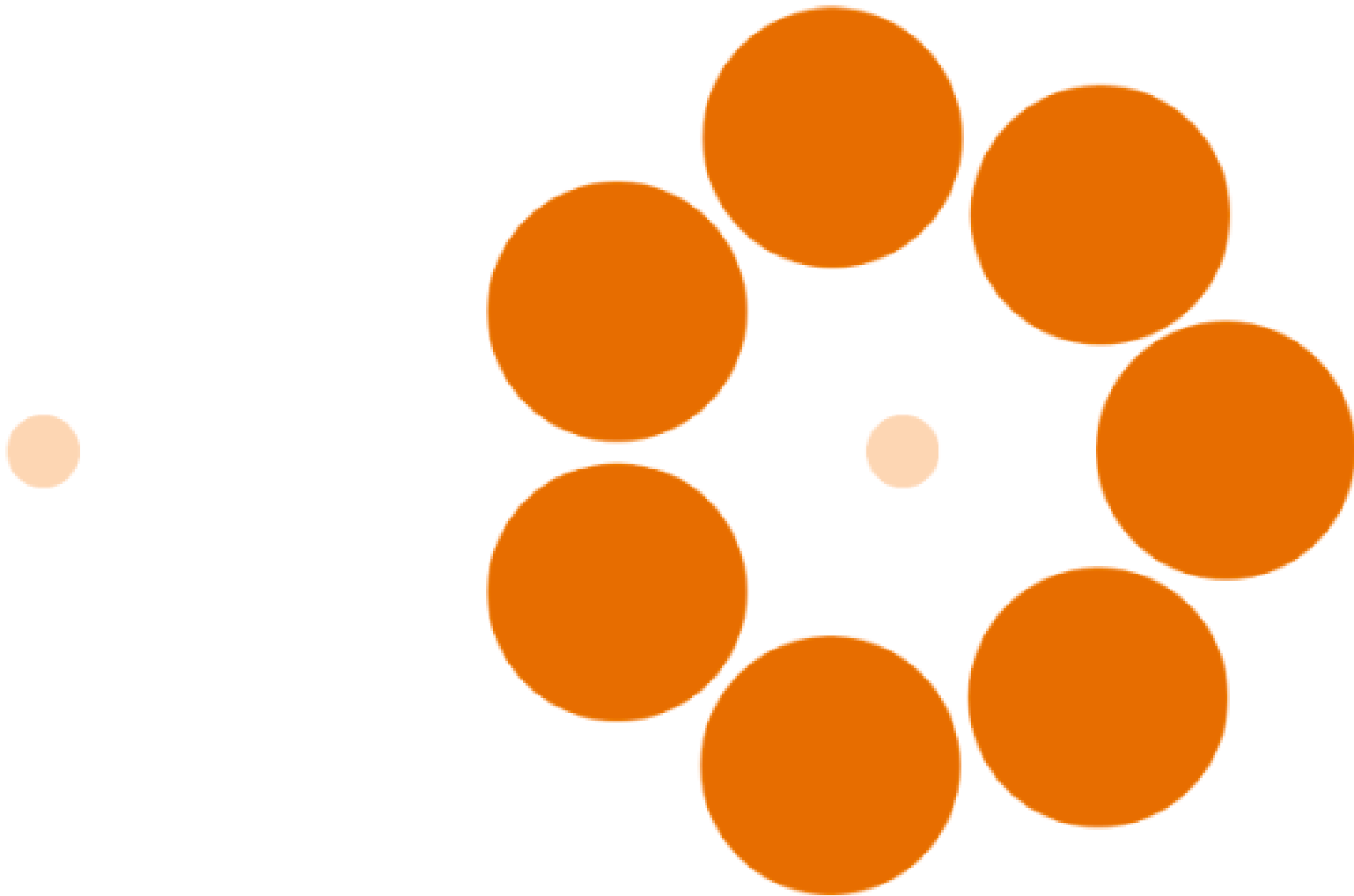
Los estímulos se te presentaran en varios colores para facilitar la distinción entre ensayos. Los colores **no están correlacionados** de ninguna forma con nada.

*Presiona la barra espaciadora para continuar.*

Presiona la barra espaciadora para comenzar el experimento



¿Los círculos centrales son del mismo tamaño?



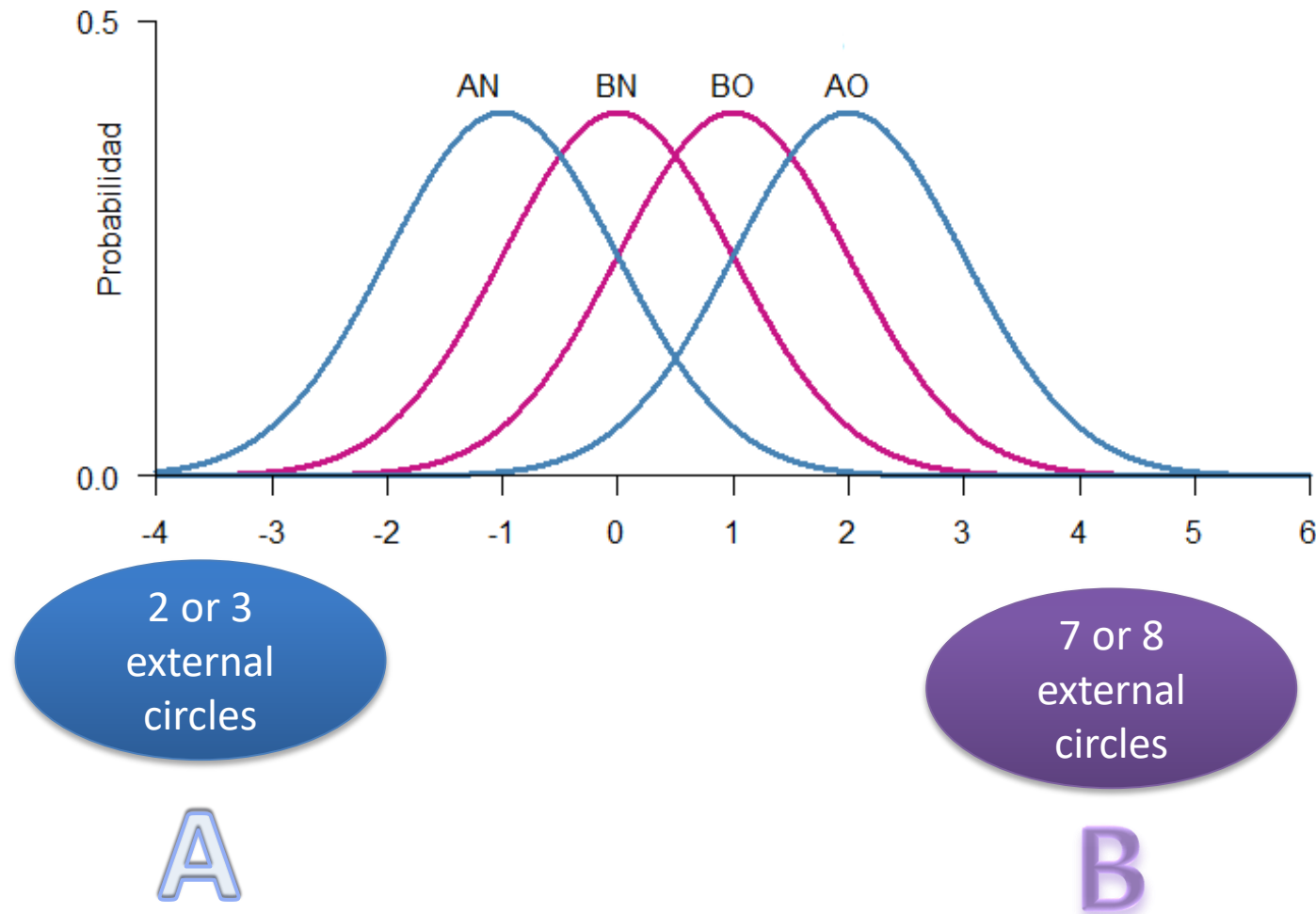
S = Si

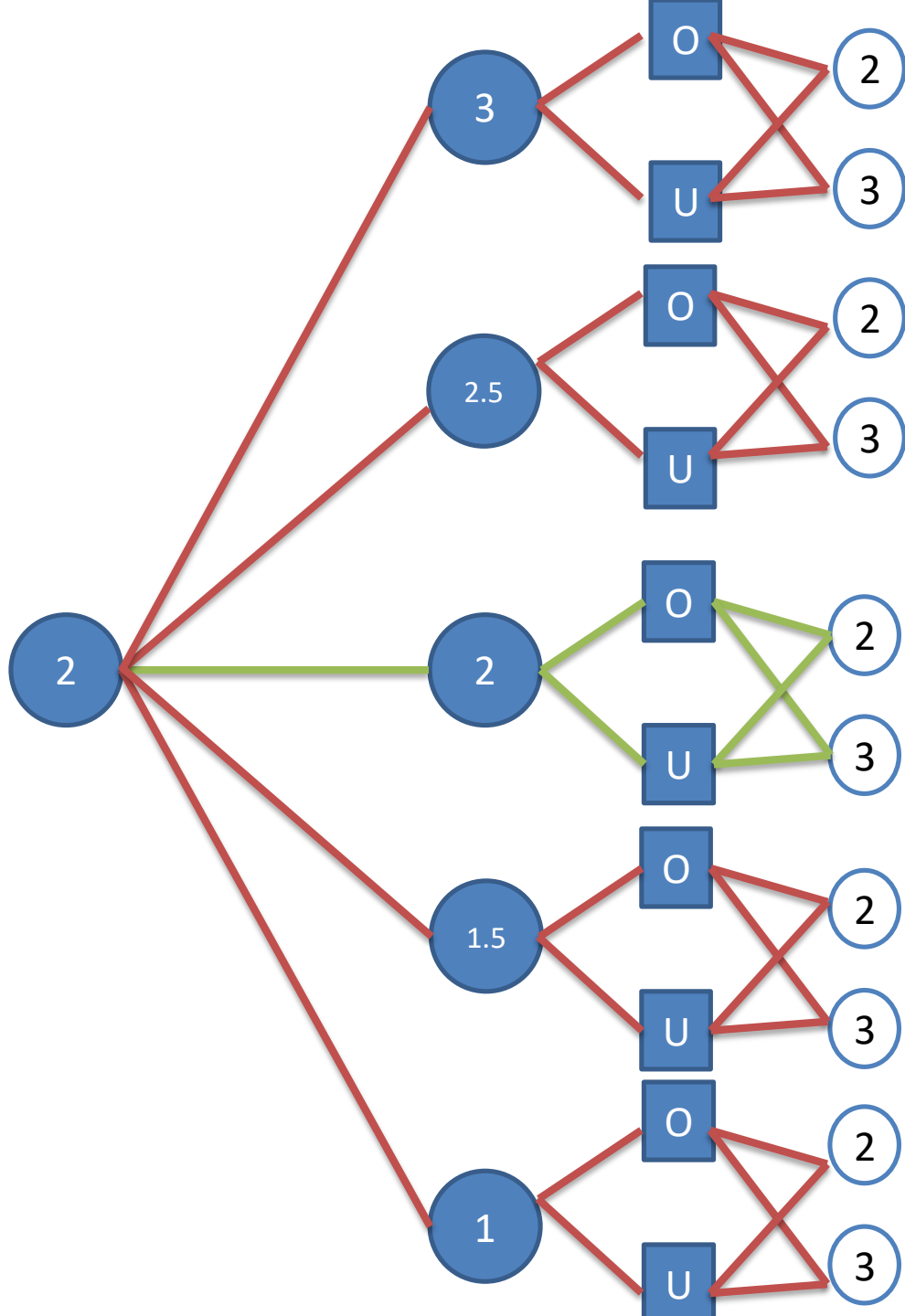
N = No

¿Qué tan seguro estás de tu respuesta?

1	2	3
<b>Poco</b> seguro (a)	<b>Más o menos</b> seguro (a)	<b>Muy</b> seguro (a)

# Looking for the Mirror Effect: A & B





## **A: Fewer External Circles**

- 16 pairs (signal)
- 16 pairs (noise)
- 32 trials

## **B: More external circles**

- 16 pairs (signal)
- 16 pairs (noise)
- 32 trials

64 trials

- x10
  - 5 different colors
    - 2 per color
    - Counterbalancing

- 320 type A trials

- 320 type B trials

# Two Experiments

## **Experiment 1: Just one Ebbinghaus Illusion**

- 160 AS
- 160 AN
- 160 BS
- 160 BN
  
- Same procedure

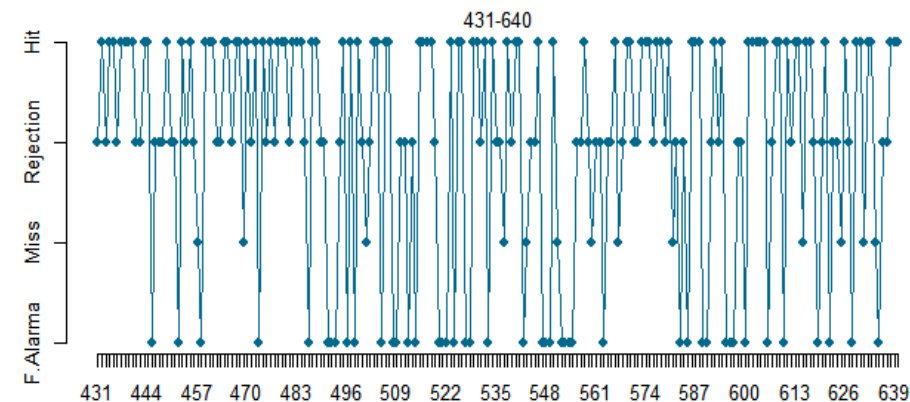
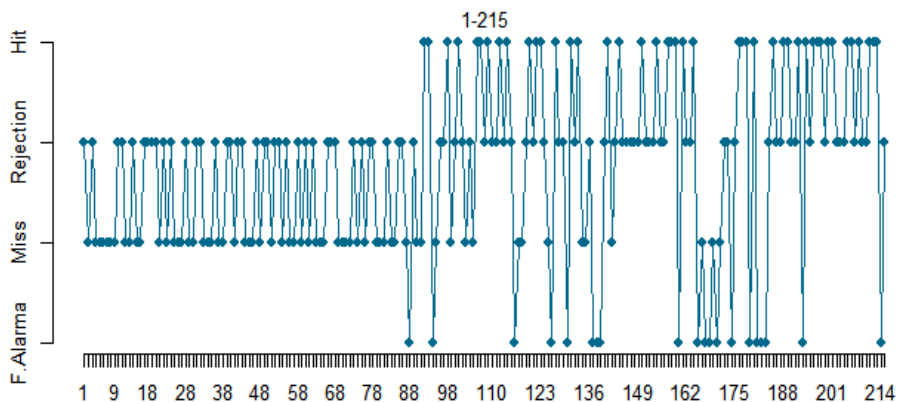
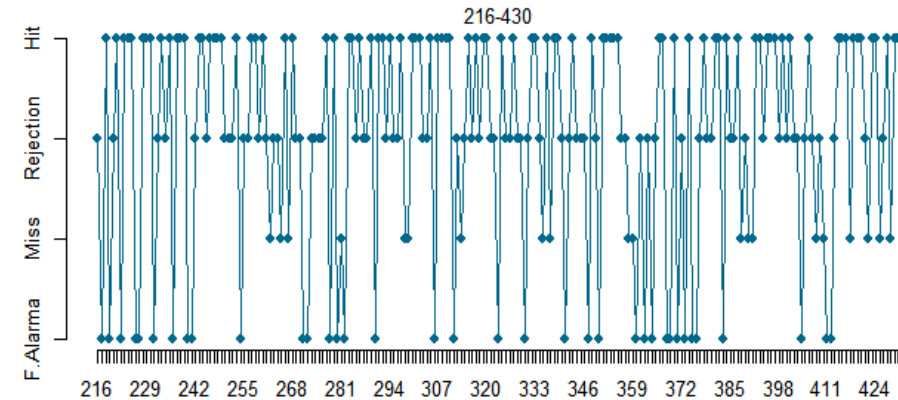
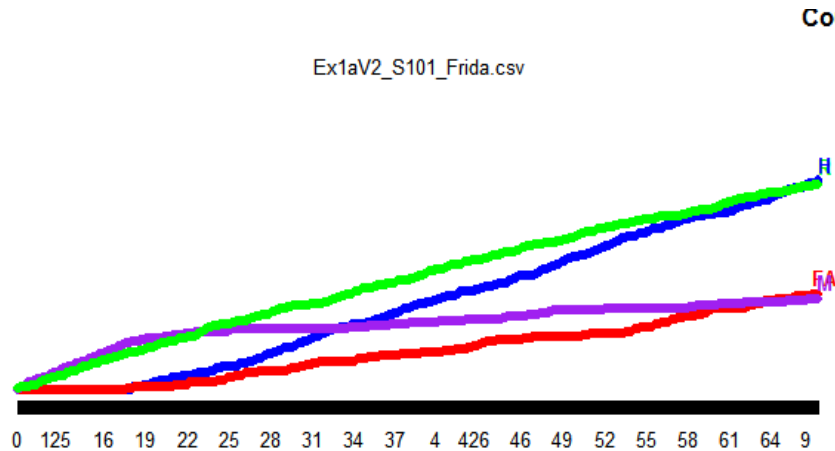
## **Experiment 2: Two Ebbinghaus Illusions**

- 160 AS
- 160 AN
- 160 BS
- 160 BN
  
- Same procedure

# **Data!**

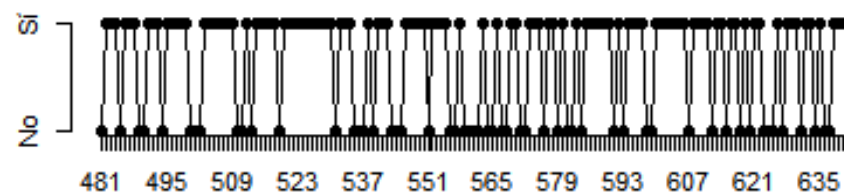
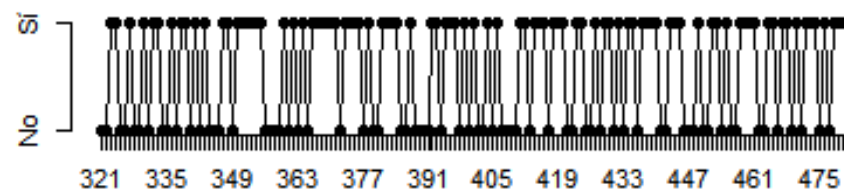
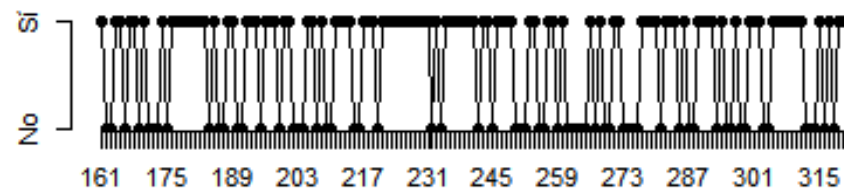
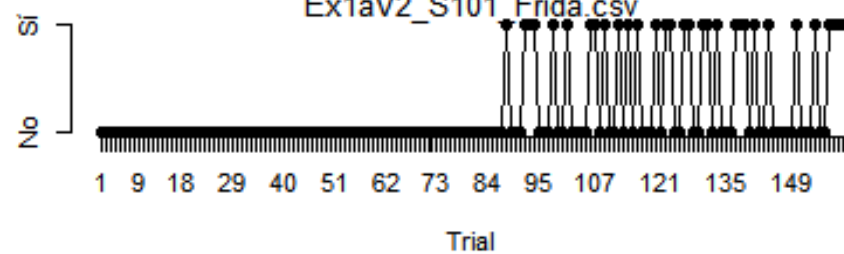
Individual cases

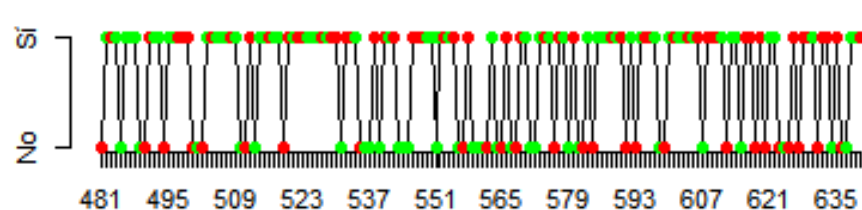
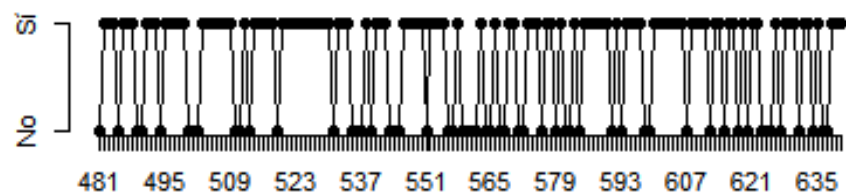
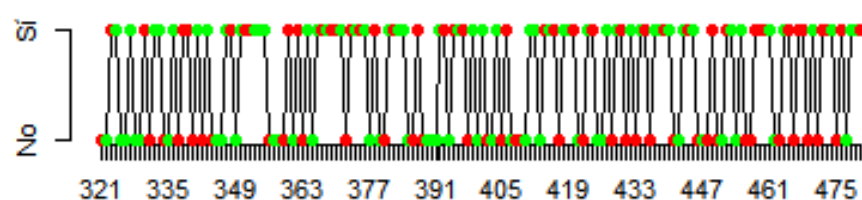
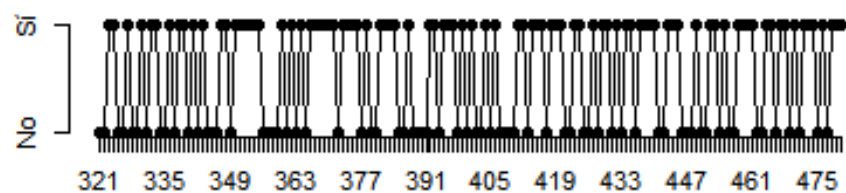
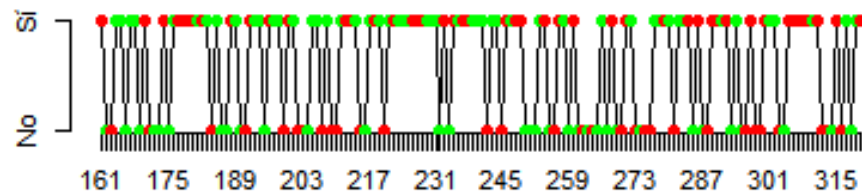
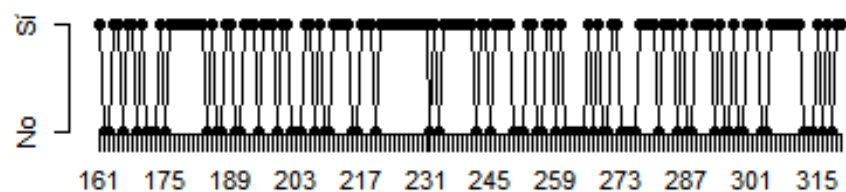
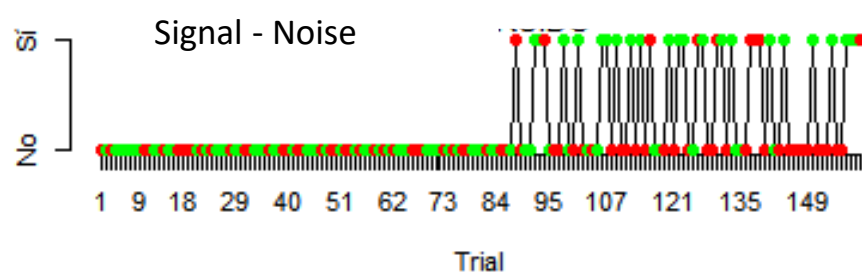
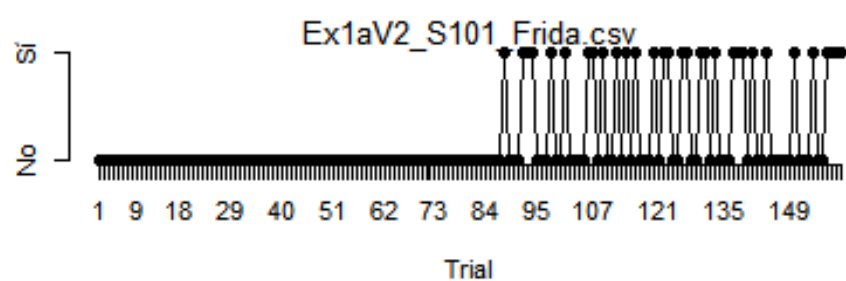
# 1st: Did our participants pay attention to the task?

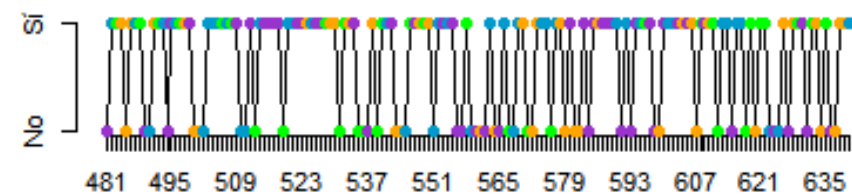
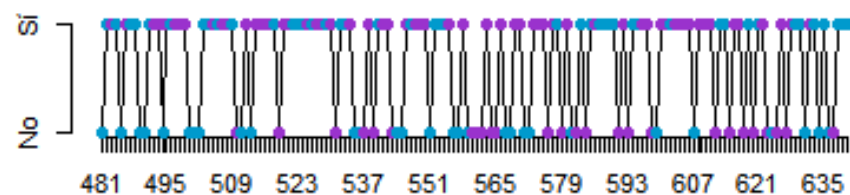
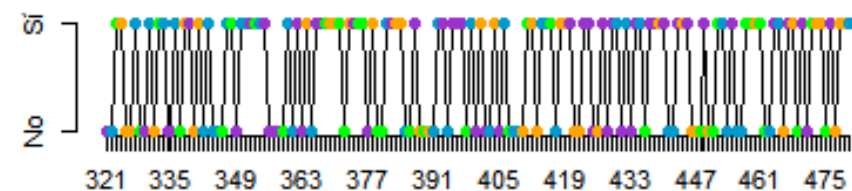
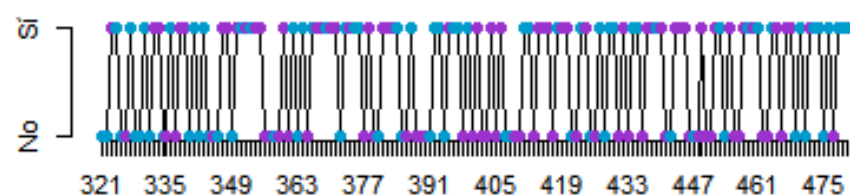
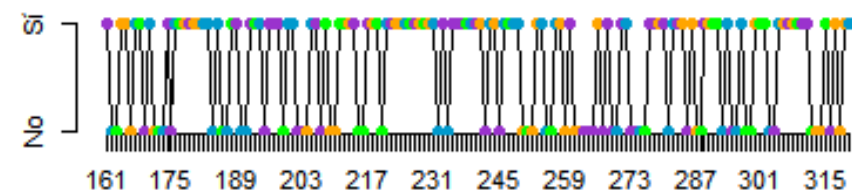
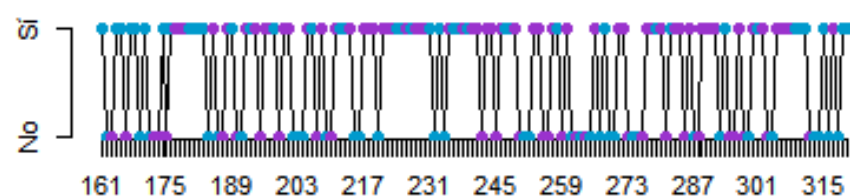
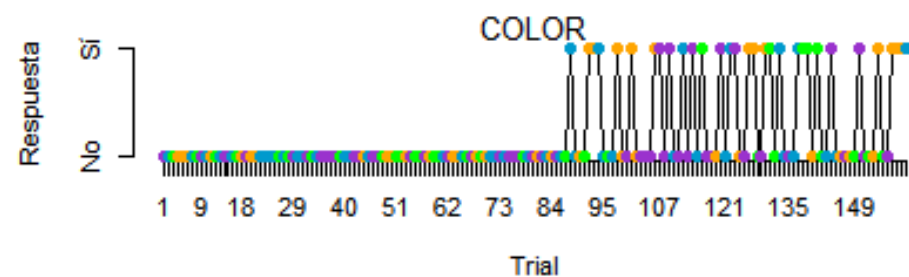
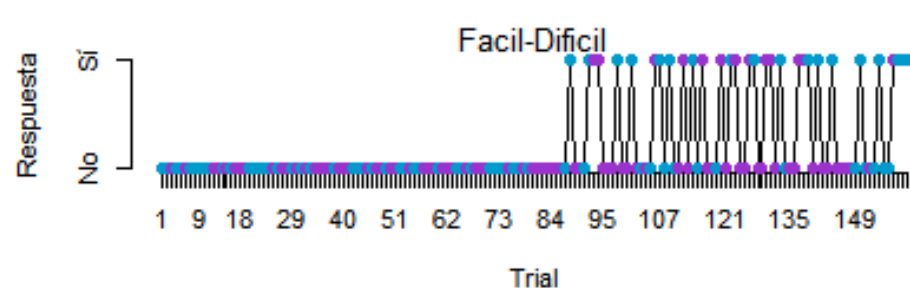




Ex1aV2\_S101\_Frida.csv



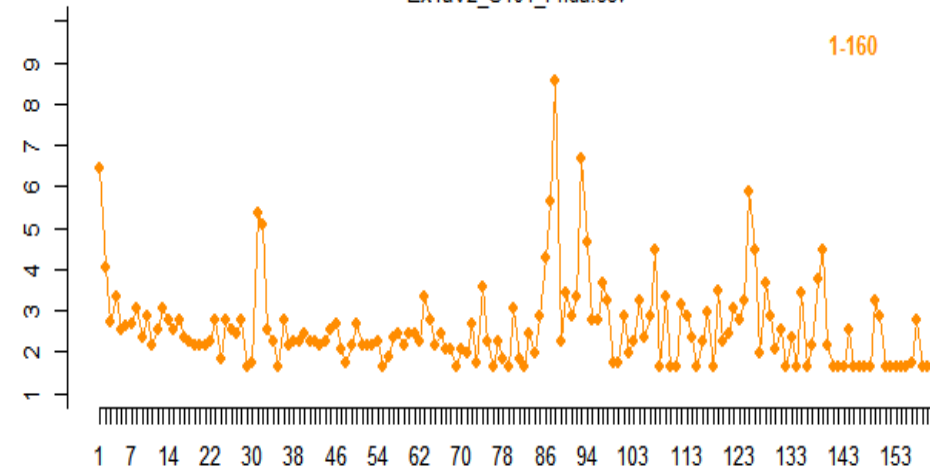




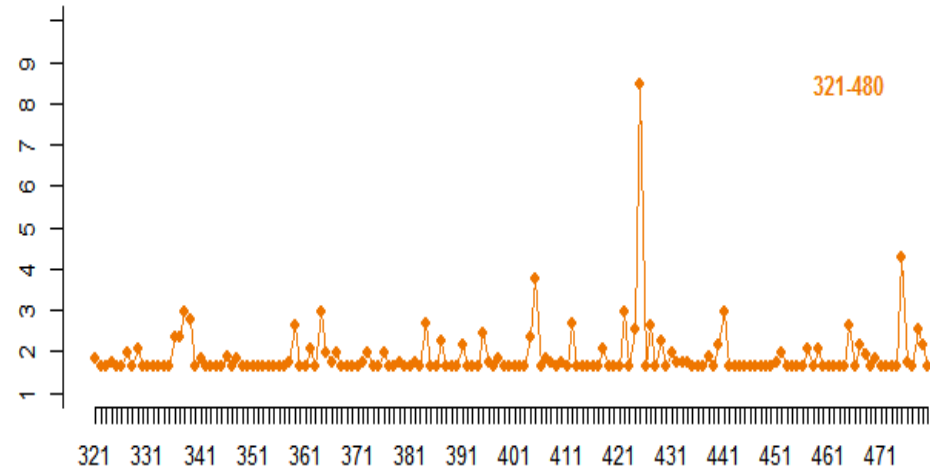
## Tiempo de Respuesta al Estimulo

Ex1aV2\_S101\_Frida.csv

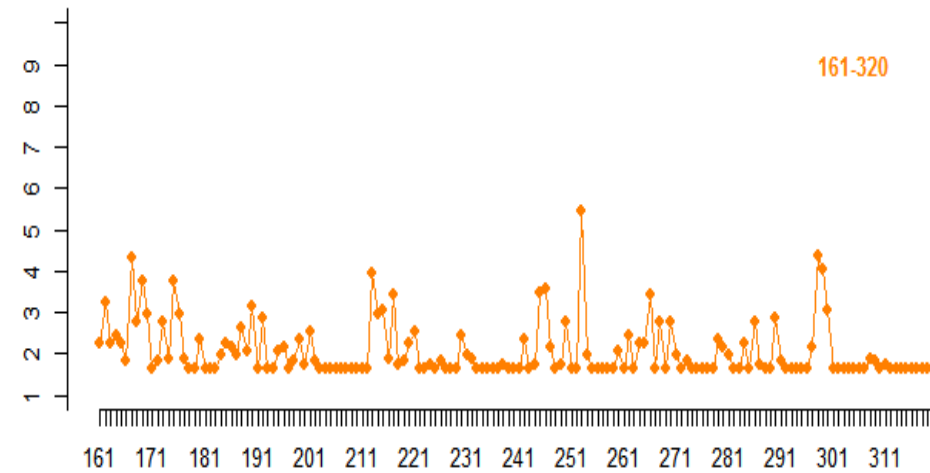
1-160



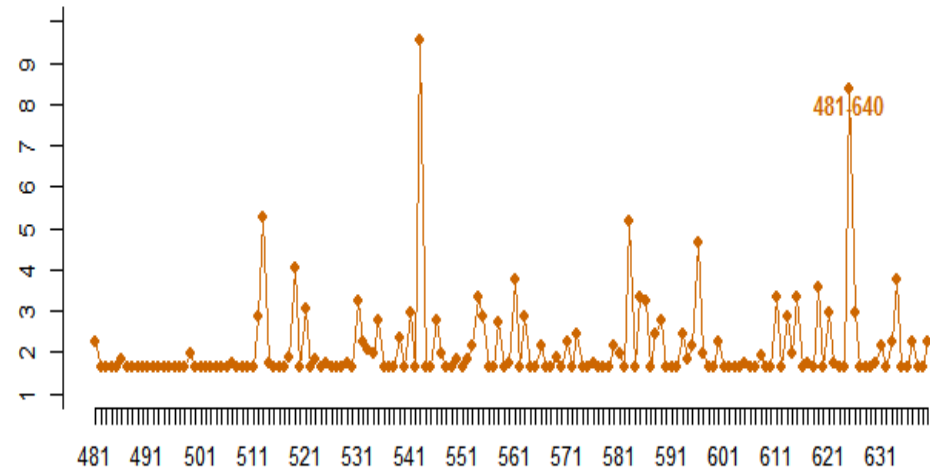
321-480



161-320



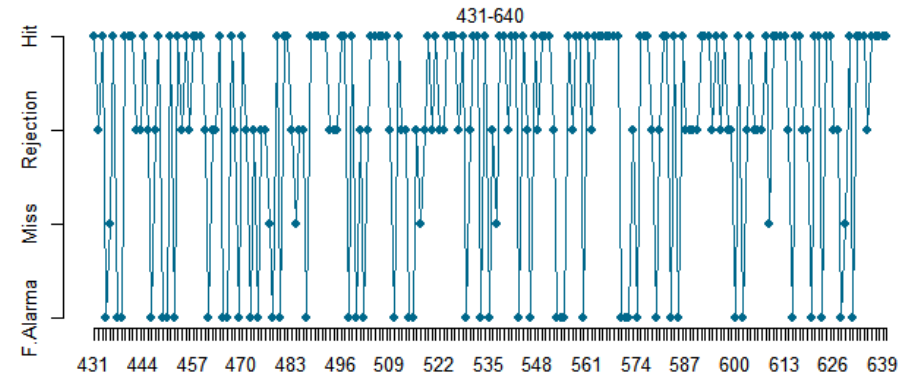
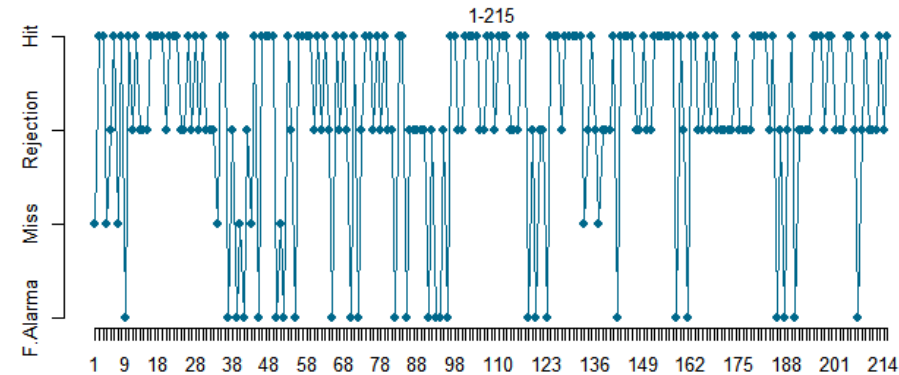
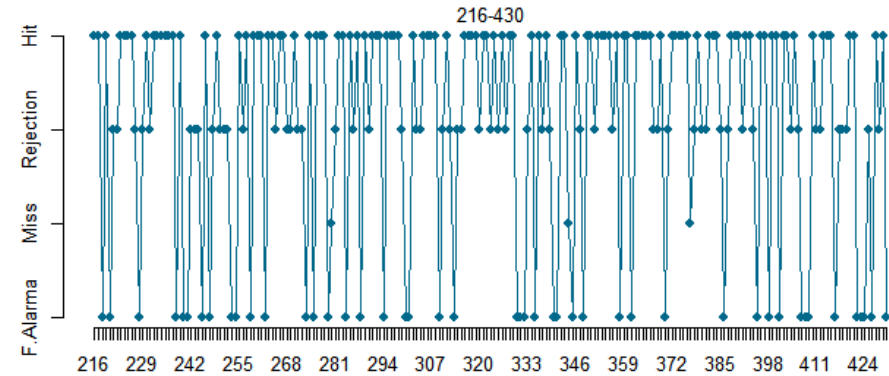
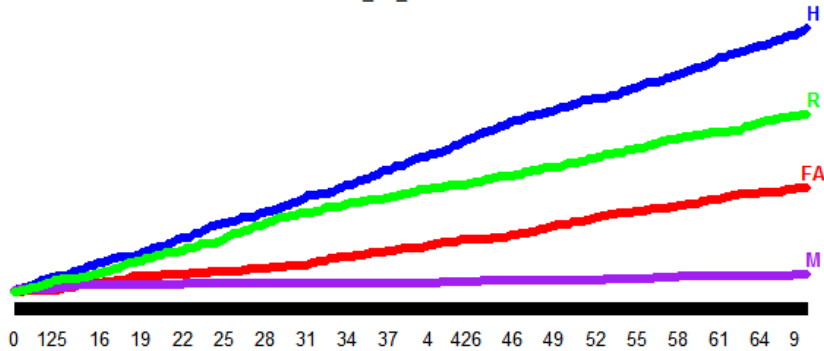
481-640



# 2nd: Exploring sequential effects

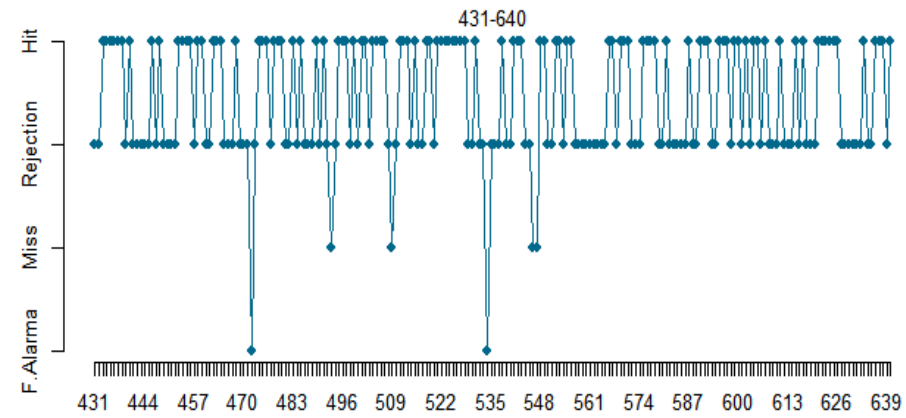
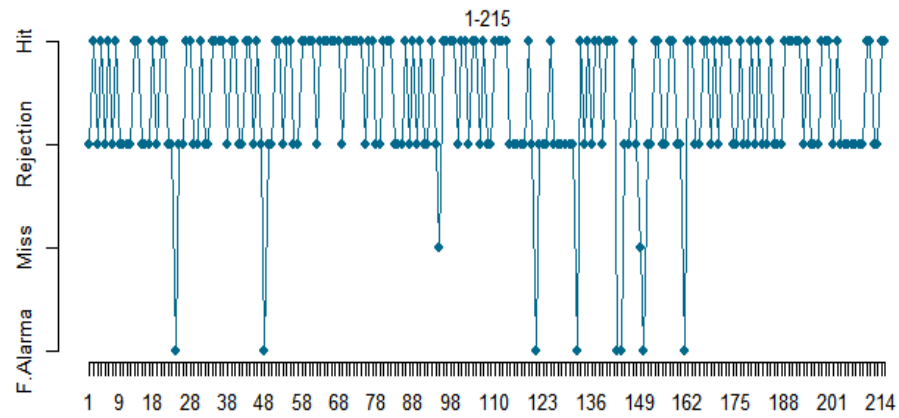
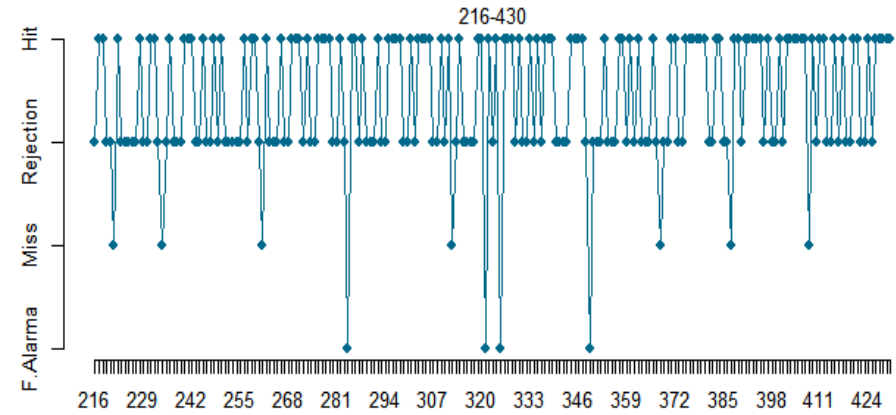
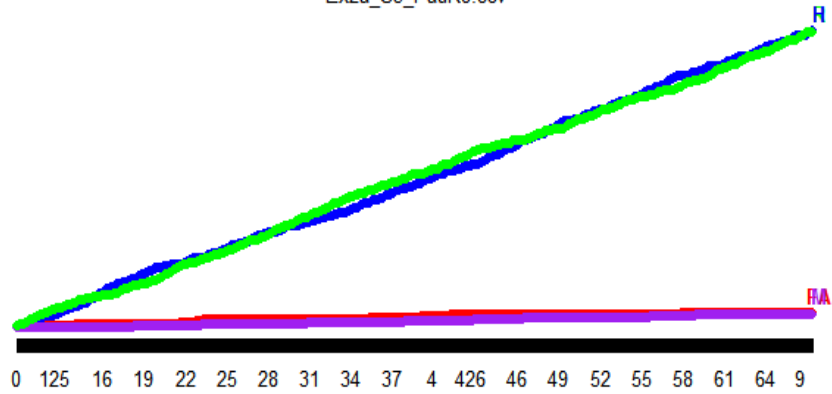
Contadores por ensayo

Ex2a\_S5\_DanFer.csv



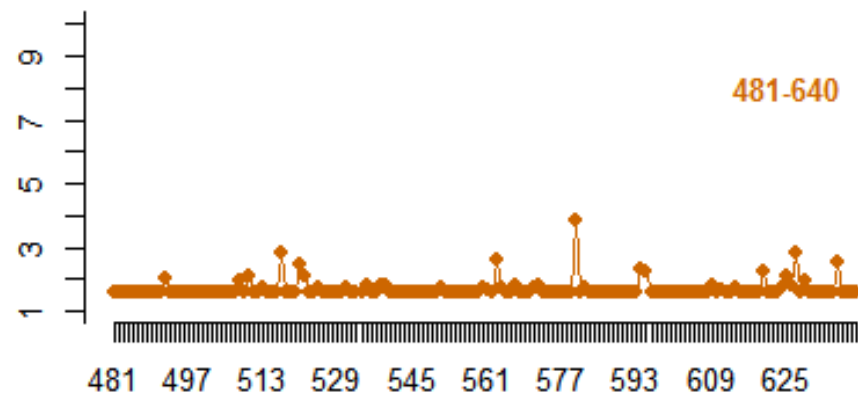
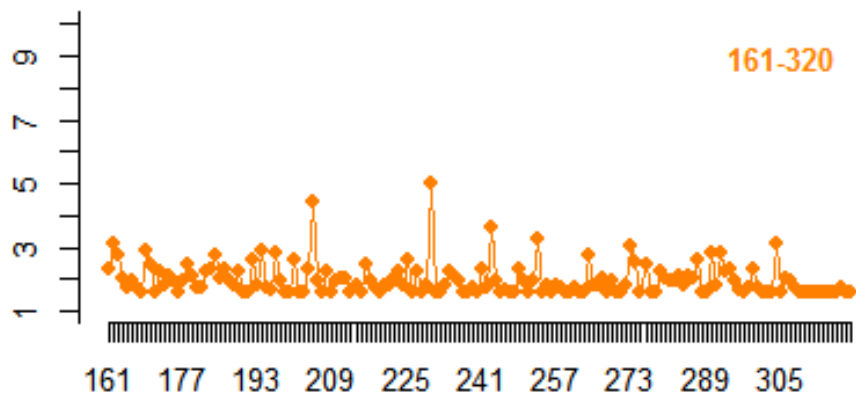
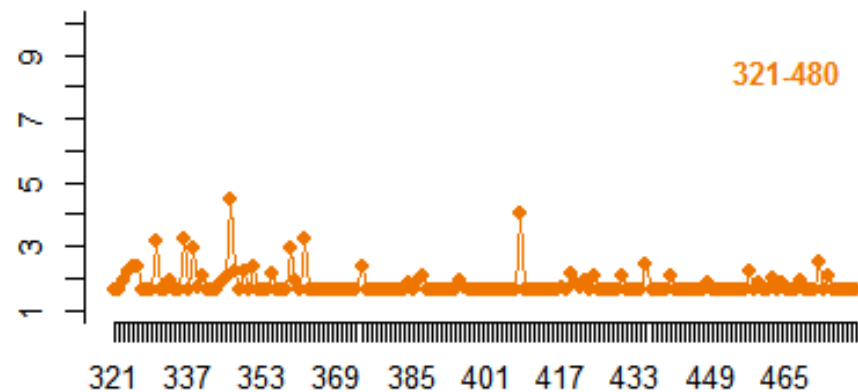
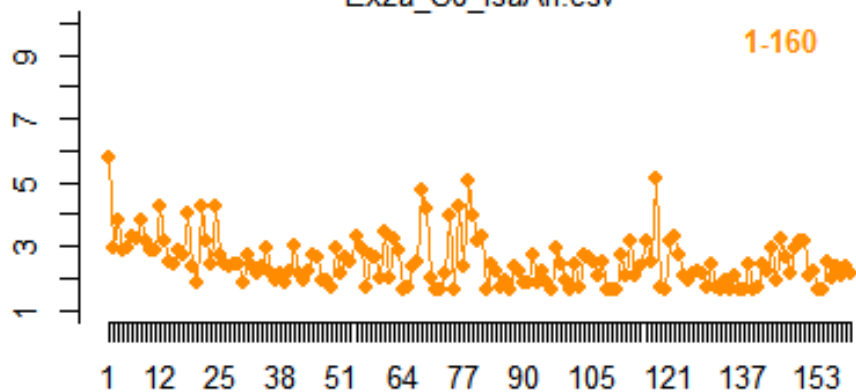
# Contadores por ensayo

Ex2a\_S3\_PauRo.csv



## Response Time to the Stimulus

Ex2a\_S8\_IsaAn.csv



## Response Time to the scale

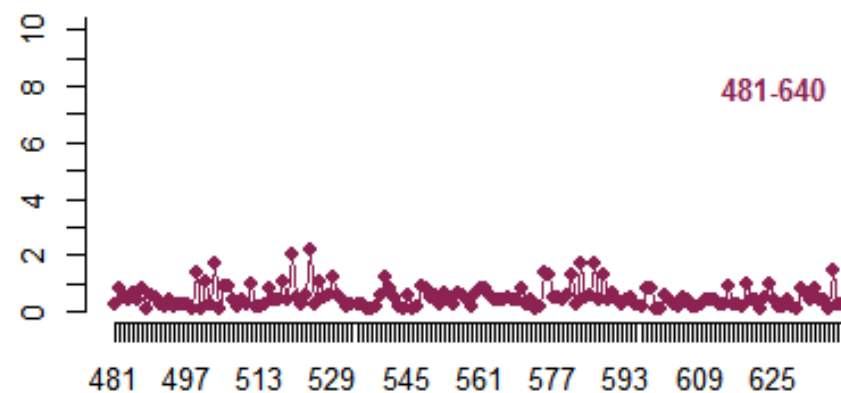
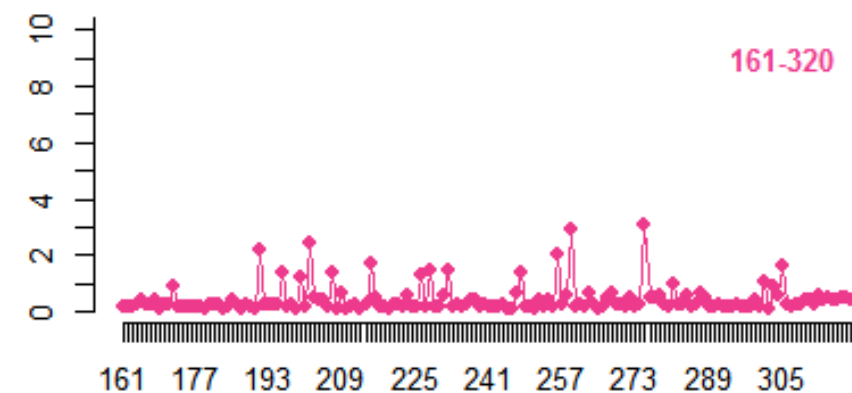
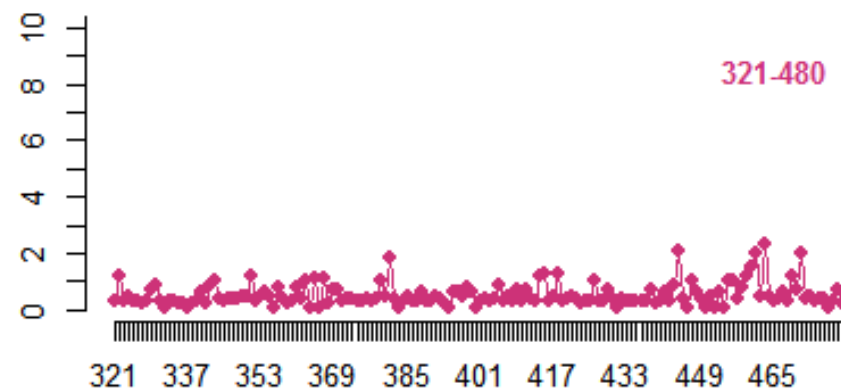
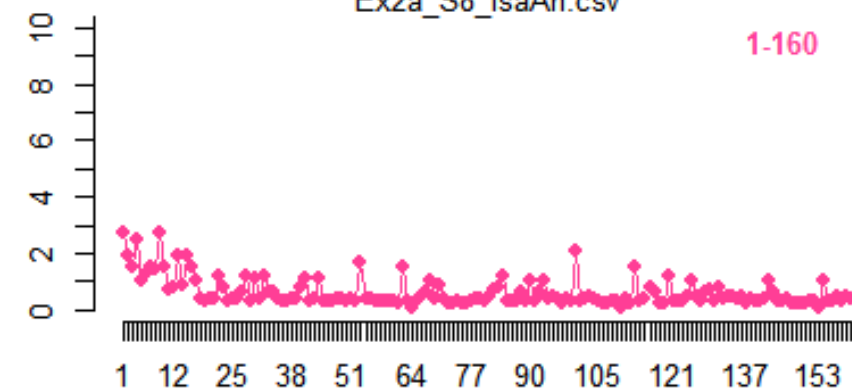
Ex2a\_S8\_IsaAn.csv

1-160

321-480

161-320

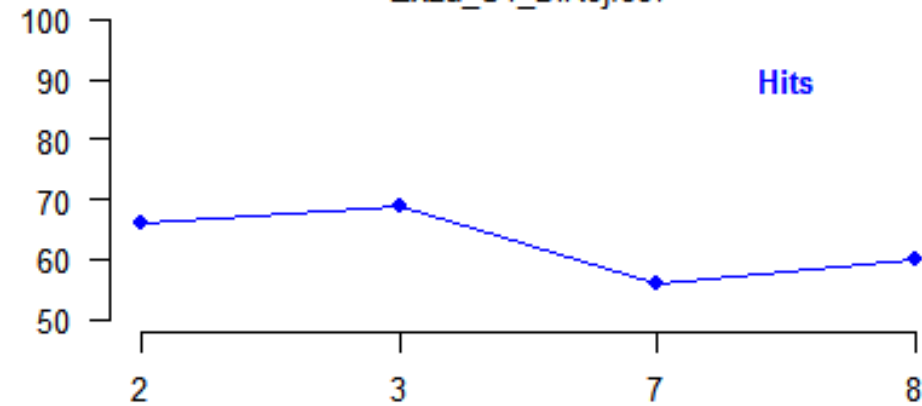
481-640



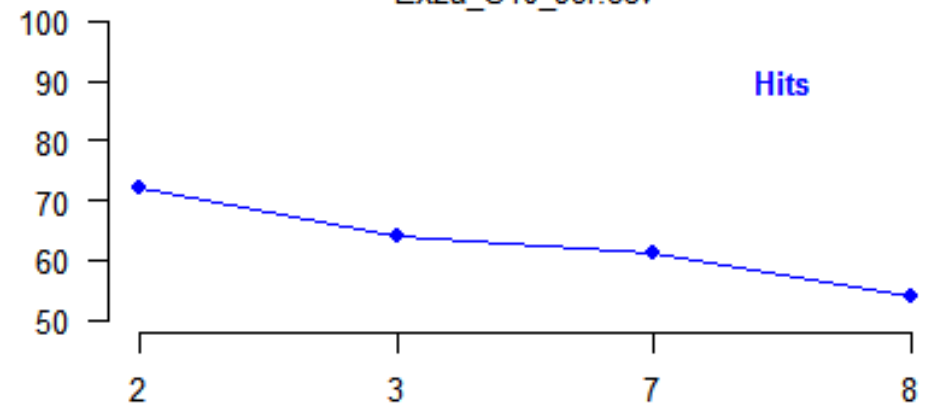


# 3rd: Exploring Correlations!

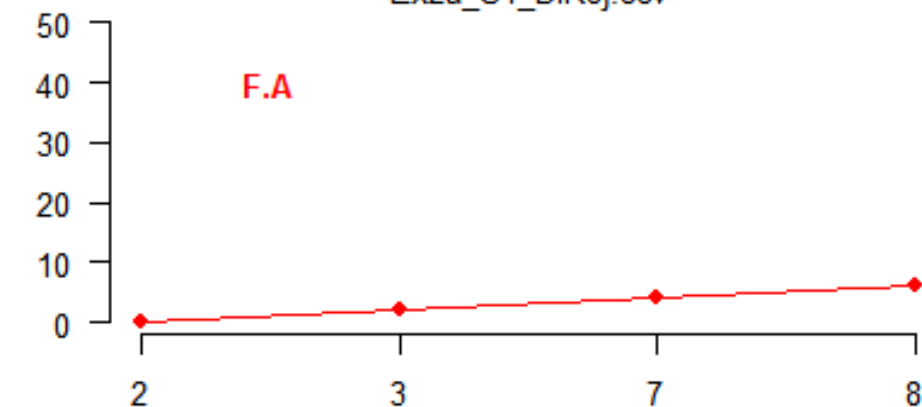
Ex2a\_S4\_DiRoj.csv



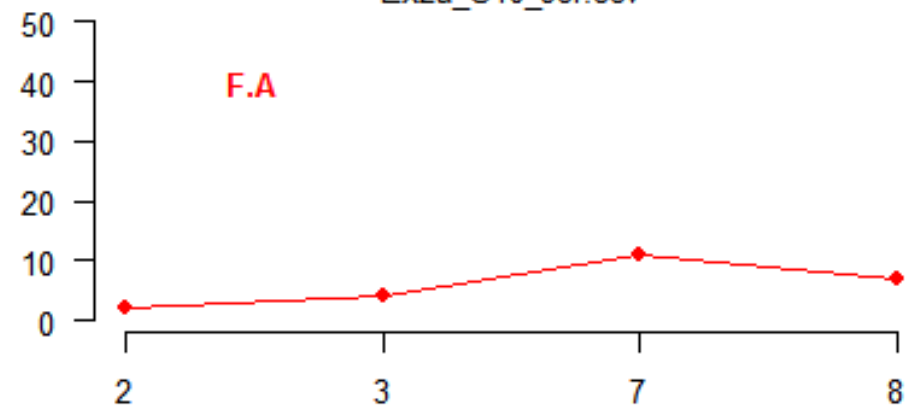
Ex2a\_S10\_Jor.csv

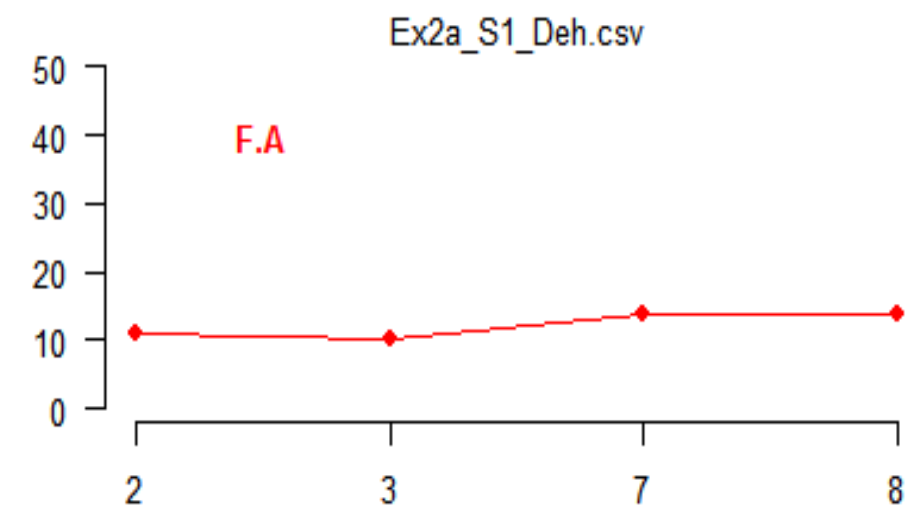
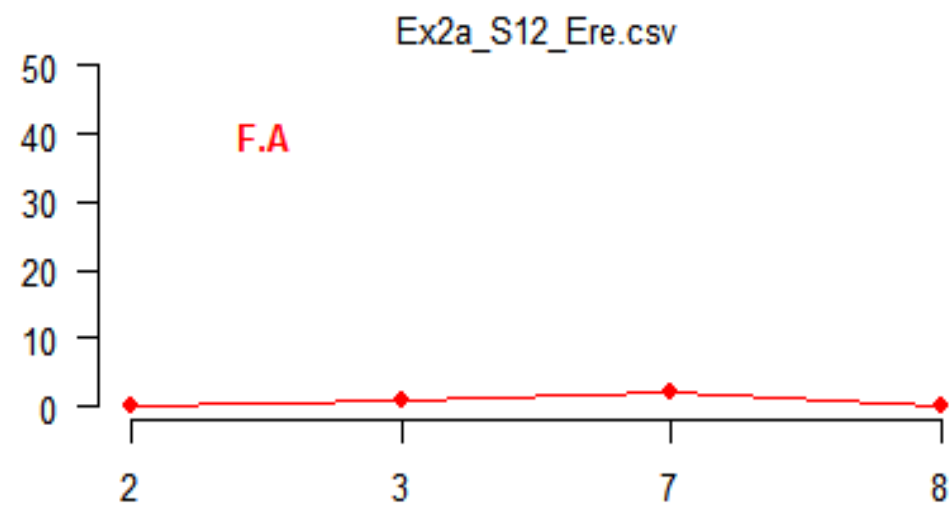
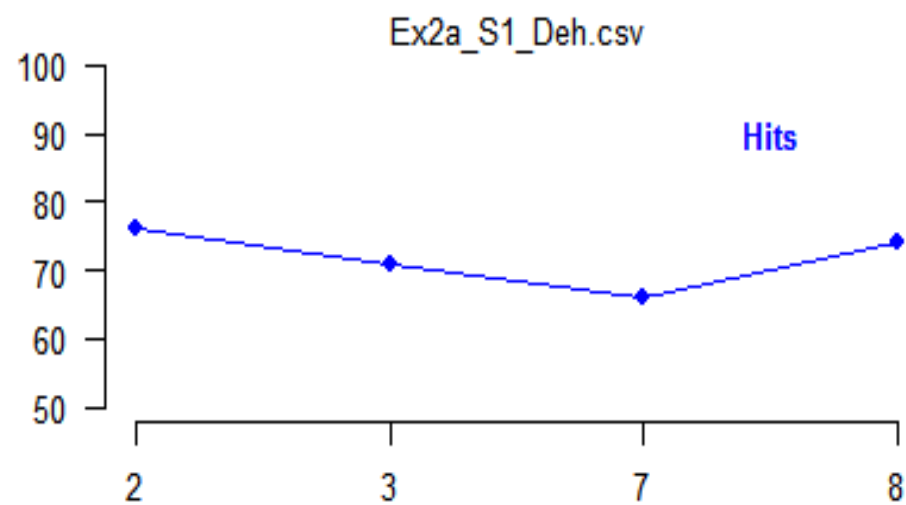
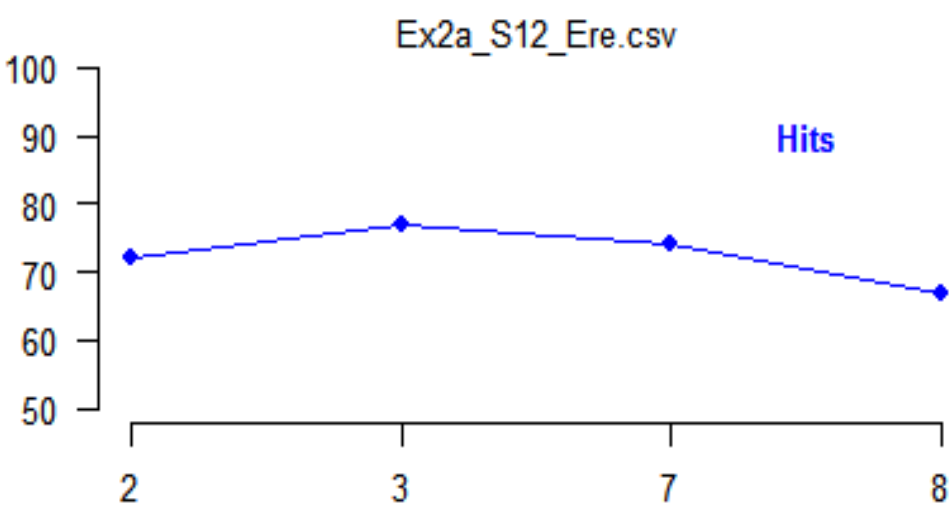


Ex2a\_S4\_DiRoj.csv

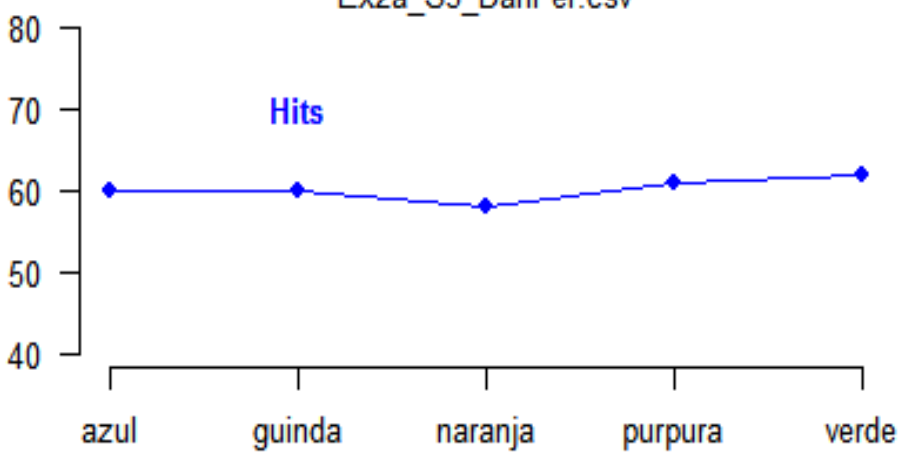


Ex2a\_S10\_Jor.csv

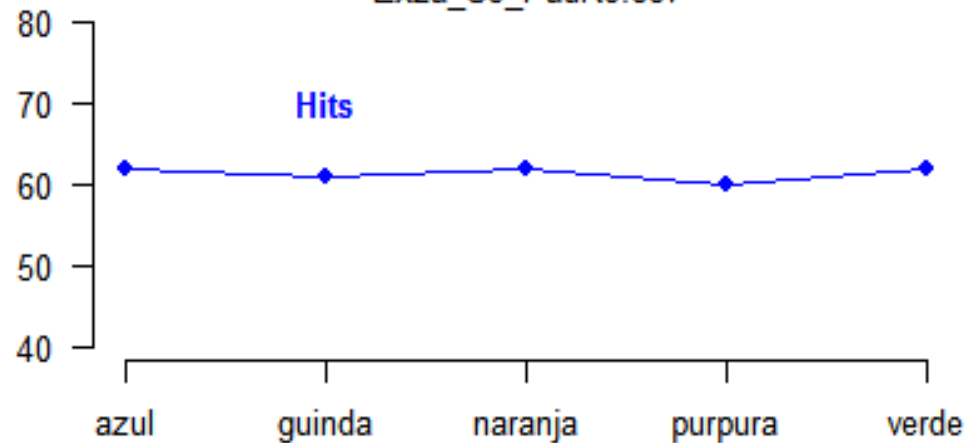




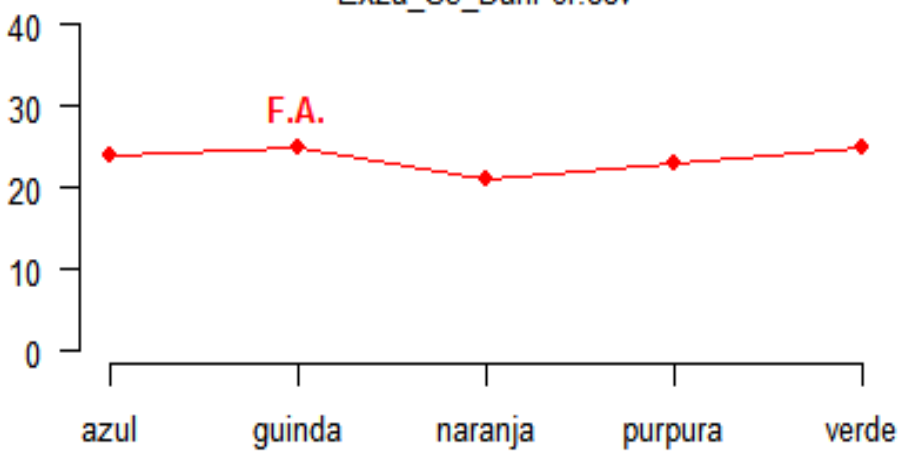
Ex2a\_S5\_DanFer.csv



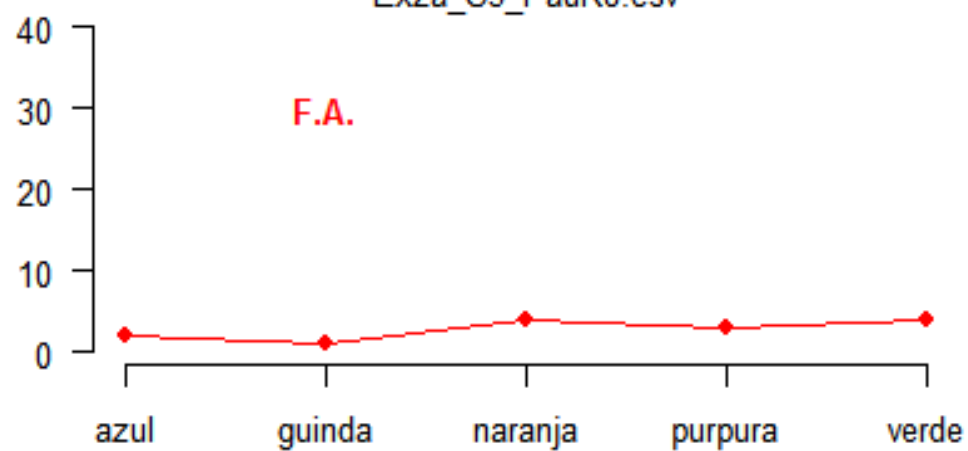
Ex2a\_S3\_PauRo.csv



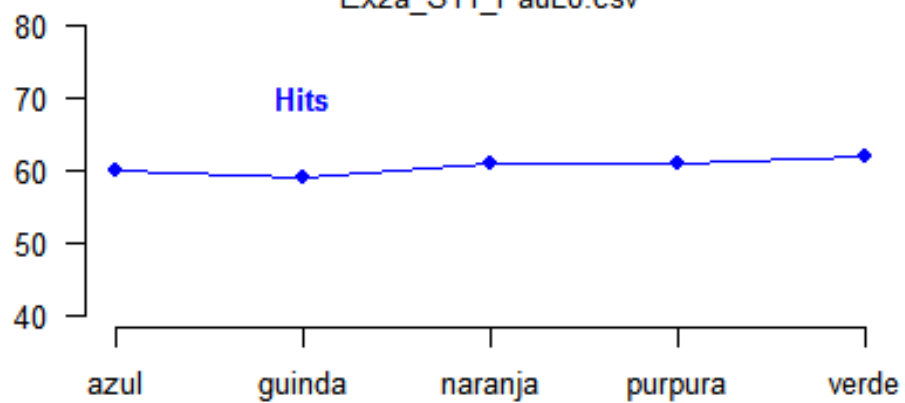
Ex2a\_S5\_DanFer.csv



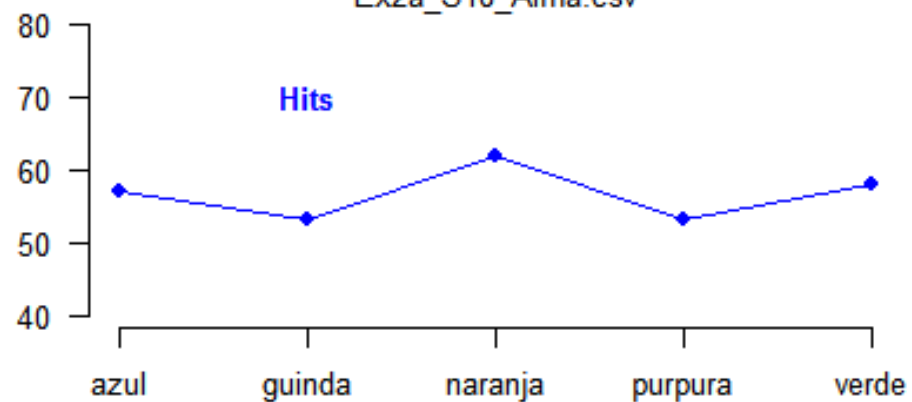
Ex2a\_S3\_PauRo.csv



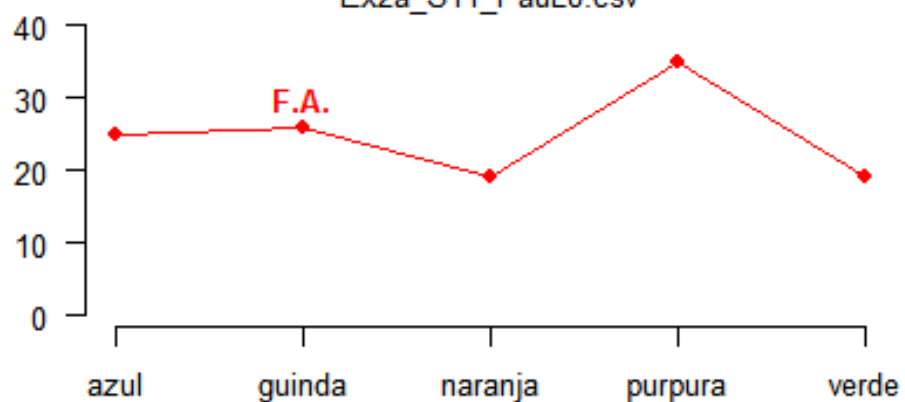
Ex2a\_S11\_PauLo.csv



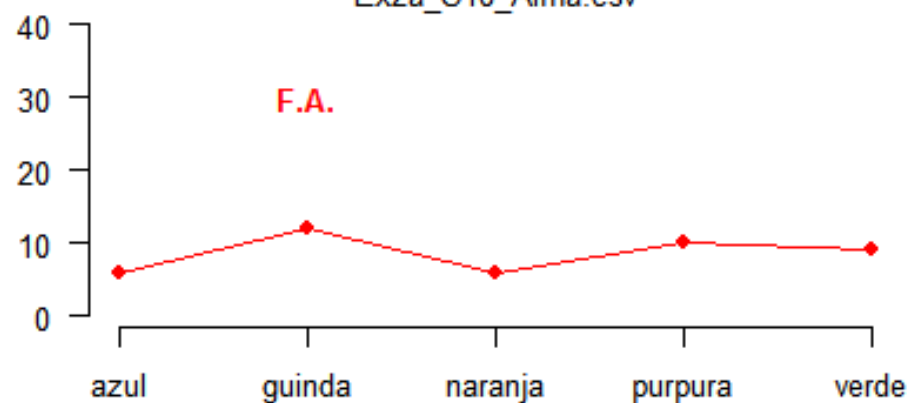
Ex2a\_S18\_Alma.csv



Ex2a\_S11\_PauLo.csv



Ex2a\_S18\_Alma.csv



# 4th: Evaluating the pattern

Yes/No Task

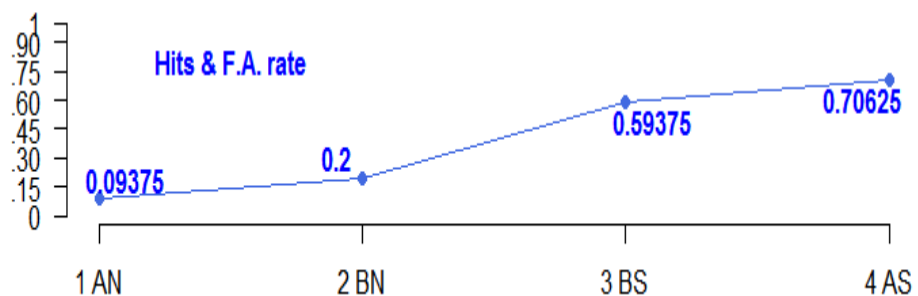
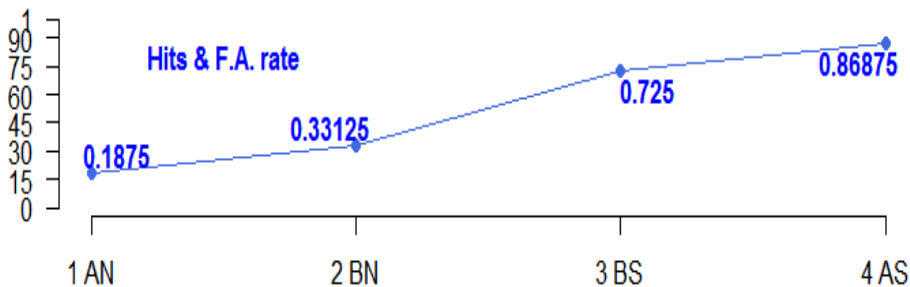
Ex2a\_S8\_IsaAn.csv

No.	30	53	116	139
Rate	0.1875	0.33125	0.725	0.86875
	AN	BN	BS	AS

Yes/No Task

Ex2a\_S17\_Oks.csv

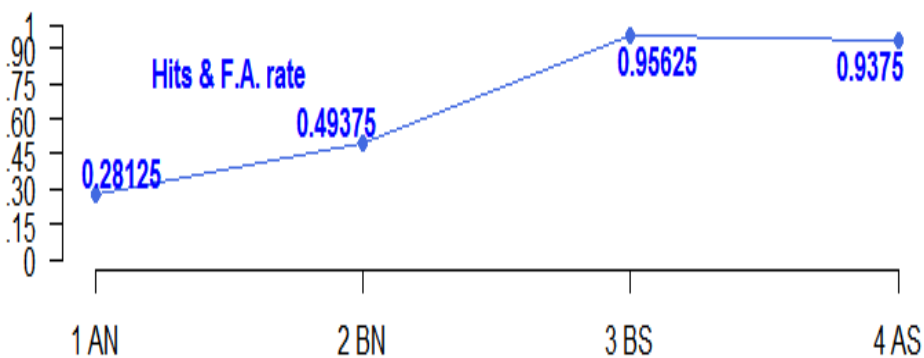
No.	15	32	95	113
Rate	0.09375	0.2	0.59375	0.70625
	AN	BN	BS	AS



## Yes/No Task

Ex2a\_S11\_PauLo.csv

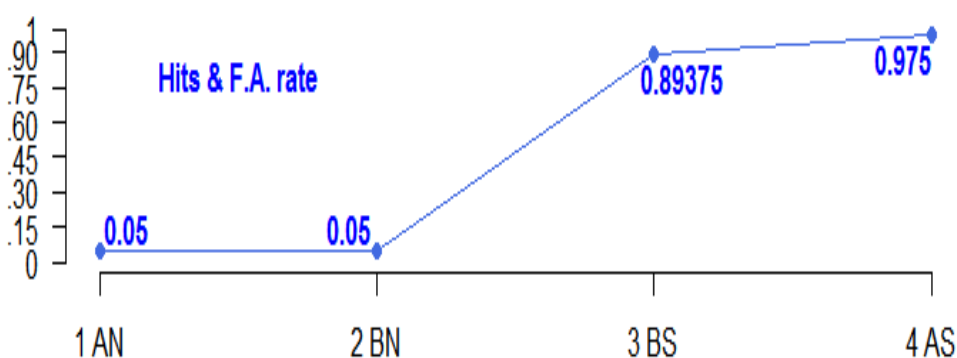
No.	45	79	153	150
Rate	0.28125	0.49375	0.95625	0.9375
	AN	BN	BS	AS



## Yes/No Task

Ex2a\_S14\_Jacq.csv

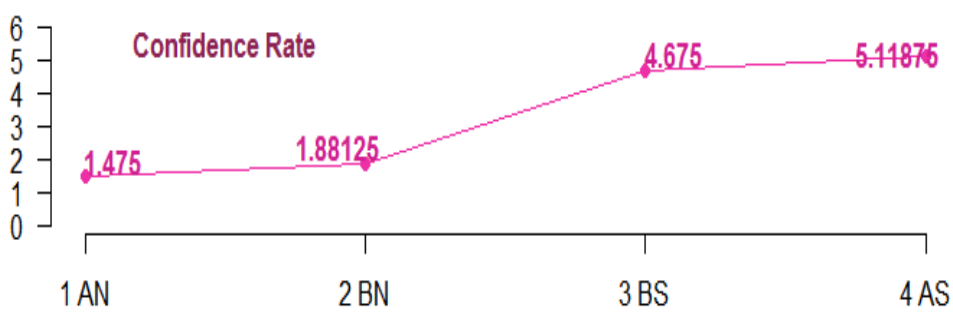
No.	8	8	143	156
Rate	0.05	0.05	0.89375	0.975
	AN	BN	BS	AS



Confidence Rating

Ex2a\_S10\_Jor.csv

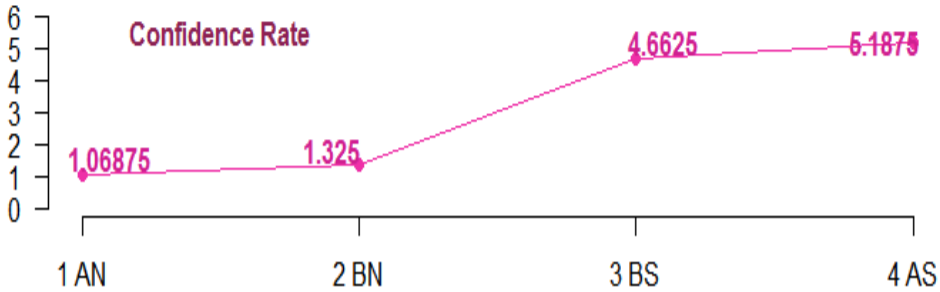
R(AN)	R(BN)	R(BS)	R(AS)
1.475	1.88125	4.675	5.11875



Confidence Rating

Ex2a\_S4\_DiRoj.csv

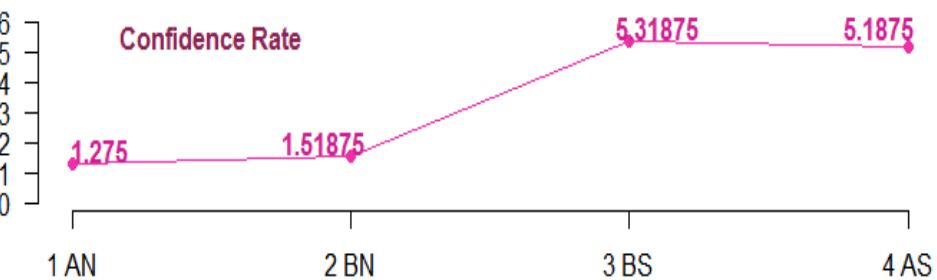
R(AN)	R(BN)	R(BS)	R(AS)
1.06875	1.325	4.6625	5.1875



### Confidence Rating

Ex2a\_S2\_Tona.csv

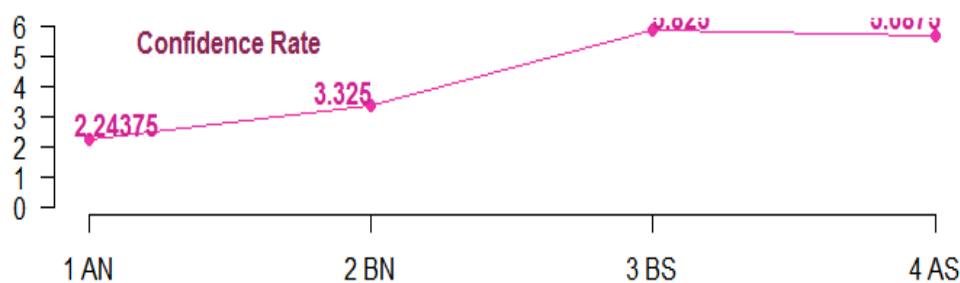
R(AN)	R(BN)	R(BS)	R(AS)
1.275	1.51875	5.31875	5.1875



### Confidence Rating

Ex2a\_S11\_PauLo.csv

R(AN)	R(BN)	R(BS)	R(AS)
2.24375	3.325	5.825	5.6875





# Distributions!

**Mirror Effect**

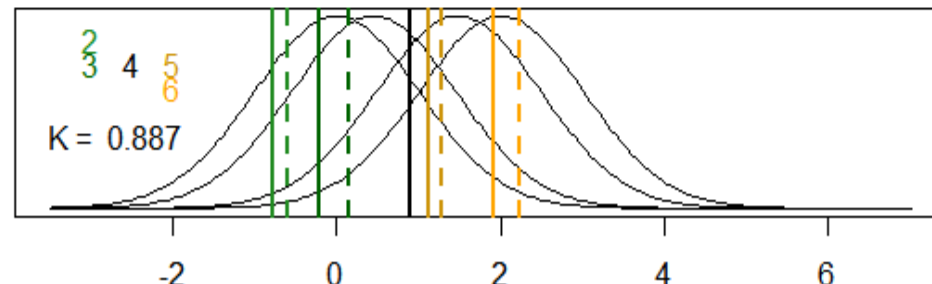
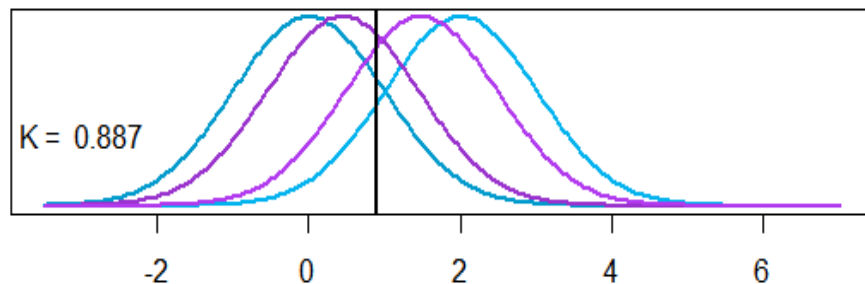
Ex2a\_S8\_IsaAn.csv

Rate No.	30	53	116	139
	0.188	0.331	0.725	0.869
	AN	BN	BS	AS

**Confidence Rating**

Ex2a\_S8\_IsaAn.csv

R(AN)	R(BN)	R(BS)	R(AS)
2.50625	3.15625	4.58125	4.96875



## Mirror Effect

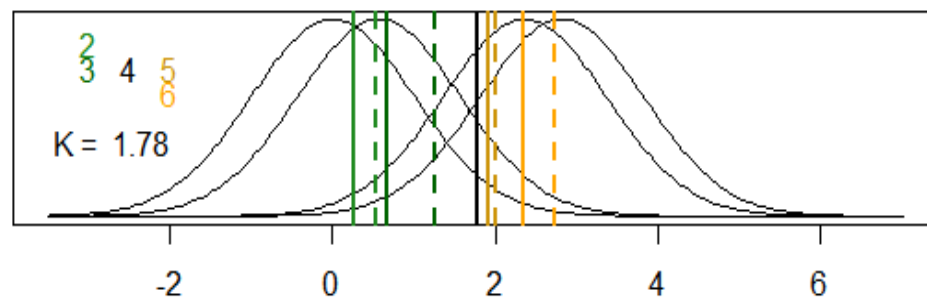
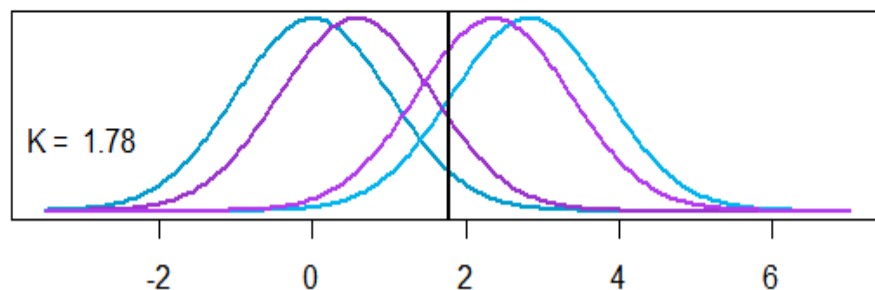
Ex2a S10 Jor.csv

Rate No.	6	18	115	136
	0.038	0.112	0.719	0.85
	AN	BN	BS	AS

## Confidence Rating

Ex2a S10 Jor.csv

R(AN)	R(BN)	R(BS)	R(AS)
1.475	1.88125	4.675	5.11875



## Mirror Effect

Ex2a\_S14\_Jacq.csv

Rate No.	8	8	143	156
	0.05	0.05	0.894	0.975
	AN	BN	BS	AS

## Confidence Rating

Ex2a\_S14\_Jacq.csv

R(AN)	R(BN)	R(BS)	R(AS)
1.50625	1.575	5.43125	5.74375

