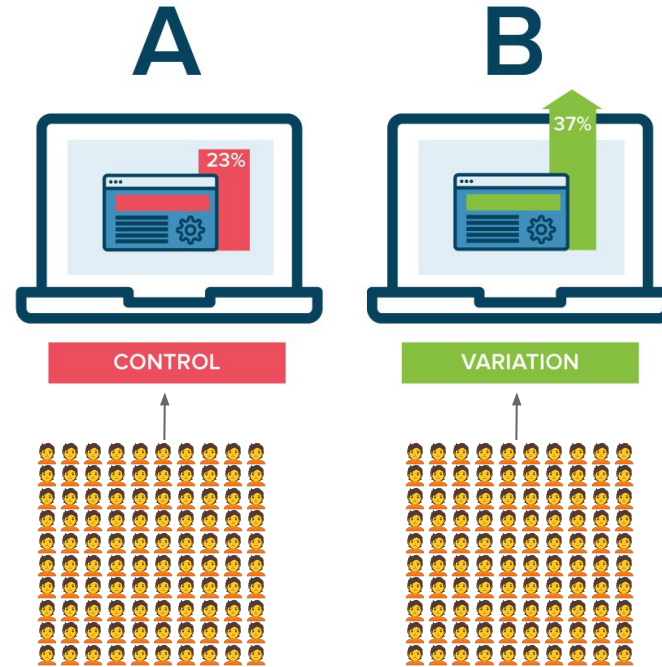


# Case Study

Difference between groups  
“Stents and stroke”

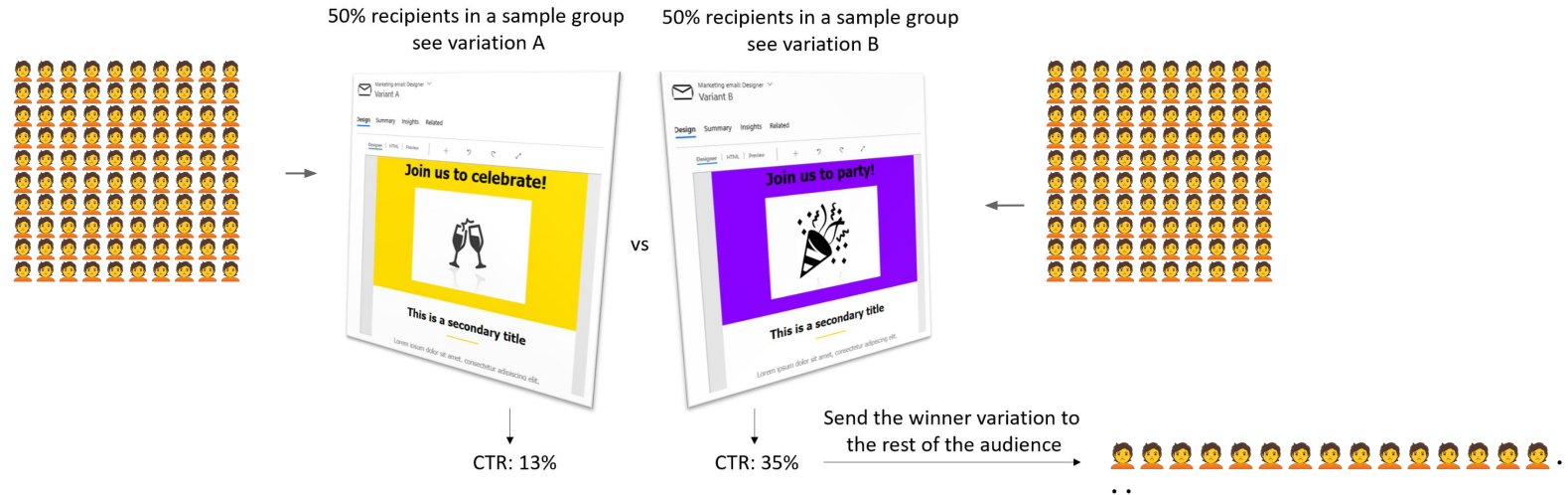
Prof. Dr. Jan Kirenz  
HdM Stuttgart

# Du users purchase more when we change the color of a button?

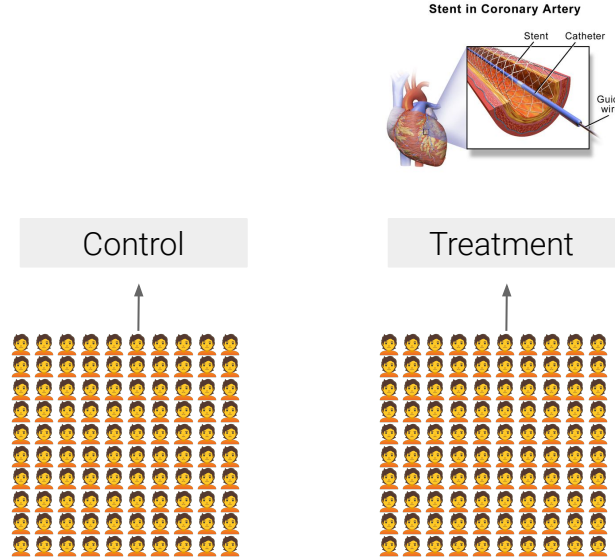


# Do users click more often on a certain image?

## A/B Testing



# Does the use of stents reduce the risk of stroke?



# Results for five patients from a stent study

	<b>group</b>	<b>outcome</b>	<b>time</b>
<b>0</b>	treatment	stroke	30 days
<b>1</b>	treatment	stroke	30 days
<b>2</b>	treatment	stroke	30 days
<b>3</b>	treatment	stroke	30 days
<b>4</b>	treatment	stroke	30 days

An experiment was designed to study the effectiveness of stents in treating patients at risk of stroke (Chimowitz et al. 2011).

# Descriptive statistics for the stent study

time outcome group	30 days		365 days	
	no event	stroke	no event	stroke
control	214	13	199	28
treatment	191	33	179	45

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**Practice:** Compute the proportion of patients in the

- treatment group who had a stroke by the end of their first year.
- control group who had a stroke by the end of their first year.

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time		30 days		365 days	
outcome		no event	stroke	no event	stroke
group					
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treatment		191	33	179	45

$\frac{45}{224} = 0.20 = 20\%$

$179 + 45 = 224$

**Practice:** Compute the proportion of patients in the

- treatment group who had a stroke by the end of their first year.
- control group who had a stroke by the end of their first year.



# Descriptive statistics for the stent study

time	30 days		365 days	
	no event	stroke	no event	stroke
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**Practice:** Compute the proportion of patients in the

- treatment group who had a stroke by the end of their first year.
- control group who had a stroke by the end of their first year.**

Does the data  
show a “real”  
difference between  
the groups?

# Do not generalize the results of this study to all patients and all stents.

- The study looked at patients with very specific characteristics.
- Patients volunteered to be a part of this study and may not be representative of all stroke patients.
- There are many types of stents and this study only considered one.

# Resources

The slides are based on the excellent book “Introduction to Modern Statistics” by Mine Çetinkaya-Rundel and Johanna Hardin.

The online version can be **accessed for free**:

<https://openintro-ims.netlify.app/data-hello.html>

