The Meaning of Method: Numbers and their (mis)use

Jonas Heide Smith (jonas@autofire.dk)
30-09-2008

Jonas Heide Smith

MA, Media Studies (KU, 2002)

PhD, ITU (2006)

Has taught online communication, media theory etc.

jonas@autofire.dk

My research

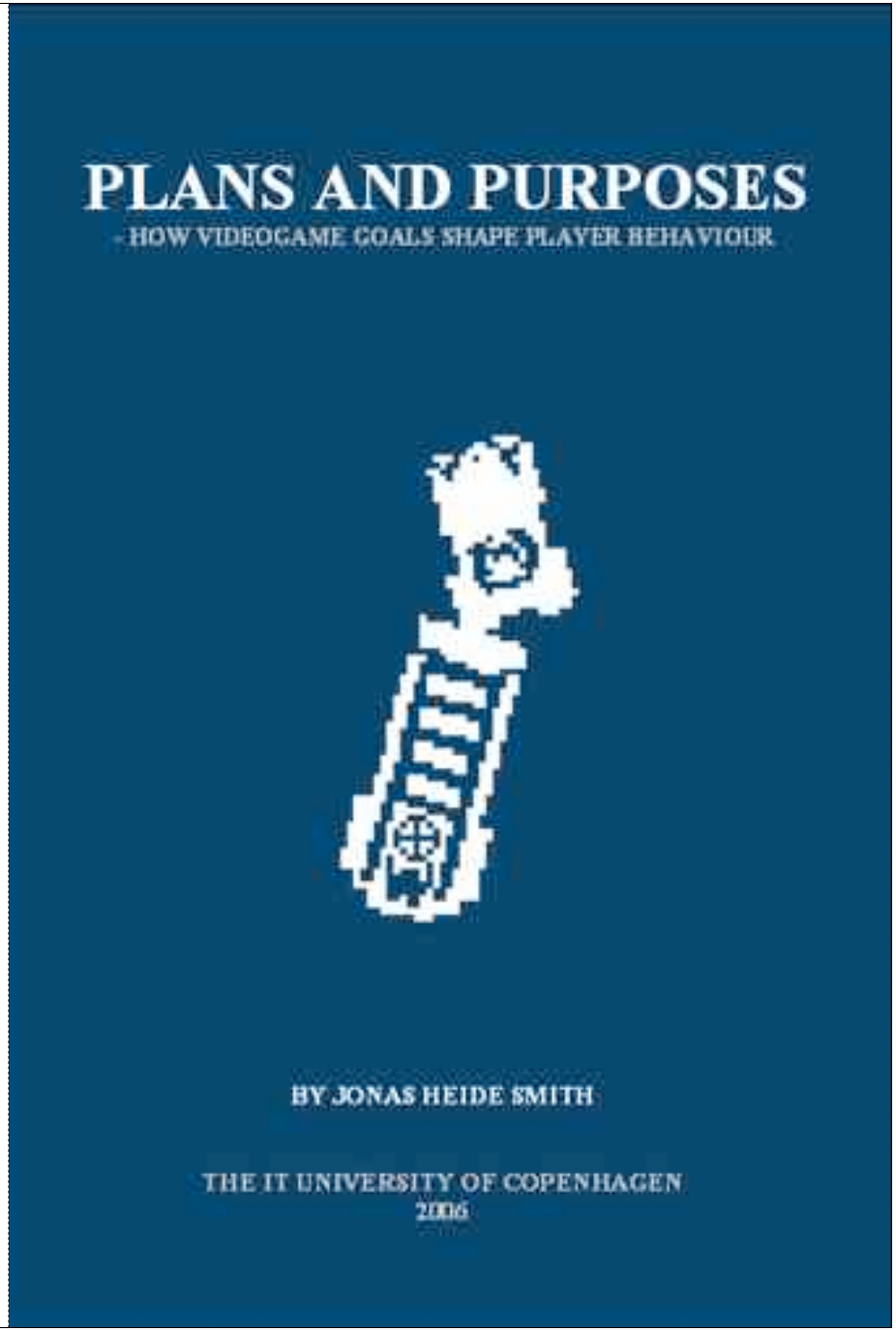
Set out to test the core design assumption that players want to win

Tried hard to connect video games and (economic) game theory

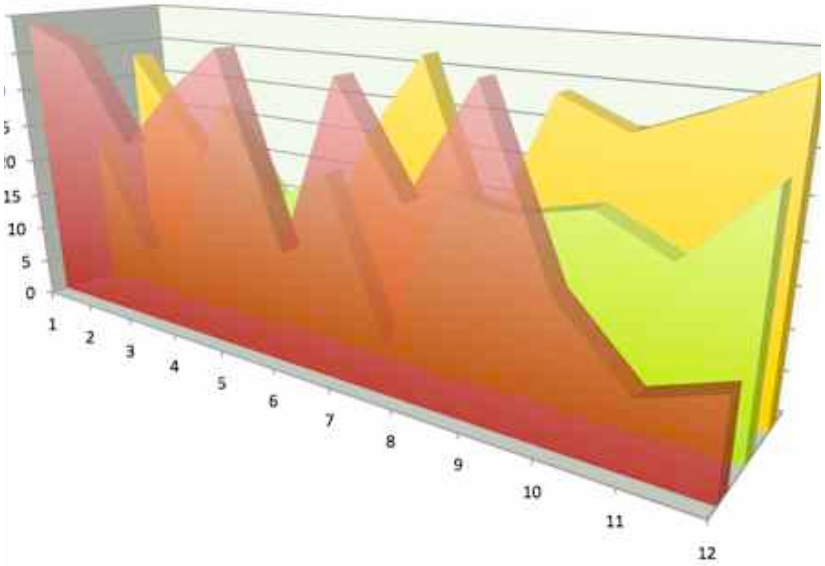
Had players play games that were *cooperative*, *semi-cooperative* and *competitive*

Analyzed their in-game behaviour and their verbal communication

Guess the result...?



Method (what is it?)



Quantitative and qualitative

The Research Process

In a perfect world

An **observation** or curiosity leads to a **hypothesis** (research question)

The hypothesis is tested with whichever **method** is best suited for the job

The **results**, modestly interpreted, enable us to either confirm or reject the hypothesis

(these simplified minimum requirements do not themselves ensure quality research, which also requires...?)

Objects of study

Game (textual analysis)

Player (observation, interviews, surveys)

Culture (interviews, textual analysis)

Ontology (philosophical enquiry)

Quantitative

Quantifies results to enable statistical analysis

Says "a little about a lot"

Is hermeneutic (requires interpretation)

Often builds on the assumption that the researcher should not be trusted

Often builds on the assumption that subjects are not trustworthy (or unable to verbalise answers directly)

Often tests the relationship between concrete variables

Qualitative

Never quantifies results

Says "a lot about a little"

Is hermeneutic (requires interpretation)

Often builds on the assumption that the researcher is trustworthy

Often builds on the assumption that understanding a social phenomenon requires understanding the perspectives of the agents involved

Experiments

Strength: Offers control over variables

Weakness: Is itself a "variable" as the environment is set apart from real life (validity issues)

Generally best suited to measure **differences** between conditions (e.g. says little about "media use" as such")

Variable X is varied and change in Y is attributed to this variation

Multi-server MMOs may facilitate naturalistic experiments

"The researcher should not be trusted"

Living up to taxing requirements eliminates possibilities for cheating etc.

The researcher is not considered "objective", but highly subjective

"Subjects are not trustworthy"

Subjects may answer strategically

Introspection may be limited; people may not know what they do

The relationship between variables

X --> Y (X yields or affects Y)

An independent variable affects a dependent variable to a certain degree

E.g. playing violent video games increase player aggression

You test if a change in X affects Y predictibly

Sampling

A **sample** is drawn (recruited) from a **population**

The sample should be **representative** (i.e. unbiased)

True **random sampling** is usually the best technique

Self-selected samples (or convenience samples) are often used

All **statistical testing assumes perfect sampling**

Statistical significance

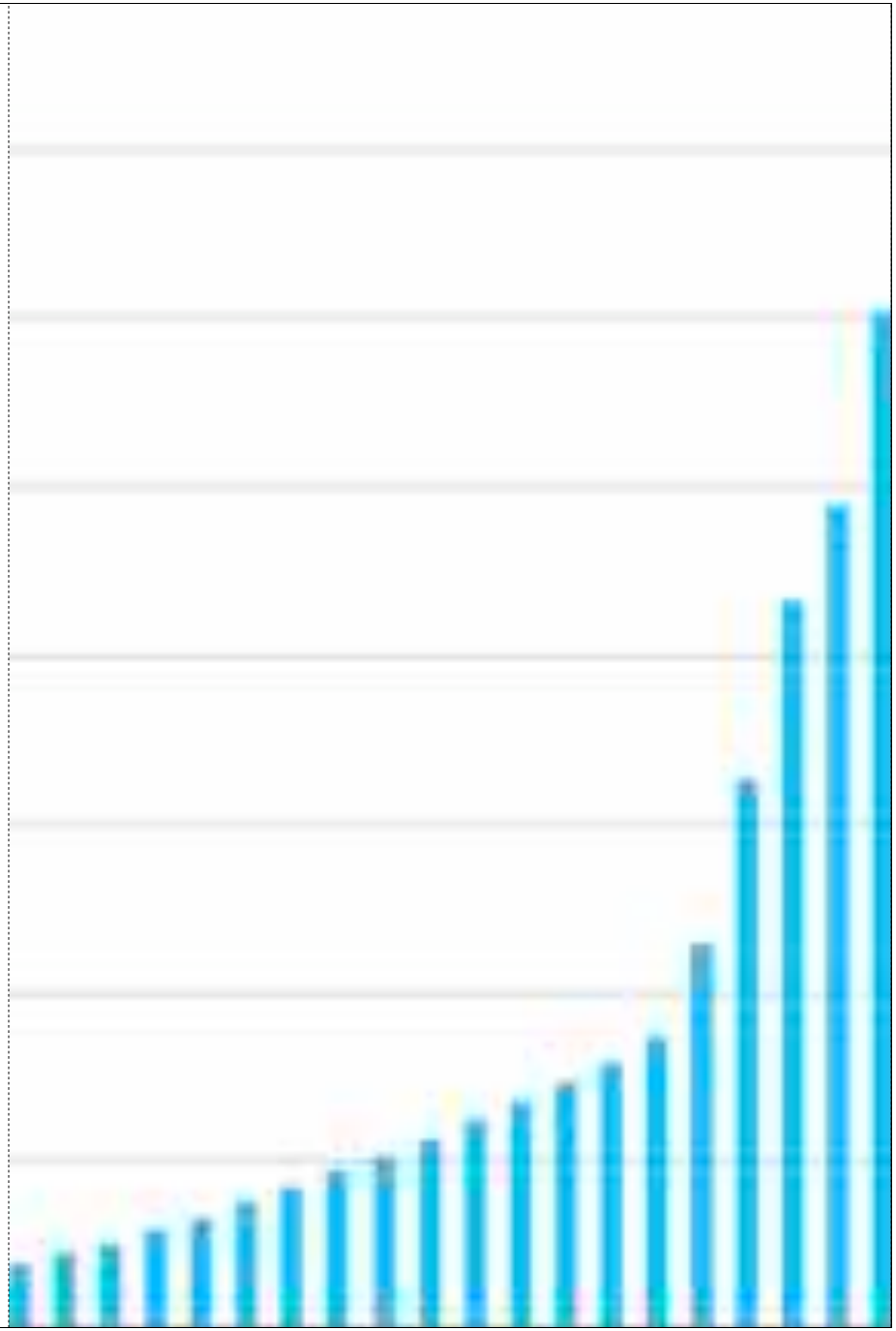
"Significant" here means "actual"

Statistics can be either **descriptive** or **analytical**

Descriptive statistics simply describe the data (e.g. 58% of the male subjects played racing games as opposed to 42% of the female subjects)

Analytical statistics build on a **statistical model**

The model tells us what to expect given that there were no significant differences



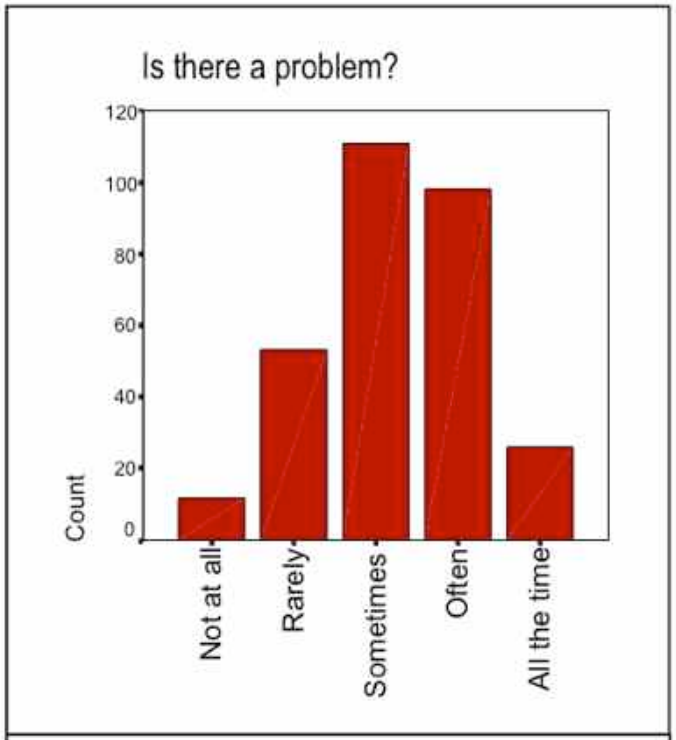


Figure 8 – Q6: To what degree do you find that online gaming is troubled by saboteurs (player killers, cheaters etc.)? (n=300)

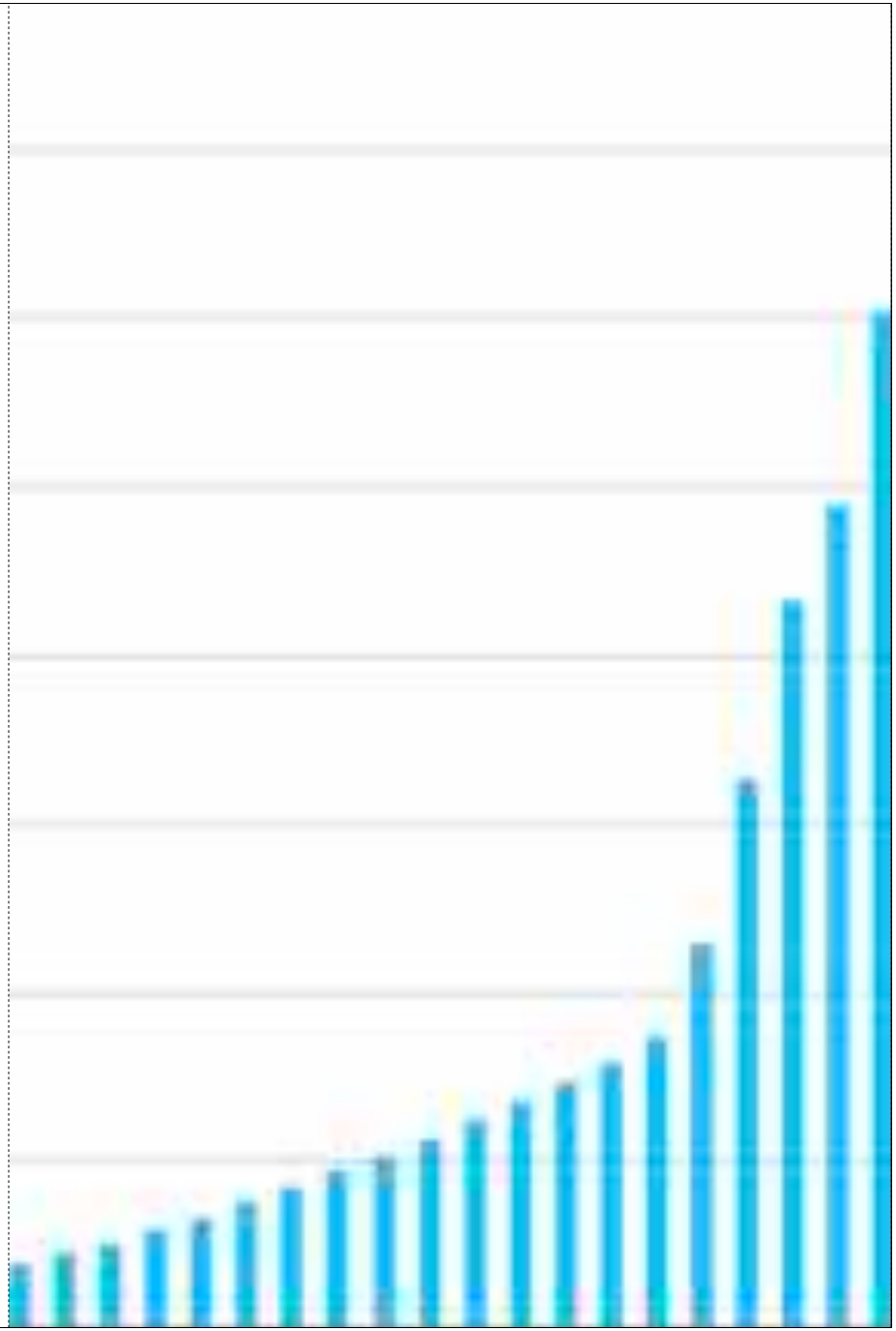
Outcomes such as this was considered potentially significant if they were asymmetrical around "Sometimes". Any actual distribution (difference) was statistically significant if it was less than 5% likely to have occurred by chance.

Statistical significance

A significance value (P) tells us how likely are actual data is to occur given that there are no differences in the population.

Assume that there are actually no differences; how likely is your result?

A given result is statistically significant if P is smaller than the significance value (Alpha, typically 5%).



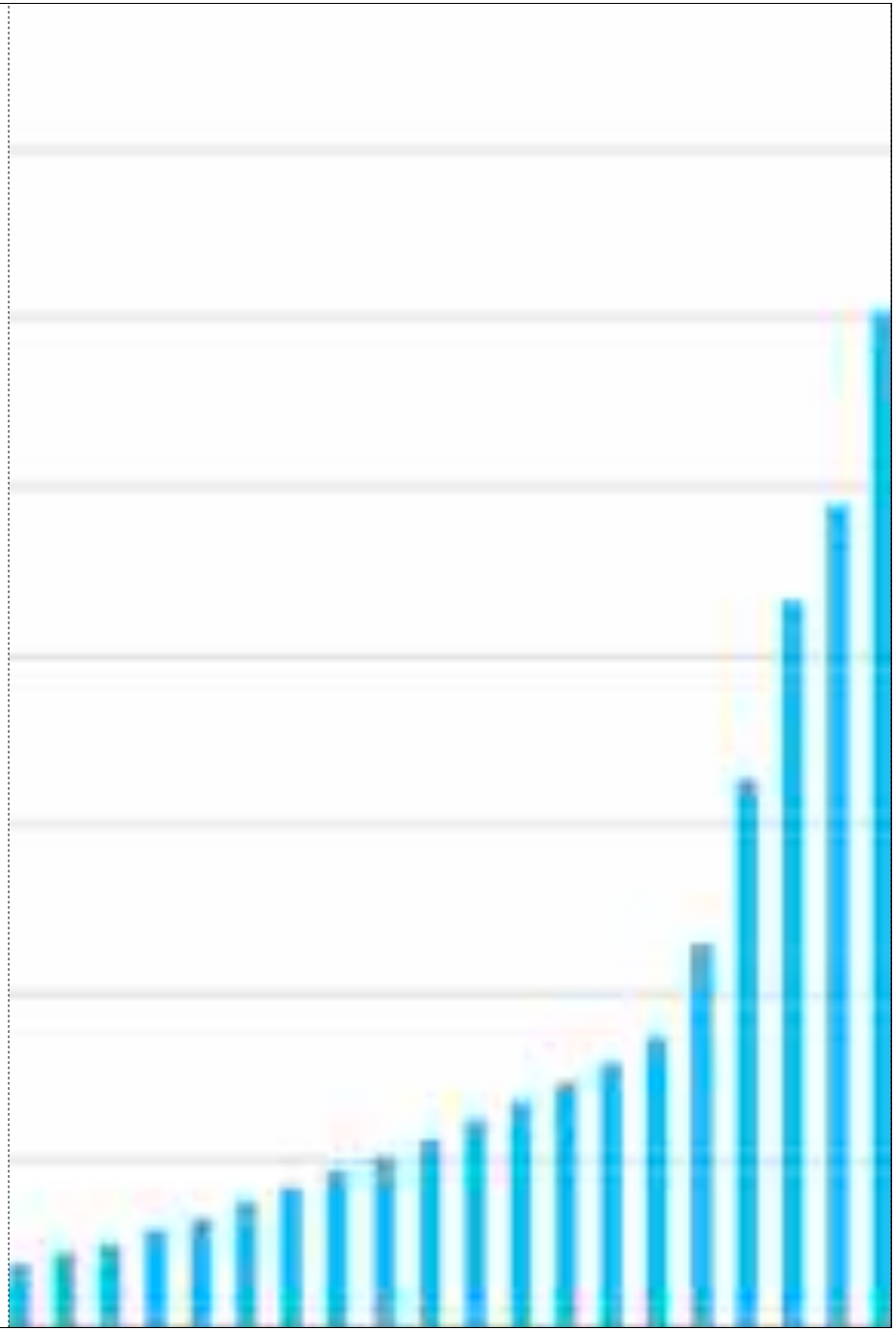
Correlation

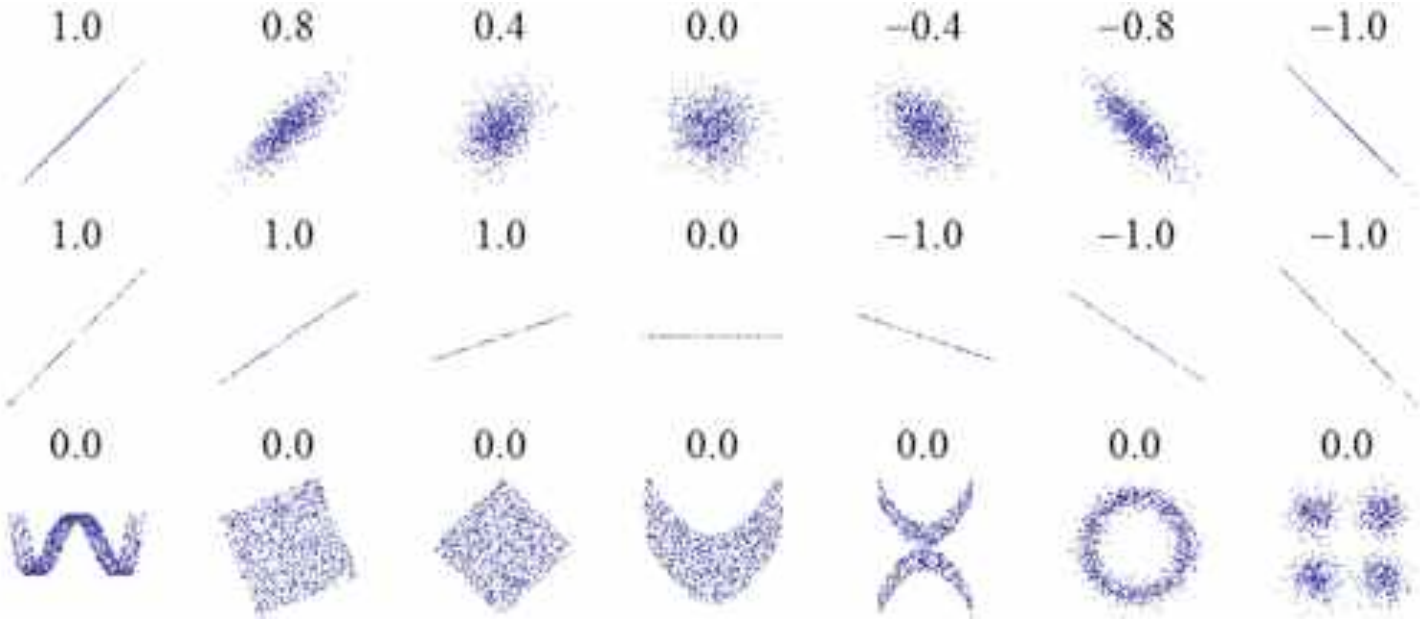
Two variables (e.g. violent games and aggression) may be correlated

Positive correlation: One variable increases as the other increases

Negative correlation: One variable increases as the other decreases

The correlation coefficient (r) varies from -1 to +1. The closer to +1 or -1 the stronger the relationship.





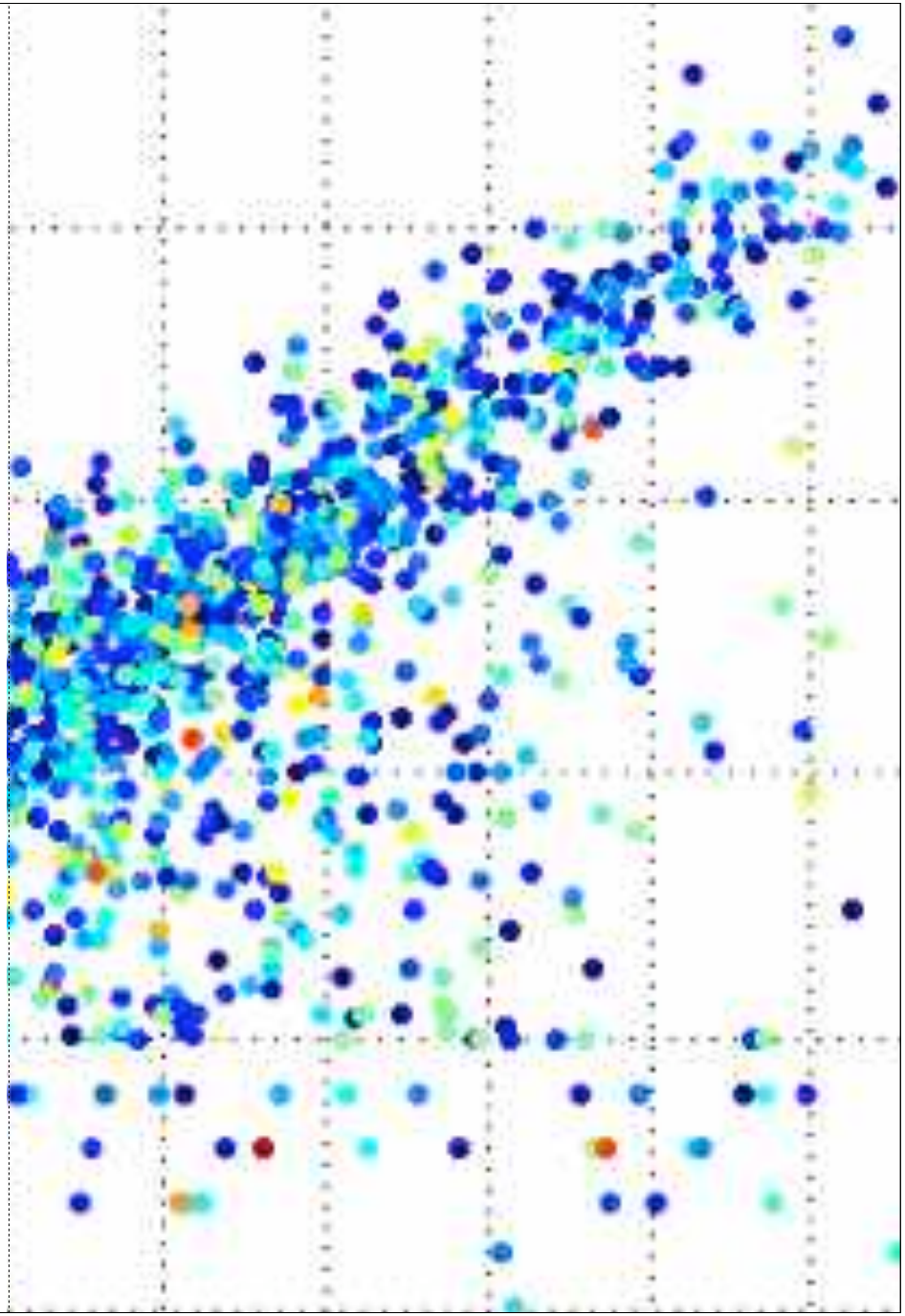
Correlation coefficients

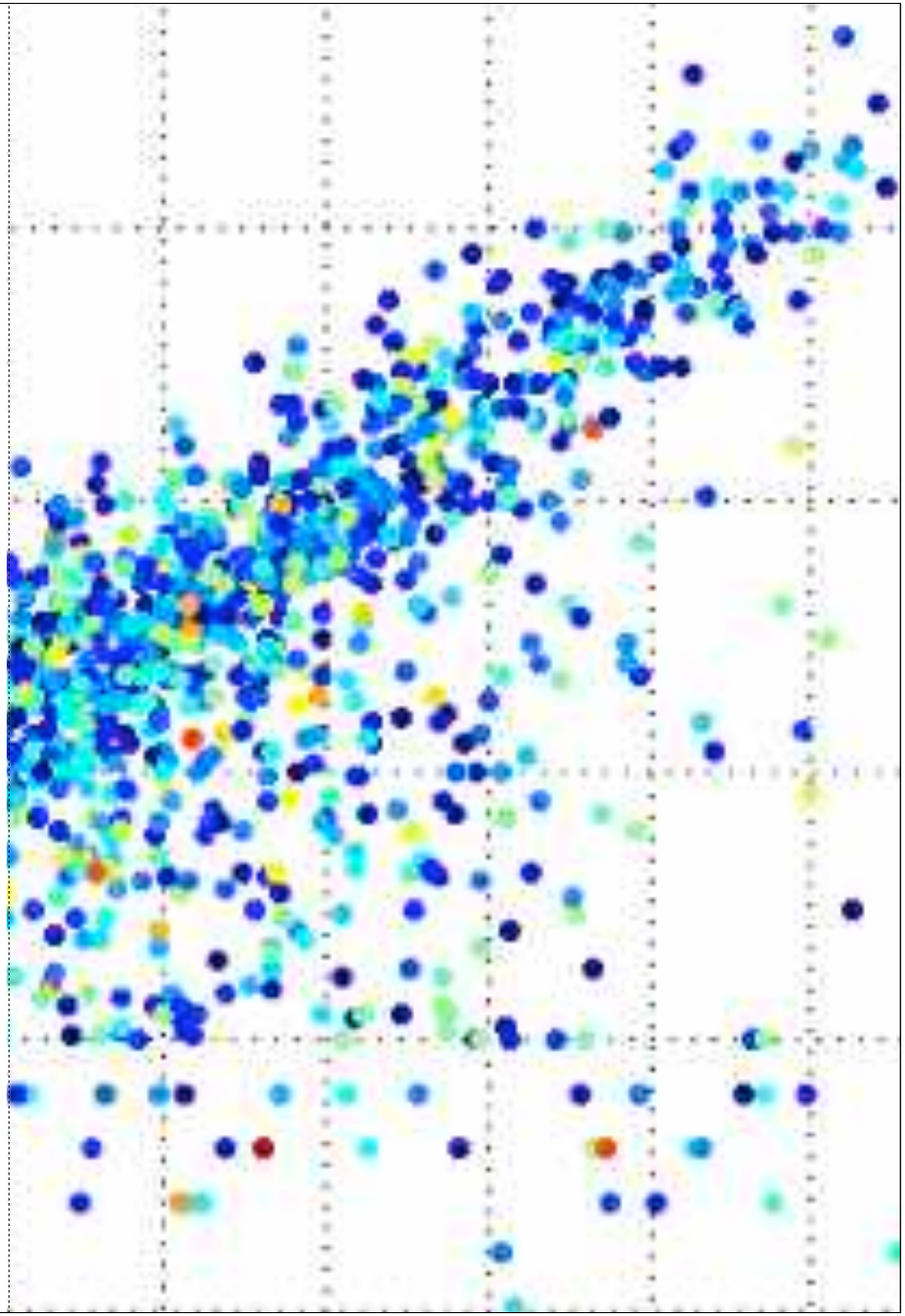
Correlation

For instance: People's height and weight correlate but r is not +1

r to the 2nd power gives the percentage of variation for one variable which is related to variation in the other: r=0.5 means that 25% (0.5 X 0.5 = 0.25) of the variation is related

Correlation does not show causation (aggressive players might prefer aggressive games)



Summary

Questions...?