# Introduction to Psychology

## SSC 1005

**2017 - 2018**

**Cover Illustration:** Detail of *Vertumnus*, a portrait by Giuseppe Arcimboldo, (1590)

# Introduction to Psychology

## Table of contents

## Course coordinator

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## Introduction

Psychology is all around us. Psychology permeates our everyday lives. It is therefore not surprising that the science of psychology has received great interest from behavioural scientists and the general public alike. We are all amateur psychologists. We all want to know what makes us and other people tick! However, our common sense understanding of how people think, feel and act is often misguided. The self-referential nature of psychology has caused some people to believe that psychology is not a science at all! This course will show you that psychology is a science, and that it encompasses the collaborative efforts of scientists from many different disciplines. Psychology is the study of behaviour and mental processes, and as psychologists we aim to describe, understand, predict, and sometimes change behaviour. Psychologists study human behaviour and mental life from different perspectives (i.e. biological, individual and social) and at different levels of analysis (from genes and the brain up to the social and cultural level).

We will consider what these different approaches have to offer in our quest for an understanding of the human mind, the brain, and behaviour. Along the way, scientific methods of psychological research will be introduced by addressing some of the main questions that drive contemporary psychology: How do we experience fear or happiness? How do we (think we) see the world around us? How do we learn, remember and forget things? Where should we draw the line between normal and abnormal behaviour? How social are humans? When do people harm or help others?

## Course objectives

- To engage students in scientific inquiry about psychological processes
- To introduce students to the various subfields of psychology as an academic discipline.
- To gain a basic understanding of the methods of psychological research.

# Set-up of the course

The current course consists of two parts: 1) studying different aspects of human behaviour in a traditional Problem-Based Learning (PBL) approach and 2) a practical group assignment involving the observation of human behaviour in the wild and reporting on your findings in a written practical report and an oral presentation.

### Part 1: PBL Tutorial groups

Problems

The topics in this course cover a very broad terrain. Therefore, you do not have the time to study all facets of a given topic. Problems differ in the emphasis they put on certain themes (e.g., philosophical background, competing theories, experimental approaches, practical implications). Your tutor will intervene if the learning goals do not cover the area intended by the problem in question. Note that this precludes a tempting solution for formulating learning goals: it often happens that tutorial groups come up with the two obvious questions of 1) What is X? 2) What are the theories on X?). It should be clear that using these questions as learning goals may in most cases simply be too general. It does not help you focus on those parts of the literature that are most relevant for a certain topic. General learning goals will turn out to be a problem when selecting the appropriate literature for self-study. Of course (one of) those two questions might serve as problem statement for the brainstorm in your group. But remember; if you want to ask these questions, use them as a starting point but not as the conclusion of the first discussion of a problem.

Literature study

As is common practice in PBL, the learning goals emerging from the group discussion should give rise to literature study. The next question is where to find relevant sources of information. Note that even though in this course we do use a basic textbook, this is definitely not enough to get a full overview of the topics that are discussed during this course. There are several e-readers available via blackboard that should help get a deeper understanding of the topics. Furthermore, the list is not intended as obligatory reading. Do not attempt to read every article that is listed for a certain case (especially when the list contains relatively many articles). Scan through the papers (or their abstracts) to see if they contain useful information for your learning goals, and only read (the parts of) those papers that do.

**Part 2: Practical Assignment**

In week 2 and 6 of the course two practical meetingss (PMs) are planned, see also Appendix 1 for a detailed description. Full attendance (100%) at these two sessions is required. Failing to attend these sessions means that you cannot hand in the course exam paper, which in turn means that you have failed the course. Again: if you have a very urgent reason to miss a practical you should discuss this beforehand (and not after missing a practical session) with the course coordinator.

Next to taking a final exam, you also have to write a joint practical report based on a small observational study which you will conduct with a small group of students. More details are offered during the second lecture and the first practical session of the course. The practical will be assessed on the basis of a final oral presentation and a small written report. Grading criteria for the presentation and the report can be found on Eleum after the lecture.

# Attendance

Since the current course is taught in a PBL format, an 85% tutorial attendance is required. You can miss 1 of the 10 regular tutorial meetings without it having any negative consequences for your attendance requirement. If you miss 2 meetings you can ask for an additional assignment for failed attendance via the form that can be picked up at the Office of Student Affairs. If you miss more than 2 meetings you will fail the current course with no chance of making up for failed attendance.

For the practical meetings (two sessions) a mandatory attendance of 100% is required (see below). If you have a very urgent reason causing you to miss a practical you should discuss this beforehand with the course coordinator.

# Grading

There are two grades to be earned during this course:

- There is an exam at the end of the course. This exam consists of a combination of open and more or less closed questions (on the literature as well as the lectures!) and is graded on a 0-10 scale.
- An oral presentation has to be given and a practical report has to be written on the results of the small observational study. The presentation and the report

will be scored together on a 0-10 scale (Criteria for the practical presentation & report will be published on Eleum in week 2 of the course).

The final grade is a weighed average of the exam grade and the practical grade. The exam counts for 75% and the report for 25% of the final grade. If your final grade is 5.4 or below, you may be eligible for a resit. You are eligible to resit the part of the grade that made you fail (i.e. the exams or the report or both) if the following requirements are met:

- Your final grade is 5.4 or below
- Your exam and report are considered a valid attempt[1]
- You passed attendance
-

The format of the resit depends on which part(s) you are resitting. If you failed the report, you are allowed to write a new one or re-write the one you handed in (this will be decided by the tutor).

## Changes in current edition

In reply to the formal evaluation and informal feedback from students and tutors, several things have been changed in comparison to the previous edition. Special thanks to Jonas Spengler en Madelief Giesen who took part in a focus group session with the course coordinators and whose input has been extremely valuable. The final task on Personality has been dropped (this topic is now covered as a theme that runs through multiple tasks). The new final task is dedicated to a wider historical perspective on Psychology as an academic discipline. The task on sensation and perception has a stronger focus on synesthetic experience. For several tasks, new literature has been selected. We have also added several clinical cases. The deadlines of the practical have also been shifted for a better division of the workload.

[1] The person who grades the exam and/ or report decides what is considered a valid attempt.

# Weekly overview of the course

| | | |
|---|---|---|
| **Week 1** | | |
| Monday | TG 1 | Pre-discussion Problem 1<br>*Love at first sight* |
| Monday | Lecture 1 | *Psychological perspectives*<br>Arie van der Lugt |
| Thursday | TG 2 | Post-discussion Problem 1<br>Pre-discussion Problem 2<br>*Clever Hans* |
| **Week 2** | | |
| Monday | TG 3 | Post-discussion Problem 2<br>Pre-discussion Problem 3<br>*My brain & me* |
| Monday | Lecture 2 | *The psychologist's toolbox*<br>Arie van der Lugt |
| Thursday | **PM1** | *Observation Practical 1:*<br>*Planning & Design* |
| **Week 3** | | |
| Monday | TG 4 | Post-discussion Problem 3<br>Pre-discussion Problem 4<br>*Making sense of the world* |
| Monday | Lecture 3 | *Consciousness*<br>Henk Jansma |
| Thursday | TG 5 | Post-discussion Problem 4<br>Pre-discussion Problem 5<br>*Blank slates & Bobo dolls* |
| **Week 4** | | |
| Monday | TG 6 | Post-discussion Problem 5<br>Pre-discussion Problem 6<br>*The smell of cookies* |
| Monday | Lecture 4 | *Gender & Pain*<br>Jessica Alleva & Kai Karos |
| Thursday | TG 7 | First draft report<br>Post-discussion Problem 6<br>Pre-discussion Problem 7<br>*Look who's talking* |
| **Week 5** | | |
| Monday | TG 8 | Post-discussion Problem 7<br>Pre-discussion Problem 8<br>*Help!* |
| Monday | Lecture 5 | *Segregation & polarisation in society*<br>Max Colombi |
| Thursday | TG 9 | Peer feedback report<br>Post-discussion Problem 8<br>Pre-discussion Problem 9<br>*Natural born killers* |
| **Week 6** | | |
| Monday | TG 10 | Final version report<br>Post-discussion Problem 9<br>Pre-discussion Problem 10<br>*Doubts, Darwinism & Dreams* |
| Monday | Lecture 6 | *A wider perspective*<br>Phil Brüll |
| Thursday | **PM 2** | Post-discussion Problem 10<br>*Observation Practical 2:*<br>*Presentations of results* |
| **Week 7** | | |
| **EXAM** | | |

**Please note that attendance is mandatory for the two practical meetings PM1 & PM2, so you can only miss one of the 10 regular tutorial group meetings to meet the attendance requirements for this course!**

# Problems

# **Problem 1** Love at first sight

## A

In 1888, George Grant Mackay arrived in the still young city of Vancouver in British Columbia in Canada. This adventurous Scottish engineer bought land on both sides of the Capilano River. More than seventy metres above the water, Mackay built a wobbly bridge of more than a hundred metres long, connecting both sides of the ravine. This bridge, the Capilano Suspension Bridge, is still swaying high up in the canyon, even though the original hemp rope was replaced in 1914 by a steel cable.

On this bridge, Dutton and Aron in 1974 conducted a curious experiment. A beautiful research assistant (Gloria) stood in the middle of the wobbly bridge. She asked male passers-by if they were willing to take part in her research. She explained that she was looking at the effects of natural beauty on creative expression. If a man volunteered to participate, he was then asked to write some short stories in response to a number of photographs. Afterwards, the participants were invited to call her back a few days later to hear more about the results of the study.

Exactly the same procedure was also executed in a different place, on a short sturdy low bridge across the same river a bit further downstream. They calculated the proportion of men, who contacted the female interviewer afterwards. From the low bridge guys only 12% called her back, whereas from the Capilano Suspension Bridge half of the men called Gloria back!

How can you explain this pattern of results?

**B**

"I don't care that you slept with him, Claire, but how *dare* you laugh at his jokes!"

To test for a sex difference in jealousy, Buss and his colleagues (1992) designed the following questionnaire.

**Instructions**: Please think of a serious committed romantic relationship that you have had in the past, that you currently have, or that you would like to have. Imagine that you discover that the person with whom you've been seriously involved became interested in someone else. What would distress or upset you more *(please circle only one*):

**Dilemma 1**

(A) Imagining your partner forming a deep emotional attachment to that person [emotional infidelity]

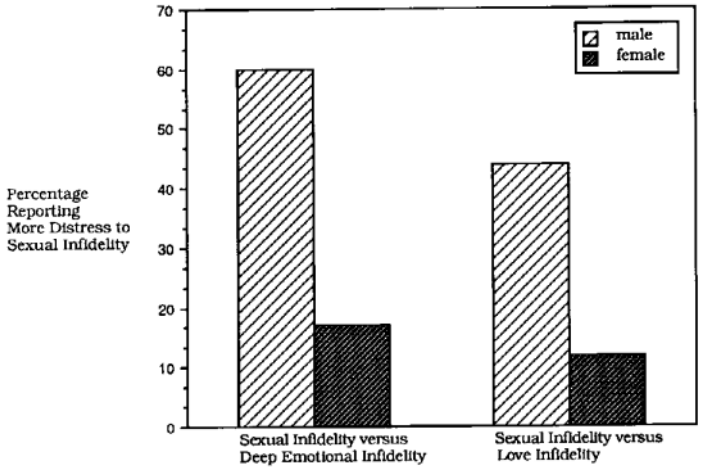
(B) Imagining your partner enjoying passionate sexual intercourse with that other person [sexual infidelity].

**Dilemma 2**

(A) Imagining your partner trying different sexual positions with that other person [sexual infidelity].

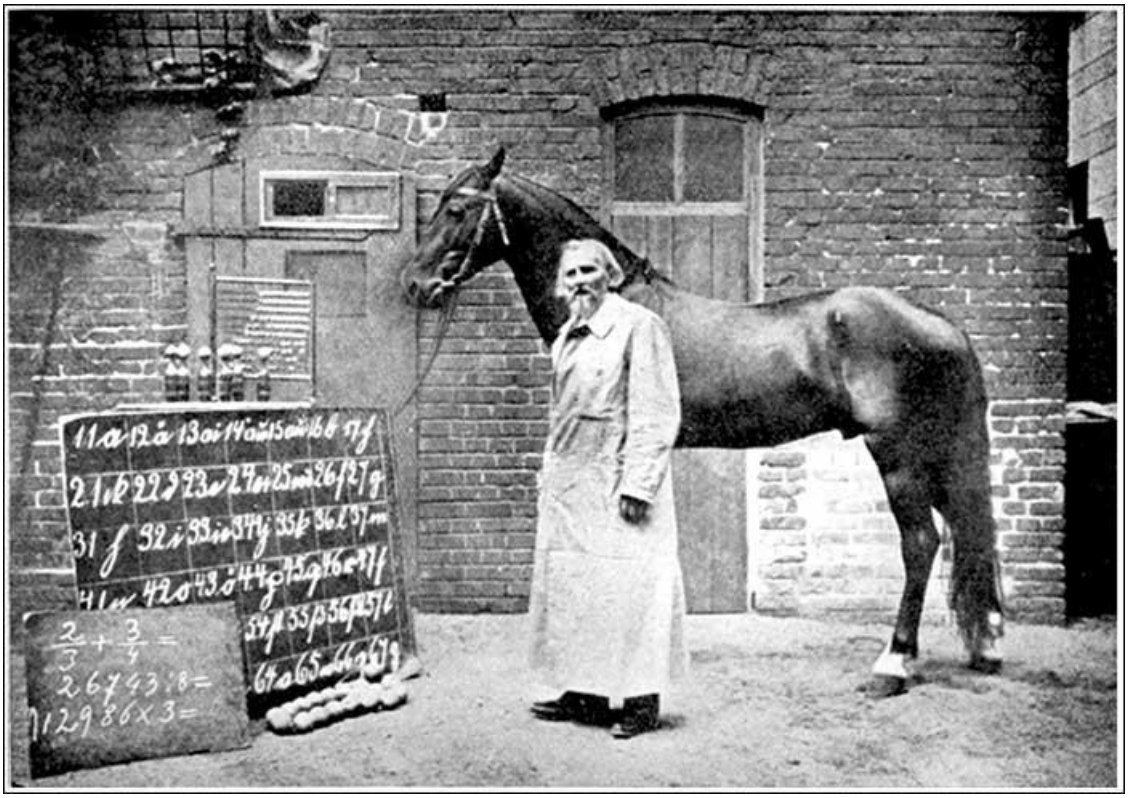
(B) Imagining your partner falling in love with that other person [emotional infidelity].

This is what they found:



# **Problem 2** Clever Hans

## A



In the late 1800s the German teacher Von Osten firmly believed that humanity had greatly underestimated the reasoning skills and intelligence of animals. To test his hypothesis, he took it upon himself to tutor a cat, a horse, and a bear in the ways of mathematics. The cat was indifferent to his efforts, and the bear seemed outright hostile, but the Arab stallion named Hans showed some real promise. With further tutelage, Hans the horse learned to use his hoof to tap out numbers written on a blackboard. Much to Von Osten's delight, jotting a "3" on the blackboard would prompt a tap-tap-tap from his pupil, a feat which Hans could repeat for any number under ten. Encouraged by this success, Von Osten pressed his student further. The scientist drew out some basic arithmetic problems on his chalkboard, and attempted to train the horse in the symbols' meanings. Hans had no problem keeping up with the curriculum, and soon he was providing the correct responses to a variety of math problems including basic square roots and fractions. Hans was proving to be a clever horse indeed. Starting in 1891, Von Osten began parading "Clever Hans" all over Germany to show off the horse's mathematical proficiency. As word of the spectacle spread, Hans' free exhibitions began drawing larger and larger crowds of curious onlookers.

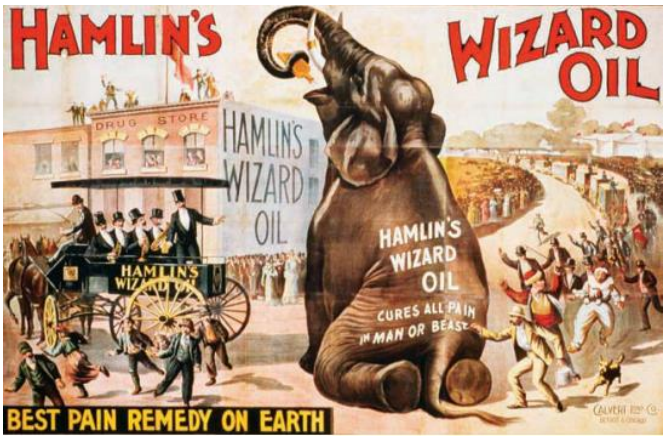
"If the first day of the month is a Wednesday," Von Osten would ask Hans, who had learned to respond to verbal questions, "what is the date of the following Monday?" Six hoof-taps would follow. "What is the square root of sixteen?" Four taps. Von Osten also explained to the astonished crowds that Hans could spell out words with taps, where one tap is an "A", two taps a "B", and so on. Hans would then demonstrate this talent by spelling out the names of people he knew, and responding to simple questions. He could also tap out the time of day. Though he

made mistakes occasionally, his accuracy was found to be roughly 89%. By some estimates, Hans' grasp of mathematics was equivalent to a fourteen-year-old's.

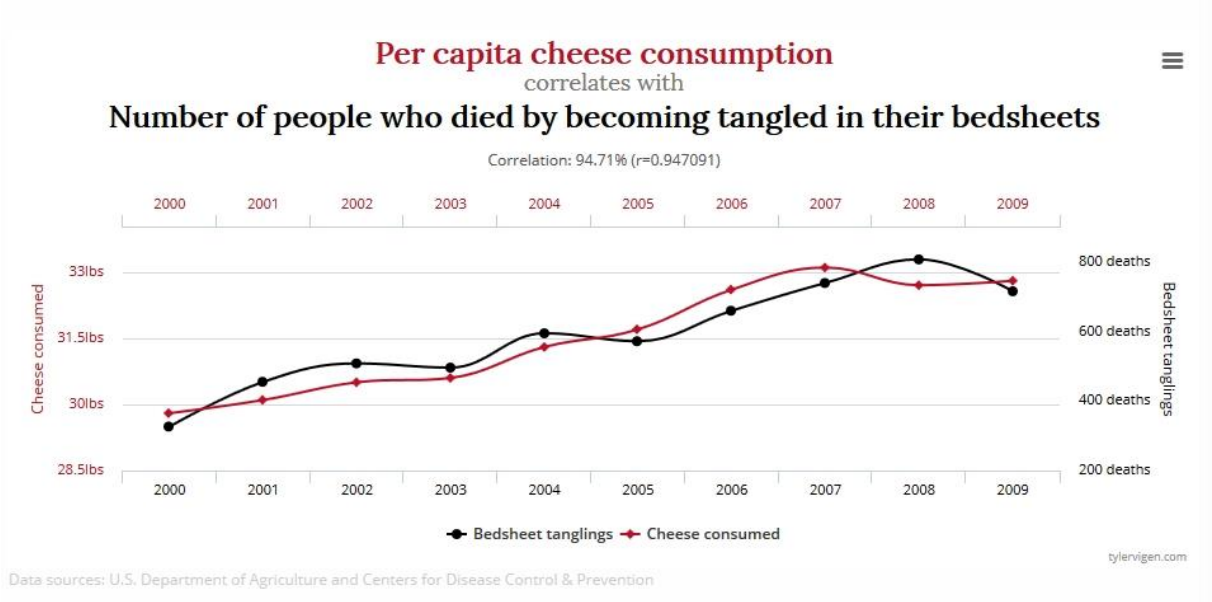
Naturally there were many sceptics, particularly after the New York Times featured the crafty horse in a front-page story. Germany's board of education asked to conduct an independent investigation into Hans' abilities, and Von Osten agreed. He was a man of science, after all, and he knew that there was no fraud to expose. The board members assembled a number of scientific minds to join the Hans Commission, including two zoologists, a psychologist, a horse trainer, several school teachers, and a circus manager. Following extensive independent testing, the commission concluded in 1904 that there was no trickery involved in Hans' responses; as far as they could tell, the horse's talents were genuine. The Hans Commission then passed the investigation on to Oskar Pfungst, a psychologist with some novel ideas on how to best unravel the mystery. Now put yourself into the shoes of Oskar Pfungst, the psychologist who set out to debunk the myth that Hans the horse was so intellectually gifted. What alternative explanations could there be for the fact that Hans was giving the right answers to complex questions by tapping his hoofs and how could you test these?

## B Hamlin's placebo?

Placebo effects can be quite powerful and must be controlled for. Design an experiment that can put Hamlin's claims to the test.



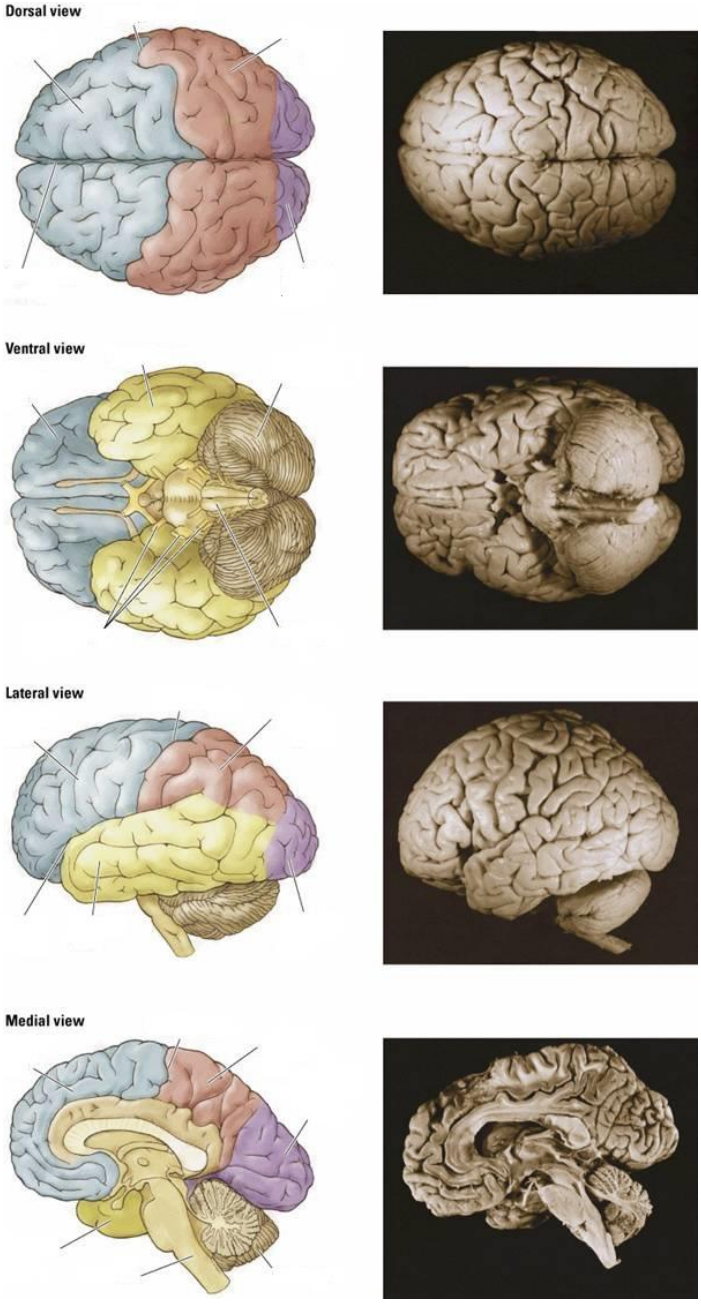
## C Death by cheese



# **Problem 3** My brain and me

*How can a three-pound mass of jelly that you can hold in your palm imagine angels, contemplate the meaning of infinity, and even question its own place in the cosmos? Any single brain, including yours, is made up of atoms that were forged in the hearts of stars billions of years ago and now form a conglomerate that can not only ponder those very stars but can also think about its own ability to think and wonder about its own ability to wonder. With the arrival of humans, it has been said, the universe has suddenly become conscious of itself. This, truly, is the greatest mystery of all.*

Excerpt from V.S. Ramachandran, The tell-tale brain




**Different views of the brain**

From the outside view the brain appears to be a rather homogeneous mass with billions of neurons that are interconnected via billions x billions synapses. Despite some relatively minor variations, neural cells are fundamentally the same all over the brain. Yet, the organization of the brain is highly complex, with many areas seemingly specialized for particular functions. For example, some brain process language perception while others organize speech output. Damage to these areas can cause particular problems in speaking or comprehension of speech. The hippocampus is crucial for the formation of long-term autobiographical memories. Other areas deal with the perception of our visual environment, processing light and dark, movement and colours.

There is also a particular aspect of brain organization that confuses left and right. The right hand – the dominant hand for most people – is controlled by the left hemisphere (and vice versa). The left visual field is processed by the right hemisphere. But, each eye provides information to both hemispheres!

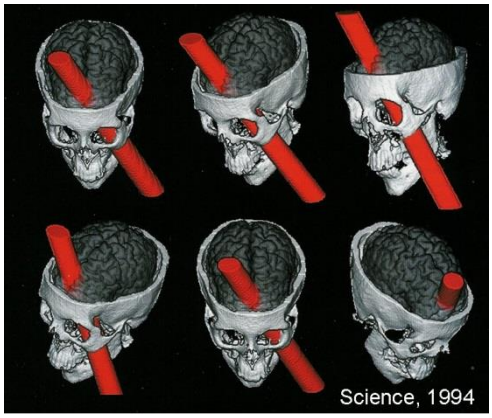
Much of today's knowledge about brain organization and function comes not from fancy brain imaging techniques, such as FMRI or EEG, but from neural cell recordings in animals and neuropsychological studies in clinical patients. Take, for example, the extraordinary case of Phineas Gage. On September 21, 1848, The *Boston Post* reported on the incident of a railroad worker. The article was called "Horrible Accident" and said:

*As Phineas P. Gage, a foreman on the railroad in Cavendish, was yesterday engaged in tamping for a blast, the powder exploded, carrying an instrument through his head an inch in length, which he was using at the time. The iron entered on the side of his face, shattering the upper jaw, and passing back of the left eye, and out at the top of the head.*

In 1868, his doctor, John Harlow, wrote about Gage and his marked personality changes:

*The equilibrium or balance, so to speak, between his intellectual faculties and animal propensities, seems to have been destroyed. He is fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint or advice when it conflicts with his desires, at times pertinaciously obstinate, yet capricious and vacillating, devising many plans of future operations, which are no sooner arranged than they are abandoned in turn for others appearing more feasible. A child in his intellectual capacity and manifestations, he has the animal passions of a strong man.*

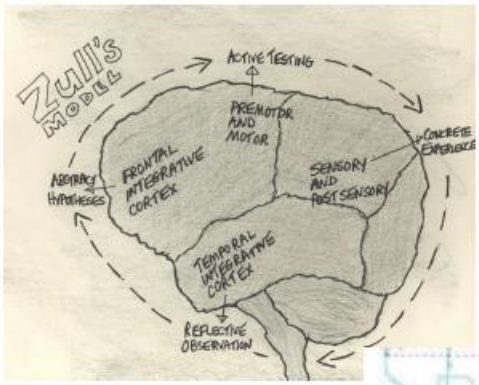
*Previous to his injury, although untrained in the schools, he possessed a well-balanced mind, and was looked upon by those who knew him as a shrewd, smart businessman, very energetic and persistent in executing all his plans of operation. In this regard his mind was radically changed, so decidedly that his friends and acquaintances said he was "no longer Gage."*



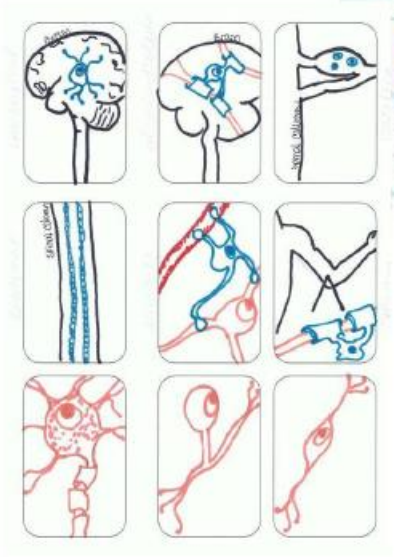

**MRI reconstruction**

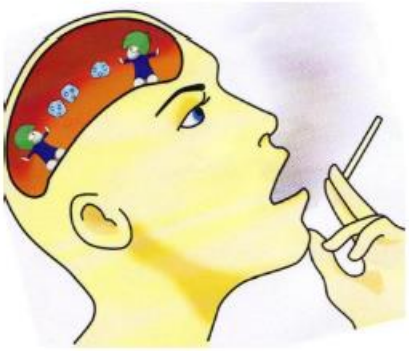
# Competition: Draw your brain!

During this course, you will come across many of pictures of the human brain. Studying the brain is exciting and fascinating. Can you make a drawing of the brain that expresses your excitement and fascination with the seat of our soul?







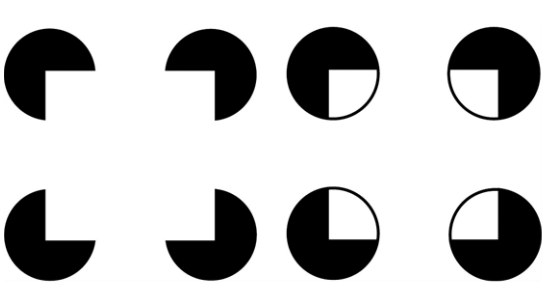
The pictures will be judged on informativeness, creativity and aesthetics.

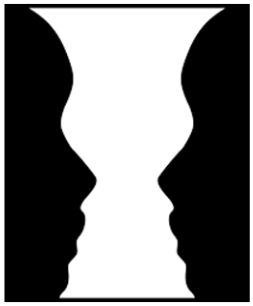
**So, if you want to show us your brain, hand it to your tutor with your name and ID-number before the end of the course and you will have a chance of winning a wonderful prize, not to mention eternal fame.**

# **Problem 4** Making sense of the world

### A WYSIWYG

What we see is not solely determined by the bottom-up processing of the sensory input (light captured by the retina encoded into neuronal activity) but also by top-down influence of our knowledge and expectations. It is often just the best guess of what is happening in the world. This can be illustrated by the following optical illusions.





### B Sound Check

You are alone in the woods, miles away from the nearest highway. There is no wind, just silence. Suddenly, you hear a very faint sound: it is a butterfly that just landed on a near flower. In the evening, you go to a concert, you are dancing some 20 meters from the loudspeakers, otherwise your ears would hurt. Does the sound of the concert carry 100 times more energy than the sound of the butterfly? Or 1000, or even a million times? And what about your subjective experience: does the concert sound like 100 times louder, or maybe 1000 times louder?

**C Modern Art or Complex Perception?**

In every day life we tend to use metaphorical language referring to "the warmth of certain colours" and "sharp sounds." These sentences are in essence a combination of senses to further clarify one's personal experience of an observation. For most of us these metaphors remain on a linguistic level. However, in a small percentage of the population, the association of senses goes beyond the linguistic, senses literally seem to merge. All of a sudden, modern art might be a lot more interesting! On the other hand, how could you possible study such a strange phenomenon?

*Kondo's Trumpet (2010) by Carol Steen, depicts the synesthetic visual experience elicited by the timbre of that trumpet.*

**Clinical case: Roses are red**

…I had stopped at a florist on my way to his apartment and bought myself an extravagant red rose for my buttonhole. Now I removed this and handed it to him. He took it like a botanist or morphologist given a specimen, not like a person given a flower.

'About six inches in length,' he commented. 'A convoluted red form with a linear green attachment.'

'Yes,' I said encouragingly, 'and what do you think it *is*, Dr P.?'

'Not easy to say.' He seemed perplexed. 'It lacks the simple symmetry of the Platonic solids, although it may have a higher symmetry of its own. . . . I think this could be an inflorescence or flower.'

'Could be?' I queried.

'Could be,' he confirmed.

'Smell it,' I suggested, and he again looked somewhat puzzled, as if I had asked him to smell a higher symmetry. But he complied courteously, and took it to his nose. Now, suddenly, he came to life.

'Beautiful!' he exclaimed. 'An early rose. What a heavenly smell!' He started to hum '*Die Rose, die Lillie* . . .' Reality, it seemed, might be conveyed by smell, not by sight.

I tried one final test. It was still a cold day, in early spring, and I had thrown my coat and gloves on the sofa.

'What is this?' I asked, holding up a glove.

'May I examine it?' he asked, and, taking it from me, he proceeded to examine it as he had examined the geometrical shapes.

'A continuous surface,' he announced at last, 'infolded on itself. It appears to have'—he hesitated—'five outpouchings, if this is the word.'

'Yes,' I said cautiously. 'You have given me a description. Now tell me what it is.'

'A container of some sort?'

'Yes,' I said, 'and what would it contain?'

'It would contain its contents!' said Dr P., with a laugh. 'There are many possibilities. It could be a change purse, for example, for coins of five sizes. It could . . .'

I interrupted the barmy flow. 'Does it not look familiar? Do you think it might contain, might fit, a part of your body?'

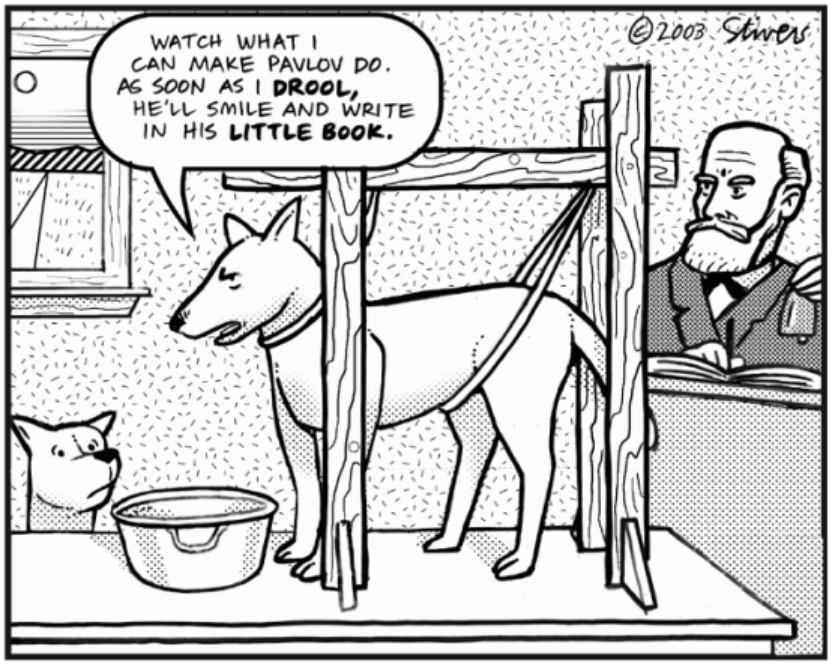
No light of recognition dawned on his face. No child would have the power to see and speak of 'a continuous surface . . . infolded on itself,' but any child, any infant, would immediately know a glove as a glove, see it as familiar, as going with a hand. Dr P. didn't. He saw nothing as familiar. Visually, he was lost in a world of lifeless abstractions. Indeed, he did not have a real visual world, as he did not have a real visual self. He could speak about things, but did not see them face-to-face.

(excerpt from Oliver Sacks, The man who mistook his wife for his hat)

## **Problem 5** Blank slates & Bobo dolls

### A The musician's brain

### B Associations



The ideas of goblins and sprites have really no more to do with darkness than light: yet let but a foolish maid inculcate these often on the mind of a child, and raise them there together, possibly he shall never be able to separate them again so long as he lives, but darkness shall ever afterwards bring with it those frightful ideas, and they shall be so joined, that he can no more bear the one than the other.

Another instance. A man receives a sensible injury from another, thinks on the man and that action over and over, and by ruminating on them strongly, or much, in his mind, so cements those two ideas together, that he makes them almost one; never thinks on the man, but the pain and displeasure he suffered comes into his mind with it, so that he scarce distinguishes them, but has as much an aversion for the one as the other. Thus hatreds are often begotten from slight and innocent occasions, and quarrels propagated and continued in the world.

A third instance. A man has suffered pain or sickness in any place; he saw his friend die in such a room: though these have in nature nothing to do one with another, yet when the idea of the place occurs to his mind, it brings (the impression being once made) that of the pain and displeasure with it: he confounds them in his mind, and can as little bear the one as the other.

……

Instances of this kind are so plentiful everywhere, that if I add one more, it is only for the pleasant oddness of it. It is of a young gentleman, who, having learnt to dance, and that to great perfection, there happened to stand an old trunk in the room where he learnt. The idea of this remarkable piece of household stuff had so mixed itself with the turns and steps of all his dances, that though in that chamber he could dance excellently well, yet it was only whilst that trunk was there; nor could he perform well in any other place, unless that or some such other trunk had its due position in the room. If this story shall be suspected to be dressed up with some comical circumstances, a little beyond precise nature, I answer for myself that I had it some years since from a very sober and worthy man, upon his own knowledge, as I report it; and I dare say there are very few inquisitive persons who read this, who have not met with accounts, if not examples, of this nature, that may parallel, or at least justify this.

Excerpts from *An essay concerning human understanding*, Chapter XXXIII Of the association of ideas. by John Locke (1690)


## C Bobo dolls

In 1961, children in Albert Bandura's laboratory witnessed an adult beating up an inflatable clown. The doll, called Bobo, was the opposite of menacing with its wide, ecstatic grin and goofy clown outfit.

But when it was their own turn to play with Bobo, children who witnessed an adult pummelling the doll were likely to show aggression too. Similar to their adult models, the children kicked the doll, hit it, and threw it in the air. They even came up with new ways to hurt Bobo, such as throwing darts or aiming a toy gun at him. Children who were exposed to a non-aggressive adult or no model at all had far less aggression toward Bobo.

# **Problem 6** The smell of cookies

## A

…one day in winter, on my return home, my mother, seeing that I was cold, offered me some tea, a thing I did not ordinarily take. I declined at first, and then, for no particular reason, changed my mind. She sent for one of those squat, plump little cakes called "petites madeleines," which look as though they had been moulded in the fluted valve of a scallop shell. And soon, mechanically, dispirited after a dreary day with the prospect of a depressing morrow, I raised to my lips a spoonful of the tea in which I had soaked a morsel of the cake. No sooner had the warm liquid mixed with the crumbs touched my palate than a shudder ran through me and I stopped, intent upon the extraordinary thing that was happening to me. An exquisite pleasure had invaded my senses, something isolated, detached, with no suggestion of its origin. And at once the vicissitudes of life had become indifferent to me, its disasters innocuous, its brevity illusory - this new sensation having had on me the effect which love has of filling me with a precious essence; or rather this essence was not in me it *was* me. I had ceased now to feel mediocre, contingent, mortal. Whence could it have come to me, this all-powerful joy? I sensed that it was connected with the taste of the tea and the cake, but that it infinitely transcended those savours, could, no, indeed, be of the same nature. Whence did it come? What did it mean? How could I seize and apprehend it?

(Excerpt from À la recherche du temps perdu/Remembrance of things past, Marcel Proust

## B Metaphors of memory

Please assume, then, for the sake of argument, that there is in our souls a block of wax, in one case larger, in another smaller, in one case the wax is purer, in another more impure and harder, in some cases softer…

…whenever we wish to remember anything we see or hear or think of in our own minds, we hold this wax under the perceptions and thoughts and imprint them upon it, just as we make impressions from seal rings; and whatever is imprinted we remember and know as long as its image lasts, but whatever is rubbed out or cannot be imprinted we forget and do not know.

Later on in the same dialogue, Socrates invites us to think of the mind as an aviary full of birds of all sorts. The owner possesses them, in the sense that he has the ability to enter the aviary and catch them, but does not have them, unless he literally has them in his hands. The birds are pieces of knowledge, to hand them over to someone else is to teach, to stock the aviary is to learn, to catch a particular bird is to remember a thing once learned and thus potentially known. The possibility of false judgment emerges when one enters the aviary in order to catch, say, a pigeon but instead catches, say, a ring-dove.

(Socrates in Plato's Theaetetus)

Our memory has a will of its own. We tell ourselves, 'This is something I must remember, this is a moment I must hang on to, this look, this feeling, this caress', yet within a few months, or even after just a couple of days, we find that the memory can no longer be summoned up with the colour, smell or savour we were hoping for. 'Memory', says Cees Nooteboom in Rituals, 'is like a dog that lies down where it pleases.' Nor does our memory take much notice of our order not to preserve something: if only I had never seen that, experienced it, heard of it; if only I could just forget all about it. But it's no good, it keeps turning up at night, spontaneously and uninvited, when we cannot fall asleep. Then, too, memory is a dog; it retrieves what we have just thrown away, wagging its tail.

(Excerpt from *Why life speeds up as we grow older* by Douwe Draaisma (2004)

## Clinical case: Solomon Shereshevskii


Born in Russia in 1886 to a Jewish family Shereshevskii, or simply 'S' as he is sometimes referred in literature externally appeared to lead a normal life. As an adult, after failing as a musician he embarked on a career as a journalist. It wasn't till a chance meeting with the Neuropsychologist Alexander Luria (one of the founding fathers of the discipline) that his gift became apparent.

Shereshesvkii was reporting on a talk given by Luria. At one point Luria looked around the room and noticed that, unlike all the rest of the journalists, there was an individual not taking any notes. Luria confronted Shereshesvkii asking why he was not taking notes, at this point Shereshesvkii recited his entire talk back to word for word. Luria was stunned, as was Shereshesvkii who at this point had never realised that no one else had his perfect recall. This began a friendship and research partnership that lasted many years, with Luria conducting many studies into what might be the cause of his incredible abilities.

Luria's studies revealed many interesting things about the workings of Shereshesvkii mind. His descriptions indicate that Sherevskii had "at least six different types of synaesthesia" triggered by at least four different sensations

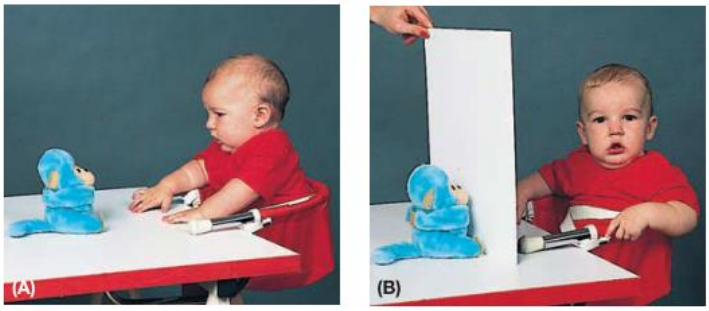
# **Problem 7** Look who's talking

## A Imitation

In a remarkable study, investigators sat face-to-face with infants just a few days old. When the investigators stuck out their tongues, the infants did the same. When the investigators opened their mouths wide, or pursed their lips, the infants did too. The capacity for imitation, it seems, is in place even for very young babies!

## B Peek-a-boo!

Young children will often hide themselves by covering their eyes. As soon as their favourite toy is out of sight they lose interest completely.




## C More?

## D Gavagai

The logician Quine came up with the following riddle: Picture yourself as a young linguist on a field trip, exploring an island in the South Pacific with a local native guide. You see a rabbit scurry by and the native shouts *gavagai* pointing to the rabbit. What does *gavagai* mean? Rabbit? Long ears? Hop? Gee, those are wonderful for dinner? How do children learn what words mean while faced with so much indeterminacy?

But somehow babies manage to crack the code and after some initial babbling they will start saying *noonoo* when they fancy more noodles and *daw* when they spot a dog from their stroller…

## E Poliglots

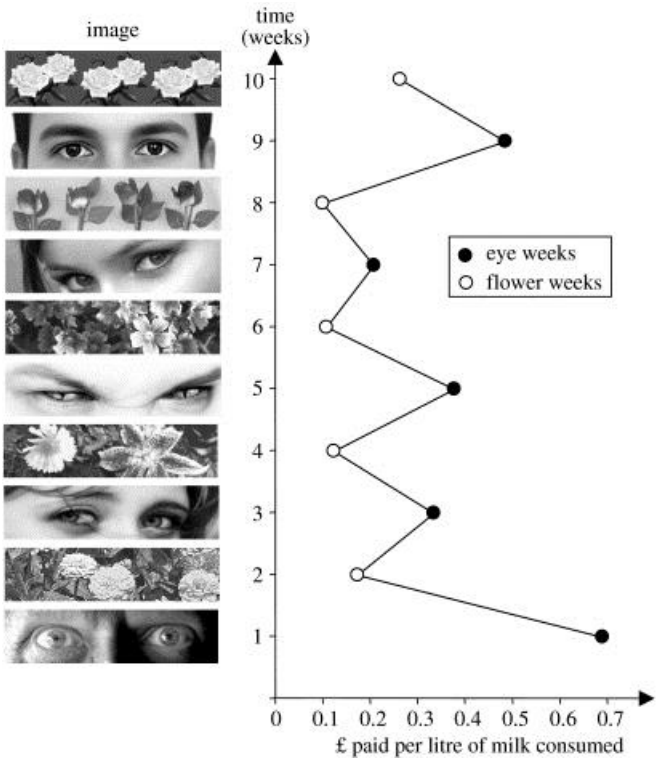
# **Problem 8** Help!

### A No I in TEAM?



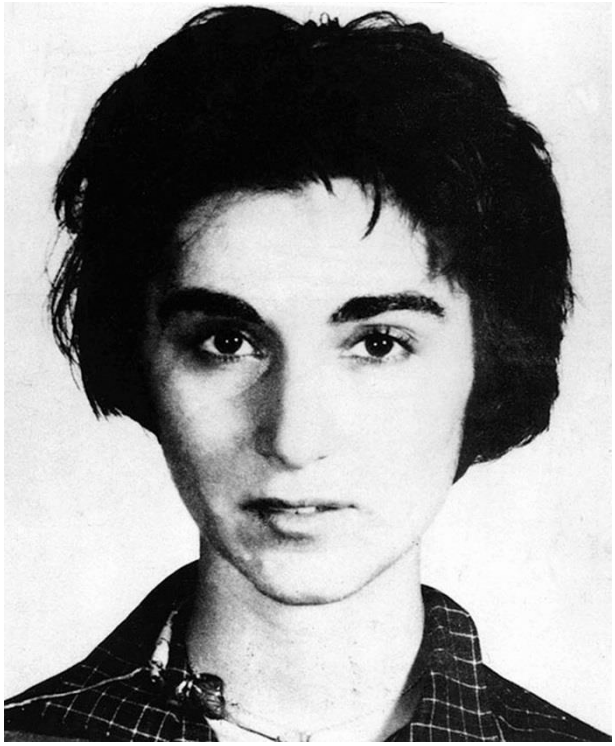
### B Big brother is watching you

A curious phenomenon, noticed by psychologists, is that humans are very sensitive to being observed by others. They are more likely to cooperate and to behave socially when they believe they are watched by others. Even the presence of pictures of eyes affects their behaviour, as one study about the contributions to a public good showed (see the figure below). Here are the contributions people made to an honesty box in the coffee corner at work:




Pounds paid per litre of milk as a function of week and image type

**C Kitty Genovese**



March 13, 1964. It was just after 3 a.m. A red Fiat rolled slowly through the darkness into a parking space adjacent to the Long Island Rail Road station in Kew Gardens. The young woman behind the wheel emerged from the car and locked it. She began the 100-foot walk toward her apartment house at 82-70 Austin Street. But then she spotted a man standing along her route. Apparently afraid, she changed direction and headed toward the intersection of Austin and Lefferts Boulevard -- where there was a police call box. Suddenly, the man overtook her and grabbed her. She screamed. Residents of nearby apartment houses turned on their lights and threw open their windows. The woman screamed again: "Oh, my God, he stabbed me! Please help me!'' A man in a window shouted: "Let that girl alone.'' The attacker walked away. Apartment lights went out and windows slammed shut. The victim staggered toward her apartment. But the attacker returned and stabbed her again. "I'm dying!'' she cried. Windows opened again. The attacker entered a car and drove away. Windows closed, but the attacker soon came back again. His victim had crawled inside the front door of an apartment house at 82-62 Austin St. He found her sprawled on the floor and stabbed her still again. This time he killed her. It was not until 3:50 that morning that a neighbour of the victim called police. Officers arrived two minutes later and found the body. They identified the victim as Catherine Genovese, 28, who had been returning from her job as manager of a bar in Hollis. Neighbours knew her not as Catherine but as Kitty. Detectives investigating Genovese's murder discovered that no fewer than 38 of her neighbours had witnessed at least one of her killer's three attacks but had neither come to her aid nor called the police. The one call made to the police came after Genovese was already dead.

# **Problem 9** Natural born killers

*The wolf don't know why he's a wolf. The deer don't know why he's a deer.*

*God just made it that way – Mickey (1994)*

## A

*An Italian court has cut the sentence given to a convicted murderer by a year because he has genes linked to violent behaviour — the first time that behavioural genetics has affected a sentence passed by a European court. But researchers contacted by Nature have questioned whether the decision was based on sound science. Abdelmalek Bayout, an Algerian citizen who has lived in Italy since 1993, admitted in 2007 to stabbing and killing Walter Felipe Novoa Perez on 10 March. Perez, a Colombian living in Italy, had, according to Bayout's testimony, insulted him over the kohl eye make-up the Algerian was wearing… In the report, [researchers] concluded that Bayout's genes would make him more prone to behaving violently if provoked.*
Excerpt from Nature (2009)

Brian, a first year law student, thinks that the argument is a sound basis for the judge's decision: "If it is true that someone has a gene for aggressive behaviour, this would make him

less responsible." Julia, a first year psychology student thinks Brian oversimplifies how genes can influence behaviour: "I don't think it is that easy – the road from DNA to behaviour is long and windy, and it is strange to speak about a 'gene for' aggressive behaviour.

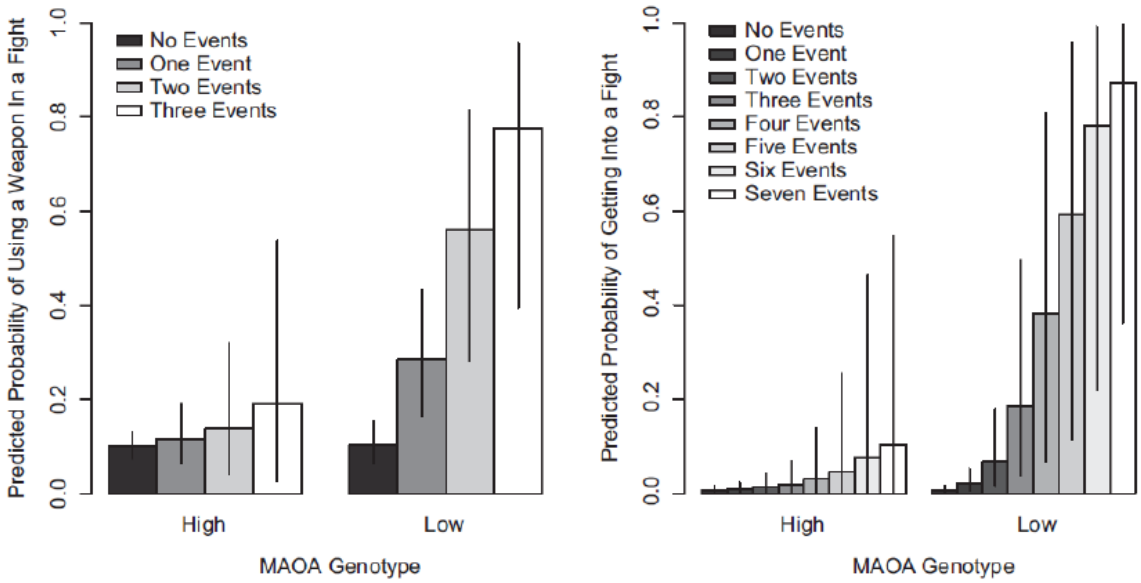

**B**

*In the mainstream press, "heritability of a trait" is interpreted as "percentage of that trait inherited and dictated by genes." To begin with, this is a profound misunderstanding of the scientific meaning of heritability […]This is not to suggest that heritability studies are useless. But it does suggest that much communication about them is, at present, a significant hindrance to the popular understanding of genes and their influence on the formation of traits"*

*David Shenk- Genomics Forum Visiting Fellow, August 2010.*

One popular method to examine heritability of psychological traits are twin studies, this method relies on knowledge of the coefficient of relatedness to estimate heritability. Research using this method has come to many interesting conclusions about how much of our psychology and behavior is tied to 'our nature'.

**C**


Predicted Probability of Using a Weapon In a Fight
0.0
0.2
0.4
0.6
0.8
1.0
No Events
One Event
Two Events
Three Events
High
Low
MAOA Genotype
Predicted Probability of Getting Into a Fight
0.0
0.2
0.4
0.6
0.8
1.0
No Events
One Event
Two Events
Three Events
Four Events
Five Events
Six Events
Seven Events
High
Low
MAOA Genotype

## **Problem 10** Doubts, Darwinism & Dreams

**A**

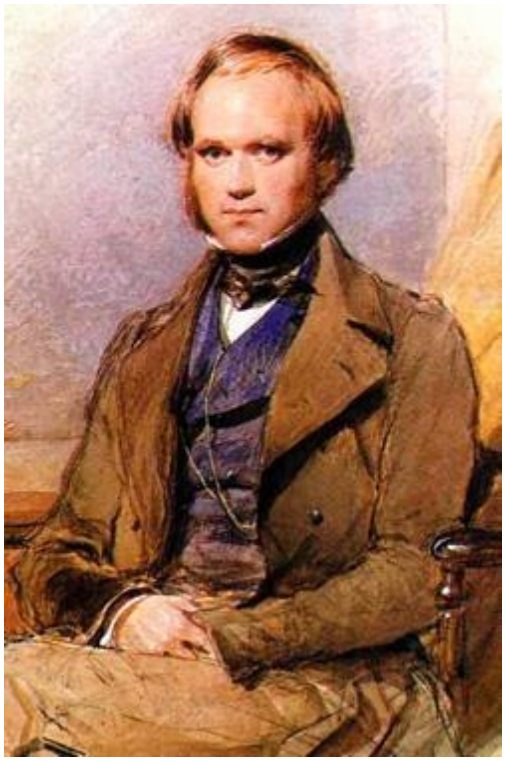
*All that up to the present time I have accepted as most true and certain I have learned either from the senses or through the senses; but it is sometimes proved to me that these senses are deceptive, and it is wiser not to trust entirely to anything by which we have once been deceived.*

*But it may be that although the senses sometimes deceive us concerning things which are hardly perceptible, or very far away, there are yet many others to be met with as to which we cannot reasonably have any doubt, although we recognise them by their means. For example, there is the fact that I am here, seated by the fire, attired in a dressing gown, having this paper in my hands and other similar matters. And how could I deny that these hands and this body are mine, were it not perhaps that I compare myself to certain persons, devoid of sense, whose cerebella are so troubled and clouded by the violent vapours of black bile, that they constantly assure us that they think they are kings when they are really quite poor, or that they are clothed in purple when they are really without covering, or who imagine that they have an earthenware head or are nothing but pumpkins or are made of glass. But they are mad, and I should not be any the less insane were I to follow examples so extravagant*

*At the same time I must remember that I am a man, and that consequently I am in the habit of sleeping, and in my dreams representing to myself the same things or sometimes even less probable things, than do those who are insane in their waking moments. How often has it happened to me that in the night I dreamt that I found myself in this particular place, that I was dressed and seated near the fire, whilst in reality I was lying undressed in bed! At this moment it does indeed seem to me that it is with eyes awake that I am looking at this paper; that this head which I move is not asleep, that it is deliberately and of set purpose that I extend my hand and perceive it; what happens in sleep does not appear so clear nor so distinct as does all this. But in thinking over this I remind myself that on many occasions I have in sleep been deceived by similar illusions, and in dwelling carefully on this reflection I see so manifestly that there are no certain indications by which we may clearly distinguish wakefulness from sleep that I am lost in astonishment. And my astonishment is such that it is almost capable of persuading me that I now dream.*

Meditations on First Philosophy, (Meditations I: Concerning Those Things That Can Be Called into Doubt), René Descartes,1647

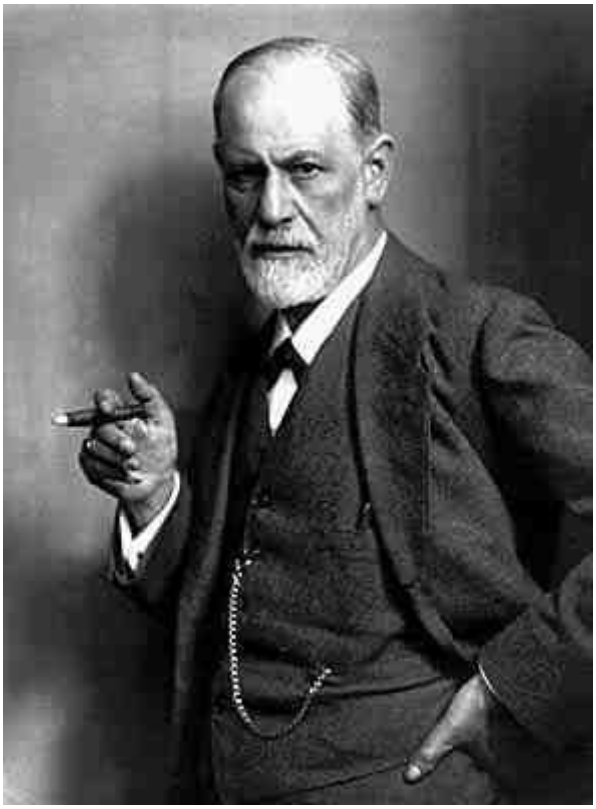
**B**



*It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us. These laws, taken in the largest sense, being Growth with Reproduction; Inheritance which is almost implied by reproduction; Variability from the indirect and direct action of the external conditions of life, and from use and disuse; a Ratio of Increase so high as to lead to a Struggle for Life, and as a consequence to Natural Selection, entailing Divergence of Character and the Extinction of less-improved forms. Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.*

On the Origin of Species by Means of Natural Selection,
or the Preservation of Favoured Races in the Struggle for Life.
Charles Darwin, 1859

**C**



*In a dream in which one is naked or scantily clad in the presence of strangers, it sometimes happens that one is not in the least ashamed of one's condition. But the dream of nakedness demands our attention only when shame and embarrassment are felt in it, when one wishes to escape or to hide, and when one feels the strange inhibition of being unable to stir from the spot, and of being utterly powerless to alter the painful situation. It is only in this connection that the dream is typical; otherwise the nucleus of its content may be involved in all sorts of other connections, or may be replaced by individual amplifications. The essential point is that one has a painful feeling of shame, and is anxious to hide one's nakedness, usually by means of locomotion, but is absolutely unable to do so. I believe that the great majority of my readers will at some time have found themselves in this situation in a dream.*

*The nature and manner of the exposure is usually rather vague. The dreamer will say, perhaps, "I was in my chemise," but this is rarely a clear image; in most cases the lack of clothing is so indeterminate that it is described in narrating the dream by an alternative: "I was in my chemise or my petticoat." As a rule the deficiency in clothing is not serious enough to justify the feeling of shame attached to it. For a man who has served in the army, nakedness is often replaced by a manner of dressing that is contrary to regulations. "I was in the street without my sabre, and I saw some officers approaching," or "I had no collar," or "I was wearing checked civilian trousers," etc. The persons before whom one is ashamed are almost always strangers, whose faces remain indeterminate. It never happens, in the typical dream, that one is reproved or even noticed on account of the lack of clothing which causes one such embarrassment. On the contrary, the people in the dream appear to be quite indifferent; or, as I was able to note in one particularly vivid dream, they have stiff and solemn expressions. This gives us food for thought.*

The Interpretation of Dreams, Sigmund Freud, 1911

# Sources of information

**CB** = Course book: Gray, P. & Bjorklund, D.F. (2014), *Psychology* (7th ed.). New York: Worth Publishers.

**E** = E-reader on Eleum
**I** = Internet

***** = introductory level
****** = intermediate (read after *)
******* = difficult (read after * or **)

**Problem 1**: Love at first sight

**Note**: Some of the readings are (parts of) introductory chapters of rather general psychology books and often the content partially overlaps. It may seem redundant to read the same thing again, but it can be very useful to read about the same topic from a slightly different perspective. You may also prefer how one author explains the same thing over another.

Gray, P. & Bjorklund, D.F. (2014), *Psychology* (7th ed.). New York: Worth Publishers. (***CB**: Chapter 1: pp 12-22; Chapter 6: pp 231-241)

Dutton, D.G. & Aaron, A. P. (1974). Some evidence for heightened sexual attraction under conditions of high anxiety. *Journal of Personality and Social Psychology*, *30*, 510–517. **(**E)**

Meston, C. M., & Frohlich, P. F. (2003). Love at first fright: Partner salience moderates roller-coaster-induced excitation transfer. Archives of Sexual Behavior, 32(6), 537-544. **(**E)**

Buss, D. M., Larsen, R. J., Westen, D., & Semmelroth, J. (1992). Sex differences in jealousy: Evolution, physiology, and psychology. Psychological Science, 3, 251–255. **(**E)**

**Problem 2**: Clever Hans

Gray, P. & Bjorklund, D.F. (2014), *Psychology* (7th ed.). New York: Worth Publishers. (***CB**: Chapter 1: pp 29-56)

Stanovich, K. E. (2007). How to think straight about psychology. Boston, MA: Pearson Allyn and Bacon.
(****E:** Chapter 1: pp 1-18; Chapter 4-6: pp 51-96)

***I:** Experimental design: http://en.wikipedia.org/wiki/Design_of_experiments
***I:** Correlation (technical): http://en.wikipedia.org/wiki/Correlation_and_dependence

**Problem 3**: My brain & me

Zimbardo P.G., Johnson, R.L., & McCann, V. (2009). *Psychology Core Concepts* (7th ed.). Boston, MA: Pearson Education. (***E:** Chapter 2: pp 62-80)

Carey, J. (2005). Brain Facts: A primer on the Brain and Nervous System (5th ed.): Society for Neuroscience, Washington, DC. (****E:** Intro & Chapter 1: pp 4-12)

***I:** Brain basics: http://BrainFacts.org
***I:** Brain anatomy: https://en.wikipedia.org/wiki/Human_brain
***I:** BrainTutor: http://brainvoyager.com/products/braintutor.html

**Problem 4**: Making sense of the world

Gray, P. & Bjorklund, D.F. (2014), Psychology (7th ed.). New York: Worth Publishers. (*CB: Chapter 7 269-278)

Gray, P. & Bjorklund, D.F. (2014), Psychology (7th ed.). New York: Worth Publishers. (*CB: Chapter 8)

Wolfe, J.M., Kluender, K.R, Levi, D.M. (2012). Sensation and Perception (3rd ed.). Sunderland: Sinauer. (****E**: Chapter 4: pp. 93-105)

Eagleman, D. M., Kagan, A. D., Nelson, S. S., Sagaram, D., & Sarma, A. K. (2007). A standardized test battery for the study of synesthesia. Journal of neuroscience methods, 159(1), 139-145. **(****E)**

Safran, A. B., & Sanda, N. (2015). Color synesthesia. Insight into perception, emotion, and consciousness. Current opinion in neurology, 28(1), 36. **(**E)**

**Problem 5**: Blank slates & Bobo dolls

Gray, P. & Bjorklund, D.F. (2014), *Psychology* (7th ed.). New York: Worth Publishers. (***CB**: Chapter 4: 101-146)

Caudill, M., C. Butler. (1992). Hebbian learning, Understanding neural networks: computer explorations (vol. 1, ch. 5, pp. 59-64, 75-78). Cambridge: MIT Press. **(**E)**

Münte, T. F., Altenmuller, E., and Jäncke, L. (2002). The musician's brain as a model of neuroplasticity. *Nature Reviews Neuroscience,* 3, 473–478. **(***E)**

**Problem 6**: The smell of cookies

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Gleitman, H., Gross, J., & Reisberg, D. (2011). Psychology. W.W. Norton & Company: New York. (***E**: Chapter 8: pp. 301-339)

Draaisma, D. (2004). Why life speeds up as you get older: how memory shapes our past. Cambridge: Cambridge University Press. (****E** Chapter 3, pp. 31-39)

Yaro C. & Ward J (2007). Searching for Shereshevskii: what is superior about the memory of synaesthetes? *Quarterly journal of experimental psychology*,*60*, 681-95. **(**E)**

**Problem 7**: Look who's talking

Gray, P. & Bjorklund, D.F. (2014), *Psychology* (7th ed.). New York: Worth Publishers. (***CB**: Chapter 11: pp. 420-458)

Meltzoff, A., & Moore, M. (1977). Imitation of Facial and Manual Gestures by Human Neonates. *Science*, *198*, 75-78. **(**E)**

Kuczaj, S. A., & Hill, H. M. (2003). The development of language. In A. Slater & G.Bremner (Eds.). An introduction to developmental psychology. Malden, MA: Blackwell. Chapter 3, pp. 218-228. **(**E)**

Werker, J.F. & Yeung, H.H. (2005). Infant speech perception bootstraps word learning. *Trends in Cognitive Sciences*, *9*, 519-527. **(**E)**

Diamond, J. (2010). The benefits of multilingualism. *Science*, *330*, 332-333. **(**EE)**

**Problem 8**: Help!
Gray, P. & Bjorklund, D.F. (2014). *Psychology* (7th ed.). New York: Worth Publishers. (***CB**: Chapter 3: pp. 94-96; Chapter 14: pp. 561-571)

Aronson, E., Wilson, T.D., & Akert, R. M. (2013). *Social Psychology Global Edition* (8th Ed). Boston: Pearson Education. (***E**: Chapter 11: 312-319)

Bateson, M., Nettle, D., & Roberts, G. (2006). Cues of being watched enhance cooperation in real-world setting. *Biology Letters*, *2*, 412–414. (****E**)

Manning, R., Levine, M., & Collins, A. (2007). The Kitty Genovese murder and the social psychology of helping: The parable of the 38 witnesses. American Psychologist, 62, 555–562. (****E**)

Kurzban, R., Burton-Chellew, M. N., & West, S. A. (2015). The evolution of altruism in humans. *Annual Review of Psychology*. *66*, 575–599. (****E**)

Hardin, G. (1968). The tragedy of the commons. *Science*, **162**, 1243-1248. (*****E**)

Nettle, D., Harper, Z., Kidson, A., Stone, R., Penton-Voak, I. S., & Bateson, M. (2013). The watching eyes effect in the Dictator Game: It's not how much you give, it's being seen to give something. Evolution and Human Behavior, 34(1), 35-40. (*****E**)

**Problem 9**: Natural born killers
Gray, P. & Bjorklund, D.F. (2014). *Psychology* (7th ed.). New York: Worth Publishers. (***CB**: Chapter 3: pp 57-65)

Raine, A. (2008). From genes to brain to antisocial behavior. *Current Directions in Psychological Science*, *17*, 323-328. **(**E)**

Pinker, S. (2004). Why nature & nurture won't go away. *Daedalus*, *133*, 5-17. **(**E)**

Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I. W., ... & Poulton, R. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, *297*, 851-854. **(***E)**

***I**: Brief intro to epigenetics: http://www.the-scientist.com/?articles.view/articleNo/15772/title/Epigenetics--Genome--Meet-Your-Environment/

**Problem 10**: Doubts, Darwinism & Dreams

Gray, P. & Bjorklund, D.F. (2014). *Psychology* (7th ed.). New York: Worth Publishers. (***CB**: written from a strong Darwinian perspective)

Jansz , J. (2004). Psychology and society: an overview. In J. Jansz P. van Drunen (Eds.), A social history of psychology. Hoboken, NJ: Blackwell Publishers. (**E)

Descartes (1641). Second Meditation: Concerning the Nature of the Human Mind: That the mind is more known than the body. (***E)

Rilling, M. (2000). John Watson's paradoxical struggle to explain Freud. *American Psychologist*, *55*, 301-312. (**E)

# Appendix

# Observational research practical

## Psychology in the wild

**An important note on research ethics!**

For some research designs you may have to ask permission to the people you observe, the participants in your study. Other designs may be more suitable for unobtrusive observation. In general, it is best to use participants other than your fellow students, unless your research question is directly related to behaviour in this particular population. It should be obvious that you must always respect the subjects in your research and where and when necessary (for example in a shop or public building) ask permission to the manager or person in charge. Make sure that the research does not put the observer or the observed in any kind of danger. Physical and emotional safety must be guaranteed at all time! When in doubt, ask your tutor or the course coordinator for specific advice on how to deal with ethical concerns!

**Outline of the practical**

| | |
|---|---|
| *Practical Meeting 1 (PM 1)*<br>*Week 2* | Make groups of 3-4 students (tutor)<br>Selection of topics (in groups, 15 minutes)<br>Research design (in groups, 60 minutes)<br>Present proposal to the other groups (20 minutes) |
| *Week 3* | Data collection |
| *Week 4* | Analyse data & write report (with group) |
| *Week 5* | Submit first version of Practical Report |
| *Week 6* | Hand in final version of Practical Report |
| *Practical Meeting 2 (PM 2)*<br>*Week 6* | Group presentations of research |

**Suggested topics**

Select a topic from the following list that is most interesting for the members of your practical group. Please note that you have to collect quantitative data for your observational study, so you shouldn't pick a topic that can only be studied in a qualitative fashion. Also make sure that you are able to collect enough data within the given time. You are also very welcome to come up with a topic your own choice. However, you must always ask your tutor for approval!

**Pace of life**

How fast or slow are people? How punctual are they? Are there differences between age groups? Are there gender differences? Are there differences between cultures? In different places: at the cash machine; in the zoo after seeing the cheetahs, on the old bridge into town or leaving the inner city at night?.... *Please note that there is no extra budget for this research activity, so we can't reimburse your tickets for the tube in Tokyo!*

**Time perception**

How does your perception of time change between different conditions: eyes open versus closed, while you are counting backwards from 517 in steps of 3, after a cup of coffee, alone or in groups, at different times of the day, after drinking alcohol…..

**Healthy-Unhealthy behaviour**

Count how many people take the stairs where there is a choice between chairs and elevator? Now put a sign up, prompting people to take the stairs. Does this make a difference? Ask people why they took the stairs and quantify the type of answer they give. Do people who are overweight take the elevator more often than people with a healthy weight? Can one prompt people to make a healthier choice in other situations. How many people drink alcohol on a night out? Is there a difference between men and women?

**Helping**

Which factors influence helping behaviour? For example, imagine someone dropped something (a pen, for example) in front of a target person and you check if people pick up the pen and give it back. Do men help more frequently than women? Are women helped more frequently than men? Does the value of the object matter? (pen versus money). Does location matter? (dirty versus clean public place). Does the number of

people who are around matter? (crowded versus empty) And what if the pen is clearly leaking?

**Personal space**

How big is personal space? On an escalator (in a big department store like Hema, V&D or Bijenkorf), in an elevator, on the train? Within a family? Within a couple? What shape is personal space? Does it matter whether you stand closely in front or behind someone? Where do people sit on the train or bus? Do people move away when you sit down next to them on a park bench? Role of gender, attractiveness, age, etcetera…

**Imitation**

How contagious is yawning or laughing? How many people will touch their nose after you have touched yours? Pedestrians crossing the road at a red light: how many people will follow your bad example? Walk around with a purple triangle on your forehead? Change the number of people who walk around like this? Does the number of people who do it, have an effect on the number of times people ask what it means?

**Reduce, reuse, recycle!**

How do social norms influence environmental behaviour? How often do people switch the light off when they leave the toilet? Does it matter whether the light was on when they entered? If people come across trash on the ground (e.g. an empty can, a candy wrap), how often do they pick it up and throw it away? Does it matter whether they just observed somebody else doing the same? How often do people separate their waste after eating in public places? Does it matter whether they just observed somebody else doing the same?

**Politeness**

Are older people more polite than younger people? Are people more polite in certain environments than in others (e.g. restaurants vs bars)? How often do people close the door after themselves on the train? Do men hold the door open more often than women? What type of driver switches lane most often in a queue? What happens if you block the cycle gutter with your bike next to a flight of steps? Will people go around? Will they just wait? How long before they make a remark?

**Beyond observation: Whose opinion?**

Note: you will need to calculate a correlation score for this one! Ask someone two questions. One related to her or his own opinion (e.g. Do you like to eat garlic? and a

follow up question like: What percentage of the general public would answer this question with yes? Is there a relationship between the two answers?

**PM 1: Creating a research design**

During this first practical session, you will start to design your study. However, you will probably need to spend more time on this after this meeting. Make sure you get organised as a group and ready to collect data in the next two weeks!

*Research type*

The research that you will undertake in this practical is a comparative type of research where differences between groups of different kind s of people will be investigated. Examples are: are children indeed less careful in traffic than adults? Are women more vain than men? Are older people more judgmental towards ethnic minorities than young adults? Are disabled people treated differently than others? In this type of research, it is of crucial importance that the scores obtained by observation are comparable. This can be achieved, for example, by taking the mean score of each group.

*Theory*

By definition, observation is 'perception with the purpose of drawing conclusions'. To draw conclusions, we must have a reference framework; something that gives us standards which we can rely upon. For example being able to know what normal behaviour is provides us with the ability to note abnormal (or normal) behaviour. We need to have an expectation to see that something is special, or just ordinary. If we also want an explanation for what we investigate, then there is a need for a theory.

**Question:** What is the theory/reference framework in your research? Use the resources on Eleum (in the folder Prior art), the wider internet, and the library to do a prior art search. What do we know about this topic? What are the main theories on this type of behaviour?

*The research question*

If you have a global question, if you know in which theoretical framework you would like to work and, if you have been thinking about the constructs and variables that you want to investigate, then you have reached the critical point in knowing why you are going to observe and the time has come to propose a research question. A

characteristic of a scientific research question is that it can be understood as a very short summary of the research design. Below is a step-by-step guide to the specific aspects the research question should include.

What are you going to measure? The first thing that you must specify before you commence your project is what your dependent variables are. How can you operationalise a construct like *personal distance* or *helping*?

Who are you going to measure? You need to specify which persons or groups you plan to observe.

Where will you measure? Behaviour is highly dependent on the specific situation. The situation is thus an important source of independent variables (i.e. things that influence the behaviour you are measuring). For example, people don't often run in a lecture room and people rarely write on a sports field. The situation has a big influence on the kinds of behaviour that you will encounter (and also on the behaviours you probably won't see).. Details about the place and time and other important aspects of the situation should be incorporated in the research question. You should also decide whether you would like to observe in an open or hidden (or covert or unobtrusive) way.

How will you measure the behaviour? You will all observe behaviour in real life situations, in the wild. You are not allowed to record anything with a video or photo camera! Will you make use of a stopwatch (recording of time), tally (to record the frequency) and a measuring stick ( to measure the distance)?

**Task**: Establish your research question

Once you have established the research question you can then formulate the expectations regarding the outcome more precisely. An expectation like this is called a hypothesis.

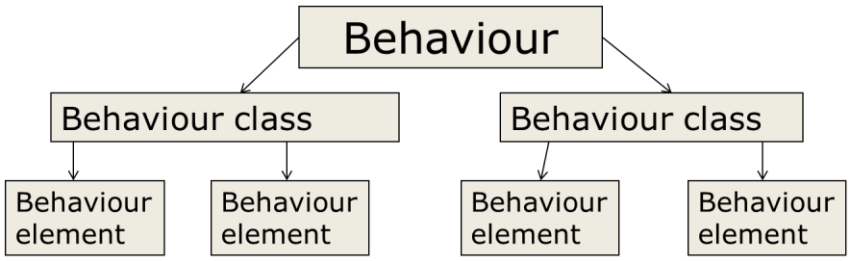
**Task**: Formulate your research hypothesis

**Systematic observation of behaviour**

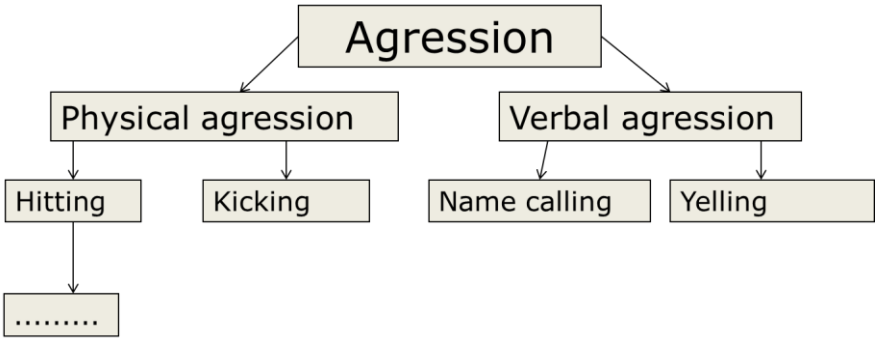
*The ethogram*

Making of a hierarchical ethogram In the process of systematically observing we are specifically forced to constrain subjectivity and selectivity. The observational approach of human behaviour owes a lot to the branch of biology which occupies itself with the examination of animal behaviour in natural situations; ethology (ethos is Greek for habit or behaviour). The ethologists developed a wonderful tool for studying behaviour, the ethogram. An ethogram is a classification for a particular individual or species.

An abstract overview of an ethogram:




A concrete example of an ethogram for aggressive behaviour:




One of the most important advantages of an ethogram is the production of a systematic overview of the categories in which you can classify behaviour. If you take the time to reflect on how the behavioural system is categorized, you will be able to construct a better theory about the structure of behaviour.

**Task**: develop an ethogram about your research question. Make sure the ethogram is exclusive. This means that every observed behavioural element can only be assigned to one behavioural category. Also, make sure that the ethogram is exhaustive: every behaviour that is shown must be assigned to a category.

*Deciding of the level of observation*

The ethogram has different levels: behaviour, behavioural classes or categories and behavioural elements. At the level of behavioural elements, behaviour can be well measured and definable. On a higher level, these behaviours are not as well defined and therefore they are often not directly measurable.

*Type of data: frequency, duration, distance, etcetera*

Frequency data are obtained by simply counting how many times one type of behaviour occurs. We can define frequencies by tallying. For some research questions it is of interest to also mention the time period. For example, hitting 25 times to measure aggressive behaviour is not meaningful. Only when we know that it concerns hitting 5 times per day or 5 times in a week does it becomes useful information. The combination of frequency and period can be expressed in an index, or as a rate (for example 5 times in sixty seconds).

Duration data involve the measurement of how long a specific behaviour lasts. The unit of measure is usually in seconds. The duration can only be measured correctly by using a stopwatch. It is only possible to score one behaviour at a time when using a stopwatch. This measure is only useful when we also record the total duration of an observation.

*Categorical scoring system*

When you are about to observe, you should look at and listen to behaviour and every behaviour should be assigned to a category.

**Task:** develop a categorical system (with codes) for your observational research

Make sure that the categorical system is exclusive and exhaustive. In the following example, the researcher wanted to compare the presence of verbal and nonverbal aggression among children with ADHD. However, to make this comparison, the behavioural elements should eventually be added together to test the research question: VA versus NVA. If you have defined the categorical system you may also have to think of codes. The code may just be a tally, the number of seconds or another symbolic mark (for example 'x' for 'legs crossed' or '=' for legs stretched). But it could also be a letter, for example 'q' for 'question' or 'i' for 'give information'.

Example of a categorical system for frequency:

| Observation nr. | Verbal aggression (VA) | | Total VA | Non Verbal aggression (NVA) | | Total (NVA) |
|---|---|---|---|---|---|---|
| | Curse | Shout | | Hit | Bite | |
| 1 | \|\|\|\| | \| | 5 | | | 0 |
| 2 | \| | \| | 2 | | | 0 |
| 3 | | | 0 | | | 0 |
| 4 | \|\| | \|\|\|\| | 6 | | | 0 |
| 5 | | | 0 | \| | | 1 |
| Etc. | | | | | | |

Example of a categorical system for duration:

| Observation nr. | Verbal aggression (VA) | | Total VA | Non Verbal aggression (NVA) | | Total (NVA) |
|---|---|---|---|---|---|---|
| | Curse | Shout | | Hit | Bite | |
| 1 | 0:00-1:10<br>5:00-7:10<br>8:00-10:00 | | 260 sec.* | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| Etc. | | | | | | |

*When adding the times for cursing you will have the total duration for verbal aggression: 260 sec.

Example of a categorical system for intensity:

| Observation nr. | Verbal aggression (VA) | | Total VA | Non Verbal aggression (NVA) | | Total (NVA) |
|---|---|---|---|---|---|---|
| | Curse | Shout | | Hit | Bite | |
| 1 | 1 | 2 | 3* | 2 | | 2 |
| 2 | 3 | | 3 | | | |
| 3 | 1 | | 1 | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| Etc. | | | | | | |

* 3= strong, 2 = hevig ,1 = present

*Subjects and situation*

The observational research in this practical will be carried out in the wild. There must be at least 80 observations in total. Other factors that may influence the results (for example, time of day, date, weather conditions, number of bystanders) should also be recorded.

*Event sampling or time sampling?*

In event sampling, all behavioural elements are observed and noted on a continuous basis (frequency or duration).

In time sampling, observations are made with breaks in between. In this case, not all events are scored, but only those that occur at a specific time or during a specified time interval. For example, you can choose to observe every five minutes, or every day in the morning, in the afternoon and in the evening.

**Question**: What type of sampling will you use?

**Statistics: describing the data**

Apart from the last topic, you will only need to do calculations that can easily be done with pen and paper, even though you may want to use Excel or a similar application to make your life easier and create some fancy graphs. What are the best ways to summarise your data? Percentages? Counts? Means? Medians? How can the data best be captured in a graph? You do not need to perform any inferential statistics like Chi-squares or *t*-tests!

**The writing assignment**

You and your fellow group members have conducted a small observational study. With your group, you will write a joint research report. The paper should have the structure outlined in the manual **How to write a research report** (will be made available on Eleum) and have a total length of at least 5 pages and a maximum length of 8 pages. The paper should include at least 3 relevant references (preferably to scientific journal articles). Try to find your own way in the library, but do not hesitate to ask your supervisor/mentor for any help if you get lost.

**The presentation assignment**

You and your fellow group members have conducted a small observational study. You've already written a paper on that research. Now you need to present your research in a 10 min presentation (note: 1 slide = 1 min; a 10 min talk should give you enough time for presenting 10 slides). You do this presentation with your group members. The outline of your presentation should closely follow the research paper: Introduction; Methods, Results, Discussion. Have one group member present the introduction, another one present the methods and/or the results and another one the discussion.