جامعة نيويورك أبوظبي

NYU ABU DHABI

PSYCH-UH 2218: Language Science

Class 2: What is our object of study?

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Psychology

What is a theory of cognition?

The critical object: mental representations

A representation is just what it sounds like: an object that stands in a symbolic relationship with another object

let's pretend that this a real tree (and not an image in a slideshow)

a picture of a tree is a representation of the real tree

The critical object: mental representations

A representation is just what it sounds like: an object that stands in a symbolic relationship with another object

a drawing of a tree is also a representation of a tree, but the information it contains may not be identical to the actual tree

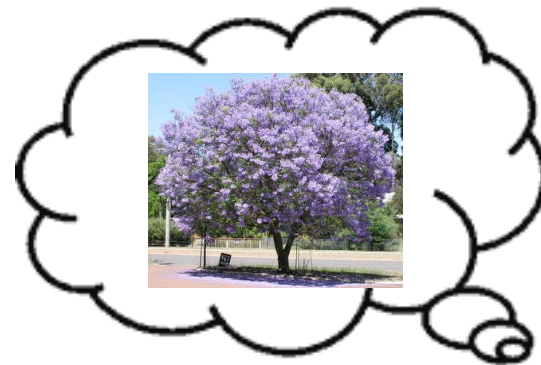let's pretend that this a real tree (and not an image in a slideshow)

The critical object: mental representations
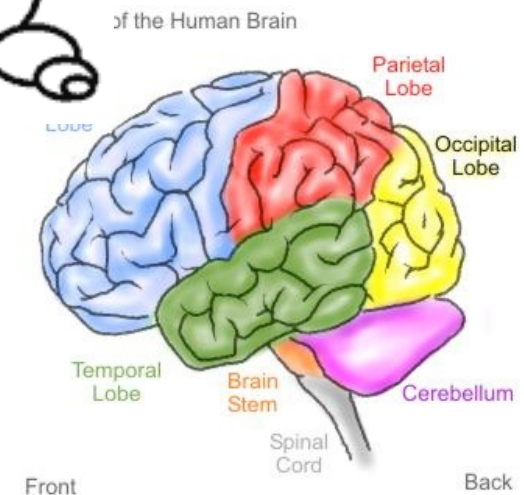
A representation is just what it sounds like: an object that stands in a symbolic relationship with another object

A mental representation is also just what it sounds like: a representation made by your mind

A classic example of a mental representation is the one that you make every time you take in sensory input from the world.

When you see a tree, you are actually perceiving the mind's representation of that tree based on the workings of the visual system


of the Human Brain

Parietal Lobe

Occipital Lobe

Temporal Lobe

Brain Stem

Cerebellum

Spinal Cord

Front

Back

The critical object: mental representations

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of the Human Brain

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Occipital Lobe

Lobe

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Spinal Cord

When you hear a sound, you are actually perceiving the mind's representation of the air vibrations based on the workings of the hearing system
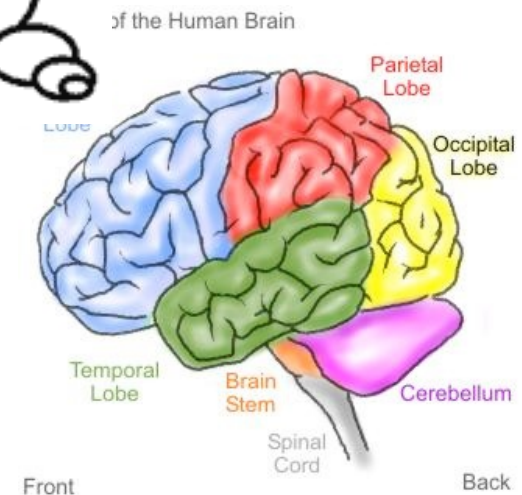
Front

Back

Mental Representations
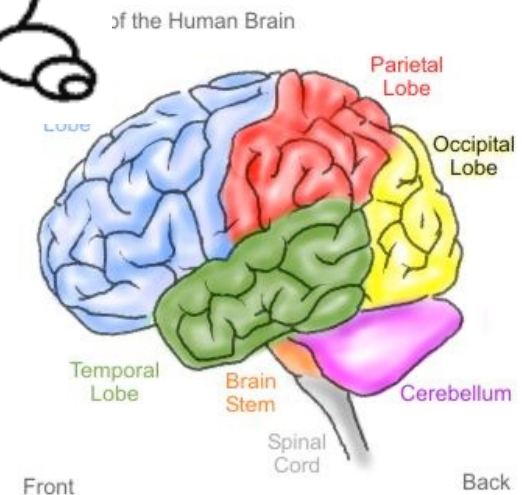
A representation is just what it sounds like: an object that stands in a symbolic relationship with another object

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In this way, you are already very familiar with mental representations.

Mental representations are how you interact with the world all of the time -- your mind creates representations of the world through your sensory systems

of the Human Brain

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You can thank René Descartes for noticing this

Lived primarily in the Netherlands 1596 - 1650.

Descartes argued in his work called "Meditations on First Philosophy" that we do not have access to information about the physical world directly. Instead, our minds **represent** the physical world (in a mini-simulation or virtual reality).

This was a dramatic break with previous ideas about perception, which generally held that we directly perceived the physical world around us. Instead, Descartes was arguing that we **indirectly perceive** the physical world.

This means that what we perceive is **not necessarily identical** to physical world. Our perceptions are influenced by the physical world, of course; but they are also influenced by the way our minds work!

Evidence for representations

Descartes used dreams as evidence that the mind represents reality. Let's call this the **argument from dreams**:

argument from dreams: Dream worlds do not require input form the external world to be created. Therefore dream worlds are creations of the mind alone. Dream worlds have all of the same properties as the external world: sights, sounds, smells, tastes, touches, etc. Therefore the mind alone can create perceptions identical to perceptions of the external world.

There is a similar argument to be made based on **hallucinations**:

argument from hallucinations: Hallucinations have all of the same properties as perceptions of the external world. But hallucinations are not caused by any physical object in the external world. Therefore hallucinations are caused by the mind. Therefore the mind can create the perceptions identical to perceptions of the external world.

Evidence for representations: visual illusions

The problem with the arguments from dreams and hallucinations is that they only show that it is possible for the mind to represent reality (i.e. that indirect perception is possible). They do not show that it is necessary.

For example, it could be the case that we directly perceive reality, but also have the ability to simulate reality in dreams and hallucinations.

Perceptual illusions get around this problem.

In a perceptual illusion you perceive a physical stimulus in a way that is contrary to its physical reality.

This shows that your perception is indirect (i.e. based on the workings of the mind). If your perception were direct, there would be no illusion!
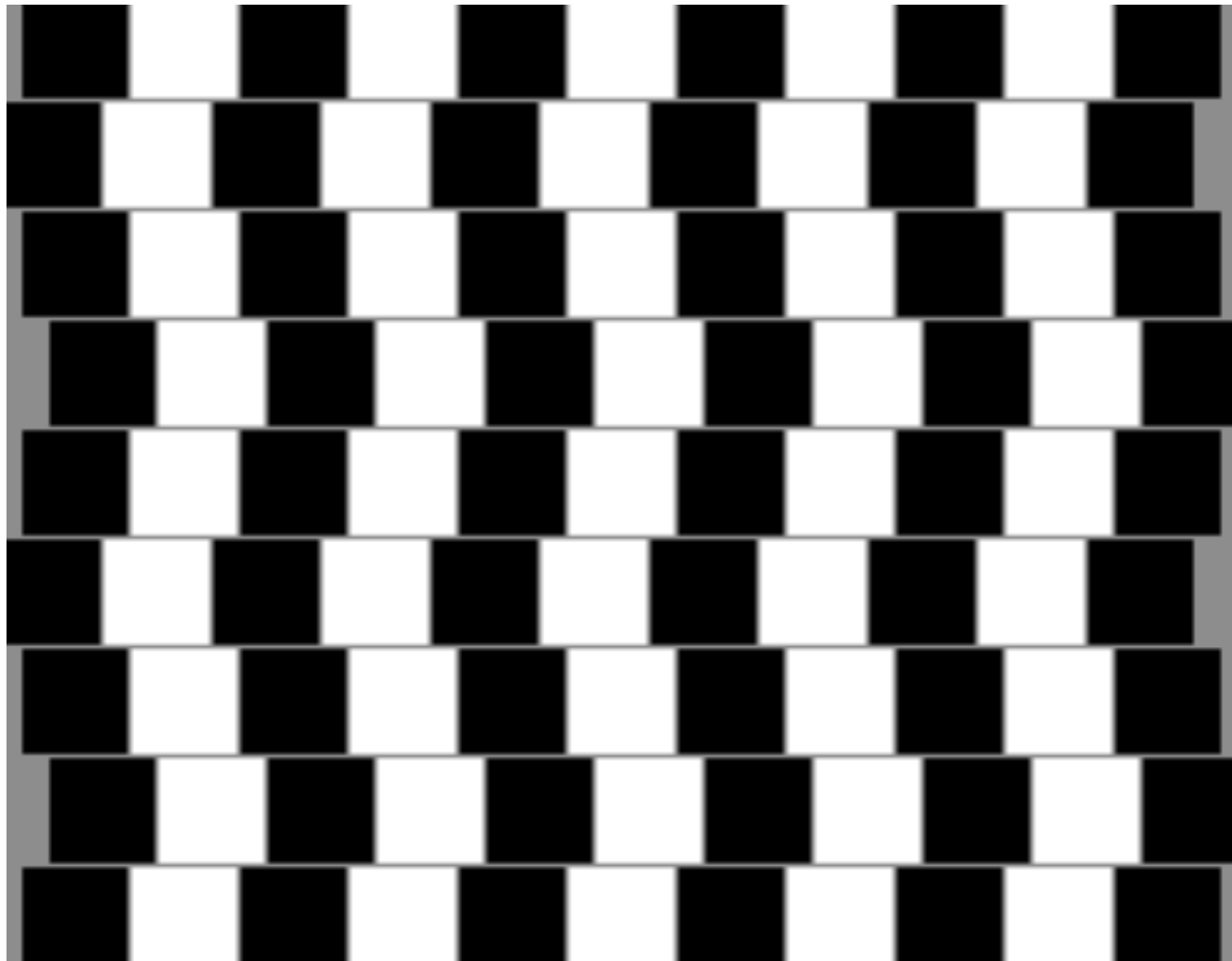
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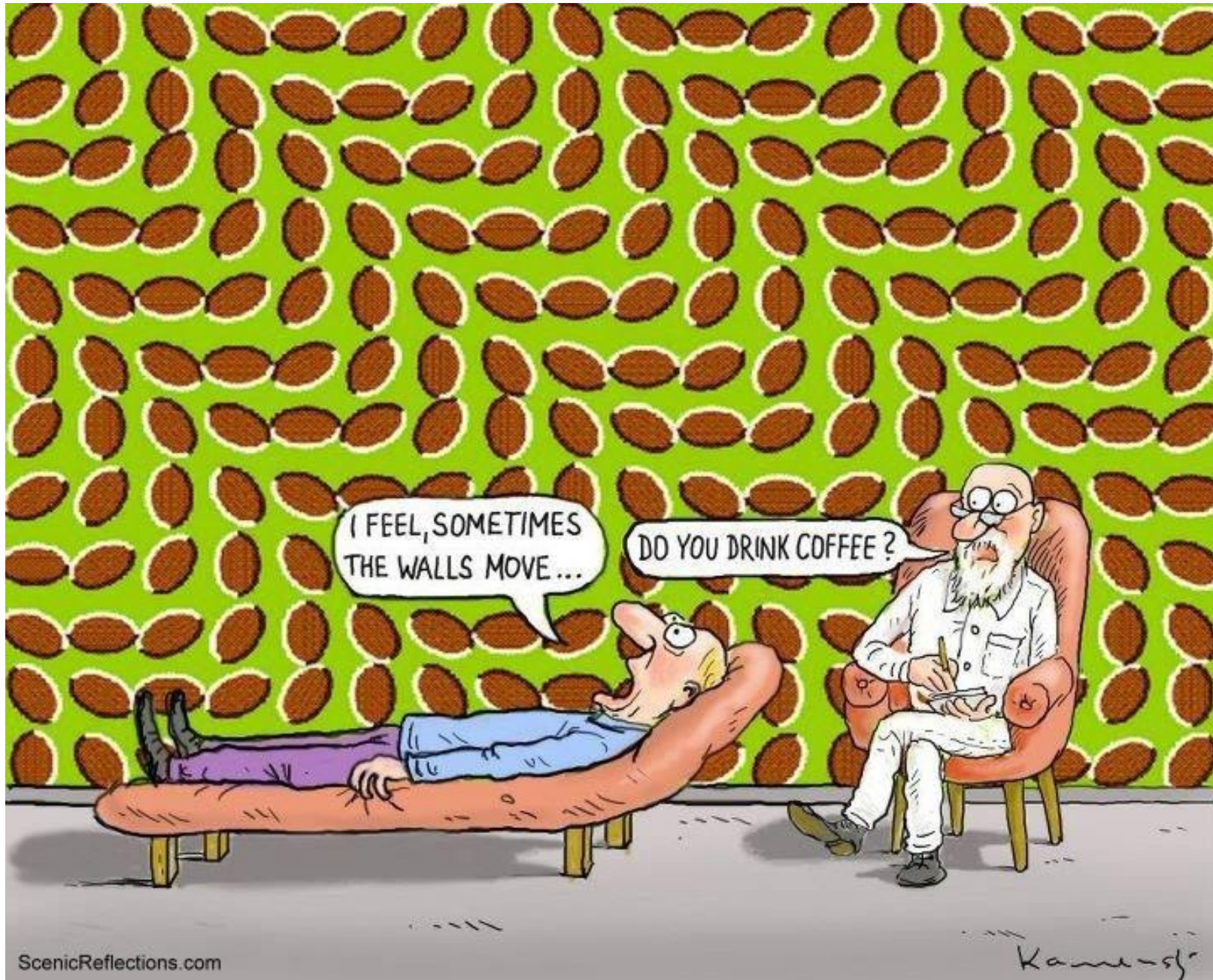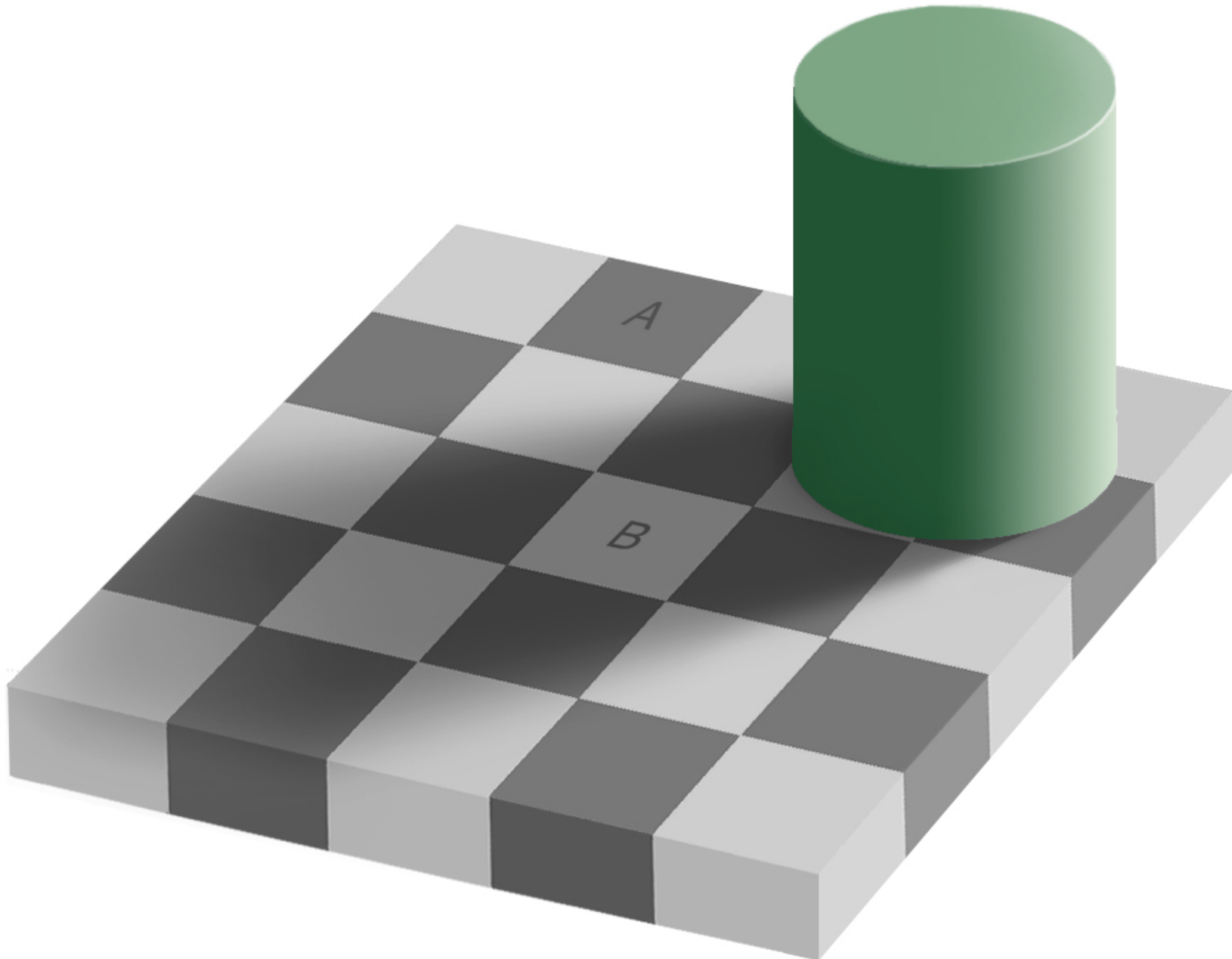
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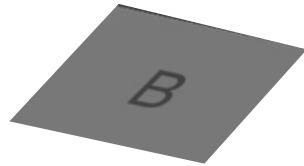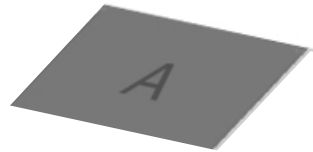
The lines are parallel

The lines are parallel

The two squares are the same shade

The two squares are the same shade

Indirect representation raises really difficult and interesting questions!

How do we know that what we call reality isn't just a dream or hallucination?

The atoms of dreams come from reality, so even if all "reality" is a dream, the atoms of "reality" are real.

Unless an evil demon is deceiving me by creating a fake "reality", then even the atoms of reality are false.

Indirect representation raises really difficult and interesting questions!

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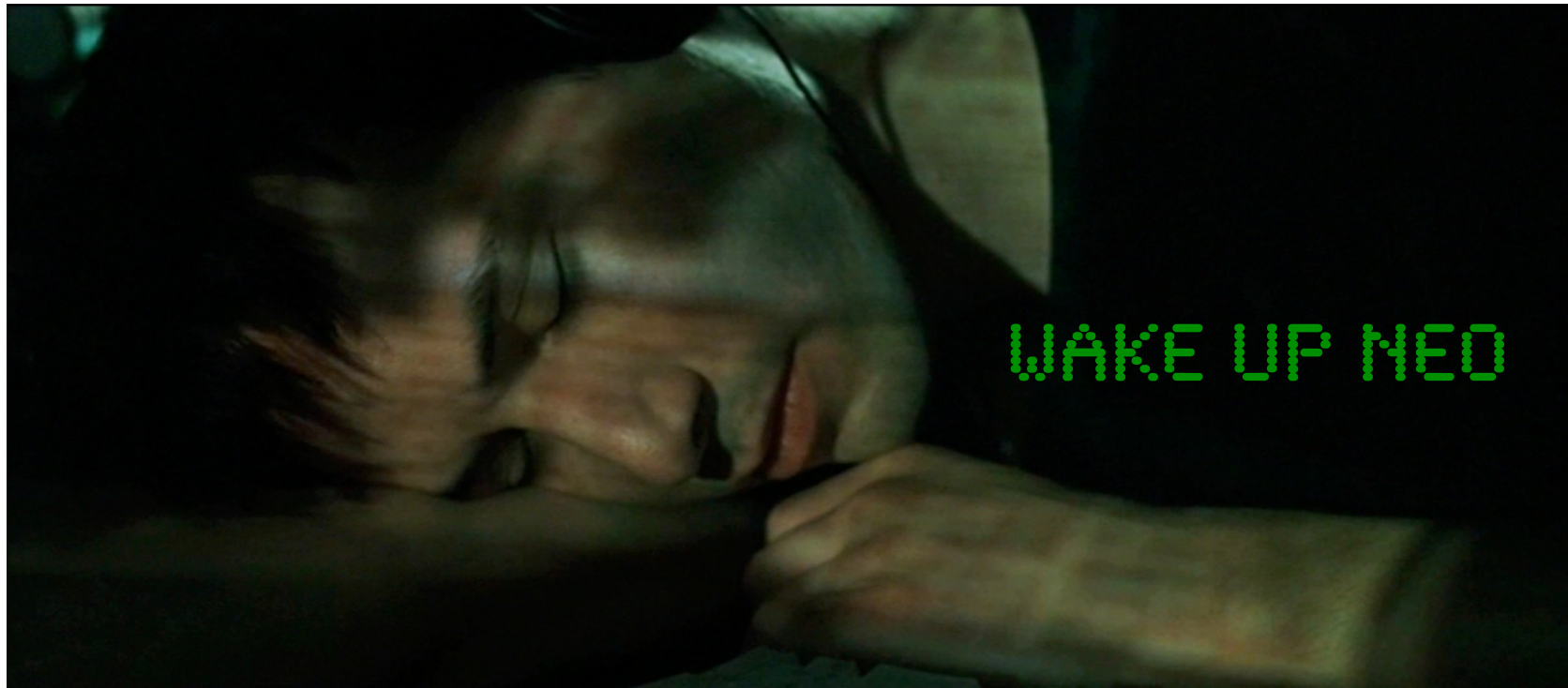
Indirect representation raises really difficult and interesting questions!

Descartes decided that he couldn't trust his beliefs about the physical world because he had no direct access to the physical world. This includes his beliefs that he has hands, feet, a body, that there is mathematics, or even a world!

In contrast, he argued that he did have direct access to his mind. He argued that his beliefs might be flawed, but he did *have* beliefs. His thoughts could be misled, but he did *have* thoughts. His perceptions might be flawed, but he did *have* perceptions.

In short, he could never be sure whether the world exists or not, including whether his body exists or not, but as long as he had thoughts/beliefs/desires/perceptions, he knew that he existed. Hence, "I think therefore I am."

A cognitive theory of language is a theory of the mental representations of language

What is a language?

When people talk about language, they often talk about it like it is an object in the world:

ENGLISH
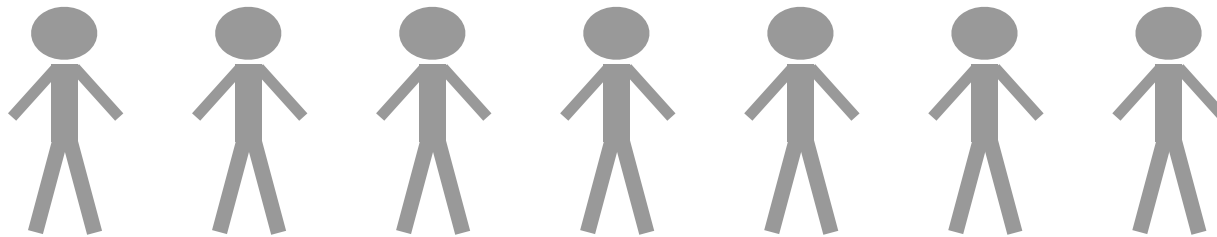
I am not exactly sure what people think this object called "English" is. Maybe a list of words? Maybe a list of sentences?

But what is critical is that we tend to view it as external — outside the people that speak it. The people need to "learn" it. The people need to speak it "correctly". Notice that "correctly" implies that it is distinct from the people. It has certain properties independently of them, and it is up to them to learn those properties correctly.

A language is a system that generates mental representations in our minds

The big shift we need to make in our thinking for this course is to see that language is not external to us. It is a system that is inside our minds.
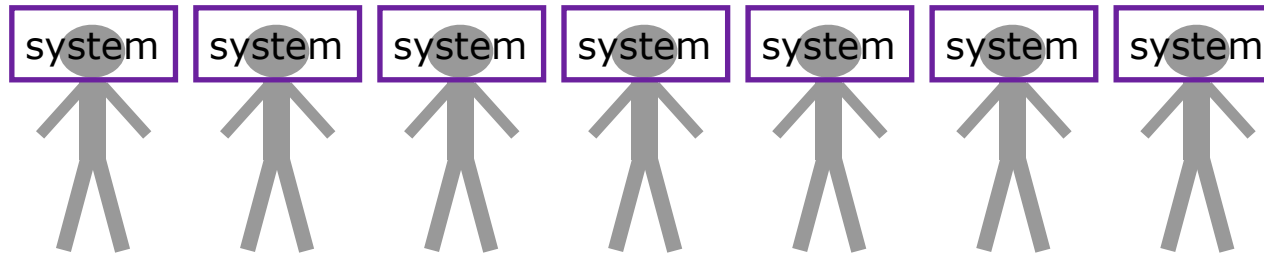
I know this sounds like no big deal — but it is a big deal.

It has the potential to overturn almost everything that people say (or believe) about how language "works"!

And it sets the stage for every other question we will ask in this course!

Native languages

A native language

Our object of study in this course will be **native languages** (sometimes called "first" languages), which stand in opposition to **second languages**.

This doesn't mean that we can't study second languages. We can and do. But the first step in understanding language is to understand how native languages work. (Then we can compare and contrast second languages.)

There is no single diagnostic for a native language. But here are some properties of native languages:

1. Native languages are learned as a child without explicit instruction. You will typically have no memory of learning a native language (no classes, no teachers, no instruction by family members, etc).

2. Native languages will typically (but not always) be the language you are most comfortable speaking. It will be effortless to use. (You don't worry about "making a mistake" or "saying it correctly", you just say it.)

3. Native languages will typically (but not always) be the language you would choose to speak to a very close friend or family member (or romantic partner). (It won't have a "formal" feeling.)

Identifying your native language

OK, take a moment to recognize your native language in your mind. Don't focus on a label (yet). Focus on how you know the system — we'll explore this more soon.

It is possible to have more than one native language. This is why we don't use the term "first language" — there can only be one "first". But a child raised around speakers of multiple languages can have multiple native languages. In this case, it is typically the case that one language will be more dominant than the other. If you have multiple native languages, try to focus on your dominant one.

OK, now the hard part — what should we call your native language?

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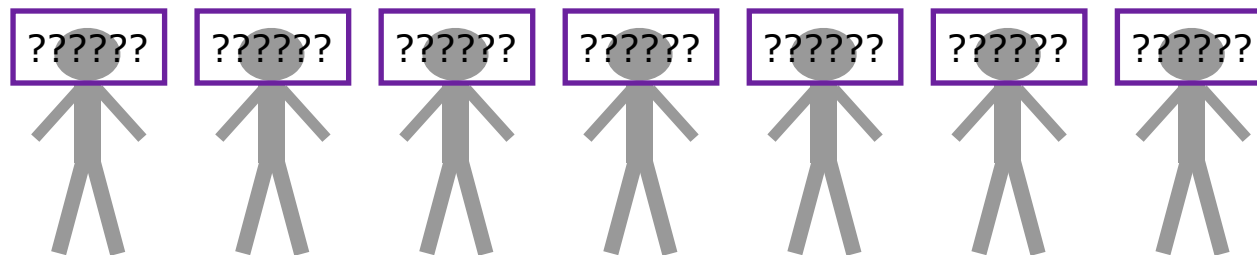
Naming your native language

The system in your mind is yours. It is not the same as anyone else's system. So technically, we should probably name it after you — e.g., my system is "Jon Sprouse's language".

But it is also the case that the system will typically overlap, sometimes almost indistinguishably, with the systems in other people's minds. When this happens, it is convenient to name the system a common name.
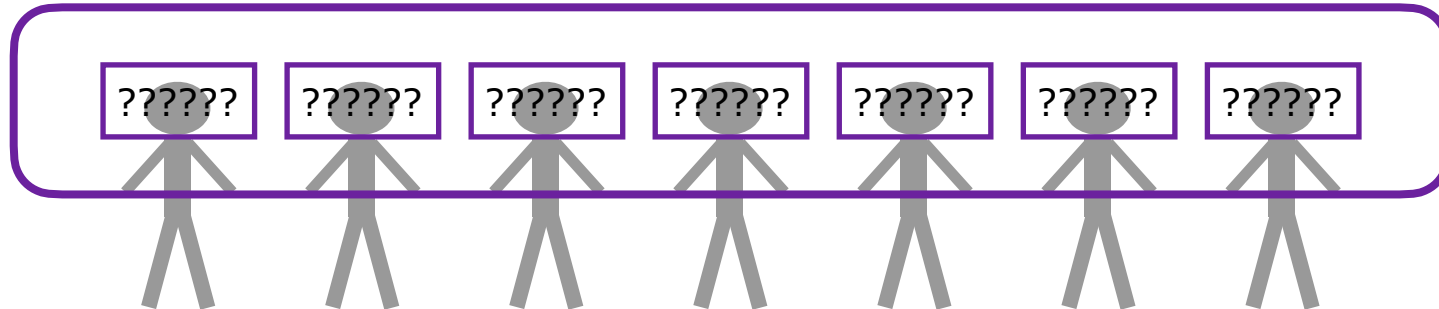
I could probably call the system in my mind "English", or perhaps more specifically "US English", or even "Philadelphia English" (because that is the city closest to where I grew up).

Notice that this sounds exactly the same as the external view of language. Both views use the same name. This is confusing. I apologize for this!

Standard Languages

Standard languages

"Standard" languages are cultural objects. They are typically not spoken natively by anyone. They are typically "invented" over time by powerful segments of society for cultural reasons.

"Standard" English
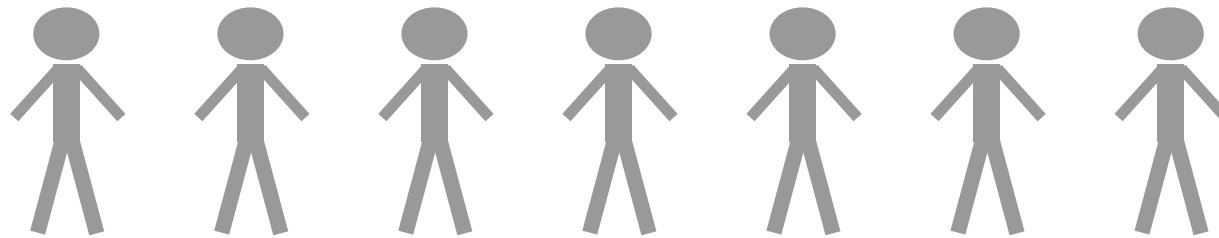
All countries have a "standard" language. It may be similar to your native language, or it may be very different. It is always taught explicitly (typically in school). It is held up as the standard that people should aspire to when speaking. It is also typically the standard that people use when judging "writing".

We will focus on native languages, not standard languages, in this course

The primary reason for this is scientific. We want to study cognitive systems. Native languages are a good starting point because of their properties - they are learned without explicit instruction, they are typically effortless to use, etc.
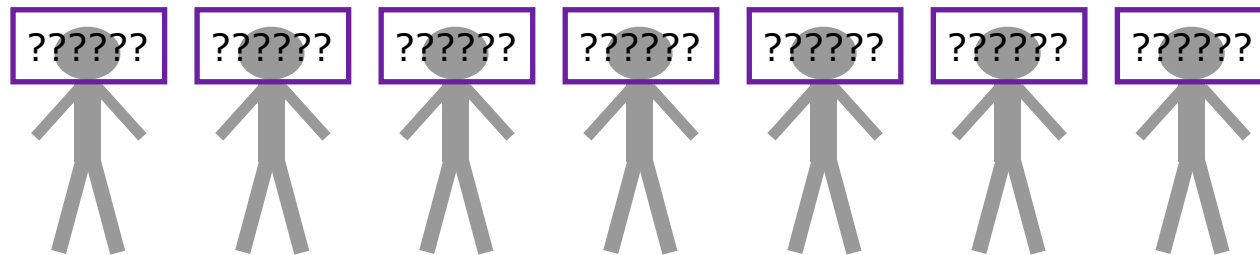
That said, we will return to look at standard languages later in the semester. This is because they play a big role in society. Sometimes the role is intended to be positive — like fostering unity among people. But unfortunately, in practice, standard languages become a way to separate society into different segments — those who learn (through explicitly education) to follow the rules of the standard language, and those who do not (typically because they cannot afford the required education). Once we have the tools to analyze languages as cognitive systems, we can look at these effects scientifically.

Class Exercise: Native vs Standard languages

Let's chat a bit about your native languages and how they differ from the standard language in your home country.

I'll ask for volunteers to chat in a moment. But I want everyone to do the following in your head:

1. Think about your native language — that is, (probably) how you speak with friends and family in daily conversation. Really feel it in your mind.

2. Now, think about the standard language in your country. This will be what teachers have told you is "correct"; or maybe what news casters on TV speak; or maybe how you would speak to a boss or even a professor like me. You will probably be pretty good at this language because you have gone to school for a long time! But you probably also know of people in your country who will not be good at it (or may not know it at all) because they did not go to a school that taught this.

3. Finally, see if you can identify differences between your native language and the standard language. This could be different sounds that are used, or different words, or even different word orders. It may be the case that your native language is very similar to the standard language. But I bet even in that case there will be some differences.