

9.916
Communication and Teaching

Today's Lecture

*Other's actions are more than spatiotemporal patterns;
they reflect, and predict, internal states*

Predict future actions
Theory of Mind

Learn new facts and skills
Communication & Teaching

Communication & Teaching

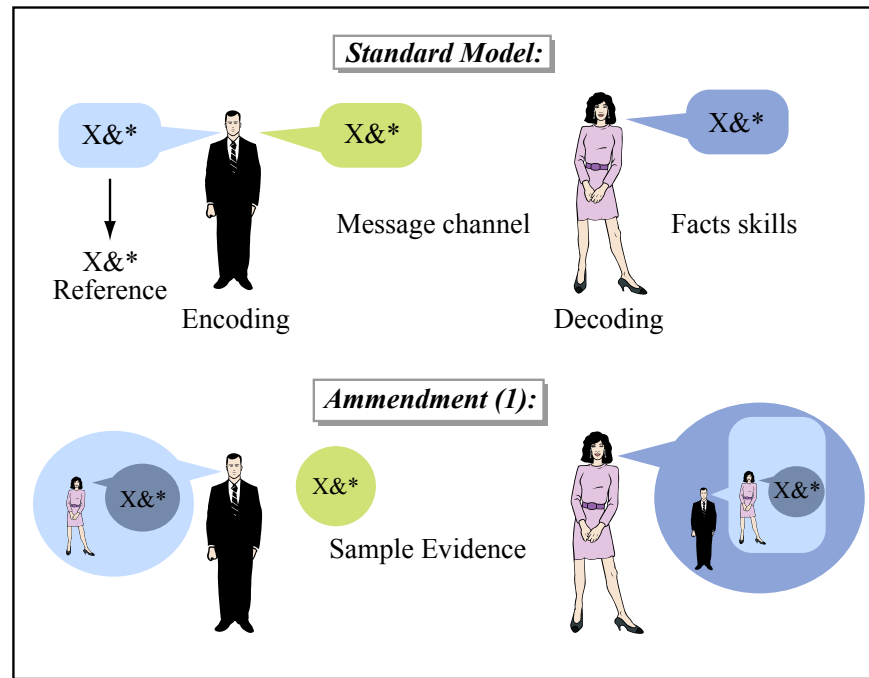


Figure by MIT OpenCourseWare.

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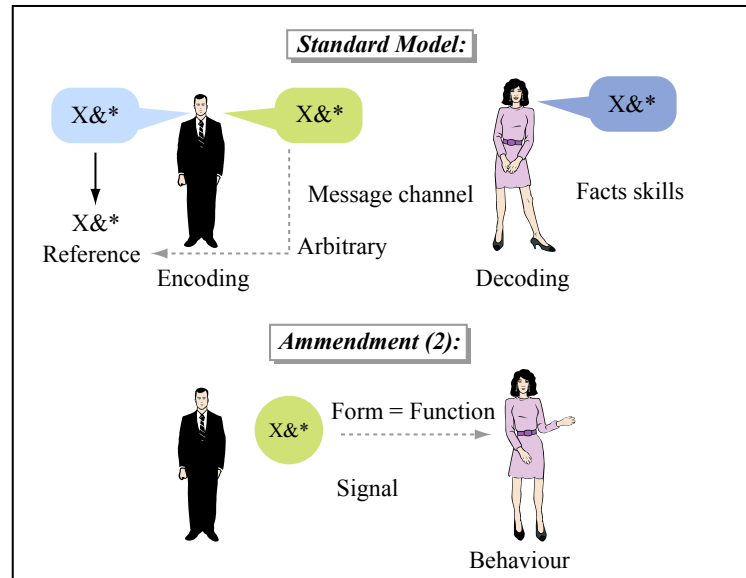
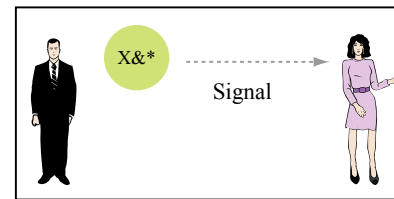
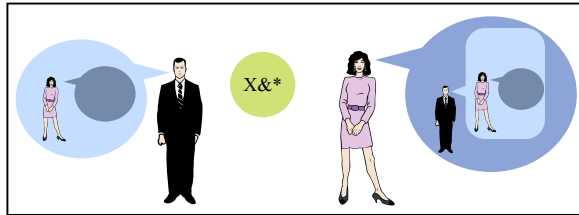


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For the teacher/communicator:



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In Common: Audience-design

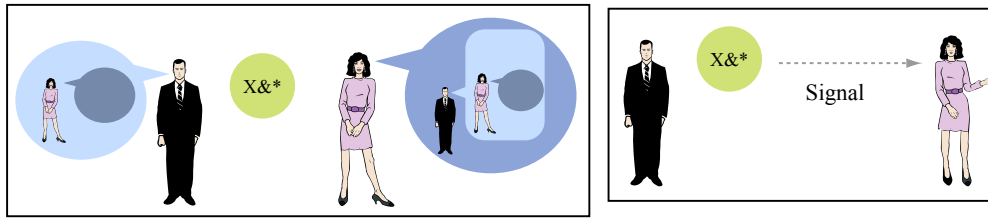
Distinct:

- Exploit learning mechanisms
- Immediate cost
- Motive: altruistic donation or long-term benefits
- Exploit perceptual sensitivities
- Immediate benefit
- Motive: manipulation

Required reading, Sperber & Wilson 1986

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For the learner/communicatee:



Figures by MIT OpenCourseWare.

In Common:

Attention to new facts / skills
Faster / more efficient / more accurate learning

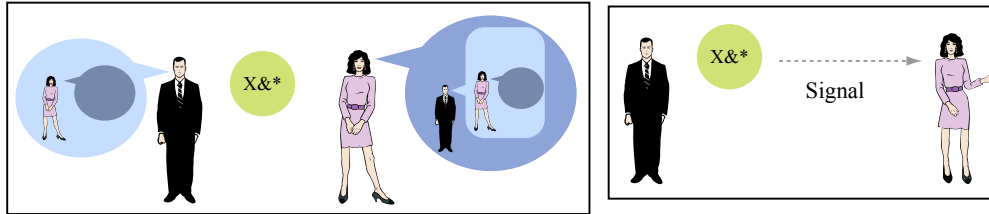
Distinct:

- Inference about intent
- Context-sensitive
- Inference(?) about reality
- Relatively involuntary(?)

Required reading, Sperber & Wilson 1986

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Prototypical examples



Figures by MIT OpenCourseWare.

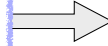
- Primate alarm calls (specific predators, but not for informing receiver)
- Primate affiliative calls - grunts & girneys (?)

Required reading, Sperber & Wilson 1986, Silk 2000

Pedagogical Sampling

Teachers:

- expert (i.e. basically correct)
- helpful (i.e. provide approximately ideal evidence)



Lack of evidence
= evidence of lack

Figures removed due to copyright restriction.

Learner

If you can point
to two more
daxes, you can
have a sticker.

Teacher

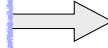
Here are two
more daxes.



Pedagogical Sampling

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Learner

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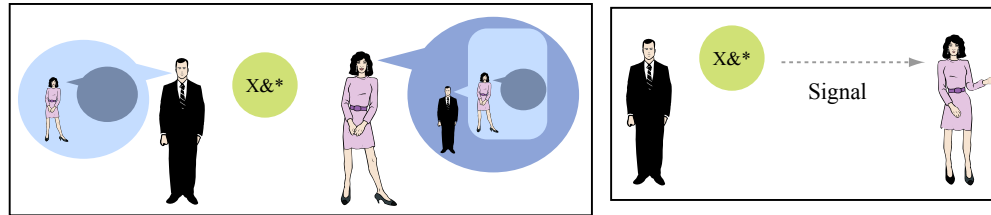
Teacher

Here are two more daxes.



Communication & Teaching

For the learner/communicatee:



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In Common:

Attention to new facts / skills
Faster / more efficient / more accurate learning

Distinct:

- Inference about intent
- Context-sensitive
- **Generic information**
- Inference(?) about reality
- Relatively involuntary(?)
- **Local / episodic information**

Required reading, Sperber & Wilson 1986

Is human teaching unique?

Teaching:

- Increases learning efficiency or content
- Local cost to teacher
- Only in the presence of a learner

Ant tandem running

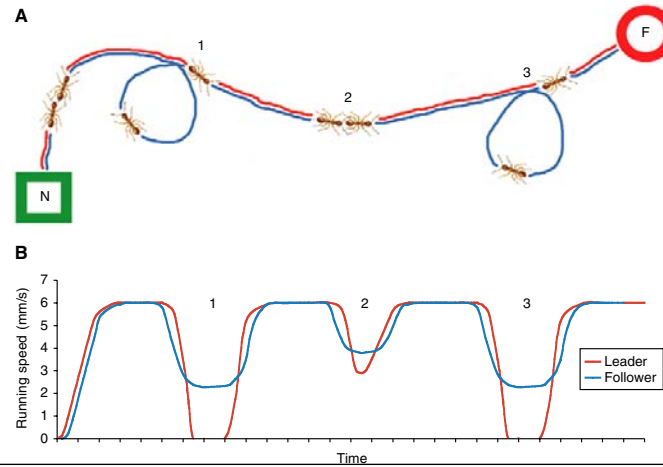
expert
novice

What's missing?

- “Telling” vs “Teaching”
- Generic information?

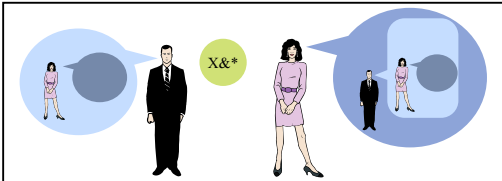
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Leadbetter et al 2006



Is human teaching unique?

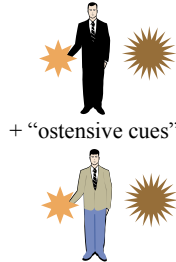
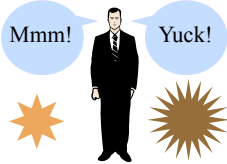
The pedagogical stance:



+ Generalizable information
e.g. preference vs goodness

18 month olds
Habituation:

Across people



Gergely Csibra

Figure by MIT OpenCourseWare.

Is human teaching unique?

The pedagogical stance:

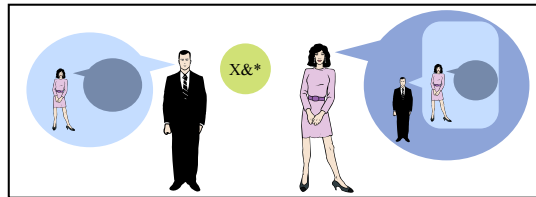


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+ Generalizable information
e.g. location:
the A-not-B error

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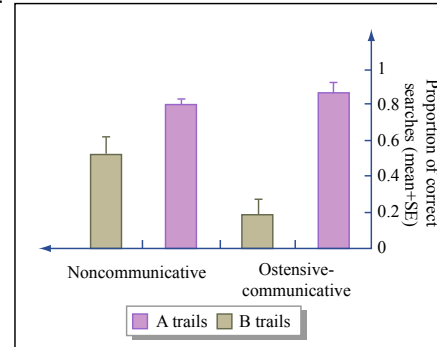


Figure by MIT OpenCourseWare.

Is human teaching unique?

Teaching:

- Increases learning efficiency or content
- Local cost to teacher
- Only in the presence of a learner
- Generalizable skills or concepts

Meerkat feeding

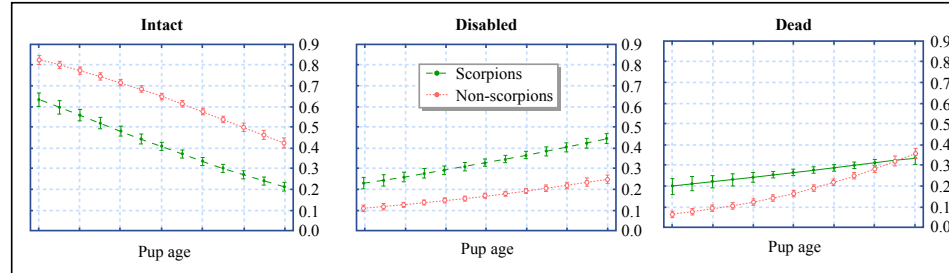


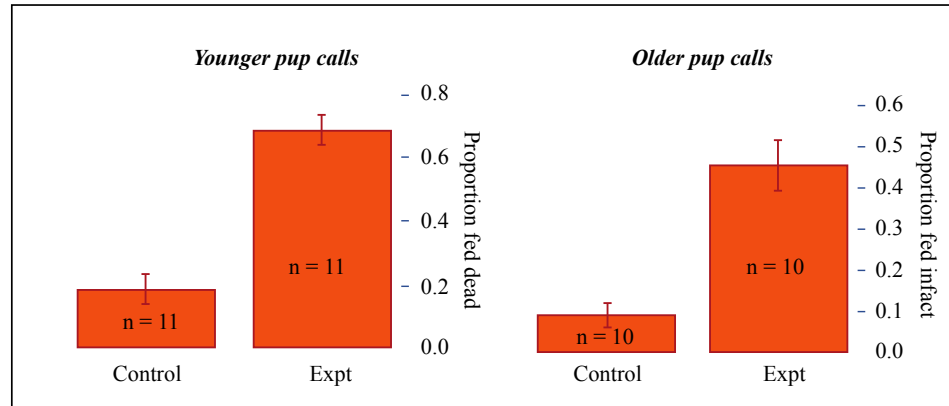
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Is human teaching unique?

Teaching:

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Meerkat feeding



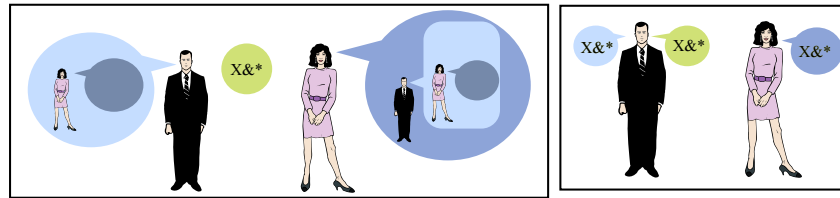
Thomas et al 2006

Figure by MIT OpenCourseWare.

What is unique about human communication?

Pedagogical
inferences

Message encoding
and decoding



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9.916 Special Topics: Social Animals
Fall 2009

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