Artificial language learning workshop: Lecture 3

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PsychoPy

http://psychopy.org/installation.html

PsychoPy
Psychology software in Python

Supported by
University of Nottingham
UK | CHINA | MALAYSIA

Installation ¶

Download

For the easiest installation download and install the Standalone package for your system:

The latest stable release (the version we recommend you install is 1.90.1) and you can get that here:

- PsychoPy 1.90.1
- Ubuntu or debian-based systems:
  - `sudo apt-get install psychopy`
    - NB: the neurodebian package has newer versions than the default debian package: http://neuro.debian.net/

For previous recent versions see the PsychoPy releases on github

1.90.0

b8e9449

Verified

Release 1.90.0

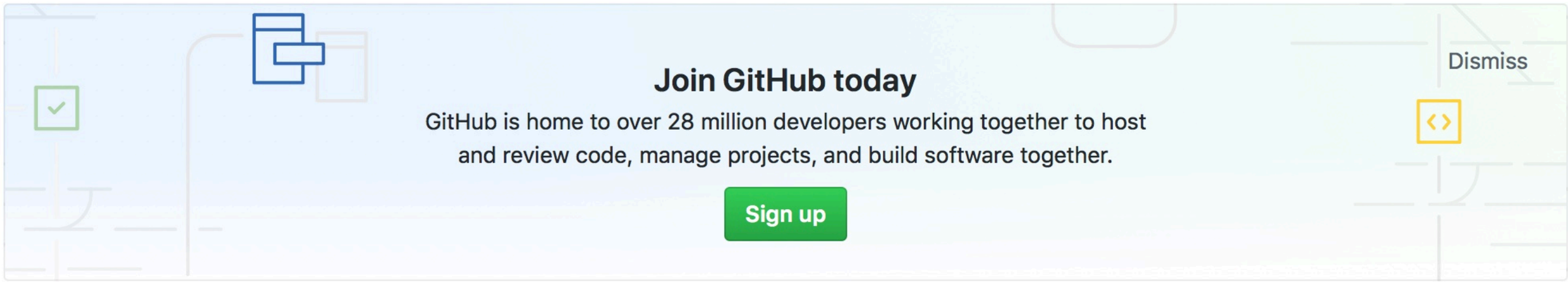
peircej released this on 15 Mar · 687 commits to master since this release

Assets 7

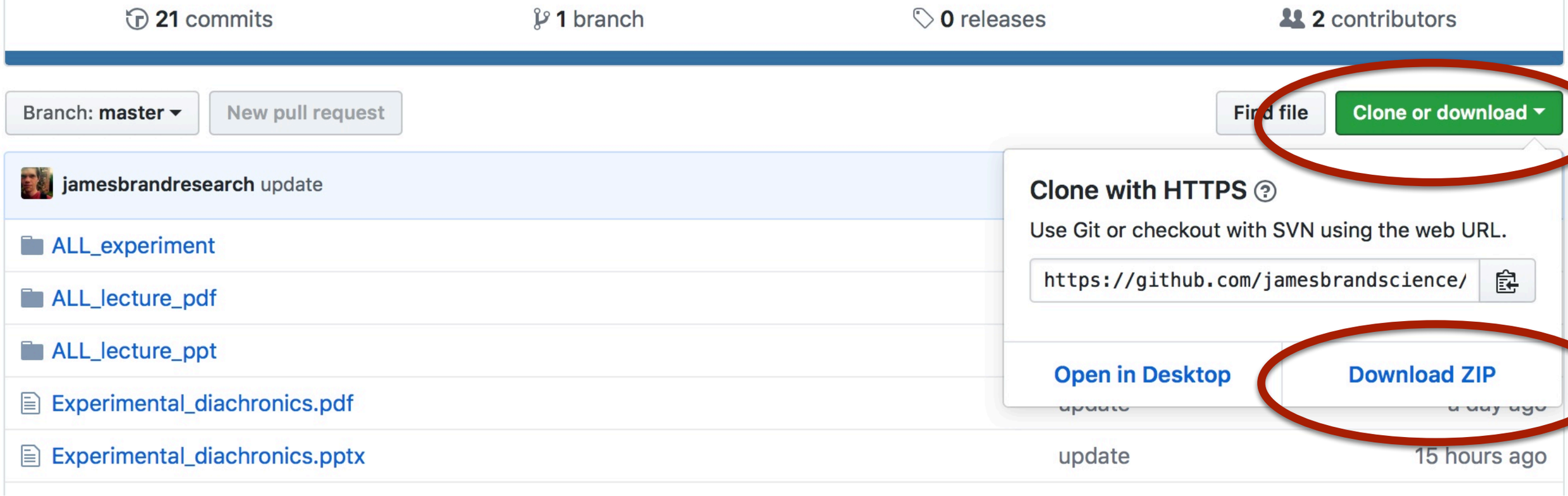
- PsychoPy-1.90.0.zip — 12.9 MB
- StandalonePsychoPy2-1.90.0-MacOS.dmg — 303 MB
- StandalonePsychoPy2-1.90.0-win32.exe — 280 MB
- StandalonePsychoPy2_PY3-1.90.0-MacOS.dmg — 332 MB
- StandalonePsychoPy2_PY3-1.90.0-win32.exe — 255 MB
- Source code (zip)
- Source code (tar.gz)

Materials

https://github.com/jamesbrandscience/SSoL_2018



Materials for students



Recap

What ALL is and why it is useful
Validity of ALL paradigm
Different types of ALL experiments

Still to do

A few more examples of ALL
Taking part in an ALL experiment (PsychoPy)
Understanding the design and architecture
Interpreting the output and looking at results

ALL and communication

Part V:
ALL and communication

ALL and communication

A question...

How does communication affect the evolution of language

ALL and communication

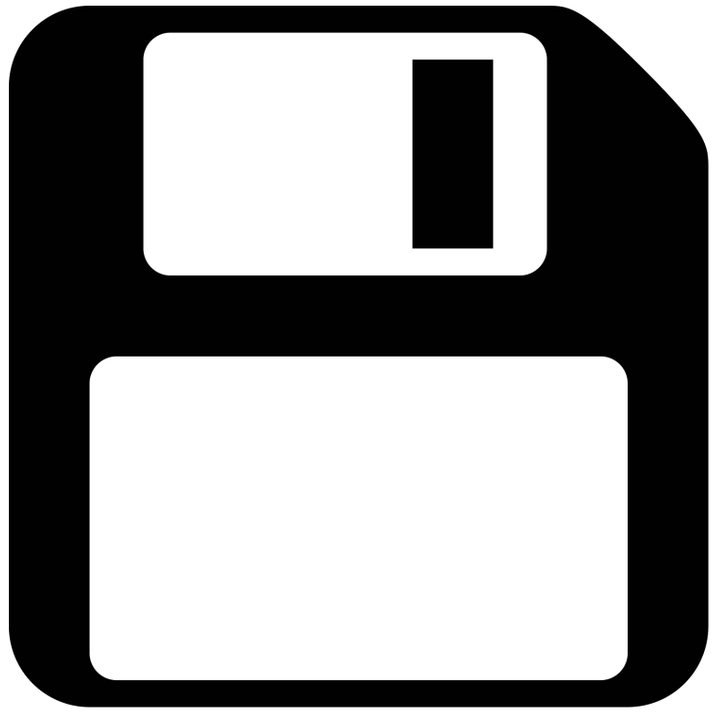
A prediction...

We start off with icons that evolve to become symbolic

Garrod et al. (2007)

ALL and communication

An example...



Garrod et al. (2007)

ALL and communication

An example...

Garrod et al. (2007)

ALL and communication

A theory...

Pressures for efficient communication result in the evolution of more symbolic graphical forms

Garrod et al. (2007)

ALL and communication

A problem...

Using pre-existing character systems may not provide a clear understanding of what is actually going on

Garrod et al. (2007)

ALL and communication

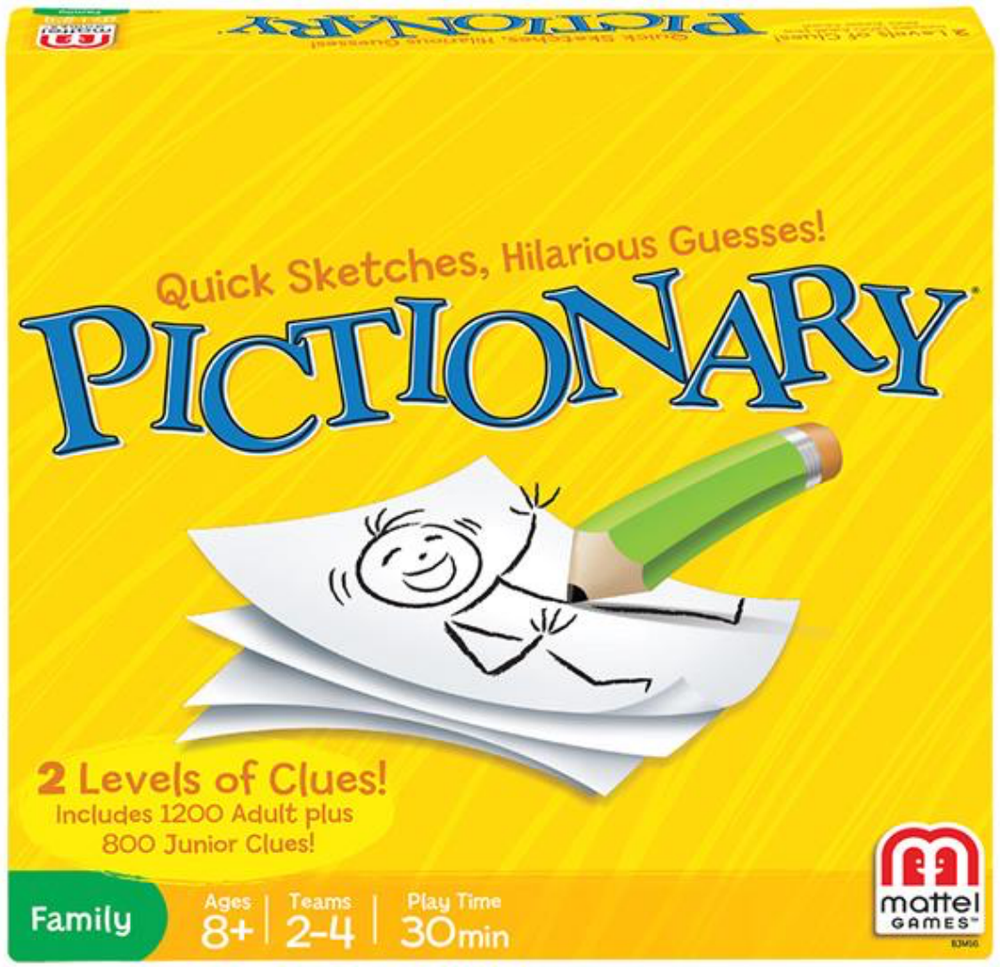
A solution...

Get participants into a laboratory and see how communication influences the evolution of graphical systems

Garrod et al. (2007)

ALL and communication

An experiment...



Garrod et al. (2007)

ALL and communication

An experiment...

Garrod et al. (2007)

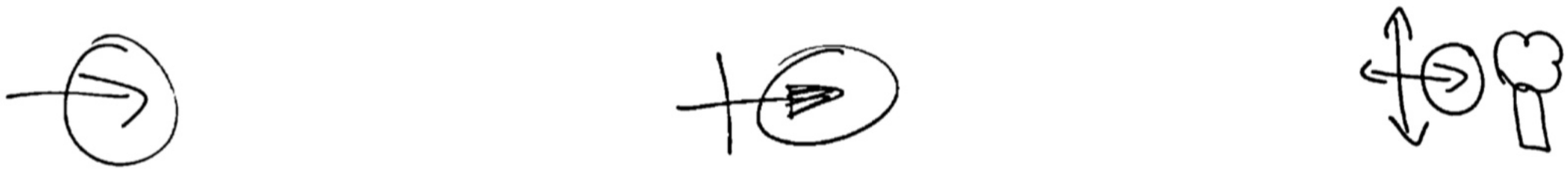
ALL and communication

An experiment...

Garrod et al. (2007)

ALL and communication

An experiment...



Garrod et al. (2007)

ALL and communication

An experiment...

Garrod et al. (2007)

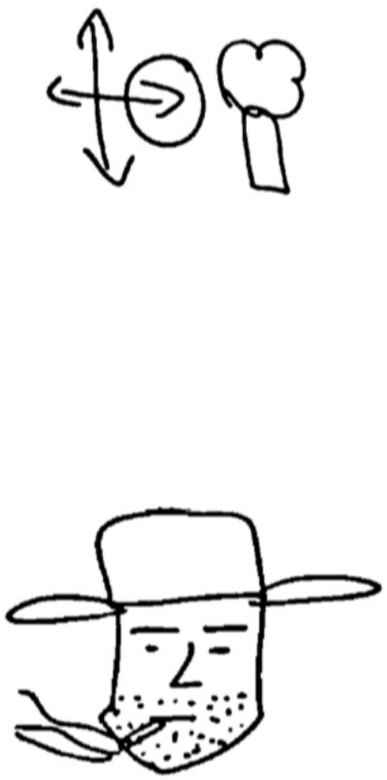
ALL and communication

An experiment...

Garrod et al. (2007)

ALL and communication

An experiment...



Garrod et al. (2007)

ALL and communication

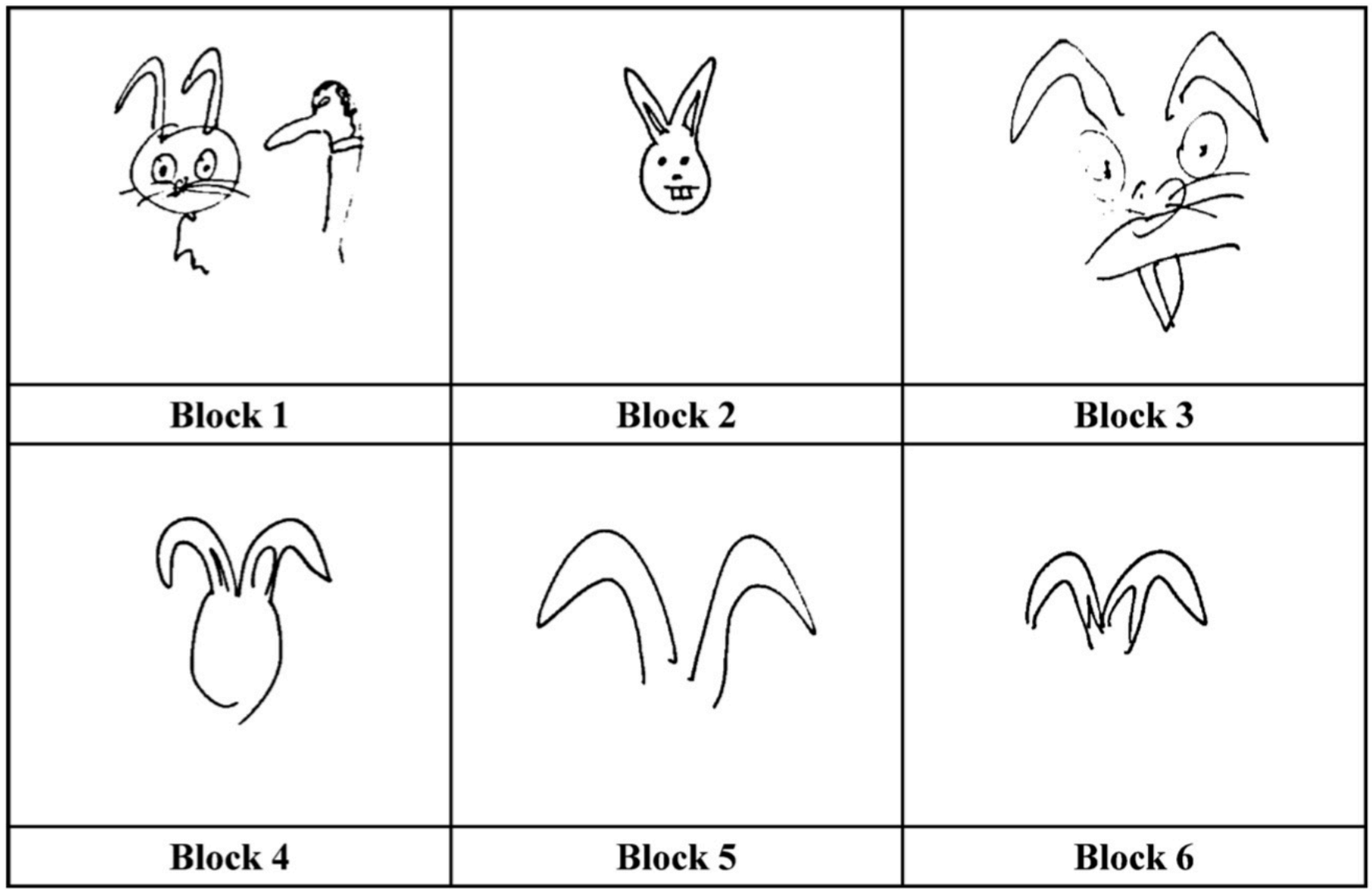


Fig. 2. Six increasingly schematic depictions of "cartoon" from Experiment 1.

Garrod et al. (2007)

ALL and communication

A design...

- Make participants generate their own graphical representations of concepts
- Impose a pressure to communicate efficiently and accurately
- Observe how repeated communication influences graphical representations

Garrod et al. (2007)

ALL and communication

A result...

- Representations start off being iconic and complex
- But with repeated communication trials, they become less complex but more symbolic
- Graphical systems evolve from icons to symbols as a result of communicative pressures

Garrod et al. (2007)

ALL and communication

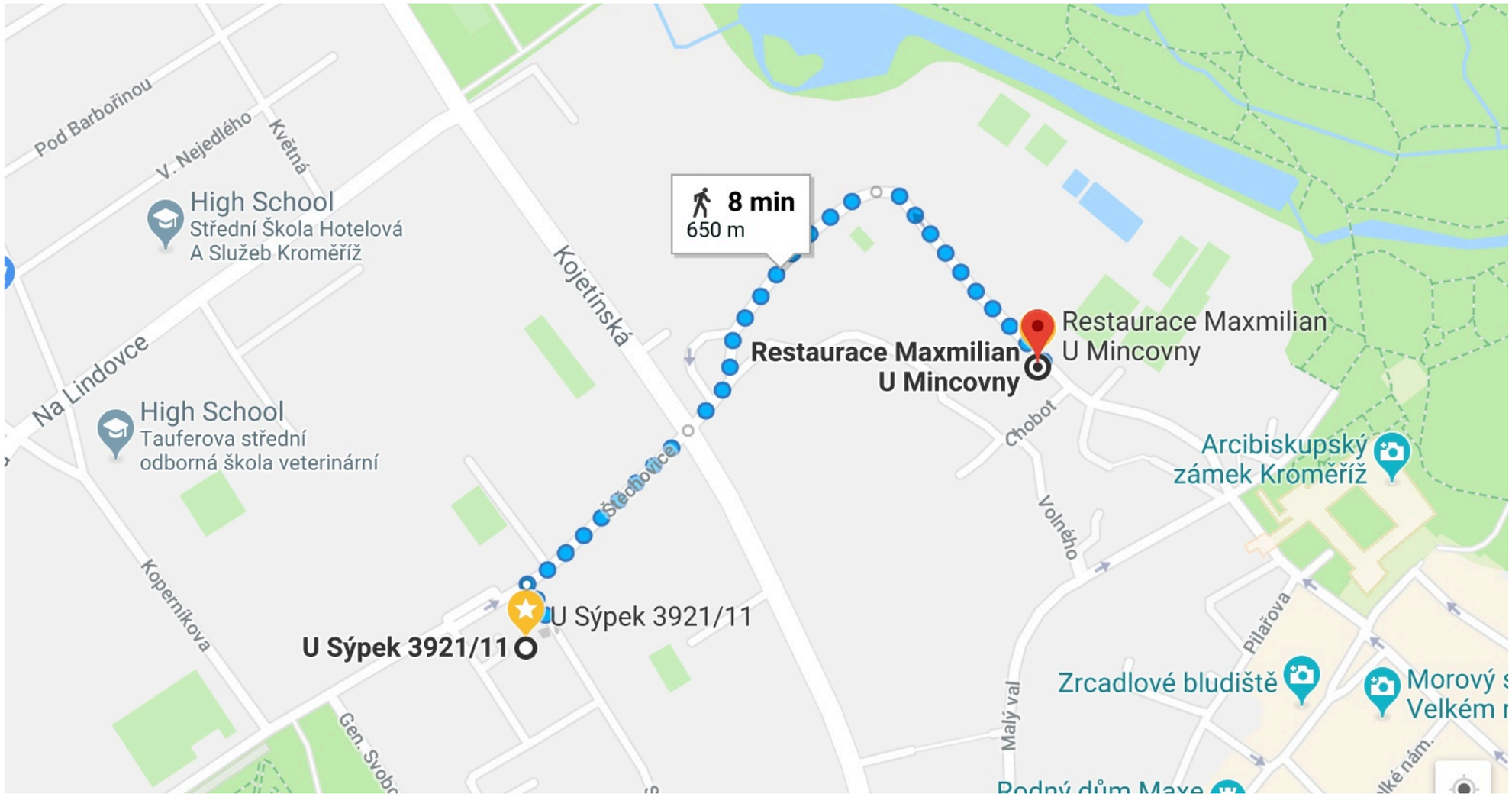
A prediction...

Language has evolved to become learnable and communicatively efficient

Kirby et al. (2015)

ALL and communication

An example...



ALL and communication

An example...

ALL and communication

A theory...

We need to use language that is efficient to understand but also easy to acquire

Kirby et al. (2015)

ALL and communication

A problem...

We do not know how this trade-off between language learning and language use comes from

ALL and communication

A solution...

Test how languages evolve by placing communicative and learning pressures on the participants

Kirby et al. (2015)

ALL and communication

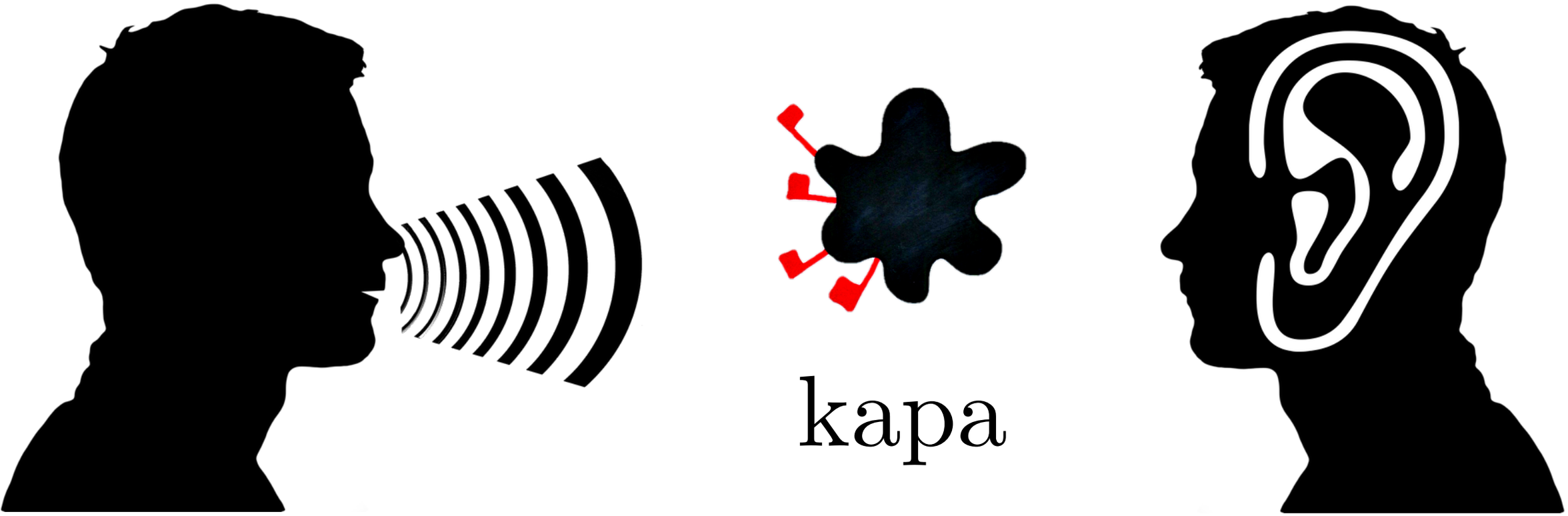
An experiment...

	pihino		kapa		newhomo
	nemone		gakho		kamone
	piga		wuwele		gaku
	kawake		nepi		hokako

Kirby et al. (2015)

ALL and communication

An experiment...



Kirby et al. (2015)

ALL and communication

An experiment...

	ege-wawu		mega		gamene-wawa
	ege-wawa		mega-wawa		gamene-wawa
	ege-wuwu		mega-wuwu		gamene-wuwu
	ege		wulagi		gamane

Kirby et al. (2015)

ALL and communication

A design...

- Pairs of participants learn the same language
- They then have to communicate that language with a partner
- Pass on the newly communicated language to the next pair of participants

Kirby et al. (2015)

ALL and communication

A result...

- Systems emerge that can be learnt more easily
- Systems emerge that can be communicatively effective i.e. expressivity

Kirby et al. (2015)

ALL without the language

Part VI:
ALL without the language

ALL without the language

A question...

How can we test predictions about language without using language

ALL without the language

A prediction...

There are ways to communicate non-linguistically but still incorporate linguistic properties

ALL without the language

An example...

https://www.youtube.com/watch?v=-7ijI-g4jHg

ALL without the language

A theory...

We can use non-linguistic sounds to communicate meanings to each other

ALL without the language

A problem...

We tend to use non-linguistic communication in everyday speech

ALL without the language

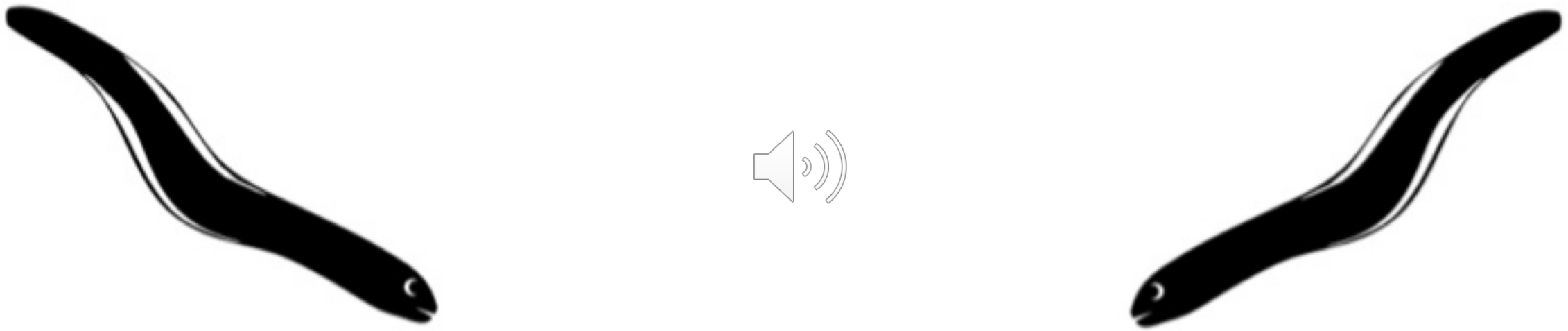
A solution...

Give participants a slide whistle so they have a novel communication modality

Verhoef et al. (2015)

ALL without the language

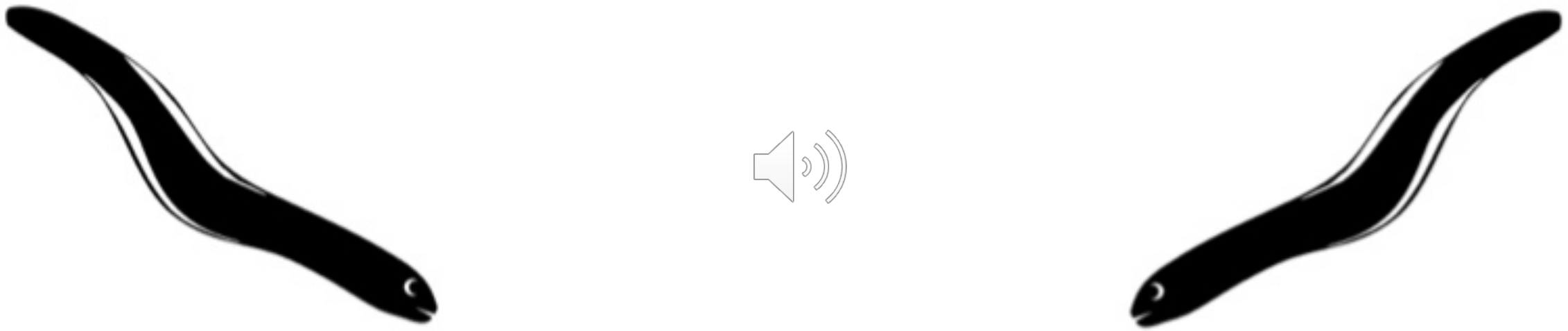
An experiment...



Verhoef et al. (2015)

ALL without the language

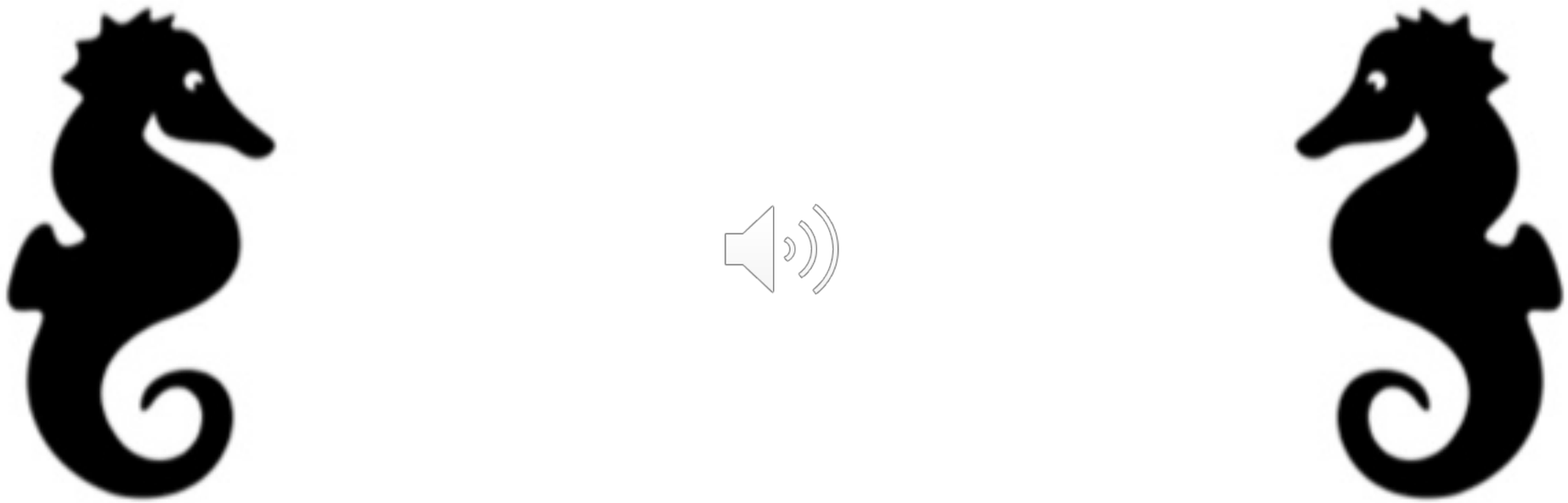
An experiment...



Verhoef et al. (2015)

ALL without the language

An experiment...



Verhoef et al. (2015)

ALL without the language

A design...

- Participants create their own non-linguistic signals to communicate meanings
- These signals are recorded and passed onto the next generation of learners
- Meaning stimuli are either easy or difficult to communicate with iconic whistles

Verhoef et al. (2015)

ALL without the language

A result

- Iconic whistles emerge over the course of iterated learning, but only for the easy to represent meanings
- Participants can utilise theoretically motivated communication without linguistic sounds

Verhoef et al. (2015)