

# Language and Communication II

PSYC 313 - Lecture 15  
Dr. J. Nicol

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## Language Acquisition

- Behaviourism argued that human behaviour could be studied by observing how conduct changed as a function of learned associations with between paired stimuli or between actions and their consequences
- In *Verbal Behaviour*, Skinner (1957) attempted to explain language acquisition as emerging from such associative learning
- Argued that children learn proper grammar and pronunciation via feedback received from adults

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## Language Acquisition

- The **Markov model/probabilistic account** propose that verbal utterances and language development emerge from probabilistic dependence on preceding words
- Children learn language by being highly sensitive to the patterns and regularities in what they hear everyday in their environment
- Reflects **finite state grammars**, in which sentences are constructed in sequence, with earlier parts of the sentence constraining what subsequent parts can be

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## Language Acquisition

- Chomsky (1957) argued that the behaviourist account could not explain the creativity and productivity of human language
- Children quickly gain linguistic mastery despite not being exposed to a great amount of information and feedback regarding correct language use
- Parents tend to respond to ungrammatical and grammatical sentences in the same way (Brown & Hanlon, 1970)

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## Language Acquisition

- Parents indicate that they understand ungrammatical utterances just as often as when they are grammatically correct
- No evidence that parents reply in such a way to indicate grammatical approval or disapproval (Hirsh-Pasek et al., 1984)
- The lack of information in the environment about correct language use is known as the ***poverty of the stimulus***

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## Language Acquisition

- So children must be acquiring language some other way than through parental tutelage
- Chomsky's argument is that language learning must be supported by some cognitive structures in place that guide how available linguistic information is treated

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## Language Acquisition

- Language acquisition must be supported by some cognitive structures in place that guide how available linguistic information is treated (Chomsky, 1957)
- The notion that language acquisition is guided by a reliance on grammatical rules is supported by the fact that children make **overgeneralization errors**
- The rules vary from language to language, but because their presence is ubiquitous, they are known as **universal grammar**

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## Language Acquisition

- Children are born with a **language acquisition device** (i.e., an instinct to seek out and master the rules that define their native tongue)
- Because children acquire language at a much faster rate than they develop of other cognitive functions, the language acquisition device is **modular**

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## Language Acquisition

- Our ability to acquire language is due to the fact that we possess highly sophisticated learning capacities that have evolved specifically for learning language (Lai et al., 2001)
- **Specific language impairment (SLI)** is characterized by difficulty in understanding and producing sentences, despite having normal intelligence and no problems with the muscle movements needed to produce language

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## Language Acquisition

- Evidence suggests that there is a **critical period** during which children are optimally equipped to learn the rules of a particular language
- Children appear to have more difficulty picking up a language after they reach puberty (Lenneberg, 1967)
- After years of practice, Genie developed a large vocabulary, yet her grasp of grammar remained rudimentary, probably because she was too old by that point to learn grammar fluently (Curtiss, 1977)

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## Language Acquisition

- Grammar-learning ability remained intact until people were over 17 years old, but it declined steadily after that (Hartshorne et al., 2018)
- Verifies the existence of a critical period for language acquisition but suggest that it lasts longer than previously assumed

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## Bilingualism

- Some evidence suggests that aspects of language such as bilingualism affects a range of cognitive abilities
- Bilinguals perform more slowly and make more errors than monolinguals on tasks that involve picture naming or word production and comprehension (Bialystock et al., 2008)
- Bilinguals have been found to perform better on tasks that index attentional control, such as response inhibition, task switching, and working memory
- An online study that tested more than 11,000 people on 12 different cognitive tasks found no difference between bilinguals and monolinguals (Nichols, 2020)

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# Language and Thought

- The **Sapir-Whorf hypothesis** suggests that differences among languages reflect and contribute to differences in underlying thought processes
- Language reflects and can even shape how we organize and interpret our perceptual experiences and how we comprehend the meaning of objects and events (Whorf, 1956)
- Strong version states that language shapes the way we actually perceive and experience the world, weak version states that language doesn't affect subjective experience per se, but it does reflect differences in higher-order cognitive processes

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# Language and Thought

- The question of whether language shapes or reflects thought remains a vigorous area of research, partly because the question is so compelling and partly because researchers can't seem to settle the dispute
- Some evidence does suggest that language can shape perceptual organization
- One study showed that people who speak languages with a richer colour vocabulary perceive colours differently, and make finer and more sharply defined distinctions between colours (Roberson et al., 2000)

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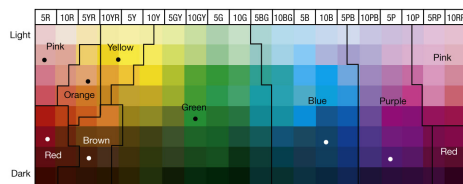
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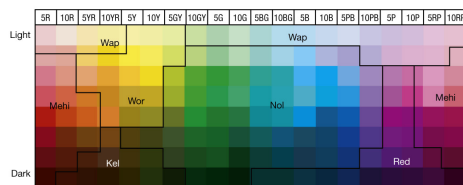
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A English naming



B Berinmo naming

Roberson et al. (2000)

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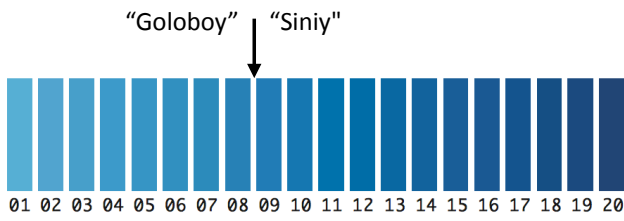
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Do differences in the way that different cultures label colours lead to differences in the perception of colour?



Winawer et al. (2007)

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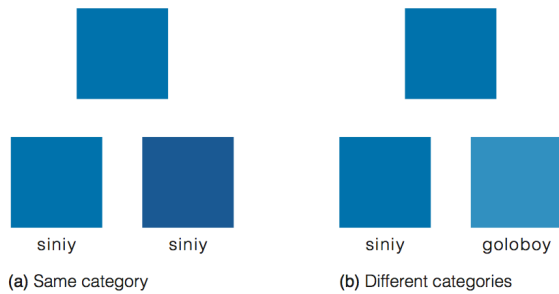
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The participant's task was to indicate which of the two squares on the bottom matches the one on the top



Winawer et al. (2007)

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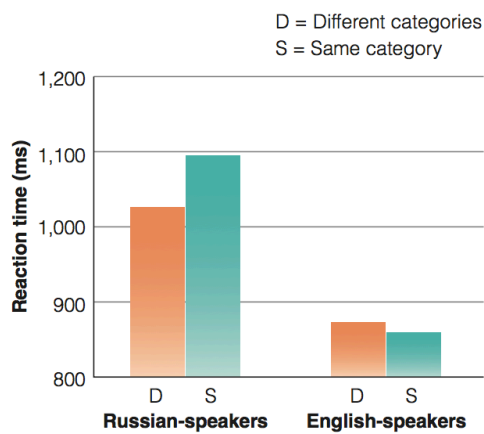
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Winawer et al. (2007)

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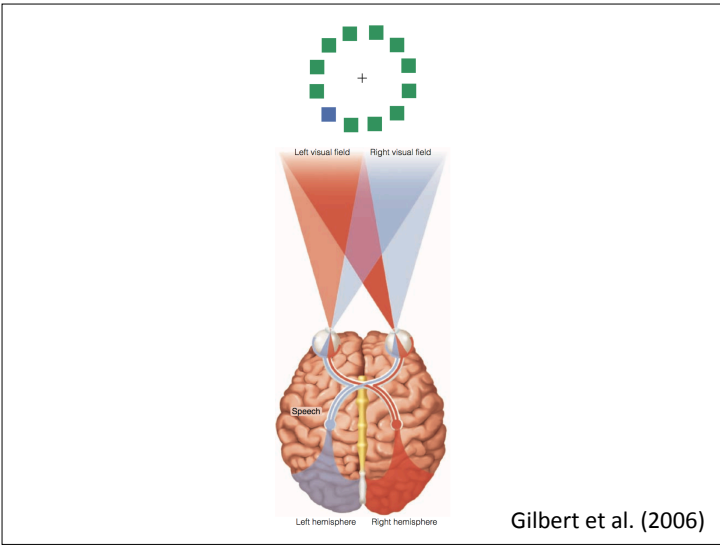
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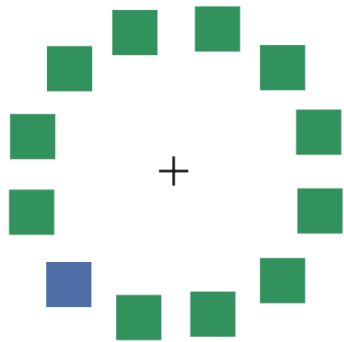
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*The participants' task was to indicate, as quickly as possible, which side contained the target square*



Gilbert et al. (2006)

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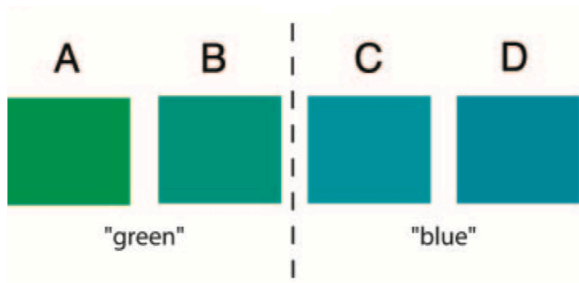
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*Targets and distractors were from the same colour category (e.g., A & B) or different colour categories (e.g., B & C)*



Gilbert et al. (2006)

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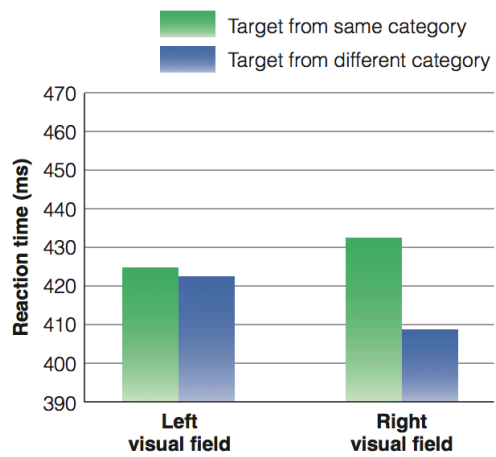
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Gilbert et al. (2006)

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