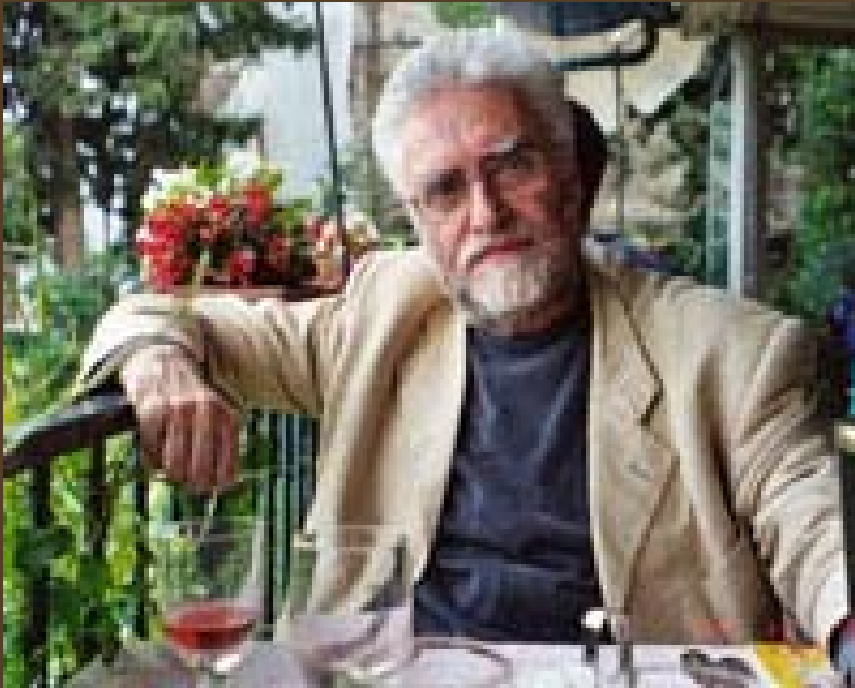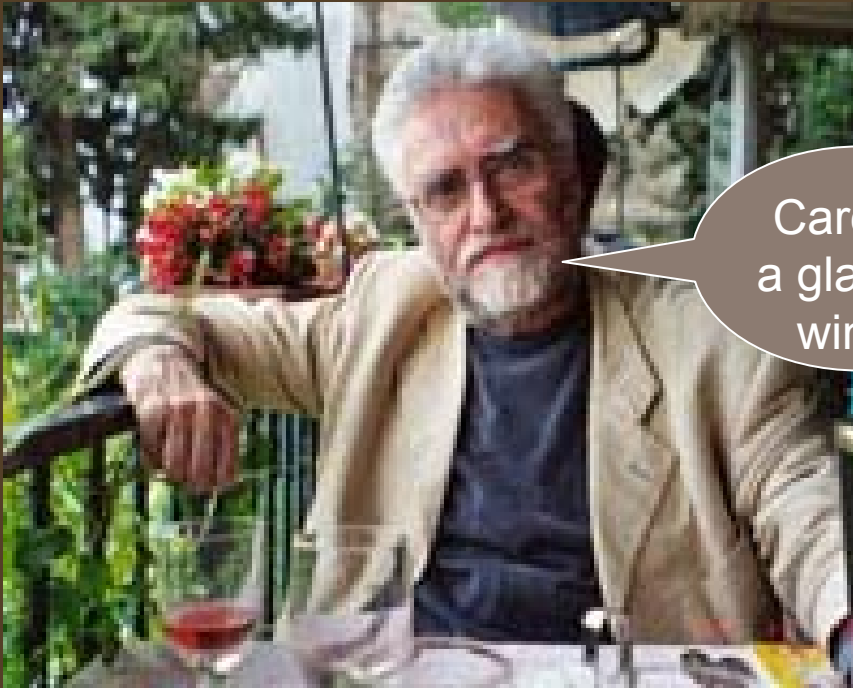# Poverty of the stimulus effects in second language acquisition

- Vivian Cook

  University of Essex

Poverty of the stimulus effects in second language acquisition
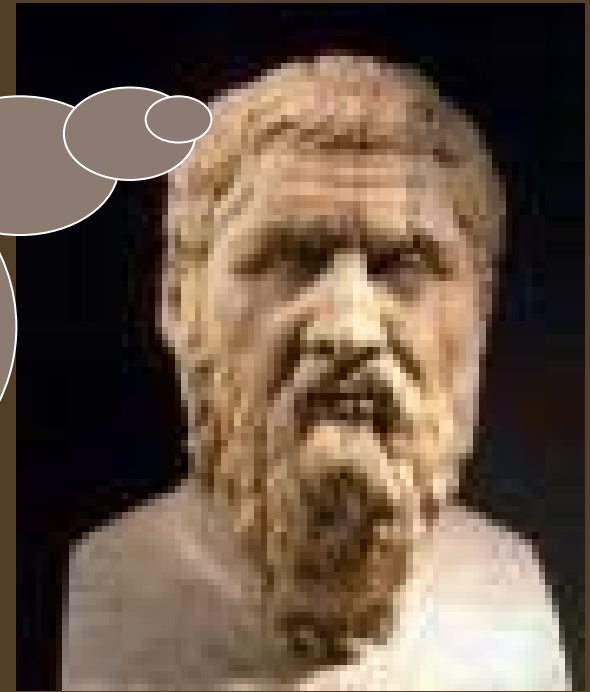
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Care for a glass of wine?

What is a "poverty of the stimulus" effect?

- Plato's problem (Chomsky 1987)

What is a "poverty of the stimulus" effect?

- Plato's problem (Chomsky 1987)

How do we come to have such rich and specific knowledge, or such intricate systems of belief and understanding, when the evidence available to us is so meager?

Classic examples from language
#1: Structure-dependency of questions

- Learner hears:

  John is going.

  Is John   going?

- Learner concludes:
  – To make a question, move the auxiliary verb to the front.

Classic examples from language
#1: Structure-dependency of questions

- Now the learner hears:

  The man who is here is tall.

- Two possible questions based on this:

  The man who is here is tall.

  Is the man who   here is tall?

  Is the man who is here   tall?

Classic examples from language

- Children only produce one of these questions:

  The man who is here is tall.

  ✗ Is the man who   here is tall?

  ✓ Is the man who is here   tall?

- Children overregularize in all sorts of other ways. Why don't they do it here?

Classic examples from language

- Answer: Children seem to be aware of the structure of the sentence.

  [The man who is here] is tall.

  ✗ Is [the man who   here] is tall?

  ✓ Is [the man who is here]   tall?

- They seem to know that forming a question is **structure-dependent**.

Classic examples from language
#1: Structure-dependency of questions

- But nothing in the environment (the "stimulus") seems to clue them in to this property of structure-dependency.

- In this sense, the environment does not give the child enough information, but the child seems to know it nonetheless.

- Thus, this is an example of the "poverty of the stimulus".

Classic examples from language
#2: Contraction

- Learner hears:

> He is going.

> He's going.

- Learner concludes:
  - *He is* may be pronounced as *he's*.

Classic examples from language
#2: Contraction

- Now the learner wants to say:

  Is he going? Yes, he is.

- Learner could reasonably conclude that this could also be pronounced:

  Is he going? Yes, he's.

- This is not possible, but how does the learner know this?

Classic examples from language
#2: Contraction

- Once again, the environment provides enough information for a rule:

    he is → he's

- But not enough information to know that the rule sometimes can't apply.

- Another example of the "poverty of the stimulus".

For most rules, there **is** enough information

- Learner hears:

  I talk.

  John talk**s**.

  Mary talk**s**.

- Learner concludes:

  Add *–s* to verb when subject is

  3rd-person singular.

For most rules, there **is** enough information

- Basically, this rule always works.

- There are some irregular forms (e.g. *has*), but the environment gives lots of evidence for these.

- Auxiliary verbs don't take *–s* (*John can swim*), but the environment gives lots of evidence for this, and lots of evidence that verbs and auxiliary verbs are different in many ways.

So for most cases…

- The environment provides evidence for a rule.

- The child learns that rule.

- Everybody's happy.

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I just LOVE rules!

But in the poverty of the stimulus cases…

- The environment provides evidence for a rule.

- The child learns that rule.

- But mysteriously, the child does not apply that rule in all cases.

But in the poverty of the stimulus cases…

- The environment provides evidence for a rule.

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- But mysteriously, the child does not apply that rule in all cases.

How puzzling!

Traditionally…

- The poverty of stimulus effects have been used as evidence for children having innate knowledge.

Traditionally…

- The poverty of stimulus effects have been used as evidence for children having innate knowledge.

After all, if I didn't get the info from the environment, I must have just been born with it.

In recent years…

- People have explored the possibility of analyzing these facts in other ways.

- But regardless of how you analyze them, these poverty of the stimulus effects are really interesting.

Now the question is:

- Do L2 learners show poverty of the stimulus effects?

- Do they too learn rules that they then mysteriously fail to apply in certain circumstances?

Cook's study

- Three types of sentences:

A: Joe is [the dog that is black]

B: Is Joe   [the dog that is black]?

C: Is Joe is [the dog that   black]?

Cook's study

- Subjects:
  - 35 native speakers of English
  - 140 L2 speakers of English

- L1 languages:

  Polish   Japanese

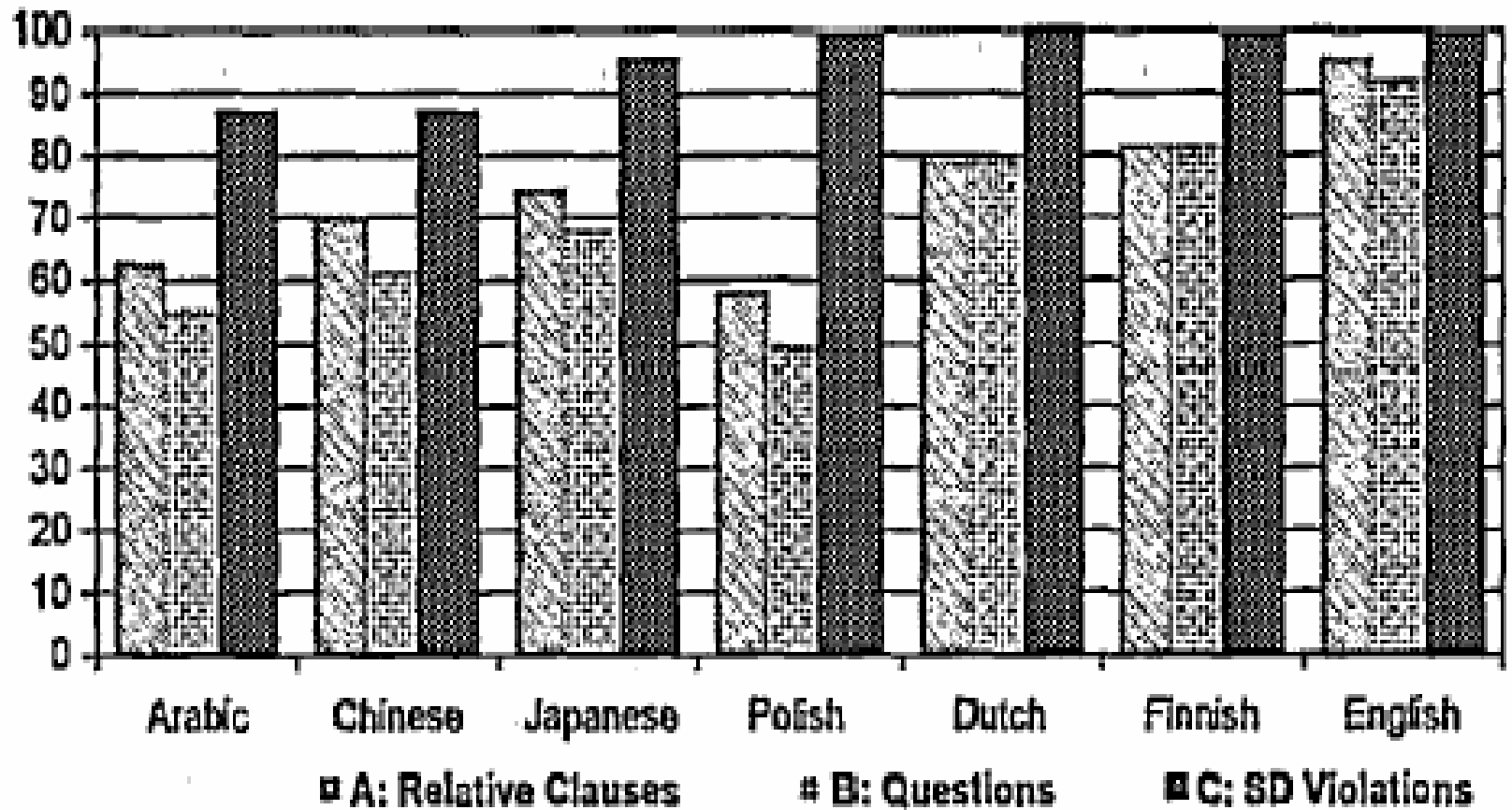 Finnish   Chinese

  Dutch   Arabic

Cook's study

- Subjects read list of 96 sentences, rated each as:

    OK

    Not OK

    Not sure

Results

Results

Percentage of correct scores for C

Polish	
Finnish	95% or
Dutch	above
Japanese	
Arabic	87.1%
Chinese	86.7%

Conclusions

- L2 speakers also show poverty of stimulus effect (at least with regard to structure-dependency in questions).

- Whatever allows L1 learners to do this seems to be operating in L2 learners as well.

- One more way in which L1 and L2 acquisition are alike.