any bias toesas de con-petitos must be counter bola-ad by the wider co PV/PV >1.

I we could naturally expect this to be the case I evenit to ate because of 90 > pv]

Then:

ETTE > PUET

$$\frac{\mathcal{E}_{\overline{V}}}{\mathcal{E}_{\overline{V}}} \rightarrow \frac{\mathcal{P}_{\overline{V}}}{\mathcal{F}_{C}}$$

both we natural anaptions

also assured here: 90 > Po &

maybe assure that: If = To+ Ex with 0 = Ex muall & PV+EV=9V 19ith 068-68=

NTS: P(sg | V) > P(sc | V) [proof exists (?) for flat prior ig = to and initial string likelihood Pr = 92]

Computational Pragmatics

· ohay, it is deer that any price for as for Sq will pull dose (4) towards by i show that, by new libelihood, the same result is expected; so set: Ex=0

$$\frac{PV}{PV + 9V} > \frac{-9\bar{v}}{P\bar{v} + 9\bar{v}}$$

$$\Rightarrow \frac{PV}{9V} \Rightarrow \frac{9V}{PV}$$

anne:

$$9\sqrt{-}9\sqrt{+}\epsilon q$$
 $\epsilon q \epsilon p$
 e^{2}
 e^{2

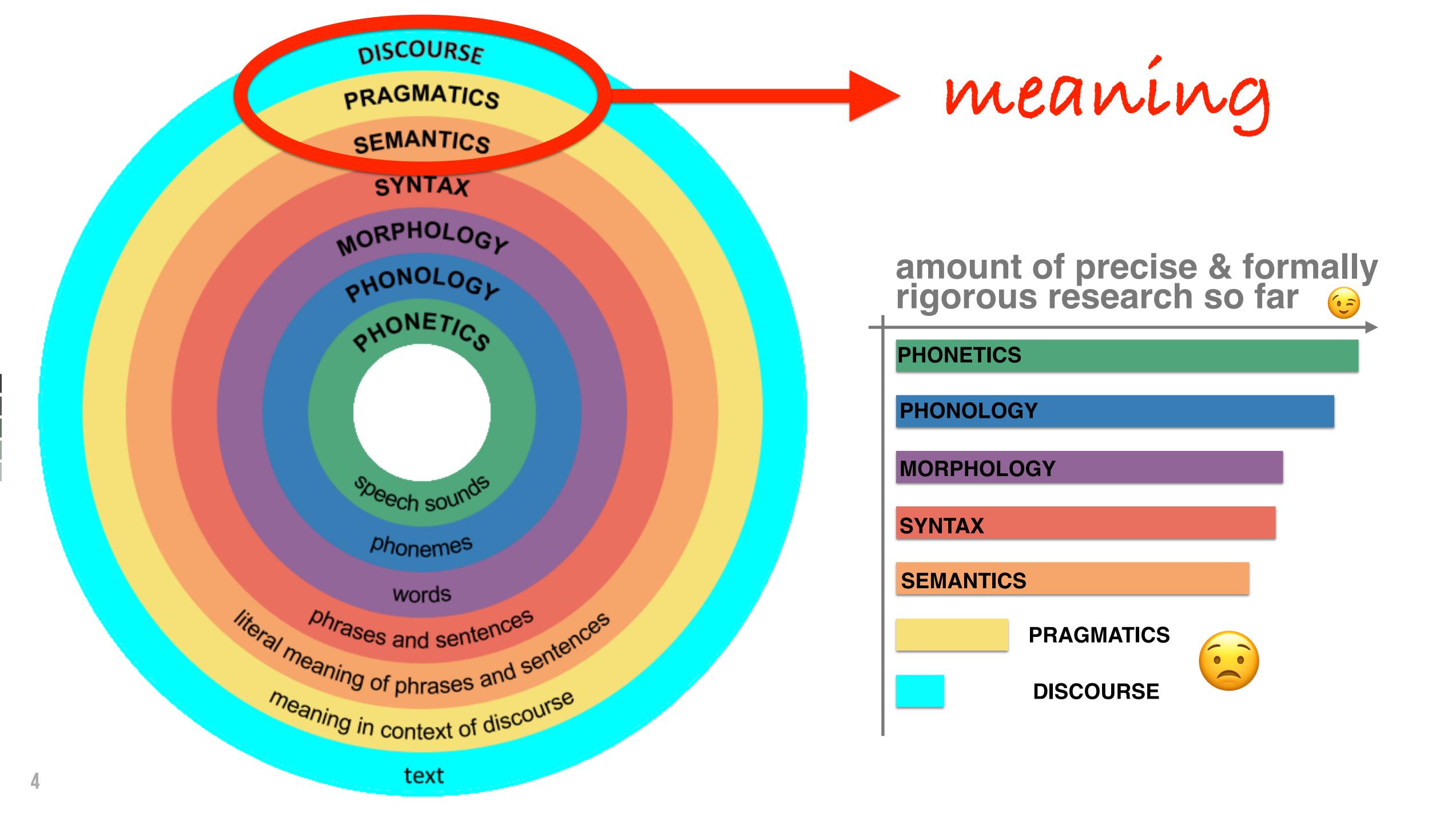
is less likely than producing V when adequate] PVK9-Epooducing Violen inadequote is less likely then producing Vishen inadequate 1

Introduction to Pragmatics

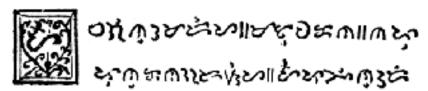
Session 1

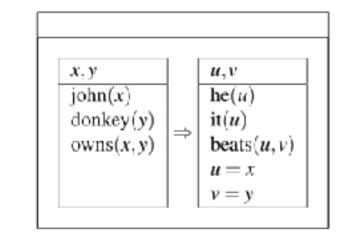


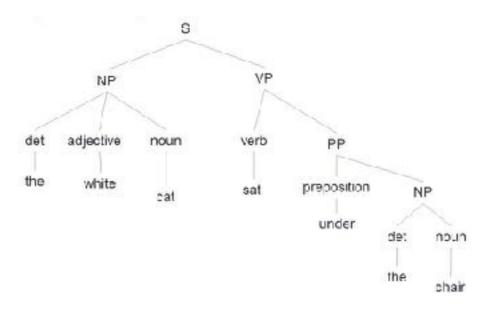




Two views of language







sentence | 'sentns

nour

- 1 a set of words that is complete in itself, typically containing a subject and predicate, conveying a statement, question, exclamation, or command, and consisting of a main clause and sometimes one or more subordinate clauses.
- Logic a series of signs or symbols expressing a proposition in an artificial or logical language.
- 2 the punishment assigned to a defendant found guilty by a court, or fixed by law for a particular offense: her husband is serving a three-year sentence for fraud | slander of an official carried an eight-year prison sentence.

verb [with obi.]

declare the punishment decided for (an offender): ten army officers were sentenced to death.

structure







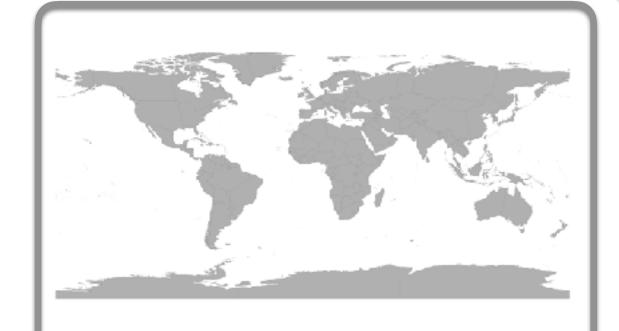


function



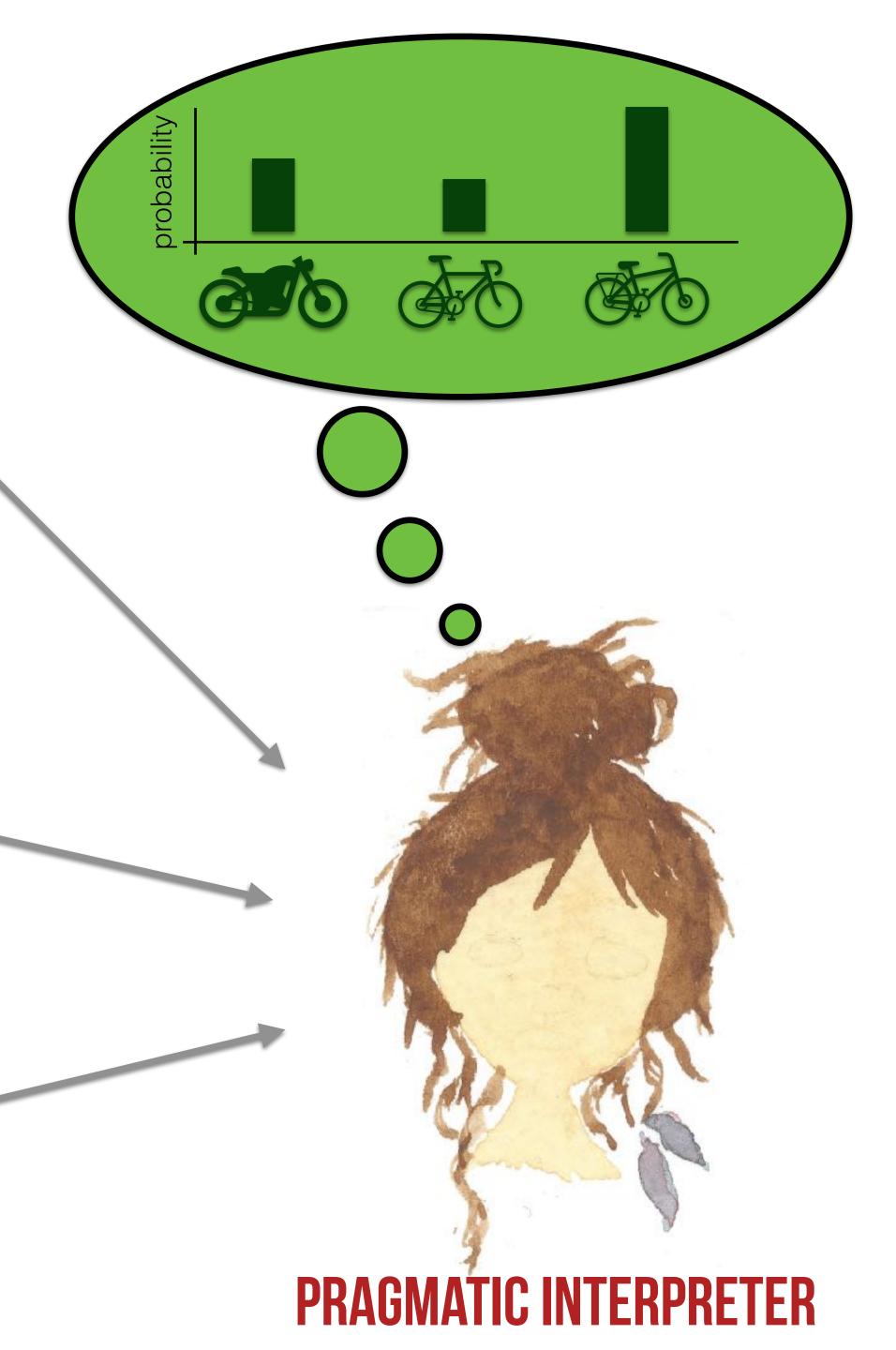
 $[[Joe]] = \lambda e . \lambda w . Joe(e, w)$

KNOWLEDGE OF LANGUAGE

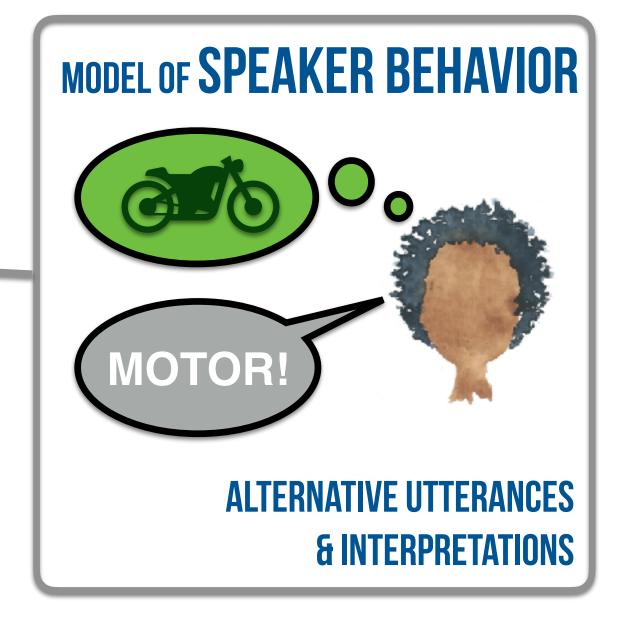


GENERAL WORLD KNOWLEDGE



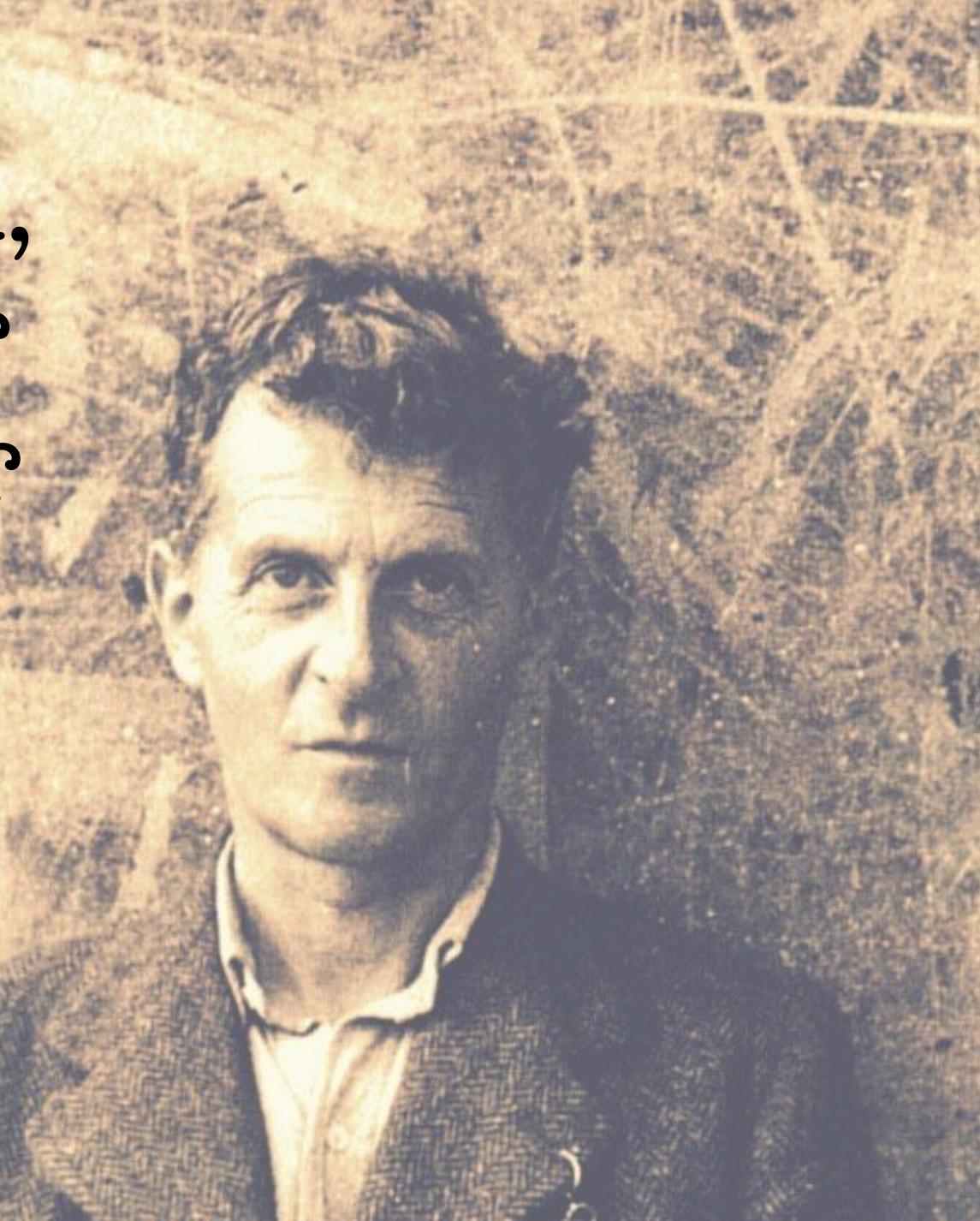






Semantics

Einen Satz verstehen, heißt, wissen was der Fall ist, wenn er wahr ist. (TLP 4.024)





BEGRIFFSSCHRIFT,

EINE DER ARITHMETISCHEN NACHGEBILDETE

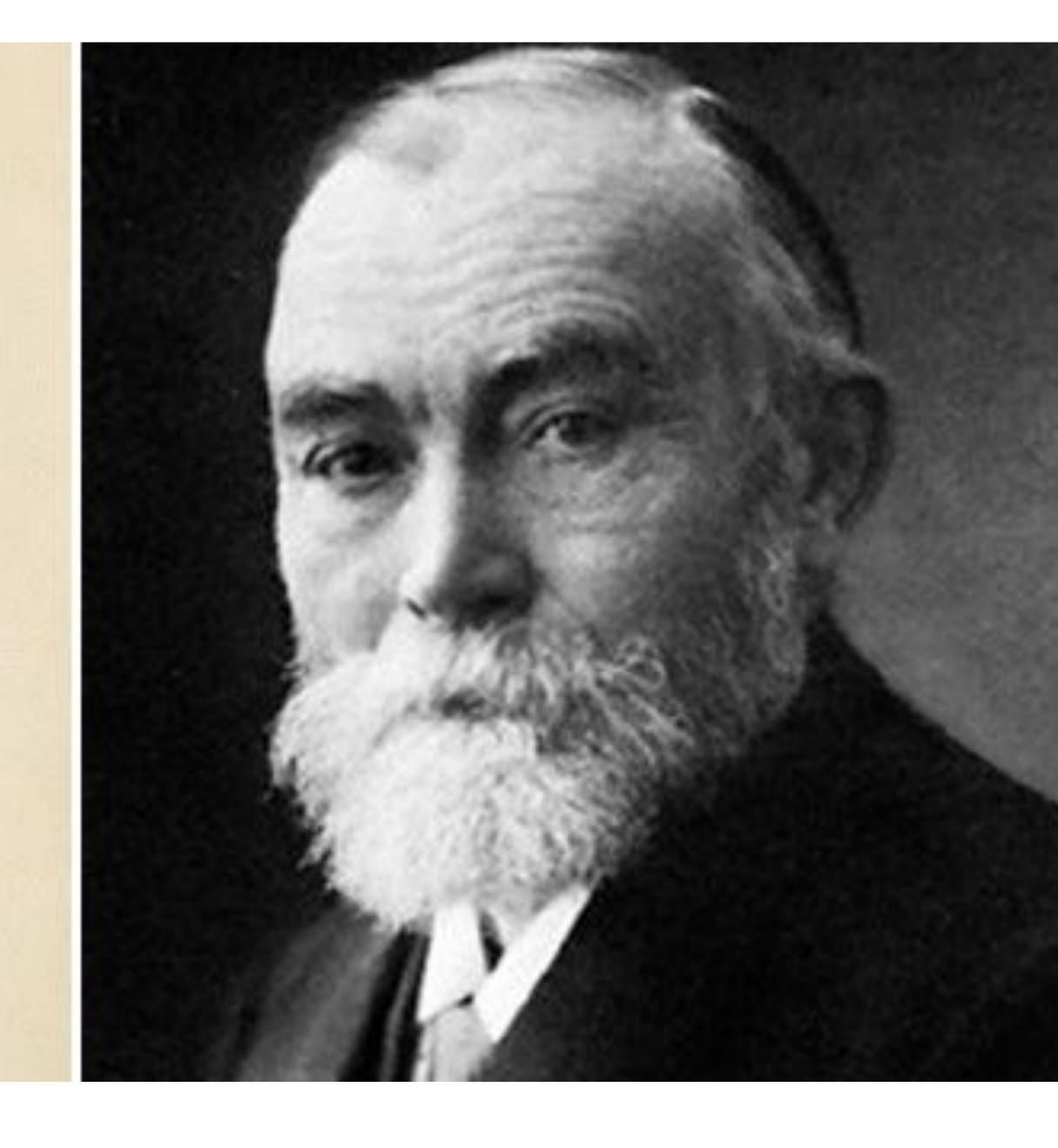
FORMELSPRACHE

DES REINEN DENKENS.

VON

D"- GOTTLOB FREGE.

PRIVATENCENTEN DER MATHEMATIK AN DER UNIVERSITÄT JENA.



φ	ψ	$ \varphi \wedge \psi$	$\varphi \lor \psi$	$\varphi o \psi$
1	1	1	1	1
1	0	0	1	0
0	1	0	1	1
0	0	1 0 0 0	0	1

- (1) a. They got married and had kids.
 - b. They had kids and got married.
- (2) One more ukulele song and I'm out.

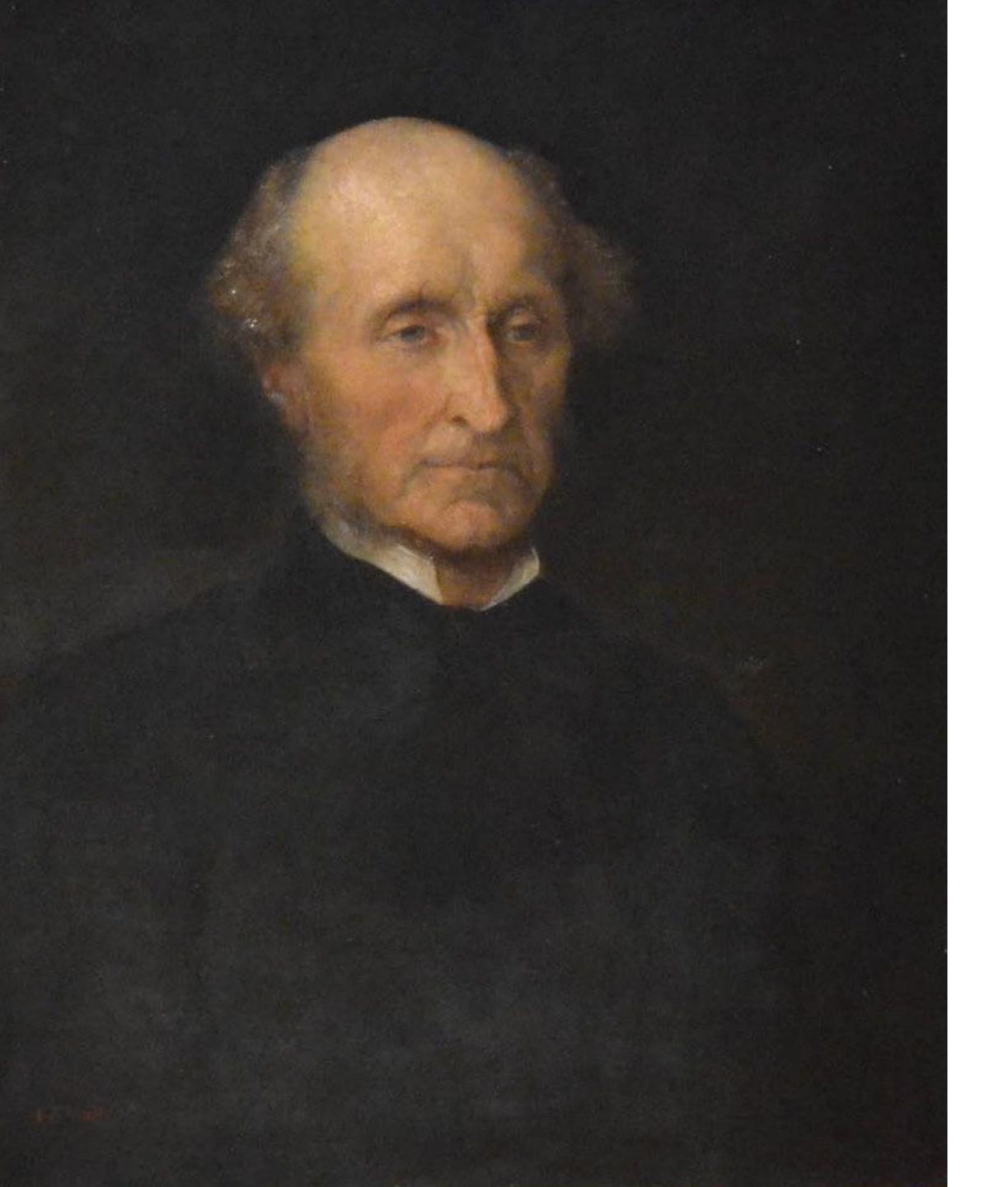
φ	ψ	$\mid arphi \wedge \psi$	$arphi \lor \psi$	$arphi ightarrow \psi$
1	1	1	1	1
1	0	0	1	0
0	1	0	1	1
0	0	1 0 0 0	0	1

- (3) Jon had no coin or he would have given it to him.
- (4) If you pour sugar in your coffee, it tastes great.

 But if you pour sugar and gasoline in your coffee, it tastes awful.

- (5) A: Do you speak Portuguese?
 - **B:** My wife does.

Pragmatics Gricean CS



"If I say to any one, 'I saw some of your children to-day', he might be justified in inferring that I did not see them all, not because the words mean it, but because, if I had seen them all, it is most likely that I should have said so."

(Mill 1867)

"[O]ne of my avowed aims is to see talking as a special case or variety of purposive, indeed rational, behaviour."

(Grice 1975)

Maxim of Quality

Try to make your contribution one that is true.

- (i) Do not say what you believe to be false.
- (ii) Do not say that for which you lack adequate evidence.

Maxim of Quantity

- (i) Make your contribution as informative as is required for the current purposes of the exchange.
- (ii) Do not make your contribution more informative than is required.

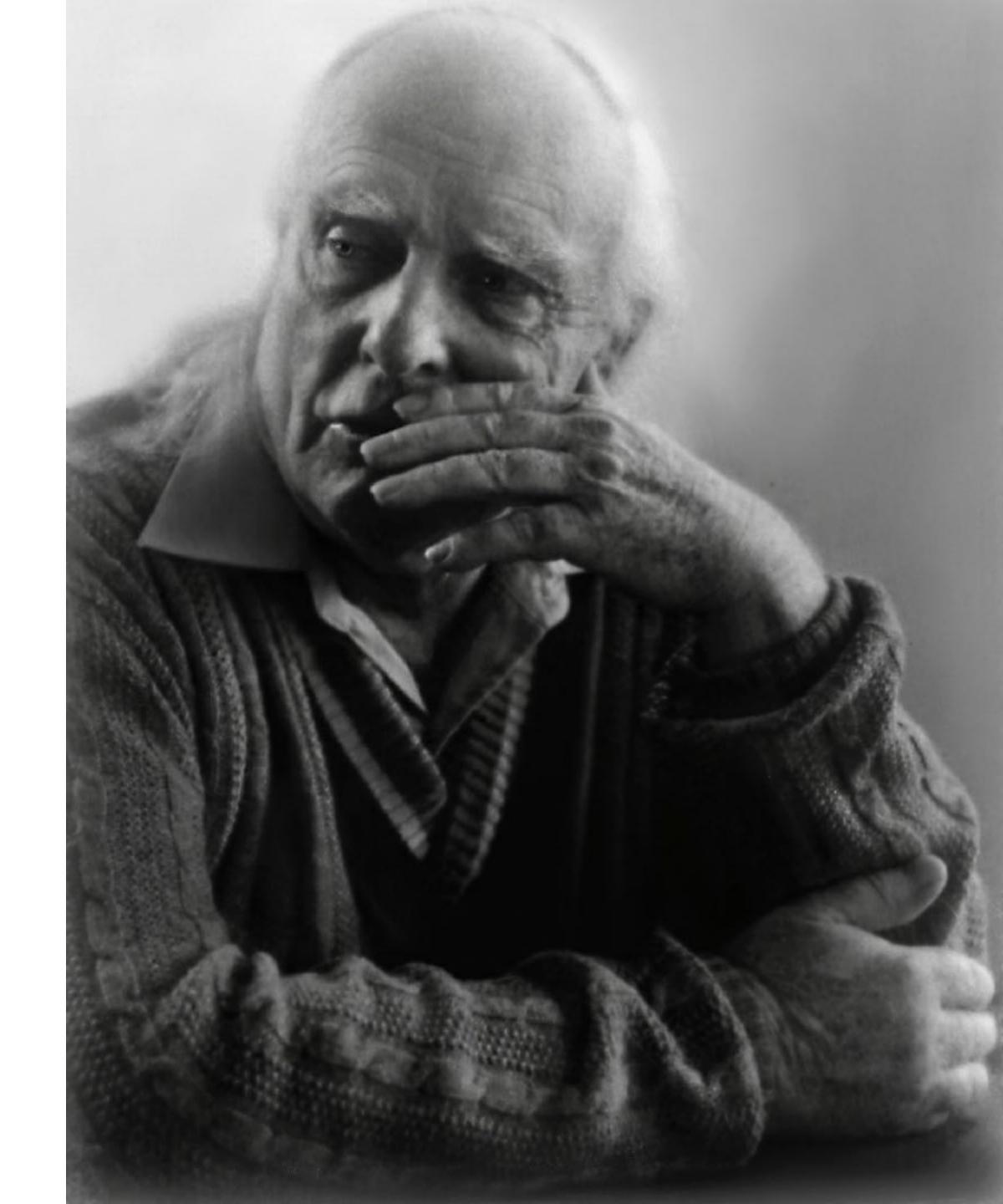
Maxim of Relation

(i) Be relevant.

Maxim of Manner

Be perspicuous.

- (i) Avoid obscurity of expression.
- (ii) Avoid ambiguity.
- (iii) Be brief (avoid unnecessary prolixity).
- (iv) Be orderly.



- (1) a. They got married and had kids.
 - b. They had kids and got married.

Lassumes Sobeys Maxims

by Manner, Lassumes S to be "orderly"

Lexpects **S** to present events in chronological order (unless otherwise indicated)

(5) A: Do you speak Portuguese?

B: My wife does.

Lassumes Sobeys Maxims

by Quantity & Relevance, L assumes S to give all the relevant information S is able to

if **S** was able to speak Portuguese, **S** would/ should have said so

Q-Implicatures

- (6) I saw some of your children.
 - → I saw some but not all of your children.
- (7) I saw Jack or Jill.

I-Implicatures

- (8) Every ten minutes a man gets mugged in New York City.
 - → Not the same poor fellow every time.
- (8) Every ten minutes a light blinks on the machine.
 - → The same light every time.

M-Implicatures

- (9) Black Bart caused the sherif to die.
 - In some unusual manner, perhaps by accident.



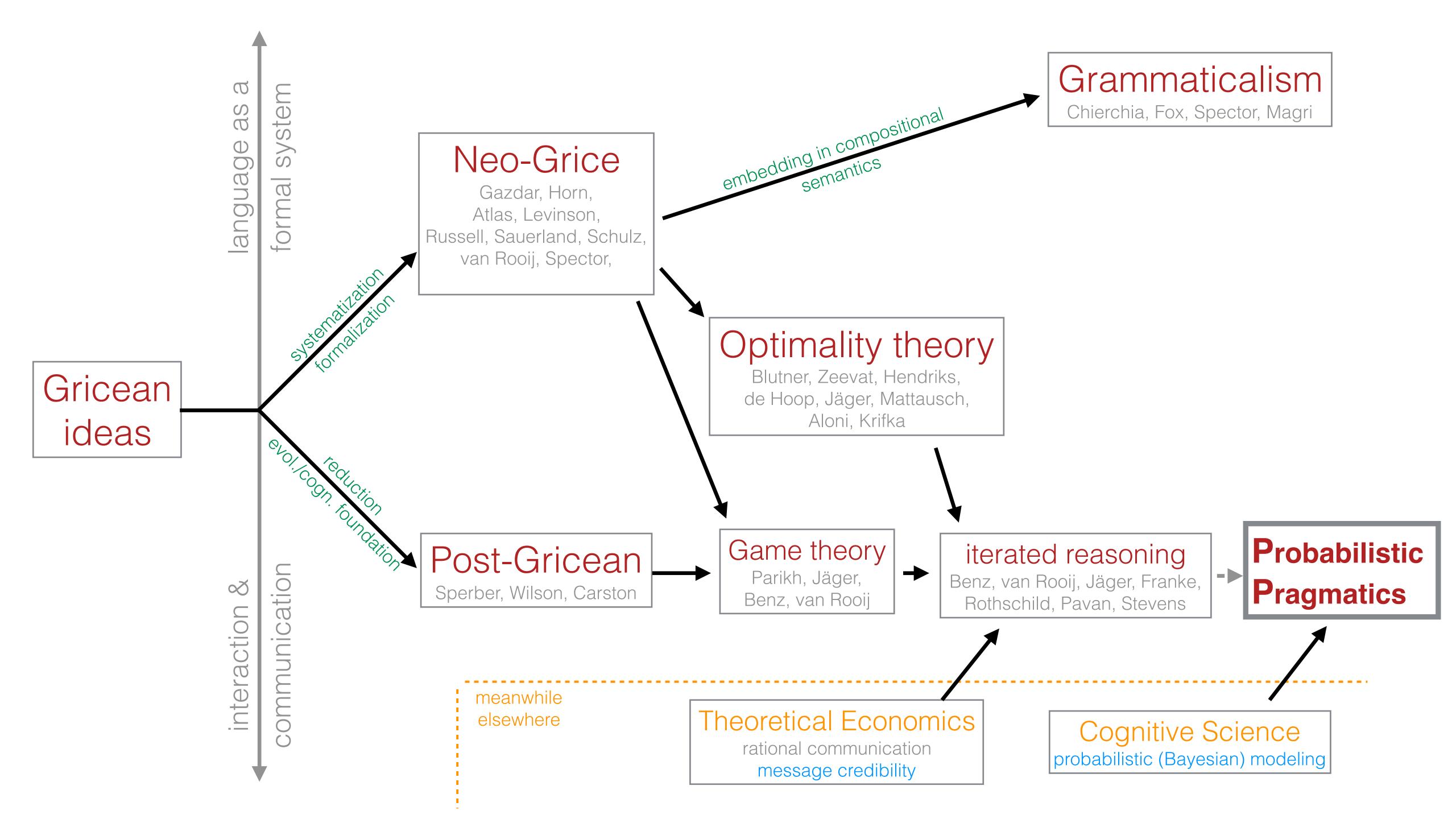
Levinson



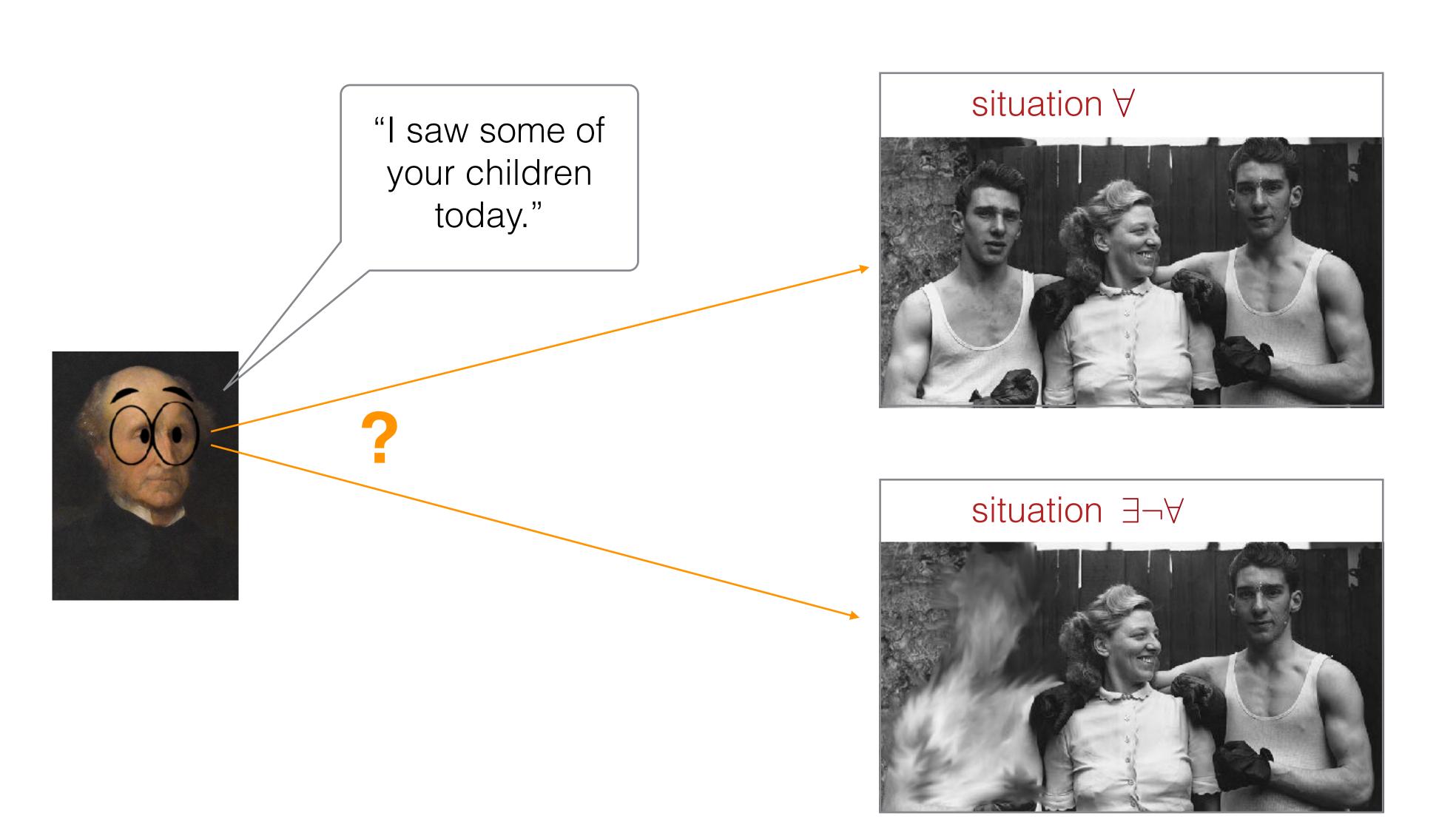
Horn



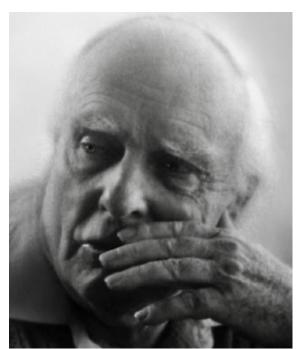
Atlas

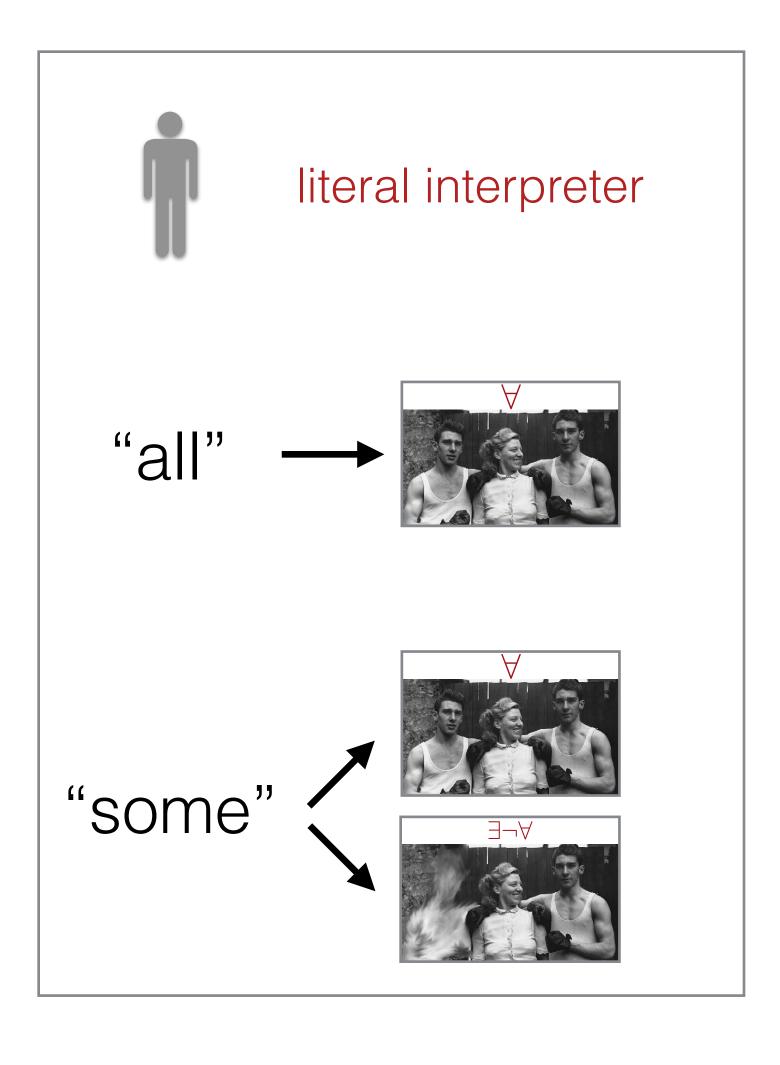


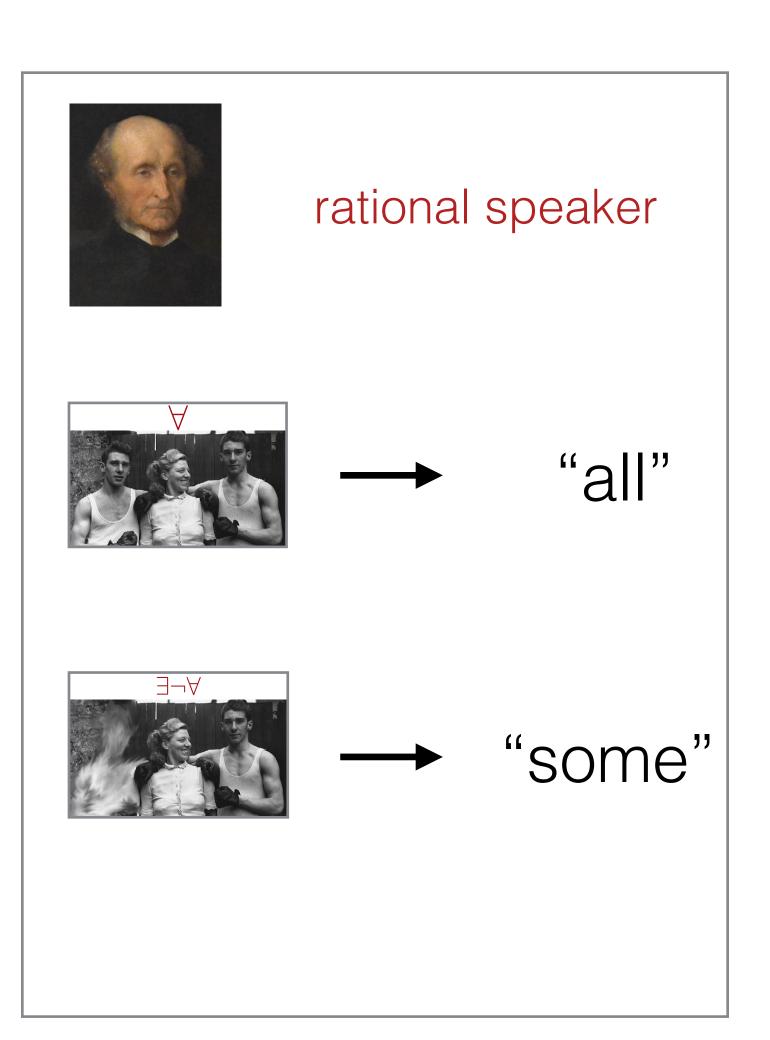
Pragmatics Pragmatics

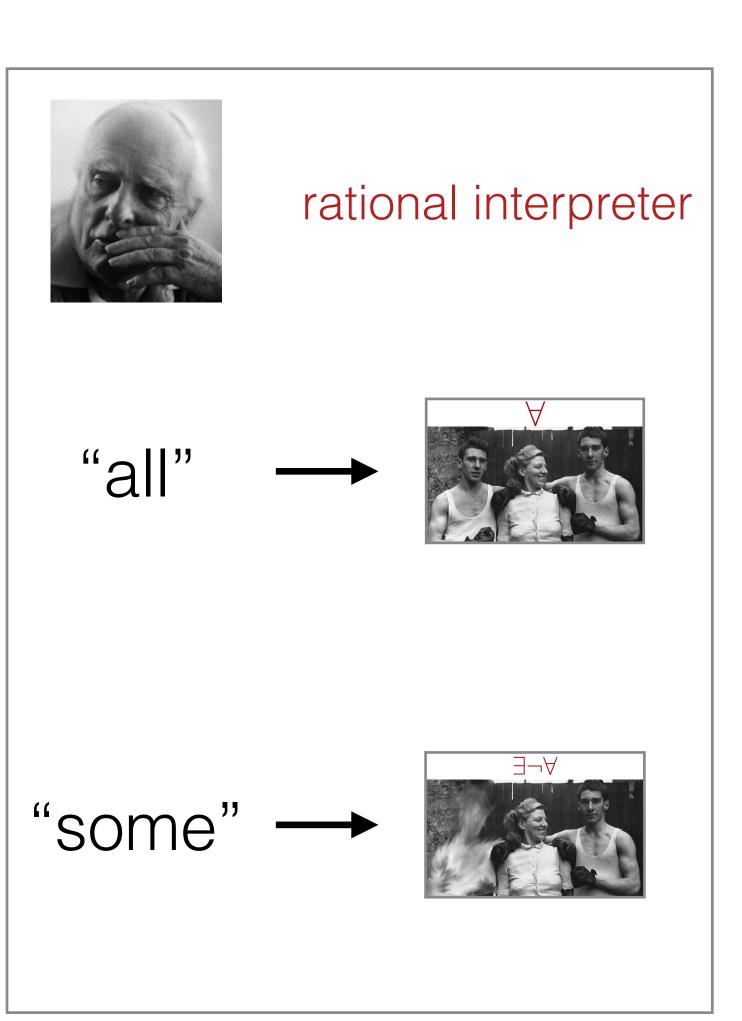


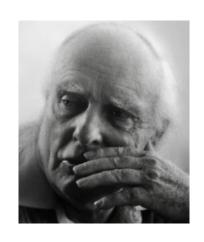












rational interpreter



rational speaker





rational interpreter

	\forall	$\exists \neg \forall$
"all"	1	0
"some"	0	1



rational speaker

	"all"	"some"
\forall	1	0
$\exists \neg \forall$	0	1

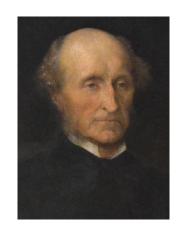


	\forall	$\exists\neg\forall$
"all"	1	0
"some"	.5	.5



rational interpreter

	\forall	$\exists\neg\forall$
"all"	.9	.1
"some"	.1	.9

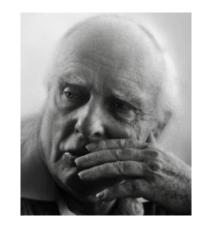


approximately rational speaker

	"all"	"some"
\forall	.9	.1
$\exists \neg \forall$.1	.9



	\forall	$\exists\neg\forall$
"all"	1	0
"some"	.5	.5



rational interpreter

	\forall	$\exists\neg\forall$
"all"	.9	.1
"some"	. 1	.9

listener behavior

$$U \to \Delta(S)$$



approximately rational speaker

	"all"	"some"
\forall	.9	.1
$\exists \neg \forall$. 1	.9

speaker behavior

$$S \to \Delta(U)$$



	\forall	$\exists\neg\forall$
"all"	1	0
"some"	.5	.5

Rational Speech Act model



STRATEGIC DEPTH 0

$$P_{lit}(s \mid u) = P(s \mid [[u]])$$



GRICEAN SPEAKER

STRATEGIC DEPTH 1



$$P_{S}(u \mid s) \propto \exp\left(\alpha \left(\log P_{lit}(s \mid u) - C(u)\right)\right)$$



GRICEAN INTERPRETATION

STRATEGIC DEPTH 2



$$P_L(s \mid u) \propto P(s) P_S(u \mid s)$$

This course

applications

referential communication (epistemic) scalar implicatures non-literal language use vagueness politeness

. . .

technicalities

WebPL Bayesian Data Analysis

. . .