**Relevance
Communication & Cognition.
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1 Communication

1 The code model and the semiotic approach to communication

2 Decoding and inference in verbal comprehension

3 The mutual-knowledge hypothesis

Human communication cannot be coding/decoding because it requires each participant to know that the other is using the same context for interpretation. This is not possible. Even if it is diluted to "probably" the same context then this requires assumptions which are diminishing small.

Also there is no hint as to how the correct context is selected.

The mutual context model is untenable and it is a requirement of the code model which is also untenable as a result.

4 Grice's approach to `meaning' and communication

a) S's utterance of x to produce a certain response r in a certain audience A;
b) A to recognise S's intention (a);
c) A's recognition of S's intention (a) to function as at least part of A's reason for A's reason for A's response r.

5 Should the code model and the inferential model be amalgamated?

No. Each model can achieve things that the other clearly cannot so both forms are required to explain communication.

6 Problems of definition

Examples of communication can easily be constructed which do not fit Grice's definition. An alternate definition....... Communication involves producing a certain stimulus intending thereby

- *Informative intention*: to inform the audience of something;

- *Communicative intention:* to inform the audience of one's informative intention.

7 Problems of explanation: Grice's theory of conversation

Grice proposed the co-operative principle which he developed into nine maxims. However they are arbitrary and useful only to explain the logic of an utterance after the fact. Grices later idea of "fundamental importance" holds more promise as a basis for an explanatory model.

8 Cognitive environments and mutual manifestness

What visible phenomenon are for visual cognition, manifest facts are for conceptual cognition. Definition:

- A fact is manifest to an individual at a given time iff he is capable at that time of representing it mentally and accepting its representation as true or probably true.

- A cognitive environment of an individual is a set of facts that are manifest to him.

AI has learnt that heuristics are essential.

Things can be mutually manifest to people and people can make considerable assumptions about what is manifest to others in a way that cannot be achieved with mutual knowledge as a prerequisite for the code model.

9 Relevance and ostentation

The human mind is a remarkably efficient information processor that seeks to get the

max info gain for the min processing. Relevant info is that which the brain chooses to process with this aim. Communication entails a ostentatious guarantee of relevance.

10 Ostensive-inferential communication

Ostentation has two layers; the relevant information itself and the the fact that the communicator considers it relevant.

11 The informative intention

The communicators informative intention is better described as an intention to modify directly not the thoughts but the cognitive environment of the audience.

This approach is able to precisely describe the more vague communication of impressions in addition to the more precise communication achieved by language and idealised by the code model.

12 The communicative intention

Communicative intention: to make it mutually manifest to audience and communicator that the communicator has this informative intent.

Ostensive-inferential communication: the communicator produces a stimulus which makes it mutually manifest to communicator and audience that the communicator intends, by means of this stimulus, to make manifest or more manifesto the audience a set of assumptions **I.**

2 Inference

1 Non-demonstrative inference

This section is about the near instantaneous inference that we all perform while communicating rather that the hard won process of scientific thought.

We understand demonstrative deductive inference but should not assume that it is the form used by the brain.

"the constraints on human conceptual systems might be such that the only spontaneously obtainable hypotheses are those which, if false, are very likely to be contradicted by perceptually fixed beliefs." pg 69.

Claim: the only logical rules spontaneously accessible to the human mind are deductive rules.

The non-demonstrative inference process in the brain can contain a deductive process.

2 Logical forms, propositional attitudes and factual assumptions

The logical form of a concept is that part which remains after non-logical components such as happy or sad are abstracted away.

"she carried it in her hand" is non-propositional but it still has logical properties e.g. it implies "she held something in her hand" and contradicts "no-one ever carried anything".

Factual assumptions are stored in permanent structural form such that they are applied as a matter of architecture rather than explicit deliberation.

3 Strength of assumptions

The "logical" strength of assumption includes a rule with a numerical weight which is adjusted based on evidence. The functional strength is about its accessibility as a statement which is strengthened by frequency of use and by how frequently it makes processing easier (i.e. by efficiency rather than logical validity)

4 Deductive rules and concepts

An organism might use deduction to reduce storage requirements but would also need tools to assess the value of adding new assumptions, guaranteeing the accuracy of conclusions deduced and tools for eliminating inconsistencies.

Assumptions are groups of concepts

Each concept consists of an address which both a location and as a constituent of a logical form.

Information stored at a conceptual address includes three types: logical, encyclopaedic and lexical.

Claim: the only deductive rules for a concept are elimination rules meaning that the input and output form is quite specific. (including and, if then, or, when know, run, bachelor)

Logical and encyclopaedic entries must be distinct and processed differently for communication to take place.

5 The deductive device

Definition: an *introduction rule* is a rule who's output assumption contains every concept contained in it's input assumption plus one. These play no part in the spontaneous deductive process being described.

hypotheses: The human deductive device has access only to elimination rules and yields only non-trivial solutions.

Definition: *non-trivial logical implications* are a set of assumptions P logically and non-trivially implies an assumption Q if and only if, when P is the set of initial theses in a derivation involving only elimination rules, Q belongs to the set of final theses.

Introduction: input P, Q. output P&Q.

Elimination: input if(P&Q)thenR. Output ifQthenR

Elimination is more likely/valuable because it requires just a single conjunct/disjunct to be found in memory rather than the whole antecedent in the case of Introduction.

This is consistent with relevance in that the hearer is attempting to combine the new info with the existing assumptions in memory.

6 Some types of deduction

Analytic rules take only a single assumption as input. *Synthetic* rules take two separate assumptions as input.

Analytic assumptions are about understanding. Synthetic assumptions are about exploiting that understanding.

The human deductive devise wanting to improve its overall representation of the world will recover as many synthetic assumptions as possible. Analytics assumptions are only useful as a means to an end, the end being more synthetic implications.

Definition: a set of assumptions Contextual implies an assumption Q in the context C iff i) the union of P & Q non-trivially implies Q ii) P does not non-trivially imply Q and iii) C does not non-trivially imply Q.

7 Contextual effects: the role of deduction in non-demonstrative inference

Contextual effects are the interaction between old and new information which result in the synthesis of new information or the strengthen/weakening of existing information.

When an analytic rule applies the conclusion inherits the strength of the premise. When a synthetic rule applies the conclusion inherits a strength equal to or less than the strength of the weakest premise.

3 Relevance

1 Conditions for relevance

A contextual effect is a necessary condition for relevance.

We are not trying to define the term relevance, we are using the word relevance as an approximation of the scientific phenomenon that we are trying to describe.

An assumption is relevant in a context iff it has a contextual effect in that context.

2 Degrees of relevance: effect and effort

An assumption is relevant in a context to the extent that its contextual effects in this context are large and the effort required to process it in this context are small.

Only consider the effort which results in `a contextual effect (analytic? Assessing relevance) not the effort which results from the fact that a contextual effect has been obtained (synthetic? Deriving the benefit)

Good example page 127.

Measuring the level of contextual effect and effort is easy in a computer program but not the brain (where perhaps they are physico-chemical)

3 Is the context given or chosen?

The initial context cannot be all of memory. It also cannot be just the proceeding uterences plus their implications plus their associated exiting memories. The context is not uniquely determined.

4 A choice of contexts

In pragmatic literature it is assumed that first the context is determined then interpretation is completed then relevance is assessed. This cannot be the case.

The hearer assumes that the new assumptions are relevant and then they try and find a context which is relevant (max effect, min effort)

5 Relevance to an individual

At the end of each deductive process the individual has a set of accessible contexts. This set is partially ordered: each context contains one or more smaller contexts, and each context is contained in one or more larger contexts. The initial context is immediately given and additional contexts can be accessed by one or more steps (each of which require effort.)

A new assumption may be relevant in one of the accessible contexts if the new assumption is contained (or implied) at a given strength in one of them.

I struggle with pg 143.

An assumption has been optimally processed when a balance has been reached between max contextual effect and min effort.

The initial context is subsequently modified by the new assumptions as they arrive. Each new assumption will trigger the encyclopaedic memory for the topic and then the encyclopaedic memories for those etc. etc. but each step further away from the original trigger involves more effort.

6 The relevance of phenomena and stimuli

A phenomenon is relevant to an individual iff one or more of the assumptions it makes manifest is relevant to him.

Ostensive stimuli must attract attention and focus it on the communicators intentions.

7 The principle of relevance

Ostensive communication comes with the communicators guarantee of relevance.

8 How relevance theory explains ostensive-inferential communication

The individual does not either list and rank all the possible hypothesis or test each hypothesis one by one until relevance is achieved. Rather the FIRST hypothesis that is tested and consistent with the principle of relevance is selected.

4 Aspects of verbal communication

1 Language and communication

Claiming that language is about communication and that it is unique to humans is like claiming that a nose is about picking things up and is unique to an elephant.

2 Verbal communication, explicatures and implicatures

3 The identification of propositional form

4 The identification of implicatures

5 Propositional form and style: presuppositional effects

6 Implicatures and style: poetic effects
Not read.

7 Descriptive and interpretive dimensions of language use
Not read.

8 Literalness and metaphor
Not read.

9 Echoic utterances and irony
Not read.

10 Speech acts
Not read.