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Stephen Levinson

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STEPHEN LEVINSON

MAX PLANCK INSTITUTE FOR PSYCHOLINGUISTICS

ABSTRACT Sometimes it is thought that there are serious differences between theories of discourse that turn on the role of cognition in the theory. This is largely a misconception: for example, with its emphasis on participants' own understandings, its principles of recipient design and projection, Conversation Analysis is hardly anti-cognitive. If there are genuine disagreements they rather concern a preference for 'lean' versus 'rich' metalanguages and different methodologies. The possession of a multi-levelled model, separating out what the individual brings to interaction from the emergent properties of interaction, would make it easier to resolve some of these issues. Meanwhile, these squabbles on the margins distract us from a much more central and more interesting issue: is there a very special *cognition-for-interaction*, which underlies and underpins all language and discourse? Prime facie evidence suggests that there is, and different approaches can contribute to our understanding of it.

KEY WORDS: *cognition and human interaction, discourse and cognition, interactional intelligence*

Let me preface these remarks with the (hopefully unprovocative) proposition that interactive language use is the core phenomenon to be explained – all other forms of discourse are, however interesting, derivative in every sense, ontogenetic and phylogenetic included. So I restrict what I have to say to that domain.

In the context of this special issue, 'cognition' will no doubt be given a wide latitude of interpretations – for example, an analytical approach might be called 'cognitive' if, variously, it involves focus on 'online' mental process rather than the products that result from it ('discourse'), or it employs openly intentional language (ascribing intentions or beliefs) rather than covertly intentional language (action, recipient design), or it involves the specific methods of cognitive

psychology or neuroscience rather than textual exegesis. Although passions on these issues seem to run high, they are largely beside the point. For example, although conversation analysis (CA) largely eschews overtly intentional metalanguage, CA's central tenet is that a theory of interactive discourse should be built on the participants' own interpretations and classifications of phenomena – that's to say, it's actually more cognitive (more honestly concerned with the mental worlds of participants) than most of the rival theories of discourse analysis. I will touch again on these quarrels below, which are partly just terminological-cum-methodological, but partly perhaps a bit more theoretically interesting.

In contrast to these terminological and methodological issues, there's a much more fundamental substantive issue: to what extent is there something special about the cognition that underlies human verbal interaction, setting language itself aside for a moment? More ponderously, is the human mind specifically adapted for conducting social interaction, so that we could better speak of *homo interagens* than *homo loquens* or *homo ludens* (to mention some of the rivals)?

It seems to me that, although there has been relatively little systematic thought about it (see e.g. Goody, 1995; Tomasello, 1999), the answer to the substantive question is clearly that, yes, there is a very special kind of cognition that underlies language use, which is independent of language itself, but on which discourse is built. The evidence is largely circumstantial, but there's lots of it, and collectively it is highly persuasive. To try and crystallize the hypothesis, I have dubbed the cognitive specialization 'the interaction engine' (Levinson, in press; see also Levinson, 1995), conceived of as an ensemble of cognitive capacities and motivational predispositions which underlie human communication and interaction. Language use trades on the antecedent existence of such an 'engine', and the 'engine' can operate without language, so language capacities themselves are not the source of the phenomena in question.

The circumstantial evidence for such a thing comes from a number of sources. First, communication without a shared language occurs, as in 'first contact' situations (or adventure tourism for that matter). Second, communication of a quite abstract kind even occurs where no full language has been acquired, as in the case of 'home sign' systems (Goldin-Meadow, 2004) – in the developing world, isolated deaf adults with no contact to conventional sign languages provide interesting case studies. Third, infants are capable of patterned communicative interaction by nine months at least, long before they can say anything. Fourth, there appear to be rather clear candidates for strong universals in human verbal interaction, including the turn-taking and repair machineries in conversation or the greeting and parting routines involved in entry and exit from interaction. Fifth, a glance at the primate world shows nothing remotely resembling human interaction: humans spend on average perhaps half of their waking hours in intense communicative interaction with each other, involving long, highly-structured sequences of mutually interlocking actions.

These lines of evidence provide prima facie evidence for the existence of a whole system of human proclivities that are in principle independent of language, largely universal (at least in outline), and which drive our system of verbal interaction. What exactly are its properties? Let me state the hypothetical ingredients in the 'interaction engine' and then come back and justify them in a bit more detail:

- 1) 'Mind-reading' abilities, that is, the ability to understand actions in terms of the motivations and intentions that lie behind them – our nearest cousins, the apes, show at most only the rudiments of this. This would seem to rely on awareness of other's beliefs and desires.
- 2) Reflexive or 'mirror mind-reading' abilities, that is, the ability to simulate another actor's reading of one's own behaviour. This would seem to be a necessary ingredient in deception (of any inventive kind anyway). Without it, flexible cooperative activity can not be conducted – I need to do my part in such a way that you can see what part I'm doing.
- 3) The capacity for Gricean intentions (as in Grice's 1957 theory of meaning), that is intentions driving behaviours whose sole function is to have the motivating intentions recognized. This is what makes open-ended communication possible, communication beyond a small fixed repertoire of signals. Traditionally, such open-ended communication has been attributed to the recursive structure of language, but actually it primarily resides elsewhere, in the pragmatics if one likes. The evidence for this comes from 'home sign' systems, as well as spoken languages with limited syntactic recursion.
- 4) A raft of quite specific ethologically-grounded behavioural proclivities. These include: a) access rituals, as in greetings, and (more unusual in comparative primatology) leave-taking rituals; b) the multimodal character of human interaction: simultaneous signals in the gestural, gaze, facial and vocal channels; c) the rapid alternation of speaking and recipient roles; and d) the motivational system that drives humans to seek cooperative interaction.

Why single out these properties? Consider what we have to account for, properties of interaction that can sometimes be described in less mentalistic terms. Take 1), our 'mind-reading' abilities. Our conversational responses are not to behaviours, but to the actions they perform – this requires a parsing of the behavioural stream and the attribution of intended actions to the parsed units. Take property 2), our simulation of the other's simulation of ourselves – the basis of the tailoring of actions to the other's mental states, as in the core cases of *recipient design*. If I refer to someone as 'Tony', I do so judging that: a) you know the person in question under such a description; b) you know that I know him under that description too; (c) you know that I know that both a) and b). These reflexive conditions are just those posed in conversational analysis (Schegloff, 1996), where the theoretical apparatus is kept as free of mentalistic assumptions as possible.

Now, take property 3), the ability to have and retrieve Gricean intentions, that is intentions whose behavioural vehicles have been so designed solely to have their motivating intentions recognized. The power of this was driven home to me recently when I came into contact with a 'home signer' on Rossel Island, Papua New Guinea. Kpémuwó is a congenitally deaf adult, but a useful member of the community, because he inventively signals his communicative intentions with surprising success. I found that even I, with little shared background and no experience of his more stabilized signs, could understand a great deal of what he 'said'. He would sign, I would hazard a guess and signal back with hopefully iconic signs, he would correct the interpretation, and we would often finally seem to achieve mutual understanding. For such a system to work (and for scientific research on it, see Goldin-Meadow, 2004), Gricean intentions are the only plausible explanation, since it is communication without convention (or at least, built on only a small base of Gricean signals that have worked before). Kpémuwó also demonstrated the power of a cyclic repair mechanism – try, see what the uptake is, and if necessary try again. This only works if turns are short. We begin to see that Gricean intention recognition may partially motivate some of the basic, universal properties of conversation structure (as in 4) earlier). Although 'home sign' and other ad hoc communicative systems may be limiting cases, every pragmaticist knows that in everyday language use what is communicated far exceeds what is said, and the gap is at least partly filled by the Gricean mechanism. So the presence of developed language doesn't let this essential mechanism go on holiday.

We come now to the collection of properties in 4), which could clearly be augmented in many ways. Why think of these behavioural tendencies as driven by cognitive predispositions? Take multi-modality: the production of simultaneous behaviour streams in distinct channels is not just multi-tasking – the streams interlock to constitute a single communicative act. It is highly unlikely that this is a learned skill, akin to playing the organ: multimodal signalling is universal in the strong sense, exhibited in infancy, and is likely to have special brain bases. In a similar way the intense interest in prolonged sequences of alternating communicative turns is already exhibited in the 'proto-conversation' of pre-linguistic infants and their caretakers, arguing for a motivational basis deep in the human psyche. Cooperation of the kind found within human groups also seems to have an instinctual basis, as shown by cross-cultural experiment (Boyd and Richerson, in press) and infant research (Gergeley and Csibra, in press; Liszkowki, in press; Tomasello, in press). Many of the structures found in conversation, for example embedded sequences as in the interchange below where the main business is temporarily shelved to deal with preconditions, presume such a cooperative basis:

- A: I'd like some Marlboros
 B: 10 or 20?
 A: 20 please
 B: ((passes them)) That'll be 40p

Finally, take the rapid alternation of roles in interaction, whereby erstwhile speaker becomes recipient and vice versa, a feature reflected in the universal grammatical categories of first and second person. We've already noticed that maintaining intersubjectivity through the possibility of on-the-spot repair motivates rapid turn-taking, but the ability to speak and comprehend at the same time suggests that more is involved – not improbably an ethological tendency to transmission bursts in structural units, typical of many species.

So that then is the proposal, that independent of language there is a specialization of human cognition for the highly-structured, cooperative interaction typical of the species. Language piggy-backs on this ability, greatly amplifying the expressive potential – but language would not work without the 'interaction engine' already in place, which is why the interactional mechanisms get set up in the first year of human life, ready for the onset of language in the second. The hypothesis is a substantive claim about a specialization in human cognition and its contribution to our communicative systems. It reverses the normal assumptions in at least two ways:

- a) The prevailing presumption is that it is language and its expressive power that has revolutionized human mind and society, while the principles of language usage will follow from entirely general properties of human cognition. On the 'interaction engine' hypothesis, the open-ended expressive potential actually lies in the Gricean intention recognition system, and every utterance exploits the specialized machinery for intention-attribution and cooperative action design. A whole package of language-independent cognitive predispositions drive human communication, and language is possible only because of this infrastructure.
- b) It seems likely that the substantive, absolute universals of human communication lie in this underlying infrastructure for communication, while languages themselves differ widely according to the quirks of culture and history (Levinson, 2000). We are looking in the wrong place for strong universals, which is why after half a century of linguistic typology we have found hardly any.

A great deal of further debate about the special cognitive foundations for interaction can be found in Enfield and Levinson (in press).

Now let us come back to the aversion to the cognitive apparently shown by some analysts of verbal interaction, which is what prompts this special issue. Nobody would claim that human language behaviour is a thought-free zone, or that discourse studies should adopt the methods of geology (or if so, I have yet to meet them). And clearly this special issue is not dedicated to the discussion of a nonsense proposition – human language use is without mentation. So what could the disagreements, if any, really be about? Perhaps there is a controversy about *how much* cognition goes into language use? For example, Herb Clark (1996) and Boaz Keysar (Keysar et al., 1998) can quarrel about the degree of recipient design involved in fast verbal interaction. Similarly, there are varying

views as to the extent that language use is pre-canned, using off-the-shelf forms for ritual repetition as in Malinowski's phatic communion, or as in the recent theory by Pickering and Garrod (2004) where we inadvertently 'prime' (touch off) each other's language production. But these are little squabbles at the margins.

So what on earth could we *really* quarrel about? I think that there are two foci where distrust of invocations of cognition tend to surface. Let's invent a hate figure, call him Psycho, so we can bait him. The first dart that we can throw at Psycho is that he invokes all sorts of mental entities (beliefs, knowledge states, intentions, goals) that at best add nothing, and at worst distract us from proper analysis of the record of interaction. In some cases, this arrow goes straight to the target (see e.g. the CA rendition of indirect speech act theory in Levinson, 1983). But this doesn't mean there's no place for terminology of this mentalistic kind. Nor does it mean that the alternative is actually sanitized of all mental content – there is no less cognitive content involved in talking about actions (where an 'action' can't be reduced to behaviour, since what individuates it is in the last resort the intention that can be ascribed to it). The main force of the critique here is methodological: other things being equal, the explanation that is 'leaner' (uses less theoretical primitives) is to be preferred. Thus as I said at the outset, this is a terminological-cum-methodological issue that can be sensibly debated, and in principle need not divide us.

The second dart we can throw at Psycho seems much more deadly. Psycho seems to operate by assuming, for example, that speakers construct intentions, then code them as units in an utterance. But that is just not how it works – speakers recraft their utterances mid-stream, taking into account the responses, or more often the lack of them, from recipients (Goodwin, 1981). As a result, what is produced is actually a joint production, which can hardly correspond to the speaker's own initial intention or goal. This problem recurs on a higher structural level, for example in the closings of telephone calls, where one party makes as if to close, but another opens up the closing – it takes two to tango (Sacks and Schegloff, 1999). Once again, individual psyches don't seem to be where the action is – there is an emergent structure (utterance in the former or sequence in the latter case) which is the product of minds-in-interaction. This seems to be a telling argument against psychological reductionism (although actually it is curiously close to the psychological theory in Pickering and Garrod, 2004).

Now, emergent phenomena of the kind exhibited by any conversation (which may go in a direction foreseen by none of the actors) fall squarely into the contemporary debates on emergence versus reductionism whether in the brain sciences or sociology (see Sawyer, 2001 for review). Without getting bogged down in those debates, let's just admit that conversations exhibit properties that are quite unpredictable from individual states of mind even if one had God-like access to those mental states. But isn't this bad news for my 'interaction engine' and anything of its ilk? Not at all. Because the 'interaction engine' isn't intended

as a move in a reductionist argument. It's just a (partial) model of *what special cognitive machinery individuals bring to interaction*. Without these preconditions, human communicative interaction wouldn't look like it does, as one can easily see by looking at the interaction patterns of other animals.

I've found it useful to think about three distinct ontological levels involved in the conduct of communicative interaction (Levinson, 2005, in press):

- 1) The individual level: this is the level inhabited by my 'interaction engine', 'grammatical competence', and other cognitive beasts.
- 2) The interactional level: this is the level where we can talk about recurrent sequence types, the overall structure of conversations, the co-production of extended turns, etc., each of which is an emergent structure. Recurrent patterns at this level may exist because they simply turn out to be the best solutions to recurrent problems (see Schegloff, in press), a bit like evolutionary game theory can predict the emergence of stable strategies.
- 3) The socio-cultural level: this is the level where we can talk about the social organization of institutions, and the constraints they place on language use in specific activity types or speech events.

None of these levels is reducible to the others – you can't reduce level 2 to 1 (psychological reductionism) because of the emergent character of properties at level 2. You can't reduce level 3 to level 2 (interactional reductionism of culture and social organization) because level 3 has coherent system properties not predictable from level 2, which are easily appreciated from a cross-cultural perspective (Levinson, 2005).

Some of the constructs we work with are distributed across levels. For example, 'language' can be thought of as a psychological system in the head, as discourse structures exhibited in interaction, and as an entity individuated (English versus Yukatek) at the socio-cultural level. Similarly 'culture' can be thought about as an internalized system of beliefs and predispositions, as a way of acting built through interaction structures, and as a system reified in social institutions. So why distinguish out the levels? Because, among other things, it gives us a clear-headed way of thinking about the relationship between individual psychology and communicative interaction. The properties of interaction tell us what the psychological properties must be like in order to bring off participation in fast, ever contingent interaction. The psychological properties in turn put constraints on what kind of interaction humans can sustain, predict likely universals, and the order of acquisition of pragmatic competence in children. The framework also suggests an evolutionary scenario for the, comparatively speaking, quite peculiar nature of human communicative interaction. Human evolution seems to have been subject to the unusual principles of group selection in competition with other human groups (Richerson and Boyd, 2004; Boyd and Richerson, in press) – that is to say, success in social organization at level 3 fed back into the individual level 1, favouring the individual endowment of cognitive properties, which in turn made

possible interaction patterns at level 2 which supported the winning properties at the sociocultural level 3. Each level is adapted to its neighbours – interaction patterns subserve the needs of institutions, which themselves arise from the long-term sedimentation of interaction patterns. Human cognition is adapted to the need to conduct the very fast, highly-structured interaction which dominates our lives. But in turn interaction patterns can only exploit the properties of the individual machines, the ‘interaction engine’.

I have tried to argue here, in rather limited space, that the analysis of interactive discourse has nothing to fear, and much to gain (here again see Enfield and Levinson, in press) from an integration of the cognitive into an overall picture of human communication.

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STEPHEN C. LEVINSON received his BA (Archaeology, Social Anthropology) from the University of Cambridge, and his PhD from UC Berkeley (Linguistic Anthropology). He held posts at the Universities of Cambridge and Stanford, as well as the Australian National University. He is currently Director, Max Planck Institute for Psycholinguistics, Nijmegen, the Netherlands. He has carried out fieldwork in India (Tamil), Mexico (Tzeltal), Australia (Guugu Yimithirr), Papua New Guinea (Yéli Dnye, Rossel Island). His books include: *Pragmatics* (Cambridge University Press, 1983), *Politeness: Universals in Language Usage* (with P. Brown; Cambridge University Press, 1987), *Rethinking Linguistic Relativity* (ed. with J. Gumperz; Cambridge University Press, 1996), *Presumptive Meanings* (MIT Press, 2000), *Language Acquisition and Conceptual Development* (ed. with M. Bowerman; Cambridge University Press, 2001), *Spatial Language and Cognition* (Cambridge University Press, 2003). The following books are in press: *Evolution and Culture* (ed. with P. Jaisson; MIT Press), and *Grammars of Space* (ed. with D. Wilkins; Cambridge University Press). In preparation is *The Roots of Human Sociality* (ed. with N. Enfield; Berg). His papers can be downloaded from [<http://www.mpi.nl/world/persons/private/levinson/publicat.htm>]. ADDRESS: Max Planck Institute for Psycholinguistics, PO Box 310, NL-6500 AH Nijmegen, The Netherlands. [email: stephen.levinson@mpi.nl]