

Mimesis and the evolution of language behaviour: Some research issues

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One of the central open questions concerning the biology of human language behaviour is its evolutionary history. Systematic studies of the sign (= gestural) languages developed and used by the deaf lead one to argue that speech is not indispensable to language behaviour. Gesture-based language behaviour could plausibly have been the evolutionary precursor to speech-based language behaviour. It has been recently argued at length that mimesis (= mime or pantomime based on non-standardized gestures) could have been an earlier evolutionary stage. A whole list of open questions are raised by these speculations. Some of these are discussed in this paper.

Problem statement

UNLESS we want to argue that language behaviour among the humans emerged all on a sudden in all its present complexity, we have to concede that language behaviour itself must have evolved through simpler versions. However, we do not have a method available to us at present to rank language behaviour along a natural complexity dimension. It is clear that a relevant complexity dimension, whatever its details, must take into account centrally the pragmatics of behaviour and not merely the syntax and semantics of language in the linguistic sense.

The language modality of behaviour has two essential capabilities: *representational capability* and *discourse capability*. Of the two, discourse capability is, by far, the more critical, since it plays a determining role in reflection and pedagogy. It is the discourse capability that enables natural language to function as its own meta-language. It is precisely this feature that is absent from the signing behaviour of 'language-trained' chimpanzees. It is the absence of this feature that holds back non-human animals – including apes – from developing the language modality of behaviour in its true sense: (see ref. 1 for a more detailed discussion).

An attractive thesis is to propose, as has been suggested by Kendon² and worked out in great detail by Donald³, that a *mimetic* stage intervened in evolution between apes (with no discourse capability) and modern humans (with full discourse capability). Mimesis served as a vehicle for rudimentary discourse and, hence, to pedagogy of some sort. Donald³ has argued that this led to a *mimetic culture*. That the mimetic stage was a transitional one leading eventually to full-fledged language and speech behaviours may be argued more convincingly by postulating that mimesis was accompanied by *prosodic voicing*, even though *phonetic voicing* required considerable further evolution of

the voice mechanism. Mimesis, with voice control, could have served rudimentary referential and propositional purposes. It could have, as it still does, given expression to propositional attitudes (e.g. doubt, certainty, urgency, negation, etc.). Propositional attitudes might have been among the first communicative messages to be phoneticized.

The above thesis, while it may look attractive, gives rise to a whole list of open issues. For instance, what is the nature of mimesis and the limits of pedagogy based on mimesis as the medium of instruction/training? We have suggested that mimesis was accompanied by voicing. Is there any way we can substantiate the natural combination of the two? We have also distinguished between prosodic voicing and phonetic voicing arguing that the two modes of voicing are differentiated both in evolution and in terms of the underlying (brain) mechanism. Is there evidence to justify these assumptions? It has been argued by Donald and others that language behaviour was the outcome of growth in cognitive complexity resulting from the complexity of thoughts, and not the other way round as common sense would seem to suggest. Is this a valid argument? Simply stated, is thought without language possible? If yes, is there evidence to support this assertion? In the rest of this paper, we shall elaborate on some of these issues.

Mimesis, voicing and pedagogy

As earlier mentioned, mimesis has been defined and discussed elaborately by Donald³. He differentiates mimesis from *imitation* and *mimicry*. Reinterpreting the main thrust of his arguments, one can define imitation and mimicry as follows: Imitation is copying a behavioural act (of another) reproducing its functionalities. Mimicry is copying a behavioural act (of another) reproducing not only its functionalities but also its idiosyncrasies.

'Mimesis [mime or pantomime] is fundamentally different from imitation and mimicry in that it involves the *inven-*

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tion of intentional representation Mimesis can incorporate a wide variety of actions and modalities to its purpose: tone of voice, facial expressions, eye movements, manual signs and gestures, postural attitudes. Long sequences of these elements can express many aspects of the perceived world They are creative, novel, expressive acts.’ (ref. 3, p. 109).

As regards pedagogy using mimesis as an instructional medium, according to Donald³, ‘practical skills would be the basic pedagogical target: the use and manufacture of domestic tools, methods of hunting, construction of simple shelters, fire, weapon and fighting. Rituals, games, folkways and mores, would also require a systematic transmission of knowledge by means of mimesis.’ (ref. 3, p. 176).

Donald seems to believe that mimesis-based pedagogy is similar to present day training through apprenticeship – for example, for the acquisition of craft-skills. But it is unclear that the two modes of pedagogy are really comparable since voicing, including articulated speech, would seem to play a strategic role in training through apprenticeship. It is doubtful whether mimesis-based pedagogy without any speech could have covered the vast domain that Donald claims for it.

Home sign systems would appear to come closest to mimesis in the sense of Donald. Morford⁴ has recently published an informative review of research on home sign systems. She defines home signs as ‘the gestural communication of deaf individuals who do not learn a spoken language and who are not exposed to a signed language’ (p. 65). Unfortunately Morford’s survey does not throw any light on the role, if any, of prosodic voicing in the innovation and use of home sign systems. Nor does her review deal with any pedagogic usage of home sign systems. Clearly, normal speakers deploy prosodic voicing together with gestures for a variety of communicative purposes – especially, as noted earlier – to express propositional attitudes. This is an area that is well worth a more systematic study.

Prosodic voicing and phonetic voicing

‘Articulate language is peculiar to man. But he uses in common with lower animals inarticulate cries to express his meaning, aided by gestures, and the movement of the muscles of his face. This especially holds good with the more simple and vivid feelings which are but little connected with our higher intelligence. Our cries of pain, fear, anger, surprise, together with their appropriate actions, and the murmur of a mother to her beloved child, are more expressive than any words.’ (ref. 5, p. 54).

Prosodic control of voice – that is, the regulation of volume, pitch, intonation and stress – has been claimed to be logically more fundamental than phonetic control. Darwin seems to have felt that the first aspect of voice control to evolve was prosodic control. Subtler aspects of prosodic

control, within the means of humans, would seem to be unavailable to most animals including apes. It is well-established that prosody is primarily under the control of the right hemisphere in humans, and phonetics under the control of the left hemisphere. Brain lesions may cause these to be disturbed differentially; (see, for more details, ref. 6).

While trying to argue the evolutionary development of phonetic voicing, some remarks that Köhler⁷ makes about chimpanzees (with whom he had closely worked over a long period) are rather intriguing. He says: ‘It may be taken as positively proven that their gamut of *phonetics* is entirely ‘subjective’, and can only express emotions, never designate or describe objects. But they have so many phonetic elements, which are also common to human languages, that their lack of articulate speech cannot be ascribed to *secondary* (glossolabial) limitations’ (p. 271). What, then, was the impediment to chimpanzees’ acquiring speech behaviour?

Thought without language

‘Can one think without language?’ ask Lecours *et al.*⁸ in their chapter on ‘Thought and Language: Thought without language’, and answer their own question: ‘Thought without language is indeed possible. There are very complex activities which may be carried out without involving language . . .’ (p. 465). Donald, endorsing their view, adds: ‘When humans lack language, provided they do not suffer from some brutal lesion that robs them of other more fundamental cognitive skills, they can continue to participate in all those forms of human culture that do not require language’ (p. 168). Donald concludes from this assertion of his that, with mimesis, a mimetic culture is possible.

Two main evidences that are used to centrally support the claims in both the above cases are: (i) the ability of Köhler’s chimpanzees to fabricate tools to solve puzzles (presumably proving thereby that without language thinking is possible); and (ii) the case of Brother J who was able to cope with the demands of the world even when deprived of language due to brain seizures.

Taking these ‘evidences’ one at a time and analysing the details carefully one is led to the view that the conclusions arrived at by the authors above are far from convincing. Köhler’s experiments with his chimpanzees demonstrate that they are able to deliberately deal with an experimental problem-situation only if the goal and the instrumental aids to reach the goal are perceptually available simultaneously for surveying throughout the duration of the experiment. This would seem to suggest that the aspects of the world out of sight (i.e. out of immediate perception) are unavailable to deliberate upon. One can argue that the capacity to deal with aspects of the world not sensorily accessible requires the support of language. Language serves as a medium for representing the world not immediately present to the senses and to deliberate on it – that is, to deploy

language as a discourse medium. This is the essential difference between reactive behaviour and proactive behaviour: (see also, in this context, Vygotsky⁹, pp. 32–51).

Consider now the case of Brother J (Lecours *et al.*⁸, Chap. 19 contains a detailed clinical account of the seizures and their consequences). At the peak of one of his brain seizures, during a train journey, he could realize when he had reached his destination town. He could not speak or write, but he could communicate through mime to the hotel staff. In other words, he knew he should communicate. He knew what he wanted to communicate and how to do so by mime. He could take himself to the cafeteria and order some items using the ‘layout’ of items in the menu-card. He was fully conscious of his needs, how to get these attended to: (for example, his dealings with the registration clerk). Finally, he could recall all the episodes he had gone through and explain his actions in terms of his breakdown symptoms.

Given these facts, in what sense can we say that Brother J, during his seizure, had lost his language capability? As Lecours *et al.* caution: ‘... the loss of comprehension and expression [in aphasia] does not necessarily mean that what is appropriately called *inner language* has been destroyed’ (p. 468). In what sense can we cite the experience of Brother J as an illustration of ‘thought without language?’ As Donald³ points out: ‘The acquisition of language may have been accompanied by other late cognitive stages’ (p. 198). Loss of language expression and comprehension may not mean that all cognitive capabilities usually identified with language are lost.

We can formulate the central issue as follows: When can one assert, of a language-based animal, that it has lost its language faculty? Does it make sense to talk of the ‘cognitive style of people stripped of symbolic language’ as Donald repeatedly does? All that we know from the outside are the occurrences of: loss in verbalizing capability (deaf-mutes); loss of expressive/comprehending capabilities in the language modality (Broca’s & Wernicke’s aphasia); disabilities associated with reading/writing skills; and so on. We know of restrictions in language-use due to lack of literacy and consequent confinement to the oral-mode of using language. In all these cases, are we sure we are witnessing the behaviour of people ‘stripped of symbolic language?’ Is symbolic language capability in present-day humans something that can be ‘stripped’ like an outer garment? Loss of the use of normal expressive and/or comprehension channels does not constitute the functional loss of the entire faculty.

‘Thought’ is not some *one* thing. The term (as has been used by various authors) covers the outcome of a variety of cognitive operations: recognition (e.g. of faces), comparison, generalization, judgment, decision-making, comprehending, etc. Take the case of ‘reflecting’. This involves the use of reflective processes (see below) to: (i) reflect on the world sensorily available (objects, agents, events); (ii) reflect on

one’s own behaviour; (iii) make abstractions of phenomena of the world and the self.

The reflective processes supporting ‘reflection’ could be one or more of the following cognitive operations: analysing wholes into parts; seeing similarities; grouping, categorizing, conceptualizing; establishing relations between parts; theorizing; modelling in terms of relational structures; interpreting models.

If *thinking* is defined as engaging in ‘reflection’, then it is not clear whether all the reflective processes identified above can be engaged in without language. Are articulated knowledge and belief possible without language? No, because articulation, by definition, requires discourse capability which is predicated on language availability.

Emergence of full-fledged language behaviour

Donald³ postulates that episodic, mimetic, mythic and modern define the cultural stages that were involved in getting from apes to modern humans. According to him: ‘the word that seems to epitomize the cognitive culture of apes... is the term *episodic*. Their lives are entirely lived in the present, as a series of concrete episodes, and the highest level in their system of memory representation seems to be *event representation*. Where [modern] humans have abstract symbolic memory representation, apes are bound to the concrete situation or episode...’ (p. 149).

The notion *episodic memory* is unclear in terms of its functionalities. Does it consist of a collection of ‘video clips’ of events one has actually witnessed or been a participant in? Is it being claimed that these video clips are not compared, contrasted, or otherwise processed or abstracted? Is it the case that a particular video clip is ‘evoked’ when the individual re-encounters some salient feature of the content of that video clip?

If ‘recall’ in this sense is possible, how are recalled items represented? In the case of humans, typically, language is available for this purpose. Other symbolic media are also available, e.g. pictures. Admitting ‘recall’ is possible in some manner, can the items recalled be reflected upon? Can their contents be compared to others? If neither is possible, are we not left with a mere *recognition memory*? Recognition is restricted to specific features of a concrete event when encountered a second time.

Things become more complex and, at the same time, more fuzzy when one attempts to conjecture how mimesis evolved into full-fledged language. Donald claims that mimetic culture evolved to mythic culture which, in turn, led to the modern culture of human beings with literacy skills enabling the invention and use of *external memories*.

‘All modern humans possess speech and highly developed semiotic skills. The latter may be defined generally as the ability to invent and use signs to communicate thought.’ (Donald³, p. 206).

According to Donald³, the ‘invention of full-fledged language’ had to wait for advances in ‘thought skills’ and the ability to build complex ‘mental models’. As we have already discussed, Donald believes that complexities of thought, and the accompanying complexities of cognitive processes underpinning thought, preceded the invention of language and not the other way round.

This seems to be a chicken-and-egg problem. Did words follow thought or precede it? Thinking is a process. Thinking (i.e. ratiocination) has to be based on *articulated* models of the situation being ratiocinated on. A propositionizable medium is needed for this. Language is the best known such medium. We do not know of other alternatives as powerful and flexible.

Miming, we argued earlier, could have been, and most probably was, accompanied by vocalization incorporating prosodic aspects of modern-day speech. Prosodic voicing – based on voluntary voice modulation – could have independently evolved into phonetic voicing. Prosodic voicing very likely served – as it still does – only an emotive purpose, and contributed only to providing information about affect. This hypothesized evolutionary development, parallels closely the ontogenetic development of speech in children.

Nevertheless, it may seem that we are indulging in pure speculation lacking empirical underpinnings for our arguments. It was this belief that motivated the Linguistic Society of Paris, when it was founded in 1865, to explicitly ban any communication dealing with either the origin of language or the creation of a universal language.

However, in the last 50 years or more speculations on language origin have acquired a more scholarly accep-

tance. Kendon summarizes succinctly the reasons behind this revival of academic interest in issues relating to language origin. The primary reason is that we are able to bring to bear on this question a diverse range of knowledge, much of it of very recent development, such as, for example, studies on primate cognition, ape-language research, systematic studies of the sign languages of the deaf, phylogenetic and ontogenetic studies of precursors to language as a semiotic system, and so on. The study and understanding of language behaviour in this larger context is the central open problem in the resolution of the brain–mind dichotomy.

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