DOES LANGUAGE MAKE US WALKING ANGELS, TALKING APES OR WHAT?

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1 The questions

Are we human beings different from all other kinds of creatures? Do we differ from other kinds of creatures in ways that matter to us? If we do, what is it that makes us significantly different? And what kind of creatures are we anyway?

For centuries, people have mused, thought and agonized about questions such as these: from gifted scholars to ordinary people. Even politicians have raised these questions --- doubtless because the answers they had up their sleeve were politically expedient. For example, intervening in a debate in Oxford in 1864 on the topic of human evolution, Benjamin Disraeli scornfully asked:

> 'What is the question now placed before society with a glib assurance the most astounding?'

And, he proceeded:

> 'The question is this: Is man an ape or an angel?'

Responding to his own question, Disraeli proclaimed to the chair with great conviction:

> 'I, my Lord, I am on the side of the angels.'[1]

In siding with the angels, Disraeli spoke for a view which, according to the American philosopher Daniel Dennett (1995a:338), most people ache to believe: that we human beings are vastly different from other animal species. And, Dennett assures us, most people are right: humans are different. And the reason why humans are different, in his view, is that humans are the only species that has language.

Which brings us to a second cluster of questions: What exactly is involved in having language? In what ways has language made us humans different? What kind of creatures are we in virtue of having language? Are the categories of 'ape' and 'angel' the best ones for getting a fix on our human creaturehood? Or are there perhaps better categories for pinning down what our humanity involves?

Questions of this second cluster are what I would like to deal with in what follows. My general aim is to let you see that there is a conceptual framework within which we can get a perspective on our humanity that is more illuminating than the conventional perspective in which some distinction between apes and angels is drawn. And, assuming this unconventional framework, I would like to give you some idea of how man's humanity may have been shaped by man's language.

2 Language

So what does it mean to say that people have language? On an influential position --- one developed by Noam Chomsky --- it means that people have a certain mental faculty: the language faculty. A person's language faculty has two important sides or states, as these are known technically. On the one hand, there is the attained state: this state embodies a person's tacit knowledge of one or more specific languages --- for example, English, Venda, Afrikaans,

Eskimo and so on. Without knowledge of a language, one cannot produce or understand utterances in the language. On the other hand, there is the initial state of the language faculty: this embodies a person's capacity to learn or acquire knowledge of one or more specific languages. What the initial state of the language faculty does, in other words, is to make possible the acquisition of the tacit knowledge embodied in the attained state of the language faculty. Of course, for the initial state of the language faculty to be able to play this role, people have to be exposed to utterances of specific languages. To have language, in a nutshell, involves (a) having tacit knowledge of one or more specific languages and, (b) more basically, having the capacity to acquire knowledge of one or more specific languages.[2]

But what is it that one knows when one knows a language? A language known by someone can be thought of as a means --- or code --- that makes it possible for him/her as a speaker to convert or translate messages or meanings into utterances. And possible form him/her as a listener or hearer to convert utterances into intended messages or meanings.[3]

3 *Walking angels*

Let us then consider the possibility that, in virtue of having language, we are angels or --- to put it a bit more modestly --- angel-like creatures. To assert this possibility is, in essence, to claim two things. First, there is the claim that we are angel-like in the sense that we are linked in some way to some supernatural being, force or the like. Second, there is the claim that language provides the link --- or part of the link --- between us and that supernatural entity in the sense that we received language from it as a gift. These two claims are put forward in various forms in religious and philosophical texts and even in scientific writings, it has been recently argued.

As for religious texts: in the sacred texts of a variety of religions, it is stated that man was given language by his/her G/god or C/creator. As you may recall, for instance, according to Judaeo-Christian beliefs, God gave Adam language in the form of the capacity to name every living creature.[4]

For another instance, according to the religion of Ancient Egypt, the creator of speech was the god Thot. In terms of Hindu religious beliefs, to mention one more example, man was given language by the goddess Sarasvatí. If these religious beliefs are true, we humans have what could be called an 'angel-like side' indeed: language is man's divine connection. But, to us as linguists, the claim that language is a divine gift is simply unacceptable as a scientific claim. On the one hand, this claim lacks the kind of testable consequences that distinguishes scientific claims from metaphysical speculations. On the other hand, this claim is not supported by factual evidence of the kind required for the justification of linguistic hypotheses.

This brings us to the philosophical writings portraying language as something given to man by God or a god. Two examples should suffice. The first is provided by the British empiricist philosopher, John Locke, who in his *Essay Concerning Human Understanding* of 1690 stated the orthodox view that

> 'God, having designed Man for a sociable Creature, made him not only with an inclination, and under a necessity to have fellowship with those of his own kind; but furnished him also with language, which was to be the great instrument and common tie of society.' (quoted by Salmon 1994:2884)

A more detailed philosophical account of the divine origin of language was furnished in 1766 by the German Johann Peter Süssmilch who argued as follows:

> 'Language is either of divine or human origin. If it is of human origin, it is either innate or acquired. If language were innate, there could be species-specific natural cries, which is not the case; if, however, it were acquired, it would either consist of random sounds, which would be unsystematic; or else it would be systematic and therefore reasonable. The latter is the case, therefore language is the product of reason. But reason cannot be conveyed without signs (i.e. speech or writing): therefore language cannot be of human origin: therefore it must be God-given.' (quoted by Salmon 1994:2885)

This argument of Süssmilch's might have impressed 18th-century philosophers. From a contemporary linguistic perspective, however, it is without any merit: the claims it incorporates lack the required factual and/or systematic support. And the same goes for philosophical speculations on the origin of language in general. Which means that, like religious ones, philosophical accounts fail to provide the right kind of justification --- justification of a factual sort --- for attributing to humans the status of flightless angels.

The idea that language originated in a supernatural or miraculous way is implicit in the writings of famous present-day scientists too. This has recently been claimed by Daniel Dennett (1995a), who criticizes various scholars for covertly assigning language the status of what he calls a 'skyhook'.[5] So what is a skyhook? And what, if anything, is bad about skyhooks?

As observed by Dennett (1995a:74), the first use of the word *skyhook* noted by the *Oxford English Dictionary* is from 1915, when an aeroplane pilot commanded to stay in the air for another hour replied 'the machine is not fitted with skyhooks'. The meaning of *skyhook* is defined by the OED as follows: 'An imaginary contrivance for attachment to the sky; an imaginary means of suspension in the sky'.

Extending its meaning metaphorically, Dennett (1995a:76) uses *skyhook* to denote imaginary, nonphysical, nonmechanical processes that are invoked by scholars to account for the evolution of certain entities. And he contrasts skyhooks with what he calls 'cranes'. As Dennett (1995a:75) characterizes them, cranes are real processes which work in the evolution of entities in a mechanical, gradual step-by-step way. Darwinian natural selection, on Dennett's view, is the fundamental crane involved in the evolution of all living things, including human beings. And, Dennett believes, human language too has originated and evolved gradually in a blind, mechanical way through natural selection.[6]

What is more, scholars unwilling to embrace without reservation a selectionist account of the evolution of human language are accused by Dennett of assigning it the status of a 'skyhook'. In this connection, Dennett (1995a:388) singles out, as the leading sinners, Noam Chomsky and Stephen Jay Gould. Chomsky he calls 'the world's greatest linguist'; Gould he accords the status of 'the world's best known evolutionary theorist'. In regard to Chomsky, for example, Dennett (1995b:122) has asserted recently that:

> 'Noam Chomsky, when he resists evolutionary accounts of the creation of the language organ, would probably like it to be a skyhook, a sort of Gift from God that sets us apart from the rest of mechanical creation and is inexplicable in terms of brute mechanism.'

Remarks such as the following by Chomsky (1988:170) are interpreted by Dennett (1995a:389) as symptomatic of a skyhook stance on the origin of language:

> 'It may be that at some remote period a mutation took place that gave rise to the property of discrete infinity, perhaps for reasons that have to do with the biology of cells, to be explained in terms of properties of physical mechanisms, now unknown.... Quite possibly other aspects of its evolutionary development again reflect the operation of physical laws applying to a brain of a certain degree of complexity.'

To Dennett, these remarks indicate that Chomsky does not consider the language organ or faculty to be an adaptation, making its origin a mystery to Dennett.

If Dennett's reading of Chomsky were correct, then on Chomsky's view we humans would be a rather special kind of divinely connected creatures. But such a view would lack any plausibility. The plausibility considerations that seem to bear on the evolution of language indicate that the language faculty evolved as a biological adaptation --- in other words in a Darwinian and nonmiraculous way. Which means that, from a scientific perspective, our having language is highly unlikely to make us into angels, not even angels of the walking variety.[7]

4 Talking apes

So, then, if our language does not make us angel-like creatures, perhaps we are a (sub)species of apes --- talking apes, to be more specific? This is a question which I have to pursue in a somewhat indirect way; so please bear with me.

It is now fairly generally believed that ordinary big apes such as chimpanzees lack the language faculty that we humans have. On the one hand, there is evidence that big apes lack the capacity for acquiring human language in a spontaneous way. Reared in a deaf family, a young ape like Nim Chimpsky, for instance, typically fails to pick up American Sign Language in the spontaneous way that human children do.[8]

On the other hand, there is evidence that big apes lack the computational linguistic capacity for constructing an unbounded range of expressions in an innovative way. Put more bluntly, big apes don't have syntax. Thus, highly trained chimps cannot do better than repetitively produce

a restricted number of jumbled strings of 'words' or 'signs' such as *Me eat me eat, You me banana me banana you, Give orange me give eat orange me eat orange give me eat orange give me you.*[9]

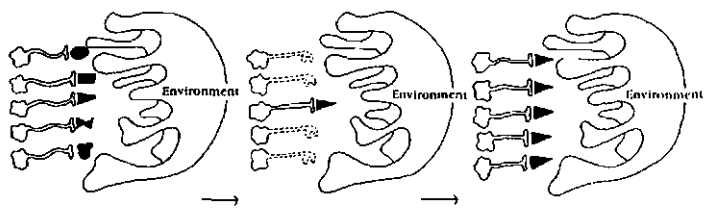
But, you may wonder, does it really matter that big apes don't have human language? What of any significance does this say about the differences between humans and big apes? In virtue of having a language faculty, how are we better off than big apes? What benefits do we derive from having human language that big apes don't derive from having 'ape languages': the repertoires of gestures, postures, calls, barks, screams, squeals, chutters, purrs, chirps, coughs, roars, screeches, and growls by means of which they communicate?[10] To arrive at an interesting answer to these questions, we have to abandon the rather primitive 'angel vs. ape' dichotomy. What we need is a more principled conceptual framework for distinguishing in an illuminating way among various kinds of creatures, a framework such as that recently proposed by Dennett (1995a:373-385).[11]

5 Cognizing creatures

On the basis of how they react to their environment in the process of evolution, Dennett (1995a:373ff.) distinguishes between four kinds of creatures. The behavioural differences among these four kinds of creatures reflect, as Dennett (1995a:373) puts it, various 'design options for brains'. Some options confer more brain power on the creatures involved; other options confer less brain power on them.

The first kind of creatures --- *Darwinian creatures* Dennett (1995a:374) calls them --- represents organisms that were blindly generated in the process of evolution by more or less arbitrary processes of recombination and mutation of genes.[12] These organisms had so-called hard-wired phenotypes. This means that the whole of a creature's observable characteristics

was fully fixed at birth; *it could not be changed during its lifespan in response to pressures exerted by the environment.* These creatures, in other words, were unable to react adaptively to their environment.[13] Only the best designs survived in so-called field-tests, as is made clear in Figure 1.



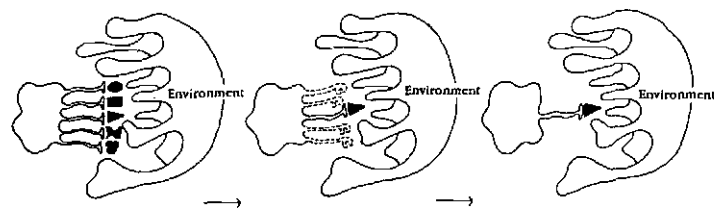
Darwinian creatures, different "*hard-wired*" *phenotypes*

selection of one favored *phenotype*

multiplication of the *favored genotype*

Figure 1 (= Dennett's (1995a:374) Figure 13.1)

Creatures of the second kind --- *Skinnerian creatures* Dennett (1995a:374) calls them --- have the property of phenotypic plasticity. They have not been wholly designed at the time of birth and some elements of their design can be adjusted in response to pressures exerted by the environment. Some have wired-in "reinforcers" that happen to favour so-called 'Smart Moves', actions that favour their agents. Confronted with the environment, these organisms generate or produce a variety of actions or moves, which they blindly try out one by one until they find a move that works. Being capable of blind trial-and-error learning only, these creatures exhibit Skinnerian conditioning and plasticity in the way illustrated in Figure 2:



Skinnerian creature "blindly" tries different responses ...

... until one is selected by "reinforcement."

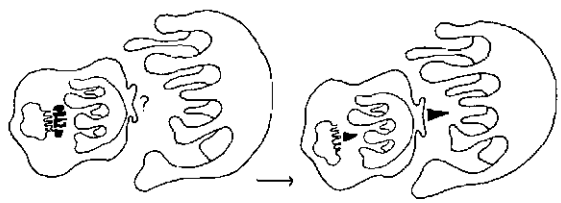
Next time, the creature's first choice will be the reinforced response.

Figure 2 (= Dennett's (1995a:375) Figure 13.2)

According to Dennett (1995a:376), Skinnerian creatures are found among the simple invertebrates, an example being the sea slug *Aplysia*.

Skinnerian conditioning has an important limitation: an early error may kill you off. A better system, Dennett (1995a:374) observes, involves preselection among all the possible behaviours or actions. The point of such preselection is to weed out the truly stupid options before risking them in the harsh world. The third kind of creatures distinguised by Dennett (1995a:375), so-called *Popperian creatures*, are capable of the refinement embodied in preselection. In Karl Popper's own words, this design enhancement 'permits our hypotheses to die in our stead'. Popperian creatures are smarter than Skinnerian creatures: Skinnerian creatures survive because they make lucky first moves; Popperian creatures, however, survive because they make better-than-chance first moves. Popperian preselection presupposes feedback that has to come from an inner environment. As Dennett (1995a:375) characterizes an inner environment, it is an inner

something structured in such a way that the surrogate actions it favours are more often than not the very actions the real world would also bless if they were actually performed. To play this role in preselection --- as schematically represented in Figure 3 --- the inner environment must contain lots of information about the outer world and its regularities.



Popperian creature has an inner selective environment that previews candidate acts.

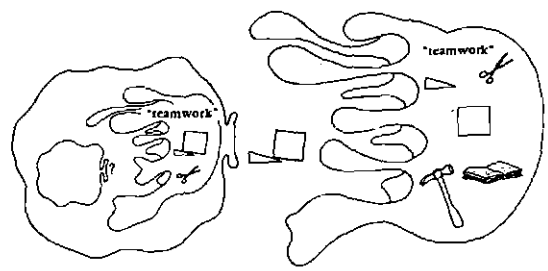
First time, the creature acts in a foresightful way (better than chance).

Figure 3 (= Dennett's (1995a:375) Figure 13.3)

According to Dennett (1995a:376), all fish, reptiles, birds and mammals are Popperian creatures.

Which brings us to the fourth kind of creatures: *Gregorian creatures*, as Dennett (1995a:377) labels them. Gregorian creatures represent that subset of Popperian creatures whose inner environments are informed by the designed portion of the outside environment. What is particularly important *is* how these Gregorian creatures create this 'informed' inner environment: they do so with the aid of what the British psychologist Richard Gregory (1981:311ff.) has called 'mind-tools'. Pre-eminent among the mind-tools, moreover, are

words. Words and other mind tools give Gregorian creatures an inner environment that permits them to construct what Dennett (1995a:378) calls 'ever more subtle move-generators and move-testers'. Figure 4 illustrates the way in which Gregorian creatures act in response to pressures from the outer environment.



Gregorian creature imports *mind-tools* from the (cultural) environment; these improve both the generators and the testers.

Figure 4 (= Dennett's (1995a:378) Figure 13.4)

The ways in which Skinnerian, Popperian and Gregorian creatures differ from each other is captured by Dennett (1995a:378) as follows:

> 'Skinnerian creatures ask themselves, "What do I do next?" and haven't a clue how to answer until they have taken some hard knocks. Popperian creatures make a big advance by asking themselves, "What should I think about next?" before they ask themselves, "What should I do next?" Gregorian creatures take a further big step by learning how to think better about what they should think about next ...'

Gregorian creatures, then, differ from other kinds of creatures in having language as a mind tool. Having language, we humans are Gregorian creatures; indeed, having language, we are the only species of Gregorian creatures that there is.

But let us zoom in more closely on what language contributes to making us different from all other kinds of creatures. The first thing that language gives us is a unique mechanism for controlling our thinking. Following Charles Darwin (1871:57), Julian Jaynes (1976) and Howard Margolis (1987), Dennett (1995a:379) observes that language can be used as a mind tool for controlling the long trains of thought that are necessary for creating inner environments. Without such control --- manifested overtly in the form of self-exhortations and reminders --- long trains of thought would wander off in what Dennet (1995a:379) calls 'delicious if futile woolgathering'. Such long trains of thought are fundamental to the mind's/brain's capacity of foresight or long-range look-ahead. This is to say, in fact, that language makes science possible, since deliberate, forsighted generating-and-testing is central to doing science. It is language that makes possible the methodical backtracking by which we can learn from mistakes.

The second thing that language gives us is a capacity to think in public and to do so collectively. Specifically, language makes it possible to make and appraise our mistakes in public when conducting science. The ability to make mistakes in public distinguishes us from chimpanzees. Though chimpanzees have the ability to learn from mistakes, 'they never get to compare notes', as Dennett (1995a:380) puts it. They never dispute over attributions; they never ask to know the grounds for each others' conclusions.

As a tool for controlling long trains of thought and for doing this in public, language makes collective thinking possible, which has a profound effect on our brain power. Dennett (1995a:381) puts this point as follows:

> 'Comparing our brains anatomically with chimpanzee brains (or dolphin brains or any other non-human brains) would be almost beside the point, because our brains are in effect joined together into a single cognitive system that dwarfs all others. They are joined by an innovation that has invaded our brains and no others: language. I am not making the foolish claim that all our brains are knit together by language into one gigantic mind, thinking its transnational thoughts, but, rather, that each individual human brain, thanks to its communicative links, is the beneficiary of the cognitive labors of the others in a way that gives it unprecedented powers.'

In similar vein, the American neuroscientist Paul Churchland (1995:270) observes that language makes it possible, at any time, for human cognition to be collective:

> 'It allows a group of humans to address and solve cognitive problems that would prove insoluble to any individual operating alone. Finding solutions need no longer be limited by one person's memory, one person's imagination, one person'e intelligence, or one person's perspective. Language allows us to transcend our individual cognitive weaknesses and to conjoin our individual strengths.'

To put it in another way, language enables human cognition to be transindividual. Which brings me to the third thing that language contributes to making us different from other kinds of creatures: the capacity to create culture. As Dennett (1995a:338) observes, we are the only species to have an extra medium of design preservation and design communication, namely culture. What is especially important is that language is the primary medium of culture and that, as such, language, has opened to us new regions in what Dennett (1995a:338) calls 'Design Space' --- a space that only we humans are privy to. As a consequence, we have in a few brief millenia been able to transform not only our planet but also the very process of design development that created us. In Dennett's (1995a:338) words:

> 'Culture is such a *powerful set of cranes* that its effects can swamp many ... of the earlier genetic pressures and processes that created it and [that --- R.P.B.] still coexist with it.'

What we humans have changed dramatically by means of culture includes our health, our diet and our *living conditions*. These changes, in turn, have produced dramatic further changes in the human phenotype, that is in the full set of our observable characteristics. What we are today, Dennett (1995a:340) observes, is very much a matter of what culture has made us. And, he (1995a:347) emphasizes,

> 'Human language, first spoken and then, very recently, written, is surely the principal medium of cultural transmission, creating the *infosphere* in which cultural evolution occurs.'

Dennett (1995a:338) observes that virtually all the differences between people of Plato's day and people living today must be due to cultural changes. The time --- fewer than two hundred generations --- separating Dennett and us from Plato is too short for genetic selection pressures to have caused these changes. Had there not been language, these transgenerational differences --- differences in physical talents, in proclivities, in attitudes, in prospects and so on --- would not have come about.

The fourth thing that language has given our species is linked to the way language functions as a medium of cultural transmission. It is a new kind of memory, as has been recently noted again by Paul Churchland (1995:270): what is called an 'extrasomatic memory'. Churchland characterizes an extrasomatic memory as a memory that exists outside any individual's brain and that survives any individual's death. But how is this possible? Churchland (1995:269) observes that much of what our various ancestors learned about the world remains reflected, in broad outline, in the vocabulary of the languages that have outlived them. With the appearance

of language, hard-won information about what our ancestors found important could be passed on effectively from generation to generation. This privileged information is encapsulated in the meanings or concepts associated with the words that make up the vocabulary of a language. The children of a new generation don't need to gather the privileged information all over again: they can acquire it, at least in outline, by learning the vocabulary of the language spoken by previous generations. Language, that is, furnishes the 'extrasomatic memory' in which privileged information can be stored. This is highly beneficial to our species and its individual members since, in the words of Churchland (1995:270) 'the process of learning about the world is no longer limited by what can be acquired in three score and ten years'. And this process of cumulative learning --- transindividual, transgenerational --- has, of course, been hugely extended by the introduction of written language.

6 Summary of answers

To sum up: language has turned human beings into a kind of creature that is special in various ways. Language has given us a unique mechanism of cognitive control and, in association with that, the capacity of thinking collectively in public. Language has given us the capacity to create culture; language also gives us a medium to transmit what we have created or learned from generation to generation. Language, in effect, has given us unique means of controlling our destiny as a species. This is not to say, of course, that language has made us angels. But at least language has freed us from the constraints of apehood. We are not mere talking apes. In fact, there cannot be a creature like a talking ape since the cognitive, communicative and cultural constraints that are part of apehood are lifted by language.

NOTES

1 For these questions and replies by Disraeli, see Froude s.a.: 176. Disraeli went on to [pronounce: 'I repudiate with indignation and abhorrence the contrary view, which I believe foreign to the conscience of humanity. More than that, from the intellectual point of view the severest metaphysical analysis is opposed to such a conclusion.... What does the Church teach us? That man is made in the image of his Maker. Between these two contending interpretations of the nature of man and their consequences society will have to decide. This rivalry is at the bottom of all human affairs. Upon an acceptance of that Divine interpretation for which we are indebted to the Church, and of which the Church is the guardian, all sound and salutary legislation depends. That truth is the only security for civilisation and the only guarantee of real progress.' (Froude s.a.: 176-177)

2 For the characterization of the language faculty presented above, see Chomsky 1980:31ff., 241, 245, Botha 1989:16, 25-26, Botha 1995:104-105, 129-130.

3 For this characterization of a language, see Botha 1995:154-156, Jackendoff 1994:39-43, Lyons 1981:17-24, Pinker 1994:87ff.

4 *Genesis* 2:19 reads as follows: 'So out of the ground the LORD God formed every animal of the field and every bird of the air, and brought them to the man to see what he would call them; and whatever the man called every living creature, that was its name.'

5 This claim by Dennett was echoed by the biologist John Maynard Smith (1995:48) in his review of Dennett 1995a.

6 For a selectionist account of the origin and evolution of language, see Pinker and Bloom 1990. Natural selection is characterized by Mayr (1991:183) as 'The nonrandom survival and reproductive success of a small percentage of the individuals of a population owing to their possession of, at that moment, characters which enhance their ability to survive and reproduce'.

7 Dennett and other scholars, e.g. John Maynard Smith (1995), who claim that Chomsky considers language to have originated in a miraculous way have misunderstood Chomsky's views on the origin of language. For substantiation of this conclusion, see Chomsky 1996 and also Botha to appear.

8 For details on Nim Chimpsky's failure to learn ASL spontaneously, see Fischer 1994:593 and Churchland 1995:258.

9 For these points, see Botha 1995:117-118, Fischer 1994:592-593, Pinker 1994:334-342. For an account of some new research which is claimed to show that pygmy chimps exhibit language-like behaviour which is substantially beyond what Nim displayed, see Churchland 1995:258-259.

10 For a survey of the 'languages' or communication systems used by various species of apes, see Akmajian, Demers and Harnish 1979:37-47.

11 According to Dennett, this framework has been anticipated in the work of Konrad Lorenz (1973).

12 In terms of the characterization offered by Mayer (1991), a gene, in classical genetics, is 'a unit of inheritance, transmitted from generation to generation by on ovum or sperm, which controls some characteristic of an individual or some aspect of the

individual's development (p.180). (Genetic) recombination is 'the reshuffling of an organism's genes during the production of germ cells, through crossing over of sections of the organism's maternal and paternal chromosomes' (Mayer 1991:180). Mutation, in molecular biology, is 'a change in the genotype'; 'mutations in germ cells can cause heritable changes in the offspring' (Mayer 1991:182). The genotype of an individual is its 'genetic constitution, especially as distinguished from its physical appearance' (Mayer 1981:180).

13 Dennett does not give any examples of the primitive organisms called 'Darwinian creatures'.

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