Peter Kunzmann

Metaphors in the Language of Darwinism
— the Case of Memes

Richard Dawkins is perhaps not the finest but surely one of the best known and most influential evolutionists. Kazimierz Jodkowski once referred to him as an „archbishop" of a new religion.[1] His success in terms of public attention and in terms of scientific reverence is due to some properties of his language. As a bishop he is a fine preacher, he preaches Darwinism as a universal model of explication or at least it is his explicit aim to show how Darwinian principles of variation and selection lead to ever more complexity. Dawkins stretches the concepts of his own field of expertise to create a pretty ambitious image of the relevance of Darwinism. „I want to claim almost limitless power for slightly inaccurate self-replicating entities, once they arise anywhere in the universe".[2] This is a kind of confession.

As a preacher he uses one powerful tool: metaphor. His masterpiece, *The Selfish Gene*, is an assembly of metaphors. The most influential one is: „selfish gene". How can, in fact, genes be called selfish?

Viruses have a strong tendency to self-replication: but what would we think of a virologist who, on that account, insisted on calling viruses 'selfish'? Viruses not only are not selfish: they could not be. It makes no sense to say of virus that it is selfish, any more than to say of a virus that it is (for example) studious or shy. [...] Genes, like viruses, have a strong tendency to self repli-cation. [...] Yet while no real life virologist ever has called viruses selfish (as far as I know), there really is a geneticist who does insist on describing genes as 'selfish'. This is Dr. Richard

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[1] More precisely Jodkowski was a bit more careful, speaking of „a *quasi*-religion" (*niby-reli-gia*) and of, only, an „archpriest" (*arcykapłan*): „Ewolucjonizm jest dla [...] [Dawkinsa] ideologią, quasi-religią, a on sam jest kimś w rodzaju arcykapłana tej niby-religii" K. Jodkowski, *Metodolo-giczne aspekty kontrowersji ewolucjonizm-kreacjonizm*. Lublin 1998, p. 368.

[2] R. Dawkins, *The Selfish Gene* (2nd ed.), Oxford 1989, p. 322.

Dawkins, of Oxford University." [...] Imagine, reader, that you or I wrote a book with a transparently nonsensical central thesis which was crystallised in its title: say, The Sex Mad Prime Numbers. [...] *The Selfish Gene* was an immense success not only with lay but with learned readers."[3]

I'll give a few other examples: Dawkins is talking of „the survival machines" (passim), genes on the other hand „manipulating body after body [...] genes are the immortals" (p. 34), they are capable of „complex, if unconscious, 'cost-benefit' calculations" (p. 69); Brains are analogous to computers (p. 49) and „by analogy" Dawkins discovers an „interaction between genes and bodies" (p. 86). Genes, of course not literally „will pay the penalty" (p. 98) and they will wisely be „investing in grandchildren" (p. 12). That may be enough: metaphors everywhere.

Dawkins has no difficulty to find a model, an analogy, a parable in everyday life, which could serve usefully to demonstrate and visualise Darwinistic ideas. As Christopher Wills put it: „Dawkins' books [here: *River out of Eden*] abound with metaphors. [...] Nobody can turn a metaphor better than Dawkins".[4] Dawkins really is a master of metaphors.

Why are they metaphors in the first place? They fit the classical description of metaphors, to start with. There are good reasons to repeat the Aristotelian theory of metaphor, mainly because „metaphor" has become in itself a very complicated field of philosophical and linguistic debate, which I have no intention to even sketch here, and Aristotle pointed out the main features. He described metaphor as:

> the application of a strange term either transferred from the genus and applied to the species or from the species and applied to the genus, or from one species to another or else by analogy. [...] Metaphor by analogy means this: when B is to A as D is to C, then instead of B the poet will say D and B instead of D. [...] Or old age is to life as evening is to day; so he will call the evening 'day's old-age' or use Empedocles' phrase; and old age he will call 'the evening of life' or 'life's setting sun'. Sometimes there is no word for some of the terms of the analogy but the metaphor can be used all the same. [...] Besides this another way of employing metaphor is to call a thing by the strange name and then to deny it some attribute of that name. For instance, suppose you call the shield not 'Ares' cup' but a 'wineless cup'.[5]

In the rich reservoir of metaphors provided by Dawkins we can find all variations: for example talking of „investing" transfers one species „provides" to another. To use „selfish" the way Dawkins does, means to place the species for the genus, say „careless". Genetic „shareholding"[6], for instance, works on the analogy feature: what „shareholding" is to an „enterprise" is „sharing genes" in offspring; at least according

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[3] D. Stove, *Darwinian Fairy Tales*, Aldershot 1995, p. 119—120.

[4] This remark is quoted as one of the praises to be found on the first pages of the 1999 edition of R. Dawkins, *River out of Eden*.

[5] Aristotle, *Poetics* 1457b.

[6] Dawkins, *The Selfish Gene*, p. 140.

to the Neodarwinians' Gospel. Dawkins' more or less figurative variations can almost serve as model metaphors.

David Holdcroft and Harry Lewis wrote „It is common in the history of science to try to extend an idea first demonstrated in one domain into others. Sometimes the extension is literal, and sometimes it is frankly metaphorical".[7] To give criteria to decide whether something is indeed only a metaphor, we can look how they work.[8] We understand the meaning of a metaphor only if we grasp what the original (or „proper") use of the word has in common with its application to a different matter. We must grasp the semantic overlap of the different applications of words. In order to understand, say, Dawkins' metaphor of „survival machines", we must grasp the semantic overlap of „useful tool" which is the shared feature of „machine" in the ordinary sense and bodies serving their genes. (Stove's funny remark about „sex mad prime numbers" only shows how indistinct these underlying comparisons sometimes are.) What makes the difference between „sex mad prime numbers" and „selfish genes" is at least this: genes can share properties with anything else (humans, one might say) that doesn't care about anything else, and therefore can be called „selfish"- metaphorically of course. If we can at all mismatch the semantic overlap, it is a metaphor. This is the important feature which helps to decide whether the extension of a term's use is purely metaphorical. On the other hand: talking of „selection" concerning mental entities as well cannot be mismatched and should therefore count as a literal extension of the term.

This shows another criterion for a metaphor: whether or not you can replace *salva veritate* the metaphorical expression by another word which has the same meaning originally. You cannot easily replace „selection" in that technical sense. But the test shows many expressions to be only metaphors.

Some of these metaphors were highly successful. In scientific progress we could „let die" theories instead of ourselves, Karl Popper said. Of course, this is a metaphor. According to my criterion we can easily find another word which has the same meaning originally; in this case for example: „to cancel the theory", „to bother no longer", „to forget it" or whatever Sir Karl had in mind more specifically. Besides: not even that is true, for a natural chain of replications is fatally destroyed once interrupted; brainy entities of course can have tremendous revivals (not always pleasant ones). Scientific evolution is itself a metaphor. The same goes for all these metaphorical words like spreading, survival, passing on of ideas or inventions.

Dawkins is fiercely proud of his most original metaphorical coinage: the word „meme". In the second edition of *The Selfish Gene* he proudly reports it to be a can-

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[7] D. Holdcroft, H. Lewis, „Memes, Minds and Evolution", *Philosophy* 75, No 287 (April 2000), p. 161.

[8] This is tricky as well; for a whole bunch of reasons. The main obstacle seems to be that it's often convention and custom to decide whether an expression is still regarded as unusual and therefore counts as a metaphor or is already accepted as common usage. And this varies in a rather fortuitous way.

didate for the Oxford dictionary and in his latest book, *Unweaving the Rainbow*,[9] he even talks of a religion of „memes", now sweeping through the internet. To be precise: „meme" cannot be a metaphor *sensu stricto*, given the definition above, for it is a new word and therefore simply not capable of being transferred from one domain to another. But it is a kind of abbreviation of an analogy or alleged „isomorphism" which implies a whole set of metaphors.

Dawkins himself admits this analogy in his definition of meme: „A unit of cultural inheritance, hypothesized as analogous to the particular gene, and as naturally selected by virtue of its 'phenotypic' consequences on its own survival and replication in the cultural environment".[10] His follower, Daniel Dennett has this one: „memes are the smallest elements that replicate themselves with reliability and fecundity".[11]

Both give long lists of examples. Dennett quotes arch, wheel, wearing clothes, vendetta, right triangle, alphabet, calendar, the *Odyssey*, calculus, chess, perspective drawing, evolution by natural selection, impressionism, deconstructivism.[12] And Dawkins himself finds that:

> language is [...] one example out of many. Fashions in dress and diet, ceremonies and costumes, art and architecture, engineering and technology, all evolve in historical time in a way that looks like highly speeded up genetic evolution, but has really nothing to do with genetic evolution.[13]

The word „meme" itself is a fine piece of creativity. It combines the French „même", „the same", to show, what memes do: replicate. They produce copies of themselves. Then there is „mimeme", „to repeat in the same way", and the Latin „*memoria*", „memory", showing how memes should carry their own history. In the Dawkins own version:

> 'Mimeme' comes from a suitable Greek root, but I want a monosyllable that sounds a bit like 'gene'. I hope my classical friends will forgive me if I abbreviate 'mimeme' to 'meme'. If it is any consolation, it could alternatively be thought of as being related to 'memory' or to the French word 'même'.[14]

In a nutshell: memes replicate with reliability and fecundity. The wheel, for example, once invented, „spread" all over the globe; it was copied wherever possible, underwent changes from time to time, but in the end turned out to be highly successful in conquering our minds, which we should regard in Dennett's terms as „nests for memes". The same goes, they tell us, for the theory of relativity and for the tunes of

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[9] R. Dawkins, *Unweaving the Rainbow*, New York 1998; for „memes" see chap. 12.

[10] R. Dawkins, *The Extended Phenotype*, Oxford 1999, p. 297.

[11] See Holdcroft and Lewis, *op. cit.*, p. 167.

[12] *Ibidem*, p. 163—164.

[13] R. Dawkins, *The Selfish Gene* p. 190.

[14] *Ibidem*, p. 192.

„It Takes Two to Tango", which Dennett labels „a horrible musical virus" that had sneaked into his brain and permanently infected it.[15]

Memes, ideas, inventions, fashions, words, tunes, formulas: they all behave like selfish living beings in the brains, as genes govern bodies selfishly. A joke that isn't funny won't be told again and will „die out". A theory that doesn't work will be abandoned and replaced (die out) and so on. Like viruses, myriads of memes roam the internet, looking for new hosts they can „infect". „They compete for the occupation of minds which, apart from being hosts to memes, bring nothing to the party".[16]

Dawkins called memes „the new replicators", which is about all that relates them to genes. It may look as if it indicates an important parallel, but at the end of the day the rest can be seen as metaphor. Holdcroft and Lewis attacked Dennett heavily. The relation between memes and genes should consist in what the two called an „isomorphism". It is the traditional analogy as defined by Aristotle (Met. V, 6): „κατ' ἀναλογίαν δὲ ὅσα ἔχει ὡς ἄλλο πρὸς ἄλλο" — „some things are one by analogy, namely those which are related as third thing is to fourth". In this case memes should stand in the same relation to brains or whatever, as genes to bodies. But Holdcroft and Lewis reveal a lot of dissimilarities between genes and memes which, I think, reduce the claimed analogy to a heap of metaphors.

I'll pick up some of the points by Holdcroft and Lewis and add some of my own.

1. One thing they immediately discovered was: memes have no substrate. There is no „memetic code".[17] Memes can „live" and „spread" in newspapers, in libraries and in brains. In a Karl Popper setting,[18] they need no substrate at all. The law of gravitation, for instance, does not depend on brains and books, it rests in a third sphere. The relation between genotype and phenotype is clear in the case of genes — but what is in fact the phenotype of a meme: a book or a brain? Besides: The lack of substrate seems to be pointing already to the weak ontology of memes, which I shall discuss later.

2. How do memes work? Genes have a well explained causal role in the system, memes have none. They have in Edward Wilson's theory of memes; but this theory is something very different and both Dawkins and Dennett well spot this contrast.[19]

3. Are memes selfish? Let's take the selfish gene for granted; but what is a selfish meme? What is the equivalent of competition and of selection? How do memes struggle for existence? What kind of pressure are they exposed to? Holdcroft and Lewis argue correctly: „We can entertain vastly more propositions than we assent to [...] [and] than are currently in the focus of active attention".[20] In fact individuals and

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[15] See Holdcroft and Lewis, *op. cit.*, p. 173.

[16] *Ibidem*, p. 168.

[17] *Ibidem*, p. 167.

[18] Dawkins refers to him in *The Selfish Gene*, p. 190.

[19] See E. O. Wilson: *Consilience. The unity of knowledge*, New York 1998. In his case memes should be the „logic" or as he say „semantic" equivalent of a brain status.

[20] Holdcroft and Lewis, *op.cit*, p. 177.

societies can pamper many ideas which are useless and unattractive. The analogy between memes and genes is distorted once again: genes or their containers compete for scarce resources, whereas there seems to be no shortage of habitats for memes in libraries, in brains and in the internet. Holdcroft and Lewis quote a remark by Sperber: „Waste paper baskets and their electronic counterparts are filled with massively replicated but unread junk, whilst some scientific articles read by only a few specialist have changed our cultural world".[21]

4. Memes can be mixed, genes cannot. You can of course play Bach with a jazz band and, much to the distress of those who are in charge of these matters legally, you can always sample another one's song. Some of the problems of copyright protection simply result from the memes' obvious capacity to mix and recombine.

5. Copyright teach yet another lesson about memes: they seldom produce exact replica. Was Microsoft Windows really the same as the Apple operating system? It was slightly different of course. But different enough to count as another invention? Difficult to decide. In trafficking memes we usually alter something: we never tell the same joke in exactly the same words, the same play on stage will never be the same and so on. There is no point in claiming a „high mutation rate" as Dennett did, for mutations occur constantly and normally. The mere passing on is the exception. And even worse for Darwinians: memes adapt and pass on their acquisitions. In terms of intellectual meme replication we could call this learning.

This will be enough for the moment. One thing I should add to these constant quarrels about the gene-meme analogy is my suspicion concerning the fundamental reason why this analogy stands on shaky grounds: memes themselves stand on shaky grounds in ontological terms. Whereas we can clearly classify genes as being sequences of molecules (or whatever), we don't know what memes consist of. As Holdcroft and Lewis put it: „The requirements of fertile and reliable reproduction cuts across our other classifications. Memes are not a 'natural kind' by any stretch of that flexible phrase".[22] We don't know what entities and even what kind of entities memes should be. And in addition to that:

> As long as we have no clear identity conditions for memes, it is not clear what counts literally as a mutation, and what is just a different an unrelated meme [compare the Microsoft example]. [...] We must have a firm grasp of faithful replication to have on what counts as a mutation.[23]

I suppose all other difficulties arise due to this incomplete ontology. For example copyright quarrels are hard to adjudicate because there are no criteria for the identity for memes. The mixing of memes is the only possibility, because we have no criteria to tell where meme *A* ends and meme *B* begins. „Memes are the smallest elements that replicate", said Dennett, but this doesn't even apply to his own examples, to chess for instance, because chess is in fact a decently complex entity. „What about a

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[21] *Ibidem*, p. 179.
[22] *Ibidem*, p. 168.
[23] *Ibidem*, p. 175.

symphony: how many memes is that? Is each movement one meme, each recognizable phrase of melody, each bar, each chord or what?". The man to make this point precise was Richard Dawkins himself[24].

And to quote his *Extended Phenotype*: „A population is not a discrete enough entity to be a unit of natural selection, not stable and unitary enough to be selected in preference to another population".[25] I find this verdict totally acceptable for the memes. In most cases they are not discrete enough, neither can they be identified precisely nor are they discrete with respect to clear boundaries where they adjoin. They are not stable, as in many cases every single replication of a meme involves its mutation. And finally they are not unitary, as most memes that we host in our brains, books and libraries are pretty complex entities that contain many words, tunes concepts or subtheories. Genes are discrete, unitary and stable enough. Not only to serve for natural selection, but to be dealt with as proper entities.

So what about the analogy, the isomorphism between these very dissimilar spheres? At the end of the day I find the whole comparison of memes and genes widely based on the misunderstanding or at least overestimation of far-fetched analogies, incomplete isomorphisms and stretched metaphors. Under closer examination not only the comparison between genes and memes becomes untrustworthy but the whole concept of „memes" shows cracks too wide to be glossed over.

Luckily, we don't need it anyway: genetics has an enormous explanatory power in natural science, whereas the so-called „spreading" of intellectual units need not be explained by any future „memetics". We already have much better indicators to judge cultural entities. Common sense tells us that it takes more than „brain appeal" for a decent piece of art or a fruitful scientific idea. Sentences are false or true in the first place, and that is what we are after. How many times a melody is sung, may be an indicator of its reproductive success, but tells nothing about quality.

(But how comes the „meme-concept" replicated so rapidly and successfully?)

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[24] Dawkins, *The Selfish Gene*, p. 195.
[25] Dawkins, *The Extended Phenotype*, p. 100.