Oct. 17 (Sat.) 16:50-17:30

Communication and Its Future

Ryohei Nakatsu
Interactive & Digital Media Institute, National University of Singapore

The way of people's communication is changing rapidly mainly because of the introduction of various kinds of new media. What would be the future form of communications? I want to discuss this issue observing the old way of communications as well as the present status.

Oct. 17 (Sat.) 17:30-18:10

From genes to memes: Culture as an evolutionary arena.

Matthias Rauterberg
Technical University

The idea of the selfish gene and the revival of genetic determinism provide a new view of our relationship with our genes. Dawkins (1976) argued that as self replicating molecules, genes have no agenda other than replication. The phenotype is merely an extension of the genome and that an inexorable outcome of selfish replication should be phenotypes capable of acclimation and manipulation of their environment. The phenotype is the vehicle in which the genes reside, and as such, genes are capable of coding for exceedingly complex organs and organisms when under the forces of natural selection over sufficient time. An extension of this idea is the concept of the "meme". This is an extension of the replicator concept to language and cultural evolution. Dawkins noted that there are two known means of replicating information, genes and ideas. Dawkins defined the meme as simply a unit of intellectual or cultural information that survives long enough to be recognized as such, and which can pass from mind to mind. One need only observe that cultural evolution moves much more rapidly than biological evolution to begin to wonder about the evolutionary future of humans. It is important to note that, in contrast to genes, memes are not encoded in any universal code within our brains or in human culture.

The meme hypothesis posits that it is fruitful to consider particulate, culturally-transmitted units as replicators, similar to genes. Memes are conveyed among individuals by a variety of forms of social learning, and, due to their imperfect transmission, undergo processes akin to mutation. Given some correlation between the variant properties of different versions of a meme and its replication success, memes

may be subject to natural selection, and could evolve adaptations if they are capable of responding effectively to selection pressure. Thus memetic adaptations are likely to increase biological fitness, exhibiting what we might call cultural symbiosis. Dawkins introduced the concept of memes to explain altruistic behavior beyond selfish replication. Altruism is an important type of social behavior. From an evolutionary point of view, a behavior is social if it has consequences for both the actor and another individual — the recipient. Altruism is when a behavior reduces the fitness of the actor, but increases the fitness of the recipient.

Culture is an evolutionary process in which paradigms evolve through the replication and variation of memes and traits (Benzon, 1996). In biology, genes flow in such a restricted way that there is a relatively transparent relationship between genealogy and taxonomy. In culture, memes are borrowed freely between lineages, so that a given paradigm may have contributions from many cultures. Further, under certain conditions, cultures come into such intimate contact that the creolization process produces new paradigms within few generations. Consequently, cultural taxonomy is inherently more complex than biological taxonomy (Rauterberg, 2009). Probably the deepest issue in cultural evolution is the Gestalt switch which happens between the highest level of one cultural stage and the beginning of the next stage.

References

R. Dawkins (1976). The Selfish Gene, Oxford.

W. Benzon (1996). Culture as an evolutionary arena. Journal of Social and Evolutionary Systems, 19(4), 321-362.

M. Rauterberg (2009). Entertainment computing, social transformation and the quantum field. In: A. Nijholt, D. Reidsma, H. Hondorp (eds.): INTETAIN 2009, LNICST 9, pp. 1-8.