What is a Meme?

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Memetics is rapidly becoming a discipline in its own right. Many web-sites are being devoted to the study of memetics, and new e-papers are appearing every day. With this in mind, I want to step back and have another look at what it is we are talking about. What is a meme?

In the first section of this small e-paper, I'll get back to basics and will offer a tangible definition of a meme. I will then move on to the next section and ask "what can we do with our knowledge of memes?"

What is a Meme?

Richard Dawkins first came up with the idea of a meme in his 1976 book "The Selfish Gene". Essentially, memes are ideas that evolve according to the same principles that govern biological evolution. Think about all the ideas that you have in your head right now. They are all memes, and they all came from somewhere. Some of them will have come from friends and some will have come from the internet or television. Examples of memes are musical tunes, jokes, trends, fashions, catch phrases, and car designs. Now, the memes that inhabit your mind are in competition with all the other memes in the *memepool* (the collection of all existing memes). This means that they are all competing to get themselves copied into other people's minds. Some of these memes do quite well. Every time you whistle your favorite tune or utter a

useful catch phrase, you are facilitating the spread of those memes. Every time you wear something that is "in fashion" you are helping the idea of that fashion enter other people's minds. Consider the first four notes of Beethoven's 5th symphony, or the "Happy Birthday" song. These are ideas that inhabit our minds and have been very successful at replicating. Not only have these memes found their way into literally millions of minds, they have also managed to leave copies of themselves on paper, in books, on audiotape, on compact disks, and in computer hard-drives (Silby 2000).

There is a limited amount of memetic storage space on this planet, so only the best memes manage to implant themselves. Memes that are good at replicating tend to leave more copies of themselves in minds and in other mediums such as books. Memes that are not so good at replicating tend to die out. We can imagine what sorts of memes have become extinct. Ancient songs that were once sung and never written down are one example. Another example is the many stories that were once told but have since slipped into oblivion. A Story is a vast collection of memes that have come to rely on each other for replication. Such a structure is known as a memeplex. Stories are memeplexes that are in direct competition with other memeplexes. If a story replicates through story getting told and read by people, then it will survive. If it stops getting read, it will become extinct. Libraries are full of memetic fossils in the form of books that contain a multitude of ideas that are never looked at (Silby 2000).

You will see that memes behave in a similar way to genes. Furthermore, you will notice that like genes, memes are subject to selection pressures. Whenever you have a situation that contains a number of unique entities that are competing for limited resources, the entities that are better at reproducing will leave more copies of themselves. In the case of memetics, memes are competing for minds to inhabit, and those that are better at reproducing are those that manage to get expressed in behavior (for example, behavior such as whistling).

Defining memes as ideas is standard, but it gives rise to an objection. The objection goes like this:

All this talk of memes and memetic evolution is meaningless unless we can identify exactly what a meme is. Ideas can come in all shapes and sizes, but there seems to be no way to identify their composite memes. How can we point to a memetic unit? How big is a meme? What is the difference between competing memes? How can they be distinguished from each other?

These are good questions. To further highlight the problem with memetics, consider the first 4 notes of Beethoven's 5th symphony. This is a meme that has found its way into most people's minds. But how about the entire symphony? It too has found its way into the minds of many people. Is the whole symphony a meme? And if so, then what about the first four notes? What about the first 3 notes; or the first 5 notes? Are these all memes?

The best way to think of a memetic unit is to consider it to be the smallest idea that copies itself completely while remaining intact. So the first four notes of Beethoven's 5th is a meme, but the first 3 is not. The 4th note is always there making up the memetic unit. The entire symphony is a huge collection of small memetic units -- a memeplex. The memes that make up Beethoven's 5th might have been good individual replicators in Beethoven's day. Or they may have been attached to other memeplexes. Beethoven's mind collected these memes and somehow they got connected giving rise to his famous symphony. Now they depend upon each other for continued replication.

Of course, the question remains. What *is* a memetic unit? How can we point to a meme? What are we talking about when we say that a meme is the smallest idea that can copy itself while remaining self contained and intact? The answer to this is quite simple. Memes are essentially sets of instructions that can be followed to produce behavior. Instructions can be encoded in either:

1. musical notation,
2. written text,
3. visible (or vocal) action,
4. the neural structure of the brain.
5. digitized structures in a computer

A meme that produces the behavior of whistling the first 4 notes of Beethoven's fifth can be encoded in any of these systems and it will give rise to the same behavior. When a mind encounters an instruction set that produces behavior, it can reproduce that behavior by creating an appropriate neural "program". The best way to think about this is to consider an analogy in the computer world. Imagine that a robot is developed which contains a number of built in programs. One of these programs gives it the ability to write small behavioral routines. Essentially the robot can alter its behavior by writing small programs. A feature of this program is that it allows the robot to observe the behavior of other robots and write programs that produce the same behavior. In effect, it can imitate other robots. Now, these programs are memes. They are not a part of the robot's innate behavior -- rather, they are produced by imitation. Such programs can be translated into different languages and written down on paper. They can also be transmitted to other robots who read the instructions or who imitate the behavior and write their own programs.

This is precisely the sort of process that goes on in humans. At some distant point in history, biological evolution provided our ancestors with a capacity to imitate behavior. This meant that humans could observe the behavior of others and their brains would produce the neural wiring needed to produce the same behavior. A neural wiring pattern that produces behavior is essentially a list of instructions, which can be translated into other mediums -- written language, outward behavior, or computer code. A list of behavior producing instructions is the thing that replicates and spreads into the minds of others. A list of instructions is a meme.

What can we do with Memetics?

Having a definition of a meme is one thing; doing something useful with it is another. How can we use our knowledge of memes? There are several applications for memetics. First, it can be used as an explanatory tool. Thinkers have been looking to aspects of human behavior and have been using memetics to offer explanations for why such behavior exists. Memetics can also be used explain human creations such as technology, music, and literature. Memeticists look at an aspect of human creativity and then construct a memetic history that may have resulted in that aspect of creativity. Of course, constructing historical accounts of any sort of evolutionary process is a dangerous business. Evidence is fragmentary, and it is impossible to determine the truth from the "just so" stories.

Another approach is to deconstruct a human creation -- such as a piece of music -- and discover the components that brought the creation together. By doing this, memeticists may eventually come to understand why it is that certain memes manage to attach to each other for mutual survival in a memeplex. They may also discover what it is about certain groups of memes that make them such good replicators.

In addition to the above, memetics has the potential to enhance our study of psychology. In the future, psychologists may look to memetics to discover the origin of certain psychological conditions. Perhaps multiple personality disorder could be explained by the existence of two (or more) competing memeplexes that each define a sense of self (Susan Blackmore (1999) calls such a memeplex a 'selfplex'). The idea behind this thinking is that a human mind is basically a memetic construct. When a brain becomes inhabited by a suitable collection of memes, they form a mind and a selfplex develops. Anomalies such

as psychological depression (non-physiological) or addiction might be explained by memetic viruses that influence the behavior of the selfplex.

Putting these possibilities aside, the ultimate goal of memetics should be its ability to *predict* behavior and the evolution of future memetic structures. Future memetic psychologists could use their knowledge of memetics to predict what will happen when people are exposed to certain combinations of memes. If they are successful at making such predictions, then it will be possible to determine which combinations of memes will lead to the production of criminal behavior. Attempts could then be made to filter certain memes out of the memepool. Of course, this would open up a new debate on the wisdom of censorship and the purposive destruction of memes. Who, after all, would decide which memes to force into extinction?

Into the Future...

The "meme" meme has successfully gotten itself entrenched in the memepool. It is spreading rapidly around the human species at the speed of light, and it will one day have infected everyone's mind. Its reproductive success is a testimony to its infectious power. There is something about the "meme" meme that makes it a good replicator. It fits in well with the other memes that inhabit our minds, and there is something about it that makes us want to communicate it to other people. We are enabling its survival.

Memes offer us a way to understand our psychology and the evolution of our thoughts, technology, artifacts, music, and art. They can be defined as small sets of instructions that produce behavior. When enough of these instructions get together in a brain, a mind develops. Such a mind can be understood and predicted by looking at its composite memes.

With its explanatory power, and its potential to make behavioral predictions, memetics will become an essential addition to a psychologist's tool kit. As its success increases, memetics will take over where psychology has left off, and will become a driving force in the study of human behavior.

Memes were Assimilated from the Following Sources:

Blackmore, Susan. (1999). *The Meme Machine.* Oxford University Press.

Dawkins, Richard. (1976). *The Selfish Gene.* Oxford: Oxford University Press.

Dawkins, Richard. (1986). *The Blind Watchmaker.* London: Longmans.

Dennett, Daniel C. (1991). *Consciousness Explained.* Penguin Books, 1993.

Dennett, Daniel C. (1995). *Darwin's Dangerous Idea.* Penguin Books, 1996.

Silby, Brent. (2000). "The Evolution of Technology: Exposing the Myth of Creative Design". http://www.def-logic.com/articles/evolution_of_technology.html