

The Value of Openness in an Attention Economy

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Let me begin by congratulating the *First Monday* editors on ten years and one hundred and twenty-one issues published so far. I am proud to have had articles published in several of them. Many thanks are due the editors for their own openness to different kinds of work, their speed of reviewing and their graceful and readable layouts. Thanks also to all the conference organizers for inviting me to speak on this anniversary.

This occasion has a special significance for me. First Monday now justly prides itself on being one of the first open-access journals on the Internet. It did not begin its life that way. It is possible that that I influenced their decision to abandon the customary paid-subscription model. In 1997, the editors were bold enough to publish my far-out article¹ on the [Attention Economy as the natural economy of the net](#),* which in passing made the case for open access. When I then sought out the website to look at my newly published article, I discovered that most readers would have to pay some significant subscription fee to read the thing. This frankly upset me, for I wanted attention! So I immediately sent off an e-mail to the editors, suggesting that their subscription policy was inconsistent with my article as well as with getting attention for their journal and its articles. Shortly thereafter they changed their policy to openness.

Why openness?

Which leads to the subject of this conference — openness of various kinds on the Internet: Open source-software; open science articles; open access to scientific data; open access to various kinds of knowledge and other forms of what is referred to — in my view misleadingly — as “content.”

* Incidentally, that article is an essential background to what follows.

As with other kinds of human decisions and actions, any of the various choices and instantiations of policies of openness can stem from several different motivations at the same time. One may choose openness out of a philanthropic desire to aid the most people, out of an enjoyment or shared fun in being part of a community, out of a sense that openness is the best way to get an interesting puzzle solved or curiosity satisfied, a dislike of privacy or holding on to secrets, or perhaps simply from throwing all caution to the winds and just putting out there whatever one thinks or feels with no thought as to consequences.

Yet I will argue that acting from any or all these different sorts of motivations may also be self-interested economic action of a particular type. That is action that makes sense in terms of the existence of the Attention Economy, in which one's primary motive is to increase one's supply, not of money or material goods, but of a very different, but intrinsically scarce entity, namely the attention of other human beings.

As mentioned, I have argued previously, in *First Monday* in particular, that the Attention Economy is the natural economy of the net. But not just the net, in fact, increasingly of all of society. In my view, this economy, while in certain ways very old, is now moving to be the dominant economy in which humans live. It is fast replacing, not merely transforming, the economy based on money, on the market, and on the industrialized exchange, distribution and production of standardized material goods. The rise of the net itself is merely one indication of this trend. The new economy cannot simply co-exist with the market economy permanently, because each demands its own social structures, its own mindsets, its own modes of life, and its own values.

All these differences come out in a consideration of the kinds of openness this conference is dedicated to discussing, as well as some other categories of openness perhaps less to be discussed here, but which I shall mention later.

A reclamation project

In addition I shall use this opportunity to try to reclaim the "attention economy" concept that I put forward in the original *First Monday* article as well as earlier, elsewhere. By an economy I mean an all-encompassing system that structures human life to a very large extent around the distribution of certain scarce entities. An economy integrates the activities and wishes of huge numbers of people in one complex whole. By the Attention Economy, then, I mean a system that revolves

primarily around paying, receiving, and seeking what is most intrinsically limited and not replaceable by anything else, namely the attention of other human beings.

Others have adopted the term attention economy, as if it is simply one particular stage or way of looking at what they take to be eternal, namely the economy based on money, markets and standardized industry, where almost the essence of life is business, which takes place in firms or corporations as well as in the all powerful market where supply and demand hold sway, and where banking, finance, and stock markets have ultimate power. Within that view, attention is seen as a resource, mostly of interest to advertisers. Then the “economics of attention” is only the study of how best to deploy and structure attention to greatest effect in the race for money.

The problem with that debased concept of attention economy is that it leaves no useful term for the real changes that roil and motivate us now. Without a term to use for it, the concept itself is even harder to grasp than it would be otherwise. We badly need the original meaning, at least until some other term captures the same concept better.

Language is the original open medium, of course. Anyone is free to take any word or phrase and use it with a different meaning or in different contexts (at least assuming the words have not been trademarked — an idea I have discussed elsewhere²). Still, in this case there is no reason to allow the original meaning that I intended to be forgotten. The new economy is rapidly taking over on the Internet and throughout the globe, and therefore well worth keeping in mind and taking the trouble to understand.

A very brief update

Though the new economy is by no means confined to what happens over the Internet, a look at some of the developments in the near decade since I first published in *First Monday* offers many signs that the new economy continues to grow and flourish at rates far surpassing the old economy based on money and standardized material goods.

Perhaps the clearest sign was the supposed end of the Net-based economic boom in the year 2000. Once high-flying Internet companies crashed and disappeared; the stock market, and especially the high-tech dominated NASDAQ index fell far and as yet has not recovered. Yet, right through the bust, the number of web pages continued — and still continues — its exponential growth, while new modalities of

attention-getting or seeking (and attention paying, in many cases) on the Internet continue to proliferate. We now have blogs and the comments that they draw, v-logs, YouTube, Google video, Myspace, flickr, i-Chat, vastly expanded and easy to use listservs, groups, RSS feeds, meet-ups, to name only a few of the most obvious and most eagerly adopted by an attention-seeking world.

Beyond or beside the Internet, signs of growing involvement in the new economy are also evident in the continued growth of cell-phonning, in the popularity of so-called reality TV (which allows “ordinary” people a chance at attention once reserved for more certified stars) in the ubiquity of radio-call-in programs, in new kinds of competitive sports, in the intensified interest in non-athletic competition such as spelling bees, in increased production of movies and videos, personally revealing memoirs, novels and even poetry. The urge for attention is more visible, more widespread, more unashamed and earlier starting than ever. In an attention economy, one is never not on, at least when one is awake, since one is nearly always paying, getting or seeking attention, in ways and modes that are increasingly organized and tend to involve ever-large and more dispersed audiences.

Even politics is now more than ever a form of performance art. So-called terrorism is too; without world-wide media — including, most notably the Internet — would anyone be blowing themselves and others up in this way? What other real point does it have? That people will die and kill to get attention is horrible, but should not be surprising. (As this example indicates, we should hardly view the coming of the new economy as an unalloyed good; it is definitely not utopia. Still, wars for attention might turn out to be less horrible and costly of human life than the wars for productive territory they seem increasingly to have replaced. The “war on terror,” destructive though it is, pales alongside World Wars I and II.)

I shall return to trends connected to the growing attention economy at the end of this paper. In order to get there it will be helpful to proceed via the topic of this conference, the varieties and value of openness. As a point of entry to the latter, in turn, it will be helpful to begin with a more detailed look at just what attention is.

II. What Do You Pay When You Pay Attention?

What is paying attention all about? Why would people want attention paid to them or their actions or expressions? Why is the attention that is paid intrinsically scarce?

I should begin by admitting that no one really can define attention. Whatever it is is bound up in hard-to-grasp notions such as consciousness, awareness, focus, and so on. These are terms debatable, confusing and unsettling to fields from philosophy to neuroscience, from meditation gurus to advertising mavens, from psychoanalysis to test design. There remains nothing approaching a clear scientific understanding. So I will plough ahead regardless. What follows combines smatterings of these various fields in a crude attempt at a “unified theory” of attention paying or — more specifically — what it means for one person to pay attention to another.

Neural mirroring as a model of attention paying

First of all, one pays attention to another person, not directly as a whole, but through that person’s actions, expressions, emotions and thoughts. Suppose you are at a tennis tournament, watching a singles match. As you focus on one of the players, you begin to recognize what the player is doing through the action of certain nerve connections or neuron chains in your own brain. If you see the player raising the racquet over her head, you recognize the action through activating exactly the neuron chain of your own that would cause your own arm to lift over your own head. You activate the chain – that is, the nerves fire — but, unless you are quite abnormal, you actually move either not at all or only very slightly. This is the phenomenon now called neural mirroring.

Neural mirroring was a great chance discovery³, originally made in Parma, Italy, about 1991 when a graduate student walked into a lab where rhesus macaque monkeys were being studied with an unusual apparatus. The lab’s neuroscientists had managed to wire up the chain of neurons activated each time one rhesus monkey lifted a peanut to its mouth. They then connected the wire not only to some sort of recorder, as would be customary for neuroscientists, but to a loudspeaker, so they could easily note every time the chain fired. That way, whenever the neuron chain was activated, they could turn and observe what the monkey was up to.

Then the graduate student happened to walk in licking an ice cream cone. Or perhaps he was standing by a bowl of fruit and picked up a banana, peeled it and began to eat it. Stories differ. In any case, as the ice-cream cone or banana reached the student’s mouth, the loudspeaker went off. But the monkey was doing nothing except staring at the student. It was clearly paying attention to the student’s action by invoking what its own similar action would do in its own brain (or mind).

Subsequent mirror-neuron experiments, less invasively set up, have been done on humans. Humans respond the same way as the monkeys, but in much finer detail. For instance, different neurons in your brain would fire if you observed someone picking up a glass in order to drink from it than would if the intent were to put the dirty glass in the sink.

Back to the bouncing ball

To return to watching our tennis player — left suspended in mid-motion on the court — you don't just mirror the motions, you most probably also mirror the intent, namely to win the point, and also the emotions that go with the desire to win. All this binds you to that particular player. You probably cannot switch the feelings of wanting this player to win as fast as the ball goes over the net, so you can't pay attention in quite the same way to the opposing player.

To some minimal extent, just by watching you become a fan. Neuroscientists so far have only the crudest ideas how different sorts of attention, say to names, and faces, end up correlated with the mirroring attention just described, but we all know it happens. If this player stays active, seeing her name or her face will reactivate some of the feelings of loyalty you developed while watching her play the first time. The more you watch her, the more she takes over your mind (albeit not completely for all time) and the more you want her to win or simply come to want whatever she wants.

The simplicity of the mirror neuron process in connection with athletic motions probably helps explain why sports are much attended to, but we know from the work of George Lakoff and Mark Johnson⁴, among others, that all thought has a certain muscular, bodily quality. In following an argument, for example, we are engaged in mental motions that to some extent must mirror the implicit motions of the person arguing the thought.

Attention scarcity explained

A tennis player obviously cannot extend her body upwards to reach for a lob while at the same time diving to hit a ball skimming the ground. If paying attention involves activating the precursors of muscular motion, we also cannot pay attention to two dissimilar motions at once, if they would use any of the same muscles. Since all thought has metaphoric references to muscles, emotions, etc., that limitation probably holds very widely. Any exceptions would involve actions

so routine that we need not pay much attention to them, even when performing them ourselves. Thus we can walk and chew gum and think or listen to someone else at the same time. However, trying to walk with any sort of unforeseen obstacles in our path while, watching someone else play tennis gets pretty hard. So would entertaining at once two different trains of thought from two different people. Beyond the most glancing attention to more than one person at any one moment we stumble. That is why the sum total of human attention is necessarily limited and therefore scarce.

Attention is remembering too

To pay attention to anyone, we activate certain chains in our own brains, and each time we do, it becomes easier to activate similar processes from similar viewpoints, the next time we encounter that same thinker — which is to say the same person, whether a philosopher, a country music singer, a software programmer whose program we adopt or try to so study, a scientist, a flirt, or whoever.

Aligned minds

I only learned of mirror neurons this past January. Prior to that, I was loathe to use terms referring to brains, and in some ways I am still wary of this. I explained paying attention in terms of reshaping one's *mind* to the thoughts, viewpoints, mental processes and emotions of the person one is paying attention to. It is minds that are most obviously flexible, not brains. Think of the shape-shifter toy that was popular among five-year-olds a few years ago. To pay attention to any particular person you do your best — however temporarily — to reshape your mind to hers. You think her thoughts, you feel her feelings, you want what she wants, or you are not paying attention.

Of course, by the time you are an adult, if not long before, you have also developed certain resistances, certain critical faculties that allow you to get out of the total mindset, perhaps to see some of the train of thought as mistaken, false, against your deeper interests, or even evil. But that takes additional effort, additional self-centeredness, and still may leave you partially willing to shape your mind and intentions according to that of whomever you are paying attention to. And whomever it is, you will be laying down memories that will again make it easier and more natural to turn your attention to that same person later on.

What good is having attention? Why is it desirable?

I've so far focused strictly on what paying attention is about. What about getting attention? As I've already indicated, to some degree an audience full of people paying attention to you will want whatever it is you want. They are implicitly on your side. They are also thinking your thoughts, enlarging, as it were, the size and scope of your own mind. They can keep paying attention, through remembering and recalling past experiences to mind, or through reading a text of yours over or looking at an old video or v-log or whatever, even in principle long after you are dead. Since your own mental processes recur to a substantial degree in their minds as they do this, having attention can make your mind live again, in a way. It is perhaps the closest humans can come to life after death, as well as to an expanded life while still living.

The most insatiable urge?

Because we cannot move our bodies in more than one way at once, our abilities to pay attention are limited. Not so our abilities to receive it. If you have an audience of ten, you can eagerly take in all their attention, directly. You can be directly present for perhaps a few hundred thousand people in a giant stadium say, and you can receive all their attention, if you are but good enough at attracting and holding it — and if you have the right technology, such as microphones, loudspeakers and large video images. Further through the operation of media including the Internet, it is now possible to have an audience in billions, and nothing about one's bodily limits prevents one from receiving attention from an audience numbering in billions, if one can somehow manage to get them all to be interested at once. If the accessible world had trillions or quadrillions of people in it, there would still be no limit to the attention one could actually receive. Some would certainly go after as much as there were.

Of course, money today may be represented with just a number, and there is no intrinsic limit either to how many dollars one may aspire to having. However, to the extent that money is of value to allow one to satisfy material desires, the limits of one's body also limit the satisfactions available. No one body can take in more than a certain amount of food, even if it all be in the form of hummingbird tongues. Nor can one wear more than a certain amount of clothing at once, sleep in more than one bed at a time, or ride in more than one car. And so forth. Thus, the value of an unlimited amount of money — beyond bragging rights, which connects to the attention economy — becomes more and more etiolated or theoretical.

Is it the thought that counts?

It is important to note that you don't have to be consciously focused on yourself to want attention, but the attention you get is still taken from the essentially scarce supply. Think of Chicken Little⁵. To the extent that any conscious or even unconscious reflection goes on in the mind of this fictional human-like chicken, it would have to include something like the following line of reasoning:

“Something fell on me; I think it was the sky. I am frightened that the sky is falling. My thoughts and fears matter (because I matter). I need help: because I need help and my thoughts and feelings matter, and, ultimately, because I matter, it is quite all right for me not to keep my fears to myself but to go around screaming, ‘the sky is falling, the sky is falling.’ If I do that enough, and enough people — or other human-like animals — pay attention, maybe someone will help me by keeping the sky from falling.”

The key point is that whether one views this as wanting and feeling one deserves attention for oneself or simply feeling that one's thoughts or feelings deserve attention on their own, it amounts to the same thing. You can be self-consciously modest and still believe that your thoughts are very deserving of attention, but in that way, in truth, you are not so modest after all.

And when Henny Penny takes up the cry, the same things apply. Henny is thinking Chicken Little's thoughts, but they now are also her own thoughts. So it is that the motive for seeking attention for certain thoughts or facts or ideas can seem perfectly philanthropic, but only via the implicit belief that one's own entertaining of those thoughts and so on amount to a reason that others ought to entertain them as well.

Now probably one of the original morals of the Chicken Little saga was that one should not take oneself so seriously as to seek attention for one's chance perceptions, or indeed seek much attention at all, that was a value that made more sense in an economy based on thrift, hiding one's money if wealthy, and in any case sticking mostly to humble routine.

Modesty is not such a virtue anymore: while it may make sense in a money economy, the value of true modesty or humility is hard to sustain in an attention economy. One would have to crow pretty loudly about one's humility to get much praise for it. (On the other hand, fake modesty can work extremely successfully

with certain audiences for a time. Take as a case in point the “aw-shucks” performance of the man who turned out to be “the decider,” George W. Bush.)

Further, even Chicken Little will have an easier time getting people (or animals) to pay attention to her thoughts about the sky if she has already entered their attention before, the more easily, the wider their prior experiencing of reshaping their minds to hers, or their knowing her appearance, name, etc. Thus to get attention for your thoughts on some future occasion it helps to have gotten attention for various aspects of yourself earlier.

The converse is also worthy of some attention. It’s pretty hard to be paid sustained attention simply for jumping around screaming, “Look at me! Look at me!” There is too little going on for bystanders to align their minds or bodies to for more than a minute or two. No one can align for long with what is pure distraction from what one would rather be attending to. The people in white coats who arrive to subdue the person screaming for attention are likely to get more attention. Their actions have more complexity, and their intentions are more easy to align with, which therefore creates more interest.

III. Group Structure in a Star-Focused World

Not everyone can get a lot of attention. But when some do, it is often a good strategy for others to associate with them, in one way or another, in various kinds of groupings. I will mention three sorts. Some groupings involve members who are closely linked to one single attention getter, generally maintaining that closeness by paying this “star” even more attention than most fans do. Because of their proximity they also more easily share in the attention she receives. (The obvious name for the members of such a penumbra around a star is “entourage.” Having already hit on this word, I was interested to note that a couple of years ago the HBO cable television network chose it to name its comedic series about a group of this sort.)

The penumbra of attention to a star can extend further however. By being a particularly attentive fan of a few stars, you can get some attention from more casual fans for the depth of your attentiveness to — and therefore knowledge of — each of them. Fan groups are looser assemblages, unlikely to be directly known to the star, less likely still to be well know to her, and unlikely to be aware of most of

each other. Still, there will be some loose leadership, some fan-stars, as it were, quite often.

The space for communing

A third kind of group shares attention among its members more or less equally. Between friends, equal attention is better than each simply living in a private world because we are, after all, social animals. We enjoy *communing*. When two of us are exchanging attention equally and closely with each other, each of our minds can feel enlarged, as if each controls both bodies. The word “fun” enters here. Most things that are fun are so, I suspect, because of real or implicit communing with others. (Really good sex is an intense example of this, with bodies in fact conjoined highly interactively, and all sense involved in paying attention to each other. So far, this cannot be achieved over the Internet, though many seem to be trying.)

Groups that commune on such an equal basis generally cannot be large. As they grow, so do the chances that some participants will see the rest of the group as a potential audience, whose attention is to be competed for. In that case, attention can only flow equally among most members if one or a few get more than an equal share as accepted group leaders. These — at the least — regulate the flow of attention among the rest. Even then, equality among the majority will be unlikely to survive if there are channels outside the group operating as a whole for a few to get attention disproportionately from some of the others.

In my experience, the size of a long-lasting, purely equal group generally cannot be much above four. This happens — not so incidentally — to be the size of the most common leaderless musical group, the string quartet, and often of jazz or rock combos as well. Larger “teams” generally have formal or informal leaders who, being attended to more than an average member, have a larger than equal share in choosing the team’s direction and deciding its purpose.

IV Some Intermediate Conclusions

Here are some conclusions about the economics of attention that follow from what I have said so far:

- 1) Attention that is desirable comes from other beings who are themselves capable of receiving attention, that is they have minds and are social beings;

in practice this means we want attention from other humans. When we face them, we expect various degrees of evidence that they are indeed paying attention, and this remains desirable at a distance, which is one of the great advantages afforded by attention-seeking and paying over the Internet. Thus the value of counting the visitors to a site, allowing comments on blogs, etc.

- 2) Attention wealth is in the minds of the beholders, not in any bank; because memories persist, that wealth survives and can be drawn upon in various ways much later on;
- 3) Attention is not the same as reputation. It might be possible to look up in some list, say, that you have a reputation for repaying your loans on time, without having any real idea about who you are or what your thoughts are.
- 4) Even if you in some way choose to remain anonymous, putting out your thoughts to the world allows other people to think them, which enlarges you. Even with some degree of anonymity, if you are canny, say, in your use of the Internet, you may draw on this attention as well.
- 5) At the same time, to activate others' attention it helps to present as much of yourself as possible, so as to increase the number of associations that will connect various memories to you, so as to reawaken attention, etc.
- 6) The more people pay attention to you, the more they want what you want, whether this is something for the good of the world or something personal.
- 7) Paying attention slips easily into heeding, serving, waiting on, waiting for, satisfying, taking care of, etc. It is through that adaptability that having enough attention can guarantee you whatever you want, at present with or without converting attention into money.
- 8) When pure communing can be achieved, most members of the communing group can benefit, but it is always a target for would-be attention grabbers. So it is generally unstable, transforming into unequal star-fan relations.

V Varieties of Openness to Strive For

All this suggests that there are various desirable forms of openness:

- 0) Dissemination of your thoughts and other expression as widely as possible. This is the basic openness the Internet so well permits.
- 1) Dissemination with some possibility of audience feedback
- 2) Open access — having one’s thoughts, expressions, etc., as available and accessible as possible, with as few barriers as possible. Obviously, charging money for access is one such highly limiting barrier. If such a barrier were easily enforceable, it would be even worse in limiting the attention one can get. (At times, though, it works to employ the tactic of temporarily concealing something, so as to create wide suspense and— hopefully — surprise and éclat when one finally lowers the veil. However, through overuse, the stratagem risks easy staleness— whereupon it can turn away attention as successfully as any other barrier.)
- 3) Self-revealing — the more aspects of oneself that express who one is, the more opportunities exist for people to align their minds to one, and the richer the accumulation of attention one may get. (Let me add it possibly may not pay a software programmer to also put sex videos on the Internet, especially if it turns out the programmers are especially squeamish about such videos or even worse, totally oblivious. It may also be too personally painful, of course, to contemplate doing that.)
- 4) Claiming priority by putting out one’s thoughts in their most preliminary forms. Since “waiting for” is one form that attention certainly takes, early hints can be successful and tantalizing, as long as they are not simply tricky come-ons as described above. More importantly, by putting out ideas as soon as one has them, one increases the chances that further development in the field will be understood according to one’s own thoughts, and the chances that [FIX]minds aligned to yours. Even if someone else, shortly later, goes faster or further than you have or can, if your thoughts gain any notice, you remain in the important role of founder and mover.
- 5) One step beyond simply putting out an idea is defining a project, and possibly making yourself prime anchor point for its further articulation and development. You might list what you see as the next steps, and then choose the best versions offered, etc.

- 6) Encouraging an entourage to form around you, or becoming openly part of one if you are not a star.
- 7) Building semi-independent fan-bases for acknowledged or new stars of any sort, and revealing oneself as a fan. (See, eg., MySpace in this regard.)
- 8) If you are a star, offering ways for your fans to commune with each other, and to some degree with you.
- 9) Striving at least to create more or less purely equal communing communities.

VI. Applying the Openness Typology to Existing Cases — and Beyond

The Attention Economy is still quite new in its newly near-dominant form, as is the Internet, of course. The types of openness listed above at present only appear in some of the possible combinations, and with varying degrees of directness and strength. Each new combination of forms of openness can be instantiated only through new social inventions, which themselves can be viewed as attention-getting efforts. (A successful social invention, for example the blog, of course must gain attention to be of value.)

We are just at the beginning. What kinds of new open institutions will be born that work well in the Attention Economy but perhaps undercut the older economy we can only now guess. We can certainly expect that new combinations of the types of openness listed above will emerge that overcome some of the limitations of the current forms. In the process, even some of the current great successes may be modified.⁶

So let me first examine the current forms in the light of my typology, and then suggest some further developments that appear to me likely, if not inevitable.

Open Code —or Open Source and/or Free Software

Open source software programming antedated the widespread Internet, but has made very effective use of it, and has also become one of its key underpinnings, as

everyone attending this conference should know. From the point of view of originators (or key forkers⁷) of open-source projects, the applicable kinds of openness centrally include announcing and running projects (Number 4). Also Numbers 0, 1, 3, 7, and 8 may apply. For typical participants as code writers in open source, a motivation that should not be ignored is putting out code that others will understand and use, which means having others align their minds with that of the coder by repeatedly thinking her thoughts.

If the fun were just in writing the code, developing code that no one but oneself ever uses would be as satisfactory as having it widely adopted and used, but there is no reason to believe that is true, especially since submitting it to the larger group or to the project organizer takes additional effort. In addition, coders on particular projects are part of a fan-base, as well as a form of entourage, though they may wish to be part of simply a communing group described in number 8 above.

Open Science

Open science is a term used for several different modalities. (a) It includes putting out raw data that fans are encouraged to sift through for the worthwhile nuggets, as in various astronomical and high-energy experimental physics efforts. (b) It also includes public races to add to the data sets, such as in the various public genome projects. (c) Finally, it might be said to include current forms of open publication of more or less finished reports.

In (b) the effort seems quite similar in motivation to open source software design, except that so far only members of university or corporate –based teams are likely to be able to contribute significant new methods and techniques that draw attention from colleagues as they speed the process. The genome data that come to rest in an open archive might appear not to be anyone’s thoughts *per se*. But being a part of the project that successfully completes a genome before competitors makes one a successful player of the game, so that one’s style and methods do get attention. Also, merely to have taken on a biological species or group of humans whose genome to decode has to have its reasons, which others must come to share if there is attention to be gotten for it. Any subsequent breakthrough that results from some other scientists’ examining the particular genome and figuring out what it “means” also draws attention back to those who have put the genome itself forward. Keeping the data secret would undercut this process, for the most part, as would to a degree publishing it only in a limited-access journal.

As with (a) an underlying motivation is the thought that the world is a certain way, and being the first to discover a new fact about it gives one a kind of direct immortality. “Before this, humans did not know this fact. From now on, forever, thanks to me they will. Even if I discover only one crater on Mars, or one new planet, one heretofore unknown species of butterfly or one example of a new sub-atomic reaction, or one piece of the genome of the ruby-throated humming bird, I certainly get bragging rights.” Even to this tiny degree one can claim priority, as in Number 3 above. And of course, since the scientists leading the project are eventually going to publish in some form, one is part of their entourage now.

Open-Access Journals and Libraries (aka “Open Content”)

As if the Internet and other forms of publication or distribution of works of imagination were a huge machine that needs constant filling with raw materials, for-profit publishers and music, video and movie production companies are now thought of as “content providers.” That is a bad misnomer, getting things basically backwards. What these publishers are doing is more accurately seen as offering limited and potential access to attention. Creating is not to be likened to coal mining or steel making. Content is not simply shoveled into an open maw by workers who are following directions. A publication or a movie studio is not a food bank. Knowledge, ideas, inventions, art, expressions, or sports stars’ activities etc. are not simply consumed by masses of “consumers,” who are waiting around hungrily for “content.” The whole metaphor is a leftover improperly taken over from the industrial paradigm.

Attention must actively be sought. People who pay it also generally want it. Seeing publications as simply content denies most of the world any significant need to have access to attention. Content is supposedly a wonderful picnic for them if we would only “provide” it. A one-way routing of attention is hardly such a picnic, however. It is but the latest (as well as one of the earliest) forms of colonialism or imperialism. It also limits the value of the attention so gotten by those from the “advanced” world. As discussed above, [IV(1)] just as declaiming a speech to an audience consisting only of a stone statue would offer one no actual attention, so the kinds of attention one wants comes from minds that are enough like one’s own that they could receive attention as well. The more they are cut off from even the possibility of any mutual interaction with oneself, the less real and valuable this attention will feel. So even stars can ultimately benefit from the existence of a two-directional openness, with people even in materially poorer countries becoming full participants in the attention economy, probably instantiated by the Internet. (Ultimately, two-way attention will take more than occasional but rare access to computers located, say, in physical library buildings or Internet cafes.)

Indeed the two complement each other. If my medium is words, but you cannot think my thought, you cannot pay attention to me. For that, you must know or be able to figure out what I am talking about. Suppose a scholar refers to a book not easily available to some readers. If the reference is at all important, those readers cannot fully pay attention. No writing or speaking of any kind stands alone. All attention-getting efforts fail without some sort of reference, implied or explicit, to older efforts by others. Thus, having all earlier efforts as available as possible would be a boon to present attention seekers. This is part of the advantage to all of open-access scholarly and scientific journals and open-access libraries.

In an article⁸ that appeared in the press the day before the First Monday conference, Kevin Kelly speaks of current efforts to put all books on line, and emphasizes the possibilities of new kinds of “sampling” of existing texts that new authors will be able to undertake. But all existing writing involves some degree of sampling; in scholarly writing, that’s what footnotes are about. In Internet-based scholarship, it will be possible to get attention for references one makes to a work from those who look at that work itself. New paths of attention will open up.

As the First Monday conference itself demonstrates, communities form around online journals, and the stars are the editors of the journal. (First Monday is now read in 184 countries, according to Ed Valauskas; that would not have happened if it were not an open journal.)

Still the existence of online refereed journals is in some ways a relic of print-publishing. An individual author would have no way to print an article by itself to send out to a substantial subscriber list. Further, recipients would have no guarantee that an article so sent out would have the authority of a refereed work. However refereeing is simply a form of knowledgeable editing, valuable for journals that cover ranges of disciplines too wide for one editor to master. As recent examples in science have shown, successfully having passed trial by referee does not prove an article to be of more than some interest; it does not demonstrate its reliability or profundity.

Publication in a refereed journal on the Internet is therefore only one path of medium effectiveness to obtain attention for one’s somewhat scholarly thoughts. The Internet already offers a host of others, and allows a host of commentators, selectors, instant anthologizers and others to set up as independent but at times highly accepted judges of merit in various fields. These people form part of what itself is an open community, and many of them can become stars on the basis of

the articles they point attention towards. I suspect that more blog-like publication may well come to dominate.

In response to this suspicion, incidentally, it was argued at the conference that blogs would never replace journal publication because it is through publications in reputable refereed journals that scholars obtain university tenure. That assumes that universities, the publish-or-perish system, tenure, and refereed journals will always be with us, and that only scholars seeking tenure are really worthy of note. However, none of these institutions have existed forever. Tenure, publish-or-perish and refereed journals in particular are fairly recent innovations, especially in their links to one another. The nature and structure of learning and of universities continues to evolve, and it would seem unwise to pretend the contrary. Already the Internet has radically changed many aspects of scholarship, and of universities. My guess is that new forms of scholarly collegiality, outside formal university structures will continue to evolve. Tenure is only good insofar as it guarantees a monetary income, but part of my argument is that indeed the money economy need not last forever. This is not the place to advance that argument in any detail. Still, I offer a very limited sketch of it in the next section.

VI. The Transition from Money Economy to Attention Economy Through Openness — Some Speculations

As we have seen, maximizing attention means removing the price barrier, so within the fast-developing world of open access, money has become peripheral. Money remains necessary at present as the main way to obtain material, industrially produced goods, along with housing and so forth. However, the share of the world's economically active people who are directly employed in the making or even the distribution of such goods or in the extraction of raw materials for them continues to shrink and is already quite small in the "advanced" countries. On the other hand, having enough attention means that one is enabled to get one's wants filled directly, or at least to receive money from one's fans by which to do so when one needs it.

It is perhaps something of an oversimplification today, but still is roughly on target, to say that money tracks attention. That is, if one has enough attention one can earn quite a bit of money, while if one cannot attract attention one tends to earn less and less, as a wide range of routine, repetitive workers in most old-economy fields have discovered. It seems reasonable to expect that the causal relation between having attention and being able to obtain the money one wishes to buy the

old kinds of goods and even services will continue to grow more exact. The irony is that money is primarily required and makes sense for paying for work that is increasingly poorly remunerated.

If that is so, a point may be reached where money as currency is simply no longer necessary. It would do no more than duplicate attention flows that occur anyway, as easily extended via the internet, search engines, etc. We can think of everyone having on average some attention from perhaps a couple of thousand people. Then everyone on earth — all six or seven billion people might be connected by no more than three or four degrees of separation. It will then behoove one to pay attention to the needs of almost anyone encountered, according to the stardom or connection to stars that person has. To put it most succinctly money is narrow band, but attention is wide band. In a world with plenty of bandwidth, the narrow band simply will get far less attention than now. Material goods production will also bring less attention to the producers, but still some, and it is through that that they will remain part of the new economy.

Why should this matter? A major reason is that as the standardized unit known as the dollar (or pound Sterling or Euro, etc.) increasingly ceases to represent standardized products but instead tracks attention, many of the effects of chasing after money and valuing some sheer number of its units becomes perverse. We have already entered what might be called the “dream-life of money,” — and of large corporations and perhaps other large institutions, including universities, as well. Corporations become stages for the performance of their top executives, especially, and viewing themselves as stars they increasingly think it appropriate to accept increasingly large salaries and other perks, regardless of the “performance” of the company, or rather its shares. It is already accepted that a corporation exists only to “enhance shareholder value” but for the ordinary shareholder it doesn’t even do that, and money tends to be bled off the stock market anyway for the benefit of large hedge funds, their often superrich investors, and their extremely handsomely paid principals, who of course then simply have more to invest.

Meanwhile, what might be termed the “half-life” of typical medium-to-large-size firms continues to shrink. By half-life I mean the median period during which a firm has a fairly stable identity, clear purpose, core of personnel, specific relations to a certain set of consumers and of geographic communities, etc. Firms merge, split, go bankrupt, change course, change name (re-brand), change employees, and change outlook or focus at an apparently accelerating clip. Once, typical large firms showed remarkable stability, remaining much the same for longer than a human life. But as the half-life continues to shrink, at some point firms become

insignificant epiphenomena, less stable and important in most lives than the kinds of open access projects and communities under discussion, and less attention-getting than the imaginative people behind them or operating in them.

How such people have been operating within firms has been changing in other ways. Often work is now parceled out to relatively short-lived “teams,” who engage in specified projects and generally have one or a few stars at their core. Thus they much resemble entourages or open-source projects. Quite often, even today, core members of these entourages reunite in different firms with different motives later on.

Partly out of self-defense, partly out of sheer attention-seeking zeal, a wider and wider range of social inventions will emerge, I suspect, to replace what firms and probably many non-profit institutions as well have really contributed. New forms of open-source projects will be invented with different kinds of focus. Just as the Linux project does not much resemble Microsoft, even though Linus Torvalds competes with Bill Gates for attention, an open-source transportation project might compete successfully with General Motors, Toyota or current airlines without necessarily resembling them, having factories, making cars or selling seat-miles.

It is easy to imagine communities or projects that focus on offering user-friendly open-source “front-ends” or interfaces for different kinds of software, even though these mostly do not exist yet. It is equally easy to conjure up, say, an open-source automobile-design project, which, unconstrained by patent restrictions comes up with highly superior cars. Likewise, the production process design might itself be open-source, along with that of specific needed machinery. Finally, the process of successive partial automating of unwanted routine tasks could itself be open source.

One reason open-source and corporate models are sure to clash is the issue of intellectual property. There are few large corporations today that would-be profitable without patent, copyright and trademark exclusivity. Yet these are basically inimical to the Attention Economy, as they impose barriers of some sort to either paying or seeking attention, as I indicated above. Various speakers at the First Monday conference offered salient examples. A well-known case was that of Napster, in its original form. Drug patents are another case in point; they actual prevent some of the most promising efforts to develop new combinations of drugs; they encourage research to extend an existing cash cow rather than to develop truly beneficial new drugs; and they are used mainly to feed profit flows to shareholders.

The truly expensive part of drug research — namely clinical trials — seem well-suited for replacement by an open model.

Non-profits such as universities, and even governments will play decidedly different roles in the full-fledged Attention Economy than they do now. University administrations in particular have viewed their functions in relation to the money economy, increasingly seeing their role as preparing students for careers, while fostering research increasingly to aid in the development of intellectual property. Some of the faculty and probably a majority of students have more or less the same outlook. Still, at the same time, both students and faculty continue to be eager adopters of new attention-economic forms that involve one or more kinds of openness. Most of these extend beyond the well-defined physical confines of the individual campus. They involve forms that clash to some degree with relatively long-held aspects of academic tradition ranging from distinct faculties and departments, careful credentialing and offering of academic credit, slowly changing curricula, central libraries, the importance of appearing “on campus” etc. A tipping point?

In line with these speculative remarks, a final question to raise is when the new economy might be widely understood as the way life works, by which time the use of money may well be on the decline, and major institutions will be seen, if still important, in a very different light from the consensus view still today. In the terms of this conference when will there come a time when openness in almost everything is the norm rather than the upstart being defended against? I would guess that the timescale will prove short — a couple of generations, not the twenty or thirty that intervened in the transition between the full, all-out feudal economy of knights and feoffs and the dominance of the full industrial market, money-based economy.

It is worth recalling in this light that the occasion of this conference is the tenth anniversary of *First Monday*, and the rapidity and depth of the changes it has chronicled in that brief decade. Four more decades of comparable change would lead us into a very different world.

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NOTES

¹ Michael H. Goldhaber, "The Attention Economy and the Net" *First Monday*, April, 1997
http://www.firstmonday.org/issues/issue2_4/goldhaber/index.html

² "Language as Public Good Under Threat" in *Not for Sale: In Defense of Public Goods*, Anton, Fisk and Holmstrom, eds, Westview Press, Boulder, 2000

³ Sandra Blakeslee, "Cells That Read Minds," *New York Times*, January 10, 2006, Late Edition - Final, Section F, Page 1. Also see Wikipedia article on mirror neuron http://en.wikipedia.org/wiki/Mirror_neurons and, cited there, but not yet read by, me Giacomo Rizzolatti et al. (1996). *Premotor cortex and the recognition of motor actions*, *Cognitive Brain Research* 3 131-141

⁴ George Lakoff and Mark Johnson: *Metaphors We Live By*, Chicago U. Press, 1980; *Philosophy in the Flesh*, Basic Books, New York, 1999, See also, G. Lakoff, *Women, Fire and Dangerous Things*, Chicago U. Press, Chicago U. Press, 1999; M. Johnson, *The Body in the Mind*, Chicago U. Press, 1987

⁵ I refer to the character in the children's folktale, of unknown origin, but certainly current when I was a child, sometime in the Pleistocene.

⁶ My approach differs from some widely known one's such as found in Eric S. Raymond, *The Cathedral & the Bazaar*, O'Reilly, Sebastapol, CA, 1999 or Yochai Benkler, "Coase's Penguin, or, Linux and The Nature of the Firm," 112 *Yale Law Journal* 369 (2002) unpaginated at <http://www.benkler.org/CoasesPenguin.PDF> [Degrees of Separation note: by accident, in looking up Professor Benkler, who was to appear at FM10, I discovered he is my second-cousin-once-removed-in-law.]

⁷ See Joseph Reagle's contribution to this FM10 conference for an explanation of forking.

⁸ Kevin Kelly, "Scan This Book!" *New York Times Magazine*, May 14, 2006, p43ff.