

Attention Brokers

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“In the main currents of psychological research, attention is treated as a resource – a person has only so much of it.”¹

- Matthew Crawford, *The World Beyond Your Head* (2015)

“It does get frustrating at times because all the oxygen in the room is being sucked out by a guy who just goes around insulting people ...”²

- George Pataki, *The Alan Colmes Show* (September 10, 2015)

Attention is often referred to as a resource.³ Whether it bears all of the indicia of a resource is an interesting question that might be debated at some length. But at a minimum, attention – access to the public’s mind -- bears some of them: it is both scarce (possibly because information is now not scarce)⁴ and viewed as necessary to various tasks like creating demand for an unknown product or gaining political influence. Attention is also obviously valued by a range of actors, whether the news media, web companies, politicians competing for election, or corporations seeking a brand reputation or demand for a product. These reasons may be why it is now commonplace, especially in the media and technology markets, to speak of an “attention economy” and of competition in “attention markets” (where attention is spent, instead of cash). In the business slang, firms in the attention economy “compete for eyeballs”; and in another widely used metaphor, whoever gains attention “sucks

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¹ MATTHEW B. CRAWFORD, *THE WORLD BEYOND YOUR HEAD: ON BECOMING AN INDIVIDUAL IN AN AGE OF DISTRACTION* 11 (2015).

² *The Alan Colmes Show* (Fox News Radio broadcast Sept. 10, 2015).

³ See, e.g., MATTHEW B. CRAWFORD, *Introduction: Attention as a Cultural Problem, in THE WORLD BEYOND YOUR HEAD: ON BECOMING AN INDIVIDUAL IN AN AGE OF DISTRACTION* (2015).

⁴ This is the argument made by Herbert A. Simon, *Designing Organizations for an Information-Rich World, in COMPUTERS, COMMUNICATIONS, AND THE PUBLIC INTEREST* 40-41 (Martin Greenberger ed., 1971).

oxygen” from everyone else.⁵ If the commercial and political importance is well known, the study of “attention markets” has very recently become of interest to legal analysis, particularly in areas like trademark, Sherman Act or mergers. Nonetheless, as a mixture of a psychological, philosophical and economic topic, both attention and attentional markets remain vaguely described and poorly understood topics. One particular problem is that the relationship between the regular, or cash economy, and the attention economy can be particularly hazy

The purpose of this Essay is to focus the discussion by examining a key intermediary – the Attention Broker – who acts as an intermediary between the attention and cash economies. The Attention Broker (sometimes called an Attention Merchant⁶) is a reseller of human attention. It attracts attention by offering something to the public (entertainment, news, free services and so on), and then reselling that attention to advertisers for cash. Examples of pure attention brokers include television networks, some web companies, and some newspapers – entities sometimes referred to as “advertising supported media.” The broker is a specialized form of a two-sided market intermediary, as we shall discuss. Its activities are critical to the operation of attention markets, for it is its business model that creates much of the competition for attention that this paper describes.⁷

The Essay also makes a new effort to describe the features of “attentional markets” and the process of “competition for attention,” as previous efforts have left many fundamental questions unanswered. The market metaphor may be imperfect, but it is still useful; the basic idea is to try and understand markets where attention, as opposed to money, is being spent. This essay focuses on the differences created by two distinct features of attention markets as compared to “money” markets. First, that the resource is equally distributed among individuals; yet there is also a sharp limit in supply (168 hours per person per week). Second, that the markets are also distinguished by

⁵ Or “sucks the oxygen out of the room.” The oxygen is a metaphor for attention.

⁶ See TIM WU, THE ATTENTION MERCHANTS: THE EPIC SCRAMBLE TO GET INSIDE OUR HEADS (forthcoming Oct. 2016).

⁷ Attention Brokers are not the only intermediary. Publishers are businesses that sell consumers entertainment products, for money, that consume attention as well (film studios and book publishers are two examples).

the unusual fact that attention, though valuable, cannot be stored -- it is continually being spent by individuals, one way or another.

These two steps of describing Attention Brokers and the market allow a better descriptive of the competitive process in attention markets, and in particular, matters such as pricing, market entry, and market definition. The competitive process in attention markets is strongly influenced by two factors described above: that buyers have only 168 hours per week to spend, and the fact that individuals are continually spending attention. One consequence of attentional scarcity and constant spending is that there is always an incumbent seller with whom an entrant need compete. Scarcity also suggests that non-commercial competitors play an important and sometimes unavoidable role — for example, school, work, sleep, and so on, meaning that those who are successful in these markets tend to vanquish a “natural” competitor (consider the family sitting at home tapping on devices or watching TV, instead of chatting with each other). Finally, what counts as an economic substitute is a challenging question that requires further research.

The Essay closes by briefly discussing a few policy implications for antitrust law and consumer protection. First, the ideas presented in this paper suggest that, in the course of antitrust analysis, it may sometimes be important to understand the relevant markets and the type of competition involved as competition for attention. For example, if two attention brokers are merging, their reduction in competition to be considered might, in some cases, be the competition for attention central for their business models, a fact that might be obscured by “free” pricing structures.

As for consumer protection, if we take seriously the idea of attention as a resource, then its depletion ought to be a matter of natural concern. The fact that attention is renewable and privately controlled (by individuals) would ordinarily suggest that attention is not prone to such problems. That, however, is only true if we assume perfect control over one’s attention. I suggest that policy concerns of a consumer protection nature arise from methods of destroying individual control over attention. In that vein, I suggest that various legal regimes and laws, surveyed below, including bans on cellphones in airplanes, noise ordinances, nuisance laws, and others, serve (whether so intended or not) to provide some protection over one’s control over

attention. The article concludes we may need to better translate the value of “quiet enjoyment” in contemporary technological settings.

I. What is Attention and Why is it Valuable?

We have begun this discussion of attention without fully defining it. That is a question that has interested philosophers, scientists and even religious thinkers for quite some time, and as such does not bear easy summarization. It is often the case that, by the word “attention,” different people mean completely different things, for at its very broadest, the study of attention is the study of conscious experience, and our very sense of existence.⁸ As William James once put it, “my experience is what I agree to attend to.”⁹

This Essay has no ambition to contribute to the literature that defines attention, and for that reason takes as its starting point the relatively narrow definition found in the work of psychologist and philosopher William James. In 1890 James described attention as the brain’s cursor, that is, the facility by which some selected stream of information gains access to the brain. As he put it: “Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought.”¹⁰

Over the last several decades, scientists have largely confirmed the physical basis for the James model.¹¹ We have brains with a limited capacity to process information; we are presented with too much information (by the sense organs) for the brain to process.¹² For that reason, the brain has various mechanisms by which we make “attentional decisions.” That is to say, we have means by which we decide to what

⁸ One author notes that the following words are sometimes considered synonyms for attention: “arousal, effort, capacity, perceptual set, control, and consciousness.” EDWARD SMITH, COGNITIVE PSYCHOLOGY: MIND AND BRAIN 105 (2006).

⁹ WILLIAM JAMES, THE PRINCIPLES OF PSYCHOLOGY 402 (1890).

¹⁰ *Id.* at 403-04.

¹¹ Typical summaries of the attentional model can be found in THE BLACKWELL HANDBOOK OF SENSATION AND PERCEPTION ch. 9 (E. Bruce Goldstein ed., 2004); MICHAEL I. POSNER, COGNITIVE NEUROSCIENCE OF ATTENTION (2d ed. 2011); EDWARD E. SMITH & STEPHEN M. KOSSLYN, COGNITIVE PSYCHOLOGY: MIND AND BRAIN ch. 3 (2006).

¹² THE NEW COGNITIVE NEUROSCIENCES ch. 47 (Michael S. Gazzaniga ed., 2000)

stream of information, among the various choices, we will attend to, or process. Those wishing for full details can consult the sources in the margin,¹³ but in short form, scientists have discovered at least two different mechanisms for making those “attentional decisions” – an involuntary mechanism, located in the lower parts of the brain, and a voluntary mechanism, whose operation relies on the upper parts of the brain. All this means, as I have been suggesting, that attention is fundamentally about *access* to the mind, and that at any moment, for an individual, there exists a competition for access; but also one that always has a winner. We are always (except perhaps when deeply unconscious, or in a coma) attending to *something*.

In the economic and legal analysis of attention, it turns out to be more useful to focus on the underlying capacity to process information, which is the most like a resource. Accordingly, in this Essay, I will refer to “attention” as the processing capacity of a human mind, and the “attentional decision” as the decision of what stream of information to process. In this usage, a man watching television for 30 minutes, say, has made the attentional decision to “spend” attention on *Happy Days* or whatever other show he has selected.

This approach relies here on the biologically well-established view that our brains have a limited capacity to process information, along with the finding that our brains can generally only really process one stream at once (though we may switch between streams quite rapidly).¹⁴ As the scientists have pointed out, we, in fact, process a tiny fraction of the information to which we are exposed; stated differently, we have attentional organs, or parts of the brain, that act to filter out most to which we are exposed.¹⁵ A well-known and popular demonstration of this fact was the “invisible gorilla” experiment, wherein participants asked to count basketball passes generally fail

¹³ SMITH & KOSSLYN, *supra* note 11, at ch. 3 gives a straightforward explanation of the “top down” and “bottom up” attentional model.

¹⁴ Daniel Gopher, Lilach Armony & Yaakov Greenshpan, *Switching tasks and attention policies*, 129(3) J. EXPERIMENTAL PSYCHOLOGY 308 (2000).

¹⁵ See Gazzaniga, *supra* note 12.

to notice a man with a gorilla suit wander across the screen and pause to beat his chest.¹⁶ While attending to one thing, we can become blind to others.

To make my model even clearer we might assume that every human has a fixed processing capacity – say, of 100 cycles per minute, where cycles represents some quantity of information. If we watch TV for an hour, in an entirely focused manner, we have spent 6,000 cycles on that television show. Meanwhile, attending carefully to a 30 second advertisement uses up 50 cycles. This is obviously a simplification that doesn't take into account things like the quality of attention,¹⁷ but its relationship to the underlying resource gives a sense for why the attentional industries are so focused on time. By this metric and given that there are 10,080 minutes per week, we therefore have about a million (1,008,000) cycles to spend every week on things like Facebook, *The New York Times*, the AL East pennant race and Netflix. That does sounds like a lot, but we also sleep and ideally spend some attention on matters like work, friends, children and other such extravagances.

With some sense of the resource we are discussing, we now proceed to relevant scholarship.

II. Scholarship of Relevance

While most of the writing on attention comes from scientists or philosophers, the project here has closet kinship to the work of economists, which is now reviewed

Economics of Time

We have already seen that attention, consider as a resource, is closely dependent on time. In 1965 Gary Becker wrote a paper entitled “A Theory of the Allocation of

¹⁶ See Christopher Chabris and Daniel Simons, *Gorillas in our midst: sustained inattention blindness for dynamic events*, 28 PERCEPTION 1059 (1999); CHRISTOPHER CHABRIS AND DANIEL SIMONS, *THE INVISIBLE GORILLA: AND OTHER WAYS OUR INTUITIONS DECEIVE US* (2010).

¹⁷ Some neuroscientists focus on “Attentional Effort” which is a plausible proxy for quality, e.g., Martin Sarter, William J. Gehring & Rouba Kozak, *More attention must be paid: The neurobiology of attentional effort*, 51(2) BRAIN RESEARCH REV. 145 (2006). For an effort to take economic account of attentional quality, see Arjo Klamer, Anna Mignosa & Olav Velthuis, *The economics of attention*, 2 CULTURAL ECONOMICS 1 (2000).

Time.”¹⁸ As he explained, “a group of us at Columbia University have been occupied ... with introducing the cost of time systematically into decisions about non-work activities.”¹⁹ Writing in an era where a declining work-week was assumed, Becker viewed time as an economic input, and pointed out that every usage of time that was not being productively used represented “forgone earnings.”²⁰ Hence, he opined, accounting for the full cost of something like spending an evening at the theatre with family, must include not just the cost of the tickets, but also the forgone earnings of all involved.²¹

Becker’s idea is more familiar today as the concept of “opportunity cost.” Its main value here is that it posits understanding the intangible asset of time as something that can be spent, or consumed, like another resource. More generally, economists have treated time as a scarce resource necessary to the enjoyment of other goods and services, not unlike the way that we considered attention. Nonetheless, as Sharp concluded in a 1981 review, time “is still often treated rather differently from the more familiar inputs of labor and materials and outputs of goods and services. The problems of its allocation have not yet been fully or consistently integrated into economic analysis.”²²

Advertising

Closely related to understanding attention is the study of advertising and marketing. Economists have sought to understand why firms spend money, sometimes considerable amounts, on advertising. (Two economists have argued that “One Quarter of GDP is Persuasion.”)²³ The most general answer is that they assume that advertisements create or influence demand for their product. Kyle Bagwell, who has

¹⁸ Gary S. Becker, *A Theory of the Allocation of Time*, 75 *ECON. J.* 493 (1965).

¹⁹ *Id.* at 494.

²⁰ *Id.* at 493.

²¹ *Id.* at 494.

²² CLIFFORD SHARP, *THE ECONOMICS OF TIME* 210 (1981).

²³ Donald McCloskey and Arjo Klamer, *One Quarter of GDP is Persuasion*, 85 *AM. ECON. REV.* 191 (1995).

written an exhaustive review of the economics of advertising, describes several schools of thought.²⁴

The earlier (1930s) theories of advertising suggested that many advertisements were a means to persuade a customer to prefer one brand over another (say, Coke over Pepsi), irrespective of the merits of the product. The goal and effect was to influence the elasticity of demand, making possible higher prices. A customer who is constantly advertised to about the distinctive appeal of Marlboro cigarettes, for example, might be unwilling to switch to an unknown brand, even if cheaper. This theory might explain why Pepsi, which used to be far cheaper than Coke, nonetheless could not gain market share. (It also explains the logic behind the “Pepsi Challenge.”)²⁵ This view of advertising led to the conclusion that advertising could serve anti-competitive purposes, because it deterred switching between products.

Another, simpler theory suggested that advertising’s informational function predominates: advertising serves to provide consumers with important information for making decisions (e.g., “Geico saves you money”). This might make customers willing to try something new, and therefore aid the competitive process. A third view, pioneered in the 1970s primarily by Gary Becker and various co-authors, saw advertising as a complement to products (something that makes them more valuable). By this analysis, for example, billboards for Mercedes-Benz automobiles or Calvin-Klein clothing serve to make those products more valuable to their owners, thereby justifying the firm’s advertising expense. They form part of the bundle -- with your purchase, like it or not, you also get ads showing everyone how great you and your product are.

As the examples show, it seems possible that advertisements for different products might serve different functions. Regardless of which theory has the greatest empirical support, the relationship of each to the market for human attention should be clear. They all suggest a straightforward mechanism for why businesses would find access to human attention valuable, for the access to the mind can be used to influence

²⁴ Kyle Bagwell, *The Economic Analysis of Advertising*, in HANDBOOK OF INDUSTRIAL ORGANIZATION 1701-1844 (Mark Armstrong & Robert H. Porter, eds., 2007).

²⁵ The Pepsi challenge - a blind taste test - sought to demonstrate to consumers that they actually preferred the taste of Pepsi, and were therefore irrationally drinking Coke as a matter of brand loyalty.

demand curve for their products — whether by making the brand more desirable, or by giving the customer information that he would not otherwise have.

Attention Itself

The direct study on the economics of attention is more scarce. Indeed, attentional markets are a good example of a concept that is constantly discussed by participants in the business world, yet, outside of neuroscience, philosophy, or the occasional antitrust case, has provoked relatively limited interest among academic lawyers or economists.

One exception is the work of Herbert Simon, who in 1971 articulated the idea of attentional scarcity in a manner that effectively forecast the future.²⁶ He wrote:

“[I]n an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.”²⁷

In more recent years, Swiss economist Josef Falkinger has sought to demonstrate Simon’s point using a formal model.²⁸ He argues that the scarcity of attention is a function of an information-rich economy, and that in information-poor economies, there is no such scarcity.²⁹ That may suggest a future where attention become even more valuable.

Entertainment economists, without focusing on attention as a resource, have also long understood some of the competition in their industry as really competition for

²⁶ Herbert A. Simon, *Designing Organizations for an Information-Rich World*, in *COMPUTERS, COMMUNICATIONS, AND THE PUBLIC INTEREST* (Martin Greenberger ed., 1971). Other treatments include Richard A. Lanham, *The Economics of Attention*, 36 *MICH. QUARTERLY* (1997); Josef Falkinger, *Limited Attention as a Scarce Resource in Information-Rich Economies*, 118 *ECON. J.* 1596 (2008).

²⁷ Simon, *supra* note 26, at 40-41.

²⁸ See Falkinger, *supra* note 26.

²⁹ See Falkinger, *supra* note 26.

attention. Harold Vogel writes the following of the sale of broadcast time: “[W]hat is sold is access to the thoughts and emotions of people in the audience. As such, then, broadcasting in any and all of its forms is an audience aggregation business.”³⁰

Business books, like *The Attention Economy* by Thomas Davenport and John Beck, make the point that “in today’s information-flooded world, the scarcest resource is not ideas or even talent: it’s attention.”³¹ The latter work is less the theoretical analysis of attention, as opposed to practical techniques for marketers who wish to learn how to suck oxygen out of a room.

Over the 2010s, as the attention brokers like Google have come under antitrust scrutiny, economists have (usually pursuant to funding from one side or another) begun to write more about attentional markets and the conditions of competition in them. Economists James D. Ratliff and Daniel Rubinfeld describe the attention broker model using the concept of “honey.” Honey, in their theory, is the free stuff used to “attract consumers willing to devote attention to advertisers’ messages.” The writers conclude, in the context of the Google search engine, that its honey – the search engine – does not form a market, because its provisioning is a money-loser alone. The theory more or less ends there.³²

Economist David Evans, also working on Google’s market definition, presents a deeper analysis, which this paper relies on in part, that describes attention as something like a currency, or at least something that consumers spend, and as such something for which various competitors seek to obtain, or “harvest.”³³ Seen this way, the markets that attention harvesters are in are ones in which gaining attention is the goal. As he

³⁰ HAROLD L. VOGEL, ENTERTAINMENT INDUSTRY ECONOMICS: A GUIDE FOR FINANCIAL ANALYSIS 312-13 (9th ed. 2015).

³¹ THOMAS H. DAVENPORT & JOHN C. BECK, THE ATTENTION ECONOMY: UNDERSTANDING THE NEW CURRENCY OF BUSINESS (2002).

³² Ratliff and Rubinfeld also make the fairly bold statement that advertising, if voluntarily consumed along with “honey,” cannot be a source of consumer harm: “Because content accompanied by advertising is voluntarily consumed, we can conclude through revealed preference that consumers ... are better off having consumed the combination of organic content and advertising, even accounting for the time required and any annoyance caused by the advertising.” The analysis assumes away any potential harms caused by advertising itself, which is *not* voluntarily consumed, other than time and annoyance. It ignores, for example, potential distortions in behavior caused by excessive exposure to advertising; and also harms caused by false advertising.

³³ See David S. Evans, *Attention to Rivalry among Online Platforms and its Implications for Antitrust Analysis* (Coase-Sandor Institute for L. & Econ., Working Paper No. 627, 2013).

concludes, “analysis should therefore focus on competition for securing and delivering attention in considering market definition, market power, and competitive effects.”³⁴

III. Attentional Markets, Brokers & Competition

Attention Markets

A few attributes of attention differentiate it from a traditional resource. Let us proceed by taking attention as something which consumers spend (like a currency as much as a resource) and in the process compare it to the conventional, cash-driven markets. This analysis focuses on two key differences: limited supply, and constant spending.

First, on an individual level, the supply of attention that can be spent is limited by time – the 168 hours per week that we each have. Unlike money, that supply cannot be expanded, at least on an individual level, for nothing outside of magic will give you more. Of course, it is possible that some people process information faster than others, and therefore have more cycles to spend, but in this paper, we have assumed, to simplify, that people all process information at roughly the same speed. Attention, as such, is distributed equally, unlike money, which can be subject to enormous disparities. This doesn’t mean advertisers or other harvesters of attention want to reach everyone equally, but it does mean that we -- humans -- are equal to the amount of attention that we have to spend.

Second, we are always, except perhaps when in deep sleep, processing information, and therefore spending attention continuously. As a resource, then, attention cannot, like grain, gold bars or paper money, be stored or hold its value to be used later in time. This leaves us with a model where individual consumers are constantly spending the resource, rather like the protagonist in *Brewster’s Millions*.³⁵

³⁴ *Id.* at 2.

³⁵ In George Barr McCutcheon’s *Brewster’s Millions* (1902), a man was required to spend \$1 million within a year to inherit \$7 million. In the 1984 film by the same name, the challenge became spending \$30 million within 30 days to inherit \$300 million.

How do we decide what to spend on? The constant spending is directed, at a second-by-second basis, by the attentional decisions that have been carefully studied by neuroscientists.³⁶ Those studies suggest that a mixture of involuntary and voluntary factors determine how humans spend attention. As such, the decisions are not necessarily that different than how in reality people spend money, although most economic models assume that the decision to spend money is voluntarily. In any event, attentional spending, like the spending of currency, is apparently dictated by preferences (HBO versus MTV; Fox News versus MSNBC); various habits and rituals (spending “primetime,” with the television, or the sense of a need to “check-in” to email or Twitter); and other, environmental considerations created largely by our technological environment (consider how you spend attention differently while carrying a smartphone; or on a day spent camping as opposed to in an office). As such, the basic model of consumer choice can be employed in attentional markets.

Setting a “Price.” A major challenge for the concept of an attentional markets is determining the equivalent to price, and perhaps this is where the market metaphor is at its weakest. Given that attention is being constantly spent -- information is constantly being consumed -- the main metric is the amount of time or cycles spent. Perhaps it makes sense to say that the way a football fan is paying more for football is by devoting more cycles to it, and perhaps that is the best one can do from the consumer side. Some writers have sought to describe higher and lower quality attention as the equivalent to price, but that is surely a rough metaphor. For this reason it may be more instructive to consider the price-setting decisions of a key intermediary in the attention markets, the Attention Broker, whose price-setting is more straightforward.

The Attention Broker

In the 1830s, a group of newspapers in New York City, led by the *New York Sun*, pioneered a business model here described as “attention brokerage.”³⁷ The newspapers sold for a penny, which was below the costs of printing. However, the

³⁶ See *supra* pp. 4-5 for an analysis of how attentional decisions are made.

³⁷ For a history of the Penny Press, see SUSAN THOMPSON, *THE PENNY PRESS: THE ORIGINS OF THE MODERN NEWS MEDIA, 1833–1861* (2004). The attention brokerage model is introduced in TIM WU, *THE ATTENTION MERCHANTS: THE EPIC SCRAMBLE TO GET INSIDE OUR HEADS* (forthcoming Oct. 2016).

papers nonetheless turned a profit by attracting larger audiences, and reselling that attention to advertisers. It is businesses that rely on that basic model which this Essay describes as the Attention Brokers. In their purest form they are the businesses that rely purely on the resale of attention to make money, such as broadcast television networks, free newspapers, and many of the companies on the world wide web, like Facebook or Google. The importance is of understanding attention brokers, not advertisers, who are engaged in the competition for attention described in this Essay.

The Attention Broker can also be described as a specialized version of a platform intermediary in a two-sided market.³⁸ Like a typical platform, it lowers its price to one side of the market (the public) and makes its profit on the other side (advertisers). The key difference is that the Attention Broker is also operating between markets with different currencies – money on the one side, and attention on the other. In this manner the Attention Broker differs from a typical intermediary like a credit card company.³⁹ The credit card company facilitates the purchase of goods and services. In the case of an Attention Broker, it is attracting viewers, and then reselling some of the attention that it gains control over to the highest bidder. It is therefore perhaps most accurately described as an unusual type of platform intermediary.

The following, admittedly odd analogy attempts to capture this dynamic. Imagine a man with a large supply of gold dust in a pocket that was leaking at a constant rate. That makes his very presence valuable. Bars would likely offer free drinks or other enticements to lure him in, and might charge the other patrons extra for the opportunity to pick up some of the dust that fell as the man enjoyed his drinks. That, in a nutshell, is the business model of the Attention Merchant.

History suggests that attention brokers compete very intensely for attentional spending, for an enormous critical mass may be necessary for an Attentional Broker to be profitable. In a classic example of this, broadcast networks in the 1950s, NBC and CBS, competed intensely for prime time audiences, knowing that whomever had the

³⁸ See Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. OF EUROPEAN ECON. ASS'N 990 (2003).

³⁹ James McAndrews & Zhu Wang, *The Economics of Two-Sided Payment Card Markets: Pricing, Adoption and Usage* (Federal Reserve Bank of Richmond, Working Paper No. 12-06, 2012).

largest audience would resell it for the highest price to advertisers while the other would lose money in the time slot.⁴⁰ In our times, various web companies compete for audiences for similar reasons. As described in more detail below, an Attention Broker may also compete with publishers (who charge for information) and also non-commercial actors: for example, television networks compete with family dinners, billboards compete with landscapes, Facebook may compete with friends.

The Attention Broker, in the course of competition, makes several price-setting decisions. More precisely, it makes two key decisions. At one level, the broker sets the price of the “bait” – the service or good meant to attract the audience to be resold. It often sets that price at zero to induce the largest possible audiences; but not always: most newspapers and magazines also charge subscriptions or per-issue charges. Second, it sets its advertising rates, depending on its audience, the perceived desirability of that audience, and finally, some sense of the quality of their attention.⁴¹ In this respect it act likes a typical platform in a two-sided market.

A second and interesting set of *de facto* pricing decisions centers on choosing the mixture of advertising versus “editorial,” or native, content.⁴² The Attention Broker knows that it is the native content that attracts its audiences. Meanwhile, with some exceptions, advertising, as Randy Picker points out, can be understood as a form of product degradation.⁴³ On the other hand, the broker’s revenue depends on the amount of advertising it can sell. This leads it, logically, to want to set a mixture that will maximize its revenue without degrading the product too much.

From this dynamic the broker can be understood to be setting, in its mixture of advertising and desired content, a kind of a price. If, for example, a web page or television show were nothing but advertising, it might be expected to attract very few

⁴⁰ This business model is well described in VOGEL, *supra* note 30, at ch. 7.

⁴¹ This measurement appears to be extremely rough, and indeed, attention merchants go to great lengths to attempt to persuade their buyers that their audiences are in particularly a “receptive” state of mind; yet of course such a thing would be nearly impossible to measure. Some Attention Merchants, Google most obviously, rely on the clickthrough as definitive proof of a desirous or curious mind.

⁴² (Sometimes efforts are made to transform advertising into desirable content.)

⁴³ See Randal C. Picker, *Online Advertising, Identity and Privacy* (Univ. of Chicago John M. Ohlin Law & Econ., Working Paper No. 475, 2009).

viewers. (Nonetheless some web sites are like this.) On the other hand, displaying no ads will maximize viewership, but result in no revenue.

The assumption that advertising degrades the product is premised on the assumption that it is the native content (i.e., *Happy Days*) that the consumer prefers and therefore decides to spend cycles on. The advertising (say for Samsonite Luggage), is presumed undesirable, and is as such almost like a bad tied product. It is based on those presumptions that Picker writes of an “advertising price” that an intermediary “charge consumers.”⁴⁴

It is true since at least the 1970s that advertisers have fixated on an alternative ideal, a holy grail of sorts – advertising that that audience *wants* to watch, and prefers to. Logically, advertising is just information, and therefore might be useful, or otherwise desirable. If the holy grail is achieved, it erases the dilemma just described, and allows the resale of attention without extracting some cost on consumers.

There are some examples of advertising that have succeeded in attracting attention independently. Superbowl advertisements, for example, are widely watched,⁴⁵ and the advertisements in fashion magazines like *Vogue* are considered by readers to be part of the attraction.⁴⁶ At another level, music videos on networks like MTV are sometimes described as a form of advertising,⁴⁷ while movies like *The Transformers* or *The Lego Movie* can be seen as advertisements for toys.⁴⁸ The longstanding goals of “targeted” advertising on the web was to display ads that users “want;” whether this was achieved is decidedly unclear, as the popularity of adblockers tends to suggest. In any event, with these exceptions, attention merchants are more

⁴⁴ Some academics have also asserted that Google’s advertisements are costless to consumers. See James D. Ratliff and Daniel L. Rubinfeld, *Is There a Market for Organic Search Engine Results and Can Their Manipulation Give Rise to Antitrust Liability?*, 10(3) J. COMPETITION L. & ECON. 517 (2014).

⁴⁵ See Rob Siltanen, *Yes, A Super Bowl Ad Really is Worth \$4 Million*, *Forbes* (Jan. 29, 2014), <http://www.forbes.com/sites/onmarketing/2014/01/29/yes-a-super-bowl-ad-really-is-worth-4-million/#627e01da4d82>.

⁴⁶ See MARSHALL McLuhan, *UNDERSTANDING MEDIA: THE EXTENSIONS OF MAN* 210 (1964) (“The ads are by far the best part of any magazine or newspaper.”).

⁴⁷ DAVID CROTEAU, WILLIAM HOYNES & STEFANIA MILAN, *MEDIA/SOCIETY: INDUSTRIES, IMAGES, AND AUDIENCES* 67 (4th ed. 2011) (“Music videos are themselves forms of advertising for the music industry.”).

⁴⁸ See Noah Kristula-Green, *Why ‘The Lego Movie’ Resonates*, *THE AMERICAN CONSERVATIVE* (Feb. 19, 2014), <http://www.theamericanconservative.com/articles/why-the-lego-movie-resonates/>.

typically saddled with selling advertising that will be taken by the audiences as degradation, and therefore face the dilemma described.

The traditional approach to this dilemma is, as with traditional pricing, to try to increase advertising to the perceived point of consumer revolt. And so, for example, American network television usually devotes between 14-16 minutes per hour to advertising, and buries a few minutes of marketing time into the shows themselves. The end goal is to be able to sell roughly one quarter to one third of the time to advertisers, one way or another.⁴⁹ Many web sites seem, by the mid-2010s at least, to have taken things about as far as they might.

Over the 2000s, several web attention merchants – most prominently Facebook and Google, introduced an interesting and successful variation on this strategy. Facebook, at its introduction and for many years following, minimized its advertising.⁵⁰ According to one account, Facebook ran ads only as necessary to cover liquidity shortfalls, and otherwise ran no advertisements at all.⁵¹ It did not, in other words, pursue revenue maximization, at least in the short term.

This strategy gave Facebook an immediate advantage over its main rivals, most prominently, Myspace, which was, in contrast, running ads profusely.⁵² Consequently, Facebook was, in the terms used here, a lower price competitor to Myspace (even though, by traditional metrics, both were “free”). Facebook had other advantages as well – better code, and more “real” users, but the effect of its pricing strategy cannot be ignored.

⁴⁹ See Matthew P. McAllister, *Television Advertising as Textual and Economic Systems*, in A COMPANION TO TELEVISION 219 (Janet Wasko ed., 2009).

⁵⁰ See DAVID KIRKPATRICK, THE FACEBOOK EFFECT 177 (2011).

⁵¹ See *id.*

⁵² Multiple sources confirm the profusion of advertising on MySpace during this period. See, e.g., JULIA ANGIN, STEALING MYSPACE: THE BATTLE TO CONTROL THE MOST POPULAR WEBSITE IN AMERICA 243 (2009) (noting profusion of low revenue ads); KIRKPATRICK, *supra* note 50, at 177 (describing a \$900 million advertising deal MySpace made with Google in 2006); Felix Gillette, *The Rise and Inglorious Fall of MySpace*, BLOOMBERG BUSINESSWEEK (June 22, 2011), available at http://www.bloomberg.com/bw/magazine/content/11_27/b4235053917570.htm (explaining how the pressure to increase revenue led to a doubling in the amount of advertising in the mid-1990s).

After achieving some measure of market power by the 2010s Facebook effectively raised its price by changing the mixture of advertising and native content.⁵³ It began to pursue a revenue-maximizing approach, and arguably began setting a monopoly price.⁵⁴ As such, the overall, dynamic pricing pattern resembles in its rough contours a predatory pricing strategy -- the setting of a low price at an initial time period, followed later by monopoly pricing.

Understanding the mixtures of advertising and native content as a form of price setting also can help us understand another phenomenon -- user “revolts” against sponsored media, such as the rise of ad-blocking in the mid-2010s. The theory is that, as with prices, every consumer has a reserve price -- a level at which he or she considers the amount of advertising mixed with native content to be unacceptable. As with regular pricing, this can vary greatly by individual.

When her reserve price is exceeded, the consumer can be expected to abandon the product for a competitor, or revolt in other ways, such as installing ad-blocking software.⁵⁵ Interestingly, consumers may not realize that this is, precisely, what they are doing; they may just notice that they have stopped watching broadcast television and started watching Netflix (which has no advertising). But it can be postulated that, behind the scenes, something akin to a pricing mechanism is in operation.

Market Entry

⁵³ See, e.g., Brittany Darwell, *The Year in Facebook Advertising 2012*, ADWEEK (Dec. 31, 2012), <http://www.adweek.com/socialtimes/the-year-in-facebook-advertising-2012/288561>; J. O'Dell, *Facebook has totally changed the mobile ad industry, caused 180% spend spike in 2012*, VentureBeat (Dec. 17, 2012), <http://venturebeat.com/2012/12/17/facebook-mobile-ads-boom/>; Paul Tassi, *Facebook's Advertising is Starting to Spiral Out of Control*, Forbes (July 1, 2013), <http://www.forbes.com/sites/insertcoin/2013/07/01/facebooks-advertising-is-starting-to-spiral-out-of-control/#7cd83960204e>.

⁵⁴ See Garrett Sloane, *Facebook Ad Prices Are Rising Amid Organic Reach Squeeze: 10 percent higher pricing in first quarter*, ADWEEK (Apr. 8, 2014), <http://www.adweek.com/news/technology/facebook-ad-prices-are-rising-amid-organic-reach-squeeze-156888>; see also KIRKPATRICK, *supra* note 50, at ch. 13 (discussing Facebook's advertising strategy during this time).

⁵⁵ See *The 2015 AdBlocking Report*, PAGEFAIR (Aug. 10, 2015), <https://blog.pagefair.com/2015/ad-blocking-report/> (noting that ad blocking grew by 41% globally between 2014 and 2015).

One implication of the fact that Attention is constantly being spent is that an Attention Broker always faces an incumbent. Market entry necessarily means displacing something that already has some hold on the attention desired. This might be thought of as historically occurring in one of two ways, as alluded to earlier. The “greenfields” are areas of time and attention that are occupied by non-commercial providers of information (like friends, families, landscapes and so on). In the history of the attentional industries, the history of industrial expansion is largely one of companies attracting attention that was previously being spent on some non-commercial source. For example, over the 1930s, during the invention of “prime time,” broadcasters learned that they could attract the attention previously devoted to in-home family entertainment. In the 1950s, during its competition with CBS, NBC took a greenfield strategy by introducing a “morning show” and “late night” television, two previously uncontested blocks of time. In our times, the attention that was spent staring out into space while waiting for a bus or train appears to have been captured by smartphone designers, some of whom are attention merchants.

In the alternative, a competitor in the attentional economy can try to take attention away from an incumbent attention broker. The media, entertainment and Internet industries are all driven by competition for attention, which they resell to advertisers. Characteristically, companies in these industries need enormous amounts of attention or will fail altogether, unlike publishers.

But what does competition look like in such markets? In traditional markets, the market definition is set by the existence of competing products. Stated differently, products that are not substitutes for one another are not said to compete; a pickle is not in the same market as a helicopter. Are matters any different for the attentional markets?

One approach to this problem was taken by Evans (notably in an analysis funded by Google during its scrutiny for violations of antitrust law). Noting that, over a ten-year period, entire categories of sites became more or less popular (for example, social media became more popular, and portals less), he presumed that users switch between different categories and that, therefore, nearly everything on the web competing for attention is presumptively in the same market. As he writes:

“[A]ttention seekers compete with each other, at least to some degree, across even broadly defined products and service categories. When one attention seeker gets more attention some other attention seeker is probably getting less.”⁵⁶

There is some logic to this. If you begin to use Facebook and therefore use Google less, perhaps Facebook is successfully competing with Google. But on closer examination there are several problems with the analysis.

First, it may confuse substitution on one side of the two-sided market with the other. It is very plausible, say, that advertisers see Google and Facebook as offering substitute products — i.e., access to the attention of a certain demographic. But that doesn't necessary tell us whether *consumers* see the companies as substitutes or not.

The approach of examining correlations in usage is also overbroad, for it reads the concept of a substitute so widely as to make it meaningless. Consider that, as household budgets are limited, dining out may decline as rents increase. That would not necessarily indicate that housing and restaurants are economic substitutes. Nonetheless, exactly how one might determine what counts as a substitute or partial substitute in attentional markets remains an interesting and open question.

One might try to ask, in some attentional version of the SSNIP, whether a small but significant and non-transitory increase in annoyance or degradation would lead users to switch to another product. For example, if one added a 5 second delay to Google search, would users switch to another search engine, or would they begin spending time on Facebook or Twitter instead? The answer to that question might give a more direct sense of what counts as an economic substitute.

IV. Implications for the Law

"I tremble for the sanity of a society that talks, on the level of abstract principle, of the precious integrity of the individual mind, and all the while, on the level of concrete

⁵⁶ Evans, *supra* note 33, at 12.

fact, forces the individual mind to spend a good part of every day under bombardment with whatever some crowd of promoters want to throw at it."⁵⁷

- Charles Black, 1953

So far, the legal and economic scholars who have been interested in attentional markets have been antitrust scholars, trademark professors, journalism scholars and others. We can begin by tracing some of the obvious implications for antitrust law, and then turn to consumer protection.

Antitrust

Contemporary antitrust analysis, no matter the area, depends heavily on the concept of market power, which in current practice relies heavily on market definition. In certain cases it may make sense to rely on attentional markets as opposed to money markets to understand the proper market definition in a given case.⁵⁸

It is too difficult to give any summary of when analysis of the attentional markets might be useful. However, given that attention brokers by their nature are involved in two-sided markets, and that market definition often proves challenging in that context,⁵⁹ in some cases an analysis of attentional markets may be of use.

We might consider, for example, a merger between two social media companies (for purposes of illustration, consider a retrospective Clayton Act challenge to the merger between Facebook and Instagram). Given that neither company seems to charge end-consumers for their products, traditional tools of market definition, like a SSNIP test, might be useless. It might therefore be more accurate to determine the market shares of the respective companies not in terms of dollars, but in terms of the total hours spent with each, as compared to the hours spent with social media in total.

⁵⁷ Charles L. Black, Jr., *He Cannot Choose But Hear: The Plight of the Captive Auditor*, 53 COLUM. L. REV. 960, 962 (1953).

⁵⁸ The Google antitrust investigation, as discussed above, yielded such examples of using the concept of attentional markets, particularly in the work by Evans, *supra* note 33.

⁵⁹ Lapo Filistrucchi, Damien Geradin, Eric van Damme, Pauline Affeldt, *Market definition in two-sided markets: Theory and practice* (TILEC Discussion Paper No. DP 2013-009, 2013).

This would rely on some analysis that defines social media as the relevant market, which would require some method of determining whether that is correct, subject to some of the challenges described earlier.

In a section 2 case, as described above, the challenging question of determining market power might sometimes be aided by assessing not whether a supracompetitive price can be charged, but whether the product could retain customers from competitors even if comparative degradation were introduced,⁶⁰ or perhaps, retain customers even given evidence of degradation.⁶¹

This discussion has been necessarily abstract. The usefulness of an attention-market driven analysis to market power or market definition would depend on the individual case. But it would not be surprising to see more such analysis used in the near future.

Consumer Protection

Turning back to the concept of attention as a resource, the economic analysis of resources typically focuses on depletion or overgrazing. It is interesting to ask whether such concepts make any sense with respect to attention. In some ways, perhaps not. Attention, like time, is constantly “spent,” but then renewed -- we don’t “run out” of attention. Moreover, a resource, by its nature, is privately directed, and therefore, assuming perfect control, is not prone to a classic tragedy of the commons.

But if attention itself is not subject to depletion, perhaps it is more accurately stated that it is attentional *control* that can be damaged or manipulated. Even under the best of conditions, we have less than perfect control over how we spend attention. The attentional industries, at their worst, do everything within their power to try and weaken conscious control over attention; one might spend hours randomly clicking on listicles or flipping through TV channels. This is possible because there are involuntary or non-consensual triggers of attention that can be employed to make

⁶⁰ This builds directly on the approach suggested by Picker, *supra* note 43.

⁶¹ See, e.g., Michael Luca, Tim Wu, Sebastian Couvidat, Daniel Frank & William Seltzer, *Does Google Content Degrade Google Search? Experimental Evidence* (Harvard Business School Working Paper Series, Working Paper No. 16-035, 2015).

attentional control difficult. In addition, we can be placed in environments where, as captive audiences, it is extremely hard to avoid paying some attention to things -- like the advertisements that play on airplanes, for example.

Seen in this light, it might be useful to understand that many laws and regulations, which are ostensibly regulation of noise, advertising, or other stimuli, are actually meant to help citizens conserve attention, or more accurately, exercise their own attentional decisions. A variety of laws, mostly local ordinances, can be understood as protective of human attention.

Most municipalities have regimes that govern excessive noise, some of which are quite complex. For example, the Los Angeles Municipal Code has a “Noise Regulation” section in the Los Angeles Municipal Code that prohibits “unnecessary, excessive and annoying noises from all sources.”⁶² The city has enacted complex regulations that, for example, require miniature golf operators to post signs “Requesting patrons to refrain from unnecessary noise.”⁶³ New York City, surely one of the noisier cities in the world, has a complex set of noise regulations, many of which are not fully enforced, such as a ban on honking in situations other than in response to actual dangers. New York City's rules also ban some types of car alarms. In 2004, New York City's city council passed a more comprehensive ban on the sale of car alarms, but the measure was vetoed by then Mayor Michael Bloomberg.

Some cities have experimented with outright bans or restrictions on outdoor advertising. The first city to take such action was probably Paris, which, in the late 19th century, created rules that barred posters on many city surfaces. More recently, in 2007, the mayor of Sao Paulo enacted among the most sweeping bans on outdoor billboards in the world. As the mayor said at the time, “It is hard in a city of 11 million people to find enough equipment and personnel to determine what is and isn't legal, so we have decided to go all the way.” The law permitted shopkeepers to keep signs, but required reductions in sign size. Some American cities regulate billboards, and many ban digital billboards – billboards that change shape and sometimes flash in order to gain attention.

⁶² L.A., Cal., Mun. Code ch. 11.

⁶³ *See id.* § 41.44(c).

Along interstates, such billboards were banned under the Highway Beautification Act of 1965.

These various laws are usually based on aesthetic reasons, or occasionally for public health or safety reasons, or simply because people want the laws. As a policy matter it is understandable to rely on such rationales. But they might be better and more deeply justified as means for protecting attention autonomy -- preserving the ability of individuals to control how they spend their attention. And there is reason to think that there are underlying values in these ordinances that will be of importance to controversies in our present and future. In particular, as the industries that depend on attention have both crossed into what were purely private or social spaces, and come closer to the human body through wearable computing, the stakes become higher, and the importance of attentional autonomy grows.