

Knowledge Flat-talk:

A Conceit of Supposed Experts and a Seduction to All

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Abstract: Articulate knowledge entails the triad: information, interpretation, and judgment. Information is the reading of the facts through a working interpretation. Much of modern political economy has miscarried by discoursing as though interpretation were symmetric and final. This move has the effect of *flattening knowledge down to information* – here dubbed “knowledge flat-talk.” Economic prosperity depends greatly on discovery, but discovery is often a transcending of the working interpretation, not merely the acquisition of new information. Models typically assume that the modeler’s working interpretation is common knowledge. But often the sets of relevant knowledge of the relevant actors do not approximate the common knowledge assumption. We need better understanding and appreciation of asymmetric interpretation and its dynamics.

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About 1917 the eminent English economist Alfred Marshall wrote the following words intended for publication:

But the more I studied economic science, the smaller appeared the knowledge which I had of it, in proportion to the knowledge that I needed; and now, at the end of nearly half a century of almost exclusive study of it, I am conscious of more ignorance of it than I was at the beginning of the study. (Marshall, quoted in Keynes 1951, 138)

Marshall tossed the sheet with those words into the waste-paper basket, where it was retrieved by Mrs. Marshall but remained unpublished. Perhaps Marshall had the impulse to confess his ignorance of “economic science” as a way of highlighting something central to economic wisdom, but lost his nerve.

Friedrich Hayek famously spoke of the division of knowledge, or dispersed knowledge, or diffused knowledge. But even these expressions may not go far enough. Knowledge is not merely divided, like a sandwich cut down the middle, or dispersed, like a crowd formerly amassed. Hayek’s talk of knowledge was unfortunate in a way, for it allowed some to see the matter as one merely of asymmetric information. Like a jigsaw puzzle, the knowledge is out there, but the pieces are scattered around. Beyond the adjectives “divided,” “dispersed,” and “diffuse,” we need *disjoint*. People perceive and pursue their own overlapping jigsaw puzzles, and it is only in a very vague and abstract way that we may talk about all the jigsaw puzzles as a vast concatenation, and judge of its merits. A full appreciation of Hayek’s oeuvre makes it altogether natural and proper to see Hayek as an expositor of knowledge’s richness. In his talk of the division of knowledge, he was all along driving at deeper insights—not merely about articulate knowledge, but tacit knowledge, not merely about asymmetric information but

asymmetric interpretation—but he did not always highlight the deeper dimensions of knowledge.

Michael Polanyi (1962, 1967) explained that knowing how to ride a bicycle, “know how,” is highly inarticulate or tacit, even inarticulable; it hardly merits the designation “information.” Meanwhile, articulate knowledge—“knowledge that”—is often designated as “information.” Polanyi explained that articulate knowledge resides in and emerges from tacit knowledge.

This paper does not focus on subterranean, inarticulate knowledge. It works primarily within realms of articulate knowledge. It criticizes certain ways of talking about such knowledge and suggests a richer formulation, one that makes us more mindful of the tacit. Here, I usually drop the “articulate” when I speak of articulate knowledge.

Knowledge as Entailing Information, Interpretation, and Judgment

In treating of knowledge, my approach is not foundational, but pragmatist, contextual, formulated in terms of levels of frame within which “we” are situated and our discourse embedded. In communicating, we generally proceed from some working interpretation of matters. “Information” is what we call the facts as seen within the working interpretation. Meanwhile, the “facts” reside in a more basic interpretive frame, in which “factual” statements are presumed acceptable to all parties of the communication. When Jane and Amy “argue over the facts,” they are, as it were, revisiting what they propose to treat as factual for the purposes of the conversation. If the argument is unresolved, Jane may be deciding that she and Amy are not a “we,” and may

instead be drawing a circle of “we” with some of the auditors to her exchange with Amy, a circle that does not quite include Amy. (However, although the facts remain unresolved between Jane and Amy, there is always the possibility that Amy will later reconsider matters and imaginatively enter the circle that Jane draws.)

Consider a situation in which we have no trouble agreeing to “we”-ness in our apprehension of the “facts.” Suppose we sit down together with a telephone book. We call the ink markings on the page “the facts.” Neither of us thinks to dispute statements about the printed patterns on the pages. We then proceed to talk plainly of them as *phone numbers*. This working lens—interpreting the facts as phone numbers—is often forgotten because we see through it. But one of us may propose another interpretation—could the list of “phone numbers” contain secret knowledge encoded by spies?

Thus we have multiple interpretations of the ink markings or the “phone numbers.” Those quotation marks make it mean: What the facts are called when they are seen through the working interpretation. But quotation marks can be terribly distracting and confusing, and we often just omit the quotation marks. Likewise we often just speak of *multiple interpretations of the information* (as opposed to multiple interpretations of the facts). Rather than interpretively pivoting off the “fact”-level interpretation—that the line reads 678-3554—I formulate things so as to interpretively pivot off what I have called “the working interpretation”—678-3554 is a phone number—a level *up* from the factual, and there the pivot turns: “Maybe the phone number is a secret encoded message?” This works because I build universal acceptance among the “we” into “the facts.” That is, by construction, at the factual level no pivoting is necessary—none of us

disputes that the line says 678-3554. Put differently, wherever you want to accommodate interpretive pivoting, move “factual” to somewhere down from there.

The following figure follows Ludwig Wittengenstein’s discussion of a duck-rabbit illustration in his *Philosophical Investigations*:



Figure 1: Duck-rabbit illustration (Gombrich 1960, 195)

Working within the duck interpretation, we could cover up some of the pixels. Maybe you see only the “beak” and I see only the “back” of the head – asymmetric information. But beyond issues of information there is another interpretation: Maybe what we need to see is not exposure to all the pixels, but the other interpretation of them: that they represent a rabbit.

The illustration has two notable interpretations. But in human affairs, things evolve and there is usually opportunity for further and better interpretation. Michael Polanyi (1963) noted the “peculiar opportunity offered by explicit knowledge for reflecting on it critically” (15). Interpretations evolve in dialectical fashion, each advance giving rise to further advance. New interpretations just keep coming.

Meanwhile, life rolls on. The pitch races toward the plate. If the batter waits for a better interpretation he may be called out on strikes. The action facet of knowledge is *judgment*, our taking stock in an interpretation by acting on it—though this “action” may be the act of *deciding* and not involve much muscular activity.

As speaker, we judge of judgments—those of both our interlocutors and of agents existing within the descriptions we give of things. We convey our judgments of their judgments using judgmental terms. Favorable, approving terms, or commendations, include “true,” “unbiased,” “right,” “better,” “superior,” “wise,” “good,” “enlightened,” and so on. Unfavorable, disapproving terms, or pejoratives, include “untrue,” “biased,” “wrong,” “worse,” “inferior,” “unwise,” “bad,” “unenlightened,” and so on.

Articulate knowledge, then, is more than information: it is also interpretation and judgment.

Common Knowledge

Theorists, with their descriptions of things, often make a particular move so as to ensure that interpretation is final and symmetric, a move that also makes it common to the agents existing within the description. The move is to assume that the working interpretation, or at least critical parts of it, is *common knowledge* (Lewis 1969, 52f; Chwe 2001).

When teaching a course in game theory, in a classroom of students seated in an inward-looking circle, I demonstrated the idea by holding up a large blue marker and announcing: “I am holding up a blue marker.” It then was common knowledge that I had held up a blue marker.

What made it common knowledge was not that everyone knew I had held up a marker, but also that everyone knew that everyone knew, and everyone knew that everyone knew that everyone knew, and so on. That which is common knowledge might

be a condition of asymmetric information. When we play poker, it is common knowledge that we look at our own hand and not at one another's.

Game theory and economic equilibrium models generally assume that the conditions of the model are common knowledge to the agents within the model.¹ That is mainly how equilibrium model-building goes in professional economics. Information may not be symmetric—I don't see your cards—but interpretation is.

But maybe the common knowledge assumption is misplaced. Market participants are not like subjects gathered in an inward-looking circle. If the economy is a cosmos of disjoint knowledge, involving asymmetric interpretations, maybe a vocabulary and idiom rooted in common-knowledge precepts and instincts will miss important facets of the problem.

Flattening Knowledge Down to Information

Suppose we are discussing some matter, and working from a common frame of understanding. Now suppose that someone brings a new and seemingly better interpretation to a matter, transcending our working frame. It may be true that the categories of the previous frame can be recoded according to the scheme of the new frame. Thus, one array of information is transformed into a new array of information. But it is pernicious to proceed in a fashion that suppresses an awareness of the pervasive

¹ Here are quotations from some game theory textbooks: "Game theorists usually assume that the rules of the game and the preferences of the players are common knowledge" (Binmore 1992, 150); "For clarity, models are set up so that information partitions are common knowledge ... Making the information partitions common knowledge is important for clear modeling..." (Rasmusen 1989, 51); "in this book, complete information games are restricted to games in which complete information is common knowledge" (Friedman 1986, 11).

potentiality of interpretive transcendence, and of the dialectics of interpretational evolution.

Israel Kirzner has argued that entrepreneurial discovery is often a matter of seeing the rabbit when everyone else only sees the duck. It may be that opportunity is discovered not because the one making a discovery acquired new information, but because she apprehended a new interpretation.

An example of suppressing this deeper dimension of knowledge is found in an extremely negative review of Kirzner's book, *Competition and Entrepreneurship* (1973) by Benjamin Klein (1975): "although the problem of decentralized co-ordination of economic activity in an environment of transaction and information costs is complicated, there is certainly no reason why maximization techniques cannot and should not be used ... We just must assume a richer informational background under which individual maximizing decisions take place" (1307-08).

Much of professional economics has made it a point of honor to flatten knowledge down to information—here dubbed "flat-talk." The suppressive attitude is the following:

"Your pet terms like 'interpretation' and 'judgment,' your distinctions between decision and choice, between knowledge and information, between motivation and incentive, your notion of 'error,' do not really amount to anything, for any time someone brings a new true interpretation to a matter, we then make it scientific by recoding as necessary to bring it all into a system of information, probabilities, search costs, and optimization."

George Stigler, in particular, insisted on seeing all behavior as maximization and all knowledge as information; he insisted that the concept of “error” could have no place in economic theorizing (Stigler 1976). Since interpretation was effectively symmetric and final, economists were silly when they proposed to influence political tastes (Stigler 1982). He even chided Adam Smith for violating these organons (Stigler 1971). Part and parcel, he lent a hand in the subversion of the proper understanding of liberty (Stigler 1978).

Flat-talk Subverts Liberalism

George Stigler and Benjamin Klein generally favored freedom of enterprise, but the strictures they practiced and promulgated are wrongheaded and unhealthy to liberty. The flat-talk gives the false sense that the theorist has or can have some composite master interpretation of things that subsumes the interpretations, present and future, of those within the system. Flat-talk is self-flattering, a hubris common in self-styled scientists and do-gooders. It also plays well with deep-seated yearnings for a sense of common knowledge and common experience, a universal human weakness. Intellectuals and politicians themselves are prey to this weakness, but also, consciously or unconsciously, they exploit it in their publics. Hayek wrote of a concurrence between the intellectuals’ pretense of knowledge and certain primordial instincts of humans generally, a sort of tacit alliance against the enlightened norms and sensibilities of liberal civilization (Hayek 1976; 1978; 1979, 153-76; 1988). I take his and Adam Smith’s view to be that liberal

civilization should be a sort of project in teaching all to subdue and redirect certain primordial yearnings and penchants so as accept voluntarism as a basic operating system, and to learn to accept, or make natural, its otherwise startling and upsetting commotions and seeming enormities. More than anyone else, Adam Smith morally authorized voluntarism and its commotions, and that authorization probably figured significantly in the wealth explosion starting right about the time of Smith's death in 1790.²

An interpretation is “right” only in the sense that it is better than the relevant alternative. It isn't “right” in the sense of final or definitive. Once the government starts acting on an interpretation, it tends to become ossified. Every interpretation spurs its own transcendence and superseding. Even if the government does seize on a pretty good interpretation of what's going on “now,” it is likely to cling to it long after it should have been superseded. Moreover, governmentalization of interpretation tends to regiment social affairs and repress the evolution of interpretation. Rather than fitting interpretations to the world, it tries to fit the world to its interpretations. It tries to legislate interpretation—sometimes seeking to impose what Roger Koppl (2009) calls epistemic monopoly. If our expert understanding of things isn't common knowledge, well, we will see to it that it becomes common knowledge.

I should add, however, that even government operatives often don't really believe in and act according to official interpretations. The crumminess of government interpretation gives rise to all manner of interpretational falsification, dissonance, and confusion. By nature, government is Orwellian, and we should thank heaven for cynicism and enlightened corruption.

² Deirdre McCloskey (2009) expounds they view that the industrial revolution happened where and when it did because in large part of the cultural and rhetorical changes that expressed social approval to the pursuit of honest profit.

The renowned economist Kenneth Arrow is a knowledge flattener and man of the left. As shown by the petitions he signs, Arrow regularly supports interventionist causes. Speaking of his upbringing, Arrow writes, “my family was politically and social liberal,” and he describes himself as a youth as a “socialist sympathizer” (Arrow 1992, 43, 44). A left-leaning family upbringing is common to many similar Nobel economists, including Paul Samuelson, Robert Solow, Joseph Stiglitz, George Akerlof, and Paul Krugman.³

In a technical paper Arrow writes:

In this chapter I want to survey some aspects of the effects of information on the markets for contingent goods, by means of a toy example studied under different informational assumptions. ... ¶ First, some definitions. By “information,” I mean any observation which effectively changes probabilities according to the principles of conditional probability. The prior probabilities are defined for all events, an event being described by statements about both the variables that are relevant to the individual welfare and those that define the range of possible observations. Given an observation, there is a conditional or posterior distribution of possible values of the welfare-relevant variables. (Arrow 1984, 199)

In the “toy example,” information means an observation that changes probabilities over a set of variables that matter. It all exists within a predetermined scheme neatly set out by the toy builder.

You might think that toy builders know the difference between toys and human society. And surely they do. But, still, I believe that they fall back onto their mastery of toys, often their only claim to expertise, when treating of human society.

I edit a journal called *Econ Journal Watch*, and, to get people talking about the distinction between knowledge and information, I invited scholars to write essays on the

³ I have named six American left-leaning Nobel economists of Jewish background. I wonder if there is some significance in the idea that American Jewish leftist intellectuals have often looked to enter and ascend American officialdom and cultural governance as a way of making himself American, of overcoming his “other-ness” as a Jew. But such would be only a particularistic manifestation of the more general conjectures about statism among intellectuals.

distinction (the symposium appeared in the April 2005 issue of the journal). I invited Arrow to participate. He replied in a letter published online with his permission:

Thank you for the invitation to participate in a symposium on the distinction between knowledge and information. I am afraid the topic does not inspire me. In my old-fashioned positivism, concepts have meaning only in the context of a model (which may be very general), and I can't think of one which will accommodate this distinction. Of course, there are many kinds of information and different modes of transmission and apprehension, e.g., tacit vs. coded knowledge (which is a very important distinction). (Arrow 2003)

I am inclined to concur that no model will well accommodate the distinction between knowledge and information, but what of the claim that “concepts have meaning only in the context of a model”? Is this itself a concept? If so, has this concept been couched within the context of a model? In the letter, Arrow does not provide a model, nor refer to one in the literature. I wonder what such a model would look like—that is, a model expousing the concept that a concept has meaning only in the context of a model.

If Arrow would concede that there is no model contextualizing the claim, will he admit that his belief that “concepts have meaning only in the context of a model” is without meaning? If he does admit that, why does he make the claim? Why set down a string of words that is meaningless?

Perhaps Arrow would object to my identifying the statement “concepts have meaning only in the context of a model” as a concept. Perhaps he would say it is not a concept, but rather merely a notion, idea, or belief. But then I may reply: A distinction between knowledge and information is a notion, idea, or belief.

Notice that Arrow affirms a “distinction” between tacit and coded knowledge—has he got a model for that?

And notice how he switches from “information” to “knowledge.” If there is no distinction between information and knowledge, why vary terms?

It seems that he and I are both practicing discourse beyond models. But Arrow declined to join the conversation. He added: “I realize you have asked for a weekend’s reflection, but my general view is that it is easier to write a 25-page paper replete with formulas and footnotes than an expressive 5 pages.”

Arrow knows that information is asymmetric—that is one reason markets fail. Does he claim that the government can acquire the information? He once wrote:

It will be necessary to increase the intensity of observation. Along the lines of the investment surveys of the Securities and Exchange Commission, it may well be possible to find out by direct interrogation to what extent investment and consumption projects have been curtailed by the interest rate changes. (Arrow 1984, 51)

This kind of thinking helped to inspire Sarbanes-Oxley.

But Arrow’s chief error is not his confidence in government interrogation. He writes about government’s inability to acquire information (Arrow 1984, 159ff). Arrow’s error concerns the asymmetry of interpretation. Economics ought to teach us to subdue our yearning for common knowledge, a yearning both primordial and too often culturally inculcated. Rather than teaching to overcome it, economists like Arrow have been prey to it, and they have even worked to authorize it by promulgating a supposed science that gratifies it.

Their chief error is the one exposed by Smith and Hayek, the error of being too ready to believe that one knows well enough to intervene in a way that conduces to superior coordination in the vast concatenation. The classical liberal philosophy sees a nexus of verities that give strong presumption to liberty. Exceptions to liberty should be regarded as exceptional and bear the burden of proof. The liberal position is *not* that the powerful—rulers, politicians, and influential intellectuals—*never* know enough to intervene beneficially, but that they quite rarely do. Most of the interventions that we have gotten accustomed to do not meet the burden of proof. One reason that some intellectuals think otherwise is that they flatten knowledge down to information. They fail to admit the crumminess and arrogance of governmental interpretations, and the comparatively healthy interpretational dynamics of voluntary society – an open system of disjoint and open interpretations.

Think about deliberations of the Justice Department’s Anti-Trust Division, deciding whether a practice or merger is “anti-competitive.” In many ways the issue turns on interpretation: how we define the good or service, how we define the industry, how we define “anti-competitive,” what we count as “evidence,” and so on. Each of these matters depends on such things as how widely or narrowly we conceive the category—ball point pens, ink pens, writing implements, means of communication, and so on. Competition takes many forms; substitutes are everywhere. Every story of demand and supply depends, for example, on interpretations of hypothetical time-to-reaction (“long run” vs. “short-run”). Every thought experiment makes myriad assumptions about what happens (or doesn’t happen) in the meantime. The stories vary with the myriad interpretations. If you think that economists have anything like a standard for arriving at definitive

interpretations, definitive stories of “the X market,” much less a standard for estimating the parameters of such stories, you are gravely mistaken. In the end, “anti-competitive” may be nothing more than a loose, vague judgment that certain forms of government intervention would conduce to overall betterment. Official anti-trust reports, rulings, and documents have a strong Kafkaesque quality, as does much of the scholarly literature, authored by supposed experts. Life within realms heavily politicized is often Kafkaesque.

In the matter of advertising, consider how flat-talk may breed illiberal thinking. Two flat-talking economists, William S. Comanor and Thomas A. Wilson, wrote in their book *Advertising and Market Power* (1974):

If we could be assured that advertising provides no misinformation and thereby promotes consumer choices that are more in accord with those that would be made with full information, then we could argue that there is a positive gain to the consumer associated with his revised preferences. Although this may be the case in many circumstances, we cannot rule out the prospect that some forms of advertising lead consumers further away from choices based on full information. (Comanor and Wilson 1974, 250)

The authors write as though, for each new model car or brand of shave cream, there is a definitive set of qualities. When advertisements show some of these qualities, the consumer gets closer to “full information.” When it shows few qualities, appealing instead to extraneous associations and impulses, it is persuading rather than informing, and is wasteful. By departing from the true matrix of qualities, the advertisement might misinform.

But there is no definitive interpretation of the product and its qualities. The advertisement is providing interpretations and may be creating value. With their “full

information” talk, Comanor and Wilson mislead people about the economics of advertising.⁴

Fit to Judge?

In *The Wealth of Nations*, Adam Smith speaks of people being “fully informed.” The passage speaks volumes about his understanding of knowledge:

But though the interest of the labourer is strictly connected with that of the society, he is incapable either of comprehending that interest, or of understanding its connection with his own. His condition leaves him no time to receive the necessary information, and his education and habits are commonly such as to render him *unfit to judge even though he was fully informed*. (WN, 266, italics added)

Unfit to judge even though fully informed. But if one were fully informed, what could possibly make him unfit to judge? His education, his habits, says Smith. That is, his impoverished understanding of interpretations, his bad judgment.

The economist Donald Wittman assures us that the citizen is fit to judge. Practicing flat-talk, he assures us of democratic efficiency:

It would be foolish to argue that voters are perfectly informed about political markets. However, efficiency does not require perfectly informed voters any more than efficient economic markets require all stockholders to know the intimate workings of the firms in which they hold stock or all principals to perfectly monitor their agents. A voter needs to know little about the actions of his congressman in order to make intelligent choices in the election. It is sufficient for the voter to find a person or organization(s) with similar preferences

⁴ Cf. Hayek 1967.

and then ask advice on how to vote. For example, people who like to hunt are more likely to read the literature from the National Rifle Association than from an organization attempting to ban guns, and one can always ask advice from a more politically knowledgeable friend with similar tastes. Voters can also look at the list of campaign contributors (who typically make their campaign endorsements public) and infer the characteristics of the candidates' policies (pro or con). That is, interest group endorsements are like signals in the market and provide strong cues about candidates' preferences. Furthermore, competitors for public office need provide only the information when there are discrepancies between the voters' preferences and the political outcome, not all the unnecessary detail. (Wittman 1989; 1400-01)

Wittman expanded the argument into an influential book entitled *The Myth of Democratic Failure: Why Political Institutions Are Efficient* (1995).

Were interpretation common and final and reasonably enlightened—were the common knowledge assumption to hold—the argument would have considerable force. The voter would know his preferences, and he may look to those of “similar preferences” or “similar tastes” who are better informed. In this imaginary world, each of us knows wherein lay our well-being and we all have a final and satisfactory interpretation of how things work. We need not mind the “unnecessary detail,” for we leave the details to experts. They tell us which politician best advances our wellness, just as doctors tells us which medicine does.

The chief problem with Wittman's story is that, among us, interpretation is not common and final and reasonably enlightened. By instinct and by culture, people systematically take to unenlightened interpretations of how things work and what should be done—indeed, even of wisdom, of virtue, and of their own selfhood. In medicine, the system of expertise works pretty well, because the individual patient and the individual

doctor have strong individual motivations to come to more enlightened interpretations, making for healthy dialectics in medical knowledge. Wittman, Arrow, and others act out and promulgate an unsophisticated image of social doctoring that elides the matter of interpretational dialectics by presupposing a condition of common knowledge, of symmetric interpretation, and attributing it to officialdom—chosen by the people, led by politicians, advised by experts and university scientists—administering the great cooperative organization of the polity. It has a seductive appeal to intellectual and layman alike: Not only will we improve the coordination of affairs within this organization, we may all have a sense of shared experience and sentiment in our jointly doing so.⁵

Knowledge flat-talk creates a mirage of reducing the matter to information, search cost, probabilities, and incentives. It gives the illusion that political man is fit to judge, that governmentalization does not introduce great epistemic problems. It therefore subverts much of the basis for the call to degovernmentalize social affairs.

Meanwhile, in economic discourse, flat-talk keeps out the vocabulary of entrepreneurship, enterprise, discovery, insight, interpretation, and judgment. These rich words speak of comparative merits of freedom not well illuminated by the flat-talk. The defense of liberal verities is stronger when discovery, adventure, and the spirit of enterprise are accentuated. Such rich talk makes us mindful that articulate knowledge resides in tacit knowledge. As Don Lavoie (1985) showed, such mindfulness makes the value of freedom more persuasive.

⁵ Bryan Caplan (2006) offers an extensive and influential critique of Wittman. Caplan's critique is one that I basically embrace and applaud, but rather than calling the median voter's positions "wrongheaded," "foolish," "unwise," "unenlightened," (or even "ignorant"), he calls them "irrational," which I find unhelpful. Then, by juggling several definitions of "rationality" (including a tacit one: what Caplan thinks enlightened), Caplan goes on to call this "irrationality" "rational." Also, Caplan leads the reader to believe that the extent to which professional economists share his judgments is much greater than it really is. For my thoughts on Caplan, see Klein 2007; for an interesting four-part exchange between Caplan and Wittman, see Caplan (2005) and follow the links.

REFERENCES

- Arrow, Kenneth J. 1984. *The Economics of Information, Vol. 4 of the Collected Papers of Kenneth J. Arrow*. Cambridge, MA: Harvard Belknap.
- Arrow, Kenneth J. 1992. "I Know a Hawk from a Handsaw." Reprinted in *Eminent Economists: Their Life Philosophies*, pp. 42-50, ed. M. Szenberg. New York: Cambridge University Press.
- Arrow, Kenneth J. 2003. Letter to Daniel Klein. October 21. *Econ Journal Watch* 2(1). Published online at: www.aier.org/ejw/archive/symposium/doc_download/3666-ejw-200504
- Binmore, Ken. 1992. *Fun and Games: A Text on Game Theory*. Lexington, MA: D. C. Heath and Co.
- Caplan, Bryan. 2005. From Friedman to Wittman: The Transformation of Chicago Political Economy. *Econ Journal Watch* 2(1): 1-21. [Link](http://www.aier.org/ejw/archive/comments/doc_view/3553-ejw-200504?tmpl=component&format=raw)
http://www.aier.org/ejw/archive/comments/doc_view/3553-ejw-200504?tmpl=component&format=raw
- Caplan, Bryan. 2007. *The Myth of the Rational Voter: Why Democracies Choose Bad Policies*. Princeton: Princeton University Press.
- Chwe, Michael Suk-Young, 2001. *Rational Ritual: Culture, Coordination, and Common Knowledge*. Princeton: Princeton University Press.
- Comanor, William S. and Thomas A. Wilson. 1974. *Advertising and Market Power*. Cambridge, MA: Harvard University Press.
- Friedman, James W. 1986. *Game Theory with Applications to Economics*. NY: Oxford University Press.
- Gombrich, E.H. 1960. *Art and Illusion: A Study in the Psychology of Pictorial Representation*. New York: Pantheon Books.
- Hayek, Friedrich A. 1967. The Non Sequitur of the "Dependence Effect." First published 1961. Reprinted in Hayek's *Studies in Philosophy, Politics, and Economics*. Chicago: University of Chicago Press: 313-317.
- Hayek, Friedrich A. 1976. *Law, Legislation and Liberty, Vol. 2, The Mirage of Social Justice*. Chicago: University of Chicago Press.
- Hayek, Friedrich A. 1978. The Atavism of Social Justice. In *New Studies in Philosophy, Politics, Economics and the History of Ideas*, 57-68. University of Chicago Press, Chicago.
- Hayek, Friedrich A. 1979. *Law, Legislation and Liberty: Volume 3, The Political Order of a Free People*. Chicago: University of Chicago Press.

- Hayek, Friedrich A. 1988. *The Fatal Conceit: The Errors of Socialism*. Chicago: University of Chicago Press.
- Keynes, John Maynard. 1951. *Essays in Biography*. New edition. London: Rupert Hart-Davis.
- Kirzner, Israel M. 1973. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.
- Klein, Benjamin. 1975. Review of Kirzner's *Competition and Entrepreneurship*. *Journal of Political Economy*, 83, December, pp. 1305-09.
- Klein, Daniel B. 2007. The Myth of the Rational Voter: Towards a Future Edition – Remarks on Bryan Caplan. Unpub. Online: economics.gmu.edu/klein/Assets/Caplan_critique.doc
- Koppl, Roger. 2009. The Social Construction of Expertise. *Society* (forthcoming).
- Lavoie, Don. 1985. *National Economic Planning: What Is Left?* Cambridge, MA: Ballinger.
- Lewis, David K. 1969. *Convention; A Philosophical Study*. Cambridge: Harvard University Press.
- McCloskey, Deirdre N. 2009. Bourgeois Dignity and Liberty: Why Economics Can't Explain the Modern World. Unpublished book manuscript.
- Polanyi, Michael. 1962. *Personal Knowledge: Towards a Post-Critical Philosophy*. Chicago: University of Chicago Press.
- Polanyi, Michael. 1963. *The Study of Man*. Chicago: University of Chicago Press.
- Polanyi, Michael. 1967. *The Tacit Dimension*. New York: Doubleday & Co.
- Rasmusen, Eric. 1989. *Games and Information: An Introduction to Game Theory*. New York: Basil Blackwell.
- Wittman, Donald. 1989. "Why Democracies Produce Efficient Results," *Journal of Political Economy* 97 (6) (1989): 1395-1424.
- Wittman, Donald. 1995. *The Myth of Democratic Failure: Why Political Institutions Are Efficient*. Chicago: University of Chicago Press.