

Mere Style in Economics Journals, 1920 to the Present

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Lying to oneself about oneself, deceiving yourself about the pretense in your own state of will, must have a harmful effect on style, for the result will be that you cannot tell what is genuine in the style and what is false . . . If you are unwilling to know who you are, your writing is a form of deceit.
[Wittgenstein]¹

Economists do not Realize that Writing is Literary

Economists talking about journals over a drink at the café often sound like they do not know what they are talking about. When talking about the markets for tractors or U.S. government bonds the economists have an adequate vocabulary and grammar. But when talking about literary matters — after all, an article in a journal is a literary matter — they do not have the words to speak. The stories they tell each other about how journals work are unpersuasive.

As a small instance, economists will overstate the importance of the editorship of a journal. Former editors of the *Review of Economic Studies* and the *Journal of Economic History* have testified, as most would, that they were constrained by submissions. The reputation of a journal is a distributed lag of its performance in the past, very past. Only régime changes, such as those that take place when a journal is founded *de novo*, can much affect the character of the article flow. The founding of the journal *Economics and Philosophy* (April 1985), to take a recent example, probably stimulated the submission and even the writing of philosophical articles about economics. More usually an editor is constrained by what she receives in the mail; and what she receives this year will be similar to what she received five years ago.

And yet economists discuss who “gets” the editorship of the *American Economic Review*, say, as an important issue and will talk

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¹ Ludwig Wittgenstein, quoted in A.C. Donato's review of Ray Monk, *Ludwig Wittgenstein: The Duty of Genius*, in *The Times Literary Supplement*, October 19-25, 1990, p. 1115.

about it between drinks. Their talk will use uninstructed literary criticism, assuming for example that the model of editorship prevalent in literary circles is relevant for economics. If H.L. Mencken had a big effect on American literature through *The American Mercury* in the 1920s, then Robert Clower is supposed to have had a similar influence on American economics during the 1980s. Clower would no doubt be amused at such a claim. Realistically, the modern article in economics is a literary type so thoroughly articulated by so many people in so many countries that Clower might as well have tried to alter the form of the Petrarchan sonnet.

The sociology or philosophy of science that economists bring to bear in thinking about their journals is also uninstructed. It is no more persuasive than their uninstructed literary criticism. To pick two such stylized tales, a journal is not a place of raw political power; nor is it a place where scientific hypotheses are subjected to decisive test. It is a place where economists argue. They argue in beautiful figures in words or in mathematics or in statistics. Perhaps the vocabulary and grammar of literary criticism should be used to think about their journals².

The Main Change in Journal Style Has Been the Rise of the Scientific Persona

A good literary word, for example, is "ethos", which in Greek means "character" (Latin *persona*) and has meant over the 2500-year history of rhetoric the character that a speaker claims in his speech. The modern literary term corresponding to it is "implied author". An author creates an implied author more or less different from his literal self. Dante the character in *La Divina Commedia* was more pious than the literal Dante Alighieri, and found himself, as the real Dante did not, in the middle of his path of life in a dark forest where the direct road was lost. As Mark Perlman has it, Irving Fisher "created expectations in the reader, a contract as in a bridge game, and completed it". On the other hand, John Bates Clark (in Perlman's account) created an ethos he could not fulfill.

Consider the implied authors created by these opening lines in the *American Economic Review's* issue of March 1989:

² Charles Bazerman has pioneered such studies in physics and Willie Henderson, Tony Dudley-Evans, and Ann Hewings in economics. See the list of works cited.

"Two decades of research have failed to produce professional consensus on the contribution of federal government civil rights activity to the economic progress of black Americans" (p. 138, Heckman and Payner):

Policy-oriented, precise (the nominal phrase of "federal government civil rights activity"), aware of the longer trends in scholarship, scholarly (Latinate vocabulary), dignified, yet decisive, men who will succeed where others have "failed".

"After a period of intensive study of optimal indirect taxation, there has been a renewed interest in recent years in the problem of optimal income taxation, with particular emphasis on capital income taxation and economic growth" (p. 106, Howitt and Sinn):

Modest (contrast the ringing "Two decades of research have failed" above or the unconscious arrogance of "Consider... the setting" below), concerned to fill gaps rather than assault once more the great questions of the age, academic rather than political ("renewed interest", as there might be renewed interest in the satellites of Jupiter), but again Latinate in vocabulary, an American academic writer.

"Consider the following stylized setting" (p. 69, Lewis and Sapington):

Mathematical, fashionable, uninterested in empirical work, unaware of how funny the first sentence sounds to most economists.

"There is good reason to think that the market for single-family homes ought to be less efficient than are capital markets" (p. 125, Case and Shiller):

Candid, direct, practical, a better writer than "After a period of intensive study", interested in explaining an empirical phenomenon, fully aware of financial theory.

The reader has to be an economist for the sentences to have these effects, just as the listener must have been a fourth-century Athenian for Demosthenes' appeals to ethos to have their effects. The writer of course need not be aware of every effect his writing has on the audience, no more than a poet need be.

The notion of ethos or implied author can be applied to the history of journals over the past seventy years. The main result is this: the implied author of journal articles in economics has changed from The Scholar to The Scientist.

The distinction, by the way, is clearer in English than in any other language, and so it is not surprising to find English-language journals in economics carrying it out most thoroughly. English speakers over the past century and a half have used "Science" in a peculiar way, as in British academic usage — arts and Sciences, the "arts" of literature and philosophy as against the "Sciences" of chemistry and geology. A historical geologist in English is a Scientist; a political historian is not. The usage would puzzle an Italian mother boasting of her studious son, *mio scienziato*, my learned one. She does not mean that he is a physicist. Italian uses the science word to mean simply "systematic inquiry" (as does French, German, Dutch, Spanish, Swedish, Polish, Hungarian, Finnish, Turkish, Korean, Hindi, and Tamil). Thus French has its *sciences humaines* consisting of literature and philosophy. German has its *Altertumswissenschaft*, which could not be translated into English as "classical science". As Richard Whitley points out, the very organization of the sciences in Europe came from that of theological studies in early 19th-century Germany.

The Italian half of the big *Cambridge Italian Dictionary* warns of English "scientific" that "*nell'uso comune non si riferisce ai principi filosofici classici*": that is, in the common English use, by contrast with Italian, the "science" word excludes knowledge earned beyond the laboratory. Only English, and only the English of the past century, has made physical and biological Science (definition 5b in the old *Oxford English Dictionary*, the first quotation in use being from 1867) into, as the *Supplement* and the new Oxford describes it, "the dominant sense in ordinary use". Elsewhere the word means, "something other than casual journalism". The pre-19th-century and non-English sense is found for instance in Samuel Johnson: "Of Fort George I shall not attempt to give any account. I cannot delineate it *scientifically*, and a *loose and popular description* is of use only when the imagination is to be amused" (1775 [1984], p. 50; italics supplied).

To see that style has changed one must examine the subjects studied in a typical journal and how they have changed. The style of empirical work in economics differs from the style of theoretical work. The one now takes its style from science (defined as in English) and the other from mathematics. A shift in composition, such as is often claimed by economists unhappy with the state of modern economics, would affect "the" style of journals over time.

To take a typical case, in the August 1989 issue of the *American Journal of Agricultural Economics* there are 24 articles. Of these, 15

adhere to the modern received outline of formal model followed by a serious empirical implementation, especially regression analysis. Four of the 24 have no formal model yet engage in serious empirical inquiry (all four of these also use regression analysis). One other is a review article. Only two of the 24 have a formal model without any gesture at empirical implementation and only two more have a formal model with merely illustrative implementation, directed at the new method proposed rather than a problem in the world.

The ratio of articles with serious empirical work to articles with a merely theoretical purpose is typical of the applied fields, such as labor economics or economic history. But of course the ratio is well above 4 out of 24 in the so-called general-interest journals of economics. Wassily Leontief recently calculated that over 50 percent of the articles in the general journals of economics and sociology were theoretical. The figure in physics and chemistry, the very models of science, was 10 percent.

Compare the 1989 issue with the *Journal of Farm Economics* (as it was called before 1968) in 1929, sixty years before. Viewed superficially, the 10 articles in the January issue of 1929 hardly overlap at all in type with those of 1989. Only one article is a formal modeling and simulation of behavior, another is a piece of empirical accounting. There are five articles offering policy assessments and proposals, with an accounting framework. There is one outlook piece, one institutional description, and one extended appeal for more fact-collecting. Only the four non-modeling articles out of the 24 in 1989 look much like any of the articles 60 years before.

Most of the 1929 articles, however, use quantitative thinking. It is false to say that the style of argument in economics has become more quantitative over the past sixty years. Counting, after all, has been the ethos of the economists and calculators since the beginnings in political arithmetic three centuries ago. Indeed, what is apparent in 1929 is something hidden in 1989, although it is there to be seen if you look hard enough: namely, that economics depends for much of its arguments on accounting (cf. Andvig; Klammer and McCloskey 1989). Accounting is the master metaphor of economics, determining most of its quantitative findings. It is an accounting decision, for example, to value family labor on farms at market prices. The decision alters radically how we view the efficiency of family farming. To take a fancier topic, it is an accounting decision to view future interest on the national debt as offset by future taxes. It is an accounting decision to include savings in national income (against Irving Fisher's opinion).

The most striking change in method down at the practical level is of course that the empirical work in 1989 uses regression analysis. This is a little peculiar. When economists make policy arguments they use accounting, as I just said, together with simulation — all the way from back-of-the-envelope calculations of elasticities to formal simulations on computers. But when they seek the facts of the world they pretend that only the “experiments” suitable to regression analysis are appropriate. I once had a graduate student who thought that the very word “empirical” meant “regression analysis on someone else’s data”. Regression analysis seems to have a tighter hold on the empirical imagination in agricultural economics than it has in other applied fields, probably because of the agronomical origins of the statistics. R.A. Fisher, who named most of them, worked at an agricultural experiment station.

The regression analysis, though, as much as agricultural economists love, honor, and obey it, is a detail of method. A deeper content analysis of the articles in 1929 and 1989 would show them to be more similar than the listing of non-overlapping types suggests. Agricultural economics is still concerned at bottom with how farmers behave and whether their behavior is good for them or for anybody else.

A similar comparison can be made between the year’s crop of the *American Economic Review* in 1929 and 1989. Of the 22 full articles in 1929, 10 were theoretical (including accounting and statistical theory) and 10 were institutional or historical (the history being strictly institutional, not cliometric). The ratio of theory, defined as explorations of models without serious tests against the world, is not much different in 1989: 16 out of 39 (compare Leontief’s 50 percent over a longer period).

Only two of the articles in the *Review* of 1929 would seem modern to a modern reader: an impassioned theoretical and empirical defense of $MV = PT$ by Arthur Burns (it happens that Milton Friedman was an undergraduate student of his at the time) and a thorough statistical study by one H. La Rue Frain about the uniformity of wages from firm to firm. These combine theory and statistics in the manner of the 22 out of 39 articles that one would call “empirical” in the 1989 volume of the *Review* [issues 1, 4, and 5 only]. The same social role in the economics of the 1920s was played by institutional and historical articles. It is false to say, in short, that economics has become “more theoretical” since the 1920s, unless “theory” is defined to be “certain techniques in optimal control theory borrowed from electrical engineering”.

Yet the implied author of the articles changed in sixty years. The big change was the rise of the scientific ethos. The theoretical articles of the 1920s took the philosopher as their model; the empirical articles took the historian; in English, “the scholar”. The implied author of the recent theoretical article is the mathematician, with his theorems and proofs. The implied author of the recent empirical article is a bench scientist, with his controlled experiments (in the guise of regressions) and his applications to policy. In English: The Scientist.

The big difference between 1929 and 1989, in other words, is philosophical. The push for “testable hypotheses”, for example, is palpable. Just below the surface in 1989 lies a commitment to a model of scientific method current in philosophical circles around 1950. Economists think that what they do is similar to what physicists do. Actually, economists know little about how physics operates as a field. An article in the magazine *Science* in the fall of 1989 told how the physicists at the new Santa Fe Institute were amazed at what the economists there consider to be science. The economists think that *Science* involves mathematical proofs of theories and then the equivalent of econometric tests. In truth the physicists care little about mathematical proofs; even the theoreticians in physics spend most of their time reading the physical equivalent of agricultural economists or economic historians. They explain phenomena.

The rise of the scientific ethos is most apparent in the past thirty years. Comparing the *Journal of Finance* in 1960 and 1989 and the *Journal of Financial Economics* in 1975 and 1990, there were increases in the number of joint authors (by 1989-90 multiple authorships were in the majority, as they were in the *American Economic Review*), in mathematical complexity within the text, in mathematical appendixes, and in references, and a very large increase in statistical analysis of data; there were decreases in the number of non-academic authors (from 40 percent to nil). All these are characteristics of a maturing Scientific field. The percentage of wholly theoretical articles in the *Journal of Financial Economics* declined, though not below the 50 percent characteristic of the leading economics journals.

Tony Dudley-Evans and Willie Henderson give a longer perspective on the rise of the scientific ethos. One of the four articles from the *Economic Journal* they studied intensively for stylistic features was “Taxation Through Monopoly” by C.F. Bastable, 1891. The article “strikes one immediately as having been written for a highly educated reader [the implied reader] who happens also to be interested in

economic matters" [1987, p. 7]. And Bastable, they note, "frequently uses 'and', 'but' and 'again' in initial position" (an ornament in modern English). Again, he uses in initial position "elegant adverbial phrases", such as "So much is this the case" or "Alike in classical and medieval times" [p. 8]. Alike in his scientific and his journalistic work, "Bastable based his writing not upon shared technical knowledge but on a shared understanding of an educated culture more widely defined" [p. 15].

Jargon Supports the Scientific Ethos

The literary character of the scientific article is easiest to analyze at the level of words. The journals became more professional in part by encouraging the growth of a technical vocabulary. No tests are necessary. The implied *reader* of an economics journal has changed to support the claim of Scientific standing for the implied *author*. The percentage of terms that a non-professional reader could understand has fallen steadily in economic journals since the 1920s.

It might be called the "blub-blub" effect, the "blub-blubs" being the words that only people socialized within the community of economics can understand. An interesting example of the rhetorical use of implied readers and authors is an essay in historical economics by Stephen Nicholas in 1982 in the *Economic History Review*. The implied (and actual) readers of the *Review* are not technically trained economists. Most of Nicholas' article is lucid prose accessible to such a readership. But then he changes the implied reader to make a point. By the mere statement of the "assumptions" said to underlie the "neoclassical" calculation of total factor productivity change Nicholas sows doubt in the minds of all the historians and many of the economists looking on. He undertakes to "explain" the calculation as follows: "it is assumed [note the style borrowed suddenly from mathematics, after a long time in the persona of the historian] that the economic unit is a profit maximizer, subject to a linear homogeneous production function and operating in perfectly competitive product and factor markets. Given these limiting assumptions, the marginal productivity theory of distribution equates marginal products to factor rewards. It follows by Euler's theorem . . ." etc., etc. [p. 86].

To most of his readers he might as well have written "*it is assumed that the blub-blub is a blub maximizer, blub-blub blub-blub-blub and blub in perfectly blub and blub blub. Given these limiting assumptions,*

the blub blub blub blub blub blub blub. *It follows by blub blub . . .*". The audience that can understand the argument is the audience of people who already understand it, leaving one to ponder why the argument was necessary. The people who do not understand it gain only the impression that "limiting assumptions" are somehow involved. The rhetorical form of the passage is explanation; its effect in the pages of the *Economic History Review* is to terrify the onlookers, convincing them that the "neoclassical" analysis makes all manner of strange assumptions.

A non-economist could pick up the *American Economic Review* or the *Economic Journal* in the 1920s and read it. He would read it not without effort and not without boredom, of course, and one must not exaggerate the access. Economics in the 1920s had already a long-running conversation, with speech habits of its own, as professional diplomacy or professional burglary have. Yet the style of Keynes' journalistic article of 1924, "Foreign Investment and National Advantage in the *Nation and Athenaeum*", was not far from that in his academic writing. In 1923 Virginia Woolf remarked to her diary that "Maynard is grown very gross & stout . . . [b]ut his eyes are remarkable, & as I truly said when he gave me some pages of his new book [*A Treatise on Monetary Reform*] to read, the process of mind there displayed is as far ahead of me as Shakespeare's"³. By contrast, nowadays it would be hard to imagine a literary friend of Robert Lucas being able to read even a few pages of his latest book, much less to assess the quality of mind displayed there. The speech community has of course changed, becoming more specialized.

Secret codes depend on a translation being easier in one direction than another. A reader finds it harder to translate abstractions down into concrete examples than to translate examples up into abstract principles. The translation is hard even for professional mathematicians. The set theorist Paul Halmos said: "The author had to code his thought in [symbols] (*I deny that anybody thinks in [such] terms*), and the reader has to decode" [p. 38, italics mine]. Stanislaw Ulam, with many other eminent mathematicians, complains of the raising of the symbolic ante in recent years: "I am turned off when I see only formulas and symbols, and little text. It is too laborious for me to look at such pages not knowing what to concentrate on" [1976, p. 275 f].

³ *The Diary of Virginia Woolf*, ed. A.O. Bell, Vol. 2 (NY: Harcourt Brace Javanovich, 1978), p. 266.

Much economic writing reads like a code of abstraction. Professional economists develop into professional code breakers. To an economist the following sentence is intelligible, though in a code of abstraction: "Had *capital and labor* in 1860 embodied the same *technology* used in 1780, the *increase in capital* would barely have offset the fixity of land". In non-code it would be: "Had the *machines and men* of 1860 embodied the same *knowledge of how to spin cotton or move cargo* as in 1780, the *larger numbers of spindles and ships* would have barely offset the fixity of land". The second, non-jargon version uses (to use the literary jargon) synecdoche and metonymy. It is more concrete to use parts for the whole ("cotton... cargo") and things associated with the idea for the idea itself ("machines and men" = capital and labor).

What is the point of the jargon? Jargon is not merely obscuring. It is an argument in a word, and sometimes, though not always, it is more concise than ordinary language. In macroeconomics, for example, the recent jargon of "constant subjective discount rate", "instantaneous subutility function", "perfect foresight", "private agent", "time-inconsistency problem" contains economics in the words, mainly the rediscovery of Keynes' insight that expectations run the show.

The encoding of jargon supports the ethos of The Scientist or The Scholar. A lot of economic jargon of course hides a five-cent thought in a five-dollar word. The tipoff is a Latinate choice of words. (One wonders how a similar effect is achieved in languages that do not have English's choice of three registers in vocabulary: Anglo-Saxon, French, and Latin [with Greek]).

Thus "the integrative consequences of growing structural differentiation" means in ordinary English "the need for others that someone feels when he buys rather than bakes his bread". And "current period responses" means "what people do now"; "complex lagged effects" means "the many things they do later". "Interim variation" means "change", "monitored back" means "told". The "time inconsistency problem" is the economics of changing one's mind. The "principal/agent problem" is the economics of what hirelings do. "Geographical and cultural factors function to spatially confine growth to specific regions for long periods of time" means in Anglo-Saxon and Norman French "it's a good bet that once a place gets poor it will stay poor".

And an extreme example: "Thus, it is suggested, a deeper understanding of the conditions affecting the speed and ultimate extent of an innovation's diffusion is to be obtained only by explicitly analyzing the

specific choice of technique problem which its advent would have presented to objectively dissimilar members of the relevant (historical) population of potential adopters".

The great jargon generating function in economics is what may be called the teutonism (known technically as a nominal phrase [see Dudley-Evans and Henderson, 1987, p. 12], such as der Grossjargon-generierungsfunktion. German invents words like these, with native roots that no doubt make them evocative to German speakers (classical Sanskrit did it, too, using as many as twenty elements). It does not suit the genius of modern English. A common one is "private wealth-seeking activity". Or again: "Elastic credit supply expectations rise"; "the long-run balance of payments adjustment"; "anti-quantity theory evidence"; "contractually uniform transaction cost"; "initial relative capital goods price shock"; "any crude mass expulsion of labor by parliamentary enclosure thesis"; "community decision making process"; Cobb-Douglas production function estimation approach; "alternative property rights schemes".

The Tone of Scientism is Arrogant

The American sociologist C. Wright Mills once wrote of such problems of Latinate jargon in sociology and other fields as follows:

Such lack of ready intelligibility, I believe, usually has little or nothing to do with the complexity of subject matter, and nothing at all with profundity of thought. It has to do almost entirely with certain confusions of the academic writer about his own status...

[Because the academic writer in America] feels his own lack of public position, he often puts the claim for his own status before his claim for the attention of the reader to what he is saying...

Desire for status is one reason why academic men [and women: Mills lived in a notably sexist age] slip so readily into unintelligibility.

... To overcome the academic prose you have first to overcome the academic pose. It is much less important to study grammar and Anglo-Saxon roots than to clarify your answer to these important questions: (1) How difficult and complex after all is my subject? (2) When I write, what status am I claiming for myself? [McC.: ethos] (3) For whom am I trying to write? [McC.: audience, pathos] [p. 218 f].

Tone is personality expressed in prose. The choice of audience determines who the economist is going to be in the essay: the Enthusiastic Student, the Earnest Scientist, the Reasonable and Modest

Journeyman, the Genius, the Athletic Mathematician, the Professor, the Breezy Journalist. The successful piece will have an implied reader the actual reader can be and will have an implied author that the actual reader can tolerate. Writing is a little drama in which the writer chooses the roles.

The usual choice, in line with the rise of scientism, is The Scientist. As Robert Solow wrote on the matter:

Personality is eliminated from journal articles because it's felt to be "unscientific". An author is proposing a hypothesis, testing a hypothesis, proving a theorem, not persuading the reader that this is a better way of thinking about X than that. Writing would be better if more of us saw economics as a way of organizing thoughts and perceptions about economic life rather than as a poor imitation of physics [1984].

Thus Evsey Domar in his classic article of 1946 on growth theory spoke of in human terms of "unemployed men", whereas his intellectual great grandchildren speak of "unemployment", a quantity with no human face. The next generation will speak of agents choosing leisure.

The style of modern economics journals suggests that human faces are quite unnecessary and that the quantities will speak. An arguing scholar is no longer the implied author of economics. Henderson and Hewings (1988) speak of "the deletion of the actor", which creates "gaps" of abstraction in the texts: nominalization and a passive voice without an agent, making a phrase such as "the customers raised the price" into "a rise in price occurred when the demand curve was raised". The style avoids declaring a point of view.

Just "telling the story as it happened" evades the responsibility to examine the point of view. Realist fiction does this habitually — which shows another use for the literary analogy, to note that realist "fiction" in science can also evade declaring a point of view. The sociologist Michael Mulkay notes in the epistolary arguments of biologists a Rule 11: "Use the personal format of a letter . . . but withdraw from the text yourself as often as possible so that the other party continually finds himself engaged in an unequal dialogue with the experiments, data, observations and facts" (1985, 66). The evasion is similar in history: "the plot of a historical narrative is always an embarrassment and has to be presented as 'found' in the events rather than put there by narrative techniques" (White, 1973, 20).

The suppression of the I in scientific writing is more significant

than one might think. In the modern novel the suppression of the authorial I has resulted in a technique peculiar to literature, "represented speech and thought". Grammarians call it "unheralded indirect speech," the French *style indirect libre*. Any page or two of Jane Austen; serves: "Sir Walter had taken a very good house in Camden-place, a lofty dignified situation, such as becomes a man of consequence" (1965 [1818], 107), Sir Walter's words ["dignified . . . a man of consequence"] in Austen's mouth); "Could Anne wonder that her father and sister were happy? She might not wonder, but she must sigh that her father should feel no degradation in his change" (108; Anne's words ["sigh . . . no degradation"] in Austen's mouth).

The parallel technique in science might be called "represented Reality" or "unheralded assertion" or "*style indirect inévitable*". The scientist says: It is not I the scientist who make these assertions but reality itself (Nature's words in the scientist's mouth). Scientists pretend that Nature speaks directly, thereby effacing the evidence that they the scientists are responsible for the assertions. It's just there. The result is similar in fiction: "We (as readers) cannot question the reliability of third-person narrators . . . Any first-person narrative, on the other hand, may prove unreliable" (Martin, 1986, 142). Thus Huck Finn, a narrator in the first person, misapprehends the Duke and we the readers know he does. The scientist avoids being questioned for his reliability by disappearing into a third-person narrative of what really happened.

The implied author of such stuff is not attractive. Economists write with an arrogant implied author more than do many other scholars or scientists. Visitors from other fields always remark the arrogance of economic style. In it the opponent is so obviously misled that it is incredible he is an economist at all. G.R. Davies' article in the *Journal of Political Economy* ("The Quantity Theory and Recent Statistical Studies", 1989) uses phrases such as "obviously", "it is evident", "doubtless", "easily seen", "needs no discussion", "we may expect" some 42 times in an 8-page article.

It appears always to have been so, though with perhaps a difference between an implied audience of other economists (where modesty is advisable, so as not to arouse the beast) and one of amateurs. Allyn Young's famous essay in the *Economic Journal* of 1928, "Increasing Returns and Economic Progress", establishes a modest implied author. "It is encouraging to find . . ." (p. 532), "It means, if I read its significance rightly, . . ." (p. 533), "I shall merely observe . . ." (p. 535), all used without irony. He describes himself as "some minor composer

[who] borrows a theme from one of the masters", namely Adam Smith. By contrast, in an article written about the same time for a wider audience of social scientists ("English Political Economy", *Economica*, March, 1928) Young is more assertive and confident. The assertion and confidence reserved in earlier times for lectures to students or men-in-the-street has now spilled over into scientific prose.

In engineering journals, by contrast (such as *Automatica*, *IEEE Transactions on Acoustics, Speech and Signal Processing*, or *IEEE Transactions on Biomedical Engineering*), one never shreds the arguments of others in the way usual in economics. One never praises earlier work, either, the use of it being considered praise enough. The style of modern scientific articles is modest and unassertive when there is no violent controversy.

The difference may arise from the practical character of engineering: "Does it work" is the decisive question, or at least so the engineers think (they may in fact be influenced by the elegance of a solution). In fields like paleontology or history or economics there is no comparable standard of "working". The distinction is not between science and non-science (in the peculiar English sense of the term), since many fields of science argue just as much. When science steps into an area of dispute the style changes in an identical way. It merely seems that more of economics is subject to such dispute (no wonder, considering that economics is still political economy).

Consider the violence of the attacks on the recent discovery of nuclear fusion in a test tube, by two chemists in, of all place, Utah, who had the temerity to announce results without checking first with the physicists; or, a less famous case, the abuse heaped on Louis Frank in, of all places, Iowa about his theory of extraterrestrial water. Or consider the sneers at Alfred Wegener and his theory of continental drift in 1912 and for decades after or the banishment of any physicist who so much as inquires into spoon-bending [Collins and Pinch, 1982]. As Stephen Jay Gould said recently, "We [paleontologists] certainly do not agree about very much", a remark he documents in the rest of his book (1989, p. 19).

In normal science in normal times the journals exercise what economists like to call "quality control". In fact it makes economics more paradigm-bound than physics, as Richard Whitley says, and has narrowed what is considered acceptable speech. Journals are run by committee, if only the committee of the editor and two referees. (The alternative is the entrepreneurial model, like H.L. Mencken running

The American Mercury or Keynes as owner-director of *The Nation*, with one mind putting its stamp on the journal). The committee model is subject to the median voter theorem: the middle of scientific opinion casts the decisive vote. In other words, the "quality control" in journals can amount to deviance control.

The modern article gives the impression of a quattroceto war of condottieri in which much fighting seems to be done but no hypothesis actually gets injured. Statistical tests are offered as conclusive (though no one believes them). Proofs are offered as the end of conversation (though the conversation goes on). Statistically speaking the power of the rhetoric is low. A test of statistical significance or a proof by existence theorem is a short hurdle, easy to jump over, with the result that many erroneous hypotheses survive. Economists, as Wittgenstein said, would do well to stop lying to themselves about their pretense, for the result is that they cannot tell what is genuine in the style and what is false.

Arrangement and Style are Formalized in the Scientific Article

The three important parts of classical rhetoric were Invention, Arrangement, and Style. Invention, the framing of arguments worth listening to, is the business of economic theory and of empirical economics. Economic arguments are a series of analogies and stories. Saying that the market for automobiles is "just like" a diagram of demand and supply is, when you think about it, bizarre. Not false: bizarre. It is also bizarre to compare a woman to a summer's day, but Shakespeare did it, exploring its persuasiveness. Economic models are economic poetry or economic fiction. Poetry and fiction are the main way that economists approach this first part of classical rhetoric, Invention, the getting of ideas.

Economists are not aware of their rhetoric. And so they deceive themselves about the pretense in their state of will, which must have a harmful effect on style. Style and Arrangement has become formulaic. The style and arrangement of the scientific article was invented by Isaac Newton, a not altogether trustworthy man, as a device for crushing his scientific opponents [Bazerman 1988, Chp. 4]. The theory of reading in the scientific article is that Invention is all there is. Either the novelty of invention is wrong or it is right. If it is wrong, it is to be contradicted by friendly criticism (it has been said of even the best scientists that most of their findings are wrong). If it is right, it is to be transcribed

into the list of "references" that add a patina of scholarship to the next article. The Style or Arrangement is supposed to be unimportant.

An official arrangement has spread to the social sciences from physics and biology. The arrangement draws on the rhetorical style of the laboratory experiment but without its rhetorical conclusiveness. (Though it is notable that the more prestigious the journal and therefore on average the more self-confident the authors the less formulaic is the writing). An economics article is thought to be more scientific if it has a section entitled "Data" or "Results", just as they do in chemistry. A good deal of economic prose implies that the proper arrangement of an empirical essay is Introduction, Outline of the Rest of the Article, The Theory, The (Linear) Model, The Results, Suggestions for Future Research (since nothing ever works), and (again) Summary.

"Boilerplate" is a good, industrial word for the received arrangement. Excessive introduction and summarizing is one sort of boilerplate; other boilerplate is redoing for a large number of repetitive cases what can be done just as well with a single well-chosen one. Econometric chatter copied out of the textbook, rederivations of the necessary conditions for consumer equilibrium, and repetition of hackneyed formulations of the theory are all pieces of boilerplate ready to bolster the scientific standing of the economist. A model of efficient capital markets will be "explained" by writing for the thousandth time " P_t given I_t , where I_t is all the information". The boilerplate establishes ethos cheaply — just as it does in other contexts, such as the slabs of prefabricated prose about project evaluation slotted into engineering reports on a Third-World dam.

One of the most predictable pieces of boilerplate in modern journal prose is the table-of-contents paragraph: "The outline of this article is as follows". It seems to be a modern American habit (it is found also in American law reviews, extending sometimes over a page or more). It results from the seepage of a bad but clever formula into the heads of American teachers of English; "Tell the reader what you're going to say. Say it. Say that you've said it". Weak writers defend the practice as a "roadmap", but you will not find it in articles by good economic writers.

Arrangement is more varied in fields abutting on different intellectual cultures, such as law and economics or economic history (even if of the cliometric variety). In the mainstream one seldom sees experiments with alternative arrangements, such as dialogues or reports on the actual sequence of the author's discovery. At any rate one does not

see them in print. The official rhetoric does not allow into print what needs to be known — which experiments failed, what mathematics proved fruitless, why the questions were asked in the way they were. The biologist Peter Medawar (1964) complained about the style of the scientific paper in this connection and the philosopher of science Imre Lakatos noted that in mathematics and physics, "The problem-situation, the conjecture which the experiment had to test, is buried away. The author boasts of an empty, virgin mind" [1976, p. 143 n]. The mathematician Gauss was known as The Fox, because he swept away the steps by which he arrived at a conclusion as the fox sweeps away his tracks in the snow. When economists talk among themselves, in the seminar room or hallway, the autobiography and dialogue is the whole point, usually introduced by a report in sequence of "how I came to this subject". But not in print.

Of course, the pre-print, which comes closer to seminar speech, is taking the place of the journals. As the journals expand, becoming thereby more democratic, the elite withdraws into a system of pre-prints. The xeroxed copy of Joseph Farrell's "Meaning and Credibility in Cheap-Talk Games" announces its pre-publication history on its title page: "[first drafted] December 1983/ Current version: July 8, 1988 ... Forthcoming in *Mathematical Models in Economics*, M. Dempster, editor, Oxford University Press". It circulated among the cognoscenti for five years and was already well known (though not approved: the conventional footnote of acknowledgement has a bitter twist — as such footnotes and prefaces often do: "Thanks are due to Joel Sobel and Bob Gibbons, who encouraged me *when editors, referees, and colleagues did not*" [p. 1 n, italics added]).

The issue is one of levels of style, dating to the Greeks, high, middle, and low, the Asiatic, Rhodian, and Attic. The style of the pre-print is lower than that of articles submitted in the first instance for official publication in a journal. One can be more adventuresome in a community of pre-prints: the author is his own editor. The adventuresomeness of the pre-print to some degree offsets the pressures to conform to the official Arrangement.

An article that does *not* follow the precepts of the modern journal article will often be said to "read like a speech", this being seen as an affront to decorum (the classical virtues of style were purity, clarity, ornament, and decorum, but the greatest of these was decorum). Yet in a seminar the audience will resent the article style. In speaking the author must use a lower style, with the result of "the talk" (as it is

called in mathematics, where the same stylistic conventions have developed): an article in the standard arrangement and the elaborate Asiatic style will be "available" beforehand but the actual presentation will be cast in an autobiographical and colloquial style.

In the 1920s an article in economics was similar in many ways to an article in a law review. Now they are different. The law review article (a peculiarity of American jurisprudence) is long and makes heavy use of the argument from authority (articles will have three or four hundred footnotes). Styles have diverged, or perhaps simply leaned towards the much older conventions of the scientific article⁴.

Good Style is a Signal, but Sometimes of the Unscientific

A list of the better writers of English among living economists would include Akerlof, Arrow, Boulding, Bronfenbrenner, Buchanan, Caves, Clower, L. Davis, Fogel, Friedman, Haberler, Harberger, Heilbroner, Hirschman, Hughes, Galbraith, Kindleberger, Lebergott, Leijonhufvud, Olson, Rostow, Schelling, Schultz, Solow, Stigler, Tobin, Tullock, and Yeager. The diminishing returns even in this list are sharp. Even economists who take pains with their style will overuse "we", the passive voice, and fancytalk from Latin and Greek ("We perceive that equilibrium is achieved by a process of successive approximations").

Reading becomes more efficient if it grades writers by stylistic competence. The violation of the virtues of purity, clarity, ornament, and decorum sends a signal of incompetence. A writer who does not know how to express parallel ideas in parallel form, and does not care, will probably not know how to think, and will not care. It is not merely words. Competence in fact is conveyed in modern economics more commonly by stylistic details in the statistics or the mathematics. An economist signals competence in the handling of numbers, for instance, by not reporting results to the eight digits generated by her calculator. The elasticity is about $3 \frac{1}{7}$ not 3.14159256.

Some might say, "It is merely a matter of style. Content is what matters". The content, however, is not separable from the style. The style of a scientific article establishes the ethos of the author and her

⁴ Dudley-Evans and Henderson (1988, p. 14) detect similar "moves" in the introduction of the latest paper they study (for 1970) that are similar to those in other fields.

relation to the reader in a way that makes an economic argument. "Our author", the reader thinks to himself, "is worth listening to: look how skillfully she uses the language and the mathematics". History of science has shown repeatedly in recent decades that mere style is greater in science than one might think. The history of ideas has wide turns caused by mere ornamented decorum. Galileo's *Dialogo* persuaded people that the earth went around the sun, but not because it was a Copernican tract (there were others) or because it contained much new evidence (it did not) but because it was a masterpiece of Italian prose. Poincaré's good French and Heisenberg's good German were no small contributors to their influence on mathematics and physics.

To turn back to economics, Keynes hypnotized three generations of economists and politicians with his graceful fluency in English. He is acknowledged as the best writer of English that economics has seen, though an economist winces to hear literary folk examining his style [Graves and Hodge (1943 [1961]), pp. 332-340; or Virginia Woolf, on *The Economic Consequences of the Peace*: "a book that influences the world without being in the least a work of art: a work of morality, I suppose", *Diary*, Vol. II, p. 33].

The division of modern culture into a scientific and a literary branch, however, has had a peculiar effect on the style of economics. Nowadays good or at least fine writing arouses a suspicion among economists that the writer is not a scientist. It is similar to the suspicion aroused in classicists when one of their group uses statistics to make an argument. The worst prose is held up as the ideal, as John Muth's was by Robert Lucas and Thomas Sargent (both write better than Muth). They said of Muth's justly famous but badly written article inventing rational expectations that was "one of the most carefully and compactly written papers of recent vintage" [1981, p. xvii; cf. McCloskey 1985, Chp. 6]. The virtues commended are those of Scientism, compactness especially being the virtue of the modern journal article, following the Gaussian habits of mathematics. Discursiveness of most sorts (except mathematical proofs) has been reduced in pursuit of a Scientific ethos. As Leijonhufvud says, "editors [nowadays] require authors to be formally quite precise in what they are saying but do not give them much room to explain what they are talking about" (p. 4).

Specialization Has Damaged the Style of Economics

Journals are important in modern economics chiefly because they feed into the system of promotion and tenure at American universities.

America's numbers of course dominate world economics. An anonymous respondent to a survey of economists put his finger on what drives the character of academic journals now, even in applied fields like agricultural economics: the societies and their journals "have become agents to establish professional credentials for tenure, promotion or a job offer" (quoted in Just and Rausser, p. 1189). As Just and Rausser argue, "Many of our recent graduates [in agricultural economics] spend most of their time wondering about the application they can make of standardized solution frameworks rather than finding interesting problems that require the development of customized frameworks" (p. 1179). Their style is meant to impress their colleagues in a special field, not their colleagues in other fields down the hall.

The visible college has given way to the invisible one. The visible college consists of the fellow economists the same building; and beyond them in the next building it includes the non-economists in French and chemistry. By contrast the invisible college is the group of expert specialists in one's narrowly defined field. The fellow experts live in far away places like Bologna or College Park. In every field they have come to govern the enterprise. Hiring, curriculum, promotion, and the rest are decided by the special fields, not by one's literal colleagues.

The literal audience for publications is the invisible college. What a college does in 1990 is determined increasingly by whether or not an invisible college exists to value it. Administrators think themselves clever when they ask of new work between the specialties, "How do we evaluate, it?" which is to say, "What invisible college will certify that it is normal science?" The idea that a literal colleague in another subfield of economics, not to speak of the social sciences generally, should be able to read one's work has died in most departments of economics. An eminent economist serving on a committee to choose the best Ph. D. thesis in social science at a university nominated a thesis from the Department of Economics and then refused to enter into a discussion of its merits, finally resigning from the committee in protest when the other social scientists would not accept his authoritative judgment of its merit. Where the notion that literal colleagues can judge one another has survived in American universities, such as in history departments, it is under attack from the deans. Departments at different institutions become identical, since they hire from the invisible college, a single market.

Specialization of course makes the style of journals more specialized — having more specialized jargon, more stylistic devices peculiar

to subfields of economics. Contrast the way articles are written in the new experimental economics with the way they are written in international trade theory. Most economists do not feel competent to read or judge the contents of the *American Economic Review*. The terms for Keynes's long editorship of the *Economic Journal* would be inconceivable today. When Joseph Stiglitz was made the editor of the new *Journal of Economic Issues*, a concession to the membership of the American Economic Association that they have at least one journal they were competent to read, it was felt necessary to constrain him with a large editorial board representing various subfields. Even Stiglitz, who is competent in an wide range of subfields, could not cover them all.

The Rise of the Article Has Been Accompanied by a Fall of the Book

The equilibrium solution in which articles in refereed journals are all that counts for promotion has driven books out of economics. The journal articles, or papers that follow the stylistic conventions of the journal article whether or not literally published in journals, appear to be the main reading economists do. An American economist's house has few books. The rise of the journal in the past 40 years has been accompanied by a fall of the book. Fully half of the space in the AER in the 1920s was given over to reviews of books, whereas the same cultural space, the review columns of the *Journal of Economic Literature*, constitute only a fraction of even that journal's space. It is clear from the reviews of the 1920s that the book was considered the main instrument of economic argument.

When the subject of books as against articles comes up a modern economist will speak of quality control. The journals will be commended as "efficient" in putting before the public only the best economics.⁵ Books, on the other hand, are in the typical economist's mind self-indulgences, with no control over quality. (One wonders what the economist thinks of his colleagues in history and literature who publish mainly books). The same economist will not have a grasp of the reputations of publishers and will not understand the importance of book reviews in establishing reputations in bookish fields. (The tone

⁵ When Harry Johnson, a taciturn but sharp-tongued man, was the editor of the *Journal of Political Economy* he did not have a high opinion of the *American Economic Review*, edited at the time by George Borts. Borts and Johnson were chatting about their editorships one day at a conference, and Borts complained that they had so many good articles submitted that he "didn't know what to do with them". Johnson replied, "Why don't you publish a few?"

of book reviews in a magazine like *Science* or *The American Scientist* suggests that books in the physical and biological sciences are meant as teaching tools, not as conveyors of new ideas. The books that most physical and biological scientists are familiar with, as professionals, are textbooks, repositories of settled ideas, not messengers for the new).

The Study of Economic Style Requires a Study of Rhetoric

"Style versus content" is a rhetorical commonplace of our culture, most common since the 17th century, but dating back to Plato. The premise that one can split content from expression is mistaken. The two are yoke and white in a scrambled egg. Economically speaking, the production function for thinking cannot be written as the sum of two sub-functions, one producing "results" and the other "writing them up". The function is not separable.

What is needed to understand style in economics is an economic rhetoric. I do not mean by "rhetoric" a frill, or a device for lying — the politician's "heated rhetoric" at a news conference or the professor's "bad rhetoric" when arguing a weak case. I mean the whole art of argument, which is its classical and correct meaning. It is the art, as Wayne Booth put it [1974, p. 59], "of discovering warrantable beliefs and improving those beliefs in shared discourse". Wittgenstein identifies "deceit" as the consequence of bad rhetoric for style. An economist must use a rhetoric. The most scientific articles in economics use one. The choice is whether to have an open one, without deceit, or not.

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