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A Word From A Sponsor: Abstractions and Their Assumptions

Fortunately for us – and despite Professor Polinsky’s humble caveats to the contrary⁶¹ – his book comes equipped with everything. In particular, it comes equipped with an early chapter about the role of assumptions, and about the uses of abstraction in the process of economic inquiry.⁶² There Polinsky points out that “[e]conomists make assumptions for the obvious reason that the world, viewed economically, is too complicated to understand without some abstraction.”⁶³ He therefore suggests isolating one or two issues at a time “by making simplifying assumptions that eliminate the others,”⁶⁴ and later expanding the inquiry by adding various complications to the framework.⁶⁵ In other words, the challenge of economic thinking is the proper use of abstraction; in determining how properly to use abstraction, one needs to take into account concerns about tractability, the realism of assumptions, the particular questions to be pursued, and the relationship of the assumptions to the goals of the inquiry. To use Polinsky’s phrasing, “[t]he art of economics is picking assumptions that without inevitably causing those features to be unimportant ones.”⁶⁶

Because the process of economic abstraction is, by assumption, unfamiliar to the book’s readers, I approach it by analogy to a more familiar concept, specifically, to abstraction in the form of maps. A map is an abstraction of the world, and its use requires a theory by which one can link the abstraction with the world.⁶⁷ Before this linkage is established, however, one needs to know the questions the map should answer. Humbug. A map is a map is a map, you say? Then, by all means, help yourself to a soundscape map of Boston: “A composite view of the variety of city sounds s perceived along a sequence of streets . . . [in which s]ymbols represent qualities of sounds . . ., for example, soft, intense, roaring, muffled, sharp, echoing, expansive.”⁶⁸ Or if that’s not quite what you had in mind, how about an Eskimo

⁶¹P. xiii.

⁶²Pp. 1-5.

⁶³P. 2.

⁶⁴P. 3.

⁶⁵P. 4.

⁶⁶P. 4.

⁶⁷See, e.g., A. ROBINSON, R. SALE & J. MORRISON, *ELEMENTS OF CARTOGRAPHY* 50-75 (4th ed. 1978) (theory and systems of transformation for map projections); id. at 149- 80 (theories of cartographic generalization); Board, *Maps as Models*, in *MODELS IN GEOGRAPHY* 671 (R. Chorley & P. Haggett, eds. 1967); Lam, *Spatial Interpolation Methods: A Review*, 10 *AM. CARTOGRAPHER* 129 (1983).

⁶⁸M. SOUTHWORTH & S. SOUTHWORTH, *MAPS* 190 (1982).

Coastline Relief Carving (yes, you read that correctly), convenient for carrying on and around your ship?⁶⁹ Or a color-coded map showing “The Percent of [the U.S] Population Unchurched . . . 1971“?⁷⁰ And so on.

Somehow, these maps offer little help in getting from Madison to Chicago. Instead I want a road map, and a certain kind at that: I need to be given the details of the street plan for the cities at each end, but not such details for everywhere in between. I need to know about the roads, and seasonal temperature and precipitation indicators would be nice. What about cloud movements, wind direction and color-keyed info on vegetation? National and local parks, population centers, and Howard Johnson restaurants? The map darkens progressively with colors and symbols, and darkens still some more until . . . until I notice that even as I gave free rein to my desire to know more, I consigned myself to a map from which I could only know less.

This is the paradox of abstraction to which Polinsky succinctly referred:⁷¹ The skillful use of abstraction requires one to forego including some considerations that would indeed add information, so that the resulting abstraction will, in the end, tell us more. In other words, even as one chooses which details or assumptions to include, she necessarily chooses an overall level of complexity appropriate to the task.⁷²

Now, within this budget, as in any other, there are allocative choices to be made. If I spend most of the available complexity showing parks and schools, there will not be much left for depicting the alternative street routes that can take me to my destination. So among the details of which the world is so rich, one must discern those details most important for the purpose at hand,⁷³ and in the austerity that is the elegance of abstraction, select only the highest in priority from among

⁶⁹L. BAGROW & R. SKELTON, *MEISTER DER KARTOGRAPHIE* (1973), reprinted in M. SOUTHWORTH & S. SOUTHWORTH, *supra* note 68, at 51. For examples of map abstractions of a different sort, see M. KIDRON & R. SEGAL, *THE STATE OF THE WORLD ATLAS*, map no. 29 (1981) (entitled “Bullets and Blackboards,“ map depicts ratios of soldiers to teachers, by county, in 1974); G. Bula, *Gospel Temperance Railroad Map* (1908), reprinted in *AN ATLAS OF FANTASY* 33-35 (J. Post ed. 1973) (Railroad of Life can go past Mount Terror into State of Darkness or take more northerly route toward Celestial City).

⁷⁰Glenmary Research Center, *Percent of Population Unchurched, By Counties of the United States: 1971* (1974).

⁷¹See *supra* p. 1599; pp. 3-4.

⁷²See, e.g., A. ROBINSON, R. SALE & J. MORRISON, *supra* note 67, at 201-16 (theories of representation by point symbols in cartography); cf. M. BLAUG, *THE METHODOLOGY OF ECONOMICS, OR HOW ECONOMISTS EXPLAIN* 254-55 (1980) (simplifying assumptions made in conjunction with development of growth theory result in this having “extremely limited practical implications“). This choice then constitutes a fund, a budget of complexity, from which any particular penny, once spent, cannot be spent again.

⁷³See Klevorick, *supra*, note 5, at 244-45 (more formal models can “give insights about more complicated settings in which the results of the more ‘stripped down’ models are relevant“); cf. Kelman, *Misunderstanding Social Life: A Critique of the Core Premises of “Law and Economics,“* 33 *J. LEGAL EDUC.* 274, 274-75 (in its attempt to organize reality, legal economics appears also relentless in its attempt to “filter the complexity of both social life and individual identity“).

these.footnote This choice is not irreversible, but a rerun of the selection requires reconstructing the framework. The best abstraction, or even the better one, cannot be determined without reference to the depend upon the abstraction's purpose. In order to judge the better map from the worse, a critic must know these goals – must even, for purposes of judging, accept them – and carry on the criticism from there.

But then, to where? To the investigation of two sets of things: the choice about the allocation of complexity, and the technical integrity with which the abstracting process is carried out. The former I will turn to in a moment; the latter I discuss briefly here. Good mapmaking means certain things, and two mapmakers pursuing the same objectives with the same information can nevertheless produce maps of differing quality. Similarly, a single task in economic abstracting can be done better or more poorly as a function of the economist's efforts, imagination, and skill. The integrity of the abstraction is, I think, in part a matter of casting the problem in such a way that the research can bring to bear the intellectual metaphors of the field.

Differing senses of “like“ are what distinguish one discipline from another, one form of answer from another.⁷⁴ To my amazement in the first few days of law school, I learned that water can be like cows. When is water like cows? Answer: When it's escaping from land.⁷⁵ A lawyer might be equally surprised to find that hay-bailing wire can be like San Francisco housing. When is this so? When both are in short supply due to price controls.⁷⁶ Within a discipline, the sense of like goes yet deeper: Does the demand for potatoes fall when prices rise, as demand does for many other products, or could its relationship to price be otherwise?⁷⁷ Do jobs for

⁷⁴See Hansmann, *The Current State of the Law-and-Economics Scholarship*, 33 *J. LEGAL EDUC.* 217, 221 n.12 (1983) (characterizing lawyerly thinking as entailing treating “like“ things alike); Kornhauser; *A Guide to the Perplexed Claims of Efficiency in the Law*, 8 *HOFSTRA L. REV.* 591, 637-38 (1980) (discussing sense of analogy in economics and in law); Priest, *Social Science Theory and Legal Education: The Law School as University*, 33 *J. LEGAL EDUC.* 437, 439 (1983) (economics brings to the law different presuppositions and organizing thoughts). These systems of analogy and classification distinguish one system of thought from another. Cf. M. FOUCAULT, *THE ORDER OF THINGS XV* (1966, trans. 1970) (quoting and discussing set of categories from a “certain Chinese encyclopaedia’ in which it is written that ‘animals’ are divided into: (a) belonging to the Emperor, (b) embalmed, (c) tame, (d) sucking pigs, (e) sirens, (f) fabulous, (g) stray dogs, (h) included in the present classification, (i) frenzied, (j) innumerable, (k) drawn with a very fine camelhair brush, (l) et cetera, (m) having just broken the water pitcher, (n) that from a long way off look like flies“).

⁷⁵See *Rylands v. Fletcher*, [1866] 1 L.R. Ex. 265, aff'd, [1868] 3 L.R.-E.&I. App. 330.

⁷⁶See J. HIRSHLEIFER, *PRICE THEORY AND APPLICATIONS* 40-41, 321-29 (2d ed. 1980) (discussing market effects of imposing price controls, and example of San Francisco housing). See generally *GUIDELINES: INFORMAL CONTROLS AND THE MARKET PLACE* (G. Schultz & R. Aliber eds. 1966) (collection of essays on consequences of various forms of price controls); Cheung, *A Theory of Price Control*, 17 *J.L. & ECON.* 52 (1974) (price controls analyzed as limitations on contracting).

⁷⁷See J. HENDERSON & R. QUANDT, *supra* note 29, at 34 (although demand usually declines as price rises, the reverse relationship is possible; goods for which this occurs are called Giffin goods); Dwyer & Lindsay, *Robert Giffin and the Irish Potato*, 74 *AM. ECON. REV.* 188, 191 (1984) (Giffin

minority group members rise in a simple staircase fashion as neighborhoods come to be more integrated?⁷⁸ Or do these jobs rise in number with some integration, taper off with more, and still after that decline?⁷⁹ Clearly, there are important judgments to be made about the way that those within a discipline go about constructing their abstractions, even once the goals of the inquiry have been set. Assuming, however, that the technical- integrity expectations have been met, satisfaction or dissatisfaction with an abstraction most likely links in some way to its original assumptions.

It is here that reasonable people must often agree to disagree. For the assumptions acceptable to one abstractor or another can on occasion be as varied as the persons from whom they derive. Not always, of course: There are times when the findings of one episode of research become the assumptions of yet another, so that the wheel need not be continually reinvented. And at other times the assumptions based at first on intuition can quickly be verified by a test.

But there are also times (most of the time, in my experience) when at least one of the assumptions entailed in the abstraction relates to the expertise of another discipline,⁸⁰ or to the ordinary knowledge that human beings have,⁸¹ or possibly to both. When this is the case, evaluation of the goodness of an abstraction becomes itself complex. For the choice about one assumption, intertwined as it is with other such choices made within the budget of complexity, may become of necessity a choice about the package of assumptions all together. Nevertheless, if one focuses first on

goods are more likely to be found in poor communities that import most of their food).

⁷⁸n79 See Kain, *Housing Segregation, Negro Employment, and Metropolitan Decentralization*, 82 Q.J. ECON. 175 (1968).

⁷⁹See Offner & Saks, *A Note on John Kain's Housing Segregation, Negro Employment, and Metropolitan Decentralization*, 85 Q.J. ECON. 147 (1971).

⁸⁰See, e.g., Akerlof & Dickens, *supra* note 7 (economic analysis of workplace safety, with assumptions about cognitive dissonance made in light of previous psychology research); cf. Tushnet, *Legal Scholarship: Its Causes and Cure*, 90 YALE L.J. 1205, 1212 (1981) (problem of some economic analysis of law is the use of unsupported abstraction).

⁸¹See C. LINDBLOM & D. COHEN, *USABLE KNOWLEDGE* 8, 12 (1979) (defining ordinary knowledge as “knowledge that does not owe its origin, testing, degree of verification, truth status, or currency to distinctive [professional social inquiry] techniques but rather to common sense, casual empiricism, or thoughtful speculation and analysis“); cf. Tushnet, *supra* note 81, at 1214 (“[I]n traditional policy analysis, common sense is used both to select a goal and to determine how to achieve it.“).

Lindblom and Cohen point out:

The most basic knowledge we use in social problem solving is ordinary.

Everyone has ordinary knowledge – has it, uses it, offers it. It is not, however, a homogeneous commodity. Some ordinary knowledge, most people would say, is more reliable, more probably true, than other. People differ from each other in the kind and quality of ordinary knowledge they possess. C. LINDBLOM & D. COHEN, *supra*, at 15 (footnote omitted). The line between ordinary knowledge and scientific knowledge is not a hard and fast one, and indeed may depend upon the state of the knowledge. For example, the most important way in which ordinary knowledge grows is by turning into scientific knowledge. K. POPPER, *THE LOGIC OF SCIENTIFIC DISCOVERY* 18-19 (1959). Cf. C. LINDBLOM & D. COHEN, *supra*, at 13 n.2 (some ordinary knowledge was once scientific knowledge).

these extra-disciplinary assumptions, progress in framing a judgment can yet be made.

Here we consider, by assumption, assumptions about which the discipline's "expert" offers no special expertise. The economist, for example, is no more expert than other lay persons when the necessary assumptions must include a specification of attitudes toward childbirth or a direction from which the sun is believed to rise.⁸² When it comes to assumptions such as these, the economist constructing an abstraction relies upon the expertise of others, or upon ordinary experience. It is therefore possible that a similarly situated economist, with identical skills and technical expertise, would nevertheless obtain results at odds with those of the first, and not because of lack of technical integrity in the work: Assumptions intimately affect outcomes, of course, and for some sets of contrasting outcomes, assumptions will be the only source of difference.

What then should be the relationships between ordinary knowledge and professional expertise, and between the world of the abstraction and the world it seeks to reflect? How, then, should lawyers relate to the expertise economists bring to bear?

A Word From Another Sponsor: Ordinary Knowledge and the Process of Abstraction

An economist thinks in terms of models and theories. But so does the rest of the world. To grab hold of the thought style of economics must mean, then, that one think not only in terms of models and theories, but also in terms of such models and theories as economists employ. This sense of "economicsiness" provides the commonality for binding these thought patterns one to another, while distinguishing them from the thought patterns of other kinds of inquiries and of ordinary experience. Yet, apart from this peculiar economic flavor, the economist's mode of abstraction is not all that different from the mapmaker's or from the thinking entailed in ordinary experience.

I said above that everyone thinks in terms of models and theories, a statement of dubious truthfulness. Unless, that is, one adopts a generously energetic definition of the verb "thinks" – which I now do. Every day we go about life on the basis of very powerful yet unarticulated theories, about the world and how we relate to it. We believe in replication, for example, in that we expect that if we do the same thing today as we did yesterday – eating breakfast, catching a bus – things will turn out the [*1604] same as they did before. We believe that if we go to sleep in one location we will wake up the next day in the same spot, that flipping certain switches makes a room lighter rather than colder, that drinking water stifles thirst, and so on. None of these propositions need be true day after day. But they usually are, and indeed

⁸²See C. LINDBLOM & D. COHEN, *supra* note 81 (professional social inquiry may have "no distinct advantages in stock or use of ordinary knowledge helpful to public policy and many other forms of social problem solving"); D. NORTH & R. MILLER, *THE ECONOMICS OF PUBLIC ISSUES* 8 (2d ed. 1973) (economist is not qualified "to answer the pivotal question of whether life begins at conception, at 24 weeks, or at birth, [n]or . . . whether or not abortion should be legally permitted or proscribed," but can analyze the economic aspects of the issues).

the regularity is so striking that we can forget the essential role of theory – here, a theory that the future will be like the past – in even the most simple of daily tasks.

Sometimes this overarching theory, that the future will be like the past, is incorrect. I expect the bridge to be where it has always been because it's always been there, and then one day it is located below its usual spot, having collapsed into the Mianus River. Or, having functioned on the theory that my memory replicates reality, I fail to find the bridge because I am myself in a different spot. And so it goes: We live by theories, by assumptions of regularity, despite the fact that they fail us. We do this because abstractions about the world are necessary to function in it; we must see things in patterns if we are to deal with much information at all. And these abstractions, although they fail us, are better than no abstractions at all. Like the infinite regress of attempting to define all words by using other words, we cannot comprehend everything all at once, without understanding some things first. And those first understandings, inarticulable except in terms of themselves, become the first two-by-fours in the framework within which we build our thoughts. Then, when our theories fail us, we can use that experience to revise the plan of the structure, so that in the future our theories will fail us less.

All of this is what we human beings, not just economists, do every day, and our learning from it constitutes “ordinary knowledge.”⁸³ It is the wellspring from which we draw and to which we replenish knowledge as we go about the continual processes of explanation and prediction, re-explanation and, at times, simply wondering about the world in which we live. This “ordinary knowledge,” viewed as both a process of thinking and a reservoir of its results, figures importantly in the development of “scientific theories” such as those of economics.⁸⁴ The reservoir services the daily experiences that form the main estate of ordinary knowledge, and also serves as a perception of reality against which scientific theories may be tested.

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⁸³C. LINDBLOM & D. COHEN, *supra* note 82, at 12; n.78; cf. B. ACKERMAN, *PRIVATE PROPERTY AND THE CONSTITUTION* 10-20 (1977) (distinguishing “ordinary observer” and “scientific policymaker” based on “the existence of a divergent understanding of the nature of legal language”).

⁸⁴n85 K. POPPER, *supra* note 82, at 22 (scientific knowledge is result of growth of common sense knowledge, and “[i]ts very problems are enlargements of the problems of common-sense knowledge”); cf. *id.* at 47 (social scientists can draw on introspection as a source of knowledge about behavior, and because of this, have an inherent advantage over those studying natural phenomena).

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