



## Faculty Research Working Papers Series

**Thomas Schelling, Ricochet Thinker**

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## Preface

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Thomas Schelling, in his presence as well as his work, demonstrates how readily mental models can lead you astray. This preeminent nuclear strategist – or more accurately a prevent-nuclear-war strategist -- often arrives at unconventional recommendations on critical policy issues. One might expect someone broody or quirky or dark.

In fact, Schelling exudes a down home appeal, taking delight in discussions of family and friends, hikes and trips with Alice, his wife, and of a broad range of intellectual and policy issues. Everyday life offers him a major laboratory. When he thinks, he wrinkles his face, and a smile of delight slowly emerges. Those who know him smile in return, because they know they are likely in for a treat. Schelling can turn instantly incisive on a vast range of subjects in economics or politics or policy, or everyday phenomena that are puzzling to others. In the last category, he has explained that an errant mattress by the turnpike can cause a massive jam if each gawker – who has waited 30 minutes -- is not unwilling to inconvenience others, and takes a mere 10 seconds.

Surely, the Nobel biography and this book got their dates wrong. Schelling, a trim crew cut mountain climber, is certainly not in his 80s. Actually, Nature, pushing parity, simply got it right. She just decided to keep his body age in synch with his ever active mind. For incisive views on the importance and possible survival of taboos against nuclear weapons in a world where many nations, often at each others' throats, have them; or for an insightful discussion of the problem of global warming, one can do no better than to listen to Thomas Schelling's current thoughts. To learn how to think about a range of other policy issues, one should sneak into a seminar where Schelling is in the audience: At the end, his face wrinkles then smiles. Next come perfect paragraphs of insight. Often Schelling relates the speakers' thoughts to other phenomena that we know well.

One Schelling motto – many are merited – might be: Strive hard to understand the everyday phenomena that you have encountered thousands of times. That will help you understand rarer or more distant phenomena that have the same structure at heart. If we understand what makes the parent's threat of no trip to Disneyland credible or not, we will have better understanding of why a tripwire in Europe might or might not work to stop a Soviet invasion. Four or five decades ago, when Schelling was focusing his laser intellect on mechanisms to avoid nuclear war with the Soviet Union, deterring the USSR was never far from the front of his mind. Yet he would often talk about how a parent threatens or makes promises to a child, or vice versa.

Schelling is the master of ricochet scholarship. He studies a real-world problem and develops a conceptual model. He then takes that conceptual model back to a dozen real-world problems to see how it applies, and then ricochets back to refine the model. He keeps the process going until he is happy with his model, and satisfied with his insights into the problems that most interest him.

Schelling is the Willie Mosconi of these intellectual caroms. None of us could approach his skill level, but all of us could learn from his example. If you are analyzing a

policy, you should consider what your problem would look like in stripped down form. Look for an everyday analogue, and determine in what ways it is the same and how it is different. Go out in the real world to examine the information that participants have, the incentives that operate on them.

In the 1980s, Schelling, an ex-smoker, wanted to understand smoking behavior. For half a dozen years he ran a substantial research project that exposed him to the major empirical studies in the field, and he learned how others understood addiction processes, etc. He also worked backward from smoking behavior to study the problem of self command, and ultimately identified the problem of the “divided self”: At this moment George wants to smoke, and may well do so, though last night George – in some sense a different fellow -- promised to quit.

As usual, Schelling gave his essay describing such behavior a title both evocative and enticing: “The Intimate Contest for Self Command.” The essay is literary. Though a strong conceptual model lay at its core, he did not bother with equations or formality, though others have added them in recent years. Indeed, more traditional economists came to Schelling’s insights a couple decades later than he. In this case the subject is now labeled “hyperbolic discounting.” The basic notion in both Schelling and this later work is that the immediate always is weighted heavily relative to tomorrow, even though today we do not think tomorrow should weigh so heavily against the day after. Since in one day tomorrow becomes immediate, we frequently find ourselves to be dynamically inconsistent, doing today what we promised ourselves not to yesterday. Our best laid plans are foiled, our New Year’s resolutions abandoned. That is why people who prefer to quit still smoke, why so many Americans plan to save but never get around to it, and why this essay was late. Schelling provides the metaphor of the divided self, two people wrapped in the same body: the person who wants to eat his cake struggling with the person who promised to maintain his diet. Recent research reveals that contemplation of or receipt of immediate payoffs registers in different areas of the brain than news on payoffs to be reaped in the future, which helps to explain why we are so often dynamically inconsistent.

Scholars in social science also have much to learn from Schelling. Pardon me if I now state the implications of his approach for scholars in social science. In a 2006 essay on Schelling celebrating his Nobel Prize (*Scandinavian Journal of Economics*), distinguished economist Avinash Dixit advises budding economic theorists: [If incremental contributions are your goal, e.g.,] “generalizing an existence theorem by relaxing the condition of semi-strict quasi-concavity to one of mere hemi-demi-proper pseudo-concavity, then stick to the technical journals. If you want to change the field in more fundamental ways, then obtain your primary motivation from life, and use it to look for fundamental shortcomings of previous thinking in the field.” Schelling is the high priest of economists who draw lessons from life. Just as Leonardo DaVinci drew remarkable figures of the human anatomy, Schelling sketches equally remarkable portraits that detail the anatomy of human interactions. For example, humans have engaged in threats and promises, in tacit communication. But only when Thomas Schelling took the time to puzzle out what we as sentient creatures were doing, did we come to understand the full function of these everyday practices. For example, he outlined the patterns of payoffs that enable people to cooperate.

Experimental economics is now the rage in the profession. Decades before this efflorescence, Schelling conducted experiments in his classrooms and reported their results in his writings. Responding to questionnaires distributed to his classes starting in the late 1950s, Schelling's students tried to figure out where to meet each other in New York City without prior consultation. (Empirical results suggest under the clock at the Biltmore; alas this favored meeting spot is now torn down.) The students also tried to find tacit agreement on a number from 1 to 100, on one box in a matrix of boxes, etc. Thomas Schelling gave that questionnaire to my undergraduate class in 1959. Like hundreds of others in the years that followed, I became a disciple on the importance of tacit communication, which was the lesson of the exercise. In an example of contagion that must have pleased the originator, dozens of us have presented portions of the questionnaire to others, and the process continues. But Schelling was not interested in this tool merely for its brilliant pedagogy. He was conducting research that would enable him to ricochet back to the real world. He recognized that tacit communication would have to play a central role in reducing the potential for nuclear exchanges between the United States and the Soviet Union. Such communication was essential to prevent one side from launching a missile because it misperceived the other side's actions and intentions. Such communication was also required to make the deterrent threat credible.

Schelling seems to have x-ray vision when it comes to understanding the mechanics of human processes that are imperceptible to others. In his book Micromotives and Macrobehavior, he studied a variety of phenomena where uncoordinated individual actions -- that is, people responding to micromotives -- lead to outcomes that are far from what anyone desires. For example, in many a high school lunch room blacks and whites sit separately. Schelling points out that this is the inevitable outcome if members of each group find homogeneity distasteful, but prefer to sit at a table where its own members comprise a modest majority.

Over a number of years one could stop by Schelling's office at Harvard's Kennedy School and see him engrossed over a checker board covered with pennies, some heads up and some tails up. The pennies represented whites and blacks respectively, and he moved them about to study what sort of segregation patterns develop given various types of preferences and alternative definitions of neighborhood. He was pursuing the second stage of an intellectual ricochet, from observed patterns of significant though unwanted segregation to an abstract representation of such a process on a checker board.

Schelling is quick to state that he is not a game theorist, just a thinker who uses game theory. But in fact his work anticipated many important game-theoretic concepts and models. His work on the credibility of threats and promises was the forerunner to the extraordinarily important concept of subgame perfect equilibria. Subgame perfection requires that each player follow a strategy that is optimal on a look-forward basis. He pushed us to recognize tipping phenomena. He identified the importance of focal points for facilitating cooperation and communication. Merely in doing his own work, he has provided many models that have become focal points for both scholarly analyses and policy discussions. You might say that he learned from the world, and the world learned from him, but that would be severe understatement.

I had the good fortune to have Thomas Schelling as my principal advisor for both my undergraduate and graduate dissertations, and then to have him as a close friend and colleague in the many years that followed. Like all of his students, including students

who have never met him in person, I have been inspired by the clarity of his thinking, his courage in addressing difficult and controversial topics, and his unflagging belief that the best way to help the world is to identify the underpinnings of its problems. Those who know Thomas Schelling personally love him for his kind ways and his remarkable generosity in providing comments and sharing ideas. Those who know his ideas marvel at his remarkable creativity. And all, including those who have never heard of him, are indebted to him for his work in preventing nuclear war.

In the 1950s, there was much that the United States and the Soviet Union did not understand about each other or about their relationship, as they embarked on a multiple-decade adventure where either party could wreak intolerable losses on the other. This was precisely the type of relationship whose anatomy Thomas Schelling was prepared to explicate. His greatest insight was to recognize that the two great enemies were strongly interdependent, more interdependent than any two nations on earth ever had been, with a monumental joint interest in avoiding a nuclear exchange. As the pages of this book reveal, Schelling worked tirelessly for many years to prevent such a nuclear war, or indeed any other. He wrote books and articles, some at a scholarly level, others accessible to anyone with a policy interest. He worked with U.S. government agencies and nonprofit groups, and he attended international conferences, both those designed to pursue particular objectives and those intended primarily to build international understanding.

When the history of the world from 1950 through 1990 is written, it will be recognized that the great historical event of the era was something that did not happen: Despite grave dangers, no nuclear weapon was launched against an enemy. The intellectual models of conflict and cooperation provided by Thomas Schelling, and his willingness to work tirelessly to get policymakers from all corners to understand their implications, deserve considerable credit for ensuring this nonevent. Today, he is seeking to extend the taboo on using nuclear weapons to a new era afflicted with dozens of potential nuclear nations, many hostile to one another.

Thomas Schelling has made remarkable contributions to scholarship by facilitating our understanding of how the world works at the levels of the individual, the dyad, and the larger group. He has provided us with deep insights into problems such as addiction, bargaining processes, and racial segregation. His greatest contribution to the world, however, is the work that he did over many years, and that continues: He helped make the world a safer place to live.