

Social Ecosystems: A Complexity Context for Health Care Policy



Ken Baskin

Complex Systems and Policy
Analysis

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Arlington, VA

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Crisis in Health Care?



- “Unless action is taken within the next two or three years . . . we will have a massive breakdown in our medical system.”
Richard Nixon, July 1969
- Public policy efforts to avert the crisis caused as many problems as they solved.
- Since 1969, federal spending has risen from \$16 billion (6.6% GDP) to more than \$400 billion (13.5 % GDP).

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The “Ecograph”



- A tool for visualizing human social systems
- For understanding the enormous complexity of such systems
- For mapping behavior patterns in a system
- For beginning to think about new approaches toward public policy

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Four Complexity-based Assumptions



- First, John Holland's description of CASs as composed of "interacting agents" that continually adapt to environment, including each other, forming ever-changing patterns -- are human social systems CASs?
- Second, human beings are CASs -- not just adaptive, but autonomous agents

Four Complexity-based Assumptions



- Third, one-on-one relationships as basic building block of human systems
- Fourth, all human systems -- families, neighborhoods, schools, business, economies, nations -- are inter-connected networks of one-on-one relationships, "Social Ecosystems"

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Social Ecosystems



- Suggests critical importance of relationships with others in the system and responses to environment
- Suggests inter-connectedness of all parts so that an adaptation anywhere can cascade through the system
- Suggests limitations of linear actions based on cause-and-effect logic

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Understanding Health Care as Part of a Social Ecosystem



- Extreme complexity -- to map this system we must necessarily oversimplify
- Complexity of traditional Physician/Patient relationship
- Focusing on relationships that effect health, must also include government health agencies, communities, insurers

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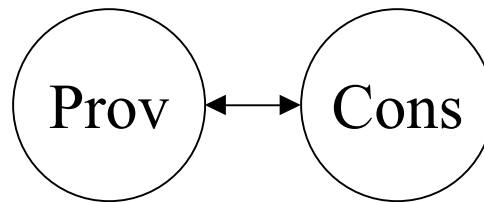
Building a Health System Ecograph



- Focus on “health care” system means beginning with doctor/patient relationship and building out
- Many other ways to map this system
- A wide variety of systems within the overall social ecosystem

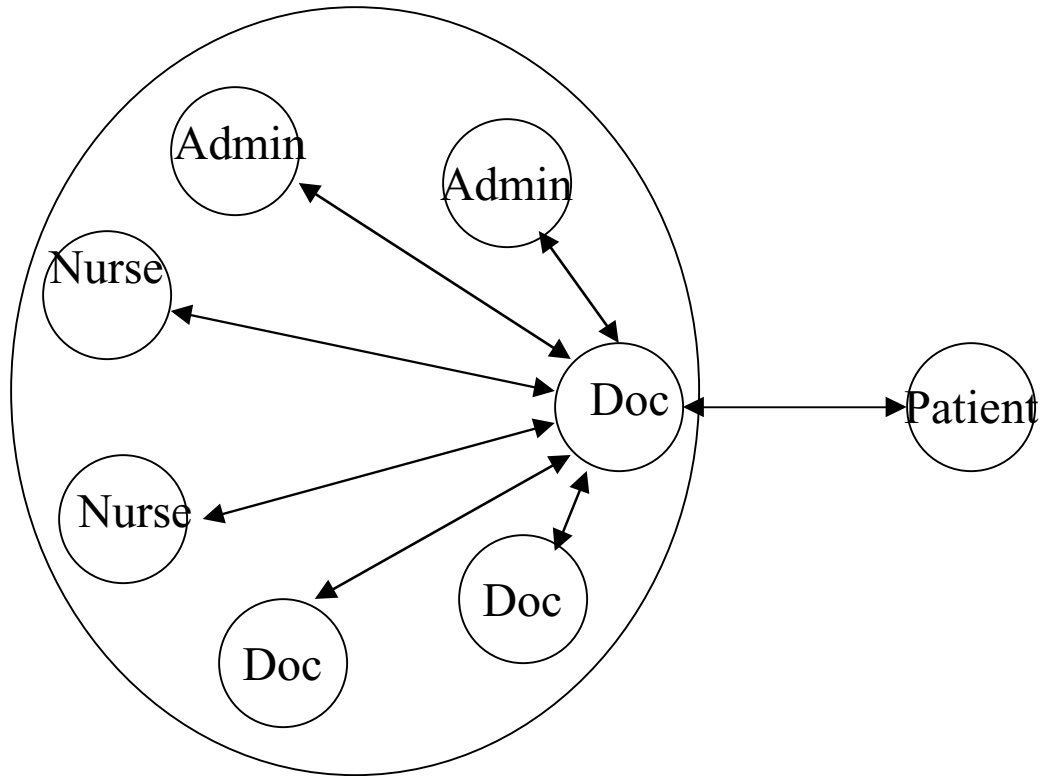
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Provider/Consumer (Patient)



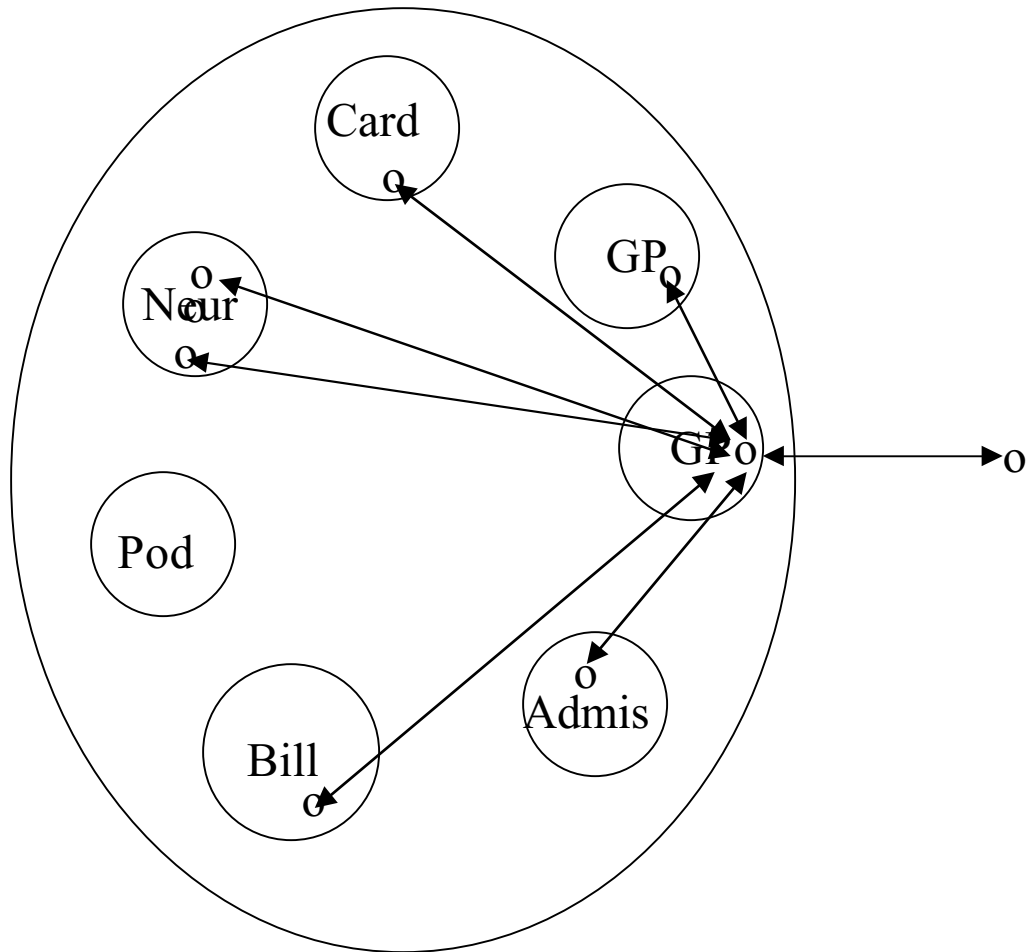
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Group Practice



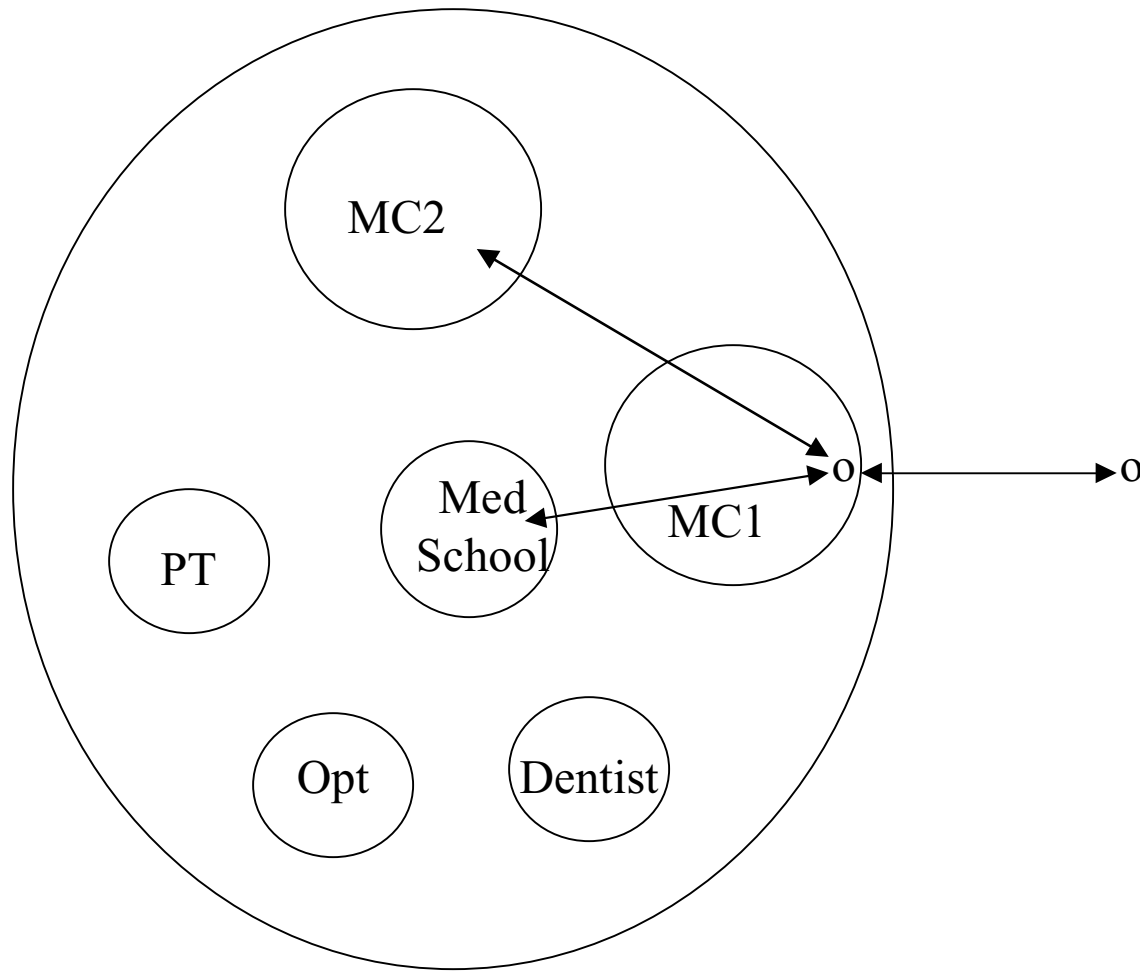
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Medical Center (Hospital)



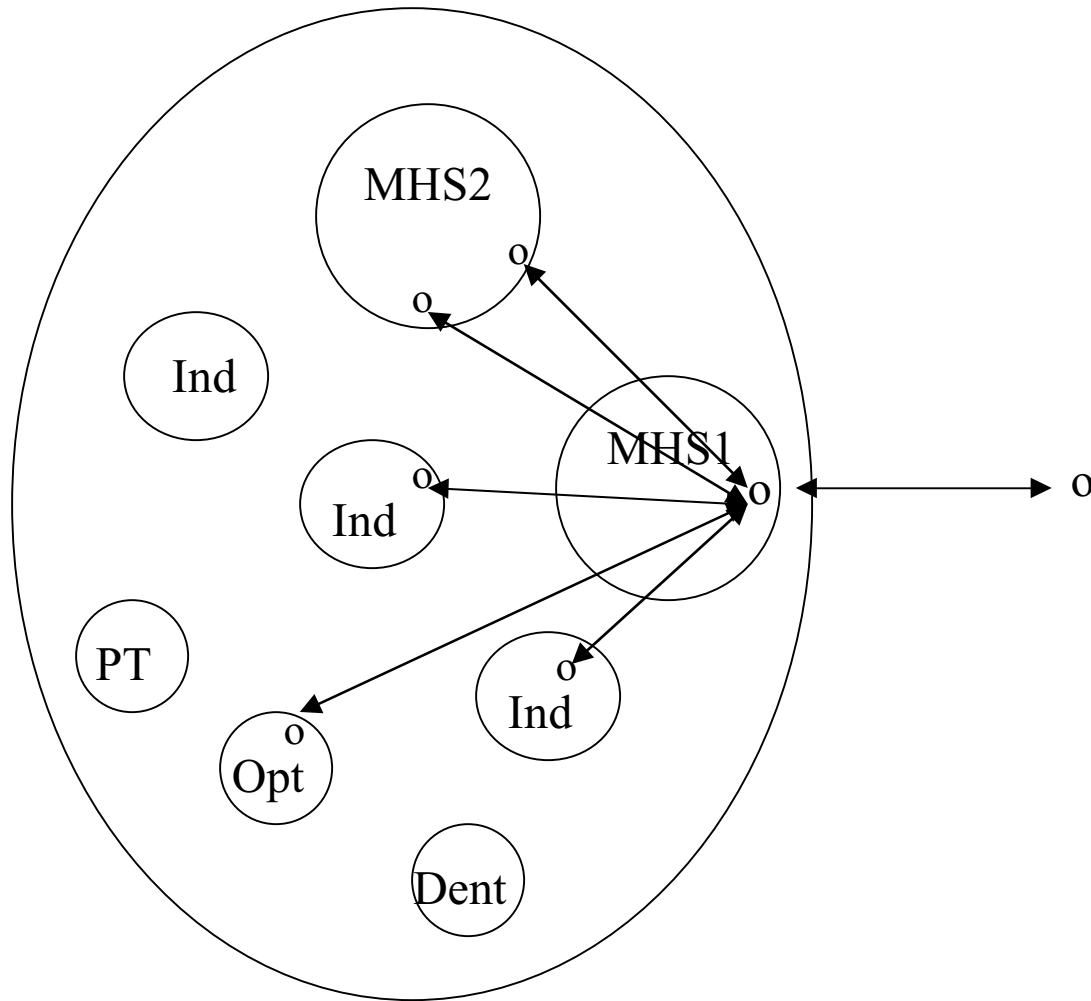
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Medical Health Care System



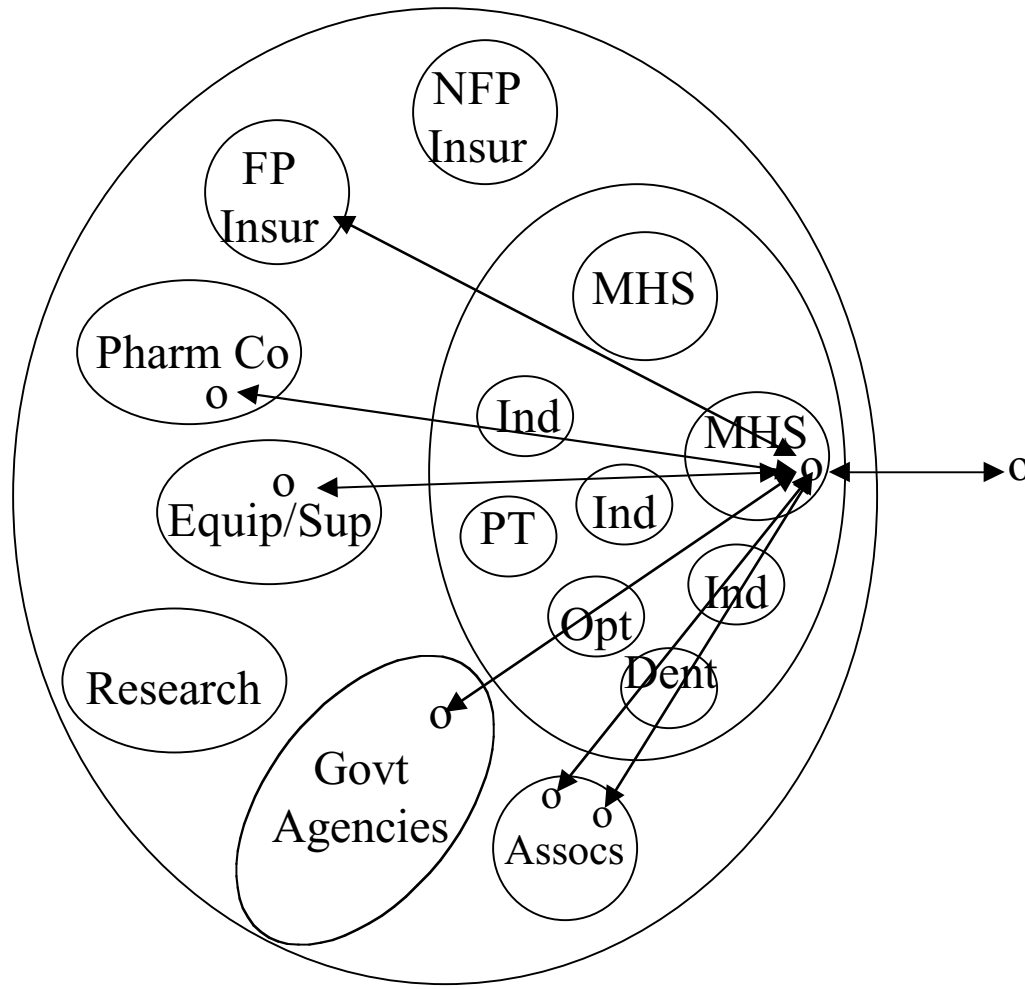
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Community Health Care Delivery System



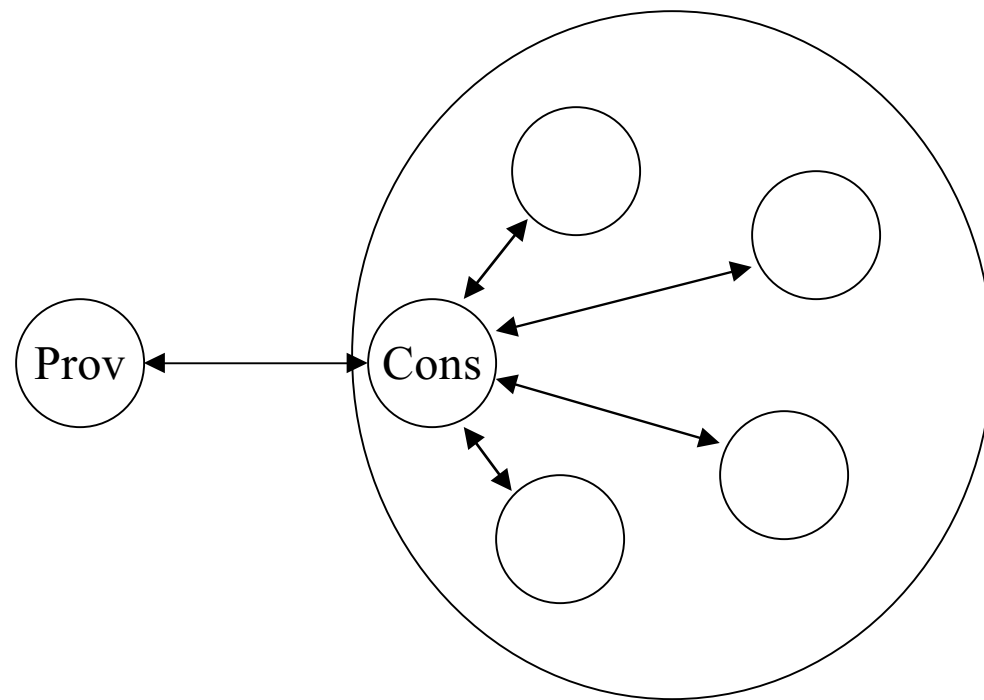
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Health Care Delivery with Support System



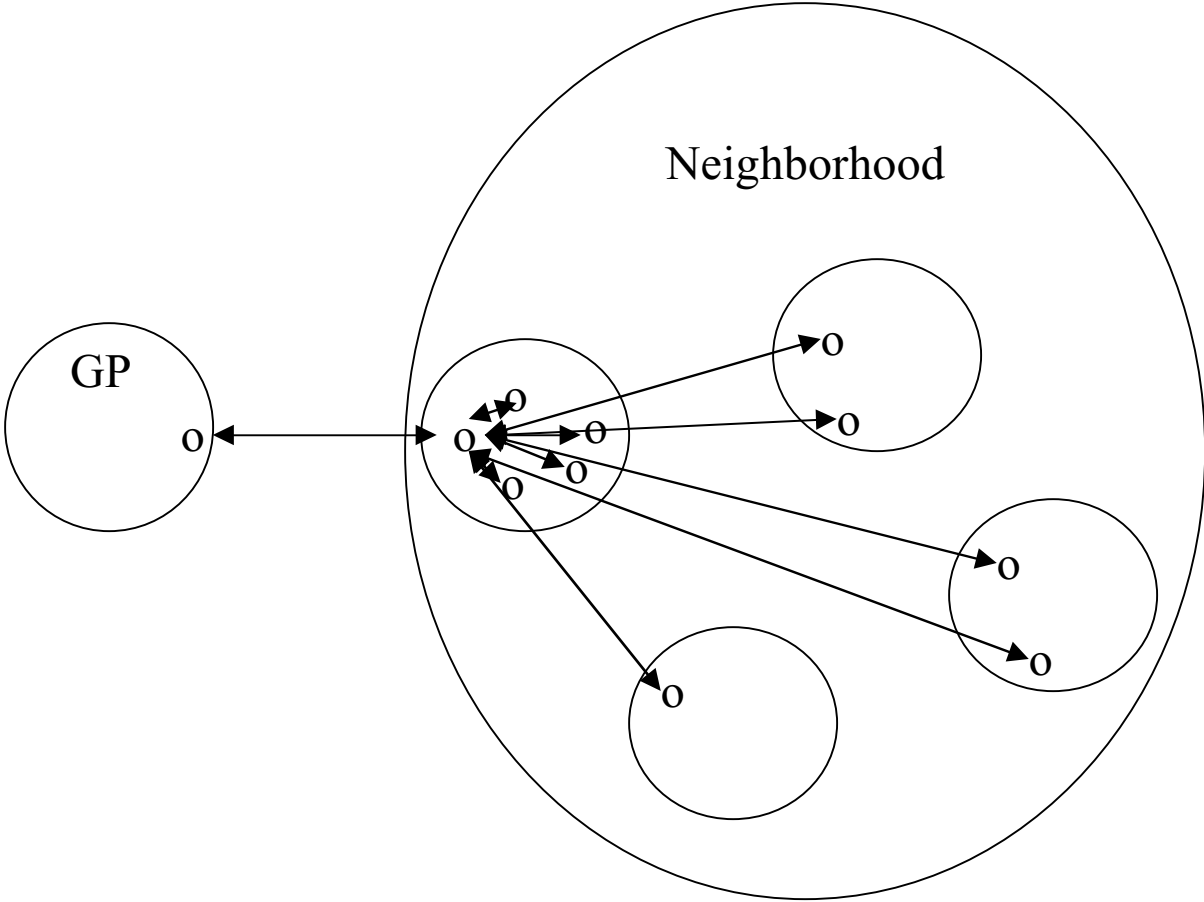
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Family System



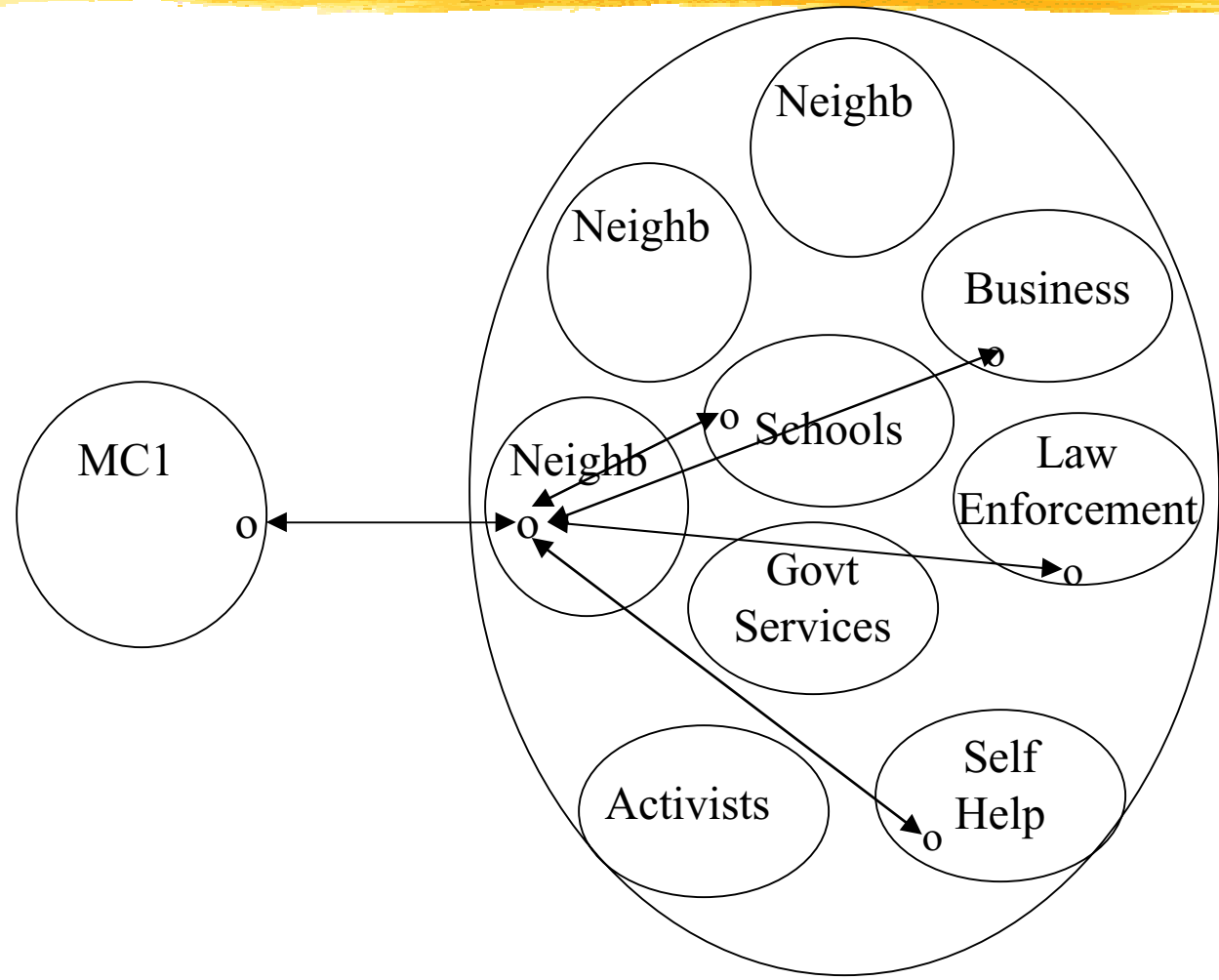
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Neighborhood



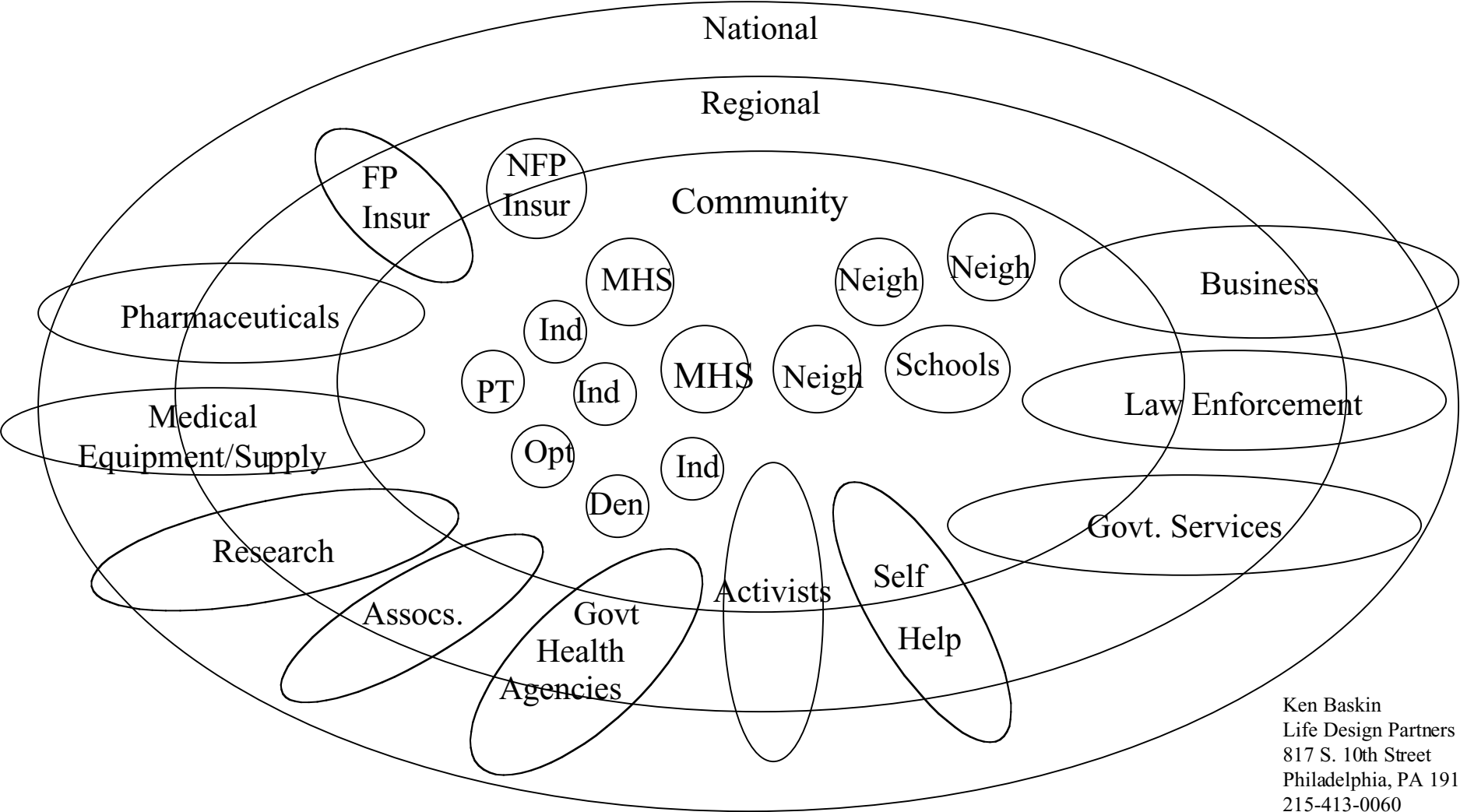
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Community System



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Health Ecosystem



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Inter-connection



- Every party on every level of scale is inter-connected to every other
- Actions in one area of one level can cascade across the system, causing major adaptations
- Examples -- AIDS, Medicare

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Challenge to Policy Makers: The Quality of Relationships



- Employees of health care providers and those of insurers -- a mutually beneficial relationship gone adversarial
- No reason it has to be that way, adaptation to loss of shared vision/purpose, narrowing sense of best interest
- Work together -- that is, they adapt -- to meet their needs at the expense of the system
- Not bad people, products of a system

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Problems vs. System Outcomes

- What we call problems are undesired outcomes of highly complex systems
- Traditional rule-making to “solve” problems, predicting specific “results” from specific actions, invokes Law of Unintended Side Effects
- Examples -- DRGs and Medicare

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A New Way to Think about Public Policy



- Traditional rule-making cannot control highly complex policy issues, like health -- prediction no longer feasible
- Many allies concerned about public interest
- Question becomes how to get those allies working together without overly invoking Law of Unintended Side Effects

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Conclusions from Health Ecograph



- Such systems are highly inter-connected with sense of fragmentation arising from loss of shared vision/purpose and narrowing of sense of best interest
- Because of inter-connection, people in these systems cannot be controlled
- However, complexity theory suggests that there are few villains, just autonomous agents acting in their best interests

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Conclusions from Health Care Ecograph



- Once people recognize most others are acting from same motives, they can start working together again
- Then, an incremental process of working together for a vision/purpose, expanding sense of best interest, that all parties recognize as growing from their personal visions/purposes -- Affordable, quality health care for all Americans

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Conclusions from Health Care Ecograph



- A new conception of the role of public policy makers -- not creating rules and incentives to “solve” problems by predicting and controlling behavior, but encouraging conditions that enable people throughout any system to work together from their own sense of what’s most important to them

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