

Systems theory and complexity: Part 4 The evolution of systems thinking

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Introduction

The main focus throughout this series has been the consideration of general systems ideas from a complex systems perspective. This task in itself is hopefully useful to complexity thinkers and general systems thinkers alike. However, as has already been mentioned in previous installments, systems thinking has evolved considerably since the early days of General Systems Theory (GST). The developmental pathways that systems thinking has trodden during the past quarter of a century perhaps contain lessons that may facilitate, both directly and indirectly, the future development of *complex* systems thinking. It wasn't so long ago that complexity thinking was synonymous with bottom-up computer simulation. However, in the past 5-10 years we have seen other threads emerge from this mathematically focused starting point that acknowledge the profound philosophical implications of complexity (implications that are not too dissimilar to those that triggered the soft systems movement in the last 70s, early 80s), and the value of qualitative methods and methodologies to the understanding of complex problems (sometimes labeled 'messy' in the systems literature). The path from abstract mathematics to critical pluralism bears such a resemblance to the path from GST to systemic intervention (for example) that it is difficult to ignore the lessons that complexity thinkers may glean from a study of the modern systems literature and

its recent evolution. Given the deep similarities it is strange indeed that these two bodies of literature currently co-exist almost independently from each other.

As advertized in part 3 of this series (Richardson, 2005), this final installment is concerned with the recent evolution of systems theory/thinking. Since part 3 was published, ISCE Events organized the 1st International Workshop on Complexity and Policy Analysis that was hosted by the Department of Government University College Cork, Ireland which ran from 22-24 June, 2005 (an edited book of papers is due to appear later this summer, Dennard, *et al.*, 2007). On day three of this event the participants listened to a presentation that not only briefly summarized the recent history of systems theory/thinking, but also looked at some of the connections with complexity theory and provided some short examples of modern systems practice. The focus of this lecture, titled "Systems thinking for community involvement in policy analysis" given by Gerald Midgley of ESR in New Zealand, matched so closely the originally plan for the final installment of this series that it was decided to base this installment on the edited transcript of Gerald's presentation. So here it is...

- The death of the ‘super model’
- The limits of ‘rational planning’
- The limits of the ‘engineering’ metaphor
- The limits of ‘expertise’
- The limits of ‘optimisation’
- The inability to deal adequately with conflicting values, viewpoints, policy preferences, ideologies & power relations
- The self-justifying ideology of systems science as comprehensive analysis

Slide 1 *The critique of systems analysis ('60s and '70s)*

Systems thinking for community involvement in policy analysis

Well, thank you very much for inviting me. I feel quite privileged to be invited to a complexity conference, given that I haven't made much of a contribution to complexity thinking at all really, being primarily engaged with the systems community, but my hope is that there can be learning across those two communities, and that's one of the features I wanted to talk about today.

My talk is called "Systems thinking for community involvement in policy analysis" and what I've done over the years has been in relation to numerous kinds of audiences, whether they're management or policy or community development audiences, and some approaches that I've used are transferable across those domains (although there are different problems that face you in different aspects of those domains). So, I'm hoping that what I say will have some relevance to policy.

I want to start by acknowledging where policy analyses came from because, as I understand it, in the 60s policy analysis and systems analysis were considered virtually synonymous - there would hardly be any policy people who weren't using systems analysis in some way. That approach came into disrepute in the late 60s and early 70s. I want to touch on that situation herein, in case there are people out here who are very skeptical about why somebody is

even talking about systems thinking again, and to give some information about where systems thinking has moved to, in a very general way, because it's really entering a space that is much more akin to where complexity thinking seems to be heading. I would also like to talk about the relationship between systems thinking and complexity science before going onto my own work, which is about *systemic intervention*.

What I mean by systemic intervention is based on the assumption, which as far as I can tell all systems approaches make and complexity thinking also seems to make, that everything in the universe is directly or indirectly connected to everything else. However, you can't have the god's eye view of that interconnectedness so there are inevitable limits to understanding and it is those limits that we call boundaries. So, systemic intervention for me, at a fundamental level, is how to explore those boundaries, and how to take account of the inevitable lack of comprehensiveness and begin to deal with that. This will lead me onto talk about something that I've called *boundary critique*. And by this I mean being critical of boundaries, rethinking them, thinking about the different places that they could describe and the meanings of those places.

The discussion of boundary critique will take me onto the need for theoretical and methodological pluralism, drawing upon mixed methods, and evolving methodology on an ongoing basis. At the end, I will give a case

study of systemic intervention from Water Management, which is a project that I was only involved in right at the final stages when I first moved to New Zealand. Colleagues of mine worked on a project that was seeking to resolve a dispute that had been running for 30 years, between the local council and a community over water management. Throughout this talk I will give you some other practical examples as I do think it is quite important to ground these things in practice to give them some deeper meaning.

The critique of systems analysis (1960s and 1970s) (slide 1)

Let us start with what happened to system analysis in the early days. People may be aware that there were lots of large scale modeling projects in the 1950s and 1960s. The ones that seem to come into most disrepute were the giant models built, especially around California (that seems to be the typical one other writers use as an example), where council offices were recruiting consultants to build models of whole cities with no particular purpose in mind. The belief was that a policymaker could go to the modeler and say, "Well, can you now answer this question for me given all this wonderful data that you've got." Of course, by building models without purposes you end up with such huge complexity that the results end up being largely unreliable and meaningless. So, there was really, what I would call, the death of the *super model* if you like in the 1960s.

People began to realize the limits of *total rational planning*. And the example that I like to give - it's not really an example from systems actually - it's an example from Operations Research (OR) in the UK, which was the planning of Stansted airport in the 1970s. Here millions of pounds was spent basically commissioning an analysis of which was the best option for building a new London airport. They narrowed it down to three options and then said, "This is the one based on all the various criteria about the environment and social impact and what have you." Politicians promptly went and said, "Well, that's no good. It doesn't take into account the politics

of marginal constituencies, and we'll choose this one instead." And this one's regarded in the OR community as being the example of the death of rational planning, which resulting in rational planning coming into disrepute. And that, to me, is actually an example of *irrational planning*, by not taking into account the perspectives of those people who need to take the decision. That doesn't mean you just go with those perspectives and agree with them, but it means you have to actually work with them in order to be able to get something that's going to be useful.

The limits of the engineering metaphor in the 1960s therefore became more apparent. This did not just occur within the *systems analysis* movement as there was a major *systems engineering* movement that spread across the world. With the term 'engineering', of course, was all the connotations of being able to command and control social systems as if people with their own self-consciousness didn't actually sometimes say "I want to actually resist those kinds of movements." So, the engineering metaphor began to die away.

The notion of 'expertise' also came under scrutiny, i.e., the idea that the modelers and the scientists always know best. People began to realize other kinds of expertise, the expertise of the people on the receiving end of some of these policies for example, was actually important.

People also began to realize the limits of optimization approaches. It is simply the case that what is optimal from one perspective may, given a different value set from a different perspective, be completely unacceptable. So simply talking about optimization as the only thing that we do is not enough.

With the inability to deal adequately with conflicting values, view points, policy preferences, ideologies, power relations, etc., the limitations of some of the 'engineering', 'rational' and 'optimal' approaches began to show through. (If you simply start with a goal of one stakeholder then all kinds of things emerge, all kinds of side effects emerge.)

The self-justifying ideology of systems science is one of *comprehensive analysis*. What often happened at that time is that if a

- **Model for particular purposes, and *explore* those purposes rather than take them for granted**
- **Accept the relevance of multiple rationalities instead of generating ‘objectively rational policy’**
- **Abandon ‘engineering’ in favour of engaging with self-conscious actors**
- **Democratise ‘expertise’**
- **Confine ‘optimisation’ approaches to limited spheres of application**
- **Account for conflicting values, viewpoints, policy preferences, etc.**
- **Accept that systems thinking is about dealing with the inevitable *lack of comprehensiveness*, and is not the means to *achieve* comprehensiveness**

Slide 2 More recent systems thinking principles

model failed, if people weren’t satisfied with the results, the diagnosis was always that “we weren’t comprehensive enough so we need more systems thinking.” That’s an argument that can go so far before people say that “the emperor’s got no clothes.”

So that’s what was happening in the 1970s, and it really took systems thinking a good decade to recover its credibility. In that process of recovery, some quite dramatic shifts in where systems thinking was going happened. I’ll talk very generally about what those shifts involved, and you can always find particular positions that are exceptions to these generalizations of course, and you can always add things into these, but this is generally the movement that happened.

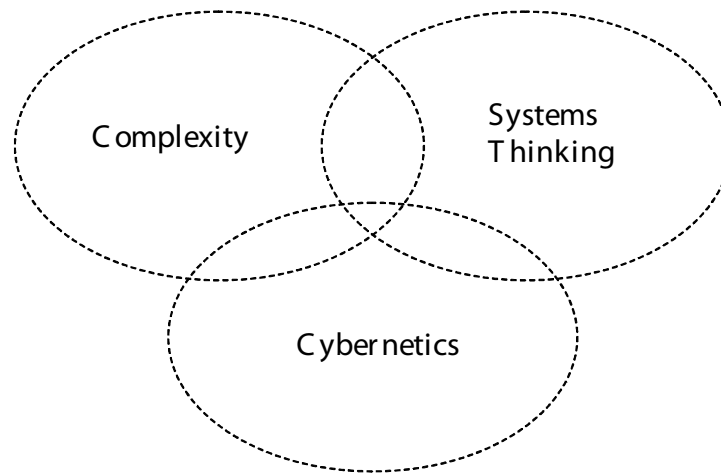
More recent systems thinking principles (slide 2)

Instead doing massive super models, modeling for particular purposes (rather than all purposes) became more usual. As such much more focused modeling was undertaken that didn’t necessarily pretend to be all comprehensive, but actually thought about what is fit for purpose, and exploring those purposes rather than just taking them for granted. So you’re embedding that modeling in a social process, as opposed to simply producing a mathematical model and thinking that will produce the answers on its own.

Part of the new socially-embedded modeling process was accepting the relevance of multiple rationalities, instead of generating a so-called objective rational policy. We began to realize, of course, that if there are different perspectives out there, that’s going to matter in terms of whether our modeling is meaningful or not to those different perspectives. This led to the abandoning of the engineering metaphor in favor of engaging with self-conscious actors.

Now, the engineering metaphor is still around in some places. For example, in the military systems domain, people still talk very much about systems engineering. It’s still very prominent in China where there’s an institute for systems engineering (which has 600 researchers) that is as big as institute for physics and biology and chemistry. In Colombia, there are still systems engineering degrees, but what they teach is actually the whole breadth of systems thinking, so the term has changed its meaning.

The democratization of expertise has also happened. Instead of assuming that the expertise is simply scientific expertise or modeling expertise or policy expertise, there are many other possible types of expertise including people in the community, different stakeholders. From my own perspective it is really important to preserve that notion of expertise because, although there have been some people arguing that we actually just get rid of the



Slide 3 *Systems thinking and complexity science*

term, it's quite dangerous to hide the notion of the systems thinker, or the intervener, as just another participant because they're not. They actually play quite a pivotal role in constructing events, and by actually labeling it as a particular kind of expertise, you can actually make them accountable, whereas if you lose expertise, you lose that accountability.

The value of optimization approaches has not been entirely undermined, but there is a growing acceptance that the value of such approaches has limited spheres of application. I like something that somebody said yesterday about *islands of tractability*, as it is an idea that has really come into favor. The idea is that *there are* of course valid applications for optimization techniques. You want the trains to run on time. You want to be able to get to a conference like this on time. Of course, you do need optimization techniques, but they have *limited domains of application*. We also need approaches that account for conflicting values, viewpoints, policy preferences, etc. Ultimately the 'modern' systems view urges us to accept that *systems thinking is about dealing with the inevitable lack of comprehensiveness and is not the means to achieve comprehensiveness*. This is a really crucial shift in how systems thinking has developed.

Systems thinking and complexity science (slide 3)

In terms of the relationship between complexity and systems - why I'm here basically, in terms of learning from complexity

people and hopefully the learning being two-way - I see systems thinking as a discourse that has a community of people who are engaged within it, with fuzzy boundaries at the edges. I think that complexity is quite similar in that respect. There's a community of complexity researchers, but both communities overlap with one another. I can see people around this room that I see in both communities. There are other communities that intercept with systems and complexity as well. For example, the cybernetics community - I just put a third one in there as an example of one that we're all sort of connected with. I think this a much more fruitful way of thinking about the interrelationships between these various communities, rather than to begin to say, well, actually systems thinking is the thing that encompasses all these communities, and complexity is a sub-approach, or that complexity encompasses everything and we fix systems thinking within it. There are differences in the agendas, and so the identities are worth preserving. There will be different views about what those differences are, but that's a conversation you can have.

And yet complexity and systems thinking, both of them, are not things that are easy to define. We saw that our first day here. It was quite clear that people are using the words in different ways, and nor is it necessarily productive to be able to define them, or to pin things down. I just wanted to give some examples of paradigms in the two areas. When I was looking at Slide 4 in preparing for this talk, it suddenly occurred to me that if you in-

Complexity	Systems
Complexity Science (e.g., Gell-Mann)	General System Theory (e.g., Von Bertalanffy)
Interpretive Complexity (e.g., Warfield)	Hard Systems Thinking (e.g., Hall)
Social Interactionism (e.g., Stacey)	Soft Systems Thinking (e.g., Checkland)
Critical Complexity (e.g., Cilliers)	Critical Systems Thinking (e.g., Ulrich)

Slide 4 Multiple paradigms of systems and complexity

Intervention:

Purposeful Action by an Agent to Create Change

Systemic Intervention:

Purposeful Action by an Agent to Create Change *in Relation to Reflection upon Boundaries*

Slide 5 The meaning of ‘systemic intervention’

cluded interpretive complexity in with social interactionism, and you replaced interpretive complexity with agent-based modeling then the two disciplines contain quite similar perspectives. Now, of course, this is just a story I’ve created to reduce the complexity, but you have the same basic ideas in complexity science and in systems theory. You have the modeling approaches. You have the kind of interpretive social interaction approaches, as well as the critical approaches which are really about values and ethics. So, you have this kind of variety that interestingly is emerging in the two perspectives. There’s also a lot of other varieties as well that are not represented here, but I just find these similarities quite interesting.

The meaning of ‘systemic intervention’ (slide 5)

The previous material is given mainly to situate where I’m coming from, and why I’m here. I next want to give you a little bit of background on my own work. The systemic intervention research program that I’ve been developing is something I’ve been working on over the last 20-odd years, mostly in the UK, but now in New Zealand. It’s a program that has been continually building around theory and practice, so I’ve been engaged in a lot of multi-agency and community development work around social issues, and now environmental issues over the past 20-odd years.

I want to start by defining what I mean by intervention, knowing that this definition will raise more questions than it gives answers. I want you to ride with that because you’ll see where I’m going with it. I want to define inter-

vention as *purposeful action by an agent to create change*. Now, that doesn't mean completely pre-planned or based on flawless prediction or any of those sorts of things, but I think you can talk about action being purposeful. It doesn't mean that it's necessarily coming from outside as if you're manipulating a system. Whether you're coming from inside an organization or whether you're coming from outside, you become part of the organization as soon as you engage with it. We're talking about action from inside.

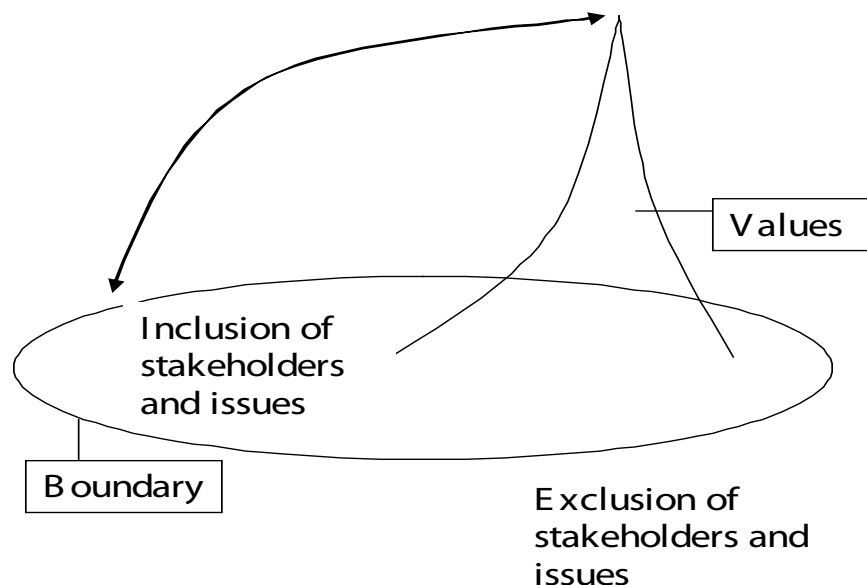
And what I mean by systemic intervention – going back to what I said right at the very beginning – is that because we can't know the interconnectedness of reality, the full interconnectiveness of everything, i.e., we cannot have that god's eye view – we necessarily have boundaries. Whether you're aware of them or not, in your understanding of anything, there are boundaries involved. So, systemic intervention for me means *purposeful action by an agent to create change in relation to reflection on those boundaries*. So that's the basic concept I like to use to begin to think about how you deal with the impossibility of knowing everything.

Some ideas about boundaries

What I want to do next is go very briefly through the history of some of the ideas about boundaries in

the systems community that I think might be relevant to the complexity community as well. I wanted to start with the basic boundary idea that was introduced by Churchman in the 1960s because he made a radical departure from the previous systems ideas where people just assumed that boundaries are reflections of the kind of skin of a system, e.g., the skin of my body is my boundary. People assumed it's a real world entity. What Churchman did was to say was that boundaries could actually be conceptual or social constructs. They mark the inclusion or exclusion of stakeholders, people and issues.

The circle in Slide 6 represents a boundary which marks who's included, who's excluded, what issues are in the analysis, and what issues are out. The peak represents the values that are associated with that particular boundary. Churchman's key insight was that value judgments always drive boundary judgments, and so it is impossible to have a situation where you have a bounded understanding without having some values lying behind that. So, the idea of absolutely objective analysis is clearly problematic. You might be able to reconstruct the notion of objectivity, but you have to acknowledge that there are values involved in any boundary judgment. But, at the same time, because we don't come to a situation completely from the outside with pre-given values, those values actually emerge from



Slide 6 *The boundary idea*

the systems that were actually embedded in already. So the given boundary judgments that are made in institutions and in human communities already constrain the kinds of values that can possibly emerge. As such there is this intimate two-way relationship between boundaries and values, and to explore that kind of relationship is a useful starting point for systemic intervention.

In terms of my own experience of facilitating systemic interventions, if you start to talk about boundaries, it seems quite abstract to people. As such they often get stuck with actually thinking with the current boundaries they are familiar with, and they inevitably get constrained in their thinking. If you actually start with values, people are often less use to thinking through values, and it actually opens up considerations more easily than if you start with boundaries. Thus, my starting point tends to be around values.

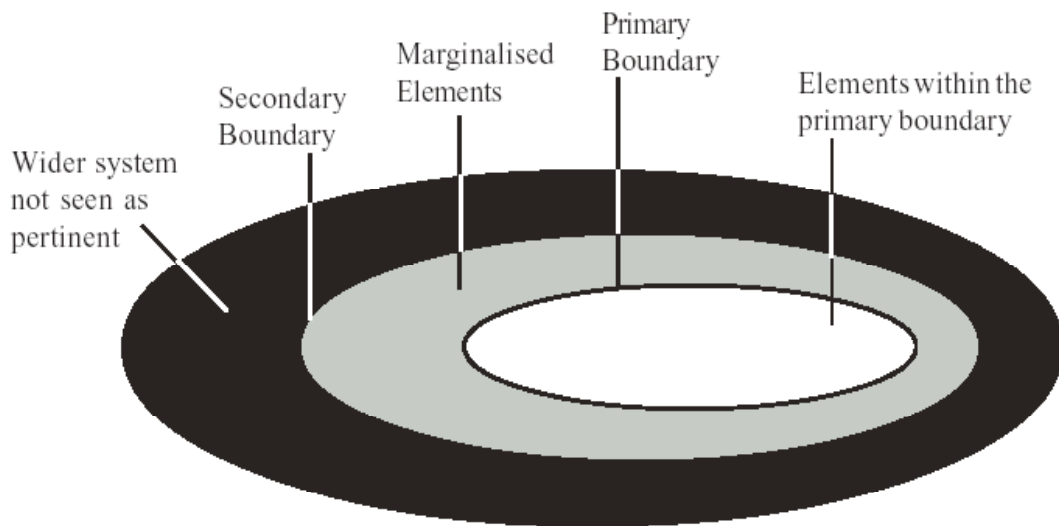
Now, Churchman's working in the 1960s and his mission, if you like, was to create an ethical systems practice. He believed that because you have this notion of boundaries constraining values, the most ethical systems practice is one that pushes out the boundaries as wide as possible to be inclusive of as many different value perspectives as possible. Without, however, going to the extreme of over-inclusion so that you can't do anything. But he basically said you push out as wide as possible. One of his students, Werner Ulrich, in the early 1980s was quite critical of this and he said, "Well, that's all very well in theory, but in practice there are a lot of constraints that stop you pushing out the boundaries as wide as possible. And, it's not necessarily irrational to live with those constraints when you have to make practical actions." He wanted to think about how you rationally justify boundary judgments, given that you can't be as comprehensive as you would want to be a lot of the time. In order to answer that question – how can you rationally justify system boundaries? – he had to ask a deeper question which is: what is rationality? Now, I'm sure nobody's come to this policy analysis workshop to answer the question "what is rationality?" but he had to address this in order to deal with this, and

he came to the conclusion that any argument concerned with the justification of a boundary is always expressed in language. Language is something that is socially shared with other people. It's not something that is a purely private affair. That doesn't mean we necessarily completely agree on the meaning of words and signs, but it is something that's socially shared. So he came out with the principal that to say something is *rationally justified* means it has to be *agreed with all those involved in, and affected by, the thing that we're looking at*. It is quite a high principal of rationality Ulrich's asking for, and something that's really quite difficult to achieve. Of course, he recognized that and said, "Yes, but this is something you try to move towards, try to secure an agreement between those involved in planning *and* those affected by it."

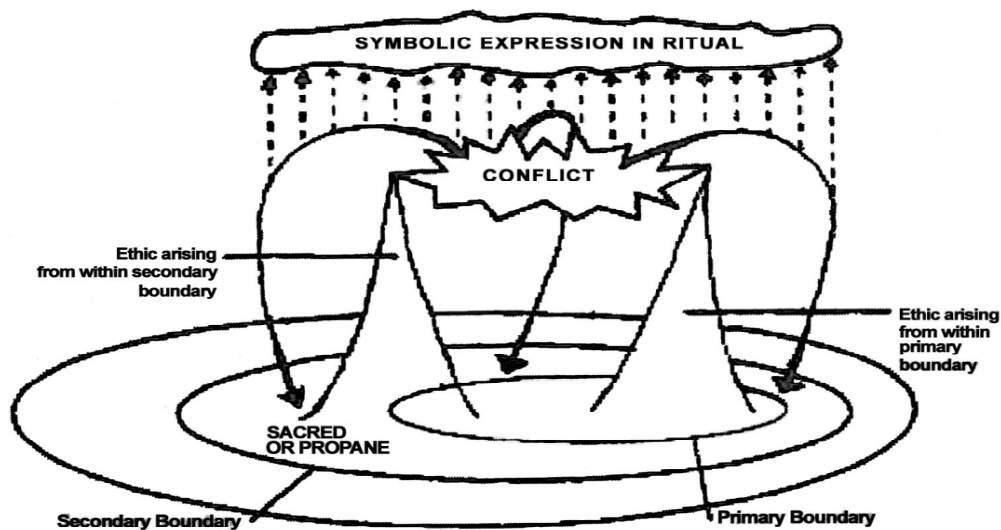
To make that practical, he developed a set of questions that both planners and ordinary people could use in debate to think through issues. These questions were about what the situation currently *is* and what it *ought to be*. The twelve questions he developed focused on four areas, namely:

- *motivation* – why would you want to be planning this system in the first place;
- *issues of control* – who should have decision-making power and what should people have some say over and what shouldn't they have say over;
- *issues of expertise* – what forms of knowledge are necessary and what sources;
- *issues of legitimacy* – what are the values this is based on, are you creating oppressive systems from this and what should you do about that if anything.

So there are questions that he used, and I've used these kinds of questions in a number of different studies. I've used them, for example, with children living on the streets, with people with mental health problems in prison, with older people in residential care. As a result, I think Ulrich is quite right that these are questions that ordinary people with no experience of planning can engage with and produce out-



Slide 7 Marginalization



Slide 8 The process of marginalization

put as at least as comprehensive as professional planners, *providing that they are phrased in everyday language*. (The versions Ulrich produced were in academic jargon so you have to rephrase them.)

When I came into this in the mid-to-late 1980s, I was interested in what Ulrich had done but I was also more interested in what happened when different value and boundary judgments come into conflict, i.e., when you have a situation where people making different boundary judgments – having different values – and they’re really getting into entrenched conflicts that begin to stabilize. I wanted to both try to explain that phenomenon, and see if I could develop some methods

to do something about it. So, I developed the idea that in most situations there isn’t just one boundary judgment going on, but multiple (as depicted in Slide 7). The inner ellipse represents a boundary judgment that might be made by one group, and the next ellipse is a boundary judgment that might be made by a second group. The area in between these two boundaries is referred to as the *marginal* area. There are things that are of core interest to everybody, and things that only interest some groups.

To give an example, consider unemployment. For an industrial organization, they may be a perfectly ethical employer who’s concerned with the welfare of their own employees – they’re concerned with paying them

a decent wage, but they're not concerned with giving money to people who are unemployed in the local communities outside their sphere of concern. As is quite common and understandable, they are concerned with their own health as an organization, with their own employees. Whereas you've got activists in the community who are very interested in people who are unemployed and believe that there needs to be some responsibility taken to deal with unemployment as an issue and the industry has some responsibility for that. So you begin to get some conflict.

Now Slide 8 this looks horrific at first but I'll talk you through it. Firstly, you see the same boundaries here as in Slide 7. In the center is a narrow boundary judgment, let's say this is the one that is made by the industrial organization that says we only need to be interested in our employees. The next (middle) boundary represents the one made by the community activists who say we should also be interested in dealing with unemployment. The two peaks represent the values that are associated with each boundary judgment – these values then come into conflict. I realized by doing a number of projects that these kinds of situations are not necessarily always resolved. There is a tendency to assume that when you've got a conflict, somehow the conflict gets resolved and everything's nice in the end. However, a lot of conflicts do not get resolved. A lot of conflicts stabilize themselves, and they perpetuate for weeks, months, years, generations and there's something going on that creates this. What I was looking at is what's happening to the things in the margins that stabilize this conflicting situation. What I realized is that the things in the margins get an attribution of being *sacred* or *profane*, and I use those words purely to emphasize the power of these kinds of judgments. If those things in the margins become viewed as profane, then it justifies only looking at the narrow boundary so that people who are unemployed, for example, begin to be looked on as scroungers who are wasting taxpayers' money, thereby justifying people in that organization in saying, "It's not concern of ours. These are wasters. It's none of our responsibility." Or they get viewed as

sacred, so the community activists begin to say, "If we could only harness the energy of the unemployed, it'll be the vanguard for a new political movement." In my early 20s I was standing outside of unemployment exchanges handing out leaflets reflecting that view, so I was making unemployment sacred. And there's rarely a consensus around whether things in the margins – whether the issues or the people – are sacred or profane, and as such you begin to see conflict develop. The stabilization eventually happens through institutionalization of one or other of those attributions being made dominant. So, you get rituals being formed through institutional processes.

For example, I was unemployed for three years in the 1980s – in the early Thatcher years – and I had to sign a register once a week to declare that I was eligible for work. That particular ritual had a function: it allowed the people to know that I'm ready for work, but it was also an exercise in ritual humiliation that basically justified the view that unemployed people are 'profane' in this situation.

So, this is the kind of process that I believe is going on, and it goes on at all sorts of levels. I've seen it going on in small group relations, I've seen it going on across organizations, between organizations, in international relations, etc. Some are easier to shift and some are very, very difficult to shift indeed. I was at a conference like this a few years ago and when I reached this part of the talk a woman in the audience asked me this question, which is the most absolute bummer of a question that anybody could possibly ask anybody at a conference. She said, "I'm from Israel and this model really explains that Palestinian/Israeli conflict. What would you do about it?" I said, "Well, some problems are easier to diagnosis than they are to solve!" What is actually going on in some of these really, really entrenched situations is that this whole process of marginalization is given life, and made very resistant to change by conflicting discourses that are embedded in institutions across societies.

Just to follow through the example of unemployment, unemployment is one of those situation for which the marginal status of the unemployed is extremely difficult to

Young people on the streets are marginalised in two ways:

- As young people under 16, they are regarded as less rational and less able to make informed decisions about their own lives than adults
- Living on the streets, they can easily be regarded as ‘troubled teenagers’ on the fringes of society, and are often vilified for their involvement in petty crime, prostitution, etc.

Slide 9 Developing services for young people (under 16) living on the streets

change. The reasons I see for that particular issue relate to the conflict that goes on in our institutions between the discourse of capitalism and the discourse of liberalism. Although those are quite supportive of each other in some situations, in unemployment they're not. With capitalism, basically, you need the organizations to be responsible for their own employees, but they mustn't be responsible for others in the community. If you have to pay everybody an equal wage, then the whole capitalistic system would just collapse, if organizations had to be responsible for all the people in their local communities.

At the same time, if you actually said that unemployed people could be completely neglected, they can starve on the streets, then the liberal idea of equal citizenship would collapse. The only way to preserve those two things in institutions at the same time is to put unemployed people neither totally inside nor totally outside. They have to be kept in that marginal position. My interest in this is not purely as a sociological analysis. My interest in this is what meaning can this have for intervention? What can you actually learn from this? How can you reflect on these kinds of processes and do something about them? Of course, as any model, it's an oversimplification. There are lots of dynamic processes like this interacting, and they can be nested.

An example: Developing services for young people (under 16) living on the streets

To give you a practical example to ground these ideas a little better, I want to very, very briefly talk about a project which was about developing services for young people under sixteen living on the streets. This is a project I did in Manchester in the UK. Three volunteer organizations commissioned this project because they were aware that there are lots of homeless children living on the streets, and they were falling through the net of all the agencies, i.e., no agency had the statutory responsibility to deal with the situation. These particular children were not in school, so the schools did not have to deal with them. Housing is for people over sixteen, so the housing authority didn't have to deal with them. You can go from one agency to another arguing that they're not their responsibility. The agencies wanted us to work with the young people themselves, as well as with the agencies, to try to get some commitment to actually do something about the situation even though it was not their statutory responsibility.

I'd like to give you the whole story, but here I'll just focus on one aspect of marginalization. It was really important to us to involve young people centrally in this. We noticed there were two kinds of marginalization going on (Slide 9). First of all, young people in general are marginalized in the sense that they're regarded as less rational; less able to make informed decisions about their own lives than adults. As such they can only vote when they're

To deal with this marginalisation we:

- Sought the views of young people before involving professionals so the voices of the former were not crowded out
- Communicated *their* words (not just ours) to professionals, to convey the emotional experience of being on the streets, thereby securing multi-agency commitments to change
- Used the same design methods with young people as with professionals to ensure we did not reproduce the perception that young people are less ‘rational’

Slide 10 Developing services for young people (under 16) living on the streets 2

eighteen; they can only buy alcohol at certain ages; there’s an age of consent for sex; there are various things that mark young people out as different in this decision making ability sense. Secondly, these particular children were living on the streets. We’re talking about something like 2,000 children in the one year living on the streets of Manchester. I thought this was a problem in Brazil. I didn’t think it was a problem that existed in the UK. So it was a shock to me as a UK researcher that this sort of thing was going on. It was really a hidden problem. These children living on the streets can only survive through mainly petty crime or prostitution if they want to stay on the streets for any length of time. These are children who could easily be classified as troubled teenagers and be marginalized in that way.

How did we go about getting broad involvement (Slide 10)? First of all, we sought the views of young people before involving professionals; the voices of the young people were actually the foundation upon which the professionals could work. That was actually very affective in harnessing a multi-agency involvement, because the young peoples’ voices were very, very powerful. It was really strong, emotional material that we generated through interviews with children on the streets. It made it emotionally impossible, basically, for the agencies to say that they were not going to get involved. We communicated *their* words, not just *ours*, to professionals. This was really

important partly because of the emotional engagement, and partly because we had one situation where – as we were interviewing young people on the streets – a number of them were making quite strong allegations about how the police were behaving towards them; that they’d been abused by the police in various ways. We had a workshop with the police and we thought ethically we can’t just set this aside, and pretend that it hasn’t happened. So what we did is we produced quotations – all of the quotations whether they were positive or negative about the police – and just listed them over three pages of paper and gave them out. So we started the workshop by doing this and there was a silence in the room. I was kind of sitting there thinking this could just explode in any direction. It was a huge risk. But the very first person who spoke put their head up and said, “I know who did this.” And they just absolutely spontaneously started to say, “Yes, we have to deal with this,” and within an hour, they produced five different ideas for how they could actually correct the situation. I really enjoyed working with the police. They are really a proactive agency to work with on this sort of thing.

When we actually got onto designing the services, we used the same design methods with the young people as with professionals. We actually had a disagreement in our team over this. One part of the team was suggesting that we ought to have some kind of playful

- **Different theories assume different boundaries for analysis**
- **If we can decide between a wide range of possible boundaries, we can also draw upon a wide variety of theories**

Slide 11 *Theoretical pluralism*

- **Different methodologies and methods make different theoretical assumptions**
- **Therefore, if theoretical pluralism is possible, so is methodological pluralism**

Slide 12 *Methodological pluralism*

approach that would allow people to represent their concerns, maybe in a play or using art techniques for example. My feeling was that if we did that, it would have been very easy for the professionals to say, “Oh, yes, that’s very nice, we’ll take it into account, but here’s our proper plan that we produced.” To get over that, I thought we needed to use the same process with the young people as with the professionals. And what we did is we used the principles of *interactive planning*.

There are three principles of design in interactive planning:

- Plans have to be *technologically feasible* so there are no magic solutions to housing like little fold-up houses in your pocket;
- What is produced has to be *viable*. That means it has to be sustainable socially, ecologically, financially, culturally. It means you can disregard start-up costs because you know you need to raise the money to start something up, but it has to be sustainable by the agencies that are going to run it;
- It has to be *adaptable*. You don’t produce some kind of super bureaucracy that is impossible to change when circumstances change around it.

These are the only principles and they allow for creativity. And we also used those critical systems heuristics questions that I mentioned above about motivation, control, expertise and legitimacy to guide that debate so that you really got questions of governance and questions about young people’s involvement and things considered as part of that process. What the young people produced were actually much more detailed designs than the professionals. They dealt with things in a really sophisticated way. For example, they were talking about building a refuge for young people in the center of the city, and they were talking about the drug policy that would be needed in that refuge. There was one girl who said, “You need a three-strikes-and-your-out policy because drugs create violence in a refuge like this, and the last thing we want is violence when people are already in a vulnerable situation.” Another girl who was sitting next to her turned around to her and said, “How can you say that? You take drugs every day.” And she said, “I know what I do and what is necessary for this are two different things.” So there was a level of awareness and responsibility that was really striking for the professionals, and allowed the professionals to have confidence to take these ideas forward.

Theoretical pluralism (Slide 11)

I've already talked about the notion of boundaries and that it is possible to explore different boundary judgments, and the values associated with those. That allows *theoretical pluralism* as well because if there are different boundaries for analysis that are possible, then different theories assume different boundaries. For example, autopoiesis is about human beings as biological organisms and tends to take the primary emphasis as the boundary of the individual organism. Or you have Luhmann's theory of autopoiesis, which is about institutions being the primary focus. Biological organisms are irrelevant in that higher level view.

Different theories have different boundaries. If you can choose between different boundaries, you can choose between different theories. Whether or not you have to harmonize those theories in any kind of intervention depends entirely on the purposes of what you're aiming for. If you're dealing with some kind of practical policy-making, planning engagement, maybe you don't need to actually harmonize the different assumptions of those things (even if they are seen as incommensurable) – that would be a purely academic, unnecessary exercise. But if what you're doing is trying to produce some theory for an academic community that dealt with the better of two different possibilities, then you would need to harmonize them. It entirely depends on your audience and the purposes.

Methodological pluralism (Slide 12)

I want to move on from *theoretical pluralism* to *methodological pluralism*, give a theoretical rationale and some practical focus. Different methodologies and methods make

different theoretical assumptions, so if you can have theoretical pluralism, you can certainly have methodological pluralism. The real reason for that is practical. There is no method, as far as I can see, that can do everything, so you draw upon multiple things for the different purposes.

There are two kinds of methodological pluralism (Slide 13). There is learning from other methodologies to inform your own. Before continuing, I want to make a distinction between *methodology* and *method*:

- *Method* is the sets of techniques one uses to achieve some purpose, and;
- *Methodologies* are the theories and ideas that enable one to understand why that's the appropriate thing to do.

Now, you can build a methodology in an ongoing way, learning from other people. I built my understanding of methodology over a period of twenty one-odd years, and in that process – in order to be credible – you have to have some coherence. But in order to have learning from other perspectives, you also have to have disjunction at the same time. You have to be able to tolerate a certain amount of discord in your thinking in order to be able to have learning from others. In my own work, I go through periods of opening up to other ideas followed by periods of consolidation. I always think of developing a methodology as a *fragmentary whole*, which is deliberately a contradictory concept. If you take that kind of perspective, it allows you to say, "Yes, you're right. You tried to make some coherence out of it and I'm right as well, but you need to be able to have that discord as well." What that allows you to do in an academic community, or

1. Learning from other methodologies to inform one's own
2. Drawing upon and mixing methods from other methodologies, which come to be seen through the 'lens' of one's own methodology

Slide 13 *Two kinds of methodological pluralism*

- Interviews to consider boundaries and values, and to determine the main focus of the evaluation
- Soft systems methodology for planning the work of the team and establishing the focus of a database
- SSADM and database design
- Participant observation, interviews and collection of individual case study data
- Quantification and statistical analysis of client group characteristics and diversion rates
- Triangulation of the quantitative and qualitative data
- Critical Systems Heuristics and Interactive Planning to propose change in the wider criminal justice and mental health systems

Slide 14 *Evaluating a diversion from custody service for mentally disordered offenders (SSADM: XXXXXXXXXXXXXXXXXXXX)*

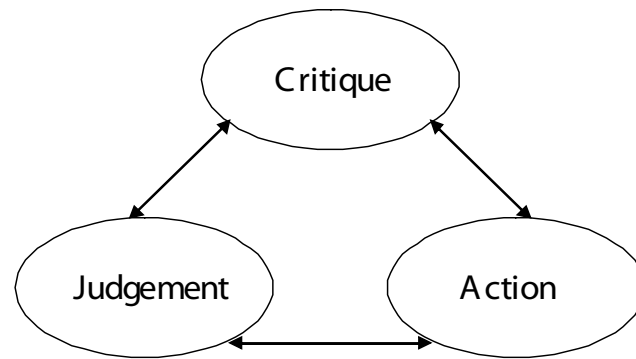
practitioner community, is avoid the situation that communities often get into where people build their methodology like a castle. They then go up to the ramparts and start firing at all the other people who try to knock the castle down – everybody has their own ideas and doesn't want to be told that the person standing up there has the absolute right answer.

An example: Evaluating a diversion from custody service for mentally disordered offenders (Slide 14)

To give you an example of what I mean when I talk about that kind of methodological pluralism at the methods level – this is project where we were asked to evaluate a diversion from custody service for mentally disorder offenders. That's people with mental health problems who ended up in prison inappropriately. Instead of getting treatment, they've been incarcerated for something that they've done, or they're in custody in a prison cell and they're not getting any help. We brought together a social worker, a probation officer and a psychiatric nurse who were going around police cells to identify people, and trying to work with the police and with the prison service, to get them out of prison and to get them alternatives to custody. When we were offered this evaluation, I could see straight away that what was happening was that they were responding to a situation that was already

existing. So, I suggested, "Instead of being a responsive service like that, don't you want to use the people that you've got to try to change the system, so that actually people are not getting into the prison in the first place; that you actually make the system more sensitive to the issues so it doesn't happen in the first place?" And the woman I was talking to said, "No, no, no. Don't go there. We've got the funding for this and we can only deal with this." So the deal I struck with her was that, "Okay, we'll do what you want. We'll spend a year gathering the data about effectiveness of the service, but if it shows at the end of the day that there is this problem with the system continuing, and they're only mopping up – they're only an ambulance at the bottom of the cliff – will you then consider looking at this issue again?" And she said, "Yes, we'll consider that if that's what the evaluation shows."

We utilized multiple approaches here as you might expect. We used *soft systems methodology*, which is a process for engaging debate around thinking about what the situation is, and what kinds of human activities are needed to plan the work of the team. We used that also to design a database that was both useful for the team in their day-to-day, but also collecting data for us as a byproduct for the evaluation. We used participant observation and interviews, collection of individual case study data, and quite traditional quantification and statistical analysis of client group characteris-



Slide 15 Outline methodology for systemic intervention

tics and diversion rates, and triangulated the qualitative and quantitative data. I have suggested previously that the qualitative/qualitative distinction doesn't mean that qualitative is better than quantitative just because quantitative is often regarded as more reductionistic or simplistic. They are both useful for different purposes. This project was a good example of where quantitative data was absolutely necessary because the team had a view of themselves as failing in their project. I asked them to estimate what percentage of their cases were successful in diverting people from custody, and they had a view of themselves as having maybe a 30-40% success rate. What our statistics showed was that they had an 85% success rate, and that for minor crimes, they had a 100% success rate. However, because they might have taken five attempts to work with the police to get somebody out, the four unsuccessful goes overwhelmed the one successful one in their mind, but overall they were very successful at getting people out of custody.

What we also found when we actually triangulated that quantitative data with the case studies, was that there were a small hard core of individuals who were going in and out of prison on a regular basis. There were twelve individuals in that sample who in that year alone had all been in prison over twenty times. We're talking about a revolving door basically, and it is because of that kind of process that we went back and said, "Look, you really do need to look at this whole issue of how you design the system to prevent this from happening in the first place." They agreed on it. Unfortunately, we had very little money left and very little time, so we did the only thing we could

with that small bit left. We held the same kind of workshop that we did with the children I was talking about earlier, both with professionals and with people with mental health problems who had recently been released from prison. The aim was to look at what the design properties of the mental health and criminal justice services ought to be if it was to prevent people from getting into this situation in the first place. The thing that absolutely surprised both of those groups was that there was about 90% agreement on what needed to be done. The only areas of disagreement were areas that you could see the possibility of working on in the future. The group of mental health users – who at the time we brought them in thought that they were the only individuals in the world with a problem – realized there were other people with the same problem and as a result they formed a user group and so became part of the process of dealing with the problem from that point on. So, we stepped out at that point, leaving them with something that they could basically take forward.

Outline methodology for systemic intervention

If I could be absolutely gross and try to sum up everything I've written in the last twenty-odd years in one slide, it would be Slide 15. You need three things in a process. Firstly, you need the process of *critique* – i.e., thinking critically about boundaries and values. One important note about boundaries is that a boundary is not a boundary that demarcates geographical space, it can demarcate networks with nodes that are on the other side of the world. It's a conceptual idea. So you need

- **Boundary critique enhances reflection on issues of inclusion/exclusion, marginalisation and the design of methods**
 - **Methodological pluralism enables a more flexible and responsive intervention practice than adherence to an approach that only provides a limited range of methods**
 - ***Systemic intervention* – involving a synergy of boundary critique and methodological pluralism – gives**
- 6 **added value compared with either in isolation**

Slide 16 *Conclusions about systemic intervention*

that critique of boundaries.

Secondly, you need *judgment* about what kinds of methods are going to be appropriate. That's in response to the kinds of questions that are emerging here. And you need a creative synthesis between different approaches. It's not just about picking methods off the shelf because most situations you deal with are complex enough to actually need quite creative design processes in methods. I often find myself inventing new methods in the process rather than actually just copying something from off the shelf.

Lastly, the *action*, which is to actually implement the products of this interactive process. These three elements are not steps in a methodology where you simply go from one to another, they are lenses through which you look at a situation. In order to do any kind of critique, you need some methods to do it, you need to be taking action through it. Any kind of method you have implies boundaries, and they imply action, so each of these contains elements of the others – they are three lenses to look through, to make sure you've covered the three aspects that are necessary for this kind of systemic intervention.

**Conclusions about systemic intervention
(Slide 16)**

The first two conclusions shown in Slide 15 are not new. I hope the third one is. The first one is that *boundary critique*

enhances reflection on issues of inclusion and exclusion, of marginalization and the design of methods, i.e., boundary critique is a useful idea, basically. People have said that before; from Churchman in the 60s, systems thinkers have been developing those ideas over years, so that is not entirely new. The idea of methodological pluralism is not new, but it allows a more flexible and responsive intervention practice than adherence to just a limited approach that has just a narrow range of methods. However, there are still a lot of people out there in the operations community that champion just one approach as the answer, so that's why I think it's necessary to continue to talk about that. But again, that is not new; people have been talking about that for at least 20 years, and it has become quite a mainstream idea in the systems community. What I hope I can contribute, though, is in bringing those two things together. There is a danger in just doing boundary critique alone, which is you get nice sociological analyses, but you do not necessarily get any action to change at the end of it. Similarly, by just having methodological pluralism alone, you can have quite superficial analysis based on the word of a couple of managers you have spoken to, and then you pick a range of methods that you think are going to be appropriate for the situation. This approach can have quite dramatic side effects because you haven't taken into account a number of others perspectives that could be impacted beyond the situation. So boundary critique helps you get a deeper

analysis to allow you to make methodological choices in a more informed way. The symmetry of the two is where I hope my contribution to this lies, and I hope some of this has some relevance to the complex systems community.

N.B. For a more thorough discussion of the various threads of modern systems thinking, and for a detailed presentation of systemic intervention please refer to Midgley (1999).

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