

2 Using System Thinking to Critique

I can think of the phenomenon of a chicken, as a chicken or as a system. As a chicken it is like a picture, an object, a large bird, feathers, two legs and a face. As a system it is a process, things go into it and come out of it, food, water and DNA are transformed into a scratching machine, eggs, feathers, a sandwich and a parent. (See Figure 2.1, source unknown).

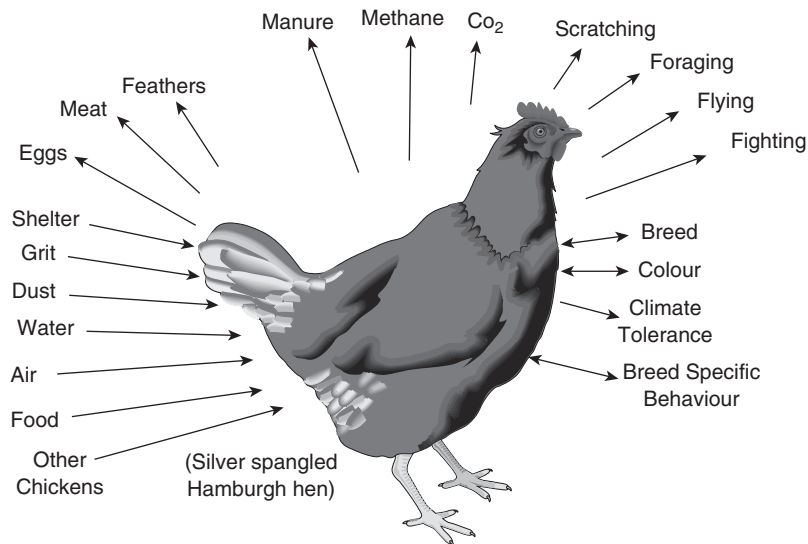


Figure 2.1

Transforming

At its simplest level system thinking involves thinking about something as part of a system that has inputs and outputs, which transforms things from one form to another (food to eggs), using various components (stomach, uterus, skin, etc.) which interact with each other to assist the transformation. The workings of the human body could replace the hen as an example of a thing being thought of in systems terms; the respiratory sub-system works with the dietary systems, the nervous sub-system and the

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blood circulatory sub-systems to assist the whole system, a critiquer, to transform a written passage into an insightful critique.

Critique the following passage by identifying the system depicted in the passage:

- **Identify the object under consideration as a system (a process).**
- **What are the inputs, the outputs, the components?**
- **What is transformed from what to what?**

In our global mechanised world it is almost impossible to appreciate the human lives that go into everyday things. Imagine the thousands of people's working lives that have gone into getting a tin of baked beans onto the supermarket shelf. I've been a bean counter (accountant) in a bean factory. It was huge, old, cruddy, and located in the miserable urban decay of the back streets of London, surrounded by disused canals and railways. Twice around its perimeter was literally a marathon. When the raw beans came into the factory they had to be sorted into big ones, little ones, and black ones and white ones. Have you ever noticed that the beans in your tin are identical in size? They do not grow them like that. The bean trucks arrive with beans from all over the world – Canada, India, South America – arriving at street level to unload onto conveyor belts which move the tons and tons of raw beans indoors to rows of automated sorting machines. Under these sorters are chutes for the rejected beans which drop down into the basement where some lonely old man passes his day slowly attaching and removing large sacks to and from the ends of these chutes. When the sacks were full he would load them onto trailers ready to be sent to the piggeries. You can imagine the life of this lonely little bloke who worked in that miserable basement room, no windows, cigarette hanging out of his mouth, withered, bent over, newspaper open at the sporting page, cheap radio in the background, thirty-five years' service, punctual in taking his tea breaks, so typical of the slave classes grateful to secure a regular job in the globalised economy. He was most likely comfortable enough with the job, the boss rarely visited and he was not out in the winter weather. So long as the job got done no one would ever notice he existed. One day someone was walking past the entrance to this part of the basement and noticed piles of beans bulging up the stairwell. This looked unfamiliar so an investigation was started. It took some time and considerable bean shifting to establish what had happened. The poor man had died. The beans had kept coming, filling the room, burying him and eventually overflowing up the stairwell.

One system that I identify is that of the bean factory, in particular the bean sorting part of the factory. The inputs were raw beans, labour and capital equipment in the form of

trucks, conveyor belts, sorting machines and chutes. The outputs of the bean sorting system are acceptable beans, and, down the chute, rejected beans en route to the piggery. The old man was a component in this system, one that moved the reject beans from the chute to the piggery trailers; he is the only human component identified. Mixed raw beans are transformed by the machinery and the person into sorted beans.

Thinking of the passage in system terms has introduced a new image that can be used in a critique of the passage. In a system view, the man is a component, not a feeling human being to be protected from social forces greater than himself. He is dehumanised, compassion is excluded through association. A system view has the man as a victim oppressed by mass consumerism and the machinery of large-scale manufacturing. The man is presented as a product of his environment. In the criminal law courts we do not do that. We prosecute individuals as individuals, not as components in a social system. While your childhood, your social environment and your role in a criminal syndicate may be mitigating circumstances, you as an individual are considered responsible for your actions. This would be a non-system view.

The main advantage of system thinking is to shift thinking from the object to an inter-relationship of components; from the old man to the manufacturing system he is merely one part of. That insight, that he can be seen as a standalone individual or as a component in a system, provides the first level of critique using system thinking. This is a similar switch from cognitive psychology to social psychology. From the early 1960s to the mid 1990s psychology placed emphasis on the individual, on the importance of an individual's personality, cognitive styles and intelligence to deal with situations. Researchers like Milgram (Milgram, 1992 #1167) and those interested in small-group performance started to show that human behaviour is very situational. Much of what we do is because of the situation we are in and who we are with. For example, attitudes to risk are very different when at home compared with when attending a race meeting. Seeing someone as part of a system goes a long way to seeing them differently.

A further example of view shifting by using system thinking comes from problem solving. If a group of people are blaming each other for some problem, then it is sometimes possible to see things differently if someone suggests the problem is not any one person's fault but rather a fault of the system. Plagiarism has been debated in this way. Is it the individual 'loser's' fault or rather an obvious outcome of an education system that has made class sizes too large, required students to compete for very high scores, made lecturers too busy to set more novel and non-repetitive assignments in the context of rapid text communication through email, the Internet and word processors. My point is not that either view of plagiarism is right but that by switching from an individual view to a system one a more insightful critique is possible. The baked beans man might have been seen as getting all he deserved for not eating better, getting more exercise,

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making more effort to improve his education and not for making an effort to develop relationships at work or home.

The dimension of transforming can also be used to consider the passage as a whole. How does the passage transform the readers? Perhaps they have a better idea of the effort in human lives that goes into their everyday foods. What are the inputs and outputs of the passage; are these validated? The inputs include the author's experiences and care for the lives of workers; are these inputs reliable? The story may be told for humour, not for compassion. The outputs include the conclusion to the passage. What is it? Perhaps, that most people live very ordinary lives.

Connections

System thinking has a few different dimensions which are related in the sense they aim to change the way you think about things. A new viewpoint provides a new way of critiquing. The next dimension outlined here is centred on the idea of 'connections'. The components in a system are connected. The bean sort is connected to the chutes, my heart is connected to my liver, the accounts department of a university system is connected to the teaching schools and the tax collection department in the Westminster system of government is connected to Parliament. Ackoff (Ackoff, 2000 #463), a long-standing writer on the use of system thinking to come up with innovative solutions to problems, emphasises the importance of using 'connectivity' to shift people's appreciation of a situation. He often draws on the example of car parts. If you own a Toyota Corolla and need a new carburettor then you would not buy a Rolls-Royce carburettor as a replacement. It would be inappropriate given the other components in your Corolla as a system. A component needs to be thought of in terms of how it connects with other components. Being a little less mechanical, for people these connections are called social networks. Rather than see a person as an entity it is possible to focus on their social network. Who do they know, how often do they see them and what do they talk about? At work, or socially, they may be the focal point of a tightly connected group of twelve people or rather they may be loosely connected to two rather distinct social groups so occasionally act as a 'liaison person' between these groups.

This focus on connections can be used to see a passage differently, to critique it. Critique the two passages below in terms of connections:

There is a story told around the British Rolls-Royce engineering works that Boeing, the American aircraft company, once very carefully sent Rolls-Royce what you and I would describe as an aluminium drinking straw. It was about a foot (30 cm) long, with a hole down the middle about 2 millimetres in diameter, like a drinking straw.

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Boeing had machined this thin rod out of a block of aluminium and then drilled it down the centre. Boeing sent it to Rolls-Royce as proof of its precision engineering skill. I gather aluminium is not an easy metal to use for this sort of high-precision machining and drilling work, partly because it is hard to get a very pure sample. Drilling out the 'straw' required some very specialised vacuum chamber lathe equipment.

Rolls-Royce's version of this story was that after examining this work and admiring it, the engineers re-drilled it down the centre so as to enlarge the centre-hole diameter. They then made and slotted a smaller brass 'straw' as a lining inside the aluminium one, such that the original internal diameter of the aluminium straw was not changed. It looked like a silver straw lined with a brass straw. Then they sent it back.

A few years back, men wearing earrings upset an inordinate number of people. An institutionalisation of this concern included the procedure for a blood bank collection agency. In the days before quick, cheap blood testing for HIV (AIDS) the agency responsible for screening blood donations was concerned with how to minimise the risk of collecting infected blood. The agency issued instructions to the nurses doing the screening to discreetly vet the male donors for any physical indication of homosexuality. One suggestion was that they should check to see if they were wearing an earring in their left ear. This was to be discreetly noted on their record card so their blood donation could be quickly disposed off when they left the clinic. The marked card then became a permanent record of someone being a possible homosexual at a time when there was considerable social and legal discrimination against homosexuals.

Apparently, the practice of working men wearing earrings is quite old. It has been suggested that sailors either started or popularised the practice. The understanding was that if a sailor was washed overboard and drowned, whoever found the body was rewarded for giving the body a decent burial with the gold in the earring.

Critiquing these passages using the 'connections' stance could stimulate numerous different critiques. The one that comes to my mind is that they present two worlds linked by a common object. In the first passage the two worlds are the British Rolls-Royce engineering company and the American Boeing engineering works, two worlds linked with a common respect for precision engineering, symbolised ironically by a metallic drinking straw. It does not matter how true it is; the message is one of respect for the pursuit of engineering expertise. In the second passage the male earring provides the link from a sad present involved in avoiding death from AIDS to a sad past where sailors

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sought a respectful burial. Using this connections stance on the baked beans story may suggest a man isolated from fellow humans by a mechanised manufacturing system, his only connections being with machines that are indifferent to his personal needs.

This system dimension of connections can again be used to think about the article as a whole. What is the article connected or not connected to? Perhaps you think they both articles are men's histories, not connected to women. Perhaps, for the more quality minded, they make you think about quality, of engineering skills and of transfusion blood. Do they remind you of something else you have read or seen?

Purposeful activity – intentional minds

Critique the following passage, in terms of participants' purposeful activity.

At the end of the Second World War there was the massive problem of moving the British economy from a war footing to a peacetime one. Numerous manufacturing plants had been changed to making domestic products from instruments of war. Planes, tanks and gun manufacturing were employing millions of people. In order to assist with the changeover, temporarily, manufacturers were instructed to keep making their war output until a smooth transition could be thought through. A period measured in months was imagined. Adding to the complication were two wartime requirements for armament manufacture. The first was a decentralised manufacturing process to avoid risk of an entire production process being ruined by one bombing raid. The parts for the guns, tanks, etc., were made in small plants all over the country. Second was the need for secrecy, which meant that no one plant had an overall appreciation of the supply chain of these weapons. Orders came from coded 'customers' and deliveries were made to small warehouses from where they were picked up when the supplier was not present. So, it is easy to see how the oversight was made. During the transition period those responsible for the collection of the battle-ready product were instructed rather than to dispatch them to a military unit, to deliver them back to the iron smelting foundry which was at the beginning of the supply chain. This caused little concern to the iron smelting foundry. It had always included 'rejected' weapons and melted them in with raw iron ore. It made rods and bars to supply to the sub-assembly manufacturers. So, as a temporary measure, the supply chain was a closed loop. Manufactured goods were delivered to customers who were paid to deliver them to the iron foundry.

The Second World War ended in 1945. In 1984 it was discovered that one of these closed loop supply chains was still operating. Somehow in the millions of arrangements for closing down the loops, and given the secrecy of the supply chain, this one was missed. For nearly twenty years the government had been paying for a particular type of field gun to be made, stored for a while and then melted down to be made into another gun, and so on.

What made this passage a little 'humorous'? Given the suggestion to look out for purposeful activity perhaps you identified that the temporary manufacturing system had lost its *purpose*, or rather that the *intent* of the post-war administrator had gone astray. The original intent, the driving force, behind the administrators setting up the closed loop supply chain was to keep people in employment for a few months while the peacetime economy was established. Consideration of 'purpose' is another dimension of system thinking. Separately, evolutionary philosopher Daniel Dennett has written about *The Intentional Stance* (Dennett, 1989), pointing out that this is perhaps a unique characteristic of the large human brain. The concepts of purpose and of intention are similar. They have to do with having an appreciation of why, the explanation, the reasoning, the driving forces, for wanting to do something. They differ from goals, targets, objectives, visions and missions which are perhaps more about 'what' rather than 'why'.

A passage can be critiqued in terms of its purpose (or the author's intentions). What were the 'driving forces' behind writing the supply chain passage? The great thing about this simple question is that a moment's thought makes you reply, 'it depends'. In the context of this chapter it is to provide an example from which 'purpose' can be discussed. If told in a pub, then the purpose would have been to amuse. If told as part of a government policy meeting its purpose might be to argue for more decentralised policy oversight. Moreover, within the passage, the issue of 'purpose' changes. The purpose, driving force, of the closed loop supply chain was to smooth the transition to a peacetime economy. This sounds like good policy. However, over time this purpose diminished in its reasonableness. Therefore, critiquing a passage using the 'purpose' stance encourages thinking about 'driving forces' but also about the numerous different points of view involved.

Appreciating purpose or intent is an emergent property of intelligence; it is part of being self-conscious. Boulding (Boulding, 1956 #110), one of the seminal qualitative economists, argued that simple systems cannot be said to be engaged in purposeful activity. Does an alarm clock have any 'driving forces'? He suggests not. A human can give the clock's designer a purpose, to make a device to wake people up on time, and perhaps the owner's purpose is not be late for work. In the weakest form a radar-guided missile system may, by some, be said to have 'driving forces' in terms of its electronic feedback circuits re-targeting the missile as the target tries to evade it. Moving up the scale of complexity, does a jelly fish or a dog have driving forces? It would seem to be easy to say they have genetic ones to eat, reproduce, and so on. Given our language skills, other 'higher order' driving forces may have emerged from the large human brain, such as the ability to appreciate the purpose or driving forces of others. It allows us to appreciate which way a hunted animal might go by our appreciate its driving forces; the animal must be feeling hot, hungry, thirsty, want to protect its young, may be trying to mislead us. This can become, 'If I do this then they will

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do that.' So, perhaps, critiquing by thinking about the driving forces of others is a unique human act.

Use the 'purpose' stance to critique the following passage, focusing on the purposes of the participants in the story rather than the author.

My high school was a naval training school in North Wales. Above the entrance of the school was a quote from its most famous ex-pupil and poet, John Mansfield. It was, 'We went down to the sea in ships, the lonely sea and the sky.' He knew what he was talking about. One of the interesting things about this old-fashioned British private school was the mental state of the officer-teachers. Many of them were ex-merchant-navy seamen. I was at the school in the early 1960s so many of these officers had spent the Second World War in the convoy system going back and forth across the freezing U-boat-infested North Atlantic. Apart from some of the images recounted in books and films like *The Cruel Sea*, most people have little appreciation of how dreadful the war in the Atlantic was for these seamen. It was boring, stormy, cold, dangerous – just plain miserable. Many merchant seamen spent the war ploughing back and forth from Europe to North America carrying war materials. One of our officers was teaching us about lifeboats, their design specifications, the regulations on provisions, and so on. There was a bit of a rumour among the cadets that this particular officer had nearly perished in a lifeboat full of nurses which was lost in the North Atlantic after their ship had been torpedoed. Now to 14-year-old cadets this sounded like utopia; in those days nurses meant young women. But once when we managed to get the officer to talk about the experience it soon became clear from his white face, and slight shake, that it was a dreadful and harrowing experience. He had to deal with the cold, the thirst, the hunger, the fear, in an overloaded, unstable, waterlogged boat, responsible for issuing rations and deciding who he would allow into the boat and who not from those hanging on the sides. Rescue could not be assumed, and many of the nurses had been badly burnt or choked by the fuel oil that spread on the sea surface after a ship was torpedoed. He could have only been in his twenties at the time. When he was eventually rescued everyone just laughed at his good fortune of being lost at sea with a boatful of young women.

The participants in this passage who would be self-conscious enough to be considered as purposeful and as being able to appreciate the purpose, drivers or intent of others I identify as: the cadet, the officer-teacher and the nurses. While there are numerous purposeful actions going on, including survival, one that I feel may provide a novel critique of this passage is that of *learning*. This may be used to critique the passage by identifying conflicts in the intent to learn or by identifying a common purposeful activity. My critique of this passage is, therefore, that all the participants can be seen to have a common desire, that of wanting to learn. The cadet's purposeful action for talking to the

officer-teacher can be interpreted as wanting to learn about the risks of a future life at sea. The officer's driving force can be seen as *learning* how to live with the experience he had in the lifeboat: teaching the next generation of sea-goers not to romanticise the experience of a sinking ship. The driving force for the nurses in the lifeboat can be seen as *learning* the rules of survival from the young officer in charge of the lifeboat; how are they to deal with the others in the lifeboat, the life and death decisions, the hunger, the cold and the feeling of helplessness? The passage can be seen as a learning story.

Analyse and synthesise

Another dimension of system thinking which again involves shifting your point of view involves zooming in (analysis) and zooming out (synthesis) of the situation depicted in a passage. In the lifeboat passage, *analysis* of the situation would involve thinking about the details in the situation, such as weather conditions for the lifeboat, the rations, the numbers of people and their injuries. *Synthesising* the situation involves zooming out of the scene to get a new, wider view. This may result in your thinking about the overall strategy of the war in the Atlantic, perhaps its effectiveness, looking for statistics on how many ships were sunk over what dates. What were the survival rates of crews of torpedoed ships? This information could be a comparison with casualties and conditions for soldiers fighting on land at that time. The critique would reflect on the passage from this wider view.

Critique the following passage using the stance of first analysing the situation, then synthesising it.

Crossing the Pacific in an old merchant ship used to include film-shows on deck, at night, to take advantage of the tropical sea breezes. Not a mosquito in sight, but the problem with the tropics is that you get a lot of rain showers. From the bridge of a ship these appear as columns of water falling from individual small dense clouds. When a film was being shown it was the duty of the person on the bridge to steer the ship so as to avoid these showers, and so avoid the crew getting soaked. The ship moved at about 17 knots, and the shower clouds often moved at much the same speed, criss-crossing the course of the ship. It required a good sense of timing to adjust the ship's course by a few degrees in anticipation of the path of a shower cloud to neatly weave around all the columns of water. On a warm tropical night, with one of those huge full moons, all alone in the middle of the Pacific, it was a slow-motion ballet, an excellent memory.

The analysis may include commenting on the physical possibility of a 17 knot ship outrunning a shower squall. Alternatively it might ask about the safety to other shipping

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or the damage being done to dead-reckoning navigational calculations given the repeated change of course. An overhead awning may have been more sensible. A synthesis might have drawn analogies with airliners changing their altitude to avoid turbulence when passengers are being served a meal. It may be the same as people in a car choosing a longer but scenic route over a boring but quicker highway.

Again this dimension of system thinking can be used to compare the entire passage with something else you have read or seen. Perhaps some phrase in the passage reminds you of something (analyse), or you see the passage as the same as a group of other passages (synthesise).

Boundary

Critique the following passage by noting what is included and what is excluded. What is the boundary?

We rented a farmhouse from a wonderful man, Ron, who farmed sheep in New Zealand. When my young daughters saw newborn lambs wandering about his farm bleating for their mothers they asked him if they could feed them, make them pets. Quite rightly he pointed out that if they did that when the lamb and mother were in a good relationship they could be responsible for the mother rejecting her own lamb. However, there was often a lamb or two whose mother died and he would find one for them to care for. Many of these orphan lambs died despite all good intentions, either because they also turned out to be very weak after the birth or because they had failed to get that crucial first feed from their mother. I gather this sets up the stomach of the lamb. However, a little later in life these pet lambs face yet another risk because a few months of being hand-fed by humans scrambles their survival instincts. Untamed sheep know to run away from people. Pet lambs know the opposite. They run towards people who call out to them, thinking there is a free feed about. So, some less-than-desirable people know that if they are driving past a mob of sheep and fancy a feed it was well worth just standing at the edge of a paddock and calling out. The non-pet lambs run away but the pet lambs run towards whoever is shouting. When close enough they got banged on the head and quickly thrown into the car boot.

One of the other dimensions of system thinking, and perhaps what really separates it from the assumptions of the physical sciences, is 'boundary'. A system is bounded; it includes some things and excludes others. The education system includes schools, universities and lecturers but excludes emergency services. Anything known about a

system only applies to that system. The education system may be having a funding crisis while the emergency services systems could be over-funded. What is known is not universal; rather it is bounded by the definition of the system under consideration.

The boundary is chosen by the person thinking about a system. When thinking about an organisation as a system the most common way of bounding it is by legal employment and ownership relationships. These are recorded in its financial records. However, when thinking about product supply chains, a different boundary may be used. Sales staff's relationships with suppliers, and the buyer's relationship with suppliers, may be included and administrative staff excluded. By shifting the boundary a new view of the system comes to mind. Another example would be first thinking about your family as a system with parents, children and relatives as the components. Then change the boundary and think just about children as a system in their own right. The components may now include school, television and friends. This process of changing how you view a system is similar to the idea of zooming in and zooming out (analysis and synthesis) discussed above. However, it encourages more options in terms of views by redefining systems in terms of focusing on the components of one system, making these into a new system view. In the family system, children are at first only one component of the system. Then the boundary is changed and children are then thought of as an entire system in their own right.

Returning to the pet lamb passage, the life of pet lambs in this part of New Zealand might be chosen as the system boundary. In this view the lambs are seen as central, vulnerable and under attack from inadequate mothering and hungry passers-by. By imagining new systems from these components other systems emerge, e.g. the 'other' lambs, farmers and the passers-by as systems. From each of these systems as a viewpoint a different critique of the passage is possible. For the farmers the pet lambs are not financially viable owing to the cost of the hand feeding and the risk of theft. From the view of the other lambs, the pet lambs are 'spoilt', unable to sustain themselves in the world. From the view of the passers-by, they could argue they are only weeding out of the gene pool those with mothering problems, as nature was trying to do in the first place. They are discouraging the farmer from being tempted to breed from the lambs when older.

The boundary dimension of system thinking may also be used to critique the entire passage as a story. What can be bounded in with the passage? What group of stories does it remind you of? What stories are totally different?

Critique questions

The above discussion might be summarised into a series of questions you might ask yourself about a passage.

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- What are the inputs and outputs of the passage?
- What processes are involved in the passage?
- What gets transformed from what to what in the passage?
- Why is it transformed?
- How is the reader transformed?
- Are the outputs of the passage, the conclusion and recommendations fully justified?

Connectivity

- What is linked to what in the passage?
- Is there an identifiable social network in the passage?
- What is the passage connected to?
- What is its place in the literature, discipline or topic?
- What else has the author done?
- What does the passage remind you of, how does it sit with what else you know?
- What other evidence is available?
- What ripple effects will it have on wider systems?
- What do you see as the wider system on which it will have the largest impact?
- What genre, enquiry tradition and school of thought is it from?

Purpose

- What are the driving forces behind the actions of those in the passage?
- What is the driving force of the author?
- How else might the author's purpose (intention) have been achieved?

Analyse and synthesise

- Do the details (facts) in the passage seem plausible?
- What details are missing or too inexact to be meaningful?
- What is similar to the passage?
- What does the passage remind you of?

Boundary

- Is the passage complete, does it present a self-contained story?
- How can the passage contents be seen differently by rebounding the story around components of the passage?
- Are all the issues and concepts raised well defined and scoped?

Summary

This chapter has suggested that a passage, written or spoken, can be critiqued using the dimensions associated with system thinking. These were transformation, connections, purposeful action, analysis and synthesis, and boundary. There are other dimensions to system thinking so these are only indicative of how a problem-solving stance might be turned into a critique stance. Examples of how the dimensions discussed might be applied were provided, although, again, this can only be thought of as indicative. For more on system thinking see Midgley's four-part collection (Midgley, 2003 #608).

Exercises

1 Critique the passage below using system thinking dimensions.

One night we heard a crash outside. We guessed yet another car had driven off the winding road that passed by our house. Normally they went over the small 6 foot (2 metre) precipice into the tide trying to avoid driving into the cliff face on the other side of the road. We rushed out to help and found a car sitting in a few feet of seawater with the driver calmly at the wheel staring forward.

exercises continues

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The local farmer, the nicest man you could meet, came up and told us not to worry, he knew the man in the car. He was drunk. The farmer waded out and knocked on the window offering to help. The driver slowly looked around and then suddenly started to shout, 'I don't want any bloody help from you, I'd rather bloody drown.' The farmer then waded back and with a smile said that there had been a misunderstanding between the two of them some years before.

Apparently, the farmer had been out helping with the birthing of new lambs when an unknown Red Setter had come bounding up to him very excited by the new lambs. A dog's presence worried the ewes, which meant they might abandon their lambs. Things got worse when the dog picked up a lamb and ran off. A short while later the dog returned and took another lamb. Naturally, the farmer went off to the village pub to ask if anyone knew the dog. The local lads, mostly farmers themselves, were angered by the report of a rogue dog. There were strict laws about dogs not being allowed near sheep at lambing time. Although the farmer tried to settle them down they rushed out, got their guns and waited in the paddock until the dog reappeared. They duly shot it.

That night the farmer got a knock on his door and the distressed owner of the dog was standing there holding two healthy lambs he had found in his front garden. He knew nothing of the shooting so was concerned that his dog was not at home. Clearly the man was extremely fond of his dog, very anxious for any news. The farmer explained that the dog had been shot. The man went ballistic, calling the farmer all sorts of names. It was the dog owner who was in the car, sitting waist deep in the tide.

2 Critique the passage below using system thinking dimensions.**A Consultant's Report**

This report has been prepared in response to the question: 'Why did the chicken cross the road?'

Deregulation of the chicken's side of the road was threatening its dominant market position. The chicken was faced with significant challenges to create and develop the competencies required for the newly competitive market. MBA Consulting, in a partnering relationship with the client, helped the chicken by rethinking its physical distribution strategy and implementation processes. Using the Poultry Integration Model (PIM), MBA Consulting helped the chicken use its skills, methodologies, knowledge, capital and experiences to align the chicken's people, processes and technology in support of its overall strategy within a Program Management framework. MBA Consulting convened a diverse cross-spectrum of road analysts and best chickens along with MBA consultants with deep skills in the transportation industry to engage in a two-day itinerary of meetings in order to leverage their personal knowledge capital, both tacit and explicit,

exercises continues

and to enable them to synergise with each other in order to achieve the implicit goals of delivering and successfully architecting and implementing an enterprise-wide value framework across the continuum of poultry cross-median processes. The meeting was held in a hotel by the sea setting, enabling and creating an impactful environment which was strategically based, industry focused, and built upon a consistent, clear and unified market message and aligned with the chicken's mission, vision and core values. This was conducive towards the creation of a total business integration solution. MBA Consulting helped the chicken focus its change in direction.

- 3 Critique the passage below using system thinking dimensions. Hopefully you will provide a different critique from when this passage was used in the argument chapter.**

Few people will know where Invercargill is, the New Zealand one that is. It is a little town on the very southern tip of the real 'God's Own Country'. It must be a contender for the town closest to the Antarctic. For people growing up there in the 1950s and 1960s it must have felt fairly isolated despite the lovely countryside.

This story involves a young lad, about 11 years old, trying to make a little pocket money from a paper-round. You need to imagine a paper-round in Invercargill in those days. It involved going from one fairly remote house to another, often before dawn in the cold and rain. He did this lonely chore on his heavy old bicycle. One morning the lad arrived at the newsagent to pick up his papers and there was this dog he had never seen before sitting outside the newsagency. He noticed how very friendly it was, so he gave it a few strokes. On the way out the dog was still there, still being friendly, so the boy encouraged it to go with him on his lonely round. The dog looked extremely pleased and full of life. When the boy threw the first newspaper onto the porch of a house, the dog ran and fetched it back. It turned out to be a very long morning.

end of exercises