Framing and Reframing as a Creative Problem Structuring Aid

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Abstract
Traditionally, most of our efforts as Operations Researchers have gone into problem solving methods and applications. More recently, interest in problem structuring methods has grown, addressing the importance of defining the right problem. This paper discusses the use of decision framing as a problem structuring aid. This then influences the objectives pursued, options considered, and consequently the solutions generated and decisions chosen. Just as innocent people can be framed, so too can situations be viewed in a variety of ways resulting in distinctly different outcomes. This paper uses a range of real problem situations to demonstrate the power of decision framing on problem definition, problem structuring and subsequently on decision-making.

1 Introduction:

1.1 The Role of Modelling
Simon, Dantzig et al, in their influential 1987 paper, "Decision Making and Problem Solving", offered a reminder that 'the work of managers, of scientists, of engineers, ... is largely work of making decisions and solving problems ... is work of choosing issues that require attention, setting goals, finding or designing suitable courses of action - usually called problem solving; and evaluating and choosing among alternative actions - usually called decision making'.

Simon et al state that 'the OR/MS community has, as its common mission, the development of tools and procedures to improve problem solving and decision making'. Indeed, we may reflect that this view has pervaded the academic community since the introduction of OR/MS to management education in the early/mid sixties.
However, we may also reflect that our OR/MS education programmes have provided, in the main, a 'traditional' hard-systems emphasis on technical analytical skill and the generation of optimal solutions, rather than the development of 'softer' problem identification and problem structuring skills. The hard systems approach deals with how to solve the problem; the soft systems approach seeks to ask what the problem is. It was as if, as Daellenbach\(^2\) contends, our educators assumed that problems had been or could be readily identified, and/or such problems would be amenable to our familiar hard-systems analytical approaches.

Such assumptions do not fit comfortably with Ackoff's view\(^3\) that 'managers do not solve problems in well-ordered mathematical worlds as much as manage messes' which have to be understood. Such assumptions have been similarly critiqued by Grinyer\(^4\) (1994), who has stated that whilst effective operational researchers have long recognised the use of models as a means of assisting managers to reframe their understanding of the world, the typical frames-in-use have been mathematical in structure and content, with a prime purpose of specifying a 'best' solution to the problem as 'captured' in its mathematical form, regardless, oftentimes of the ill-match between model and reality, or of the uncertainty surrounding the problem. Fortunately, such assumptions are less likely to be typical of mid-nineties educational practice, given the many initiatives gaining momentum as operational researchers and management scientists review their effective contribution to undergraduate and graduate management courses\(^5\).

Given the need to manage messes which have to be understood, the authors agree with Grinyer and Bryant\(^6\) that the 'quality of discourse' engendered by 'model-building' may often be more important than any direct application or specific solution proposed. Indeed, if we accept the notion of a 'model-as-convention', rather than as a description of reality, then we can accept models as providing the context 'which directs discourses in particular paths' or 'as providing a way of talking about something in a manner that is understandable and useful'\(^7\), that is, as communication vehicles.

In particular, the authors espouse the view of Thomas\(^8\) that we can/should help managers 'less in the form of the provision of technical, algorithmic knowledge which will enable managers to read off solutions to their problems, as ... more ... in the form of sensitising frameworks - ways of seeing and thinking which alert the manager to alternative ways of understanding and hence managing'.

If we believe that 'how people construct their world and account for what they do in it necessarily influences how they behave'\(^9\), then providing a framework (indeed multiple frames) that encourage the construction of multiple perspectives should, hopefully, provide the insights and understanding that lead to more 'enlightened' choice in situations of complexity. Whether or not we can demonstrate that the use of multiple frames and the development of multiple perspectives lead to more effective decision making outcomes is, however, problematic.\(^10\)

1.2 Metaphors and Frames

The work of Pondy\(^11\), Morgan\(^12\) et alia, has given much impetus to the use of metaphor in examining organisations, organisational activity and management. Morgan claims that our understanding of organisation(s) is based on the 'unwitting' use of metaphor that pervades our life, impacting on our ways of seeing and thinking, on how we 'see' and 'think'. However, he implicitly advocates the deliberate, but selective, use of metaphor, to derive deeper understanding of particular facets of organisational life.
The use of metaphor is based on the premise that insight into organisations, the unfamiliar and complex, can accrue by thinking about them as though they were something else, i.e., the familiar and simple\(^1\). Morgan, seeking to identify a 'dominant' metaphor, metaphorically advocates the use of 'horses for courses'! However, the approach taken by the authors is not to seek the best metaphorical match to an organisational or problem situation, not necessarily to find the most appropriate analogy, nor to draw the 'best' set of parallels, that is not to optimise the choice of metaphor, but to use a variety of frames or metaphors to draw out the creativity of the student manager/analyst in exploring the problem situation through directed analogy\(^1\). Ohmae, indeed, offers a striking example of 'directed analogy' in his discussion of 'planting for a global harvest'.

'I have come to think that the culture of an organisation is like the soil; a business is like a tree growing in the soil; and profits are like the fruits of the tree. An effective corporation will have the same kind of soil, with the same pH, in all regions of the world where it operates. And in that soil will grow similar kinds of trees. If you put the wrong seeds in this or that patch, if you try to grow someone else's kind of tree, if you play the mergers and acquisitions game and just want to steal the fruits without planting or fertilising anything - that is, if you do not take the time to grow healthy trees in the spots suitable for them - you will never be able to reap a proper long-term harvest.'\(^1\)

Flood and Jackson's three phase Total Systems Intervention methodology\(^1\) provides another example of an attempt to facilitate creative thinking about a problem situation, and about problem structuring, through the use of metaphors; and through the identification and recognition of dominant and dependent metaphors to determine an appropriate intervention methodology or methodologies.

The approach adopted by the authors has been developed as an experiential learning exercise for post-experience/graduate management students. The assignment/exercise set for the graduate management students follows the approach of Russo and Schoemaker,\(^1\) the essential features differing from the latter, only in respect of not necessarily seeking a best metaphorical fit. The approach differs from both Morgan, and Flood and Jackson, however, in that we do not necessarily seek to frame the organisation as an entity, such as a machine, brain, psychic prison etc, but that we take the problem in its most general form, and 'place' it in a series of situational frames or settings. It is likely that each frame, whether it be a family frame, football team or an orchestra frame, will connote different value systems or cultures, connote different preference systems, and that choices be subject to different constraints, bounds or boundaries etc. The purpose is to free the analyst/manager from the implicit/hidden assumptions that s/he may be constrained by, and to surface new insights about the problem situation or how to tackle it.

### 1.3 Relevance to OR/MS Practice

As OR/MS practitioners, we are well trained in framing problems as mathematical models, capturing the essence of problems in mathematical form to enable investigation of, analysis of, and to ultimately improve the understanding of the system under investigation. The modelling process underpinning such framing is a reflection of problem solving and decision making as a rational process. The process involves activities ranging across different 'logical' levels, for example, identifying appropriate
objectives and criteria at the higher levels, generating and evaluating action options, and choosing and implementing the preferred or best options at lower levels.

Usually, there is, at least implicitly, recognition, even intention, to regard the process as an iterative process; and that once one has identified an initial solution, that the 'problem' will be revisited in each of the process stages.

In practice, there is always the temptation to refine, expand and develop 'models', with a focus on lower logical levels, i.e., ever increasing detailed structure, addition of modules, detailed evaluation, etc. However, such attempts to refine structure are often limited by the context within which the problem has been framed. The process of sensitivity analysis, for example, focuses on changing some content factors, but otherwise, leaving the basic form of the model unaltered.

It is much less usual, much harder and more courageous, to revisit the initial assumptions concerning higher level objectives and criteria, as they may ultimately involve abandoning much of the existing model/frame, and starting from scratch. The authors argue that often, more expansive, creative options may be generated by re-examining these higher levels components of the problem solving process. It is our contention that effective OR/MS practitioners already do this; but that much practice, which is regarded as failure, could be attributed to the restricted framing of such higher level issues.

1.4 Framing as a Problem Structuring Aid

The authors' use of framing and reframing can be seen as an attempt to demonstrate the extent to which context can play a part in the identification of values, the setting of objectives and criteria, as well as the generation of action options.

The authors propose a process which makes explicit the frame-in-use; which fosters creativity in the choice of frames and in the deliberate change of context - perhaps to provoke the decision maker to consider other possible objectives, criteria, value judgements, and to widen the possibilities from which the decision maker can ultimately choose. The major aim of modelling and models is insight not numbers. The process of situational framing and reframing provides another means for improving insight.

This paper provides a case example to illustrate the deliberate use of framing and reframing in order to encourage the investigation of the robustness of objectives and criteria under alternative frames. The authors hope that the use of framing outlined here, will provide a motivation and means for OR/MS practitioners to incorporate framing within the iterative problem solving process.

In a previous paper, we selected a number of examples from Graduate School student research which showed the power of framing and reframing as a problemsolving and decision-making tool. The variety of those situations showed the versatility of the approach; the frames chosen showed both the creativity of the students, and the value of the reframing exercise to them and their organisations. The successful outcomes of the exercises confirm findings from elsewhere that suggest that post-experience/graduate students bring to their studies a wide range of experiences best exploited in an experiential learning environment.

In this paper, we focus on a common problem, that of downsizing, and show how this situation can be framed and reframed to provide different perspectives on the situation, particularly on the objectives, criteria, options and values of the decision-maker.
2 Case Illustration

2.1 The Downsizing Problem

TooBigCorp*, (TBC), formerly a public service organisation, was made a State Owned Enterprise in the late 1980's. After a period of ongoing restructuring, an external review of the organisation suggested downsizing, involving redefining core operations, cutting some operations completely, and restructuring some divisions. Management wanted to implement the decision but wanted to ensure this happened smoothly.

Previous restructuring had not gone smoothly, and the cost to business and staff morale had been high. Employees were told that the proposed changes would cost jobs, but were given no details on who would be made redundant. They were given a period of time to discuss options and come up with suggestions. By the end of this period, no feasible alternatives had emerged, and management enacted the proposed changes, making some 30 or so staff redundant, and dismantling and restructuring some divisions.

The consultative process was apparently used for two reasons. First, it was hoped that by doing so, staff would feel part of the decision, and would accept the decision more readily. Secondly, it was envisaged that this would prevent industrial action. It was believed that both of these factors were required if the restructuring was to proceed smoothly, so that TBC could continue to provide the service it was in the business of providing.

2.2 The First Frame: A Dog's Show

The frame is presented as a story based on the New Zealand television programme "A Dog's Show", (similar to the British TV Show with the title "One Man (sic) and His Dog"). It details the events of a typical competition day at the dog trials. It was originally narrated from the viewpoint of its two main characters, the farmer and one gutsy little sheep who belonged to a small flock. For the fuller version, see [19].

"The farmer knows the competition will be tough today. He has been doing this for years, and the younger competitors get harder and harder to beat. He has won this competition on several occasions including last year, and knows he can do it again. Providing he gets the right combination of events - the dogs perform on the day, he doesn't get a difficult flock of sheep to work with, and all else goes well - then, there's no reason why he won't take the winners trophy home again. Pressure of competition is in his blood and he loves working under stress: it seems to bring out the best in him. There are many obstacles to overcome, bridges to cross, and gates to go through, all in a tight time frame.

"Today, he has to herd six sheep through the gate, over the bridge, through the stream, split them into two groups of three, and pen both groups within ten minutes. They're a well drilled team, he and his dogs, Blue and Trev. The team have been through the rigours of competition many times before and have intimate knowledge of the sheep they work with. Push them here, prod them there, point them in the right direction, bring the generals a little closer and steer them down the course. "The gold trophy's as good as on the mantelpiece!' "

* Names and some details have been changed to preserve confidentiality.
2.3 The Second Frame: A Military Exercise

The Major-General (CEO) would have called his Generals (GMs) into the war room and a 'plan of attack' would have been mapped out. Orders would have been given to the Generals to carry out the changes at 0900 hours on 24 March. No consultation with employees would have been entered into. Time would not have been a consideration. The changes would have been in place by 0900 hours on 1 April.

Redundant employees would have been given an honourable discharge, industrial action would not have been a consideration for the Major-General as this would be viewed as dishonourable amongst the ranks. He could rely on age old tradition to ensure any dissent was crushed before it began. "Yes, Sir" would have been the motto of the day. Employees would view it as an honour to have worked for the company. Most boundaries would be tightened under this military frame, and no consideration would be given to an employee's family situation, length of service, good conduct etc. Expediency would be the order of the day. Cyanide tablets may be issued for those who fall into the hands of the business's competitors!!

2.4 The Third Frame: The Baseball Team

In Taiwan there is a story about a rich man who bought a baseball team, "Elephant", even though it never won a match, just because he loved the game. When he died, his son inherited the team. However the son was not happy with the team's performance, and gave them a year to win the championship. The manager, coach and team members had to reassess everything and work together, and the team did succeed in winning the championship.

In Taiwan also, China Steel Company was a public corporation that was forced to downsize and privatise. The CEO refused to accept the original terms laid down for the downsizing, but worked together with staff and the Minister to negotiate better terms provided that the company showed improved performance. The company did improve its performance, so it could keep some of the staff threatened with dismissal, and others were placed with new companies formed from the old company.

By working together, and questioning the objectives, both these organisations managed to raise their performance, and improve their futures. In this case, placing China Steel into the baseball team frame provides endorsement of the actual situation. But if TooBigCorp were to be reframed into this frame, the objectives, criteria and options would have been quite different from those surfacing in the Dog Trials frame, and the outcomes may possibly have been far improved.

2.5 Summary

Framing the implementation process using the 'Dog's Show' metaphor reflected the need for the farmer, ie the CEO, to win the trophy, ie to maintain the CEO's record of success. The frame emphasised the fact that the employees had little chance to affect events; it emphasised that the 'destiny' of the 'sheep' was predetermined; it emphasised the feelings of the staff who were pushed around, ie directed like sheep, and made to undergo mock consultations when management's goal was simply to complete the downsizing in the fastest time, without incurring penalty points for mistakes. ie without incurring the wrath of recalcitrant, bitter, troublemaking redundant workers. Success required the separation of sheep with minimum consequent adverse effect.
We note that the military frame emphasises the cutting of the force, the categorisation of staff "to separate out"; i.e., to get rid of staff; and that it emphasises the process of completing the downsizing through a standardised bureaucratic process, invoking procedures, standing orders, operating in a detached unemotional manner. It may possibly be construed to be a fairer, yet more ruthless way of choosing staff for dismissal; however, it involves no pretence of mock consultation.

The third frame represented the problem as that of improving performance under the threat of downsizing. It emphasised the requirement to select the best team, and highlighted the need to categorise in order "to separate in", i.e., to retain staff. This frame surfaces the need to work as a team, making the most of every individual/sheep/dog; and choosing the final team for overall balance, flexibility, ability to work and stay together.

Under the military metaphor's more regimented approach, we see that the decision-making process may have been expedited, but as a consequence, behavioural factors, such as family/employee loyalty, would have had little bearing on the decision.

It may be recognised that whilst the military frame may have emphasised the process of choosing workers to be "separated out", the dog trial frame emphasised a short-term end-goal as winning the trophy/creating minimum disruption, and the sports team frame emphasised a longer term goal of more effective working processes for those who were "separated in".

We may infer that the different frames require us to query whether the real objective is to manage the company effectively through a downsizing operation, presuming that downsizing is a pregiven goal in its own right, or whether the real and higher level objective objective is to create a more effective organisation with a different grouping of staff.

The approach taken, of course, has been to consider the original problem within frames that reflect different levels of subordinate and super-ordinate goals.

3 Conclusions
The foregoing case provides an illustration of the way in which framing and reframing can be effectively employed to improve the quality of the decision-making process.

Although we may conclude from our review of the case that the use of such framing exercises, involving 'directed analogy', offers a structure within which to examine and analyse any problem situation, it does not limit the student/decision-maker's creativity in selecting and crafting a frame. On the one hand, whilst the choice of metaphor is seemingly unlimited in scope, the deliberate use of such selected metaphors generates striking insights.

In particular, the case highlights the extent to which analyses and choices are often value laden, dependent on the frame-in-use, implicit or otherwise. Indeed, the strength or power of many of the images evoked through the use of metaphor can be so strong that choices that become transparent and clearcut in one frame, may be subject to reversal in another. The end result has been the creation of 'richer pictures', a greater recognition of implicit frames-in-use, a better understanding of what may be the 'real driving forces' behind decision-making behaviour, and hopefully, more informed decision-makers.

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