

What the Prophet and the Philosopher Told their Nations: A Multi-Modal Systems View of Norms and Civilisation¹

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ABSTRACT

This is an examination of the role that systems scientists ought to play in the present historical situation. After reviewing the basic elements of multi-modal systems thinking, it applies these in an analysis of the process of decadence in civilisation. It concludes that the systems thinker in a decadent civilisation must go beyond teaching and address the normative responsibilities of his fellow citizens. It draws some examples, and encouragement, from the prophets and philosophers of antiquity and concludes with a brief outline how the normative aspect of systems thinking may be incorporated into modern social systems.

1. INTRODUCTION

In ancient times the prophet and the philosopher not only reflected and taught, but also reproved. I would like to argue that, due to our time having resemblance to theirs, it is also our duty to add to our reflection and teaching, reproof. I will commence by setting up a framework that will relate science to civilisation and history. This will be followed by a reflection of the times in which we live. From there we shall move on to examine what kind of reproof our generation needs and conclude by sketching how our social institutions can be reformed.

Our framework, shown in Figure 1, is a broad multi-modal systems map on which we place the matters that concern us in relation to each other and along two dimensions. The first dimension - the horizontal axis - represents the different human and natural systems and their mutual interaction. Our diagram depicts just a few of these: the family, the university, the state, the ballet company and the religious institution. My impression is that the systems research emphasis today lies mostly in this dimension, and that we have somewhat neglected the second dimension - in the vertical axis - reflecting the different levels of order - or modalities - in which our lives unfold. We have borrowed much of our theory of these modalities from Herman Dooyeweerd (1958, 1975); he was a philosopher and professor of law at this university² and

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dedicated much of his efforts to study the interrelationship of the different modalities as expressions of the order ruling the universe.

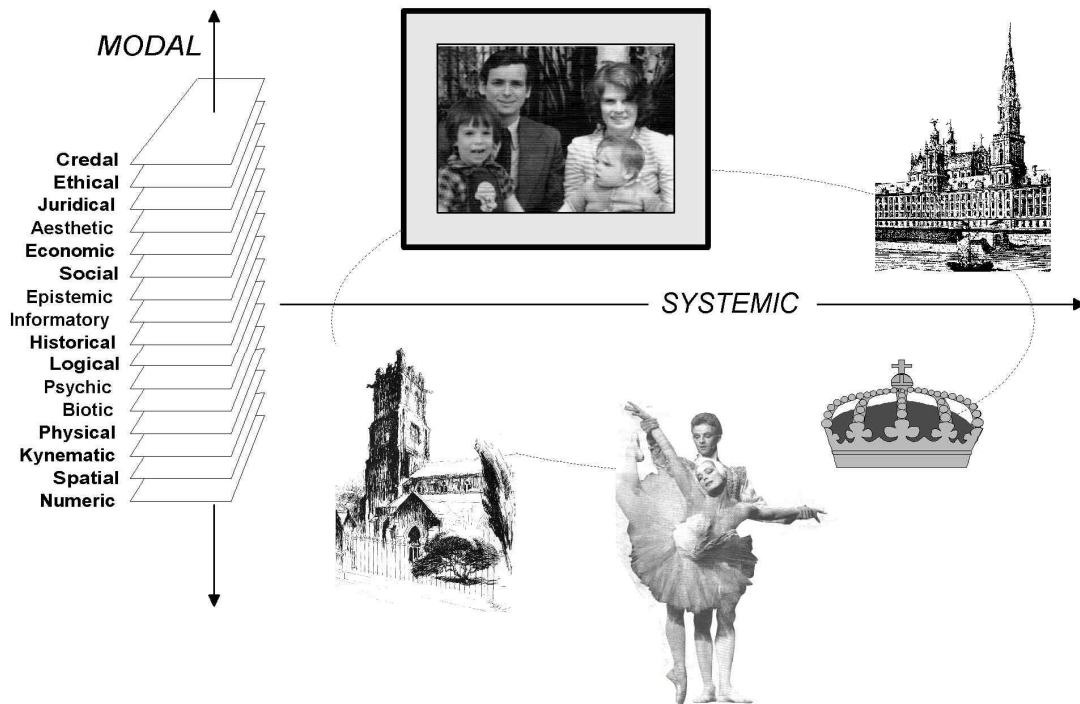


Figure 1

In researching the modal orders in this vertical dimension, I think we also follow von Bertalanffy's view of order as a multi-layered affair, or as he describes it, as a Neapolitan ice-cream with many layers: ice-cream, cream, fruits, vanilla and so on (von Bertalanffy, 1971). Each one of these, according to him, reflects a unique level of order in the universe which cannot be reduced to other orders. One cannot, for example, reduce biological phenomena to physical, or social phenomena to psychological. Dooyeweerd also argues, very effectively, for the uniqueness of all these modal orders. The fifteen modalities he proposed plus a sixteenth which I have added (the epistemic modality) are: numeric, spatial, kinetic, physical, biotic, psychic, analytic, historic, informatory, epistemic, social, economic, aesthetic, juridical, ethical and credal.

While Dooyeweerd insists that each modality is unique, he also recognises that each modality is not isolated and is not completely different to the others. On the contrary, all modalities are found closely inter-linked and there are strong analogies between one and the other. These analogies find their counterpart in the general systems idea of mapping or homomorphism. They are the channel through which we may work towards von Bertalanffy's hope of developing a general theory that, while recognising the multi-layered

nature of order - and thus the need for specialised disciplines - provides a scientific language bridging one discipline with the other, and allowing for the transferral of knowledge and the arrest of the scientific fragmentation which we experience today. The modalities and their homomorphisms are also useful in understanding the hierarchical arrangement and interaction of a variety of systems as has been proposed by scholars such as Miller (1978) and Boulding(1956).

2. DETERMINATIVE AND NORMATIVE ORDER

Dooyeweerd distinguishes between two types of orders in the modalities - one determinative and the other normative - and accordingly proceeds to divide the modalities into two groups . The determinative group includes the four lower modalities, from the numerical to the psychic, while the normative group comprises all others. I have taken a slightly different view from Dooyeweerd's definition of normative order. I regard as normative that type of order that is directly addressed to human responsibility. It is the *ought* that sketches for us the pattern of human virtue and nobility and the course and destiny of a civilised and cultured life. In brief, it is the vision of goodness in all its splendour.

The normative order in my view spreads through all the modalities - including the lower four - with a varying degree of intensity: stronger in the higher level and weaker in the lower levels, so that the ethical and juridical modalities are more normative than the physical and the numerical. This is shown in Figure 2, where the shaded and blank areas respectively represent the determinative and normative order. I think it important that we should acknowledge our normative *ought* in these areas as well, especially as it concerns the natural environment. It is important because from a world view that regards nature as accessible to every unbridled exploitation, we have swung to the opposite extreme that venerates nature and sees mankind as a curse upon it. Undoubtedly, and especially so in modern times, wherever we have put our foot we have produced disaster. Yet nature needs our care, and this is reflected in the normative space that occupies each of the modal levels. A volcano's eruption can bring us much destruction and pollution as can modern industry. There are species that are either becoming or have become extinct without any human intervention, so that it is as much our duty to protect nature from man's undue exploitation as from its own self-inflicted calamities. It is this thought that has led me to deviate from Dooyeweerd's idea of normative order.

3. SCIENCE AND METHOD

It should be noted that in the classical period, that is, prior to the enlightenment, the foundation and the final aim of science is normative. The ultimate concern of almost every classical thinker is: what is man? The query is directed more to the normative than the determinative side of our being, that is:

what is a good man and what is a good woman? This question motivates thinkers to look not only at themselves, but also at the universe that surrounds them, including plants, rocks, numbers and everything else that crosses their paths. For them the answer is imbedded in every nook and cranny of this universe. This leads us to epistemology: how can we know the answer to these questions? Here, we may find another useful application of the modalities, and yet again, I have departed from Dooyeweerd's sharp differentiation between theoretical and pre-theoretical knowledge, (the latter meaning common sense experience). Dooyeweerd restricted theoretical knowledge to the logical modality. Undoubtedly theory is heavily indebted to logic, but it also uses mathematics and many other modalities. For example, all scientists know how important language is to science. Even in a strictly empirical study, those who write down its results realise that their understanding of these is polished and sometimes completely reorganised while writing down the findings, based not on tools of empirical analysis, but on rules of linguistics and rhetoric. If properly utilised, the order in these rules enhances and even modifies the theory that their are developing. Other modalities - such as aesthetic and spatial - can play a similar role.

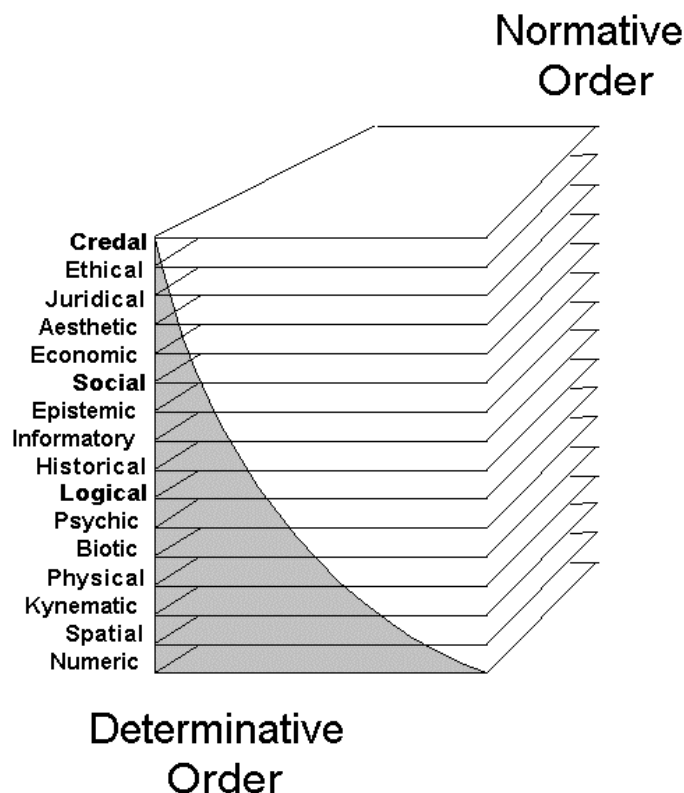


Figure 2

The ability of science to employ not only logic, but other modalities as well, is due to the homomorphisms between modalities to which I referred earlier and which allow us to translate the order of one modality into the other. Let us consider a simple example and assume that we have decided to open a coffee shop in Amsterdam and that we need to settle the price we will charge for each cup. We hire an economist who introduces us to the demand function expressed as a mathematical equation. We shall use a very simple equation in this illustration. What the economist does is to abstract a small fragment of economic order - the source of our analysis - and to translate it into an equation that resides in the numerical modality. This modality becomes the idiom of our analysis (see Figure 3):

$$D = a - b P$$

where:

P = price per cup of coffee

D = number of cups sold

a and b are constants

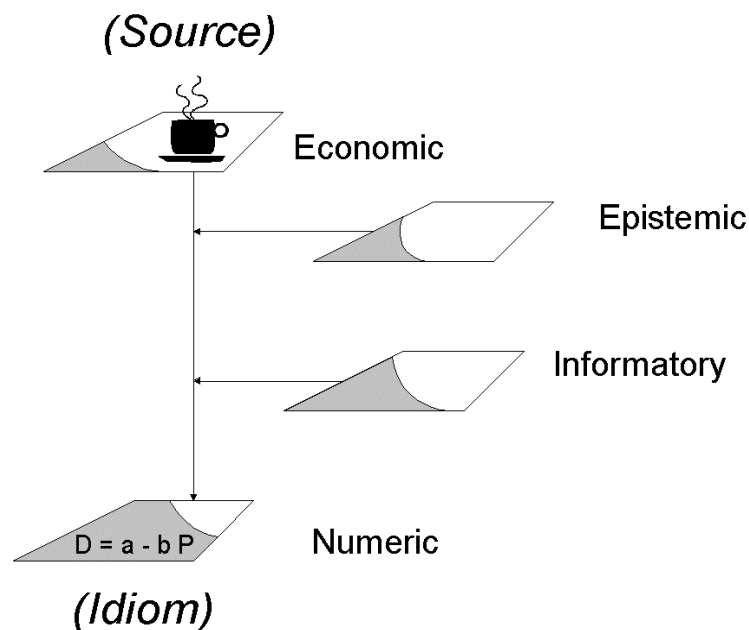


Figure 3

Due to the homomorphism between the economic and numeric modalities, much of the behaviour of the equation makes economic sense, but we must be on our guard, for this only occurs within the domain of the homomorphism. Beyond this, the equation suggests some absurd patterns of economic behaviour such that, above a certain price, we obtain a negative sale

of coffee cups. The reason for this absurdity is that the equation does not obey economic laws but numeric laws.

Furthermore, observe that the economic modality is much more normative than the numeric. Neglecting the normative order may have even more serious consequences, for this equation does not address the quality of the coffee or the relationship between its true value and its price. Coffee is cheap in Holland and other rich countries because some poor people in Colombia or Brazil are working in the plantations for a mere subsistence level salary. Should they enjoy a decent standard of living, coffee would cost double, but unfavourable exchange rates reflecting the weakness of their economy leaves them in a disadvantaged position. If we wish to have a proper economic analysis, these aspects should also be included by adding other modalities as idioms.

Figure 3 also shows that the processes of developing models is itself ordered by two modalities. The translation from one modality to the other, that is from source to idiom, is regulated by the informatory modality which deals with the conversion of order into symbolic meaning. The manipulation and interpretation of symbols according to the rules of a given idiom are regulated by the epistemic modality. Out of this modality emerges the various scientific methodologies that include not only quantitative methods but also qualitative methods encompassing historical, aesthetic, theological and other types of analyses. It is this epistemic modality and not the logical modality that provides us with the laws of knowledge, whether theoretical or pre-theoretical. The logical modality provides only one idiom which may be used, among many, to express knowledge.

Within the epistemic modality we can establish different degrees of methodological rigour in our understanding, depending on the circumstances and purpose of our knowing, from the more scientific and strongly methodologically-based to the one which is much more loose and informal. We are thus provided with an epistemological continuum within which Dooyeweerd's categories - i.e. theoretical and pre-theoretical - are only the extreme poles. This has important implications for education. Given that the starting point of university education should be to teach students how to think, then we must ensure that the epistemological foundation of this teaching presents students not only with logic as an idiom of understanding, but with every other modality as well. Only upon such foundation can one introduce them to a rich and cultured science.

4. POST-MODERNISM AND DECADENCE

From the informatory and epistemic modalities we now move to the historical modality and review some significant events that have taken place in our intellectual life. As systems scientists we are well acquainted with the mechanistic world view that emerged during the enlightenment and which dominated the modern period of our history. We have been deeply concerned

with the fragmentation that this brought to science, but we have not paid as much attention to the brutal treatment that the normative type of order suffered at the hand of modernists such as de la Mettrie(1960), who reduced it to a product of pure glandular secretions, or Comte(1979), who considered it so obscure that it was not worthy to be included in the domain of science any longer. As a result, we have been left with a modern image of science that is purely determinative and strongly circumscribed by the laboratory, computers and mathematical equations. Few today think of it as dealing with norms and the ultimate questions of life.

The rejection of the normative order from the realm of science - see Figure 4 - leaves us with a massive intellectual void. Modern science becomes like intellectual athletics; the athlete runs for the sake of running but not for the sake of getting anywhere in particular. Modern science has no sense of direction, it offers no rigour to leads in a search for culture, nobility and virtue; on these matters it is utterly barren. No wonder that following the enlightenment, people ignored science in their private lives and went on very much as in the past: they continued to go to church and to harbour respect for the family, the state and old values. Yet in organised life, such as in industry and in the university, a new utilitarian ethics dominated. Here, questions of norms were resolved by the arithmetical difference between pain and pleasure. Thus there emerged a society with a split personality. A relatively humane and wholesome personal world on one hand co-existed with a strictly mechanistic and utilitarian business world on the other. When one stepped from the personal to the business world, it was not only the pattern of life that changed, but all the surrounding articles such as clothing, furniture and buildings assumed a mechanical mien.

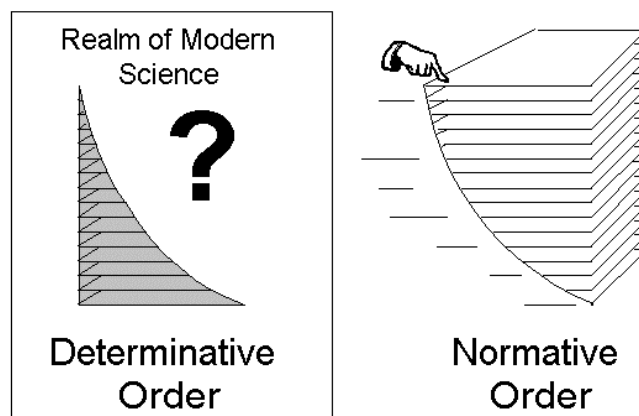


Figure 4

However, the space occupied by these two worlds has not remained undisputed, for the business world has progressively encroached on the personal world, though at first it was partly contained by the old norms that still survived in the community. Yet a new era, post-modernity, that was

ushered in - according to some sociologists - around the 1960's burst the damn that contained the business world and inundated almost every social system with the mechanistic and utilitarianism creed. Sectors of human activity that had so far been out of the reach of industry have now been incorporated into a whole new string of industries that have assimilated such things as sports, arts and now health. We speak now of the *sports-industry*, the *arts-industry* and the *health-industry*.

Two other industries have emerged that are of special concern: one is the state and the second is science. A strong doctrine has emerged that regards the state as a technical and economic unit that should function like a meta-industry. The mayor concern of modern government has become the management of the nation's economy. To this all other things - foreign relations, education and health - are made subject. The attention of voters is directed mainly to economic issues and it is according to economic success that they choose the winner. Parties from left to right have consequently distanced themselves from their original ideologies - whatever their merits - and replaced them with technological utilitarianism. As expected, most of them have become much like each other, offering to the voters a product as homogenous as the transportation that different airlines offer their passengers.

In regard to science, there has been a subtle yet far-reaching restriction of its scope because it has been made subservient to industrial interests through the funding mechanism. A large part of research funding has been delegated to science with an industrial application; in other words, funding for the interests of industry. Industry with its utilitarian motives cares very little for science for its own sake. The funds made available are for research where the problems and questions have been already formulated - sometimes by people who are not scientists and who ignore that a large proportion of a scientist's task is asking the right question or identifying the proper problem. Thus the scientist who accepts this funding finds himself boxed into a pre-set framework of inquiry. This framework almost uniformly and uncritically assumes that technological development is good for humanity, especially when directed toward increasing industrial competitiveness. Under these circumstances, it is hard for the modern scientist to exercise and defend his professional freedom. Academic freedom is a normative question and science lost much of its normative skill when it succumbed to a mechanistic world view. Science has become yet another form of industry. We are reminded of this every time we see an advertisement for a professorial chair requesting "entrepreneurial competence" as a necessary qualification and for the new type of chairs in "Hotel Management" and "Meat Marketing" that have appeared.

All this has made industrialised societies extremely rich. The comforts that our post-modern generation takes for granted these days make the excesses and luxuries of aristocracies from the past look pale. Yet we share with these aristocracies two qualities. Firstly, like them, we have rejected most normative obligations and supplanted them with the golden rule that we should do as we please. That is what most aristocrats did. Secondly, the privileges we enjoy

today and which permit us to do as we please come from a technological system that we have inherited and which, given the state of our science, we cannot sustain indefinitely. According to Ortega y Gasset (1995):

Technology is of the same essence and substance as science and science can not exist if there is no interest for its purity and in its own self, and there cannot be such interest if people do not continue to show enthusiasm for the general principles of culture. If this enthusiasm declines - as it seems to be the case - technology can only survive for a time, as long as the inertia of the cultural impulse that created it lasts. One lives with technology but not *of* technology. (p. 106.)³

Like the aristocrats, we risk to lose all because our normative ineptitude will eventually destroy our determinative competence. I have illustrated this in a graphic manner in Figure 5. The horizontal axis stands for time, the vertical axis for order. Along these axes are traced the normative and determinative progress - or regress - of civilisation, which in turn is represented by the surface, like an undulating floor-mat, that is formed by both orders. The graph shows that the normative order in society (the lower edge of the surface) changes through time in a sinusoidal pattern that oscillates along a steady level. That is, virtue at one time of history can be succeeded by depravity at another: it is possible for Caesar Augustus to be followed by Nero and a roman patrician by a barbarian king.

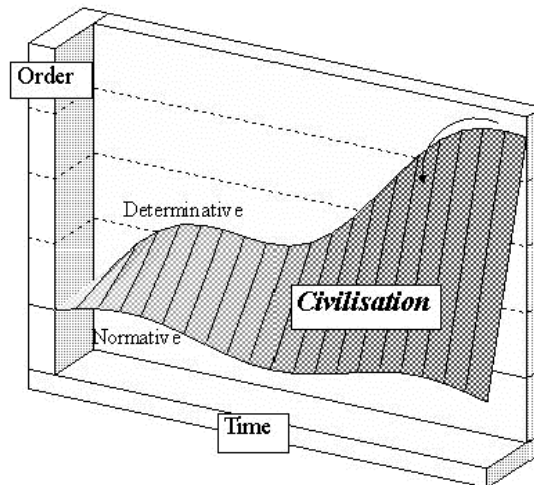


Figure 5

By contrast, unless we regress so much as to utterly destroy our civilisation, a horse drawn chariot will not follow a motor car. That is, determinative knowledge and skill - the upper edge of the surface - grows unencumbered unless dragged down by moral decline. Therefore its pattern of

³ My translation, italics his.

growth - the upper edge of the surface - is also a sinusoidal pattern, but this time, oscillating around an ascending level. The combination of these two patterns gives us a cultural surface which undulates with historical progress and the decline of virtue. Some may say, rather optimistically, that this graph shows the evolutionary path trodden by humanity on its way to ever greater achievements and which the unavoidable bumps on the road cannot stop. But there are disturbing signs in this graph which should dampen such optimism.

One of them is that the surface appears to be tipping over - in the direction of the curved arrow - due to the normative and determinative disparity in its structure. This disparity represents an excess of one good thing relative to another; it is a systemic instability in civilisation that may be likened to an aeroplane with poorly fitted flaps so that the lift of one of its wings is greater than the other. This has disastrous consequences: as the aeroplane accelerates down the runway, difference of lift cause it to tip over and crash. Likewise, the disparity in human nature, reflected in an excess of our determinative science and its concomitant technological power - good things when administered in measured quantities - is not only a waste of time and resources but worse, it is a great human tragedy progressively unfolding before our eyes in the ugly shapes of pollution, unemployment, drug abuse, violence and lack of meaning that plagues our economically overdeveloped societies. Cultural decadence is, according to these, humanity tipping over its own excesses.

Furthermore, cybernetics (Beer, 1979; de Raadt, 1989 and 1991) would tells us that the oscillations - or 'bumps' - of the system are yet another sign of instability caused by a time lag, that is, the time span between an event and the system becoming aware of that event being far too long. Cultural decadence is thus exacerbated: by the time we realise that decay has set in, it is too late to avoid it.

5. THE PROPHET AND THE PHILOSOPHER REVISITED

The systemic time lag makes it imperative that we should speak up now, though the "tipping over" effect indicates that mere teaching will not do. One may teach primitive man but decadent man, although often making common cause with the primitive and like Rousseau praising the simplicity and spirituality of the "noble savage", is not primitive. Having been born and lived the first half of my life in a country inhabited by a large majority of primitive people and the second half in modern, western countries has convinced me of this. Primitive man is fecund soil; he has little, knows little and is naive, but he can learn much and stands to gain much. Decadent man is barren soil; he has much, knows much but is cynical; he rejects what he knows and stands to lose everything. Primitive man is humble; decadent man is destructively arrogant. Primitive man deserves to be taught; decadent man, to be rebuked.

Sadly, much of our science shares these characteristics: it does not correct, it panders. To learn how to correct this pattern we must travel into the past and meet thinkers, prophets and the philosophers, who lived when their

nations were torn to pieces and who spoke out despite reprisal and persecution. In our journey we will meet Augustine, who lived through the heart-breaking experience of the sacking of his cherished Rome by Alaric the Goth in 410 AD and who as a result of this event wrote *The City of God* to counter the accusation that the blame for the fall of Rome was to be found in the abandonment of the pagan gods for Christianity. We will also meet Jeremiah who lived during the last days of Judah and who condemned the social oppression and immorality of his fellow citizens and witnessed the horrible destruction of Jerusalem at the hands of the Babylonians in 587 BC. There also stands Socrates and his courageous defence before the magistrates of Athens in 399 BC, also at a turbulent time in Athen's history. He was accused of teaching impiety when he was teaching normative science.

In their rebuke to their fellow citizens, these men extolled virtue, understanding and faithfulness to God, all of them bound together, so that one could not possess one without possessing the others. Thus for Augustine, the fortunes of Rome were closely linked to her forsaking the pursuit of virtue. While surveying the beginning of the Roman Republic and its unfolding through time, he quotes Cato, the Roman tribune and Stoic:

I do not think that it was by arms that our ancestors made the republic great from being small. But it was other things than this that made them great, and we have none of them: industry at home, just government without, a mind free in deliberation, addicted neither to crime nor to lust. Instead of this, we have luxury and avarice, poverty in the state, opulence among citizens; we laud riches, we follow laziness; there is no difference made between the good and the bad; all the rewards of virtue are got possession of by intrigue. (St. Augustine, 1988, p.95.)

For the prophets virtue was righteousness and in righteousness was embodied social justice. We have neglected to give due credit to the wisdom and insight of these men as it concerns social and economic justice, a topic about which they were far ahead of their time. Their sense of obligation to provide for the underprivileged, the poor, the orphan and the widow went far beyond that of their neighbours and it is from them that we derive most of the normative principles that have motivated modern social welfare. That famous advocate of social justice, the critical social theory of the Frankfurt school, owes much to the Jewish heritage of many of its scholars, and it has been argued that Karl Marx was strongly influenced by his Jewish background (Tar, 1985). In many of the works of social critics and reformers one hears the echo of the prophet's words:

"Woe to him who builds his palace by
unrighteousness,
his upper room by injustice,
making his countrymen work for
nothing,
not paying them for their labour."
Jeremiah XXII: 13

Virtue or righteousness, however, cannot be separated from man's intellect; virtue cannot inhabit an ignorant mind. On the contrary, it is ignorance that triggers disaster, for ignorant people are defenceless when manipulated and destroyed. It is lack of understanding, as the prophets say, that carries people into exile. This is sobering for scholars, for it impresses upon us the responsibility that we have to educate and enhance understanding.

Finally both to the philosopher and the prophet, the pursuit of virtue and understanding without devotion to God would have been monstrous. The enlightenment's greatest mistake was its attempt at secularising - with a good measure of success - the intellect. Through my involvement in the systems science community, I have found that many of my colleagues - including some of the most illustrious scholars - harbour a very strong experience of God in their inner lives. It is a tragedy that we have to live within a scientific tradition that censors and excludes such experience from our intellectual life. One envies the freedom of past generations of philosophers, natural scientists and theologians who, up to the seventeenth century, knew nothing of the compartmentalisation of intellectual life.

6. NORMATIVE ORDER AND SYSTEMS

The message of the philosopher and the prophet was not purely rebuke; in it was also a way out, a glimmer of hope. Thus it would be remiss to conclude without indicating, even briefly, how our civilisation and its social institutions should be reformed. As indicated earlier, once the normative side of order was eradicated from science, it was replaced by a utilitarianism which has dominated economics ever since. Gradually every social institution has yielded to the economics that turns every human endeavour into a business venture that asserts its ultimate aim in the terms of monetary utility. This obsession with utility and technology will, unless we change our course, drive our civilisation to a collapse such as is sketched in Figure 5.

To avoid this we must liberate our social institutions from utilitarianism and replace it with a normative mission - or "organisational vocation" - to serve humanity. Every social system has one modality that gives it its special quality. For a ballet company, for example, this is the aesthetic modality. It is here where the normative mission is encapsulated; the company's ultimate aim is to be a music and dance maker, for the people need music and dance to cheer them up, to inspire them and to allow them to express their feelings. This does not exclude the orchestra's financial obligations to balance its budget, to pay the musicians and dancers and to pay the interest on the capital that it has borrowed. Yet these obligations are distinct from its normative mission. We cannot say that the normative mission of the company is to pay interest.

Perhaps purely out of habit, most people today still accept this, that is, that ballet companies are not for monetary profit. Yet they would readily agree that making money is the mission of a record company. For they consider the latter a *business* despite it also being qualified by the aesthetic modality. In their eyes, when a social system is regarded as a business, its ultimate goal automatically becomes making money. *Business* is the utilitarian idea of a

social system and, within this philosophy, there is no reason why we should not consider every human endeavour - including a ballet company - a business. As already mentioned, this is what post modernity is enthusiastically doing. My last diagram (Figure 6) shows the normative missions for the social systems originally shown in Figure 1. These systems are now placed around the modalities that give them their identities and their normative missions. In it, the religious institution finds its mission in the credal modality, the state in the juridical, the ballet company in the aesthetic, the university in the epistemic and the family in the ethical.

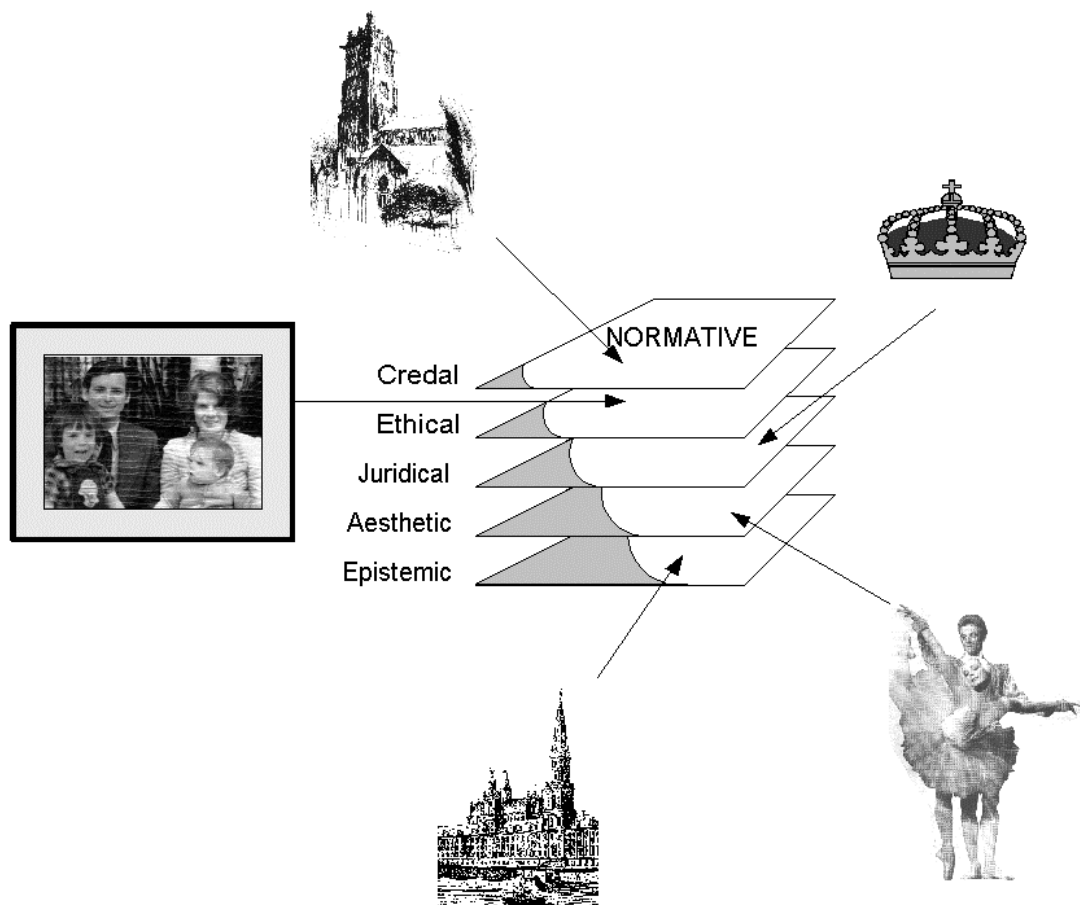


Figure 6

A theory of social systems management and design, different from the utilitarian theory of management and design, is needed to help us discover and unfold these missions. Multi-modal systems research is expressly aimed at developing such a theory. A modest advance has been made already in several fields: informatics (de Raadt, 1989c and 1991; Strijbos, 1995b; Winfield et al., 1995), systems design in general (de Raadt, 1989b; Bergvall and Grahn, 1995a and b), information systems design in particular (de Raadt, 1995) transport

(van der Stoep, 1995), welfare systems (Hanson and de Raadt, 1995) and ethics and wisdom (Strijbos, 1995*a*, *c* and *d*). Out of deep concern for the predicament of our times and for the world we are passing onto our children, this research admits a standard of goodness outside itself and, like Socrates, strives to introduce it into our social institutions:

Gentlemen, I am your very grateful and devoted servant, but I owe a greater obedience to God than to you; and so long as I draw breath and have my faculties, I shall never stop practising philosophy and exhorting you and indicating the truth for everyone that I meet... This, I do assure you, is what my God commands; and it is my belief that no greater good has ever befallen you in this city than my service to my God; for I spend all my time going about trying to persuade you, young and old, to make your first and chief concern not for your bodies or for your possessions, but for the highest welfare of your souls, proclaiming as I go, "Wealth does not bring goodness, but goodness brings wealth and every other blessing, both to the individual and to the state". (Plato, 1993, p.53)

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