RISTO VOLANEN

ON CONDITIONS OF DECISION MAKING

A STUDY OF THE CONCEPTUAL FOUNDATIONS OF ADMINISTRATION

> *The essence of ultimate decision remains impenetrable to the observer – often indeed, to decider himself…. There will always be the dark and tangled stretches in decision-making process – mysterious even to those who may be most intimately involved.*
>
> *J. F. Kennedy* (Motto in Graham T. Allison, ESSENCE OF DECISION, Explaining the Cuban Missile Crisis)

PREFACE to digital edition 2014.

This dissertation was written as a disputation criticizing positivistic philosophy of science, especially as a foundation for social sciences like the study of administration. Its background is in the philosophical and political situation in the mid 1970's – in several ways reflecting to where we are today.

In the 1960's and 1970's or in the middle of the Cold War, The Wiener Kreis tradition of philosophy of science was returning back to Europe from its exile to the US. It was establishing itself on both continents as the mainstream academic philosophy. Since then there have been important turns under the influence of critical realism and pragmatism, but the basic presupposition of methodological monism in the sciences still holds its strong position.

At the same time, philosophical monism or naturalism have become integrated parts of the deeper European Enlightenment tradition seen by many, in *Jürgen Habermas'* words, as un unfinished project — in fact serving also as the ideological foundation of the European Union *finalité* itself.

However, at the same time the "later" *Ludwig Wittgenstein* of "Philosophical Investigations" has inspired critical self-reflection — under titles such as "hermeneutics" also in analytical philosophy, first in the works of scholars like *G.E.M Anscombe, William Dray, Peter Winch,* and *G.H. von Wright.*

Since *Eino Kaila*, philosophy in the University of Helsinki had been dominated by analytical philosophy. However, in the early 1970's *G.H. von Wright* opened a debate on practical reason in a critical spirit. At the same time the post-1968 current of Marxism gained a lot of support among students in several faculties of the university, but not so much in philosophy. One of the reasons was that *von Wright's* thinking encouraged younger students like me to follow a "centrist" or third way complementaristic view. According to it, both the causalistic *galilean* tradition and the teleological or intentionalistic *aristotelian* tradition are needed as the foundation of the social sciences — and of life. For instance, this dissertation met some concerns in the mainstream Finnish thinking of the time but *von Wright* himself gave time and support for it.

Professor *Jaakko Hintikka* is another internationally well-known scholar who gave support to this project. He opened the way to one of the most dynamic places of philosophy of science at the time — Boston University — with *Robert Cohen* as my academic advisor and *Marx Wartofsky* as one of the major professors. Fortunately also *Alasdair MacIntyre* was in the house and gave me some most valuable advice.

When I arrived at Boston I had a readymade plan to develop *Aristotle's* and *von Wright's* practical syllogism into a model of decision making. This plan gained even more motivation when I learnt what was happening in the J.F. Kennedy School of Government at Harvard.

The academic year 1975–1976 was still post-Cuban Missile Crisis and post-Vietnam War time at Kennedy School. The real danger of global nuclear catastrophe and the more recent national catastrophe in Vietnam had created an intense critical discussion in that academic institution close to practice. There *Graham T. Allison* and *John D. Steinbrenner* held classes based on their newly published books on decision making. Being a Fulbright student and having a letter of recommendation, I was accepted to audit them.

The basic work for this dissertation took place in that academic

environment. After my return back to Finland the work continued for another year and the result was presented as a doctoral thesis at the University of Jyväskylä in June 1977. After that my career was mainly in public administration, finishing as the Prime Minister's State Secretary in June 2010.

However, one of the core questions was left open in this dissertation, as much as it seems to have concerned *von Wright* in his later works. It was the relation between the premises and conclusion in the Practical Syllogism — and more broadly, how is practical reason possible. In fact this question itself challenges the mainstream monistic and Enlightenment currents because these traditions take it for granted that humans are in some way readymade for practical reason — if only filled by a certain amount of information.

These questions have kept my philosophical interest alive through these years. Then, after having retired, I have had more time to have a look at what has been accomplished by professionals in these "von Wrightian" questions, and I have recognized that it is not very much. It is true that there has been a lively academic work on practical reasoning or on action theory, but its main bias seems to have been to translate *von Wright's* main *sui generis* questions and conclusions to a monistic-naturalistic framework.

However, this holds only for the mainstream philosophy of science. The questions of how decent practical reasoning and practically wise life are possible have been the core questions in the currents known as post-structuralism or post-modernism in Europe and neoconservatism in the US. All of them seem to take it for granted that a practically reasonable, just or balanced mind is a historical product. However, their conclusions have been opposite to each other. The one is saying that the end result or modern mind should be deconstructed and the other is saying that the formative traditions of this modern or Western mind should be revitalized to preserve it — but unfortunately, according to many of them, at the cost of taking distance from the Enlightenment.

My own postdoctoral philosophical writing has come to the conclusion that human practical wisdom is somehow originally or potentially in the human constitution but it has become real only through historical or cultural development. Therefore to avoid repeating its deconstruction like in the tragedies of the 1930's we should integrate in a complementaristic way its formative (Christian, classical and socially humanistic) "Bildung" and Enlightenment cultures.[1] Perhaps needless to say, this conception became founded already in this dissertation.

It may be unknown outside the Nordic countries that in the late 1980's *G.H. von Wright* gave lectures and published articles making strong cultural and ecological criticism of modern culture and society based on monistic scientism. He even defined his political program as "social humanism." These public interventions, however, faced exceptionally strong criticism from the mainstream scientific community. Only recently I have learnt that *von Wright* met a parallel if more polite experience also with his "Explanation and Understanding" as well as with his "complementarism" — the basic elements inspiring this study.

Paradoxically or even surprisingly *G.H. von Wright's* complementaristic legacy has not been developed on any broader basis except by some interesting scholars like *Frederick Stoutland* in Uppsala and *Thomas Wallgren* in Helsinki. This does not mean that some other interesting but basically monistic interpretations would not have taken place after *von Wright*, like for instance *Raimo Tuomela's* work.

Another paradox is that *Allison's* and *Steinbrenner's* works became

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[1] [1] Risto Volanen, COMMUNICATION, THE RISE AND RISK OF FALL OF MODERN MIND;
https://www.academia.edu/5202149/THE_RISE_AND_RISK_OF_FALL_OF_MODERN_MIND

Risto Volanen, COMMUNICATION, EDUCATION AND EUROPE;
https://www.academia.edu/5143569/_COMMUNICATION_EDUCATION_AND_EUROPE_a_history_and_forecast_in_1990

a permanent literature in administrative and policy studies, but the problems they treated have only been repeated in governmental-administrative practice. After 9/11 and after the wars in Iraq and in Afghanistan the old questions of misperceptions and bureaucratic problems in decision making have been repeated in literature, almost like after the Cuban missile crisis, the Vietnam War or the Skybolt decision 40–50 years ago.

It is difficult to say whether I will be able produce something more or new on these questions. However, I hope the digital edition of this doctoral dissertation could help reintroduce the critical question of the serious limits of mainstream monistic philosophy of science as the foundation for social sciences, for our understanding of our social life and for our making decisions on it.

This does not mean that I would favor an "anything goes" approach, which together with weakly founded non-analytical "hermeneutics" can create academic or administrative orientations which accept "soft methods" with soft results. What I mean is that a well-founded understanding of human practical reasoning and its practical decision making (PDM in this study) could offer a well-founded basis for analytical hermeneutics and for a complementaristic methodology of human and social sciences, as well as administration. After all, the model of scientific practice or verification is a special case of the deeper model of practical reason covering broadly human experience.

Given the fact that this text is a doctoral dissertation, there are no textual changes in it compared to the first edition in 1977. In order to help reading, two subtitles have been added and several all too long paragraphs have been divided. Some of these changes are based on remarks from the official academic opponents of the time. I am grateful to the University of Jyväskylä for giving me permission to publish this digital edition.

Järvenpää, Finland, January, 2014

*The things are generated artificially whose ·
form is contained in the soul, by "form" I
mean the essence of each thing and its
primary substance ... Therefore it follows in a
sense that health comes from health and a
house comes from a house; that which has
matter from that which has not.*

Aristotle, Metaphysics

*So among those who cooperate the things that
are seen are moved by things unseen. Out of
the void comes the spirit that shapes the ends
of men.*

Chester I. Barnard, The Functions of the Executive

PREFACE to first printing 1977.

The seeds of this study lie back, in the mid-sixties when I began to
study philosophy and public administration. Since that time I have
had an interest in relating these two subjects to each other. Then
after some experience in various political, administrative and even
business offices and capacities, I felt that what I had read in books
concerning administration said little of what happened or should
have happened in the concrete activity of administrating. This study
has been motivated to a great extent by these personal experiences.
The final decision on the theme took place when, in spring 1974, I
gave an undergraduate course on decision making at the University
of Jyväskylä.

One of the most difficult problems which arose during the work has
been the setting of limits to the discussion. I have mostly followed
the principle of including only what directly contributes to the main
arguments of the study. Hence several problems must be left at the
stage of being raised.

After going through the process of writing a dissertation, I

understand why so many people include acknowledgements to those somehow involved in it in the preface. First of all I would like to thank professor *Reijo Wilenius*, my teacher of philosophy during all these years. First in the University of Helsinki, and then in the University of Jyväskylä, he has advised and encouraged me very much. My most influential teachers in administration have been *Ilkka Heiskanen*, Professor of Political Science at the University of Helsinki and *Pertti Kettunen*, Professor of Business Economics at the University of Jyväskylä, to whom I am also grateful. As a Finnish student of philosophy I have been priviledged in receiving advice from two well-known philosophers, Professor *G.H. von Wright* and Professor *Jaakko Hintikka*. My special thanks go to them.

Something in many respects important to this study was my visit to the United States during the academic year 1975-1976. I suppose that my philosophical approach to decision making was essentially deepened and broadened during my studies at Boston University. I am grateful to all those who were my teachers there: *Robert S. Cohen, Marx W. Wartofsky, Alasdair C. MacIntyre*, and *Elizabeth Rapaport*. In particular I would like to thank Professor *Cohen* who was my academic advisor during the year. I am also indebted to several other teachers, graduate students, and staff of the Philosophy Department who so kindly helped me in various educational and practical matters. One more important piece of philosophical education during the year was the seminar on ethics at Harvard University held by professor *John Rawls*, to whom I am also grateful.

When arriving at Boston, my plan for Part II of this dissertation was different from what now appears. I learned that many of the problems that I was studying in a philosophical framework were discussed in the framework of the study of government in the John Fitzgerald Kennedy School of Government at Harvard University. I am grateful to several professors of this institution for education and personal communications during the spring 1976: *Charles*

Now I also understand why so many people include thanks to those who are the closest to them in the preface to their work. I thank my wife *Marjatta* and son *Ville*. Together we lived through these years of reading and writing.

Konginkangas, February, 1977.

Risto Volanen

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INTRODUCTION

This study has two purposes. First, we shall make an effort to discover the conceptual process common to making rational decisions. Secondly, we shall analyse and interpret some discussions of decision making in the study of administration. The hypothesis is that there have been - so far separately - many parallel discussions in the philosophy of social sciences and the study of government of the same problem - human deliberation for practical action.

The starting point of the study will be *G.H. von Wright's* discussion of the practical syllogism (PS). This syllogism will be studied and developed into the form of the Model of practical decision making (PDM). The discussions to be analysed and interpreted are some of the main streams in the study of administration as classified by *Graham T. Allison.*

The practical syllogism (PS) was originally constructed by *Aristotle.* This syllogism was introduced into the modern discussion by *G. E. M. Anscombe*, inspired by *Ludwig Wittgenstein's* later works (von Wright 1971, 26). *Anscombe's* Intention (1957) has been characterized as a part of the criticism of logical positivism in the English-speaking countries. The other classical works, according to *von Wright* (1971, 24-29), in this movement are *William Dray's* Laws and Explanation in History (1957) and *Peter Winch'* The Idea of a Social Science (1958). After *Anscombe*, PS has been developed and related to the other parts of the emerging criticism of positivism, in particular by *von Wright*, also a student of *Wittgenstein*. These other parts of the discussion have been broad enough to give rise to the label "new dualism" in the philosophical discussion.

Some points of focus in the discussion referred to above have been the philosophy of action (causalist versus intentionalist interpretation) and the philosophy of social sciences (the method of explanation, the method of understanding). According to *von*

Wright (1971, 2) each of these counterparts has its roots in the "two traditions" of the history of philosophy, the former being called "galilean" and the latter "aristotelian". In their modern forms *von Wright* (1971, 29, 181) proposes that the traditions should be called positivism and hermeneutic philosophy. By this terminology, "hermeneutic" he then comprises both "Continental dialectic" philosophy and some aspects of analytic "ordinary language" philosophy.

The aim of this study is not to settle the dispute between the two philosophical frontiers. The effort undertaken here is to find out the conceptual structure common to making rational decisions. However, to accomplish this task we must find soma relationship between the different philosophical traditions.

The discussion in this study begins by studying the practical syllogism and by reconstructing it into a new form for the purposes of this study. After this, the practical syllogism will be juxtaposed against the implicit model of practice of logical positivism. Then we shall make an effort to find a relationship between the methodological conceptions of *Carl Hempel's* positivism and *William Dray's* criticism of *Hempel's* conceptions.

The results of the preceding discussion will be used in the effort to find out what 1s involved in constructing the premises of the practical syllogism. A major contribution to this approach is also found in *Jaakko Hintikka's* and *Unto Remes'* study of the method of analysis as well as from *David Wiggins'* interpretation of *Aristotle's* concept of deliberation. The Model of practical decision making will be constructed by extending this discussion.

In the philosophy of the social sciences the revitalizing of the criticism of logical positivism can be dated back to three or four classical works. In the study of government or administration there seems to be one young classic, *Graham T. Allison's* <u>Essence of Decision, Explaining the Cuban Missile Crisis</u>. This work dates back to some meetings and seminars in the late 60's when *Allison* and some others began to discuss *"the gap between the intentions of*

the actors and the results of governmental action" (Allison 1971, ix)

The theoretical essence of *Allison's* work is threefold. First, it codifies and classifies the situation in the study of foreign and public policy decision making. Secondly, it analyses and criticizes the three models of decision making abstracted from the discussion in the field. Thirdly, it spells out some implications for further research and also for practice in government.

Allison's three models of decision making are those of "Rational Actor" (Model I), "Organizational Process" (Model II) and "Governmental Politics" (Model III). The Rational Actor Model covers the decision theories based on a specific kind of rationality, for example statistical decision theory and cost-benefit -analysis. The Organizational Process Model ties together a number of approaches that sometimes have been called empirical or organic orientation, like many of the works by *Herbert Simon* and those of which *Allison's* example is A Behavioral Theory of the Firm by *Richard M. Cyert and James G. March*. *Allison's* Governmental Politics Model is closely related to *Richard E. Neustadt's* works, especially Presidential Power (1960). During the discussion we shall discover the close relationship between *Neustadt's* theory of power and *Chester I. Barnard's* theory of authority. It will also appear that *Barnard's* more general theory of organization in The Functions of the Executive (1938) is the most systematic approach to administration compatible with our Model of practical decision making.

Allison concludes that there is a need for further research and for the moment the most comprehensive way of interpreting the behaviour of government or bureaucracy is to use the different models as different conceptual "lenses" side by side. A major effort in an essentially new approach to decision making has recently been made by *John D. Steinbruner* in The Cybernetic Theory of Decision (1974). *Steinbruner* also analyses and criticizes decision theories that he groups under "The Analytic Paradigm" (meaning

roughly the same as Allison's Model I). Then, inspired by cybernetics and cognitive psychology, Steinbruner constructs The Cybernetic Paradigm and a Cognitive theory of decision making. Loaded with philosophical insight, Steinbruner makes a major contribution to the reconsideration of the foundations of decision theories.

But not only are governmental decision theories under reconsideration, business administration and the study of business management too have faced problems that seem to force a rethink of their basic conceptual presuppositions. In this study we shall make an effort to relate *Charles Christenson's* truly philosophical research work to our discussion, on the basis of his research papers at the Harvard Business School.

Some of the main reasons for the recent discussion of the foundations of the theories of administration seem to be quite concrete. Many of the major realizations of the dominant decision theories of *Allison's* Model I) do not work well enough. One of their realizations is the Planning-Programming-Budgeting System (PPBS) that was highly celebrated and tried by almost all western governments but also failed everywhere. Another area of problematics seems to be the adoption of game theory into foreign policy and disarmament. It may be that the present basic conceptual structure of decision making in this field has built-in presuppositions that direct actions towards a continuing arms-race. In the field of business administration, the need for fresh discussion may be dictated by the changing physical-ecological, economic, and social environment of business organizations.

The aim of this study is limited. We shall construct a model of decision making on the basis of a definite philosophical discussion and relate this to theories of decision making in the field of the study of administration. Hopefully this limited task also takes some steps towards a broader philosophical discussion of administration or towards a philosophy of administration.

PART I

1. The Practical Syllogism

The practical syllogism was first constructed by *Aristotle*. This syllogism was introduced into the modern discussion by *Anscombe*. Although the actual starting point of this study is *von Wright's* formulation of PS, it is first useful to make a short review of *Aristotle's* and *Anscombe's* discussions of both practical reasoning and the practical syllogism itself. This is done both for the sake of historical background to the subsequent discussion and in order to give a preliminary introduction to some themes that will be used in this study for developing von Wright's PS into the Model of practical decision making, PDM.

1.1. Historical Remarks: Aristotle and Anscombe on Practical Reasoning

Aristotle

Aristotle's idea of practical reasoning can be best understood in the context of his more general conceptions. A common way of describing ancient Greek thinking is to say that its model was the craftsman's art. For instance, in the Metaphysics (1032 a13 – 1032 b 30) Aristotle analyses things that have been generated naturally ("by nature") and artificially (by a craftsman or an artisan). *"Things are generated artificially whose form is contained in the soul* (of the craftsman, remark RV*) (by "form" I mean the essence of each thing, and its primary substance)..."* (1032 b 1). *"Therefore it follows in a sense that health comes from health and a house from house; that which has matter from that which has not ..."* (1032 b 10). A smith, a shoe maker, a sculptor had his own episteme or "professional knowledge". In a way, episteme was

knowledge about the final form of the object that was or could be under construction by a craftsman. In this way episteme or knowledge was closely related to tekhne or art (Hintikka 1965, 51).

Aristotle's philosophy has also been characterized as teleological. However, he did not explicitly advocate some kind of "teleologism". It is more likely that he and his contemporary Greeks could not think or speak of any phenomenon without at least implicitly referring to its goal or telos (Hintikka 1965, 49).

A good example of *Aristotle's* teleological view was his thinking about politics. All events have their telos as does political activity. The goal of polities is defined in the constitution of the state *"as a way or form of 1ife that will be endeavored to be realized in the state"* (Barker according to Hintikka 1966, 30). Because the constitution defines the aim of political activity, it also exceeds the political activity. So it is very characteristic that the Greeks often gave the writing of the constitution to some individual lawmaker, like *Solon* or *Lycurgus*. A constitution written in this way was then taken as the given telos of the state (Hintikka 1966, 31).

But how is a goa1 or telos actualized in practice? *Aristotle* looks for the answer in his Nicomachean Ethics (NE) during discussions of deliberation and the practical sy1logism. In some modern writings (von Wright 1971, Hintikka 1974) these discussions have been taken together in analyzing *Aristotle's* conception of practical inference. There are good grounds for this as will be seen below. *Aristotle* also discusses the same problematics in the Metaphysics and in On the Motion of Animals (De motu animalium). The Nicomachean Ethics has been selected as the example because in the following modern discussions this text is the one most often referred to.

As examples of areas where humans deliberate *Aristotle* (NE, 1112 b 4-8) gives medicine and business, "*to which may add navigation*". In these things "*our own agency is effective*". Deliberation, then, is concerned with things which in general follow certain lines but in which there is something "obscure" (NE,

1112 b 8). In the following, *Aristotle's* lengthy text on deliberation is given as direct quotation. This view deserves plenty of comments and will get them in this study. *Aristotle* (NE, translated by Ross, 1112 b 13-27) analyses deliberation in the following way:

We deliberate not about ends but about means. For a doctor does not deliberate whether he shall heal, nor an orator whether he shall persuade, nor a statesman whether he shall produce law and order, nor does anyone else deliberate about his end.

They assume the end and consider how and by what means it is to be attained; and if it seems to be produced by several means they consider by which it is most easily and best produced, while if it is achieved by one only they consider how it will be achieved by this and by what means this will be achieved, till they come to the first cause, which in order of discovery is last.

For the person who deliberates seems to investigate and analyse in the same way described as though he were analysing a geometrical construction (not all investigation appears to be deliberation - for instance mathematical investigations - but all deliberation is investigation), and what is last in the order of analysis seems to be first in the order of becoming. And if we come on an impossibility, we give up the search, e.g. if we need money and this cannot be got; but if the thing appears possible we try to do it.

In the <u>Nicomachean Ethics</u> there are two other discussions of practical inference. One of the discussions of practical syllogism is given in the context of the discussion of moral weakness as follows (translated by Ostwald, 1147 a 25-32):

(In the practical syllogism) one of the premises, the universal, is a current belief, while the other involves particular facts which fall within the domain of sense perception.

When two premises are combined into one, (i.e., when the universal rule is realized in a particular case,) the soul is thereupon bound to affirm the conclusion, and if the premises involve action, the soul is bound to perform this act at once.

For example, if (the premises are): "Everything sweet ought to be tasted" and "This thing before me is sweet" ("this thing" perceived as an individual particular object), a man who is able (to taste) and is not prevented is bound to act accordingly at once.

The study of *Aristotle's* conception of deliberation and practical syllogism is a branch of literature on its own. As mentioned above, our intention is not to go too deep into this problematic. However, some comments lead nicely into the subsequent discussion. First a question arises as to how *Aristotle's* deliberation and practical syllogism are related to each other. What is the relation between "deliberating about means" and "realizing a universal rule in a particular object"? This is a matter of dispute. Here, however a suggestion can be made that is on the line of the following discussion.

Obviously, in the discussion of deliberation, *Aristotle* analyses the constructive activity by means of which the means to a certain end are created and hence a rule or principle is produced: "in order to achieve a certain goal do this". In the case of the practical syllogism there is a readymade rule or principle including both the end and means or else just a rule for some action (possibly a means to some unmentioned end). In this ease the rule or principle is adapted to a concrete situation.

Perhaps you could say that in the case of deliberation *Aristotle* studies how human reason is rationally used for practical action. The practical syllogism interprets an action that is made on the basis of (by the agent) constructed or adopted principle. Be this as it may in *Aristotle's* writings, this problematic will be repeatedly discussed later in this study.

Another question to be discussed here is whether there is any place for choice or decision making in *Aristotle's* thinking? *Aristotle's* teleological views were briefly described above. So for instance the natural goal of social development was for him "polis", a city state; and the telos or the form of life of this state was established in the constitution laid down by a lawmaker.

For *Aristotle,* human or social activity was in modern terms conscious and intentional or goal directed realization of an aim. But in the light of his teleologieal thinking it first appears that he thought that this aim is (to be) one natural telos whether it

concerned "man, horse or family" (Politics, 1252 b 30-35). According to this view, it was typical of *Aristotle* to bind every phenomenon to its one natural, given, and "right" telos. As we saw above in the discussion of deliberation, *Aristotle* in Ross' translation even explicitly said that *"we deliberate not about the ends but about the means"* (NE, 1112 b 13).

In the 1ight of his teleo1ogieal thinking and his explicit statements, it can be argued that deliberate choice between ends is contrary to Aristotle's basic philosophical assumptions. This is a matter of dispute, however. In a recent study, *David Wiggins* (1975, 34-35) makes a basically new interpretation of *Aristotle's* deliberation on ends. This approach is based to a great extent on a different kind of translation from *Ross'*. Later in this study we shall use *Wiggins'* finding.

Here, however, the heart of the question is not what *Aristotle* thought about it. Our point is that one essential presumption in this study is that there can sometimes be more than one possible (attainable) goals for an individual and a human community, and if so they can make a choice between alternative goals. This assumption will be analysed in detai1 in the following chapters.

Anscombe

As mentioned above, *Anscombe* (1957) introduced the practical syllogism into modern discussion. It was also indicated that this took place in the broader context of the criticism of positivism, inspired by the 1ater Wittgenstein.

In the beginning of Intention, *Anscombe* asks what is involved in the phenomenon or expression of "intention" or "intentional action". Her preliminary answer is that intentional actions are the ones to which a certain sense of the question 'why' has application (Intention pp. 9- 11). To interpret this answer *Anscombe* introduces the concept of knowledge without observation (p. 13).

For examp1e, man usually knows the position of his limbs without

observation. And intentional actions are a sub class of events which are known to man without observation (pp. 14,24). What is this kind of knowledge? Anscombe thinks that it is closely related to what ancient and medieval philosophers meant by practical knowledge (p. 57).

Anscombe says (p. 58) that *Aristotle's* idea of practical reasoning has been badly misunderstood by modern commentators. According to *Anscombe*, *Aristotle's* practical syllogism has been misunderstood to be one specific made of Aristotle's deductive or proof syllogism, demonstrating from a general first premise and particular second premise what one ought to do (pp. 57-62). She argues that the starting point in PS is something wanted and that the conclusion is a practical action.

Anscombe analyses the examples of the first premise of PS given by *Aristotle* in <u>Nicomachean Ethics</u> and <u>De Anima</u>. She discovers that the first premise always mentions something which is desirab1e, or some- thing for which there is no reason to ask further questions like "what for" (pp. 71, 73). When discussing the first premise of PS *Anscombe* says that it contains *"a description of something wanted"* or *"the desirability characterization"* (pp. 73-74).

But what does *Aristotle* or *Anscombe* mean by description or desirabi1ity in the context of the first premise of PS? Or what is the relation between these two in the first premise? *Anscombe* does not answer this question. In a later chapter we shall return to this problem.

Anscombe (p. 79) also holds a brief discussion related to the second premise of PS. She says that the mark of practical reasoning is that the thing wanted is at a distance from the immediate action, and the immediate action is ca1culated as the way of "getting" or "doing" or "securing" the thing wanted. She also remarks that the thing wanted may be at a distance in various ways, like in a spatial or temporal sense. Then she remarks that the practica1 reasoning in practice often includes several syllogisms "*running from an*

objective through many steps to the performance of a particu1ar action here and now".

An interesting point is that Anscombe (p. 79) considers it "absurd" or "artificial" when "*the particular units called practical syllogisms... are set out in full.*" Usually people do not think through the entire chain. Aristotle s account is not supposed to describe actual mental processes. So Aristotle's practical syllogism can be looked at *"as a device which reveals the order that there is in this chaos"* of *"enormously complicated"* *"description of human actions"* (Anscombe, 80).

Hence, for *Anscombe* the practical syllogism was a promising device for describing human action. This idea of describing and, even more, of explaining human action by means of the practical syllogism has been developed and specified by *von Wright* (1971).

1.2. Von Wright on the Practical Syllogism

Von Wright (1971) discusses the practical syllogism in the context of method in the human and social sciences. He offers the practical syllogism as an explanation model in the sciences of man. In this he differs from the traditional positivistic philosophy of science which argues that the method of the natural sciences is an adequate device for both natural and human phenomena.

According to *von Wright's* terminology one understands an action if one interprets this action in the light of its immediate aim. One step more is to explain an action teleologically, that is by giving some more remote end "which is not in the action itself" (pp. 123-124). If, for instance, one sees A pressing a button, one understands this action of A's if one knows that A's aim is to press the button. But if one interprets A's pressing in the way that this action of A's is for A a means to get light, one explains A's action teleologically.

For *von Wright* practical inference is in a way teleological explanation "turned upside down" (von Wright 1971, 96). The exact schema of *von Wright's* PS is the following:

A intends to bring about p.

A considers that he cannot bring about p unless, he does a.

Therefore A sets himself to do a.

By the practical syllogism one can explain A's act in the following way: When one asks why A did a, one can answer simply: "In order to bring about p". For instance, to the question, why did A press the button, one can answer: in order to get light (pp. 96-97). A central theme of *von Wright*'s several discussions is the validity of the conclusion of PS, that is whether there is logical or causal necessity between the premises and the conclusion of the practical syllogism.

The general line of this present study is to develop the practical syllogism into the Model of practical decision making. As will be seen, a decision maker needs explanation of his external environment. The developing of PS will also be important for this explanatory use in the cases where the external environment of the decision maker consists of human beings.

The core of this study, however, is to find out how human reasoning power is used rationally in decision making, that is, in such a way that a goal, or even more, something good is acquired. Because *von Wright's* PS is constructed for explaining human behaviour, one can understand why it is not suitable as such as a ground for developing in a special way normative rational decision model. Therefore, we shall first reconstruct *von Wright's* practical syllogism into a syllogism of our own. What is meant by "in a special way normative" will become clear during this study. To reconstruct the practical syllogism for the purposes of this study, we shall, in the following, study the premises and the conclusion of PS separately.

<u>A intends to bring about p.</u> The first premise of *von Wright's* practical syllogism expresses the intention or purpose (p) in the human mind (of A). In the explanatory use of PS the problem

concerning several possible goals is not of great interest. This is because in this case one has an act (a) and one seeks an explanation why this act (a) has been done. And, as mentioned above, the explanation by PS is that A did a in order to bring about p. It might, perhaps, be interesting to know whether A had also had some other possible purposes, but once the act (a) has been done, a valid explanation in *von Wright's* sense is given by pointing to the actual purpose (p) of the action.

If however, we try to discover the conceptual process common to making rational decisions, the situation is somewhat different. In this case A represents the rational decision maker. At some stage of his decision process he is in a situation such that one can say that he (A) intends to bring about p. One essential reconstruction of *von Wright's* PS is to broaden the perspective to the stages preceding the stage expressed by the first premise of PS.

It is intuitively clear what is referred to by "the preceding stages". Obviously, before in tending to bring about p, A must have somehow constructed or adopted the purpose p for himself. In this connection we also repeat what was mentioned in the discussion of *Aristotle* as an essential argument of this study: it is characteristic of human practical reasoning or decision making that A as a practical reasoner may have several alternative purposes amongst which he can make a choice. If this is the case, the first premise of PS expresses the stage in practical reasoning where A has constructed several alternative purposes, made a choice between them and come to the stage of decision process where he intends to bring about p.

In this study the broadening of the perspective concerning the first premise will be done step by step. There will first be a discussion concerning the construction of the first premise and then we shall study the situation where several alternative purposes are constructed and a choice is made amongst these.

<u>A considers that he cannot bring about p unless he does a.</u> The explanatory use of *von Wright's* PS is particularly clearly reflected

in the second premise. He formulates the second premise in such a way that a certain state of affairs (a) is necessary but not (necessarily) sufficient condition for p (... cannot bring about p unless...). One can understand this formulation in so far as it is a part of the explanation of why A does a: Because A intends to bring about p and because a is a necessary condition for p, it is in some sense necessary for A to do a. As indicated above, an essential part of *von Wright's* discussion of PS studies the nature of the necessity which holds between doing a and the premises.

From the point of view of the present study *von Wright's* formulation of the second premise does express in an intuitively clear way a stage in practical reasoning, At this stage A has identified one necessary condition for bringing about of p. An essential part of this study is to find out how a rational practical reasoner arrives at the stage expressed by the second premise.

One essential extension of the second premise can already be made at this point of the study. First it can be thought that a is a necessary but also a sufficient condition for p. In this case the second premise could be formulated in the following way: A considers that if and only if he does a, he brings about p. This is the situation when, for instance, A wants to get light into a room and he thinks that the only way to do this is to press a certain button. After this extension the next step should also be intuitively clear.

It is possible that a is a sufficient but not a necessary condition for bringing about p. This is the case when for bringing about p (getting light) there are also other available and for A known means (like lighting a candle). In this case the second premise can be formulated: <u>A considers that if he does a, he brings about p</u>. We shall adopt this formulation of the second premise for our awn reconstructed PS. It designates the stage in practical reasoning where A has found a sufficient condition a far bringing about p. This stage is preceded by seeking and finding one or several sufficient conditions or means to p; if several means have been constructed there must have been a choice amongst them.

What is involved in the stages before the practical reasoner has this ready-made second premise is a topic of this study. For the moment it is a1so important to notice that by in the second premise we can designate either one individua1 sufficient condition or a set of conditions that together constitute the sufficient condition for p.

Therefore A sets himself to do a. The conc1usion of PS is intuitively relatively clear: A wants to bring about p; he considers a to be a means to p; therefore he does a. But the relation between the premises and conclusion is very problematic. *Von Wright* (1971, 96-97) takes it for granted that there is some kind of necessity between the premises and the conclusion in the PS. And an essential part of *von Wright's* discussion (pp. 96-131) of PS is concerned with whether this necessity is causal or logical. Moreover, this view of *von Wright's* can be understood in the light of his basic interest in discussing PS. He is deve1oping an explanation model alternative to the explanation model of the natural sciences.

Our preceding reformulation of the second premise places the relation between the premises and the conclusion in a new context. This is because we do not consider the means (a) to an end (p) as a necessary one. In spite of this it may be enlighting for our conception concerning this relation to study a piece of von Wright s argumentation. In an article On So-called Practica1 Inference (1971 b) he argues that there is conceptual necessity between the premises and conclusion.

Von Wright first slightly reformulates his model of PS (1971 b, 103):

N.N. intends to bring about E.

He thinks that if he does not do A he does not achieve this (E).

Therefore he will do A.

After this formulation *von Wright* (p. 105) raises the question as to whether or not the conclusion - the act A- follows 1ogically from

the premises; do the existing intention and the consciousness of the second premise "lead", "compel" or "urge" one to act from logical necessity.

Von Wright specifies the problem in the following way (p. 105):

…we should be able to infer from the two premises

P1 'N.N. now intends to bring about E.'

P2 'He thinks that if he does not now do A he cannot bring about this.'

the conclusion

C1 'Therefore N.N. now intends to do A.'

Let us agree that this follows logically. The problematic conclusion then would be:

C2 'Therefore N.N. (now) does A.'

Our next task is to compare these two conclusions.

If a person does A, is it true that he also intends to do A (emphasis, RV).

After having formulated the question in the above way *von Wright* has no problems in giving an affirmative answer simply because he (p. 103) had already defined human behaviour as acting when it is intentional. So *von Wright* concludes that there must be a necessary conclusion which he formulates in a cautious way (p. 106): *"Therefore N .N. now starts doing A, if he is not prevented."*

Von Wright's discussion of the question, however, needs some criticism. By his definition of human action, a person who acts also has an intention to act. So the question concerning the relation between the premises and conclusion should be formulated: If a person intends to do A is it true that he also does A? And obviously it is a too strong philosophical presupposition to assume that an intention (to do an act) in the human mind in some way necessitates this act's being done.

Therefore we conclude that not even in *von Wright's* formulation of PS is there causal or logical necessity between the premises and conclusion of PS. We prefer in this study to say that the action as

conc1usion of PS is an expression of the actualized premises. This "expression re1ation" (Wi1enius 1967) we shall study to some extend in a 1ater chapter.

In the following we take the liberty of reformulating the conclusion sentence of PS stylistically. We prefer the formu1ation: <u>Therefore A does a.</u>

An example may clarify the conclusion we have reached above in the question concerning the relation between the premises and conclusion of PS. As we come into a dark room we may construct for ourselves the purpose of getting light in that room (1st premise). Then we construct a means to that purpose by thinking that by turning the switch we can achieve the purpose (2nd premise). So we now have the (secondary, as *von Wright* calls it) intention of working the switch. But we may then reconsider any one of the parts of the inference. We may change our original purpose. We may remember that there is a cut in the electricity and we should use a candle for lighting the room. We may think about the side effects of the action (for example waking up somebody sleeping in the room) and therefore about not switching on.

We can summarize the discussion above in the way that we have during it developed a new form of the practical syllogism. This reconstruction has been made with an eye on the subsequent discussion of the Model of practical decision making. More specifically <u>our new formulation</u> looks as follows:

A intends to bring about p.
A considers that if he does a, he brings about p.
Therefore A does a.

The rest of Part I of this study is devoted to the task of developing this new construction of the practical syllogism into a model of decision making. The first step in this approach is to juxtapose our PS against the implicit model of practice of logical positivism.

2. Two Models of Practice: the Practical Syllogism and Verification

2.1. Logical Positivism and Practice

A part of our method in this study is to compare PS with the relevant parts of logical positivism. In this chapter specific references are made mostly to *Moritz Schlick's* <u>Allgemeine Erkenntnislehre</u> (1925) and *Alfred Jules Ayer's* <u>Language, Truth and Logic</u> (1946). As an introduction, however, a general characterization of logical positivism is in order.

Von Wright (1971) sees three leading tenets in positivism. The first is methodological monism, the idea of unity of scientific method in any field of scientific research. The second tenet according to him is that the ideal or standard for this unity is the natural sciences, in particular mathematical physics. The third tenet is a characteristic view of scientific explanation which is seen to be in a broad sense "causal". *Von Wright's* broad outline can be summarized even more briefly: logical positivism endeavours to be the scientific philosophy or the scientific conception of the world.

Logical positivism has, and it considers itself to have, many profound and important relations to practical life. This holds whether we understand LP as self-understanding of science or as a broader philosophical movement. Moreover the roots of some "rational" decision theories go back to the early development of LP.

Something is, however, missing. In the vast literature of LP there cannot be found an explicit theory of practice. What is practice? What is social and human activity? How does theory or human knowledge become practice? For the purposes of this study there is an interesting passage by *Otto Neurath* (1973, 419), perhaps the most practice oriented member of the Vienna Circle: *"Decision is one thing, science another. It is not a subsumption under theological demands, moral commandments, legal norms that has to be found, but the causal connection between collective action and its effects".*

In this study we are not concerned with finding any subsumption under these kinds of norms. But the program of this study is different from that of *Neurath*. Decision and science do have a profound relation to each other. And there is a pressing need to find out the epistemic character of decision in order to promote possibilities of reasonable deliberation about norms (we could say about lst premises of PS) and subsumptions (2nd premises of PS).

If there is no explicit theory of practice in LP, how is it possible to interpret the tremendous impact of science on practical life during recent decades? During these decades LP has after all been the philosophy of science. The answer is that there is after all an implicit theory of practice in LP - the theory of scientific practice. This is the theory of verification which has also become the paradigm of technological and social practice - and decision theories. Therefore it seems to be useful to work a while with the theory of verification and compare it to the practical syllogism.

A classical formulation of the positivistic theory of verification can be found in *Schlick's* <u>Allgemeine Erkenntnislehre</u> (Blumberg's translation, 1974).

2.2. Verification as a Mode1 of Practice

Schlick's (1974) discussion of verification begins with the question, what is the criterion that assures us of the truth of judgment? Earlier, he had defined truth as uniqueness of the corre1ation of judgments with facts. So the question can also be formulated, how do we check the uniqueness of the designation of facts by judgments? And the answer is that science does this by the procedure of verification. For this process Schlick gives a classical and illustrative description (1974, 162-170).

Judgments about reality *"always go back in one way or another to what is intuitive1y given"*. This means that *"every assertion about reality can be connected by a chain of judgments to immediately given facts in such a manner that it can be tested by these data.*

That is, matters can be so arranged that the presence or absence of specific data supplies the criterion for the truth or falsity of the judgment" (p. 163). *Sch1ick* describes one possible way of reaching such a judgment: *"...until we finally reach a judgment J of the form roughly: 'At such and such a time and at such and such a place under such and such circumstances such and such wi11 be observed or experienced"* (p. 163). After the introduction Sch1ick describes the process of verification (p. 163):

We betake ourse1ves at the appointed time to the appointed place and arrange the appointed circumstances. We then describe (that is, designate) our observations or experiences by means of a perceptual judgment P in that - on the basis of acts of re-cognition - we bring what is observed or experienced under the proper concepts and name it with the appropriate words. If P is identical with Jn this means that Jn is then verified...

In the context of verification, *Schlick* (p. 168) stresses several times that verification ends in establishing the identity of two judgments. He also remarks that from a limited number of verifications we cannot infer the absolute truth of the verified hypothesis (or "rule" or "law") but on1y its probability.

From the point of view of PS the process of verification is of great interest. First, verification is a model of some kind of practice. Secondly, verification establishes the criteria of LP concerning the meaningfulness of sentences. Obviously by juxtaposing these two models we can see if there is anything common to these two models.

In order to make the juxtaposition intuitively clear we first make some legitimate shortening reformulations of *Schlick's* model. The hypothesis or judgment Jn *"At such and such a time and at such and such a place under such and such circumstances such and such will be observed or experienced"* we designate by *"if c (such and such time, place and circumstances) then r (such and such will be observed or experienced)"*. After this shortening we can give side by side the process of verification (as described by *Schlick*) and the

practical syllogism (as above reformulated by us).

Verification	Practical syllogism
	1. A intends to bring about p.
1. We have hypothesis (Jn): "if c then r".	2. A considers that if he does a he brings about p.
2. We arrange c.	3. Therefore A does a.
3. We observe (P): c then r.	
4. We identify P with Jn and so consider Jn to be verified.	

Surprisingly we can see that there is a striking similarity between the first member of verification and the second premise of PS. In both cases "we" or "A" have in mind a rule that connects c or a to r or p in the way that if the former happens the latter also happens. But there is also a similarity in the second member of verification and third member of PS. In both cases we or A bring about the former, in verification in order to see whether the latter comes about and in PS in order to bring about the latter. To see the close relation between practical action and scientific experiment we study in the following the related elements of PS and verification.

Comparison: The first member of verification and the second premise of PS

We take first into consideration the pair first member of verification and second premise of PS. In both cases we have the rule which states that if something happens or is the case (c or a) what then happens (r or p). In scientific procedure this kind of rule is often, before verification, called a hypothesis and after successful verification a "general law" or "natural law". This means that during the verification process the connection between c

and r is hypothetical.

In practical reasoning, and in the second premise of PS representing a stage of this reasoning, the situation is somewhat different. In PS the rule connecting a and p is just a part of the second premise, the other expressing A's belief in that rule. *Von Wright* (1971, 96) remarks that instead of "considers" we can also say "thinks" or "believes" or "knows". These words have different nuances in them, and *von Wright's* remark refers to the intuitively correct idea that the connection of a and p in the second premise can be for A of different confidence or belief.

A rational practical reasoner bases his action on a rule that is confirmed as well as possible, but he also knows that often this confirmation is not possible before action. In this case the action itself (doing a) is in a way a test of his belief, that is the correctness of the belief can be seen in whether the intended purpose p is brought about. The best the practical reasoner can do in these situations is to construct a hypothetical belief that corresponds with the external reality as much as possible.

By this short characterization we have taken the first step in developing our idea of practical rationality that will be repeatedly discussed in this study. To make clearer what is meant above, some examples can be given.

Practical action is often taken - as in technology - on the basis of several scientific experiments or verifications. After these experiments, some "general law" is considered to hold with some probability. The confidence or belief in the law or rule may be then so strong that we build machines and technologies that behave according to the rule. So the rule in the second premise of PS can be – in principle - a scientific general law with higher or lower probability. An example of a general law having "lower probability" used in practical action could be a "law" found by "scientific market research" that "on such and such a probability such and such people buy such and such a product", the practical action then possibly being producing and marketing such and such

a product.

In some cases the rule in the second premise of PS is such that it 1ess difficult to say whether it is a scientific hypothesis to be verified or something to be used as a component of the second premise of PS. This for example was obviously the situation when the first atomic bomb was exploded. Then in a way the same action was both a verification or "test" of a hypothesis and means to some (more or less practical) end.

There is also a vast area of administrative and political actions which obviously rest on some deliberation or belief in a rule, but it is difficult or impossible to verify this deliberation or rule before the action. For example, consider the decision to blockade Cuba made by the US government at the time of the Cuban missile crisis. The events to follow after the decision were not determined by any verified general laws but by the behaviour of US military bureaucracy and the action of the government and the military of the Soviet Union. Of this kind of case, however, we are not yet ready to have a broader discussion.

If we disregard the nature of the belief in the rule, in the verification, or in PS, and look only at the common structure of the rule, the question arises, where does this rule come from? In other words, how do we construct or create the hypothesis to be verified or to be the rule in the second premise of PS? One answer concerning the second premise has already been given - by *Aristotle*. As we saw, *Aristotle* (NE, 1112 b 8) thought in the discussion of deliberation that *" ... a person who deliberates seems to investigate and analyse in the same way ... as though he were analysing a geometrical construction ..., and what is last in order of analysis seems to be first in the order of becoming"*.

It seems that from the point of view of PS the problem of constructing a hypothesis is significant. What do *Schlick* or *Ayer* say about this question? It seems that *Schlick* feels himself uneasy about the problem of constructing hypotheses. He stresses the importance of hypotheses in science very much (1974, *73,* 389-

393). He even says that *"All knowledge of reality consists, strictly speaking, of hypotheses"* (p. 389).

The contents of <u>Erkenntnislehre</u>, however, are mainly concerned with carrying out the program stated in the beginning of the chapter "Prob1ems of Thought" (p. 103). There Schlick says that his interest is in "the relationships of truths" but not "their original source". *"We assume we have a scientific system not in its genesis but in a perfected state; and what we consider is not the more or less accidental path along which we have been able to establish the individual judgments but the dependencies that exist among them in the finished system of truths"*. Schlick simply does not study the constructive process of formu1ating any part of science.

Neither do we find in *Ayer's* <u>Language, Truth and Logic</u> an exhaustive discussion of the construction of hypotheses. In this text, too, there can be found a program parallel to that of *Sch1ick*. We shou1d *"... distinguish between the specu1ative and 1ogica1 aspects of science"* (Ayer 1952, 153). And we shou1d concentrate on the 1atter to the extent that phi1osophy becomes "a department of 1ogic" (p. 57).

There is, however, in *Ayer's* book (p. 137) an interesting discussion beginning with the remark that not every general hypothesis is a generalization from observed instances. A hypothesis may just occur to somebody. So *Ayer* says that it seems to be true that *"mind is active in know1edge"* or *"theorizing is, in its subjective aspect, a creative activity"*. But then again *Ayer* demands that we must *"distinguish the psychological question ... from the 1ogica1 question ..."* and concentrate on the latter (p. 153).

We can see that there is to some extent a common line in *Sch1ick's* and *Ayer's* treatment of the prob1em of induction: they see the prob1em but try to avoid it. As is well known, after *Sch1ick* and *Ayer* there has been a wide literature on the prob1em of induction and also more generally on the problem of constructing hypotheses. But even more wide is the opinion that *"no stable solution has yet been reached"* (Feigl's and B1umberg's introduction to Sch1ick

1974, p XXIV).

On the whole we can now summarize our first finding from the juxtaposition of the verification model and our formu1ation of PS. On one hand the comparison suggests that PS nicely interprets a practical action where the means to the end is structured or constructed on the basis of scientific hypotheses or general laws. On the other hand it suggests that scientific hypothesis or general 1aw can in princip1e serve as a part of the second premise of PS, that is designate means to an end.

If a scientific hypothesis and a conception about means to an end can be of the same conceptual structure it is natural to ask where this structure comes from. We have seen that neither *Sch1ick* nor *Ayer* can answer this question. We have also seen that *Aristotle* does make some re1ative1y vague suggestions about an answer. Later in this study it will turn out that *Aristotle's* clue does point in the right direction both for the construction of hypotheses and of means to an end.

Verification and the first premise of PS

The juxtaposition of verification and PS indicates that the first premise of PS might fall outside the verification princip1e. Or, in other words, it suggests that logical positivism fai1s to deal with some aspects of setting goals in individual or social life. This is not to say that logical positivism says nothing about human or socia1 ends. On the contrary, there is a lot of discussion, but this discussion is mainly about the problems related to existing goals or about the problems of the empirica1 research into the actual process of constructing goals.

An interesting context dealing with purpose in action is *Schlick's* discussion of reality. In discussing the temporality of the real, *Schlick* (1974, 189) raises the question of the reality of things and processes regarded as real but later turning out not to be real. As an examp1e "I think of a journey that I am going to take next year".

He asks in what way the real journey differs from an unreal one. And he answers that surely not by any conceptual feature. For this he calls to witness *David Hume* and *Immanuel Kant*.

Schlick's interest in the discussion is to find out the necessary characteristic of reality. (And he finds it to be unique temporal determination alone.) However, here we are interested in the fact that he says to be going to take a journey and how he thinks this imaginary journey becomes future reality as he calls it. The answer is quite simp1e (p. 191): *"If natura1 circumstances determine with necessity the time an event occurs, this is the same as saying that the event actually does occur".*

It seems that for *Schlick* and the positivists, a conscious action has little or nothing to do with the phenomenon that the intention behind the action becomes actual in "future reality". In fact, Schlick does not hesitate to state this conclusion explicitly. At the beginning of the discussion of reality he says that *"...all the judgments we might make about it can only designate the real, never give or create or determine it"* (p. 173).

There remains, however, the actual process of setting goals and the fact of existing intention. What is this kind of phenomenon? *Sch1ick* gives a simple answer: *"The concept of acting, of goal setting, contains the concept of causal determination of all real processes." "Under all circumstances, the practical affairs of life presuppose a thoroughgoing causal determinacy for every action ..."* (p. 397).

Schlick seems to be simply 1ogical, and faithful to the basic positivistic views, when he argues that ***"The stream of consciousness is simply an existing process; the 'I' is the unified interconnection of this process, not a person who inspects and guides it"*** (p. 161). An authority on positivism like Schlick, does discuss the goals of human actions. But in the final analysis the actions and the goals turn out to be determined by some general laws.

In this study we shall argue for the view that it is possible and even

typical for humans to construct deliberately several alternative goals and to make a choice between them. We shall also study how this is done rationally. For exp1aining human behaviour this sets a prob1em: if human action is based on deliberate setting and reaching of goals, how is it possible that a scientific, deterministic subsumption model often performs nicely its functions of explaining and predicting. This question will also be discussed in a following chapter.

To complete the discussion of the juxtaposition of verification and PS, we make next a short remark about the seemingly similar pair second member of verification and conclusion of PS. Obviously "doing a" and "arranging c" refer to the same capacity of human beings of having intention to do something and then of doing this thing.

We have had a discussion of intending and doing in connection with von Wright s PS. Von Wright set the question of what is the relation between the secondary intention (as he calls it) of PS and the action itself, and concluded that the relation is that of logical necessity. We argued that the relation is neither logical nor causal necessity. We even called this relation expression relation - a relation that remains to be specified later in this study.

Quantification in science

In the 3rd and 4th members of the verification model, reference is made to the judgment drawn from observation and the finding of identity between this judgment and the hypothetical judgment. *Schlick's* analysis of this "finding of identity" brings us to a vital precondition of scientific procedure and concepts, to the demand for quantification. Before entering into this discussion of quantitative concepts, we will make some remarks about the background relevant to this approach.

In the second part of this study we shall analyse some theories of decision making in public and foreign policy. One of the models to

be analysed is "Rigorous Rational Model" (*Allison*) or "Analytic Paradigm" (*Steinbruner*). It will be seen that this model of decision making is practical reasoning with extremely restricted preconceptions. And it will be seen that this restricted conceptual framework comes from the concepts of the natural sciences. Actions are supposed to take place as in the scientific experiment designated by the verification model: by bringing about some states of affairs the outcome will follow according to some general laws (usually with some degree of probability). This is why the decision situation is in this model analysed by means of concepts satisfying scientific criteria.

But it will also be seen that the concepts of the Analytic Paradigm do not work in some environments that is they do not correspond reality in some situations. This is why it is worth studying these scientific concepts closely and seeing what kind of reality they are supposed to designate.

There is also another reason for a lengthy discussion of *Schlick's* positivistic theory of concepts. The demand for quantification in the natural sciences has been one of the main targets of the "humanistic" or "anti-positivistic" criticism of science and technology and of the positivistic conception of these departments of human 1ife. And one common step forward from this criticism has been to separate them from "human sciences", to deal with the other facets of human life, a classic in this approach being *Dilthey* (Dilthey according to Habermas 1972, 141): *"...And in this way the possibility arises of defining this group of sciences (history, economics, 1ega1 and po1itica1 science, the study of religion, of literature and poetry etc., (examp1es given by Di1they, remark RV) by their common re1ation to the same fact, humanity, and of delimiting them from the natural sciences"*. In the following, one reason for studying *Schlick's* discussion, the attempt to integrate these two types of sciences, is contrary to *Dilthey's* program. Our interest in this is not only philosophical.

A practical reasoner or decision maker faces external reality that he

must structure conceptually in such a way that he can construct the second premise of PS or the means to the end. If the concepts of the natural sciences corresponded completely with the external environment, these concepts would obviously satisfy the need for explaining and predicting the behaviour of the external environment. However, in the following we shall argue that this is not the case. These concepts do not cover essential aspects of the external environment: human beings capable of practical reasoning. We shall also suggest that this uncovered area can be interpreted in terms of the "human sciences". And in order to use the concepts of natural and human sciences together in a balanced way, one must find a relation between them.

Schlick (1971, 4) begins his discussion by asking "What actually is knowledge?" Then he remarks that the theory of knowledge must first determine what specific process the term "knowledge" is to designate (p. 5). Then he gives two examp1es of knowing.

First *Schlick* says that while walking home he sees a brown object moving in the distance. By its several characteristics he knows that it is animal. When the distance diminishes he comes to know that the animal is a dog and after a while he knows that the dog is his own dog. Now what does it mean to say that the object is an animal and not a lifeless thing? *"Plainly that the moving object is not ... unfamiliar to me... I had already as a child learned to designate it by the name 'animal'. I have re-cognized (wiedererkannt) in that ... the characteristics ... that an object must have if it is to be designated an animal"* (p. 7).

If to know is to re-cognize, what is this rediscovering? For *Schlick* (p. 15) it means to equate *"what is known with that as which it is known"*. Then what is this equating? It presupposes comparing. Then *"what do we compare with what?"* In ordinary 1ife, *"what are compared are images or ideas"*.

Schlick (p. 17) remarks that knowing by means of images possesses certainty enough for all practica1 purposes. Obviously in the example above the image or idea of "animal" and "dog" are clear

enough in that situation to make possible the comparison and "finding a dog in the animal". But obvious1y several mistakes can also come into this kind of knowing.

My memory may not be reliable or I can see wrongly in the darkening eve etc ... And so the question arises, how can science obtain the sort of knowledge that conforms to the requirements of rigor and certainty. The answer is that science replaces the vague ideas *"by something that has fixed bounds and can always be identified with comp1ete assurance"*. And hence there follows a long discussion of the character and role of concepts with all the niceties of problematics included in the classical works on epistemology. We do not follow all these paths because for the moment our interest is in finding the path that 1eads to the quantified structuring of the external environment.

What are concepts according to *Schlick*? They are different from ideas in the sense that they are "completely determined and have nothing uncertain in them". But concepts are not, however, something like exact images. "We operate with concepts as if they were images with exactly delineated properties that can always be re-cognized with absolute certainty" (p. 20).

How then are precise or absolutely certain concepts possible? The first of Schlick's (p. 131) conditions for this is the capacity of consciousness called memory and the unity of consciousness following from this. The other fundamental condition is simply the ability to "see" whether ideas in the inference are similar or different. "Otherwise, how could we know whether our ideas change or remain the same, how could we keep different ideas separate?"

In discussing the second condition *Schlick* (p. 131) first praises *John Locke* for discovering this problem. Then he criticizes the answer *Locke* gave to this question because he said that the prime capacity of the mind is to perceive its ideas and hence see if they are same or different. *"Consciousness is not re1ated to ideas as the stomach is re1ated to food ... Indeed, it is ideas that constitute*

consciousness." How is it then possible to determine rigorously sameness or difference of ideas?

The answer is that the mental acts *"must be understood in terms of their immanent psychological regularities". " ... there is actually nothing 'there' except the real processes of consciousness"* (p. 141). What seems to happen here is that *Schlick* substitutes the real processes of the brain or the physiological-biological complex from which mental processes are considered to emerge for fleeting processes of consciousness. And through these real processes concepts are first fashioned. And in this way the question gets a new fonmu1ation: how can the real psycho1ogicalrelationships furnish precisely what purely 1ogical relationships express?

The answer to the question above is given by an analogy. *"Imagine a thinking-machine ... or... a calculating machine. Like the human brain, a machine of this sort is a physical apparatus whose operations are of course fully determined by, physical laws not by the laws of arithmetic"* (p. 141). When we calcu1ate by this kind of machine, its operations from the physical point of view lack precision, but this does not affect the result. If we for instance ca1cu1ate 13 times 14 the resu1t is 182 and not, say, 182.000001. Also, the operations of this kind of machine are continuous as for instance when the "wheels" and "levers" pass from 181 to 182. However, the initial and final states are discrete. And this is, according to *Schlick*, how the human brain and therefore the human mind works.

There is a1so physically imprecise behaviour of real processes (obviously caused by some external factors) and continuity of behaviour of these processes. But the terminal states are discrete...*" It is no exaggeration to speak here about infallibility. That we ate ab1e in general to determine differences is a simp1e matter of fact"* (p. 143).

From the argument above there is on1y one step necessary to answering the original question of finding sameness and difference in concepts. *"Concepts are sharply defined in so far as they are*

discrete or separate from other concepts ..." (p. 144). And here we have reached an intermediate goal in our search for the reasons for quantification in science.

To know is to find identity. To find the same presupposes the comparison of ideas. To find rigorous sameness is to find sameness of concepts, exact by definition. And concepts are exact as they are discrete or separate from other concepts, when there occurs *"this differentiation of mental quantities"* (p. 147). Our next topic is how *Schlick* relates his theory of concepts to the concept of reality.

Quantified concepts and reality

At the beginning of the section "Prob1ems of Reality" *Schlick* (p. 171) repeats some of his original questions and considers them in connection with the prob1ems raised by his theory of concepts. He recalls that the role of concepts is to be signs for objects or designate them, and in the course of investigation we often designate the given *"by means of combinations of concepts"* and we *"form new concepts that do not directly designate anything with which we are immediately acquainted"* (pp. 174-175). The question then arises as to whether these latter concepts are correlated with anything 'rea1', that is, whether the predicate 'rea1' is also tied in with the features of those concepts. And as we saw above the most essential feature of those concepts is that they are discrete or separate from each other.

"Accordingly, the coming sections must be concerned above all with seeking out the characteristic feature of all that is rea1 ..." (p. 175). We might add to that the concern to find out the characteristic feature of "real" compatible with those essential features of concepts. Given this kind of task the results are obvious. We do not go through the sophisticated and exhaustive argument. Instead we look at the resu1ts with some introductory remarks.

After a lengthy discussion of "immanent" or "immediately given" and "transcendent" or "real in time" (as *Schlick* understood it)

Schlick discusses three possible spheres; as it were; of reality: time, space, and sense qualities.

The discussion of time begins by dissociating, *"the subjective experience of temporal succession from the objective determination of time"* (p. 245). Accordingly then *"an object is real if empirical correlations necessitate its being given in a quite definite place in the one-dimensional continuum* (of time, remark RV)" (p. 246)

In the beginning of the discussion of space *Schlick* also considers that it is necessary *"to distinguish between the spatial as intuitively representable extension and spatial as a system for ordering natural objects, achieved with the aid of pure concepts"* (p. 251). After a discussion of the topic *Schlick* sums up the result by a quotation from *Störring*: *" ... space is to be rated ... as transcendentally real in so far as it can be defined in terms of mathematical analysis"* (p. 263).

Schlick's discussion seems to follow predictable lines as, in the beginning of the discussion of sense qualities, he says that these are elements of consciousness, not of reality like objective time and space. Sensible qualities belong to the subject not to objects (p. 265).

We remember that *Schlick's* question is whether the characteristic features of concepts (according to *Schlick's* theory of concepts) designate anything real. Now after defining the real as above it should be easier to find the correlation between concepts and the real. Concepts are exact when there occurs the *"differentiation of mental quantities",* and they are discrete or separate. And at the same time reality is spatio-temporal ordering of measurable objects. Quantified concepts and quantified, measurable spatio-temporal ordering correspond to each other.

In the subsequent discussion, Schlick makes numerous remarks related to a quantitative or scientific world view. Obviously all of them are logical results of the previous discussion, supposing as he does that this *"quantitative picture of the world"* is *"complete in*

itself" (p. 283).

After a discussion Schlick says that *"definitive knowledge about qualities"* is possible only through the quantitative method and also that the life of consciousness is completely knowable to the extent that we succeed in reducing it to the physics of brain processes (p. 288). Similar is the remark that concepts designating real spatio-temporal reality may be used to describe *"any arbitrary reality without exception, including the reality of consciousness"* (p. 295).

From all this it seems to be natural to conclude: *"Physics is the system of exact concepts that our knowledge correlates to all reality. I say with all reality, since according to our hypothesis the entire world is in principle open to designation by that conceptual system"* (p. 296). It is no wonder then that after a subtle and exhaustive discussion *Schlick* commits himself to "epistemological monism": *"Whatever is real is open to designation by quantitative concepts"* (p. 331).

Objective rationality

From this lengthy discussion we can extract a short but important conclusion. The search for rigorous exactitude commits the natural sciences to quantified concepts. The commitment to quantified concepts commits the natural sciences to recognize or accept as real only the (more or less strictly) quantifiable or measurable aspects of the complete territory of human experience.

Before beginning on the next topic of this study we shall make a remark about a subject, which will be repeatedly discussed in the following. This is the concept of rationality. What kind of concept of rationality emerges from *Schlick's* and *Ayer's* basic philosophical conceptions? *Ayer* discusses this in the context of validity of hypotheses.

For *Ayer* (1952, 99) the function of an empirical hypothesis is to enable us to anticipate experience. But if a hypothesis is

successfully verified, one cannot say that it is absolutely valid, only that its probability has increased. And this increases our confidence in the verified proposition, *"as measured by our willingness to rely on it in practice"* (p. 100). And Ayer defines as rational a belief which has been arrived at by methods which we now consider reliable. And as is natural, for *Ayer* these methods are those of "contemporary science" (p. 100). Hence, according to *Ayer*, the rationality of a belief is based on its objective test or verification.

There is, however, a loophole in *Ayer's* argumentation. He says that in the future we may adopt different methods for forming our beliefs. Our present beliefs may then appear to be irrational. *"But the fact that this is possible has no bearing on the fact that these beliefs* (based on contemporary science, remark RV) *are rational now"* (p. 100).

3. Dray versus Hempel on Interpreting Human Action

In the preceding chapter was seen the close relationship between our formulation of the practical syllogism and the model of scientific practice, the model of verification. Scientific hypothesis or general law can in principle serve as a component of the second premise of our PS. In this case the goal (as given in the first premise of PS) and the event to happen under some conditions (in the hypothesis) are identical. Moreover, the means stated in the second premise and the conditions given in the hypothesis are in this case identical. In practical action the means are brought about in order to bring about the goal. In verification procedure the conditions are brought about in order to see whether the "effect" occurs.

If "the system of exact (scientific) concepts", as *Schlick* suggests, "correlates with all reality", the verification model could with some minor modifications serve as a sufficient model of practice. As preliminarily indicated above, this is what is tried in "the rigorous rational" or "analytic" decision paradigm. In this case the goal is supposed to be reached by first finding out the sufficient conditions

for it and then by bringing about these conditions: hence the goal would follow as an effect or outcome.

In this chapter, however, we shall argue that "the system of exact concepts" does not cover all the reality relevant for a practical reasoner. We shall first study some aspects of reality that the concepts of the natural sciences do not correspond with. Then we shall consider what our findings mean for practical reasoning, that is for our formulation of PS. The first part of this approach will be done by studying a well known piece of discussion between the "two philosophical frontiers" of positivism and "the criticism of positivism". This is a part of the so called Hempel-Dray - debate.

Hempel on general laws

As indicated in the introduction to this study, the discussion of "two methods" in the social sciences has a long history behind it. A landmark in this debate was *Carl G. Hempel's* article The Function of General Laws in History. *Hempel's* main argument in his short but powerful article is that scientific general laws have quite analogous functions in (the study of) history and natural sciences.

By "general law" *Hempel* means *"a statement of universal conditional form which is capable of being confirmed or disconfirmed by suitable empirical findings"* (Hempel 1965, 231). In *Schlick's* words of the pre- ceding chapter, general law is a hypothesis capable of being verified. The term law stresses the point that the verification or confirmation or test of the hypothesis has successfully taken place.

For *Hempel* the function of general law in the natural sciences is explanation and prediction. After this remark *Hempel* gives his well-known model of explanation, which deserves to be quoted complete (p. 232):

The explanation of the occurrence of an event of some specific kind E at a certain place and time consists, as it is usually expressed, in indicating the causes or determining factors of E. Now the assertion that

a set of events – say of the kinds C1, C2... Cn – have caused the event to be explained, amounts to the statement that according to certain general laws, a set of events of the kinds mentioned is regularly accompanied by an event of kind E. Thus the scientific explanation of the event in question consists of

(1) a set of statements asserting the occurrence of certain events C1, C2... Cn at certain times and places
(2) a set of universal hypotheses, such that
(a) the statements of both groups are reasonably well confirmed by empirical evidence,
(b) from the two groups of statements the sentence asserting the concurrence of event E can be logically deduced.

In a physical explanation, group (1) would describe the initial and boundary conditions for the occurrence of the final event; generally, we shall say that group (1) states the determining conditions for the event to be explained, while group (2) contains the general laws on which the explanation is based; they imply the statement that whenever events of the kind described in the first group occur, an event of the kind to be explained will take place.

By C1... Cn *Hempel* refers to what is often understood by "causes", and by E he designates what is often seen to be "effect" (p. 233). Hence in scientific explanation of an event E one looks for determining factors C1...cn of E and a general law which states that whenever the events like C1...Cn take place the event E will also occur.

Scientific prediction is then some kind of mirror picture of scientific explanation. In this case we have, in the beginning, the determining factors and a general law from which the effect to occur can be derived.

As an example *Hempen* gives the work of an astronomer (pp. 234-235). From our point of view it is interesting to note that *Lempel's* functions of general laws of science do not directly include what could be called a practical or productive function. This function could designate the situation when a general law is part of practical syllogism. In this case the situation is that there is a goal E and one

tries to find out the determining factors C1… Cn and the law linking these factors to E. The practical action then is to bring about C1… Cn in order to produce E.

For *Hempel*, explanation and prediction are also the functions of general laws in history. And so the preceding considerations apply to explanation in history and human and social sciences as well as to any empirical science. Therefore it is for *Hempel* "strange" that many historians deny the possibility of general laws in their subject of study (p. 235).

Dray on Hempel

In the beginning of <u>Laws and explanation in history</u> (1958) *William Dray* considers some of *Hempel's* writings on scientific explanation. This kind of explanation *Dray* calls the covering law model, because in this theory *"explanation is achieved ... by subsuming what is to be explained under a general law"* (Dray 1958, 1). The model, according to *von Wright*, may also be called subsumption-theory (von Wright 1971). After considering philosophers discussions of the problematics of explanation, *Dray* (p. 11) remarks that *"as a rule, however, historians tend to resist the model as in some way irrelevant to what they are trying to do."*

A relatively large part of *Dray's* book deals with the applicability of the covering law model to large-scale historical events and conditions. Then he comes to the explanations which are given for actions in history. His basic argument is that in the explanation of human behaviour in history there are features *"which make the covering law model peculiarly inept"* (p. 118). He even makes his point of view quite definite by a remark that although some historical events might fall under general laws, this would not enable us to understand these events in the special way that is needed for this special subject matter of human beings as actors in history (p. 118).

The special way of interpreting history or human actions in history

Dray finds in the tradition of *"certain idealist philosophers of history"*. The doctrine *Dray* refers to is often called the method of (historical) understanding. *Dray* makes an effort to clarify this methodological approach and calls the result rational explanation. According to *Dray* the historian has to find the rationale of the historical agent's doing what he did (p. 124), or he often has to find *"a reconstruction of the agent's calculation of means to be adopted toward his chosen end in the light of the circumstances in which he found himself"* (p. 122).

From the point of view of this study, *Dray's* subsequent characterization is very illuminating (p. 119):

"To understand a human action, it will be said, it is necessary for the inquirer somehow to discover its 'thought-side'; it is not sufficient merely to know the pattern of overt behaviour. The historian must penetrate behind appearances, achieve insight into the situation, identify himself sympathetically with the protagonist, and project himself imaginatively into his situation. He must re-vive, re-enact, re-think, re-experience the hopes, fears, p1ans, desires, views, intentions, &c., of those he seeks to understand".

Besides re-thinking the "static" states of mind (like beliefs, desires &e.) of the subject of study or understanding, *Dray* stresses the evaluative aspect of understanding. The historian must be able to 'work' the agent's motives and reasons for acting. The methodological side of the doctrine Dray formulates in the following way (p. 128): *"Only by putting yourself in the agent's position can you find out* (or understand, remark RV) *why he did what he did".*

We are now in a position to forge some links between our preceding discussion and *Dray's* study of historical explanation. The first point is to answer the question: what does Dray mean when he speaks about *"calculation of means to be adopted toward his chosen end in the light of the circumstances in which he found himself"* (p. 122). Our answer is that by this ealeu1ation he refers to what we in this study understand as practical reasoning. To

understand somebody's action is to reconstruct the conceptual framework in and process by, which this action is taken.

The second point deals with the focus of the debate between the "two frontiers" of the philosophy of social sciences. What is the relation between (scientific) explanation and (historical) understanding? As long as we juxtapose the methodological doctrines or procedures against each other a correct answer seems to be difficult - if not even impossible - to find. We might, however, take one step backwards both in explanation and in understanding.

Firstly we could say that the main function of the study of history or nature is not to explain or understand or to predict or even to produce. We would say that the main function is to know. And the knowledge has different uses like explaining and understanding, predicting, producing - but also personal delight which for example *Aristotle* and *Schlick* refer to. Now what is this knowing?

Dray said above that to understand the actions of the subject of study the historian must revive, re-enact, re-think, and re-experience the hopes, fears, plans, desires, views, intentions, &c., of those he seeks to understand. We have met this RE-something earlier, throughout our discussion of *Schlick*. *Schlick* there committed himself to the broad tradition (since *Plato* and *Aristotle*) of knowing as finding identity. Or to put it in *Schlick's* own words: "*To know is to re-cognize (Wiederkennen) or rediscover (Wiederfiriden). And to rediscover is to equate* <u>what</u> *is known with* <u>that as which</u> *it is known"* (Schlick 1974, 15). Knowing in science and everyday life is essentially the same, but in science *"the loftier aim and subject-matter of the cognitive process lend it a greater dignity"* (p. 9). We can say that *Schlick* develops his argument towards "epistemological monism" by eliminating step by step elements of knowing in everyday life.

Now it is, however, the case that history or human and social activity takes place in everyday life, by agents with "internal perception" or "self-experience" and also "qualitative knowledge"

about the external world. And it is the task of the historian to study this everyday life and these agents. In this study we argue that the historian re-experiences his subject of study in basically the same way as the scientist re-cognizes his object of study - although there are a1so considerable differences.

According to *Schlick* (1974, 165) *"... verification always ends up in establishing the identity of two judgments"*, - we might add between hypothetical judgment about external reality and about the immediate experience of the observer or scientist. What is then the nature of re-experiencing or finding identity by a historian?

The historian also has the external world called history - the lives of human beings, often at a distance in time and place. The point is that the human beings or agents in history are human beings or agents (basically) like the historian himself - with capacities for internal perception or self-experience and for (perception of) qualitative as well as quantitative aspects of the external world.

There is of course a huge distance between an ancient king and a modern historian but in the final analysis the historian understands the king by reconstructing the king's conceptual framework and process by means of his own conceptual framework and constructive capacities. Later we shall argue that this holds not only in studying past history but also contemporary and future.

After all, *Karl Popper* seems to be right to some extent about the relationship between human and natural sciences. After criticizing the situation in the debate between the two frontiers in the philosophy of science he remarks: *"Yet students of the humanities might have known better. Science after all is a branch of literature; and working on science is human activity like building a cathedral"* (Popper 1974, 185).

From our point of view then (natural), science is a special case of knowing as re-cognizing or finding identity. And so it seems that we can also make *Popper's* remark about many scientists and philosophers of science. To put it in *Aristotle's* words: *"It is a mark of the educated man and a proof of his culture that in every subject*

he looks for only so much precision as its nature permits" (NE, 1094 b 23-27, translated by Thomson).

Is it then so that the study of history is limited simply to understanding some particular events or actions of the subject of the study? According to *Dray*, generalizations can and should be made such as (p. 132): *"When in situations of type C1... Cn the thing to do is x."* But according to him, *"The 'implicit law' in such explanation is better called a principle of action than a generalization ..."* One essential difference between a general law and principle of action is that the latter does not hold necessarily. In other words, if there are negative instances - finding that somebody does not follow the principle - this does not falsify the principle of action. This is because there still have been and may be people who behave according to the principle (p. 132).

Dray marks that we often *"can predict successfully a person's response to a situation if we know, among other things, what his principles are"* (p. 133). But this kind of prediction does not presuppose the same kind of necessity as does the one based on a general law.

In this study we have met the concept of principle in the context of the discussion of *Aristotle's* practical syllogism. It seems that this discussion can also clarify *Dray's* conception of the matter. We proposed above that when speaking about calculation of means towards certain ends *Dray* refers to practical reasoning. In connection with *Aristotle's* PS we proposed that practical reasoning "produces" a rule or principle (of the form: in order to bring about E in a situation C1… Cn do *x;* or only: in a situation C1... Cn do x. We propose now that with *Dray's* principle of action we refer to these kinds of rules or products of practical reasoning by historical agents. After this we can make some qualifications.

First, if someone has a principle of action this does not necessarily make him act according to the rule or principle. This is just a logical implication of our conception of the principle of action being the result of practical reasoning. This is because we saw

earlier that there is no logical or causal necessity between the premises and the conclusion (the action) in the practical syllogism.

Secondly, we propose to broaden the use of the concept of principle of action as well as that of understanding other people's principles of action. *Dray* uses these concepts in the context of the study of history. Now history deals with human beings and there are also contemporary human beings as well as future ones. We propose that these concepts should also be used in thinking and knowing concerning present and future actions of human or historical agents. For our forthcoming model of decision making this proposal will have an important implication.

In the preceding chapter and in the beginning of this chapter it was argued that scientific general law can serve as a component of the second premise of PS to the extent that the scientific concepts correspond with the external reality of the practical reasoner. In this chapter we have agreed with *Dray's* argument that by general laws you cannot interpret or explain adequately the actions of historical agents; that is, behaviour of human beings. The rules working in their behaviour are not general laws but principles of action basically of their own making.

The fact that general laws do not interpret adequately the behaviour of human agents also makes them to some extent inadequate as components of the second premise of PS: often it is not by knowing general law but by understanding a principle of action by means of which a practical reasoner can explain and predict the behaviour of his external environment (consisting of human beings) and hence construct his second premise of PS.

Practical action in social context

In an important respect our discussion of *Dray* challenges our preceding discussion of the practical syllogism. Earlier we formulated PS in the following way:

A intends to bring about p.

A considers that if he does a, he brings about p.

Therefore A does a.

Earlier we also noticed that this formulation fitted well into a situation where an individual agent deals with a physical environment; as in our example where a man came into a dark room, formed an intention to get light... and therefore turned a switch. Now *Dray* argues that the social reality is composed of human beings acting on the basis of their principles of action or rules of conduct. It is also our everyday experience and intuitively true, that most of our personal and social activity takes place in this kind of environment and the result of practical reasoning or the "action" is normally not some physical action but something else. But what is this something else?

To put the question in other words: most practical reasoning takes place in some organizational context. It is true that much of the activity of for example industrial organization deals with the physical environment or with nature. But a great part of the activity also concerns other persons like the active persons themselves.

Interestingly enough *Aristotle* gives us a hint as to how to deal with the problem stated above. He remarks that *"what our friends do for us is, in a way, done through our own agency, since the initiative is our own"* (NE, 1112 b).

We argue here that in a social context we bring about our intentions by expecting something from other human beings, whom we suppose to be capable of practical reasoning or of following a rule of conduct. Hence in the social context practical syllogism gets the following formulation:

A intends to bring about p.

A considers that if B does a, p is brought about.

Therefore A asks B to do a.

We may now specify the members of syllogism a little more in the

following way.

<u>A intends to bring about p.</u> Earlier we interpreted the goal or p in terms of states of affairs, which correspond to the concept of reality as a composition of measurable objects in a space-time continuum. Now our larger concept of reality (including also human beings capable of practical reasoning and conduct according to rules or principles of action) has an implication for the first premise of the syllogism. This discussion, however, we save for a later part of this study, when we are ready to discuss all aspects of the problematics.

<u>A considers that if B does a, p is brought about.</u> It is of course possible to interpret this formulation of PS in terms of our earlier one. Then by the words (A considers that if) he does a,…, we could designate something like (A considers that if) he makes B do a,... We prefer, however, to make a formulation of our own for practical reasoning in a social context. This is because in a social context the analogy between the second premise of PS and scientific hypothesis or general law is not in an important respect plausible.

When a practical reasoner A asks another person B to do something there is neither hypothetical nor confirmed causal determinacy between this act of asking and B's actual following of the rule given by asking. The reason for this we have become acquainted with above: even although B adopts the rule given by asking for his principle of action there still does not exist any necessity between the adopted principle and the action B is asked to do.

What are then the particular features of practical reasoning in physical or social environments?

Let us first look at what is added to the second (social context) formulation. Obviously in this formulation too there is supposed to exist a "general law" -type connection between a and b. This is because A still thinks that if a becomes real p is also brought about. What is different is that A himself does not personally do a. The new element is the other agent (B). This another agent may also have an intention of bringing p and a about or he may have an interest in bringing p or a about. But he may also have an intention

of preventing p or a or both being brought about.

These are problematics we shall return to in discussion of game theory, especially the Schellingian development of it. Here it is important to recognize that the new element (B) is also able to construct practical syllogisms and principles or rules of action and he is also able to do or not to do a according to his reasoning or rules or principles. It seems that our practical reasoner (A) has three ways of dealing with the new agent (B) or agents (Bs).

First, A can proceed in principle in the same way as with nature or a physical object. A can ask: under which kind of conditions will B do a? After scientific research A may have a verified general law like "whenever $C_1 \ldots C_n$, B will do a". In this case the conclusion of the PS would be of the form "therefore A makes the conditions $C_1 \ldots C_n$ (or "therefore A asks K to make the conditions $C_1 ... C_n$"). And it may be that the syllogism works and A gets his goal (p) realized: under conditions $C_1 \ldots C_n$ B does a, and thus according to a general law, "whenever a then p".

But if we suppose that B is an agent, capable of practical reasoning, how is it possible that he behaves like a physical object according to a general law? Our answer is simply that B follows the general law: "whenever $C_1 \ldots C_n$ then B will do a" because B has his own principle of action or rule of conduct: "in situation $C_1 \ldots C_n$ do a". On the basis of the preceding discussion we also know that it may quite well happen that A's practical reasoning does not work even though there is a correctly verified general law "whenever $C_n \ldots C_n \ldots$". This is simply because B may have changed his mind, that is, constructed a new principle of action.

The second way for our practical reasoner (A) to deal with the other agent (B) on the premises of the PS is to find out B's principles of action; and if there is a principle of action like "in situation C do a", then A can simply make situation C and hence B will do a and p will be the result. What is this kind of "finding out" somebody's principle of action? We have already answered this question. We argued that we find out other peoples principles of

action by understanding them. In this case the conclusion of the PS would be of the same form as in the first case.

The third way to deliberate on the action of the other agent (B) in the second premise is to think how the practical reasoner (A) can make B, as a practical reasoner, to do a. We designated the conclusion of this reasoning "asking". We selected this term because of its somewhat neutral connotations compared to many other terms in everyday language. The basic problem for A is to act so that B constructs for himself a principle of action of the form "in this situation do a". But as it is intuitively clear, this kind of activity by A is not like physical movements. It is symbolic communication.

In ordinary language different shades of asking communication are expressed in several ways, like for instance "A orders…", "A sets a norm for B to...", "A compels ….” or "A persuades…". All these different shades come from the fact that in real life the asking happens in different human or institutional contexts.

We shall see that *Allison's* Model III as well as much of *Neustadt's* and *Barnard's* work deals with the problematics of practical reasoning in social contexts or environments. Here we wanted to point out the general conceptual structure of practical reasoning in this kind of environment. Here the practical reasoner (A) supposes the agent (B) in the external world to be a practical reasoner like himself. Therefore if A cannot himself do the thing which is necessary condition a for his goal p, A tries to act by means of communication so that B does a; that is, so that B constructs for himself a PS (rule or principle of action) according to which B does a.

One more specification is in order her. In this study we are developing a conception of what is involved in A's rational practical reasoning. In doing this we have come to see that a rational practical reasoner must also recognize in his external environment in addition to physical (or social) states of affairs other human beings (Bs) capable of practical reasoning. It is

intuitively clear that human beings do not in their lives always fulfill any notion of rationality.

Hence, in developing a conception of (A's) rational practical reasoning we suppose that the external environment of the practical reasoner (A) consists of agents (Bs) that are intendedly rational in our sense but who may deviate from this (A's) practical rationality. However, to be able to interpret and predict the behaviour of his social environment our rational agent (A) must understand both the practically rational and deviating principles of action of the agents (Bs) of his external environment.

Therefore A asks B to do a. The conclusion of PS in a social context is different from that in a physical context in the sense that the action in the latter is a concrete "physical" action to change the state of affairs in the external world so that according to some general law the goal is brought about. In the case of a social context there is some communication, that can be some verbal expression but also some physical move such as a symbolic expression. The "asking" can even happen through being silent or passive, which can be understood by B as some kind of message. Here also is our presupposition that the premises do not necessitate the realization of the conclusion.

Subjective rationality

Again, before entering on the next topic, a remark about *Dray's* conception of rationality is in place. As we saw above *Dray* calls his method of historical explanation (or understanding) "rational explanation", "an explanation which displays the rationale of what was done" (Dray 1956, 124). And this explanation is given by a reconstruction of agent's calculations of ends and means "in the light of circumstances in which he found himself" (p. 122). It seems that *Dray* s concept of rationality is clearly different from that of a positivist like *Ayer.*

Dray (p. 125) says that *"... the action is rationally explained if it is*

in accordance with agent's principles - no matter what we think of these". Earlier we saw that *Ayer's* criteria of the rationality of a belief is its objectively verified correspondence with reality. *Dray's* implicit criteria of rationality seems to be from the (observed) agent's subjective point of view correct calculation of means towards his chosen end - no matter what we (as observers) think of the ends or beliefs on which the calculation of means is based.

4. On Constructing the Practical Syllogism

After the successive steps of discussion we are now in a position to discuss on how the practical syllogism is constructed. The most appropriate way to do this seems to be to analyse separately the different parts - premises and conclusion - of PS This we shall do with our view on the next step of the study, which is the construction of the "Mode1 of practical decision making" (PDM). We shall first discuss the second premise and then the first. The reason for this will become clear during the discussion.

4.1. On Constructing the Second Premise of the Practical Syllogism

So far we have discussed the relevant parts of the readymade PS. Now our question is, how does agent A rationally construct the second premise of PS? When we begin to answer this question we remind ourselves that the second premise here follows the first one. That is we suppose a readymade first premise or the goa1 of the agent A to be constructed, and the prob1em is how can A bring about this goal or purpose p. We saw above that Aristotle's answer to our question was deliberation.

According to *Aristotle*, in deliberation A constructs a sequence of means from the present situation to the goal. This conception appears to be intuitively clear, but not very illuminating.

Aristotle however makes a highly interesting statement to explain his conception of deliberation (NE, 1112 b 22-24): *"for a person who deliberates seems to investigate and analyse in the same way*

described as though he were analysing a geometrical construction". This reference would seem to be specific enough, if only we knew, what *Aristotle* means by the analysis of a geometrical construction. Fortunately there is a new and careful study of the ancient Greek method of mathematical analysis. This is *Jaakko Hintikka's* and *Unto Remes'* <u>The Method of Analysis, Its Geometrical Origin and Its General Significance</u> (l974).

Pappus on analysis

Interestingly, although the ancient Greeks practiced geometry and mathematics there are not many descriptions of the method involved (Hintikka and Remes 1974, p. 7). There are, however, some interpretations, and that in *Pappus'* "Treasury of Analysis" is the subject of *Hintikka's* and *Remes'* study. *Hintikka* and *Remes* argue in several connections (pp. 1, 7, 15, 31-32) that *Pappus'* discussion is closely related to *Aristotle's* discussion of deliberation. This view appears to be quite well grounded, when we compare *Pappus'* text with *Aristotle's* view. *Pappus'* description of this topic goes as follows (Pappus according to Hintikka and Remes 1974, 8-10):

Now analysis in the way from what is sought - as if it were admitted - through its concomitants (the usual translation reads: consequences) in order to something admitted in synthesis.

For in analysis we suppose that which is sought to be already done, and we inquire from what it results, and again what is the antecedent of the latter, until we on our backward way light upon something already known and being first in order. And we call such a method analysis, as being a solution backwards.

In synthesis, on the other hand, we suppose that which was reached last in analysis to be already done, and arranging in their natural order as consequents the former antecedents and linking them one with another, we in the end arrive at the construction of the thing sought. And this we call synthesis. Now analysis is of two kinds.

One seeks the truth, being called theoretical. The other serves to carry out what was desired to do, and this is called problematical. In the theoretical kind we suppose the thing sought as being and as being true, and then we pass through its concomitants

(consequences) in order, as though they were true and existent by hypothesis, to something admitted; then, if that which is admitted be true, the thing sought is true, too, and the proof will be the reverse of analysis. But if we come upon something false to admit, the thing sought will be false, too.

In the problematical kind we suppose the desired thing to be known, and then we pass through its concomitants (consequences) in order, as though they were true, up to something admitted. If the thing admitted is possible or can be done, that is, if it is what the mathematicians call given, the desired thing will also be possible. The proof will again be the reverse of analysis. But if we come upon something impossible to admit, the problem will also be impossible.

Hintikka and *Remes* (p. 86) say that *Aristotle's* discussion of deliberation is reminiscent of segments of *Pappus'* description of the geometrical method to a truly astonishing extent." Even the vocabulary of the two passages witnesses the similarity. And this holds also with the structure of the texts. Both passages take a hypothetical starting point of the analysis which is the thing sought or telos. And according to both writers the 1ast thing in the step by step analysis is the first thing in the opposite movement, "in the synthesis, or in the genesis, respectively". But then on the other hand *Hintikka* and *Remes* remark that *Aritotle* himself can be considered as a source of confusion in the discussion of analysis.

There are three main senses of analysis and each of them can be found in *Aristotle's* writings. In the <u>Analytics</u> *"The process in question is the translation of unsystematic verbal arguments into an explicitly syllogistica1 form (into the moods of the three figures)"* (Hintikka and Remes 1974, 31). In the <u>Posterior Analytics</u> *Aristotle* designates by 'analysis' the resolution of formed syllogisms into others or *"analysing the deductive step from the minor to the major term by 'bridging' it by means of intermediate terms"* (p. 32). *Hintikka* and *Remes* call this type of analysis "propositional interpretation", and remark that one reason for confusion has been the fact that *Aristotle* never makes clear the distinction between the propositional meaning of analysis and

"instantial interpretation or the analysis-of-figures view" of the term analysis (as in the <u>Nicomachean Ethics</u> or in *Pappus' Treasury of Analysis*).

Another reason for confusion seems to have been a matter of translation. Does the analysis proceed "from the thing sought" to its "consequences" (translated by Hultsch) or "concomitants" (transl. by Hintikka and Remes) (pp. 7-19)? The former translation has· directed the interest of research to ponder the problem of analysis and synthesis as a problem of direction: whether analysis is proceeding from conclusion to premises or something else. This view dominated writings in the Middle Ages and many modern studies (p. 11).

Hintikka's and Remes' interpretation

What is then *Hintikka's* and *Remes'* interpretation of deliberation as analysing a geometrical construction? Let us study the conception in the light of an example. This example is a problem from Book VII of *Pappus'* <u>Collectio</u> as it is given by *Hintikka* and *Remes* (pp. 52-53) (subtitles added).
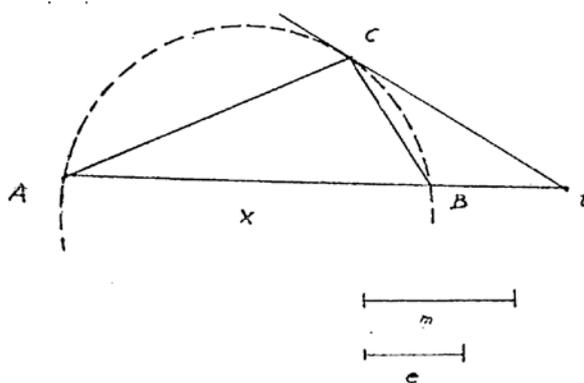
Figure 1.

I ENUNCIATION

I(a)That which is given
Let a segment of a circle be given, with the chord AB. Let a ratio be given.

Inflect

I(b)The thing sought
... into the segment two straight lines AC, CB in the given ratio.

II ANALYSIS IN THE BRDADER SENSE

II(a) Analysis proper.
Let it be done.
Let a tangent CD from C be drawn;
AC2:CB2 = AD:DB

II(b) The 'resolution'.
But AC:CB is a given ratio (cf. I(a)); henceAC2:CB2 is given. And the points A and B are given; hence the point D is given, and the tangent DC(Data Prop. 91); hence the point C is given,

III SYNTHESIS

III(a) Construction of the synthesis
The synthesis is as follows.
Let the segment be ABC, and the ratio e:m. We make AB:DB=e2:m2.
We draw through D the tangent DC; I say the straight lines AC,
CB solve the problem.

III(b) Apodeixis of the synthesis.
Because c2:m2 = AD:DB, and AD:DB=AC2:CB2 (CD is a tangent by construction – cf2. III(a)), e2:m2 = AC2:CB2; hence e:m = AC:CB; thus the lines AC, CB solve the problem.

In the beginning of the analysis there is Enunciation where "That which is given" and "The thing sought" are introduced into the procedure. *Hintikka* and *Remes* remark that for *Euclid* the first step in the theoretical analysis was ekthesis or 'setting out' the general theorem to be proved. But in *Pappus* the general enunciation is usually omitted (like in the problematic case described above). Pappus gives "That which is given" and "The thing sought" in an "instantiated" form. That kind of form is a particular "representative" of the general theorem to be proved or the problem to be solved.

The first topic *Hintikka* and *Remes* discuss is what the analyses of

Greek geometers were analyses of. For *Hintikka* and *Remes* the first important aspect of the method of analysis is that it is *"studying the interrelations of geometrical objects in a given configuration"* (p. 38). Here we must notice that the term "given" is above used in two meanings. In our example there was "That which is given, the dedomena". In this "dedomena" "given" seems to designate something like "the starting conditions" or "the things known or established so far". But when it is said that the analytic procedure is done by studying a "given" configuration, this means that both "That which is given" (the dedomena) and "The thing sought" (the zetoumenon) are analysed in a given configuration or in a drawn figure that is in a way conceptualized representative of the general or external problem to be solved.

"The thing sought" is at the very beginning included into the figure to be analysed, This implies the second essential point in the method of analysis. This point is that the logical and conceptual force of "The thing sought" "… is also brought to bear on this task" of solving the problem (p. 35). One does not try to analyse only "That which is given" in order to proceed towards "The thing sought". One also uses the "information" which is involved in the description of "The thing sought". "The crucial point here is that an important aspect of the heuristic usefulness of the method of analysis is due to the possibility of bringing both what B ("The thing sought", remark RV) says of a certain geometrical configuration and what K & A ("That which is given", remark RV) says of it to bear at the same time" (pp. 36-37).

However, the most essential and suggestive feature of the analytic method is for *Hintikka* and *Remes*, what is involved in the auxiliary constructions. Let us look at the example given above. There the tangent CD from C was introduced during the analytic procedure. This tangent CD is an auxiliary construction that was not implied in the enunciation, neither in "That which is given" nor in "The thing sought". And we can also see that in the "resolution" this auxiliary constrution is established as if it were given (p. 53). Then in the

"Synthesis" this auxiliary construction is used as a part of "the Construction of the synthesis". All these properties of auxiliary constructions constitute the heart of the analytic method.

We must remind ourselves of what the final purpose of analysis is. It is finding out the constructions by which A can move from "That which is given" to "The thing sought" (p. 46). If all the steps of this moving were already implied in the enunciation (That which is given and The thing sought), the task would obviously be a lot easier than it actually is. The big problem is how to fill the gap between "The thing desired" and "the original condition", and that gap is filled by means of what is implied in That which is given and The thing sought and by means of auxiliary constructions. *Hintikka* and *Remes* (p. 46) do not leave any room for guessing their point: *"Just because in the proof of a theorem auxiliary constructions are often vitally needed, the aim of analysis is the discovery of, the auxiliary constructions."*

Hintikka and *Remes* (pp. 47 - 46) spell out an implication of their conceptions. Because of the need for auxiliary constructions in theoretical and problematical analysis such analyses are unpredictable. And there simply cannot exist any mechanical discovery procedure in proving theorems or in solving problems. This is because of the unpredictability of the number and form of the constructions needed. This characterization of problematical analysis or deliberation suggests strongly why *Aristotle* understood bouleusis or deliberation as a special kind of zetesis or seeking.

How then do the different parts of geometrical analysis correspond to deliberation for action or for construction of the second premise of the practical syllogism? To put it in *Hintikka's* and *Remes'* words (p. 87): *"Thus in Aristotle's passage the means (organs) by which the desired result or action is to be brought about are perhaps a partial counterpart to the constructs (auxiliary entities) of a geometrical analysis."* And *"The analysis Aristotle speaks of can be seen to be of problematical kind ..."*

To make the situation even clearer we can list the counterparts in

the geometrical analysis and our preceding discussions.

I Enunciation I (a) That which is given I (b) The thing sought	The external world as it is known to the practical reasoner (A). The purpose (p) of an action as it is expressed in the first premise of PS.
II Analysis in the broader sense II (a) Analysis proper II (b) Resolution	The search for or construction of the second premise of PS, and also establishing it.
III Synthesis III (a) Construction III (b) Proof	Proof or argumentation of the correctness of analysis.

The counterparts of enunciation seem to be clear on the basis of the preceding discussion. Analysis proper is also in principle clear on the same basis. The role of resolution appears to be ambiguous even in its use in geometry (pp. 41-49). That is why we here prefer to interpret "Analysis in the broader sense"·on the whole as seeking and finding the second premise of PS.

Before making concluding remarks we must pose one more problem. Above we made a sub formulation for the second premise: A considers that if B does a, p is brought about. What is the place of B in this discussion? Here we answer that in deliberation we often deal both with "states of affairs" and "rules of conduct". To put this in the terminology above: both "That which is given" and "The thing sought" but also the "auxiliary constructions" can consist of concepts designating "states of affairs" or "action" or "rules of conduct".

The analogy between the method of analysis and deliberation of

means to an end suggests a further comment. Earlier in this study we demonstrated the existence of a close relation between a scientific hypothesis and the second premise of PS. A scientific hypothesis can in principle serve as a component of the second premise, that is as the rule that is believed to exist in the external world. This rule says that if the causes are brought about the effect will follow.

Above it was also argued that "no stab1e solution" has been found to how a scientific hypothesis is constructed. Now, if a scientific hypothesis and the second premise are closely related and if we are able to say something about the construction of the second premise, the construction of a hypothesis should a1so become clearer. Actually, according to *Hintikka* and *Remes* (p. 106) this appears to be the case: "Newton was trying to analyse an experimental situation in the same way as a Greek geometer like *Pappus* was trying to ana1yse a figure in the sense of trying to estab1ish the interrelations of its several parts."

According to *Hintikka* and *Remes* (pp. 107-115) the propositional interpretation of the method of analysis dominated discussion in the Middle Ages. And the birth of early modern science was closely related to the rediscovery the original conception of Greek geometry. Obviously then some later authorities like John Locke lost sight of the instantial interpretation of analysis. The active scientists continued to work like the Greek geometers. Many of the philosophers, however, began to seek a solution to "the problem of induction" by supposing that a hypothesis is constructed by the method of proceeding from the particulars to the general.

4.2. On Constructing the First Premise of the Practica1 Syllogism

In a recent study *von Wright* (1976) asks: "Why do peop1e have the intentions they have? "Sometimes the answer may refer to a further intention, as in the situation where someone intends to go to a concert and answers that he wants to go there in order to educate himself in music. In our terminology this means that the intention

(of going to the concert) is a secondary intention or second premise of PS, and the first premise is educating oneself in music.

In a further study it may appear that first premise of this PS may also be a means to some further intention like passing some examination etc. But the answer to the question concerning going to the concert may be that one just likes or wants to go to a concert. *Von Wright* asks further, why one wants what one wants, and answers: because it pleases or one likes or because the wanted thing is nice or amusing. We do not follow *von Wright's* to some extent intuitionistic explication of this answer. We just state that here is the problem we are facing: A has an intention p, with no further aims which p could serve; A just likes to do p. What is the nature of this kind of thing? What is involved in the first premise of PS?

Not perhaps surprisingly, we get into a lot of trouble when we try to find modern terms for discussing the first premise of PS. This may not be surprising because two of the main schools of moral philosophy of our time – like emotivism and intuitionism - just do not talk about this. In order to understand our problem a short historical note seems to be in place.

Historical notes

It is well known that *Aristotle* was a source figure in the development of medieval thinking and moral philosophy. It is also a commonplace to say that "the great transformation" in moral thinking was closely related to the emerging new method of thought of the natural sciences. It would be a study of its own to follow step by step the process in ethical discussion and practice from *Aristotle* to modern decision theory. One basic line of development must, however, be mentioned. This is the rise of utilitarianism after the 18th century.

Before coming to the first "pure" utilitarian philosopher, *Jeremy Bentham*, it is useful to make a short reference to the so-called

Scottish moralists like *David Hume, Adam Smith* and others. The difference between them and the Aristotelian tradition was already great indeed. According to *Smith "Man was made for action and to promote by the exertion of his faculties such changes in the external circumstances both of himself and others as may seem most favourable to the happiness of all"* (Adam Smith according to Schneider 1967, 139-140). For *Aristotle* "man was made" for goods of the soul and external goods were regarded as means to these primary kinds of goods.

Adam Smith had changed the interest to external goods "of himself and others". *Smith* already discussed external objects as causes of pleasure (Schneider, 125), but clearly it was *Jeremy Bentham* who made these preconditions of *Adam Smith* and his contemporaries unmistakably explicit. The treatment of ethical questions in *Bentham's* The Principles of Morals and Legislation (1789) is remarkably clear: *"Nature has placed mankind under the governance of two sovereign masters, pain and pleasure"* (Bentham 1973, 1).

These two things tell us what we ought to do and what we shall do. In *Bentham's* ethics the principle of utility or the greatest happiness principle approves or disapproves of every action according to whether it improves or diminishes the happiness "of the party whose interest is in question" (pp. 1-2).

Interestingly, there is some similarity between *Aristotle* and *Bentham* in their direction of discussion. For both of them, man's actions are directed towards something (which he considers to be) good or towards happiness. The striking difference between them lies on their conception of what constitutes good or happiness for man.

For *Aristotle* happiness was activity of soul in accordance with virtue in lifetime. For *Bentham* (p. 33) *"Pains and pleasures may be called by one general word, interesting perceptions."* And these kinds of perceptions are brought about by certain causes, although the quantity of the pleasure depends also on the "circumstances

influencing sensibility" (pp. 43-44). What are it then that causes this kind of interesting perception or pleasure? It is one property of the external object, a property called utility. *"By utility it is meant that property in any object, whereby it tends to produce benefit, advantage, pleasure, good, or happiness, (all this in the present case comes to the same thing) ..."* (p. 2). The remark in parenthesis is also of interest to us. For *Bentham* (pp. 33-40) there are fourteen kinds of pleasures caused by one external property.

It is easy to see as *Bentham's* motive an effort to treat ethics in terms of the scientific thinking of his time. But it is also easy to understand the motive behind the success of Benthamite utilitarianism in various fields of research.

If human happiness is a thing caused by some property in the external environment, the increasing of the happiness of mankind would be just a matter of engineering the external environment. Thus for instance *A. C. Pigou's* The Economics of Welfare purported *"to be an objective study of the causes of satisfaction"* (Little 1970, 9). After *Bentham,* his concept of utility has been developed in various fields of research towards the modern use of the concept. One of the paths breaking developments in this process was to link it to some ideas of the 20th century philosophy of science. This was first done by *Frank Plumpton Ramsey*, but only *von Neuman's* and *Morgenstern's* Theory of Games and Economic Behaviour made this idea the source of extensive discussion in "modern decision theory" (Raiffa 1970, 276).

Aristotle on virtues

It is, of course, out of the question to try to develop a new moral philosophy in this study. We only make some suggestions for a new Aristotelian departure in constructing the first premise of PS.

In the beginning of this study we saw that Anscombe analysed two components out of the first premise of *Aristotle's* PS. According to *Anscombe* (1968, pp. 73-74) in the first premise there are "a

description of something wanted" and "the desirabi1ity characterization". This view is supported by severa1 of *Aristotle's* discussions.

In the <u>Nicomachean Ethics</u> *Aristotle* analyses the human soul. He finds out that the soul consists of two parts, the rational and the irrational (1102 a 25-30). Later he subdivides the rational part into 'scientific' and 'calculative' faculties (1139 a 5-15). The former deals with things which do not have any change or variation in their principles. With the latter we deliberate things which admit changes.

The irrational part of the soul *Aristotle* also subdivides into two faculties. The one consists of things that are 'vegetative' by nature, like nutrition and growth (1102 a 30-35). The other is that "... from which spring the appetites and desire in general; and this does in a way participate in reason, seeing that it is submissive and obedient to it..." (1102 b 27-32, translated by Thomson).

In the sixth book of the <u>Nicomachean Ethics</u> *Aristotle* says that both of the two parts of the soul influence considered action: both the reasoning power and desire or appetite are involved (1139 a 17-21). We can interpret the remark following this to mean that *Aristotle* gives PS backwards in it: *"Now the cause (the efficient, not the fina1, cause) of action is wil1 or deliberate choice and the cause of choice is desire and a reasoned conception of the end we are seeking to attain"* (1139 a 30-36). A little later he remarks that *"we view choice either as thought wedded to desire or desire wedded to thought. In man, originating cause of action, the two e1ements work 1n combination"* (1139 b 4-5). So it seems that for *Aristotle* there are two different but inseparable components in the first premise of PS or the goal of action: reasoned conception of the end and desire somehow bound to it.

Parallel to the interpretation above is *Aristotle's* commentary on *Socrates'* well known idea of virtues as forms of knowledge. *Aristotle* divides virtues into intellectual and moral ones according to the division of the soul into rational and irrational parts. Hence

intellectual virtues deal with the reasoning power of the human soul, and moral virtues deal with the desires springing from the human soul. He says that the true moral virtues cannot exist without the intellectual virtue of prudence (1144 b l-15). And prudence is for *Aristotle* excellence in "correct deliberation about what serves an end" (1142 b 32-35).

According to his conceptions *Aristotle* argues that *Socrates* was wrong in believing that virtues are forms of wisdom, but right in saying that there is no virtue without wisdom (1144 b 19-21). *"Virtue or excellence is not only a characteristic which is guided by right reason but also a characteristic which is united with right reason; and right reason in moral matters is practical wisdom. In other words, while Socrates believed that virtues rational principles ... we, on the other hand, think that they are united with a rational principle"* (1144 b 25-30, translated by Ostwald).

To sum up; *Aristotle* says that in the irrational part of the soul there is the faculty "from which spring the appetites and desire in general". And this is the part of soul which the moral virtues deal with. But there is also the rational part of the soul with intellectual virtues like prudence. And these virtues cannot exist without each other. Again we can say that they are somehow bound to each other. Now the difficult problem arises what is involved in this kind of wedding of conceptual element and desire element in the first premise of PS. *David Wiggins* has analysed *Aristotle's* conception of this problem.

Wiggins on Aristotle

David Wiggins (1975) gives a basically broader interpretation to *Aristotle*'s concept of deliberation than we have done above. One essential point of difference is his disagreement with *Ross'* translation in the discussion of deliberation in the <u>Nicomachean Ethics</u>. We can remember that according to *Ross'* translation *Aristotle* begins his discussion of deliberation (1112 b 13): *"We deliberate not about ends but about means"*.

Now the correct translation according to *Wiggins* (p. 32) is that we do not deliberate about ends but of *"what is towards the end (pros to telos)".* And, according to this interpretation, in discussing deliberation *Aristotle* deals with the creative process of constructing both means (second premise of PS) and ends (first premise of PS). According to *Wiggins* (p. 36), what *Aristotle* designates by deliberation on *"what is towards the ends"* is looking for answers to questions like *"what practically speaking is this end?"* or *"what shall count for me as an adequate description of the end of life?" "... a man may seek by deliberation to make more specific and more practically determinate that generalized telos of eudaimonia which is instinct in his human constitution."* On behalf of his view, *Wiggins* gives several arguments with reference to *Aristotle's* discussion of practical wisdom. And here *Wiggins* (p.37) can demonstrate that *Aristotle's* "man of practical wisdom" is *"able to deliberate well what is good ..."* Nicomachean Ethics, (1140 a 24-28; 1141 b 9).

From this background we can understand (with *Wiggins'* help) what the *"wedding of (virtuous or vicious) desires to thought"* (ll39b 4-5) consists of. This activity is answering the question of what concretely "qualifies as" *"realizable specification of what would satisfy",* or meet, the desire. Deliberation is still zetesis, a search, but it is not only a search for means. It is also search for the best specification (Wiggins 1975, 38). *Wiggins* remarks that not until this specification is made can there be any room for looking means. And even during the search for means one must often return to the specification in order to make it more practicable (p. 38).

Wiggins (p. 38) calls the search for means to ends a "technical" or "means-ends" case of deliberation. He makes clear the special problem in "non-technical" deliberation or deliberation on ends. In beginning agent A has a quite vague description of the desire or of what he wants - like for instance "a good life, a satisfying profession, an interesting holiday, an amusing evening". And deliberation on ends can be seen as specifying or concretizing these

kinds of more or less vague desires.

It is very important to notice here the conceptual resources we have above reserved for the description of the world that furnishes the experience of good or happiness or the goal of an action. If A limits himself to a "state of affairs" description, he would be close to, or even in, a utilitarian theory of good. This is because the only way to explain why some states of affairs constitute good for people "within", or to observe those states of affairs, is to say that these states of affairs somehow stimulate or cause the experience of good, happiness or welfare. Inclucled, however, in the world description above were also qualitative aspects of the external world, rules of conduct of the people in the external world and also the rules of conduct of the deliberating agent. In this way agent A can also include in the description of the goal what according to *Aristotle* constitutes the different kinds of goods: goods of soul, goods of the body and external goods. This is because happiness or good is for *Aristotle* not caused by sane state of the world but is activity of soul, activity of the intellectual and "desire" faculties of a human being.

Constructing an end

But now we must try to find out what is particularly involved in specification or description of the end. Here *Wiggins* does not help us very much. We may first sum up his contributions to this closer analysis. *Wiggins* (p. 41) stresses quite strongly that *"the discovery and specification of the end is an intellectual problem, among other things ..."* This seems parallel to what we have earlier discussed on "thought wedded to desire". According to *Wiggins* (p. 41) *"The good is the sort of thing we wish for because we think it good, not something we think good because it is what we wish for. Thought and reason (not without desire, I (Wiggins) must add) are the starting point:"* Thought and desire are the points of departure in deliberation on ends, and wish comes from this. In the following we shall argue that intending and wanting also come up in the same

way.

Another thing *Wiggins* stresses in some contexts is *Aristotle's* remark that *"Matters concerned with conduct and questions of what is good for us have no fixity ..."* (Nicomachean Ethics, 1104 a 7, according to Wiggins, 41). Even in the main part of his conclusion to his paper *Wiggins* emphasizes situational appreciation, that is the view that there is no final guide in questions of human conduct and that practical reasoning must do its best in the situation the agent is in. Although this remark is a critical point against empirical theories that reckon to find some final criteria both for describing and prescribing human conduct, *Wiggins* seems to miss one essential implication both of the <u>Nicomachean Ethics</u> and his own paper.

It is the very purpose of the Ethics and deliberation to find out some rules of action that are conducive towards good or eudaimonia given that there is no fixity in it. And it is the task of moral virtues (and semi virtues like friendship) to say what kinds of desires conduce to real good - that is what is really experienced as good as the goal is realized, and what promotes good in 1ifetime. Above we saw what according to *Hintikka* and *Remes* can be said in the case of deliberation on means. Now we try to apply this to deliberation on ends.

We begin with Enunciation including that which is given and The thing sought. When A is deliberating on an end he has a certain sort of thing sought: there may be an extremely vaguely felt desire for happiness or for something good, or there may also be a vague but, however, a litt1e more conceptualized desire for something like a good life, a satisfying profession or a nice evening. In the latter cases there has already taken place a litt1e more wedding of thought and desire than in the former ones. How does A use reason or intelligence to proceed from here? Or how does the analytic procedure proceed in the case of deliberating on ends?

The first important aspect of an analysis is *"the idea of studying the interrelations of geometrical objects in a given configuration"*

(Hintikka and Remes 1974, 38). What then does given or instantiated version mean here? Maybe surprisingly, we (again) get help from *Aristotle.*

In the Nicomachean Ethics *Aristotle* discusses practical reason and says (1143 a 25 ff., translated by Wiggins, emphasis added): *"For here, in the capacity to find the right feature and form a practical syllogism, resides the understanding of the reason for performing an action, its end. For the major premise, and the generalizable concern which comes with it, arises from this perception of the particular. So one must have an appreciation or perception of the particular, and my name for this is intuitive reason."*

How can we understand *Aristotle's* conception of intuitive reason and particulars? It seems that *Aristotle's* intuitive reason and *Kant's* intuition (die Anschauung) designate to a great extent same thing: the individual or particular picture or mental image representing in the human mind something which is general (like a geometrical figure does) or representing a particular reality with all its innumerable features and shades. And it seems that deliberation both on means and ends is carried out by means of these kinds of intuitions.

The second essential feature in analytic method according to *Hintikka* and *Remes* (p. 38) is *"the general heuristic idea of bringing the maximal information to bear on this (geometrical, remark RV) configuration".* There is a certain amount of information which is brought under consideration in the Enunciation. But if A had to deliberate on ends only on the basis of a vague desire characterization and his conception about the actual world, he could not do very much in describing the constituents of the good desired. Something more must be brought under consideration. And it appears to be intuitively clear that this something more is A's own earlier experience of what these constituents are.

Obviously the usual situation in deliberation on ends is that A brings to bear not only what he himself has experienced, but also

what other people - his parents, teachers, friends - have told him about this. And for the reasons discussed earlier, to understand what these other people tell A he must somehow be able to recognize what they say by comparing it to his own earlier experience. This interpretation seems to correspond somehow with what *Aristotle* says after the quotation above; the importance of personal experience could not be stressed much more (1143 b 7-13, translated by Ross): (obviously) in practical wisdom *"... we think our powers correspond to our time of life, and that a particular age brings with it intuitive reason and judgment; ... Therefore we ought to attend to the undemonstrated sayings and opinions of experienced and older people or of people of practical wisdom not less than to such demonstrations; for because experience has given them an eye they see aright."*

Hintikka and *Rames* (p. 44) said above that *"the choices of suitable auxiliary constructions is the third and perhaps the most important essential feature of the heuristic situation one encounters in applying the analytic method ..."* This part of analysis also seems to have an important application to the deliberation on ends.

If A's conceptual resources in describing what constitutes good were limited to the arsenal of earlier or present experience, this description would be simple repetition of earlier experience. Now the very capacity to construct new constructions seems in the ease of deliberating on ends to mean the capacity to construct new conceptions about constituents for good. Moreover as little as auxiliary constructions come out of thin air but are constructed from the material of earlier conceptions, as little the new constituents appear out of thin air but are in some way related to earlier experience, to tradition, somebody might add.

We can now say something about intending. In the very beginning of the deliberation on ends there is a vaguely experienced desire. It seems that already this experiencing of simply a desire involves some kind of vague conceptual element in it. The desire for something good or for happiness is an even more conceptualized

specification of a desire, although still very vague. But when there is this wedding of desire with thought we can to a limited extent say that A wishes or intends or wants "something good" or "happiness". A little more strongly A can intend (or wish or want) "a nice evening" or "satisfying profession", because the conceptualized description in this latter case is a little more strong. But not until A has completed the description of the goal to the extent that he can start deliberating on means towards the goal, one can completely meaningfully (so that other people can also understand what A intends, wishes or wants) say that A "intends" or "wishes" or "wants" the goal. So when there is the first premise of PS:

<u>A intends to bring about p.</u>

- p in this premise describes a world which constitutes something good A desires,

- intending designates the phenomenon that the description of what constitutes the good A desires directs A to bring about what is described.

4.3. On the Conclusion of the Practical Syllogism

We have seen that the essence of the first premise of PS is the specification or description of what constitutes some desired good. But there is also another specification dimension in PS: for action it is not enough that some end or result is brought about "in principle" in terms of some general theory. What more is needed is that the theoretical solution of the problem must be derived to concepts designating immediate experience. Why? Let us give an example.

An engineer can plan or deliberate "on paper" to the extent that he describes the finest details of a desired bridge. Then he must also make the working plan to describe the means of building the bridge. But when the plan is realized or the reasoning actualized somebody must seek and find in situ the real things that are designated by concepts in the working plan. For example

somebody must concretely find the concrete points of terrain designated in the plan on the paper; somebody must concretely find the needed materials; somebody must concretely find the workers with needed skills etc.

In principle this kind of seeking and finding seems to happen in the same way as in verification: there is a concept in the working plan designating something (say a worker with some special skills) and there is a judgment about some immediate experience; if these judgments are identical we can say that we have found in the external world something designated in the plan. But if the concept in the plan did not designate something particular enough (say if it designates just workers) the burden of specification is moved forward to somebody (say a technician) who performs the needed action (say hires the workers). In any case at the time of action there must be found a description of the particular action to be performed.

It seems to be intuitively clear that a necessary condition for the successful seeking and finding of external objects designated in the plan is that there really is a correspondence between the concepts in the plan and reality. From our point of view this means that there is not only correspondence between "state descriptions" and reality but also between "rule of conduct descriptions" and reality. We shall also see that this problem is closely related to "the problem of implementation", as it is called in the study of administration.

This problem refers to the problematic situation which arises when the concepts of "modern decision theory" are tried out "in the real world". For us the problem will not be a surprising one because we shall see that the concepts in modern decision theory only partly correspond with all that is involved in this real or external world.

The second thing we have argued for is that the conclusion of PS does not follow with logical or causal necessity from the premises. We have characterized this relation between premises and the conclusion as expression relation. This unique relation, typical to man, appears as intuitively relatively clear but philosophically as

profoundly problematic: after the premises have actualized in the human mind of the reasoning agent it is possible for him to act or "move" according to his intention. That takes place which *Aristotle* describes in <u>Metaphysics</u>: that which has matter comes from that which has not.

What does it mean that there is no relation of necessity between the premises and the conclusion? Obviously, that although the premises are actualized in agent's (A's) mind, this actualization does not necessitate or necessarily dispose A to perform the act designated by the conclusion. This means that A can still after the actualization of the premises reconsider his reasoning.

Hence it can be said that by the conclusion of the PS is designated the act of expressing by concrete (symbolic or physical) acts, that is executing the preceding reasoning. And because this expression does not follow by necessity from the preceding reasoning, it implies a mental action of its own. Here, however, it is not possible or necessary penetrate any more into this philosophically deeply problematic phenomenon.

5. The Model of Practical Decision Making

We have now reached the final stage of the purely philosophical part of this study. After studying various aspects of the practical syllogism we make an effort to extend it into the Model of practical decision making (Model PDM). In doing this, the basic ideas are intuitively clear, although each of the philosophical moves imply more fundamental problems than can be solved here.

If we compare Model PDM with our original formulation of PS, the following extensions can be seen.

Firstly, the model of decision making includes a conception of how the decision premises are rationally constructed. In presenting this we shall use relatively directly the preceding discussion of how the premises of PS are constructed.

Secondly, in constructing the premises we shall also use the

preceding discussion in the sense that we shall include into "the conceptual resources" of the rational decision maker (A) both concepts of the natural sciences and those satisfying the criteria of the study of history. The former we analysed in the context of studying *Schlick* and verification, and the latter we became acquainted with in studying *Dray's* conceptions.

Thirdly, in Model PDM we shall think that the rational decision maker constructs several purposes and makes a choice between them. Of course, it is also possible for rational A to limit himself from the very beginning to only one purpose.

Fourthly, we shall consider that it is possible for a rational decision maker to construct several means to an end and make a choice between them.

The following Model PDM is a rational decision model in the sense which we call practical rationality. This concept of rationality is different from several other conceptions of rationality. Therefore we shall specify this conception after we have presented the model itself. In this connection we shall also discuss the uses of Model PDM.

In its most general form the Model of practical decision making (PDM) is as follows:

Model PDM

(S l) A constructs alternative purposes p, q and r.

(S 2) A chooses p.

(S 3) A intends to bring about p.

(S 4) A considers that if he does a, b, or c, p is brought about.

(S 5) A chooses to do a.

(S 6) Therefore A does a.

We go through the steps of PDM in order to see what has been or

can be said of these steps.

Step 1

A constructs alternative purposes p, q and r. We have discussed quite extensively the constructing of an individual purpose p. We have also seen that it is a matter of dispute as to whether for Aristotle there can be more than one goal or telos for human actions. Be the interpretation of Aristotle as it may we consider here that several alternative purposes are possible and also typical to man. But what is the root of this phenomenon?

First, it appears to be an intuitively clear everyday experience that there may be several conflicting desires which compete in becoming specified and satisfied. They are conflicting in the sense that if one is satisfied the other is excluded from satisfaction. So A may have a holiday and has constructed alternative purposes which are specifications of competing goods or d sires: (p) to go to Paris to see the Louvre Art galleries, (q) to go to Rome to go to Mass in St. Peter's Church or (r) to go to the Riviera to rest a little.

The second possibility for alternative purposes in the first premise is that there is just one desire or good sought but there are several alternative specifications as to how this good could be found or desire satisfied. Say, A may wish for rest and he has specified the alternative goals for this: (p) to go to Lapland to wander in the wilds, (q) to go to the Riviera to get a little tan or (r) to go to Las Vegas to have a little fun.

In everyday life - personal or organizational - the competing goods and specifications seem to be interwoven. The complications are increased by the fact that the description of the purpose can consist of all the "conceptual resources" which we have introduced in this study. This problem, however, cannot be solved by limiting the conceptual resources, say, by excluding everything else but state descriptions.

This is because several goods are constituted by, for instance, acting according to some rule or principle of action. And if a practical reasoner includes state descriptions but excludes rules or principles of action in describing his goals, he at the same time includes the goods constituted by the actualization of states of affairs and excludes the goods constituted by following some rules or principles of action.

In this study we argue that the rational way to solve the obviously difficult problem of the possible multiplicity of descriptions of goals is not any artificial limitation of the possible descriptions but seeking and finding the right description in this multiplicity. In this we follow Aristotle's conception quoted above (Nicomachean Ethics 1143 a 25): " ... *for here, in the capacity to find the right feature and form a practical syllogism, resides the understanding of the reason for performing an action, its end. For the major premise,... arises from this perception of the particular, and my name for this is intuitive reason"*.

How this finding of the right feature is rationally done, we studied in the preceding chapter discussing the construction of the first premise of PS.

Before beginning a summary of our discussion of the construction of the purposes of action, one more reminder is in place. When a rational agent A constructs the first premise of PS or the purpose in Model PDM, it is presupposed by definition that he does not have any readymade rule for this. If there were some rule saying that A should construct a purpose that promotes *x,* this rule would represent the actual first premise or the purpose.

As stressed earlier we are dealing with a purpose about which it cannot be asked further "for what it is constructed." In the way analysed above, one can say that A just likes to reach p. At some times in history societies and individuals have had some well established definite major premises or ultimate purposes in their daily and social life. In the modern times deliberation on the purposes is needed quite often. The intellectual tools for this are

not, however, too well developed. In practice the problem arising from this is often solved by resting on utilitarianism. The core of the Step l of the Model PDM is not what the purposes should be but how purposes are rationally deliberated on.

We can now characterize the first step in PDM in the following way:

(S l) A constructs alternative purposes p, q and r.

(a) It is possible for human being (A) to construct one or more alternative purposes (p, q and r).

(b) Each of the alternative purposes p, q and r describes a world that constitutes something good A desires; in other words there are a descriptive component and a desirability component bound together.

(c) The descriptive component of p, q and r designates something particular and can consist of the following kinds of conceptual tools:

- "state descriptions" or concepts satisfying strictly or loosely the positivistic criteria of science.

- concepts describing qualities or unique features in the future external world.

- concepts describing rules of conduct of the human beings in the external world.

- concepts describing rules of conduct of the deliberating agent A; these rules as well as those of other agents can be classified according to Aristotle:

- a rule for action constituting the good in itself, as praxis or doing,

- a rule for action that produces some discrete good, as poiesis or making.

(d) The nature of the desirability component is best understood in the context of the construction of purpose:

- in the first step of a most vaguely felt desire a conceptual component is involved which makes the desire conscious,

- to deliberate on purposes is to seek specification or description of what concretely constitutes the desired good; in this activity the following features of the conceptual process are noticed:

- the deliberation .is done by means of immediately given concepts or intuitions, that is by means of particular constructions or concepts representing to the deliberating agent either something general or "external reality",

- in the optimal case the deliberating agent brings into deliberation all possible information gained by his and other people's experience; his problem then is to select the information relevant to the specification he is making.

-   in deliberation it is possible for the human agent to construct new conceptions of what constitutes the desired good; the conceptual resources for this come necessarily from the earlier experience of the agent or those he learns from.

(e) The possibility of alternative purposes comes from the fact that there can be several competing desires present at the same time and there can be several specifications for what constitutes a desired good.

Step 2

A chooses p. Above we said that it is possible for a rational agent (A) to construct several alternative purposes. If this is done, how can or does he rationally act in this situation? Our contemporary culture has extremely poor conceptual resources to offer both for deliberation on conflicting ends and for solving value and moral problems. The main modern formulae for these problemetics come from empirical research and utilitarian philosophy which are not so far from each other.

Moral philosophers like *Alasdair MacIntyre* and *David Wiggins* offer basically the same alternative from utilitarian and empiristic

views. According to *MacIntyre* the physician should find the solution for his moral problem in the context of the actual situation he faces;

"what (contemporary, remark RV) *phi1osophy has to tell the physician is precisely why they cannot hope for solutions"* from philosophy (MacIntyre. 1973). *David Wiggins* suggests "situational appreciation", because "*In no case will there be a rule which a man can simply appea1 to tell him exactly what to do"* (Wiggins 1975, 48). When there is no readymade rule to be adopted by A, how does he proceed rationally? We try to answer this on the basis of the preceding discussion of constructing goals.

The first reason for several alternative goals was considered to be the situation where there are several conflicting desires and A has specified for each of them a goal which when actualized would constitute the desired good. Our example of this situation was a holiday (p) in Paris (to see the Louvre Art Galleries), (q) in Rome (to go to Mass in St. Peter's Church) or (r) on the Riviera (to rest a little).

In this kind of situation it is rational for A to continue the process of seeking description in such a way that he could find a description of a goal which when actualized would constitute all the desired goods. In our example this would mean an effort to find for the holiday a place where all the desires (artistic, religious, leisure) could be satisfied during the holiday. In Part II of this study we shall study the so called MLF -plan which is a good example of this kind of effort. In this case the US government tried by the MLF -plan to bind together the mutually conflicting aims of its European politics.

The second reason for several alternative goals was considered to be that there is just one desired good but several alternative specifications of what would constitute this good. In our example the desired good was rest, and the specifications, to go (p) to Lapland, (q) to the Riviera or (r) to Las Vegas. In this case it is rational for A to repeat the process of specification and ask in the

very beginning, what particular kind of rest he desires.

In human and social life there is often the situation that it is not possible for a rational agent (A) to find a specification that would constitute all the conflicting desired goods. Then there is a situation where it is rational to make a choice. How does A then proceed rationally?

Above we argued that from the very beginning of specifying what constitutes the good A as a rational agent desires, there is a conceptual element present. And at the stage where A can begin to deliberate on means there must be a complete description of the constituents. What then can A do if there are several descriptions? He can compare them. Each of the descriptions is in a way a conceptual picture or idea of a "possible world" that can be realized by A. In comparing these possible worlds A imagines each of them as actualized and also the goods and bads he would experience in this actualized world. If he is not able to construct a goal where all the desired goods are constituted and if "no choice" gives no more good, it is rational for the agent to choose the alternative which he considers when actualized to give the greatest good.

How is it possible for a rational agent (A) to compare the possible goods constituted in the possible worlds? Implicitly we have already answered to this question. In the process of seeking description for a desired good rational or any human agent bases his conception of what constitutes good on his own personal experiences. Any social human being receives, of course, education in matters concerning goods and bads, but in the final ana1ysis this education too is understood by reducing it to personal experiences. From this follows the argument that any agent in the final analysis compares or weighs the goods in the possible worlds in the light of his personal experiences about good and bad. This does not mean that A's personal experiences are reflected in the choices "as such". This is because the conceptions formed on the basis of these experiences are due to analytic and synthetic "processing", such as we became acquainted with in the context of *Hintikka's* and *Remes'*

study of the method of ana1ysis.

In some sense *Aristotle* (Nicomachean Ethics, 1142 a 25) supports us in the preceding argumentation. He says that in practical wisdom we think our powers correspond with our time of life.... *"Therefore we ought to attend to the undemonstrated sayings and opinions of experienced and older people ... for because experience has given them an eye they see aright."*

In the eases where one deals with different specifications of one desire it may be easy to compare the alternative goods and find the best of them. However, when one tries to make a choice between goods based on different desires, the situation may even be painfu1 for any agent, rational or irrational. In Part II, we shall come across with Barnard's (1974) fine analysis of a situation where a business executive faces a conflict between different goods and cannot find any solution that would satisfy both of the desired goods. In this ease the executive as well as the rational decision maker must simply make the comparison on the basis of his former experience and education reduced to that experience and then choose the better and suffer the loss of the lost good.

Sometimes the conflict between desires or goods can be so difficult or strong that even the most skillful agent simply cannot make any choice. The purpose of rational reasoning, of course, is to avoid this situation. However, it is worth mentioning because it is a very common element in several human or political dramas. One example of this kind of situation is given in Part II when we study how "value integration" by MLF -plan did not succeed and the US government simply simultaneously pushed forward all the conflicting goals and for some time lost all of them.

(S 2) A chooses p.

(a) Before making a choice between alternative purposes (p, q or r) constituting different goods, it is rational for A to seek a specification of a purpose that would constitute all the desired

goods. If this can be done, it is rational to choose this purpose (p).

(b) If a new purpose (p) is not found, the rational agent (A) can compare in his mind the goods constituted if each of the purposes were actualized. This comparison may be difficult, but it is rational to choose one of the goods in order not to lose all of them. Therefore, a rational agent (A) compares the alternative goods and chooses the one that he considers to give the greatest good.

Step 3

A intends to bring about p. This step in decision making we have discussed several times in this study. Most of the results were repeated in the context of the first and the second step. However, the phenomenon of intending is new in this step. Earlier, we said that sometimes we can also use wanting instead of intending. This formulation would then connote something like A strongly intends to... With reference to our earlier discussion we can then say the following:

(S 3) A intends to bring about p.

(a) Intending or wanting designates the phenomenon that the description of what constitutes a good A desires directs A to bring about what is described.

(b) If there are several alternative purposes, intending comes after the choice between them.

Step 4

A considers that if he does a, b or c, p is brought about. We discussed above deliberating on means towards some ends. It seems to us that in the same way as a problem in geometry may often have several solutions, so also in seeking for means the deliberating agent may construct several alternative means to an end as far as each of these means is sufficient for bringing about

the end. So our present step in PDM can be thought of as being constructed in basically the same way as the second premise of PS: A considers that if he does a, p is brought about. The only difference is that the deliberating agent side by side or one after another constructs the alternative means a, b and c.

We saw above that even in a very simple geometrical problem one must during the analytic procedure consider simultaneously several drawings that together compose the solution of the problem. And it appears to be an intuitively clear everyday experience that in bringing about a relatively easy end there are several branching and successive means involved. As an example we may consider the moving of a stone by two persons by means of some tools, from one place to another. Hence by a, b and c we can designate in principle even a most complicated set of means to some end - say the actions and causal relations needed by an industrial organization to producing a car.

Earlier in this study we have in the context of PS discussed the nature of A's belief in the relationship between a and p. Then we argued that in practical action it is rational for A to construct the second premise so that p follows an as certainly as possible; that is, that an s belief can be as well grounded as possible. In the best case p follows a by objectively verified causal necessity. This is often the case for example when one constructs some technical machinery for reaching some end or producing some product. Sometimes it is possible in practice to establish only some probabilistic relationship between a and p. This was above considered to be the case when some action to market some product is taken on the basis of some marketing research. Sometimes in practice the relationship between a and p is simply hypothetical. In Model PDM concerning a, b or c and p the situation is parallel with PS.

In addition to the main formulation of the second premise of PS we formulated above a sub formulation for the case where practical reasoning takes place in a social environment. In this case A asks B

to do a in order to get p brought about. In this case one can adapt to the relationship between a and p what has been said above. Problematic is the relation between A and B. Above it was argued in detail that under some circumstances A can deal with B as if B were a natural object behaving according to some general laws. Even in this case it is rational for A to realize that basically B is an intendedly rational reasoner like A himself. From this it can follow that if B changes his principles of action, the general laws attributed to him do not hold any more.

Often in administrative or political situations it is the case that a rational decision maker considers the agents (Bs) in his environment as human beings capable of intendedly rational practical reasoning. In this case A predicts their behaviour by trying to understand their principles of action or by asking them to follow some principle of action. Hence A constructs his second premise of PS or Step 4 of Model PDM on the basis of his belief of what B's principle of action is. And as always in human life this is a somewhat risky business. Although B promises to follow some principle or although he follows some principle tens or hundreds of times, at the time of the action he may simply change his principle or remain passive. The belief in other people's action is a central theme in actual political decision making as well as to a great extent in administrative decision making. Several aspects of this problematics will be studied in Part II of this study.

On the whole we can characterize the fourth step in PDM in the following way:

(S 4) A considers that if he does a, b or c, p is brought about.

(a) Seeking means to an end is an analytic procedure characterized by the following features:

- the problem is considered by means of a given or particular configuration or conception which is basically of the deliberating agent s own making,

- in the optimal case the deliberating agent brings the maximal

information to bear on the configuration or conception; this information can be drawn from the description of the end set in the third step of PDM and from what is known to the agent in the situation he is deliberating in.

- human beings as deliberating agents are able to construct new (auxiliary) constructions or conceptions utilizable as components of the means to the end.

(b) The conceptual resources for the construction of means to the end are basically the same as in specifying what constitutes the desired good:

- "state of affair" descriptions and general laws designating relations between them,

- descriptions of actions and rules of conduct.

(c) To make clear the two kinds of components involved in means, we can construct a sub formulation for the fourth step of PDM for a situation where *a,* b and c are sufficient conditions for the (coming about of) p and B is another agent who can bring about any of these sufficient conditions: (S 4) A considers that if B does *a,* b or c, p is brought about. (d) For A it is rational to formulate the alternative means (a, b or c) to the end (p) or find such a B that A's belief (in that p follows *a,* b or c and that B will when asked by A do *a,* b or c) is as well grounded as possible.   In dealing with natural objects and under some conditions Las specified above) other humans A can seek to make the confirmation by the methods of the natural sciences. In dealing with other humans (Bs) like himself, A can try to understand these (Bs) in principle like the historian tries to under- stand his subject of research, by reconstructing the conceptual framework of their practical reasoning on the basis of which they (Bs) take their actions.

Step 5

<u>A chooses to do a.</u> What is then involved in the choice between the

alternative means to one end? We remember what Aristotle said: "If it appears that there is a variety of means of doing this, they consider which of these will be easiest and most effective" (NE, 1112 b15). But what does this mean?

To understand what is involved in the choices between means, we must introduce a new concept - that of side effect. If the alternative means were just alternatives leading to the same effect, the choice between them could be made in a lottery. But it is intuitively clear that most often each action or state of affairs that is a means toward some end also brings about some effects other than the primary intention. These other effects we call side effects.

So it seems that after (or simultaneously with) constructing the alternative means toward the end, the deliberating agent tries to find out what else than the intended end follows from the use of means and bringing about of the end. The results of consideration could be designated by pa, pb and pc. Each of these figures would then refer to the description of the world where both the intended purpose (p) and the side effects from it and the use of alternative means would be actualized. It seems that in choosing between means we make the choices between these worlds. But how do we do this? Here again *Aristotle's* suggestion seems to point in the right direction.

Aristotle says that if there are several means to the same intended purpose, "they consider which of these will be the easiest and most effective". From the point of view of this study this means that Aristotle here introduces two new major premises into consideration: "Act in the way that is easiest" and "Act in the way which is the most effective". Aristotle seems to have in mind two common side effects of any use of means for some purposes, that of using energy and that of consuming other resources. And he seems to suggest that in the ease where the purpose can be reached by alternative means, that means should be used which - side effects considered 'most promotes the purposes of easiness and effectiveness.

As indicated above, if there were just one purpose and alternative means leading equally to that, the choices between the means could be made in a lottery. But it is an essential part of human decision making that actions (like doing a, b or e) have side effects which promote or decrease several desired goods other than that intendedly promoted by the action.

Intuitively, it seems rational for a decision maker A to predict as well as possible the side effects resulting from bringing about the alternative means (a. b or e) to the end (p). If the alternatives (including the purpose and side effects) are designated by pa, pb and pc how can a rational agent proceed rationally in making his choices?

First it is possible to introduce just one new purpose or major premise into consideration. Be it this for instance: "Act in the way what is the most efficient". If efficiency is understood as achieving the purpose (p) at the smallest possible cast, A can simply give prices to the side effects and reckon which is the cheapest alternative. In this ease all the side effects are compared in the light of one desired good, that of saving financial resources. In this case also this one desire can be measured in quantitative monetary terms, and hence the choice is rationally made relatively easily ·by choosing the cheapest alternative.

One new purpose or major premise may be somewhat more problematic, but still relatively easily manageable, if it presents some more "subjective" good, that is something which is difficult or impassible to measure interpersonally. This kind of premise could be for instance: "Act in the way that the result is beautiful". Be the purpose (p) a bridge (satisfying some technical criteria) it certainly has several visual side effects in its environment. Beauty is a matter of subjective taste, but if there is just this new major premise introduced into A's decision making, it should not be impossible for him to compare and "score" the three alternatives according to this one dimension of beauty.

The problem becomes great when the alternatives (pa, pb and pc)

are considered in the light of several and diverse human desires or purposes based on these desires. For example one can imagine that A introduces (or A as an administrator has to introduce) both of the premises into his decision making. Then he has to choose the alternative that is both beautiful and cheap. Sometimes these criteria can correspond with each other; often this is not the case. The situation is complicated further if more desired goods are taken into account. The alternatives may have different effects on some nearby historical monuments, unique natural formations, neighborhoods etc. What is the rational way to proceed in this kind of situation?

If the alternative means (pa, pb, pc) to an end (p) promote in conflicting ways some desired goods other than what is constituted by bringing about the end (p), the question is which of these conflicting goods should be promoted. Hence the question is in principle of the same form as that at which we looked in discussing (S 2) choice of purposes. Hence in this situation the rational agent A should act like as was said in this connection: first to seek a solution that constitutes all the desired goods. In political decision making a solution constituting several conflicting goods to some extent is often called compromise. If a new solution cannot be found the best a rational decision maker can do is to compare goods in the alternative possible worlds and to choose the one that gives the greatest good according to his opinion.

The preceding discussion raises several questions. But to some extent this has been our purpose. During this discussion we have challenged the basically utilitarian idea that the means to some end could be rationally chosen by introducing into the decision making just one major premise, whether efficiency or some monetary or quantitative one-dimensional standard. Often side effects affect several desired goods and in this case the choice between the means is, in the final analysis, a choice between purposes. In this ease to consider the side effects only in the light of the purpose (p) or only one new major premise or purpose is to blind oneself to

seeing the other goods that are promoted or decreased by the decision. It is difficult to solve value problems, but the worst way to do this is to hide them behind one major premise or primary purpose, that is under a one dimensional value standard. If this is done; the other human goods will necessarily suffer.

Before entering on a summary of the preceding discussion, some additional remarks must be made. First, it is possible that at the time of choosing the means A not only brings his existing conceptions of desired goods under consideration but also construes new conceptions of his purposes. After doing this he then can consider, whether the alternative means promote or decrease this newly constructed purpose.

Secondly, it is common in everyday life that somebody faces a problematic situation where "something must be done" and the alternatives appear to him as more or less given. In this situation A does not initially have any adopted purposes and all the purposes are brought under consideration during the process of choosing.

We can now summarize the fifth step in decision making in the following way:

(S 5) <u>A chooses to do a.</u>

(a) In choosing between the alternative means (a, b and c) to an end p, A first predicts the side effects following from the use of the means and the bringing about of the end. Hence he constructs the possible worlds (pa, pb and pc) between which he makes the choice.

(b) A considers how his desired goods, as expressed by his (primary) purposes, are promoted or decreased by the actualization of the possible worlds and tries to find such means (and possible world coming from the use of this) that would promote all the desired goods involved.

(c) If a new solution is not possible A compares the alternative possible worlds, that is the goods constituted in them and chooses the alternative which he considers to give the greatest good.

Step 6

<u>Therefore A does a.</u> All that can be said about the final step in this study has been said above. That is why we can go directly to the characterization of the sixth step

(S 6) <u>Therefore A does a.</u>

(a) The description of act a must be necessarily particular enough to make it possible for A to find identity between the description and the actual action the description designates.

(b) The relationship of the sixth step to the preceding ones is in principle the same as the relationship between the conclusion and premises of PS: expression relation.

(c) Doing a can consist of some physical act by the agent A or some symbolic communication with other agents. For the latter case there is a sub formulation for the sixth step: Therefore A asks B to do a.

Practical rationality

In the very beginning of this study we defined our purpose to be to find out the conceptual process common in making rational decisions. By means of the Model of practical decision making we have now accomplished our task. The conception of rationality expressed by Model PDM we have already called practical rationality. In short: practical rationality designates the best possible way to use reason for deliberating for practical action. By best possible way we mean ability to specify or describe what constitutes good and to deliberate what are the means to the world described as constituting the desired good. We have seen that the final test for correspondence of scientific concepts and reality is verification or test. And in some sense also the correctness of practical reasoning is seen after the action is taken or the sixth step of Model PDM is actualized. Then one can see both whether the

world described in the first premise and the side effects predicted in the fourth step are brought about and whether this world constitutes the desired good.

At this point, however, one specification must be made. Often in individual and social decision making the side effects of a decision or bringing about of a purpose are felt during the life time of an individual or over a period of time in society. Therefore we include in practical rationality the ability to deliberate what constitutes the real good, and we define the real good in such a way that it is experienced as good at the time that the described constituents are actualized and promotes the good of the agent in lifetime (or in a social context promotes the good over a period of time).

When defined in the way above, practical rationality clearly differs from *Ayer's* objective and *Dray's* subjective rationality. In other words it includes both subjective and objective components. The situation can be clarified in this respect by going through the relevant steps of Model PDM one after another. In doing this the concept of intersubjectivity is also used. This term is used for situations where something is known or recognized as similar by several subjects. This can take place by understanding as described above. However, in intersubjectivity the criteria of similarity or of identity are not as strict as they are in scientific objective knowing which is also intersubjective in the sense that "one thing is recognized in another" strictly and certainly by several subjects. The specification of the subjective and objective elements in practical rationality is as follows.

(S l) The desired good constituted by the actualization of the description of the purpose (or the desirability component of purpose) is bound to remain subjective both at the time of deliberation and at the time of actualization. Although goods, to some extent, can be compared personally and interpersonally, the experiencing of good is bound to remain a matter of agent's (A's) experiencing something for himself.

The descriptive component of a purpose can in some cases consist

of concepts designating some objective state of affairs. However, even in this case it is a matter of subjective estimation as to whether the defined state of affairs is accompanied by the desired good. Many goods are not at all constituted by some states of affairs but by acting according to some subjectively or inter-subjectively described principle of action.

(S 2) As argued above, the choice between purposes is made by comparing the expected goods constituted by the actualization of the purpose. From that above characterized nature of good it follows that this comparison is subjective or intersubjective.

(S 4) As argued above it is practically rational for A to base his conception of means to the purpose on belief grounded as well as possible. Sometimes it is possible to base the belief on objectively verified general law. In a less fortunate case the relation between the means (a) and purpose (p) is probabilistic or only hypothetical. In a social context, however, the belief in means (B's actions) is necessarily subjective in Dray s sense. The rational agent (A) can predict another agent's behaviour by understanding (that is by reconstructing for himself) the conceptual framework on which he (B) takes his action.

If prediction about other agents (Bs) is made by general laws, the pre diction may lose its validity because the other agent (B) changes his principle of action. However, in this step there is also an objective dimension as it were. The correctness of beliefs, that is their correspondence with reality, is in a way tested or verified by the action (S 6). If the predictions in the Step 4 are correct, the (subjectively, intersubjectively or objectively) described purpose is achieved. If the purpose is not achieved this indicates that the beliefs are not correct. The same also holds in principle for the expected side effects. The experience of whether the actualization of described purpose constitutes the desired good remains subjective or intersubjective. However, for this subjectively desired and expected good the action is also in a way the test of the expectation.

(S 5) For Step 5, what was said above about Step 2 holds good in principle.

The final remark about Model PDM concerns its use. All the preceding discussion indicates that the main use of Model PDM is a normative one. By practical rationality is not designated any concrete content of decision making but the form or way in which human beings as practical reasoners should use all of their intellectual capacities in deliberating for practical action. This means that the Model PDM tells how a practical reasoner can or should proceed in decision making.

Model PDM, however, also has its descriptive use. It is instinct in human beings that they seek for something good. And it is also typical to man that he tries to use his reason to get the good he is seeking. Therefore Model PDM interprets or describes the behaviour of humans the better the closer their practical reasoning is to practical rationality. This is not to say that the actual practical reasoning does not often deviate from practical rationality. But in this case Model PDM can also serve as a measuring rod by means of which an intendedly rational but actually deviant behaviour can be described. In the Part II of this study we shall examine among other things the external and internal limitations of intendedly rational behaviour. There we shall suggest some basic features for a comprehensive explanatory theory of decision making that would include both the human capacity for practical rationality and the external and internal limitations of this.

In the main part of Part II, Model PDM is, however, in normative use, but in a special way. We shall study three of the main schools of administrative decision theories. These theories for their part are used either normatively or descriptively or both. In the following, these theories in their different uses are studied in the light of Model PDM - that is, practical rationality.

PART II

In the second part of this study we shall analyse theories of public and foreign policy decision making in the light of Model PDM and the preceding philosophical discussion. As indicated in the Introduction, *Allison* has made, as it were, a codification of decision theories in these areas. In the following we shall use Allison's classification of decision models in <u>The Essence of Decision </u>(1971). The second "book of reference" is *Steinbruner's* <u>The Cybernetic Theory of Decision</u> (1974). In some respects there is a close relationship between *Allison's* and *Steinbruner's* approaches. First, both writers think that concepts have great importance for the result of decision making and policy ana1ysis. Secondly, they criticize the same decision theories which *Allison* describes under the Rigorous (Rational) Mode1 of Action.

1. On Concepts and Decisions

Both *Alison* and *Steinbruner* begin their studies by stressing the role of conceptual models or intellectual perspectives in making political analyses or decisions. *Allison* (1971, 3-4) says that the first of his three main arguments is that professional analysts of foreign and military policy think in terms of largely implicit conceptual models that have significant consequences for the content of their thought. The other main arguments say that most analysts use the so called "rational model" and some other models can "provide a base for improved explanations and predictions" (pp. 4-5). *Allison* in several contexts uses the allegory of "conceptual lenses" or "spectacles" to describe how "concepts channel our thinking".

Steinbruner (1974, 3-10) also is convinced of the importance of the basic conceptual preconditions in political ana1ysis. As examples he gives the impact which *Galileo's, Newton's* or *Marx's* new intellectual perspectives had on "the very core of human organization".

Philosophically *Allison's* and *Steinbruner's* views on the ro1e of concept represent a step away from positivism in the theory of decision making or administration. It has been a basic presupposition of 1ogical positivism *"that it is possib1e to divorce completely the two realms of concepts and reality"* (Schlick 1874, 38). We can remember why this divorce appeared necessary and useful to *Schlick*.

According to *Schlick,* the knowing subject becomes acquainted with objects in external reality by intuition (die Anschauung), that is by an individual mental image representing objects in external· reality. *"Through this process (of intuition), the known entity appears to move into the knowing consciousness, as it were"* (pp. 81-83). But for *Schlick* (p. 19) these mental images (or knowledge's by them*) "can never be regarded as completely certain, even if the images are individual ones"*. How then can science obtain knowledges "that confirms to its own requirements of rigor and certainty?" This happens by means of concepts.

To develop rigor and certain concepts *Schlick* develops his theory of concepts that concludes with the requirement for quantified concepts. But in order to be able to develop his theory of concepts he has to make a temporary divorce between concepts and reality or between concepts and intuitive mental images representing things in external rea1ity. *"The essence of knowing absolutely requires that he who would practice it must betake himself far away from things and to a height far above them, from which he can then view their re1ations to all other things"*(p.80). We can remember that the marriage between concepts and rea1ity was reconstructed by defining rea1ity in such a way that it corresponds to *Schlick's* theory of concepts.

During the last two or three decades it has been a common conception in theories of decision making and administration that there is, far away from things, "a height" from which things and their re1ations can be seen purely and clearly. This height has been, to a great extent, what Allison called above the Rigorous (Rational) Model of Action. In the following we shall see that one essential aspect of this is the very effort to use scientific concepts. *Allison's* argument can be understood in the way that even these theories are not neutral, enlightened views on reality. On the contrary they also imply essential preconceptions. Our preceding discussion seems to give insight into what is the epistemic background of *Allison's* and also of *Steinbruner's* views.

We have touched on the philosophical background of Allison's and Steinbruner's views on concepts earlier in this study. This happened during *Hintikka's* and *Remes'* discussion of the method of analysis.

Hintikka and *Remes* (1974, 38) said above that the first important aspect of the method of analysis is that it is *"studying the interrelations of geometrical objects in a given configuration"*. We can remember what "given" here means: the theorem to be proved or the problem to be solved are analysed in a given individual configuration that is in away representative of the general theorem to be proved or problematic situation (in the externalwor1d) to be solved. Likewise any problem, in administration or politics, is analysed by or via conceptual construction or mental image representing external world for the analyst. Even the most rigorous concepts do not build any height from which you could see the "true nature" of things. *"A Ding an sich, which could be described or even as much as individuated without relying on some particu1ar conceptual framework, is bound to remain an illusion"* (Hintikka 1971, p. 167). *Hintikka* furthermore often stresses that the concepts through which we see the world are created by ourselves. *"Whatever we say of the world is permeated throughout with concepts of our own making" (*p.167).

There could not be any stronger philosophical argument for

Allison's and *Steinbruner's* approach than *Hintikka's* (1973, 234) conclusion in his article on the nature of information. *"The deep fact here is that we are relying on the mediation of a certain conceptual system in order to 'reach' reality. The better we know the way this conceptual system works, the more efficient1y we can ipso facto use it to discuss (describe, anticipate, etc.) the reality."* *Hintikka* (p. 236) is conscious that this idea of his about the interwovenness of ideas and reality is close to what has been stressed "in somewhat crude form" by *Peter Winch*.

Allison's allegory of concepts as lenses or spectacles (through which the world is "seen") appears as natural from *Winch's* (1958) point of view. *Winch* begins his study with a discussion of the relationship between philosophy and science. He rejects the positivistic conception of philosophical problems as "merely" conceptual ones or as problems of 1anguage rather than problems of the world. This is *"because in discussing language (or concepts and conceptual frameworks, remark RV) philosophical1y we are in fact discussing what counts as belonging to the world"* (p. 15). What follows as an argument for this thesis could be also a program statement by *Allison* or *Steinbruner*. *"The concepts we have settle for us the form of the experience we have of the world ....there is no way of getting outside the concepts in terms of which we think of the wor1d .... The wor1d is for us what is presented through those concepts. That is not to say that our concepts may not change; but when they do, that means that our concept of the world has changed too"* (p. 15).

To continue *Allison's* allegory of lenses, we can say that both *Allison* and *Steinbruner* aim to make their readers conscious of the lenses that are made up of the Rational Model or the Analytic Paradigm. And they also make an effort to deve1op new or alternative spectacles for analysts. *Allison* does this in his Mode II and Mode III. *Steinbruner* offers cybernetic and cognitive theories of decision making. The paradox, however, is that both of them do not get rid of some basic presuppositions of the logic and method

of natural sciences. In the following it will be argued that this should have been possible and even necessary. It will also be argued that the logic of practical decision making can offer an alternative logic both for interpreting *Allison's* and *Steinbruner's* work and for developing it further.

2. The Rigorous Rational Model (Analytic Paradigm)

2.1. Rationality and the Analytic Paradigm

Both *Allison's* and *Steinbruner's* main target of criticism is the decision theory which *Allison* calls the Rational Actor Model. Earlier in this study we have discussed three concepts of rationality. First, we discussed *Ayer's* positivistic idea of rationality. According to this view a belief or action is rational if it is based on the best possible method of acquiring knowledge - for *Ayer* the method of the natural sciences. This means that to be rational a belief must be objectively verified. The decision theories developed by *Ramsey* or *von Neuman* and *Morgenstern* are closely related to *Ayer's* conception. Their main addition is to link utilitarian value theory to the concept of probability.

Secondly, we discussed above *Dray's* explanation of action. According to *Dray* an action is explained if its subjective rationale is found, that is if the agent's calculation of means towards his ends can be reconstructed or understood - whatever the agent s conceptions about the ends or external world are.

Thirdly, we have constructed a concept of practical rationality of our own. By practical rationality we designate the best possible way to use reason for deliberating for practical action. By the best possible way we mean ability to specify or describe what constitutes good (during one's life time) and to deliberate what are the means to the world described as constituting the desired good, as expressed by Model PDM. The correctness of practical reasoning is seen after the action is taken and the outcome of it has become actualized. Then one can see whether the world constitutes

the desired good.

So far we have discussed three conceptions of rationality in this study. And it seems that *Allison's* Rational Actor Model includes all of them. This is indicated by the vast field of research from which he abstracts his model. Diplomatic history, strategic studies, sovietology, sinology, American military and foreign policy studies as well as "Grand" theories in foreign policy are all included (Allison 1971, 14-28). *Allison*, however, separates from the general Model the Rigorous Model of Action by which he means *"classical 'economic man' and the rational man of modern statistical decision theory and game theory"* (p. 29). This Rigorous Model designates the same decision theories that *Steinbruner* (1974, p. 27) designates by the Analytic Paradigm. In the following we shall study this more restricted conception of rational action or decision and Allison's and Steinbrenner's critique of it.

Allison's description of the Rigorous Model of Action is relatively short. It consists of four components (pp. 29-30):

1. Goals and Objectives. *"At the outset of the decision problem the agent has a payoff function which ranks all possible sets of consequences in terms of his values and objectives ..."*

2. Alternatives. *"The rational agent must choose among a set of alternatives displayed before him in a particular situation...."*

3. Consequences. *"To each alternative is attached a set of consequences or outcomes of choice that will ensue if that particular alternative is chosen. Variations are generated... by making different assumptions about the accuracy of the decision maker's knowledge of the consequences that follow from the choice of each alternative"*

4. Choice. *"Rational choice consists simply of selecting that alternative whose consequences rank highest in the decision maker's payoff function."*

Allison's description is an accurate picture of what is often called "individual decision making under certainty". *Luce* and *Raiffa* give

the same model even more briefly: *"Typically, decision making under certainty boils down to this: Given a set of possib1e acts, to choose one (or all) of those which maximize (or minimize) some given index"* (Luce and Raiffa 1957, 15).

In explaining the third step of Consequences *Allison* remarks that variations can be generated by making different assumptions about the accuracy of the decision maker's knowledge. From this kind of generation develops what is often called decision making under uncertainty or risk. This is not the historical development, of course, (as indicated above) but gives a picture of the close relationship of different rationa1 theories.

Steinbruner (p. 27) labels his mode1 the Analytic Paradigm. If under- stood in an appropriate way, the term analytic illuminates well what is involved in using decision models designated by this term. Above it was said that there are three meanings for the term analysis. First, the process in question can be the translation of unsystematic arguments into an explicitly syllogistical form (Hintikka and Remes 1974, 31) Secondly, the "propositional interpretation" is "analysing the deductive step from the minor to the major term by 'bridging' it by means of intermediate terms"(p. 32). And finally the "instantial interpretation" or we might say constructive interpretation was the one we met with in so1ving geometrical problems or constructing means to an end. Obviously, *Steinbruner's* "Analytic Paradigm" designates a decision method where unsystematic verbal arguments about ends and means of an action are translated into the explicit form of some decision model, like for example into the form of statistical decision theory. Why this kind of radical translation has not worked will be discovered in the following.

Steinbruner criticizes the Analytic Paradigm along three or four dimensions. For most of the criticism his interpretation of the expected value model is a good point of reference. *Steinbruner* gives this model in five steps (p. 32):

1) For each option, a measure of value (v) is estimated for each

possible state of the world yielding a series of values (v1, v2, v3…
vn).

2) The probability of occurrence of each state of world is
independently estimated, yielding a parallel series of probabilities
(p1, p2, p3,… pn).

3) The value of each option in each state is then discounted (i.e.
multiplied by the probability of that state actually accruing; thus
p1v1, p2v2, p3v3… pnvn).

4) The expected value (EV) of each option is defined as the sum of
values established in step 3 (i.e., EV = p1v1 + p2v2 + p3v3 …
pnvn).

5) The option chosen is the one with the highest expected value.

There are dozens of introductions to decision making under
uncertainty. *Steinbruner's* description is in content and intuitive
clearness parallel to *Luce's* and *Raiffa's* (1957, 275-278) work on
the same model. In this decision model the decision maker first
charts a decision flow diagram or decision tree. For each of the
possib1e actions there are one or more alternative states of affairs
to fo1low. Each of these alternatives will follow with some
probability so that the sum of the probabilities assigned for states
following from an action is 1.

In addition to probabilities for each possible state of affairs there is
also assigned a number representing the value or utility of this
possib1e state of affairs. After this the expected value or expected
utility is calcu1ated in the way *Steinbruner* describes. *Allison* and
Steinbruner study the different decision models main1y in the
context of explaining governmental action. That is they study
whether or not models explain the activity of government. Their
general critique on Model I or Analytic Paradigm is that it does not
carry out its explanatory task. This is demonstrated by their
examp1es of the Cuban missile crisis and American MLF policy in
the 60's. *Allison* does not direct his more specific criticism

separately towards his rigorous or more general concepts of rational action. *Steinbruner* offers quite detailed analysis and criticism of the Analytic Paradigm. That is why we will in the following study Allison's criticism only after we have got a picture of *Steinbruner's* discussion.

Steinbruner's (pp. 15-16) attack on the Analytic Paradigm starts by stating the complex decision problem. The complex decision is the one where (1) there are two or more values affected by the decision in the way that there is a trade-off re1ationship between these values; (2) there is uncertainty of special character as discussed in the following; and (3) the power to make the decision is divided between several individua1 or organizational actors.

2.2. On Value Integration

Estimating or assigning values or utilities to the possible states of affairs following from the alternative acts is based on some value theory. It is well known that in models mapped under the Analytic Paradigm this theory is often von *Neuman's* and *Morgenstern's* utility theory (Luce and Raiffa 1957, 12-13). Steinbruner calls the presuppositions behind this theory the assumption of value integration. According to this assumption separate values are integrated in decision making in such a way that a general measure of utility can be substituted for them. In addition to expected va1ue theory this value integration is supposed to take place in economics (as expressed by indifference curves) and in cost-benefit analysis (where the non-market prices are expressed by "shadow prices"). Against value integration *Steinbruner* (p. 29) makes a nowadays unusual charge: many of the most important values - like love, honor, and sense of dignity - are independent of any pricing system. *"As a practical matter, such a global measure of relative value is beyond accomplishment, but the abstract ideal has inspired formal conceptions of rationality."*

Steinbruner studies the explanatory power of the assumption of value integration in his case study of the polities of nuclear sharing

among the Western allies in the late 50's and early 60's (see Appendix, I). At this period the U.S. had set for herself several policy objectives that were mutually conflicting. The U.S. supported Britain's entry into the Common Market but continued the special relationship with Britain that made the continental allies suspicious. At the same time the U.S. tried to keep strong centralized control over nuclear weapons and to prevent others from getting these weapons, but at the same time she was flexible to the British demands for these weapons. To solve these problems the so called MLF - plan was developed according to which a fleet of ships carrying nuclear missiles should be manned by all the Western allies but the final decision to use the weapons should be in the hands of the U.S. government.

The MLF -plan was pushed and pulled in various bureaucratic and political contexts over several years. The crux in this development came when the British Prime Minister *Macmillan* met President *Kennedy* at Nassau in December 1962,

At Nassau Macmillan asked for Polaris missiles and President *Kennedy* promised them to Britain, This flatly contradicted all the major objectives the United States had set for herself in European policy. Firstly the program of highly centralized control over the use of nuclear weapons was violated. Secondly, the MLF idea was simply ignored by giving to one nation individually what was planned for sharing together. Thirdly, French and Western Germany suspicion was encouraged and hence the British entry into the Common Market delayed. All this was soon demonstrated by president *de Gaulle's* moves. In January *de Gaulle* terminated EEC negotiations with Britain, signed a treaty of cooperation with Western Germany, and later dissociated France from many Nato activities (Steinbruner 1974, 234-239).

Ironically, in addition to giving a promise of Polaris missiles to Britain the communiqué from the Nassau conference also recorded the policy objectives violated by the promise, it *"simply rolled all the conflicting positions into one document, giving a separate*

paragraph to each and ignoring the contradictions" (p. 238).

The MLF story is long and complicated, and it was not finished at Nassau. The decision at Nassau, however, clearly demonstrates Steinbruner's point about value integration in a complex decision. Often or usually it does not take place. *"A key insight seems to be that, contrary to the expectations of analytic theory, the central trade-off between military and political values was being broken up and that the two dimensions were not being integrated"* (p. 247). Often values are not integrated but the different mutually excluding options are pushed forward side by side usually at a disadvantage to all the options.

Steinbruner's explanation for the deviations of actual decisions from the Analytic Paradigm is his models of cybernetic and cognitive decision making. We are not yet, however, ready to discuss them. At this stage of discussion we do agree that the Analytic Paradigm does not explain how decision makers deliberate on values in the situation of conflicting purposes. In the following we shall argue that there can and often does happen in some series "value integration" in human decision-making, but the epistemic phenomenon behind this is badly misunderstood in classic Benthamite or modern utility theory.

We have already discussed *Bentham* in this study. For him utility was a property of an external object that causes satisfaction or something good in the experiencing subject. For Bentham there is one one-dimensional and measurable property causing good in subjects. This kind of utilitarianism requires that it is possible at least in principle to measure by cardinal numbers the utilities of the external objects. This appeared to be a difficult or impossible task. And to solve this problem the von Neuman-Morgenstern utility theory makes an essentially new move.

Roughly speaking, *von Neumann* and *Morgenstern* argued: If a person is able to express preferences between every possible pair of alternative objects (or gambles or lotteries), then one can associate a scale of utilities with these objects. And on the basis of the

utilities assigned in this way to the a1ternatives, *»he is acting in accord with his true tastes – provided only that there is an element of consistency in his tastes"* (Luce and Raiffa 1957, 21). The most important of these consistency requirements is that of transitivity: the relations between the alternatives must be transitive. This means that given any three alternatives A, B and *C,* if the agent prefers A to B and B to C, then he prefers A to C (p. 23).

The idea that any two alternatives shall be comparable seems to be intuitively clear. But what is behind the assumption of transitivity? The core of the problem can be found in the logical character of transitivity.

We do not know from where *von Neuman* and *Morgenstern* got their concept of transitivity, but they could have found it in *Bertrand Russell's* <u>Principles of Mathematics</u>. *Schlick* presents an interesting discussion of the concept of transitivity, common to all writers above (*Russe1, von Neuman and Morgenstern, Luce and Raiffa*). Consider the following ordinary Barbara syllogism:

A is greater than B.

B is greater than C.

Therefore A is greater than c.

To be valid the conclusion of this inference should follow from the premises. Under what presupposition could this be possible?
Only when there is something more implied in the premises than is expressed explicitly. And according to *Schlick* (1974) this actually is the case.   If we suppose transitivity between A, B and C the inference as complete would be something like the following:

There is an axis Y measuring some property and on this axis A is greater than B and any other number that is smaller than B.

On the axis Y B is greater than C.

Therefore

Because A is greater than B and all other numbers smaller than B,

and because C is smaller than B, A is greater than C.

It appears that von *Neumann's* and *Morgenstern's* utility theory falls back on Benthamite utilitarianism: there is one property called utility measuring the values of the external objects or alternatives. *Luce* and *Raiffa* (1957, 25-26) are well aware of "multidimensional phenomenon" which excludes the common scale of measurement and hence transitivity. *"No matter how intransitivities arise, we must recognize that they exist,.... In order to get on,.... we shall accept all.... possible.... defenses (for transitivity, remark RV), and to them add the traditional mathematician's hedge: transitive relations are far more mathematically treatable than intransitive ones."* And earlier in this study we have come to the conclusion that the simple and clear Benthamite view does not correspond to the facts of several desires and goods of human life.

Steinbruner is right in that many of the important values or goods are "quite independent of the pricing system", or independent of any one-dimensional value scale we might add. He is also right in that human life and bureaucratic policy it is often the ease that competing goads or values are not integrated but pushed forward simultaneously - often with a loss of all the goods as in the ease of the decision at Nassau. But sometimes, however, value integration does take place with considerable success. Actually the MLF plan was an effort of this sort. If the value integration does not come from measuring same property of objects or alternatives, how does value integration take place? Or how is value integration possible? This we have already discussed.

According to our Model PDM there are two interwoven components in the goal of an action: the desirability component and the descriptive component. Constructing a goal is looking for and finding what states of affairs and rules of conduct constitute the desired good. If there are two or more simultaneously desired goods or values, the integration of these values takes place through seeking and finding states of affairs and rules of conduct that could simultaneously constitute all the desired goods. Sometimes this is

possible, sometimes it is not. If the seeking cannot be done successfully, you can and decision makers do either push forward each of the goods (as in the example of the politics of nuclear sharing) or make a choices between the goods.

2.3. On the Descriptive Component of Purposes.

The problem of constructing goals leads us to a highly problematic consequence of the Ana1ytic Paradigm. Above it was repeated that according to our Model PDM the goals of action can be described in terms of states of affairs and rules of conduct. Now it is a basic feature of the Analytic paradigm that the goals are described only in terms of states of affairs. This means that the objects are preferably described by quantified concepts designating some measurable predicates of some objects in basically the same way as we became familiar with in the discussion of *Schlick*. In a way "utility" is just one of the predicates having some functional relation to the other predicates, such that a change in these other predicates brings about a certain change in the utility (Luce and Raiffa 1957, 275-277).

In the present philosophical and scientific atmosphere it is difficu1t to grasp the far reaching nature of the demand for quantified state descriptions in the goals of decision making. *Steinbruner* (1974, 328) seems to be one of the few who have done so, although even he hesitates to take the very final step. *"The dilemma in this regard is clear enough: if quantitative precision is demanded it is gained, in the current state of things, only by so reducing the scope of what is analysed that most of the important problems remain external. If such reduction is resisted then evidence becomes loose and easily bent to the demands of estab1ished assumptions."* The fina1 step we could suggest is that even (and perhaps especially) after removing the non measurable elements from the scope of the analysis the evidence is bent to the demands of established assumptions. These assumptions are the ones implied in the quantitative concepts. In discussing *Schlick* we even took some

pains to see how and why the precision and rigor of quantified scientific concepts bend us to the demands of the established assumptions of these concepts concerning the concept of reality. Concepts do channel our thinking and this holds also for the most precise concepts.

The remarks above may remain abstract if they cannot be demonstrated by any concrete examples. *Steinbruner* and *Thomas M. Garwin* (1975) have done this task in a field that is concrete enough, in the field of nuclear weapons. They study American thinking on nuclear strategy and come to some highly critical conclusions concerning some basic presuppositions in this thinking. Hence their study Strategic Vulnerability criticizes the Analytic Paradigm not in its explanatory use but as a normative basis of an existing policy (see Appendix, II).

Steinbruner and *Garwin* study broadly the rigorous concepts by which the goals of the nuclear strategy are set. In this strategy deterrence is supposed to be constituted if there is relative balance of nuclear strength as measured by a mathematical parameter. Accordingly deterrence is in danger if the few quantitative figures show that the relative nuclear strength is out of balance. *Steinbruner* and *Garwin* demonstrate by simulations that even some minor technical real life complications make the established calculations very questionable.

Steinbruner's and *Garwin's* final argument, however, goes further than drawing direct conclusions from the simulations. Their study demonstrates how minor technical variables included in the analysis change the view of the policy profoundly. But, according to the writers, the most vulnerable element of modern strategic forces are not the missiles or silos *"but rather the command channels and the communication and information processing systems which service the command structure but most of these have little to do with the traditional parameters"* (p. 31). The disparity between the parameters and reality grows even greater when we include in command and communication (in addition to

military) the political authorities too. However, "...the conventional strategic analysis is virtually blind to this dimension of the problem" (p. 31).

The virtual blindness is what we wanted to demonstrate above. From the philosophical point of view of this study *Steinbruner* and *Garwin* are quite right in arguing that the American (defense) policy analysis has deep intellectual roots. It is no wonder that for example elements like command and authority fall outside the traditional parameters used in describing the goals of defense policy. These elements simply fall outside the criteria of acceptable concepts for the Analytic Paradigm. As will be seen in the following, the phenomenon of authority is more a state of mind than a state of affairs with some measurable predicates. The virtual blindness and po1icy following from it, is explained by the philosophical argument of this study: the world is for us what is presented through our concepts. If the defense analyst does not have concepts for some of the most sensitive aspects of nuclear weapons systems, he simply does not see these aspects.

By means of the discussion above we have completed several tasks. First we have studied the contents and defects of what is involved in the concept of goal in the analytic decision paradigm. Secondly we have seen how the presuppositions of the Analytic Paradigm concerning goals are reflected in policy analysis and also in policy. Thirdly, we have studied *Steinbruner's* criticism of the Analytic Paradigm and we have offered a philosophica1 interpretation as well as a supporting argument for this criticism. In this way we have, fourthly, given more concrete contents to our Model PDM, especially in its dealing with the ends of human actions or of decision making.

2.4. Structural Uncertainty in Decision Making.

The second aspect of complex decision making according to *Steinbrenner* (l974, 151) is a special kind of uncertainty. By uncertainty he does not refer to the probabilistic calculations of the

Analytic Paradigm. In statistical decision theory the environment is structured by some state descriptions and probabilistic relations between the states. With a complex decision problem, however, it is difficult or impossible to impose enough structure on the situation and uncertainty comes from this. Steinbruner (p. 18) calls this special form of uncertainty structural uncertainty.

Steinbruner does not say much about what is philosophically involved in structural uncertainty. He does specify, however, how the environment is structured according to the Analytic Paradigm: "the analytic decision maker constructs a model of causal forces controlling the environment in which he acts" (p. 40). "He seeks to predict the flow of events and, where he has leverage, to manipulate them to his advantage" (p. 35). To illustrate this *Steinbruner* (pp. 38-40) gives an example from the early days of operations research when the analysts of the Allies faced the problem of defending their shipping against attacks by German submarines.

Here we come across what we have discussed earlier in this study. We have argued that the verification procedure is not only a model of scientific practice, but implicitly, is also a paradigm of technological practice or engineering in scientific practice the scientist structures the environment in terms of states of affairs (or processes as successive states of affairs) and then he constructs a hypothesis about the relationships of these states. The hypothesis is verified or tested in a scientific experiment: the scientist brings about the "causes" in order to see whether the "effect" happens.

In technological practice an engineer uses established general laws and sometimes also hypothetical statements about what causes would bring about a desired outcome. Then the engineer brings about the causes in order to see that the desired outcome is brought about.

If the concepts of the natural sciences (i.e. state descriptions and general laws connecting them) corresponded completely with reality, there would not be in principle any structural uncertainty in

foreign or public policy. It is an argument of this study that the structural uncertainty in administration comes from the fact that the foreign or public policy decision maker is not in the main dealing with physical components and causal forces. He is mostly dealing with human beings capable of practical reasoning, often behaving according to principles of action but also capable of changing their principles. Thus there are several levels of complication in analysing the environment in terms of the Analytic Paradigm.

First the analysis by concepts of the Analytic Paradigm may be simply impossible or grossly misleading for two possible reasons

- in the conceptual arsenal of the analyst there are no concepts for designating some essential aspects of reality like other people's practical reasoning; this might be interpreted to be the situation in our example about nuclear strategy analysis;

- the rules of conduct of the agents in the environment may be vague, unknown, complicated or variable enough to make the use of rigorous quantitative concepts difficult or impossible; this might have been the situation in our example about the nuclear sharing policy.

Second1y, the structuring of the environment may sometimes be possible in terms of the Analytic Paradigm. But because of the basic nature of the environment (consisting of human beings) the rules of conduct of the environment may change by accident or through conscious counter- moves this was the case for examp1e in *Steinbruner's* example of operations research: the German submarine force changed its operations as a result of the moves of the Allies.

The third complication is what *Allison* (1971, 267) calls "analysis gap" or "missing chapter" in conventional ana1ysis. He asks: *"What percentage of the work achieving a desired governmental action is done when the preferred ana1ytic alternative has been identified? My estimate is about 10 percent in the normal case"*. How does the analyst or decision maker come from the completed analysis to the governmental action? Again the problem comes down to this: in an

ordinary administrative situation there is no causally determined environment which could be made to behave according to certain general law like a machine: by pressing a button or by manipu1ating some determinants. The analyst is dealing with humans capable of practical reasoning and behaving according to rules of conduct - not according to general laws. *Allison* (p. 269) makes the same point by saying that the Analytic Paradigm *"omits factors like the existing configuration of organizations,... norms and procedures of these organizations,... political configuration on the top and outside of the relevant organizations, etc."* All these factors accord nicely with what we have called principles of action.

It may be useful to give an example of what should be included in an "imp1ementation analysis" supplying the missing chapter in policy analysis. Let us assume there is a traffic problem between two cities A and B with a lake between them. An analyst identifies three alternatives: (a) to build a road around the lake from A to B, (b) to build a tunnel under the lake from A to B, (c) to build a bridge over the lake from A to B. The different alternatives are analysed in appropriate ways and a recommendation is made for the alternative (c), to build the bridge. Even in this relatively simple case the real problems may begin only after the analysis (in analytic terms) has been completed. There may appear various bureaucracies expressing their concern, critical parties and civil groups arguing for their cause etc. The second dimension of the implementation would be the problematics discussed above: the overall analysis must also be translated into terms of concrete acts for those who actually build the bridge.

PPBS

Nothing cou1d demonstrate the problem of structural uncertainty better than the heroic history of the Planning-Programming-Budgeting-System once considered a revolutionary device for running the government. This system was began in the Defense Department of the United States in the early 60's and in 1965

president *Johnson* asked all the federal agencies to adopt PPBS (Wildavsky 1976, 275). Since then the system has been tried out by dozens of state and local agencies in the U.S. as well as by most of the mixed economy countries around the world. However, "PPBS has failed everywhere and at all times. Nowhere has PPBS (1) been established and (2) influenced governmental decisions (3) according to its own principles" (Wildavsky 1976, 363).

It should be useful to ask why PPBS has failed everywhere and all times. The usual answer has been that the reason has been the lack of will, skill trained manpower etc. But as *Wildavsky* (p. 364) correctly remarks, after several hundred experiments somewhere, sometimes the right conditions for PPBS should have existed if they existed at all. From the point of view of his study, *Wildavsky's* conclusion goes in the right direction, but he does not go the whole way: *"Failure (of PPBS, remark RV) is built into its very nature because it demands abilities to perform cognitive operations which are beyond present human (or machine) capacities."* The problem should not be only the cognitive operations, because basically the same logic has been successfully adopted in many areas of business organizations. Actually, historically one of the main roots of PPBS goes back to some developments in business administration in the early 20's (see Appendix, III).

In a productive business organization program budgeting or an analytic decision paradigm can handle to a great extent the decision making concerning some highly technical production line. This is because in this case the decision maker is literally dealing with nature which can correspond with the concepts of the Analytic Paradigm. In governmental organizations producing same discrete goods or services program budgeting may be difficult but often possible. This is because the output and input are quantifiable and the people involved in production work according to same relatively stable rules and hence the concepts of the Analytic Paradigm correspond with this reality to a relatively great extent. In

many or even mast governmental organizations program budgeting or the Analytic Paradigm does not, however, work. This is because it is difficult or impassible to quantify the goals (like those of the State Department or in education) or because most of the environment of the decision making consists of humans capable of practical reasoning and behaving according to their own rules of conduct which rules they can change by their awn will. In other wards the Analytic Paradigm does not correspond with this kind of reality. Or in one more way: there is structural uncertainty in this kind of environment which the Analytic Paradigm cannot handle.

2.5. The Analytic Paradigm as Practical Reasoning.

The third aspect of complex decision making, according to *Steinbruner* is that the power to make decisions is dispersed over a number of individual actors and/or organizational units (Steinbruner 1974, 16). The Analytic Paradigm, however, assumes *"that the decision making entity, whether a small bureau, cabinet department, the executive branch, or entire government, acts as if it were a single person ..."* (p. 37). We have seen above that the problem of other persons is even broader than that. Not only the making of decisions steps l.-5. in Model PDM but also the executing or implementing of them is, according to the Analytic Paradigm, done in an environment of no practically reasoning persons. The environment is analysed in terms of states of affairs and general laws between them. The decision is implemented by manipulating same determinants affecting the desired outcome. In these respects Steinbruner's Analytic Paradigm and Allison's Rigorous Model of Action resemble each other. And it appears that this model can be interpreted by our Model PDM. Decision making according to the Analytic Paradigm is practical decision making under extremely restricted assumptions:

(S l) A constructs alternative purposes p, q and r.

In the Analytic Paradigm A takes as given the purposes p, q and r (described in terms of states of affairs) as well as a (one

dimensional) value index for them.

(S 2) A chooses p.

In the Analytic Paradigm A chooses p by seeing that it ranks highest in the given index.

(S 3) A intends to bring about p.

Sometimes even the first and second steps may be omitted and decision making is supposed to begin from a given purpose p representing some value index.

(S 4) A considers that if he does a, b or c, p is brought about.

Usually in the Analytic Paradigm the alternatives (described in terms of states of affairs and general laws) are taken as given and (what we have called) side effects from the use of them are predicted by means of general laws.

(S 5) A chooses to do a.

Usually in the Analytic Paradigm the choice is made by measuring the projected goal and the side effects by the given value index, and by choosing the alternative that ranks highest in the index.

(S 6) Therefore A does a.

Resulting from the preceding conceptual framework the action is (according to the Analytic Paradigm) performed by an act which changes states of affairs in the environment.

The introduction of several practically reasoning persons into these restricted assumptions creates many critical complications.

3. The Governmental (Bureaucratic) Polities Model.

The aim of this chapter is to demonstrate how the broadening of the perspective from the strictly limited assumptions of the Analytic Paradigm leads to the conceptual framework of *Allison's* Governmental Politics Model (Model III) or to the conceptions behind Neustadt's analysis of the American Presidency from which *Allison's* model has been mainly abstracted. This broadening will

be done by studying step by step in the light of our Model PDM increasingly complex decision or administrative theories: an aspect of two-person zero-sum games, *Schelling's* strategy of conflict, *Neustadt's* alliance policy, *Barnard's* organization theory and finally *Neustadt's* theory of power. It will appear that each of these theories represents one aspect or stage of complexity of what is involved in practical decision making. Particularly it will be seen that *Chester I. Barnard's* organization theory is based on the conceptual framework of Model PDM.

3.1. On Formal Game Theory.

In the preceding chapter we studied *Steinbruner's* conception of the Analytic Paradigm. According to *Steinbruner* the expected value (EV) of each alternative act is defined as the sum of the values got by associating a probability and utility with each possible outcome resulting from each alternative act. Thus there is for each act an expected value (EV = p1v1 + p2v2 +... pnvn) Then the rational decision maker chooses the act from which he expects the highest value. As repeatedly said above, according to this paradigm the decision maker is dealing with states of affairs and general laws. A minimal complication to this situation can be created by introducing another decision maker 2. whose decisions also influence which of the states of affairs will follow. This is what is done in two-person game the theory. In zero-sum games it is supposed that for each state of affairs following from one or more acts of player l and acts of player 2 there is a utility such that what l gains, 2 loses (the sum of gain and loss of utilities being zero). There are also some other presuppositions in this theory (Luce and Raiffa 1957, 58) but what we want to point out here is this: If player 1 knows that player 2 per- forms his alternative acts with certain probabilities (i.e. 2 is using "mixed strategy") he (l) is able to assign probabilities to the alternative outcomes following his (l's) own alternative acts (that is he can assign the up's to each possible outcome of his alternative acts). And if this is possible player l can

make the decision just as in dealing with nature: he can assign probabilities and values to each possible outcome of his alternative acts and according to the expected value principle he can calculate the preferable action (Luce and Raiffa 1957, *277-278*).

The next stage of complication in game theory arises from the fact that player l does not know with what probabilities player 2 will make his alternative moves. What both know from each other is that both try to maximize their utilities and both know what each other's alternative acts and utilities are. For this kind of situation there have been developed various decision criteria like the maximin criterion (Choose that act whose associated index is maximum- i.e., choose the act which maximizes the minimum payoff). (Luce and Raiffa 1957, 278) or minimax criterion (Choose that act which minimizes the maximum risk for each act.) (p. 280). So far the situation can be handled by formal concepts. But the next step goes beyond formalities.

If we suppose that both of the players are humans in the sense that they can speculate what the other will do they can try to make a guess and adapt their own moves to their own advantage. Take for example two cars coming simultaneously to a crossroads. Both drivers are willing to drive first but the decision to drive depends on the driver's expectations of what the other driver would do. So begins, what *Luce* and *Raiffa* (p. 2791 call "cyclical reinforcing effect": he thinks that I think that he thinks etc. "…. the more realistic and complex a problem becomes, the more difficult it is to engage in this kind of iterative, destabilizing reflection (Raiffa 1970, 293).

At each stage of formal game theory the complication amount only to the number of players and their mutual relationships. The players still act on the basis of the Analytic Paradigm in one essential sense: they structure their goals and their environment in terms of states of affairs and there is no bargaining between the players. Actually what *Thomas C. Schelling* introduced into game theory was the possibility of bargaining between the players and the

recognition of the other player as a conscious calculator like player l himself.

3.2. Schelling's Theory of Interdependent Decision.

Schelling broadens game theory "toward a theory of interdependent decision" (Schelling 1973, 83). He takes the zero-sum game to be an extreme case rather than a general paradigm. The other extreme according to his thinking is a pure coordination game where there are also two interdependent decision makers but they have 100 % mutual interests, 1.e. have the same goal (p. 86). The games between these extremes *Schelling* calls mixed motive or bargaining games. For example in the illustration above both drivers have their conflicting interest (to drive first) but they also have a common interest (to avoid collision). How are situations like this handled in real everyday life? Obviously by perceiving or by suggesting what the other would or should do and sometimes by an effort to influence (more strongly than by suggestion) what the other should do. And actually these are new elements *Schelling* (pp. 83-841) introduces into game theory.

In the mixed motive game (as in our example of cars at a crossroads) both players have the common interest of avoiding the result that is mutually worst for the players (in the example, a collision). *Schelling's* point is that in principle the situation is the same in all mixed motive games, as in the relationships between adversary superpowers with a destructive nuclear arsenal or in relationships between allies with some minor differences in views. Somehow the expectations about each other's behaviour should be coordinated in order to avoid the mutual loss - whether a collision of cars or nuclear war. According to *Schelling* (pp.100-101) this coordination is done by communication, whether explicit or tacit bargaining or the strategic moves available to players. The players *"must find ways of regulating their behaviour, communicating their intentions, letting themselves be led to some meeting of minds, tacit or explicit, to avoid mutual destruction of potential gains"* (p,

106).

Somehow, sometimes, the pattern emerges on the basis of which the destruction of potential gains can be avoided. But *Schelling* (pp. 111-115) is remarkably vague and brief in answering his own question as to where and how these patterns arise. He does argue for the importance of focal points at which agreement can be found, and does criticize the presumption (of formal game theory) *"that mathematics is the main source of inspiration in convergence process"*. His canc1usian reflects same uneasiness: *"One may or may not agree with any particu1ar hypothesis how a bargainer's expectations are farmed, ... Thus the fact of an outcome, which is simp1y a coordinated choice, shou1d be ana1ytically characterized by the notion of converging expectations."*

In the interdependent decision *"the outcome is determined by the expectations that each p1ayer farms of how the other will play, where each of them knows that their expectations are substantially reciprocal.... They must together find 'the ru1es of the game' or together suffer the consequences"* (p. 107). It is argued in this study that with the help of our Model PDM the nature of the expectations, rules of the game or the pattern for action can be understood.

As an example we can again imagine that A and B are driving to a crossroads. When the expectation about B's behaviour depends on traffic regu1ations, it can be argued that these regu1ations are in some sense "causes" or "general laws" determining B's behaviour. The nature of the expectation becomes more clear, however, if we think that there are no traffic regulations in the situation, say B is A's neighbor and A knows that B has a princip1e of driving first whenever possible. In short, A forms his expectation about B's behaviour on the basis that A knows or understands B's principle of action or rule of conduct. And it is this A's and B's understanding each other (other's rules of conduct that *Schelling* designates by "some meeting of minds" (p. 106) or "converging expectations" (p. 115) the use of which depends "more on imagination than logic,

more on poetry or humor than on mathematics" (p. 97). Although vague and brief, *Schelling* (p. 96) seems to sense the direction where this kind of knowledge comes from: *"In pure coordination game, the p1ayer's objective is to make contact with the other player through some imaginative process of introspection, of searching for shared clues .."* We have discussed this kind of process in the context of the method of understanding in the study of history.

In the context of the so called Hempel-Dray debate we argued that knowing the general laws of nature and principles of action in history are basically same processes with, however, a remarkable difference.

We interpreted knowing as finding identity or as recognizing or as equating "what is known with that as which it is known" (Schlick 1974, 15). In the natural sciences the identity is found between some concepts designating some immediately experienced objects of the external world and the concepts of some hypothesis or theory saying something about objects like those in the immediate experience. In the study of history too, identity is established, but the rediscovery is not between entities like those in the natural sciences. In history one studies human beings and *"To understand a human action ... it is necessary ... to discover its 'thought-side'; ...He (the historian) must re-vive, re-enact, re-think, re-experience the hopes, fears, plans, desires, views, intentions, &c., of those he seeks to understand"* (Dray 1958, 119). That is, in the final analysis, in the study of history the identity is found between the various conceptions of the human object of the study and the historian s personal experiences as a human being. The chain of inference may be long (as it usually is). But, finally, understanding historical subjects boils down to this (Dray 1958, 128): *"Only by putting yourself in the agent s position can you find out (or understand, remark RV) why he did what he did."* This method of the historian is basically the method used in everyday life or in polities for constructing expectations of other people s behaviour in

interdependent decisions. This point will be illustrated further by introducing some more complications into the situation.

Let us suppose that in the example above the decision maker A wants to drive first but does not know B s principle of action. Then A may come to know that B s principle is to drive first. Hence if A wants to drive first he must change B's principle. A's analytic procedure would run in the following way:

- A has the goal p (to drive first) and comes to understand that B has the goal p (to drive first).

- A constructs (an auxiliary) conception to ask B not to drive first. (S 6) Therefore A asks B not to drive first.

What is involved in asking and getting somebody (B by A) to do something? In *Schelling's* (1973, 119) theory this is done by strategic moves like "commitment", "threat", "promise", "destruction of communication" etc. For example in the crossroad example, the standard strategic move is commitment: A can commit himself to drive first and communicate this to B; the only way for B to avoid collision is to brake and drive after A. A's commitment can be undertaken and communicated simply by working simultaneously the gear and the sound signal. Although *Schelling* offers the well known sharp analysis of strategic moves, he does not say what the background of asking by strategic moves is.

Our explanation for the epistemic background of strategic moves is short. As much as B's principles of action are part of A's external reality, A's principles of action are also part of B's external environment. If A wants and asks B by strategic moves to do something (say p) this happens by communicating or demonstrating that due to A's behaviour (on the basis of his principles of action) this something (p) offers to B the best alternative in the situation B faces. And if A is able to make B understand and believe what he communicates, B as a practical reasoner will do this something (p).

There is a careful study of interdependent decision making

shedding light especially on the problem of understanding in actual political situations. This is *Neustadt's* study of the Skybolt cancellation and the decision at Nassau (Neustadt 1970).

3.3. Interdependent Decision Making in Alliance Politics.

In March 1960 Prime Minister *Macmillan* met President *Eisenhower*. Prime Minister asked assistance from the U.S. for an air-to-surface missile then at the talk stage. During the next one or two years the U.S. developed this Skybolt missile (Neustadt 1970, 32). But during 1962 Skybolt appeared more and more to be a bad investment: it was becoming expensive and technically unpromising (p. 40). By mid-October the U.S. Secretary of Defense had decided to demand cancellation of the development of the Skybolt missile. In November the President and his closest aides made the actual cancellation decision. Because the decision was not made by any formal body, it was not public.

The President and his assistants were well aware that their cancellation decision was problematic for the British. Since early 1960 they had planned their own Air Force on the basis of expectation of the Skybolt. Skybolt was also to become a symbol of national prestige as a weapon of the nationally controlled nuclear force. Therefore it was decided that the British had to be warned before the decision became public. *McNamara* himself was to go to London to explain the decision. The idea of the warning was to give to the British an opportunity to *"find ways around their problem.... and tell us (the U.S.) what, if anything, they wanted us to do"* (p. 43). And the warnings were given. *McNamara* summoned the British Ambassador in Washington and called his colleague in London *Thorneycroft*. His visit to London was delayed long enough to take place after the usual leak of the decision to the press.

What happened after the warning has been called a drama of misunderstanding (pp. 46-47). None of the allies understood each other. The British expected the Americans to offer the Polaris

missile as a substitute for Skybolt; the Americans expected the British to ask that. Finally *Macmillan* and *Kennedy* arrived in December at Nassau unprepared and expecting from the other side a proposal that would understand his own problems. The result was the improvised agreement described above in the context of the nuclear sharing politics. And this agreement violated the essential interests of both of the parties. It was a collision of two cars at the crossroads, because converging expectations had not been found (see Appendix, IV).

Neustadt includes in his Skybolt story numerous mistakes, defects, and mismanagements by the people responsible for dealing with the matter. Then he says that *"something even harder is involved than the difficulties I have catalogued so far"* (p. 135). *"But something else apparently was operating here, and also in the Suez case. It is a still greater difficulty than the others and different in kind. It is the hardship of transcending an accustomed frame of reference one has got inside one's head and uses to conceptualize another government. This is a matter not of governmental gamesmanship but rather of intellectual conditioning"* (p. 136). This demonstrates our philosophical point of the story: what *Neustadt* is looking for is what *Dray* (1958, 119) says the historian is doing: *"The historian must penetrate behind appearances, achieve insight into the situation, identify himself sympathetically with the protagonist, project himself imaginatively into his situation."*

In the Skybolt story both the Americans and the British formed their expectations of each other's behaviour on the basis of their own experience in their own governments. We have argued that this is the normal way people try to understand each other's principles of action: they try to reduce other's conceptions to their own conceptions. If the distance is great (as it was in the Skybolt ease) the reduction may be difficult. But to some extent it can be done by an effort to share the experience on the basis of which the conceptions of the other are formed. This can be done in two ways.

First, by actually participating the activity and decision making of the government to be understood. In polities between allies this could be done by sending people at some stages of their careers to participate in the administration of the ally. The second way is to actively build the bridge between one's own conceptions and the conceptions to be understood. That is, one can try to reconstruct for himself the conceptual frame work on the basis of which the ally makes his moves. This can be helped by enriching one's own conceptions and studying the conceptions to be understood and the contexts in and experiences through which these conceptions have been formed. And this is what historians usually do. Hence to understand a government is to understand its history, past, present and planned.

Neustadt (p. 138) sees clearly the problem behind the Skybolt drama: *"Our minds are at the mercy of our language and our entrenched ideas. So powerful, so nearly irresistible, at least for us, is the conception of a 'government' as though it were a person..."* He is worried by the fact that the Americans tend to conceive of the other side in terms of human friendship (or enmity, we might add) between two persons. And friendly persons are supposed to understand each other. However, *"rather, as I have said to you before, this was a friendship between government machines..."* (p. 138). *"Where are the frames of reference to illuminate behaviour of the sort I have described?"* asks Neustadt and makes a suggestive reference to *Graham Allison's* Model III (The Governmental Polities Model) (p. 139). And here lies the paradox of *Neustadt's* and Allison's approach: in trying to get rid of one frame of reference (government as a rational person) they are trapped by another: government as machine. However, government is neither person nor machine. It is a unique formation rooted in and arising from persons capable of practical reasoning.

3.4. Barnard's Organization Theory.

Schelling's The Strategy of Conflict is full of insight into several

problems of decision making and organization. Much of this insight, however, he leaves at the stage of interesting remark. A good example of this is his discussion of coordination games. According to *Schelling* (p. 91) *"The coordination game probably lies behind the stability of institutions and traditions and perhaps the phenomenon of leadership itself". Schelling* (p. 84) calls coordination games the games *"in which the players win or lose together, having identical preferences regarding the outcome".* Let us add two more complications to *Schelling's* concept of coordination game. First, we may assume that there can be more than two players. Secondly, we assume that the players are human beings or persons in the sense that they are intendedly rational practical decision makers. After adding these complications we have come, roughly, to the preconditions of *Barnard's* organization theory.

Historically *Barnard's* The Functions of the Executive (1938) preceded the Analytic Paradigm approach to decision making and organization theory. It is a major argument for this study that *Barnard's* work was an early effort to develop organization theory on the philosophical line of the present study. *Barnard,* however, seems to have been unconscious of the epistemic presuppositions of his study. The lack of a respectable philosophy of science supporting *Barnard's* work may have been one reason why *Barnard's* theory has not been developed further during the four decades since its first appearance. However, it has been continuously praised for its originality and perceptiveness.

According to *Kenneth R. Andrews, "The Functions is a direct outcome of Barnard's failure to find an adequate explanation of his own executive experience in classic organization or economic theory"* (Barnard 1974, A's introduction). *Barnard's* practical experience came from forty years in the American Telephone & Telegraph Company. And this kind of personal experience seems to be a source of originality and of similarity between *Barnard's* work and *Neustadt's* Presidential Power (1960). *Barnard* was looking

for an organization theory describing and explaining an organization as he himself had experienced it as an executive. *Neustadt* wrote a study of the Chief Executive of the United States as this job appears to the President himself: *".... one must try to view the Presidency from over the President's shoulder, looking out and down with the perspective of his place"* (Neustadt 1976).

To study decision making as it is experienced by a decision maker himself, is something different from what it is supposed to be via the concepts of the Analytic Paradigm of decision making. In spite of some original studies, however, the lack of a philosophical frame of reference has hindered a systematic and extensive development of this kind of approach. Our Model of practical decision making is a suggestion of a direction in which this frame of reference could be found. Its adequacy for this task can be seen by relating it to *Barnard's* and *Neustadt's* theories.

Barnard's <u>The Functions of the Executive</u> develops its arguments from intuitively clear and simple elements. First there is an individual with properties that are usually designated by "person". These properties of a person are "(a) activities or behaviour, arising from (b) psychological factors, to which are added (c) the limited power of choice, which results in (d) purpose" (Barnard 1974, 13). One or more persons may try to accomplish their purposes in their physical and social environments. These environments set certain limitations on the possibilities of achieving the goals. The other group of limitations comes from biological capacities or faculties of the individuals (p. 23).

The need for cooperation comes from the intuitively clear fact that the biological powers of two or more men (over the environment, remark RV) working together exceed in some respects and under some conditions those of a number of individuals. Humans can work more effectively if they work together. But when there are several people (from two to thousands) working together, the coordination of activities becomes the critical factor. From this view follows *Barnard's* well known definition of formal

organization as *"a system of consciously coordinated activities or forces of two or more persons"* (p. 73) towards a certain end, we might add in the spirit of *Barnard.*

In an organization unit the activities of individuals are coordinated. If there are several unit organizations, these must be coordinated. But what is involved in coordinating the cooperative activities?

From the characterization of organization follows what is involved in coordination or in the functions of an executive. First it is a function of an executive to formulate the purpose of the cooperation and the intermediate objectives that accomplish this purpose. Secondly, it is a task of an executive to secure essential efforts of the individuals in the cooperative system for the accomplishment of the tasks that are the m8ans to the end. And the third task of an executive is to provide a system of communication by which the two first tasks can be accomplished (pp. 215-234). The core of *Barnard's* study is that both the executive and the people to be coordinated are supposed to behave like "persons", like practical reasoners in our terminology. This will be demonstrated by studying each of the functions separately.

Before we continue, one essential point must be stressed. *Barnard* speaks about executive functions. In other words, he studies the tasks that must be accomplished in any organization by some individual or organizational unit. For example in state organization these tasks are divided between several persons and bodies. And in representative democracies these persons and bodies are elected by the people, that is by the persons that are supposed to become coordinated.

Barnard on ends and means

The importance of purpose for the organization is a central theme of *Barnard's* work. However, what *Kenneth R. Andrews* says in the introduction to the 30th Anniversary Edition of The Functions is true: *"he does not give full descriptive or prescriptive attention to*

the processes of formulation (of purposes, remark RV): how it is, how it may be, and how it should be formulated...." Barnard (p. 209) does say something about the construction of purposes, but the short passages on this topic are very difficult to understand. *Barnard* tends to contrast the ways in which personal and organizational purposes emerge. The former he interprets as being *"a psychological process socially conditioned"* (pp. 183-184, 198-199). But when he comes to describe how the goals of an organization are formulated he says that somehow at the time of decision the ultimate end is given, "its making is a matter of history" (pp. 185,195). In *Barnard* s defense it can be asked, how could he have been able to present a theory on the formulation of goals? The main intellectual traditions of the time either refused to think about that or offered a simplistic utilitarian answer. Although *Barnard* does not offer a comprehensive theory of the construction of goals, he does say vastly more than any writer in the tradition of analytic decision theory (pp. 201, 196, 332).

The basic alternatives in a situation of conflicting purposes *Barnard* (pp. 264-272) sees in the same way as we did above. The first alternative is paralysis of action or loss of decisiveness ending in the sense of frustration. Secondly, one can decide for one of the goods and feel guilty about the loss of the others. Thirdly, one can *"construct alternative measures that satisfy immediate desires or requirements without violating any codes" or moral rules of the person involved"* (p. 272). But this third alternative requires *"resourcefulness, energy, imagination, generalability"* (p. 272). A fine demonstration by practical performer is what *Barnard* reports of modern organization: *" ... it is a major malefaction to induce or push men of fine character and great sense of responsibility into active positions greatly exceeding their technical capacities ... If they are 'over-loaded', either ability, responsibility, or morality, or all three, will be destroyed"* (p. 272).

On the whole it can be said that *Barnard's* discussion of the importance of goals is to a great extent parallel with much of the

philosophical argument of this study. *Barnard* is brief in his discussion of the choice between the goals and he is very brief on the construction of them. It is an argument of this study that the Barnardian approach is correct in its basic direction and that it can be systematized and broadened on the basis of the philosophical discussion and tradition of this study.

If the parallelism between *Barnard* and this study is clear concerning purposes of action, the parallelism is great concerning the construction of means towards the goals. *Barnard* calls his view the Theory of opportunism. *Barnard* calls the opportunistic element of decision the element that is not moral i.e. does not deal with values. Hence the opportunistic element refers both to definit<u>on</u> of purpose and the contemporary circumstances that are significant for the accomplishment of that purpose (p. 201). The process of decision in *"this objective field is essentially one of analysis ..."* (p. 201). An interesting point is that *Barnard* means by analysis roughly the same as what we have found to take place in constructing means to ends.

Again, on the problematics of the construction of means *Barnard* is not very exhaustive. But the statements are long enough to make the point clear. *"The analysis of the present circumstances is in part the definition of purpose in immediate terms;_but it is also the process of finding what present circumstances are significant with reference to that purpose. What events, what objects, what conditions aid, what prevent the attainment of purpose"* (p. 201)? By this *Barnard* clearly designates the same step in analytic procedure as we have by saying that the deliberating agent brings the maximal information to bear on the analysis and that this information can be drawn from the description of the end and from what is known about the situation the agent is deliberating in. Even more interesting is that *Barnard* (p. 203) clearly sees the need for one or more auxiliary constructions in resolving practical problems. After finding in the environment those elements *"which if absent or changed would accomplish the desired purpose"*, it can be found

that something is missing. *"we often find, ... that the circumstances fail to satisfy the requirement of purpose because they lack an additional element or elements, that is, elements which are known to exist in the larger environment."*

Again here it is an argument of this dissertation that *Barnard's* brief approach to the construction of means to the ends is basically correct. Here it can also be argued that the Barnardian view could be developed and systematized further on the basis of the discussion and tradition which the philosophical argument of this study has exhausted. An especially interesting perspective for further research would be the re1ationship between practical reasoning in organization and the natura1 deduction methods of modern logic (which Hintikka and Remes argue interpret the logic of the method of analysis) (Hintikka and Remes 1974, XIII, XIV, 37-38).

Barnard on authority

But the parallelisms between *Barnard* and our Model PDM have not yet been listed exhaustively. *Barnard* (p. 203) calls "1imiting factors" the crucial elements of the environment if it 'is a thing or physical element". *"... but when persona1 or organizational action is the crucial element, as it u1timately is in all purposive effort, the word 'strategic' is preferable"*. For example if a machine is not operable because a screw is missing, the screw can be called both a limiting and a strategic factor for getting the machine to operate. But when this physical limiting factor has been found, somebody must find or buy or make the needed screw and fix it to the machine. And this human action is the strategic factor of the situation (p. 205). Thus it is often the case that the means to some purpose is a composition of physical limiting factors and human actions as strategic factors. Organization consists of cooperation of these actions needed for the accomp1ishment of the purpose and it is the task of the executive to coordinate these actions.

The securing of essential services or actions from individuals for

the planned coordinated action is one of the functions of the executive in organization (pp. 227-231). In Model PDM this decision step was designated by "Therefore A asks B to do a". What is involved in this asking B's (potential individuals for cooperation) to do a's (the actions considered as means-objectives by the former decision steps)?

The semiformal aspect of asking somebody to do something is intuitively clear. This asking is done by communication. And the securing of communication in organization is the third executive function. In an organization *"All communication relates to the formulation of purpose and the transmission of coordinating prescriptions for action and so rests upon the ability to communicate with those willing to cooperate"* (p. 184). But what is it in asking or in coordinating prescription that brings about the needed action? This question *Barnard* answers in his theory of authority and theory of incentives. The implicit core of these theories is that he treats not only the coordinator but also the people to be coordinated as human beings capable of practical reasoning.

Barnard's theory of authority boils down to this: *"... the decision as to whether an order has authority or not lies with the persons to whom it is addressed and does not reside in 'persons of authority' or those who issue these orders"* (p. 163). And how do the addressed persons make their decisions? It is *Barnard's* implicit answer and the explicit answer of this study that the people to be coordinated make their decisions basically like the coordinators. To accept a communication as authoritative, the receiver of the message must understand it and believe that the asked act is not against the purpose of organization. But he also deliberates on whether at the time of his decision the asked act is *"...corruptible with his personal interest as a whole ..."* and whether he is able to perform the action (p. 165).

In addition to his general approach *Barnard* has, of course, several refinements to his theory. These are, for example, "fiction of

superior authority" where an individual obeys orders impersonally because he has "delegated upwards" his own decisions (p. 170). Another nuance of argument is *Barnard's* concept of area of indifference where the person does not de1iberate the goods or bads coming from a particular order because he considers that his participation in general produces something good for him. The core argument about the behaviour of the people in organization is, however the following: *"The net satisfactions which induce a man to contribute his efforts to an organization result from the positive advantages as against the disadvantages which are entailed"* (p. 140).

Sometimes it may be the case that the asked act itself brings enough good to the acting person so that he acts as asked. Sometimes participating in bringing about the purpose gives the satisfaction and thus guarantees the action. Often, however, the situation is not like this. If the individual to be asked is considered to be a person capab1e of practical reasoning, what can be done? To this question we have already replied. A person behaves on the basis of practical reasoning or on the basis of princip1es of action got by such reasoning. To get a person to do a is (1) to influence some of his decision premises so that he comes to the conclusion "do a" or is (2) to influence his external environment so that he, on the basis of his existing decision premises, comes to the conclusion "do a". *Barnard* (p. 141) calls the former method "the method of persuasion" and the 1atter "the method of incentives".

Here again in the theories of incentives and persuasion it can be said that *Barnard's* work is to a great extent a specification of the theory of practical decision making in an organizational context. The several parallelisms also argue for the view that the philosophical discussion of practical decision making offers a conceptual framework for systematizing and deepening *Barnard's* theory. Our phi1osophical discussion in this study is in a way a philosophy of science for the Barnadian approach.

After Barnard's The Functions of the Executive the development of

the theory of administration has not followed suggestions like those made above. Rather the main stream has been the Analytic Paradigm approach and "empirical" research in the spirit of a positivistic phi1osophy of science. Closest to the Barnardian view seem to have been the works of historians and men of practice, although they have been unconscious of the intellectual re1ationship. *Neustadt's* <u>Presidential Power</u> is a masterpiece by a man both a historian and a practical performer.

3.5. Neustadt's Theory in the Light of the Model of Practical Decision Making

In <u>Presidential Power</u> *Richard Neustadt* studies one executive function of one executive office. The function is that of securing essential services from individuals by means of authority or power. The office is that of the President of the United States. In the perspective of this study one could say that *Neustadt* adds a final complication to the process of practical decision making. This complication is the historical one. The history concerned is that of the government of the United States.

The first important consideration of what constitutes the good for the American people took place in the constitutional convention of 1787. Since then several generations have constructed several conceptions of what constitutes the good and by what means the desired good can be achieved. And as said in the context of *Bamard's* conceptions, to guarantee actions as means to some purpose new unit organizations for these actions are created. And it is the case that - once created - these organizations continue to live. It is this kind of historical creation that makes up the American government or any government. And it is into this kind of historical formation that the American Chief Executive or any governmental executive comes. It is from this historical set-up with numerous often conflicting goods and institutions that *Neustadt's* basic problem emerges: *"When we inaugurate a President of the United States we give a man the powers of our highest public office. From*

the moment he is sworn the man confronts a personal problem: how to make those powers work for him" (Neustadt 1976, Preface).

Neustadt's answer to the president's dilemma is that the president's power to make people act according to his own will is protected by his own choices (Neustadt 1976, 124). The president has in his hands some advantages for bringing about good or bad for the other persons working for their own goods and responsibilities. On the basis of his own decisions the president builds up his "professional reputation" as a user of his advantages. *"The men he would persuade must be convinced in their own minds that he has skill and will enough to use his advantages. Their judgment of him is a factor in his influence with them"*(Neustadt 1976,126). What follows from the president s professional reputation is in a governmental setting the same as what *Barnard* says about the method of incentives and of persuasion (Neustadt 1976,126-153; Barnard 1974,142-153).

In the American governmental system it also very much depends on the public or voters whether the president can keep in his hands the bargaining advantages of his office. This is why the men the president depends on (in bringing about governmental action) look also at the reactions of the president s decisions on the public. *"In the case of reputation they anticipate reactions from the President. In the instance of (public, remark, RV) prestige they anticipate reactions from the public"* (Neustadt 1976, 154). This is why it is important for the president to understand the relationship between himself and the public.

Neustadt's approach to the relationship between the president and the public is parallel to the discussion of professional reputation. The president is regarded as a man making choices in his job. The public consists of human beings trying to do their best in their own lives and viewing events from their own point of view. *"...what a President should be is something most men see by light of what is happening to them .... What threatens his prestige is their frustration"* (p. 163). This is why the president is on one hand a

teacher of the public and on the other he must relate his choices to how they are understood by his public (p. 168).

Professional reputation and public prestige are just two aspects of presidential decision making. In the original edition of Presidential Power Neustadt does not deal very much with the conceptual procedure of decision making. His main concern is how to extract power out of choice (p. 216). In making decisions the president is continuously overloaded with too much advice and too many expectations. One way to put the message of the book is this: *"... when it comes to power, nobody 1s expert but the President; if he, too, acts as layman, it goes hard with him"* (p. 217).

A demonstration of *Neustadt's* approach to power and presidency in his comparison of presidents *Roosevelt* and *Eisenhower*. *Roosevelt's* excellent *"sense of power thus was reinforced by his sense of direction"* (p. 230). Eisenhower *"...could not quite absorb the notion that effective power had to be extracted out of other men's self-interest; neither did he quite absorb the notion that nobody else's interest could be wholly like his own"* (pp. 231-233). It is not possible here to discuss the various aspects of concrete use of power as presented by *Neustadt*. One thing however, has become clear. Both *Neustadt* and *Barnard* see organization as interaction between moral persons capable of practical reasoning in promoting their goods. *Neustadt* is well aware also of the broader bearing of his theory, although in Presidential Power he restricts his focus to the American Presidency (p. 107).

In the 1976 edition of Presidential Power there is an interesting introduction: "Reflections on Johnson and Nixon". Concerning power *Neustadt* is in a position to analyse what happened when his advice was not followed. President *Johnson's* derisions about the Vietnam War and *Nixon's* decisions about Watergate are examples of how the choice making presidents were not able to sense the power stakes of the decisions - and lost their jobs. Hardly any example from recent history could demonstrate better the difference between "the Analytic Paradigm" and "practical

reasoning" in decision making: *"He (Johnson) thought this (the Vietnam war) was a gamble on our military hardware, on the capacity of guns and bombs ... But in fact it was a gamble on Vietnamese psychology about which he knew nothing"* (p. 38). *Johnson's* thinking also seems to have been practical reasoning but under very limited restrictions of the Analytic Paradigm. According to *Neustadt's* view he did not see in the object or environment of his decision making human beings capable of moral reasoning. The world was seen by him through the lenses of (military) hardware.

Another point of interest in *Neustadt's* new introduction is his discussion on "backwards mapping". In the original edition *Neustadt* does speak about "sense of direction" or "pattern setting" in presidential decision making but his main focus is on "the insights power offers into policy diverge, pointing many ways at once, thus limiting their usefulness as guides to viability" (p. 41). Something else is, however, needed for the president "as a safeguard and check" (p. 41). This something else is looking at the "do ability" of a presidential action. The way to look at doability is first to visualize the outcome, the societal effect, at which a given option aims, and then specify the last act - whether or not sufficient in itself - which is necessary to produce that outcome (p. 41).

On backward mapping

Neustadt calls his original approach "forward planning". In this way of thinking, one has an aim in mind and then begins to proceed step by step towards it thinking about the obstacles and resources he has in going "from here to there". In mapping backwards one proceeds from the aim towards the present situation. *Neustadt* remarks that he often advises his students to mix the two. But even more is involved in *Neustadt's* need for "something else" for presidents as well as for other people in positions like that of the president.

Neustadt makes a reference to *Graham Allison's* case study The

Massachusetts Medical School (1975): In this study Lieutenant Governor *Francis W. Sargent* of Massachusetts becomes Acting Governor in January 1969. Like a president coming into office he faces dozens of issues needing his action and that of others. One of the issues was an old plan calling for construction of a medical school.

Sargent asked some people to prepare *"an analysis of the major issues for the Governor's consideration"* (Allison 1975). One of these was Dr. *White*, a faculty member of the Sloan School of Management at MIT. *White* prepared an analysis in the traditional analytic terms of policy analysis. A closer study of *White's* report demonstrates the point: in addition to failing to meet some standards of traditional analysis the report (l) failed to make a predictions about how different governmental units were really likely to behave, (2) failed to consider the political forces involved, and (3) could not design strategies which could have allowed any new alternatives to become successfully implemented.

By "backward mapping" *Neustadt* refers to professor *Mark H. Moore's* terminology and approach in *Moore's* and *Zieger's* Methadone Maintenance case study (Neustadt in a personal communication). This study is in an educational sense a continuation of *Allison's* case study. The aim of *Moor's* and *Zieger's* study is *"to strengthen your capabilities to make calculations about political and bureaucratic components"* which traditional policy analysis fails to incorporate (as it was seen in The Massachusetts Medical School case). This aim is achieved by "implement-ations analysis".

The specific steps in the analysis are the following:

1) Specification of the particular final actions of governmental units that are implied by the general idea of methadone maintenance programs.

2) An analysis of the sensitivity of different components of the outcome to different components of the final actions.

3) The identification of political and bureaucratic factors which will influence the final action of governmental units.

4) A prediction about how these factors will influence the likely outcome of the program (Moore and Zieger 1975, 38).

Moore and *Zieger* begin their policy analysis in the traditional analytic terms. Then they state that on the basis of this kind of analysis it is difficult to estimate what actually results from the policy decisions. The concepts of the analysis are imprecise because they are very general, and the estimation of the outcome is very inaccurate because of the political and bureaucratic factors which will affect the program (p. 38). This is why also the bureaucratic and political factors ought to be incorporated into the analysis.

On the whole *Neustadt's* theory of authority and alliance, *Allison's* and *Moore's* problem of implementation as well as *Neustadt's* and *Moore's* backward mapping seem to circle the same tree: what is the nature of administrative action or what is wrong in the Analytic Paradigm of decision making? All of them are frontiersmen in the study of administration. But although there is a common voice and the mutual relationship is conscious, no comprehensive model has so far emerged. It is an argument of this study that their approaches as described above are conscious relatives of *Barnard's* approach particularly his theory of authority and opportunism (as bad a label as the latter may be). Earlier in this study we have argued that our philosophical discussion of practical decision making offers the philosophy of science for *Barnard's* approach.

3.6. Critique of Allison's Concept of Governmental Politics.

Allison in his Essence of Decision is profoundly right when he says that there is, particularly in *Neustadt's* work, an implicit "Governmental (Bureaucratic) Polities Paradigm" (Model III) that is different from "Rigorous Rational Model" or "Analytic Paradigm". But, according to this study, *Allison* reduces *Neustadt's*

as well as other parallel studies (like those by Schelling and Hilsman) to a mistaken conceptual framework or metatheory. In *Allison's* own language, he is conscious that concepts channel thinking but he leaves, however, the basic lenses or spectacles over his eyes. Parallel to this is what was meant when it was said that *Neustadt* rejects the conception of government as a person, but is trapped by the conception of government as a machine.

Allison (p.162) characterizes his Mode1 III in the following way: *"The primary source of the paradigm is the model implicit in Neustadt's work, though his concentration on Presidential action has been generalized to a concern with action as a resultant of political bargaining among a number of independent players, the President being only a 'superpower' among many lesser but considerable powers."* After this *Allison* extends this brief statement along several dimensions.

The basic unit of analysis is that of governmental action as political resultant. What happens *"is not chosen as a so1ution to a prob1am but rather results from compromise, conflict and confusion ..."* (p. 162). The resultant is political in the sense that action emerges from bargaining through regularized channels (p. 162).

The organizing concepts of Model III are answers to interrelated questions: "Who plays? What determines each player's stand? What determines each player's relative influence? ..." (p. 164). In a closer analysis of these questions Allison draws a picture of government as a game of players in positions, playing along certain action channels. The behaviour of the players is determined by some external (1ike position of the player) or internal (like goals or stakes) determinants (pp. 162-181). There are also some original Neustadtian concepts like bargaining in *Allison's* picture (p. 177). But the overall conception is clear: governmental action is a resultant emerging from a game between players behaving according to certain internal and external determinants (p. 173).

Allison's view can be understood but not accepted. He tries to develop an alternative explanatory decision model for what he calls

a rational decision paradigm. From the point of view of this study he is right, in that Rigorous Rational Model or Analytic Paradigm is unsuccessful and incomplete in explaining and predicting governmental action. And he is also right in demanding a shift in the intellectual orientation. But he is profoundly wrong as to where the necessary help could come from. *Neustadt's* approach in <u>Presidential Power</u> differs a lot from the approach through the Analytic Paradigm but is not what Allison conc1udes through his program.

According to *Allison* (p. 255), *"We shou1d ask not what goa1s account for a nation's choice of an action, but rather what factors determine an outcome ... we must move to a conception of happenings as events whose determinants are to be investigated according to the canons that have been developed by modern science."* It is this program that *Allison* follows in his interpretation of *Neustadt's* work. And it has been this program that we have disagreed with in this study provided that "canons of modern science" is understood on the basis of positivistic philosophy.

In this study it has been argued that actions of human beings are performed on the basis of intendedly rational practical reasoning or principles of action constructed by such reasoning. It has also been argued that an organization or government acts neither like an individual nor like a machine but is a unique entity. From the point of view of this study this entity is in the main correctly understood by *Barnard* in his <u>The Functions of the Executive.</u> *Barnard's* organization theory can be deepened and systematized further by recognizing that both the executive as a coordinator and the individuals to be coordinated are persons in the sense that they are moral beings capable of intendedly rational practical reasoning. Hence to say that an action of (the American) government is a determined resultant is incompatible with the conception of governmental action as a result of intendedly coordinated interaction between persons capable of intendedly rational practical reasoning. In one sense it can be said that governmental action is

the result of a game. This game, however, is not between individuals whose behaviour is determined, but persons who are intendedly rational practical reasoners.

4. The Organizational Process Model.

4.1. Preliminary Remarks.

The third decision model *Allison* abstracts from the literature on administration is "Organizational Process Model" (Model II).
Much of this model comes from *Herbert Simon* and the Carnegie School scholars like *Cyert* and *March* (Allison 1971, 71, 76). In this model too, *Allison* conceives of organization according to the canons of modern science. But this time his model seems to reflect accurately the theories it has been abstracted from. To find the core of the model we shall first study its referent in terms of this study.

In the preceding chapter organization was characterized as a coordinated action of several persons towards one or more purposes. One of the functions of the leader or coordinator was considered to be defining purposes and analysing means to that end. The second executive function was to get individuals to perform actions that according to the preceding analysis are the means to the defined purposes. Sometimes individuals perform the specialized activities which accomplish means to the end, but often an organizational unit performs the same task. Above, we regarded these individuals as persons, that is human beings capable of practical reasoning. An executive can ask them to perform the needed action, but the action is performed only on the basis of their practical reasoning: is it for the reasoning agent a means to something good or bad?

Sometimes an organization is dissolved after one limited purpose has been accomplished. Usually, the purpose presupposes continuous activity for its accomplishment. This is the case for example in a productive or governmental organization. In this case

the actions serving as means have to be repeated. It is intuitively clear that in most cases the person performing the action is not every time separately induced, persuaded or deterred to perform the needed action. What is involved in this transforming an individual action (arising from practical reasoning) to a repeated one? This question we have studied carefully in a philosophical context. From the point of view of this study, to act repeatedly on the basis of the same practical reasoning is to act on the basis of a principle of action.

The persons in an organization have different objectives to accomplish. These objectives together are means to the purpose(s) of the organization. In practice principles of action or rules of conduct for bringing about these objectives are expressed by "standing orders", "standard operating procedures", etc. These rules of conduct are of the form "in situation C do a" or "work in such a way that a is brought about". And this a is one of the means towards the purpose p of the organization.

If the principles of action of the person in an organization are stable, there may be a natural temptation to describe the behaviour of this kind of entity according to the concepts of modern science, that is by state descriptions and general laws. Actually this is what is done in the Simonian approach to organization as well as in *Allison's* abstraction from the Simonian organization studies.

4.2. Simon's Organization Theory

Herbert Simon (1957, 45) commits himself explicitly to logical positivism. The departure point of his study is, however, in a limited sense Barnardian. He considers an organization as a composition of intendedly rational decision makers specializing in the limited tasks of organizational subunits that together bring about the purpose of the organization (Simon 1957, 20-21, Allison 1971, 71-72). *"If any 'theory' is involved, it is that decision-making is the heart of administration, and that the vocabulary of administrative theory must be derived from the logic and*

psychology of human choice" (Simon 1957, p.xvi). From the perspective of this study *Simon's* grand mistake is that this "1ogic" and "psychology" of decision turns out to be a positivistic conception of these topics.

According to *Simon*, the focus of the study of organization must be on "the operative employee". These are people who perform the concrete actions that are means to the purpose of the organization. Insight into the organization can be gained by studying how the decisions and behaviour of such employees are influenced (Simon 1957, p. 3). According to *Barnard* this kind of influencing is one of the functions of the executive. But where *Barnard* treats operative emp1oyees as persons acting on their economy of incentives and being the final judges of authority of executive order, *Simon* treats operative employee as objects behaving according to some general laws that exist between the behaviour and its externa1 and interna1 conditions. *Simon's* (p. xviii) question is, *"what conditions do we have to create and maintain in this organization so that authority will become one of the effective instruments for getting our job done?"* *"Personality! Truly a magical slogan to charm away the problems that bur intellectual tools don't handle"* (p. xv). From the point of view of this study, by this phrase *Simon* designates his own tools or positivistic conceptions. The problematic fact that organization consists of coordinated person should not be solved by rejecting it. Rather, relevant intellectual tools should be developed. And in this task we have tried to participate in this study.

To understand *Allison's* model a broader survey of *Simon's* approach is in order. *Simon* (p. 37) tries to make *"a scientifically relevant description of an organization".* This description designates each person in the organization by operational concepts (l) what decisions he makes, and (2) the influence to which he is subject. Operational concepts mean for *Simon* that *"their meanings must correspond to empirically observable facts or situations."* According to the established language of the philosophy of social sciences this means that these concepts must be capable of

verification in the way we became familiar with in the discussion of *Schlick.*

As indicated above, *Simon's* point of departure is greatly parallel with that of *Barnard* and also with ours: *"to anyone who has observed administrative organizations, or has concerned himself with their theory, it seems obvious enough that human behaviour in organizations is, if not wholly rational, at least in good part intendedly so. Much behaviour in organizations is, or seems to be, task oriented - and sometimes efficacious in attaining its goals"* (Simon 1957, p. xxiii). *Simon's* great point is that human behaviour is *"intendedly rational, but only limitedly so,..."* (p. xxiv). The reason for this he divides into three categories. First, an individual's knowledge may be incomplete. Secondly, his imagination may be insufficient to set value to the anticipated consequences of action. Thirdly, in actual behavior only *"very few of all possible alternatives ever come to mind"* (pp. 80-84). Alone an individual may lack knowledge and imagination concerning values or alternatives and according to *Simon* it is the task of organization to furnish an individual with that which he lacks alone. This is done by organization to the extent that *"... organizations are fundamental, then, to the achievement of human rationality in any broad sense. The rational individual is, and must be, an organized and institutionalized individual"* (p. 102). From this kind of inflating of the human capabilities there is only a small but important step to complete the task of the "scientific" approach: *"It appears, then, that in actual behaviour, as distinguished from objectively rational behaviour, decision is initiated by stimuli which channel attention into definite directions, and that the response to the stimuli is partly reasoned, but in large part habitual"* (p. 91).

Organization furnishes an individual with knowledge and values that are needed for rational action. But how does this help some executive to do his job? The answer is given by specifying the concept of rationality: *"Two persons, given the same skills, the*

same objectives and values, the same knowledge and information, can rationally decide only upon the same course of action. Hence, administrative theory must be interested in the factors that will determine with what skills, values, and knowledge the organization member undertakes his work. These are the "limits" to rationality with which the principles of administration must deal" (pp. 39-40).

The idea is that the decision or action is determined by certain knowledge and values, and the knowledge and values are given to the individual by organization. Hence if one studies and comes to know what knowledge and values determines what decision, one can manipulate these knowledge and value determinants so that the wanted decision as effect is brought about. *"The behaviour of a rational person can be controlled, therefore, if the value and factual premises upon which he bases his decision are specified for him.... Influence, then is exercised through control over the premises of decision"* (p. 223).

Simon's specified conception of rationality is exactly same as that of *Hempel*. According to *Hempel's* "Schema R" every rational agent in a situation C (including internal and external circumstances) acts in the same way (Hempel 1962, 12). This finding provides a philosophical foundation for the critique of *Simon's* conception. First, we have not very much discussed the social dimensions of constructing the concepts used in practical reasoning. It is intuitively clear that learning a language or an intellectual tradition is a matter of social communication. Throughout this study, however, we have implicitly argued that once a person has constructed a conceptual framework for himself he is capable of practical reasoning on his own.

Secondly, it is intuitively true that in decision making one often makes mistakes and deviates from practical rationality for many external and internal reasons. But to conclude from this that rationality is bounded and that the main focus of research should be on the limitations of rationality is to make a mistake. On the contrary one should concentrate on the human capacities for

practical reasoning - that is, on the possible uses of human reason for seeking and bringing about goods and for resolving problems - personal as well as social. It may be the case that the hegemony of the effort to squeeze practical reasoning into the moulds of ready-made scientific formulae is one reason for the weakness of the human community in resolving some of its most burning acute problems.

Thirdly, it would be presuppose a bizarre social order to think that some organization could control the information and values of its members to such an extent those additional bits of information could serve as definite stimuli to definite responses according to some general law.

Fourthly, it can even be imagined that an organization has a complete monopoly over the information its members receive. But if we suppose that the members are persons capable of practical reasoning, the control of information does not guarantee uniform decision or behaviour from two members who have acquired a similar comrr1unicatioh about facts and values. This is because in facing a new problem the constructive process of finding solution (or alternatives for action) is a process of zetesis, seeking. As far as purposes are concerned, one can construct several descriptions of what constitutes one desired good. And as to the means to the end, one can construct several alternative means because of the human capacity to construct auxiliary constructions as a part of the method of analysis. A decision using auxiliary components is unpredictable in principle 1n the same way as the solution of geometrical analysis (Hintikka and Remes, p. 44).

Fifthly, although some definite decision premises could be actualized in somebody's mind the action does not follow by logical or causal necessity. The person concerned can simply re-examine his deliberation and come to a different conclusion.

Sixthly, the concepts of natural sciences can often be used for explanation and prediction of administrative processes, but the validity of general laws does not depend on a stable

correspondence with these processes. State descriptions and general laws correspond with organizational processes insofar as the principles of action in the organization are stable and bring about observable phenomena appropriate for designation by scientific concepts. If the principles of action of the persons in the organization are changed the general laws designating their expressions lose their, correspondence with reality.

4.3. Remarks on Allison's Model

Allison's Organizational Process Model is an abstraction from several Simonian organization theories especially from *Cyert's* and *March'* s <u>A Behavioural Theory of the Firm </u>(1963). *"At the core of this theory are four concepts that relate variables affecting the three major categories (goals, expectations, and choice)"* (Allison 1971, 76) These concepts are "quasiresolution of conflict", "uncertainty avoidance", "prob1emistic search", and "organizational 1earning" (p. 76). Whatever the particular concepts or categories of the Simonian approach are, the basic logic remains the same: there are some states of affairs (or processes as successive states of affairs) and general laws expressing the relations between the states.

In *Allison's* (p. 7) terminology the basic unit of analysis is "governmental action as organizational output". *Allison* is pessimistic about the modern government: *"The overriding fact about large organizations is that their size prevents any single central authority from making all important decision or directing all important activities. Factored problems and fractioned power are two edges of the same sword"* (p. 80). According to his Model II direction and control of organizational activity is not possible because the relationship between leaders and organization depends on "structural variables" like the nature of the job, the information available, the system of rewards and punishments etc. (p. 86). On the whole, simpleminded predictions about how an organization will behave work best: "behaviour at t+ 1 will be marginally

different from behaviour at the present time (p. 91).

It seems to be true that the output of an organization often only slightly reflects what the leaders had been intending. And it is the case that the enthusiasm for "rational" administration like PPBS was clearly premature. But to lose one s hope of human rationality is also premature.

Human capacities to use reason for human and social purposes are limited. But a correct conception of both these capacities and limitations should help in using reason for bringing about personal and social goods. So far we have studied mainly capacities and external limitations of practically rational decision making. The final complication to the discussion is offered in *John D. Steinbruner's* study of the cognitive limitations of human beings in rational decision making.

4.4. Steinbruner's Cybernetic Theory of Decision

The basic idea of Steinbruner's cybernetic decision theory is that the conceptual framework of cybernetics to a great extent describes bureaucratic behaviour. Without any commitment to any cybernetic philosophies this view seems to be true.

A simple example of a cybernetic system is the electric cooker with a thermostatic temperature control. The heat of the cooker is supposed to stay between certain limits. If the heat falls below the limit, the heating mechanism is switched on. If the heat goes over the limit, the heating mechanism is switched off. In a way the operation of the heating mechanism is a "cause" and the heating of the cooker is an "effect". *"That we are dealing with.... (in cybernetics, remark RV) is an effect that reacts on the cause that produced it, that is, feedback."* (Boulanger 1969, 4).

The father of cybernetics, *Norbert Wiener*, coined the new word from the Greek cabernets, the steersman of the ship (Boulanger 1969, 4). His great idea was the analogy between a machine bringing about some intended purpose and the behaviour of a goal

seeking animals. *"Once the analogy was accepted it was tempting to propose - as Wiener did - that all purposeful behaviour whether of living or of inert matter, should be studied within the same framework"* (p. 4). *Steinbrenner's* point is that this analogy is particularly fruitful in studying bureaucratic behaviour.

In this study we have already implicitly answered where the analogy between a cybernetic mechanism and bureaucratic behaviour comes from. The cooker is a good examp1e. In a modern kitchen one uses the electric cooker operating with the feedback mechanism as described above.   But let us consider an old-fashioned big kitchen of, say, a court.

The purpose of this kitchen is to make food for the courtiers. The kitchen consists of twenty or thirty individuals coordinated or organized to bring about the purpose. This means that each of the individuals has his own objective that is one of the means to the final purpose. One can imagine that to one of kitchen boys, the master cook gives the task: "keep the temperature of the cooker between this and that limit". This is a principle of action and the kitchen boy may work according to it. He may watch the temperature of the cooker and regulate its place on the fire on the basis of his observations or "feedback" he gets from the cooker. Seen from a certain point of view one can say that the kitchen boy 1n the kitchen organization and the electric cooker behave according to the same principle.

Steinbruner's main works of reference in organization theory are those by *Simon, Cyert* and *March* and *Allison's* Mode1 II (Steinbruner 1974, 71-78). As repeatedly said, these theories focus on the behaviour of established organizational units working for their limited objective that is a means to the whole purpose of the organization. Each of these subunits in an organization has its objective expressed by "standing orders" or "standard operating procedures" (SOP) etc. Just as kitchen boy in our examp1e makes his decisions on the basis of his standing order so does, in general, any organizational unit. *"In their (Cyert and March, remark RV)*

formu1ation, the decision process for each subunit proceeds as described by the cybernetic paradigm" (p. 73).

Steinbruner's (p. 64) strong point is that - in spite of the limitations of the cybernetic paradigm - a bureaucratic unit or a bureaucrat often really behaves like a mechanical cybernetic machine. According to the cybernetic theorist, a bureaucratic decision maker does not make any va1ue calculations; he just takes the objective as given and tries to accomplish it. Neither does a decision maker bring a maximal amount of information to bear or make sophisticated calculations. On the contrary, the cybernetic or bureaucratic decision maker screens out "information which the established set of responses is not programmed to accept". Hence many factors that do in fact affect the outcomes have no effect in cybernetic decision processes (p. 57).

The formalism of the cybernetic decision paradigm has its bearing on an organizational situation. When facing a new problematic situation a cybernetic decision maker does not seek new alternatives but the search process is limited by the existence of response repertories (pp. 74-75). This fact is related to the power of organizational routines that are resistant to change even under the most compelling circumstances. Once established, organizational routines are not readily changed, and under pressing circumstances only incremental change can take place (pp. 78, 80).

In Steinbruner's description of a cybernetic decision maker one can recognize the Bureaucrat one meets in a post office or university or any other administration. It must be stressed, however, that from the point of view of this study Steinbruner's cybernetic paradigm is a qualification of what has already been said. As he says, constructing and receiving principles of action or organizational routines fall outside the paradigm (pp. 70-71). It is true that, once established, the organizational behaviour often is relatively stable. And this fact makes it possible to use a cybernetic paradigm as well as "canons of natural science" for the interpretation of organizational behaviour. This does not, however, change the fact

that the people performing the tasks of the organization are practical reasoners who have constructed for themselves the principle of action to behave according to it to gain something they regard as good for themselves. The organizational routines are stable and standing orders are followed so long as the people involved believe that the routines or orders bring for themselves more good than any alternative they can conceptualize. The origin of the strength of a belief *Steinbruner* studies in his cognitive decision theory.

4.5. Steinbruner's Cognitive Decision Theory

Steinbruner develops the cybernetic paradigm into a cognitive paradigm in order to explain how the constructive process of decision making takes place. Basically the approach is to supplement the cybernetic paradigm with results of cognitive psychology.

According to *Steinbruner,* the four characteristics of the human mind are inferential memory, search for consistency, capacity to contact its environment, and principles of economy: simplicity and stability (pp. 95-103). What is meant by each of these principles becomes clear when one studies how they work in resolving complex decision problems.

The first aspect of a complex decision was defined as being when two or more values are affected by the decision (p. 16). During this study we have considered several aspects of this problem. What does cognitive psychology say about it? According to the basic principles of the human mind, humans seek for consistency, simplicity and stability. In the situation of conflicting values, *"Decision makers by this logic can be expected primairly to deny the tradeoff relationship in their minds and to assume that they are pursuing separate values simultaneously and independently. Some decision makers will actually reverse the relationship and see the two objectives as mutually supportive"* (p. 106). This conception *Steinbruner* calls assumption of value separation (p. 108). He sees

in the history of the nuclear sharing policy of the U.S. an event of value separation instead of integration. The various organizational units of the U.S. government pushed forward their conceptions of the good of the country. But although these goods clearly conflicted with each other, no value integrating pattern emerged. The goods were pushed forward until the damage occurred at Nassau.

The second aspect of a complex decision problem was structural uncertainty in the environment of the decision maker. According to cognitive psychology the fundamental principles of human mind are also at work here. The decision maker seeks consistency and economy of mind. If the environment does not appear certain enough, structure is imposed on it by categorial inferences. *"The mind constantlystruggles to impose clear, coherent meaning on events, uses categorical rather than probabilistic judgments in doing so, and thus expects to anticipate outcomes exactly ..."* (p. 112).

According to cognitive psychology there are several mechanisms for the subjective resolution of uncertainty. The principle of reinforcement says that the strength of a belief is a function of its age and of the number of times its use has been followed by reward (pp. 113-114). An inconsistency-management mechanism works with loose ideas: inaccurate analogies, a restricted time frame in thinking, economy or laziness about new efforts, and negative images (pp. 113-121). The third way to resolve subjective uncertainty is to rely on small-group communication (pp. 121-122).

On the whole *Steinbruner* concludes that cognitive psychology by no means affirms that a human mind in decision making under complexity works according to the Analytic Paradigm of decision making. *"Rather, it (the human mind, remark RV) imposes an image and works to preserve that image. A single course of events is projected; evidence for alternative outcomes is manipulated to preserve the expectations"* (p. 123). In *Steinbrenner's* cognitive decision theory one can also recognize one's own everyday

experience in personal and organizational life. In several actual instances it appears to be intuitively true. What is the relationship between *Steinbrenner's* theory and our theory of practical decision making?

In our discussion of *Simon* it was discovered that in one important respect *Simon's* view is compatible with the view of this study: human behaviour in organizations is, if not wholly rational, at least in good part intendedly so. It is in the constitution of human beings that they try to use their reason to acquire something which they regard as good. *Simon* continued that although human behaviour is intendedly rational it is only limitedly so. According to him the limitations of rationality are so strong that to be rational a human being depends on and is conditioned by organization. This far we do not agree with *Simon* but argue that there is an autonomous area in a human being capable of rational practical reasoning.

In a way it can be said that in this dissertation we have studied the capacities of human beings for practical rationality or practical reasoning. *Simon* studies the external limitations of rational behaviour. Now *Steinbruner* reduces the area of practical rationality still further. You could say that he studies the internal limitations of human beings for practical rationality or for practical wisdom. *Simon's* and *Steinbruner's* indisputable findings are related to each other but do not cover the whole terrain. What remains uncovered is the terrain that has been the ground of this study: the human capacity to use reason for acquiring something good; that is, the human capacity for rational practical reasoning.

As subjects of study, *Simon's*, *Steinbrenner's* and our foci of interest are not incompatible. Both the capacities and the limitations of human practical reasoning are worth knowing. In the light of normative use of Model PDM and practical rationality to study the potential limits of rationality is to study how the reasoning capacities can be used to cross them.

It was argued above that Model PDM has also an explanatory use: it explains the practical action the more the more the action is based

on practical rationality. During the preceding discussion, however, we have taken the internal and external limitations of rationality as a matter of fact. Hence a comprehensive explanatory theory of decision making should take into account the human capacity for practical rationality and its internal and external limitations varying between individuals and over a period of time.

5. Charles Christenson's Philosophical Study of Management

In the very beginning of this study it was suggested that there have been - so far separately - remarkably parallel discussions, in the philosophy of the social sciences and in the study of government, on the same problem - human deliberation for practical action. However, philosophical studies of administration and administrative theories are not completely new approaches. From the point of view of this study *Charles Christenson's* work at the Harvard Business School is of great interest.

In an early study *Christenson* criticized the organization theories trying to adapt the traditional physical world view to the study of administration: *"Experience has shown that only confusion and controversy result from the attempt to understand and explain such world (including rational actors, remark RV) starting from the traditional concept of natural laws as "determining" behaviour."* (Christenson, March 1973, 1). For this world view Christenson (p. 2) wants to substitute *"the world of twentieth-century physics: "the world of possibilities limited by natural law".*

After going into various theories of empirical science, Christenson comes to a conclusion that is parallel to the argument of this dissertation. "Objective" science carries along with it some tacit assumptions about the observers and the language of science. *"These assumptions are not only often untested but they are, I think, virtually untestable at least in an 'objective' sense"* (p. 21). His thinking on this finding is also close to the argument of this study. In spite of the assumptions of objective science it is possible to study a human subject by the concepts of the natural sciences,

provided that one is conscious of the limitations of these concepts. *"Such a theory (of natural science) cannot prove the nonexistence of phenomena which are not objectively observable...."* (p. 22). To cover the objectively unobservable phenomena Christenson (p. 25) argues for the need of complementary theories*".... that are essential for clarity in the human sciences".*

The study of organization is study of human beings. *Christenson* sees the limitations of the deteterministic model of natural sciences and demands that complementary conceptions should be used. One such complementary model he finds in *Barnard's* organization theory. But it then appears that he interprets this complementary theory through his conception of "twentieth-century physics"; the world as a world of possibilities limited by natural law. *Christenson* (p. 42) quotes *Barnard* in that *"What actually may be done by one person to establish satisfactory relationships with another person, ... may be approached either by the attempt to narrow the limitations of second person's choice or to expand the opportunities of his choice".* This view argues of behalf of "escape from determinism" and against "over adapted" deterministic models in the study or design of organizations (pp. 43-45).

In the perspective of this dissertation Christenson's study goes in the right direction. It criticizes the deterministic model. And, according to our argument, if useful, the analogies from natural sciences are allowed in the study of human organization, provided that their limitations are recognized. It is enlightening to see human organization as a world of possibilities limited by natural law, but this does not reach the core of the topic nor the essence of *Barnard's* theory. This core or essence we have regarded in this study as being humans as practical reasoners living in this world of possibilities.

In another study *Christenson* also makes an attack on naive empiricism in organization study (Christenson, October 1973). In this study he interprets organizations and also Barnard s theory on the basis of *"the proposition that all open systems, including social*

organizations, are subject to the physical 1aws of thermodynamic systems" (p. 12). Here we do not follow through all the argument but only record the conc1usion: *"the applied social sciences are completely out of balance"* (p. 47).

According to *Christenson* the applied social sciences, like the study of administration, have created huge amounts of complex and differentiated theories. *"Research emphasis is placed on more and more refined methods of recording 'facts'"* (p. 47). The reason for this has been *"the absence of a common frame of reference"* (p. 47). It is the suggestion of this dissertation that the Model of practica1 decision making (PDM) does point in the direction where this frame of reference can be found.

Christenson comes closest to the theme of this dissertation in his most recent study (Christenson 1976). A common point of departure for Christenson and this dissertation is the conception of the method of the early scientists. For examp1e, Newton s method was nothing   like induction where a general hypothesis is derived from particular instances. *"On the contrary... He (Newton) argued that his Laws of Motion ("rationa1 mechanics" arrived at from geometry, remark RV) constituted an a priori framework for measurement and that given this framework, his Law of Universal Gravitation was obtained by deduction, not by induction"* (p. 10). *Christenson* does not discuss the construction of the conceptual framework for measurement. He does however stress the harmful fact that in the behavioural sciences there still exists a widespread belief that hypothesis in science is *"obtained by an inductive method from observational data, following which deductive reasoning can take over"* (p. 11).

In the context of our discussion of *Schlick* we found how a logical positivist argued that the conceptual framework of natural science is the only acceptable framework in acquiring knowledge proper. *Schlick* even defined reality in such a way that it corresponds to the rigorous and exact concepts of science. This was done by

eliminating from "every day experience" all but objects in the objective continuum of time and space.

In this study we have argued against *Schlick's* conception. In Popperian spirit *Christenson* (p. 13) says the same*:"There is abso1utely no basis a priori for concluding that the physica1 universe or any part of it is a Newtonian mechanica1 system... These formally defined systems are free constructions of thought..."* From this argument it is only a short step to what we have in this study said about the analytic decision paradigm.

In discussing why mathematical decision models are not used by practical decision makers, Christenson answers: *"The possibility that the mathematical constructs of the model builders, being free creations of thought, may not correspond to the reality faced by the practitioners is often overlooked"* (p. 23). The situation is not easier in the area of behavioural studies of organization. Christenson quotes *Lorsch'* view of *"the Babel of concepts and theories" which is confusing for the practitioners"* (p. 24). *Christenson* (p. 23) says that " ... a period of self-questioning has begun ..." in the scientific study of management.

Christenson (p. 24) suggests that there is a common element in the difficulties in the mathematical and behavioural approaches to the study of management. *"The common element is a failure to appreciate the degree to which the development of a science depends upon the prior development of an articulated practical art, that is, a skill which has found verbal expression in an informal language which practitioners have found useful in communicating about the exercise of their skill"*.

Christenson argues that the scientist should participate in the practice of management *".... to become a practitioner, at least vicariously.... and to assist in the articulation of the practitioner's skill"* (pp. 25-26). As such this could also be a methodological conclusion to this dissertation. However, where we do not follow *Christenson* is in his concept of the practice of the practitioners. Practice is for *Christenson* (p. 26) *"the trial-and-error process of*

practicing managers".

Practice as a trial-and-error process *Christenson* gets from *Popper,* or more specifically from *Popper's* conception of scientific practice (p. l9). As is well known, according to *Popper's* philosophy, the aim of scientific experiment is not to verify the hypothesis. Rather the hypothesis is falsified if the hypothesis does not hold under the stated circumstances. Hence the accumulation of scientific knowledge is in a way a process of trial and error. Administrative skill in administration develops in principle in the same way, according to *Christenson.* And to acquire knowledge of administering is to participate in this trial-and-error process of the practical administrator.

From the point of view of this study, practice is often a trial and error process but essentially it is also more than that. Behind the trial there is the constructive process of practical decision making we have studied in this dissertation. The core of practical action is the conceptual process we have designated by the Model of practical decision making. And the result of this process is either trial-and-error or trial-and-success.

During this study we have argued that the Model of practical decision making - with external and internal limitations - interprets the conceptual process that takes place in intendedly rational decision making. Therefore we suggest as a methodological implication of this view that the scientist in participating in the practice of management should use this same conceptual frame of reference.

If the study of management uses our Model PDM as its frame of reference, what does it consist of?

First, the study of administration can study the old and construct new decision steps, that is ends and means, of administration. In practice this could mean understanding and solving problems organizations or some particular administration face. Secondly the study of administration should include the study of the conceptual foundations of administration. This study can be called

philosophical study of administration, or briefly philosophy of administration. And this is what we have done in this dissertation.

The Concluding Summary

Part I of this dissertation is a philosophical study of decision making. During the discussion the practical syllogism is reconstructed and developed into the Model of practical decision making. This model represents practical rationality and it is essentially a normative model for decision making. However, Model PDM has also an explanatory use: it explains human decision making the more the more this decision making corresponds with practical rationality. The main results of Part I are summarized in Chapter 5 of Part I. In this concluding summary we draw together the most important results of Part II and relation of the two parts of this dissertation.

In the second part of this study three models of administrative decision making are analyzed in the light of the Model of practical decision making. The classification used is Allison s division of theories into the Rational Actor Model, the Organizational Process Model, and the Governmental Polities Model. It is demonstrated that this classification is justified by the fact that each of these models is rooted in some definite philosophical preconceptions. However, it is also discovered that *Allison* is in some important aspects wrong about the implications of his approach for the philosophy of science.

The conceptual foundations of the Rigorous Rational (*Allison*) or the Analytic (*Steinbruner*) Paradigm were studied. This decision paradigm covers several rational decision theories like various types of "expected value" -theories, operations research or systems analysis.

In Part I of this study it was shown that the model of scientific

practice is closely related to the model of practical reasoning. In Part II it was shown that the Analytic Paradigm of decision making is an effort to use this close relationship both in describing and prescribing practical action. In structuring his environment and the means to an end conceptually the "analytic" decision maker is supposed to proceed 1n principle like a natural scientist in the process of constructing and verifying a scientific hypothesis or in preparing a scientific experiment in a laboratory: he tries to find out the general laws in his environment and then by bringing about the determinants or the causes, to bring about the desired outcome or effect. It was argued that the Analytic Paradigm presents practical reasoning under extremely restricted assumptions, and this is the reason why it accomplishes neither its explanatory nor its normative task.

The Organizational Process Model is mainly abstracted from the works of Simon and some other Carnegie School scholars like *Cyert* and *March*. The Simonian view gives to the humans in the organization the capacity for rationality or problem-solving behaviour. The core of the approach is that this rationality or problem-solving behaviour is, however, reduced to the canons of the positivist's conception of science.

For *Simon* the humans are intendedly rational but only limitedly so. And these limitations are so strong that it is the task of organization to furnish them with rational choices. And by the manipulating of this furnishing one can direct the rational choices of the humans in the organization. This view implies the same concept of rationality as *Lempel's* Schema R: if two rational agents in the same situation are furnished with the same concepts, they are disposed to behave in similar ways.

The limitations of human rationality are intuitively true and also demonstrated by several empirical findings. The critical argument of this study against the Organizational Process Model is that the limitations of rationality do not cover the most important part of man as a decision maker: his capacity for practical reasoning, his

power of constructing his personal principles of action.

Steinbrenner's cybernetic and cognitive decision theories are closely related to the Organizational Process Model. The former can be interpreted as a special way of conceptualizing the Process Model itself. The cognitive decision theory is developed on the basis of cognitive psychology. In this branch of science too, several general laws according to which cognitive processes deviate from practical or rigorous rationality have been found. These findings one could call internal limitations of rationality.

To sum up: In the first part of this study the model of practical reasoning, expressing the human power or capacity for practical rationality or for acquiring something good by means of reason was developed. In the context of the Organizational Process Model it is demonstrated that there are certain external limitations to rational decision making in an organizational context.

The cognitive decision theory argues convincingly that there are also internal limitations to rationality. The first task of a comprehensive explanatory decision theory is to describe what is involved in the human capacity for practical reasoning in external limitations, in internal limitations and in the relationships between these three. In this study we have to some extent accomplished this task and we have indicated some directions for further research.

The Governmental (Bureaucratic) Polities Model is closely related to the philosophical construction of the Model of practical decision making. This Model was abstracted mainly from *Neustadt's* works. In the present study the close relationship between two person zero-sum and *Schelling's* game theories, *Neustadt's* works and also *Barnard's* organization theory, is shown.

So far, *Neustadt's* and *Barnard's* works have been respected, but lone, master pieces in the theory of public and business administration. It has not, however, been possible to reduce them to any metatheory or philosophy of science. In this study it is argued that *Allison* is wrong in his effort to reduce *Neustadt's* thinking into "the canons of modern science". One essential argument of the

present study is that the Model of practical decision making offers a philosophy of science for the Governmental Polities Model. Hence the Model of practical decision making (PDM) offers a conceptual framework on the basis of which the Governmental Polities Model or *Barnard's* and *Neustadt's* theory could be systematized and developed further.

The core of *Barnard's* theory is that the decision maker concerned is understood to be a practical reasoner and also the organizational environment is considered to consist of the same kinds of persons. Organizational action is an intendedly coordinated interaction of practically reasoning persons towards some goals. This view makes it possible to develop an adequate theory of authority or power, and also of implementation, which has been called the missing chapter of policy analysis.

At the end of Part II *Christenson's* Popperian philosophical approach to the study of administration was considered. *Christenson* suggests that it is the task of the scientist to participate in the trial-and- error process of administration and to construct on the basis of this experience suggestions for better performance. From the point of view of this study one can agree with this but one can also suggest some further steps. The science of administration should see both the trial-and-error and the trial-and-success processes of administration as expressions of practical reasoning or practical decision making. Then the study of administration would have two tasks. First, it should construct suggestions for better performance. Secondly, it should develop further the philosophical study of organizational decision making. In the final analysis, progress in the second task is a necessary condition for success in the first one.

7. TIIVISTELMÄ: Päätöksenteon edellytyksistä - Tutkimus hallinnon käsitteellisistä perusteista

Tällä tutkimuksella on kaksi tavoitetta. Ensimmäinen pyrkimys on esittää rationaalisen päätöksenteon käsitteellinen prosessi. Toiseksi muodostettavan päätöksenteon mallin avulla analysoidaan ja tulkitaan eräitä hallinnollisen päätösteorian pääsuuntauksia.

Tutkimuksen ensimmäisessä osassa niin sanottu praktinen syllogismi kehitetään käytännöllisen päätöksenteon malliksi. Tämä malli on rationaalisen päätöksenteon normatiivinen malli, jolla on myös tietty selittävä käyttö. Sen avulla voidaan selittää päätöksentekoa siinä määrin kuin selitettävä päätöksenteko on (mallin tarkoittamassa mielessä) rationaalista. Varsinaisen selittävän päätösteorian suuntaviivoja hahmotellaan työn toisessa osassa.

Aristoteleen ja *Anscomben* praktista syllogismia koskevan lyhyen historiallisen tarkastelun jälkeen analysoidaan aluksi *von Wrightin* keskustelua praktisesta syllogismista. *Von Wright* esittää praktisen syllogismin luonnontieteelliselle selittämiselle vaihtoehtoisena inhimillisen toiminnan selitysmallina. Päätöksenteon normatiivisen mallin kehittämiseksi on välttämätöntä tehdä *von Wrightin* malliin eräitä muutoksia. Itse premissien uudelleenmuotoilun lisäksi tehdään premissien ja johtopäätöksen suhteesta olennaisesti *von Wrightin* keskustelusta poikkeava olettamus: premissien ja johtopäätöksen välillä ei vallitse loogista tai kausaalista välttämättömyyttä. Näiden muutosten jälkeen työn lähtökohtana oleva praktinen syllogismi on seuraavanlainen:

A aikoo saada aikaan p.

A harkitsee, että jos hän tekee a, hän saa aikaan p.

Siksi A tekee a.

Praktisen syllogismin uudelleenmuotoilun jälkeen tätä syllogismia verrataan luonnontieteellisen käytännön malliin sellaisena kuin *Schlick* sen esittää verifikaatiomallissaan. Rinnakkain asettelu näyttää tällöin seuraavalta.

Verifikaatio	Praktinen syllogismi
	1. A aikoo saada aikaan p.
1 Meillä on hypoteesi (Jn): "jos c niin r".	2. A harkitsee, että jos hän tekee a, hän saa aikaan p.
Me havaitsemme (P): c sitten r1.	3. Siksi A tekee p.
Me identifioimme P:n Jn:n kanssa ja täten katsomme Jn:n tulleen verifioiduksi.	

Työssä tarkastellaan Verifikaation ja praktisen syllogismin yhtymäkohtia ja eroja. Erityisesti tutkitaan tieteellisen käytännön pyrkimystä kvantitatiivisiin käsitteisiin ja niitä rajoituksia, joita kvantitatiiviset käsitteet luonnontieteellisen käytännön mallin soveltamiselle asettavat.

Verifikaation ja praktisen syllogismin rinnakkain asettelun jälkeen tarkastellaan tunnetun Hempel-Dray -debatin pohjalta historiantutkimuksen metodia, jonka avulla selitetään historiallisen agentin toimintaa rekonstruoimalla eli ymmärtämällä ne päämäärät ja keinoja koskevat päättelyt, joiden pohjalta kyseessä oleva agentti suoritti tekonsa. Tutkimuksessa argumentoidaan, että rationaalisuus edellyttää usein sosiaalisessa ympäristössä toimivan päätöksentekijän ymmärtävän muiden agenttien toiminnan

periaatteessa samaan tapaan kuin historiantutkija ymmärtää tutkimuksen kohteena olevaa toimintaa. Samassa yhteydessä tarkastellaan myös, millä edellytyksillä luonnontieteellisen selittämisen käsitteet soveltuvat päätöksentekijän sosiaalisen ympäristön tulkitsemiseen. Sosiaalisessa ympäristössä tapahtuvaa käytännöllistä päättelyä varten muodostetaan praktinen päätelmä, jolla on työn toisessa osassa keskeinen sija analysoitaessa hallinnollista päätöksentekoa:

A aikoo saada aikaan p.

A harkitsee, että jos B tekee a, hän saavuttaa p.

Siksi A pyytää B:tä tekemään a.

Käytännöllisen päätöksenteon malli muodostetaan tarkastelemalla, miten useiden vaihtoehtoisten päämäärien ja keinojen (PS:n ensimmäisten ja toisten premissien) muodostaminen ja valinta tapahtuu rationaalisesti.

Päämäärien muodostamisen tarkastelussa kritikoidaan aluksi benthamilaista utilitarismia. Samalla todetaan eräiden modernien ajatustapojen kuten hyvinvointitaloustieteen (welfare economics), liittyvän läheisesti benthamilaiseen perinteeseen. Tässä tutkimuksessa päämäärien muodostamista tarkastellaan (eräitä *Aristoteleen* tulkintoja kehittäen) kuvauksen tai spesifioinnin etsimisenä ja löytämisenä aluksi epämääräisenä koetun halun tai tarpeen (desire) toteutumisen ehdoilla. Tällöin halutun hyvän toteutumisen ehtojen eli aiotun päämäärän spesifioimisessa voidaan käyttää sekä siantilojen että toimintasääntöjen kuvauksia.

Hintikan ja *Remeksen* analyyttistä metodia koskevalla tutkimuksella on läheinen historiallinen yhteys tämän tutkimuksen lähtökohtana olevaan käytännöllisen päättelyn malliin: kumpikin palautuu eräisiin vanhan kreikkalaisen ajattelun teemoihin. Tutkimuksessa esitetään, että käytännöllisessä päättelyssä päämäärään johtavat keinot muodostetaan rationaalisesti analyyttisen metodin avulla periaatteessa samaan tapaan kuin geometrikko ratkaisee analyyttisen metodin avulla geometrisen

ongelman.

Päämäärien ja keinojen valinnan käsittelyn alussa kritikoidaan utilitaristista menetelmää, jonka mukaan vaihtoehtoja tarkastellaan yksiulotteisen arvodimension avulla. Tavoitteiden muodostamista koskevan keskustelun perusteella argumentoidaan, että ristiriitaiset halut ja tarpeet (desires) sekä yhden halun tai tarpeen toteutumisen ehtojen erilaiset spesifioinnit ovat olennainen osa käytännöllistä päätöksentekoa. Tällaisessa tilanteessa on käytännöllisen rationaalisuuden mukaista etsiä sellaista uutta päämäärää tai keinoa, joka mahdollisimman suuressa määrin toteuttaa kaikki halutut hyvät (desired goods). Jos tämä ei ole mahdollista, on päätöksentekijän punnittava vaihtoehtoja tietoisena saavuttamastaan ja menettämästään hyvästä. Samassa yhteydessä tarkastellaan myös myöhempään *Barnardin* käsittelyyn viitaten tilannetta, jossa asiallisesti pätevä päätöksentekijä (esimerkiksi yrityksen johtaja) ei arvoristiriidan vuoksi pysty ollenkaan tekemään päätöstä.

Edellä olevaan keskusteluun liittyen esitetään käytännöllisen päätöksen- teon malli (Model PDM), joka on tiivistetyssä muodossa seuraava:

(S l) A muodostaa vaihtoehtoiset päämäärät p, q ja r.

(S 2) A valitsee p.

(S 3) A aikoo saada aikaan p.

(S 4) A harkitsee, että jos hän tekee a, b tai *c,* hän saa aikaan p.

(S 5) A valitsee a.

(S 6) Siksi A tekee a.

Käytännöllisen päätöksenteon malli on vastaus tutkimukselle asetettuun ensimmäiseen tehtävään: se kuvaa rationaalisen päätöksenteon käsitteellisen prosessin. Mallin ilmentämä rationaalisuus poikkeaa selvästi perinteellisistä objektiivisen ja subjektiivisen rationaalisuuden käsitteistä. Muodostetun mallin ilmaisema rationaalisuus nimetään työssä käytännölliseksi

rationaalisuudeksi. Tämä rationaalisuus osoittaa parhaan mahdollisen tavan (a) spesifioida ja kuvata, minkä ehtojen vallitessa haluttu hyvä toteutuu, sekä (b) muodostaa käsitys keinoista näin kuvatun päämäärän saavuttamiseksi. Tutkimuksessa todetaan verifikaation olevan testi luonnontieteellisten käsitteiden vastaavuudesta todellisuuden kanssa. Samaan tapaan voidaan sanoa, että käytännöllisen päättelyn (sekä hyvää että ulkoista todellisuutta koskevien käsitysten) oikeellisuus todetaan, kun kyseessä olevan päätöksenteon kuudes askel (S 6) kaikkine seurauksineen on toteutunut.

Tutkimuksen toisessa osassa analysoidaan käytännöllisen päätöksen- teon mallin avulla kolmea hallinnollisen päätöksenteon mallia. Tarkasteltavat teoriat luokitellaan tällöin *Allisonin* mukaan kolmeen ryhmään: ankaran rationaali malli (analyyttinen paradigma, *Steinbruner*), organisaatioprosessimalli ja hallintopoliittinen malli. Tämä luokittelu todetaan perustelluksi, sillä kunkin kolmen mallin perustana ovat tietyt filosofiset olettamukset. Kuitenkin työssä todetaan, että *Allison* on itse arvioinut väärin tutkimuksensa eräitä olennaisia tieteenfilosofisia yhtymäkohtia.

Ensiksi tarkastellaan analyyttisen paradigman (seuraavassa käytetään tätä Steinbrunerin termiä) käsitteellisiä perusteita. Tämä paradigma kattaa useita rationaalisia päätösteorioita kuten erilaiset odotusarvoteoriat, operaatioanalyysin ja systeemianalyysin.

Tutkimuksen ensimmäisessä osassa osoitettiin, että tieteen käytännön malli on läheisessä yhteydessä käytännölliseen päättelyyn. Toisessa osassa todetaan, että analyyttinen paradigma pyrkii käyttämään hyväksi juuri tätä yhteyttä. Näin tapahtuu analyyttisen paradigman sekä normatiivisessa että deskriptiivisessä käytössä. Tämän paradigman mukaan päätöksentekijäin edellytetään hahmottavan ympäristönsä ja toimivan periaatteessa samaan tapaan kuin luonnontieteilijä toimii muodostaessaan ja verifioidessaan tieteellisen hypoteesin tai tehdessään laboratoriossa tieteellisen kokeen: hän pyrkii löytämään ympäristön

käyttäytymisen yleiset lait ja sitten saamalla aikaan tietyt syyt toteuttamaan tietyn seurauksen. Tutkimuksessa argumentoidaan, että analyyttinen paradigma ilmentää käytännöllistä päättelyä äärimmäisen rajoitettujen edellytysten vallitessa, ja tästä syystä tämä paradigma ei täytä tyydyttävästi selittävää eikä normatiivista tehtäväänsä.

Organisaatioprosessimalli on muodostettu pääasiassa *Simonin* ja eräiden muiden "Carnegie"-koulun tutkijoiden, kuten *Cyertin* ja *Marchin*, työn pohjalta. Simonilainen näkemys antaa organisaatiossa toimiville ihmisille kyvyn rationaaliseen toimintaan ja ongelmien ratkaisemiseen. Tämän mallin ydin kuitenkin on, että tämä rationaalisuus tai ongelmien ratkaisukyky tulkitaan positivistisen tieteenkäsityksen pohjalta.

Simonille ihmiset ovat aikomuksellisesti mutta vain rajoittuneesti rationaalisia. Rationaalisuuden ulkoiset rajoitukset ovat niin voimakkaita, että rationaaliset valinnat ovat mahdollisia vain organisaation tuella. Vaikuttamalla tähän organisaation antamaan tukeen, voidaan suunnata organisaatiossa olevien ihmisten valinnat. Tähän katsomukseen sisältyy sama olettamus kuin *Hempelin* R-Skeemaan: jos kaksi rationaalista agenttia varustetaan samassa tilanteessa samoin käsittein, heidät on tehty halukkaaksi toimimaan yhdenmukaisella tavalla.

Ihmisen rationaalisuuden rajoitukset ovat ilmeisiä, ja monet empiiriset tutkimuksetkin osoittavat niiden olemassaolon. Tämän tutkimuksen kriittinen argumentti organisaatioprosessimallia vastaan on kuitenkin se, etteivät rationaalisuuden ulkoiset rajoitukset peitä kaikkein tärkeintä osaa ihmisestä päätöksentekijänä, ihmisen kykyä käytännölliseen rationaalisuuteen, kykyä muodostaa omat toimintaperiaatteensa.

Steinbrunerin kyberneettinen ja kognitiivinen päätösteoria liittyy läheisesti organisaatioprosessimalliin. Edellinen voidaan tulkita erityisenä tapana esittää prosessimalli. Kognitiivinen päätösteoria on kehitetty kognitiivisen psykologian pohjalta. Myös tällä tieteenalalla on löydetty lainalaisuuksia, joiden mukaisesti

kognitiiviset prosessit poikkeavat käytännöllisestä tai ankarasta rationaalisuudesta. Näitä säännönmukaisuuksia voidaan kutsua rationaalisuuden sisäisiksi rajoituksiksi.

Tiivistäen voidaan sanoa seuraavaa. Tämän tutkimuksen ensimmäisessä osassa kehitettiin käytännöllisen päätöksenteon malli, joka ilmentää ihmisen kykyä käytännölliseen rationaalisuuteen eli kykyä saavuttaa järkensä avulla jotakin haluamaansa hyvää. Organisaatioprosessimallin yhteydessä todettiin, että rationaaliselle päätöksenteolle on olemassa monia ulkoisia rajoituksia. Kognitiivinen päätösteoria argumentoi vakuuttavasti, että on olemassa myös rationaalisuuden sisäisiä rajoituksia. Päätöksenteon selittävän teorian tehtävänä on esittää, mitä sisältyy käytännölliseen rationaalisuuteen, sen ulkoisiin ja sisäisiin rajoituksiin sekä näiden kolmen väliseen suhteeseen. Tässä tutkimuksessa on aloitettu tätä tehtävää ja osoitettu suuntaviivoja jatkotutkimukselle.

Hallintopoliittisella mallilla on erityisen läheinen yhteys käytännöllisen päätöksenteon malliin. Hallintopoliittinen malli on muodostettu lähinnä Neustadtin töiden pohjalta. Tutkimuksessa osoitetaan läheinen yhteys myös peliteorian, *Schellingin* teorian, *Barnardin* organisaatioteorian ja *Neustadtin* teorian välillä.

Neustadtin ja *Barnardin* työt ovat olleet arvostettuja mutta melko yksinäisiä julkisen ja yrityshallinnon tutkimuksia. Kuitenkaan ei ole ollut mahdollista yhdistää niitä mihinkään tieteenfilosofiseen taustaan. Tässä tutkimuksessa argumentoidaan *Allisonin* olevan väärässä yrityksessään yhdistää *Neustadtin* ajattelu positivistisessa mielessä "modernin" tieteen lähtökohtiin. Tutkimuksen olennainen argumentti on, että käytännöllisen päätöksenteon malli tarjoaa tieteenfilosofian hallintopoliittiselle mallille. Käytännöllisen päätöksenteon malli tarjoaa myös käsitteellisen perustan, jonka avulla *Barnardin* ja *Neustadtin* teoriat voidaan yhdistää, systematisoida ja kehittää edelleen.

Barnardin teorian ydinajatus on, että organisaatiossa olevan päätöksentekijän katsotaan olevan käytännöllinen päättelijä ja myös

hänen organisatorinen ympäristönsä muodostuu periaatteessa samanlaisista persoonista kuin hän itse. Organisaation toiminta on johonkin tavoitteeseen pyrkivää käytännöllisten päättelijöiden koordinoitua yhteistoimintaa. Tämä lähtökohta tekee mahdolliseksi kehittää myös asianmukaisen vallan tai auktoriteetin teorian ja myös toimeenpanoanalyysin (implementation analysis) teorian, jota on kutsuttu poliittis-hallin- nollisen toimenpideanalyysin (policy analysis) puuttuvaksi luvuksi.

Toisen osan lopussa tarkastellaan *Christensonin* popperilaisittain filosofista hallinnon tutkimusta. *Christenson* esittää, että hallinnon-tutkijan tehtävänä on osallistua hallinnon yritys ja erehdys -prosessiin ja muodostaa kokemuksensa pohjalta ehdotuksia hallinnon toiminnan parantamiseksi. Tähän ehdotukseen voidaan yhtyä, mutta samalla *Christensonin* lähtökohtaa on vielä syvennettävä. Hallintotieteiden tulee nähdä hallinnon yritys ja erehdysprosessi ja myös yritys ja menestys-prosessi ilmauksena pyrkimyksestä käytännölliseen rationaalisuuteen. Tällöin hallinnon tutkimuksella on kaksi tehtävää. Ensiksi sen tulee muodostaa ehdotuksia hallinnon toiminnan parantamiseksi. Toiseksi sen tulee kehittää eteenpäin hallinnon ja päätöksenteon perusteiden filosofista tutkimusta. Tämän tutkimuksen mukaan edistyminen jälkimmäisessä hallinnonfilosofisessa tehtävässä on ensimmäisen käytännön tehtävän onnistumisen välttämätön edellytys.

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Appendix I. The Polities of Nuclear Sharing (See page 90)

The polities of nuclear sharing among the Western allies in the late 50's and early 60's bear all the marks of a complex decision problem.

By the early 50 s the post-war economic recovery in Western Europe had taken place and in 1957 the European Economic Community (EEC) had been created by the Treaty of Rome. Britain, however, had not become a member of the economic community. The strengthening of Western Europe was traditionally considered as a vital interest of the United States in several quarters of the U.S. government. In practice this interest was considered to imply supporting Britain s entry into the Common Market.

At the same time a vital development in nuclear weapons technology had occurred. Since World War II this development had been, in the West, in the hands of the United States. As late as 1956 NATO in its ministerial meeting had adopted a doctrine according to which NATO would use tactical nuclear weapons even against an attack by conventional weapons (Steinbruner 1974, 162). This conception was, however, looked on with growing uneasiness among some American analysts. By 1960 they were very interested in conventional weapons defense of Western Europe and also in isolating nuclear weapons in alliance strategy (p. 164).

The new American strategic doctrine emerged and finally it was made an official policy statement in McNamara's famous speech to the NATO council meeting in Athens in May 1962. According to this "flexible response" the decision making on nuclear weapons must be highly centralized (in the hands of the U.S. government) in order to make it possible to have reliable, non-nuclear options or limited nuclear options for coping with a wide range of security problems in Europe (pp. 202-203).

From the American point of view there were also some other stakes

at risk. Since the early development of atomic technology proliferation was considered as a major danger to the United States. In 1946 the Atomic Energy Commission (AEC) was founded to control all activities in the field. Even in the late 60's the official policy of the U.S. in handling nuclear technology was restrictiveness (p. 169). Closely related to this problem was the danger of developing national nuclear forces in different NATO countries. It was some kind of public secret that signs of this kind of development in Western Germany were followed with special care.

In Western Europe the development in nuclear technology and especially the strategic doctrine associated with it were followed with growing suspicion. Much of this was spelled out by de Gaulle who argued that Western Europe cannot be sure of American willingness to share in European defense at a time of major crisis. He also argued for national deterrent forces and intensified the struggle for French nuclear weapons. The situation was still complicated by the traditional "special relationship" between the United States and Britain. On the basis of this relationship the United States had given assistance to Britain in developing her own national nuclear forces. To complete the list, this special relationship had been looked on with suspicion by France and Western Germany. And on its own part this special relationship pushed France and Western Germany towards cooperation in various fields. Needless to say, the potential strengthening of this cooperation (with its sharpening focus against the "Anglo-Saxons") endangered both the political and military interests of the United States in Europe (pp. 164-171). After and during various suggestions in the spring of 1960 the State Department contracted Robert Bowie to make a study of NATO defense arrangements. The resulting report made two major proposals.

First, it recommended strengthening conventional NATO forces. Secondly, it advocated "the creation of a NATO strategic nuclear force consisting of submarines with Polaris missiles. The idea of

multilateral nuclear force emerged from this second proposal. If the European nations demanded more control of nuclear forces, Bowie argued, the submarines could be manned by at least three nations, and the participating nations would have to agree on a mechanism of control. Bowie's major argument was that the collective force would prevent the development of national nuclear weapons programs (pp. 188-189).

With the various modifications concerning the control of the weapons Bowie's idea looked for many like an attractive balancing of the competing objectives. It allowed the NATO countries - especially Western Germany and France - to participate in dealing with nuclear weapons but it would leave the final decision about deployment in the hands of the U.S. government. And if all the European NATO countries were in the same position concerning nuclear weapons, this would not any more hinder the development towards a larger Common Market. On the other hand the dignity of the European NATO countries could be satisfied, and moreover they could be made certain of American concern for the defense of Europe. And at the same time the final U.S. control of the multilateral force guaranteed the highly centralized decision making in the deployment of the weapons (p. 191-193).

For two or three years the MLF was a subject of diverse forms of foreign and bureaucratic politics. A peak in this development was reached in December 1962 at Nassau where President Kennedy met the British Prime Minister Macmillan. The national nuclear forces and the special relationship had become an expensive business for Britain. To continue the life time of her B 52 bombers at the time of quickly developing missile technology Britain had asked the U.S. to sell her an air-launched ballistic missile system called Sky bolt. According to Americans this missile was bad and expensive, and McNamara had fought hard to get it out of the defense program. After learning the American view the British government expected that it would receive an offer of some other weapons system instead of Sky bolt. This substitute the British supposed

would be Polaris missiles under national British control (Nested 1970).

Appendix II. The American Nuc1ear Strategy (See page 95)

It is well known that American thinking on nuclear strategy revo1ves around the concept of deterrence (Seinbruner 1976). Roughly speaking deterrence consists of one nuclear power s threatening the opponent with such a nuclear capability that it is not rational for the opponent to attack. For the moment we are not dea1ing with the dynamic aspects of the situation. We are interested in the fact that ana1ysts have developed certain assumptions of what is required to achieve the conditions of deterrence. We could say that these assumptions express what constitutes the desired good of deterrence, deterrence meaning that neither of the sides is willing to attack or both sides are afraid to attack. From some point of view it is reasonab1e to demand that these "planning calculations are made under such rigid criteria (that they are certain and calculable, remark RV) in order to make the desired conclusions compelling even for an opponent with on1y a very tenous hold on rationality" (Steinbruner 1976, 227). Steinbruner and Garwin (1975) make a careful analysis of the present American criteria or calculations on strategic balance that constitutes deterrence. This is done in their study on strategic vulnerability.

It appears that the conventional American calculation on strategic balance is done by a relatively simple parameter: NY(pot)2/3 : (CEP)(pot)2 "where N is the number of warheads independently aimed at a target, Y is the yield of the warheads expressed in megatons and CEP (circular error probable) is the conventional measure of accuracy expressed in nautical mi1es" (Steinbrenner and Garwin 1975, 8).

From this parameter the probability can be calculated that a given missile silo on one side would be destroyed by an attack of the

other side. And so the logic of deterrence says that if one side gets advantages in strategic capability (as measured by the parameter above) this would violate strategic stability. And the violated strategic stability would tempt the superior side into surprise attack and into using the superiority as a means of pressure in world politics. Therefore to promote peace and to avoid becoming a target of pressure the sides should maintain strategic balance - as measured by the parameter (Nitze 1976).

The concrete background of Steinbrenner's and Garwin s study is very acute. In 1974 the United States and the Soviet Union made the Vladivostok Accord that among other things limited the number of modern large ballistic launchers (MLBM s) to the situation as it was at the time of the accord (Nize 1976, 219).

Steinbruner and Garwin make a strength comparison. The total number of missi1es in the U.S. missile forces was then 1710 and in the S.U. missile forces 2275. But balance measured by the "balance parameter" showed up different figures: 25 000 to the U.S. and 6 900 to the S.U. And here comes the crucial point of the argument: if the Soviet Union develops its allowed number of missiles by technology now in principle known in the U.S. the S.U. could raise its relative strength as measured by the parameter up to 152 500.

And then if the U.S. did not improve its own situation, there would be a change in the strategic stability as measured by the parameter. Actually, this is the logic behind the proposals to improve the U.S. figures by investing "many tens of billions of dollars" (Steinbruner and Garwin 1975, 31). For example Nize (1976, 228-229) demands that the U.S. should decrease the vulnerabi1ity of its missiles and harden its missile si1os so that the opponent could be made certain that it cannot destroy the U.S. missiles by a surprise attack. And this is the logic and proposal that worries Steinbruner and Garwin.

Steinbruner and Garwin (p. 3) are well aware of the political and economic-organizational momentum behind the proposals to improve American strategic arms capability. Their basic point, however, is that "The issue has deep intellectual roots as well,

involving genuine difficulties in the fundamental conceptual structure of American defense policy." In their study they share Steinbrenner's view of the role of concepts in analysis: "The conclusions reached about strategic vulnerabi1ity as well as other major issues of force posture are substantially determined by the framework of assumptions made ..." (pp. 3-4). And these assumptions must be called into question.

Steinbruner and Garwin make some simulations simply by adding some minor real life variables to the conventional "balance parameter". To the number, accuracy and yield of attacking warheads they add such variables as reliability, interference and timing of the missiles. They do not at all consider that these additions are an exhaustive list of real life conditions. "Most notably it does not include any direct calculation of the human element in missile command and control systems, a factor which would be of primary importance ..." (p. 12). But even after simulations with these minor additions they come to the conclusion: "If one takes into account just the most obvious complications that the attacker faces, the massive first strike at hardened land based instillations begins to look at least as dangerous to the attacker as to the victim" (p. 25). This holds when the attacker is superior in strategic capability measured by the conventional parameter.

Steinbruner and Garwin ask (p. 29) "Where is the line between prudence and paranoia to be drawn?" If the purpose of nuclear strategy is defined in terms of balance as measured by the conventional parameter, surely it is reasonable to maintain that stability. But only if some minor technical real life complications are included in the calculation would a nuclear attack with "superiority" (as measured by the conventional parameter) be at least as dangerous to the attacker as to the victim - not to say anything about how fantastic a temptation to nuclear attack because of superiority sounds in the practical world we live in. The traditional calculation, however, enjoys remarkable scientific

prestige and in its popularized form it evokes considerable political momentum.

Appendix III. The Planning-Programming-Budgeting-System (See page 99)

In 1924 the Vice President for Finance Control of General Motors F. Donaldson Brown published a series of articles entitled "Pricing Policy in Relation to Financial Control" (Christenson PB, 2). These articles were one segment of Brown s more general approach to the problems of business management. "The essence of the approach was to start out with a stated objective for each department or division, in the case of DuPont and General Motors one relating to desired return on investment. All steps in the process of financial planning and control were directed toward analyzing the impact of decisions and events as they occurred on the attainment of the objective" (p. 3). Hence every department and division of General Motors had an objective derived from one goal: desired return on investment. Then it was the task of financial planning to analyse the impact of each decision on this objective.

It is on public record how successful General Motors and many other companies have been in adopting Brown s system. Therefore it is worth asking how it is possible for many productive organizations to use decision procedures basically like those which we have called the Analytic Paradigm: there is a goal expressed as quantitative measure of value and the environment of the decision maker is highly structured in terms of states of affairs (or processes as successive states of affairs) having some causal effect on the final goal.

Our answer is that in these cases structural uncertainty is so low that the quantitative concepts and the general laws do correspond with reality. This can be seen by reminding ourselves where structural uncertainty comes from.

l. The concepts of the Analytic Paradigm do capture some of the most essential components of the productive organization: the production lines themselves are literally part of physical nature, and in marketing, modern marketing research has been able to structure a lot of possible demand in terms of probabilistic estimations (that is to trans- late a structural uncertainty into statistical one).

2. Rules of conduct of the people in and outside the productive organization can and do change, but over a short period of time they are usually more stable than in a political governmental organization.

3. The problem of implementation (that is of getting people to do the job as planned in analytic terms) remains an acute problem both in governmental and productive business organizations.

The remarkable success of the Analytic Paradigm in business organizations led development to overtake what could be accomplished by this paradigm: there are some important areas of structural uncertainty even in business organizations. That is that in business organizations there are components with which the concepts of this paradigm do not correspond. In a governmental organization the lack of correspondence and hence the presence of structural uncertainty is great from the very beginning.

The way from DuPont and General Motors to the U.S. Defense Department was surprisingly short. After the war Ford Corporation hired several former GM employees who brought Brown s system to the corporation. At the same time young Ex Air Force statistical control officers were hired, McNamara among them. After a period of time McNamara was promoted president of the corporation but left this job to join President Kennedy's administration as the Secretary of Defense (Christenson PB, 4).

During the war the War Production Board had developed the Materials Allocation Plan which was essentially a program budgeting system (p. 5). After the war this system was developed further in RAND Corporation, a semi independent research

institution of the U.S. Air Force. After working in this institution, Charles J. Hitch and Roland McKean (1960) published a study adapting the concepts of program budgeting to defense problematics. McNamara read the book and hired Hitch as Assistant Secretary of Defense (Comptroller) (p. 6). McNamara and Hitch imposed program budgeting on the Defense Department. One of the early decisions taken on the basis of the new system was the cancellation of the Sky bolt missile we mentioned in the context of the polities of nuclear sharing (Enthoven and Smith 1972).

The specific from of the Analytic Paradigm in PPBS is a composition of systemsanalysis and cost-benefit analysis (Wildavsky 1975, 316-324). Cost-benefit analysis deals with the value component of the system. Systems analysis has been developed from the more rigorous operations research to structure the environment of the analyst or the decision maker (Wildavsky 1975, 321). "The systems analyst first decides what question are relevant to his inquiry, se1ects certain quantifiable factors, cuts down the list of factors to be dea1t with by aggregation and by eliminating the (it is hoped) 1ess important ones, and then gives them quantitative re1ationships with one another with n the system he has chosen for ana1ysis" (p. 321).

This description of Wildavsky's of how a system ana1yst or program budgeter structures his environment is a compact statement of what is invo1ved in the Ana1ytic Paradigm or in the work of a scientist in the natura1 sciences. This point Wi1davsky puts even more strongly: "... the contemporary paradigm of science provided the model. When implemented successfully the new methods would permit the planner, policy maker, and administrator to achieve the same objective control of government, economy, and society as could, theoretically, be attained in a laboratory" (p. 274).

The theoretical propositions of program budgeting were reflected in the practical orders from the Bureau of the Budget to the federal agencies. The original plan involves several levels of categories and indicators, all of them needing a critical philosophical analysis

of their own. Our present point becomes clear, however, by studying soma of the basic conceptions. The categories at the lowest level of the program hierarchy are called program elements. In 1966 the Bureau of the Budget defined these in the following way (Christenson PB, 14):

A program element covers agency activities related directly to the production of a discrete agency output, or group of related outputs. Agency activities which contribute directly to the output should be included in the program element, even though they may be conducted within different organizations, or financed from different appropriations. Thus, program elements are the basic units of the program structure.

Program elements have these characteristics:

(1) they should produce clearly-definable outputs, which are quantified wherever possible; .... and (3) the inputs of a program element should vary with changes in the level of the output, but not necessarily proportionally. (Bureau of Budget Bulletin 66-3, Section 5.a (2).)

From the quotation above it can be seen that according to program budgeting the agencies are supposed to produce discrete outputs, and the agencies "take in" inputs which are mainly the resources used in producing the outputs. Although there are some reservations concerning the quantification of the real or concrete output, the task of quantification becomes completed at the stage of program evaluation, when the output is compared to the input (usually in monetary terms) by cost- benefit or cost-effectiveness analysis (Christenson PB, 17). Wildavsky's allegory of a scientific experiment in a laboratory becomes illuminating when the description of PPBS is completed by saying that the outputs and their combinations are supposed to be directed and controlled by manipulating the inputs of their production.

The adoption of PPBS would have been a massive administrative reform. However, it did not succeed anywhere in its original form.

The effort seems to have produced frustration almost everywhere (Wildavsky 1975, 359-360). The reactions to PPBS and reforms related to it varied between the agencies. "Those agencies whose activities or experience lent themselves easily to workload analysis reacted differently from those whose activities made this procedure impossible or inappropriate" (p. 284). It seems that where the agency dealt with production of some quantifiable discrete goods or services, the resistance was weaker. Unfortunately most of the governmental organizations are not in this respect directly comparable to General Motors.

One of the organizations which were unsuccessful in the effort to adopt PPBS was the State Department (p. 342). Common sense and our example of the nuclear sharing policy would say that in foreign policy the analyst and decision maker are dealing with an environment which consists mainly of rules of conduct of various foreign governments and organizations, and structural uncertainty as defined above is at work in that field. As the main PPBS analysts of the State Department of the time said: "There remains a need for marrying quantitative analysis with judgment based upon qualitative considerations, but it does not appear that a romance between the two was materially encouraged by the events described in this story" (Mosher and Harr according to Wildavsky, 342-343). In the language of this study the marriage is not successful simply because the quantitative analysis of the Analytic Paradigm does not correspond with the external world described by the qualitative considerations.

Mosher's and Harr's experience in the state department was repeated in various federal organizations and agencies (Wildavsky 1975, 286, 303). As mentioned above, various explanations for the failure of PPBS have been given. We may repeat Wildavsky's remark that after perhaps hundreds of efforts it should have succeeded somewhere if it could have succeeded even in principle. According to Wildavsky (p. 364): "If one can state objectives precisely, find quantitative measures for them, specify alternative

ways of achieving them by different inputs of resources, and rank them according to desirability (as it is presupposed in PPBS,RV), one has so1ved the socia1 problems for the period." According to Wildavsky this is not possib1e because " ... it demands abilities to perform cognitive operations which are beyond present human (or machine) capacities." It is an argument of this study that the reason is even more profound than that.

Appendix IV. Alliance Polities in Skybolt Decision (See page 108)

Neustadt (1970) characterizes some of the main aspects of the drama of confusion before the Nassau conference. The Prime Minister and Britain s Minister of Defense had been warned about U.S.-views in order to stimulate them to make a new proposal. None of them behaved like that. Why? The Americans "misread the inner character of Cabinet procedure" (Neustadt 1970, 89). In some respects the procedure of Cabinet is opposite to the decision making of the American President with his aides. To govern, the Cabinet has to have a strong hold upon the Members of Parliament and its permanent officials. And nothing would threaten this discipline more than public disarray in the Cabinet over publicly established policy. "Where we (Americans) have public struggles by avowedly independent institutions, they have private struggles by ostensibly united Ministries and Ministers" (Neustadt 1970, 91).

This point was stressed by the fact that, at the time, there was already enough public disarray for Macmillan even without Skybolt. According to Nested this was the background to why Macmillan and Thorneycroft remained passive. To avoid public debate they behaved as if there were no Skybolt problem. And they expected the U.S. to make the substitute proposal. Why this expectation? Because the British also formed their expectations of the Americans on the basis of their own British experience.

For the American President the budgetary process is one of the

main instruments of policy. The deadlines set by this procedure determine many of the deadlines of policy decision. Annual budgets go to Congress in January. To keep Skybolt out of the President's proposal it had to be cancelled by December (Neustadt 1970, 97). The budget as a means of polities was even more stressed by McNamara's new program budget philosophy described above. He even sought to teach the three Services a lesson by the Skybolt cancellation (p. 98). "To London all of this was quite incomprehensible." At that time the British budget was not written in spending terms.

What Parliament received was a proposal to raise revenue to cover the Cabinet's expenditure decisions (p. 98). So from the perspectives of their own experience the British simply could not understand why the Americans should have been firm and in a hurry. And if the Americans were to be serious why would they not offer a substitute proposal like Polaris missiles? It seems that the British did not understand the American problematics of nuclear sharing polities either.