How can one achieve reliable knowledge in the scholarly discipline of International Relations? Nicolas Laos answers the previous question by studying International Relations qua science. In particular, he defends a refined version of positivism. Within this framework of analysis, Nicolas Laos argues that, even though Morgenthau and Waltz have attempted to study International Relations as 'they are' rather than as 'they ought to be', their results in terms of operational meaningfulness are poor, and he develops an original empiricist approach to theory construction.

This book, aiming at a scientifically rigorous study of International Relations, will be of interest not only to scholars and students but also to policy-makers, since -in Mao Zedong's words- "subjective analysis of a political situation and subjective guidance of work inevitably result either in opportunism or in putschism".

Nicolaos Laos is an analyst of financial and political risk. His publications include the following books: *Topics in Mathematical Analysis and Differential Geometry* (Singapore, New Jersey, London, Hong Kong: World Scientific Publ. Co., 1998), *The Foreign Exchange Market - FOREX* (Athens: Ant. N. Sakkoulas Publishers, 1999; in Greek), and *Evaluation of Investments and Risk Analysis* (Athens: Diavlos Publ. Co., 2000; in Greek).

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Contents

The present book is based on my postgraduate research work at the University of Kent (1997-1998) under the guidance of Dr. Hazel Smith and at the Royal Institute of International Affairs (1998-1999) under the guidance of Mr. William Hopkinson. The responsibility for the content of the present book is entirely mine.

Introduction

In this work, I am going to argue that the outcomes of the international-political theories of Hans J. Morgenthau and Kenneth N. Waltz in terms of operational meaningfulness are poor. I shall do this by taking two main steps. First, I shall study the empiricist conception of science and I shall draw the guidelines for the construction of a social science of International Relations. Second, I shall evaluate the social-scientific credentials of the theories of Morgenthau and Waltz.

The main reason that the above-mentioned argument is important in the scholarly discipline of International Relations is that Morgenthau and Waltz occupy a conspicuous position in this discipline's intellectual history and are considered to be the paradigmatic representatives of 'classical realism' and 'neorealism'[1], respectively. In fact, 'classical realism', headed by E.H. Carr[2] and H.J. Morgenthau[3], was developed in reaction to both the intellectual and the practical failures of the interwar idealism. Indeed, during the 1930s, the infant discipline of International Relations was dominated by Woodrow Wilson's visionary hopes[4] and most of the scholars working in this discipline were international lawyers and historians[5]. On the other hand, during the 1940s, the 1950s and the 1960s, the discipline of International Relations was domi-

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[1] For more details, one may be referred to T.L. Knutzen, A History of International Relations (Manchester: Manchester University Press, 1992), p. 223-225 and 232.

[2] See E.H. Carr, *The Twenty-Years' Crisis, 1919-1939* (New York: Harper and Row, 1964).

[3] See H.J. Morgenthau, *Politics among Nations: The Struggle for Power and Peace* (rev. by K.W. Thompson, New York: McGraw-Hill, Inc., 1993).

[4] See T.L. Knutzen, *op.cit.* (ref. 1), p. 185-190.

[5] See T.L. Knutzen, *op.cit.* (ref. 1), p. 193-196.

nated by the scholarly works of the classical realists, who were giving priority to the need to study international politics in an ontological fashion (as it is) rather than in a deontological one (as one might like it to be). However, from the late 1960s onwards, various sophisticated critical analyses of classical realism were put forward[6]. After these attacks on realism, Buzan maintains that "a realist revival under the label neo-realism started in the late 1970s led by the work of Kenneth Waltz"[7]. Neorealism was the counter-attack against the neoliberal literature[8], and it marks a shift from the conservative assumptions about human nature that underpin classical realism toward the study of the anarchic structure as the foundation of power politics.

As far as classical realism is concerned, I should mention that Morgenthau was opposed to the empiricist methodology (behaviouralism in particular) which is defended in the present work. In chapter 2, I shall study a series of antinomies in Morgenthau's theory of international politics which stem from the fact that his opposition to behaviouralism is methodological but not substantive. In other words, Morgenthau deplores the methodology of the social sciences but simultaneously legitimises generalisations which cannot be legitimised without accepting the methodology of the social sciences.

Neorealism – Waltz's theory in particular – signals an attempt to develop a more consciously scientific approach to International Relations. Yet, in chapter 3, I shall argue that Waltz has not managed to construct an empirically meaningful theory of international politics, and that, in his scholarly work, the cognitive status of a

[6] See B. Buzan, "The Timeless Wisdom of Realism?", in S. Smith, K. Booth and M. Zalewski (eds), *International Theory: Positivism and Beyond* (Cambridge: Cambridge University Press, 1996), p. 47-65.

[7] See B. Buzan, *op.cit.* (ref. 6), p. 49.

[8] For more details about the neorealism-neoliberalism debate, refer to D. Baldwin (ed.), *Neorealism and Neoliberalism: The Contemporary Debate* (New York: Columbia University Press, 1993).

'scientific theory' is unclear.

Finally, I should mention that the task which I have undertaken in the present work has a broader implication for the study of International Relations – namely, it provides a defence of a social-scientific approach to International Relations based on empiricism. Hence, my critical analysis of the theories of Morgenthau and Waltz will be placed within a general conceptual setting which calls for the transition from unidimensional ideally typical theoretical constructs to empirically relevant theories.

1
International Relations and the Social Sciences

Introduction

In the present chapter, I shall formulate the conceptual framework within which and the criteria with respect to which I shall evaluate the social-scientific credentials of the international-political theories of Hans J. Morgenthau and Kenneth N. Waltz in chapters 2 and 3, respectively. To do this, I shall analyse the empiricist approach to the philosophy of science and to theory construction in the scholarly discipline of International Relations in particular. In other words, I shall undertake a double task. First, I shall study the manner in which empiricism addresses *foundational questions* in the philosophy of science – namely, general questions about the nature and the extent of scientific knowledge, of scientific concepts and categories and of scientific language – as well as issues in *applied philosophy of science* referring to the social sciences in particular – namely, issues about finding scientific knowledge, about concepts and about methods specifically in the social sciences. Second, I shall explain the meaning of a social science of International Relations, and I shall show how theory construction in International Relations can be understood from a social-scientific perspective.

1.1. The Empiricist Conception of Science

In this section, I shall study the place of empiricism in the history of the philosophy of science in order to highlight its development and defend a refined form of empiricism in the spirit of Carl

Hempel[1] and Michael Nicholson[2]. The required preliminary to the previous task is to clarify the meaning of the basic concepts by means of which the empiricist conception of science can be articulated. Therefore, I shall define the following concepts, based on the manner in which they are construed in the empiricist-positivist literature[3]: 'inference', 'deductively valid inference', 'inductively valid inference', 'deductive system', 'calculus', 'interpretation of a calculus', 'pure deductive system', '*L*-determinate statement', 'non-*L*-determinate statement', 'factual statement', 'applied deductive system' and 'scientific theory'.

An *inference* is defined to be a set of premises and a conclusion drawn from them. A *deductively valid inference* is an inference such that it is impossible the premises to be true and the conclusion false[4]. For instance, the inference whose premises are '$a \leq b$' (i.e. 'a is less than or equal to b') and '$b \leq c$' (i.e. 'b is less than or equal to c') and whose conclusion is '$a \leq c$' (i.e. 'a is less than or equal to c') is deductively valid, whereas the inference with the same premises and the conclusion '$a \leq \frac{9}{10}c$' (i.e. 'a is less than or equal to the nine tenths of c') is not deductively valid. An *inductively valid inference* is any inference made when a scientist uses particular observations or experimental results in order to draw general conclusions (about the behaviour of natural or social phenomena) from them[5]. For instance, a biologist who has observed a large number of white swans is urged to conclude that 'all swans are white'. However, this conclusion, which is empirical and universal in character, can be refuted by a single contradictory instance, such as the discovery of black swans in Australia.

[1] See C.G. Hempel, *Aspects of Scientific Explanation* (New York: Free Press, 1965).

[2] See M. Nicholson, *Causes and Consequences in International Relations: A Conceptual Study* (London: Pinter, 1996).

[3] See for instance R.B. Braithwaite, *Scientific Explanation* (Cambridge: Cambridge University Press, 1953); C.G. Hempel, *op.cit.* (ref. 1); N.K. Laos, *Topics in Mathematical Analysis and Differential Geometry* (Singapore, New Jersey, London, Hong Kong: World Scientific Publ. Co., 1998).

[4] Deductivism goes back to Aristotle's *Organon*. For a modern deep study of deduction, one may be referred to K.R. Popper, *The Logic of Scientific Discovery* (New York: Harper and Collins, 1959).

It is David Hume who first made explicit that *no inductive inference can be deductively valid*[6]. In other words, as illustrated by the last example about swans, no matter how many white swans have been observed, one cannot, depending on a finite set of observations, justify asserting the truth of a potentially infinite set of observations such as 'all swans are white'[7]. If fact, since inductive inferences, which are used in empirical sciences, necessarily involve a certain risk[8], Nicholson argues that "one has to be able to specify the observations which would falsify the statement and then see if the conditions which would falsify it hold or not"[9].

The above argument of Hume can be reformulated in Hempel's terms[10] as follows: it is often the case that the observations which confirm a general principle or a putative law do so by confirming predictions about observable phenomena deduced from the given general principle or putative law together with additional premises (called *auxiliary hypotheses*) that are independently confirmed; thus, saying that no inductive inference can be deductively valid means that, no matter how many successful predictions have been

[5] See D. Hume, *A Treatise of Human Nature* (ed. L.A. Selby Bigge, Oxford: Clarendon Press, 1978).

[6] See D. Hume, *op.cit.* (ref. 5).

[7] See M. Nicholson, *op.cit.* (ref. 2), p.88.

[8] See C.G. Hempel, *Philosophy of Natural Science* (Englewood Cliffs, N.J.: Prentice-Hall, 1966), ch. 2.

[9] See M. Nicholson, *op.cit.* (ref. 2), p.88.

[10] See C.G. Hempel, *op.cit.* (ref. 8), ch. 3.

deduced from a generalisation together with suitable auxiliary hypotheses, it is still conceivable that false predictions will be deduced in the future and/or that they have already been deduced about unexamined cases (e.g. the Australian black swans). Thus, truths derived from experience alone are not certain – they can yield probability only – and thus they should have some rational basis as well. In other words, both experience and reason should find their explicit place in the process of finding scientific knowledge. This goal can be achieved by the so-called hypothetico-deductive (simply deductive) method. To understand how experience can be combined with reason in the process of finding scientific knowledge, one must first clarify the meaning of a 'deductive system'.

A *deductive system* is defined to be a calculus endowed with an interpretation of its terms[11]. A *calculus* is a collection of symbols equipped with a set of rules for their manipulation. Within the context of a calculus, no question of meaning and therefore of truth or falsity can be posed. However, when a calculus is equipped with an *interpretation* of its terms, i.e. with a set of rules which make its terms meaningful, then it becomes a deductive system. A deductive system is called *pure* if the rules of the interpretation are sufficient to establish the truth or the falsity of its constituent statements. The statements of a pure deductive system are called *L-determinate*[12]. For instance, logic and mathematics are pure deductive systems. Therefore, truths derived from pure deductive systems are based on reason alone and are certain since they can never be empirically refuted. Their certainty, however, is purchased at very high cost, since they are devoid of any factual meaning.

If a statement cannot be assigned a truth value only according to the rules of interpretation in the relevant deductive system, then it is called non-L-determinate. A non-L-determinate statement is

[11] See R.B. Braithwaite, *op.cit.* (ref. 3); C.G. Hempel, *op.cit.* (ref. 1).

[12] '*L*' stands for the relevant formal language. The truth value of an *L*-determinate statement is determined in *L* by an interpretation of the symbols in *L*.

called true or false not only on the basis of the rules of interpretation in the relevant deductive system but also on the basis of a rule of disposition by reference to empirical data. Non-L-determinate statements for which a rule of disposition by reference to empirical data has been established are called factual statements, while the deductive systems in which they appear are called *applied*. For instance, the statement 'if the horse is white then the horse is white' is *L*-determinate, since the logical connective 'if...then...' is sufficient in order to make the above statement true independently of any reference to empirical data, whereas the statement 'the horse is white' is non-*L*-determinate.

Closely related to the concept of a deductive system is the concept of a scientific theory. Within the empiricist context followed here, a *scientific theory* is defined to be any consistent[13] set of sentences of a logic *L* closed with respect to logical deductions (i.e. deductive inferences can be established). Theories may be articulated either as pure deductive systems or as applied deductive systems.

The concepts which I have studied heretofore will help me proceed to the study of three questions: (i) the difference between pure and empirical sciences, (ii) the difference between statements of purely logical and statements of empirical significance, and (iii) the difference between statements which do have and statements which do not have cognitive significance. I consider the answers to the previous questions to be of great significance in order to understand the empiricist conception of science. For, to talk meaningfully about the empiricist conception of science, one must clarify the manner in which and the extent to which the constituent statements of a scientific theory gain empirical content, distinguish empirically meaningful theoretical constructions from empirically meaningless ones and formulate a criterion by means of which one can determine the cognitive content of a sentence (i.e. if a sentence

[13] A set of sentences is consistent if it does not contain and does not produce contradictions.

has any meaning and the necessary and sufficient conditions under which a sentence can be said to be either true or false).

I shall study first the difference between pure and empirical sciences. Pure sciences consist in pure deductive systems and therefore are tautological in character, i.e. theorems are derived from postulates through entailment or logical implication. Hence, in pure sciences, theorems merely re-assert what was already implied in the postulates. Yet, these theorems bring to light truths which, although they were implicitly contained in the adopted set of postulates, were not explicitly known to the scientists who have adopted the given set of postulates. In particular, C.G. Hempel argues that a theorem's "content may well be *psychologically knew* in the sense that we were not aware of its being implicitly contained in the postulates"[14]. Moreover, the role of tautologies in the production of scientific knowledge is shown by the fact that logic – a pure science whose function is to describe the method of attaining knowledge – consists in tautologies. For instance, the following tautologies are extremely common in the construction of scientific theories:

$(p \rightarrow q) \leftrightarrow [(p \wedge \sim q) \rightarrow c]$	reductio ad absurdum
$[p \wedge (p \rightarrow q)] \rightarrow q$	modus ponens
$[(p \rightarrow q) \wedge (q \rightarrow r)] \rightarrow (p \rightarrow r)$	hypothetical syllogism
$[(p \vee q) \wedge \sim p] \rightarrow q$	disjunctive syllogism
$(p \rightarrow c) \rightarrow \sim p$	absurdity

where p, q and r stand for propositions, c for 'contradiction', $\rightarrow$ for 'implies', $\leftrightarrow$ for 'is equivalent to', $\wedge$ for 'and', $\vee$ for 'or' and $\sim$ for 'not'.

However, one should not get the impression that pure sciences cannot be transformed into empirical ones. There are certain conditions under which a pure science can be transformed into an empirical one[15]. The transformation of Riemannian geometry into physical geometry by Albert Einstein is a case in point[16]. The transformation of a pure science into an empirical one entails two steps which must be taken:

Step 1: The first step consists in the epistemic correlation of the primitives (i.e. the concepts which are not defined in the given axiomatic system) to operationally defined concepts with empirical content, so that the postulates take on truth value.

Einstein's theories of special and general relativity have played a decisive role in changing the scientists' attitude toward 'concepts'[17]. Before Einstein, many of the concepts of physics were defined in terms of their properties. However, there is no assurance that there exists in nature anything that satisfies the properties assumed in the definition of a physical concept, so that, if physics is based on concepts defined in terms of their properties, it tends to become a pure science. The empirical relevance of physics is determined by experiments which show the extent to which physical concepts defined in terms of their properties correspond to anything in nature. For instance, before Einstein, the concept of simultaneity of two events was nothing more than a property of two events. Einstein showed that the operations which establish the simultaneity of two events involve measurements on the two events made by an observer, so that 'simultaneity' is not just an absolute property of two events, but it must also involve the relation of the

[14] See C.G. Hempel, "Geometry and Empirical Science", in H. Feigl and W. Sellars (eds), *Readings in Philosophical Analysis* (New York: Appleton-Century-Crofts, Inc., 1949), p. 241.

[15] See F.C.S. Northrop, *The Logic of the Sciences and the Humanities* (New York: Macmillan Co., 1947).

[16] See A. Einstein, "The Foundation of the General Theory of Relativity", in A. Einstein, H.A. Lorentz, H. Weyl and H. Minkowski, *The Principle of Relativity: A Collection of Original Papers on the Special and General Theory of Relativity* (notes by A. Sommerfeld and trans. by W. Perrett and G.B. Jeffery, New York: Dover Publications, Inc., 1952).

[17] See P. Bridgman, *The Logic of Modern Physics* (New York: Macmillan Co., 1955), ch.1.

events to the observer. In particular, whether two events at different space points are simultaneous depends on the state of motion of the observer. Thus, one of Einstein's greatest contributions to the philosophy of science consists in the operationalisation of scientific concepts.

Step 2: Once the first step has been taken, the second step consists in the confirmation of the postulates[18]. In fact, what we have to do in this step is to derive operationally meaningful theorems from the postulates and test them against the facts. In case the observations do not contradict the operationally meaningful hypotheses, the theory is provisionally acceptable. Otherwise, the theory is disconfirmed; if this is the case, then one has to look for different postulates which will give rise to a theory consistent with the observations.

Closely related to the concept of an empirical science is the concept of empirical meaningfulness; for, it is impossible to study the meaning of empirical sciences and to construct empirical theories without a criterion which allows one to decide whether or not a sentence has empirical meaning. Therefore, apart from showing the manner in which a pure science can be transformed into an empirical one, I must also show the manner in which the empirical meaningfulness of a sentence can be determined. I shall follow Carnap's terminology[19], according to which a sentence is empirically relevant – and is said to be an *observation sentence* – if it is capable of asserting or denying that a certain object or group of objects has a particular *observable characteristic* (i.e. a characteristic whose presence or absence can, under appropriate circumstances, be empirically ascertained). The previous definition implies that the formulation of criteria of empirical significance – i.e. the formulation of necessary and sufficient conditions under which

[18] It is assumed that the given axiomatic system is consistent.

[19] See R. Carnap, "Logical Foundations of the Unity of Science", *International Encyclopaedia of Unified Science* (Chicago: University of Chicago Press, 1938), vol. 1, p. 52-53.

a sentence has empirical meaning – reduces to the determination of the relationship between a hypothesis and one or more observation sentences, provided that the phenomena described by the latter either confirm or disconfirm the given hypothesis[20].

Before getting to grips with the study of criteria of empirical significance, I need to make a remark about the general empiricist conception of cognitive significance. A basic empiricist principle is that a sentence makes a cognitively significant assertion if and only if either it is *L*-determinate or it is non-*L*-determinate. Therefore, according to the empiricist philosophy of science, the formulation of criteria of empirical significance depends on the above-mentioned general principle of cognitive significance. In the sequel, it will become clear that, in order one to study criteria of empirical significance, he or she must be, first of all, aware of certain requirements which must be met by any criterion of cognitive significance, i.e. he or she must formulate some condition of adequacy for criteria of cognitive significance. In particular, in order to be able to study criteria of empirical significance, I need first to state the following necessary (though not sufficient) condition (here called 'Condition A') of adequacy for criteria of cognitive significance, which is originally due to Hempel[21]:

Condition A: Let C be a criterion of cognitive significance. If, under C, a sentence S is non-significant (i.e. S cannot be significantly assigned a truth value), then so must be all truth-functional compound sentences containing S.

Corollary A1: If, under C, S is non-significant, then so must be ~S (the negation of S).

Corollary A2: If, under C, S is non-significant, then so must be $S \wedge S'$ and $S \vee S'$, where S' is any sentence significant or non-significant under C.

After the above preliminaries, I can now study different criteria of empirical significance. The oldest such criterion is the verifi-

[20] See C.G. Hempel, *op.cit.* (ref. 1).

[21] See C.G. Hempel, *op.cit.* (ref. 1).

ability criterion[22]: (CV) *The Criterion of Complete Verifiability in Principle*: A necessary and sufficient condition that a sentence has empirical meaning is that it is not *L*-determinate and follows logically from some finite and logically consistent class of observation sentences (these observation sentences may be false since the criterion refers to testability 'in principle').

The above criterion, however, has many defects. First of all, it is worth mentioning that, originally, (CV) had restricted the permissible evidence to what is observable by the speaker or his or her fellow beings during their lifetimes[23]. In that form, (CV) had an important defect; namely, under such a criterion, all statements about the distant future or the remote past are cognitively meaningless[24]. However, this defect can be overcome if the concept of verifiability in principle is construed as referring to *logically possible evidence* as expressed by observation sentences, so that the class of statements which are verifiable in principle includes statements about the distant future, the remote past and generally about phenomena which are not observable by the speaker or his or her fellow beings (e.g. 'Mars and the Antarctic existed before man discovered them').

Nevertheless, even after the above refinement, the verifiability criterion still has serious defects, as has been argued, among others, by Hempel[25]. First, let us assume that the properties of being a cat and having a tail are both observable characteristics and that the former does not *logically* entail the latter. Then the sentence

'All cats have a tail' (S*)

is neither *L*-determinate nor contradictory and also it is not deducible from any finite set of observation sentences. Thus, under (CV), the above sentence is devoid of empirical significance and so are all other sentences expressing general laws. But because sentences of the above type constitute a significant part of a scientific theory, it follows that (CV) is too restrictive. Second, the negation of (S^*), i.e.

'There exists at least one cat which has not a tail', (~S*)

is deducible from any two observation sentences of the type '*x* is a cat' and '*x* has not a tail', so that ($\sim S^*$) is cognitively significant under (CV) but (S^*) is not, and this contradicts Corollary A1. Third, if S is a sentence which does and S' a sentence which does not satisfy (CV), then S is deducible from some set of observation sentences, so that $S \vee S'$ is deducible from the same set (i.e. $S \vee S'$ is cognitively significant), which contradicts Corollary A2.

Moreover, Karl R. Popper criticises the verifiability criterion on the grounds that the positivists' view that empirical science is a system of statements satisfying certain logical criteria does not make provisions for what Popper considers to be the major distinguishing feature of empirical statements, i.e. their susceptibility to revision[26]. In other words, Popper's approach to the question of empirical meaningfulness calls for a systematic study of the manner in which science advances and a choice is made between conflicting systems of theories. Thus, Popper[27] proposes the falsifiability criterion as an alternative to the verifiability criterion:
(CF) *The Criterion of Complete Falsifiability in Principle*: A necessary and sufficient condition that a sentence has empirical meaning is that its negation is not *L*-determinate and follows logically from some finite and logically consistent class of observation sentences.

However, (CF) indirectly contains (CV), since (CF) qualifies a sentence as empirically meaningful if its negation satisfies (CV).

[22] See A.J. Ayer, *Language, Truth and Logic* (London: Collancz, 1936); B. Russell, *Human Knowledge: Its Scope and Limits* (London: Allen and Unwin, 1948).

[23] See A.J. Ayer, *op.cit.* (ref. 22); B. Russell, *op.cit.* (ref. 22).

[24] See A.J. Ayer, *op.cit.* (ref. 22), ch. 1; B. Russell, *op.cit.* (ref. 22), p. 445-447.

[25] See C.G. Hempel, *op.cit.* (ref. 1).

[26] See K.R. Popper, *op.cit.* (ref. 4).

[27] See K.R. Popper, *op.cit.* (ref. 4).

Therefore, Hempel[28] argues that (CF) has similar defects with (CV). Indeed, (CF) has the following defects: (i) it rules out purely existential hypotheses (e.g. 'There exists at least one cat which has not a tail') as cognitively insignificant; (ii) if P is an observation predicate, then the assertion that all things satisfy P is significant under (CF) but its negation – being equivalent to a purely existential hypothesis – is not significant under (CF), and this contradicts Corollary A1; (iii) if a sentence S does and a sentence S' does not satisfy (CF), then $S \wedge S'$ does satisfy (CF) (since, if ~S is entailed by a class of observation sentences, then $\sim(S \wedge S')$ is entailed by the same class), and this contradicts Corollary A2.

Given that both (CV) and (CF) have been proved to be too restrictive and susceptible to serious defects, Ayer[29] has attempted to formulate a criterion of confirmability which avoids the defects of (CV) and (CF) by construing the testability criterion as consisting in a partial and possibly indirect confirmability of empirical hypotheses by observational evidence. In particular, Ayer's *confirmability criterion* states that a sentence S is empirically significant if S in conjunction with suitable auxiliary hypotheses imply observation sentences which cannot be derived from the auxiliary hypotheses alone. However, Ayer himself recognised in the second edition of his book *Language, Truth and Logic* (1946) that the previous confirmability criterion is too liberal[30]. For instance, if S is the sentence 'The totality is everything' and if one chooses as an auxiliary hypothesis the statement 'If the totality is everything, then the cat is black', the following observation sentence can be deduced: 'The cat is black'. Therefore, Ayer restricted the auxiliary hypotheses mentioned in the initial version of his confirmability criterion to sentences which either are L-determinate or can independently be shown to be testable in the sense of the refined con-

[28] See C.G. Hempel, *op.cit.* (ref. 1).

[29] See A.J. Ayer, *op.cit.* (ref. 24).

[30] See A.J. Ayer, *op.cit.* (ref. 24, 2nd ed., 1946),ch. 1.

firmability criterion[31]. Nevertheless, not even this refinement of the confirmability criterion is enough; for, as Hempel[32] points out, it allows empirical significance to any conjunction $S \wedge S'$ where S does and S' does not satisfy Ayer's criterion (e.g. S' is a sentence such as 'The totality is everything').

A general remark which applies to all the above-mentioned criteria of empirical significance is that they are all based on an attempt to define the concept of empirical significance in terms of certain logical connections which should hold between a significant sentence and suitable observation sentences. Moreover, all these criteria have been proved to have serious defects. Therefore, one might reasonably attempt to avoid the defects of the above-mentioned criteria by proposing an alternative way of explicating the concept of empirical significance. Such an alternative approach may be based on the characterisation of cognitively significant sentences by certain conditions which their own constituent terms must satisfy[33]; namely, all extralogical terms[34] in a significant sentence must have empirical content and therefore their meanings must be explicable by reference to observables only[35]. In other words, the previous testability criteria of meaning (i.e. (CV), (CF) and Ayer's confirmability criterion) were based on an attempt to characterise cognitively significant sentences by means of certain *logical connections* in which they must stand to some observation sentences, whereas this alternative approach aims at specifying the *vocabulary* itself (i.e. the constituent elements) that may be used in order

[31] See A.J. Ayer, *op.cit.* (ref. 30).

[32] See C.G. Hempel, *op.cit.* (ref. 1).

[33] See C.G. Hempel, *op.cit.* (ref. 1).

[34] By an *extralogical term*, we should always understand a term that does not belong to the specific vocabulary of logic. For instance, the following phrases and those definable by means of them are logical terms: 'or', 'and', 'not', 'if...then...', 'all', 'some', 'is an element of class...', etc.

[35] See C.G. Hempel, *op.cit.* (ref. 1).

to form significant sentences. In particular, this vocabulary, the class of significant terms[36], is characterised by the condition that each of its elements is either a logical term or a term with empirical significance[37]. Thus, the defects of the previous criteria are now overcome (e.g. if S is a significant sentence, then so is ~S).

Nevertheless, the last conclusion cannot end the discussion about significance, since another important question remains open: Which are the appropriate logical connections between empirically significant terms and observation terms that can give rise to an adequate criterion of cognitive significance (note that 'adequate' means that it satisfies Condition A)? In the empiricist literature, a well-known attempt to answer the previous question consists in the criterion of definability[38].

(CD) *Criterion of Definability*: Any empirically significant term must be explicitly definable by means of observation terms.

The criterion of definability is too stringent, since it rules out many important scientific and prescientific terms which are not explicitly definable by means of observation terms. For instance, Carnap[39] argues that the attempt to provide explicit definitions in terms of observables fails when it encounters disposition terms, such as 'soluble', 'malleable', etc.

Carnap proposes an alternative to the criterion of definability. He introduces the concept of *reduction sentences*, i.e. sentences which, unlike definitions, specify the meaning of a term only conditionally or partially[40]. In order to understand the difference between a definition and a reduction sentence, let us consider, for instance, the word 'elastic'. One can define elastic behaviour as follows: An object x is elastic if and only if, at any time t that it is deformed (e.g.

[36] Any term contained in a cognitively significant sentence is said to be a *cognitively significant term.*

[37] See C.G. Hempel, *op.cit.* (ref. 1).

[38] See C.G. Hempel, *op.cit.* (ref. 1).

[39] See R. Carnap, "Testability and Meaning", *Philosophy of Science*, 3(1936) and 4(1937).

[40] See R. Carnap, *op.cit.* (ref. 39).

when x is stretched), the deformation is reversible at time t'. If the statement connectives of the previous definition are construed truth-functionally, then the given definition can be written symbolically as follows:

$$Ex \equiv (t)(Dxt \supset Rxt').$$

But then one faces the following problem: if y is any object which is not elastic but such that it has never been deformed during its existence, then Dyt is false and therefore it holds that $Dyt \supset Rxt'$ for any t; hence, the observation predicate E (elastic) is true in case of Ey even though y is not elastic. To remedy that defect, one can follow Carnap's theory of reduction sentences, so that the term 'elastic' can be expressed by the following reduction sentence:

$$(x)(t)\left[Dxt \supset (Ex \equiv Rxt')\right],$$

which states that, *if* x is deformed at any time t, *then* x is elastic if and only if that deformation of x is reversible at t'.

However, reduction sentences cannot account for the use of theoretical constructs, which play an important role in the construction of scientific theories. For instance, in classical physics, the length in meters between two points may assume any positive real number as its value. But one cannot use observables in order to formulate a sufficient condition for the applicability of such an expression as 'x has a length of 10^{-30} m' or 'x has a length of 10^{30} m', i.e. extremely small or extremely large numbers.

Theoretical constructs should be construed as being stated in the form of hypothetico-deductive systems. The extralogical terms of deductively developed axiomatised systems are of two kinds: *primitive* or *basic terms*, which are not defined within the theory, and *defined terms*, which are explicitly defined by means of the primitives. The basic and the defined terms together with the terms of logic constitute the vocabulary in terms of which all the sentences of a given theory are construed. Also, the statements of a theory are of two kinds: *postulates* or *axioms*, which are not derived from any

other statements in the theory, and *derived statements*, which follow from the postulates by logical deduction. Empiricism, maintains that such deductively developed systems can constitute empirical scientific theories if they have gained empirical content. As I have already argued, an empirical science presupposes the assignment of a meaning in terms of observables to certain terms or sentences of a given deductive system (i.e. an interpretation of the given deductive system). An interpretation may take the form of a partial assignment of meaning. For instance, the rules for the measurement of weight by means of a standard weight may stand as a partial empirical interpretation of the term 'the weight, in grams, of an object x'. However, in the previous example, the suggested method of measuring weight is applicable to weights ranging within a certain interval, and also it cannot be regarded as a full interpretation since it does not constitute the only way of measuring weight.

Therefore, one should not focus his or her methodological research on the 'empirical content' of specific terms or sentences; for, usually, no individual statement in a scientific theory implies any observation sentences. In fact, a sentence can entail the occurrence of certain observation phenomena only if it is conjoined with other auxiliary hypotheses (namely, observation sentences and previously accepted theoretical statements). In particular, Hempel[41] argues that the empirical significance of a given expression U is related to the language L to which U belongs (L contains the rules of inference) and the theoretical context in which U occurs (the theoretical context of U consists in the statements in L which may stand as auxiliary hypotheses).

As a conclusion, a criterion of cognitive significance should refer to an entire theoretical system formulated by means of a well-defined language. Also, the basis of cognitive significance in such a system is the possibility of its interpretation in terms of observables; such an interpretation may be formulated by means of (bi) conditional sentences connecting non-observable terms of the system with observation terms in the given language. Yet, the requirement of partial interpretation is too liberal, since it can be satisfied by a system consisting of an empirical theory, say modern physics, with some set of isolated sentences, even if the latter have no empirical interpretation. Note that an *isolated sentence* is defined to be a sentence which is neither a purely formal truth or falsehood nor does it have any empirical content. In other words, isolated sentences can be construed as sentences of speculative metaphysics, where 'metaphysics' refers to doctrines about the fundamental nature of substances, or about theological matters, or about our relation to external objects. The following criterion deals with the problem of isolated sentences[42].

(CS) *Criterion of Cognitive Significance*: A necessary and sufficient condition that a theoretical system is cognitively significant is that it is partially interpreted to such an extent that in no system equivalent to it at least one postulate is isolated.

However, it is not direct observation of phenomena that can lead to the formulation of generalisations of great scope and rigor. Such generalisations need theoretical constructs. In fact, properly defined theoretical constructs provide the framework within which new general connections may be discovered, which otherwise (i.e. if one adopts a strict phenomenalistic or positivistic approach implied by (CS) and thus rules out certain terms and sentences because of (CS)) would remain in the dark.

Hempel has conjectured that no successful alternative to (CS) can be found and that, therefore, one cannot formulate a precise criterion by means of which those partially interpreted systems whose isolated sentences might be said to have a significant function can be separated from those in which the isolated sentences are redundant[43]. Indeed, the preceding analysis encourages the adoption of a more pragmatic attitude toward the construction of empiri-

[41] See C.G. Hempel, *op.cit.* (ref. 1).

[42] See C.G. Hempel, "The Concept of Cognitive Significance: A Reconsideration", *Proceedings of the American Academy of Arts and Sciences*, 80(1951), 61-77.

[43] See C.G. Hempel, *op.cit.* (ref. 1).

cal theories. Hence, instead of trying to modify (CS), one should recognise that cognitive significance in a theoretical system varies. In fact, significant systems range from those all of whose extralogical terms consist of observation terms, through systems which depend heavily on theoretical constructs, on to systems whose empirical relevance is marginal. For instance, positive economics, dealing with facts and behaviour in an economy, does not consist of pure deductive systems, whereas normative economics, dealing with what 'ought to be' in the economy, does consist of pure deductive systems.

Therefore, instead of espousing a sharp dichotomy between significant and non-significant systems, one should compare different theoretical systems with respect to the following characteristics which have been originally formulated by Hempel[44]:

(C1) the level of accuracy which characterises the manner in which a theory is formulated and the manner in which the logical relationships of its elements to each other and to observation sentences have been made explicit;

(C2) the ability of a theory to explain and predict observable phenomena;

(C3) the formal simplicity of a theory in terms of which explanation and prediction will take place;

(C4) the extent to which a theory has been empirically confirmed.

1.2. An Empiricist Approach to Theory Construction in the Social Sciences

In this section, I shall use the conceptual framework of section 1.1 in order to present an explicit empiricist approach to theory construction in the social sciences, following the intellectual legacy of M. Nicholson[45] and A.G. Papandreou[46].

[44] See C.G. Hempel, *op.cit.* (ref. 1).

Let us consider n social variables $x_1,\ldots,x_n$ (i.e. social concepts which may take different values) which are elements of the set X of all conceivable social variables. For simplicity, let us denote the above n variables by an n-tuple $\vec{x}$, i.e. $\vec{x}=(x_1,\ldots,x_n)$. I shall denote the set of all conceivable n-tuples of elements of X by X^n, i.e. X^n contains all n-tuples $\vec{x}=(x_1,\ldots,x_n)$ with $x_1\in X,\ldots,x_n\in X$ ($\in$ stands for 'is an element of'). Moreover, let us consider m relations[47] $R_1,\ldots,R_m$ such that $\vec{x}\in R_i$ for $i=1,\ldots,m$. Then one

[45] See M. Nicholson, *op.cit.* (ref. 2); M. Nicholson, *The Scientific Analysis of Social Behaviour: A Defence of Empiricism in Social Science* (London: Pinter, 1983).

[46] See A.G. Papandreou, *Essays in Economics* (Athens: "Nea Synora" – A.A. Livani, 1993).

[47] Given an equation $y=ax$, one can define a corresponding relation R as the collection of all pairs of the form (x,y) such that $y=ax$, symbolically: $R=[(x,y):y=ax]$.

For instance, if x_1 stands for national income, x_2 for disposable income, x_3 for national consumption, x_4 for national investment, x_5 for government expenditure, x_6 for exports, x_7 for imports and x_8 for taxation, and if a,b,n,m,r and t are structural parameters (i.e. undetermined coefficients), then one comes up with the following macroeconomic model:

$R_1=[(x_1,\ldots,x_8):x_1=x_3+x_4+x_5]$

$R_2=[(x_1,\ldots,x_8):x_2=x_1-x_8]$

$R_3=[(x_1,\ldots,x_8):x_3=a+bx_2]$

$R_4=[(x_1,\ldots,x_8):x_7=n+mx_2]$

$R_5=[(x_1,\ldots,x_8):x_8=r+tx_1]$.

In other words, $\vec{x}=(x_1,\ldots,x_8)$ satisfies (or belongs to) the relations $R_1,\ldots,R_5$. See for instance, M. Hirschley, J.L. Pappas and D. Whigham, *Managerial Economics* (London: The Dryden Press, 1995), p. 52-53.

comes up with a structure $S = \{R_1, \ldots, R_m\}$. Finally, let A be the class of all observation acts α on $\vec{x}$ and A_r be the rth subset of A. If a social scientist defines the rule

$$r : A_r \rightarrow X^n, \quad r(\alpha) = \vec{x}, \tag{1}$$

where $\alpha \in A_r$, then he or she is urged to argue that, for all observation acts $\alpha \in A_r$ on $\vec{x}$ under the rule r, the observed values of $\vec{x}$ satisfy the relations R_i for $i = 1, \ldots, m$; symbolically,

$$(\forall \alpha \in A_r)\left[r(\alpha) = \vec{x} \rightarrow \vec{x} \in R_i\right], \quad i = 1, \ldots, m \tag{2}$$

($\forall$ stands for 'for every'). Thus, the social scientist will come up with statements which are universal in character, and, since disposition rules with reference to empirical data are employed, they have empirical content. In case of such statements, a single contradictory instance is enough to falsify them. However, a social scientist should not discard his or her theoretical construction for the sake of such a contradictory instance. Instead, he or she will test his or her model in a particular historical context, say in the British industrial society of the 19th century, where its constituent statements are confirmed and will claim that this model was meant for that context and not for the one in which it has been disconfirmed. Thus, it is necessary to introduce the concept of 'context' in which a theory is applicable.

Let W stand for the set of all possible states of the world. Also, let $\mathcal{P}(W)$ be the power set[48] of W, B be the class of observation acts on subsets w of W (i.e. on elements of $\mathcal{P}(W)$) and B_s be the sth subset of B. Then, by defining the rule

[48] By a *set*, we should always understand any collection of any definite and distinct objects conceived as a whole. If A and B are sets such that $(\forall x)[x \in A \rightarrow x \in B]$ then A is said to be a *subset* of B. The *power set* $\mathcal{P}(B)$ of a set B is defined to be the set of all the subsets of B.

$$s : B_s \rightarrow \mathcal{P}(W), \quad s(\beta) = w, \tag{3}$$

where $\beta \in B_s$, expression (2) can be reformulated as follows:

$$(\forall \alpha \in A_r)(\forall \beta \in B_s)\left\{\left[\alpha T \beta, s(\beta) = w^*\right] \rightarrow \left[r(\alpha) = \vec{x} \rightarrow \vec{x} \in R_i\right]\right\}, i = 1, \ldots, m, \tag{4}$$

where $\alpha T \beta$ means that the observation acts β on states of the world are carried out in conjunction with but independently of the observation acts α on $\vec{x}$, and w^* is a given segment of space-time. As far as the relation $\alpha T \beta$ is concerned, it is important to mention that the characterisation of the relevant historical context must not take place in terms of the properties of the basic relations of our deductive system. By asserting, for instance, that our model is supposed to hold in the context where the actors' behaviour is described by the basic relations of our model, our deductive system becomes a pure one; referring to this event, Nicholson has stressed "the danger that a system can be found, somewhere or another, in which almost anything one could think of would be confirmed"[49]. Therefore, the context in which a model is applicable must be characterised independently of the information contained in the postulates of the given model. Expression (4) tells us that expression (2) holds under the condition that $\beta \in B_s$ and the observation acts β on states of the world identify the state w^*.

However, in expression (4), the rule s cannot be completely determined in advance and therefore the expression $s(\beta) = w$ is uninterpreted. But expression (4) can be refuted only if one finds an occasion where $r(\alpha) \in Ri\ (I = 1, \ldots, m)$ and also $s(\beta) \neq w^*$. Hence, since s cannot be determined in advance, expression (4) can be confirmed but cannot be refuted. According to A.G. Papandreou's[50] terminology, deductive systems which are capable of confirmation but not of refutation are called *models*, and thus expression (4) is a model

[49] See M. Nicholson, *op.cit.* (ref. 2), p. 147.

[50] See A.G. Papandreou, *op.cit.* (ref. 46), p. 273.

rather than a theory. Thus, social-scientific models are capable of explanation in the cases that they are confirmed but they are not capable of prediction; for the latter purpose, the social scientist who is about to make a prediction based on a model takes his or her chances with the model that, according to his or her view, has the highest probability of being confirmed in a given context.

Using expression (4), one can formulate refutable descriptive statements by considering expressions of the form

$$\left(\forall\alpha\in A_r\right)\left\{\alpha KH^*\rightarrow\left[r\left(\alpha\right)=\vec{x}\rightarrow\vec{x}\in R_i\right]\right\},\ i=1,\ldots,m, \tag{5}$$

where αKH^* means that observation acts α take place in some specific segment of space-time H^*. Expression (5) can be empirically refuted but, obviously, is not universal. If expression (5) is confirmed in H^*, then it is said to be an *explanation* of H^*.

Following the above notation, let us consider a u-tuple of structures

$$\left(S^1,\ldots,S^i,\ldots,S^u\right)$$

and correspondingly a u-tuple of relations

$$\left(R^1_{i1},\ldots,R^j_{ij},\ldots,R^u_{iu}\right),\ i=1,\ldots,m,$$

which for simplicity, may be denoted by

$$\hat{R}=\left(\hat{R}^1,\ldots,\hat{R}^j,\ldots,\hat{R}^u\right).$$

Let us define a relation

$$f:\mathcal{P}\ \left(W\right)\rightarrow V,\quad f\left(w\right)=v, \tag{6}$$

where $v\in V$ is a unit vector[51] of u dimensions. Obviously, due to (3),

$$\hat{R}f\left(w\right)=\hat{R}f\left(s\left(\beta\right)\right)=\hat{R}g\left(\beta\right)=\hat{R}^j,$$

[51] By a *unit vector* v of u dimensions, we mean a u-tuple $(e_1,\ldots,e_u)$ where exactly one of the entries $e_1,\ldots,e_u$ is non-zero and equal to one.

where $f\left(s\left(\beta\right)\right)$ is defined to be identical to $g(\beta)$. Then the following *theory* emerges:

$$\left(\forall\alpha\in A_r\right)\left(\forall\beta\in B_s\right)\left\{\left[\alpha T\beta\wedge r\left(\alpha\right)=\vec{x}\right]\rightarrow\vec{x}\in\hat{R}g\left(\beta\right)\right\}. \tag{7}$$

Expression (7) can be, in principle, empirically refuted and also can be used in order to study comparable structures. But because s in the expression $g\left(\beta\right)\equiv f\left(s\left(\beta\right)\right)$ cannot be determined beforehand, one has to make the following concessions.

Let $w=(p,q)$, where $w\in\mathcal{P}\ \left(W\right)$, $p\in P$ is the interpreted component of w and $q\in Q$ is the uninterpreted component of w. Then the following definitions can be formulated:

$$\hat{s}:B_{\hat{s}}\rightarrow P,\ \hat{s}\left(\beta\right)=p \tag{8}$$

$$\hat{s}':B_{\hat{s}'}\rightarrow Q,\ \hat{s}'\left(\beta'\right)=q \tag{9}$$

$$\hat{f}':\mathcal{P}\ \left(W\right)\rightarrow V\ \text{for}\ q=\hat{q},\ \hat{f}\left(\hat{s}\left(\beta\right)\right)=\hat{g}\left(\beta\right). \tag{10}$$

Thus, the following model corresponds to theory (7):

$$\left(\forall\beta'\in B_{\hat{s}'}\right)\left(\forall\beta\in B_{\hat{s}}\right)\left[\hat{s}'\left(\beta'\right)=\hat{q}\right]\rightarrow\left[\left(r\left(\alpha\right)=\vec{x}\rightarrow\vec{x}\in\hat{R}\hat{g}\left(\beta\right)\right)\right] \tag{11}$$

where the expression $\hat{s}'\left(\beta'\right)=\hat{q}$ remains uninterpreted. In this case, the expression corresponding to (5) is

$$\left(\forall\beta\in\hat{B}_s\right)\left(\forall\alpha\in A_r\right)\left\{\left(\alpha T\beta\wedge\beta KH^*\right)\rightarrow\left[r\left(\alpha\right)=\vec{x}\rightarrow\vec{x}\in\hat{R}\hat{g}\left(\beta\right)\right]\right\}. \tag{12}$$

Now let us assume that

$$w=\left(w_1,\ldots,w_n,\ldots,w_N\right),$$

where N is an arbitrary finite positive integer, and

$$q=\left(w_{1'},\ldots,w_{n'},\ldots,w_{N'}\right)$$

$$p=\left(w_{1''},\ldots,w_{n''},\ldots,w_{N''}\right)$$

such that

$$N' + N'' = N \ .$$

Then the quotient

$$\frac{N''}{N} = \lambda, \ 0 < \lambda \leq 1,$$

is the measure of generality[52] of expression (12). For $\lambda = 1$, one comes up with theory (7), but, in this case, s is fully interpreted. Therefore, the 'scientific' work of the social scientists should be construed as an attempt to construct expressions like (12) whose measure of generality is as close to 1 as possible.

The above-mentioned approach to social-scientific theory construction satisfies the two fundamental assumptions of Nicholson's version of positivism: (i) "the centrality of empirical propositions, that is, propositions where the reasons for believing them are grounded in observation"[53], and (ii) the assumption that "there is sufficient 'common understanding' [...] for us to be confident of the existence of many social 'things' which are the content of those observations"[54]. In fact, inherent in the concept of 'scientific observation' is a commonality of experience that is, more or less, shared by everybody. In order to address the previous issue more lucidly, Nicholson uses the term 'conceptual community', which he has defined as "a group of people who have broadly the same mutual understanding of various concepts relevant to a particular problem"[55]. However, participation in the conceptual community does

[52] This concept is originally due to A.G. Papandreou, *op.cit.* (ref. 46), p. 83.

[53] See M. Nicholson, "The Continued Significance of Positivism?", in S. Smith, K. Booth and M. Zalewski (eds), *International Theory: Positivism and Beyond* (Cambridge: Cambridge University Press, 1996), p. 131.

[54] See M. Nicholson, *op.cit.* (ref. 53), p. 131.

[55] See M. Nicholson, *op.cit.* (ref. 2), p. 105-106.

not presuppose participation in the same experiential community. For instance, Nicholson argues that "it is possible to describe polygamy to someone from a monogamous society and vice versa and hope to be understood. We move on by deduction and analogy to the understanding of experiences well beyond our personal experiences"[56].

On the other hand, one may point out that the mental states of human beings are subjective, in the sense that, for instance, the experience of pain is *somebody's* experience of pain[57]. This, however, does not make out a case against the 'conceptual community'. For instance, if one claims that he or she has a pain, there is no evidence other than his or her report for that event. But, people being in very broad senses the same (they share their 'common humanity'), everyone can understand what the given man means by claiming that he or she has a pain. Even if the particular man has his or her *own* pain, when he or she claims that he or she has *a* pain, then all other people will understand that this man has a pain and not, say, a dream. Also, even if one doubts the report of the given man, no one can doubt the general proposition that people have pains. Thus, Nicholson maintains that, since participation in the conceptual community does not presuppose participation in the same experiential community, "we can regard at least part of these private experiences [e.g. pains, dreams, etc.] as also part of the common understanding"[58].

Moreover, Nicholson uses A.K. Sen's work on famines[59] as another example which shows the analytical significance of the conceptual community in the social sciences. Nicholson admits that, in 1943, the experience of famine in Bengal "was clearly very differ-

[56] See M. Nicholson, *op.cit.* (ref. 2), p. 106.

[57] See for instance J.R. Searle, *The Rediscovery of the Mind* (Cambridge, Mass.: MIT Press, 1992).

[58] See M. Nicholson, *op.cit.* (ref. 2), p. 107.

[59] See A.K. Sen, *Poverty and Famines: An Essay on Entitlement and Deprivation* (Oxford: Clarendon Press, 1981).

ent from the point of view of a starving peasant mother desperately trying to keep her child alive, from the child itself for whom hunger was the totality of its experience, a trader who was doing rather well out of the shortages and not starving at all, or a British administrator, sympathetic but not personally hungry"[60]. But he argues that Sen's work implies that, despite the above different *experiences* of famine, there is a common *concept* of famine, which can be defined in various comprehensible ways, e.g. "a common characteristic of famines has been that the distribution of entitlements to food had altered drastically"[61]. Thus, empirical propositions can be formulated and tested against facts, i.e. evidence which is comprehensible to everyone, such as aggregate food supplies and death rates.

Even though I have argued in favour of the common understanding of common experience, the foundations of the empiricist approach to theory construction whose defence I have undertaken here will be weak if I do not deal with the following questions: (i) the manner in which and the extent to which ideas change; (ii) the manner in which and the extent to which ideas can be understood; (iii) the reducibility of social relations to relations between ideas. For, the empiricist methodology can be sound only if the range of common understanding is proved to be broad; otherwise, the range of the social sciences will be too narrow. Thus, I shall depend on Michael Nicholson in order to deal with three groups of scholars who, based on the previous questions, have attempted to undermine the empiricist epistemology: (i) Peter Winch, (ii) R.G. Collingwood and (iii) the postmodernists (especially Foucault, Derrida and Rorty).

Winch[62] gives tremendous emphasis to cultural anthropology in order to study problems of interpretation when the observer comes

[60] See M. Nicholson, *op.cit.* (ref. 53), p. 132.

[61] See M. Nicholson, *op.cit.* (ref. 53), p. 131.

[62] See P. Winch, *The Idea of a Social Science and Its Relation to Philosophy* (London: Routledge, 1990).

from a society very different from the one that he or she observes. In particular, he maintains that social scientists observing very different societies as compared with their own may often misinterpret the actions of such societies, e.g. in terms of religion, being oblivious or ignorant of the whole nature of certain observables. Winch rejects the positivistic attempt to use data in order to "produce scientific generalisations and theories establishing connections between one kind of social situation and another"[63]. For, in his view, the above-mentioned attempt "involves minimising the importance of ideas in human history, since ideas and theories are constantly developing and changing, and since each system of ideas, its component elements being interrelated internally, has to be understood in and for itself; the combined result of which is to make systems of ideas a very unsuitable subject for broad generalisations"[64]. Moreover, Winch argues that "social relations fall into the same logical category as do relations between ideas"[65], and therefore "social relations must be an equally unsuitable subject for generalisations and theories of scientific sort to be formulated about them"[66].

Winch's view can be regarded as a qualified approval of Collingwood's philosophical idealism, according to which the historian is fundamentally "concerned with thoughts alone; with their outward expression in events he is only concerned by the way, in so far as these reveal to him the thoughts of which he is in search"[67]. The previous view leads logically to Collingwood's methodology – namely, "the historian must re-enact the past in his own mind"[68]. Although Winch and Collingwood argue in favour of

[63] See P. Winch, *op.cit.* (ref. 62), p. 133.

[64] See P. Winch, *op.cit.* (ref. 62), p. 133.

[65] See P. Winch, *op.cit.* (ref. 62), p. 133.

[66] See P. Winch, *op.cit.* (ref. 62), p. 133.

[67] See R.G. Collingwood, *The Idea of History* (Oxford: Clarendon Press, 1946), p. 217.

[68] See R.G. Collingwood, *op.cit.* (ref. 67), p. 282.

studying history through an imaginative recreation of the past, they do not properly address important questions about the applicability of their understanding mode of analysis to historical events – namely, they do not tackle the problems of putting oneself in the position of someone in a different society and they are not concerned about the communicability of beliefs and ideas among people within the same society. In particular, Nicholson argues that we "can have difficulties in putting ourselves in the position of someone in a past society either because we know too much of what came afterwards of because the ethos of the society is so different from our own that it is difficult to achieve the necessary level of empathy"[69]. Moreover, Winch and Collingwood, by neglecting the communicability of beliefs and ideas among people within the same society, have severely limited the range of common understanding. However, Nicholson proposes the following counter-example: "Anthropologists and historians apparently can communicate among themselves and a broader public without worrying unduly about being misunderstood"[70]. Thus, Winch's and Collingwood's accounts of communication are incomplete, since they have not acknowledged that communication within the framework of a scientific community presupposes universal concepts. As a result, we need universal concepts in anthropology, too. In this way, anthropological studies can be oriented toward the analysis of observables. I shall develop this argument in greater detail later on, after a reference to the postmodern challenges to empiricism that follows.

The problems of communication and causal analysis play a major role in postmodernism[71]. But it is hard to talk about post-

[69] See M. Nicholson, *op.cit.* (ref. 2), p. 110.

[70] See M. Nicholson, *op.cit.* (ref. 2), p. 111.

[71] For more details, one may be referred to C. Brown, *International Relations Theory: New Normative Approaches* (New York: Harvester Wheatsheaf, 1992), Part III; S. Smith, "Positivism and Beyond", in S. Smith, K. Booth and M. Zalewski (eds), *op.cit.* (ref. 53), p. 11-44.

modernism without encountering the difficulties which are caused in the study of the postmodern views on epistemology by the ambiguity of the term 'postmodernism'[72]. In particular, Chris Brown has argued that a "common feature of this work is precisely a rejection of the idea that sentences which begin 'postmodernism [...] is...' can be completed"[73]. Therefore, here I shall restrict myself to Steve Smith's and Chris Brown's account of the antithesis between the postmodern epistemological works of Michel Foucault, Jacques Derrida and Richard Rorty on the one hand and positivism on the other. The above three scholars represent different attempts to develop a post-positivist epistemology and help us map the debate between positivism and postmodernism.

Michel Foucault's radical departure from positivism is striking in his "Nietzsche, Genealogy, History"[74], where he has attempted to show the development of scholarly disciplines out of power relations and not as a neutral result of scholarly enquiry. Steve Smith argues that, in the previous work, the concept of truth "can no longer refer to an underlying or foundational notion of truth, but rather to the idea of multiple truths"[75], and therefore epistemology is "not the centrepiece of philosophical enquiry, but is instead dependent on underlying power structures"[76]. As a result, Foucault does not ask for a correspondence theory of truth, but he construes truth as a tool for resisting power.

Jacques Derrida's *Of Grammatology*[77]expresses his anti-foundationalist epistemology through deconstructions involving a

[72] See C. Brown, *op.cit.* (ref. 71).

[73] See C. Brown, *op.cit.* (ref. 71)p. 197.

[74] See M. Foucault, "Nietzsche, Genealogy, History", in P. Rabinow (ed.), *The Faucault Reader* (Harmondsworth: Peregrine Books, 1986), p. 76-100.

[75] See S. Smith, *op.cit.* (ref. 71), p. 30.

[76] See S. Smith, *op.cit.* (ref. 71), p. 30.

[77] See J. Derrida, *Of Grammatology* (trans. and intro. by G. Spivak, Baltimore, MD: Johns Hopkins University Press, 1976).

reading of a text where the author fails to produce the conclusions he intends. In particular, Steve Smith argues that Derrida "refuses to see the knower as a given and instead as merely one more construction of language and culture"[78], so that "the knower is always caught up in a language and mode of thinking which, far from interpreting a world, instead constructs it"[79]. Hence, Derrida rejects the empiricist attempt to match the subjective knower with an objective external world.

Richard Rorty's major work, *Philosophy and the Mirror of Nature*[80], is marked by an extreme epistemological relativism. Chris Brown argues that, in the previous work, Rorty "employs the rhetorical style of analytical philosophy to launch an all-out assault on 'correspondence' theories of truth and the idea that a neutral framework of enquiry can be construed"[81]. The task undertaken by Rorty consists in the deconstruction of analytical philosophy, and thus he proposes that philosophers give up on the idea that our knowledge 'mirrors' nature and instead adopt a pragmatic theory of truth which is compatible with his self-description as a "postmodern bourgeois liberal"[82].

Tocqueville has made interesting remarks on the habit endemic to democracies of using abstractions with varying meanings, and he has compared them to drawers with false bottoms. One meaning is put in, another is removed, according to the political demands of the times. Such is the case with the scholars' use of the term 'postmodernism'.

Postmodern scholars tend to stress tolerance, curiosity and inclusion. Yet, these are neither new nor revolutionary. Group rights,

[78] See S. Smith, *op.cit.* (ref. 71), p. 30.

[79] See S. Smith, *op.cit.* (ref. 71), p. 30.

[80] See R. Rorty, *Philosophy and the Mirror of Nature* (Oxford: Blackwell, 1980).

[81] See C. Brown, *op.cit.* (ref. 71)p. 207.

[82] See R. Rorty, *Objectivity, Relativism and Truth: Philosophical Papers*, vol. 1 (Cambridge: Cambridge University Press, 1991), p. 197-202.

the cult of victimhood and politicised scholarship, however, are both toxic to the academy and to the republic besides. They threaten to divide society by undermining the maintenance of a cohesive society of shared values (e.g., in the West, the Christian tradition implies certain absolute norms and basic convictions, but our postmodern outlook believes in only one absolute: that there are no absolutes), discourage inquiry, ignore merit and erode public support for the life of learning.

Within the framework of the postmodern academia, the student's eager desire to learn, his or her civic and religious piety and his or her good will for one's fellow men are the direct objects of attacks carried out by those who should be moderate and wise mentors. One is tempted to regard one's education as a preparation for political agitation and one's accomplishments as privileges of one's class or race. If one belongs to a designated victim group, one is tempted to excuse one's shortcomings as the effects of unjust domination, and he or she is urged to regard the hard-won victories of reason as the property of an enemy faction, objects not of emulation, but of contempt. Moreover, if the ultimate foundation of secular power is not of a transcendental nature – as argued in Jean Calvin's *Institution of Christian Religion* (ed. 1559/60) – then it lacks any clear guiding principle/norm (which can control political power exactly because it transcends political power itself), and it is open to arbitrariness. Policy has to be related to some basic principles of national interest and moral values that transcend any particular administration.

What I have attempted to do heretofore with the previous references to the epistemological arguments of Winch, Collingwood and postmodernism (as it is represented by Foucault, Derrida and Rorty) is to present what I consider to be the most important challenges to the empiricist epistemology. What I shall attempt to do in the sequel is to defend the empiricist epistemology against the above-mentioned challenges. I shall articulate my defence of empiricism with respect to the three basic issues that I have already

mentioned – namely, the change of ideas, the understanding of ideas and the reducibility of social relations to relations between ideas.

First of all, I shall argue that, even though mental events are associated with all social actions, the significance attributed to ideas, as mental events, by Winch, Collingwood and postmodernists among whom are Foucault, Derrida and Rorty is extravagant. To do this, I shall consider an example which has been originally proposed by Michael Nicholson[83]. Let us consider an economic transaction between a seller and a buyer where the seller wants to sell a house. Obviously, there is a physical act, consisting in the given economic transaction, and also there are the awareness and the interpretation on the part of the actors of participating in a given economic transaction. In addition, the above-mentioned act involves an interpretation and understanding of the concept of a house.

Let us assume that the seller asks a price (a concept involving a mental event) which is refused by the buyer and that the seller reduces the initial price so that it is accepted by the buyer. Thus, Nicholson argues that it is reasonable to assert that the "reduction in the price by the seller can perfectly properly be described as causing the change in behaviour of the buyer"[84]. Hence, one can influence someone else by doing or saying something which causes the other to react. In fact, Nicholson argues that causal analysis involves a relation of ideas to circumstances, implying some causal link between the ideas and the circumstances in which they are found. Going back to the previous example, one can argue that the given economic transaction can be described as a 'fact' taking place in terms of certain economic rules and on the basis of the 'conceptual community' which makes the concept of a house communicable, no matter how the buyer and the seller, individually, think of the concept of a house (e.g. one may think of it as a barn, as a 'home' for oneself, as an investment, etc.).

[83] See M. Nicholson, *op.cit.* (ref. 2), p. 115-116.

[84] See M. Nicholson, *op.cit.* (ref. 2), p. 115.

In general, one can understand the meaning of human action by considering a behaviour rule R for person X stating that, under conditions $C_1,...,C_k$, X will perform action A. Thus, one comes up with a generalisation, since the observation of $C_1,...,C_k$ implies that X performs action A. The previous generalisation may contain a probabilistic assumption, i.e. it may read as follows: if $C_1,...,C_k$, then X performs action A with probability p. Moreover, the previous generalisation may involve teleological reasoning, i.e. that X does A in order to achieve a goal G, where G is an element of a set of alternative goals which are available to X.

If the rules by which decision-makers choose their goals are stable, then the generalisations about behaviour are also stable. Nicholson argues that stability "has to be defined in relation to the types of problem one is discussing and the sort of time frame which is relevant"[85]. Also, he identifies three causes of instability. First, either "there is no rule which governs the change in rules or it is not possible to find out what rule is, perhaps even in principle"[86]. Second, instability may be due to the complexity of "a complex system such that the initial conditions are hardly ever the same"[87]. Third, as human beings follow rules, learn about their consequences and "modify the rules"[88].

The above-mentioned causes of instability have an important feature – namely, they are empirical questions. In other words, the changes in the rules of human behaviour and in the ideas can be studied empirically; this is something which Winch, Collingwood and the postmodernists have not addressed. In particular, Nicholson argues that abstract analysis alone is not enough in order to

[85] See M. Nicholson, *op.cit.* (ref. 2), p. 118.

[86] See M. Nicholson, *op.cit.* (ref. 2), p. 118.

[87] See M. Nicholson, *op.cit.* (ref. 2), p. 118.

[88] See M. Nicholson, *op.cit.* (ref. 2), p. 118.

determine whether rules are stable or not, but it "is only by the observation and analysis of systems that one can observe whether rules are stable or unstable"[89]. As I have argued in the presentation of theory construction at the beginning of this section, rules of behaviour may be stable in some circumstances and not in others, and which is which can be established empirically. Thus, scientific explanation has to meet two conditions: (i) *the requirement of explanatory relevance* (i.e. the explanatory information adduced is sufficiently grounded in order to convince us that the phenomenon to be explained did or does in fact occur), and (ii) *the requirement of testability* (i.e. the constituent statements of a scientific explanation must be capable of empirical test).

Finally, I should study an important question which has been stressed especially by Derrida and threatens the foundations of the empiricist methodology – namely, is it possible to have a universal language which allows accurate communication among people and description of an objective external world? If such a universal language is not possible, then the empiricist methodology is groundless. However, I have already attempted to show – and I shall do it again more explicitly in the sequel – that there is at least one such universal language – namely, science. Let us initially restrict ourselves to the so-called 'exact' sciences; here, we have to do with a corpus of statements whose truth value is beyond any doubt (at least in the area of the so-called 'exact sciences') and whose empirical relevance is a guarantee of their cognitive significance. Of course, certain theories are often substituted by new ones which have greater explanatory capability than their predecessors, but description is always there, and, as long as we are concerned with description, its universal validity follows from the fact that it is related to the stability of the natural world.

One may argue that the set of events which are described in the above-mentioned way may not be presented in a connected fash-

[89] See M. Nicholson, *op.cit.* (ref. 2), p. 119.

ion, i.e. that we are dealing with a kind of rhapsodic enumeration of events and not with a language construed as a system of signs expressing ideas. In other words, one may argue that we need a syntactic organisation of the previous set. However, at least in mechanics and physics, such a syntax exists: it is offered by mathematics.

It is worth mentioning that various scholars have argued that symbolic logic, which emerged from Boolean algebra in the nineteenth century, was indeed a universal language. However, the previous view has been proved to be incorrect[90]. For, symbolic logic, being organised as an absolutely strict formal language, is empirically irrelevant (it is a pure deductive system). In fact, by maintaining absolute linguistic generality, formal expressions become empirically meaningless. In a sense, we find ourselves in a situation which reminds the complementarity principle in quantum mechanics – namely, the stricter something becomes the less cognitive content it has[91]. Hence, the following question emerges: how can one maintain simultaneously formal strictness and cognitive significance? Again mathematics is a case in point. For, mathematics is characterised by formal strictness and at the same time it constitutes the most efficient tool for describing the natural world.

How can one explain that mathematics, even though it maintains the highest level of abstraction among the exact sciences, can represent the real world? The answer to the previous question is offered by considering the geometric continuum[92]. The geometric continuum allows us to interpret things which entail infinite proc-

[90] For more details, one may be referred to G.T. Kneebone, *Mathematical Logic and the Foundations of Mathematics* (Amsterdam: Van Nostrand); S.G. Shanker (ed.), *Gödel's Theorem in Focus* (London: Routledge, 1991).

[91] For more details, see R. Thom, *Modèles Mathematicques de la Morphogenèse* (Paris: Christian Bourgois Editeur, 1980).

[92] See R. Thom, *op.cit.* (ref. 91).

esses. For instance, the geometric continuum allows us to interpret an infinite sum as a finite number, as in the case of the infinite sum $\frac{1}{2}+\frac{1}{2^2}+\frac{1}{2^3}+\cdots\frac{1}{2^n}+\frac{1}{2^{n+1}}+\cdots$ which converges to a finite number[93]. In this way, one can overcome the paradoxes of Zeno (495-435 B.C.), who had maintained that there is no motion (for, given any finite distance *AB*, in order to travel half of *AB*, one needs some time, and, in order to travel half of the half of *AB*, one needs also some time, etc., so that one cannot travel *AB*). Moreover, the combination of the geometric continuum with the natural laws permits the construction of the strict empirical sciences of mechanics and physics.

If we leave mathematics and study the domain of the ordinary language, we find a similar situation. The generic grammar which describes how a grammatically correct statement can be structured ends up in a set of symbols endowed with rules for their manipulation; however, these symbols refer to physical entities which are located in the space-time by means of demonstrative pronouns or nouns which transfer their meaning to a location in the space-time. Therefore, a concept is always related to the assignment of a position in the space-time to a formally codified expression. As a result, the process of scientific-theory construction which I have presented at the beginning of the present section is beyond the reach of the post-modern attacks against the empiricist methodology which I have mentioned here. In other words, I have shown that behavioural methodologies are appropriate for the study of social-scientific questions and that, ultimately, the future of positivism may well depend on the degree to which the scholars working in the social sciences are willing to live by it.

Human knowledge is determined by the study of objects which

[93] An infinite sum is known to mathematicians as an infinite series. In mathematics, there are various criteria which establish the convergence of certain types of series. One may be referred to any standard textbook of calculus.

may be any material object or phenomenon. In fact, knowledge is a system of concepts about the 'object'. Concepts are (mental) images created by the subject's mind and reflecting substantive (according to the subject's view) properties of the object. Concepts are characterised by a higher or lower degree of abstractness. The image's completeness is determined and increased by comparing it with the object (empirical test). Thus, the process of knowledge evolves in the following way: from empirical observation to abstract thought (theory) and then back to the object (practice). This argument underlies my research in the present book.

Objective reality is reflected in the human mind, and this leads to the acquisition of (mental) images by the subject. These images play a decisive role in the formation of the subject's consciousness. The development of these images in the mind urges man to describe them.

In the real world, there are material objects and phenomena. Both of them are objects which help man to create mental images. Such an image is an imperfect reflection of the properties of an object and is described by the individual. Such a description is a model, and it can be constructed by different means (e.g. linguistic, graphical, etc.). A model is an abstraction, i.e. it describes only some of the object's properties. Yet, a model is a reality, i.e. a new object which can be reflected and described at a higher level of abstraction. Hence, objects may consist in material objects and phenomena of the world of phenomenal experience as well as in models created at different levels of abstraction. A model and the part of the object described by the given model are isomorphic, i.e. they have the same properties. The construction of models is called modelling.

Reflection: The subject's mind cannot reflect the ´object´ completely. Thus, starting from different aspects of a particular object, the subject can create different images. Each one of those aspects can be described by the same or by different techniques. However, to proceed with description, the given image must contain a suffi-

cient quantity of necessary reflected properties of the object, i.e. information about the object and particularly the object's aspect which is under consideration. The subject can focus on as many of the object's reflected properties as one wishes, and hence one's model can be characterised by different levels of abstraction.

Construction and Study of a Model: There is an objective reality R, which consists of material objects and phenomena. The individual constructs models of the objects of R. These models are descriptions of objects, using different techniques. There is a universal language L, which can be used by the individual in order to describe every object of R.

The human kind has created a means by which we can describe and construct models of every human achievement – namely, the ordinary, natural language. As I have already argued, language is a universal means by which every mental image can be described, and every meaning 'dies' at some point in space-time.

In the field of scientific theories, the individual forms objects from R using L. In different scientific disciplines, one can use different segments of L. Phenomenological inquiry is directed toward the universal and pervasive aspects of phenomenal experience – it is a doctrine of the categories. The categories are general and universal because every category belongs to every phenomenon even though one category may be more prominent than the others in a given phenomenon. Charles S. Peirce, in his epoch-making article entitled "How to Make our Ideas Clear" (*Popular Science Monthly*, January 1878), recognises only three categories which are necessary and sufficient for the interpretation of phenomena: (i) the qualities of phenomena (e.g. blue, sweet, tedious, noble, hard, etc.); (ii) the brute factuality of phenomenal experience (matter as directly apprehended through sensation is a characteristic case in point); (iii) the law of things, referring to all actual as well as to all possible things (laws go beyond the accomplished facts and the manner in which facts that may be, but all of which never can have happened, can be characterised).

The models which satisfy the axioms of symbolic logic are called concepts. Science studies objects whose models are concepts. Formal theories (i.e. mathematical and logical ones) deal with models of concepts.

Application of a Model: A model is compared with the initial object of which the given model is an abstraction. In this way, one can establish an isomorphism between a model of an object and the given object itself. Through this comparison, one can find new information about the given object as well as new objects which may be isomorphic to the given model.

13. Rational Choice Theory

Rational choice theory is a common mode of analysis in the social sciences. According to the rational choice approach, the social behaviour of individuals and groups can be analysed in terms of actors pursuing goals. Because of the central position that the rational choice approach occupies in the social sciences, I shall study the meaning of rational choice in detail and then I shall show the manner in which and the conditions under which the rationality postulate can lead to operationally meaningful theorems.

I shall begin first with the analysis of the conceptual framework that underlies rational choice theory. To do this, I shall follow Talcott Parsons:

> The first salient feature of the conceptual scheme to be dealt with lies in the character of the units which it employs [...] The basic unit may be called the 'unit act' [...] an 'act' involves logically the following: (1) It implies an agent, an 'actor'. (2) For purposes of the definition the act must have an 'end', a future state of affairs toward which the process of action is oriented. (3) It must be initiated in a 'situation' of which the trends of development differ in one or more important respects from the state of affairs to which the action is oriented, the end. This situation is in turn analysable into two elements: those over which the actor has no control

> [...] and those over which he has such control. The former may be termed the 'conditions' of action, the latter the 'means'. Finally (4) there is inherent in the conception of this unit, in its analytical uses, a certain mode of relationship between these elements. That is, in the choice of alternative means to the end, in so far as the situation allows alternatives, there is a 'normative orientation' of action.[94]

Therefore, in rational choice theory, it is not assumed that the decision process is a series of literal calculations; instead, people make choices reflecting their goals and the constraints of the situation. Also, rationality theory does not refer to an actor's preferences and constraints, and it does not mean error-free decisions.

Once it has been postulated that the norm relating means to ends is that of *intrinsic rationality*, the maximisation of a utility index is implied[95]. Rational choice analysis is the foundation stone of microeconomics[96], where it started. Attacks against the postulate of intrinsic rationality on the grounds that it implies the postulation of the 'homo oeconomicus' or the hedonistic calculus could be indeed justified in the case of some early, defective formulations of the theory[97]. However, the construction in its present form is beyond the reach of such criticisms. For, in its most developed form, the rationality postulate implies the following:

(i) actors have well-ordered preference systems over the set of outcomes (of alternative actions), i.e., for all pairs C_i and C_j, there is a preference relation R such that either C_iRC_j (the actor prefers C_i to C_j) or C_jRC_i (the actor prefers C_j to C_i) or both (the actor is indifferent);

(ii) each actor's preference system is substantially independent of the other social variables;

(iii) each actor acts to maximise his or her utility index. In particular, one can formulate a decreasing sequence of numbers – these numbers are called *utilities*, u – where the largest number is assigned to the most preferred outcome, the second largest number to the next outcome in the preference order, etc. The function[98] that maps consequences to numbers representing an actor's preference over those outcomes is said to be a *utility function*. It is important to mention that outcomes are produced by the decider's chosen action as well as by other factors outside the decider's control which constitute the *state of the world*.

The most well-known utility function is the Von Neumann-Morgenstern utility function which measures "the attractiveness of outcomes to an actor by its willingness to take risks to obtain preferred outcomes"[99]. In particular, the actor considers a set of all conceivable states of the world and assesses the likelihood of each state S by assigning a probability $p(S)$ to it. The expected utility $U_e(A)$ for an action A can be calculated "by multiplying the probability of each state's occurring by the utility of the outcome that results from that state and the action, and then summing these products over all the possible states"[100]:

$$U_e(A) = \sum_{all\ S} p(S)u\Big[C(S, A)\Big]$$

and choose A such that U_e is maximised.

[94] See T. Parsons, *The Structure of Social Action* (Glencoe, Ill: The Free Press, 1949), p. 43-44.

[95] See for instance J.S. Coleman, *Foundations of Social Theory* (Cambridge, Mass.: The Belknap Press of Harvard University Press, 1994), p. 510 and ch. 25.

[96] See for instance P.A. Samuelson and W.D. Nordhaus, *Economics* (New York: McGraw-Hill, Inc., 1992), p. 84-86.

[97] See for instance P.A. Samuelson and W.D. Nordhaus, *op.cit.* (ref. 96), p. 84-86.

[98] A *function* from a set A to a set B is defined to be a relation, denoted by $f : A \rightarrow B$, assigning to each element $a \in A$ exactly one element $b \in B$.

[99] See J.D. Morrow, *Game Theory for Political Scientists* (Princeton NJ: Princeton University Press, 1994), p. 23.

[100] See J.D. Morrow, *op.cit.* (ref. 99), p. 23.

Let us consider the following example[101]: the decision of the U.S. President Richard Nixon to bomb North Vietnam in December 1972. An initial agreement to end U.S. intervention in the Vietnam War was followed by disagreements over the terms of the settlement between the United States and North Vietnam[102]. The Nixon administration had to deal with two possible states of the world. The first, S_1, is that the North Vietnamese government was holding up the signing of the accord in order to obtain further advantages, and the second, S_2, is that there is an honest misunderstanding of the terms of the initial agreement between Le Duc Tho and Richard Nixon (October 8, 1972). Let action A_1 stand for 'bomb' and A_2 for 'not bomb'. In the following table, the choices, states and consequences available to the Nixon Administration are arrayed:

	State S_1	State S_2
Act A_1	North Vietnam returns to the table and a quick agreement is reached (C_1)	Talks break down and the war continues (C_3)
Act A_2	Agreement reached with additional concessions (C_2)	Agreement reached with additional concessions (C_2)

In the eyes of the Nixon Administration, the consequences C_1, C_2 and C_3 rank in the order of their subscripts, i.e. it prefers C_1 to C_2, C_2 to C_3 and of course C_1 to C_3. Let us assume that the Nixon Administration assigns the following utilities to C_1, C_2 and C_3: $u(C_1) = 1$, $u(C_2) = 0.3$ and $u(C_3) = 0$. Also, let us assume that the Nixon Administration assigns the following probabilities to the possible states of the world S_1 and S_2: $p(S_1) = 0.7$ and $p(S_2)$:0.3. If one calculates the expected utilities for actions A_1 and A_2, then it follows that the Nixon Administration prefers action A_1 ('bomb') to A_2:

[101] See J.D. Morrow, *op.cit.* (ref. 99), p. 25-27.

[102] See H. Kissinger, *Diplomacy* (New York: Simon and Schuster, 1994), p. 691-702.

$$U_e(A_1) = p(S_1)u(C_1) + p(S_2)u(C_3) = (0.7)(1) + (0.3)(0) = 0.7,$$
$$U_e(A_2) = p(S_1)u(C_2) + p(S_2)u(C_2) = (0.7)(0.3) + (0.3)(0.3) = 0.3,$$

and $U_e(A_1) > U_e(A_2)$, i.e. A_1 is preferable to A_2.

J.D. Morrow maintains that the above example shows that the "final result of an expected utility comparison depends on both the utility attached to each outcome and the probability of each state"[103]. For instance, even though *The New York Times* shared the assumed ordinal preferences of the Nixon Administration, they criticised the Nixon Administration for bombing because they did not share the Administration's willingness to take the risk of prolonging the war or Nixon's interpretation of the North Vietnamese government's policy.

In the light of what has been discussed in section 1.1, an important question is whether the rationality postulate has an empirical basis or not. Lionel Robbins[104] has attempted to answer the above question in the affirmative by providing a framework of human action which is generally employed by both pure and empirically relevant economics. He argues that the postulation of intrinsic rationality as the norm which relates means to ends is directly confirmed by introspection. Of course one may raise the objection that introspection cannot lead to publicly valid propositions. However, then one could argue that the rationality postulate could be established by subjecting it to intersubjective tests. For instance, James Duesenberry argues as follows:

> Our evidence on this question is not confined to introspection. Each of us is equipped with a body of observations on the behaviour of other people which confirms the idea that everyone has a well-ordered preference system at every moment. Moreover, we can confirm our introspection of overt behaviour by discussing tastes and differences in

[103] See J.D. Morrow, *op.cit.* (ref. 99), p. 27.

[104] See L. Robbins, *An Essay on the Nature and Significance of Economic Science* (London: Macmillan Co., 1935).

> tastes. There is enough information to confirm us in our belief that the concept of a preference field is a meaningful one. Thus the utility theory, in its modern form at any rate, is not a remnant of an out-moded psychological theory as some have maintained, but has an empirical basis.[105]

Indeed, the rejection of the rationality postulate means that human behaviour is (i) strictly or primarily random, (ii) irrational in the sense that it is inconsistent or schizophrenic, (iii) instinctive, or (iv) strictly traditional. In so far as the presence of a 'deliberative process' can be confirmed, the rationality postulate should be accepted.

Nevertheless, the claim that Robbin's approach also leads to pure theory is due to the fact that no empirical propositions have been derived from the rationality postulate which could be empirically refuted[106]. But one is not justified to claim that the above weakness of Robbin's approach to the rationality postulate is inherent in the very action framework of analysis employed in the rational choice theory. On the contrary, Paul Samuelson argues that an adept manipulation of the rationality postulate (together with some other techniques that will be discussed below) leads to the production of operationally meaningful theorems from a given theory:

> It is hardly enough [...] to show that under certain conditions we can name enough relations (equations) to determine the values of our unknowns. It is important that our analysis be developed in such terms that we are aided in determining how our variables change qualitatively or quantitatively with changes in explicit data. Thus, we introduce explicitly into our system certain data in the form of parameters, which in changing cause shifts in our functional relations. The usefulness of our theory emerges from the

[105] See J.S. Duesenberry, *Income, Saving and the Theory of Consumer Behaviour* (Cambridge, Mass.: Harvard University Press, 1949), p. 12-13.

[106] See F.C.S. Northrop, *op.cit.* (ref. 15), p. 247.

> fact that by our analysis we are often able to determine the nature of changes in our unknown variables resulting from a designated change in one or more parameters. In fact, our theory is meaningless in the operational sense unless it does imply some restrictions upon empirically observable quantities, by which it could conceivably be refuted.[107]

Samuelson's approach implies that, in order to produce operationally meaningful theorems, we first formulate n equations in n variables and m parameters. Then we transform this system of equations into a system in which the functions are explicit functions of the parameters. Finally, before engaging in confirmation procedures, we use the utility maximisation principle in order to determine, whenever this is feasible, the signs of the rate of change of the variables with respect to the parameters. If these propositions are refutable – even under ideal conditions – then we have produced operationally meaningful theorems.

It would be extravagant, however, to argue that, by restricting ourselves to the rationality postulate, we have exhausted the study of the problem of arriving at operationally meaningful theorems. If we restrict ourselves to the rationality postulate without making any additional assumptions, then our achievements with respect to operationalisation will be disappointing. Economics, the motherland of rational choice theory, is a case in point. An economist trying to build a theory of universal validity without any psychological or sociological commitments, finds himself or herself in the path of operational meaningless. The only way that can lead him or her to empirically relevant science is to make these commitments. For instance, Duesenberry makes the following remarks about consumer behaviour:

> The preference system analysis of consumer behaviour is a somewhat remarkable tour de force. It seems to say some-

[107] See P.A. Samuelson, *Foundations of Economic Analysis* (Cambridge, Mass.: Harvard University Press, 1947), p. 7.

> thing about consumer behaviour without saying anything about the motivations of the customers in question. In its present form it is a more or less deliberate attempt to sidestep the task of making psychological assumptions. It has the advantage that it allows one to avoid getting out on a psychological limb which may collapse, at any moment.[108]

Talcott Parsons[109] was one of the first social scientists who, in the early thirties, argued that the ultimate ends, the value-system of the society in which behaviour is studied, must somehow find its place in the framework of action employed in the relevant analysis. In addition to the postulation of the rational norm, one must make commitments to value systems which are 'ideally typical'[110] in the culture under analysis. However, one should bear in mind that, in some cases, one may have to introduce 'ideally typical' ultimate ends in his or her system, yet, in other cases, one may recognise that behaviour is best described by a model postulating instinctive or strictly traditional behaviour, and, in still other cases, one may be obliged to make commitments only to the rationality postulate. Thus, social scientists should abandon the ambition to create universal theoretical constructions, and, instead, they should experiment with less general but more useful (as far as explanation is concerned) empirically relevant constructions.

1.4. The Social-Scientific Credentials of International Relations

The problem that this section is concerned with will be tackled in the light of what I have argued in sections 1.1 – 1.3. In fact, closer consideration of the problem of the relationship between International Relations, as a scholarly discipline, and the social

[108] See J.S. Duesenberry, *op.cit.* (ref. 105), p. 15.

[109] See T. Parsons, *op.cit.* (ref. 94).

[110] For the discussion of the 'ideal type', one may be referred to T. Parsons, *op.cit.* (ref. 94), p. 601-610.

sciences makes it clear that its correct formulation depends on the successful solution of a somewhat different problem – namely, the problem of the empirical relevance of International Relations. For instance, if International Relations is structured as a pure science while the other social sciences are structured as empirical sciences then the very question of a relationship between them becomes irrelevant.

The manner in which International Relations can be construed as an empirical social science has been described at the beginning of section 1.2, where I have presented a general approach to social-scientific theory construction. However, in this section, I shall address two relevant questions more explicitly – namely, the levels of analysis and the units of analysis.

Richard A. Brody summarises the contending approaches to the problem of levels of analysis as follows:

> The insights philosophy of science has to offer on this problem are that, (1) the choice of level of analysis is arbitrary; each level of aggregation or organisation (e.g. nation-states, populations, decision-making groups, or international systems) can be considered potentially useful but for different research tasks; (2) each alternative has potential advantages and disadvantages and its own peculiar set of assumptions that the analyst must adopt with his choice; and (3) there are dangers to be guarded against no matter which level is chosen.[111]

I do not wish to question the above assertions. But I do consider them inadequate, at least if one adopts the approach to social-scientific theory construction which I have defended in section 1.2. In fact, there is much more to the story. A basic quality of a social-scientific theory, as I have defined it in section 1.2, is its empirical testability. The previous

[111] See R.A. Brody, "The Study of International Politics Qua Science: The Emphasis on Methods and Techniques", in K. Knorr and J. Rosenau (eds), *Contending Approaches to International Politics* (Princeton, N.J.: Princeton University Press, 1969), p. 114.

quality can characterise a theory only if the latter provides the means by which it can be tested empirically. This can be made possible if its constituent statements gain empirical content (the manner in which this can become possible has been discussed in section 1.1, where I have studied the difference between pure and empirical sciences). Thus, a theory must be placed in a certain historical context. For, an empirical theory is a source of generalisations which must be tested against facts. Such generalisations are of the form if $C_1,\ldots,C_k$ then A (with probability x). Therefore, a theory which is the source of such generalisations is intimately related to the historical context which is characterised by the conditions $C_1,\ldots,C_k$ on which the generalisations produced from the given theory are based.

From the above-mentioned analysis, it follows that any attempt to isolate a single level of analysis and formulate a theory based on it alone weakens the empirical relevance of that theory. A multilevel approach is necessary in order to achieve empirical relevance. In fact, we have to distinguish between two fundamentally different approaches to theory construction in International Relations. The one is based on an uncontextualised attempt to study international politics with respect to a single level of analysis. The other aims at the explanatory/descriptive accuracy and hence at the empirical relevance of the study of international politics within a certain historical context, and it is therefore based on a multilevel analysis. The latter approach gives rise to theories of the type described in section 1.2.

Now I shall study the second question, i.e. the units of analysis. Again, my approach to this question will be based on the model of social-scientific theory construction which I have presented in section 1.2. The choice of units of analysis for the study of international politics depends on the relevant historical context. As with levels of analysis, a social-scientific approach to theory construction calls for explicitness about the empirical entities observed. Moreover, side by side with the choice of a unit of analysis goes the question of the analysis of the unit's behaviour. Form sections 1.2 and 1.3, it follows that the

'front room' of our analysis consists of relations between operationally defined variables based on the rationality postulate, while the 'back room' consists of a conceptual scheme which is different from that of the 'front room' but is designed to impose restrictions on the relations and the variables which exist in the 'front room'. If one wishes to develop operationally meaningful hypotheses, then he or she must construct certain 'ideal types' in the 'back room' of international-political analysis which lead to commitments to tentatively valid social-scientific hypotheses (e.g. social values, structure of power relations, etc.). Additionally, as I have argued in section 1.3, it is circumstance that determines the exact content of the 'front room' and the 'back room' of our analysis.

In the sequel, I shall study three examples of empirical models in International Relations; these models show different approaches to the content of the 'front room' and the 'back room' of our analysis.

Example 1: Arms races provide an example of a problem which can be studied by mathematical models. However, one may reasonably doubt the academic legitimacy of the use of mathematical generalisations in order to explain the highly volatile behaviour of nations. The previous problem has been tackled by Alvin M. Saperstein as follows:

> But how can nations, each made up of so many seemingly autonomously acting people, behave deterministically? [...] a physical analogy is helpful. A gas is made up of many, many molecules. The overall motions of the myriad molecules are completely random. And yet, when examined from the view of the system as a whole, the gas behaves simply and predictably. It obeys deterministic laws that result from averaging over the many random components of the system.[112]

A well-known model of arms races and war is due to Lewis F. Richardson[113]. Let us consider two actors, A and B. Assume that

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[112] See A.M. Saperstein, "War and Chaos", *American Scientist*, 83(1995), 555.

[113] See L.F. Richardson, *Arms and Insecurity* (Pittsburgh: Boxwood Press, 1960).

A's desired level of arms is X and actual level of arms is x. By analogy, let us denote B's desired and actual levels by Y and y, respectively. Also, let α, β and c_1 be constants, where α and β express the sensitivity of the desired level to the actual level and c_1 stands for some 'grievance' coefficient. Then A's desired level of arms is given by

$$X = \alpha y - \beta x + c_1.$$

By analogy, B's desired level of arms is given by

$$Y = \gamma x - \delta y + c_2.$$

Thus, A's rate of rearmament is given by the differential equation

$$\frac{dx}{dt} = \alpha y - \beta x + c_1$$

and B's by

$$\frac{dy}{dt} = \gamma x - \delta y + c_2.$$

A's security line is given by $\frac{dx}{dt} = 0$ and B's by $\frac{dy}{dt} = 0$, and $\frac{dx}{dt} = \frac{dy}{dt} = 0$ is the equilibrium point. The above system of differential equations is stable if $\beta\delta > \alpha\gamma$ and unstable if $\beta\delta < \alpha\gamma$[114]. Saperstein mentions that "Richardson called such a system stable because it would remain peaceful no matter how hostile the feelings of the nations for each other"[115]. However, Richardson's equations cannot "yield a model in which an initially peaceful system suddenly becomes turbulent. In other words, the Richardson equations cannot predict unpredictability"[116]. For this reason, Saperstein has

[114] A deep analysis of these relations can be found in M. Nicholson, *Formal Theories in International Relations* (Cambridge: Cambridge University Press, 1989).

[115] See A.M. Saperstein, *op.cit.* (ref. 112), p. 556.

[116] See A.M. Saperstein, *op.cit.* (ref. 112), p. 556.

nonlinearised Richardson's model[117]. Whereas, in Richardson's model, a nation increases its arms supplies according to what its opponent had done in previous year, Saperstein recognised that other factors can affect the decision to increase the number of arms. Saperstein assumes that the amount of arms held by one nation is x (x is a function of the nation's total arms-purchasing capability) and that this nation's ability to purchase or manufacture arms cannot exceed 1. Then Saperstein maintains that "$1 - x$ expresses how close that nation has come to its saturation point. The factor $1 - x$ modifies the Richardson coefficient of proportionality between the size of arms stocks and the rate at which arms are acquired by the opponent. This nation's opponent will acquire arms in proportion to the expression $x(1 - x)$. In the meantime, the opponent nation has a total arms supply of y, so the first nation will increase its supply in proportion to $y(1 - y)$"[118]. Hence, as the expression $1 - x$ or $1 - y$ approaches zero, "a nation's arms purchases become increasingly less linked to the purchases of its opponent. If, on the other hand, the new purchase nowhere near approximates the opponent's limit, the coupling coefficient approaches 1, and the nation's acquisition decision will be very tightly coupled to its opponent's supply, as in the original Richardson model[119].

[117] See A.M. Saperstein, "Chaos – A Model for the Outbreak of War", *Nature*, 309(1984), 303-305. For the study of the basic properties of linear and non-linear differential equations, one may be referred to N.K. Laos, "A Comparative Study of Linear and Non-linear Differential Equations with Applications", in S. Bilchev and S. Tersian (eds), *Proceedings of the Fifth International Conference on Differential Equations* (Rousse: University of Rousse – Union of Bulgarian Mathematicians, 1995), 42-76.

[118] See A.M. Saperstein, *op.cit.* (ref. 112), p. 556.

[119] See A.M. Saperstein, *op.cit.* (ref. 112), p. 556.

The manner in which chaos[120] may emerge out of Saperstein's model is illustrated by feeding these expressions into a spreadsheet and letting the program calculate the outcomes over 100 iterations of the program. Running the program several times with the starting numbers very slightly altered, Saperstein has shown that, in some cases, the change in outcome is not proportional to the changes in inputs, i.e. the system becomes chaotic.

Example 2: In international politics, systemic variables (e.g. structure of the international system, international law, international organisations, alliances, geography, etc.) affect the behaviour of nations both objectively and subjectively. The objective effect is that there are objective limits to the actions of a nation; for instance, a country without bombers cannot launch an air-attack. The subjective effect is that systemic variables can be identified only through the eyes of decision-makers.

Decision-makers cannot be absolutely sure about the consequences of their actions. What decision-makers actually do is to assign subjective probabilities (or, in Savage's terminology, personalistic probabilities[121]) to the possible states of the world. The higher the subjective probability of a state, the higher the decision-maker's degree of belief about the likelihood of the identification of that state by data relating to a given historical individual, such as, say, the U.S. economy for the period 1928-1931.

There are cases where the observation of an event E identifies a

[120] Chaos refers to systems which are deterministic but one cannot say what they are going to do next. A system's state is chaotic if, for some values of the system's parameters, the motions of the system are so unstable and complex that seem to be random, even though they do obey the law determined by the system itself. From a philosophical viewpoint, chaos implies that studying the world means dealing with randomness together with its underlying order. See for instance N. Hall (ed.), *The New Scientist Guide to Chaos* (London: Penguin Books, 1991).

[121] See L.J. Savage, *The Foundations of Statistics* (New York: Dover Publications, 1972).

particular state of the world, say W, since E can occur only under W. But such strong implications are usually rare in the social sciences, where the same event may occur under various different states with different probability in each state. Hence, decision-makers work as follows. They consider an event, say E, which interests them and all the possible states of the world under which E may occur. They assign a subjective probability to E in each of those states of the world. Thus, they determine the state(s) of the world under which E is more likely to occur, and these observations of E increase their beliefs about states of the world under which E is more likely to occur.

By a 'belief', one should always understand a conditional probability[122], i.e., given a state of the world W and an event E, the probability of E given W, denoted by $P(E/W)$, the likelihood that E will occur if W is the state of the world. The most fundamental result about conditional probabilities is Bayes's theorem[123], which uses conditional probabilities of events given states in order to cal-

[122] Probability is a measure of uncertainty. It is denoted by $P(.)$, where $0 \le P(E) \le 1$; $P(E) = 0$ means that the event E cannot occur, and $P(E) = 1$ means that the event E is certain to occur. The union of two events E and E', denoted by E ∪ E′, is the event containing all elementary outcomes of either only E or only E' or both:

$P(E \cup E') = P(E) + P(E') - P(E \cap E')$,

where $P(E \cap E')$ is the probability of the intersection of E and E', i.e. the probability of E and E' occurring together:

$P(E \cap E') = P(E) \cdot P(E')$.

The probability of E occurring given the occurrence of event E' is

$$P(E/E') = \frac{P(E \cap E')}{P(E')}, \quad P(E') \neq 0.$$

[123] See for instance R.C. Calvert, "The Value of Biased Information: A Rational Choice Model of Political Advice", *Journal of Politics*, 47(1985), 530-550; M.H. DeGroot, *Optimal Statistical Decisions* (New York: McGraw-Hill, Inc., 1970).

culate the conditional probabilities of states given events.

Bayes's Theorem: Consider a set $(W_i)_{i=1}^n$ of states of the world and an event E. Then

$$P(W_i / E) = \frac{P(W_i)P(E / W_i)}{\sum_{i=1}^{n} P(W_i)P(E / W_i)}.$$

Remark: In case there are only two states of the world, W and not W (denoted by $\sim W$), the above formula can be rewritten as

$$P(W / E) = \frac{P(W)P(E / W)}{P(W)P(E / W) + P(\sim W)P(E / \sim W)}.$$

Nuclear deterrence provides a case-study which clarifies the significance of the decision-makers' beliefs in international politics. Robert Powell has considered rational policy-makers who examine launching a nuclear first strike if the first strike could disarm the other side and prevent any retaliation[124]. However, during the Cold War, both the United States and the Soviet Union had a retaliatory second-strike capability, so that neither side intended to launch a first strike, since such an attack would lead to a nuclear nightmare. Therefore, the role of the nuclear arsenals seemed to be limited to the deterrence of first strikes and thus of nuclear war. In fact, the political utility of nuclear arsenals beyond the deterrence of nuclear war depends on both sides' belief that there is some danger that nuclear war could start. This is due to what Thomas C. Schelling has called the reciprocal fear of surprise attack[125].

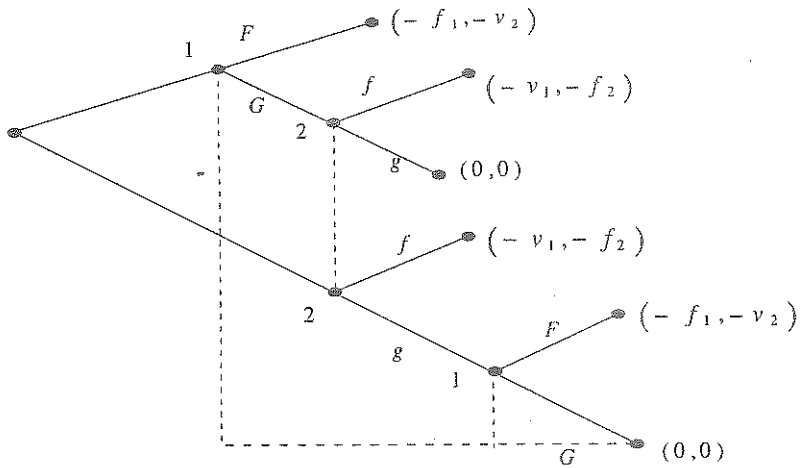
In case of a nuclear war, the side which would strike first would have a certain advantage over the other since it will be less devastated than the other. And each side might launch a first strike not because it expected to win by attacking, but because it feared that

[124] See R. Powell, *Nuclear Deterrence Theory: The Search for Credibility* (New York: Cambridge University Press, 1990).

[125] See T.C. Schelling, *The Strategy of Conflict* (New York: Oxford University Press, 1960).

the other side was preparing to attack[126]. Schelling's argument assumes that neither side knows (with certainly) that the other side definitely prefers not to attack if it is up to it to decide whether to attack or not.

In the following tree diagram, F and f are nuclear first-strike attacks, and G and g are non-aggressive policies. The f payoffs are for launching a first strike, and the v payoffs are for incurring such a strike and then retaliating. The larger the difference $(v - f)$ is, the greater the advantage of launching a first strike. If neither side attacks, then the 0 payoff occurs.



The game represented by the above diagram has three perfect Bayesian equilibria:

$$(F; f : 1; 1),$$

$$\left(G; g : \frac{1}{2}; \frac{1}{2}\right),$$

and

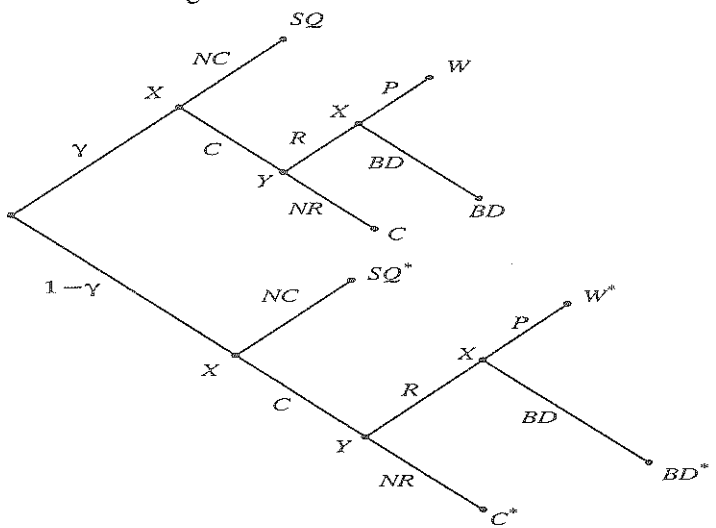
$$\left[\left(\frac{2f_2}{f_2 + v_2}F, \frac{v_2 - f_2}{f_2 + v_2}G\right); \left(\frac{2f_1}{f_1 + v_1}f, \frac{v_1 - f_1}{f_1 + v_1}v\right); \frac{f_1 + v_1}{2v_1}; \frac{f_2 + v_2}{2v_2}\right],$$

[126] See T.C. Schelling, *op.cit.* (ref. 125).

where we denote an equilibrium point by (Player 1's move; Player 2's move: Player 1's belief that he or she has the first move; Player 2's belief that he or she has the first move).

In the first equilibrium, each side knows that, if it does not attack, the other side will attack, and thus, when it has an opportunity to strike first, it does so. In the second equilibrium, neither side attacks because each knows that the other side will not attack. In the third equilibrium, neither side attacks because they both believe that the other side will not attack. In particular, in the third equilibrium, both sides play mixed strategies (each side's probability of attacking increases as the other side's first-striking advantage $(v-f)$ decreases). In this model, the motivations for attacking – namely, the achievement of the first-strike advantage and the fear that the other side will attack in turn – are offset by the mixed strategy equilibrium.

Example 3: Let us consider the following tree diagram which depicts the deterrence game.



There are two actors: a challenger X and a defender Y. X has the first choice in the game – namely, he or she may challenge (C) or not challenge (NC). If X does not challenge, then the status quo (SQ) persists. If X does challenge, then Y must choose whether he or she will resist the challenge (R) or not resist (NR) and grant concessions (C) to end the crisis. If Y resists the challenge, then pressing the challenge (P) leads to war (W), whereas backing down from the threat (BD) prevents war.

The challenger's preferences are the following:

$$1 = u_X(C) > u_X(SQ) > u_X(BD) = 0.$$

It is not clear where exactly X places W in his or her preferences; X may prefer W to SQ, or prefer SQ to W and W to BD, or prefer any peaceful outcome to war, but X prefers concessions to war. Additionally, to facilitate calculations, let us normalise the utilities by setting $u_X(C) = 1$ and $u_X(BD) = 0$.

The defender's preferences are the following:

$$1 = u_Y(BD) > u_Y(SQ) > u_Y(C) = 0;$$

Y's utilities are normalised.

Let us denote X's initial belief that Y is resolved by γ. X's preference between W and BD depends on Y's resolve. The greater a nation's military capability and willingness to undertake the costs of combat are, the greater that nation's resolve for war, and the more resolved a nation is, the greater the chance that it will win and the less the chance that its opponent will win. Let us additionally assume that X prefers BD if Y is resolute. In the previous tree diagram, the outcomes without asterisks indicate a resolute defender, so that $u_X(BD) = 1 > u_X(W)$. On the other hand, X is assumed to prefer W to BD if Y is irresolute. In the previous tree diagram, the outcomes with asterisks indicate an irresolute defender, so that $u_X(W^*) > 0 = u_X(BD^*)$. In general, we have:

$$u_X(C) = 1 > u_X(SQ) > u_X(W^*) > u_X(BD) = 0 > u_X(W).$$

Let us denote X's belief at his or her last move that Y is resolved by $\bar{\gamma}$. Moreover, let $\bar{\gamma}_\circ$ stand for the critical belief occuring when the challenger is indifferent between BD and P:

$$\bar{\gamma}_\circ\left[u_X(W)\right]+(1-\bar{\gamma}_\circ)u_X\left(W^*\right)=0$$

$$\bar{\gamma}_\circ=\frac{u_X\left(W^*\right)}{u_X\left(W^*\right)-u_X(W)}.$$

If $\bar{\gamma}>\bar{\gamma}_\circ$, then X prefers BD to P, and, if $\bar{\gamma}<\bar{\gamma}_\circ$, then X prefers P to BD.

The probability, R, of X's pressing his or her threat that makes an irresolute Y indifferent between R and C is

$$R\left[u_Y\left(W^*\right)\right]+(1-R)(1)=0$$

$$R=\frac{1}{1-u_Y\left(W^*\right)}.$$

The probability, s, of an irresolute Y's resisting the threat that creates the critical belief for X is

$$\bar{\gamma}_\circ=\frac{p(Y\text{ resolute})\,p(R\,|\,Y\text{ resolute})}{p(Y\text{ resolute})\,p(R\,|\,Y\text{ resolute})+p(Y\text{ irresolute})\,p(R\,|\,Y\text{ irresolute})}$$

$$=\frac{\gamma(1)}{\gamma(1)+(1-\gamma)s}$$

$$s=\frac{\gamma(1-\bar{\gamma}_\circ)}{(1-\gamma)\bar{\gamma}_\circ}=\frac{\gamma\left[-u_X(W)\right]}{(1-\gamma)\left[u_X\left(W^*\right)\right]}.$$

If $\gamma>\bar{\gamma}_\circ$, then X expects that Y will resist, and thus X should prefer the status quo to any non-peaceful choice. If $\gamma<\bar{\gamma}_\circ$, then X is not beforehand deterred from challenging the status quo. In fact, if $\gamma<\bar{\gamma}_\circ$, X prefers accepting the status quo to challenging it when his or her utility for the status quo, $u_X(SQ)$, exceeds his or her expected utility for challenging it:

$$u_X(SQ)>\gamma\left[u_X(BD)\right]+(1-\gamma)\left\{s\left[u_X(BD)\right]+(1-s)u_X(C)\right\}$$

$$>\gamma(0)+(1-\gamma)\left[0\left\{\frac{\gamma\left[-u_X(W)\right]}{(1-\gamma)\left[u_X\left(W^*\right)\right]}\right\}+1\left\{\frac{(1-\gamma)u_X\left(W^*\right)-\gamma\left[-u_X(W)\right]}{(1-\gamma)\left[u_X\left(W^*\right)\right]}\right\}\right].$$

The equilibria are denoted by (X's first move, X's last move; resolute Y's reply, irresolute Y's reply: X's belief in his or her last move). If

$$\gamma>\frac{\left[1-u_X(SQ)\right]\left[u_X\left(W^*\right)\right]}{u_X\left(W^*\right)-u_X(W)},$$

then $\left(NC,BD;R,R:P\right)$ with

$$P>\bar{\gamma}_\circ=\frac{u_X\left(W^*\right)}{u_X\left(W^*\right)-u_X(W)}$$

is a perfect Bayesian equilibrium. If

$$\gamma<\frac{\left[1-u_X(SQ)\right]\left[u_X\left(W^*\right)\right]}{u_X\left(W^*\right)-u_X(W)},$$

then

$$\left\{C,\left[\frac{1}{1-u_Y\left(W^*\right)}P,\frac{-u_Y\left(W^*\right)}{1-u_Y\left(W^*\right)}BD\right];R,\left[\frac{\bar{\gamma}_\circ-\gamma}{(1-\gamma)\bar{\gamma}_\circ}NR,\frac{\gamma(1-\bar{\gamma}_\circ)}{(1-\gamma)\bar{\gamma}_\circ}R\right]:\bar{\gamma}_\circ\right\}$$

with

$$\bar{\gamma}_\circ=\frac{u_X\left(W^*\right)}{u_X\left(W^*\right)-u_X(W)}$$

is a perfect Bayesian equilibrium.

If

$$\gamma>\frac{\left[1-u_X(SQ)\right]\left[u_X\left(W^*\right)\right]}{u_X\left(W^*\right)-u_X(W)},$$

then no crisis occurs, whereas, if

$$\gamma < \frac{\left[1-u_X(SQ)\right]\left[u_X(W^*)\right]}{u_X(W^*)-u_X(W)},$$

a crisis always occurs (γ is uniformly distributed on the closed interval $[0,1]$). Hence, the probability of a crisis is

$$p(\text{crisis}) = p(\gamma < \gamma^*) = \frac{\int_0^{\gamma^*} 1dx}{\int_0^1 dx} = \gamma^*,$$

where $\gamma^* = \frac{\left[1-u_X(SQ)\right]u_X(W^*)}{u_X(W^*)-u_X(W)}$.

Y makes concessions with probability

$$(1-\gamma)\left[\frac{\overline{\gamma}_\circ - \gamma}{(1-\gamma)\overline{\gamma}_\circ}\right] = \frac{\overline{\gamma}_\circ - \gamma}{\overline{\gamma}_\circ},$$

where $(1-\gamma)$ is the probability that Y is irresolute and $\frac{\overline{\gamma}_\circ - \gamma}{(1-\gamma)\overline{\gamma}_\circ}$ is the probability that Y makes concessions if he or she is irresolute. The probability that Y makes concessions if a crisis occurs is

$$p(NR|\text{crisis}) = \frac{\int_0^{\gamma^*} \frac{x(1-\overline{\gamma}_\circ)}{\overline{\gamma}_\circ}dx}{\int_0^{\gamma^*} 1dx} = \frac{\frac{\gamma^{*2}(1-\overline{\gamma}_\circ)}{2\overline{\gamma}_\circ}}{\gamma^*}$$

$$= \frac{\gamma^*(1-\overline{\gamma}_\circ)}{2\overline{\gamma}_\circ} = \frac{\left[-u_X(W)\right]\left[1-u_X(SQ)\right]}{2\left[u_X(W^*)-u_X(W)\right]}.$$

Hence, the probability that war breaks out for a given $\gamma < \overline{\gamma}_\circ$ is

$$p(Y \text{ resists})\,p(X \text{ presses}) = \left[\frac{1}{1-u_Y(W^*)}\right]\left(\frac{\gamma}{\overline{\gamma}_\circ}\right).$$

The probability of war given a crisis is

$$p(\text{war}|\text{crisis}) = \frac{\int_0^{\gamma^*} \frac{x}{\overline{\gamma}_\circ\left[1-u_Y(W^*)\right]}dx}{\int_0^{\gamma^*} 1dx} = \frac{\frac{\gamma^{*2}}{2\overline{\gamma}_\circ\left[1-u_Y(W^*)\right]}}{\gamma^*}$$

$$= \frac{\gamma^*}{2\overline{\gamma}_\circ\left[1-u_Y(W^*)\right]} = \frac{1-u_X(SQ)}{2\left[1-u_Y(W^*)\right]}.$$

Example 4: In order to act more successfully, international-political actors have often to give special emphasis to the understanding of the goals of the other actors and the conceptual framework in which they act. For instance, a terrorist group is seen by its opponents as mad or wicked. By contrast, those involved in terrorism see themselves as freedom fighters or fighters of a holy war, etc. Thus, the execution of a captured terrorist may transform him or her into a martyr and encourage the militancy and the popular appeal of the terrorist movement. The action of Hamas in the Middle East is a case in point[127]. Hamas is very capable of creating havoc and mayhem, and it cannot be easily crushed entirely from the outside. This is why Israel has avoided extremely hard countermeasures, such as the reoccupation of the West Bank.

Hamas is inalienably related to Palestinian society, and, although this fact is the source of its power, it also makes it dependent on the Palestinian opinion. Hence, inasmuch as branches of Hamas choose accommodation with Arafat and with Israel and Israel gives Palestinians part of a seat on the subway or at least recognise the validity of their reservation, the resources of terrorism are shrinking. The key issue in fighting terrorism is to control public opinion in order to isolate the terrorists from the rest of the world, to demoralise them and make repressive actions against them more effective. The opponents of a terrorist group need some conception of the belief structures of the

[127] See for instance *The Economist*, "Islam Resumes Its March", April 4, 1992, p. 55-56.

terrorists in order to understand the most effective ways of tackling the problem of terrorism. Nicholson argues that the behaviour of Hamas and of any fundamentalist or terrorist organisation can be understood empirically, since "ideas, being characteristics of people and in some sense factual, can be discussed in causal ways [...] Thus, a person holding a particular belief can give an account in social and psychological terms of how they came to be acquainted with the belief and hold it, which is separate from a justification of the belief"[128]. Therefore, Nicholson maintains that, in order to study, for instance, the role of religious fundamentalism in the international-political life, "we regard actual belief structure as secondary to the *form* of belief structure"[129]. For, otherwise, by giving too much importance to the viewpoints of the actors, we are too much constrained by the particularities of the mental states of each individual, and thus "we are seriously impoverished in our understanding of social events"[130].

The preceding examples clarify the manner in which social behaviour can be analysed by the methods of the social sciences. In order to avoid any misunderstanding, I should mention that a social science of International Relations allows quantification but does not consist in or call for the mathematicisation of the study of the international-political life. In fact, what the preceding discussion and examples imply as a major conclusion is that knowledge of the external world comes primarily from experience and is not a priori. In addition, I should stress what is 'scientific' about a social science of International Relations. Sections 1.1, 1.2, 1.3 and 1.4 defend Nicholson's argument that the 'scientific' character of a social science of International Relations consists in the combination of systematic observation, which "enables us to say whether generalisations are in fact the case or not on the basis of the existing evidence"[131], with theorisation, which consists in a coherent

[128] See M. Nicholson, *op.cit.* (ref. 2), p. 124-125.
[129] See M. Nicholson, *op.cit.* (ref. 2), p. 126.
[130] See M. Nicholson, *op.cit.* (ref. 2), p. 126.
[131] See M. Nicholson, *op.cit.* (ref. 2), p. 9.

formulation of "relationships between lots of generalisations"[132].

Finally, it is important to mention that the use of formal methods (i.e. mathematics and symbolic logic) to build models of international systems or situations is significantly sustained by simulation. *Simulation* is a method of implementing a model over time and also a technique for testing, analysis and training where real-world systems are used or real-world and conceptual systems are reproduced by a model[133]. It is an important tool for analysing problems in which there are elements of uncertainty and difficult nonlinearities. For this purpose, simulation models use random numbers in order to generate uncertain events (i.e. to make random draws from a probability distribution).

Different programming languages[134] intended for different types of simulation studies allow us to run a model many times, either varying parameter values to explore sensitivity effects, or using different sequences of random numbers in order to determine the magnitude of possible statistical variations. Moreover, the advances of software and hardware technology offer a "virtual laboratory" where simulation models can handle a very large number of interactions in a consistent and adjustable manner.

In fact, simulation can be categorised into three types:

(i) *Live Simulation*: it involves real people operating real systems.

(ii) *Virtual Simulation*: it involves real people operating simulated systems (in order to exercise motor control skills, such as flying an airplane, decision skills and communica-

[132] See M. Nicholson, *op.cit.* (ref. 2), p. 9.
[133] For more details, one may be referred to S.J. Cimbala (ed.), *Artificial Intelligence and National Security* (Lexington: Lexington Books, 1987).
[134] The first significant contributions to this end were made during the 1960s. GPSS (General-Purpose Systems Simulator) was developed in the early 1960s. SIMSCRIPT 2.5 was developed by H.M. Morkowitz and GASPII by A.A.B. Pritsher in the early to mid-1960s. Additionally, P. and N. Hurst produced GASPIV in 1973, which is mainly an improved version of GASPII.

tion skills).

(iii) *Constructive Model/Simulation*: it involves simulated people operating simulated systems (real people make inputs to such simulations but do not determine the outcomes).

However, the above categorisation is not absolute, and it does not include a separate category for simulated people operating real equipment (e.g. smart vehicles). For military purposes, for instance, advanced synthetic environments (ASE) integrate computer models, actual warfighting systems and weapon system simulators. Entities within ASE are distributed geographically and connected through an advanced communications network, so that warfighters train themselves as they fight within a synthetic environment of war. Moreover, automated scenario development capabilities and database construction tools, models and simulations can be used to support crisis action planning.

2
Hans J. Morgenthau and Classical Realism

Introduction

The aim of this chapter is to present a study of H.J. Morgenthau's theory of international politics. First, I shall present the principles of Morgenthau's theory of international politics. Second, I shall make a critical analysis of Morgenthau's scholarly work, focusing on his approach to the methods of the social sciences and to the nature of international politics. I shall especially criticise Morgenthau for deploring the social-scientific methods even though he accepts the legitimacy of generalisations and for proposing an idealistic, one-sided abstraction of necessity in the form of power politics.

2.1. Morgenthau's Theory of International Relations

Hans J. Morgenthau states that his purpose is "to present a theory of international politics"[1] founded on what he has called the "principles of political realism"[2]. Morgenthau argues that, in order to understand the behaviour of states, it is necessary to have previously understood and explained individual behaviour:

> the relations between nations are not essentially different from the relations between individuals; they are only relations between individuals on a wider scale.[3]

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[1] See H.J. Morgenthau, *Politics among Nations: The Struggle for Power and Peace* (rev. by K.W. Thompson, New York: McGraw-Hill, Inc., 1993), p. 3.

[2] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 4.

[3] See H.J. Morgenthau, *Scientific Man versus Power Politics* (Chicago: University of Chicago Press, 1946), p. 43.

Additionally, he has argued that

> politics, like society in general, is governed by objective laws that have their roots in human nature. [...] The operation of these laws being impervious to our preferences, men will challenge them only at the risk of failure.[4]

However, because Morgenthau does not want to assert that international politics is a mechanistic field, he adopts a Cartesian-like view of 'methodological doubt'. Namely, he maintains that, despite the fact that one can develop an objective understanding of these universal, timeless laws of international politics, there exist two major obstacles to the production of objective knowledge in the social sciences.

First the ideological beliefs that the social scientist has absorbed through a process of socialisation make him or her conduct research with certain preconceptions, i.e. the mind of the social scientist is "moulded by the society which he observes"[5]. Morgenthau argues that the convictions and the preconceptions that decision-makers have formed before reaching high office or before getting to grips with a particular problem may often deter them from identifying these universal laws and thus lead them to failure.

But even if a social scientist were able to obtain a picture of society which is not distorted by his 'ideological lenses', Morgenthau argues that

> one of the main purposes of society is to conceal these truths from its members. That concealment, that elaborate and subtle and purposeful misunderstanding of the nature of political man and political society is one of the cornerstones

[4] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 4.

[5] See H.J. Morgenthau, "The Commitments of Political Science", in H.J. Morgenthau (ed.), *Politics in the Twentieth Century* (Chicago: University of Chicago Press, 1971), p. 258.

> upon which all societies are founded.[6]

Thus, a social scientist's commitment to truth will bring him or her face to face with the "Socratic distinction of unpopularity, social ostracism and criminal penalties"[7]. Morgenthau argues that the social approval of political science depends on its ability to perform useful functions for society and to help

> to cover political relations with a veil of ideologies which mollify the conscience of society; by justifying the existing power relations, it reassures the powers-that-be in their possession of power; it illuminates certain aspects of the existing power relations; and it contributes to the improvement of the technical operations of government.[8]

On the other hand, Morgenthau argues that all these obstacles to objective knowledge can be overcome, and he acknowledges the "existence and accessibility of objective truth"[9]. In particular, Morgenthau argues that the acquisition of objective knowledge is achieved through the possession of an accurate theory. However, he does not adopt a crude positivism, but he admits that "a theory of politics presents not only a guide to understanding but also an ideal for action"[10].

Morgenthau explains his views on the meaning of a 'scientific theory' as follows:

> A scientific theory has the purpose of bringing order and meaning to a mass of phenomena which without it would remain disconnected and unintelligible. Thus, a scientific theory must meet the dual test of experience and reason. Do the facts as they actually are lend themselves to the interpre-

[6] See H.J. Morgenthau, *op.cit.* (ref. 5), p. 259.

[7] See H.J. Morgenthau, *op.cit.* (ref. 5), p. 261.

[8] See H.J. Morgenthau, *op.cit.* (ref. 5), p. 261.

[9] See H.J. Morgenthau, *op.cit.* (ref. 5), p. 267.

[10] See H.J. Morgenthau, *op.cit.* (ref. 5), p. 271.

> tation that the theory has put upon them, and do the conclusions at which the theory arrives follow with logical necessity from the premises? In sort, is the theory consistent with the facts and within itself?[11]

Thus, Morgenthau admits that a scientific theory, appealing to scientific 'reason', can only imperfectly approximate the actual state of affairs in politics, which is "imperfect" from the rational viewpoint[12]. In other words, politics "must be understood through reason, yet it is not in reason that it finds its model"[13].

As far as human nature is concerned, Morgenthau adopts a pluralistic view of man, since he recognises both ethical and rational dimensions[14]. But, on the other hand, he regards the "will-to-power" as the defining characteristic of politics and as the element with respect to which one can distinguish politics from economics, religion and law. For, Morgenthau asserts the autonomy of politics as a distinct form of social life, which is characterised by the "will-to-power". In general, politics, economics, religion and law have been sharply differentiated from each other by Morgenthau. Therefore, in the particular sphere of social life which is called 'international politics', morality and reason play an instrumental role in order to justify and enhance power. In particular, Morgenthau argues that, whereas "non-political action is ever exposed to corruption by selfishness and lust for power, this corruption is inherent in the very nature of political act"[15].

In Morgenthau's theory of international politics, the difference between international politics and domestic politics has been stressed. Morgenthau considers the structural distinction between

[11] See H.J. Morgenthau, "The Purpose of Political Science", in J.C. Charlesworth (ed.), *A Design of Political Science* (Philadelphia: American Academy of Political and Social Science, 1966), p. 63.

[12] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 3.

[13] See H.J. Morgenthau, *op.cit.* (ref. 3), p. 10.

[14] See H.J. Morgenthau, *op.cit.* (ref. 3), p. 5.

[15] See H.J. Morgenthau, *op.cit.* (ref. 3), p. 196.

international and domestic politics to be the cause of the continuity of international politics as an arena of power politics. For, within a state, the "will-to-power" is not allowed free reign as a result of the existence of a civil government. But Morgenthau argues that international politics is an anarchic system, in the sense that each state claims sovereign control over its own territory and people and considers itself to be the ultimate foundation of the norms relating means to ends. Thus, Morgenthau argues that

> continuity in foreign policy is not a matter of choice but a necessity; for it derives from [factors] which no government is able to control but which it can neglect only at the risk of failure. [...] consequently, the question of war and peace is decided in consideration of these permanent factors, regardless of the form of government [...] and its domestic policies. Nations are 'peace-loving' under certain conditions and are warlike under others, and it is not the form of government or domestic policies which make them so.[16]

At this point, Morgenthau stresses a structural dichotomy between domestic and international politics. Even if all politics may be considered as a struggle for power, Morgenthau maintains that the distinctive characteristics of international politics require it to be studied as a struggle for power on its own terms.

Morgenthau assigns to a theory of international politics the task of determining and classifying the patterns that are recurrent in human history and of specifying the trans-historical conditions which make the genesis of these patterns, their change, or their disappearance possible:

> The historian presents his theory in the form of a historical recital using the historic sequence of events as demonstration of his theory. The theoretician, dispensing with the historical recital, makes the theory explicit and uses historic

[16] See H.J. Morgenthau, *op.cit.* (ref. 3), p. 66.

facts in bits and pieces to demonstrate his theory.[17]

Morgenthau regards power as the key element of action in international politics and reason as the factor which determines the goals for the pursuit of which a state competes in the international arena as well as the means by which a state pursues its goals. Additionally, Morgenthau recognises that there is an element of irrationality in international politics:

> The element of irrationality, insecurity, and chance lies in the necessity of choice among several possibilities multiplied by a great number of systems of multiple choice. [But] the social world is not devoid of a measure of rationality if approached with the modest expectations of a circumspect theory [...] the empirical political world presents theory as well as practice with a limited number of rational choices.[18]

Morgenthau seems to accept the conception of rationality that is standard in neo-classical economics. To say that states act rationally in this sense means that they have consistent and ordered preferences and try to maximise their utility in light of these preferences and their perceptions of reality.

Based on the assumption that states seek to maximise their power, Morgenthau argues that all foreign policies reveal three basic patterns of policy: defending the status quo, i.e. "the distribution of power which exists at a particular moment in history"[19]; imperialism, i.e. "a policy devised to overthrow the status quo"[20]; or prestige, i.e. a policy devised "to impress other nations with the power one's own nation actually possesses, or with the power it

[17] See H.J. Morgenthau, "The Nature and Limits of a Theory of International Relations", in W.T.R. Fox (ed.), *Theoretical Aspects of International Relations* (Indiana: University of Notre Dame Press, 1959), p. 25.
[18] See H.J. Morgenthau, *op.cit.* (ref. 11), p. 65.
[19] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 51.
[20] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 65.

believes, or wants the other nations to believe, it possesses"[21].

Morgenthau argues that imperialism is likely to take place when a nation anticipates victory in war and thus pursues "a policy that seeks a permanent change of the power relations with the defeated enemy"[22], or when a state has lost a war and desires "to turn the scales on the victor, to overthrow the status quo created by his victory, and to change places with him in the hierarchy of power"[23], or when there exist weak states or politically empty spaces "that are attractive and accessible to a strong state"[24]. The goals of imperialism may be "world empire"[25] (for instance, one may consider the policies of Alexander the Great, Rome, the Arabs in the 7th and the 8th centuries, Napoleon I and Hitler), or "continental empire"[26] (for instance, one may consider the policies of Louis XIV, Napoleon III and William II), or "local preponderance"[27] (for instance, one may consider the policies of Frederick the Great, Louis XV, Maria Theresa, Peter the Great, Catherine II and Bismarck). The means of imperialism may be military, economic and cultural[28].

However, Morgenthau admits that it is not easy to distinguish between imperialistic and status quo policies. For, power cannot be accurately quantified, because, in addition to such quantifiable elements as geography, natural resources, industrial capacity, population, size, military capacity, etc., important non-quantifiable human elements such as quality of leadership, national and social cohesion and character must be taken into account[29]. Moreover, international politics is in a constant flux, so that policies can rap-

[21] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 85.
[22] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 65.
[23] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 66.
[24] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 67.
[25] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 67-68.
[26] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 68.
[27] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 68-69.
[28] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 69-75.
[29] See H.J. Morgenthau, *op.cit.* (ref. 1), ch. 9.

idly switch from being status-quo-oriented to imperialistic and vice versa. Finally, there is always the danger of misperception in evaluating the distribution of power[30].

Even though Morgenthau acknowledges these difficulties in distinguishing between status quo and imperialistic policies, he maintains that the outcome of the struggle for power among states at the international level is the balance of power:

> the international balance of power is only a particular manifestation of a general social principle to which all societies composed of a number of autonomous units owe the autonomy of their component parts; [...] the balance of power and policies aiming at its preservation are not only inevitable but are an essential stabilising factor in a society of sovereign nations; [...] the instability of the international balance of power is due not to the faultiness of the principle but to the particular conditions under which the principle must operate in a society of sovereign nations.[31]

Regarding the balance-of-power system of the bipolar world order which emerged after World War II, Morgenthau argues that it contains both the seeds of good and the seeds of evil and that the blossoming of the seeds of good depends on the rejuvenation of diplomacy[32]. In particular, he argues that, since World War I, five factors have led to the decline of diplomacy: (i) the modern communications which enable leaders to negotiate directly with each other and thus undermine the role of the permanent diplomatic corps; (ii) the public image of diplomacy has been damaged by the experience of World War I, after which the U.S. President Woodrow Wilson condemned secret diplomacy; (iii) diplomacy

[30] See H.J. Morgenthau, *op.cit.* (ref. 1), ch. 10.

[31] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 183.

[32] See H.J. Morgenthau, "World Politics in the Mid-Twentieth Century", *Review of Politics*, 10(1948), 154-173.

has been distorted by "parliamentary diplomacy"[33] and extreme publicity; (iv) the two superpowers, U.S.A. and U.S.S.R., are inexperienced in manipulating the instruments by which traditional diplomacy was able to protect and promote the national interest; and (v) diplomacy cannot work efficiently in a bipolar system where the two superpowers are engaged in a zero-sum game.

Morgenthau's basic prescriptive propositions for the rejuvenation of diplomacy are the following:

(i) "Diplomacy must be divested of the crusading spirit"[34].

(ii) "The objectives of foreign policy must be defined in terms of the national interest and must be supported with adequate power"[35].

(iii) "Diplomacy must look at the political scene from the point of view of other nations"[36].

(iv) "Nations must be willing to compromise on all issues that are not vital to them"[37].

In Morgenthau's prescriptive theory of international politics, the 'national interest' contains two elements: the first element consists in the requirement of protection of a state's physical, political and cultural identity against challenges from other nations, and the second element is a residual category of goals determined by "the cross-currents of personalities, public opinion, sectional interests, partisan politics"[38]. Morgenthau argues that the task of diplomacy is to determine the relationship between these two elements within a particular historical context, always giving priority to the first of these elements and establishing a balance between objectives and resources and between costs and benefits.

[33] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 373.

[34] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 381-382.

[35] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 382-383.

[36] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 383.

[37] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 383-384.

[38] See H.J. Morgenthau, "The Problem of National Interest", in H.J. Morgenthau, *The Decline of Democratic Politics* (Chicago: University of Chicago Press, 1962), p. 94.

2.2. *A Critical Analysis of Morgenthau's Theory of International Relations*

In this section, I shall study what I consider to be the major antinomies in Morgenthau's theory of international politics which emanate from his fuzzy attitude toward the epistemology of International Relations as a scholarly discipline, his unidimensional approach to his subject-matter (i.e. the abstraction of necessity in the form of power politics) and his confusion with respect to the difference between explanation and prescription.

2.2.1. Morgenthau's Theory and Empirical Relevance

As I have already argued in the Introduction, Morgenthau is not self-consciously 'scientific', or at least as much as his neo-realist successors, and the epistemological basis of his work is characterised by a fundamental antinomy: on the one hand, he deplores the social-scientific methods, and, on the other hand, he looks for objective and eternal political laws.

The above fundamental antinomy is accompanied by a series of other antinomies. Berki maintains that political idealism is primarily

> the striving after unitary understanding. Secondly, since unitary understanding involves abstraction, idealism amounts to the assertion of a dualism, the abstracted and the unabstracted. Now the third feature of political idealism is its resultant, and entirely 'logical' self-contradiction [...] the unabstracted part of political reality keeps on intruding into the ideal picture of the idealist writer; his abstraction is never left in peace, but is constantly disturbed, assailed as it were from the outside.[39]

Although Morgenthau argues that an international-political theory should be consistent within itself and with the facts, i.e. he conforms – in a rather crude and intuitive manner – to empiricist views, the pursuit of

[39] See R.N. Berki, *On Political Realism* (London: J.M. Dent and Sons, 1981), p. 195-196.

unitary understanding ('power politics') and the tension between the abstracted (necessity in the form of power politics) and the unabstracted (the realm of freedom and morality which have been separated from politics by Morgenthau) undermine the empirical relevance of his theory and the cognitive significance of his theorems. If we follow Berki's terminology, Morgenthau has lapsed into a form of political idealism which also makes it difficult to distinguish between explanation and prescription. For instance, does the behaviour of the 'political man' analysed by Morgenthau reflect the actual state of affairs or Morgenthau's prescriptions – and how can that behaviour explain reality since it is supposed to characterise the 'political man', i.e. an abstract entity? The previous questions are not answered in Morgenthau's work.

The 'political man', as well as the 'economic man', the 'religious man' and the 'lawful man', are ideal types and can lead to an empirically significant theory only when they are dialectically interrelated. Thus, having restricted himself to the abstraction of the 'political man' from the real man and of 'political life' from real life, having made those assumptions and those assumptions alone, Morgenthau's results in terms of operationally meaningful theorems are puny indeed. An empirically meaningful theory should be based on what one may call the 'dialectic of reality', i.e. it should recognise a dialectical relationship between necessity and freedom. Men create history but they are also created by it. They create it by defining at each moment which question is important, by formulating it and finding the possible and appropriate response. However, they neither choose nor evaluate without prerequisites. They are not like Adam (the only being without a navel): men's great umbilical cord links them with and feeds them on the vital blood of what has preceded them. Additionally, men choose and evaluate being themselves a product of choice and evaluation; namely, they have to act in a historical environment for whose trajectories they are not completely responsible and over which they have limited control.

Morgenthau, having committed himself to the necessity of power politics, is oblivious of the dialectic of reality and construes 'generalisation' in an ahistorical fashion. Thus, Morgenthau has either to

admit that his theory is idealistic or a pure deductive system and thus universal laws can be established without any reference to empirical data, or else to construct a theory where disposition rules with reference to empirical data are established and hence formulate and test his generalisations within particular historical contexts (see section 1.2). He does neither of the above. On the other hand, Morgenthau tries to defend his quest for ahistorical laws by arguing that they are rooted in human nature, which remains fundamentally the same. But such laws say that man's acts are in agreement with his or her nature; nevertheless, they cannot explain how the same human nature, no matter how one may define it, can account for an infinite variety of social events. Morgenthau studies neither the above question nor the issue of 'change'. His theory does not explain the conditions under which and the manner in which the rules of human action change, and also it does not explain the adaptation of states to changing environments[40].

Finally, the empirical relevance of Morgenthau's theoretical construction is undermined by the fact that his views on testing a theory are blurred. This is so not only because the distinction between explanation and prescription is blurred in his work but also because he has claimed that *Politics among Nations* is an empirical theory which presents only "the rational essence to be found in experience, without the contingent deviations from rationality which are also found in experience"[41]. The "rational essence" consists in the abstraction of necessity in the form of power politics. Therefore, the following problem emerges: Morgenthau appeals to political practice in order to confirm his theory, but only policies that are, according to Morgenthau, rational are supposed to confirm his theory. Thus, Morgenthau's theory becomes tautological. For, as I have mentioned in section 1.2 (expression (4)), by asserting that a

[40] For more details on this point, one may be referred to J.N. Rosenau, "The External Environment as a Variable in Foreign Policy Analysis", in J.N. Rosenau, V. Davis and M. East (eds), *The Analysis of International Politics* (New York: Free Press, 1977), p. 146-165.

[41] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 7.

model is supposed to hold in the context where the actors' behaviour is described by the basic relations of the given model, the relevant deductive system becomes a pure one.

2.2.2. Morgenthau and Power Politics

Central to Morgenthau's theory of international politics is the assertion that international politics consists in a continual struggle for power, which is a consequence of his assumption that each state tends to maximise its power, either as an end in itself or as a means to another end. However, the previous assertion can be attacked on both logical and empirical grounds.

As far as the coherence of Morgenthau's own theory is concerned, one should point out that the necessity which emanates from the postulate of power-maximisation contradicts the distinction between imperialist and status quo powers which has been proposed by Morgenthau. Once there are various kinds of foreign policy with respect to the pursuit of power, international politics is a struggle for power *to the extent that* state interests are conflicting. As a result, the struggle for power is a political variable which does not have a constant value, but it can assume different values. In particular, the struggle for power tends to a minimum as state interests coincide and tends to a maximum as state interests become absolutely incompatible. Thus, J.A. Vasquez argues that "power politics is not so much an explanation as a description of one type of behaviour found in the global political system [which] itself must be explained"[42].

As an empirical counterexample to Morgenthau's view on power politics, one may propose the issue of arms control. Henry Kissinger explains the emergence of the issue of arms control as follows:

> The concept of arms control evolved when a growing Soviet nuclear arsenal threw into doubt the comfortable premises

[42] See J.A. Vasquez, *The Power of Power Politics* (New Jersey: Rutgers University Press, 1983, p. 216.

> of the decade after World War II. It had been complacently assumed that by means of the 'balance of terror', technology supplied a shortcut to security. [...] Once general nuclear war threatened both sides with tens of millions of casualties, the very existence of nuclear arsenals came to be perceived by many as a menace. Traditional wars had been sustained by the conviction that the consequences of defeat or surrender were worse than the costs of resistance. Fewer and fewer objectives seemed worth the cost of the risk.[43]

Henry A. Kissinger maintains that the nuclear arms race leads to such a high level of destructiveness of the arms supplies that there is "an upper limit beyond which additions to destructiveness become more and more marginal"[44]. Moreover, "the complex technology of the nuclear age raises the danger of an automaticity that might elude rational control"[45]. Thus, contrary to what Morgenthau has asserted, the intensity and the form of the struggle for power should not be considered to be given in international relations. As a matter of fact, the struggle for power may undermine the element that is supposed to sustain, namely the national interest. Therefore, 'international politics' is not necessarily and solely a 'struggle for power', since, after all, the struggle for power may undermine the struggle for survival, and, before trying to dominate others, states try to maintain their position in the international system.

Stanley Hoffmann argues that Morgenthau's 'power monism' cannot become the ultimate foundation of a theory of international politics because

> it is impossible to subsume under one word variables as different as: power as a condition of policy and power as a criterion of policy; power as a potential and power in use;

[43] See H. Kissinger, "A New Approach to Arms Control", *Time*, March 21, 1983, p. 24.

[44] See H. Kissinger, *op.cit.* (ref. 43), p. 24.

[45] See H. Kissinger, *op.cit.* (ref. 43), p. 24.

> power as a sum of resources and power as a set of processes. Power is a most complex product of other variables, which should be allowed to see the light of the theory instead of remaining hidden in the shadow of power.[46]

In addition, the manner in which Morgenthau construes the 'national interest' is rather simplistic. In particular, S. Hoffmann argues that

> the conception of an objective and easily recognisable national interest [...] is one which makes sense only in a stable period in which the participants play for limited ends, with limited means, and without domestic kibitzers to disrupt the players' moves. [...] Today, however, survival is almost always at stake, and technological leaps have upset the hierarchy of stable factors. [...] In such circumstances, interpretations of the national become almost totally subjective and the relative weight of 'objective' factors [...] is almost impossible to evaluate.[47]

Indeed, once Morgenthau does not show how the national interest can be objectively defined independently of the manner in which each state defines its goals, the empirical significance of his analysis is unclear. For instance, P. Seabury[48] and V. Van Dyke[49] argue that Morgenthau's claim that the national interest could be defined independently of any consideration of American ideals undermines the empirical significance of Morgenthau's analysis of U.S. foreign policy.

Morgenthau's assumption that states tend to maximise their

[46] See S. Hoffmann, *Contemporary Theory of International Relations* (Englewood Cliffs, N.J.: Prentice-Hall, 1960), p. 32.

[47] See S. Hoffmann, *op.cit.* (ref. 46), p. 33.

[48] See P. Seabury, *Power, Freedom, and Diplomacy* (New York: Random House, 1963), ch. 4.

[49] See V. Van Dyke, "Values and Interests", *American Political Science Review*, 56(1962), 567-577.

power is not in complete accordance with the way he considers balance of power to be a condition of stalemate and mutual deterrence contributing to the maintenance of international order. Morgenthau, referring to the European balance-of-power system in the eighteenth and nineteenth centuries, argues that, in order for the balance-of-power arrangement to function properly, the competing nations must have previously restrained themselves by consenting to the maintenance of this settlement, and thus this settlement depends on common mores, civilisation and interests[50]. Therefore, neither power politics nor the distinction between domestic and international politics is a fixed static condition. There is nothing 'necessary' about the distinction between international and domestic politics; this distinction varies with respect to different historical individuals.

The power-maximisation assumption in politics as well as the profit-maximisation assumption in economics are too general to account for an accurate explanation of political and economic behaviour, respectively. These assumptions must be refined in order to account for variations in the form of political and economic behaviour. In fact, there is not necessarily only one optimum choice and also the pursuit of optimisation by the actors does not mean ipso facto that the actors *actually* behave optimally. Optimisation depends on the features or constraints of the particular framework within which action takes place and on the manner in which this framework is conceived by the actors.

There are various criteria of strategy by means of which a state conceives and pursues the maximisation of its power. The study of these criteria is facilitated by game theory. Let us restrict (for simplicity) ourselves to two-players zero-sum games, i.e. games where one's benefits are the other's losses. The following payoff matrix shows the strategies $\{A_i, i=1,\ldots,m\}$ which are available to

[50] See H.J. Morgenthau, *op.cit.* (ref. 1), parts 4 and 5.

player A and the strategies $\{B_j, j=1,\ldots,n\}$ which are available to player B. If the payoffs c_{ij} are expressed in terms of A's benefits (hence, B's losses), then the quantity c_{ij} shows A's benefit (equivalently, B's loss) when A and B choose the pair of strategies (A_i,B_j).

		Player *B*					
		B_1	B_2	$\cdots$	B_j	$\cdots$	B_n
Player *A*	A_1	c_{11}	c_{12}	$\cdots$	c_{1j}	$\cdots$	c_{1n}
	A_2	c_{21}	c_{22}	$\cdots$	c_{2j}	$\cdots$	c_{2n}
	$\vdots$	$\cdots$	$\cdots$	$\cdots$	$\cdots$	$\cdots$	$\cdots$
	A_i	c_{i1}	c_{i2}	$\cdots$	c_{ij}	$\cdots$	c_{in}
	$\vdots$	$\cdots$	$\cdots$	$\cdots$	$\cdots$	$\cdots$	$\cdots$
	A_m	c_{m1}	c_{m2}	$\cdots$	c_{mj}	$\cdots$	c_{mn}

There are various criteria which determine the choice of strategies in a two-players zero-sum game[51].

(i) *Wald or Maximin Criterion*: According to this criterion, the player should select the alternative that provides the best of the worst possible outcomes, i.e. the player should choose that strategy which maximises the minimum possible outcome. In particular, given an $m \times n$-matrix (m is the number of rows or the strategies available to A, and n is the number of columns or the strategies available to B), A takes the minimum payoff, say k_i, from each row, i.e.k_i=min c_{ij}, i=1,...,m, and then chooses the maximum k_i, i.e.max (k_1,...,k_m). A's strategy is the one which corresponds to the row that contains the maximum k_i. Although the maximin criterion focuses on the most pessimistic outcome for each decision al-

[51] See for instance J.C. Chicken and M.R. Hayns, *The Risk Ranking Technique in Decision Making* (Pergamon Press, 1989); A. Ostaszewski, *Advanced Mathematical Methods* (Cambridge: Cambridge University Press, 1990), p. 143-161; L. Raiffa, *Games and Decisions* (New York: Wiley, 1957).

ternative, it should not be dismissed; for, it implicitly assumes a very strong aversion to risk and therefore is appropriate for decisions involving the possibility of catastrophic outcomes.

Alternatively, the *Wald-maximax criterion* states that the player should find the best possible (maximum) outcome for each decision alternative and then choose the option whose best outcome provides the highest (maximum) payoff. The maximax criterion implicitly assumes that the player focuses on expected returns and disregards the dispersion of returns (risk) or that, in the given environment of action, the level of uncertainty is very low.

(ii) *Minimax or Regret Criterion*: According to this criterion, the player should minimise the maximum possible regret (opportunity loss) associated with a wrong decision after the fact. In other words, this criterion states that the player should minimise the difference between possible outcomes and the best outcome for each state of the world. It should be mentioned that *opportunity loss* is defined to be the difference between a given payoff and the highest possible payoff for the resulting state of the world. Opportunity losses result because returns actually received under conditions of uncertainty are usually lower than the maximum return that would have been possible if the player had perfect knowledge beforehand. In mathematical terms, the minimax criterion states that, from the original payoff matrix, player A constructs a new matrix, called regret matrix, and then applies the maximin criterion. The regret matrix is constructed by subtracting the maximum element of each column of the original payoff matrix from each element of this column, i.e. the elements of the regret matrix will be the r_{ij}'s which, for the column, j ($j = 1,\ldots, n$), are given by $r_{ij}=c_{ij}=c_{ij}-\max c_{ij}$, $i=1,\ldots,m$ (note that r_{ij} may be defined as $\max c_{ij}-c_{ij}$, but then one should choose the minimum r_{ij}).

(iii) *Laplace Criterion*: Given an $m \times n$ matrix, player A assigns the probability $p = {}^1/_n$ to each strategy of B, since B has n alternative strategies and A assumes that they are equally probable. Then A calculates the expected payoff e_i of each row, given by

$$e_i = \sum_{j=1}^{n} p\, c_{ij} = \frac{1}{n}\left(c_{i1} + \cdots + c_{in}\right),\ i = 1,\ldots,m\ .$$

Finally, A chooses the maximum e_i, i.e. $\max\left(e_1,\ldots,e_m\right)$. Therefore, A's strategy is the one which corresponds to the row that contains the maximum e_i.

(iv) *Harwicz or Optimism-Pessimism Criterion*: A assigns an optimism index α $\left(0 \le \alpha \le 1\right)$ to the maximum payoff c_{ij} of each row. Also, A assigns a pessimism index $1-\alpha$ to the minimum payoff c_{ij} of each row. If x_i is the maximum and z_i the minimum payoff of row i, i.e. $x_i = \max c_{ij}$ and $z_i = \min c_{ij}\,(i = 1,\ldots,m)$, then A calculates the expected payoffs s_i of each row by the formula

$$s_i = \alpha x_i + \left(1-\alpha\right) z_i,\ i = 1,\ldots,m\ .$$

Finally, A chooses the maximum s_i, i.e. $\max\left(s_1,\ldots,s_m\right)$. Thus, A's strategy is the one which corresponds to the row which contains the maximum s_i. The estimation of the index α depends on subjective judgements of player A and on historical data.

The preceding game-theoretical analysis of decision theory shows that there are different decision rules[52] which are associated with the degree of uncertainty that characterises the decision environment and with the way players construe and pursue the maximisation of their benefits. Therefore, Morgenthau's commitment to the power-maximisation assumption needs further clarifications. For, Morgenthau does not clarify the manner in which balance-of-power arrangements can emerge in a world characterised by states seeking to maximise their

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[52] It is worth mentioning that players may not play only pure strategies; they may play mixed strategies, too. By a mixed strategy, we mean a probability distribution on the set of a player's pure strategies; mixed strategies for player A are denoted by $\left(A_1 p_1,\ldots,A_m p_m\right)$, where p_i is the probability of playing $A_i\,(i = 1,\ldots,m)$, and $p_1 + \cdots + p_m = 1$.

power, and he does not explain the various forms that a power-maximisation policy can take as well as the manner in which power-maximisation policies are affected by systemic and individual variables. The maximisation of power as state policy should not be studied in isolation from the given state's totality of ends and the criteria by means of which the given state chooses its strategy. For, power is an instrument by means of which a state pursues a variety of goals – one of which may be power itself – and the kind of power used by a state depends on the given state's ends and decision-making processes. Therefore, in order to explain international politics, one should not equate international politics with power politics and additionally he or she should not see only historical necessities or only freedom from historical conditions. An empirically meaningful theory of international politics should analyse the ends of the actors with which it is concerned, rather than merely analyse power relationships, and it should recognise a dialectical relationship between historical necessity and freedom which permits man – by judging costs and utilities, constraints and opportunities – to take optimal decisions.

Another defect of Morgenthau's theory of international politics is the manner in which he uses the rationality postulate. Contrary to what Morgenthau believes, the rationality postulate is not a sufficient condition for the creation of a systematic and empirically relevant decision theory in international politics (see section 1.3). In particular, due to lack of perfect knowledge and due to other factors, such as values and norms, which affect decision-making processes, one may use the term 'bounded rationality', which was first introduced by Herbert Simon[53]. Thus, an actor subject to bounded rationality may follow different decision rules according to the manner in which he or she understands the world (decision environment), so that there is not a single, fixed maximum point of one's utility index, but there may exist various such maximal points. For, the maximisation of one's utility index always takes

[53] See H.A. Simon, *Models of Bounded Rationality* (Cambridge, Mass: MIT Press, 1982).

place under constraints (which represent the characteristics of the relevant decision environment and the actors), and often changes in these constraints change the maximal point of one's utility index[54].

[54] In real-world problems, one usually has to deal with constrained optimisation. A powerful technique for solving constrained optimisation problems is the Lagrangian technique. For instance, let us assume that a firm produces its product on two assembly lines and operates with the following total cost function: $TC = 4X^2 + 8Y^2 - XY$, where X stands for the output produced on one assembly line and Y the production from the second. A constrained optimisation problem is:

Minimise $TC = 4X^2 + 8Y^2 - XY$ (1)

subject to $X + Y = 26$. (2a)

We rewrite the constraint as follows:

$0 = 26 - X - Y$. (2b)

We multiply (2b) by the unknown factor λ and add the result to the original objective function (1), so that we come up with the Lagrangian function of the given constrained optimization problem:

$L_{TC} = 4X^2 + 8Y^2 - XY + \lambda (26-X-Y)$. (3)

We take the partial derivatives of expression (3) with respect to the three unknown variables X, Y and λ:

$$\frac{\partial L_{TC}}{\partial X} = 8X - Y - \lambda,$$

$$\frac{\partial L_{TC}}{\partial Y} = 16Y - X - \lambda,$$

$$\frac{\partial L_{TC}}{\partial \lambda} = 26 - X - Y.$$

Setting the above three partial derivatives equal to zero, we come up with a system of three equations and three unknowns:

In addition, the decision rule of an actor affects the maximal point of the given actor's utility index.

Apart from 'power politics' and 'national interest', Morgenthau's third major concept is that of the 'balance of power'. Morgenthau argues that balance of power is a "universal concept"[55]. But Inis L. Claude[56] argues that Morgenthau's attempt to demonstrate the universality of the balance of power led him to such a broad use of the term that it produced an inconsistency. In fact, Morgenthau uses the 'balance of power' to refer to a situation of equilibrium as well as to any situation characterised by a struggle for power. Yet, since Morgenthau does not regard equilibrium as inevitable, the dual use of the 'balance of power' becomes a source of antinomies.

From the preceding analysis of Morgenthau's work, it follows that it constitutes a sophisticated response to the failure of the interwar liberalism to understand the role of power in the world and to provide a successful treatment of power politics. Indeed, Morgenthau's theory of international politics shows the significance of power politics in an explicit manner. Nevertheless, Morgenthau does not manage to 'cure' the fundamental weakness of the interwar liberalism, i.e. its idealistic reasoning. On the contrary, he proposes a theoretical construction whose political content (the substantial arguments) is fundamentally different from that of liberalism but which is, from the epistemological/methodological viewpoint, based on an idealistic reasoning. For, Morgenthau, not being self-consciously scientific, tries to speculate about reality by means of abstractions of particular aspects of reality (e.g. he abstracted 'political life' from real life) which are ideal types. Thus, R.O. Keohane maintains that without "coherent definitions of 'power' and 'balance of power', Morgenthau was unable to create a consistent and convincing theory"[57].

$$\left.\begin{aligned} 8X - Y - \lambda &= 0 \\ 16Y - X - \lambda &= 0 \\ 26 - X - Y &= 0 \end{aligned}\right\}.$$

Solving the above system, we come up with $X = 17$, $Y = 9$ and $\lambda = 127$. Thus, 17 units from assembly line X and 9 units from line Y is the least-cost combination that can be produced subject to the constraint that total output must be 26 units. The Lagrangian multiplier λ indicates the marginal cost of producing at 26 units of output. For further details, one may be referred to A. Ostaszewski, *op.cit.* (ref. 51), p. 150.

[55] See H.J. Morgenthau, *op.cit.* (ref. 1), p. 183-185.

[56] See I.L. Claude, *Power and International Relations* (New York: Random House, 1962).

2.3. Diplomacy: A Major Element of Morgenthau's Theory

In section 2.1, I made clear that Morgenthau espouses the revival of diplomacy and has formulated four principles on which it should be based. Even though Morgenthau does not try to formulate proposals consistent with the reality of transnational relations and other societal forces which affect international politics – and this is something which undermines the empirical relevance of his explanation and prescription – he is right in defending the significance of diplomacy as a means of maintaining international order.

The continued significance of balance-of-power politics and the weakness of the international legal system make diplomacy – namely, the conduct of international relations by negotiation rather than by any other means (e.g. force, recourse to law, propaganda, etc.) – always significant. It should be mentioned that one of the greatest advantages of diplomacy is its flexibility, as opposed to legalistic or moralistic approaches. International-political problems should be tackled on a case-by-case basis as components of geopolitical equations. An undifferentiated legalistic or moralistic ap-

[57] See R.O. Keohane, "Realism, Neorealism and the Study of World Politics", in R.O. Keohane (ed.), *Neorealism and Its Critics* (New York: Columbia University Press, 1986), p. 13.

proach fails to recognise the special characteristics of each problem and thus courts failure. Diplomacy, by its very nature, may encourage a flexible approach to international problems, so that the choice of the techniques to be used during negotiations and the details of the final goal to be pursued can be adjusted to the particular historical circumstances.

The practice of diplomacy has given rise to the art of negotiation which shows the appropriate ways of avoiding insistence on ideological or prestige struggles and of arriving at the resolution of international disputes. This can be seen in two cases: first, when two nations negotiate with each other directly and, second, in cases of mediation.

When two nations negotiate with each other directly, the role of these nations' Diplomatic Corps and Foreign Secretaries is of primary significance. In fact, the head of government will formulate the strategy of his or her nation during the given negotiations. But the tactical implementation of his or her own strategy should be the responsibility of negotiators at a lower level, usually from the Diplomatic Corp. For, the latter are more capable of paying attention to details and of making in-depth and cold-blooded analyses of international problems. On the other hand, the heads of state are inclined toward the maintenance of their political prestige domestically and internationally, disinclined to accept personal mistakes, and, having to deal with various problems and views, may confuse the reasonable with the actual and the wish with the possibility. Thus, the conduct of negotiations should be centralised at the strategic level – i.e. the national strategy of a state should be determined by one decision-making authority: the head of government – and decentralised at the tactical level. The head of government may intervene only at crucial moments in order to make adjustments, and, when heads of government engage in face-to-face negotiations, the texts of agreement should have been settled in advance.

Mediation is another important function of diplomacy. Mediation is particularly necessary in the following cases: (i) in extremely bitter disputes, where a compromise among the engaged parts seems impossible; (ii) when mutual distrust and cultural differences make a compromise impossible; (iii) when at least one of the parties refuses to recognise the other. In such cases, the mediator is a 'channel' of communications. This means that the mediator, first, makes it possible for the parties to communicate with each other and, second, interprets the parties' messages and shows engaged parties areas where their approaches may coincide.

Moreover, the mediator must be sufficiently able to reassure each party about the sincere intents of the other. In addition, the mediator must be able to reassure the antagonistic parties that chaos will not follow non-compliance with any agreement reached, so that the mediator should equip an agreement with substantial guarantees, as it happened in the case of the American mediation in the Arab-Israeli conflict in the 1970s[58]. However, the Arab-Israeli Six Day War provides an example of the dangers which ambush in the ambiguous phrases of many UN resolutions. For, the Resolution 242 which was adopted by the UN Security Council on November 22, 1967 spoke of a "just and lasting peace" within "secure and recognised boundaries" and called for an end to "claims or states of belligerency" and for acknowledgement of all states' "sovereignty, territorial integrity and political independence". These obscure phrases were acceptable to each party not because all parties had arrived at a substantial agreement but because each party could interpret these phrases in its own favour. For instance, Egypt and Jordan interpreted this resolution as a request that Israel should withdraw from all occupied territories, whereas Israel interpreted the principle of "secure and recognised boundaries" as a legitimisation of its decision not to return to the lines before the Six Day War.

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[58] See S. Touval, *The Peace Brokers: Mediators in the Arab-Israeli Conflict, 1948-1979* (Princeton, N.J.: Princeton University Press, 1982).

Finally, another function of diplomacy consists in the spreading of prosperity. The former U.K. Foreign Secretary Malcolm Rifkind made a speech to the London Diplomatic Corps at the Foreign and Commonwealth Office on June 11, 1996, where he mentioned that international peace is intimately related to free trade and economic development in all areas of the world. Also, he argued that the economic development of the less developed countries is based on two steps:

> First, we must focus aid on those ready to make best use of it. Second, we must give developing countries a chance to secure their own future. Above all they need markets for their goods and a real opportunity to build their prosperity.[59]

Thus, economic aid should encourage self-help instead of a dependency culture and accountable administration instead of corruption. In a world of increasing economic interdependence, diplomacy remains a valuable tool for the conduct of international relations; however, diplomacy "grows ever more complex"[60] since national foreign policies have to become more and more mutually compatible in order to tackle global economic, environmental and security issues.

However, no study of diplomacy can be considered to be complete without addressing the far-reaching consequences of the global changes in the number of units in the international system. The increasing number of nations or autonomies of one kind or another as well as the communications revolution modify old forms of diplomacy. Direct communication between authorities and an end to costly diplomatic representatives abroad seem to gain more and more ground. This tends to help small autonomies to free themselves from the military, intelligence and other subversive influences that larger units have been able to exercise over

[59] See M. Rifkind, "Diplomacy and the Spreading of Prosperity", *Survey of Current Affairs* 26(1996), 232.

[60] See M. Rifkind, *op.cit.* (ref. 59), 234.

smaller ones through the activities of persons who are misleadingly given diplomatic credentials. On the other hand, larger units may tend to resist changes in the forms of diplomacy, especially when these changes undermine the power approach to international relations in favour of greater recognition of values attached to independence and to cultural requirements[61]. Additionally, the new revolution in military affairs includes technological developments which modify traditional approaches to peacekeeping and alliance relationships[62]. These developments, especially when they are related to cyberwar fighting capabilities[63], play a decisive role in the conduct of diplomacy and war.

In the super-industrial era, all governments around the world tend to connect their networks in order to coordinate trade, improve world health, set new examples of political action, conduct diplomacy, fight international terrorism and organised crime, increase tourism, etc. These developments necessarily lead to the creation of an *international information market*, which is a new channel of communication among all governments around the world as well as among people, and it increases traditional channels, such as diplomacy and tourism. On the one hand, governments and people can use the international information market to interact with each other. On the other hand, everyone who uses the international information market becomes more and more vulnerable to information warfare (it may involve public diplomacy measures, subversion, insurgency, deception or interference with

[61] See G. Kostakos, A.J.R. Groom, S. Morphet and P. Taylor, "Britain and the New UN Agenda: Towards Global Riot Control?", *Review of International Studies* 17(1991), 95-105.

[62] For instance, the U.S. can use information technology to send bitstreams to its allies (i.e. information about the battlespace, map data, software for systems integration, simulation and maintenance, etc.), thus multiplying its allies' power and encouraging them to undertake more responsibility for their security. See N.K. Laos, "Information Warfare and Low Intensity Operations", *Perceptions* 4(1999), 174-195.

[63] See N.K. Laos, *op. cit.* (ref. 62) and the references therein.

local media, infiltration of computer networks or databases and the promotion of dissident or opposition movements across computer networks).

2.4 Morgenthau and the Controversy between Traditionalism and Science in International Relations

Traditionalists launch a series of attacks on scientific approaches to international politics. They argue that politics involves purpose in a way that physical science does not and that scientific knowledge is applicable to facts, whereas understanding, wisdom and intuition are required for areas where human purpose is involved. Classical realism is a characteristic case in point. It is mainly an ethico-philosophical position. Whereas the scientific approach to international relations aims at the formulation of precise statements, the traditional approach is characterised by sweeping statements on the nature of life and politics. For instance, classical realists like Morgenthau, Kissinger[64] and Levy[65] mainly generalise about the nature of human life[66], tell stories about the inherently tragic nature of politics and declare that they draw their conclusions from the study of the philosophy of history[67].

On the other hand, according to what I have argued in chapter 1, the scientific approach to international relations is based on the

[64] See H.A. Kissinger, *A World Restored: Castleregh, Metternich and the Restoration of Peace, 1812-1822*, (Boston and London: Scott, Foresman & Co., 1957).

[65] See M.J. Levy, *Modernization and the Structure of Societies* (Princeton: Princeton University Press, 1966).

[66] Their generalisations do not necessarily refer to human nature, but rather to wisdom about the human condition.

[67] Generalisations of the following type are a characteristic example: "The statesman is therefore like one of the heroes in classical drama who has had a vision of the future but cannot transmit it directly to his fellowmen and who cannot validate its "truth". Nations learn only by experience; they "know" only when it is too late to act" (see H. Kissinger, *op. cit.* (ref. 64), p. 329).

following principles:

(i) If the number, type and behaviour of states differ over time and also if their military capabilities, economic assets and information about the world vary over time, it follows that there is some likely interconnection between the previous elements, and thus different structural and behavioural systems can be assumed to operate in different historical periods. To investigate such arguments, *social scientists need systematic hypotheses about the nature of the connections of the variables*; otherwise, the social scientist has no criteria by means of which one can choose from among the infinite set of facts available to researchers, and then past history cannot illuminate the hypotheses.

(ii) *Models must be constructed to provide a theoretical framework within which seemingly unconnected kinds of events can be related.*

(iii) *Empirical investigations must be accompanied by the use of models* to provide a systematic and rigorous study of international relations (generalisations).

(iv) An empirically relevant theory of international relations must account for the dialectic of reality and the dialectic relationship between macro-analysis and micro-analysis.

Traditionalists argue that scientific models are inapt for international relations due to the lack of absolute determinism. But, according to what I have argued in chapter 1, this is an obsolete approach to science. Physical science[68] presents analogies to the 'surprise events' that occur as a result of parameter changes in social/political/economic systems.

Moreover, occasionally, traditionalists argue that the scientific

[68] The mathematics of chaos, stochastc analysis (e.g. Brown motion) and superconductivity are characteristic examples.

method, being based on the use of models, makes its followers unable to distinguish between models and reality. This argument is groundless after what I have argued in chapter 1. On the contrary, by generalising without being consciously scientific (i.e. without using models), traditionalists are trapped in overparticularisation and the application of unfalsifiable (tautological) generalisations[69]. Additionally, a social scientist who constructs a model does not think of it as generally applicable; it is applicable only within a specified context (see section 1.2). It is rather the traditionalist, whose statements are uncontextualised and whose assumptions are implicit, who is more prone to mistake his model for reality (especially since the traditionalists' approach to history is often characterised by undisciplined speculation).

[69] They do not analyse the manner in which and the reason why the complexity of a specific subject impedes the kind of generalisation and the limits of the generalisation.

3
Kenneth N. Waltz and Neorealism

Introduction

This chapter aims at studying K.N. Waltz's theory of international politics. First, I shall present the principles of Waltz's theory of international politics. Waltz differentiates the study of international relations which is focused on the study of different areas of subject-matter (e.g. foreign policy, political and economic relationships, diplomacy, etc.) from the study of international relations which is focused on the study of different levels of interaction (i.e. individual human beings, individual states, and society of states). Additionally, Waltz tries to formulate a systemic theory of international politics and thus to overcome the defects of Morgenthau's theory and to defend realism against attacks from liberalism and Marxism. However, in the second part of the present chapter, I shall make a critical analysis of Waltz's scholarly work. In particular, I shall evaluate Waltz's attempt to create a 'scientific' theory of international relations. Also, I shall give special emphasis to the study of his approach to systems theories, and I shall compare and contrast his view on this issue with that of Talcott Parsons, who made extensive use of the concept of 'systems' in his writings on sociology. Finally, I shall evaluate Waltz's arguments about international interdependence and balances of power.

3.1. Waltz's Theory of International Relations

Waltz is based on an instrumental conception of empirical theory. He is far more consistent and explicitly self-conscious than Morgenthau in stating the epistemological basis of his conception of empirical science. In particular, Waltz starts developing his *Theory of International Politics* by devoting the entire first chapter

of his book to the tasks "to say what theories are and to state the requirements for testing them"[1].

Waltz carefully distinguishes between laws and theories. "Laws establish relations between variables, variables being concepts that can take different values"[2]. Symbolically, laws are statements of the form

$$x \rightarrow y$$

i.e. 'if x then y', where x stands for one or more independent variables and y for the dependent variable. Laws are absolute if the relation between x and y, symbolically xRy, is invariant. On the other hand, if the relation xRy is not invariant, a law is probabilistic, i.e. it reads as follows: 'if x then y with probability k'. Waltz argues that a law "is based not simply on a relation that has been found, but on one that has been found repeatedly"[3]. Moreover, he maintains that, whereas laws "identify invariant or probable associations"[4], theories "show why those associations obtain"[5].

Unlike Morgenthau, Waltz does not construe theory as truth. Waltz argues that theories neither describe reality nor make truth-claims: "A theory is not the occurrences seen and the associations recorded, but is instead the explanation of them"[6]. He has formulated the following argument about the construction of theories:

> The difficulty of moving from causal speculations based on factual studies to theoretical formulations that lead one to view facts in particular ways is experienced in any field. To cope with the difficulty, simplification is required. This is achieved mainly in the following four ways: (1) by isolation, which requires viewing the actions and interactions of a small number of factors and forces as though in the meantime other things remain equal; (2) by abstraction, which requires leaving some things aside in order to concentrate on others; (3) by aggregation, which requires lumping disparate elements together according to criteria derived from a theoretical purpose; (4) by idealisation, which requires proceeding as though perfection were attained or a limit reached even though neither can be.[7]

[1] See K.N. Waltz, *Theory of International Politics* (New York: McGraw-Hill, Inc., 1979), p. 1.
[2] See K.N. Waltz, *op.cit.* (ref. 1), p. 1.
[3] See K.N. Waltz, *op.cit.* (ref. 1), p. 1.
[4] See K.N. Waltz, *op.cit.* (ref. 1), p. 5.
[5] See K.N. Waltz, *op.cit.* (ref. 1), p. 5.
[6] See K.N. Waltz, *op.cit.* (ref. 1), p. 9.

Therefore, Waltz does not endow a theory of international politics with a correspondence theory of truth, i.e. Waltz's understanding of theory does not depend on the view that truth is determined by matching up language with reality.

Waltz argues that "theories embody theoretical assumptions [...] The theoretical statements are non-factual elements of a theory. [...] They are introduced only when they make explanation possible. [...] Theoretical notions enable us to make sense of the data"[8]. For instance, in International Relations, different meanings are attached to such words as 'power', 'force', 'pole', 'relation', 'actor', 'stability', 'structure' and 'system'. Since Waltz maintains that theory is distinct from the reality which it explains, his view is that one cannot distinguish between true and false theories: "If 'truth' is the question, then we are in the realm of law, not of theory"[9]. According to Waltz, competing theories can be evaluated not in terms of truth and falsity but in terms of their explanatory utility. The explanatory utility of a theory depends on its ability to produce testable hypotheses with empirical content. Waltz argues that, in order to test a theory, one must take the following steps:

1. State the theory being tested.
2. Infer hypotheses from it.

[7] See K.N. Waltz, *op.cit.* (ref. 1), p. 10.
[8] See K.N. Waltz, *op.cit.* (ref. 1), p. 10.
[9] See K.N. Waltz, *op.cit.* (ref. 1), p. 9.

3. Subject the hypotheses to experimental or observational tests.

4. In taking steps two and three, use the definitions of terms found in the theory being tested.

5. Eliminate or control perturbing variables not included in the theory under test.

6. Devise a number of distinct and demanding tests.

7. If a test is not passed, ask whether the theory flunks completely, needs repair and restatement, or requires a narrowing of the scope of its explanatory claims[10].

As far as the transition from laws to theories is concerned, Waltz argues that the "longest process of painful trial and error will not lead to the construction of a theory unless at some point a brilliant intuition flashes, a creative idea emerges"[11]. These brilliant intuitions or creative ideas "will convey a sense of the unobservable relations of things. They will be about connections and causes by which sense is made of things observed"[12]. Thus, Waltz's view on these brilliant intuitions is fundamentally different from Morgenthau's clear-cut views on the source and the nature of his own brilliant intuitions, which are supposed to follow from eternal, ahistorical laws.

As I have already mentioned in chapter 2, Morgenthau construes international politics as a struggle for power among states, and he extracts this conclusion from an a priori human nature, which may cause a destructively irrational behaviour unless it is properly constrained by balance-of-power arrangements. Waltz's approach to International Relations is different from that of Morgenthau. In

[10] See K.N. Waltz, *op.cit.* (ref. 1), p. 13.
[11] See K.N. Waltz, *op.cit.* (ref. 1), p. 9.
[12] See K.N. Waltz, *op.cit.* (ref. 1), p. 9.

fact, Waltz maintains that the earlier realists conceived "anarchy simply as setting problems for statesmen different from those to be coped with internally and as altering standards of appropriate behaviour"[13], and he argues that the previous approach is insufficient. Waltz's position is characterised by the quest for an analysis of the external context of the state action itself as a distinct factor which determines state behaviour.

In order to clarify his views and differentiate them from those of earlier realists, Waltz distinguishes between 'reductionist' and 'systemic' theories. The necessity of appealing to a systemic theory of international politics has been supported by Waltz as follows:

> In order to take Morgenthau, Kissinger, Levy, and the rest seriously, we would have to believe that no important causes intervene between the aims and actions of states and the results their actions produce. In the history of international relations, however, results achieved seldom correspond to the intentions of actors. [...] causes not found in their *individual* characters and motives do operate among the actors collectively. [...] When and how internal forces find external expression, if they do, cannot be explained in terms of interacting parties if the situation in which they act and interact constrains them from some actions, dispose them toward others, and affects the outcomes of their interactions.[14]

Waltz's analysis of the international-political system is based on the following elements: a set of interacting units (states) and a political structure. Waltz assumes that, like economic markets, an international-political system arises from the mutual interaction of states, which are the constitutive units of the system; but, once formed, the structure, like economic market, "becomes a force in

[13] See K.N. Waltz, "Reflections on Theory of International Politics: A Response to My Critics", in R.O. Keohane (ed.), *Neorealism and Its Critics* (New York: Columbia University Press, 1986), p. 336.
[14] See K.N. Waltz, *op.cit.* (ref. 1), p. 65.

itself, and a force that the constitutive units acting singly or in small numbers cannot control"[15]. Waltz maintains that, whereas reductionist theories are concerned with unit-level forces, the purpose of a systemic theory of international politics is to determine what kind of behaviour is encouraged by the international-political structure and how much of the behaviour is caused by the given structure or by unit-level forces. As a result, in the fifth chapter of his *Theory of International Politics*, Waltz undertakes the task to "contrive a definition of structure free of the attributes and the interactions of units"[16], and he defines the international-political structure with respect to three criteria.

The first criterion is that, whereas domestic political systems are hierarchic, international-political systems are anarchic, self-help systems: "Domestic systems are centralised and hierarchic. [...] Whatever elements of authority emerge internationally are barely once removed from the capability that provides the foundation for the appearance of those elements"[17]. The second criterion is that, in domestic politics, due to the hierarchy of authority relationships, there is a functional differentiation among the units in the system, whereas, in international politics, the units are functionally undifferentiated: "Anarchy entails relations of co-ordination among a system's units, and that implies their sameness. [...] The functions of states are similar, and distinctions among them arise principally from their varied capabilities"[18]. The third criterion is the distribution of capabilities among the units of the system: "Although capabilities are attributes of units, the distribution of capabilities across units is not. The distribution of capabilities is not a unit attribute, but rather a system-wide concept"[19].

[15] See K.N. Waltz, *op.cit.* (ref. 1), p. 90.
[16] See K.N. Waltz, *op.cit.* (ref. 1), p. 79.
[17] See K.N. Waltz, *op.cit.* (ref. 1), p. 88.
[18] See K.N. Waltz, *op.cit.* (ref. 1), p. 93,97.
[19] See K.N. Waltz, *op.cit.* (ref. 1), p. 98.

Having defined the international-political structure independently of the attributes of the units which compose the international system, Waltz studies anarchy as structure and shows how structure functions as selector in a Darwinian fashion. Waltz maintains that, under a given distribution of capabilities within the international system, the enduring anarchic character of international politics explains continuity. 'Explain' for Waltz means "to say why the range of expected outcomes falls within certain limits; to say why patterns of behaviour recur; to say why events repeat themselves, including events that none or few of the actors may like"[20].

The economic consequences of anarchy consist in the limitation of the division of labour among states and therefore in the absence of international integration. Because states seek to survive as sovereign, autonomous units, the mutual benefits that states would enjoy from the unprohibited operation of the law of comparative advantage on a global scale are always, to a lesser or larger extent, below the maximum point that David Ricardo's theory of trade has assumed[21]: "In a self-help system, considerations of security sub-

[20] See K.N. Waltz, *op.cit.* (ref. 1), p. 69.

[21] The Ricardian classical theory of international trade maintains that international trade is beneficial among states with different marginal opportunity costs. Under perfect competition, the difference in the marginal opportunity costs means different prices (since the price is equal to the marginal cost). The existence of different prices leads to international trade, which tends to establish a Pareto optimality, i.e. a situation in which no reorganisation of trade could raise the utility or satisfaction of one economic actor without lowering the utility or satisfaction of another economic actor. When trade opens and each country concentrates on its area of comparative advantage, the national income of each and every trading country rises. Also, when people specialise in the areas of comparative advantage and trade their own production for goods in which they have a relative disadvantage, workers in each region can obtain a larger quantity of consumer goods for the same amount of work. For more details, one may be referred to P.A. Samuelson, "The Gains from International Trade Once Again", *Economic Journal*, 72(1962), 820-829 and to the references therein.

ordinate economic gains to political interest"[22]. For, a state "worries about a division of possible gains that may favour others more than itself"[23], but also "worries lest it become dependent on others through co-operative endeavours and exchanges of goods and services"[24]. Thus, Waltz argues that, although states co-operate more and more, anarchy affects the extent of co-operation and tends to limit international interdependence to a level that does not threaten the security, autonomy and sovereignty of the state.

The military consequences of anarchy are expressed by the balance of power. Waltz has managed to clear up Morgenthau's ambiguities about the concept of 'balance of power'. Treating states as unitary actors "who, at a minimum, seek their own preservation and, at a maximum, drive for universal domination"[25], Waltz argues that balance-of-power systems "prevail wherever two, and only two, requirements are met: that the order be anarchic and that it be populated by units wishing to survive"[26]. Waltz's approach to balance-of-power politics makes no appeal to international norms, state rationality, political wisdom, or any other unit-level factors, which obliged Morgenthau to formulate a reductionist theory. Assuming that states wish primarily to survive as autonomous entities rather than maximise their power, Waltz maintains that his theory "says simply that if some do relatively well, others will emulate them or fall by the wayside"[27]. Waltz explains the emergence of balance-of-power arrangements in systemic terms by arguing that they emerge spontaneously as an unintended consequence of the constraints of the international system's structure.

Waltz is aware of the fact that 'structural causes' are not enough

[22] See K.N. Waltz, *op.cit.* (ref. 1), p. 107.
[23] See K.N. Waltz, *op.cit.* (ref. 1), p. 106.
[24] See K.N. Waltz, *op.cit.* (ref. 1), p. 106.
[25] See K.N. Waltz, *op.cit.* (ref. 1), p. 118.
[26] See K.N. Waltz, *op.cit.* (ref. 1), p. 121.
[27] See K.N. Waltz, *op.cit.* (ref. 1), p. 118.

to give us a complete picture of international politics, and he maintains that a systemic theory "does not replace unit-level analysis nor end the search for sequences of causes and effect. Thinking in terms of systems dynamics does change the conduct of search and add a dimension to it. [...] The examination of structure tells us how a system does what it does. A structure sets the range of expectations"[28]. Having specified the purpose of his theory, Waltz is also concerned with testing it. Following Popper, he avoids the inductive fallacy. However, he rejects strict falsification criteria: "Attempts to falsify theories are as problematic as attempts to confirm them. Because of the interdependence of theory and fact, we can find no Popperian critical experiment, the negative results of which would send a theory crashing to the ground"[29]. Waltz maintains that testing should entail an examination of structurally comparable realms of activity: "Structural theories gain plausibility if similarities of behaviour are observed across realms that are different in substance but similar in structure, and if differences of behaviour are observed where realms are similar in substance but different in structure"[30]. In addition, Waltz suggests the conduct of hard confirmatory tests referring to outcomes which are consistent with hypotheses drawn from the theory under consideration but which are simultaneously different from the interests and/or the wishes of the states under consideration. As characteristic examples of such cases, Waltz mentions the Franco-Russian alliance of 1894, the 1939 Nazi-Soviet pact and the alliance among the United States, Britain and the Soviet Union in 1942. The previous examples show how the international system 'socialises' the states which act in it, i.e. how structures "shape and shove"[31].

In order to have a complete picture of Waltz's contribution to

[28] See K.N. Waltz, *op.cit.* (ref. 13), p. 344.
[29] See K.N. Waltz, *op.cit.* (ref. 13), p. 334.
[30] See K.N. Waltz, *op.cit.* (ref. 1), p. 123.
[31] See K.N. Waltz, *op.cit.* (ref. 13), p. 343.

the discipline of International Relations and of the evolution of his thought, it is necessary to refer to his first major scholarly work, namely his Ph.D. Thesis, first published in 1954 under the title *Man, the State and War*. There, Waltz distinguishes between three levels of causation, which he calls "images": the individual, the state and the international system.

Waltz studies explanations at the level of the individual by considering the works of Spinoza, Augustine, Niebuhr and Morgenthau in the first section of his *Man, the State and War*. He admits that the "events of world history cannot be divorced from the men who made them"[32], but he argues that "the importance of human nature as a factor in causal analysis of social events is reduced by the fact that the same nature, however defined, has to explain an infinite variety of social events"[33].

Also, Waltz studies explanations at the level of the state by considering the views of liberalism and Marxism in the second section of the same book. He argues that explanations at this level are not sufficient, because, if the nature of certain types of societies accounts for war, then why do some 'bad' states not go to war whereas some 'good' states go to war (the terms 'good' and 'bad' may be interpreted in any way the corresponding second-image theorist wishes)? For instance, after World War I, the victory of the democracies did not prevent a new war. Also, military crises have taken place between communist states, e.g. between the U.S.S.R. and China and between Vietnam and Cambodia. However, one may claim that *all* states should be 'good', say liberal democracies, in order to avert war. Waltz's response to the previous claim is as follows:

> To maintain order and justice with almost no provision made for reaching and enforcing decisions requires a high order of excellence among the units of the system – be they men or states. To secure the improvements necessary may require more force than would be needed to maintain a modicum of order and justice among subjects much less perfect. And if conflict arises not only from the quality of the relations among them, it may be that no amount of improvement in the individual subjects would be sufficient to produce harmony in anarchy.[34]

[32] See K.N. Waltz, *Man, the State and War: A Theoretical Analysis* (New York: Columbia University Press, 1959), p. 27.

[33] See K.N. Waltz, *op.cit.* (ref. 32), p. 27.

Thus, Waltz's approach to international order is not based on the evaluation of volatile intentions and ephemeral personalities, but it is based on the analysis of the norms of the international system and on the distribution of capabilities.

The third "image" consists in a systemic theory of international politics. In his book *Man, the State and War*, Waltz warns us against the fallacy of adopting "a single-cause approach to this [the problem of war] or to almost any other problem"[35]. In particular, he argues that the "third image describes the framework of world politics, but without the first and second images there can be no knowledge of the forces that determine policy; the first and second images describe the forces in world politics, but without the third image it is impossible to assess their importance or predict their results"[36]. Thus, in terms of the *Theory of International Politics*, the approach adopted by Waltz in *Man, the State and War* seems to be less 'systemic'; for, in the first book 'structure' is studied as an autonomous, 'efficient' cause of war, whereas, in the latter, Waltz explicitly rejects any uni-dimensional commitment solely to the third "image" and studies anarchy as a 'permissive' condition and not only as an 'efficient' cause of war.

In his *Theory of International Politics*, Waltz, after the study of anarchy, proceeds with the study of the other structural component

[34] See K.N. Waltz, *op.cit.* (ref. 32), p. 119.

[35] See K.N. Waltz, *op.cit.* (ref. 32), p. 229.

[36] See K.N. Waltz, *op.cit.* (ref. 32), p. 238.

of the international-political system, namely the distribution of capabilities. Whereas anarchy explains a continuity of behaviour in the form of balance-of-power arrangements, the distribution of capabilities changes across systems, so that, while anarchy and states are the constants of the international system, the distribution of power, or the number of great powers, is the only systemic component of international politics that varies. Waltz defines power in terms of the distribution of capabilities by stating that "an agent is powerful to the extent that he affects others more than they affect him"[37]. However, he recognises that, even though "power is a key concept in realist theory, its proper definition remains a matter of controversy"[38].

Waltz compares various international systems with respect to the distribution of capabilities in order to ascertain which type of system is more likely to bring order. In particular, Waltz poses the question "whether we should prefer larger or smaller numbers of great powers"[39] and argues that few is better than many and two is the optimum. His reasoning goes as follows. First, he draws analogies with microeconomic theory:

> Economically, large numbers of competitors are wanted because free competition makes them try harder to supply what consumers want at good prices. [...] Internationally, large numbers of great powers are not wanted because we care more about the fate of states than about the efficiency with which they compete. [...] What is deplored economically is just what is wanted politically.[40]

Second, Waltz tries to show why two is the optimum number of great powers. He argues that international interdependence should be understood as 'mutual vulnerability' and not as 'mutual sensitivity': "Two or more parties are interdependent if they depend on one another about equally for the supply of goods and services. They are interdependent if the costs of breaking their relations or of reducing their exchanges are about equal for each of them"[41]. As the number of great powers declines, their size increases and thus they are less interdependent, e.g. the "larger a country, the higher the proportion of its business it does at home"[42]. According to Waltz, lower systemic interdependence is a good thing, because "close interdependence means closeness of contact and raises the prospect of occasional conflict"[43].

Whereas Morgenthau deplores the bipolar system which emerged after World War II because it has contributed to the decline of diplomacy, Waltz maintains that the post-war bipolar system is the most stable balance of power:

> In multipolar systems there are too many powers to permit any of them to draw clear and fixed lines between allies and adversaries and too few to keep the effects of defection low. With three or more powers flexibility of alliances keeps relations of friendship and enmity fluid and makes everyone's estimate of the present and future relation of forces uncertain. [...] In a bipolar world uncertainty lessens and calculations are easier to make.[44]

The above-mentioned argument of Waltz is based on his view that, in the bipolar system, defection among allies is less likely to cause the outbreak of wars as a result of miscalculations. For, Waltz maintains that, in a bipolar world, miscalculation is minimal because of the clarity of actual and potential threats and because each superpower develops its own means with which it sustains strategies to cope with these threats.

[37] See K.N. Waltz, *op.cit.* (ref. 1), p. 192.
[38] See K.N. Waltz, *op.cit.* (ref. 13), p. 333.
[39] See K.N. Waltz, *op.cit.* (ref. 1), p. 129.
[40] See K.N. Waltz, *op.cit.* (ref. 1), p. 138.
[41] See K.N. Waltz, *op.cit.* (ref. 1), p. 143.
[42] See K.N. Waltz, *op.cit.* (ref. 1), p. 145.
[43] See K.N. Waltz, *op.cit.* (ref. 1), p. 138.
[44] See K.N. Waltz, *op.cit.* (ref. 1), p. 168.

Waltz devotes the last chapter of his *Theory of International Politics* to the management of international affairs, where such global problems as proliferation, pollution, poverty and population are studied. Waltz argues that, given the anarchic nature of international relations, the management of international affairs cannot be entirely entrusted to international organisations or supernational agencies. "Great tasks can be accomplished only by agents of great capability"[45], i.e. great powers, in the hope that, even if those powerful agents will not be always successful, "they will not get it all wrong"[46]. Even if sovereign states act based on the doctrine of raison d' état, the superpowers in a bipolar world maintain a global view of the international system because the maintenance of international order implies the maintenance of their hegemonic positions:

> Global problems can be solved by no nation singly, only by a number of nations working together. But who can provide the means and who will pay the major share of costs? Unless we do [the U.S.A.], the co-operative ventures of nations will be of limited extent and effect. [...] If the leading power does not lead, the others cannot follow. All nations may be in the same leaky world boat, but one of them wields the biggest deeper.[47]

In fact, Waltz maintains that, in comparison with domestic politics, co-ordination among states to solve common problems is small and that this level of international co-ordination would be even lower without the support and leadership provided by great powers, especially by the United States. For, Waltz argues that superpowers in a bipolar system define their interests in global terms and thus are prone to the maintenance of international order and of the security of their allies.

[45] See K.N. Waltz, *op.cit.* (ref. 1), p. 169.
[46] See K.N. Waltz, *op.cit.* (ref. 1), p. 206.
[47] See K.N. Waltz, *op.cit.* (ref. 1), p. 210.

Finally, Waltz argues that the "urge to explain is not born of the idle curiosity alone"[48], but it "is produced also by the desire to control, or at least to know if control is possible, rather than merely to predict"[49]. However, he is not engaged in prescriptive tasks. Waltz does not formulate prescriptions for states for two reasons: first, because his theory is 'systemic' and therefore is not concerned with foreign policy analysis; second, because the international system itself, by 'socialising' the states acting in it, shows them the most efficient ways of action.

3.2. A Critical Analysis of Waltz's Theory of International Relations

In this section, I shall depend on what I have argued in chapter 1 in order to formulate a critical analysis of Waltz's theory of international politics with respect to the following issues: (i) the manner in which and the extent to which his theory can gain empirical content; (ii) the role of systemic and unit-level forces in an empirically meaningful theory of international politics; (iii) the nature of the state and its significance in international politics; (iv) 'change' in international politics; (v) the significance of international political economy and transnational relations in the construction of an empirically meaningful theory of international politics.

3.2.1. Is Waltz's Theory Empirically Testable?

The analysis of Waltz's scholarly work that took place in section 3.1 implies that Waltz's wish is to formulate a scientific theory of international politics. However, even though Waltz seems to adhere to the claim that theories of international politics are structurally homomorphic to natural scientific theories, he differentiates a theory from the reality to which it refers. Waltz tries to formulate a grand theory of international politics, i.e. a macro-level map of

[48] See K.N. Waltz, *op.cit.* (ref. 1), p. 6.
[49] See K.N. Waltz, *op.cit.* (ref. 1), p. 6.

the terrain of international politics as a whole, and thus his theory is necessarily characterised by a high level of abstraction. But, in doing so, he undermines the social-scientific credentials of his theoretical construction because of the following reasons. First, Waltz is committed to the autonomy of his subject-matter – namely, international politics. This is a contradiction; for, no one can consistently maintain that one can be faithful both to *the* scientific methodology, which is independent of the particular features of each individual academic discipline, and to the autonomy of his subject-matter. Second, once Waltz distinguishes between 'true theories' and 'facts', his views on the nature and the role of empirical theory become fuzzy. In fact, he has formulated no criterion of cognitive or empirical significance, and he has not clarified the manner in which and the extent to which the constituent statements of his theory can gain empirical content. In other words, Waltz aims at the construction of a scientific theory but he has not endowed it with clear-cut criteria of empirical relevance, on the basis of which the very constituent statements of the theory itself can be evaluated. Third, the fuzziness which pervades Waltz's view on the cognitive status of theories has serious implications for his procedures for evaluating the usefulness of theories; for, R.D. Spegele argues that "if we have a dualistic theory-world view and we do not have a correspondence theory of truth available to match theory up with reality, the sceptic would seem to be justified in saying that there is no basis for believing that there is any relationship between the picture and what the picture is supposed to represent"[50]. In other words, if a theory itself cannot be empirically refuted, if it is by definition immune from any empirically founded truth evaluation, then it cannot be considered to be empirically meaningful, and, in order such a theory to have any significance at all, the relationship between the 'theory' and the 'world' which it

[50] See R.D. Spegele, *Political Realism in International Theory* (Cambridge: Cambridge University Press, 1996), p. 16.

is supposed to explain must be clarified. Waltz adopts a dualistic theory-world view, and he does not clarify the relationship between 'theory' and 'world', so that the empirical significance of his theory is unclear.

Moreover, I should mention that Waltz's attempt is to construct a theory which is immune from historical contextuality and whose scope is to organise the field of International Relations rather than produce empirical hypotheses. Thus, Waltz, aiming at the construction of a grand theory, abandons the premises of empiricism presented in sections 1.1 and 1.2. In general, a grand theory can be easily distinguished from a theory which is based on the empiricist approach presented in section 1.2 by the scope and abstraction of its subject-matter. The scope of a grand theory is to organise the field to which it refers, and it is based on the autonomy of its subject-matter, i.e. on a high level of abstraction. On the contrary, as I have argued in section 1.2, a theory which is based on the premises of empiricism is mainly a source of empirical hypotheses to be tested.

Waltz's view on testing theories is problematic. Michael Nicholson has explained that in "Waltz's model, the states [...] like the firm either they can take an appropriate set of decisions to maintain or increase their power or they can fail in systemic terms. They have choices but they are extreme choices – do as the system dictates or go to the wall – though it can be supposed that there are some technical, lower-level choices of alternative methods of maintaining power"[51]. Thus, Nicholson has reasonably asked, "How would we tell whether this system were the case or not?"[52]. In International Relations, we do not have a criterion of failure as clear-cut as bankruptcy is in economics. Waltz's theory does not exclude the possibility of mistakes "either because they misjudged

[51] See M. Nicholson, *Causes and Consequences in International Relations: A Conceptual Study* (London: Pinter, 1996), p. 92.

[52] See M. Nicholson, *op.cit.* (ref. 51), p. 92.

the power situation or because they unwisely neglected the basic precepts of power politics. Thus, the British and French actions at Suez in 1956 which appear to counter the neo-realist theory do so only if we assume, very unreasonably, that people never make mistakes"[53]. Hence, Nicholson maintains that, in Waltz's theory, "a very large number of events can be 'explained' either by the theory working properly, or, if this fails, by arguing that the actors have made mistakes"[54]. Moreover, since international systems may change as a result of redistributions of power and since the duration of these periods of change varies, we "can fend off counter-instances by arguing that not enough time has passed yet"[55]. Therefore, Waltz's theoretical construction reduces to a tautology, since "it is consistent with any facts about the world"[56].

In addition, it must be mentioned that Waltz's 'hard confirmary tests' of his assertions are not as effective as he has assumed, because the way states act is not deterministic (after all, states may perpetrate mistakes) and also because unit-level and structural forces interact with each other and the effects of one of them may be frustrated by the effects of the other. In particular, R.O. Keohane argues that Waltz – by seeking "confirmation through observation of difficult cases"[57] – "is not examining a universe of cases, in all of which states would prefer not to conform to 'international practice', and asking how often they nevertheless do conform. Instead, he is looking only at the latter cases, chosen *because* they are consistent with his theory"[58]. Therefore, the manner in which Waltz construes the task of theory construction leads to empirical meaningless, since his theory cannot be empirically refuted.

[53] See M. Nicholson, *op.cit.* (ref. 51), p. 92.
[54] See M. Nicholson, *op.cit.* (ref. 51), p. 92.
[55] See M. Nicholson, *op.cit.* (ref. 51), p. 92.
[56] See M. Nicholson, *op.cit.* (ref. 51), p. 92.
[57] See K.N. Waltz, *op.cit.* (ref. 1), p. 125.
[58] See R.O. Keohane, "Theory of World Politics: Structural Ralism and Beyond", in R.O. Keohane (ed.), *op.cit.* (ref. 13), p. 172.

3.2.2. The Problem of Levels of Analysis

Another major methodological issue in Waltz's *Theory of International Politics* is his commitment to systems theories. One of the first social scientists who made extensive use of the idea of 'systems' was the sociologist Talcott Parsons[59]. Parsons was mainly concerned with the functioning of the 'system' whose representation was society as a whole. However, he studies the general social system as being interrelated with other systems: the 'cultural system', the 'system of the individual personality' and other subsystems related to each other (e.g. the 'actor-situation system', the 'system of expectations', etc.). Thus, Parsons avoids the fallacy of a homogeneous system which merely controls the individual, i.e. he recognises the interaction of unit-level and structural forces and does not isolate the system from its units in a sharp manner. On the other hand, Waltz treats the 'system' as a homogeneous entity (i.e. as unaffected by unit-level forces), and also he isolates the study of the 'system' from the study of its 'units'. But, in order to determine the functioning of the system, one must know, among other things, the relationships of the 'components' to the 'ensemble' and the 'performance' of the system[60]. Nevertheless, J.G. Ruggie argues that, in Waltz's *Theory of International Politics*, "structural features are sharply differentiated from unit-level processes, and structure is the productive agency that operates at the level of system. [...] The problem with Waltz's posture is that, in any social system, structural change itself ultimately has no source *other than* unit-level processes. By banishing these from the domain of systemic theory, Waltz also exogenises the ultimate source of sys-

[59] See T. Parsons, *The Structure of Social Action* (Glencoe, Ill.: The Free Press, 1949); T. Parsons, *The Social System* (London: Routledge and Kegan Paul, 1952).
[60] See C. McClelland, *Theory and the International System* (New York: Macmillan, Inc., 1966).

temic change"[61]. Thus, Waltz, by failing to describe and explain the dialectical relationship between 'agent' and 'structure', slips into the fallacy of reductionism, against which he has warned us. For, apart from the reductionism of the first and second "images", there is the reductionism of the third "image", which consists in the absence of a dialectical understanding of the relationship between 'agent' and 'structure'. The reductionism of the third image consists in the reduction of the international-political causes to structural forces. By reducing the international-political causes to scructural forces, one does not and cannot explain the manner in which sctructural and unit-level forces interact with each other.

My arguments in section 1.2 imply that an analytical model must satisfy the following requirements: it must present as complete and undistorted a picture of the phenomena under consideration as is possible (i.e. it must correlate with objective reality and coincide with our empirical referents to the highest possible degree); it must have a strong capacity to explain the relationships among the phenomena under investigation; finally, it must offer the promise of reliable prdiction. As to explanatory capability, the system-oriented approach to international relations poses some genuine difficulties: (i) it tends to lead the student into a position which exaggerates the impact of the system upon the national actors and, conversely, discounts the impact of the actors on the system; (ii) it requires that we postulate a high degree of uniformity in the foreign policy operational codes of our national actors. On the other hand, just as the nation-as-actor focus permits us to avoid the inaccurate homogenization which usually stems from the systemic focus, it also may lead us into the opposite type of distortion (i.e. the exaggeration of the differences among our sub-systemic actors).

Now, I shall present the significance of the dialectical relation-

[61] See J.G. Ruggie, "Continuity and Transformation in the World Polity: Toward a Neorealist Synthesis", in R.O. Keohane (ed.), *op.cit.* (ref. 13), p. 151-152.

ship between systemic and unit level forces for the construction of an empirical theory by considering an example: arms races and the outbreak of war.

Waltz devotes a great deal of his analysis to the study of 'security dilemmas' and particularly of the role of arms races between competing states in an anarchic world in ensuring or undermining the international order[62]. His analysis is based on the assumption of a, more or less, deterministic world system, where the actions of a given state are a reaction to those of other states in the system, which, in turn, are reactions to prior actions of the given nation, etc. In order to study a security dilemma, one must take both unit-level and systemic variables into consideration. In other words, the military capabilities and other features of the internal structures of the competing states as well as the structural rules of a competitive international system must find their place in one's analysis of security dilemmas. On the other hand, Waltz restricts his analysis to structural causes, and thus he comes up with an one-sided theoretical construction, based on the isolation of only one component – namely, structure – from the world system, without studying the second component – namely, the individual states. The analysis of security dilemmas that follows shows that Waltz's decision to theoretically factor states out weakens the empirical significance and the explanatory power of his theory.

Alvin M. Saperstein[63] has proposed a model of discussing the above questions which is based on non-linear analysis and has the advantage that it provides a synthesis of unit-level and systemic variables. In particular, Saperstein's model is a synthesis of two

[62] For more details, see K.N. Waltz, *op.cit.* (ref. 32), p. 172-186; K.N. Waltz, *op.cit.* (ref. 1), p. 186-187.

[63] See A.M. Saperstein, "Mathematical Modeling of the Effects of 'Capability' and 'Intent' on the Stability of a Competitive International System", *Synthese*, 100(1994), 359-378.

other models, the first of which is due to Richardson[64] and the second due to Lee, Zinnes and Muncaster[65].

As I have already mentioned in section 1.4 (Example 1), in Richardson's model, the military capabilities of competing states are the unique determinants of an arms race. The general form of the Richardson arms race equation is

$$\dot{x}_i = \sum_j a_{ij} x_j + b_i \ , \qquad (1)$$

where $x_i = x_i(t)$ is the positive valued time-dependent variable representing the Richardson military capability of state I (i=1,...,N), and it is the sum (expressed in terms of a common numerical measure, e.g. U.S. Dollars) of the total resources devoted to military purposes by nation i. The dot over x_i ($\dot{x}_i$) denotes the time derivative of x_i (if $\dot{x}_i$ is positive, then the arms stock of nation i increases, and, if $\dot{x}_i$ is negative, then the nation i decreases its military spending). The sum ($\sum$) over j is the sum over all N nations in the system. The parameters $a_{ij}\left(i \neq j\right)$ express the response of nation i to the military capability of a different nation j and are always positive. If i believes that j has a military capability, then i will increase its military capability and its rate of increase will be proportional to the size of j's arms stock. The diagonal parameters a_{ii} are usually negative and are known as 'fatigue terms': the greater i's size of military stockpile the greater i's tendency to decrease it. However, a_{ii} may be positive if the 'military-industrial complex' in nation i has a significant influence on the political process in nation i[66]. If the parameter b_i is positive, then it represents the innate hostility of nation i for the other nations in the system, so that i increases its military capability independently of the military capabilities of the other nations; if b_i is negative, then it represents a decrease in i's military capability independently of the other nations' policies.

[64] See L.F. Richardson, *Arms and Insecurity* (Pittsburgh: Boxwood Press, 1960).

[65] See S.C. Lee, R.G. Muncaster and D.A. Zinnes, "The Friend of my Enemy is my Enemy: Modeling Triadic International Relationships", *Synthese*, 100(1991), 333-358.

[66] See A.M. Saperstein, *op.cit.* (ref. 63), p. 366.

Lee, Zinnes and Muncaster have introduced a variable r_{ij} representing the relation between nations i and j. If r_{ij} is positive, then it represents friendship or co-operation; if r_{ij} is negative, then it represents enmity or conflict. Hence, going back to Richardson's equation (1), b_i can be expressed as follows:

$$b_i = -\sum_j r_{ij}\gamma_j \ ,$$

where the γ_j are N positive parameters measuring the impact of relationships on the evolution of military capabilities. The negative sign is necessary because a positive relationship implies a decrease in i's military capability.

The Richardson equation (1) should be modified again in order to account for the fact that i's response – expressed by a_{ij} – to an increase in another nation's military capability is conditioned by the political-economic power of nation i. Let p_i stand for the total national resources of nation i (e.g. p_i may be regarded as the GNP of nation i). Then the relationship between a_{ij} and p_i can be expressed by the quadratic relation

$$a_{ij} \rightarrow p_j^2 a_{ij} \ .$$

Moreover, another modification of the Richardson equation (1) is necessary in order to meet the requirement that a nation's response to an increase in another nation's military capability depends on the relationship between the two nations. Thus, the response coefficient can be written as

$$a_{ij}\left(1 - \Gamma_j r_{ij}\right),$$

where Γ_j are N positive parameters measuring the impact of rela-

tionships on the evolution of military capabilities. If the relationship between i and j is negative, then i's response to j's military build-up is greater than it would be if the relationship between i and j were positive.

As a result of the above modifications of expressions (1), the Richardson model can be reformulated as follows[67]:

$$\dot{x}_i = \sum_j p_i^2 a_{ij} \left(1 - \Gamma_j r_{ij}\right) x_j - \sum_j \gamma_j r_{ij} \,. \tag{2}$$

Lee, Muncaster and Zinnes have formulated a model (hereafter 'LMZ') which is based on the structural rules of an anarchic, competitive international system: the friend of my enemy is my enemy; the enemy of my enemy is my friend; the friend of my friend is my friend; the enemy of my friend is my enemy. The LMZ model is

$$\dot{r}_{ij} = A r_{ij} + B \sum_k r_{ik} r_{kj} \,, \tag{3}$$

where A and B are positive constants. The time-dependent variable $r_{ij} = r_{ij}(t)$ represents the relationships between nations i and j, ranging from positive friendly relations to negative hostile ones (the variables r_{ii} are set to be equal to zero, since we are not interested in the relations of a nation with itself). The constant A stands for the rule that any friendship of nation i toward nation j is enhanced by immediate past friendship, and, by analogy, conflict is enhanced by immediate past conflict. The constant B stands for the fundamental rules of the LMZ model stated above. If i and j are both hostile or both friendly to a third nation k, then r_{ij} increases since the relation between i and j improves. Because the relationship between any nations i and j is assumed to be symmetric, $r_{ij} = r_{ji}$.

Saperstein has argued that, in the model given by equation (3), "the evolution of the relationship between the nations is driven solely by existing relationships; national military capabilities have

[67] See A.M. Saperstein, *op.cit.* (ref. 63), p. 368.

no influence. This does not seem reasonable"[68]. Thus, he has proposed the following modification of the 'direct structural interaction rule'[69]:

$$\dot{r}_{ij} = A r_{ij} \left(1 - \alpha_{ij} r_{ij} \dot{x}_j\right),$$

where the positive coefficients α_{ij} measure the impact of military capability on the development of particular relationships ('intents') among nations. In addition, if we assume that nations i and j are not only friendly but also jointly hostile to nation k, then r_{ij} increases; to account for this three party effect ('load-sharing'), Saperstein has modified the non-linear term of equation (3) to[70]:

$$B \sum_j r_{ik} \left(1 - \beta_{ik} \dot{x}_k r_{ik}\right) r_{kj} \left(1 - \beta_{kj} \dot{x}_j r_{kj}\right),$$

where the β_{ij} are positive capability-intent coefficients. Therefore, the original LMZ model reduces to

$$\dot{r}_{ij} = A r_{ij} \left(1 - \alpha_{ij} r_{ij} \left[\dot{x}_i + \dot{x}_j\right]\right) + B \sum_k r_{ik} \left(1 - \beta_{ik} r_{ik} \left[\dot{x}_i + \dot{x}_k\right]\right) r_{kj} \left(1 - \beta_{kj} r_{kj} \left[\dot{x}_k + \dot{x}_j\right]\right). \tag{4}$$

It has been already mentioned that a nation's military build-up is conditioned by that nation's resources, and therefore an arms race model must include a relation between the variables $p_i(t)$, $x_i(t)$ and $r_{ij}(t)$. The time evolution of overall capability p_i of nation i can be expressed as follows[71]:

$$\dot{p}_i = c_i p_i + \eta_i \sum_j r_{ij} p_j + \sum_j \sigma_{ij} x_j \,, \tag{5}$$

where c_i and η_i are positive coefficients; however, the signs of the coefficients σ_{ij} – referred to as the 'iron-triangle parameters' – are not predetermined, since there is "much disagreement as to

[68] See A.M. Saperstein, *op.cit.* (ref. 63), p. 369.
[69] See A.M. Saperstein, *op.cit.* (ref. 63), p. 369.
[70] See A.M. Saperstein, *op.cit.* (ref. 63), p. 370.
[71] See A.M. Saperstein, *op.cit.* (ref. 63), p. 373.

whether a strong military capability (a large 'military-industrial-complex' or 'iron-triangle') leads to an increase in overall societal capability ($\sigma_{ii} > 0$) or a decrease ($\sigma_{ii} < 0$). (The former was clearly the case for the British Empire, and the latter was clearly the case for the Soviet Union)"[72].

Equations (2), (4) and (5) are the component sub-models of a complete extended model. The system of equations (2), (4) and (5) "is much more complex than its three component sub-models"[73], and its solutions "may exhibit chaotic and non-chaotic regions and the possibility of transition between them as the parameters are varied"[74]. Therefore, one has to look for "*necessary or sufficient conditions for the possibility or impossibility of chaos* = war in the model"[75]. It is easily seen that "a *sufficient condition for the impossibility of chaos in the extended model* is that $\alpha = \beta = \sigma = 0$"[76]. Saperstein has explained the meaning of the previous sufficient condition as follows:

> A world with no 'iron triangles', in which changes of military capability do not lead to changes in national intents towards other nations, will not succumb to war, even in the midst of an arms race. Conversely, in an arms-racing world, the presence of one or more 'iron triangles' or 'verification systems' which enable changing military capabilities to influence international relationships *is a necessary – though not sufficient – condition for the outbreak of war.*[77]

The preceding analysis implies that both unit-level and structural forces should be included in an empirically significant model

[72] See A.M. Saperstein, *op.cit.* (ref. 63), p. 373.
[73] See A.M. Saperstein, *op.cit.* (ref. 63), p. 375.
[74] See A.M. Saperstein, *op.cit.* (ref. 63), p. 375.
[75] See A.M. Saperstein, *op.cit.* (ref. 63), p. 376.
[76] See A.M. Saperstein, *op.cit.* (ref. 63), p. 376.
[77] See A.M. Saperstein, *op.cit.* (ref. 63), p. 376.

of the behaviour of the international-political system. Waltz – by ignoring the dialectical relationship between unit-level and structural forces – is restricted to an ideal type – namely, pure structure. Thus, he has also failed to construct a model capable of representing the peace-war changes of state of the international system.

3.2.3. The Nature of the State and Its Significance in International Politics

Waltz claims that his theory of international politics is analogous to microeconomic theory which "describes how an order is spontaneously formed from the self-interested acts and interactions of individual units – in this case, persons and firms"[78]. Before examining the empirical meaningfulness of the above claim in international politics, I should mention that the manner in which Waltz construes microeconomics has undergone serious criticisms by many economists. In fact, Waltz is intellectually anchored in the classical view of the firm, whereas there is a different approach to the concept of a firm which dominates in economic analysis. In Waltz's microeconomic analysis, the firm is an ideal type formulated to fit its prescribed role in partial-equilibrium theory. On the other hand, various economists have proposed the conceptual autonomy for the 'firm', gained by treating it as a case of the general phenomenon of social organisation[79]. Where such organisation involves conscious co-operation, as it does in the firm, the key role

[78] See K.N. Waltz, *op.cit.* (ref. 1), p. 89.

[79] Chester Barnard has laid the foundations for a theory of conscious co-operation which can provide a conceptual framework for the study of the firm; see C. Barnard, *The Functions of the Executive* (Cambridge, Mass.: Harvard University Press, 1938). Also, John von Neumann and Oskar Morgenstern have laid the foundations of game theory; see J. von Neumann and O. Morgenstern, *The Theory of Games and Economic Behaviour* (Princeton N.J.: Princeton University Press, 1947). Finally, Herbert A. Simon has achieved a synthesis of Barnard's concept of organisation and Neumann's and Morgenstern's concept of game of strategy; see H.A. Simon, *Administrative Behaviour* (New York: Macmillan, 1947).

is that of the "maximisation centre"[80] (the peak of the executive organisation) which determines the ends of the organisation and the means of co-ordination of achieving the ends. The behaviour of the "maximisation centre" cannot be explained merely by means of the rational norm, since it is subject to a variety of influences some of which affect the value premises while others affect the factual premises of its decisions. The preference system of the "maximisation centre" is a resultant of all these influences. Therefore, microeconomics is neither just the realm of the firm nor just the realm of market structures; a microeconomic theory aims at explaining how economic actors react to modify their environment.

An empirically meaningful microeconomic theory contains both unit-level and structural considerations. Similarly, some international-relations scholars maintain that a student of international politics should try to construct theories that are not entirely committed to ideal types and to one-sided analyses. Referring to this issue, R.O. Keohane argues that

> we need a multidimensional approach to world politics that incorporates several analytical frameworks or research programs. One of these should be that of Structural Realism, which has the virtues of parsimony and clarity, although the range of phenomena that it encompasses is limited. Another [...] should be a modified structural research program, which relaxes some of the assumptions of Structural Realism but retains enough of the hard core to generate a priori predictions on the basis of information about the international environment. Finally, we need better theories of domestic politics, decision-making, and information processing, so that the gap between the external and internal environments can be bridged in a systematic way, rather than simply adding catalogues of exogenously determined foreign policy facts to theoretically more rigorous structural

[80] The term is originally due to G.F. Thirlby, "Notes on the Maximisation Process in Company Administration", *Economica*, XVII (1950), 266-282.

models.[81]

Within this perspective, an empirically relevant theory of international politics should depend on a multidimensional field of analysis, where both systemic and unit-level forces find their explicit place. For, there are internal, international and mixed factors which interact with each other and influence the capability of a state. For instance, as I have already argued in section 1.3, values influence capabilities and are influenced by capabilities.

Moreover, it is worth mentioning that Snyder and Diesing[82] give emphasis to the attempt to bridge the gap between external and internal environments. Studying game-theoretical models, they argue that structural realism does not constitute a sufficient basis for the understanding of international crises; the "internal-external interaction" is a key to the understanding of international crises. Thus, they have explored information processing and decision-making; these two concepts are necessary in order to construct an empirically meaningful theory of international politics since both unit-level and systemic variables must find their place in a theory which is empirically relevant, as I have argued in chapter 1.

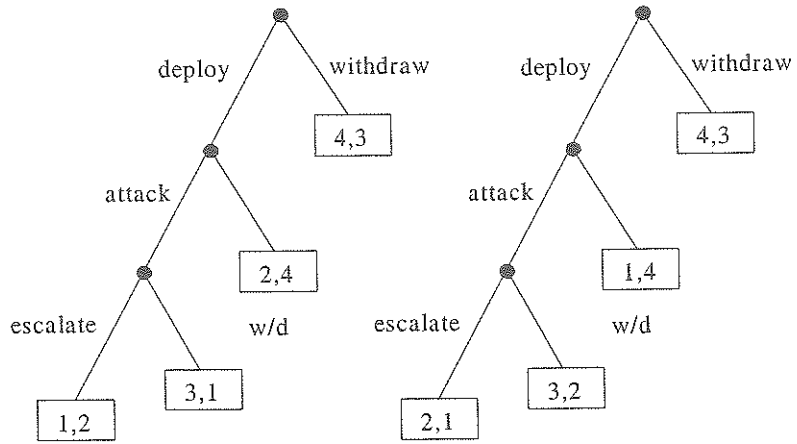
Waltz stresses the manner in which the international system moulds the behaviour of states. Yet, an alternative approach is provided by hypergame analysis[83], which adopts the presumption that actors construe the world differently. The players are uncertain about the nature of the game in which they are engaged. Thus, we begin with a set of subjective games, one for each player, which may have quite different players, strategies and preferences, but

[81] See R.O. Keohane, "Theory of World Politics: Structural Realism and Beyond", in R.O. Keohane (ed.), *Neorealism and Its Critics* (New York: Columbia University Press, 1986), p. 191.

[82] See G.H. Snyder and P. Diesing, *Conflict among Nations: Bargaining, Decision Making and System Structure in International Crises* (Princeton, N.J.: Princeton University Press, 1977).

[83] See P. Bennett, "Towards a Theory of Hypergames", *Omega*, 5(1997), 749-751.

they are all connected with each other, in the sense that an action taken in one of them has an impact on the others. For instance, the standard prisoner's dilemma arms race model[84] can be reformulated as a hypergame model by adding different perceptions as follows:



U.S.S.R. perception U.S.A. perception

The above diagram is a game-theoretical model of the Cuban missile crisis. Each cell in the trees represents a possible outcome and the cells indicate the player's preferences that guide their decisions; the figures shown in the cells represent preference rankings from 4 (best) down to 1 (worst). Instead of postulating that the two sides, the U.S. and the U.S.S.R., agree on what each other's preferences are, the above model illustrates the popular contention that the U.S.S.R. misunderstood U.S. preferences; namely, the Soviet leadership believed that they could place their missiles in Cuba without provoking a military response from the U.S. The tree on the left illustrates this possible Soviet view.

Hypergame analysis highlights the misinterpretation of one actor's preferences by another actor. By misinterpreting another actor's preferences, the given actor formulates a different picture of his or her historical environment and of the opportunities he or she has as well as of the risks he or she undertakes by making certain decisions. Hence, Waltz's argument that states are merely moulded by the international environment needs a qualification; namely, states are moulded by what they construe to be the international environment. However, another qualification of Waltz's argument about the impact of the international system on the state's behaviour is necessary.

[84] See P. Bennett, *op.cit.* (ref. 83).

Waltz maintains that the states are similar units whose behaviour can be sufficiently interpreted by the impact that the international system has on them. I have used hypergame analysis to show that the impact of the international system on the individual states is not as clear-cut as Waltz had assumed. Additionally, I shall show that states are not as alike as Waltz had assumed and that this unit-level differentiation affects the states' behaviour, calling for an analysis of internal-external effects (i.e. how the domestic structure of a state affects its external behaviour).

In the era of advanced industrialisation, societies are not characterised by unitary, decision-making authorities which might legitimise the treatment of the states merely as functionally alike 'units' of the international system. At the domestic level, the life of states is marked by different cultural features and by a struggle for political power. Political power should be understood as the power to influence in a substantive way – directly or indirectly – the ultimate outcome of the political process, i.e. the relevant decision-making authority (e.g. the national assembly, the government, the bureaucracy, etc.) in the process of making decisions which are formally appropriate to its specified function. An exercise of power is a relation in which one actor A_1 makes an action which causes another actor A_2 to do what actor A_1 intends but that A_2 would not do otherwise[85]. In other words, the definition of power depends on

[85] See R. Bell, D.V. Edwards and R.H. Wagner (eds), *Political Power: A Reader in Theory and Research* (London: Collier-Macmillan, 1969).

what A.S. McFarland calls "force differentials"[86], referring "to what happens when a first causal agent pushes one way (force) and a second causal agent pushes another way (resistance). The stronger push or stronger force is the 'stronger' cause, i.e. the more powerful agent"[87].

Contemporary societies contain various power oligopolies exercising political influence. The large firm ('large' in relation to the national market), the industrial association, the labour union, the farmers' co-operative, the professional association, any group which is united by some given esprit de corps, such as the military, embassies, international organisations, internationally important private establishments (especially those dealing with credit), etc. all exercise political influence. For instance, in France, intimate "relationships between many interest groups and ministries have been gradually institutionalised into corporatist patterns thanks to which no decision is made without the consent of the interests involved and no decision is implemented without the active participation of the interest organisation involved"[88]. Additionally, I have already studied Saperstein's model which illustrates the impact of the "military-industrial complex" on a state's foreign policy.

Furthermore, I should mention that there may exist a 'parallel authority' which wields the essence of power and leaves its formal trappings to the official authorities[89]. In other words, political power is Janus-faced: political power may be exercised in an overt and observable way, and it may be exercised covertly as well.

The preceding analysis of political power shows that the 'national interest' and the 'national strategy' of a state – which are

[86] See A.S. McFarland, *Power and Leadership in Pluralist Systems* (Stanford: Stanford University Press, 1969), p. 11.

[87] See A.S. McFarland, *op.cit.*(ref. 86), p. 11.

[88] See R.C. Macridis, "The Politics of France", in R.C. Macridis (ed.), *Modern Political Systems: Europe* (Englewood Cliffs, N.J.: Prentice Hall, 1990), p. 70-71.

[89] See R. Bell, D.V. Edwards and R.H. Wagner (ed.), *op.cit.* (ref. 85).

the foundations of Waltz's analysis of a state's behaviour – cannot be studied independently of a nexus of vested interests representing particular social groups, or power oligopolies, rather that the whole society. Therefore, contrary to Waltz's assumption, governments do not follow a national strategy dictated by objective and clear-cut guidelines which are dictated by the international system, but increasingly they find themselves in the role of negotiators or arbitrators among different vested interests or power groups. Their own survival in power depends on their ability to achieve the kind of compromise which is appropriate to the network of power predominant at the time.

Hence, the manner in which the behaviour of a state is moulded by the international system is not given a priori, but it depends on the manner in which the given state conceives the historical environment in which it acts and on the given state's domestic structure. For instance, Samuel Huntington argues that, in a country like the United States, "a national strategy is impossible because the interests, issues, institutions, and purposes involved are simply too diverse and complex to be brought together and integrated into any sort of coherent pattern"[90].

As a conclusion from this section, it follows that an empirically meaningful theory of international relations cannot be based on a single level of analysis. An empirically meaningful theory of international relations has to account for structural forces, for the significance of information about the international system in determining a state's behaviour and for domestic politics and its interaction with structural forces in determining a state's behaviour.

3.2.4. The Question of 'Change' in International Politics

Waltz, by restricting himself to the study of the structure of the international system and arguing that the "texture of international

[90] See S.P. Huntington, "The Making of American Strategy", *American Military Strategy* (Berkeley: Institute of International Studies Series) 28(1986), 28.

politics remains highly constant, patterns recur, and events repeat themselves endlessly"[91], does not provide any "means by which to account for, or even to describe, the most important contextual change in international politics in the *millennium*: the shift from the medieval to the modern international system"[92], as J.G. Ruggie maintains. Ruggie argues that the "modern system is distinguished from the medieval not by 'sameness' or 'differences' of units but by *the principles on the basis of which the constituent units are separated* from one another. If anarchy tells us *that* the political system is a segmented realm, differentiation tells us *on what* basis the segmentation is determined"[93]. The medieval system was, by Waltz's account anarchic, but its difference from the modern (anarchic) system cannot be explained merely by differences in the distribution of capabilities across units. In particular, the medieval system was characterised by feudal states which "consisted of lord-vassal relationships"[94] and its "system of rule was legitimated by common bodies of law, religion, and custom that expressed inclusive natural rights pertaining to the social totality formed by the constituent units"[95], whereas the modern system – which emerged after the Treaty of Westphalia (1648) – is characterised by the principle of state sovereignty[96]. By espousing a sharp dichotomy between structural and unit-level forces, Waltz deprives his theory from the ability to account for the impact of unit-level forces on systemic changes. The transition from the medieval to the Westphalian system mentioned by Ruggie illustrates this weakness of

[91] See K.N. Waltz, *op.cit.* (ref. 1), p. 66.

[92] See J.G. Ruggie, "Continuity and Transformation in the World Polity: Toward a Neorealist Synthesis", in R.O. Keohane (ed.), *op.cit.* (ref. 81), p. 141.

[93] See J.G. Ruggie, *op.cit.* (ref. 92), p. 142.

[94] See J.G. Ruggie, *op.cit.* (ref. 92), p. 142.

[95] See J.G. Ruggie, *op.cit.* (ref. 92), p. 143.

[96] For a detailed study of this concept, see F. Meinecke, *Machiavellism* (trans.: D. Scott, New Haven: Yale University Press, 1957).

Waltz's theory. The fall of the Roman Empire shows again the inability of Waltz's theory to account for change successfully.

The Punic Wars brought Rome to political supremacy in the Mediterranean in the late second century B.C. But those wars triggered off domestic changes in the Roman Empire which eventually destroyed it[97]. The prolonged campaigning alienated many peasant soldiers from their ancestral farms, an idle urban proletariat with increasing political significance gathered in Rome, and simultaneously senators and tax farmers collecting provincial revenues accumulated unprecedented wealth. Additionally, even though the frontiers of Roman power continued to expand in the first century A.D., its cultural integrity was undermined by the growth of Eastern religions such as Christianity, and the armies lost their moral bonds with Rome and became instruments for ambitious generals coveting the imperial title. The fall of Rome came when peoples who had been Roman subjects turned against their former rulers. Moreover, the development of armoured cavalry weakened the long neglected Roman agriculture, which could not satisfy the needs of the swollen urban population and of the cavalry.

In sum, Waltz restricts his theory to the international system and maintains that such factors as the quantity, velocity and diversity of transactions that take place among the actors themselves are shaped by structure without being concerned with the impact that those factors have on structure. This weakness of Waltz's theory is due to the absence of an explicit interest in the study of change. Waltz is interested in the study of the structural stability of the texture of international politics and of recurrent patterns. In addition, Waltz's commitment to a sharp differentiation of unit-level process from structure and his treatment of structure as the only productive agency do not allow him, even in principle, to formulate an explicit analysis of change which calls for the analysis of

[97] See E. Gibbon, *Decline and Fall of the Roman Empire* (London: Saturn Book Ltd, 1979).

the dialectical relationship between unit-level and structural processes (as shown, for instance, in the cases of the transition from the medieval to the Westphalian system and of the fall of the Roman Empire).

3.2.5. The Globalisation of International Political Economy

Global (as opposed to International) Political Economy is "an economic space transcending all country borders, which co-exists still with an international economy based on transactions across country borders and which is regulated by inter-state agreements and practices"[98]. The emergence of a world market economy under less political control than national economies have been until the 1970s, and not a world economic hegemony based on a single state or a group of few states, is the cause of the declining autonomy of many governments over the policy process during the 1980s and 1990s[99]. As a result of the globalisation of the international political economy (IPE), "the central policy question of contemporary IPE revolves around the politics of adjustment, that is, the manner in which governments, irrespective of the power of a given state, can, or cannot, maintain a greater or lesser semblance of authority over their policy-making process in the face of globalisation"[100].

The globalisation of IPE challenges Waltz's picture of international politics; for, Waltz assumes that states are the only significant actors, military force is the dominant instrument of the states and security is the dominant goal, whereas the globalisation of IPE

[98] See R. Cox, "Structural Issues of Global Governance: Implications for Europe", in S. Gill (ed.), *Gramsci, Historical Materialism and International Relations* (Cambridge: Cambridge University Press, 1993), p. 260.

[99] See S. Strange, "States, Firms and Diplomacy", *International Affairs* 68(1992), 1-15.

[100] See R. Higgott, "International Political Economy", in A.J.R. Groom and M. Light (eds), *Contemporary International Relations: A Guide to Theory* (London: Pinter, 1994), p. 163.

implies that states are not the only significant actors (transnational actors, such as multinational corporations and international organisations, working across state boundaries are also major actors), military force is not the only significant instrument (economic manipulation and the use of international institutions are also significant instruments), and security is not the only dominant goal (welfare is also a dominant goal). Roger Tooze maintains that in "the face of the host of problems and issues generated by economic change at the international level some broadening (and change) of conceptions has, indeed, taken place"[101].

This broadening (and change) of conceptions as a result of the globalisation of IPE is manifested first by the fact that economic issues themselves (e.g. economic welfare, environmental policy, etc.) may constitute part of the international-political agenda without necessarily affecting the power-capabilities of states. Thus, Waltz's theory, which is based on the conception of states as unitary wholes each reacting to the other according to their relative power and their socialisation by the international system, needs crucial qualifications. Global political economy "identifies three different levels of economic space (supra-regional, national and sub-regional), and at least three levels of social organisation (social forces, states and national societies, global society)"[102]. Thus, global political economy marks a shift from the Westphalian world to what Cox calls a "multi-level world"[103], which cannot be described by state-centric theories and where global economic issues together with other institutions and actors gain major significance.

Second, the globalisation of IPE implies that power may be economic and need not reflect military capacity. This can be de-

[101] See R. Tooze, "Economics, International Political Economy and Change in the International System", in B. Buzan and R.J.B. Jones (eds), *Change and the Study of International Relations: The Evaded Dimension* (London: Frances Pinter Ltd, 1981), p. 122.

[102] See R. Higgott, *op.cit.* (ref. 100), p. 163.

[103] See R. Cox, *op.cit.* (ref. 98), p. 263.

picted by Cox's analysis of a multi-level world. Although Waltz's theory is based on a single hierarchy of power, in the 1980s and the 1990s, there is not a single hierarchy which can describe the distribution of power in the international system. At the military level, the world is mainly unipolar, since there is no other power comparable to the United States in military terms. At the economic level, the world is largely tripolar, since the United States, the European Union and Japan are the dominant world economic powers since the 1970s. At the level of transnational interdependence, the world shows a diffusion of power.

Third, the framework for international relations is not limited in inter-governmental relations, and it is not just about security issues. The growing importance of non-governmental contacts and relationships which may influence, distort or even conflict with the relations between governments themselves leads to an expansion of the international-political agenda which cannot be excluded from an empirically significant theory, since it makes the traditional state-centric model of political realism empirically irrelevant. The emergence of a transnational society is illustrated by commercial exchange, migration of persons, common beliefs, transnational organisations and ceremonies or competitions open to the members of all these actors[104]. One may mention such transnational flows as "international air flights; ATM machines that can supply pounds in London, or yen in Tokyo from a bank account in Des Moines; international phone, fax and e-mail; the live global coverage by CNN and other networks of news events; and the movement of undocumented workers across territorial borders"[105].

Moreover, as a result of the globalisation of IPE, international

[104] See R. Aron, *Peace and War: A Theory of International Relations* (London: Weidenfeld and Nicolson, 1966).

[105] See S. Krasner, "The Accomplishments of International Political Economy", in S. Smith, K. Booth and M. Zalewski (eds), *International Theory: Positivism and Beyond* (Cambridge: Cambridge University Press, 1996), p. 112.

relations are characterised by such a kind of interdependence – both economic and political – which affects the autonomy of the state as well as the achievement of domestic and foreign policy goals. This can be illustrated by considering, for instance, the oil crisis of the 1970s. The analysis of this event calls for a multidimensional approach, i.e. one must consider changes in the distribution of power within the issue of oil itself (structural causes), changes in the balance of power, especially in the Persian Gulf (unit-level causes) and changes in international institutions (transnational politics).

In the 1960s, the oil regime was a private oligopoly – dominated by the seven sisters – closely associated with the governments of the major consuming nations. The multinationals were setting the rate of production, and prices were determined by the market in the rich countries. By the early 1970s, however, the oil regime changed dramatically: the producing countries set the rate of production, and thus their policies have a serious impact on price. As a result, a substantial shift of political and economic power from the traditional rich oil-consuming countries to the relatively poor oil-producing countries took place.

The above-mentioned change in the oil regime has three major causes[106]. The first cause was a change in the balance of power, especially in the Persian Gulf, as a result of the rise of nationalism and decolonisation. In particular, when the Organisation of Petroleum Exporting Countries (OPEC) was formed in 1960, half of its member-states were colonies of Europe; by 1973, they were all independent. In addition, the rise of nationalism in the Middle East and the Persian Gulf made foreign military interventions even more costly. When OPEC was formed and earlier, Britain was, more or less, the policeman of the Persian Gulf; for instance, in 1961, it prevented an Iraqi effort to annex Kuwait. But, by 1971,

[106] See Y. Sayigh, *Arab Oil Politics in the 1970s* (London: Croom Helm, 1983); F. Venn, *Oil Diplomacy in the Twentieth Century* (London: Macmillan, 1986).

Britain was unable to maintain its role in the Persian Gulf, and the United States could not become the new policeman in the region because, in the 1970s, it was deeply embroiled in Vietnam and did not wish to open a new military front. Therefore, the Nixon Administration decided to manipulate the situation in the Persian Gulf indirectly, through regional powers; it chose Iran under Mohammed Reza Pahlavi, the Shah of Iran, to be the regional hegemon.

A second cause of change in the oil regime during the early 1970s was the redistribution of power that took place within the issue of oil itself. Before 1971,the United States had surplus oil so that it could cover its needs and supply its European allies with oil when the Arab countries tried an oil embargo during the Middle East Wars of 1956 and 1967. After 1971, the United States began to import oil, and therefore the power of Saudi Arabia and Iran to balance the oil market increased, whereas that of the United States decreased.

A third cause was the change in international institutions, primarily in multinational corporations and OPEC. First of all, from the 1960s to 1973, the power of the seven sisters diminished in terms of their bargaining with the host countries. For, by 1973, the multinational corporations had transferred so much technology to the host countries and had trained so many local people that the host countries could run the oil business by themselves, and thus these countries exacted a more favourable division of the profits. Also, the seven sisters' position in the oil market was threatened by new smaller multinationals entering the oil market. These new competitors were giving the oil-producing countries the opportunity to do some business outside the network of the seven sisters. Finally, after 1973, when oil started becoming sort, OPEC's role in co-ordinating the bargaining framework in the oil market became more effective[107].

The previous analysis of the change in the oil regime during the

[107] See I. Skeet, *OPEC* (Cambridge: Cambridge University Press, 1989).

1970s cannot be described accurately if we restrict ourselves to Waltz's structural theory. For, the change in the oil regime does not involve only a redistribution of power across units. The change in the oil regime involves unit-level forces (e.g. the policy of decolonised oil-producing nations) and transnational actors (e.g. OPEC and the seven sisters), too.

The 1973 Arab-Israeli War gave OPEC the opportunity to use 'oil diplomacy'[108]. OPEC imposed an embargo on the United States and the Netherlands, and, as a result of the reduction in the spare oil production capacity, the price rose from $2 per barrel in June 1973 to over $11 in December. A more than tenfold increase in oil prices took place between 1973 and 1980, and OPEC member-states nationalised large sectors of foreign oil company operations. In this way, Arab states managed to affect the U.S. foreign-policy agenda, by making the Arab-Israeli disputes a primary international question and by strengthening the Arab voice, and to create temporary problems in the alliance between Europe, Japan and the United States (France and Japan pursued unilateral policies in order to protect their oil supplies). However, OPEC's oil diplomacy was not as successful as its creators had expected. For, Saudi Arabia – which became the key country in oil markets – having large investments in the United States and depending on the United States in the security area, could not push the United States too much and, as a result of the stagflation of the Western economies (the so-called oil shock), real oil prices started declining in the late 1970s.

Finally, due to the globalisation of IPE, the "effects of international economic changes are mediated through international 'regimes' (where a regime consists of sets of substantive norms and procedural rules agreed between states to regulate matters of common concern)"[109]. For instance, one of the most important

[108] See R. Gilpin, *The Political Economy of International Relations* (Princeton, N.J.: Princeton University Press, 1987), p. 263-305.

[109] See R. Tooze, *op.cit.* (ref. 101), p. 123.

multilateral trade agreements is the General Agreement on Tariffs and Trade (GATT). The Dillon Round (1960-1962), the Kennedy Round (1963-1967), the Tokyo Round (1973-1979) and the Uruguay Round (1986-1994)of the GATT represent a series of multilateral agreements to liberalise trade[110]. As a result of the Uruguay Round, it was also agreed to establish, on January 1, 1995, a World Trade Organisation (WTO), which is a formal legal body with tough enforcement measures for its rules[111].

The preceding consequences of the globalisation of IPE cannot be explained by Waltz's theory of international politics because the former call for a multidimensional approach to world politics which can account for the forces which push the world away from the Westphalian system to a system of complex interdependence, whereas the latter is restricted to structural causes and inter-state relations. In other words, the relationships within the international society are considerably more complex than Waltz's theory maintains. Additionally, as I have argued in section 3.2.1, Waltz formulates his theory in a tautological fashion, and his conclusions are not placed within a particular historical framework, so that his theory can be neither refuted nor reformulated in order to be empirically confirmed. Thus, the outcome of Waltz's theory in terms of operational meaningfulness is puny.

[110] See L. Haus, *Globalizing the GATT* (Washington DC: Brookings Institution, 1992); A. Lehmann, *Liberalizing Investment Policies: Prospects after the Uruguay Round* (London: Chatham House Discussion Paper 59, 1995).

[111] See J.H. Jackson, *The World Trade Organisation* (London: Chatham House Paper; Pinter/Cassell, 1997).

4
The Interparadigm Debate in International Relations

Several international relations scholars argue that the different approaches to International Relations are different paradigms in the sense in which Thomas Kuhn uses the word[1]. According to Kuhn, the word 'paradigm' means the general frameworks of analysis which sometimes changed in what he called a 'scientific revolution'. The scientific revolutions involved not only developments in theory but fundamentally different changes in the way in which people thought about things, such as when the geocentric view that the solar system was centered round the earth was replaced by the heliocentric view that it was centered round the sun. Kuhn argues that such fundamental changes involve frameworks which are not merely different from each other but totally incommensurable. They cannot be compared with each other in any very direct, rational sense, and a paradigm is chosen among different ones not on the basis of the evidence, which is impossible, but – as argued by Kuhn – for extra-rational or at least non-rational reasons.

Michael Banks[2] argues that there are currently three paradigms which in different ways attempt to characterise the study of International Relations: the Realist Paradigm, the Pluralist Paradigm and the Structuralist Paradigm. The following table summarises the argument about the interparadigm debate as presented by Michael Banks (the argument is accepted by many scholars, particularly the division into Realism, Pluralism and Structuralism):

[1] See T.S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1970).

[2] See M. Banks, "The Inter-Paradigm Debate", in A.J.R. Groom and M. Light (eds), *International Relations: A Handbook of Current Theory* (London: Pinter, 1985).

	Realism	Pluralism / Interdependence	Marxism / Structuralism
Level of analysis	State-centric	Multi-centric	Global-centric
Basic actors	States	Numerous sub-state, trans-state and non-state actors	The capitalist world economy and classes
Image	Billiard-ball model	Cobweb model	Octopus model
View of the state	Unitary actor	Disaggregated into components	Representing class interests

The notion of a paradigm is useful if it is restricted to few very basic shifts in scientific theories such as the Copernician revolution or the Darwinian revolution. Nevertheless, whatever their reasons at the time for people moving over from the geocentric to the heliocentric view, it would no longer today be rational to believe in the earlier theory of the planetary system. Hence, even though the reasons which convinced people initially select one paradigm or the other may well not be rational, in due course, if a scientific revolution succeeds, then the evidence in its favour which makes it a progressive and not a degenerating research programme in terms of observations becomes overwhelming. This is a central argument in Imre Lakatos' work[3].

According to Kuhn, paradigm incommensurability comes about for two reasons. The first is that the theories involved are talking about different things. The second is that two paradigms literally cannot be held simultaneously; the transition from the geocentric to the heliocentric view is a classical example. An important class of frameworks where incommensurability occurs in the social sciences is when two different systems of explanation of the same phenomena are both tautological and attempt to explain everything. Thus, a realist analysis of imperialism can be made tautological, in the sense that any contradictory insance can be incorporated into the given system of explanation by redefining power politics or by subordinating non-state actors (e.g. the British, French and Dutch East India Companies). Indeed, when one is restricted to tautologies, incommensurability may be the case. However, as I have argued in chapter 1, social scientists ahould not accept tautologies, but they should reformulate theories in a non-tautological fashion.

[3] See I. Lakatos and A. Musgrave (eds), *Criticism and the Growth of Knowledge* (Cambridge: Cambridge University Press, 1970).

The goal of Lakatos was to find rules which can cover all developments in science including fundamental ones. Thus, he introduced the notion of "the methodology of scientific research programmes", embodying the concept of "sophisticated falsificationalism" in the spirit of Popper and in opposition to Kuhn. Lakatos argues that there is no place in scientific development which can be interpreted as an irrational shift even if, at the time, non-rational factors were psychologically dominant in deciding people's beliefs. According to Lakatos, there is a number of basic propositions which consist the "hard core" of beliefs. As long as people work within the framework of the same research programme, this hard core does not change. The selection of a hard core is fundamentally a matter of decision. When observation or a theoretical development in science leads to refutations of such hard core propositions, scientists introduce a set of "auxiliary hypotheses" to protect the hard core without readily giving up their theories; these auxiliary hypotheses transform contradictory evidence into some sort of special case.

Lakatos attempted to find a rational criterion for making a choice between two scientific research programmes. His argument is that a programme is progressive since it is constantly widening its explanatory domain. If it continues as such, then one can rationally select this rather than a rival which is degenerating (i.e. it cannot explain anything new and its explanatory domain cannot be expanded any more).

On the other hand, Kuhn argues that there are points in scientific development where it is impossible to establish a rational basis for the choice of fundamental frameworks. However, he accepts that scientific revolutions are relatively rare[4]. The Kuhnian approach to scientific development implies that the whole nature of the long-run development of new science cannot be explained in terms of a rational activity, and it is easily acceptable by postmodern scholars. It goes without saying that the Kuhnian tradition opposes empiricism.

To tackle the issue of incommensurability, let us consider the Realist, Pluralist and Structuralist trichotomy. Both Realism and Pluralism are versions of a decision-making research programme but with different actors and images. Yet, one can define a problem externally to any school of thought and then decide among different schools of thought on the basis of a general scientific approach including parsimony (see section 1.1). For instance, let us try to explain war, which is not necessarily defined as inter-state war but as any case of organised large-scale violence. We can first consider the various possible actors and goals pursued by them and then decide which of the theories offers the most parsimonious explanation. Realism and Pluralism are two competing research programmes but there is no reason to assume that they are incommensurable. In fact, the hard core propositions of Realism and Pluralism are based on ideal types. The real world lies somewhere between the two. We can ask where certain cases in international relations fit on a spectrum between Realism and Pluralism. For instance, in the Cold War, the U.S.-Soviet relationship was clearly near the Realist end of the spectrum, but, due to Gorbachev's changes, the U.S.-Soviet relationship moved closer to the centre between Realism and Pluralism. Moreover, we can consider a

[4] Feyerabend has a different view; see P. Feyerabend, *Against Method* (London: Verso, 1975).

structuralist[5] explanation of imperialism and compare it with a realist one. Non-state actors, such as multinational enterprises, have been playing a significant international-political role since the eighteenth century. We can ask where these non-state actors are merely surrogates for the state. To answer the previous question, we must examine it in terms of all three programmes and perhaps find that one is progressive and dominant or that some synthesis emerges with bits of each fitted together in a systematic way. Therefore, the different frameworks in International Relations should be regarded as competing research programmes and not as incommensurable paradigms[6].

For instance, let us consider the issue of international security in the post-Cold War era. No empirically meaningful study of international security in the post-Cold War era is possible if we treat the different frameworks in International Relations as incommensurable paradigms and not as research programmes. In particular, the factors which affect international security in the post-Cold War era are the following:

(i) The situation of continuous armed conflicts and local wars still exists[7].

(ii) Certain powers keep on strengthening their military al-

[5] See H. Smith, "Marxism and International Relations Theory", in A.J.R. Groom and M. Light (eds), *Contemporary International Relations: A Guide to Theory* (London: Pinter, 1994).

[6] One of the most well-written research papers on the philosophy of mathematics which shows the fallacy of Kuhn's incommensurability principle is the following: J. Lambek, "Are the Traditional Philosophies of Mathematics Really Incompatible?", *The Mathematical Intelligencer* 16(1994), 56-62. A book which shows the fallacy of the previous Kuhnian principle in physics and geometry is the following: H. Reichenbach, *The Philosophy of Space and Time* (New York: Dover, 1953).

[7] The peak period of conflicts was from 1992 to 1995 during which 1992 saw 30 various conflicts and wars throughout the world and they increased to 34 and 38 cases respectively in 1993 and 1994, and to 46 cases in 1995 at the top.

liances, and the Cold War thinking continues to threaten world peace[8].

(iii) India's nuclear tests have given rise to a nuclear arms race in South Asia.

(iv) Military interventionism stemming from the United Nations (e.g. the Gulf War) co-exists with military interventionism stemming from power politics and the U.S. hegemony (e.g. the Kosovo crisis in 1999).

(v) By contrast with the Cold War era, all states have attached more importance to economic development, and the competition for stronger comprehensive national power centred on the economic and high-tech fields becomes ever more intensified.

(vi) International terrorism becomes an important factor affecting world security[9].

Obviously, the previous analysis of the factors which affect international security in the post-Cold War era makes it amply clear that classical realism, structural realism, liberalism and structuralism maintain their analytical relevance and, in fact, are all necessary in order to come up with an empirically significant analysis of international security in the post-Cold War era.

[8] In the post-Cold War era, more and more states advocate to replace the Cold War thinking with a kind of security conception which consists of the following three aspects in contents: (i) the establishment of state-to-state relations based on principles of peaceful co-existence; (ii) the strengthening of mutual co-operation and the removal of phenomena of inequality and discriminative policies in the economic and trade fields; (iii) the promotion of mutual understanding and trust and the commitment to settle disputes and issues between states through dialogue and co-operation. Yet, facts in the 1990s indicate that the Cold War thinking refuses to withdraw from the international arena with the ending of the Cold War. See N. K. Laos, "International Security in the Post-Cold War Era", *Perceptions* 4 (1999-2000), 62-74.

[9] See N.K. Laos, "Information Warfare and Low Intensity Operations", *Perceptions* 4(1999), 174-195.

Conclusions

In the present work, I have attempted to show that the academic discipline of International Relations can be organised as a social science based on the empiricist conception of science. Through this prism, I have proceeded to the evaluation of the social-scientific credentials of the theories of Morgenthau and Waltz.

Morgenthau was one of the first international-political theorists to differentiate political realism from political idealism and defend the first. However, Morgenthau's work contains a fundamental methodological antinomy – namely, whereas he deplores the methods of the social sciences, he accepts the legitimacy of generalisations. Additionally, his work's empirical significance is undermined by the abstraction of necessity in the form of power politics and by the abstraction of 'political man' and 'political life' from real man and real life, respectively.

Waltz is more self-consciously scientific than Morgenthau. Yet, his results in terms of operational meaningfulness are puny. For, like Morgenthau, Waltz is entirely committed to ideally typical theoretical constructs (he has just changed the level of analysis) and has left the cognitive status of 'theory' blurred. It is for this reason that both Morgenthau's and Waltz's theories are tautological. The attempts made by Morgenthau and Waltz to construct realist, as opposed to idealist, theories of international politics were, in principle, correct. Nevertheless, Morgenthau and Waltz overlook the fact that the basic methodological weakness of political idealism is its dependence on unidimensional abstractions of certain elements of reality from the total picture of reality and the use of these abstractions for the formulation of general and necessary statements. At the methodological level, what Morgenthau and Waltz have actually done which is different from what their idealist opponents have done is just to isolate elements of reality different from those isolated by the so-called idealists; namely, Morgenthau

and Waltz isolate historical necessity from the reality of international relations, whereas their idealist opponents isolate freedom.

However, my defence of empiricism throughout this work aims at tackling the problem of unidimensional abstractions itself. The fallacies of isolating particular elements of reality and extracting general conclusions from them and of being restricted to a single level of analysis can be overcome by an empiricist approach to International Relations as it has been developed in sections 1.1 and 1.2.