

LOGICAL MODELLING OF CONFLICT PHENOMENON

Anatoliy ISHMURATOV*

* Department of Logic, Institute of Philosophy, National Academy of Sciences of Ukraine Trehsvyatytelska 4, 252001 Kiev, Ukraine. E-mail: iat@cpi.FreeNet.Kiev.ua

BIBLID [0495-4548 (1999) 14: 34; p. 95-107]

ABSTRACT: The paper seeks to schematize some fundamental characteristics of the conflict situations by means of modal (intensional) logic. Conflict is considered a deviant interaction as well as an intersubjective process of delegitimizing an activity on realization of interests. Interpreting a normal interaction as a symmetry of certain type, the author constructs a special model of a symmetric situation and applies it to the analysis of a conflict. The paper examines theoretic schemes for legitimization of deviations as well as for legitimization of social asymmetry, and ascertains a general relationship between symmetrization and deduction (deductive legitimization) by means of the operation C of "deductive closure" (consequences addition).¹

Keywords: conflict, interest, symmetrization, deviation, legitimization.

CONTENTS

1. Conflict as an intersubjective phenomenon
 2. Symmetric model of a situation
 3. Deviations
 4. Legitimization of deviations
 5. Deductive legitimization
- Bibliography

The idea of the logical modeling of conflicts dates back to J. von Neumann and I. Morgenstern (1953), who elaborated the set-theoretic (axiomatic) approach to the analysis of games as models of "economic behavior". Since that time the *Theory of Games* has been developing in the matrix, functional and numerical directions, but not in the logical axiomatic one. In our opinion, the prospects of the logical modeling of conflicts are associated with methodological works in social phenomenology (Grathoff), cognitive approach (Filley) and discourse modeling (Apostel, Allen, Cohen, Levesque).

In this article we clarify the principal ideas of our approach to the intersubjective modeling of a conflict discourse which have been developed in detail in a number of works (see Ishmuratov 1987, 1987a, 1988, 1989, 1994, 1995, 1997).

1. Conflict as an intersubjective phenomenon

From the point of view of a subject (agent) conflict is mainly an impediment on the way towards his/her goal realization. Provided that this impediment results from the actions of another subject, the conflict becomes an intersubjective problem of coordinating the actions with this subject. And finally, being convinced that another subject intends -by his actions- to impede the realization, the subject views such a situation as a proper conflict.

The concepts of a conflict situation are coordinated in the interaction *per se* through particularizing the intersubjective schemes of each participant of the conflict. The mentality of a subject contains a scheme of another subject which includes the scheme of the first one (he or she "sees" him/herself through the eyes of the other person). This situation can be expressed by means of epistemic modalities:

BxA - "x believes that A";

$BxBxA$ - "x believes that y believes that A";

$BxBxBxA$ - "x believes that y believes that x believes that A".

The reflection scheme (*cogito*) is a version of the intersubjective scheme: $BxBxA$, $BxBxBxA$. The cognitive core of a conflict is constituted by certain assumptions of the conflicting persons, namely the assumptions of what they think about each other (enemies' images).

Conflict is revealed in the actions of the participants of the conflict. *Action* can be characterized as the realization of an interest (goals) with the application of a resource (means) and in conformity with a certain norm (plan). The action is *interactive* if it is implemented in compliance with the plan which includes an intersubjective scheme. The action is *social* if the context of the intersubjective reflection includes social norms (convictions of a "social subject").

The interpersonal conflict can be viewed as a version of an interpersonal conflict with a specific intersubjective scheme (self-hatred, persecution complex, fits of jealousy, etc.). The psychoanalytical *Ego*, *Id*, *SuperEgo* can be viewed as the components (roles) of the intersubjective scheme (E. Berne).

The essence of the conflict is specified in the process of distinguishing between three principal types of social activity: *cooperation*, *rivalry* and *conflict*. *Cooperation* is the social activity with mutual acceptance of interests, mutual interpretation of the relevant characteristics of a situation and

the belief in the legitimacy of the actions of each participant. Cooperation is characterized by the integration of resources and actions in conformity with the common plan. In the situation of *rivalry* each participant realizes his interests on the basis of an individual plan by resources of such kind that the access to these resources is standardized and legitimized by the participants. A comparative evaluation (who is stronger, cleverer, etc.) can serve as a common interest. Conflict is the process of the delegitimization of interaction accompanied by the formation of aggressive interests, illicit use of resources, and aggressive plans.

From the point of view of a certain standard of normality, the conflict is considered as a deviant interaction (Ishmuratov 1987). Let us consider the conditions of the normality (symmetry) of interaction.

Consent with the interpretation of the situation by other person (consensus concerning the convictions with regard to the situation meanings) is expressed by means of an epistemic operator: $BxA \wedge BxByA$ ("the subject x believes that A and believes also that the subject y believes that A "). This condition is initial in designing a reflexive intersubjective scheme by each participant of the conflict. Just this condition is implied when we speak of the communicative symmetry. To formulate more exact definition of the consensus, one has to include a "symmetric" condition $ByA \wedge ByBxA$.

Acceptance of interest implies the attitude of the subject x to non-interference in the activity of the subject y towards the realization of some interest A . $LxWyA$ - "x agrees that y wants that A comes true". For the situation to be considered normal, there should be a similar condition ($LyWxB$) for each participant. The symmetry should consist in the mutual acceptance of interests, but not in the identity of their content; the expressions "common interest", "the interest common to each person", "universality of interests", "concurrence of interests" imply a possibility of versatile realization of the interests in conformity with certain common norms and values. The ideal of communication is conventionally symmetric in the sphere of interests (symmetry of interests acceptance).

Similarly to the acceptance of interests, in the normal interaction the subject x legitimizes the plan (norm, obligation) of the subject y towards the realization of A . Thus, x assumes an obligation to perform all the interddictions and other normative characteristics of actions of the subject y towards the realization of A . It is possible to explicate this condition by means of an operator of deontic logic ($LxOyA$) or to use the scheme that expresses the legitimization (by each participant) of the norm which is common to all participants - "common rules of the game" - $LxNA$. In an

ideal interaction the ways of the realization of legitimate interests are legitimate. From this point of view the symmetry is conventional with respect to the contents of the individual plans, norms, as well as in the case of interests. However, the conditions of legitimacy are symmetric ("I accept your plan, if you accept mine").

Therefore, symmetry as a whole can be regarded as a characteristic for an normal interaction, whereas asymmetry (absence of at least one respective formula in the description of the situation) is regarded as an indication of conflictness. For example, if in a description of the situation the formula $LxWyA$ is absent, then it implies uncertainty in the attitude of x to the activity y , whereas the availability of the formula $\sim LxWyA$ makes it possible to predict a conflict, since a rejection of the interest can lead to the aggression in respect of the actions relating to the realization of this interest. $\sim LxWyA$ is a deviation, an element of the situation which get off the standard. Our objective is to elaborate a formal method that allows us to find (with the help of the standard) a deviation in a situation.

The accumulation of deviations characterizes the conflict in the dynamics (Ishmuratov 1996). Intensional cognitive complexes of the basic interaction change in three aspects (interests, resources, norms) that strengthen the normal interaction asymmetry, i.e., the aggression symmetry are determined as *phases* (1,2,3,4) of the following table:

Cognitive dynamics of a conflict

0	1	2	3	4
<i>Standard</i>	<i>Non-aggressiveness</i>		<i>Aggressiveness</i>	
<i>Demonstrativeness</i>	<i>Latency</i>	<i>Demonstrativeness</i>	<i>Latency</i>	<i>Demonstrativeness</i>
<i>Convictions</i>	<i>Doubts</i>	<i>Convictions</i>	<i>Doubts</i>	<i>Convictions</i>
Acceptance of interests	Doubt in acceptance of interest	Awareness of interests incompatibility	Formation of aggressive interests	Aggressive interests
Consensus	Doubts as to consensus	Awareness of discord	Expectation of aggression	Aggressive actions
Legitimization of a norm	Doubts as to legitimacy	Search of legitimacy	Formation of aggressive plans	Aggressive plans
Legitimization	Delegitimization		Aggressiveness legitimization	
Calmness	Anxiety	Anger	Fear	Hatred

Cognitive peculiarities of transition from a phase to a phase:

- 0-1. From assurance to doubt.
- 1-2. From doubt to an attempt to re-persuade.
- 2-3. From disputes to a belief in the impossibility of re-persuasion.
- 3-4. From drawing up aggressive plans towards their implementation.

As an example let us schematize the following conflict situation.

Blackmail. x wants y to do A , otherwise he will tell z of what y does not want z to know, since this knowledge can damage y by some action V .

X	Y	Z
$WxDyA,$	$\sim WyDyA, \sim WyDzV$	
$Bx\sim Kz?aT(a)$	$By\sim Kz?aT(a)$	
LxS		LzQ

$S = Oxy((DyA \supset \sim DxKz?aT(a)) \wedge \sim DyA \supset DxKz?aT(a)),$ (x 's threat),

$Q = LzOz(Kz?aT(a) \supset DzV)$ (z 's expected reaction).

$Bx\sim Kz?aT(a)$ - " x believes that z does not know a certain thing associated with T ", where $?aT$ is a question form (cf. Ishmuratov 1994).

Additional conditions can be revealed formally by substitutions and rearrangements of names. For example, LyS is a condition required for the success of blackmail, $LxOx(Kx?aT(a) \supset DxV)$ is a condition that transforms blackmail into a personal threat, because z is unnecessary. The required conditions can be received through the intersubjective iteration procedure. For example: $BxLyS, ByBxLyS, ByWxDyA, Bx\sim WyDyA$.

Our objective is to elaborate a general method of receiving similar "reflexive-symmetric" consequences and to analyze them in connection with a "real" situation.

2. Symmetric model of a situation

Symmetrization is the structuring of a possible option out of the elements of a real situation that is used afterwards as a norm for evaluating the situation. Formally symmetrization can be presented as a rearrangement of terms in a certain description and evaluation of the content of the obtained expression as a new possibility. As an example of *symmetrization* consider

an advice of psychiatrist to a married couple "to change their roles" (psychic role training).

Symmetrization as a phenomenological procedure (variation) is used in the process of legitimization, most likely being the fundamental factor for the substantiation of the evaluation "fair". The following maxims which express *symmetrization* confirm this observation:

"If you were in my place, you would have acted in the same way as I did".

The golden rule: "Do unto others, as you would have others do unto you".

"I am aggressive, because you treat me aggressively".

The talion principle ("Eye for eye, tooth for tooth") is the demand to provide compensation in order to restore symmetry.

On the first stage of its development conflict is a violation of a symmetry, and then it is an aspiration to restore the symmetry in an aggressive way ("the just revenge", "counterattack").

The intersubjective scheme is symmetric, and this is why we appeal to the properties of symmetry if we need to substantiate justice. Kant's categorical imperative ("Act in conformity with the norm which you would like to make the norm of universal legislation") expresses the complicated symmetrization procedure. For example, the death penalty is legitimized (or not legitimized) if we try to "substitute" ourselves for a convicted person, an executioner, a victim, victim's relative, etc.

The symmetric transformation of the expression $A(x,y)$ into the expression $A(y,x)$ is the formula which results by simultaneous substitution of y for each occurrence of x throughout $A(x,y)$, and vice versa. Let A be a binary relation. Then it is symmetric if and only if both $A(x,y)$ and $A(y,x)$ are true (provided the criterion of evaluation remains the same). The relation "to be a friend" is symmetric, and "to be an enemy" is not. The properties of symmetry of the algebraic functions are sufficiently investigated (Povarov 1960). In the model representation and symmetric analysis of a conflict situation, the concept of a "symmetric set" is fundamental. This concept can be introduced by the following definitions.

In the alphabet A a set of expressions F of the type $x_1...x_n$, where $x_i \in A$, is called *formulae* (the structure of the formulae will be specified later). In a sequence $x_1...x_n$ i is an ordinal number of the occurrence of x in this sequence (natural number from N).

Function s of the rearrangement of parameters in the formula $x_1...x_n$ is determined with respect to the parameter a ($a \in A$; it is a subject, the analyst of the situation), the area of the substituted parameters p ($p \in F$; the subjects of interaction), and the function $r: F \rightarrow P(N)$ which determines the occurrences admissible for substitution. For example, if $r(BxA) = \{2\}$, it is permissible to substitute x , but not B .

Let $s(x_1...x_n(x//y))$ be the result of the rearrangement of x and y in the formula $x_1...x_n$. With constants a , p and r this result is determined as follows:

$$\begin{aligned} s(x_1...x_n(x//y)) &= s(x_1(x//y))...s(x_n(x//y)); \\ (x_i \in p) \wedge (i \in r(x_1...x_n)) \wedge (x_i = x) &\supset s(x_i(x//y)) = y; \\ (x_i \in p) \wedge (i \in r(x_1...x_n)) \wedge (x_i = y) &\supset s(x_i(x//y)) = x; \\ ((x_i \notin p) \vee (i \notin r(x_1...x_n)) \vee (x_i \neq x \wedge x_i \neq y)) &\supset s(x_i(x//y)) = x_i. \end{aligned}$$

Example: $s(BaFbWcBbA(a//b)) = BbFaWcBas(A(a//b))$, if $a, b \in p$ and $2, 4, 8 \in s_0(BaFbWcBbA)$.

Let us define the operation s (M is a set) as follows:

$$s(M) = \{s(A(x//y)): (A \in M) \wedge (x, y \in p)\}$$

The set M is symmetric with respect to s iff $s(M) = M$.

It is easy to demonstrate that with respect to any symmetrization function any set can be expanded up to the symmetric one.

$$\forall s \forall M \exists M' (M \subset M' \wedge M' = s(M)).$$

Assume $s(M) = M'$. Operation s is a *topological* operation:

$$\begin{aligned} M &\subset s(M) \\ s(s(M)) &= s(M), \\ s(M_1 \cup M_2) &= s(M_1) \cup s(M_2), \\ s(\emptyset) &= \emptyset \end{aligned}$$

3. Deviations

If M is a situation, then $s(M)$ is an ideal of symmetry relative to s , which was constructed proceeding from the characteristics of M . Deviations can be revealed by comparing M with $s(M)$.

Normal fragment of a situation: $s^+(M) = \{A \in M: s(\{A\}) \subset M\}$.

Define the operation similar to the other topological operation:
 $I(M) = -s-M$.

It is easy to see that $I(M) = \{A \in M: s(\{A\}) = \{A\}\}$, i.e. $I(M)$ is a set of the invariable elements neutral with respect to the operation of symmetrization, e.g., the properties of physical objects.

Legitimately significant elements of M (subjected to the evaluation):
 $M-I(M)$.

Real deviations $d(M)$ are the elements which create asymmetry in a situation and need to be supplemented up to symmetry:

$$d(M) = \{A \in M: s(\{A\}) \not\subset M\},$$

$$I(d(M)) = \phi.$$

Ideal deviations $d^+(M)$ are the elements which are unavailable in the situation, but which are necessary for the symmetry in conformity with the ideal:

$$d^+(M) = \{A \in (s(M) - M): A \in d(M)\}.$$

Correlation of real and ideal deviations:

$$d^+(M) \cup d(M) = s(d(M)).$$

4. Legitimization of deviations

Let us remind that the symmetrization function is determined with respect to the constants a , p and r , where a is an "analyst" that has his own "legitimization theory". According to this "theory", A has been legitimized in a situation M if and only if $A \in s^+(M)$, and A is not legitimized in the situation M if and only if $A \in d(M)$.

The legitimization of deviations is associated with the particularization of the symmetrization function, the modification of its parameters and search for its modification for the purpose of reducing the deviations set. It is possible to modify the substitution area p , the area of substitution entries, or to admit other kinds of substitutions imitating symmetrization (subformulae, operators).

"Secondary legitimization" of deviations is a procedure of compensation search for the fragments of asymmetric situation that have already been discovered.

Compensation is understood as a demand to provide something that is treated as the elimination of asymmetry and the restoration of symmetry.

Types of compensations: exchange of activity, exchange of property, compensation of damage (penalty, confiscation), consolation: "I am a slave, but I can dream", "he is cleverer than I, but I am stronger than he"; patience: "I am proud of myself that I am overcoming difficulties", "he is my enemy, but I have another friend". Temporary compensations: "things are bad now, but they will be better afterwards" (Paradise after life); "things are bad now, but they used to be great" (consolation by recollections of youth). Reference to the unchangeable: "it has always been so, and it will be the same way". Active compensations: "it is bad now, but I shall do so that it will be better".

Let us introduce a number of definitions associated with compensations. It is possible to specify the deviations in relation to certain subject if a participant is considered as an "analyst" of the situation:

$$dx(M) = \{A \in d(M): x \in p \wedge x = a\}.$$

Similarly for normalities:

$$s^+x(M) = \{A \in s^+(M): x \in p \wedge x = a\}.$$

The respective sets:

$$Lx(M) = \{LxA: A \in s^+x(M)\}.$$

$$DLx(M) = \{-LxA: A \in dx(M)\}.$$

If $LxA \in M$, then we have two possibilities: either to confirm the legitimization provided $LxLxA \in Lx(M)$, or to refute legitimization when $LxA \in DLx(M)$.

Each participant-analyst (x) has his own "legitimization theory" -parameters p and r (that should be indexed as p_x and r_x) which are always implied during the determination of personal legitimizations.

Let us define the relationship of inclusion for the s -operations S .

$$s \subset s' \Leftrightarrow (p \subset p') \wedge (\forall A \in AF) (r(A) \subset r'(A))$$

$$s \subset s' \supset s(M) \subset s'(M) \text{ takes place.}$$

Ideal s-functions relatively to M: $S_M = \{s: s(M)=M\}$.

We have to take into account that $S_M \neq \emptyset$.

Since the set of ideal s-functions is partially ordered, the problem of a search for compensations can be reduced to finding the "nearest" to s compensation -k-function $k(s, M) \in S_M, (d(M)$ can be reduced). We have: $d(k(s, M)) - d(M) \neq \emptyset$. It is possible to consider the sequence of the compensations reducing deviations k_1, \dots, k_n such that $k_n(s, M) = \emptyset$.

Compensations should be legitimized (symmetrized) by the other participants. Consider an example of compensation "he is cleverer than I, but I am stronger than he". We have: $RxyA, Qyx, \sim RxyA, \sim Qyx \in d(M)$ for some s relative to p, r . The "symmetrization" associated with a possibility of permutation of R and Q is the compensation. It is sufficient to supplement p , i.e. $p' = p \cup \{R, Q\}$. The modified function s' is a compensation from the point of view of x as an analyst, i.e. $a = x$, but y may be not accepted. The symmetrisation of compensation is assumed when the analyst is y if his opinion is significant in the situation of the legitimization. The price of goods as a result of mutual legitimization of a series of compensations (compromises) during haggling may serve as an example.

Legitimization of social asymmetry can be presented as follows. The social order is asymmetric whereas social equality is a result of its symmetrization (legitimization). The social vertical with the relationship of submission (subordination) is a legitimized asymmetry. A social conflict is associated with the delegitimization of the social vertical.

Freedom and violence in the general scheme of compensation: freedom of an individual as a factor of social symmetry is ensured by the political control over the security of its borders with the use of legitimized enforcement (power). Politics is an interaction with the use of power for the legitimate change of social order. A political conflict is defined by delegitimization of the modification of the procedures of social order (Valevskiy & Ishmuratov 1997).

A strike with economic demands is a "horizontal" conflict (a demand to revise the labor contract, to raise the remuneration for work), and a strike with political demands is a "vertical" conflict when social order is delegitimized (demands to reduce salaries of authorities). *Impeachment* is a conflict of delegitimization of a subject in a social role.

Consider the legitimization of a queue as a typical example of social legitimization of "fair inequality". Let us assume that $RxyzA$ is an *inten-*

sional relation of sequences. Then for the legitimization of a queue we need a situation which can be described as follows:

$$WxA, BxRxyzA, LxFx(RyxzA \wedge RzxyA \wedge RzyxA).$$

The subject x wants something from the queue, he has some knowledge about the queue and *prohibits rearrangements* in the queue. This prohibition is legitimized by everyone standing in the queue. The peculiarities of the symmetrization of the social structure descriptions are associated with properties of p . Prohibition of rearrangements in the descriptions of social structure is legitimized by the subject as a compensation for something ("I am a slave, but I can dream").

5. Deductive legitimization

A conflict is modeled as a sequence of situations M_1, \dots, M_m , where each situation M_i is a set of formulae which schematize cognition of the participants within a certain interval of time. The sequence $s_i (M_i)$ is an asymmetric model.

It is possible to set the most general relationship between symmetrization and deduction by means of the operation C of "deductive closure" (consequences addition). Let us assume that $C(M) = \{A \in M: M \vdash A\}$. Then M is deductively legitimate if and only if $s(M) \subset C(M)$.

Let us make the structure of the formulae of the set F in the alphabet A more specific. An elementary formula consists of one propositional variable $q \in AP \subset A$. The formula assumes the form

$$\langle y_1 \dots y_l \rangle O(x_1, \dots, x_n, A_1, \dots, A_m),$$

where $l, m, n \geq 0$. The parameter of the statement O is as follows: the predicate in the extensional version ($n = 0$), the logical copula in the propositional version ($m = 0$), the intensional modus in the subjective version ($n = 1$) and the cognitive modus in the transsubjective version ($m > 1$). Indexes $y_1 \dots y_l$ are introduced in order to express intersubjective reflections. Each index y_i is two-dimensional. It corresponds to the name of the conflict participant and to the designation of his mental sphere. An example of the use of the indexation in the psychoanalytical scheme of substitution is as follows:

A psychoanalyst (a_1) has ascertained (a_{11}) that the SuperEgo (a_{23}) of his patient (a_2) prohibits the unconscious (a_{22}) impulse (A) to represent itself in the consciousness (a_{21}).

The index-formula is $\langle a_{11} a_{23} a_{22} a_{21} \rangle A$.

The modal (more customary) version of the statement is:
 $Ba_{11}Fa_{23}Wa_{22}Ba_{21}A$.

The complete version is $\langle a_{11} a_{23} a_{22} a_{21} \rangle Ba_{11}Fa_{23}Wa_{22}Ba_{21}A$.

The indexation of the formulae is (phenomenologically) more natural than the indexed interpretations (cf. Ishmuratov 1987, 1987a, 1994). The analytical rules for the formulae contain schemes of transformation indexes into moduses (or moduses into indexes). For example, $BxWyA \rightarrow \langle x_1y_2 \rangle A$. The modus is supposed to be the name of a certain sphere of mentality (sphere as an extensional area).

Notes

¹ Abstract introduced by the editors.

BIBLIOGRAPHY

- Allen, J.F.: 1983, 'Recognizing Intentions from Natural Language Utterances', in *Computational Models of Discourse*, MIT, Cambridge, pp. 107-166.
- Apostel, L.: 1982, 'Towards a General Theory of Argumentation', in *Argumentation: Approaches to Theory Formation*, Amsterdam, Benjamins, pp. 73-91.
- Cohen, P.R. & Levesque, H.J.: 1990, 'Rational Interaction as the Basis for Communication', *Intentions in Communication*, Cambridge, Massachusetts, MIT, pp. 221-256.
- Filley, A.C.: 1975, *Interpersonal Conflict Resolution*, Glenview, Illinois, Scott, Foresman and Company.
- Grathoff, R.H.: 1970, *The Structure of Social Inconsistencies. Contribution to Unified Theory of Play, Game, and Social Action*, Hague, Mouton.
- Ishmuratov, A.T.: 1987, *Logical Analysis of Practical Reasoning (Formalization of Psychological Concepts)*, Kiev, Naukova Dumka. (In Russian).
- Ishmuratov, A.T.: 1987, 'Towards Logical Theory of Practical Reasoning', in *8th International Congress of Logic, Methodology and Philosophy of Science, Abstracts*, Moscow, vol. 5, part 3, pp. 246-348.
- Ishmuratov, A.T.: 1988, 'Logic of Intensional Acts and the Theory of Games', *Bulletin of the Section of Logic* 17, 3/4, 104-113.
- Ishmuratov, A.T.: 1989, 'Logical Schemes of Intensional Structures', in Popovich, M.V. (ed.), *Structure and Meaning*, Kiev, Naukova Dumka, pp. 156-175. (In Russian).
- Ishmuratov, A.T.: 1994, 'Quest Schemes in Analytical Models of Discourse', *Synthese* 100, 29-38.

- Ishmuratov, A.T.: 1996, *Conflict and Consent. Bases of Conflicts Cognitive Theory*, Kiev, Naukova Dumka. (In Ukrainian).
- Neuman, J. & Morgenstern, O.: 1953, *Theory of Games and Economic Behavior*, Princeton, Princeton University Press.
- Povarov, G.N.: 1960, 'About Group Invariantness of Boolean Functions', in *Application of Logic in Science and Engineering*, Moscow, Isdatelstvo Akademii Nauk, pp. 263-340. (In Russian).
- Valevskiy, A.L. & Ishmuratov, A.T.: 1997, *Political Conflict in Modern Ukraine: Cultural Dimensions, Structure, Principles of Analysis*, Kiev, NISD. (In Ukrainian).

Anatoliy Ishmuratov is Professor of Logic, Principal Scientific Researcher at the Department of Logic, Institute of Philosophy of the National Academy of the Sciences of Ukraine. He is the author of the books *Logical Theories of Tense Contexts (Tense Logic)* (1981), *Logical Analysis of Practical Reasoning (Formalisation of Psychological Concepts)* (1987), *Conflict and Consent. Basis of Cognitive Theory of Conflicts* (1996) and many articles on various problems of logic and philosophy.