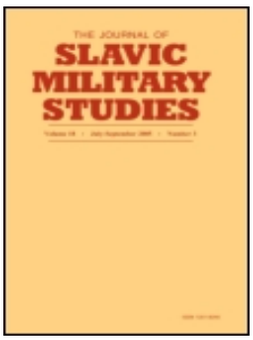

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Russia's Reflexive Control Theory and the Military

TIMOTHY L. THOMAS

Reflexive control is a subject that has been studied in the Soviet Union and Russia for nearly 40 years. The theory has both military and civilian uses. This article describes both the theory and practice of reflexive control, focusing on recent developments. The concept is close in meaning to the US concept of perception management.

INTRODUCTION

One of the prime goals for a commander in warfare is to interfere with the decision-making process of an enemy commander. This goal is often accomplished by the use of disinformation, camouflage, or some other stratagem. For Russia, one of the primary methods is through the use of the theory of reflexive control (RC). This principle can be used against either human-mental or computer-based decision-making processors. The theory is similar to the idea of perception management, except that it attempts to control more than manage a subject.

Reflexive control is defined as a means of conveying to a partner or an opponent specially prepared information to incline him to voluntarily make the predetermined decision desired by the initiator of the action. Even though the theory was developed long ago in Russia, it is still undergoing further refinement. Recent proof of this is the development in February 2001, of a new Russian journal known as *Reflexive Processes and Control*. The journal is not simply the product of a group of scientists but, as the editorial council suggests, the product of some of Russia's leading national security institutes, and boasts a few foreign members as well. The editorial council (which is different than the editorial board) includes a member of the Federal Agency for Government Communications and Information (FAPSI), a diplomat, a

Canadian, and two Americans, and the deputy head of the Information Security Committee of the Russian Security Council, among others.

There are many examples, from a Russian perspective, of the use of reflexive control theory during conflicts. One of the most recent and memorable was the bombing of the market square in Sarejevo in 1995. Within minutes of the bombing, CNN and other news outlets were reporting that a Serbian mortar attack had killed many innocent people in the square. Later, crater analysis of the shells that impacted in the square, along with other supporting evidence, indicated that the incident did not happen as originally reported. This evidence also threw into doubt the identities of the perpetrators of the attack. One individual close to the investigation, Russian Colonel Andrei Demurenko, Chief of Staff of Sector Sarejevo at the time, stated, "I am not saying the Serbs didn't commit this atrocity. I am saying that it didn't happen the way it was originally reported." A US and Canadian officer soon backed this position. Demurenko believed that the incident was an excellent example of reflexive control, in that the incident was made to look like it had happened in a certain way to confuse decision-makers.

This article will discuss the military aspect of Russia's concept of reflexive control in some detail, and its role as an information warfare weapon. It will also briefly examine how US writers interpret RC theory.

NATURE OF REFLEXIVE CONTROL

The concept of reflexive control (RC) has existed much longer than the concepts of information warfare and information operations; in fact, it appeared in Soviet military literature 30 years ago. At that time, V. A. Lefebvre, who was working within the context and logic of a reflexive game, defined reflexive control as "a process by which one enemy transmits the reasons or bases for making decisions to another."[1] The development of reflexive control theory encompasses four distinct periods:

- research (from the early 1960s to the late 1970s);
- practical-orientation (from the late 1970s to the early 1990s);
- psychological-pedagogical (from the early to the mid 1990s); and
- psycho-social (from the late 1990s).

The concept of reflexive control is still somewhat alien to US audiences. However, the Russians employ it not only on the strategic

and tactical levels in war but also on the strategic level in association with internal and external politics. Equally significant, the concept has not always benefited the Soviet Union and Russia. For example, some Russians consider that the Strategic Defense Initiative (SDI) is a classic example of US use of reflexive control. In this case, the US "compelled the enemy to act according to a plan favorable to the US." By doing so, it forced the Soviet Union to try to keep pace with America's achievements in the SDI arena (or at least what we said were our achievements) and ultimately exhausted the Soviet Union economically as it spent money to develop corresponding equipment. As a result, some Russians are now asking themselves whether the concept of information warfare is yet another US attempt to control them "reflexively" and to force them to invest vast sums of money in a realm that is simply beyond their technological reach in the near future.

The Soviet and Russian Armed Forces have long studied the use of reflexive control theory, particularly at the tactical and operational levels, both for *maskirovka* (deception) and disinformation purposes and, potentially, to control the enemy's decision-making processes.[2] For example, the Russian Army had a military *maskirovka* school as early as 1904 that was later disbanded in 1929. This school, the Higher School of Maskirovka, provided the bases for *maskirovka* concepts and created manuals for future generations.[3]

Since the early 1960s, there have been many Russian intellectual "giants" who have emerged in the field of reflexive theory. In the civilian sector, these include G. P. Schedrovitsky, V. E. Lepsky, V. A. Lefebvre (who now lives in the West), D. A. Pospelov, V. N. Burkov, and many others. The foremost theorists in the military sector include V. V. Druzhinin, M. D. Ionov, D. S. Kontorov, S. Leonenko, and several others. One of the civilian theorists, Lepsky, who also is the editor of the new RC journal, hopes that the current US-Russian cooperation in the realm of reflexive control will move Russo-American relations from the paradigm of IW/IO (confrontation, struggle) to a paradigm of partnership (the control of confrontation). His is a noble cause and one that must be taken seriously.

There is a growing realization on both sides that Lepsky's two paradigms will evolve in parallel. US and Russian theorists are engaged in joint work regarding conflict prevention theory and are working together in Bosnia and Kosovo. At the same time, both countries are carrying out reflexive control work independently in the military sector.

RC is also considered as an information warfare means. For example, Major General N. I. Turko, an instructor at the Russian Federation's General Staff Academy, has established a direct connection between IW/IO and reflexive control. He noted:

> The most dangerous manifestation in the tendency to rely on military power relates more to the possible impact of the use of reflexive control by the opposing side through developments in the theory and practice of information war rather than to the direct use of the means of armed combat.[4]

In Turko's judgment, RC is an information weapon that is more important in achieving military objectives than traditional firepower. In this regard, Turko's understanding is most likely influenced by his belief that American use of information weapons during the Cold War did more to defeat the Soviet Union and cause its demise than any other weapon. An excellent example was the Strategic Defense Initiative. Finally, Turko has mentioned reflexive control as a method for achieving geopolitical superiority and as a means for arms control negotiations. The latter area should be one of heightened awareness for countries entering such negotiations with the Russians.

Reflexive Control theory does indeed have geopolitical significance, according to Turko. For example, he and a colleague described a new containment theory under development that portrayed new means for coping with confrontation between new large-scale geopolitical groupings.[5] This theory involves information warfare means; specifically, the threat of inflicting unacceptable levels of damage against a state or group of states by attacking their information resources.

One of the most complex ways to influence a state's information resources is by use of reflexive control measures against the state's decision-making processes. This aim is best accomplished by formulating certain information or disinformation designed to affect a specific information resource best. In this context an information resource is defined as:

- information and transmitters of information, to include the method or technology of obtaining, conveying, gathering, accumulating, processing, storing, and exploiting that information;
- infrastructure, including information centers, means for automating information processes, switchboard communications, and data transfer networks;

- programming and mathematical means for managing information; and
- administrative and organizational bodies that manage information processes, scientific personnel, creators of data bases and knowledge, as well as personnel who service the means of *informatizatsiya* [informatization].[6]

Russia's political elite also employs RC in analytical methodologies used to assess contemporary situations. For example, during a recent conference in Moscow, a representative from President Yeltsin's administration noted that, when making decisions, the Kremlin pays attention to reflexive processes. Thus, Turko's revelation about the central role of Reflexive Control in Russian conceptions of information warfare, and RC's potential use against information resources to destabilize the geopolitical balance. These are two important points to consider when analyzing intent.

By definition, reflexive control occurs when the controlling organ conveys (to the objective system) motives and reasons that cause it to reach the desired decision,[7] the nature of which is maintained in strict secrecy. The decision itself must be made independently. A "reflex" itself involves the specific process of imitating the enemy's reasoning or imitating the enemy's possible behavior and causes him to make a decision unfavorable to himself.

> In fact, the enemy comes up with a decision based on the idea of the situation which he has formed, to include the disposition of our troops and installations and the command element's intentions known to him. Such an idea is shaped above all by intelligence and other factors, which rest on a stable set of concepts, knowledge, ideas and, finally, experience. This set usually is called the "filter," which helps a commander separate necessary from useless information, true data from false and so on.[8]

The *chief task of reflexive control* is to locate the weak link of the filter, and exploit it.

According to the concept of reflexive control, during a serious conflict, the two opposing actors (countries) analyze their own and perceived enemy ideas and then attempt to influence one another by means of reflexive control. A reflex refers to the creation of certain model behavioral in the system it seeks to control (the objective system). It takes into account the fact that the objective system has a model of the situation and assumes that it will also attempt to influence the controlling organ or system. Reflexive control exploits moral,

psychological, and other factors, as well as the personal characteristics of commanders. In the latter case, biographical data, habits, and psychological deficiencies could be used in deception operations.[9]

In a war in which reflexive control is being employed, the side with the highest degree of reflex (the side best able to imitate the other side's thoughts or predict its behavior) will have the best chances of winning. The degree of reflex depends on many factors, the most important of which are analytical capability, general erudition and experience, and the scope of knowledge about the enemy. Military author Colonel S. Leonenko added that, in the past, stratagems were the principal tool of reflexive control, but today camouflage and deception (*maskirovka*) have replaced strategems, a conclusion disputed by many. For example, the Chinese have demonstrated that electrons can be used as stratagems and operate as effectively as camouflage and deception in the traditional sense.

Although no formal or official reflexive control terminology existed in the past, opposing sides actually employed it intuitively as they attempted to identify and interfere with each other's thoughts and plans and alter impressions of one, thereby prompting an erroneous decision.[10] Leonenko's theories about varying degrees of reflexive control can be explained as follows. If two sides in a serious conflict—A and B—have opposing goals, one will seek to destroy the other's goals. Accordingly, if side A acts independently of the behavior of side B, then his degree of reflex relative to side B is equal to zero (0). On the other hand, if side A makes assumptions about side B's behavior (that is, he models side B) based on the thesis that side B is not taking side A's behavior into account, then side A's degree of reflex is one (1). If side B also has a first degree reflex, and side A takes this fact into account, then side A's reflex is two (2), and so on.

If successfully achieved, reflexive control over the enemy makes it possible to influence his combat plans, his view of the situation, and how he fights. In other words, one side can impose its will on the enemy and cause him to make a decision inappropriate to a given situation. Reflexive control methods are varied and include camouflage (at all levels), disinformation, encouragement, blackmail by force, and the compromising of various officials and officers. Thus, the central focus of reflexive control is on the less tangible element of "military art" rather than more objective "military science." Achieving successful reflexive control requires in-depth study of the

enemy's inner nature, his ideas, and concepts, which Leonenko referred to as the filter through which passes all data about the external world. Successful RC represents the culmination point of an information operation.

So defined, a filter is a collective image (termed "set") of the enemy's favorite combat techniques and methods for organizing combat actions, plus a psychological portrait of the enemy. Thus, reflex requires study of someone else's filter and the exploitation of it for one's own ends. In the information age, this filter is represented by human and machine (computer) data processors. The most important question then becomes, How does one side achieve this higher degree of reflex and, hence, more effective reflexive control over the enemy? It does so primarily by employing a broader range of means for achieving surprise. In turn, it achieves surprise by means of stealth, disinformation, and avoidance of stereotypes [*shablon*].[11]

THE MILITARY EXPERTS SPEAK: IONOV, LEONENKO, KOMOV, CHAUSOV

Major General (ret.) M. D. Ionov, one of the military specialists mentioned earlier, wrote several articles on the subject of reflexive control in *Voennia mysl'* (Military thought). He was one of the first military theorists to appreciate the value of reflexive control, although, at first, no one was inclined to listen to him. The term reflexive control was simply not listed in any Soviet military encyclopedia when he began writing in the 1970s and, thus, could not exist! Therefore, in many of his initial articles, Ionov simply spoke about control of the enemy rather than reflexive control. At the same time, Ionov also realized the close link between advertising and reflexive control ("sell the holes, not the drill" and "temptation by benefit" were two of the techniques he recognized) and the combined use of various reflexive methods for waging different types of conflicts (low-intensity, etc.).[12]

Given his advanced thinking about reflexive control, it is instructive to analyze one of his articles from 1995. In it Ionov noted that the objective of reflexive control is to force an enemy into making objective decisions that lead to his defeat by influencing or controlling his decision-making process. Ionov considers this a form of high art founded of necessity on an intimate knowledge of human thinking and psychology, military history, the roots of the particular

conflict, and the capabilities of competing combat assets. In this instance, control over the enemy is realized by undertaking a series of measures, related by time, aim, and place, which force enemy decision-makers to abandon their original plan, make disadvantageous decisions, or react incorrectly to their ultimate disadvantage (for example, when facing a counter-offensive). The successful use of reflexive control becomes all the more likely if the enemy's original plan is known. This makes it easier for the "controlling side" to force the enemy into making wrong decisions by employing reflexive control techniques such as intimidation, enticement, disinformation, deception, and concealment and other measures designed to shorten his decision-making time by surprising his decision-making algorithms.[13]

Ionov also stated that the content and methods employed must accord with the interrelationship between the enemy's thought processes and basic psychology. They also had to be realistic, and newly created methods had be considered within the context of new technologies. Furthermore, he recognized that any coalition of enemy forces represents a far more complex system, the stability of which changes depending upon the nature of the situation in each individual state and the condition of the coalition. Finally, because sharp differences exist in thinking, aims, politics, and ethical approaches of each state, each side must conduct an internal appraisal to determine the possible results of any action conducted in accordance with complex criteria reflecting the nature of the confrontation.[14]

Ionov identified four basic methods for assisting in the transfer of information to the enemy to promote control over him. These methods, which serve as a checklist for commanders at all levels, include:

- **Power pressure**, which includes: the use of superior force, force demonstrations, psychological attacks, ultimatums, threats of sanctions, threats of risk (developed by focusing attention on irrational behavior or conduct, or delegating powers to an irresponsible person), combat reconnaissance, provocative maneuvers, weapons tests, denying enemy access to or isolating certain areas, increasing the alert status of forces, forming coalitions, officially declaring war, support for internal forces destabilizing the situation in the enemy rear, limited strikes to put some forces out of action, exploiting and playing up victory, demonstrating

ruthless actions, and showing mercy toward an enemy ally that has stopped fighting.[15]

- **Measures to present false information about the situation**, which include: concealment (displaying weakness in a strong place), creation of mock installations (to show force in a weak place), abandoning one position to reinforce another, leaving dangerous objects at a given position (the Trojan Horse), concealing true relationships between units or creating false ones, maintaining the secrecy of new weapons, weapons bluffing, changing a mode of operation, or deliberately losing critical documents. The enemy can be forced to find a new target by conflict escalation or de-escalation, deliberate demonstration of a particular chain of actions, striking an enemy base when the enemy is not there, acts of subversion and provocation, leaving a route open for an enemy to withdraw from encirclement, and forcing the enemy to take retaliatory actions involving an expenditure of forces, assets, and time.[16]
- **Influencing the enemy's decision-making algorithm**, which includes the systematic conduct of games according to what is perceived as routine plans, publishing a deliberately distorted doctrine, striking control system elements and key figures, transmitting false background data, operating in a standby mode, and taking actions to neutralize the enemy's operational thinking.[17]
- **Altering the decision-making time**, which can be done by unexpectedly starting combat actions, transferring information about the background of an analogous conflict so that the enemy, when working out what seems feasible and predictable, makes a hasty decision that changes the mode and character of its operation.[18]

According to Ionov, one can assess human targets of reflexive control either by personality or group depending on the specific individual's or group's psychology, way of thinking, and professional level of training. Both universal and role-based characteristics apply to individuals and groups. Universal characteristics include rejection or fear of danger, unwillingness to do someone else's work, or an arbitrary and uncompromising orientation toward confrontation. Reflexive control focuses on the role played by a particular person or group of persons (history, leadership, subordination, etc.).[19]

In another article entitled "Control of the Enemy," which appeared in the Navy journal, *Morskoi sbornik* (Naval collection) in

July 1995, Ionov argued that information is needed on the status of enemy forces, the nature of their actions, and their capabilities in order to control him and, simultaneously, to halt or to retard his counter-control efforts.[20] Ionov advanced several distinct principles necessary for "control of the enemy." First, he underscored the reflexive nature of the desired response, stating that commanders must visualize the possible enemy response to the conditions one desires to impose. Second, the response will be problematic, since the enemy may discover the activity and undertake his own counter-control measures. Third, the level of technical development of combat weapons, and especially reconnaissance, is of growing importance. This makes the exposure of an action aimed at misinforming the enemy more likely. The final principle is the use of harsh forms of pressure on the enemy, specifically those that consider social elements and intellectual, psychological, ethical and ideological factors. Deliberate cruelty toward the civilian population or prisoners of war in a combat region, a declaration of unrestricted submarine warfare (to sink any vessels to include those of neutral countries), and so on serve as excellent examples of the latter.[21] In short, in Ionov's view, reflexive control is a specific, yet traditional, Soviet—and now Russian—form of an informational or psychological (psyop) attack.

Colonel S. Leonenko integrated information technologies and reflexive control theory in his writings. He noted that the use of computers could hinder the use of reflexive control by making it easier to process data and calculate options. This is so since an opponent can more easily "see through" a reflexive control measure by an opposing force by simply using a computer. The computer's speed and accuracy in processing information can detect the reflexive control measure. On the other hand, in some cases, this may actually improve the chances for successful reflexive control, since a computer lacks the intuitive reasoning of a human being.[22]

Computer technology increases the effectiveness of reflexive control by offering new methods adaptable to the modern era that can serve the same ends. Writing in 1995 from a military perspective, Colonel S. Leonenko defined reflexive control as follows:

> RC [reflexive control] consists of transmitting motives and grounds from the controlling entity to the controlled system that stimulate the desired decision. The goal of RC is to prompt the enemy to make a decision unfavorable to him. Naturally, one must have an idea about how he thinks.[23]

Leonenko then assessed the new opportunities that the use of computer technology afforded to reflexive control, stating:

> In present conditions, there is a need to act not only against people but also against technical reconnaissance assets and especially weapons guidance systems, which are impassive in assessing what is occurring and do not perceive to what a person reacts.[24]

If an IW or IO operation system cannot perceive what a person reacts to and is unable to assess what is occurring, does this mean that it provides only insignificant data? Or does it mean that there are two layers to reflexively control? The first layer consists of the "eyes, nose, and ears" of sensors, satellites, and radars. The second layer is the "brain software" of humans, which gathers, processes, and produces knowledge from the information or makes decisions based on it. But what happens if the "eyes, ears, and nose" are manipulated? How does that affect the input into decisions and knowledge? The recent use of such military activity by Yugoslav forces in the Balkans fooled NATO sensors over Kosovo and resulted in NATO shooting at targets that were fakes.

Yet, in the end, we do leave some decisions to computers. This indicates to Leonenko that we live in a much more frightening existence than we care to believe if, in fact, decisions are in the hands of machines that are "incapable of assessing what is occurring and do not perceive what a person reacts to."[25]

Further, Leonenko noted that "how the enemy thinks" is shaped by combat intelligence and a collective image (set) made up of concepts, knowledge, ideas, and experience. This "set," which he calls a "filter," helps a commander separate necessary from useless information. Then, the chief task of reflexive control is to locate the weak link in the filter and find an opportunity to exploit it.

Leonenko's definition of reflexive control fits well with Russian Major Sergei Markov's understanding of an information weapon. Like Markov Leonenko defines an information weapon as a "specially selected piece of information capable of causing changes in the information processes of information systems (physical, biological, social, etc., in this case, decision-making information) in accordance with the intent of the entity using the weapon." Accordingly, it causes change in the information processes of an opponent by persuading them to make decisions according to the design of the controller, and it affords the information weapon a methodology for controlling

an opponent. So defined, reflexive control can be applied in the modeling and decision-making contexts of various types of conflicts (international, military, etc.). It can also be used in social processes and systems.

At the present time, there is a reflexive control movement underway in Russia that is influencing approaches to various branches of knowledge. This embraces philosophy, sociology, psychology, pedagogy, problems of artificial intelligence and computer science in general, computer "control" influence, military affairs, intelligence, counterintelligence, and a number of other areas.[26] For example, The Applied Ergonomics Association devoted a special edition of its journal (No. 1, 1994) to reflexive control processes.

Another Russian military theorist who wrote on the information impact on RC was Colonel S. A. Komov, who was perhaps the most prolific Russian military writer on information warfare topics in the 1990s. Writing in the journal *Voennaia mysl'* [Military Thought], Komov supported Ionov's emphasis on reflexive control. He renamed reflexive control over the enemy as "intellectual" methods of information warfare. He then listed the basic elements of an intellectual approach to information warfare, which he described as:

- **Distraction**, by creating a real or imaginary threat to one of the enemy's most vital locations (flanks, rear, etc.) during the preparatory stages of combat operations, thereby forcing him to reconsider the wisdom of his decisions to operate along this or that axis;
- **Overload**, by frequently sending the enemy a large amount of conflicting information;
- **Paralysis**, by creating the perception of a specific threat to a vital interest or weak spot;
- **Exhaustion**, by compelling the enemy to carry out useless operations, thereby entering combat with reduced resources;
- **Deception**, by forcing the enemy to reallocate forces to a threatened region during the preparatory stages of combat operations;
- **Division**, by convincing the enemy that he must operate in opposition to coalition interests;
- **Pacification**, by leading the enemy to believe that pre-planned operational training is occurring rather than offensive preparations, thus reducing his vigilance;
- **Deterrence**, by creating the perception of insurmountable superiority;

- **Provocation**, by force him into taking action advantageous to your side;
- **Overload**, by dispatching an excessively large number of messages to the enemy during the preparatory period;
- **Suggestion**, by offering information that affects the enemy legally, morally, ideologically, or in other areas; and
- **Pressure**, by offering information that discredits the government in the eyes of its population.[27]

Finally, an article by Russian Captain First Rank F. Chausov continued the discussion of reflexive control. He defined RC as "the process of intentionally conveying to an opposing side of a certain aggregate information (attributes) which will cause that side to make a decision appropriate to that information."[28] More important, Chausov discussed the risk involved with using RC:

> To justify the methods of using force while taking risk into account, the numerical measure R_0 is introduced as the difference between the assessments of guaranteed effectiveness, or E_g, and the projected (situational) effectiveness, E_s. The estimate of the guaranteed effectiveness represents the lower limit of the effectiveness indicator, given any type of enemy action and fixed actions by our own forces. Situational effectiveness refers to the effectiveness of a force's action which is achieved through a certain type of action based on a commander's decision. Ordering or establishing preference among the values of the risk looks like this: $R_{0,1} > R_{0,1+1}$.[29]

Chausov listed the principles of RC as:

1. a goal-oriented process requiring a complete picture of all RC measures needed;
2. an "actualization" of plans, that is providing a sufficiently complete picture of the intellectual potential of commanders and staff officers (based on their reality), especially when conditions are determined by global information space;
3. the conformity of goals, missions, place, time and methods for RC's conduct;
4. the modeling or forecasting of the condition of a side at the time actions are being implemented; and
5. the anticipation of events.

US INTERPRETATION OF RUSSIA'S RC THEORY

While V. A. Lefebvre remains the premier authority on RC issues in the US, and perhaps in the world, other US analysts have tried to

decipher the principles of RC. Several years ago, American Clifford Reid demonstrated a thorough understanding of reflexive control theory in a chapter he wrote for the book *Soviet Strategic Deception*. By using only Soviet sources, Reid distilled Russian reflexive control mechanisms into the following categories of reflexive interactions:

1. transfer of an image of the situation: providing an opponent with an erroneous or incomplete image of the situation.
2. creation of a goal for the opponent: putting an opponent in a position in which he must select a goal in our favor (for example, provoking an enemy with a threat to which he must rationally respond).
3. form a goal by transferring an image of the situation: feigning weakness or creating a false picture.
4. transfer of an image of one's own perception of the situation: providing an opponent with false information or portions of the truth based on one's own perception of the situation.
5. transfer of an image of one's own goal: a feint by a basketball player is a classic example where you change the enemies perception of where he thinks you are or are going.
6. transfer of an image of one's own doctrine: giving a false view of one's procedures and algorithms for decision-making.
7. transfer of one's own image of a situation to make the opponent deduce his own goal: presenting a false image of one's own perception of the situation, with the accepted additional level of risk.
8. control of a bilateral engagement by a third party.
9. control over an opponent who is using RC: exploiting opportunities identified as imitation of the initiators own process of RC.
10. control over an opponent whose doctrine is game theory.[30]

Most analysts consider the US term most closely associated with RC to be perception management, the difference being in the quantifiable differences in the terms manage and control. Much has been written in the US on perception management. Lockheed Martin Aeronautics analyst E. T. Nozawa took a different perspective on RC, however, comparing and contrasting the theory with that of the scientific philosophy of Charles Sander Peirce (1839–1914). This term is not as well known to the US public as perception management, although it is gaining a lively following of late. Peircean Semiotic, a subset of scientific philosophy, refers to the totality of

scientific Peircean knowledge. Semiotic (pronounced See-My-Oh-Tick) is the science of signs. For Peirce this meant a higher logic that included speculative grammar, critique (lower logic), and speculative rhetoric.

Nozawa has noted that Russian specialists discuss two different types of reflexive schools of thought. One is the school of Reflexive Processes, and the other is a subset of those processes, reflexive control, the idea under consideration here. Most Americans have difficulty making this distinction. Nozawa notes that a comparison of the Russian scientific paradigm of Reflexive Processes as described by Vladimir Lepsky and Vladimir LeFebvre with Peirce's concepts shows that they are very similar in their subject content and goals.[31] It may be said that Peircean Semeiotic is more advanced in its theoretical conceptual development, whereas Reflexive Processes is more advanced in having developed practical applications.

There is nothing equivalent in the Peircean domain (or any other Western school of thought) to the reflexive control equations developed by Lefebvre and Lepsky with the supporting developments in characterizing free will. Lefebvre, according to Nozawa, combined the integrated concepts of feelings, free will, and thinking with the concepts of situational awareness and reality. The integrated processes became known as reflexive processes, filling the void in mentalistic sciences created by behaviorism. A study of the proceedings of the October 2000 Reflexive Control Symposium held in Moscow would probably reveal additional areas of development. It may be said that reflexive processes is a form of Peirce's highly developed scientific philosophy and that it could easily be replaced by Peirce's Scientific Philosophy. The following table shows reflexive processes and the corresponding elements of Peircean Scientific Philosophy:

Reflexive Processes	***Scientific Philosophy***
Situational Awareness	Phaneroscopy (Situational Awareness)
Reflexive Control	Normative Science
Feelings	Esthetics
Free Will	Ethics
Thinking	Semeiotic
Reality	Metaphysics (Reality)

Although the terminology is different, the words describing Peirce's categories have the same general meaning as those of reflexive processes. Peirce, however, was more precise in his definitions, and the underlying construct of his theoretical knowledge is better developed, according to Nozawa. The Peircean categories should be interpreted as scientific categories and not metaphysical or theological.

RECENT EXAMPLES OF RC

The Russian military has actively attempted to exploit the concept of reflexive control during the recent past. For example, during the temporary occupation of the Russian White House by members of Parliament in October 1993, the Russian military reputedly employed reflexive control to remove the parliamentarians and their supporters from the building, albeit against the explicit orders of Russian President Boris Yeltsin. How they did so is quite interesting. For days, President Yeltsin had not been able to make the White House's occupiers budge. Additionally, the occupiers even refused to come out to address their supporters who had surrounded the building, probably because the Russian security police (MVD) or regular police were also in the crowd and might try to overpower them.[32]

Therefore, the security services developed a reflexive control plan. According to the plan, on the day of an immense demonstration in support of the White House's occupiers, the police permitted one of its communication posts to be overrun by the protestors. At the same time, the military authorities broadcast deceptive messages over an inactive frequency, while making it appear that the messages were actually a conversation between two high ranking Ministry of Internal Affairs (MVD) officers, who were discussing the imminent storming of the White House. The two officers discussed details of the "operation," which they implied was an attack designed to clear the occupants out of the building. One of the officers said repeatedly, "No matter what, get the Chechen. Kill him if you have to." In fact, the reference was to Ruslan Khasbulatov, the speaker of the Parliament, who was a Chechen and one of two key figures in the occupation (the other being former Vice President Alexander Rutskoi). Within a few minutes of receiving this information, both Khasbulatov and Rutskoi emerged on the White House's balcony and asked the crowd to go instead to the Ostankino TV station

and capture it. The reflexive control operation had indeed worked. As a result, Yeltsin now had a *raison d'être* to act against both Khasbulatov and Rutskoi based on the latter's call for civil disobedience.[33] In effect, the two MVD officers had effected both leader's actions and put ideas into their heads that provided grounds for the demise of this plan. They did so by literally "getting into" the leaders' minds.

Another excellent example of Soviet use of reflexive control theory occurred during the Cold War when the Soviet Union attempted to alter US perceptions of the nuclear balance. The aim of this reflexive control operation was to convince the West that its missile capabilities were far more formidable than they actually were. To do so, Soviet military authorities paraded fake ICBMs to deceive the West. The Soviets developed the fake missiles so as to make the warheads appear huge and to imply that the missile carried multiple warheads. In this case, the Soviets understood their opponent's reflexes. Soviet authorities realized that foreign attachés regularly attended these shows, since this was one of the few opportunities to obtain military information legally. Moreover, since the Soviet Union did not even participate in arms control fairs, the parade held special significance for intelligence officers. After observing the parade, the Soviets knew that the attachés would then report their findings in great detail to Western intelligence organs. In addition, the Soviets knew that members of the Western military-industrial complex also studied the parades closely.

However, the deception did not end here. The Soviets also prepared other disinformation measures so that when Western intelligence services began to investigate the fake ICBMs, they would find collateral proof of their existence and would be led further astray. Ultimately, the aim was to prompt foreign scientists, who desired to copy the advanced technology, down a dead-end street, thereby wasting precious time and money.[34]

FINAL THOUGHTS ON RC

Russian civilian and military theorists will undoubtedly continue to study the problem of reflexive control and the associated tools of manipulation and deception. For example, the Russian Academy of Science's Institute of Psychology has a Psychology of Reflexive Processes Laboratory that studies elements and applications of the

reflex in considerable detail. It is studying not only ways to use the concept, but ways to keep the concept under control through international discussions and awareness. The institute is playing a very positive role in that regard that should not be overlooked. In the Information Age, however, military analysts will continue to use the concept to manipulate an adversary on the field of battle. The most complex and dangerous application of reflexive control will remain its employment to affect a state's decision-making process by use of carefully tailored information or disinformation.

A detailed information security doctrine is one of the most important deterrents or defenses against an enemy's use of reflexive control or similar processes against Russia, according to many Russian scientists. Russia's September 2000 Information Security Doctrine is a step in this direction. According to Turko and Prokhozhev, information security means the degree to which a state is protected against both deliberate and unintentional actions that can lead to the disruption in the functioning of state and military command-and-control. The most significant of those threatening actions is disinformation that seeks to exert a goal-oriented effect on public opinion or on decision-makers for the purposes of reflexive control.[35] The dialectical interaction of reflexive control against a state, and information security countermeasures within a state, will inevitably have a significant geo-political impact on that state as well. Thus RC theory will remain a most important area of study for the immediate and long-term future for Russian and other international groups alike.

DISCLAIMER

The views expressed in this report are those of the author and do not necessarily represent the official policy or position of the Department of the Army, Department of Defense, or the US government.

NOTES

1. Vladimir E. Lepsky, '*Refleksivnoe upravlenie v polisubektnikh i mnogoagentnikh sistemakh* (Reflexive Control in Multi-Object and Multi-Agent Systems),' an article given to the author, p. 1. Manuscript presented to the author by Dr. Lepsky.
2. Disinformation is a Russian technique that manipulates perceptions and information and misinforms people or groups of people. Some disinformation procedures

are quite obvious, some are unconvincing, and others work through delayed perceptions, rumors, repetition, or arguments. Specific persons or particular social groups can serve as disinformation targets. The purpose of a disinformation campaign is to influence the consciousness and minds of people. In Russia today, where an unstable public-political and socio-economic situation exists, the entire population could serve as the target of influence for an enemy disinformation campaign. This is a major Russian fear.

3. Major General Evgenii Korotchenko and Colonel Nikolai Plotnikov, '*Informatsiia—tozhe oruzhie: O chem nel'zia zabyvat' v rabote s lichnym sostavom*" [Information is also a weapon: About which we cannot forget in working with personnel].' *Krasnaia zvezda* (*Red Star*), February 17, 1994, p. 2.
4. A. A. Prokhozhev and N. I. Turko, '*Osnovi informatsionnoi voini* (The Basics of Information Warfare),' report at a conference on "Systems Analysis on the Threshold of the 21st Century: Theory and Practice," Moscow, February 1996, p. 251.
5. See N. I. Turko and S. A. Modestov, '*Refleksivnoe upravlenie razvitiem strategicheskikh sil gosudarstva kak mekhanizm sovremennoi geopolitiki* (Reflexive Control in the Development of Strategic Forces of States as a Mechanism of Geopolitics),' report at the conference on "Systems Analysis on the Threshold of the 21st Century: Theory and Practice," Moscow, February 1996, p. 366.
6. Prokhozhev and Turko, *ibid*., pp. 257, 258.
7. S. Leonenko, 'Refleksivnoe upravlenie protivnikom [Reflexive control of the enemy],' *Armeiskii sbornik* (Army Collection), No. 8, 1995, p. 28.
8. *Ibid*.
9. *Ibid*., pp. 29, 30.
10. *Ibid*., p. 30.
11. Discussion with a Russian military officer in Moscow, September 1998.
12. M. D. Ionov, '*Psikhologicheskie aspekty upravleniia protivnikom v antagonisticheskikh konfliktakh (refleksivnoe upravlenie*) (Psychological aspects of controlling the enemy during antagonistic conflicts [reflexive control]),' *Prikladnaia ergonomika* (Applied Ergonomics), No. 1 (January 1994), Special Issue, pp. 44, 45.
13. M. D. Ionov, 'On Reflexive Control of the Enemy in Combat,' *Military Thought* (English edition), No. 1 (January 1995), pp. 46, 47.
14. *Ibid*., pp. 49, 50.
15. *Ibid*., p. 47.
16. *Ibid*., pp. 47, 48.
17. *Ibid*., p. 48.
18. *Ibid*.
19. *Ibid*.
20. M. Ionov, 'Control of the Enemy,' *Morskoy sbornik* (Naval collection) No. 7 (July 1995), pp. 29–31, as reported in FBIS-UMA-95–172-S, September 6, 1995, pp. 24–27.
21. *Ibid*., p 25.
22. Leonenko, p. 29. Who can say, however, what powers computers might assume in the future?
23. Leonenko, p. 28. This is akin to how British and American perception management theorists view the purpose of deception.

24. *Ibid*.
25. Leonenko, p. 30.
26. Lepsky, p. 2.
27. S. A. Komov, 'About Methods and Forms of Conducting Information Warfare,' *Military Thought* (English edition), No. 4 (July–August 1997), pp. 18–22.
28. F. Chausov, 'Osnovi refleksivnogo upravleniya protivnikom,' *Morskoi sbornik* (Navy collection), No. 9, 1999, p. 12. The author would like to thank Mr. Robert Love of the Foreign Military Studies Office for his help in translating this and other segments of Chausov's article.
29. *Ibid*., p. 14.
30. Clifford Reid, "Reflexive Control in Soviet Military Planning," *Soviet Strategic Deception*, edited by Brian Dailey and Patrick Parker, (Stanford, CA: The Hoover Institution Press, 1987), pp. 293–312. Essentially, the first seven principles are those of deception.
31. Nozawa, E. T., private communication with the author, October 11, 2001.
32. The Ministry of Internal Affairs (MVD) has no counterpart in the United States. In addition to the Russian regular police force, it also consists of police elements tasked with containing ethnic conflict or riots throughout the country, a mission somewhat familiar to our National Guard.
33. As related by an MVD lieutenant to the author in Moscow in 1994.
34. Aleksei Baranov, 'Parade of Fakes,' *Moskovskii komsomolets* (Moscow Komsomol), May 8, 1999, p. 6 as translated and entered on the FBIS web page, May 11, 1999.
35. Prokhozhev and Turko, p. 259.