THE CLOSED WORLD by Paul N. Edward

CHAPTER 1

“WE DEFEND EVERY PLACE”: BUILDING THE COLD WAR WORLD

This book is about computers, as machines and as metaphors in the politics and culture of Cold War. As machines computer controlled a vast systems of military centralized technology for Cold War foreign policy. As metaphors this system constituted a dome (cupola) of technology a **closed world** where every event was interpreted as a titanic struggle between the superpowers. Computers made the closed world work simultaneously as technology, as political system and as ideological system. The politics of closed world discourse are centered around the integration between man and machine. At the same time computers inspired new psychological theories about “information processing” with the rise of **cybernetics**. Cyborg discourse helped to integrate people into complex technological system. The author develops three ideas:

1. The history of computer cannot be separated from the elaboration of Cold War strategy.
2. The rise of cybernetics and cognitivism are linked with the Cold War strategy.
3. Cyborg discourse functioned as the psychological counterpart of closed world politics, cyborg discourse defined culture for the information age.

OPERATION IGLOO WHITE: was a United States Air Force electronic warfare operation conducted from late January 1968 until February 1973, during the Vietnam War. Costing between $1 and $1.7 billion dollars to design and build and possessing and controlling some of the most sophisticated technology in the Southeast Asia theater, the effectiveness of Igloo White still remains in question. The brain of operation was the Infiltration Surveillance Center (ISC) in Thailand. Inside were a banks of video display controlled by IBM computers and connected to thousands of sensors laid down the Ho Chi Min Trail (strada, arteria) in southern Laos. The sensors were designed to detect all kinds of human activity, when they picked up a signal, it appeared on the screen of ISC and the computers will give the signal to the American jets to bomb the trail. The ISC computers were also able to move the release of bomb. Inside the ISC soldier whit “white gloves” sat at displays, in air conditioned comfort, directing the destruction of man as in video game. Vietcong on their side confused the sensors with bag of urine and truck carcasses into the jungle, provoking the release of tons of bomb on empty jungle. The traffic on the Ho Chi Minh trail continued. Igloo white was centralized, computerized and automated **metaphor of whole USA approach to Vietnam war**. The department of defend was guided by **Robert McNamara** who control the budget of the operation. This was an aspect of **centralization policy strategy**. The centralization linked by computer communication explosion cause impediments to the understanding of what was going in battle field. This was the first **closed system**. The language of Cold War produced by think thank like Rand Corporation framed global politics in term of **cost-benefit analysis**. The author says that American weapons and American culture cannot be understood in isolation from each other.

CLOSED WORLD DISCOURSE: this phrase is used to describe the language, technologies and practices that supported the visions of centrally controlled global power in American Cold War politics.

POSTWAR WORLD AS A CLOSED SYSTEM: The Truman’s doctrine of **containment**  became the essential US policy toward communism. Containment was a United States policy using numerous strategies to prevent the spread of communism abroad. A component of the Cold War, this policy was a response to a series of moves by the Soviet Union to enlarge communist influence in Eastern Europe, China, Korea, and Vietnam. It create an image of **ENCLOSED SPACE** surrounded by American power, this is the central metaphor of closed world discourse. The rhetoric that underlay the idea of containment was the colonial vision of the **city upon a hill**, the **beacon light vision**. The phrase entered the American lexicon early in its history, in the Puritan John Winthrop's 1630 sermon "A Model of Christian Charity". Still aboard the ship Arbella, Winthrop admonished the future Massachusetts Bay colonists that their new community would be a "city upon a hill", watched by the world which became the ideal the New England colonists placed upon their hilly capital city, Boston. Winthrop's sermon gave rise to the widespread belief in American folklore that the United States of America is God's country because metaphorically it is a Shining City upon a Hill, an early example of American exceptionalism.

CAPITALIST WORLD SYSTEM: The USA as the only nation to emerge untouched from world war II became the power of postwar period. The USSR became the predominant organizing force of the external world outside capitalist markets. There was two closed world and Cold War struggle born at the margins of the two. This struggle is the **third closed world**: a system formed from the interlocking traffic of their actions. Containment policy had an ambiguous character. American goals was to enclose Soviet Union, to enclose capitalist nation and extend the capitalist world system to enclose the entire world. The ambiguity came when capitalist society is seen as threatened by communism invasion. So it required defenses.

CHARACTERIZING THE CLOSED WORLD: closed world is a scene of conflict, a self referential space where every thought, word, and action is directed back toward a central struggle. A closed world risks to implode. The term descends from the literary criticism of **Sherman Hawkins** who used it to define one of the major dramatic spaces in Shakespearean plays. Closed world are marked by unity of place, such as a walled city or a house. Action in this space is centered around attempts to invade or escape. The **Iliad** is the original model. The dividing conflict which drives social action in closed world finds parallels in psychological division of characters, such as Hamlet. In tragedy this leads to self destruction. The alternative of closed world is a **GREEN WORLD**. The green world is a natural setting such as a forest. Action moves between natural and urban settings and centers around magical and natural forces. Green world drama thematizes the restoration of community and cosmic order through the transcendence of rationality, authority, convention and technology. The green world is an open space where the limits of law and rationality are surpassed.

In closed world the globe is seen as a closed single scene in which the capitalist/communist struggle was the only activity and from which the only escape was the technological utopia of space travel. In closed world all military conflict take place in the black shadows of nuclear arms. Paradoxically the ultimate weapons produced ultimate limits to military power **transforming an hypothetical win in a Pyrrhic victory**.

SIMULATION: inside the closed world of nuclear politics simulations became more real than reality. The nuclear cold war evolve into a abstract **war of position**. Simulations, computer, war games had more political significance than the weapons that could not be used. In absence of direct experience, nuclear weapons forced military planners to adopt simulation techniques.

CLOSED WORLD DISCOURSE: was characterized by the following elements:

* **Techniques**: math for modeling aspects of world as closed system
* **Technologies:** the computer, make system analysis and central control practical on large scale
* **Computer simulation**
* **Fiction, fantasies and ideologies:** including such visions as global power trough air and nuclear weapons, global danger from an “evil empire” and centralized control.

TURING’S MACHINES: Alan Turing (23 June 1912 – 7 June 1954), was an English mathematician, logician and computer scientist. He was highly influential in the development of computer science, providing a formalization of the concepts of "algorithm" and "computation" with the Turing machine, which played a significant role in the creation of the modern computer. Turing machine was an “imitation game” in which computer is programmed to simulate human thought processes. A person attempts to discern the difference between the computer and the real person by interrogating them both through a terminal. This machine is the base of computational metaphor. To reduce each state of mind of the human computer to a single unit, Turing translate any complex operation in to a series of definite steps. This demonstrate that any problem that could be precisely formulated could be solved by a sufficiently powerful Turing machine. In 1939 this implications were carried in practice.

CRYPTHOGRAPHY: Turing began working with a team of scientist to encode secret messages of “enigma” a chipher machine of German. Manual methods could not uncover the keys fast enough to make intercepted message useful. So it use the “Colossus” one of the machine that in 1943 was the first true electronic digital computer. The Colossus and other devices Turing helped invent successfully decoded many thousands of German command messages.

CYBORGS: in tandem with closed world politics risen new conception of psychology and artificial intelligence. Wartime work to integrate humans into combat machines helped produce **cybernetic theories of information** applied equally to machine and humans linked to Turing ideas. In 1956 the concept of artificial intelligence had been invented. In psychology the new view reached maturity in the middle 60’s with the publication of **“Cognitive Psychology”** by **Ulric Neisser**. By the 1970 cognitive psychology were integrated with artificial intelligence, linguistics to form a new interdiscipline known as cognitive science. Cognitive science see the problems of thinking, reasoning and perception without distinction between humans and computers. In 1980 cyberpunk science fiction named the world of computer as **cyberspace**. Cyberspace is the electronic medium of computer networks, in which online communication takes place. Cyborg figures, fusion of organism and machine, pervade modern culture, from the person with a peacemaker to a AI. Turing was the prophet of the cyborg discourse.

CYBORG DISCOURSE: focuses on the psychological, metaphorical and philosophical aspects of computer use rather than their political, social and material dimension. While closed world discourse is built around the computer’s capacities as tool of analysis and control, cyborg one focuses on computer’s mind like character and its self-understanding. Scientific theories of AI also formed ideologies of human minds as manipulable machines and the view of mind as a set of programs.

CYBORGS IN CLOSED WORLD, TERMINATOR: the closed world of computer and the image of its as a cyborg come powerfully in **The Terminator** (1984). In a post-apocalyptic 2029, artificially intelligent machines seek to exterminate what is left of the human race. Two beings from this era travel back in time to 1984 Los Angeles: One is a Terminator (Arnold Schwarzenegger), a cyborg assassin programmed to kill Sarah Connor (Linda Hamilton); the other is Kyle Reese, a human resistance fighter sent to protect her. Kyle saves Sarah from the Terminator's attack and the two make an escape.Kyle explains that in the near future an artificial intelligence network called Skynet will become self-aware and initiate a nuclear holocaust of mankind. Sarah's yet-unborn son John will rally the survivors and lead a resistance movement against Skynet and its army of machines. In 2029 human being live in underground bunkers. From this point the plot is a standard horror-movie one where a helpless woman chased by unstoppable monster is saved by a man.

For author Terminator is a fusion of a perverse , exaggerated masculine ideal. By the way Terminator offers us a new kind of heroine: a single mother who will be both source and model for a race of soldiers fighting for humanity against machines. The subplot of Terminator is about arming woman for a new role of soldier. The message is also that women are the finale defense against high technology and militaristic masculinity. The social reality of 1984 is mirrored in Terminator themes. The iconography of closed world is reflected in every element of the movie. The ambience of the film is that of a closed drama. The setting is a dark, urban landscape, almost all the action took place at night. The only natural setting is in the final scene where Sarah drives a jeep toward the mountains of Mexico. This is part of closed world discourse where the green world is the final refuge from apocalypse. Cyborg image is present in the figure of terminator, a computerized machine that can pass as a man but is a robot. He talks but has no feelings. Dog can sense it, dogs are a connecting of human with green world. Terminator is a caricature of military ideal, he follows is order perfectly and he has no other reasons for living.

COMPUTERS AS TOOLS: computers are tools, interposed between practical problems and their solutions. But unlike classic Aristotelian machines computers don’t perform physical work. They can only control other machines. To do this they transforms information. They are tools for organizing rather than performing physical work. This is linked with metaphor of **computers like controller, even control of the mind**.

DISCOURSE: what is discourse? Raymond Williams defines ideology as “*the set of ideas which arise from a given set of material interest*”. This was important in Marxist tradition to focus the attention on the relationship between material conditions of existence and social systems. But ideology also carries a strong secondary sense of “*illusion, abstract or false thought*”. Everyday usage of ideology is pejorative. The author don’t include in discourse meaning the term ideology. But he saves the political and social implications.

A second alternative would be the term “paradigm”. A scientific paradigm is a coherent structure of thought and practice centered around exemplars or experiments. Anomalous results are simply ignored until their weight builds to a crisis point or a new formal paradigm. The ideas of paradigm that author saves for defines “discourse” is the coherence. But paradigm is too hermetic and analytical to fit discourse term, in discourse individual can participate and determine it.

POSITIVE DEFINITION OF DISCOURSE: in the narrowest sense refers to the act of conversation (as distinguished from language). The analytic use of this term descends from sociological studies of speech in context, sometimes called “discourse analysis”. Discourse in author intentions go beyond speech acts and to refer to the entire field of meaningful practices: those social interactions, linguistics, material, institutional, through which reality is interpreted and constructed. **A discourse is a way of knowledge, a background of assumptions about how reality is to be interpreted and expressed, supported by paradigmatic metaphors, techniques**.

WITTGENSTEIN: LANGUAGE GAME AND MEANING AS USE: the discourse of Edward has great in common with Wittgenstein’s idea of language game. A language game is the set of linguistic and non linguistic means that constitute human social practice. (*Ad una visione del linguaggio, "specchio del mondo", "immagine della realtà" se ne sostituisce una in cui il carattere denotativo del linguaggio è solo una delle tante sue funzioni, dei suoi impieghi, è soltanto uno degli infiniti giochi linguistici. Creare nuovi linguaggi equivale a creare nuove "forme di vita". Ciò che conta infatti è l'uso che del linguaggio si fa, è questo il suo significato, non ha quindi senso studiare i fenomeni linguistici in modo generale.* Wittgenstein see languages as a part of the wider background of practices. People experience language as a action and not as a representation. Language itself operates as a tool, as an instrument. **Wittgenstein lesson that language is often a form o action rather than representation is included in the usage of Edward’s discourse**.

FOUCAULT: the notion of language game is similar to Foucault concept of discourse. But Foucault focuses on a factor that Wittgenstein generally ignores: competition among discourses, motivated by power relationship among human groups. For him discourse is the site where the objects of knowledge are constructed. This idea replaces in a certain sense the traditional notion of “tradition” and “convention”. A form of life is not only a form of experience, discourses create and structure experience. He rejects the semiotic or linguistic models because they seem to reduce knowledge to the possession of meaningful symbols, whereas discourse is the result of continuous micropolitical struggles. **For Foucault discourse is a collection of fragments interconnected around a support. The support is the object at once studied and invented by the discourse that surrounds it**. Foucault add to Wittgenstein vision the explanation of HOW the conventions and object of knowledge are produced and enforced. The inner force that move it is **power**.

CHAPTER 4

FROM OPERATIONS RESEARCH TO THE ELECTRONIC BATTLEFIELD

THINK THANK: is an organization that conducts research and engages in advocacy in areas such as social policy, political strategy, economics, military, and technology issues. Most think tanks are non-profit organizations, which some countries such as the United States and Canada provide with tax exempt status. Other think tanks are funded by governments, advocacy groups, or businesses, or derive revenue from consulting or research work related to their projects. Rand Corporation is an example of American think thank born in the 50’s. It’s important because in it management theorist began to apply mathematical techniques to decision-making, producing theories of **administrative rationally**. The extension of mathematic in the realm of business brought a new sense of power, the hope of a technical control of social processes equal to mechanical and electronic system (Norbert Weiner’s cybernetics).

OPERATIONS RESEARCH: O.R. or operational analysis was the first and most successful of the emerging system of science. It was an application of mathematical analysis to the observational of data of war. By the end of the second world war the Army Air Force had established operational analysis divisions in all of its units. One example was Rand corporation.

RAND CORPORATION: its mandate was to study techniques of air warfare. Many of its staff was high level civilians not army officers or scientist. Rand’s staff include social scientist, economists, mathematicians and engineers. Rand’s most important contribute wasn’t a specific policy but a whole **way of thinking**. They supported interdisciplinary studies in operation research, system analysis and game theory. Rand attracted the top talent of the postwar generation as John von Neumann. **System analysis** was a technique developed at Rand by Edward Paxson in 40’s, it went beyond O.R. to consider a more fundamental question: given a mission how could equipment, logistics and tactics best be designed to fulfill it?

GAME THEORY: is a method of studying strategic decision making. More formally, it is "the study of mathematical models of conflict and cooperation between intelligent rational decision-makers." The subject first addressed zero-sum games, such that one person's gains exactly equal net losses of the other participant(s. it was formulate by **John von Neumann**.

O.R. vs GAME THEORY AND COST COMPARISON\CLOSED WORLD IN THINK THANK: because of their focus on planning, nuclear strategy and cost comparison, system analysis and game theory differed in one crucial way from operations researche methods that gave rise to them. O.R. techniques in world war II was elaborated using real data but Rand scientist had no quantitative information about enemy or a possible world war III. They operate in absence of data. **The Rand thinkers inhabited a closed world of their own making in wich calculation and abstractions mattered more than experiences**. Even the word think thank evokes a hermetic world of thought that reflects exactly the circumstances of those thinkers whose job is deduced from pure theory without experience.

COLD WAR AS A DISCOURSE: the Cold War can be best understood in terms of discourse that connect technology, strategy and culture: this war was prosecuted through simulations, each side made his choice on the choices of the other. Cold war was fought in a **semiotic space**.

REGIME OF TRUTH: at the same time it create what Foucault called **regime of truth**, a set of implicit conventions about what could count as facts and reasons and who was authorized to elucidate them. Civilian strategists in this regime gradually assume higher importance and influence over the discourse counterpart of military exponent.

RAND AND COMPUTER SCIENCE: during the 50’s Rand played a direct role in computer development. One of major project of Rand was a simulation of the McChord Field Air defense direction center in Tacoma, a part of the pre-SAGE manual air defense system. The Tacoma simulation project tries to explore the psychological and technological dimension of man-machine interface. Using Rand IBM calculators the group designed a simulated attack to appear realistically on the radar of team display. The hidden meaning behind this research was that it might possible to obtain the predictable features of a closed system by exploiting man’s capacity to seek and find problem solutions. It was another closed world.

ROBERT MCNAMARA, SYSTEM ANALYSIS AND MILITARY MANAGEMENT: by the 50’s Rand’s man rise caused a significant antagonism among state man and army. In 1958 Eisenhower’s “New Look” defense policy rejected the Rand influence (see speech against industrial military complex). All this changed in 1961 when J.F. Kennedy assumed the presidency who wants to fill the missile gap with Soviet Union. As his secretary Kennedy choose the 44 years old Robert Mc Namara. McNamara begun his career as a professor at Harvard. When world war II broke out he was recruited to the Statistical Control Office of the Army Corps. Here he used the O.R. style too plan logistics of bombing raids. Like many others intellectually oriented managers of the 1950’s McNamara found mathematical modeling techniques far superior to traditional strategy. McNamara was called a “bean counter”. After the war McNamara and nine other former Statistical Control Office analysts ended up at Ford and then in 1960 McNamara became president of Ford. After Ford experience McNamara and his group (called “whiz kids”) went to Pentagon. Their approach of managerial techniques reject both experience and history as guides to military policy making in the post world war age.

MILITARY MANAGEMENT: the McNamara OSD brought Rand and his methods inside the Pentagon. Together they rationalized and centralized the Department of Defense and imposed upon it a **civilian managerial** rather than military command, form of leadership. They merely completed a process started during the world war II when the military first began to employ corporate managerial structure to solve and handle problems.

COMMAND AND CONTROL: military management remained in tension with the command tradition, still centralized. Command and control are complementary or even opposite rather then synonymous aspects of military organizations. Whereas traditional military forces have command systems, nuclear forces have control systems. But by the early 1960’s **military treated the two as virtually identical**. A decade later command, control, communications and information had become a single unified process.

COMPUTERS AS ICONS: the role of computer as analytical tools in McNamara OSD was significant. From the perspective of a closed world discourse this was not as important as their **symbolic role**. Computer became the **icon** of the systems analysts. The military itself reacted to the intrusions of civilian strategists and computerized formal analysis with an ambiguous mix of disgust and accommodation. Bu they still felt as General Tommy Power said “that computer types who are making defense policy don’t know their ass for a hole in the ground”. Computers became icon for the increasing success of managerial style within the command structure as well. McNamara era reflects a discourse of mutual orientation in which computer played a key role. Civilians (engineers and economist) using computers to implement OSA and to institutionalize system analysis. On the other hand military in response, constructed a strategic options that depended upon increased centralization of command. The discursive categories of command and control where grow up in this way.

VIETNAM: the first half of the 1960’s saw the rise of technocratic optimism in the United States. Kennedy start a new Cold War contest: the space race. With Sputnik and the space race came a new iconography of global closure: **an Earth floating in the black space, encircled by orbiting spacecraft**. Kennedy spoke of a **new frontier** in which high technology would discover the closed world to exploration. But this program embodied had another Cold War purposes. It transformed space research in to an arena of competition for international prestige. James Webb, Nasa director, like McNamara was a kind of ultimate technocrat. The author think that the space program products **were not outward but inward looking** on the closed world and on Soviet Union. Kennedy military rhetoric seemed at firs to promise a way out of the Cold War. Instead Kennedy raised the personnel in South Vietnam from a few hundred to 15.000 (fifteen thousand). Power at distance was the new watchword. America would manage the global struggle against communist insurgencies, furnishing the equipment, the know-how and the money. Vietnam was a sort of third world war laboratory a sort of **test case**.

COMPUTERS AND THE “PRODUCTION OF MODEL OF WAR”: in many ways Vietnam **was the apotheosis of closed world**. The war embodied the CONTAINMENT DOCTRINE’s defense of free nations. It began as a proxy conflict with the United States arming and advising South Vietnam and Russian and Chinese doing the same for the North. It remained a limited war and was a high technological war of the first order. About a third of the material brought in to Vietnam consisted of electronic communications equipment. With field radios every unit could did maintain constant contact with commanders who direct operations from helicopter. Communist governments and armies were painted as demoniac machines, Vietnam was a sort of **technowar**.

JAMES WILLIAM GIBSON AND TECHNOWAR: in his book “The perfect war: technowar in Vietnam, Gibson shows how American government and military officials developed a disturbingly limited concept of war, what he calls "technowar", in which all efforts were focused on maximizing the enemy's body count, regardless of the means. Consumed by a blind faith in the technology of destruction, American leaders failed to take into account their enemy's highly effective guerrilla tactics. Indeed, technowar proved woefully inapplicable to the actual political and military strategies used by the Vietnamese, and Gibson reveals how U.S. officials consistently falsified military records to preserve the illusion that their approach would prevail. Even promotion were based on high **outputs**. Troops were pushed to produce high counts, so the inflated or exaggerate its. The production system with its precise reports of how many bodies were found on operations created the **appearance** of highly rational, scientific warfare. Numbers and computers worked as a legitimization toward American citizens.

Vietnam war was an attempt to apply the logic of the closed world to war in a green world jungle. Napalm and defoliants, however proved incapable of destroy forests. The frustration of the most technologically war in history brought home a hard lesson.

CHAPTER 5

METAPHOR AND THE POLITICS OF SUBJECTIVITY

The author defines politics as the contest among social groups for power, recognition and the satisfaction of interests. But to say that politics is all about acquiring power and satisfying interests is not enough. to understand how power is created and employed and interests fulfilled the author analyze the relationship between individual subjective (dei soggetti) desires and the objective political interests of groups. The simplest political theories are those based in classical economics that assume that what people get is what they really want. More sophisticated theories note that politics like advertising try to transform the recipient of its messages into consumers who will be satisfied by choosing among the options that are offered to them. Political theory is about the relations of subjects to objects. At the core of democratic political theory lies a theory of subjectivity. Theory creates political subject positions that individuals inhabit and that form the preconditions for the construction of collective political actors. Culture for the theory consists of shared, informal world of language, art, narrative, play within which social and ethical realities are constructed for human subjects. It also includes those theories that become part of common sense.

SLAVERY EXAMPLE: Is culture an arena of true political power? Power is generally known in terms of coercive physical force. But Foucault has shown that power is continuously constructed in very ordinary interactions via the production and circulation of discourse. In fact representations are generally inseparable from the situations they describe, because representation is itself a form of action. The institution of slavery for example depend on the economic demand for cheap labor and the material control of white masters over blacks go through physical means. It could not have existed without semiotic means that clarify the roles of slave and masters, the ideological justifications offered to explain the suitability of each role to its role. Cultural system such as class, religion and race play important role in how different groups represent situations. Culture and representation maintain reciprocal relationship. **Representation can be a political act and its political meaning increases as a given representation becomes part of ordinary language.** This is valid for the discourse of human mind like a computer.

THE POWER OF METAPHOR: the linguists George Lakoff and Mark Johnson found how metaphor is always present in human language. They reflect a certain aspect of experience. The linguists suggest that the basis of metaphor are in the physical experience. For example we say *I’m feeling up* and *I’m feeling down*, this is a metaphorical imitation of body posture associated to a precise mood. But other metaphor are influenced by other factors like **culture**. While metaphors reveal hidden aspects of reality at the same time they hide other features. The best example for the two linguists is the conduit metaphor (ideas are objects, linguistic expressions are containers, communication is sending). In this metaphor language is painted as a conduit (condotto) through which objects (ideas) travel in containers (words) and are transferred from a sender to a receiver. This metaphor make us think that meanings exists outside context and beyond the personal intentions of the speaker, in a Platonic sense. This metaphor and this picture of language work very well when meaning is unambiguous and context doesn’t matter. It was this “one way interpretation” that prompted Wittgenstein to repudiate the view of language as a picture of reality. **However metaphor is far more than a rhetorical device. It mediates the relationship among language, thought, and experience**. The elaboration of metaphorical schemes is a central function and a central method of cultural exchange. Metaphor so have a political power. All metaphors are political in the sense that they focus their action on some aspects of a situation or experience**. Metaphor is not only descriptive but prescriptive**. Metaphor structure experience and guide the limited resources of human attention.

COMPUTERS AS METAPHORS: computer lies at the center of a series of unusually significant discourses about the human mind and about the nature of certain essentially political problems. Since world war II computer metaphor have been central in the reconstruction of certain conceptual boundaries in scientific discourse. The most famous example is the so-called Turing test where computer is programmed to imitate as closely as possible human capacities. The effect of this metaphor and of this test is to crystallize in a single image a metaphorical structure that connects minds with computers. In the test written language is seen adequate to represent human communication. Turing test not require that computer imitates human voice or facial expressions. **What can be called the intelligence of body is seen as irrelevant**. In the same way social intelligence does not appear in the picture. The linguistic capacities of computer stand for the entire range of human thought and behavior. This metaphor is now used even to describe **ourselves** (brain is hardware, and mind is a software). Mind seen as a group of program implies that behavior and thought can be erased and replaced. Just like imperfect computer programs have bugs, even mind can be fixed even with the help of drugs (LSD), surgery.

OTHER METAPHORS OF MIND: another metaphor is the classical animal-machine metaphor: animals are reflex machines, if human are animals as well then human are reflex machines. It have a certain parallel with computer metaphor. The metaphor directs attention toward the external variable controlling a response rather than toward internal transformation. It suggest that deep insights into human behavior is learned rather than established. A second metaphor is the mind as an hydraulic system, a sort of complex network of plumbing governed by pressures and flows. Instincts and emotions exert the pressure on the conscious mind, sexual energy builds up and must be released. This metaphor invites us to view emotion and instinct rather than rationality as a central features of the mind. A hydraulic mind needs outlet for inevitable buildups of pressure. Society that provide insufficient outlets may implode in decadence or violence. Individual needs of what Freud call sublimation. These 2 metaphors have in common with the one of computers the flexibility of mind.

OBJECTS TO THINK WITH: programming with computer can generate a strong sensation of power and control. Members of many subculture like hackers and videogame addicts become enthusiastic to holding power of computer. In the microworld of program the power of programmer is absolute. The programmer here is omnipotent. For men to whom power is an icon of identify and an index of success, a microworld can become a challenging arena for an adult quest for power and control. Human relationship can be hard to control but in microworld with a formalized system of known a person can have complexity and security at the same time. For this reason hackers belong to the culture of losers and loners. Certainly women can be loners but male gender identity is based on emotional isolation. It seems like man chose engineering career to replace missing human intimacy. Experience of computer is experience of a **closed world**.

CHAPTER 10

MIND, MACHINES AND SUBJECTIVITY IN THE CLOSED WORLD

STAR WARS: represents a set of facts about militarization of space, social lives of human and computers and robots, cultural relativism and Turing’s test problem. Such themes and others connecting closed-world politics with cyborg subjectivity emerged as prominent elements in popular culture while the closed world itself evolved during the Cold War. The author in this chapter explore the iconography of closed world and experience of subjectivity inside it by reading works of popular culture as political texts.

IN THE THEATER OF MIND: FICTION AND CYBOR SUBJECTIVITY: theories and metaphors are static but narratives are dynamic: they produce stories that show how lives can be lived in time and space and how struggles can be fought and resolution reached within some possible world. Movie are semiotic resources and their importance is that they picture dramatically the subject in the larger discourse of which they are part. The author not claim a sort of equivalence between fiction and fact. But successful fictions generate a sense of reality, of coherence of the word they describe. Fictional forms do not merely and passively reflect political and social realities, but **they are** political and social realities because they actively and directly participate to the construction of subject positions. The author read the works that he’s going to analyze as political dramas of American life during the cold war and as a cultural dramas **of the human relationship with machines**. Edwards trace three themes:

1. Closed world as itself: closed world as a dramatic spaces for the representation of cold war politics
2. Closed world in contrast with the green world
3. Cyborg represented in two forms: disembodied computer intelligence and embodied AI of robots and androids.

CLOSED WORLDS: closed world as a dramatic archetype is a world radically divided against itself. It’s consumed by a total apocalyptic conflict. Is generally represented in fiction by enclosed artificial environments such as buildings, cities, underground rooms or space stations. Closed world dramatic spaces often produce a sensation of confinement. Dark interiors or nighttime urban settings may amplify these qualities. Invasion of the closed space is the primary action of closed world drama, protagonist seeking always to escape. Artificiality is a crucial feature of the closed world, artificial world like space station may pretend to be self sufficient but in reality they aren’t. closed world drama generally maintain **unity of place**, with action that are inside a single enclosed space. The effect is that of a trap that protagonist cannot be escape. The **archetype** of the closed world is **Iliad** where the Trojans cannot leave their city while the Greek cannot leave off their siege. One example of closed world environment is cyberspace which appeared in fiction with the advent of global computer network in the 80’s. cyberspace is an artificial world inside a computer or computer network. In cyberspace data are the only value and the landscape of cyberspace is digital and abstract often painted as a Cartesian grid and neon colors. Everything hang in a black void.

GREEN WORLDS: contrast with closed world dramas. Setting are generally outdoors, the action didn’t maintain unity of place but there’s a flown of action between natural, urban and other locations. The theme is to restore community and cosmic order by surpassing rationality and technology. The action is not to escape but to explore, liberate and destroy closed world. There’s the presence of transcendent elements like magical and natural forces, powers, sexuality and natural cataclysm. Far from the closed world dramas where the only feelings belong to an immanence sphere, that give ground only to human forces, political power and pain. The **archetype** of green world dramas is **Odyssey**. The permeability of borders is an essential theme. Protagonists may receive unexpected aid for their quest from magical or mystical powers, animals or other form of life. Internally green world protagonist face to problem of spiritual growth, unlike closed world figures who must repress pain and fear in order to stand up antagonist.

MORE HUMAN THAN HUMAN: SECOND SELVES: computer combined in a single potent icon the artificiality of the closed world setting, the power of technology and the limitations of rationality and logic. Computer simulations form true closed worlds entirely in the machine. Computers embodies the superhuman speed of high technology war. In literature there are some ancestor figure like Golem and Frankenstein of Mary Shelley. Even in movie of 20’s technology transform working class in a demented and insensate legion of automata like in Lang’s Metropolis o Chaplin’s Modern Times. “More human than human” is the motto of Tyrell company in Blade Runner, this phrase capture the problematic of the cyborg. Cyborg could plays the role of servant or a demented Other. The old role of monster (Frankenstein) survive in the new role of cyborg.

COMPUTER AS EMBODIED AND DISEMBODIED ENTITY: in film and fiction computers may be classified in two categories. Disembodied artificial intelligence (machines like 2001’HAL) frequently present the invisible panoptic eye and power. These AI communicate with human by the medium of speech. The disembodied voice expresses at once both presence and absence. Disembodied AI develops the creepy panoptic resonances of Orwell’s Big Brother. Their characteristic is the lack of emotions. Embodied like robots, androids and cyborg perform more ambiguous function in closed world. They cannot be panoptic so their power is limited.

FICTIONAL CLOSED WORLD IN THE EARLY COLD WAR: during the 40’s and 50’s many films depicted air as the locus of future conflicts. The paint pilot as military visionaries fighting against traditions of ground and naval war, who could lead America to success in world war III.

FAIL SAFE: is a 1964 film directed by Sidney Lumet, based on the 1962 novel Fail-Safe written by Eugene Burdick and Harvey Wheeler. Here an unusual sequence of events causes the “fail-safe box” of one group of nuclear bombers accidentally to emit the command code that launches them on a mission to bomb Moscow. The pilots have been ordered to no ear all voice communications and to interpreter any attempt to bring them back as an enemy deception. Realizing the severity of the situation and seeking resolution of the matter that will avoid an all-out nuclear holocaust, upon confirmation of the success of the accidental attack on Moscow, the President orders an immediate similar nuclear strike on New York City. The message of film is an antiwar message located in a closed world iconography. Most scenes are set in windowless room. The crisis is caused by a preprogrammed war plane in which orders are carried out mechanically and mediated by electronic devices. The bomber’s attack on the Soviet Union appears to Washington as a moving triangle on a map of the globe. The sterility of this impoverished and abstract representation is a sign of closed world. Fail-safe places the moral burden of the catastrophe not on the system builders but on politicians who permit their deadly strategies. Ironically Soviet Union and Usa work together during the crisis to stop the bombing.

DR. STRANGELOVE: is a 1964 black comedy film which satirizes the nuclear scare. It was directed, produced, and co-written by Stanley Kubrick and present a similar scenario of Fail-Safe. United States Air Force Brigadier General Jack D. Ripper orders a first strike nuclear attack on the Soviet Union. A recall order is issued but one bombardier has been damaged and he didn’t heard the order. Against there a closed world setting in the War room, dark and empty except for tables and chairs. Soviet have a Doomsday machine, a computer programmed by Soviet to detect any nuclear explosion within the Soviet Union borders. This machine will then automatically explode an enormous nuclear device whose fallout will gradually encircle the globe exterminating all life in the surface. The Doomsday represent the first appearance of a computer controlled nuclear weapons system. The movie links the underground War room with another closed world icon: the fallout shelter. When Dr. Strangelove (a nazi scientist that work for the Pentagon) realizes that nuclear attack is started he proposes to dig deep caverns in which an elite would pass generation of time while waiting for the surface radiation to return safe levels. The Strangelove solution to holocaust reflects the shell game strategy characteristic of closed world discourse. When one enclosure is attacked the theorist immediately retreats into another.

2001 SPACE ODYSSEY: s a 1968 science fiction film produced and directed by Stanley Kubrick. The movie was released at the height of the space race and the Vietnam war a year before Apollo landing. 2001 presented the intelligent computer’s potential for monomania against the beauty of space as the final frontier. American explorers have discovered a huge black monolith buried that emits a mysterious radio signal. Astronauts Dave Boweman and Frank Poole are sent on a mission to explore the signal’s destination point on a spaceship called Discovery. Discovery is controlled by an artificially intelligent computer, the HAL 9000. Hal is the perfect representative of disembodied artificial intelligence. It’s eyes view the entire ship interior. Hal speaks in calm, monotone, male voice whose relaxed diction is the only thing that differentiates it from astronauts. Hal begin to kill the astronauts, his omnipresence changes becoming from benign to a Big Brother panopticism. Hal inhabits the closed world of Discovery it’s a sort of guardian of closed space. It insist that any mistake must come from human. Hal have a maniacal devotion to his mission and kill human to delete the possibility of mistakes. 2001 begin in a green world, Kubrick tries to depict a mythic original green world. The transformation of the bone of primitive man (see [http://en.wikipedia.org/wiki/File:MatchCut.JPG](http://en.wikipedia.org/wiki/File%3AMatchCut.JPG)) link the origins of tools with those weapons of the closed world with the green world, at the same time monolith symbolize artificial and alien technology that separate man from nature.

COLOSSUS, THE FORBIN PROJECT: is an American science fiction thriller film. It is based upon the 1966 novel Colossus, by Dennis Feltham Jones, about a massive American defense computer, named Colossus, becoming sentient and deciding to assume control of the world. The computer scientist Forbin convinces the government to hand over control of nuclear weapons to an enormous computer, irreversibly programmed to launch nuclear strike in case of Soviet attack. Once activated the machine begins to learn at a rapid rate and to evolve. It soon manifests an independent intelligence. It begins to orders its creator and to threaten with nuclear weapons. olossus displays a cryptic message on its screens: "WARN: THERE IS ANOTHER SYSTEM" It is revealed that Colossus is referring to a Soviet project very similar to itself; a supercomputer called "Guardian" that controls Soviet nuclear weapons. Both computers promptly demand a link to allow them to communicate with one another. The machines conclude that humanity is too dangerous. Colossus is a sort of techno Golem. Once again film’s action happens entirely inside buildings at a single location. In this film like in many others the dominating gender is male, women play role of secondary figure able to cross closed world limits. Forbin convince Colossus that he require a woman and a female member of his staff agrees to play the role of his girlfriend. Through here Forbin beat Colossus. Here the conjugal bedroom serves as a refugee from the Panoptic Colossus’ eye.

CYBORG SUBJECTIVITY IN THE 1980’S: in 80’s the computer out of control that dominated the 60’s were replaced by a more sophisticated awareness not only of the machines but of the cultural networks and identities arise around them: hackers, videogamesters, whiz kids. The arrive of personal computer changes iconography. In the late 70’s pc move from offices and factory into homes and mass entertainment. In 1983 Time magazine chose the personal computer as its “man of the year”.

WAR GAMES: is a 1983 American Cold War science-fiction film with Matthew Broderick. The film follows David Lightman (Broderick), a young hacker who unwittingly accesses WOPR, a United States military supercomputer programmed to predict possible outcomes of nuclear war. Lightman gets WOPR to run a nuclear war simulation, originally believing it to be a computer game. The simulation causes a national nuclear missile scare and nearly starts World War III. The scene at NORAD looks like a technologically updated version of Fail Safe War room. The iconography is by now familiar: a dark, enclosed, artificial space and an apocalyptic conflict. The NORAD control center is like a theater a stage where simulations are enacted as real politics. Disembodied AI in War games is different than Colossus or Hal. Those computers begin as a servant and end as terrifying. Joshua (the name of WOPR) intentions remain benign. Computer were transformed from alienating instruments to familiar tools of entertainment used by innocent teenagers. This movie is important even for the stereotyped role assigned to male and women. David’s friend Jennifer assists David in important ways but she’s a secondary character. War game world is a male world, a hacker world, which woman may observe from distance but never truly enter. Jennifer is a dancer a swimmer a runner and represents physicality and sexuality against David’s nerdhood.

THE STAR WARS TRILOGY: is the only primary green world drama of scientific genre. It illustrates the contrast with closed world fictions but its importance allow the rehabilitation of cyborg figures. In the fictional galaxy of Star Wars a totalitarian empire attempts to crush a populist rebellion in a total conflict typical of closed world drama.

PLOT: the empire chief is the Death Star a moon sized battle station. Robotic droids are also commonplace and are generally built to serve their owners. Space travel is common, and many planets in the galaxy are members of a Galactic Republic, later reorganized as the Galactic Empire. One of the prominent elements of Star Wars is the "Force", an omnipresent energy that can be harnessed by those with that ability. It is described in the first produced film as "an energy field created by all living things [that] surrounds us, penetrates us, [and] binds the galaxy together. Vader captures Princess Leia Organa, who has stolen the plans to the Death Star and hidden them in the astromech droid R2-D2. R2-D2, along with his counterpart C-3PO, escapes to the planet Tatooine. There, the droids are purchased by Luke Skywalker and his step-uncle and aunt. While Luke is cleaning R2-D2, he accidentally triggers a message put into the droid by Leia.

GREEN WORLD DRAMA: the Death Star is a sort of ultimate closed world image: an inverted world, a world turned inside out. Its interior surface are pure technology. No living thing other than humans and android populate the ship. Vader, cyborg inhabitant of the closed world, **represents green world power turned to evil** through technology. While the Death Star is a closed world and it exists within a green world universe. Luke lives in a sort of canyon. The Rebel base final scene lies on a green world and in “The Empire strikes back” Luke learns the secrets of the Force in a special green world setting. The timeless atmosphere of Yoda’s planet serves as a potent symbol of Luke’s inner confusion, his confrontation with the dark, sinister elements of the green world’s transcendental power. Even in the final celebration the Ewok’s dwellings in the trees are archetypal green world enclosures. The celebration in the green world represents the victory of life, of biology, of nonrational, transcendent powers over high tech machinery.

MACHINE SUBJECTITVITY IN THE GREEN WORLD: Star Wars presents an embodied machine subjectivity that is friendly, familiar and personal. C3P0’s small but humanoid form is timid and have a servile personality. It refers to its owner as “sir” and “master” and generally behaves like the ideal butler (maggiordomo). Disembodied AI never appers in the trilogy. Computers appear frequently but in the restricted role of tools (data banks, graphic displays). Machine subjectivity in the embodied form of the droids evokes not fear of panoptic surveillance and remote control by Others but the central issue of 1980’s: multiculturalism. Like we can see in the famous bar scene from Star Wars in which a dizzying variety of alien species appear together. AI disembodied represented the possibility for protagonists to reject the terms of closed world discourse.

CONCLUSION, RECOMBINANT THEATER IN BLADE RUNNER AND NEUROMANCER: everything in the Clsoed world become a system, an organized unit composed by subsystems and supersystem. These nested system are constituted in and trough metaphors, technologies and practices. The choice faced by closed world protagonists, as system nested inside larger system do not include redemption or transcendence. Transcendence is impossible in the closed world because it has no outside. **Recombination** is the only effective possibility for rebellion in the closed world.

BLADE RUNNER’S PLOT: is a 1982 American science fiction film directed by Ridley Scott. The film depicts a dystopian Los Angeles in November 2019 in which genetically engineered organic robots called replicants—visually indistinguishable from adult humans—are manufactured by the powerful Tyrell Corporation as well as by other "mega–manufacturers" around the world. Their use on Earth is banned and replicants are exclusively used for dangerous, menial or leisure work on off-world colonies. Replicants who defy the ban and return to Earth are hunted down and "retired" by police special operatives known as "Blade Runners". The plot focuses on a brutal and cunning group of recently escaped replicants hiding in Los Angeles and the burnt out expert Blade Runner, Rick Deckard (Harrison Ford), who reluctantly agrees to take on one more assignment to hunt them down. These replicants tend to develop emotion while they age.

In Blade Runner the metaphor of recombination becomes literal. To detect escaped replicants Deckard uses the Voigt-Kampff test, which measures the emotional responses to hypothetical situations. It’s a sort Turing test. Rachel, a female replicant and Deckard become the Adam and Eve of a new generation born to populate the closed world.

NEUROMANCER: is a 1984 novel by William Gibson, a seminal work in the cyberpunk genre. Henry Dorsett Case is a low-level hustler in the dystopian underworld of Chiba City, Japan. Once a talented computer hacker, Case was caught stealing from his employer. As punishment for his theft, Case's central nervous system was damaged with a mycotoxin, leaving him unable to use his brain-computer interface to access the global computer network in cyberspace, a virtual reality dataspace called the "Matrix". Unemployable, addicted to drugs, and suicidal, Case desperately searches the Chiba "black clinics" for a miracle cure. Case is saved by Molly Millions, an augmented "street samurai" and mercenary for a shadowy ex-military officer named Armitage, who offers to cure Case in exchange for his services as a hacker.

Here we are in a total recombinant world where the boundaries between human, machine and computer are total flexible. To Case cyberspace is home. The world outside the machine is presented as equally artificial, closed.