SOFTWARE AND MIND

Andrei Sorin

EXTRACT

Chapter 5: *Language as Weapon*

This extract includes the book's front matter and chapter 5.

This chapter explains how language is used to deceive and to manipulate people by restricting them to mechanistic thinking.

The entire book, each chapter separately, and also selected sections, can be viewed and downloaded free at the book's website.

www.softwareandmind.com

SOFTWARE AND MIND

The Mechanistic Myth and Its Consequences

Andrei Sorin

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Don't you see that the whole aim of Newspeak is to narrow the range of thought?… Has it ever occurred to you … that by the year 2050, at the very latest, not a single human being will be alive who could understand such a conversation as we are having now?

George Orwell, *Nineteen Eighty-Four*

Disclaimer

This book attacks the mechanistic myth, not persons. Myths, however, manifest themselves through the acts of persons, so it is impossible to discuss the mechanistic myth without also referring to the persons affected by it. Thus, all references to individuals, groups of individuals, corporations, institutions, or other organizations are intended solely as examples of mechanistic beliefs, ideas, claims, or practices. To repeat, they do not constitute an attack on those individuals or organizations, but on the mechanistic myth.

Except where supported with citations, the discussions in this book reflect the author's personal views, and the author does not claim or suggest that anyone else holds these views.

The arguments advanced in this book are founded, ultimately, on the principles of demarcation between science and pseudoscience developed by philosopher Karl Popper (as explained in "Popper's Principles of Demarcation" in chapter 3). In particular, the author maintains that theories which attempt to explain non-mechanistic phenomena mechanistically are pseudoscientific. Consequently, terms like "ignorance," "incompetence," "dishonesty," "fraud," "corruption," "charlatanism," and "irresponsibility," in reference to individuals, groups of individuals, corporations, institutions, or other organizations, are used in a precise, technical sense; namely, to indicate beliefs, ideas, claims, or practices that are mechanistic though applied to non-mechanistic phenomena, and hence pseudoscientific according to Popper's principles of demarcation. In other words, these derogatory terms are used solely in order to contrast our world to a hypothetical, ideal world, where the mechanistic myth and the pseudoscientific notions it engenders would not exist. The meaning of these terms, therefore, must not be confused with their informal meaning in general discourse, nor with their formal meaning in various moral, professional, or legal definitions. Moreover, the use of these terms expresses strictly the personal opinion of the author – an opinion based, as already stated, on the principles of demarcation.

This book aims to expose the corruptive effect of the mechanistic myth. This myth, especially as manifested through our software-related pursuits, is the greatest danger we are facing today. Thus, no criticism can be too strong. However, since we are all affected by it, a criticism of the myth may cast a negative light on many individuals and organizations who are practising it unwittingly. To them, the author wishes to apologize in advance.

Contents

Preface

This revised version (currently available only in digital format) incorporates many small changes made in the six years since the book was published. It is also an opportunity to expand on an issue that was mentioned only briefly in the original preface.

Software and Mind is, in effect, several books in one, and its size reflects this. Most chapters could form the basis of individual volumes. Their topics, however, are closely related and cannot be properly explained if separated. They support each other and contribute together to the book's main argument.

For example, the use of simple and complex structures to model mechanistic and non-mechanistic phenomena is explained in chapter 1; Popper's principles of demarcation between science and pseudoscience are explained in chapter 3; and these notions are used together throughout the book to show how the attempts to represent non-mechanistic phenomena mechanistically end up as worthless, pseudoscientific theories. Similarly, the non-mechanistic capabilities of the mind are explained in chapter 2; the non-mechanistic nature of software is explained in chapter 4; and these notions are used in chapter 7 to show that software engineering is a futile attempt to replace human programming expertise with mechanistic theories.

A second reason for the book's size is the detailed analysis of the various topics. This is necessary because most topics are new: they involve either

entirely new concepts, or the interpretation of concepts in ways that contradict the accepted views. Thorough and rigorous arguments are essential if the reader is to appreciate the significance of these concepts. Moreover, the book addresses a broad audience, people with different backgrounds and interests; so a safe assumption is that each reader needs detailed explanations in at least some areas.

There is some deliberate repetitiveness in the book, which adds only a little to its size but may be objectionable to some readers. For each important concept introduced somewhere in the book, there are summaries later, in various discussions where that concept is applied. This helps to make the individual chapters, and even the individual sections, reasonably independent: while the book is intended to be read from the beginning, a reader can select almost any portion and still follow the discussion. In addition, the summaries are tailored for each occasion, and this further explains that concept, by presenting it from different perspectives.

The book's subtitle, *The Mechanistic Myth and Its Consequences*, captures its essence. This phrase is deliberately ambiguous: if read in conjunction with the title, it can be interpreted in two ways. In one interpretation, the mechanistic myth is the universal mechanistic belief of the last three centuries, and the consequences are today's software fallacies. In the second interpretation, the mechanistic myth is specifically today's mechanistic *software* myth, and the consequences are the fallacies *it* engenders. Thus, the first interpretation says that the past delusions have caused the current software delusions; and the second one says that the current software delusions are causing further delusions. Taken together, the two interpretations say that the mechanistic myth, with its current manifestation in the software myth, is fostering a process of continuous intellectual degradation – despite the great advances it made possible.

The book's epigraph, about Newspeak, will become clear when we discuss the similarity of language and software (see, for example, pp. 409–411).

Throughout the book, the software-related arguments are also supported with ideas from other disciplines – from the philosophies of science, of mind, and of language, in particular. These discussions are important, because they show that our software-related problems are similar, ultimately, to problems that have been studied for a long time in other domains. And the fact that the software theorists are ignoring this accumulated knowledge demonstrates their incompetence.

Chapter 7, on software engineering, is not just for programmers. Many parts

(the first three sections, and some of the subsections in each theory) discuss the software fallacies in general, and should be read by everyone. But even the more detailed discussions require no previous programming knowledge. The whole chapter, in fact, is not so much about programming as about the delusions that pervade our programming practices, and their long history. So this chapter can be seen as a special introduction to software and programming; namely, comparing their true nature with the pseudoscientific notions promoted by the software elite. This study can help both programmers and laymen to understand why the incompetence that characterizes this profession is an inevitable consequence of the mechanistic software ideology.

The book is divided into chapters, the chapters into sections, and some sections into subsections. These parts have titles, so I will refer to them here as *titled* parts. Since not all sections have subsections, the lowest-level titled part in a given place may be either a section or a subsection. This part is, usually, further divided into *numbered* parts. The table of contents shows the titled parts. The running heads show the current titled parts: on the right page the lowest-level part, on the left page the higher-level one (or the same as the right page if there is no higher level). Since there are more than two hundred numbered parts, it was impractical to include them in the table of contents. Also, contriving a short title for each one would have been more misleading than informative. Instead, the first sentence or two in a numbered part serve also as a hint of its subject, and hence as title.

Figures are numbered within chapters, but footnotes are numbered within the lowest-level titled parts. The reference in a footnote is shown in full only the first time it is mentioned within such a part. If mentioned more than once, in the subsequent footnotes it is abbreviated. For these abbreviations, then, the full reference can be found by searching the previous footnotes no further back than the beginning of the current titled part.

The statement "italics added" in a footnote indicates that the emphasis is only in the quotation. Nothing is stated in the footnote when the italics are present in the original text.

In an Internet reference, only the site's main page is shown, even when the quoted text is from a secondary page. When undated, the quotations reflect the content of these pages in 2010 or later.

When referring to certain individuals (software theorists, for instance), the term "expert" is often used mockingly. This term, though, is also used in its normal sense, to denote the possession of true expertise. The context makes it clear which sense is meant.

The term "elite" is used to describe a body of companies, organizations, and individuals (for example, the software elite). The plural, "elites," is used when referring to several entities within such a body.

The issues discussed in this book concern all humanity. Thus, terms like "we" and "our society" (used when discussing such topics as programming incompetence, corruption of the elites, and drift toward totalitarianism) do not refer to a particular nation, but to the whole world.

Some discussions in this book may be interpreted as professional advice on programming and software use. While the ideas advanced in these discussions derive from many years of practice and from extensive research, and represent in the author's view the best way to program and use computers, readers must remember that they assume all responsibility if deciding to follow these ideas. In particular, to apply these ideas they may need the kind of knowledge that, in our mechanistic culture, few programmers and software users possess. Therefore, the author and the publisher disclaim any liability for risks or losses, personal, financial, or other, incurred directly or indirectly in connection with, or as a consequence of, applying the ideas discussed in this book.

The pronouns "he," "his," "him," and "himself," when referring to a gender-neutral word, are used in this book in their universal, gender-neutral sense. (Example: "If an individual restricts himself to mechanistic knowledge, his performance cannot advance past the level of a novice.") This usage, then, aims solely to simplify the language. Since their antecedent is gender-neutral ("everyone," "person," "programmer," "scientist," "manager," etc.), the neutral sense of the pronouns is established grammatically, and there is no need for awkward phrases like "he or she." Such phrases are used in this book only when the neutrality or the universality needs to be emphasized.

It is impossible, in a book discussing many new and perhaps difficult concepts, to anticipate all the problems that readers may face when studying these concepts. So the issues that require further discussion will be addressed online, at *www.softwareandmind.com*. In addition, I plan to publish there material that could not be included in the book, as well as new ideas that may emerge in the future. Finally, in order to complement the arguments about traditional programming found in the book, I have published, in source form, some of the software I developed over the years. The website, then, must be seen as an extension to the book: any idea, claim, or explanation that must be clarified or enhanced will be discussed there.

CHAPTER 5

Language as Weapon

In this chapter and the next, we will study the consequences of mechanistic delusions in the domains of language and software. We will see, specifically, how language and software are being used to control the minds of large numbers of people: how they have been turned into weapons, into means of domination and exploitation.

Mechanistic Communication

Language and software, we saw, are similar, insofar as both are systems of representation and communication. But they do not function, as the mechanistic theories claim, by directly mirroring reality with structures of symbols; that is, language structures and software structures do not simply *map* the real world. The reality we seek to represent consists of complex structures, while the strings of symbols employed in language and in software can form only simple structures. These simple structures, though, interact with one another and with various knowledge structures. And it is the complex structures resulting from these interactions that mirror reality.

In language structures – in the manifest structures that make up discourse – grammatical conventions and word meanings give rise to additional structures, all sharing the same words. We recognize them as the various *aspects* of a message, story, or argument (see pp. 348–349). But because they use the same low-level elements, these structures interact. Only a mind can grasp the complex meanings of the manifest language structures, because only minds can process all the structures simultaneously.

In software structures – in the manifest structures that make up software applications – it is the software *processes* that give rise to additional structures (see pp. 345–346). And, as in the case of language, these structures use the same low-level elements. They interact, therefore, and only a mind can grasp the complex meanings of the manifest software structures. With software or with language, we *can* mirror the world; but we do it through the complex structures developed in our mind, not by merely mapping the world in software structures or language structures.

To understand how charlatans use language and software to exploit us, we must remember how the process of communication works, for it is by disrupting this process that they deceive us. Language and software work by permitting us to link structures in the mind, and these links must start at low levels of abstraction. This is true because, if our goal is to develop knowledge structures that mirror the world accurately, we must be able to re-create in our mental structures *all* the interactions that occur between the *actual* structures. So, to deceive us, the charlatans prevent us from creating complex knowledge structures. And they accomplish this by forcing us to commit the fallacies of reification and abstraction: they restrict us to high levels of abstraction and isolated structures, instead of encouraging us to start with low-level elements and to discover the interactions between structures.

In language, the charlatans keep inventing new terms when the existing ones are, in fact, perfectly adequate. The use of new terms, especially when not defined or explained, prevents us from linking the new notions to our previous knowledge structures. Sometimes the terms are purposely misleading, in order to tempt us to link these notions to the wrong knowledge structures. Thus, without a proper definition, the terms convey vague and abstract notions. These notions become the starting elements of our new knowledge structure. And because they form an isolated structure and are at a high level of abstraction, they restrict our final knowledge, and hence our conception of reality, to a small number of alternatives.

So it is not the invention of new terms that deceives us, but the lack of definition. Were the new terms carefully defined and explained, their high level would be harmless: the details of the explanation would function then as low-level elements, linking the new structures to our existing knowledge. But

the prevention of these links is precisely what the charlatans intended, the reason they invented new terms in the first place.

In software, the charlatans force us to depend on theories and aids that address isolated aspects of programming and limit us to high levels of abstraction. As a result, we cannot create the proper links between the various software structures that make up an application, and between these structures and the structures that make up our social or business affairs; so our applications remain inadequate. Moreover, by restricting us to isolated software structures and high-level elements, the software charlatans prevent us from developing the knowledge whereby we *could* create useful applications; so we continue to depend on their theories and aids, while we could accomplish more with our own minds.

Both language and software deception, thus, work by restricting us to mechanistic thinking. When we are forced to commit the two mechanistic fallacies, we are forced in effect to use language and software as if they were simple structures, thereby losing their most important quality – the capability to mirror the world through *complex* structures. Our performance is reduced then to the level of machines. Machines can *only* handle simple structures; *we* have the capacity for complex structures, but if we do not make use of this capacity we are no better than machines.

We are going to study this deception now, first in language and then, in the next chapter, in software. Our main interest is software, but it will be helpful to examine first how *language* is used to deceive and exploit us. We have already established the similarity of language and software, and the similarity of our language and software delusions; thus, apart from the obvious value of recognizing language deception, this study will also help us later to recognize *software* deception.

Language manipulation was never complete, not even in totalitarian societies, because no institution can have that much power. With software, however, the elites have reached almost complete control. We are permitting them to deceive and exploit us through software because we do not understand the role of software in society as well as we do that of language. Had an elite attempted to exploit us by manipulating language as the software elites are now exploiting us by manipulating software, we would have easily recognized their totalitarian intentions. Thus, if we see how powerful is mind control through language, even when the manipulation forms only a small part of our whole use of language, we will better appreciate the consequences of mind control through *software*, where the manipulation is almost total.

The Practice of Deceit

1

Acquiring knowledge by way of language is very different from developing the same knowledge directly, from the actual phenomenon. When we develop knowledge through our own experience, we are exposed to all the structures that make up the phenomenon. In our mind, we develop links between these structures, and between them and prior knowledge structures, and this is how we form the new knowledge structure that reflects the phenomenon. With linguistic communication, on the other hand, the message acts as a *substitute* for the actual phenomenon and for our exposure to it. All we can do now to attain the new knowledge is combine the structures we detect *in the message* with our prior knowledge structures. It is impossible for this knowledge to be as accurate as the knowledge developed through direct experience, so the most we can expect is knowledge that is *close* to reality.

Now, if the author of the message *wants* us to attain knowledge that is close to reality, he will formulate the message in a manner that helps us to arrive at the truth. In other words, an honest message is a message that helps us to attain knowledge which is as close as possible to the knowledge we would attain through exposure to the phenomenon itself. A dishonest author does the opposite: he formulates the message in a manner that forces us to attain knowledge that is very different from reality. And if we believe that our new knowledge reflects the truth, we will conduct ourselves in ways that may be against our interest. This is how linguistic deception is used to exploit us.

The challenge faced by those who want to control us through language is how to limit and distort knowledge without actually telling lies. They must make us feel that we are being informed when in reality we are being deceived. And they accomplish this (as we saw in the previous section) by restricting us to mechanistic thinking.

A message constitutes *only one* of the structures that make up knowledge. It is merely a string of sounds or symbols conforming to certain conventions – a simple structure. Only by combining the meaning of its words with our prior knowledge, using these conventions, can we detect the other structures. When communicating through language, therefore, the receiver of the message is at a great disadvantage, because he must start with just one structure.

The reification caused by a deceptive linguistic message serves to isolate the new knowledge structure from those already in the mind. It prevents us from forming the links that would create the proper knowledge, and provides the deceivers with an independent structure – a structure whose elements they can control. They can now force us, within this structure, to accept as

starting elements terms that constitute in fact high levels of abstraction. This abstraction, we already know, limits the number of alternatives we can have for the top element of the structure. What this means in practice is that the knowledge we acquire through their message is restricted to a very narrow range, often only one alternative.

Typically, the deceivers use abstract concepts that already evoke in our mind the simple ideas of good or bad, important or unimportant, useful or useless, and so forth; that is, they use concepts that are "good" when they want us to think positively about something, and concepts that are "bad" when they want us to think negatively. These abstract concepts become the lowest-level elements of the new knowledge structure. No real knowledge is possible when starting with abstract concepts, so we end up simply associating the message with "good" or with "bad," just as the deceivers wanted.

2

Slogans and prejudicial labels are examples of terms wrongly employed as starting elements in a knowledge structure. They are high-level linguistic entities that invite us to think of whole classes of situations, objects, or persons as either good or bad, instead of starting from lower levels, where we could learn about each individual case.

For example, a popular contemporary slogan is "technology" – a highly abstract term that subsumes a great number of diverse concepts, processes, and products. And, needless to say, we all perceive technology as "good." This combination makes "technology" the ideal term for all the charlatans who want to influence us. What they do, in essence, is modify their claims by substituting "technology" for the particular ideas, products, or services they offer us. But to make an informed decision we must start from low levels of abstraction: we must understand individual items and properties. Only by combining these details with other knowledge structures can we discover all possible alternatives; that is, all possible values for the top element of the larger knowledge structure, which may be a purchase decision, the way we view our responsibilities, and the like. So the charlatans plant in our minds an isolated element – the abstract linguistic entity "technology," which we already interpret as good – and tempt us to treat it as a *starting* element. They are impoverishing our knowledge by restricting it to trivial structures. (We will study the slogan "technology" more closely in the next section.)

Other words that have become slogans are "solution," "powerful," "easily," and "quickly." We use terms like these as low-level linguistic elements, although they are high-level entities. Each one subsumes many diverse concepts, but it

is no longer possible to assess the individual concepts objectively. The slogan reduces them all to one concept, "good."

But with so much language abuse going on, our existing abstract terms were insufficient. The charlatans, thus, had to coin new terms – terms that can be quickly assimilated by the public and associated with "good" or with "bad." And because it is not easy to add new words to a widespread language, other methods have been developed.

One method is to create acronyms.[1] We perceive acronyms as mere abbreviations, as a way to shorten discourse that involves frequent and lengthy phrases. The proliferation of acronyms in contemporary public discourse, however, is due largely to their usefulness as abstract terms. For, once an acronym is accepted and becomes part of our linguistic communication, it functions just like a word. We quickly forget (if we ever knew) the phrase that the acronym stands for, and the meaning of this phrase, and assimilate instead the associations created for the acronym by its author.

So, by way of acronyms, any charlatan can add terms to our common language – terms whose interpretation he controls, and which will support concepts that serve his interests. If an individual or an institution attempted to add some new *words* to the English vocabulary, we would likely ignore them; but we readily accept *acronyms*, without realizing that they fulfil, in fact, the same function. Since an acronym is a new term, it has no links to our prior knowledge, so we must accept whatever interpretation we are given. Simply by including the acronym in a particular context, for instance, its author can make it appear "good," thereby forcing us to perceive it, and any other concepts associated with it, positively.

Thus, speaking of political acronyms like NATO, SEATO, UN, and AEC, Herbert Marcuse points out that they conveniently "help to repress undesired questions"[2] one might ask if analyzing the original words, as the ideas represented by the acronyms may be quite different from the meaning of those words: "The abbreviations denote that and only that which is institutionalized in such a way that the transcending connotation is cut off. The meaning is fixed, doctored, loaded. Once it has become an official vocable, constantly repeated in general usage, 'sanctioned' by the intellectuals, it has lost all cognitive value and serves merely for recognition of an unquestionable fact."[3]

Similarly, William Lutz notes that acronyms like ICBM, SLBM, IRBM, INF, RDF, and SDI are used to alter our perception of such important matters as nuclear war: "Nuclear doublespeak is filled with acronyms which are cool,

[1] Strictly speaking, "acronym" refers to abbreviations pronounced as words, as opposed to those pronounced as distinct letters; but in this book I use the term for both types.

[2] Herbert Marcuse, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society*, 2nd ed. (Boston: Beacon, 1991), p. 94. [3] Ibid.

precise, rational, and authoritative. Those who use these acronyms appear to possess such qualities themselves, and they appear knowledgeable and objective when discussing nuclear weapons and war. Acronyms also allow those discussing nuclear war to distance themselves from the horrible reality of such a war."[4]

The world of computers and software is notorious for its infatuation with acronyms, as the elites incessantly try to instill new concepts in our minds – concepts that we are to perceive as "good" without actually understanding them (IT, OO, CASE, GUI, RAD, SOA, RISC, etc.). We use these terms as if they described specific things, when they are in fact linguistic entities of a high level of abstraction. They subsume countless lower-level elements – particular ideas, methods, situations, and implementations – but we seldom think of those elements when we see the acronyms. Instead, we perceive the acronyms themselves as starting elements, and thus impoverish many other knowledge structures: if we consider the acronyms "good," all thoughts involving them become simple and predictable. (We will return to the subject of acronyms in the next two sections.)

3

We saw how the charlatans employ acronyms as a way of introducing new, abstract terms. The most common method of coining an abstract term, however, and the most subtle, is not by inventing a new term but by using an *existing* term in a *new* sense. In its established sense, the term has a precise and well-known meaning; in its new sense, on the other hand, its meaning is at a higher level of abstraction. So, while looking familiar, the term is in fact a different linguistic entity.

This combination of familiarity and novelty is what confuses us. Because the charlatans do not define or explain its new sense, the term functions in effect as a high-level element: without a proper definition, it subsumes many possible meanings, often a whole range of meanings, from good to bad. At the same time, its familiar sense links the term to prior knowledge, thereby associating it with a precise meaning, good or bad. The deception is achieved, thus, by forcing us to interpret an abstract term – and consequently the facts it stands for – as good or as bad, while the reality is very different. It goes without saying that the creation of a new sense for an old term is not prompted by a lack of adequate words. The charlatans do it solely in order to force us to start from a higher level of abstraction without being aware of it.

[4] William Lutz, *Doublespeak* (New York: HarperPerennial, 1990), p. 268.

To see how this works in practice, let us analyze a few cases selected at random from the hundreds of language abuses we encounter every day, and which have become a distinguishing characteristic of public discourse. It is not so much individuals that abuse language, as our social and political establishments, and our corporations. And we should take this opportunity to ponder over the future of a society whose institutions believe they have the right to use language (and now also, increasingly, software) to deceive and exploit the public.

Logging companies, concerned with their image as destroyers of forests, frequently use the term "harvesting" to describe the cutting of trees. Now, we know what harvesting *crops* means. But harvesting *trees* is a new term, which, moreover, is undefined. It is an abstract entity, because it can be interpreted in a number of ways: new trees will grow next year, like cereals, or a new forest will develop in a hundred years, or no forest will ever grow again. Without a definition, the term is too vague, too abstract, to function as a starting element in this knowledge structure; it conveys no real information. At the same time, by choosing the word "harvesting" for the new term, the companies want us to adopt the *first* interpretation; that is, to link their term to the wrong structure. Their intention, therefore, is to instill in our minds a high-level element with a meaning that is very different from reality. A valid knowledge structure must start from *low-level* elements, from the *details* that make up this issue. Only by starting from low levels can we retain all the alternatives for the top element – which reflects many social and environmental concerns – so that we can select the alternative closest to reality. This is precisely what the logging companies are preventing us from doing when forcing us to start from a high level of abstraction.

A mail-order catalogue offers us an "exacting reproduction" of the G.I. wristwatch issued by the U.S. Army in WWII.[5] We all know what an *exact* reproduction is, but not what an "exacting" one is (and when it comes to reproductions, we don't care how exacting, but only how exact, they are). Lacking a definition, the new term represents a high level of abstraction: it subsumes such interpretations as exact, or similar, or similar externally but not internally. The choice of "exacting" for the new term, however, tempts us to adopt the first interpretation. Again, the advertiser is creating a high-level element, and is forcing us to treat it as a *starting* element (whose meaning, moreover, is different from reality). The knowledge structure we develop with this element – our perception of the reproduction as exact or inexact – will be impoverished: its top element will be limited to one alternative.

[5] Hammacher Schlemmer catalogue (holiday 1998), p. 90.

❖

Since most product descriptions consist of statements that appear to make bold promises while saying in fact practically nothing, catalogues and the shelves of retail stores provide an inexhaustible supply of examples of deceptive language. As in any form of advertising, the purpose of this deception is to present a product that does little or nothing, or nothing out of the ordinary, so as to make us believe that it will perform a difficult or even an impossible task. It is not my intention to engage in an analysis of deceptive advertising, but only to show that the most common method of deception is the use of high levels of abstraction. And language makes it easy: Advertisers need only invent a new sense for a given term, while leaving that sense undefined. Since all words look alike, regardless of their level of abstraction, this move can easily trick us into mistaking a high-level term for a low-level one.

If the engine of your car leaks oil, you may like the promise made by a product called Engine Stop Leak – a fluid that, when poured into the oil pan, "stops internal and external oil loss." We read the following description: "Formulated to: improve high temperature oil viscosity, gently condition rubber seals and gaskets."[6] The name of the product, which is prominently displayed, constitutes an authoritative and unambiguous claim; and the description appears to support the claim by explaining how the product works. But the name of a product is just a phrase; it is not a commitment, so the manufacturer can use any words, no matter how deceptive. It is worth noting, therefore, before anything else, this deliberate discrepancy between the precise language of the *name*, which creates no liability, and the evasive language of the *description*, which is the only place where we could find an accountable claim. For, not only doesn't the description make a real claim, but it functions in fact as *disclaimer*.

The sentence that makes up the description consists of several levels of disclaiming, and because of the nature of English sentences, we must study it backward, starting from the end. There are two statements here, as the product appears to act both on oil and on seals and gaskets. Starting with the seals and gaskets, it "conditions" them, but we are not told what conditioning a seal or a gasket means in this context. Thus, because it is undefined, this term can mean almost anything. To stop a leak, the product must make the material *expand*; but if this is your interpretation of "conditioning," remember that this is only wishful thinking: it could also mean the opposite, making the material shrink, which would worsen the leak. (If "expand" is what they meant, why didn't they simply say this?) In any case, whatever "conditioning" is, it is

[6] Wynn's Canada Ltd.; both quotations are package text.

canceled by the qualifier "gently," which is too vague to mean anything; for example, the conditioning may be so gentle that it has no visible effect, one way or the other. As for the first statement, the product will "improve" the oil viscosity. To stop a leak, what we need is an *increase* in viscosity; but, again, it is wishful thinking that tempts us to interpret "improve" as "increase." As it stands, "improving viscosity" is a new and undefined term, so it can mean any action, including *reducing* the viscosity. (If "increase" is what they meant, why didn't they simply say this?) In any case, whatever it means happens only at a "high" temperature, and we are not told what "high" means; "high" can therefore be any value, including a temperature never reached by your engine.

Lastly, just in case the two levels of disclaiming in each statement are insufficient, the description prefixes the whole sentence with one additional disclaimer, "formulated." This term means that the product is made from specific substances: it was not concocted randomly, nor picked from a tree. So it seems to be just a bombastic note. However, it also means that the *only* thing the manufacturer claims is that the product was *formulated* (or designed, or intended) to act as the statements say – not that it *will* act that way. The formula may be wrong, this term suggests, so the product may well have no effect, and may even have the opposite effect.

This product may be useful or useless, but we cannot determine which from its description. All the description does, in fact, is exploit our wishes and fantasies: it tells us what we want to hear, while canceling its own statements. Nor are these promises more deceptive than those made by the thousands of other products, services, and ideas that we are offered every day. (Few products are *totally* useless, of course; in most cases the promises are simply much greater than, or very different from, what the product actually does. Still, even if not a complete lie, a deceptive description accomplishes the same thing; for, were that description replaced with a clear explanation of what the product will and will not do, few of us would buy that product, or buy it at that price.)

We must never forget the power of language: it takes an expert but a few minutes to construct one of these deceptive sentences, which can then exploit millions of people – people who foolishly believe that they can trust our social institutions, governments, manufacturers, retailers, or media.

If you doubt the power of language, consider this: without the benefit of language, the only way to make us buy and use such products would be by threatening us with a weapon. Thus, the use of deceptive language is a kind of weapon: a form of violence, a means of coercion. The reason we do not see it this way is that it has become such an important part of our culture. Lutz agrees: "Power in modern society resides in language. Those who know how

to use language can wield great power. Doublespeak is an effective use of the language of power, the language of control, the language of manipulation."[7]

Let us analyze one more description, if you are still looking for products that can help you maintain your car. This time we have a spray can containing a transparent solution, and described as follows: "Specially formulated to give excellent results in resisting the growth of rust caused by stone chipping or scratching …."[8] Here too, it is best to study the sentence starting from the end. What is the use of this spray? Are we expected to discover the paint nicks caused by stones and scratches as soon as they occur and spray them regularly from then on to prevent rust? Maybe so, but the manufacturer doesn't really say anything about preventing rust. What is "growth of rust"? Rust is the result of a chemical process; it doesn't grow, like plants. Rust growth, therefore, refers to a new and undefined process. Perhaps it really means what you hope it does – iron oxidation. But you needn't be too concerned with its real meaning, because, in any case, the spray doesn't *prevent* it. It can only "resist" it, and we are not told what "resisting" means; so this action is undefined, and hence too vague to be usefully assessed. Fortunately, you needn't be concerned with this either, because the spray doesn't really claim to resist, but only to "give excellent results" in resisting; and excellence can be interpreted to mean any level, from 1 to 100 percent of the desired outcome, depending on the task. (For example, resisting the process called rust growth may be so difficult that 1 percent is indeed an excellent result.)

Lastly, we note that this substance is "specially formulated." This, as always, means that it was *only* formulated, or designed, to do what those statements say. The formula or design may be anywhere from good to bad, the sentence suggests, so the substance may in fact do nothing, and may even make matters worse. If you counted, there are four levels of disclaiming. Each disclaimer raises the message to a higher level of abstraction, and we are deceived because the sentence appears to describe facts, not abstract concepts.

Thanks to its subtlety, the term "formulated" is quite popular as disclaimer. Here are additional examples of formulated products: "Specially formulated to take the guesswork out of plastic repair."[9] "Formulated to relax or excite, aromatic essential oils are refreshing …."[10] "Formulated to help reduce the appearance of hyperpigmented age spots."[11] "Formulated to be better."[12] "Specially formulated to provide maximum protection for our high carbon tool

[7] William Lutz, *The New Doublespeak* (New York: HarperPerennial, 1997), p. 16.
[8] Krown Rust Control System, package text.
[9] Plastic repair system, http://www.kent-automotive.com/.
[10] http://www.skinenergizer.com/.
[11] Bremenn Research Labs Lumedia, http://www.skinstep.com/.
[12] Baytec rotational cast systems, http://www.bayermaterialscience.com/.

steel blades."[13] "Formulated to provide a synergistic 'all purpose' formula."[14] "Specially formulated to influence skin health and beauty."[15]

Instead of being "formulated," a product can be "engineered," because this term, too, can act as disclaimer: while appearing to be merely a pomposity, its real task is to suggest that the product was *only* engineered – or designed, or intended – to do what the following statements say. The engineering itself, the sentence implies, may be good or bad. Some examples: "Engineered to help restore power, performance and efficiency …."[16] "Heavy-duty 2" steel pipe frame engineered for easy assembly."[17] "Engineered to work together."[18] "Engineered to perform better."[19] "Dedicated to providing a complete solution engineered to meet your needs."[20] "A generator engineered to perform in Canadian climate."[21] "Engineered to meet the demanding needs of capability-class High Performance Computing (HPC) applications …."[22] "Precision engineered to help increase workflow efficiency …."[23]

If you still can't see why "formulated" and "engineered" are in reality disclaimers, imagine the same statements *without* these terms. If we omit them (and if we ignore the additional disclaimers), the preceding statements become simple and unambiguous: "improves oil viscosity," "takes the guesswork out," "is better," "relaxes," "reduces the appearance," "gives excellent results," "restores power," "easy assembly," "meets your needs." Thus, it is precisely in order to *avoid* accountable claims like these that advertisers prefix them with "formulated" or "engineered."

❖

Terms like "resists," which we encountered in the previous analysis, belong to a family of words that deceivers love to use because of their effectiveness as disclaimers:[24] "helps," "aids," "acts," "works," "fights," "controls," etc. The disclaimer replaces, or is attached to, a familiar term, which on its own describes an exact process: prevent, relieve, protect, etc. Although it appears to be similar to the familiar term, or merely a stylistic embellishment, the function of the disclaimer is in fact to *modify* the meaning of the familiar term

[13] Steele Armor blade coating, http://tradknives.com/.
[14] Blockbuster AllClear, http://www.goodhealthnaturally.com/.
[15] AKN Skin Care, http://www.naturesway.com/.
[16] Slick 50 Plus engine treatment for older engines, package text.
[17] ShelterLogic auto shelter, Canadian Tire brochure.
[18] Oracle Database 10g and Application Server 10g, adv. pamphlet.
[19] http://www.oracal.com/.
[20] http://www.tamlinsoftware.com/.
[21] http://hondacanada.ca/.
[22] Cray XT5 computer, http://www.cray.com/.
[23] Sharp MXM623–MXM753 workgroup document systems, http://www.oiinc.ca/.
[24] Cf. Lutz, *Doublespeak*, pp. 85–93.

– modify it even to the point of *annulling* it. Some examples: "prevents cavities" becomes "helps prevent cavities"; "eliminates dandruff" becomes "fights dandruff"; "reduces your appetite" becomes "controls your appetite"; "relieves the symptoms of colds" becomes "acts to relieve the symptoms of colds." While the first statement in each pair makes a real claim, the second one only *appears* to do so.

Note that, strictly speaking, terms like "improve," "increase," and "reduce" are themselves disclaimers, because we are not told what is the *degree* of improvement, increase, or reduction. Thus, while the claim itself is real, the actual change could be insignificant. So the qualifying word provides, in effect, a *second* level of disclaiming. In phrases like "works to improve," "helps to increase," and "acts to reduce," the words "works," "helps," and "acts" annul a claim that may already be meaningless.

The most common disclaimer is "help," as in the following examples: "Firewall Plus … helps block hackers."[25] "Fit two A4 size pages on screen to help double working efficiency."[26] "… using Dell PowerConnect switches to help maximize data flow across your network."[27] "Plant sterols help lower cholesterol."[28] "Helps provide exceptional grip … helps increase water evacuation … helps provide flatter footprint …."[29] "Filter helps remove 99% …."[30] "Minwax Wood Finish penetrates the wood pores to help seal and protect the wood."[31] "Specially coated to help prevent loss of data and minimize errors."[32] "There is a product that can help protect you.… With these notifications, you can help stop unauthorized charges on your credit card …. They are your powerful allies to help fight fraud."[33] "… helps protect you against credit fraud.… help protect you against identity theft …."[34] "Our superior insight helps deliver outstanding results."[35] "See how technology partners like you are using the Microsoft Partner Program to help achieve greater success."[36]

It is easy to see why these uses of "help" are dishonest. In some, the qualified term ("lower," "increase," "protect," "fight," "exceptional grip," "flatter footprint," "outstanding results," "greater success") is already vague, and hence meaningless – because the improvement could be insignificant, as explained previously. In the others, the term is precise and forceful, but this merely renders the use of "help" even more absurd. Take "help maximize," in these

[25] McAfee Personal Firewall Plus, Staples buying guide, Sep.–Dec. 2004.
[26] Asus VW-224U widescreen monitor, http://www.tigerdirect.ca/.
[27] Dell Computers, adv.
[28] Becel pro.activ, adv. pamphlet.
[29] Traction T/A tires, http://www.bfgoodrichtires.ca/.
[30] Filtrete room air purifier, Canadian Tire brochure.
[31] Minwax Product Guide.
[32] Floppy disks, Office Place catalogue (1998).
[33] CIBC, adv. pamphlet.
[34] RBC, adv. pamphlet.
[35] http://www.scotiacapital.com/.
[36] Microsoft Canada, adv. pamphlet.

examples: something is either maximized or not – this process cannot be qualified. Similarly, something is either minimized or not, is blocked or not, is doubled or not, is removed 99% or not, is sealed or not, is prevented or not, is stopped or not. It is illogical to qualify these processes, so the purpose of "help" is strictly to mislead.

We encounter "help" so frequently that it has become difficult to distinguish its *legitimate* uses; that is, limiting a claim that remains, nevertheless, important (as in, "Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it."[37]). It is hardly necessary to point out the risks a society takes when it allows serious discourse to become indistinguishable from deceptive messages.

The way these disclaimers work is as follows: The disclaimer, or the phrase created by the combination of the familiar term and the disclaimer, describes a *new* concept, but this concept is never defined or explained. Because of its vagueness, the new concept is an entirely different entity from the familiar and exact processes. It constitutes a higher level of abstraction, since it subsumes *several* processes; so it can mean achieving anywhere from 100 to 0 percent of what is achieved by an exact process.

Thus, "controls your appetite" doesn't mean "reduces your appetite"; it is a new concept, which, being undefined, can mean anything – from reducing your appetite, to doing nothing, to increasing it; it is at a higher level than any one process, because it subsumes several. Similarly, "fights odours" doesn't mean "reduces odours"; it is a new and undefined concept, which subsumes such diverse concepts as fighting and defeating odours, and fighting but losing the battle against odours. And "helps you achieve your financial goals" doesn't mean "contributes significantly toward your financial goals"; it subsumes the full range of meanings, from contributing a great deal, to contributing nothing. So these disclaimers deceive us just like those we studied earlier: by tempting us to apply the knowledge and associations we hold for a familiar term to a new linguistic entity, which is at a higher level of abstraction.

But these examples are liberal, because, as we saw previously, the disclaimers are seldom applied directly to the claim. They are used on two or more levels, each term disclaiming in turn the phrase created by the previous ones: "fights odours," "helps fight odours," "formulated to help fight odours"; "controls your weight," "helps control your weight," "acts to help control your weight"; "improves performance," "helps improve performance," "engineered to help

[37] General Motors, *1997 Cadillac Owner's Manual.*

improve performance." Each level of disclaiming takes us to a higher level of abstraction, although in practice just one disclaimer creates a level high enough to render the original claim meaningless.

4

William Lutz, who has been exposing language abuse for many years, coined the term *doublespeak* for language that is intended to deceive while pretending to inform: "Doublespeak is language that pretends to communicate but really doesn't. It is language that makes the bad seem good, the negative appear positive, the unpleasant appear attractive or at least tolerable. Doublespeak is language that avoids or shifts responsibility, language that is at variance with its real or purported meaning. It is language that conceals or prevents thought; rather than extending thought, doublespeak limits it."[38] Lutz has collected an endless list of abuses from the language of politicians and government officials, the military, product labels, business communication, schools and universities, advertising and public relations, economics and investment, and medical services. He agrees that most language abuse involves new terms whose meaning is left undefined.

Above all, says Lutz, the responsible use of language is an obligation we all share, because linguistic communication is such an important aspect of society. So we must all fight to prevent language abuse. If we allow language to be turned from a means of communication into a means of domination, we are contributing, in effect, to the destruction of our values: "Language is not irrelevant to the foundations of an ordered society; it is essential. The irresponsible use of language leads to the destruction of the social, moral, and political structure that is our society, our culture, our nation. The irresponsible use of language corrupts the core of an ordered, just, moral society. Those who misuse language to mislead and deceive contribute to the destruction of the belief in the role of language in the life of the nation, and to the destruction of the nation.... We must fight to reassert the primacy of the responsible use of language by everyone, from individual citizen to political leader. We must fight to make the responsible use of language the norm, the requirement, for the conduct of public affairs."[39]

Here are some examples of the types of language abuses discussed by Lutz. When companies dismiss workers, they avoid terms like "laying off" and resort instead to doublespeak to mask the unpleasant reality.[40] Layoffs are described

[38] Lutz, *Doublespeak*, p. 1. [39] Lutz, *New Doublespeak*, p. xi.
[40] The following examples are from Lutz's *Doublespeak* and *New Doublespeak*, passim.

as "workforce adjustments," "negative employee retention," "downsizing our personnel," correcting "imbalances of forces or skills," "reducing duplication," "involuntary severance," "skill-mix adjustment," "employee repositioning," or "vocational relocation." A company can "release surplus labor," initiate "a career alternative enhancement program," or engage in "a refocusing of the company's skills set." And the employees are not laid off, but become "redundant," "unassigned," "disemployed," "involuntarily leisured," "non-renewed," "surplussed," "displaced," are placed on "non-duty, non-pay status," are "involuntarily separated from the payroll," or are "selected" to participate in a "career transition program."

Politicians at all levels of government are careful to avoid the unpopular terms "tax" and "tax increase"; so they resort to doublespeak to increase taxes without appearing to do so.[41] A tax increase can be "user fees," "wage-based premium," "revenue enhancement," "receipts strengthening," "recapture of benefits," "replacement of revenues," or a way to "update the revenue mechanism." Additional doublespeak in the body of documents described as "tax reforms" or "tax simplifications" make these documents incomprehensible to the uninitiated, and serve in fact to conceal such ongoing policies as shifting the tax burden from corporations and wealthy individuals to the common citizen.

The doublespeak of the military, frequently used in their specifications and reports, is among the most sophisticated:[42] a nail is an "interfibrous friction fastener"; a hex nut is a "hexiform rotatable surface compression unit"; a hammer is a "multi-directional impact generator" or a "manually-powered fastener-driving impact device"; a pencil is a "portable, hand-held communications inscriber." Intentionally or not, the pedantic and overly detailed language used by the military ends up making everything appear more complicated than it really is, which helps to justify failures and exorbitant costs. For example, if you read that some equipment "suffered dramatically degraded useful operational life owing to the fact that a $2,000 hexiform rotatable surface compression unit underwent catastrophic stress-related shaft detachment," as one report stated, you will not react as you would if you read the simple truth; namely, that the equipment failed because a nut worth a few cents broke.

Deceptive language is useful not only to make an unimportant thing appear important or a simple thing appear complicated; it can be just as effective in creating the opposite effect. Deceivers try to make something important or complicated appear trivial when they want to belittle their responsibility or

[41] The following examples are from Lutz, *Doublespeak*, ch. VII.
[42] The following examples are from Lutz, *Doublespeak*, ch. VI.

liability for failures, or to underrate the costs or hazards associated with a project.[43] Thus, the death of patients in hospitals is called "negative patient care outcome," or "terminal living," or a "terminal episode"; and a medical error causing death is a "therapeutic misadventure" or a "diagnostic misadventure of a high magnitude." Similarly, the risks of nuclear power plants are discounted by officials through doublespeak like the following: An accident is an "event," an "unusual event," an "unscheduled event," an "incident," an "abnormal evolution," a "normal aberration," or a "plant transient"; and if an "abnormal occurrence" occurs too frequently, it becomes a "normally expected abnormal occurrence." Earthquakes, potentially disastrous for nuclear power plants, are merely "seismic events." A fire is an "incendiary event" or a "rapid oxidation." An explosion is an "energetic disassembly," an "energy release," or a "rapid release of energy." A meltdown is a "core disruptive accident."

In all these examples we recognize the same form of linguistic deception: raising the level of abstraction by using an existing term in a new sense and leaving the new sense undefined. The lack of definition endows the term with a number of interpretations, thereby turning it into a high-level element; and our familiarity with its old sense tempts us to interpret the term in the same way as before, although it is now an entirely different linguistic entity. Thus, we end up with a trivial structure, where an abstract element acts as starting element and also holds a certain meaning – the meaning the deceivers want us to accept. This structure has little value as a knowledge structure, because we cannot derive all the alternatives for its top element. Having started from a level that is too high, we are restricted in effect to one alternative – an alternative, moreover, that is very different from reality.

5

Although raising the level of abstraction is harmful, we must keep in mind that it is not the higher levels that must be blamed. Combining elements into increasingly high levels of abstraction is the most important feature of hierarchical structures, the source of their power and versatility. And knowledge structures, too, benefit from this feature: no real knowledge would be possible if all we did were to combine simple elements on one level.

The harm is done, thus, not by the high levels themselves, but when we commit the fallacy of abstraction: when we think that a high level is low enough to act as *starting* level. There is nothing wrong with high-level elements if we reached them on our own, starting from low levels; that is, if we formed

[43] The following examples are from Lutz, *Doublespeak*, passim.

them by combining elements, one level at a time. When doing so, we create in the mind a knowledge structure whose top element can have all possible values: the values derived from low-level elements, and from low-level interactions with other knowledge structures. When *starting* from a high level, however, we can no longer do this; what is left then is an impoverished knowledge structure – one where the top element can have only a small number of values, and perhaps none correct.

The deceivers construct their message in such a way that it appears to provide low-level elements while providing, in fact, only high-level ones. Thus, the reason we cannot create an adequate knowledge structure is that there is no real knowledge in their message: the message contains vague terms – terms that can have several meanings.

This analysis also shows us how to *fight* this type of deception: by re-creating the full structure. First, we must recognize that the terms are high-level elements. Then, instead of using them and their mistaken interpretation as starting elements, we must seek the *actual* low levels. One way to do this is by investigating all possible interpretations, which may require the study of additional sources of knowledge. What we would be doing, essentially, is simulating the process whereby we develop that knowledge through personal experience, rather than acquiring it from linguistic messages. When developing knowledge through personal experience we start with low-level elements, so we end up with *complete* knowledge structures – structures that include *all* the alternatives. Only linguistic messages can lure us with impoverished knowledge, because only with language can the deceivers invent high-level elements that look like low-level ones. Clearly, if we managed to create in our mind the same knowledge structure that we would have created had we been directly exposed to the events leading to that knowledge, no deception would be possible. Being already familiar with all the alternatives, we would easily recognize the falseness of the alternative that we are asked to accept.

The Slogan "Technology"

1

I mentioned in the previous section the use of slogans to deceive and to prevent thought. Slogans are expressions representing high levels of abstraction but used in a way that tempts us to perceive them as *low-level* linguistic entities. To illustrate the power of slogans to shape knowledge, and hence the power that an elite can attain through language, let us analyze what may well be the greatest slogan of all time – the term "technology."

Everyone agrees that technology has acquired in our culture the kind of prestige and aura formerly held only by such notions as God. It will be interesting, therefore, to see how much of its authority is due in fact to something as simple as linguistic manipulation. We will find that, as in all forms of sloganeering, the purpose of the term "technology" is to raise the level of abstraction of a phrase; specifically, to alter its meaning so that the *high-level* elements of a knowledge structure become *starting* elements. Ultimately, its purpose is to prevent us from judging critically a particular matter by forcing us to think instead of a much broader subject.

"Technology" is an abstract term denoting the body of concepts, means, and methods employed in the pursuit of some practical goals. In its most general sense, it refers to the totality of knowledge and techniques used by a society to satisfy its material needs. In a more restricted sense, it refers to the application of a body of knowledge and methods in a specific domain: information technology, automotive technology, communications technology, mining technology, space technology, metal-processing technology, prosthesis technology, etc. In its narrowest sense, "technology" can refer to a particular set of concepts and procedures *within* a field: digital technology within the field of communications, cold-forging technology within the field of metal processing, etc.

Like all abstract terms, then, "technology" plays an important linguistic role by subsuming a number of ideas. If the meaning of these ideas is understood, the ability of the word to represent high levels of abstraction helps us to think about or discuss complex matters.

The abundance of the term "technology" in contemporary discourse reflects, undoubtedly, the growing number of occasions when we encounter the application of one technology or another. Much of this abundance, however, springs from a phenomenon that is best described as an *inflation* in the use of this term: "technology" is used to describe narrower and narrower areas. Instead of defining a significant range of activities, or an important body of concepts and methods, the term is increasingly applied to specific situations.

Thus, "we have the technology" to do something may simply mean having a certain device; "we are using an older technology" may mean using an older device; "we are upgrading the technology" may mean buying a new device; "a technology company" may mean an electronics company; "developing new technologies" may mean writing some new software; "using a different technology" may mean using different software; "a technology career" may mean an involvement with software; "a technology investment" may mean

purchasing a computer; "its technologies" may mean a company's products, or services, or capabilities; and so on.

Here are some actual examples of this style: "Adobe InDesign includes technology for exporting files directly to Adobe Portable Document Format."[1] "Can be used as the ideal technology for backup or storage."[2] "The intelligent technology in our electrical calculation software …."[3] "Canada's banks [and other organizations] expect to have their technology fully prepared."[4] "Five bottom-line technologies."[5] "Older engines can benefit from using Slick 50 Plus, fortified by unique technology …."[6] "Many [mid-sized firms] apply technology to virtually every part of their business."[7] "Our books are a simple way to learn from the experts about the latest technologies from Intel."[8] "Governments can get into [trouble] when they rush to embrace technology they don't really understand.… [One province] so far has spent $185-million developing new technologies under the flag of the Health Canada Infoway.… The objective is to create a national network of electronic medical records and other, related technology.… Without the in-house expertise to develop new technology, the provinces have relied upon contractors …. 'My biggest concern has always been technology investments.' … 'This is highly sophisticated technology.'"[9]

Just as common is the use of "technology" to describe individual notions or products. The following expressions, taken from the thousands encountered in brochures, periodicals, catalogues, and websites, demonstrate this practice: desktop technology, RISC technology, relational technology, C++ technology, CASE technology, Windows technology, point and click technology, plug and play technology, call center technology, client/server technology, data warehouse technology, object technology, document management technology, cloud technology, ebook technology, text-to-speech technology, web-to-host technology, dual monitor technology, 90 nanometer technology, optical image stabilization technology, perpendicular recording technology, retina display technology, 2.4 GHz technology, V.90 technology, IntelliSense technology, Complete-Compare technology, ColorSmart technology, Q-Fan2 technology, CrossFire technology, WhisperDrive technology, iTips technology, Senseye

[1] Adobe Systems, *Adobe InDesign 2.0 User Guide*, p. 375.
[2] http://www.ahinc.com/. [3] http://solutionselectricalsoftware.com/.
[4] Government of Canada, year 2000 preparedness, adv.
[5] Article title, *Momentum: The Microsoft Magazine for Midsize Business* (Oct. 2005).
[6] Slick 50 Plus engine treatment for older engines, package text.
[7] "Firms See Link Between Innovation and Technology," *Computing Canada* (Oct. 6, 2006), p. 20. [8] http://noggin.intel.com/.
[9] "Technology in health care: big trouble when mishandled," http://www.globeandmail.com/ (Oct. 9, 2009).

imaging technology, AMD64 technology, Data Lifeguard technology, cPVA technology, Flash Scan technology, ClearType technology.

Anyone, thus, can take a device, or a method, or a feature, and confidently call it a technology. A sentence will always appear more authoritative if it includes the word "technology," and as everyone is trying to take advantage of its mystique, we encounter this word now in almost any context. So we see "technology" in expressions where it is obviously spurious – expressions where we were content previously with such terms as "system," "feature," "method," "technique," "procedure," or "process"; or, we see it in expressions where neither "technology" nor any other term is necessary, as the thing being described can stand alone, on the strength of its own meaning.

2

To confirm this inflation, let us analyze the phrase "MMX technology," coined by Intel Corporation in 1997 for a new feature of its Pentium processor. Intel is best known as the maker of the processors used in IBM-compatible personal computers. And, continually since 1979, Intel has been introducing new versions of these processors, each time adding new features. The feature called MMX (multimedia extension) includes special data types and instructions, and its purpose is to improve the performance of applications that require intensive computations with graphics or sound data. These computations often involve the repeated execution of one simple operation with several simple operands. The new instructions take advantage of this fact and speed up the computations by executing several operations in parallel; for example, they add at the same time four related values to four others.

Now, Intel had introduced many enhancements before MMX; and, if compared with those enhancements, the novelty, complexity, or scope of MMX, or its impact on the application's performance, can be described as average. So why did Intel decide to call MMX a technology, while the previous enhancements – many of which were broader and more significant – were simply called features, or improvements? The most likely answer is that Intel succumbed to the "technology" inflation.

This can be demonstrated by comparing MMX with another enhancement: the numeric processing feature, which greatly speeds up mathematical operations. This feature had been available since the earliest processors as a separate device, called NPX (numeric processor extension). And, starting with the i486 processor in 1989, the feature became the FPU (floating-point unit), an internal and faster element. But, even though the FPU and the NPX were much more complex than MMX, and much more important, Intel never referred to them

as "FPU technology" or "NPX technology." More than that, MMX uses the FPU registers, and the MMX instructions can even be seen as nothing but an enhancement of the FPU.

We are witnessing, thus, an absurd situation: while the FPU (with its great impact on *many* types of applications, including multimedia, and with a broader scope and complexity) is merely a *feature*, MMX (intended *mainly* for multimedia applications, and logically just part of the FPU) is a *technology*. The term "technology" – a high level of abstraction, which must describe a whole domain – is applied here to an entity that is, however we look at it, at a *lower* level than a level that is *too low* to be called a technology.

This absurdity reflects the effect of the "technology" inflation over a period of ten years. As a result, some of Intel's technical manuals started to look quite silly: while dozens of important and impressive features of the Pentium processor were mentioned simply by their names or acronyms, MMX was regularly followed by "technology." (Example: "The MMX technology intrinsics are based on a new _m64 data type to represent the specific contents of an MMX technology register."[10] Twice in one sentence, "MMX" is used adjectivally to modify the noun "technology," and then the whole phrase, "MMX technology," is used adjectivally to modify another noun. To comprehend this sentence, we must read it by omitting the word "technology.")

But Intel did not call MMX a technology just to use this expression in its manuals. Now it could coin the famous slogan "with MMX technology," which was displayed everywhere the latest Pentium processors were mentioned. And this slogan was taken over by every computer maker that used these processors, and by every dealer that sold the computers, and was repeated ad nauseam in advertising and sales literature.

The phrase "MMX technology" also exemplifies what is the most common method of presenting something – a particular concept, or process, or feature – as a technology: instead of simply allowing an appropriate term to describe that thing, the sloganeers construct an expression out of that term and the word "technology." Since we perceive "technology" as a whole domain, this usage makes a specific thing appear bigger and more important than it actually is. Thus, the expression "with MMX technology" means exactly the same thing as does "with MMX," but it tempts us to perceive MMX as a broader, and hence more important, notion.

The inflation is also demonstrated by the fact that, while in the *many years* preceding MMX it is hard to find a *single* use of "technology" with these

[10] Intel Corporation, *IA-32 Intel Architecture Software Developer's Manual*, vol. 2, *Instruction Set Reference* (2001), p. 3-9. (The "intrinsics" are C language extensions that provide access to the MMX features.)

processors and the related innovations, Intel has resorted to this practice *many times* in the *few years* since. Some examples:[11] Hyper-Threading technology, vPro technology, Viiv technology, Centrino mobile technology, Memory Pipeline technology, Extended Memory 64 technology, Flex Memory technology, Matrix Storage technology, Virtualization technology, Quiet System technology, Active Management technology, I/O Acceleration technology, Performance Acceleration technology, Clear Video technology, GMA 900 graphics technology, Zone Rendering technology, LaGrande technology, SpeedStep technology, Trusted Execution technology, QuickData technology.

3

Let us see now how the deception is achieved. Grammatically, the term describing the concept, or process, or feature is demoted to the role of qualifier: it becomes an adjectival element modifying the noun "technology." Since what is being described is fully defined by the original term, "technology" is always superfluous. But this word has become such a familiar and striking slogan that it is invariably *it* that claims our attention. Thus, from an unnecessary element, this usage turns "technology" into the most important part of the expression.

Logically, the altered phrase deceives us by forcing our thoughts to a higher level of abstraction. Instead of allowing us to create a rich knowledge structure in the mind, starting with low-level elements, the expression shifts the emphasis to a high-level element – "technology." Instead of thinking of the term describing the particular concept, process, or feature, and all the facts associated with it, we are tempted to use the abstract term "technology" (which suggests a whole domain) as the *starting* element of the new knowledge structure. Being forced to create in the mind an impoverished structure, we are prevented from gaining any real knowledge. The expression appears to describe something important, when in fact it is just a slogan.

It is senseless to use "technology" when referring to a *specific* thing, and yet this usage is now widespread. The term "technology," when qualified by the name of a thing, defines a body of principles or techniques that is reflected *entirely* in that thing; so it defines a technology that is, essentially, that thing alone. But then, if one thing can be a technology, why not everything else? If one specific concept, process, or feature is a technology, why not *every* concept, process, and feature? We reach the absurd conclusion that there are as many technologies as there are concepts, processes, features, methods, techniques, procedures, systems, and so forth. Clearly, if we agree to call *specific* things

[11] Terms used on http://www.intel.com/ (Dec. 2006).

"technology," the term cannot also retain its *abstract* sense; that is, a body of concepts, means, and methods that defines a whole domain, and hence subsumes *many* things. We are deceived precisely because we continue to perceive "technology" as a global term, referring to a large body of things, even as we see it applied to only one thing.

Let us analyze some of these expressions. "Java technology"[12] refers presumably to everything that is related to the Java programming language – definitions, principles, methods, and so forth. But simply "Java" or "Java language" would suggest exactly the same thing. There does not exist a body of principles or techniques that are part of the technology of Java, but are not also part of what is encompassed by the programming language Java. The very existence of this language implies the definitions, principles, methods, etc., related to it; in other words, what I have just listed as its technology. The language Java and a technology called Java must be one and the same thing.

But "technology" is used for even narrower areas. For example, "Oracle relational technology"[13] refers to the particular implementation of relational database principles found in the system called Oracle. The technology of the Oracle relational database system subsumes, presumably, all the principles, methods, software, etc., related to this system. But the phrase "Oracle relational system" describes the same thing, since it implies the principles, methods, software, etc., related to this system. There cannot exist two different domains – the Oracle relational system, and the Oracle relational technology; one is the same as the other.

A printer is said to incorporate "straight paper path technology"[14] – a feature of the paper-feeding mechanism. This technology subsumes, presumably, all the issues related to a straight paper path. But the fact that the printer has a straight paper path already implies all the issues related to a straight paper path. So, when saying that the printer incorporates straight paper path technology, we cannot mean more than what we mean when simply saying that it has a straight paper path. The domain known as straight paper path technology is the same as the domain of the issues related to a straight paper path.

The same argument could be repeated for the other expressions. Thus, desktop technology is the same as desktop computers, 2.4 GHz technology is the same as 2.4 GHz telephones, WhisperDrive technology is the same as the WhisperDrive feature, data warehouse technology is the same as data warehouse software, 90 nanometer technology is the same as the 90 nanometer process, and so on.

[12] For example, Sun Microsystems training course, adv. pamphlet.

[13] For example, "Oracle object technology is a layer of abstraction built on Oracle relational technology," *Oracle Database Application Developer's Guide*, http://www.download.oracle.com/.

[14] Brother HL-660 laser printer, package text.

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An indication of the trend to use "technology" to denote almost anything is the frequent use of the plural, "technologies." Logically, it is senseless to use the plural: since "technology" already means an indefinite number of principles, methods, etc., employed in a particular pursuit, the plural can add nothing. And indeed, in the past the plural was used only in the rare situations where several domains of technology had to be mentioned together (as in, "use of capital cost allowance … to allow companies to write down equipment used in information, energy, and environmental technologies"[15]). But now that "technology" is used for small and specific things, we encounter its plural very frequently, as a pompous substitute for "systems," "methods," "techniques," "processes," "concepts," or "features."

Some examples: "The MSDN Library is an essential resource for developers using Microsoft tools, products, and technologies."[16] "On this page you can browse technologies currently available on Adobe Labs.… You can find technologies that may interest you by reviewing related technologies."[17] "Small to medium-sized suppliers [will not require] an expensive investment in traditional EDI technologies."[18] "Discover solutions that leverage the newest cyber-security techniques and technologies."[19] "HR suite of tips, tactics and technologies to attract, retain and train skilled workers."[20] "A new generation of methods and technologies has arrived."[21] "Now includes Service Pack 2 with advanced security technologies."[22] "Businesses can take advantage of Internet technologies without sacrificing performance or security."[23] "A guide to the technologies frequently used in Web-enabled teaching and learning activities."[24] "An overview of some different computer cooling technologies."[25] "See the latest technologies."[26]

As part of the inflation, we note also the large number of companies whose *name* includes "technology," or "technologies." There are probably thousands of such companies, with names varying from the simple XYZ Technology Ltd. to wordy ones like Exquisys Software Technology Ltd., Photo Violation Technologies Corp., and Critical Outcome Technologies Inc. In reality, "technology"

[15] "The $10-billion plan to help manufacturing compete globally," http://www.globeandmail.com/ (Feb. 6, 2007).
[16] http://msdn.microsoft.com/.
[17] http://labs.adobe.com/.
[18] https://delphi.portal.covisint.com/.
[19] Infosecurity Canada conference and exhibition (2003), adv. pamphlet.
[20] CATA conference (1999), adv. pamphlet.
[21] Database and Client/Server World conference (1997), adv. pamphlet.
[22] Microsoft Windows XP upgrade CD, package text.
[23] "Surviving the Unexpected," *Computing Canada* (Nov. 3, 2006), p. 10.
[24] http://www.umuc.edu/.
[25] http://www.windowsnetworking.com/.
[26] Solution City exhibition (2006), adv. pamphlet.

hardly ever serves to identify the type of business. Its purpose is to mislead us, by forcing us to associate a specific product or service with a universal and glamorous concept.

And it is not just in advertising and propaganda that we find this style; more and more *individuals* are now using it, in order to enhance their own discourse. Since calling things "technology" imparts a tone of authority to any statement, people everywhere have learned to take advantage of this inflation. Thus, when mentioning a particular product or concept, if we refer to it as a technology we can more effectively impress our listeners. In addition, we can delude ourselves that what we are saying is more important than it actually is.

Also, while this slogan is found mostly in the area vaguely known as high technology, we increasingly see it everywhere. Some examples: People watching instant replay in a tennis event on television "had access to replay technology."[27] To reduce referee mistakes, soccer officials are discussing "the possibility of using goal-line technology."[28] A type of motor oil uses "SuperSyn technology."[29] A ball pen refill "contains advanced ink technology."[30] A scrub sponge uses "unique antimicrobial Stayfresh technology."[31] An air conditioner uses "dripless technology."[32] A fitness device "has air power technology to help you work out."[33] Some winter tires use "Microbit technology, which incorporates thousands of crushed walnut shells into the tread compound."[34] An adjustable wrench uses "gripping technology far superior to standard wrenches."[35] Some windshield wiper blades use "flex shell technology," while others use "special water repellent technology."[36] Some vacuum cleaners use "WindTunnel technology," while others use "Root Cyclone technology."[37] An office paper punch uses "One-Touch technology."[38] A cooking device uses "Vapor technology."[39] A kettle uses "quiet boil technology."[40] A clothes dryer uses "a new vacuum technology."[41]

[27] "Instant replay makes U.S. Open debut," http://www.globeandmail.com/ (July 18, 2006).

[28] "Blatter rules out video replay, but FIFA will discuss new goal technology," http://www.globeandmail.com/ (June 29, 2010).

[29] Mobil synthetic motor oil, package text.

[30] Parker ball pen refill, package text.

[31] 3M Scotch-Brite all-purpose scrub sponge, package text.

[32] Noma air conditioner, Canadian Tire brochure.

[33] AirClimber fitness device, https://www.airclimbertrial.com/.

[34] http://www.toyotires.ca/.

[35] HK1 adjustable wrench, Canadian Tire brochure.

[36] Reflex, Hybrid and WetTec wiper blades, Canadian Tire brochure.

[37] http://hoover.com/, http://www.dyson.com/.

[38] Staples high-capacity 3-hole punch, package text.

[39] http://www.360cookware.com/.

[40] KE9200S kettle, http://www.sunbeam.com.au/.

[41] DryMate clothes dryer, http://www.yankodesign.com/.

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To summarize, when applied to a particular thing, "technology" adds nothing to the meaning of the words describing that thing. A specific term – "process," "method," "system," "feature," etc. – would function equally well; or simply the *name* of that thing would suffice to describe it. Thus, when applied to a particular thing, "technology" is strictly a slogan. Its purpose is to deceive us, to make us perceive an ordinary thing as an important notion – important enough to name a whole domain of technology after it.

Calling things "technology" forces our thoughts to a higher level of abstraction: instead of examining the *details* of a given issue, we are restricted to a broad and vague concept – technology. Also, without the lower levels we cannot link that issue to our previous knowledge, so it remains isolated: it does not enhance our minds the way it would if we faced it through personal experience. Finally, because technology in general is a good thing, we are compelled to perceive anything called "technology" positively. In other words, deprived of the normal means of evaluating a new idea, we end up simply accepting it.

Thus, like all slogans, "technology" impoverishes knowledge by restricting us to mechanistic thinking. When we agree to treat a high-level concept like technology as the *starting* element of a knowledge structure, we are committing the fallacy of abstraction; and when we fail to link this knowledge structure with others, we are committing the fallacy of reification. The new knowledge is impoverished because we are left with only a small fraction of the possible combinations of elements. Our minds have the capacity for complex knowledge structures: we *can* start from low levels, and we *can* link structures. So the purpose of slogans is to neutralize this quality, in order to prevent us from developing in our minds all possible alternatives.

Another fact worth noting is how the guardians of the English language are reacting to the spread of "technology" sloganeering. Some dictionaries, in their entry for the word "technology," have recently added a definition for its incorrect use (i.e., in specific instances), while listing also its traditional definition (i.e., a global term). Now, it is true that dictionaries must reflect the current use of a language, even if incorrect; so, if the use of "technology" to describe specific things is now prevalent, it must indeed be included. But dictionaries are also educational. This is why certain entries have a qualifier like *archaic*, *slang*, or *substandard*. Similarly, then, the use of "technology" to denote specific things ought to be described as *propagandistic*. By leaving the new definition unqualified, the dictionaries legitimize, in effect, the misuse of this word. "Technology" cannot function as both a global and a specific term, so it is absurd to list both definitions without an explanation.

4

In "technology" sloganeering, the phrase we encounter most frequently is "information technology," or "IT." This phrase and its acronym are so widespread, in fact, that they have acquired a reputation of their own. They deserve, therefore, a special analysis.

Information technology is the large domain encompassing computers, software, and related systems; so the phrase itself represents a valid application of the term "technology." What is wrong, rather, is the *way* in which the phrase is used. It ought to be used only when discussing the *whole* domain, which is what "information technology" stands for. Instead, we encounter it in reference to narrow and specific aspects of this domain – individual computers, programs, people, tasks, etc. The absurdity of this practice is masked by the fact that it is the acronym, "IT," rather than the whole phrase, "information technology," that is most often used: IT management, IT department, IT consultant, IT professional, IT staff, IT infrastructure, IT budget, IT job, IT training, IT career, IT problem, IT equipment, IT project, IT spending, IT investment, IT planning, IT initiative, etc.

The key term in this domain is, obviously, "information." So it is this term alone that ought to be used as qualifier: information worker, information project, information equipment, and so forth. The phrase "information technology" is then merely a particular use of the term, needed when we must describe the whole domain. What the propaganda has achieved, thus, is to substitute this global sense for the original qualifier. And as a result, the whole domain of information technology is invoked every time we discuss a computer, a piece of software, a person, a project, or any other detail from this domain. This forces our thoughts to a higher level of abstraction: we may be discussing small and concrete entities, but we are thinking in fact of a large and abstract concept – the whole domain of information technology. So we end up perceiving ordinary things as more important than they actually are.

We accept expressions like "IT manager," "IT department," and "IT budget," for instance, only because we saw them repeated a thousand times in the past. To recognize their absurdity, all we have to do is expand the acronym. Thus, while "IT manager" sounds important, "information technology manager" sounds silly: how can a person manage the universal, abstract concept of information technology? Similarly, "IT department" sounds important, but what is an "information technology department"? How can something be a department of an abstract concept? "IT budget," too, sounds important; but what is an "information technology budget"? How can a company have

a budget for the abstract concept of information technology? The proper description, again, is "information manager," "information department," and "information budget." It is absurd to use the whole domain as qualifier.

The same is true of any other expression: Does an IT project encompass the whole domain of information technology? Does an IT course teach the abstract concept of information technology? Is an IT career a career in a philosophical, abstract subject?

Thus, while appearing to be just an abbreviation, "IT" serves to control minds. As acronyms always do, it raises the level of abstraction of an expression, thereby preventing us from interpreting it correctly. Even the whole phrase, "information technology," forces our thoughts to a level that is too high – because it invokes the whole domain when discussing, in fact, specific things; but the acronym takes us to an even higher level. Although "information technology" is used incorrectly, we still see the words – so we can reflect on their meaning and recognize the mistake, as we did a moment ago; with "IT," on the other hand, this is no longer possible.

By eliminating the words, and hence the lower levels, acronyms numb the mind. They stand for certain ideas, but they prevent us from linking these ideas to our previous knowledge. Ideas are high levels of abstraction, and we discover their meaning when we understand the meaning of the words at the lower levels. By eliminating the words, acronyms obstruct this process. They turn whole ideas into simple, starting elements. These elements, moreover, come with a ready-made, predefined meaning, which we must accept.

The meaning we accept for IT is "strategic business advantage," "critical success factor in a changing economy," "powerful tool in today's competitive environment," etc. But we did not discover this meaning on our own, by combining bits of previous knowledge. We acquired it ready-made, through messages encountered in publications, lectures, and advertising – messages that associated IT with those benefits. Instead of treating it as the top element of a particular knowledge structure, we use the acronym "IT" as a *starting* element in *new* knowledge structures. In reality, the domain of information technology is not a phenomenon *within* the other phenomena that make up our existence; it *interacts* with them. Now, however, we perceive it as a building block of those phenomena. So, if the notion of IT is distorted, we will perceive everything associated with it – IT budget, IT department, IT consultant, IT project, IT investment – as more important than it actually is.

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We saw that "information technology" and "IT" are used mostly for propaganda. Logically, they should be used only on the rare occasions when the

whole domain of information technology is discussed; instead, we find them in reference to small and specific things. But we can also demonstrate the propagandistic nature of this practice in a different way: by comparing the phrase and the acronym with their counterparts in other technologies.

Automotive technology is the domain of activities related to the design and manufacture of vehicles. But we rarely see the phrase "automotive technology," simply because we rarely need to refer to the whole domain. And we hardly ever see the acronym, "AT"; after all, if the phrase itself is rarely used, there is no need to abbreviate it. The key term in this domain is "automotive." And indeed, this word alone is used as qualifier when referring to specific aspects of the domain: "automotive company," "automotive worker," "automotive industry," "automotive research," "automotive career," and so on. We don't see expressions like "automotive technology company" or "automotive technology worker"; nor do we see "AT company" or "AT worker." To duplicate the usage current in information technology, we would have to refer to our cars as "AT equipment," to car mechanics as "AT specialists," and to a car purchase as "AT investment."

Let us take a specific example. The label of an AC/DC adapter designed to charge the battery of laptop or notebook computers includes this note: "For use with Information Technology Equipment."[42] The closest equivalent in the automotive field would be a car battery charger carrying the note, "For use with Automotive Technology Equipment." If we ever came across such a charger in a store, we would find the note (and the capitals) ludicrous. In fact, we would probably fail to understand the note, and we would have to ask the salesperson whether the charger worked with a car battery. The note for the computer adapter is, in reality, just as ludicrous; yet we find it perfectly logical. This shows how successful has the "information technology" propaganda been.

Let us examine another area. Space technology is the domain of activities related to the exploration of outer space. The key term now is "space," and this word alone is used as qualifier: "space program," "space research," "space vehicle," and so on. And, although we do encounter the phrase "space technology" more often than we should (as a result of the general "technology" inflation), it is still used mostly to describe the whole domain. It is hard to find expressions like "space technology budget" or "space technology manager." As for "ST," if used at all, it is as a legitimate abbreviation when discussing the whole domain – not in phrases like "ST program" or "ST research." We don't refer to satellites as "ST equipment," nor to astronauts as "ST professionals."

Lastly, medical technology is the domain of activities involving the application of science and engineering in health-related matters. As we would expect,

[42] Delta Electronics adapter ADP-30JH B.

"medical technology" is used only for the whole domain, and we hardly ever see the acronym, "MT." The word "medical" alone is used as qualifier: "medical research," "medical equipment," "medical personnel," and so on. We don't refer to a particular X-ray machine as "MT equipment," nor to technicians as "MT workers," nor to a medical laboratory as an "MT company."

The same arguments could be repeated for any other field: environmental technology, mining technology, farming technology, maritime technology, etc. Only in information technology, then, is language manipulation so widespread. And the explanation is simple: In the other fields we get more or less what we expect, relative to what we invest in them. In our computer-related activities, on the other hand, the inefficiency is so high that the elites must constantly *fool* us into accepting their ideas. This is especially true of software ideas. If we were to judge the importance of their activities objectively, we would find that less than 10 percent of what the software bureaucrats are doing has any value. In fact, the only evidence we have for the effectiveness of software theories, methodologies, tools, and applications is found in "success stories" and "case studies." (As we learned in "Popper's Principles of Demarcation" in chapter 3, the very fact that we are asked to rely on this type of evidence proves that the ideas are pseudoscientific.)

Thus, since the software novelties rarely work as claimed, the use of deception is an important factor in their promotion. And the manipulation of language is part of this deception: by encouraging us to misuse the abstract terms "information technology" and "IT," the elites prevent us from noticing the details; without details we cannot tell the difference between useful and useless, or between good and bad, so our computer-related activities appear more important and more successful than they actually are.

Orwell's Newspeak

1

George Orwell was no scholar, but his last work, *Nineteen Eighty-Four*, with its analysis of mind control through language, remains to this day one of the most important studies of totalitarianism. Because it is written largely in the form of a novel, it is often misinterpreted as a dystopian tale, or as a prophetic fantasy. Only when we ignore the irrelevant details can we appreciate its depth and accuracy, and its value as a model of totalitarian systems.

As journalist and essayist, Orwell displayed greater insight into social and political matters, and into the function of language in society, than most philosophers and linguists. And when we study his earlier writings,

we recognize that *Nineteen Eighty-Four* is a synthesis of ideas which had preoccupied him for many years.[1] Totalitarian oppression, he pointed out, is found not only in political movements like Nazism or Communism, but in any social system where dogmas replace rational thinking. Thus, he believed that even the democratic countries are drifting toward one form of totalitarianism or another.

We will explore the significance of Orwell's model later, when we study software totalitarianism (in chapter 8). Here we are concerned mainly with his analysis of language manipulation, which complements our discussion in the previous sections. The way language is used to control minds in his hypothetical society can be recognized as an exaggerated, satirical form of the deception and exploitation found in our own society. So we should perhaps stop to consider whether our relatively mild language manipulation, along with our business-driven culture of mind control, is in fact not a *final* level of degradation, but only a stage in our continuous progression toward totalitarianism that Orwell feared.

In Orwell's Oceania, in 1984, Newspeak was the official language. It was in the process of replacing English, but this was a slow change, since it is difficult to make people forget a language they already know. Although derived from English, Newspeak was a thoroughly modified and simplified language. Its main purpose was to enforce conformity to Ingsoc, the current totalitarian ideology. It was expected that Newspeak would finally supersede English by about 2050.

"The purpose of Newspeak," Orwell explains, "was not only to provide a medium of expression for the world-view and mental habits proper to the devotees of Ingsoc, but to make all other modes of thought impossible. It was intended that when Newspeak had been adopted once and for all and Oldspeak [English] forgotten, a heretical thought – that is, a thought diverging from the principles of Ingsoc – should be literally unthinkable, at least so far as thought is dependent on words. Its vocabulary was so constructed as to give exact and often very subtle expression to every meaning that a Party member could properly wish to express, while excluding all other meanings and also the possibility of arriving at them by indirect methods. This was done partly by the

[1] See, for example, these three essays: "Literature and Totalitarianism," in *The Collected Essays, Journalism and Letters of George Orwell*, vol. 2, eds. Sonia Orwell and Ian Angus (London: Penguin Books, 1970); "The Prevention of Literature," in *Collected Essays*, vol. 4; "Politics and the English Language," in *Collected Essays*, vol. 4. We will examine these writings in "Orwell's Model of Totalitarianism" in chapter 8.

invention of new words, but chiefly by eliminating undesirable words and by stripping such words as remained of unorthodox meanings, and so far as possible of all secondary meanings whatever."[2]

The last sentence in the foregoing quotation summarizes the methods whereby, in Orwell's view, language can be employed to control minds: inventing new words, and eliminating words or word meanings. These methods, unsurprisingly, parallel the methods of language manipulation practised by our own charlatans. As we saw earlier, the aim of language manipulation is to impoverish thought through abstraction and reification: people are prevented from discovering the details associated with a certain message, and from connecting this message to previous knowledge structures. Since the designers of Newspeak had greater power, it is even easier to recognize the efficacy of these methods in Newspeak. In particular, they were not only *adding* new words and meanings, but also *eliminating* words and meanings.

2

Let us see first how Newspeak forced people to reify knowledge structures. The chief means was the elimination of words: "Quite apart from the suppression of definitely heretical words, reduction of vocabulary was regarded as an end in itself.... Newspeak was designed not to extend but to *diminish* the range of thought, and this purpose was indirectly assisted by cutting the choice of words down to a minimum."[3] Eliminating words restricts thought by preventing people from developing and expressing certain ideas altogether, or by altering their intended meaning, as people are forced to express those ideas through the remaining words: "Newspeak, indeed, differed from almost all other languages in that its vocabulary grew smaller instead of larger every year. Each reduction was a gain, since the smaller the area of choice, the smaller the temptation to take thought."[4] In the end, thought becomes both unnecessary and impossible, having been replaced with the simpler act of selecting from a small vocabulary the words and phrases appropriate for the occasion. Putting together sentences and ideas is then reduced to a mechanical and predictable process, determined largely by the language itself.

More subtle than the elimination of words is the elimination of meanings; that is, the restriction of words to one rigid meaning. For example, "the word *free* still existed in Newspeak, but it could only be used in such statements as 'This dog is free from lice' or 'This field is free from weeds.' It could not be used

[2] George Orwell, *Nineteen Eighty-Four* (London: Penguin Books, 1983), pp. 257–258.
[3] Ibid., p. 258. [4] Ibid., p. 265.

in its old sense of 'politically free' or 'intellectually free,' since political and intellectual freedom no longer existed even as concepts, and were therefore of necessity nameless."[5]

Recall our discussion in "Mechanistic Communication." A linguistic structure – a story, for instance – consists of many interacting structures. We recognize these structures as the various *aspects* of the story. The words that make up the story provide the links between these structures. And it is by combining these structures in the mind, and by combining them also with some knowledge structures present in the mind, that we create the new, complex structure needed to understand the story.

Words can function as links between structures because they hold for us many meanings – meanings we assimilated in the past by encountering the words in diverse contexts. Thus, words can have many meanings because the things they represent can have many attributes. Each attribute gives rise to a different structure by relating the things which possess that attribute, and hence the words representing these things, in a particular way. Just like the things themselves, then, the words belong to several structures at the same time (one structure for each attribute), thereby causing these structures to interact.

The important point is that it is largely through these diverse meanings that complex knowledge structures are possible, because only when words act as links between structures can we combine simple structures into complex ones. So, by restricting each word to one meaning, the designers of Newspeak try to prevent the formation of complex knowledge structures. As Syme, the Newspeak expert, explains to Smith: "Don't you see that the whole aim of Newspeak is to narrow the range of thought?… Every concept that can ever be needed will be expressed by exactly *one* word, with its meaning rigidly defined and all its subsidiary meanings rubbed out and forgotten."[6]

To deceive us, the present-day charlatans must *tempt* us, by means of cleverly constructed sentences, to reify their linguistic messages; that is, to treat them as independent structures. With Newspeak, by eliminating words and meanings, the language itself performs this task: the linguistic structures give rise to simple, isolated knowledge structures, which the mind cannot easily connect with other structures. This is the kind of knowledge that machines can also hold, so human intelligence is restricted to the level of machines.

[5] Ibid., p. 258. [6] Ibid., p. 49.

3

Let us see now how Newspeak raised the level of abstraction. Recall what is the fallacy of abstraction: impoverishing language structures by treating high-level linguistic entities as *starting* elements. But abstraction, as we know, also causes reification: when losing the low-level language elements we also lose the low-level links between language structures, and between language structures and many knowledge structures. In the end, not just language but all knowledge is impoverished.

In Newspeak, as in the present-day languages, a number of methods were employed to raise the level of abstraction. One method was to invent new words, meant to express only abstract concepts: "The special function of certain Newspeak words … was not so much to express meanings as to destroy them. These words, necessarily few in number, had had their meanings extended until they contained within themselves whole batteries of words which, as they were sufficiently covered by a single comprehensive term, could now be scrapped and forgotten."[7] Since the new words subsumed many different terms, they covered a wide range of meanings; they functioned, therefore, as high levels of abstraction. They rendered the low-level terms meaningless by erasing the differences between them: "A few blanket words covered them, and, in covering them, abolished them."[8] No real knowledge is possible when the starting elements of the knowledge structures are abstract concepts.

In Newspeak this method was used mostly for words related to political matters: "words, that is to say, which not only had in every case a political implication, but were intended to impose a desirable mental attitude upon the person using them."[9] The new terms were always compound words, abbreviations formed from the syllables of two or three words: "Thinkpol" for Thought Police, "Minitrue" for Ministry of Truth, "goodthink" for politically correct views, etc.

In the present-day languages we don't limit this practice to political terms, but extend it to any domain where language can be used to control minds. Our languages are not as advanced as Newspeak, though, so we must create new terms by combining two or three *entire* words. In the domain of software, for instance, we have replaced countless notions and particulars with a few blanket terms – "information technology," "software engineering," "object-oriented," "client/server," etc. On the other hand, we also create new terms by reducing

[7] Ibid., p. 262. [8] Ibid. [9] Ibid., p. 260.

phrases to *acronyms* (that is, complete abbreviations); so in this respect, at least, our languages are more advanced than Newspeak. But, despite these differences, our new terms fulfil the same function as the political terms in Newspeak: they abolish the specific meanings, and "impose a desirable mental attitude upon the person using them."

We have already discussed the use of acronyms as a way to raise the level of abstraction, thereby obscuring the meaning of the original words and impoverishing the new knowledge structures (see pp. 371–372, 393–394). But it is worth quoting in full Orwell's perceptive analysis, probably the first serious study of this phenomenon: "Even in the early decades of the twentieth century, telescoped words and phrases had been one of the characteristic features of political language; and it had been noticed that the tendency to use abbreviations of this kind was most marked in totalitarian countries and totalitarian organizations. Examples were such words as *Nazi*, *Gestapo*, *Comintern*, *Inprecorr*, *Agitprop*. In the beginning the practice had been adopted as it were instinctively, but in Newspeak it was used with a conscious purpose. It was perceived that in thus abbreviating a name one narrowed and subtly altered its meaning, by cutting out most of the associations that would otherwise cling to it. The words *Communist International*, for instance, call up a composite picture of universal human brotherhood, red flags, barricades, Karl Marx, and the Paris Commune. The word *Comintern*, on the other hand, suggests merely a tightly knit organization and a well-defined body of doctrine. It refers to something almost as easily recognized, and as limited in purpose, as a chair or a table. *Comintern* is a word that can be uttered almost without taking thought, whereas *Communist International* is a phrase over which one is obliged to linger at least momentarily. In the same way, the associations called up by a word like *Minitrue* are fewer and more controllable than those called up by *Ministry of Truth*. This accounted not only for the habit of abbreviating whenever possible, but also for the almost exaggerated care that was taken to make every word easily pronounceable."[10]

Euphony, thus, was a major consideration in Newspeak. Ease of pronunciation and recognition made discourse possible mechanically, without thinking, as the new word alone – rather than the original words, with their complex meanings and associations – formed now the lowest level of abstraction: "What was required, above all for political purposes, were short clipped words of unmistakable meaning which could be uttered rapidly and which roused the minimum of echoes in the speaker's mind.… The intention was to make speech, and especially speech on any subject not ideologically neutral, as nearly as possible independent of consciousness."[11]

[10] Ibid., p. 264. [11] Ibid., pp. 264–265.

Again, Orwell discusses political terms, but this principle can be used to make speech independent of consciousness in any domain. In the domain of software, for instance, short and easily pronounceable acronyms (IT, MIS, GUI, CASE, OOP, JAD, RAD, COM, OLE, OCX, CORBA, RIA, AJAX, SOA, ESB, EAS, EII, LAN, WAN, SAN, ODBC, TCM, BI, BPM, BPR, ERP, OLAP, OLTP, OSS, OMT, DOC, XML, SML, CMS, CRM, MRP, etc.[12]) serve this purpose well. By quickly reading or pronouncing the acronyms, instead of consciously articulating the original words, we avoid the associations those words might arouse in the mind. So the acronyms act as new words. They represent high levels of abstraction, but they become *starting* elements in the knowledge structures developed by their users.

❖

Another way to raise the level of abstraction in Newspeak was by simplifying the grammar. In most cases, one word functioned as both noun and verb, while adjectives, adverbs, and inflections (plural, negative, comparison of adjectives) were derived from the same word by means of standard affixes. This reduction was enhanced by the general elimination of words, previously mentioned. And, as is always the case with abstraction, the elimination of word alternatives also reduced the links between knowledge structures. Newspeak tried, in effect, to turn words into a system of codes, and thereby reduce linguistic communication to machine-like performance: "All ambiguities and shades of meaning had been purged out of them. So far as it could be achieved, a Newspeak word of this class was simply a staccato sound expressing *one* clearly understood concept."[13]

For example, "good" was the only word retained from the hundreds of words related to goodness and badness. Words like "splendid" and "odious" were eliminated. The word for "bad" was "ungood," "better" and "best" became "gooder" and "goodest," and "well" became "goodwise." Only two higher levels of goodness were possible, "plusgood" and "doubleplusgood," which meant, approximately, "very good" and "extremely good." Other families of related words were similarly formed, starting with one basic word and abolishing the variants, the irregularities, and the old inflections.

When we use diverse words to express an idea – nouns, verbs, negative forms, levels of emphasis – we do more than specify different codes. Words like "excellent," "bad," "superb," "inferior," "wonderful," "lousy," and the many others, are more than mere marks on a scale of goodness and badness. Each

[12] The deciphering of these acronyms will be left (as they say in textbooks) as an exercise for the reader.

[13] Orwell, *Nineteen Eighty-Four*, p. 258.

one of these words has its own meanings, its own associations, and if we replace them with a system of codes we destroy the links between the idea of goodness and badness and our other knowledge. To put it differently, even if the new language still permits a hundred levels of goodness and badness, by defining them as mere marks on a scale we restrict our thinking to what a machine can do: the mechanical selection of an appropriate value. Without the variety of meanings provided by words, we lose the interactions between the different aspects of knowledge.

But in fact these codes comprise only a *few* values, not a hundred, so one value stands for many alternatives. The codes, therefore, are of a higher level of abstraction than the original words. The regularity and the standard affixes amplify this reduction: although several words can be constructed from a basic word, they are not really different words. "Good" and "ungood," for example, do not express different concepts in the way "good" and "bad" do. The designers of Newspeak saw this clearly: "In the end the whole notion of goodness and badness will be covered by only six words – in reality, only one word."[14] The idea of goodness and badness as we know it will cease to exist if the only way to express it is with one word and some prefixes and suffixes. Thus, the structure of goodness and badness – itself reified, isolated from other knowledge structures through the destruction of the alternative words – is further impoverished by raising the level of abstraction.

4

Recall the logically perfect languages we examined in chapter 4. Leibniz, Frege, Russell, and Carnap would have been quite comfortable in Orwell's totalitarian society – in their capacity as scientists, at least – because in this society their mechanistic theories would indeed work. Newspeak, after all, is in many ways the perfect language they were all seeking. For instance, a logically perfect language permits only a direct, one-to-one correspondence between words and things: "In a logically perfect language, there will be one word and no more for every simple object …."[15] And in Newspeak, "every concept that can ever be needed will be expressed by exactly *one* word, with its meaning rigidly defined."[16]

The purpose of a perfect language, we saw, is to express with mathematical precision all possible knowledge – all the facts that can occur in the world, and

[14] Ibid., p. 49.

[15] Bertrand Russell, *The Philosophy of Logical Atomism* (Peru, IL: Open Court, 1985), p. 157.

[16] Orwell, *Nineteen Eighty-Four*, p. 49.

all the thoughts that can occur in a mind. Since these scientists believed that such a language can exist, the conclusion must be that their conception of knowledge and mind is similar to the diminished one found in totalitarian societies. This degradation is the inevitable result of the mechanistic dogma. What all mechanists do, in the final analysis, is attempt to prove that human beings are merely complicated machines; and this idea, Orwell says, is the root of totalitarianism.

Thus, Orwell's main contribution has been to make us aware of the link between language and totalitarianism; specifically, the ease with which language can be used to control knowledge and minds, and hence the lives of millions of people. Long before writing *Nineteen Eighty-Four*, Orwell was protesting against the language abuses he observed around him: advertisers, lecturers, pamphleteers, politicians – anyone who wanted to influence large numbers of people started by manipulating language. While common in the totalitarian countries of that period, Orwell was disturbed to see this practice spreading also in the democratic ones. Language manipulation is so convenient, he concluded, that no one who benefits from it can resist the temptation of perpetrating it: "The connexion between totalitarian habits of thought and the corruption of language is an important subject which has not been sufficiently studied."[17]

Living in a democratic society, therefore, does not protect us from an elite that attempts to control our life through language. And the fact that a real society cannot actually reach the level of manipulation depicted in *Nineteen Eighty-Four* does not lessen the danger. This is a model, not a prophesy. Orwell chose to describe an unrealistic, extreme form of mind control in order to demonstrate the *potential* of language manipulation. His message is clear: by restricting language to its mechanistic aspects, an elite can restrict mental processes to the level of machines.

Thus, Orwell's second contribution has been to make us aware of the link between language and mechanism. As we saw, the language manipulation he describes reflects the two mechanistic fallacies, reification and abstraction. Although he doesn't use the term "mechanism," it is obvious – both from *Nineteen Eighty-Four* and from his earlier writings – that he understood the difference between mechanistic and non-mechanistic thinking. In particular, he recognized the indeterminism and creativity inherent in language, and the impossibility of building a device with the linguistic capabilities of human beings; in other words, precisely what the mechanists fail to understand (recall the linguistic theories we examined in chapters 3 and 4).

For example, in one of his essays, Orwell comments on the "mechanizing

[17] George Orwell, "Editorial to *Polemic*," in *Collected Essays*, vol. 4, p. 188.

process"[18] that was replacing the work of individuals in literature, movies, radio, publicity, and journalism: "It would probably not be beyond human ingenuity to write books by machinery."[19] But this is true, he explains, only because language has already been so degraded that what is being written for the masses is comparable to what can be produced by a machine. This type of writing is done by hacks and bureaucrats who work like automatons, following instructions received from their superiors. And he concludes: "It is probably in some such way that the literature of a totalitarian society would be produced …. Imagination – even consciousness so far as possible – would be eliminated from the process of writing."[20] Mechanism and totalitarianism expand together.

Orwell's ultimate message, then, is about the link between mechanism and totalitarianism. What the elite wants is to control people, and the simplest way to achieve this is by controlling their minds: by forcing people to think like automatons. The mechanistic philosophy, Orwell warns us, leads to totalitarianism. His model uses language because this is what he understood best, and because this is indeed an effective way to control minds. But, in fact, any widespread human phenomenon can be restricted by an elite to its mechanistic aspects, and used to implement totalitarianism. Thus, in our time, *software* has emerged as such a phenomenon. (We will study this subject in chapters 6 and 8.)

[18] George Orwell, "The Prevention of Literature," in *Collected Essays*, vol. 4, p. 92.

[19] Ibid.

[20] Ibid., p. 93. Clearly, the imaginary, extreme language abuses invented by Orwell for the totalitarian society of *Nineteen Eighty-Four* (mind control through language, book writing by machines, etc.) were inspired by the *real* abuses he observed in the *democratic* societies of his time.