6. The Pragmatics of Narrative Knowledge

In Section 1, I leveled two objections against the unquestioning acceptance of an instrumental conception of knowledge in the most highly developed societies. Knowledge is not the same as science, especially in its contemporary form; and science, far from successfully obscuring the problem of its legitimacy, cannot avoid raising it with all of its implications, which are no less sociopolitical than epistemological. Let us begin with an analysis of the nature of "narrative" knowledge; by providing a point of comparison, our examination will clarify at least some of the characteristics of the form assumed by scientific knowledge in contemporary society. In addition, it will aid us in understanding how the question of legitimacy is raised or fails to be raised today.

Knowledge [*savoir*] in general cannot be reduced to science, nor even to learning [*connaissance*]. Learning is the set of statements which, to the exclusion of all other statements, denote or describe objects and may be declared true or false.[65] Science is a subset of learning. It is also composed of denotative statements, but imposes two supplementary conditions on their acceptability: the objects to which they refer must be available for repeated access, in other words, they must be accessible in explicit conditions of observation; and it must be possible to decide whether or not a given statement pertains to the language judged relevant by the experts.[66]

But what is meant by the term *knowledge* is not only a set of denotative statements, far from it. It also includes notions of "know-how," "knowing how to live," "how to listen" [*savoir-faire, savoir-vivre, savoir-écouter*], etc. Knowledge, then, is a question of competence that goes beyond the simple determination and application of the criterion of truth, extending to the determination and application of criteria of efficiency (technical qualification), of justice and/or happiness (ethical wisdom), of the beauty of a sound or color (auditory and visual sensibility), etc. Understood in this way, knowledge is what makes someone capable of forming "good" denotative utterances, but also "good" prescriptive and "good" evaluative utterances. . . . It is not a competence relative to a particular class of statements (for example, cognitive ones) to the exclusion of all others. On the contrary, it makes "good" performances in relation to a variety of objects of discourse possible: objects to be known, decided on, evaluated, transformed. . . . From this derives one of the principal features of knowledge: it coincides with an extensive array

of competence-building measures and is the only form embodied in a subject constituted by the various areas of competence composing it.

Another characteristic meriting special attention is the relation between this kind of knowledge and custom. What is a "good" prescriptive or evaluative utterance, a "good" performance in denotative or technical matters? They are all judged to be "good" because they conform to the relevant criteria (of justice, beauty, truth, and efficiency respectively) accepted in the social circle of the "knower's" interlocutors. The early philosophers called this mode of legitimating statements opinion.[67] The consensus that permits such knowledge to be circumscribed and makes it possible to distinguish one who knows from one who doesn't (the foreigner, the child) is what constitutes the culture of a people.[68]

This brief reminder of what knowledge can be in the way of training and culture draws on ethnological description for its justification.[69] But anthropological studies and literature that take rapidly developing societies as their object can attest to the survival of this type of knowledge within them, at least in some of their sectors.[70] The very idea of development presupposes a horizon of nondevelopment where, it is assumed, the various areas of competence remain enveloped in the unity of a tradition and are not differentiated according to separate qualifications subject to specific innovations, debates, and inquiries. This opposition does not necessarily imply a difference in nature between "primitive" and "civilized" man,[71] but is compatible with the premise of a formal identity between "the savage mind" and scientific thought;[72] it is even compatible with the (apparently contrary) premise of the superiority of customary knowledge over the contemporary dispersion of competence.[73]

It is fair to say that there is one point on which all of the investigations agree, regardless of which scenario they propose to dramatize and understand the distance separating the customary state of knowledge from its state in the scientific age: the preeminence of the narrative form in the formulation of traditional knowledge. Some study this form for its own sake;[74] others see it as the diachronic costume of the structural operators that, according to them, properly constitute the knowledge in question;[75] still others bring to it an "economic" interpretation in the Freudian sense of the term.[76] All that is important here is the fact that its form is narrative. Narration is the quintessential form of customary knowledge, in more ways than one.

First, the popular stories themselves recount what could be called

positive or negative apprenticeships (*Bildungen*): in other words, the successes or failures greeting the hero's undertakings. These successes or failures either bestow legitimacy upon social institutions (the function of myths), or represent positive or negative models (the successful or unsuccessful hero) of integration into established institutions (legends and tales). Thus the narratives allow the society in which they are told, on the one hand, to define its criteria of competence and, on the other, to evaluate according to those criteria what is performed or can be performed within it.

Second, the narrative form, unlike the developed forms of the discourse of knowledge, lends itself to a great variety of language games. Denotative statements concerning, for example, the state of the sky and the flora and fauna easily slip in; so do deontic statements prescribing what should be done with respect to these same referents, or with respect to kinship, the difference between the sexes, children, neighbors, foreigners, etc. Interrogative statements are implied, for example, in episodes involving challenges (respond to a question, choose one from a number of things); evaluative statements also enter in, etc. The areas of competence whose criteria the narrative supplies or applies are thus tightly woven together in the web it forms, ordered by the unified viewpoint characteristic of this kind of knowledge.

We shall examine in somewhat more detail a third property, which relates to the transmission of narratives. Their narration usually obeys rules that define the pragmatics of their transmission. I do not mean to say that a given society institutionally assigns the role of narrator to certain categories on the basis of age, sex, or family or professional group. What I am getting at is a pragmatics of popular narratives that is, so to speak, intrinsic to them. For example, a Cashinahua[77] storyteller always begins his narration with a fixed formula: "Here is the story of—, as I've always heard it told. I will tell it to you in my turn. Listen." And he brings it to a close with another, also invariable, formula: "Here ends the story of—. The man who has told it to you is— (Cashinahua name), or to the Whites— (Spanish or Portuguese name)."[78]

A quick analysis of this double pragmatic instruction reveals the following: the narrator's only claim to competence for telling the story is the fact that he has heard it himself. The current narratee gains potential access to the same authority simply by listening. It is claimed that the narrative is a faithful transmission (even if the narrative performance is highly inventive) and that it has been told "forever": therefore the hero, a Cashinahuan, was himself once a narratee,

and perhaps a narrator, of the very same story. This similarity of condition allows for the possibility that the current narrator could be the hero of a narrative, just as the Ancestor was. In fact, he is necessarily such a hero because he bears a name, declined at the end of his narration, and that name was given to him in conformity with the canonic narrative legitimating the assignment of patronyms among the Cashinahua.

The pragmatic rule illustrated by this example cannot, of course, be universalized.[79] But it gives insight into what is a generally recognized property of traditional knowledge. The narrative "posts" (sender, addressee, hero) are so organized that the right to occupy the post of sender receives the following double grounding: it is based upon the fact of having occupied the post of addressee, and of having been recounted oneself, by virtue of the name one bears, by a previous narrative—in other words, having been positioned as the diegetic reference of other narrative events.[80] The knowledge transmitted by these narrations is in no way limited to the functions of enunciation; it determines in a single stroke what one must say in order to be heard, what one must listen to in order to speak, and what role one must play (on the scene of diegetic reality) to be the object of a narrative.

Thus the speech acts[81] relevant to this form of knowledge are performed not only by the speaker, but also by the listener, as well as by the third party referred to. The knowledge arising from such an apparatus may seem "condensed" in comparison with what I call "developed" knowledge. Our example clearly illustrates that a narrative tradition is also the tradition of the criteria defining a threefold competence—"know-how," "knowing how to speak," and "knowing how to hear" [*savoir-faire, savoir-dire, savoir-entendre*]—through which the community's relationship to itself and its environment is played out. What is transmitted through these narratives is the set of pragmatic rules that constitutes the social bond.

A fourth aspect of narrative knowledge meriting careful examination is its effect on time. Narrative form follows a rhythm; it is the synthesis of a meter beating time in regular periods and of accent modifying the length or amplitude of certain of those periods.[82] This vibratory, musical property of narrative is clearly revealed in the ritual performance of certain Cashinahua tales: they are handed down in initiation ceremonies, in absolutely fixed form, in a language whose meaning is obscured by lexical and syntactic anomalies, and they are sung as interminable, monotonous chants.[83] It is a strange brand of knowledge, you may say, that does not even make itself understood to the young men to whom it is addressed!

And yet this kind of knowledge is quite common; nursery rhymes are of this type, and repetitive forms of contemporary music have tried to recapture or at least approximate it. It exhibits a surprising feature: as meter takes precedence over accent in the production of sound (spoken or not), time ceases to be a support for memory to become an immemorial beating that, in the absence of a noticeable separation between periods, prevents their being numbered and consigns them to oblivion.[84] Consider the form of popular sayings, proverbs, and maxims: they are like little splinters of potential narratives, or molds of old ones, which have continued to circulate on certain levels of the contemporary social edifice. In their prosody can be recognized the mark of that strange temporalization that jars the golden rule of our knowledge: "never forget."

Now there must be a congruence between this lethal function of narrative knowledge and the functions, cited earlier, of criteria formation, the unification of areas of competence, and social regulation. By way of a simplifying fiction, we can hypothesize that, against all expectations, a collectivity that takes narrative as its key form of competence has no need to remember its past. It finds the raw material for its social bond not only in the meaning of the narratives it recounts, but also in the act of reciting them. The narratives' reference may seem to belong to the past, but in reality it is always contemporaneous with the act of recitation. It is the present act that on each of its occurrences marshals in the ephemeral temporality inhabiting the space between the "I have heard" and the "you will hear."

The important thing about the pragmatic protocol of this kind of narration is that it betokens a theoretical identity between each of the narrative's occurrences. This may not in fact be the case, and often is not, and we should not blind ourselves to the element of humor or anxiety noticeable in the respect this etiquette inspires. The fact remains that what is emphasized is the metrical beat of the narrative occurrences, not each performance's differences in accent. It is in this sense that this mode of temporality can be said to be simultaneously evanescent and immemorial.[85]

Finally, a culture that gives precedence to the narrative form doubtless has no more of a need for special procedures to authorize its narratives than it has to remember its past. It is hard to imagine such a culture first isolating the post of narrator from the others in order to give it a privileged status in narrative pragmatics, then inquiring into what right the narrator (who is thus disconnected from the narratee and diegesis) might have to recount what he recounts,

and finally undertaking the analysis or anamnesis of its own legitimacy. It is even harder to imagine it handing over the authority for its narratives to some incomprehensible subject of narration. The narratives themselves have this authority. In a sense, the people are only that which actualizes the narratives: once again, they do this not only by recounting them, but also by listening to them and recounting themselves through them; in other words, by putting them into "play" in their institutions—thus by assigning themselves the posts of narratee and diegesis as well as the post of narrator.

There is, then, an incommensurability between popular narrative pragmatics, which provides immediate legitimation, and the language game known to the West as the question of legitimacy—or rather, legitimacy as a referent in the game of inquiry. Narratives, as we have seen, determine criteria of competence and/or illustrate how they are to be applied. They thus define what has the right to be said and done in the culture in question, and since they are themselves a part of that culture, they are legitimated by the simple fact that they do what they do.

7. The Pragmatics of Scientific Knowledge

Let us attempt to characterize, if only in summary fashion, the classical conception of the pragmatics of scientific knowledge. In the process, we will distinguish between the research game and the teaching game.

Copernicus states that the path of the planets is circular.[86] Whether this proposition is true or false, it carries within it a set of tensions, all of which affect each of the pragmatic posts it brings into play: sender, addressee, and referent. These "tensions" are classes of prescriptions which regulate the admissibility of the statement as "scientific."

First, the sender should speak the truth about the referent, the path of the planets. What does this mean? That on the one hand he is supposed to be able to provide proof of what he says, and on the other hand he is supposed to be able to refute any opposing or contradictory statements concerning the same referent.

Second, it should be possible for the addressee validly to give (or refuse) his assent to the statement he hears. This implies that he is himself a potential sender, since when he formulates his agreement or disagreement he will be subject to the same double requirement (or proof or refutation) that Copernicus was. He is therefore supposed to have, potentially, the same qualities as Copernicus: he is his equal.

But this will only become known when he speaks and under the above conditions. Before that, it will be impossible to say whether or not he is a scientific scholar.

Third, the referent (the path of the planets) of which Copernicus speaks is supposed to be "expressed" by his statement in conformity with what it actually is. But since what it is can only be known through statements of the same order as that of Copernicus, the rule of adequation becomes problematical. What I say is true because I prove that it is—but what proof is there that my proof is true?

The scientific solution of this difficulty consists in the observance of two rules. The first of these is dialectical or even rhetorical in the forensic sense:[87] a referent is that which is susceptible to proof and can be used as evidence in a debate. Not: I can prove something because reality is the way I say it is. But: as long as I can produce proof, it is permissible to think that reality is the way I say it is.[88] The second rule is metaphysical; the same referent cannot supply a plurality of contradictory or inconsistent proofs. Or stated differently: "God" is not deceptive.[89]

These two rules underlie what nineteenth-century science calls verification and twentieth-century science, falsification.[90] They allow a horizon of consensus to be brought to the debate between partners (the sender and the addressee). Not every consensus is a sign of truth; but it is presumed that the truth of a statement necessarily draws a consensus.

That covers research. It should be evident that research appeals to teaching as its necessary complement: the scientists needs an addressee who can in turn become the sender; he needs a partner. Otherwise, the verification of his statements would be impossible, since the nonrenewal of the requisite skills would eventually bring an end to the necessary, contradictory debate. Not only the truth of a scientist's statement, but also his competence, is at stake in that debate. One's competence is never an accomplished fact. It depends on whether or not the statement proposed is considered by one's peers to be worth discussion in a sequence of argumentation and refutation. The truth of the statement and the competence of its sender are thus subject to the collective approval of a group of persons who are competent on an equal basis. Equals are needed and must be created.

Didactics is what ensures that this reproduction takes place. It is different from the dialectical game of research. Briefly, its first presupposition is that the addressee, the student, does not know what the sender knows: obviously, that is why he has something to learn. Its second presupposition is that the student can learn what the

sender knows and become an expert whose competence is equal to that of his master.[91] This double requirement supposes a third: that there are statements for which the exchange of arguments and the production of proof constituting the pragmatics of research are considered to have been sufficient, and which can therefore be transmitted through teaching as they stand, in the guise of indisputable truths.

In other words, you teach what you know: such is the expert. But as the student (the addressee of the didactic process) improves his skills, the expert can confide to him what he does not know but is trying to learn (at least if the expert is also involved in research). In this way, the student is introduced to the dialectics of research, or the game of producing scientific knowledge.

If we compare the pragmatics of science to that of narrative knowledge, we note the following properties:

1. Scientific knowledge requires that one language game, denotation, be retained and all others excluded. A statement's truth-value is the criterion determining its acceptability. Of course, we find other classes of statements, such as interrogatives ("How can we explain that . . . ?") and prescriptives ("Take a finite series of elements . . . "). But they are only present as turning points in the dialectical argumentation, which must end in a denotative statement.[92] In this context, then, one is "learned" if one can produce a true statement about a referent, and one is a scientist if one can produce verifiable or falsifiable statements about referents accessible to the experts.

2. Scientific knowledge is in this way set apart from the language games that combine to form the social bond. Unlike narrative knowledge, it is no longer a direct and shared component of the bond. But it is indirectly a component of it, because it developes into a profession and gives rise to institutions, and in modern societies language games consolidate themselves in the form of institutions run by qualified partners (the professional class). The relation between knowledge and society (that is, the sum total of partners in the general agonistics, excluding scientists in their professional capacity) becomes one of mutual exteriority. A new problem appears—that of the relationship between the scientific institution and society. Can this problem be solved by didactics, for example, by the premise that any social atom can acquire scientific competence?

3. Within the bounds of the game of research, the competence required concerns the post of sender alone. There is no particular competence required of the addressee (it is required only in didactics—the student must be intelligent). And there is no competence required

of the referent. Even in the case of the human sciences, where it is an aspect of human conduct, the referent is in principle external to the partners engaged in scientific dialectics. Here, in contrast to the narrative game, a person does not have to know how to be what knowledge says he is.

4. A statement of science gains no validity from the fact of being reported. Even in the case of pedagogy, it is taught only if it is still verifiable in the present through argumentation and proof. In itself, it is never secure from "falsification."[93] The knowledge that has accumulated in the form of already accepted statements can always be challenged. But conversely, any new statement that contradicts a previously approved statement regarding the same referent can be accepted as valid only if it refutes the previous statement by producing arguments and proofs.

5. The game of science thus implies a diachronic temporality, that is, a memory and a project. The current sender of a scientific statement is supposed to be acquainted with previous statements concerning its referent (bibliography) and only proposes a new statement on the subject if it differs from the previous ones. Here, what I have called the "accent" of each performance, and by that token the polemical function of the game, takes precedence over the "meter." This diachrony, which assumes memory and a search for the new, represents in principle a cumulative process. Its "rhythm," or the relationship between accent and meter, is variable.[94]

These properties are well known. But they are worth recalling for two reasons. First, drawing a parallel between science and nonscientific (narrative) knowledge helps us understand, or at least sense, that the former's existence is no more—and no less—necessary than the latter's. Both are composed of sets of statements; the statements are "moves" made by the players within the framework of generally applicable rules; these rules are specific to each particular kind of knowledge, and the "moves" judged to be "good" in one cannot be of the same type as those judged "good" in another, unless it happens that way by chance.

It is therefore impossible to judge the existence or validity of narrative knowledge on the basis of scientific knowledge and vice versa: the relevant criteria are different. All we can do is gaze in wonderment at the diversity of discursive species, just as we do at the diversity of plant or animal species. Lamenting the "loss of meaning" in postmodernity boils down to mourning the fact that knowledge is no longer principally narrative. Such a reaction does not necessarily follow. Neither does an attempt to derive or engender (using operators like development) scientific knowledge from narrative knowledge, as if the former contained the latter in an embryonic state.

Nevertheless, language species, like living species, are interrelated, and their relations are far from harmonious. The second point justifying this quick reminder on the properties of the language game of science concerns, precisely, its relation to narrative knowledge. I have said that narrative knowledge does not give priority to the question of its own legitimation and that it certifies itself in the pragmatics of its own transmission without having recourse to argumentation and proof. This is why its incomprehension of the problems of scientific discourse is accompanied by a certain tolerance: it approaches such discourse primarily as a variant in the family of narrative cultures.[95] The opposite is not true. The scientist questions the validity of narrative statements and concludes that they are never subject to argumentation or proof.[96] He classifies them as belonging to a different mentality: savage, primitive, underdeveloped, backward, alienated, composed of opinions, customs, authority, prejudice, ignorance, ideology. Narratives are fables, myths, legends, fit only for women and children. At best, attempts are made to throw some rays of light into this obscurantism, to civilize, educate, develop.

This unequal relationship is an intrinsic effect of the rules specific to each game. We all know its symptoms. It is the entire history of cultural imperialism from the dawn of Western civilization. It is important to recognize its special tenor, which sets it apart from all other forms of imperialism: it is governed by the demand for legitimation.

8. The Narrative Function and the Legitimation of Knowledge

Today the problem of legitimation is no longer considered a failing of the language game of science. It would be more accurate to say that it has itself been legitimated as a problem, that is, as a heuristic driving force. But this way of dealing with it by reversing the situation is of recent date. Before it came to this point (what some call positivism), scientific knowledge sought other solutions. It is remarkable that for a long time it could not help resorting for its solutions to procedures that, overtly or not, belong to narrative knowledge.

This return of the narrative in the non-narrative, in one form or another, should not be thought of as having been superseded once and for all. A crude proof of this: what do scientists do when they appear on television or are interviewed in the newspapers after making a "discovery"? They recount an epic of knowledge that is in fact

wholly unepic. They play by the rules of the narrative game; its influence remains considerable not only on the users of the media, but also on the scientist's sentiments. This fact is neither trivial nor accessory: it concerns the relationship of scientific knowledge to "popular" knowledge, or what is left of it. The state spends large amounts of money to enable science to pass itself off as an epic: the State's own credibility is based on that epic, which it uses to obtain the public consent its decision makers need.[97]

It is not inconceivable that the recourse to narrative is inevitable, at least to the extent that the language game of science desires its statements to be true but does not have the resources to legitimate their truth on its own. If this is the case, it is necessary to admit an irreducible need for history understood, as outlined above—not as a need to remember or to project (a need for historicity, for accent), but on the contrary as a need to forget (a need for *metrum*) (see section 6).

We are anticipating ourselves. But as we proceed we should keep in mind that the apparently obsolete solutions that have been found for the problem of legitimation are not obsolete in principle, but only in their expression; we should not be surprised if we find that they have persisted to this day in other forms. Do not we ourselves, at this moment, feel obliged to mount a narrative of scientific knowledge in the West in order to clarify its status?

The new language game of science posed the problem of its own legitimation at the very beginning—in Plato. This is not the proper place for an exegesis of the passages in the *Dialogues* in which the pragmatics of science is set in motion, either explicitly as a theme or implicitly as a presupposition. The game of dialogue, with its specific requirements, encapsulates that pragmatics, enveloping within itself its two functions of research and teaching. We encounter some of the same rules previously enumerated: argumentation with a view only to consensus (*homologia*); the unicity of the referent as a guarantee for the possibility of agreement; parity between partners; and even an indirect recognition that it is a question of a game and not a destiny, since those who refuse to accept the rules, out of weakness or crudeness, are excluded.[98]

There remains the fact that, given the scientific nature of the game, the question of its own legitimacy must be among those raised in the dialogues. A well-known example of this, which is all the more important since it links this question to that of sociopolitical authority from the start, is to be found in books 6 and 7 of *The Republic*. As we know, the answer, at least part of it, comes in the form of a narrative—the allegory of the cave, which recounts how and why men yearn for narratives and fail to recognize knowledge. Knowledge is thus founded on the narrative of its own martyrdom.

There is more. The legitimation effort, the *Dialogues* of Plato, gives ammunition to narrative by virtue of its own form: each of the dialogues takes the form of a narrative of a scientific discussion. It is of little consequence here that the story of the debate is shown rather than reported, staged rather than narrated,[99] and is therefore more closely related to tragedy than epic. The fact is that the Platonic discourse that inaugurates science is not scientific, precisely to the extent that it attempts to legitimate science. Scientific knowledge cannot know and make known that it is the true knowledge without resorting to the other, narrative, kind of knowledge, which from its point of view is no knowledge at all. Without such recourse it would be in the position of presupposing its own validity and would be stooping to what it condemns: begging the question, proceeding on prejudice. But does it not fall into the same trap by using narrative as its authority?

This is not the place to chart the recurrence of the narrative in the scientific by way of the latter's discourses of legitimation, which include but are not limited to the great ancient, medieval, and classical philosophies. Endless torment. As resolute a philosophy as that of Descartes can only demonstrate the legitimacy of science through what Valéry called the story of a mind,[100] or else in a *Bildungsroman*, which is what the *Discourse on Method* amounts to. Aristotle was doubtless one of the most modern of all in separating the rules to which statements declared scientific must conform (the *Organon*) from the search for their legitimacy in a discourse on Being (the *Metaphysics*). Even more modern was his suggestion that scientific knowledge, including its pretension to express the being of the referent, is composed only of arguments and proofs—in other words, of dialectics.[101]

With modern science, two new features appear in the problematic of legitimation. To begin with, it leaves behind the metaphysical search for a first proof or transcendental authority as a response to the question: "How do you prove the proof?" or, more generally, "Who decides the conditions of truth?" It is recognized that the conditions of truth, in other words, the rules of the game of science, are immanent in that game, that they can only be established within the bonds of a debate that is already scientific in nature, and that there is no other proof that the rules are good than the consensus extended to them by the experts.

Accompanying the modern proclivity to define the conditions of a discourse in a discourse on those conditions is a renewed dignity for narrative (popular) cultures, already noticeable in Renaissance Humanism and variously present in the Enlightenment, the *Sturm und Drang*, German idealist philosophy, and the historical school in France. Narration is no longer an involuntary lapse in the legitimation process. The explicit appeal to narrative in the problematic of knowledge is concomitant with the liberation of the bourgeois classes from the traditional authorities. Narrative knowledge makes a resurgence in the West as a way of solving the problem of legitimating the new authorities. It is natural in a narrative problematic for such a question to solicit the name of a hero as its response: *Who* has the right to decide for society? Who is the subject whose prescriptions are norms for those they obligate?

This way of inquiring into sociopolitical legitimacy combines with the new scientific attitude: the name of the hero is the people, the sign of legitimacy is the people's consensus, and their mode of creating norms is deliberation. The notion of progress is a necessary outgrowth of this. It represents nothing other than the movement by which knowledge is presumed to accumulate—but this movement is extended to the new sociopolitical subject. The people debate among themselves about what is just or unjust in the same way that the scientific community debates about what is true or false; they accumulate civil laws just as scientists accumulate scientific laws; they perfect their rules of consensus just as the scientists produce new "paradigms" to revise their rules in light of what they have learned.[102]

It is clear that what is meant here by "the people" is entirely different from what is implied by traditional narrative knowledge, which, as we have seen, requires to instituting deliberation, no cumulative progression, no pretension to universality; these are the operators of scientific knowledge. It is therefore not at all surprising that the representatives of the new process of legitimation by "the people" should be at the same time actively involved in destroying the traditional knowledge of peoples, perceived from that point forward as minorities or potential separatist movements destined only to spread obscurantism.[103]

We can see too that the real existence of this necessarily abstract subject (it is abstract because it is uniquely modeled on the paradigm of the subject of knowledge—that is, one who sends-receives denotative statements with truth-value to the exclusion of other language games) depends on the institutions within which that subject is supposed to deliberate and decide, and which comprise all or part of the State. The question of the State becomes intimately entwined with that of scientific knowledge.

But it is also clear that this interlocking is many sided. The "people" (the nation, or even humanity), and especially their political institutions, are not content to know—they legislate. That is, they formulate prescriptions that have the status of norms.[104] They therefore exercise their competence not only with respect to denotative utterances concerning what is true, but also prescriptive utterances with pretentions to justice. As already said, what characterizes narrative knowledge, what forms the basis of our conception of it, precisely that it combines both of these kinds of competence, not to mention all the others.

The mode of legitimation we are discussing, which reintroduces narrative as the validity of knowledge, can thus take two routes, depending on whether it represents the subject of the narrative as cognitive or practical, as a hero of knowledge or a hero of liberty. Because of this alternative, not only does the meaning of legitimation vary, but it is already apparent that narrative itself is incapable of describing that meaning adequately.

9. Narratives of the Legitimation of Knowledge

We shall examine two major versions of the narrative of legitimation. One is more political, the other more philosophical; both are of great importance in modern history, in particular in the history of knowledge and its institutions.

The subject of the first of these versions is humanity as the hero of liberty. All peoples have a right to science. If the social subject is not already the subject of scientific knowledge, it is because that has been forbidden by priests and tyrants. The right to science must be reconquered. It is understandable that this narrative would be directed more toward a politics of primary education, rather than of universities and high schools.[105] The educational policy of the French Third Republic powerfully illustrates these presuppositions.

It seems that this narrative finds it necessary to de-emphasize higher education. Accordingly, the measures adopted by Napoleon regarding higher education are generally considered to have been motivated by the desire to produce the administrative and professional skills necessary for the stability of the State.[106] This overlooks the fact that in the context of the narrative of freedom, the State receives its legitimacy not from itself but from the people. So even if imperial politics designated the institutions of higher education as a

breeding ground for the officers of the State and secondarily, for the managers of civil society, it did so because the nation as a whole was supposed to win its freedom through the spread of new domains of knowledge to the population, a process to be effected through agencies and professions within which those cadres would fulfill their functions. The same reasoning is a fortiori valid for the foundation of properly scientific institutions. The State resorts to the narrative of freedom every time it assumes direct control over the training of the "people," under the name of the "nation," in order to point them down the path of progress.[107]

With the second narrative of legitimation, the relation between science, the nation, and the State develops quite differently. It first appears with the founding, between 1807 and 1810, of the University of Berlin,[108] whose influence on the organization of higher education in the young countries of the world was to be considerable in the nineteenth and twentieth centuries.

At the time of the University's creation, the Prussian ministry had before it a project conceived by Fichte and counterproposals by Schleiermacher. Wilhelm von Humboldt had to decide the matter and came down on the side of Schleiermacher's more "liberal" option.

Reading Humboldt's report, one may be tempted to reduce his entire approach to the politics of the scientific institution to the famous dictum: "Science for its own sake." But this would be to misunderstood the ultimate aim of his policies, which is guided by the principle of legitimation we are discussing and is very close to the one Schleiermacher elucidates in a more thorough fashion.

Humboldt does indeed declare that science obeys its own rules, that the scientific institution "lives and continually renews itself on its own, with no constraint or determined goal whatsoever." But he adds that the University should orient its constituent element, science, to "the spiritual and moral training of the nation."[109] How can this *Bildung*-effect result from the disinterested pursuit of learning? Are not the State, the nation, the whole of humanity indifferent to knowledge for its own sake? What interests them, as Humboldt admits, is not learning, but "character and action."

The minister's adviser thus faces a major conflict, in some ways reminiscent of the split introduced by the Kantian critique between knowing and willing: it is a conflict between a language game made of denotations answerable only to the criterion of truth, and a language game governing ethical, social, and political practice that necessarily involves decisions and obligations, in other words, utterances expected

to be just rather than true and which in the final analysis lie outside the realm of scientific knowledge.

However, the unification of these two sets of discourse is indispensable to the *Bildung* aimed for by Humboldt's project, which consists not only in the acquisition of learning by individuals, but also in the training of a fully legitimated subject of knowledge and society. Humboldt therefore invokes a Spirit (what Fichte calls Life), animated by three ambitions, or better, by a single, threefold aspiration: "that of deriving everything from an original principle" (corresponding to scientific activity), "that of relating everything to an ideal" (governing ethical and social practice), and "that of unifying this principle and this ideal in a single Idea" (ensuring that the scientific search for true causes always coincides with the pursuit of just ends in moral and political life). This ultimate synthesis constitutes the legitimate subject.

Humboldt adds in passing that this triple aspiration naturally inheres in the "intellectual character of the German nation."[110] This is a concession, but a discreet one, to the other narrative, to the idea that the subject of knowledge is the people. But in truth this idea is quite distant from the narrative of the legitimation of knowledge advanced by German idealism. The suspicion that men like Schleiermacher, Humboldt, and even Hegel harbor towards the State is an indication of this. If Schleiermacher fears the narrow nationalism, protectionism, utilitarianism, and positivism that guide the public authorities in matters of science, it is because the principle of science does not reside in those authorities, even indirectly. The subject of knowledge is not the people, but the speculative spirit. It is not embodied, as in France after the Revolution, in a State, but in a System. The language game of legitimation is not state-political, but philosophical.

The great function to be fulfilled by the universities is to "lay open the whole body of learning and expound both the principles and the foundations of all knowledge." For "there is no creative scientific capacity without the speculative spirit."[111] "Speculation" is here the name given the discourse on the legitimation of scientific discourse. Schools are functional; the University is speculative, that is to say, philosophical.[112] Philosophy must restore unity to learning, which has been scattered into separate sciences in laboratories and in pre-university education; it can only achieve this in a language game that links the sciences together as moments in the becoming of spirit, in other words, which links them in a rational narration, or rather meta-narration. Hegel's *Encyclopedia* (1817-27) attempts to realize this

project of totalization, which was already present in Fichte and Schelling in the form of the idea of the System.

It is here, in the mechanism of developing a Life that is simultaneously Subject, that we see a return of narrative knowledge. There is a universal "history" of spirit, spirit is "life," and "life" is its own self-presentation and formulation in the ordered knowledge of all of its forms contained in the empirical sciences. The encyclopedia of German idealism is the narration of the "(hi)story" of this life-subject. But what it produces is a metanarrative, for the story's narrator must not be a people mired in the particular positivity of its traditional knowledge, nor even scientists taken as a whole, since they are sequestered in professional frameworks corresponding to their respective specialities.

The narrator must be a metasubject in the process of formulating both the legitimacy of the discourses of the empirical sciences and that of the direct institutions of popular cultures. This metasubject, in giving voice to their common grounding, realizes their implicit goal. It inhabits the speculative University. Positive science and the people are only crude versions of it. The only valid way for the nation-state itself to bring the people to expression is through the mediation of speculative knowledge.

It has been necessary to elucidate the philosophy that legitimated the foundation of the University of Berlin and was meant to be the motor both of its development and the development of contemporary knowledge. As I have said, many countries in the nineteenth and twentieth centuries adopted this university organization as a model for the foundation or reform of their own system of higher education, beginning with the United States.[113] But above all, this philosophy—which is far from dead, especially in university circles[114]—offers a particularly vivid representation of one solution to the problem of the legitimacy of knowledge.

Research and the spread of learning are not justified by invoking a principle of usefulness. The idea is not at all that science should serve the interests of the State and/or civil society. The humanist principle that humanity rises up in dignity and freedom through knowledge is left by the wayside. German idealism has recourse to a metaprinciple that simultaneously grounds the development of learning, of society, and of the State in the realization of the "life" of a Subject, called "divine Life" by Fichte and "Life of the spirit" by Hegel. In this perspective, knowledge first finds legitimacy within itself, and it is knowledge that is entitled to say what the State and what Society are.[115] But it can only play this role by changing levels,

by ceasing to be simply the positive knowledge of its referent (nature, society, the State, etc.), becoming in addition to that the knowledge of the knowledge of the referent—that is, by becoming speculative. In the names "Life" and "Spirit," knowledge names itself.

A noteworthy result of the speculative apparatus is that all of the discourses of learning about every possible referent are taken up not from the point of view of their immediate truth-value, but in terms of the value they acquire by virtue of occupying a certain place in the itinerary of Spirit or Life—or, if preferred, a certain position in the Encyclopedia recounted by speculative discourse. That discourse cites them in the process of expounding for itself what it knows, that is, in the process of self-exposition. True knowledge, in this perspective, is always indirect knowledge; it is composed of reported statements that are incorporated into the metanarrative of a subject that guarantees their legitimacy.

The same thing applies for every variety of discourse, even if it is not a discourse of learning; examples are the discourse of law and that of the State. Contemporary hermeneutic discourse[116] is born of this presupposition, which guarantees that there is meaning to know and thus confers legitimacy upon history (and especially the history of learning). Statements are treated as their own autonyms[117] and set in motion in a way that is supposed to render them mutually engendering: these are the rules of speculative language. The University, as its name indicates, is its exclusive institution.

But, as I have said, the problem of legitimacy can be solved using the other procedures as well. The difference between them should be kept in mind: today, with the status of knowledge unbalanced and its speculative unity broken, the first version of legitimacy is gaining new vigor.

According to this version, knowledge finds its validity not within itself, not in a subject that develops by actualizing its learning possibilities, but in a practical subject—humanity. The principle of the movement animating the people is not the self-legitimation of knowledge, but the self-grounding of freedom or, if preferred, its self-management. The subject is concrete, or supposedly so, and its epic is the story of its emancipation from everything that prevents it from governing itself. It is assumed that the laws it makes for itself are just, not because they conform to some outside nature, but because the legislators are, constitutionally, the very citizens who are subject to the laws. As a result, the legislator's will—the desire that the laws be just—will always coincide with the will of the citizen, who desires the law and will therefore obey it.

Clearly, this mode of legitimation through the autonomy of the will[118] gives priority to a totally different language game, which Kant called imperative and is known today as prescriptive. The important thing is not, or not only, to legitimate denotative utterances pertaining to the truth, such as "The earth revolves around the sun," but rather to legitimate prescriptive utterances pertaining to justice, such as "Carthage must be destroyed" or "The minimum wage must be set at x dollars." In this context, the only role positive knowledge can play is to inform the practical subject about the reality within which the execution of the prescription is to be inscribed. It allows the subject to circumscribe the executable, or what it is possible to do. But the executory, what should be done, is not within the purview of positive knowledge. It is one thing for an undertaking to be possible and another for it to be just. Knowledge is no longer the subject, but in the service of the subject: its only legitimacy (though it is formidable) is the fact that it allows morality to become reality.

This introduces a relation of knowledge to society and the State which is in principle a relation of the means to the end. But scientists must cooperate only if they judge that the politics of the State, in other words the sum of its prescriptions, is just. If they feel that the civil society of which they are members is badly represented by the State, they may reject its prescriptions. This type of legitimation grants them the authority, as practical human beings, to refuse their scholarly support to a political power they judge to be unjust, in other words, not grounded in a real autonomy. They can even go so far as to use their expertise to demonstrate that such autonomy is not in fact realized in society and the State. This reintroduces the critical function of knowledge. But the fact remains that knowledge has no final legitimacy outside of serving the goals envisioned by the practical subject, the autonomous collectivity.[119]

This distribution of roles in the enterprise of legitimation is interesting from our point of view because it assumes, as against the system-subject theory, that there is no possibility that language games can be unified or totalized in any metadiscourse. Quite to the contrary, here the priority accorded prescriptive statements—uttered by the practical subject—renders them independent in principle from the statements of science, whose only remaining function is to supply this subject with information.

Two remarks:

1. It would be easy to show that Marxism has wavered between the two models of narrative legitimation I have just described. The Party takes the place of the University, the proletariat that of the people or of humanity, dialectical materialism that of speculative idealism, etc. Stalinism may be the result, with its specific relationship with the sciences: in Stalinism, the sciences only figure as citations from the metanarrative of the march towards socialism, which is the equivalent of the life of the spirit. But on the other hand Marxism can, in conformity to the second version, develop into a form of critical knowledge by declaring that socialism is nothing other than the constitution of the autonomous subject and that the only justification for the sciences is if they give the empirical subject (the proletariat) the means to emancipate itself from alienation and repression: this was, briefly, the position of the Frankfurt School.

2. The speech Heidegger gave on May 27, 1933, on becoming rector of the university of Freiburg-in-Breisgau,[120] can be read as an unfortunate episode in the history of legitimation. Here, speculative science has become the questioning of being. This questioning is the "destiny" of the German people, dubbed an "historico-spiritual people." To this subject are owed the three services of labor, defense, and knowledge. The University guarantees a metaknowledge of the three services, that is to say, science. Here, as in idealism, legitimation is achieved through a metadiscourse called science, with ontological pretensions. But here the metadiscourse is questioning, not totalizing. And the University, the home of this metadiscourse, owes its knowledge to a people whose "historic mission" is to bring that metadiscourse to fruition by working, fighting, and knowing. The calling of this people-subject is not to emancipate humanity, but to realize its "true world of the spirit," which is "the most profound power of conservation to be found within its forces of earth and blood." This insertion of the narrative of race and work into that of the spirit as a way of legitimating knowledge and its institutions is doubly unfortunate: theoretically inconsistent, it was compelling enough to find disastrous echoes in the realm of politics.

10. Delegitimation

In contemporary society and culture—postindustrial society, postmodern culture[121]—the question of the legitimation of knowledge is formulated in different terms. The grand narrative has lost its credibility, regardless of what mode of unification it uses, regardless of whether it is a speculative narrative or a narrative of emancipation.

The decline of narrative can be seen as an effect of the blossoming of techniques and technologies since the Second World War, which has shifted emphasis from the ends of action to its means; it can also

be seen as an effect of the redeployment of advanced liberal capitalism after its retreat under the protection of Keynesianism during the period 1930-60, a renewal that has eliminated the communist alternative and valorized the individual enjoyment of goods and services.

Anytime we go searching for causes in this way we are bound to be disappointed. Even if we adopted one or the other of these hypotheses, we would still have to detail the correlation between the tendencies mentioned and the decline of the unifying and legitimating power of the grand narratives of speculation and emancipation.

It is, of course, understandable that both capitalist renewal and prosperity and the disorienting upsurge of technology would have an impact on the status of knowledge. But in order to understand how contemporary science could have been susceptible to those effects long before they took place, we must first locate the seeds of "delegitimation"[122] and nihilism that were inherent in the grand narratives of the nineteenth century.

First of all, the speculative apparatus maintains an ambigious relation to knowledge. It shows that knowledge is only worthy of that name to the extent that it reduplicates itself ("lifts itself up," *hebt sich auf;* is sublated) by citing its own statements in a second-level discourse (autonymy) that functions to legitimate them. This is as much as to say that, in its immediacy, denotative discourse bearing on a certain referent (a living organism, a chemical property, a physical phenomenon, etc.) does not really know what it thinks it knows. Positive science is not a form of knowledge. And speculation feeds on its suppression. The Hegelian speculative narrative thus harbors a certain skepticism toward positive learning, as Hegel himself admits.[123]

A science that has not legitimated itself is not a true science; if the discourse that was meant to legitimate it seems to belong to a prescientific form of knowledge, like a "vulgar" narrative, it is demoted to the lowest rank, that of an ideology or instrument of power. And this always happens if the rules of the science game that discourse denounces as empirical are applied to science itself.

Take for example the speculative statement: "A scientific statement is knowledge if and only if it can take its place in a universal process of engendering." The question is: Is this statement knowledge as it itself defines it? Only if it can take its place in a universal process of engendering. Which it can. All it has to do is to presuppose that such a process exists (the Life of spirit) and that it is itself an expression of that process. This presupposition, in fact, is indispensable to the speculative language game. Without it, the language of legitimation would not be legitimate; it would accompany science in a

nosedive into nonsense, at least if we take idealism's word for it.

But this presupposition can also be understood in a totally different sense, one which takes us in the direction of postmodern culture: we could say, in keeping with the perspective we adopted earlier, that this presupposition defines the set of rules one must accept in order to play the speculative game.[124] Such an appraisal assumes first that we accept that the "positive" sciences represent the general mode of knowledge and second, that we understand this language to imply certain formal and axiomatic presuppositions that it must always make explicit. This is exactly what Nietzsche is doing, though with a different terminology, when he shows that "European nihilism" resulted from the truth requirement of science being turned back against itself.[125]

There thus arises an idea of perspective that is not far removed, at least in this respect, from the idea of language games. What we have here is a process of delegitimation fueled by the demand for legitimation itself. The "crisis" of scientific knowledge, signs of which have been accumulating since the end of the nineteenth century, is not born of a chance proliferation of sciences, itself an effect of progress in technology and the expansion of capitalism. It represents, rather, an internal erosion of the legitimacy principle of knowledge. There is erosion at work inside the speculative game, and by loosening the weave of the encyclopedic net in which each science was to find its place, it eventually sets them free.

The classical dividing lines between the various fields of science are thus called into question—disciplines disappear, overlappings occur at the borders between sciences, and from these new territories are born. The speculative hierarchy of learning gives way to an immanent and, as it were, "flat" network of areas of inquiry, the respective frontiers of which are in constant flux. The old "faculties" splinter into institutes and foundations of all kinds, and the universities lose their function of speculative legitimation. Stripped of the responsibility for research (which was stifled by the speculative narrative), they limit themselves to the transmission of what is judged to be established knowledge, and through didactics they guarantee the replication of teachers rather than the production of researchers. This is the state in which Nietzsche finds and condemns them.[126]

The potential for erosion intrinsic to the other legitimation procedure, the emancipation apparatus flowing from the *Aufklärung,* is no less extensive than the one at work within speculative discourse. But it touches a different aspect. Its distinguishing characteristic is that it grounds the legitimation of science and truth in the autonomy of

interlocutors involved in ethical, social, and political praxis. As we have seen, there are immediate problems with this form of legitimation: the difference between a denotative statement with cognitive value and a prescriptive statement with practical value is one of relevance, therefore of competence. There is nothing to prove that if a statement describing a real situation is true, it follows that a prescriptive statement based upon it (the effect of which will necessarily be a modification of that reality) will be just.

Take, for example, a closed door. Between "The door is closed" and "Open the door" there is no relation of consequence as defined in propositional logic. The two statements belong to two autonomous sets of rules defining different kinds of relevance, and therefore of competence. Here, the effect of dividing reason into cognitive or theoretical reason on the one hand, and practical reason on the other, is to attack the legitimacy of the discourse of science. Not directly, but indirectly, by revealing that it is a language game with its own rules (of which the a priori conditions of knowledge in Kant provide a first glimpse) and that it has no special calling to supervise the game of praxis (nor the game of aesthetics, for that matter). The game of science is thus put on a par with the others.

If this "delegitimation" is pursued in the slightest and if its scope is widened (as Wittgenstein does in his own way, and thinkers such as Martin Buber and Emmanuel Lévinas in theirs)[127] the road is then open for an important current of postmodernity: science plays its own game; it is incapable of legitimating the other language games. The game of prescription, for example, escapes it. But above all, it is incapable of legitimating itself, as speculation assumed it could.

The social subject itself seems to dissolve in this dissemination of language games. The social bond is linguistic, but is not woven with a single thread. It is a fabric formed by the intersection of at least two (and in reality an indeterminate number) of language games, obeying different rules. Wittgenstein writes: "Our language can be seen as an ancient city: a maze of little streets and squares, of old and new houses, and of houses with additions from various periods; and this surrounded by a multitude of new boroughs with straight regular streets and uniform houses."[128] And to drive home that the principle of unitotality—or synthesis under the authority of a metadiscourse of knowledge—is inapplicable, he subjects the "town" of language to the old sorites paradox by asking: "how many houses or streets does it take before a town begins to be a town?"[129]

New languages are added to the old ones, forming suburbs of the old town: "the symbolism of chemistry and the notation of the infinitesimal calculus."[130] Thirty-five years later we can add to the list: machine languages, the matrices of game theory, new systems of musical notation, systems of notation for nondenotative forms of logic (temporal logics, deontic logics, modal logics), the language of the genetic code, graphs of phonological structures, and so on.

We may form a pessimistic impression of this splintering: nobody speaks all of those languages, they have no universal metalanguage, the project of the system-subject is a failure, the goal of emancipation has nothing to do with science, we are all stuck in the positivism of this or that discipline of learning, the learned scholars have turned into scientists, the diminished tasks of research have become compartmentalized and no one can master them all.[131] Speculative or humanistic philosophy is forced to relinquish its legitimation duties,[132] which explains why philosophy is facing a crisis wherever it persists in arrogating such functions and is reduced to the study of systems of logic or the history of ideas where it has been realistic enough to surrender them.[133]

Turn-of-the-century Vienna was weaned on this pessimism: not just artists such as Musil, Kraus, Hofmannsthal, Loos, Schönberg, and Broch, but also the philosophers Mach and Wittgenstein.[134] They carried awareness of and theoretical and artistic responsibility for delegitimation as far as it could be taken. We can say today that the mourning process has been completed. There is no need to start all over again. Wittgenstein's strength is that he did not opt for the positivism that was being developed by the Vienna Circle,[135] but outlined in his investigation of language games a kind of legitimation not based on performativity. That is what the postmodern world is all about. Most people have lost the nostalgia for the lost narrative. It in no way follows that they are reduced to barbarity. What saves them from it is their knowledge that legitimation can only spring from their own linguistic practice and communicational interaction. Science "smiling into its beard" at every other belief has taught them the harsh austerity of realism.[136]

11. Research and Its Legitimation through Performativity

Let us return to science and begin by examining the pragmatics of research. Its essential mechanisms are presently undergoing two important changes: a multiplication in methods of argumentation and a rising complexity level in the process of establishing proof.

Aristotle, Descartes, and John Stuart Mill, among others, attempted to lay down the rules governing how a denotative utterance can obtain its addressee's assent.[137] Scientific research sets no great store by these methods. As already stated, it can and does use methods the demonstrative properties of which seem to challenge classical reason. Bachelard compiled a list of them, and it is already incomplete.[138]

These languages are not employed haphazardly, however. Their use is subject to a condition we could call pragmatic: each must formulate its own rules and petition the addressee to accept them. To satisfy this condition, an axiomatic is defined that includes a definition of symbols to be used in the proposed language, a description of the form expressions in the language must take in order to gain acceptance (well-formed expressions), and an enumeration of the operations that may be performed on the accepted expressions (axioms in the narrow sense).[139]

But how do we know what an axiomatic should, or does in fact, contain? The conditions listed above are formal conditions. There has to be a metalanguage to determine whether a given language satisfies the formal conditions of an axiomatic; that metalanguage is logic.

At this point a brief clarification is necessary. The alternative between someone who begins by establishing an axiomatic and then uses it to produce what are defined as acceptable statements, and a scientist who begins by establishing and stating facts and then tries to discover the axiomatics of the language he used in making his statements, is not a logical alternative, but only an empirical one. It is certainly of great importance for the researcher, and also for the philosopher, but in each case the question of the validation of statements is the same.[140]

The following question is more pertinent to legitimation: By what criteria does the logician define the properties required of an axiomatic? Is there a model for scientific languages? If so, is there just one? Is it verifiable? The properties generally required of the syntax of a formal system[141] are consistency (for example, a system inconsistent with respect to negation would admit both a proposition and its opposite), syntactic completeness (the system would lose its consistency if an axiom were added to it), decidability (there must be an effective procedure for deciding whether a given proposition belongs to the system or not), and the independence of the axioms in relation to one another. Now Gödel has effectively established the existence in the arithmetic system of a proposition that is neither

demonstrable nor refutable within that system; this entails that the arithmetic system fails to satisfy the condition of completeness.[142]

Since it is possible to generalize this situation, it must be accepted that all formal systems have internal limitations.[143] This applies to logic: the metalanguage it uses to describe an artificial (axiomatic) language is "natural" or "everyday" language; that language is universal, since all other languages can be translated into it, but it is not consistent with respect to negation—it allows the formation of paradoxes.[144]

This necessitates a reformulation of the question of the legitimation of knowledge. When a denotative statement is declared true, there is a presupposition that the axiomatic system within which it is decidable and demonstrable has already been formulated, that it is known to the interlocutors, and that they have accepted that it is as formally satisfactory as possible. This was the spirit in which the mathematics of the Bourbaki group was developed.[145] But analogous observations can be made for the other sciences: they owe their status to the existence of a language whose rules of functioning cannot themselves be demonstrated but are the object of a consensus among experts. These rules, or at least some of them, are requests. The request is a modality of prescription.

The argumentation required for a scientific statement to be accepted is thus subordinated to a "first" acceptance (which is in fact constantly renewed by virtue of the principle of recursion) of the rules defining the allowable means of argumentation. Two noteworthy properties of scientific knowledge result from this: the flexibility of its means, that is, the plurality of its languages; and its character as a pragmatic game—the acceptability of the "moves" (new propositions) made in it depends on a contract drawn between the partners. Another result is that there are two different kinds of "progress" in knowledge: one corresponds to a new move (a new argument) within the established rules; the other, to the invention of new rules, in other words, a change to a new game.[146]

Obviously, a major shift in the notion of reason accompanies this new arrangement. The principle of a universal metalanguage is replaced by the principle of a plurality of formal and axiomatic systems capable of arguing the truth of denotative statements; these systems are described by a metalanguage that is universal but not consistent. What used to pass as paradox, and even paralogism, in the knowledge of classical and modern science can, in certain of these systems, acquire a new force of conviction and win the acceptance

of the community of experts.[147] The language game method I have followed here can claim a modest place in this current of thought.

The other fundamental aspect of research, the production of proof, takes us in quite a different direction. It is in principle part of an argumentation process designed to win acceptance for a new statement (for example, giving testimony or presenting an exhibit in the case of judicial rhetoric).[148] But it presents a special problem: it is here that the referent ("reality") is called to the stand and cited in the debate between scientists.

I have already made the point that the question of proof is problematical since proof needs to be proven. One can begin by publishing a description of how the proof was obtained, so other scientists can check the result by repeating the same process. But the fact still has to be observed in order to stand proven. What constitutes a scientific observation? A fact that has been registered by an eye, an ear, a sense organ?[149] Senses are deceptive, and their range and powers of discrimination are limited.

This is where technology comes in. Technical devices originated as prosthetic aids for the human organs or as physiological systems whose function it is to receive data or condition the context.[150] They follow a principle, and it is the principle of optimal performance: maximizing output (the information or modifications obtained) and minimizing input (the energy expended in the process).[151] Technology is therefore a game pertaining not to the true, the just, or the beautiful, etc., but to efficiency: a technical "move" is "good" when it does better and/or expends less energy than another.

This definition of technical competence is a late development. For a long time inventions came in fits and starts, the products of chance research, or research as much or more concerned with the arts (*technai*) than with knowledge: the Greeks of the Classical period, for example, established no close relationship between knowledge and technology.[152] In the sixteenth and seventeenth centuries, the work of "perspectors" was still a matter of curiosity and artistic innovation.[153] This was the case until the end of the eighteenth century.[154] And it can be maintained that even today "wildcat" activities of technical invention, sometimes related to *bricolage*, still go on outside the imperatives of scientific argumentation.[155]

Nonetheless, the need for proof becomes increasingly strong as the pragmatics of scientific knowledge replaces traditional knowledge or knowledge based on revelation. By the end of the *Discourse on Method*, Descartes is already asking for laboratory funds. A new problem appears: devices that optimize the performance of the

human body for the purpose of producing proof require additional expenditures. No money, no proof—and that means no verification of statements and no truth. The games of scientific language become the games of the rich, in which whoever is wealthiest has the best chance of being right. An equation between wealth, efficiency, and truth is thus established.

What happened at the end of the eighteenth century, with the first industrial revolution, is that the reciprocal of this equation was discovered: no technology without wealth, but no wealth without technology. A technical apparatus requires an investment; but since it optimizes the efficiency of the task to which it is applied, it also optimizes the surplus-value derived from this improved performance. All that is needed is for the surplus-value to be realized, in other words, for the product of the task performed to be sold. And the system can be sealed in the following way: a portion of the sale is recycled into a research fund dedicated to further performance improvement. It is at this precise moment that science becomes a force of production, in other words, a moment in the circulation of capital.

It was more the desire for wealth than the desire for knowledge that initially forced upon technology the imperative of performance improvement and product realization. The "organic" connection between technology and profit preceded its union with science. Technology became important to contemporary knowledge only through the mediation of a generalized spirit of performativity. Even today, progress in knowledge is not totally subordinated to technological investment.[156]

Capitalism solves the scientific problem of research funding in its own way: directly by financing research departments in private companies, in which demands for performativity and recommercialization orient research first and foremost toward technological "applications"; and indirectly by creating private, state, or mixed-sector research foundations that grant program subsidies to university departments, research laboratories, and independent research groups with no expectation of an immediate return on the results of the work—this is done on the theory that research must be financed at a loss for certain length of time in order to increase the probability of its yielding a decisive, and therefore highly profitable, innovation.[157] Nation-states, especially in their Keynesian period, follow the same rule: applied research on the one hand, basic research on the other. They collaborate with corporations through an array of agencies.[158] The prevailing corporate norms of work management

spread to the applied science laboratories: hierarchy, centralized decision making, teamwork, calculation of individual and collective returns, the development of saleable programs, market research, and so on.[159] Centers dedicated to "pure" research suffer from this less, but also receive less funding.

The production of proof, which is in principle only part of an argumentation process designed to win agreement from the addressees of scientific messages, thus falls under the control of another language game, in which the goal is no longer truth, but performativity—that is, the best possible input/output equation. The State and/or company must abandon the idealist and humanist narratives of legitimation in order to justify the new goal: in the discourse of today's financial backers of research, the only credible goal is power. Scientists, technicians, and instruments are purchased not to find truth, but to augment power.

The question is to determine what the discourse of power consists of and if it can constitute a legitimation. At first glance, it is prevented from doing so by the traditional distinction between force and right, between force and wisdom—in other words, between what is strong, what is just, and what is true. I referred to this incommensurability earlier in terms of the theory of language games, when I distinguished the denotative game (in which what is relevant is the true/false distinction) from the prescriptive game (in which the just/unjust distinction pertains) from the technical game (in which the criterion is the efficient/inefficient distinction). "Force" appears to belong exclusively to the last game, the game of technology. I am excluding the case in which force operates by means of terror. This lies outside the realm of language games, because the efficacy of such force is based entirely on the threat to eliminate the opposing player, not on making a better "move" than he. Whenever efficiency (that is, obtaining the desired effect) is derived from a "Say or do this, or else you'll never speak again," then we are in the realm of terror, and the social bond is destroyed.

But the fact remains that since performativity increases the ability to produce proof, it also increases the ability to be right: the technical criterion, introduced on a massive scale into scientific knowledge, cannot fail to influence the truth criterion. The same has been said of the relationship between justice and performance: the probability that an order would be pronounced just was said to increase with its chances of being implemented, which would in turn increase with the performance capability of the prescriber. This led Luhmann to hypothesize that in postindustrial societies the normativity of laws is replaced by the performativity of procedures.[160] "Context

control," in other words, performance improvement won at the expense of the partner or partners constituting that context (be they "nature" or men), can pass for a kind of legitimation.[161] De facto legitimation.

This procedure operates within the following framework: since "reality" is what provides the evidence used as proof in scientific argumentation, and also provides prescriptions and promises of a juridical, ethical, and political nature with results, one can master all of these games by mastering "reality." That is precisely what technology can do. By reinforcing technology, one "reinforces" reality, and one's chances of being just and right increase accordingly. Reciprocally, technology is reinforced all the more effectively if one has access to scientific knowledge and decision-making authority.

This is how legitimation by power takes shape. Power is not only good performativity, but also effective verification and good verdicts. It legitimates science and the law on the basis of their efficiency, and legitimates this efficiency on the basis of science and law. It is self-legitimating, in the same way a system organized around performance maximization seems to be.[162] Now it is precisely this kind of context control that a generalized computerization of society may bring. The performativity of an utterance, be it denotative or prescriptive, increases proportionally to the amount of information about its referent one has at one's disposal. Thus the growth of power, and its self-legitimation, are now taking the route of data storage and accessibility, and the operativity of information.

The relationship between science and technology is reversed. The complexity of the argumentation becomes relevant here, especially because it necessitates greater sophistication in the means of obtaining proof, and that in turn benefits performativity. Research funds are allocated by States, corporations, and nationalized companies in accordance with this logic of power growth. Research sectors that are unable to argue that they contribute even indirectly to the optimization of the system's performance are abandoned by the flow of capital and doomed to senescence. The criterion of performance is explicitly invoked by the authorities to justify their refusal to subsidize certain research centers.[163]

12. Education and Its Legitimation through Performativity

It should be easy to describe how the other facet of knowledge—its transmission, or education—is affected by the predominance of the performativity criterion.

If we accept the notion that there is an established body of knowledge, the question of its transmission, from a pragmatic point of view, can be subdivided into a series of questions: Who transmits learning? What is transmitted? To whom? Through what medium? In what form? With what effect?[164] A university policy is formed by a coherent set of answers to these questions.

If the performativity of the supposed social system is taken as the criterion of relevance (that is, when the perspective of systems theory is adopted), higher education becomes a subsystem of the social system, and the same performativity criterion is applied to each of these problems.

The desired goal becomes the optimal contribution of higher education to the best performativity of the social system. Accordingly, it will have to create the skills that are indispensable to that system. These are of two kinds. The first kind are more specifically designed to tackle world competition. They vary according to which "specialities" the nation-states or major educational institutions can sell on the world market. If our general hypothesis is correct, there will be a growth in demand for experts and high and middle management executives in the leading sectors mentioned at the beginning of this study, which is where the action will be in the years to come: any discipline with applicability to training in "telematics" (computer scientists, cyberneticists, linguists, mathematicians, logicians . . .) will most likely receive priority in education. All the more so since an increase in the number of these experts should speed the research in other learning sectors, as has been the case with medicine and biology.

Secondly, and still within the same general hypothesis, higher learning will have to continue to supply the social system with the skills fulfilling society's own needs, which center on maintaining its internal cohesion. Previously, this task entailed the formation and dissemination of a general model of life, most often legitimated by the emancipation narrative. In the context of delegitimation, universities and the institutions of higher learning are called upon to create skills, and no longer ideals—so many doctors, so many teachers in a given discipline, so many engineers, so many administrators, etc. The transmission of knowledge is no longer designed to train an elite capable of guiding the nation towards its emancipation, but to supply the system with players capable of acceptably fulfilling their roles at the pragmatic posts required by its institutions.[165]

If the ends of higher learning are functional, what of its addressees? The student has changed already and will certainly change more. He

is no longer a youth from the "liberal elite,"[166] more or less concerned with the great task of social progress, understood in terms of emancipation. In this sense, the "democratic" university (no entrance requirements, little cost to the student and even to society if the price per student is calculated, high enrollment),[167] which was modeled along the principles of emancipationist humanism, today seems to offer little in the way of performance.[168] Higher education is in fact already undergoing a major realignment, dictated both by administrative measures and by social demands (themselves rather uncontrolled) emanating from the new users; the tendency is to divide the functions of higher learning into two broad categories of services.

In its function of professional training, higher education still addresses itself to the young of the liberal elite, to whom it transmits the competence judged necessary by each profession. They are joined through one route or another (for example, institutes of technology) —all of which, however, conform to the same didactic model—by the addressees of the new domains of knowledge linked to the new techniques and technologies. They are, once again, young people who have yet to become "active."

Aside from these two categories of students, who reproduce the "professional intelligentsia" and the "technical intelligentsia,"[169] the remainder of the young people present in the universities are for the most part unemployed who are not counted as job seekers in the statistics, though they outnumber the openings in their disciplines arts and human sciences). Despite their age, they do in fact belong to the new category of the addressees of knowledge.

For in addition to its professionalist function, the University is beginning, or should begin, to play a new role in improving the system's performance—that of job retraining and continuing education.[170] Outside the universities, departments, or institutions with a professional orientation, knowledge will no longer be transmitted *en bloc,* once and for all, to young people before their entry into the work force: rather it is and will be served "à la carte" to adults who are either already working or expect to be, for the purpose of improving their skills and chances of promotion, but also to help them acquire information, languages, and language games allowing them both to widen their occupational horizons and to articulate their technical and ethical experience.[171]

The new course that the transmission of knowledge is taking is not without conflict. As much as it is in the interests of the system, and therefore of its "decision makers," to encourage professional

advancement (since it can only improve the performance of the whole), any experimentation in discourse, institutions, and values (with the inevitable "disorders" it brings in the curriculum, student supervision and testing, and pedagogy—not to mention its socio-political repercussions) is regarded as having little or no operational value and is not given the slightest credence in the name of the seriousness of the system. Such experimentation offers an escape from functionalism; it should not be dismissed lightly since it was functionalism itself that pointed the way.[172] But it is safe to assume that responsibility for it will devolve upon extrauniversity networks.[173]

In any case, even if the performativity principle does not always help pinpoint the policy to follow, its general effect is to subordinate the institutions of higher learning to the existing powers. The moment knowledge ceases to be an end in itself—the realization of the Idea or the emancipation of men—its transmission is no longer the exclusive responsibility of scholars and students. The notion of "university franchise" now belongs to a bygone era. The "autonomy" granted the universities after the crisis of the late 1960s has very little meaning given the fact that practically nowhere do teachers' groups have the power to decide what the budget of their institution will be;[174] all they can do is allocate the funds that are assigned to them, and only then as the last step in the process.[175]

What is transmitted in higher learning? In the case of professional training, and limiting ourselves to a narrowly functionalist point of view, an organized stock of established knowledge is the essential thing that is transmitted. The application of new technologies to this stock may have a considerable impact on the medium of communication. It does not seem absolutely necessary that the medium be a lecture delivered in person by a teacher in front of silent students, with questions reserved for sections or "practical work" sessions run by an assistant. To the extent that learning is translatable into computer language and the traditional teacher is replaceable by memory banks, didactics can be entrusted to machines linking traditional memory banks (libraries, etc.) and computer data banks to intelligent terminals placed at the students' disposal.

Pedagogy would not necessarily suffer. The students would still have to be taught something: not contents, but how to use the terminals. On the one hand, that means teaching new languages and on the other, a more refined ability to handle the language game of interrogation—where should the question be addressed, in other words, what is the relevant memory bank for what needs to be known? How

should the question be formulated to avoid misunderstandings? etc.[176] From this point of view, elementary training in informatics, and especially telematics, should be a basic requirement in universities, in the same way that fluency in a foreign language is now, for example.[177]

It is only in the context of the grand narratives of legitimation—the life of the spirit and/or the emancipation of humanity—that the partial replacement of teachers by machines may seem inadequate or even intolerable. But it is probable that these narratives are already no longer the principal driving force behind interest in acquiring knowledge. If the motivation is power, then this aspect of classical didactics ceases to be relevant. The question (overt or implied) now asked by the professionalist student, the State, or institutions of higher education is no longer "Is it true?" but "What use is it?" In the context of the mercantilization of knowledge, more often than not this question is equivalent to: "Is it saleable?" And in the context of power-growth: "Is it efficient?" Having competence in a performance-oriented skill does indeed seem saleable in the conditions described above, and it is efficient by definition. What no longer makes the grade is competence as defined by other criteria true/false, just/unjust, etc.—and, of course, low performativity in general.

This creates the prospect for a vast market for competence in operational skills. Those who possess this kind of knowledge will be the object of offers or even seduction policies.[178] Seen in this light, what we are approaching is not the end of knowledge—quite the contrary. Data banks are the Encyclopedia of tomorrow. They transcend the capacity of each of their users. They are "nature" for postmodern man.[179]

It should be noted, however, that didactics does not simply consist in the transmission of information; and competence, even when defined as a performance skill, does not simply reduce to having a good memory for data or having easy access to a computer. It is a commonplace that what is of utmost importance is the capacity to actualize the relevant data for solving a problem "here and now," and to organize that data into an efficient strategy.

As long as the game is not a game of perfect information, the advantage will be with the player who has knowledge and can obtain information. By definition, this is the case with a student in a learning situation. But in games of perfect information,[180] the best performativity cannot consist in obtaining additional information in this way. It comes rather from arranging the data in a new way, which

is what constitutes a "move" properly speaking. This new arrangement is usually achieved by connecting together series of data that were previously held to be independent.[181] This capacity to articulate what used to be separate can be called imagination. Speed is one of its properties.[182] It is possible to conceive the world of postmodern knowledge as governed by a game of perfect information, in the sense that the data is in principle accessible to any expert: there is no scientific secret. Given equal competence (no longer in the acquisition of knowledge, but in its production), what extra performativity depends on in the final analysis is "imagination," which allows one either to make a new move or change the rules of the game.

If education must not only provide for the reproduction of skills, but also for their progress, then it follows that the transmission of knowledge should not be limited to the transmission of information, but should include training in all of the procedures that can increase one's ability to connect the fields jealously guarded from one another by the traditional organization of knowledge. The slogan of "interdisciplinary studies," which became particularly popular after the crisis of 1968 but was being advocated long before that, seems to move in this direction. It ran up against the feudalism of the universities, they say. It ran up against more than that.

In Humboldt's model of the University, each science has its own place in a system crowned by speculation. Any encroachment of one science into another's field can only create confusion, "noise" in the system. Collaboration can only take place on the level of speculation, in the heads of the philosophers.

The idea of an interdisciplinary approach is specific to the age of delegitimation and its hurried empiricism. The relation to knowledge is not articulated in terms of the realization of the life of the spirit or the emancipation of humanity, but in terms of the users of a complex conceptual and material machinery and those who benefit from its performance capabilities. They have at their disposal no metalanguage or metanarrative in which to formulate the final goal and correct use of that machinery. But they do have brainstorming to improve its performance.

The emphasis placed on teamwork is related to the predominance of the performativity criterion in knowledge. When it comes to speaking the truth or prescribing justice, numbers are meaningless. They only make a difference if justice and truth are thought of in terms of the probability of success. In general, teamwork does in fact improve performance, if it is done under certain conditions detailed long ago

by social scientists.[183] In particular, it has been established that teamwork is especially successful in improving performativity within the framework of a given model, that is, for the implementation of a task. Its advantages seem less certain when the need is to "imagine" new models, in other words, on the level of their conception. There have apparently been cases where even this has worked,[184] but it is difficult to isolate what is attributable to the team setup and what derived from the individual talent of the team members.

It will be observed that this orientation is concerned more with the production of knowledge (research) than its transmission. To separate them completely is to fall into abstraction and is probably counterproductive even within the framework of functionalism and professionalism. And yet the solution toward which the institutions of knowledge all over the world are in fact moving consists in dissociating these two aspects of didactics—"simple" reproduction and "extended" reproduction. This is being done by earmarking entities of all kinds—institutions, levels or programs within institutions, groupings of institutions, groupings of disciplines—either for the selection and reproduction of professional skills, or for the promotion and "stimulation" of "imaginative" minds. The transmission channels to which the first category is given access can be simplified and made available on a mass scale. the second category has the privilege of working on a smaller scale in conditions of aristocratic egalitarianism.[185] It matters little whether the latter are officially a part of the universities.

But one thing that seems certain is that in both cases the process of delegitimation and the predominance of the performance criterion are sounding the knell of the age of the Professor: a professor is no more competent than memory bank networks in transmitting established knowledge, no more competent than interdisciplinary teams in imagining new moves or new games.

13. Postmodern Science as the Search for Instabilities

As previously indicated, the pragmatics of scientific research, especially in its search for new methods of argumentation, emphasizes the invention of new "moves" and even new rules for language games. We must now take a closer look at this aspect of the problem, which is of decisive importance in the present state of scientific knowledge. We could say, tongue in cheek, that scientific knowledge is seeking a "crisis resolution"—a resolution of the crisis of determinism. Determinism is the hypothesis upon which legitimation by