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Wilson’s book is an attempt to demonstrate the unifying potential of natural science, particularly of modern biology, as a general paradigm for all of science, on the grounds that all living activities are ruled by information in the genes. Wilson’s attempt for proposing a unifying conception of science, to counteract the prevailing mainstream fragmentation and specialization of disciplines, has found wide praise. Moreover it is a beautifully written book. Economists will find this book of interest to the extent that they are interested in methodological issues of the relationship between economics and the other sciences, and in particular, between economics and biology.

Chapter 1, ‘The Ionian enchantment’, briefly introduces Wilson’s biography, under the auspices of his gradually developing personal Ionian enchantment (vision of the unity of sciences). In chapter 2, ‘The great branches of learning’, Wilson proposes his vision of the key to unify all sciences: ‘The only way either to establish or refute consilience is by methods developed in the natural sciences—not, I hasten to add, an effort led by scientists, or frozen in mathematical abstraction, but rather one allegiance to the habits of thought that have worked so well in exploring the material universe’ (p. 9). Wilson admits his scientism, indicted by philosophers, yet holds that ‘scientists are equally qualified to judge what remains to be discovered, and why’ (p. 11). ‘We have the common goal to turn as much philosophy as possible into science’ (p. 12); nevertheless his view of the brain as ‘the agent, actor, producer’, delegating this crucial activity to a material instance, ultimately eludes personal responsibility for one’s own thoughts—which is not material, but an idea, one that real philosophy aims at and social science must require for secure order.

Chapter 3, ‘The enlightenment’, locates the dream of intellectual unity’s first full flowering in that age, and its failure—discussed in an extensive historical portrayal—in the vain debates of philosophical history, of which only the idea of ‘inevitable progress’ survived. Wilson holds that only natural science took up this lead, while philosophy got lost somewhere between order and chaos and is decaying into postmodernism.

Chapter 4, ‘The natural sciences’, elevates these and their expanding technical instrumentation to the token (or: proof) of having escaped confinement and prodigiously extended human grasp of phenomena. Wilson does not discuss whether more data automatically mean more clarity on the categorial level of interpretation—a point to doubt. Calculability is already held for understanding (p. 49): the belief that someone being able to calculate a
thing means he has understood the thing he can calculate, with ‘the cutting edge of science is reductionism ... breaking apart of nature into its natural constituents’ and ‘love of complexity without reductionism makes art; the love of complexity with reductionism makes science’ (p. 54). The magic agent is ‘discovery’, different addictions leading to the ‘tribes of science’. Wilson believes in objective truth under the criterion of empirical investigation (p. 60); he does not discuss the fact that this excludes the intrinsic law of singularities, because repetitivity is not possible there. In fact he excludes all forms of intrinsic order, seeing only ‘self-assembly’. But why would anything in the universe assemble in clusters operating in sometimes autonomous ways, after all? With Wilson, the ultimate agents of life remain mysterious, ‘evaporated’ into mere hypotheses, as opposed to being grasped in real knowledge.

Chapter 5, ‘Ariadne’s thread’, commends the potential of these hypotheses for research on all levels of existence. It construes genetic structures into producers of motivational origins in phenomena like archaic dream symbols. Boldly generalizing this idea, Wilson says: ‘An organism is a machine, and the laws of physics and chemistry ... are enough to do the job, given sufficient time and research funding’ (p. 91). Mind is seen as a mere product of the brain, emotion as mere modifications of neural activity. Ultimately, is it a good idea that moves Wilson, or his chemistry? He views concepts as nodes of reference points in long-term memory, some labeled by words. He admits pure theorems in mathematics, but not pure thoughts that discover them. The fact that strict mathematical infinity cannot be grasped and processed correctly via any representation, but only by thinking it actively in a totally clear way, seems to escape Wilson; this realm cannot exist for him.

Chapter 6, ‘The mind’, approaches its topic only in an evolutionary perspective. The underlying assumption is that processes follow laws by coercion—implying that laws are always linked to an activating force (p. 99), hence confusing the two (under such assumptions anything can be ‘proved’ through some observed regularities). Mapping the mind is taken for understanding its functions, and meaning for merely a linkage of neural networks; that these are maybe more a result of repetitive impression—and thus of meaning—rather than its cause, is not discussed. Subjective experience is admitted to be inaccessible to this approach (p. 116); Wilson tries to side-step the problem by ‘objectivating’ the cognition process and reducing it to perception. But in the way he construes his interpretation it implies cognition to happen in the terms used by our natural science—as if we saw wavelengths when seeing ‘blue’ or ‘Peter’. And where would the brain, ‘swimming in the sea of representations’, find the criteria to be sure about a correspondence between a given representation and a given fact? The relativity of representation is not discussed. Having left thinking to ‘the brain’, free will must be discussed as a question of states of all neurons under the auspices of chaos theory; beyond the fact that this does not decribe freedom of will, but real mental action, this procedure conflates the map (theory) with the landscape (mind), forgetting moreover that the laws depicted in the differential equations of chaos theory are not chaotic, but totally fixed (only parameters vary), so these laws can not account for the real ‘chaos’. On such paths of thought, free will can finally appear only as a fantasy in the void left over by calculations too complicated to determine reality. Wilson believes that only belief in freedom of will keeps the idea of freedom alive, even though inventing such theories requires it in actual practice.
Chapter 7, ‘From genes to culture’, and chapter 8, ‘The fitness of human nature’, approach their topic out of one same perspective: the ‘epigenetic rules’ (p. 127), held responsible for all the cultural superstructures of mankind—even though methodologically the same applies as for laws in (the differential equations of) chaos theory. These laws are then construed—in the same conflation of law and force as in chapter 6—as the ‘impersonal force’ (p. 129) that drives evolution. By such a view the fact must be left in the dark that culture, seen as process of reflecting ideas leading to the ‘rules of the game’, serves not only as a constraint on behavior or a mere result of behavior, but makes real sense only if culture also encourages free people to find new ways of behaving, which requires also other ideas than the ones encompassed in the evolutionary perspective Wilson adopts. The mythical impersonality acts also in communication: ‘complex information is thus organized and transmitted by language composed of words’ (p. 135). As if meaning moved alone to make itself heard (maybe such teleguided entities exist?). The genes ‘prescribe’ what physiological systems should do (p. 137) in this ‘gene-culture coevolution’. Culture seen in this way appears then as a mere hotbed for genes to find their evolutionary path and develop the ‘genetic leash’ (p. 157ff) on which mankind toddles along. So do we wait until the genes solve our problems? And how could a gene-determined culture know which path to favor? Especially since ‘no bias-free mental development has yet been discovered’ (p. 167), which however describes only the past. But with a prospect of gene control we would have nothing except the past in us... as it appears for instance in the ‘predictions’ of gender behavior, ruttish vs. coy (p. 170). This is like resurrecting old ghosts again.

Chapter 9, ‘The social sciences’, discusses anthropology, sociology, economics and political science. Wilson charges that ‘problems became intractably complex, partly because the root causes are poorly understood’ (p. 181). Fair enough. But is Wilson’s basis any better? To him, advanced social theorists seem ‘happy with folk psychology’ (p. 183), and he argues that only the molecular paradigm can be of any help. To Wilson, sociology is even worse; as disciplines for bridging the ‘incomplete’ views he proposes, as a replacement of the ‘weak’ approaches just mentioned: cognitive neuroscience (brain science), human behavioral genetics, evolutionary biology, and environmental sciences (p. 192). ‘The enterprise within the social sciences best poised to bridge the gap to the natural sciences, the one that most resembles them in style and self-confidence, is economics’ (p. 195). This is music to bioeconomists’ ears. However, Wilson cautions that ‘the similarity to “real” science is often superficial and has been purchased at a steep intellectual price’ (p. 195). The reasons for this ‘can be summarized in two labels: Newtonian and hermetic’ (p. 197). Economic theory ‘lacks a solid foundation in units and processes’ (p. 201). Wilson would like us to accept the mere idea that we make choices not ‘in Becker’s words “depending on childhood, social interactions and cultural influences” ’ (p. 204) but on his idea of ‘hereditary epigenetic rules of human nature’ (p. 204). To Wilson, ‘The full understanding of utility will come from biology and psychology by reduction to the elements of human behavior followed by bottom-up synthesis, not from the social sciences by top-down inference and guesswork based on intuitive knowledge. It is in biology and psychology that economists and other social scientists will find the premises needed to fashion more predictive models, just as it was in physics and chemistry that researchers found premises that upgraded biology’ (p. 206).
In chapter 10, ‘The arts and their interpretation’, and chapter 11, ‘Ethics and religion,’ Wilson attempts to extend his basic assumptions also into these realms. What he grasps and discusses are aspects of myth, believing this to cover all of Art. Similarly, the dimension he can reach of religion is merely naive forms of worship, believing this to be all. This does not look like we are at the end of the 20th century, and he does not discuss worshipping science (scientism).

Chapter 12, ‘To what end?’, discusses again the fact that the material matrix is the ultimate and only basis and thus reality—not clarifying the fact that it is of little use to confuse conceptually ‘car’ and ‘driver’, or ‘bed’ and ‘sleeper’, in the same way as human beings find themselves resting on, yet mentally not totally dependent on material structures. So again his answer is to pull the humanities into natural science—a view which can quite generally only be partially valid. Wilson does not discuss the fact that all measurement (as the basis of natural science) is ultimately necessarily determined in a qualitative way (unit, or act of reference), not quantitatively, and can thus never be self-constitutive. ‘We are drowning in information, while starving for wisdom’ (p. 269); which of the two is Wilson’s consilience? The image of Man he draws is just as valid for highly intelligent animals; he offers no clear criterion for distinguishing. Freedom appears as the ability to follow one’s whims, encouraged by technology—forgetting that this is not freedom, but compulsion; yet this freedom is the only one Wilson proposes (p. 276). He discusses at length the need to care for the environment, since we depend on it. Even though ultimately his topic is ‘Life’ and his claim consilence and thus completeness, he does not discuss the necessary condition for life not getting stuck: the principle of death, which no being fears—as opposed to the process of dying, which is painful precisely to the degree of being inflicted from outside. This concerns us at the latest insofar as we cling to ideas about life and survival as a function of our understanding or not understanding death, creating or solving problems correspondingly—e.g. ending up with ‘needing’ technocracy and consumption as a surrogate for not-understanding, with ensuing ‘needs’ to plunder resources for all the senseless gadgets believed to be necessary, based on the idea that economy is possible only if it can expand and grow.

To sum up: ‘The definitive quality of a good [social] theory is predictiveness’ (p. 198). But [social] life can, by its intrinsic principles involving degrees of autonomy, not be predictive in exactly the same way as processes in inert matter. Wilson forgets that ‘Ariadne’s thread of causal explanation’, which he holds for universal in the way natural science understands it, is twisted in another way in live structures than physics and chemistry can know. The consilience that Wilson can offer is a selective and partial vision. It is always possible to take the world and intuitively shape stories about it so they fit to a high degree. Wilson, a cofounder of sociobiology (to be remembered when reading his book because of the implied political agenda), even declares his motive: ‘Find a paradigm for which you can raise money and attack with every method of analysis at your disposal’ (p. 157).

The intuition of unifying all of science is a very valuable one, and highly necessary in our times. It is to Wilson’s great merit to dare approach this topic. Yet it poses a question in systematic methodology: On what path can this objective be fulfilled? To this the answers given by Wilson are explicitly misleading, because they are presented as final truth, while their foundation is superficial: nothing but natural science made absolute. The underlying
The theory, outlined by Eigen (1996), Küppers (1990) etc., tapered off by Dawkins (1989), certainly has its validity and corresponding merits in many specialized fields. But through the step of generalizing it into a paradigm for all fields dealing with the question of life, as Wilson does, it becomes factually and logically inconsistent. On the other hand, the inconsistencies in Wilson’s approach must be criticized as such:

The theory of genes held for determinative in all organic processes, including our thoughts, is factually untenable, out of incompleteness: Ultimately, through the chosen categories and concepts, our actual physics and chemistry can give no fully determined answer in the single micromolecular case, but only probabilistic images—whereas human thought can react fully to the single case, its degree of grasping abstraction and transcendence depending only on the categories and concepts used in that view. The gap produced conceptually in quantum and relativity theory (out of thinking first in separable systems, later separable attributes) ‘between’ complementatrities and ‘within’ non-locality is not a domain without consequences, and even less proved to be non-existent by these physical theories through nothing more than their conceptually not encompassing it. This gap can not fully be counterbalanced by summing up images ‘around’ it: Understanding what e.g. an electron is as such is not accessible by any amount of calculating its interactions in time and space, but only by grasping its intrinsic interactional laws; and ultimately: understanding fully a human ‘I’ itself is not possible out of any ‘objective’ third-person’s perspective, regardless of the number of views.

A theory of genes held for totally determinative is logically untenable, out of self-contradiction: If the genes are fully determinative, as is certainly the case for many biochemical reactions, this theory is of no help in understanding full and ultimate reality, as then the theory would itself be the result of something escaping our ultimate insight, which therefore we could only ‘be’ and accept to assume in forms of belief, getting nothing better than one more religion (in this case one form of scientism). Watering down the alleged line of influence through near-infinite lines of descendance, as for instance Wilson proposes, is a twist that makes us lose track of the lack of logic in the steps of cause and effect. This may be fit for the credulous, but is not a real proof. The genes are indeed not fully determinative, as the results of the biochemical sciences themselves increasingly show—the epigenetic problem grows stronger every day. The laws are not yet grasped which determine the role of genes as part of the complex interactive developmental system in an ‘organism-plus-environment’ approach (as presented, for example, by Goodwin 1994, Hubbard & Wald 1993, Jablonka & Lamb 1995, Oyama 1985).

The real way out of science’s fragmentation, beneficial to all the participants, will not be found through the hegemony of a partial view. It rather requires clarifying the foundational concepts towards making them universally applicable in strict way—for instance as long as we confuse the law aspect and the force aspect, strict universal applicability will not be possible. Total clarity is the bridge. We are not there yet, but the more we think and discuss the topic of consilience, the better the chances are for getting there. In the realm of this debate, Wilson’s book, with its beautiful rhetoric and amazing scholarship, is a ‘should read’ for all scholars interested in the consilience of the social sciences with the natural sciences.
References cited

In Consilience (a word that originally meant "jumping together"), Edward O. Wilson renews the Enlightenment's search for a unified theory of knowledge in disciplines that range from physics to biology, the social sciences and the arts. He gives us a work of visionary importance that may be the crowning achievement of his career. Wilson sees the soloed nature of knowledge as an error of modern and postmodern academic institutions. Then this Harvard professor points the way toward a more holistic view. It is gratifying to see this vision come alive in books such as The Happiness Hypothesis and the works of Malcolm Gladwell, as well as many progressive organizations and institutions.