The Writing of Accounting

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I

Bookkeeping and writing share a single fate not only because they appear to be descended from a single invention made in Mesopotamia some 5,000 to 8,000 years ago,¹ but also because they endow social systems with an evolutionary dynamic that affects the use of writing and bookkeeping both. This is a matter of positive feedback. The story of bookkeeping I will tell can only hint at this evolutionary complexity. The story is a reduction of complexity designed to show the mechanisms of the genesis of this complexity. It is, however, not the reduction we are interested in, but the complexity.

I will argue that we can describe the evolution of bookkeeping and accounting as a succession of four steps: (1) closure, when the introduction of a distinction enfolds a paradox; (2) recursion, when a firm is differentiated via the medium of bookkeeping; (3) iteration, when observers fail to account for the network accounting operates within; and (4) re-entry, when the distinction that constitutes accounting is mirrored in the firm and the form of the economy.

My most important analytical instrument in telling the story of how accounting is written will be the calculus of indications, developed

by G. Spencer Brown in his *Laws of Form.* This calculus is a powerful instrument for showing the arithmetical possibilities in dealing with distinctions. It offers a foundation for a logic that can deal with problems of self-referentiality, identity, and difference. We won’t employ much more of this calculus than its starting point and its end, leaving all questions of the calculus’s enfoldment to the mathematically interested reader. Three points are decisive for us:

1. There are no indications without distinctions. To construct anything, one must first follow the injunction: “Draw a distinction” (3). The distinction establishes a first asymmetry by distinguishing an inside, the marked state, from an outside, the unmarked state. Both sides of the distinction taken together comprise the form of the distinction, because there is no inside without an outside: “We take, therefore, the form of distinction for the form” (1). The form of distinction is a form of closure that presupposes openness and nevertheless is “perfect continence” (1). Speaking of the form of distinction as different from the distinction itself is Spencer Brown’s most interesting choice. This decision allows “laws of form” to be revealed and demonstrated by the calculus of indications.

In the distinction between distinction and form, there is a hidden paradox off course that will be revealed and “solved” only later on in the calculus’s development, as soon, that is, as the calculus seems complex enough to handle it. But there is a hint of that paradox even at the starting point of the calculus; it consists in the sentence “There can be no distinction without motive, and there can be no motive unless contents are seen to differ in value” (1; my emphasis). That is, the observer is already present. But to observe him, we need not only distinctions but distinctions between distinctions. We need to convert from first-order thinking to second-order thinking, from observing things to observing distinctions.

2. The primary arithmetics for dealing with distinctions consists of two possibilities: calling up the distinction again and crossing the distinction. Calling up the distinction again adds nothing: “to recall is to call” (1). Any repetition, as should be added in view of the modern fascination with it, gains distinctiveness only insofar as the outside of the distinction, the unmarked state, changes between the instances of the repetition. We need further distinctions and we need a notion of time in order to observe differential repetition. Both necessarily are lacking in dealing with one, and only one, distinction.

At this point, recourse to mathematics can helpfully clarify the operation of a distinction, for outside mathematics it is difficult, if not impossible, to imagine dealing with one, and only one, distinction. There are always already more of them at hand, in the mind, and in the air.

The second possibility for dealing with distinctions consists in cancelling the distinction, that is, in recrossing the boundary from the inside to the outside. “That is to say, if it is intended to cross a boundary and then it is intended to cross it again, the value indicated by the two intentions taken together is the value indicated by none of them. That is to say, for any boundary, to recross is not to cross” (2). Cancelling the distinction deals with the unmarked state, and here is where many of the mystical, ironical, and deconstructive procedures known before and since the romantic theory of art enter in.

3. The third point in Spencer Brown’s *Laws of Form* that is of interest for us is the possibility of a re-entry of the form into the form. That means the re-entry into the distinction of the observer, who is himself a distinction, thus showing that in the form the first distinction, the mark, and the observer are interchangeable and identical (76). That means, as Spencer Brown shows by some experiments, that the law of calling and the law of crossing with which the calculus started “were mutually permissive and agreeable” (106). The distinction is an observation, or there is no possibility of seeing anything at all. The re-entry of the form into the form formally is the passing over to second-order observation.

Those three points taken together establish the arithmetics and algebra of indications. We can now describe distinctions as operations of observation. That is, we no longer view observations as external to the world we observe, but as empirical operations in the world itself. We view them, following G. Spencer Brown, as operations that enable the world to observe itself (105). Any distinction is a cut into the world, distinguishing a part that sees from a part that is seen and challenging the re-entry of the form into the form in order to observe the operations that are used in order to observe. Any distinction reveals something and conceals something (or rather, everything) else. But what is concealed can only be revealed by another distinction.

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4 They may even be confused with one another (69).
suffering under, but enabled by, the same constraint. We may, by second-order observations, clarify the relation between revealing and concealing the world. But we will never achieve any complete first-order observation of the world.

II

There are at least four ways to define what bookkeeping is all about: looking at the books kept, at the events made, at the reports requested, and at the techniques used. The first, the most simple and most useful for historians, is a description of the books in which bookkeeping takes place. Starting with Sumerian tablets, passing through journals, registers, and ledgers from the Middle Ages up to today, and continuing with the spreadsheets of electronic accounting, one need only look at these different instances of "books" where the keeping is done and describe the kind, commonness, frequency, and technique for evaluating commercial events that get written down there.

The book is already an indication of transactional events that presupposes a distinction, namely, the distinction drawn between an observer who keeps the books and an environment where transactions are taking place that are, or aren't, of relevance for the bookkeeper.

A distinction is drawn between books and everything else, and it is an open question whether the observations enabled by this distinction are designed to monitor a business entity's control over its environment, or a business entity's control over its own management. The distinction drawn between books and everything else is indiscernible to internal and external applications of the observations enabled by the book. This indifference should be among the factors that account for the enormous variety of forms and instances of bookkeeping we observe in history and, more important, among the factors that account for the variability, adaptability, and persistence of bookkeeping. The distinction between books and everything else is a distinction that determines nothing else. The only determination laid down by the keeping of books is, as far as it goes, to continue the keeping of books. As soon as you have decided to keep books, you also need decisions to keep certain transactions out of the books.

A second possibility for defining what bookkeeping is all about consists in abstracting from the books that are kept in ever-different forms and looking at the entries that are done in whatever place, at their why and how. Any systematic history of bookkeeping and accounting starts with that question. At this point, accounting becomes more important than bookkeeping, accounting being a manner of distinguishing and indicating not only commercial or business events but relationships entailed by those events and held accountable for something that ensues. Accounting is a highly selective way of attributing transactional events to certain positions that may stand for persons, firms, the state, or commodities themselves and that are identified, that is, distinguished by accounts. Accounting research is research into this selectivity of accounting and into the behavioral effects of attributing to accounts any specific selectivity of importance for exchange structures, time horizons, and production possibilities to be perceived, established, and exploited by the firm in the economy.

There is no complete history of the selectivity, at most some research insights here and there that are impossible to link up into a continuous line of development. Bookkeeping among the Sumerian temple priests meant making entries that probably accounted for and administered the trade between center and provinces, or else, accounted for the grains that had been received by the temple, distributed to workers and dependents, and released as seeds for planting the fields. At its very beginning, accounting already stands in an intimate relation to tax collection and bureaucracy, that is, to enforceable claims and state behavior. Secret writing becomes necessary in order to avoid, or enable, manipulations of numbers, dates, and accounts. And even at the moment when the practices of bookkeeping are first revealed by Luca Pacioli in the chapter "Tractatus particularis de computis et scripturis" of his Summa de Arithmetica, Geometria, Proportioni et Proportionalitate (1494), it is not the whole state of the art that is revealed.

Very soon law, too, enters the scene. Among ninth-century Arabs, accounting became necessary to decide disputes over inheritance.10

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1 See, for example, La comptabilité à travers les âges: exposition à la Bibliothèque Royale Albert Ier, Bruxelles. Catalogue edited by Ernest Stevelnck (Bruxelles: Bibliothèque Royale Albert Ier, 1970).

2 Amiet, "Il y a cinq mille ans" 20-21.

3 Schmandt-Besserat, "From Tokens to Tablets" 340.

4 Schmandt-Besserat, "Tokens and Counting" 118.


And in the European Middle Ages most of the entries made served less as an aid to memory than as a partly preventive, partly judicially demanded means of settling conflicts over transactions, one that could be used in court. That explains why accounting gets standardized and routinized. External demands define what entries are supposed to mean and in what manner they are to be made. And accounts are first assigned to, and transactions accounted of persons; only later on do they refer to things.

A third way to define what bookkeeping is all about is to look for the people involved in accounting and their different reporting obligations. Any accounting eventually leads to reporting, be it a report presented to the tax collector disclosing returns and costs, or to the court proving that contracts have been kept, or to business partners or community members assuring equal sharing of burden and profit. The most common reporting obligations, however, are embedded in the hierarchical relationships of the firm. They involve command and execution, trust and mistrust, and relating superior to subordinate. The most important distinction here is whether the superior keeps the books to control the subordinate, or, the other way around, the subordinate keeps the books to report to the superior. In the “Italian system,” the superior keeps the books; in the “German system,” the subordinate does.

Bookkeeping and accounting, as means of writing down transactions and comparing them with expectations, obligations, and promises, become very useful instruments for placing people in failure and success and consequently for disciplining, pressuring, and stressing them in a way impossible outside the “cool” medium of writing. Any accounting used as a means of reporting, and checked by auditing, is an instrument that allows decisions to be taken in view of the reported data and to be presented as standard operational consequences of those data when compared with criteria written down elsewhere. This comparison has an extremely far-reaching power to set up differences between states.

We are led to assume, then, that the history of the invention of bookkeeping, of the selectivity of accounting, and of its embedding into the organizational hierarchy is a history determined, as it starts and continues, by external demands. But this assumption is misleading. Those external demands come and go, never being able, it appears, to explain the main reason for bookkeeping’s persistence. We must look for other variables that can explain not only certain structures of bookkeeping but its internal organization. We must look for variables that explain the overcoming of certain initial obstacles and determine the internal differentiation and disponibility of those entries, and the coolness, or “indifference,” of the medium.

Thus, we have recourse to our fourth possibility for defining what bookkeeping is all about, that is, to the techniques used. The technique of bookkeeping consists in certain operations, based on certain distinctions. What are the operations and distinctions that may be able to explain the success story of bookkeeping and accounting over the centuries? Our hypothesis is that the principle of double-entry defines an internal organization of bookkeeping in such a way that it gains operational closure and manages to define observational demands itself.

Double-entry bookkeeping, applying the distinction between assets and liabilities, or credit and debit, to each transaction accounted for, is nothing less than a device of doubling all transactional events. There are many arguments about the possible reasons for this. The most self-evident explains the doubling of entries as a method of ensuring the correct calculation of the numbers, with any difference between the total sum of credits and the total sum of debits indicating a mistake in calculation.

A second important reason for doubling the entries is that one can then infer assets from liabilities and vice versa. That is, the firm is now able to imagine chances and consequences of acting that were unimaginable as long as one looked only at quantities of goods and money. The distinction between assets and liabilities, when applied to a transaction, acts like a prism that shows multiple facets of economic events, multiple possibilities of exploiting different chances for

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12 Peindorf, Geschichte 42.
13 See as an example for the last case, Tonya K. Fleisher and Dale L. Fleisher, “Managerial Accounting in an Early 19th Century German-American Religious Community,” Accounting, Organizations and Society 4 (1979) 297–304.
14 See Raymond de Rsoever, preface to La comptabilité à travers les âges ix-xiv (p. x).
combining production factors inside the firm as well as for competition and cooperation outside the firm. To look at assets as liabilities and liabilities as assets shows the same economic reality in different shapes and allows the discovery, exploitation, and creation of different realities.

Accountants throughout history have always had a very special reputation. Bookkeeping was done in ancient times by intelligent slaves; in the Middle Ages, it became a widely accepted profession for parishes, first in Italian and Dutch cities. 

The procedures of bookkeeping were considered a perfect example of arbitrariness, obscurity, incomprehensibility and pedantry. The reason for this seems to be that only accountants look at the economy as a circulation of debts and credits as well as a circulation of goods and money. Accounting copies and supports the *Doppelkreislauf*, the double circulation, of the economy, which consists in payments transmitting the ability to pay as well as, in the opposite direction, the inability to pay. The accountant, being the only one looking in both directions, must be incomprehensible; all other participants in the economy look exclusively at the transmission of the ability to pay. Double-entry bookkeeping “enacts,” to use a phrase of Karl E. Weick, the double circulation of the economy. That is why any asset is simultaneously a liability, any credit a debit, and vice versa.

The distinction between assets and liabilities, applied to all entries, and especially to the doubling of each entry, results in bookkeeping’s being a practice of its own and a position of observation defined by its own distinction. Any entry accounting for any transaction whatsoever must be duplicated in an account on the other side of the balance sheet. This corresponding account must be found by the bookkeeper himself; it is not determined by anything outside the books.

There is, apart from double circulation, no reason to double an entry in the business world except bookkeeping, and there is no determination of doubling entries except the books, apart from the distinction between credit and debit, which echoes from afar the reciprocity of premodern exchange relations. Bookkeeping develops its own reasons, which extend back to the first entry for which there are at any moment — thanks to the differentiated system of accounts — various, and determinable, possibilities. The reasons developed by the bookkeeper eventually get copied in other business practices, become the germ of a general business language, and, as such, will be responsible for the differentiation of the firm out of the economy and for its ensuing internal differentiation.

We do not know when double-entry bookkeeping was invented. During the Crusades, thirteenth-century Italian merchants may have learned it as an old Phoenician practice, as did the Templars and the Teutonic knights, who introduced it to the Hanseatic League. Ninth-century Arabs used it to calculate inheritance shares. At the latest, double-entry bookkeeping must have been invented when accounting for banking became necessary, that is, when the first giro transfers required accounting debit as well as credit. Conceivably, this practice may have been used ever since temples in the Babylonian Near East served as banks.

Elsewhere I have argued that double-entry bookkeeping was invented to deal with the paradox of money — that is, with the undecidability of whether money is wealth or debt on the general level of the monetary system. One needs a distinction between debit and credit, or between asset and liability, in order to assign to different people, and thus address, positions of wealth and debt. The distinction between addresses, guided by the distinction between asset and liability, sets free a monetary and economic system that functions thanks to, and in spite of, a hidden paradox, the undecidability of wealth or debt in general. Only one’s position in relation to other positions can be decided, in most cases, only too well decided. The double circulation of the ability to pay and the inability to pay is the memory of the paradox, and double-entry bookkeeping its agent.

Without double entry there could be no positions of wealth or debt, no monetary system, no economic system, no politics of distribution, no exchange, no trade, no society.

15 For the merchants, see Michael Chatfield, *A History of Accounting Thought*, rev. ed. (Huntington and New York, 1977) 32s. For the Knights, see De Roover, *preface* x.

16 De Roover, *preface* xii

17 See Niklas Luhmann, *Die Wirtschaft der Gesellschaft* (Frankfurt am Main: Suhrkamp, 1988) 135s. “Circulation,” of course, is a metaphor not maintaining that there are circles in reality.


no distinction between center and periphery, no bureaucracy, no temple, and no evolution of an advanced culture out of archaic societies. Without double entry, then, no advantage could have been taken of the neolithic revolution, the invention of agriculture.

The distinction between assets and liabilities, the principle of double-entry bookkeeping is responsible for operational closure in accounting practice. This distinction adds internal organization to the external demands addressed to bookkeeping and is responsible for the varying structures this practice assumes in different historical situations.

III

The distinction between assets and liabilities differentiates bookkeeping from everything else. Only double-entry bookkeeping provides bookkeeping and accounting with their own history, a history that includes frequent “relapses” into single-entry bookkeeping. Yet only double-entry bookkeeping defines the unity, the “eigen-value,” of bookkeeping. Moreover, it is the distinction that is important, not strictly the indication of assets and liabilities as such, nor their indication as credit or debit. As a modern textbook says: “Debit simply means left side. Credit means right side. Forget any preconceived ideas that debits are bad and credits are good or that debit means increase and credit means decrease, or vice versa.”

The distinction between left side and right side is what matters for the bookkeeper, nothing else. Once this distinction is established, an immense range of possible interpretations opens up, permitting the assets and liabilities that it distinguishes to be applied to the conceived facts of economic events. There are no assets and liabilities outside of bookkeeping; this means that economic events must be shaped as assets and liabilities and brought into an order that can be read by the bookkeeper and interpreted by anybody taking advantage of bookkeeping.

As soon as this closure of bookkeeping is established, there is room for recursion. Such recursion is responsible for the enormous effects bookkeeping had on the evolution of the economy, especially on the evolution of firms.

Recursion presupposes closure and effectuates it. It means applying the operation of a distinction to the results of these operations, thus continuing those operations with ever-differing results while maintaining their identity as operations. Recursion establishes a distinction between operations and results, distinguishing between an identity that is maintained and a variety produced by the recursion (that is, the identical) itself.

There is, then, a paradox hidden in, and revealed by, recursion — namely, the paradox that the identical is different. This paradox can be resolved (i.e., unfolded) by a momentous bifurcation distinguishing different possibilities of attributing variety. Variety may be attributed to internal operations of the distinction or to external events, thus distinguishing, within the recursive system, between auto-referential and hetero-referential modes of attribution. Here the bifurcation does not operate once and for all, “fatally” distinguishing different paths of system development; rather it is a constant possibility, which is renewed with every operation, transmitting an unresolvable if bounded ambivalence to any new operation.

This ambivalence can only be decided by an observer who chooses one attribution instead of the other. Thanks to the ambivalence, the observer provides a well-determined recursive system with a degree of freedom, which he or another observer can use to provide for further differentiation of the network within which the distinction recursively operates.

The single concept of recursion thus uniquely combines the different distinctions between operations and results, identity and variety, auto-reference and hetero-reference, and system and observer. The concept of recursion provides us with the means of analyzing any subject whatsoever both in view of the first distinction drawn and in view of the operations of condensation and cancellation provided by the form of the first distinction.

Nothing, then, happens without an observer making decisions in view of a distinction he uses to observe what he observes. Degrees of freedom are introduced by an observer who is bound by the distinction he uses. The difficult point to imagine is how bookkeeping is the observation enabling an observation of its observations.

We began our analysis on the level of second-order observations, and on this level we are able to distinguish and identify first-order operations that are simultaneously second-order operations of a recursively closed system. The operations themselves are distinctions — that is, they are observations, thus closing our circle from operations and results to identity and variety, auto-reference and hetero-reference, system and observer. There is no way to exclude the observer from

the system he observes; nevertheless he himself, paradoxically, distinguishes himself from anything he observes.

In bookkeeping, as in any other recursively closed network of distinctions, a double play is always possible between the identity that is maintained on the one hand, and, on the other, decisions taken about how to interpret and further apply the operation of the distinction used. That is, such a network has no inherent identity outside of the distinction that is applied recursively. Nothing "substantial" is involved outside of the recursions of the operations. Nothing, then, inhibits the further differentiation and complexification of bookkeeping except the distinction to be respected, and applied, between left side and right side.

In view of this distinction and its persistence, different interpretive applications of the distinction are advanced, or "forms taken out of the form" (3ss), to be tested, applied, and approved, adding further recursivity to the operation called bookkeeping. The two most important forms taken out of the form of double-entry bookkeeping are two distinctions that mirror each other in a certain way and are used in observing and interpreting the economy in general as the external environment of bookkeeping and the firm in particular as its internal environment. Once those two distinctions are made, the distinction between economy and firm is also established. This final distinction, as soon as it is applied recursively, is of the utmost importance for the further evolution of both the economy and the firm — with bookkeeping, as a kind of structural coupling between them, increasingly under pressure from demands that challenge the functioning of this original generator of the distinction.

Both of the two distinctions taken out of the distinction between left and right side are already to be found in Pacioli, who, of course, interprets the latter distinction in view of the two former ones, understanding, as is common, the reasons taken out of a distinction and applied to it afterwards as the causes of the distinction. Taking it the other way around, we see those reasons as being enabled by the distinction itself. Thus we attribute reasons to an observer and understand reasoning as the performance and achievement of the observer. Both of the two distinctions, notwithstanding their final guise of necessity, are arbitrary, improbable, and highly consequential.

The first is the distinction between debit and credit, which must be maintained at any moment in order to keep the books in order, "for trade concerns nothing else." Thus runs Pacioli's far-reaching insight explanation, abstracting from any specific goods, any satisfaction of needs, and any more or less human motive of searching for profit. This distinction between debit and credit, applied to trade, serves as a nucleus for understanding and describing the economy as a subsystem of society, a subsystem that gains more and more autonomy through a special type, or code, of communication involving debt and credit as the means of enhancing wealth and debt.

The second distinction taken out of the form of bookkeeping and applied to interpret both bookkeeping and the internal environment of the firm is the distinction between cash and capital, cash being the money a firm actually can dispose of and trade with, and capital being the amount of money owed to the owner of the firm. In double-entry bookkeeping, capital is the creditor and cash the debtor. Any economic process inside the firm, therefore, begins with credit, and ends with debt. The distinction between cash and capital acts as a distinction between wealth as a liability, as owed to the owner or owners of the firm, and wealth as the asset of the firm. This distinction removes the owner from the firm and establishes the firm as an independent entity and unity. The firm itself, then, is a further form taken out of the form of the distinction between asset and liability. Without this establishment of the entity and unity of the firm, its evolution, as we know it, might have been impossible or might have taken a totally different course.

This second distinction transforms bookkeeping into accounting, that is, transforms records of transactions into systematic statements of facts that are written and read in view of conclusions and consequences to which they lead. This distinction enacts a form, presupposing only a budget — that is, a firm. The firm does not stay the same as it moves from budget to double-entry bookkeeping. It changes via the self-application of distinctions. Everything we are accustomed

24 Pacioli 29.
25 Émile Comberg, Histoire critique de la théorie des comptes (Geneva and Berlin: Weis, 1928) 79.
26 Charles E. Sprague, The Philosophy of Accounts (1907; New York, 1918) 1.
to in observing and describing the economy and the operations of firms within it is due to certain interpretative decisions applied to bookkeeping, beginning with the notions of ownership and capital, fixed or circulating, and not exhausted by the notions of turnover, costs, and profits. Perhaps one of the most important notions taken out of accounting is the notion of overhead costs which permanently troubles any operation inside a firm that is not attributable to a marketable product.27

Thus we may conclude with Werner Sombart that the principle of double-entry bookkeeping applied recursively to its own results leads to the evolution of the firm.28 Only because of the recursivity involved does it become difficult if not impossible to decide whether partnership, credit, and agency are the reasons for the development and persistence of accounting,29 or accounting originates partnership, credit, and agency.

IV

To be sure, double-entry bookkeeping is not the only factor responsible for the development of the modern firm and of capitalism. Religious, political, juridical, and educational factors, the organizational example of the monastery and the army, and certain behavioral attitudes about time, space, spirit, and soul are as important as bookkeeping.30 Perhaps even more momentous are the operational closure and autopoietic development of the economy and the firm themselves, viewed as a functionally differentiated subsystem of the society and

as an organization system, respectively. The operational closure differentiates the economy and the firm with respect to constellations of causal factors and sets them up as recursive networks of self-referential operations — payments in the economy, and decisions in the firm.31

But bookkeeping, like the institutions of the contract or of property, is among certain eigen-values of communication that determine structural couplings between autopoietic systems. Observation of such values may reveal more about the dynamics of capitalistic development than does anything else. The advantage of, and the problem with, eigen-values is that they produce themselves.32 They determine an eigen-behavior of a system unenconcerned with and even blind to changing constellations between the system and its environment. For a long time they may function as stabilizer, filter, and even amplifier, producing order in a system that is less and less aware of their functioning. Everybody takes for granted the identity of operations maintained by their recursions as long as the variety that concerns everybody fits this identity. But then, slowly or suddenly, something happens, and keeps on happening, to produce a shift or a displacement between the variety and the identity. Something doesn’t fit any more, and it is hard to tell what it might be. The identity maintained becomes conspicuous. The distinction producing the recursive operations reveals a form that is “out of step” with other forms employed by the system.

Something like this happened to bookkeeping. We can speak of a shift from recursion to iteration, hinting at a mode of self-reproduction that produces more order than is wanted, that applies an auto-reference out of contact with hetero-referential tuning, and that becomes insensitive to the handiness of the distinction it employs. Of course, the distinction between recursion and iteration is a distinction made by an observer. But it is a distinction made by an observer who observes a difference in bookkeeping’s own observation. The form of bookkeeping is what eventually becomes conspicuous. Once the firm is established, bookkeeping needs a new justification.

It is difficult, however, to measure the distinction between recursion and iteration at an operational level. One possibility for measuring it might be to observe degrees of freedom established in a system

31 See Luhmann, Die Wirtschaft der Gesellschaft, and Dirk Baeker, Information und Risiko in der Marktwirtschaft (Frankfurt am Main: Suhrkamp, 1988).
whose potential use is restricted by an iterating eigen-value that absorbs the newly gained degree, or degrees, of freedom. This distinction permits the observation of differences between observations and thus differences within the system the observations are part of. When bookkeeping shifts from recursion to iteration, recursion nevertheless is maintained. This means that there are observers who observe other observers who appear to strain bookkeeping's distinctions unnecessarily. Bookkeeping becomes a conservative factor in determining the range of possibilities in the operations of the firm and does not take account of new possibilities not in line with the distinctions established by bookkeeping. To speak of iteration means to indicate the firm as its own context organized recursively, historically dependent but analytically undeterminable and unforeseeable like von Foerster's nontrivial-machine — and to describe this context — system or environment — as showing degrees of freedom that are unexploited by bookkeeping.

The new science of economics sets free descriptions of the economy that assume the economy is hampered by such backward-looking aggregates as those insinuated by bookkeeping. Instead and in addition, economics employs a terminology of forward-looking structures, which describe not only debts and credits but debt becoming credit, and credit becoming debt. Though in its mercantilistic and camera-listic mode economics began by imitating accounting, later on it learned to replace accounting's orientation toward positions of debt and credit with an orientation toward future systems operations. Economics thus manages to hide the founding paradox of money just as perfectly as accounting does. But mirrored by economics, accounting seems to lag behind in its possibilities for describing and understanding the economy. Nevertheless, as long as economics has no full account of the double circulation of the economy, accounting will retain a competitiveness economics cannot understand.

Prompted by the new distinction between accounting and economics, accounting developed a distinction that for the first time acknowledged that a firm is not identical with its books. In the guise of “managerial accounting,” accounting developed, albeit implicitly, a distinction between communication and communication. It discovered that not all decisions taken in a firm can be reduced to, or deduced from, decisions derived from the books. Accounting, which enables decisions by tracing them and tracking them down to changes in assets and liabilities, has been surpassed by decisions seeking profit in other forms of marketing, which rely on second-order observations concerning risk and profit sharing. Looking at assets and liabilities no longer allows an observer or manager to imagine new possibilities of business, assuming that everything is under control. Instead, looking at assets and liabilities happens in addition to doing business, just to check that everything is under control. The existence of a capital market sets free this kind of present check on future chances, independent of past limitations.

Accounting, then, reveals itself as a communication medium within the communication process inside a firm. Decisions are taken elsewhere. Accounting, taken as a communication medium, may no longer be up to date, supplemented, as it is, by all kinds of “uncontrolled reportings.” Managerial accounting seals this distinction between different contexts of communication, or decisions, insofar as it tries, apparently in vain, to regain for bookkeeping an impact on the firm's decisions, tries not only to facilitate but to influence them. The importance of managerial accounting's models lies in its discovery that the firm is a communications, or decisions, network partly independent of accounting. This discovery, not an apparent overestimation of the scope of bookkeeping, is of interest to us. It is the discovery of the organization as a network of decisions.

Once this discovery is admitted, it is not difficult to ascribe a “relevance loss” to accounting, to disclose ideological functions in account-


ing, to search for a hermeneutics of accounting in order to disclaim its universal truth, and to call for a deconstruction of accounting in order to dispose of its founding binary oppositions. The "generally accepted accounting principles" of historical cost accounting — independent auditing of accounting numbers by reviewing the information in sales documents (the objectivity principle), considering the business entity to be separate from its owner or owners (the business-entity concept), assuming the continued existence of the business entity (the going-concern concept), and considering the dollar stable (the stable-dollar concept) — are no longer generally accepted. Among the issues figuring on a long list that accounts critically for accounting are: the conversion of accounting procedures into sources of income; the concealment of market values by historical cost accounting; the collusion, in principle, between auditing and accounting; the problems of accounting when faced with bankruptcies, mergers, and leveraged management buy-outs; and, last but not least, the inflationary bias in any modern economy.

The recursion of bookkeeping does not concern these critical observers. It is easy to see what happens to an economy lacking this recursion: the counting of goods and notes in socialist economies is anything but an accounting for assets and liabilities. Instead, in market economies the iteration of bookkeeping concerns critical observers, who profit from the discovery that the economy and the firm are recursively organized networks presuming the self-reproduction of payments in economy, or the self-reproduction of decisions in the firm. The discovery shakes off, it seems, the writing down of assets and liabilities in accounting. Bookkeeping, instead of being the complexity-generating matrix of the modern economy, has become an instrument of conflict and coalition among participants in a national economy or members of a firm, who argue about the distribution of values, the ascription of costs, the sharing of profits, the measuring of policies, and the rationality of decisions.

In accounting, therefore, iteration may stand for three intimately interrelated issues: first, for the development of an auto-poietic economy and autopoietic organizations out of the recursions of bookkeeping; second, for the blindness of accounting to the auto-poietic networks it generates and depends upon; and third, for the possibility of parasitic relations between organizational and economic networks on the one hand, and bookkeeping procedures, on the other.

Accounting research has plenty of perspectives for working out these three issues and possibly further ones. Still, that leaves open the question of an accounting theory — that is, how to describe the interrelatedness of these issues. In a way, then, the title of "iteration" stands for the lack of theory, a lack, quite possibly, not without its advantages in looking for and testing various descriptions outside a defined theoretical context.

V

A theory of accounting, seeking to understand the interrelatedness of the three issues of iteration against the background of closure and recursion, could, first, employ Spencer-Brown's notion of re-entry in

References:


43 Johnson and Kaplan, Relevance Lost; Abraham J. Briloff, Unaccountable Accounting (New York, 1972); M.C. Wells, "A Revolution in Accounting Thought?" Accounting
order explicitly to reintroduce the observer into the network he observes and thus tie the notion of iteration back to the notion of recursion. Such a reintroduction is as useful in understanding one's own questions as in unveiling one's own operations of research and argument. Second, it may be possible to learn quite a lot about the functioning, the limitations, and the promises of accounting if one can discover instances of a re-entry of accounting's basic distinctions into the network whose differentiation out of an environment they effectuate.

One must first look for instances of re-entry in the network of operations that the distinction uses. But, so far as I know, there are no hints of a re-entry of the distinction between accounting and nonaccounting into accounting's own area. Accountants may know better, but I don't see instances of an observation, implemented within accounting itself, of the distinctions it uses in order to tell apart blindness and insight. I leave it as a question for further research to find out whether and how accounting informs itself about its own limitations in observing and accounting, and whether and how it works with such information to account for its own blindness and regain openness thanks to closure.

Yet there are two other possibilities of re-entry. Describing, as we did, the emergence and evolution of firms and the economy as results of the recursions of bookkeeping, we could look for instances of a re-entry of the distinction between accounting and nonaccounting in the organizational network of the firm and in the operational network of the economy. To ask this question is, conceptually, to strike it rich.

There are plenty of occasions for observing accounting in the mirror of nonaccounting, in the economy as well as in the firm. We will only hint at some examples, leaving any systematic analysis and possible conclusions to further research. With regard to economy, nonaccounting has become conspicuous under the title of "externalities," referring to positive and negative external effects — be they economic, social, or ecological, that are not accounted for in terms of money and therefore not reflected in the price behavior of the economy.

Techniques of material, ecological, and social accounting are designed to correct for the blindness of accounting to externalities. 44 Yet the firm belief that accounting could and should register them lacks an underpinning grasp of accounting's demand for closure and recursion, which it must have to be of any effect. Only with such fundamental features in mind can one develop an extended accounting theory helpful for evaluating possibilities of, social, or ecological, accounting. The first lesson to be drawn from the history and theory of accounting is the distinction between simply keeping track of quantities, budgeting, and accounting. Keeping track of quantities is of informational value for an observer, who may then go on doing or refrain from doing whatever he believes useful or necessary. Budgeting, in addition to informing, sets limitations on behavior. But only accounting effectuates a recursively organized behavior shaped by and looking to consequences read in the books.

In contrast to a search for new possibilities of accounting for the economy and its environment, reflections on nonaccounting in the organization of a firm underline the great advantage of the absence of accounting. A whole range of possibilities for developing trust and evoking reciprocity, for encouraging a flexible, innovative, and constructively ambivalent organization, seem to be systematically excluded by the formal procedures of accounting. 45 The absence of accounting may contribute to team organization only as long as somewhere accounting is present to ensure horizons of comparison and guarantee the fair sharing of costs and profit, however. Any re-entry of the distinction between accounting and nonaccounting into the firm thus should lead to a very careful comparison of the requisite variety taken out of the uncertainty absorption techniques established in accounting, on one hand, 46 and the flexibility and ambivalence derived from the lack of accounting, on the other. Any working out of re-entry procedures and any consideration of their possible effects should gain from an accounting theory that can distinguish the networks, or even systems, in which accounting is embedded and the different environments from which accounting is distinguished. However, one interesting consequence of any theory considering the reentry of a distinction

44 Examples in the literature abound. See only Allen V. Kneese, Robert U. Ayres, and Ralph C. d'Arge, Economics and the Environment: A Material Balance Approach
is that one is no longer dealing with indications that name facts of any case whatsoever. Instead and in addition, one deals with unmarked states inside one’s own marked state. In order to do so, one can only look for, and watch, the distinction. A re-entry of accounting into networks that use procedures of accounting leads to, and presupposes, a discovery of the nonaccounting any accounting depends on. To watch the distinction means to gain in understanding of those networks. Such a gain in understanding may, of course, lead to further problems. To watch a distinction work adds degrees of freedom one could not see as long as the distinction merely was drawn and observed. Any nonusing of degrees of freedom now has to be accounted for, that is, rationalized and justified. Reentering a distinction means to discover an asymmetry as a symmetry, a decidability as an undecidability. It is the observer who is able to, and has to, decide. But he is an observer observed by others and thus has to look for means to accept and handle the attribution of decisions to him whereas before any decision simply could be handled as obeying the nature of things.

A theory that considers re-entry takes place on the level of second-order observations. One cannot account for nonaccounting inside an economy or a firm in terms of accounting. One must watch the distinction between accounting and nonaccounting in ways no accounting theory thought of until now. And to watch how the distinction between accounting and nonaccounting operates inside an economy, inside a firm, or hopefully some day even inside accounting, one must account for systems references. Not just context but a network of systems operations in distinction from an environment allows one to see how a distinction manages to indicate something in distinction from anything else and how this distinction, as an operation, recursively reproduces systems operations in distinction from an environment.

An accounting theory thus leads up to a point where one must watch how a distinction matters, not just what matters as a distinction. Along those lines, we may try to understand the writing of accounting. We will need to take a fresh look at organization theory and economics in order to account for the writing, and not-writing, of accounting, of course. Working on an accounting theory means accepting new assets and new liabilities. But describing the functioning, the “how,” of the distinction between accounting and nonaccounting on the level of second-order observation offers a fascinating possibility for extending the balance sheet — even though we know well that when one adds up liabilities and assets, the sum is always zero.
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