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Accounting for Non-Accountants
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Years ago, I realized that many of us techies did not really understand the fundamentals of dual-entry book keeping that is the foundation of all accounting. I therefore launched an attempt to explain these procedures in an article entitled "Accounting for Non-Accountants."[1] As an 'oldie but goodie,' I am republishing that article in this issue of the *Digest*.

Accounting for Non-Accountants
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The Sombers Group
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Many of us programmer types get called upon to implement or maintain a financial accounting system from time to time. At first, the job sounds relatively dull and unchallenging until we get into the black magic of accounting principles. Then we find ourselves scratching our heads and asking ourselves (for we're too embarrassed to ask others these "obvious" questions):

- Why are assets equal to the sum of net worth and liabilities? Are liabilities an asset?

- Why is an increase to a liability a credit? Sounds bad to me. Should be a black mark.

- If we increase an asset, we debit it. If we increase a liability, we credit it. But if we increase an expense, we debit it. Why is an expense treated like an asset? By the same token, if we increase revenue, we credit it. Are revenues like liabilities?

How can we remember these simple rules if they don't make sense? Well, it turns out that a little simple logic and a little simple algebra can be used to make all this rational.

We go back to early Phoenician times and Babak, the wheel maker, whose prowess at wheelmaking came to the attention of a group of wealthy Phoenicians. These benefactors offered Babak a stake in a business they would finance and which Babak would manage. Their initial investment of 10,000 drachmas would provide Babak the working capital he would need to buy materials, hire workers, and feed slaves for his wheel-making operation. In return, the investing group would own 90 percent of the company (things haven't changed since).

In addition to running Babak's Wheel Works, Babak was to account for the investors' share of the business. Specifically, they wanted to track the *worth* of the company, which they defined as what all the owners (including Babak) would *net* if they closed Babak's Wheel Works.

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[1] Accounting for Non-Accountants, *Tandem Users' Journal*; May/June 1987.

Babak reasoned this *net worth* could be achieved only by selling all the company's assets and by using those proceeds to pay all outstanding bills or liabilities. What was left over then could be distributed to the owners. Thus, he concluded:

Net Worth = Assets – Liabilities (1)

Since minus signs were not well understood in early Phoenicia, Babak felt more comfortable with a rearrangement of this expression as follows:

Assets = Net Worth + Liabilities (2)

Now Babak also realized that the net worth of the company did not come via a genie. This worth could only come from two sources:

- It could be given to the company as investment capital, such as the original 10,000 drachmas.

- It could be created by the company as it earned profits (earnings) on its wheels.

Thus,

Net Worth = Capital + Earnings (3)

The concept of profit was a new one for Babak, who had always lived "wheel to mouth," so to speak. However, after a few months in business, Babak realized that he could make money from the sale of his wheels. Each day, he collected money from his customers and paid out some money to cover his expenses – material, labor, etc. If he played the numbers right, he was left with a little money at the end of each day. This amounted, he reasoned, to company earnings that by right belonged to the company and added to its net worth. Since earnings are left over from revenues after expenses have been paid, then:

Earnings = Revenues – Expenses (4)

and from Equation (3):

Net Worth = Capital + Revenues – Expenses (5)

Substituting this expression into Equation (2), Babak deduced:

Assets = Capital + Revenues – Expenses + Liabilities (6)

Again, since minus signs confused Babak, he preferred the form:

Assets + Expenses = Capital + Revenues + Liabilities (7)

Babak knew enough about algebra to understand that this relation must always hold. He realized, too, that if he made a change to one term, he must make a corresponding change to another term. If both terms were on the same side of the equation, then one term must increase and one term must decrease, each by an equal amount. For instance, abacuses and cash are both assets. If Babak bought an abacus, then the abacus asset would increase by the same amount the cash asset would decrease.

By the same token, it a business transaction affected items on opposite sides of the equality sign, then both items would have to change in the same direction. Both must to go up by the same amount or go down by the same amount. If Babak sold a wheel on credit, his customer would owe him some money. This "account receivable" was an asset, and the transaction would increase this asset. Simultaneously, revenues would increase by a like amount. When Babak's customer subsequently paid, the bill, the accounts receivable asset would decrease; but the cash asset would increase by a like amount.

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Babak set up his books so he could keep appropriate records for Babak's Wheel Works and established separate ledger sheets for each of the company's assets, liabilities, revenues, expenses, and capital. He quickly realized from the above expression (7) that whenever he made an entry on one ledger, he had to make an equal, compensating entry to another (or the same) ledger.

This double-entry bookkeeping requirement could be simply organized by giving names to the two different kinds of entries. Entry A would always increase the left side of the equation or decrease the right side of the equation. Entry B would increase the right side of the equation or decrease the left side of the equation. This, by ensuring that each transaction resulted in one Entry A and one Entry B of like amounts, he could ensure the equation, and therefore his books, would always be in balance.

Babak realized the investors were mostly interested in their net worth and that any increase in net worth would be to his credit in the eyes of his benefactors. Therefore, he referred to those entries associated with net worth as "credits." Since these entries would clearly increase capital and revenue accounts, he therefore associated them with type B entries, i.e., increasing the right side of Equation (7). He already had set up his double-entry ledgers with two columns, showing an Entry A and an Entry B for each transaction. As a linguist of some renown as well as a wheelmaker, Babak noted "credit" was similar to the Latin "credere," meaning "right side." He therefore assigned Entry B to the right-hand column of his ledger. Entry A, which was assigned to the left-hand column, he named "debit" after the Latin "debere," or "left side,' modified to rhyme with "credit."

Thus, it came to be that assets and expenses increase on the debit side and that capital, revenues, and liabilities increase on the credit side.

Babak's brilliant work was permanently recorded in Phoenician hieroglyphics. Much to the dismay of the company's investors, however, Babak's Wheel Works became insolvent due to a wood embargo by Phoenician enemies. In true Phoenician style, Babak was buried when his company was buried; and his work was buried with him. Babak's double-entry book-keeping system was lost for centuries until a Franciscan monk, one Fra Luca Pacioli, received it as a gift from his friend Leonardo da Vinci. After years of translation, Fra Pacioli published the double-entry book-keeping system as his own in 1494.

Fra Pacioli died three years later when he was crushed by the wheel of a wagon drawn by a runaway horse named Babak.

(Many, but not all, of the above facts are true. Determination of the veracity is left the reader's discretion.