



o n e

Sequence

Time is nature's way of keeping everything from happening at once.

—John Wheeler¹

Picture yourself pouring water through a funnel. If all the water tried to escape the small end of the funnel at the same time, the result would be chaos, like a crush of people trying to exit a movie theater after someone yells “Fire!” A funnel works because gravity and other forces gently encourage the water molecules to get in line, a line that becomes a fast-moving spiral. When we look at a funnel we see its shape, and we understand its function. What we don't think about is the underlying, and often invisible, timing mechanism that makes it work: sequence.

In business, as in life more generally, we control and manipulate most easily what we can see and touch: we replace one technology with another; we redesign the packaging of our products. Sequences, in contrast, are abstract and intangible, and they are therefore easy to miss. But it is important to find them. Modify a sequence—produce a product *before* the demand is apparent, as opposed to *after*—and your risk and opportunity profile looks





very different. Modify or redescribe a sequence, and it can change how a product is perceived, which can affect its sales. Is the secondhand Jaguar you are about to buy “pre-owned”—owned by someone else *before* you purchased it, or “used”—purchased *after* someone else has driven it?

Finding or noting the presence of a sequence can be the key to deciding when to act. For example, knowing the steps a country needs to go through to produce a nuclear weapon is critical in determining when, if ever, you should take steps to prevent it. That’s why we need to train our eyes to look for the sequences in our environment; they provide clues about timing. They can also help us understand why something is delayed. For example, if there is no clear sequence of steps allowing a country to exit the EU without putting itself (and the remaining countries) at risk, then expect a decision to start down that path to be postponed—perhaps indefinitely.



THE CHARACTERISTICS OF SEQUENCES



When you find a series of events that form a sequence, like the water molecules exiting a funnel, zoom in and look more closely. Sequences are not just about what follows what. Sequences have a number of important characteristics, which I describe in this section.

1. **Order.** What follows what, and why? Is there some reason why A is followed by B, and B by C? Is this order required? Would it be better to do something in a different order?
2. **Punctuation.** Are there recognizable steps or stages? Can one be skipped, and can you come (loop) back and finish it later?
3. **Interval and duration.** How long will each step or stage take, and how much time will elapse between steps?
4. **Shape.** Will there be bottlenecks or other shapes (I’ll describe one in a moment) that will make progress slow or difficult?



5. **Location.** A sequence defines a series of locations. Does an event occur early in a sequence, in the middle, or perhaps at the end, and does its location matter?
6. **Extension.** How long is the sequence? When does it begin and end?

Take a moment to find some of these characteristics, illustrated in Figure 1.1, a close-up view of a sequence.

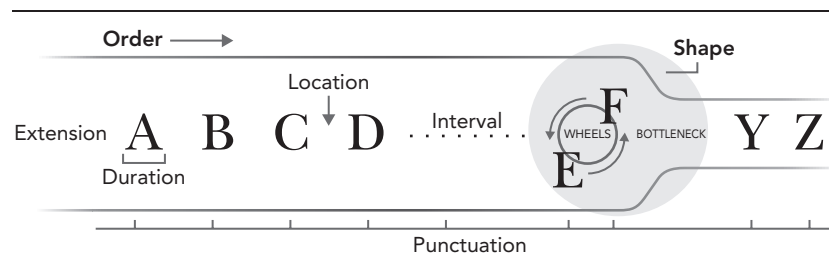
Let's move on and consider each characteristic in more detail.

Order

The *order* in which an event or action occurs is the primary property of any sequence. A is followed by B, B by C, and so on.

In creating a new flavor of coffee, you would take certain steps before announcing the product: agree on the formula, name the flavor, market-test the taste, iterate the ingredients to adjust the taste, market-test again, and so on. Once you observe or identify a particular order in your activities, such as the one in this coffee example, the next question to ask is whether it can be changed. Could one step come before another, or could two steps be inverted? And would a change in order benefit your business? Suppose you waited to name the coffee flavor until after the market test, for example—would that change how customers react? Or could a step be omitted? What if you omitted the second market test—how might that impact your budget? Everything

Figure 1.1 A Close-Up View of a Sequence



we do has a particular order. Sometimes it is useful to pause and consider alternatives, particularly if you have been doing things in the same order for years.

When the order of a sequence can't be changed (one step must follow another, and no step can be skipped), it can cause problems. Let's use the launch of Dean Kamen's Segway as an example that illustrates what I call *strict serial constraints*.

You may have seen someone riding the original Segway PT (personal transporter) when the machine was first introduced in 2001. At the time, it probably looked like it would tip over, passenger and all. But that didn't happen because the Segway is self-balancing—that's what makes it breakthrough. Still, you would be skeptical about safety and ease until you rode one for yourself. So, with that in mind, when would you buy one? Probably not until you had a test ride. And when is that? Not until distributors carried it. But distributors didn't carry it for quite some time because laws in most states prohibited the use of Segways on sidewalks. Therefore, you wouldn't have been able to purchase a Segway until state laws were changed. The company lost five-plus years of sales because it introduced the product before it could be widely used.

Segway found itself caught in a *vicious cycle*: distributors wouldn't carry its product until they knew there was a market, but they couldn't know about the market until customers tried the product, and customers couldn't try it because distributors didn't carry it. Due to its revolutionary nature, the Segway was developed in secret, which meant that work on downstream tasks, such as lobbying municipalities to allow the device to be used on sidewalks, could not start until the product was unveiled. Did the Segway's developers identify possible routes to faster state approval or decide on a later launch? Did they anticipate the vicious cycle involving distributors? I don't know the answers to these questions, but in a certain sense, for our purposes, they are immaterial. What matters is that you learn to ask sequence-related

questions in your own business so that you can better anticipate the difficulties you might encounter.

Notice in the case of the Segway that all of the timing risks related to order could have been identified at the outset if someone had been looking. But the company's timing strategy appears to have been typical: the focus was on speed, getting the product to market as soon as possible. The theme of this book is that there is a lot more you can see if you know how and where to look.

Like Dean Kamen, Saul Griffith needed to recognize the steps needed to make his invention successful. In 2004, when Griffith was a PhD student at MIT, he invented a way to custom manufacture low-cost eyeglasses for people in the developing world.² The problem, as he understood it then, was manufacturing lenses without having to build an expensive factory, which poor countries couldn't afford. Griffith's solution was a technology to shape a fast-drying liquid into any lens.

Technically, his invention was a great success. He received a \$30,000 award from MIT and a \$500,000 "genius grant" from the MacArthur Foundation. Unfortunately, Griffith didn't have a *timing lens* in his tool kit, one that would help him see the sequence on which the success of his invention depended.

As Griffith put it, "The real problem with eyeglasses in the developing world isn't making lenses . . . it's testing eyes and writing prescriptions for people with little or no access to medical care—a matter of politics and economics rather than technology."³ He missed the steps individuals needed to take before they could use his technology; as a result, his invention never found a market. But Griffith also misdiagnosed the problem. He saw it as one of politics and economics, which it undoubtedly was. But it was also a sequence problem.

Sequences, of course, have other characteristics besides order that are relevant in business. I'll mention them briefly, as they will be covered in greater detail in later chapters.

Punctuation

Sequences use steps and stages as a way to break a continuous process into parts in the same way commas and semicolons divide a sentence, and additional white space separates paragraphs. Usually, we think of condensing a process and eliminating steps as a time-saving perk for customers using products. But eliminating steps and inserting a period sooner is not always the answer. For instance, a freeze-dried egg could have easily been included as part of the ingredients in pancake mix. All a consumer would have to do, then, was add water, mix, and cook. But manufacturers believed that women at the time would feel guilty about a process so simple and devoid of fresh ingredients—so they added the extra step of asking women to add the egg themselves.

It is not always possible to skip to the end without inserting a pause or another punctuation mark. In the first Gulf War, for example, allied troops rushed to Baghdad, detouring around a number of smaller cities on route. This allowed them to reach the capital sooner, but it meant that they had to go back later to deal with security issues that had grown more serious in the interim. When there is an emphasis on speed, be prepared for skipped steps and the timing issues they raise. Ask yourself: *When will a return be possible, and what will I find when I get there?*

Skipping ahead can even be illegal, as in “front-running” in finance. Front-running occurs when a trader receives an order from an investor to buy a stock and the trader steps in ahead of that order, which he knows will raise the price of the stock, to buy it for the house account. He then sells what he has bought to the investor at the higher price and locks in a profit.

If you don’t take all the steps in a sequence into account, you can make an error. As an example, let’s take something that is fundamental to any business: the price of a commodity on which the business depends. Increase the supply of this commodity, and the price should fall. Increase demand, and the price should rise. But things are not so simple in the real world. The price of natural

gas, for example, will not to rise or fall based on how much is produced and the overall level of demand, because natural gas does not go directly from well to consumer. There is an intermediate step. Natural gas can be stored. When storage capacity rises, excess supply can be kept off the market until prices recover. If you forget about this step in the sequence, like the omission of a comma or period that makes a sentence difficult to read, you will not understand why an abundance of natural gas (what is coming out of the well) does not always result in lower prices for consumers.

Interval and Duration

When we look at a sequence, we need to notice how much time elapses between steps (interval) and how long each step or stage takes (duration).

After a start-up company receives financing, for example, investors prefer profitability to happen sooner rather than later—they want the shortest possible time between these two steps. There are many instances when a short interval between steps or stages is preferable. In fall 2010, for example, European regulators met to consider reducing the time between when a transaction is completed and when securities are exchanged for cash. A shorter interval would reduce the risk that an unexpected event, like a default, might occur in the interim.

We customarily divide the week into a series of days that form two large groups, the five-day workweek and the two-day weekend. I wonder whether the outcome would have been different in the case of the financial crisis affecting Lehman Brothers in 2008 if the weekend were five days long and the workweek two. That would have given the government more time to think things through and perhaps find a solution that would have saved Lehman.

Shape

When we think about a sequence, we generally think of one thing logically following the next. The simplest visual representation is a

series of points on a line in which A is followed by B, B is followed by C, and so on. To get a new product to market, for example, we have to go through A (the product has to be invented), B (it has to be manufactured), and C (it has to be marketed). But there are two shapes that can get in the way in this or any sequence of events: wheels and bottlenecks. As you can see in Figure 1.1, if we visualize these two shapes, neither looks like a straight line.

Wheels represent a classic catch-22 situation. For example, the Segway was so novel that customers wouldn't buy them until they could try them out, but distributors wouldn't carry the product until they knew there was a market, which wouldn't happen until customers tried the product.

Bottlenecks slow things down. In the summer of 2006, for example, the Centers for Disease Control proposed new guidelines that urged primary care doctors to test everyone for HIV regardless of his or her risk factors. AIDS activists were alarmed because expanding testing without expanding access to care would leave many patients without adequate treatment. Upstream solutions run the risk of creating downstream bottlenecks. To increase speed effectively, one must modify the entire sequence in order to avoid bottlenecks. In the case of HIV care, patients who are symptomatic or at high risk of infection should be put at the front of the line for testing and care.

We will examine a variety of shapes in more detail in Chapter Five.

Location

We expect some steps or stages in a sequence to be shorter or longer than others—and it is important in business to be aware of these expectations. When a sequence has a clear beginning, middle, and end, we usually expect the beginning and ending stages to be relatively short. Flying, for example, can be tedious. We prepare for long security lines prior to boarding. But after we are seated and poised for takeoff, any delay can be painful.

Whereas a fifteen-minute delay in midflight will hardly be noticed, passengers will become extremely frustrated if the same fifteen-minute delay occurs when the aircraft is parked at the gate and they can't deplane. When we are ready to exit the plane, we don't want anything to stand in our way. Thus *when* a delay occurs can be as important as *how long* the delay lasts.

Extension

By extension I mean the length of a sequence from beginning to end. We rarely consider the full length of many sequences, and that oversight can lead to problems. We think that a sequence is over when it is not. Or we may forget how early the sequence begins, as Saul Griffith discovered. As a result, we may be surprised by events we could have foreseen.

In 2007, a large number of toys manufactured in China were recalled. The headline in the *New York Times* read, "The Recalls' Aftershocks," implying that the recall was not a single event but a series of "shocks" in which downstream events played an important part.⁴ "The first step is the product is recalled," said Rachel Weintraub, director of product safety at the Consumer Federation of America, who was quoted in the article. "The second step is the manufacturer gets some of the product back. And the third step is: what happens next?" No one knew the next step in the sequence. The article went on to say that as many as 80 percent of recalled products are not returned to manufacturers. Even if companies know where these products are, they are under no legal obligation to do anything about them. Furthermore, manufacturers are permitted to resell recalled products abroad if the recall was voluntary.

The long sequence of events surrounding a recall was not expected. As a result, tainted products found their way back into the hands of children.

As you become aware of sequences in your business environment, always look for the *longest relevant sequence*—sometimes it

spans decades. Make sure that the sequences you are looking at stretch far enough back into the past and far enough forward into the future to capture everything that is important.



When we fail to consider the full extension of a sequence, or miss another timing characteristic that is relevant in a given case, we also may miss important risks and opportunities that are associated with the sequence.

SEQUENCE-RELATED RISKS

If identified in advance, many of the risks associated with sequences can be avoided. But even if you can't avoid them, you will be better prepared to deal with them. Here are some of the most common sequence-related risks.

Missing a Sequence

The most common risk is failing to recognize that a sequence is present at all, that A must precede B, for example, as was the case for Saul Griffith. Consider the credit crisis of 2008–2009, a series of interrelated events that happened in the banking sector, as another example. National debt explodes. The housing bubble bursts. Subprime mortgages hit crisis mode. Many financial professionals recognized isolated issues and troubling problems, but they failed to see how one thing would lead to the next, and how quickly. They didn't connect the dots. But the problem was not just connecting the dots, as if the dots were visible and ready to be connected. The problem was that the dots themselves were caused by chains of action: if A did x, then B would do y, and once that happened, A would respond with z—and do so quickly. Then C would enter the fray, and so on. People and institutions became locked into chains of action they did not foresee and from which they could not free themselves. As we have seen, finding a remedy in this situation is difficult.

If sequences are so important, then why (beyond the fact that they are abstract) do we miss them? One reason is what I call *cat-point thinking*. When we engage in cat-point thinking, we first decide on a category of action. *I'm going to open a wine and dessert bar in Cannes*. Then, separately, we decide when: *on my fiftieth birthday*. Cat-point thinking focuses our attention on a single *point* in time. The more we dwell on that single point, the more likely we are to miss the sequences that determine what will happen before that moment and what is likely to happen after.

In order to avoid the risks associated with missing a key sequence, remember to ask yourself, *Have I identified the order of events related to a given process or situation?* Keep in mind that there may be several sequences that overlap.

Inverting a Sequence Unwittingly

A sequence inversion occurs when the order of two steps is changed. Instead of A then B, B comes first, followed by A. A *Pepper ... and Salt* cartoon in the *Wall Street Journal* illustrates an amusing sequence inversion. A person is interviewing a job candidate. The caption reads, “You came to the job interview before scheduling it—I like your initiative.”⁵ Although inverting the normal sequence seems to have worked in this case, mistakes happen if you put the cart before the horse—committing funds for a project before you have budget approval, for example.

In many cases, getting the order right can be a complex endeavor. When an economy with a large deficit is faltering, for example, what should you do first? Should you cut spending and then wait to see if additional stimulation is needed, or should you first stimulate the economy and then cut back? Which is the right sequence? A mistake can result in a depression or an economy that struggles for years. Of course, not all sequence inversions (assuming that there is a “right” order) are tragic. For instance, according to the *New York Times*, the day before Kristen Gesswein and Stephen Fealty were to be married, on January 15, 2000, they called off the wedding. They decided, however, to go ahead with

the reception. The next day, the couple went on their honeymoon to Mexico, where, a few days later, they were married in a civil ceremony on the beach.⁶

The questions to ask: *Have I gotten the order right? Is there a chance that one or more steps or events are in the wrong position in a sequence? If I adjust the order of events in a sequence, will it lead to better results?*

Failing to Look Downstream

Often it is the last few steps in a sequence that are the most difficult to envision—because they are so far downstream we don't see them. Yet it is important to anticipate how a sequence of events will end or terminate. It is easy to create a profile on Facebook, for example, but difficult to quickly and completely delete it.

“Be first, be early” is presumed to be a sufficient rule for competitive success. Unfortunately, it is not. (Remember the Segway.) The result of our overreliance on speed is that we do not look downstream to consider future steps or stages. That limits our understanding of what is going on and can expose us to risks we should have seen coming. Each element of a sequence has its own risks and opportunities. Even a decision to act first should take into account what is likely to happen over the long term and what the ending phase will look like.

Questions to ask: *Have I looked far enough into the future to anticipate downstream events? Am I aware of how a particular sequence might end? What does each potential ending scenario tell me about how to sequence my actions today?*

SEQUENCE OPTIONS AND OPPORTUNITIES

Sequences and their characteristics can be a source of opportunities and not just risks. For example, you can sometimes secure an advantage by inverting the normal order in which something is done, or by creating a sequence where none existed. Each sequence characteristic provides an opportunity to create a new

product, process, or service, or to improve one that already exists. Here are some examples.

Deliberately Invert a Sequence

A salesman in Brazil told me that his firm makes technology that enables retailers in certain countries to electronically deposit money into a bank the moment the consumer cashes out at the register. A few days later, an armored truck arrives to transport the actual cash to the bank. The usual sequence requires that the merchant deposit the cash *before* he could begin to earn interest, but by using the company's technology, he can start earning interest days earlier, an advantage that results from inverting the usual sequence: first deposit the cash, then earn interest. According to the salesman, his company's technology wasn't commercialized sooner because retailers believed that credit cards would replace cash entirely, leaving little need to better manage cash transactions. In fact, as we know, this hasn't happened.

Thinking about business processes as sequences can lead to new insights, opportunities, and business models. Consider prepaid phone cards. Instead of receiving a bill after you use a service, you pay in advance.

In the medical field, modifying the order of activities has saved lives. A 2006 study found that administering chemotherapy both before and after surgery for stomach cancer improves the chances of survival for many patients. Chemotherapy administered only after surgery, which had been the traditional practice, had little or no effect.⁷ In a fast-moving world, an action that is early, decisive, and precise (surgery) will be chosen before one that is late, slow, and diffuse (chemotherapy). That is the normal sequence. But in this case, a counterintuitive move—inverting the sequence—saves lives.

Choose the Right Duration

To succeed, it's not enough to do things in the right order; you must also pay attention to how long each step or stage

takes relative to others. Consider the advice of Joan Vickers, the Canadian professor of kinesiology, for sinking a putt (*italics mine*): “when you are ready to putt, gaze calmly and steadily at the hole (or target spot) for about *three* counts, bring your eyes back to the ball in *one* count, and fix your eyes on the back (or top) of the ball for *two counts*. Then make the stroke and continue to gaze at the ground, where the ball was, for at least *one* more count.”⁸

The choice of how long to let a step or stage continue is important in many contexts. How long to test a product prototype or to allow a project to fail before cancelling it are common examples. If a consumer products company takes the time and energy to first develop a brand, its next product will be in a better position to succeed when it arrives in the market.

Create a Sequence

Suppose you are planning a twenty-four-hour fundraising drive for a public television station. You consult the calendar and debate the pros and cons of various dates. Finally, you decide on a day in mid-May. Unfortunately, when that day comes, a freak ice storm downs the power lines and plunges the city into twenty-four hours of darkness. No one is prepared, and it takes almost a week to recover. The fundraising event is cancelled. Your station needs to cover news of the storm and its aftermath. The decision to choose a single date for the drive—as per cat-point thinking—left you at the mercy of unforeseen events.

When you look at the fundraising drive through a sequence lens, you see that by focusing on a specific day to hold the event, you missed a sequence strategy. You could have divided the drive into two parts, separated by an interval of time. The station could offer listeners a choice: if the station met its goal during the first part of the drive, the second part would be cancelled. A sequence solution, which many fundraising drives have adopted, has two benefits. First, having the event span an extended period of time diminishes the risk of selecting the wrong day to hold it.

Second, no one likes fundraising drives. A sequence solution gives viewers control over how long the drive lasts. This approach still requires decisions about timing—the choice of starting date and the length and separation of each phase. But it gives the station more flexibility and a way to minimize the risk of a single-point solution.

Choose a Different Location

Changing the location of a decision or action and moving it to a later step or stage of a process can be an advantage. For example, in the case of patents, the United States recently changed its patent filing process recognizing “first to file,” which was the international standard, rather than the earlier requirement, “first to invent.” It moved the process downstream. For the patent office, it didn’t matter when you invented something, only when you filed the patent application. There were two reasons this was desirable: it encouraged “greater co-operation and efficiency in patent examinations globally,”⁹ and—what big companies liked—it prevented someone showing up later and claiming that he had previously invented the core of the company’s patent.

Skip a Step

Skipping steps creates new business opportunities. Fifteen years ago, for example, we took a snapshot and then went to the local drugstore to have it developed. This was the sequence: click the shutter and then, maybe a week or so later, see the picture. With digital photography, we click the shutter and see the picture immediately. Digital photography allows us to skip two steps: the need for film and the need for printing. The ability to skip those two steps created a new industry, at the same time that it effectively forced Kodak, whose profits were based on sales of film, into bankruptcy.

Sometimes skipping a step can close a deal, as in the case of the sales technique called the “presumptive close.”¹⁰ Instead of

asking whether you are ready to buy shares or invest in a particular company, the salesperson will ask whether you want to buy one hundred or three hundred shares—which presupposes that you have already made a decision. This is a marketing gimmick, of course, but it may give you an idea of how you can approach a well-established process differently by skipping a step.

Give People a Choice

Does your product or service mandate a particular sequence of steps that can't be altered? (Again, I call this a *strict serial constraint*.) In some cases, a given order is necessary. If not, it can be useful to offer consumers a choice. That is what the writer Julio Cortázar did in his novel *Hopscotch*. As the title implies, the structure of the book encourages readers to skip around as opposed to reading in a linear fashion. In fact, the author's note suggests that the reader can proceed in one of two possible ways, either progressively from chapters 1 to 56 or by “hopscotching” through the larger set of 155 chapters according to a “table of instructions” created by the author. Cortázar also leaves the reader the third option of choosing his or her own unique path through the book.

Remember Cortázar's strategy, and you will always ask an important question: *Is there advantage in changing the order of a sequence, including giving customers or other stakeholders a choice?*



As a starting point for discovering sequence-related opportunities, list all the sequences on which your work or personal success depends. Then ask, “What if?” What if any one of these sequences were modified by you or someone else? How would that affect your performance, profit, reputation, future plans, and so on? This is not something you can do overnight, but it should become an integral part of every strategic planning exercise.

THE S4 FRAMEWORK: WHEN IS SEQUENCE THE ANSWER?

Beyond the risks and opportunities associated with any given sequence, there is also a larger question: When is sequential ordering (doing things one step after another) the right way to proceed? The purpose of the S4 framework described here is to help you decide among several options.

Singularity. You can attempt to do everything in a single step at a single point in time—this is cat-point thinking. You decide what to do and then select a single point in time to accomplish it. An investigative journalist, for example, researches his subject and, when he is ready, writes a lengthy article about it. The risk is that the article comes out at the wrong time. An unexpected crisis captures the reader's attention and overshadows the piece. Alternately, the article may be too early (there is no interest in the topic) or too late (another reporter has scooped him). Darwin had to rush his masterpiece on the origin of species into print for fear that his peer, the British naturalist Alfred Russel Wallace, would beat him to it. If time is short and you won't have another chance, then seize the moment. But as a general rule, trying to accomplish everything at a single stroke is not only impossible but also undesirable. The risks of choosing the wrong moment are too great.

Sequence. This, of course, is the subject of this chapter. You can proceed in a step-by-step sequence, or you can invert the typical sequence. This requires a decision about which sequence characteristics (order, number of steps, spacing, and so on) matter in a given situation. There are many advantages and risks associated with the use of any step-by-step procedure. The most salient disadvantage is that, compared with the next option, proceeding step-by-step is slow.

Simultaneity. The advantage of simultaneous action is speed.

One of the most dramatic examples of a choice between a sequence and a simultaneous strategy was the decision by the German high command at the beginning of World War I. The plan was to fight on two fronts by attacking both France and Russia simultaneously. Worried that he was making a decision that could cost him the war, William II, the emperor of Germany (Kaiser), suggested that they switch their plans to a sequential approach, thereby focusing all of their might on defeating one adversary

at a time. His chief of staff, General Helmuth von Moltke, disagreed, saying that “once settled, [the plan] cannot be altered.”^a

As Professor Allen Bluedorn of the University of Missouri has pointed out, because “the cold war took its origins from World War II, which took its origins from the outcome of the First World War, whose outcome was intimately linked to the Kaiser’s decision . . . in a very real sense the entire direction of twentieth-century history turned on that strategic decision.”^b Simultaneity carried the day, and the rest is history.

Silence. The final alternative is silence. You take no action—at least for the moment. A newspaper may decide *not* to publish a story, or postpone publication for national security or other reasons. As Mark Twain said, “The right word may be effective, but no word was ever as effective as a rightly timed pause.”^c

- a. B. Tuchman, *The Guns of August* (London: Macmillan, 1962), 100, cited in A. C. Bluedorn, *The Human Organization of Time: Temporal Realities and Experience* (Stanford, CA: Stanford University Press, 2002).
- b. Bluedorn, *The Human Organization of Time*, 1–2.
- c. “Pause Quotes,” *BrainyQuote*, <http://www.brainyquote.com/quotes/keywords/pause.html#gSCFwO8VikHdALLY.99I've>.

Keep in mind that each timing element, including sequence, is only one piece of the puzzle. Events in the world are multidimensional. So too are issues of timing. Although your ability to see and use each element is important, if you want to address timing issues in the real world, you will need to find all six elements and the patterns they form with each other. We are just getting started. When we are done, you will have a powerful new way to look at what you do every day. Your actions and activities will be better timed and hence more likely to proceed according to plan.

THE TEMPORAL IMAGINATION

Look at the photographs of these two products: an upside-down bottle of Hunt’s ketchup and a package of Rogaine.



Now ask yourself: How are they similar? They appear to have little in common. Rogaine was first marketed as a possible cure for baldness. Later the company decided to also market it as prevention, something to use before your hair starts falling out. Still puzzled about what is similar? Think about the old-style ketchup bottle. You had to turn it over and bang on the bottom to get the catsup to come out. The upside-down bottle moved *downstream* to the next step in the sequence of use, just as the change in the patent law moved from “first to invent” to “first to file.” Rogaine did the opposite: it moved *upstream* in the sequence of use. Ads now talked about prevention and not just cure, the same upstream move as occurred in the medical example in which chemotherapy was administered before surgery and not just after. It is common to focus on “things”—objects or products that we can see in front of us—not on the temporal sequence that defines their use. The latter focus requires an act of temporal imagination, the result

of which can be the discovery of new ways to improve a product or process.

SEQUENCE: IN BRIEF

Characteristics of sequences:

Order. Which event follows the next in a series?

Punctuation. Where does the sequence begin, pause, or stop? How is it punctuated into steps and stages?

Interval and duration. How long do steps or stages take or last, and how much time elapses between them?

Shape. Is the sequence linear, looping, or cyclical?

Location. At what point within a sequence does an event take place?

Extension. How long is the complete sequence from beginning to end?

Risks associated with sequence include

- *Missing a sequence:* not understanding until it's too late how one event is likely to follow another (the creation and popularity of mortgage-based collateralized debt obligations and the housing boom)
- *Unwittingly inverting a sequence:* doing B before A, when A needs to happen first for B to succeed (failing to get budget approval before committing funds)
- *Failing to look downstream:* not accounting for how a sequence will play out (posting a personal video on the Web without realizing it cannot be removed)
- *Missing a step or stage:* not realizing that a step or stage is necessary (before individuals can purchase prescription eye glasses, they need access to a doctor who can write a prescription)
- *Failing to take location into account:* where an event happens within a sequence can determine how it is perceived (A plane lands, but there is a 10-minute delay before a gate becomes available. The same 10-minute delay during the flight would hardly be noticed)
- *Not anticipating a change in shape:* (failing to anticipate a bottleneck or a catch-22 situation)

Opportunities associated with sequence can stem from

- *Deliberately inverting a sequence*: finding benefit in reversing the usual order (selling first and then manufacturing)
- *Choosing the right duration*: understanding how the length of an event can affect the larger plan (knowing how long a kiss should last to signal affection—or desire)
- *Creating a sequence*: designing a sequence or series of actions so as to minimize risk and maximize flexibility (designing a fundraising drive as a sequence of actions rather than as a one-time event)
- *Changing location*: doing something last that's usually done first, or vice versa (paying the toll for the person behind you in line)
- *Deliberately skipping a step*: pruning steps from the usual ways of doing business (allowing borrowers to prequalify for a loan before applying)
- *Giving people a choice*: adjusting sequences to optimize the customer experience (letting them either register for your site or proceed directly to checkout)

