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This practical, insightful book offers a powerful toolset to help product and service designers understand and solve the challenges of contextual ambiguity. Information architects, interaction designers, and other software and UX professionals will discover not only how to design for a given context, but also how design participates in making context.

- Learn how people perceive context when touching and navigating digital environments.
- See how labels, relationships, and rules work as building blocks for context.
- Find out how to make better sense of cross-channel, multi-device products or services.
- Discover how language creates infrastructure in organizations, software, and the Internet of Things.
- Learn models for figuring out the contextual angles of any user experience.

Andrew Hinton is an information architect at The Understanding Group, and a founding member of the IA Institute. He helps organizations—from Fortune 500s to small non-profits—make better, more habitable places with information.

For more about Andrew and the book, visit andrewhinton.com.

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“Andrew takes us on a journey from not knowing to knowing; he asks good, interesting questions about the role context plays in the design and architecture of understanding.”

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“...come away better situated in a world remade (but not replaced) by technology, and get ready to give it better architecture.”

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Andrew Hinton
Foreword by Peter Morville
Understanding Context

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Everything, Yet Something

All and everything is naturally related and interconnected.
—ADA LOVELACE

Birds in Trees, Words in Books

It would be great to say there’s a simple secret that lets us figure out a subject such as context quickly and easily. But let’s not kid ourselves; context is a big, hairy, weird topic. By nature, it’s about everything. And if something is about everything, how can we even begin to understand it? When we think we’ve caught it and we try to crack it open to see what’s inside, all we seem to get is more context. It’s the stuff of late-night dorm conversations among philosophy students, or tedious debates among philosophers and physicists. Context shifts and dances, it slips and slides. It insists on its mystery, yet it demands we come to terms with it every single day.

Still, in some ways, context actually isn’t so mysterious, because from one moment to the next we seem to know it when we see it. Whenever we’re trying to figure out what one thing means in relation to something else, we say we’re trying to understand its context.

It can be a bird in a tree, or a stone in a stream. It can be a single word in a sentence. It can also be that sentence in a paragraph, that paragraph in a book, and that book’s context in a library or on a bedside table—all of which can influence how we interpret the single word where we started.

It can be the context of a text message I receive on my phone, where a “:-)” emoticon can make the difference between an insult and a friendly jest. It can be a channel as in “cross-channel” design, like mobile, desktop, telephone, or broadcast. Or, it can be all those channels, but from the separate perspectives of a child and a senior citizen, or a user on a bus versus a customer in a store. It can be also the context of one’s
own identity, and how one behaves around family versus the workplace. The more closely we look, the more we see how many parts of our lives depend upon context for meaning anything at all.

Whatever context is in any given situation, though, one aspect remains consistent: we need context to be clear and to make sense. We know that when context is not clear or it doesn’t make sense, it means we don’t understand something. And misunderstandings are almost always not good.

How do we get beyond this general sense of “good” or “clear” or “understandable”? What makes anything more clear or not clear? These are philosophical questions with practical implications. So let’s begin with a practical scenario involving an airport, a calendar, and getting from one place to another.

**Scenario: Andrew Goes to the Airport**

On the morning before a cross-country business flight, I was already getting packed. I knew a seven-day trip would mean extra effort compressing everything into my small carry-on bag, and an early departure meant no time to pack on the day of the trip. While rolling my shirts into tight bars of cloth to prevent wrinkles—wrinkles I knew would manifest anyway regardless of my efforts—my iPhone started trilling and buzzing. Two apps on my phone—one from Delta Airlines and the other from the TripIt travel service—were each reminding me I could check in and get my digital boarding pass.

I opened the Delta app and tapped my way through the check-in process. After a few steps, it offered me an “Economy Comfort” seat for just a few dollars more. Because I don’t especially like folding myself into my laptop like human origami, I agreed to pay for the perk. I half wondered if now being “Economy Comfort” would give me any other privileges, but I was busy, so I decided to find out when I got to the airport.

To economize a bit and get a better fare, I’d decided to depart from an airport a bit further from home. On the day of the flight, when I arrived inside the terminal, I realized I wasn’t used to this airport and found myself having to learn a new layout. I scanned the environment in front
of me, thinking through the options. I didn’t need to print a boarding pass, and I didn’t need to check my luggage bin-sized bag, so I looked for the right queue for going through the TSA security check.

Similar to my usual airport, this one had queue lanes organized by various categories. I was so used to going to a particular lane at my home airport that I hadn’t thought about how they were labeled in a long time.

One was for fast-track-security TSA Pre-Check passengers, which I was pretty sure I wasn’t (though I also wasn’t sure how I would know). One was for “SkyPriority” flyers, and that one made me wonder: I was a “Medallion” member of Delta’s SkyMiles program, but I only had a “Silver” Medallion. I was also a holder of Delta’s branded American Express Gold card, which provides some of the benefits of Medallion status, but not others. (Even though the card is “Gold,” it has nothing to do with the “Gold Medallion” level in Delta’s loyalty hierarchy.) In my hurried state, I couldn’t remember if Silver Medallion qualified me as “SkyPriority” or if my Gold Card did, or if Economy Comfort got me in, or if none of these conditions applied.

I approached a Delta service representative and asked where I should go. She said, “Let me see your boarding pass; it will say if you’re SkyPriority.” I got out my iPhone and opened the Delta app to show her. But no dice—I couldn’t get it to open the boarding pass. The app was having to recheck the network to update the boarding information, and couldn’t reach the cloud for some reason, even though the phone’s WiFi indicator had full bars. What was happening? Then, the phone popped up a screen about paying for airport WiFi access. Ah, so my phone was naively assuming it had Internet access because it was connecting to WiFi, but the Internet was not available without payment. How annoying.

I had no time to fuss with that in the moment. So, I fumbled until I turned WiFi off, allowing me to use my carrier’s data network instead. But that didn’t help either—I couldn’t get a signal inside the building. I had to apologize and walk back outside for a cell connection to get my digital boarding pass to update.

I then saw a button on the boarding pass inviting me to “Add to Passbook.” I had heard of Apple’s Passbook app but just hadn’t used it yet. Thinking maybe this would help me avoid the forced-data-refresh
issue, I added the Delta pass to the Passbook app. I also noticed there was no mention of SkyPriority or any other special security line status, so I reentered the terminal and used the slower queue, with all the other standard travelers.

While waiting in line, I noticed that every time I tapped my phone’s Home button to bring up the unlock screen, there was a notification about my flight. I hadn’t seen this sort of alert before. I tried swiping it to either dismiss it or open the app that was generating it, but that only brought up a strange-looking version of my boarding pass. It was odd behavior because normally I can’t interact with apps when the phone is in locked mode, other than a few things such as audio controls. I wondered if the notification engine on the phone was on the fritz, so I rebooted the phone—no change. By then it was time to go through security anyway, so I just showed my boarding pass and ID and then finished the tedium of the security screening.

After finishing the security ritual and getting my belt and shoes back onto my body, I received a text message from my employer’s operations manager, asking about my travel schedule. I answered back that my itinerary should be on my calendar. I could see it on my iOS Calendar app; why couldn’t he? I finally just told him the details and said I’d try to figure out the calendar problem later.
TripIt had just alerted me via text message which gate I should use for my flight, so I kept glancing at the message to remind myself where I should go in the airport. Eventually, I made it to the correct gate, following signs and pointers along the airport passageways.

At the gate, I heard the airline associate announce who could board and when, over the public address system. I waited until I heard the category I saw listed on my boarding pass—Zone 1—and boarded when it was called. Then, I had one more label to follow, my seat number. On this flight, I was known as the passenger in 24 C. I finally plopped into it, pondering all the confusing things I’d just encountered.

**Breaking It Down**

In scenarios like this, we find ourselves in a tangle of digital, semantic, and physical structures. We are agents trying to take action in our environments, and we have to understand those environments well enough to take the appropriate actions. For myself, even though I’m a frequent traveler, I was still running into issues that caused me to have to stop, think, and figure out my environment. When I’d try to act out of habit, it would either work or it wouldn’t, depending on how the environment accommodated my action. Each element of the environment made a demand on my ability to understand what I was doing. These moving parts were all in play at a wide variety of environmental levels, from the broad level of a mobile phone network, to the level of a little virtual switch deep in the settings of my phone. Some required almost no effort, but many required a lot, to the point that I was reduced to talking to myself to figure them out.

For example, we don’t normally have to wonder about what we are. But there were many labels for me in these overlapping systems that made me have to think hard about what I was to the environment I was in and what that meant about the actions I could take.

The categories for security and boarding and even my assigned seat presented many overlapping facets that defined what I was to the airport. In each instance, I had to determine the rules represented by the labels involved. Was I a Gold Card traveler? A Silver Medallion traveler? An Economy Comfort traveler? What Zone, what seat? Some labels still made no sense to me.
For example, what did any of these have to do with “SkyPriority”? After I was seated on the plane, waiting for others to board, I checked Delta’s site on my phone. I discovered this answer among their Frequently Asked Questions: “SkyTeam Elite Plus members and customers with First and Business Class tickets are eligible for SkyPriority.” This sounded nonsensical to me, because I had no idea what SkyTeam Elite Plus meant, or how a passenger who is already “Elite” might possibly benefit from an appendage of “Plus.”

Then there was my phone. I tried dismissing that pesky flight notification from the phone’s lock screen, but it wouldn’t leave. It was only after I’d had a moment to breathe that I realized it was a feature, not a bug. Passbook was taking an action without my prior approval or awareness, trying to do me a favor by making it possible for me to open my boarding pass without having to unlock my phone. (I’ve since found this to be a useful feature!) But it was hard for me to learn as such, because the app took agency that broke the structural expectations that I’d learned to date by using iOS, and the alert gave no indication it was coming from Passbook.

Regarding my calendar, it occurred to me that I could see the TripIt itinerary information in my own calendar view because I had subscribed to it, but that subscription must be visible only to me, not those with whom I shared the calendar. I was thinking of “calendar” as the whole thing I was seeing, but in fact it contained a number of calendars, some of which were subscribed to rather than part of the specific calendar I had opened to coworkers. The meaning of “calendar” was disjointed, and the relationships between the various meanings resulted in confusion.

I also mused at the level to which airline travel is now depending on people to use networked devices, even though most airports have complicated network access. Think of the thousands of people who have the same problem with refreshing their boarding passes, not to mention getting gate updates and other information they’ve come to depend upon. (To Delta’s credit, the app avoids this problem in its most recent updates.)

All of these complications were largely problems with context. I struggled to accurately perceive the meaningful relationships between elements in my environment. These problems caused extra work and stress for an activity that used to be much more straightforward. Yet, they all
happened in an environment that people designed and built. Each encounter was part of a human-made place, composed of physical surfaces, language structures, and digital bits, woven together into a complex system—a system that should be much less confusing and ambiguous than it turned out to be.

Now, imagine this same journey only a few years from now, when sensors in the terminal will be able to pair with my smartphone, pumping updates to its screen, chatting with me about where I should go through a wearable device, buzzing about which vendors close by serve my favorite foods, and who in my social network might be coming through the same terminal. How will that ecosystem know how to be truly relevant? Will it be overburdened with the noise of advertisements or “pay for more” services? Will it even have the rules figured out any better than I do about what queue I should use or if I can check my luggage for free? Whom will it be alerting to actions that I assume are private, or at least confined to the walls of the airport? How many more “calendars” will be overlapping and intermingling with mine by then?

Humans are much better at sorting out the vagaries of cultural meaning than machines. Yet, if we trip over these contextual conundrums so frequently, how are digital systems going to understand them any better? Moreover, how are we to keep absorbing so much contextual ambiguity and complexity from the multiplying layers of information we’re expected to comprehend just to finish basic tasks?