



**EUROPE DEBRIS:**  
**The Epic of Gabe and Marc in Europe**

Marc Pickett I of Padelford



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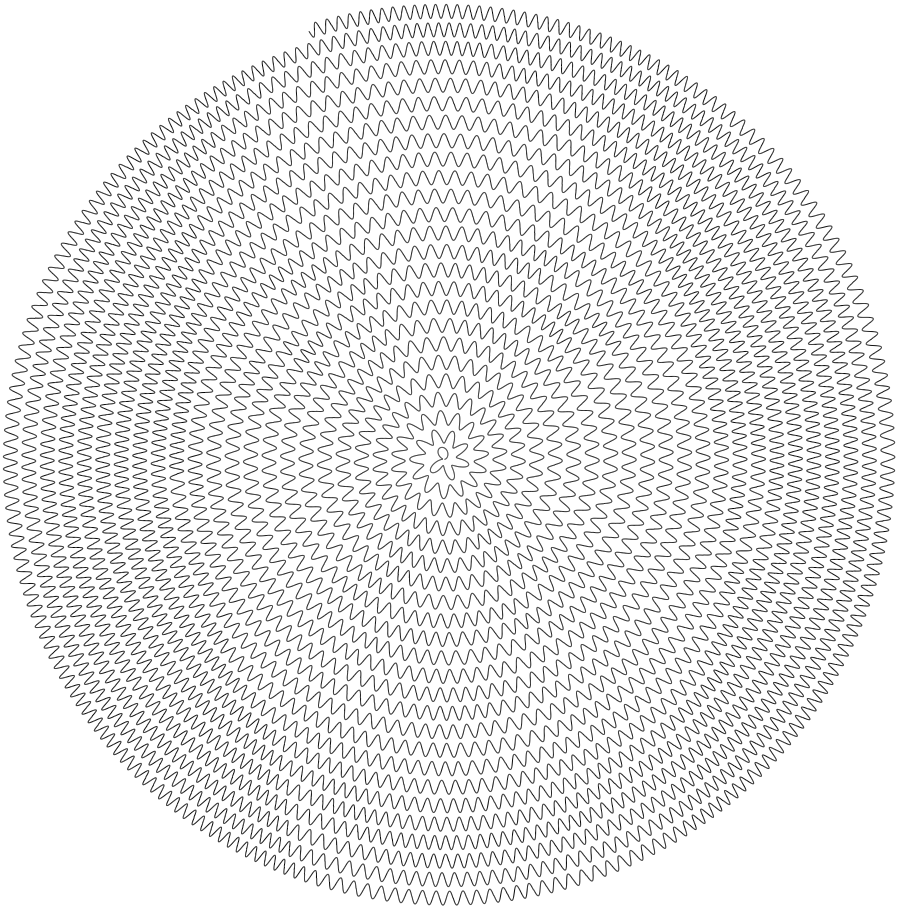
Published by Lulu.com

ISBN 978-0-557-03376-8

**Militia  
Pickett**

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## Dedication

Und was der ganzen Menschheit zugeteilt ist, Will ich in meinem innern Selbst genießen, Mit meinem Geist das Höchste' und Tiefste greifen, Ihr Wohl und Weh auf meinen Busen häufen... –Johann Wolfgang von	And I want to savor in my inner self whatever's the lot of all mankind, to grasp the highest and deepest with my mind, to heap man's wells and woes on my bosom... Goethe (from Faust)
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**S**WET! Charles Babbage (1791-1871) was the first to conceive of what we now know as a computer. Sadly, Mr. Babbage died before his design, The Analytical Engine, was constructed. His body now lies in Kensal Green Cemetery, but his brain was removed and given to the Royal College of Surgeons for research. Today, his brain, *the machinery for his soul*, lies on display to The World inside a jar of preservatives in a glass case on the 2nd floor of the British Science Museum in London<sup>1</sup>. While alive, Babbage said he'd gladly give the remainder of his life to take a 3 day tour of The World of 5 centuries hence. Perhaps he'd also be interested in The World of today.

A hypothetical assumption of this *Gedankenexperiment* is that Babbage's wish somehow becomes granted: His brain is set into motion and his soul-wave finds itself back in existence (feeling as if no time has passed). Babbage's brain begins to dream. As the god of my little *Weltschen*<sup>2</sup>, I have the power to look inside this living mind: "Within a jar, a universe.". So, let's be gripped by  $\theta\alpha\upsilon\mu\alpha$ , the open-eyed wonder that impels us to explore The World, and begin our 3 day tour. I bow to the greater gods, *Folgerichtigkeit*<sup>3</sup> and *Ratio*<sup>4</sup>. I turn the mill's crank and let the Weltschen unfold.



I like the book Cold Mountain, by Charles Frazier, and not so much for the story (which is pretty interesting in its own right). Rather, I like how Mr. Frazier weaves his philosophy and ideas in with the story (using the story to concretely illustrate these ideas). For example, one of Frazier's characters asks whether a particular fiddler made up the tune that he was playing. Then the narrator talks about how fiddle tunes are never really made up, but get passed on from fiddler to fiddler with each making changes so by the end it's a completely different tune.

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<sup>1</sup>Actually, it's just his left hemisphere, and the temporal lobe seems to be missing. Presumably, the rest of Babbage's brain is preserved in jars elsewhere.

<sup>2</sup>A *Weltschen* is a "worldlet" or a little world. (I made that term up myself.)

<sup>3</sup>*Folgerichtigkeit* is the opposite of randomness. It's the idea that there's a logically entailed order to The World.

<sup>4</sup>*Ratio* is the ideal form of Rationality.

Each of us has a world-model in their heads, or a conceptual structure that I'll call a *Weltanschauung*. At the most basic level, a *Weltanschauung* is how we categorize The World. We throw "dogs" into the "animate beings" category, "icebergs" into the "huge objects" and "floating things" categories, but there's more to a *Weltanschauung* than that. A *Weltanschauung* also contains ideas about how hang-gliders behave, associations, generalized abstractions, and "gists" of concepts. Much of a person's *Weltanschauung* is tacit knowledge, meaning that it's hard to put some views or concepts into words<sup>5</sup>, or that the concepts are so deep or ever-present that the person doesn't even realize that they're there. For example, you might not be immediately aware that gravity is pulling down on you or that you're breathing and blinking. The point of this book is to express a small part of my own *Weltanschauung*. You can think of it as a 3 day tour of the universe within my skull<sup>6</sup>. Much of the *Weltanschauung* (mostly the tacit parts) will be expressed implicitly (via subtle "statistically valid" patterns).

Where do you start a tour of *The World*? A conceptual structure is at least as complicated as a web. Every idea is connected to dozens of others. For example, the idea of a "tree" is associated with forests, lumber, family trees, Christmas trees, ecology, botany, and others. Concepts are arranged with a sort of small-world network, like the World Wide Web, or Kevin Bacon's network of actors, with fewer than 6 or so links separating any pair of concepts<sup>7</sup>. Organizing a network like that into a linear or sequential structure, such as a book, can require a lot of thought on the author's part. But this thought can be beneficial: it forces the author to arrange the material

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<sup>5</sup>For example, given a photo of an adult's face, we can easily tell the if the picture's of a man or a woman, but it's incredibly difficult to write a set of rules so precise that a computer could follow them and make the distinction.

<sup>6</sup>Or a bit of my universe... Tom Wolfe spent 11 years writing his novel "A Man in Full". He wrote that part of the reason for taking so long is that he was "going to cram the *world* into that novel, *all* of it".

<sup>7</sup>**The Game of Semantic Networks:** A person writes a number of concepts onto slips of paper. These concepts can be anything: E.g., "dogs", "shoe", "glue", "the economy of Gambia", or "walking on the moon with Charles Babbage". Pairs of slips are then drawn randomly from a hat, and the task is to join the concepts using semantic connections. For example, if I chose "dogs" and "glue", my path could be something like: `dogs` → `dog food` → `horse meat` → `horse hooves` → `glue`.

One should use as "narrow" a path as possible. For example, my path could have been `dogs` → `thing` → `glue` because "thing" connects to everything. But a path's "score" should be the total number of links for all the concepts along the path. For example, dog food could have gone to "Purina", "cat food", "school cafeteria food", or a few dozen other concepts. Also, the connection from "dog food" to "school cafeteria food" is probably weaker than the connection from "dog food" to "Purina", so this should be taken into account too.

Here's my attempt at connecting "dogs" with "walking on the moon with Charles Babbage": `dogs` → `walking-the-dog` → `walking` → `moon-walking` → `walking-on-the-moon` → `walking-on-the-moon-with-Neil-Armstrong` → `walking-on-the-moon-with-technological-pioneers` → `walking-on-the-moon-with-computational-pioneers` → `walking-on-the-moon-with-Charles-Babbage`.

so that it can most readily be absorbed by the reader. An author builds a conceptual structure in the reader, and by assuming the reader has understood certain concepts, the author can refer to those concepts to build the next layer of the structure. The best layout for a work might be a network that has links from concepts to their prerequisites. (In graph terminology, this would be a directed acyclic graph.) Alas, I'm constrained to the straight lines of words on the page you're reading.

My Other Brain is a laptop computer named "Lappidactus Secundus: Cognitive Augmentation of Marc Pickett I of Padelford", or just "Lappy II", or just "Lappy"<sup>8</sup>. With Lappy, it's easy to get a dump of everything he knows: simply access all the memory cells (which are indexed by number). But human memory doesn't work that way. Much of human memory is "content addressable" meaning that to think of a concept, you have to have a semantically related concept. So, I'll drive the tour by 2 mechanisms. The 1st is semantic meandering, jumping from concept to related concept. Occasionally, I'll backtrack or go over the same ideas. The 2nd mechanism is with a story. Unlike Cold Mountain, I won't use fiction to illustrate my ideas. Writing *accurate* fiction is tough, as Sir Arthur Conan Doyle points out in a fictional story, ironically<sup>9</sup>. Too often, fiction is "tied up neat as a Christmas package"<sup>10</sup>. Even Doyle's Sherlock Holmes seems to be a little *too* lucky with his deduction. Therefore, my story is true. The story is **The Epic of Gabe and Marc in Europe**: Gabe and Marc meander through Europe, as the topics meander through Marc's semantic space. Our trip's not too out of the ordinary as far as European trips go, but it'll be *The World in a Grain of Sand*<sup>11</sup>.

To see a World in a Grain of Sand  
 And a Heaven in a Wild Flower,  
 Hold Infinity in the palm of your hand  
 And Eternity in an hour.

—William Blake (from *Auguries of Innocence*)

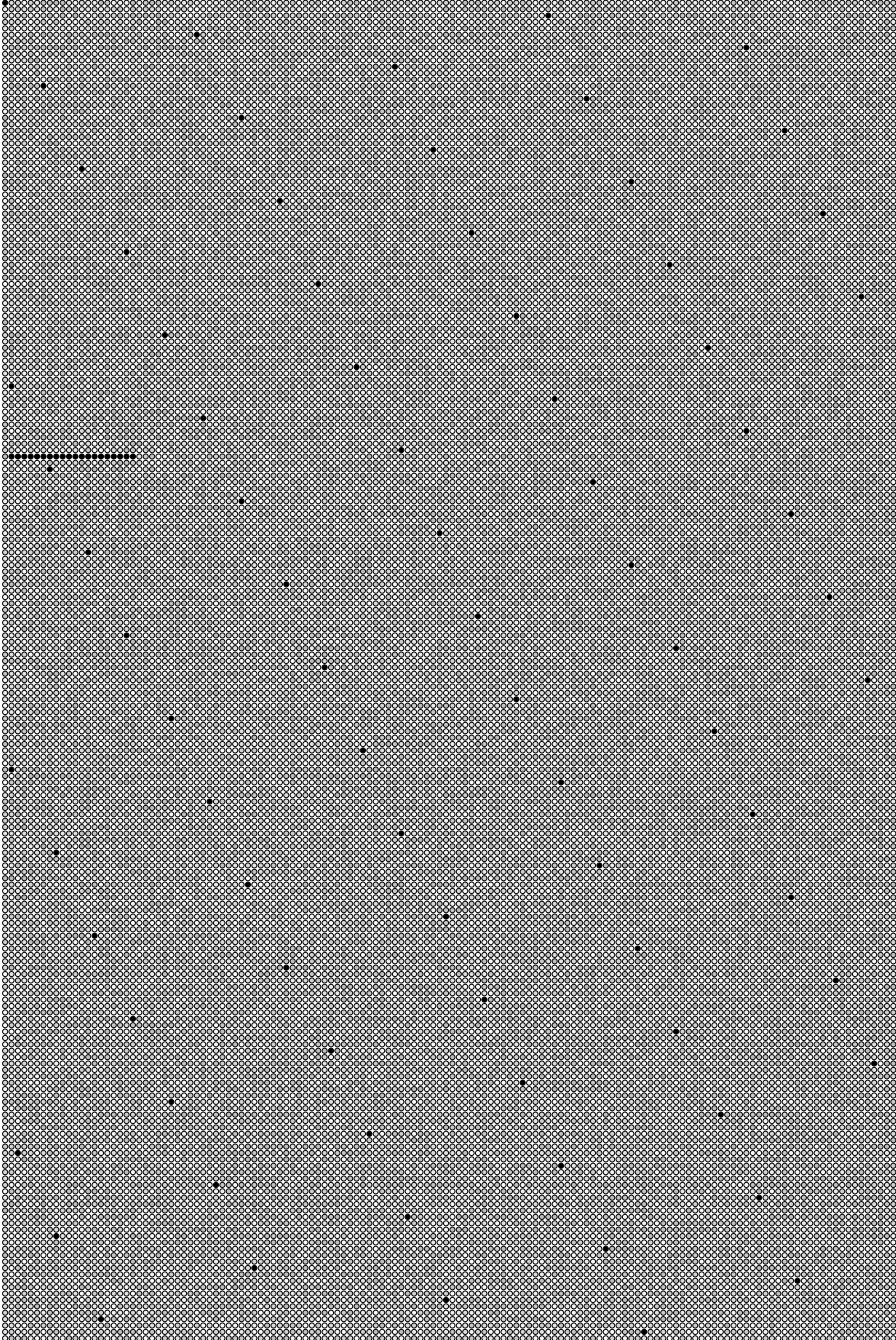
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<sup>8</sup>The name "Lappy" comes from the character, Strong Bad, of Homestar Runner, who gives the same name to his 40 pound "laptop" computer.

<sup>9</sup>Doyle's insight is included on the tour, on **Day 09**.

<sup>10</sup>This phrase is from an excellent short story by Rick DeMarinis entitled "Your Story".

<sup>11</sup>I didn't understand what this phrase meant when I first read it. My interpretation of it now has to do with the *transfer of knowledge*: Principles learned while studying a grain of sand can transfer to the rest of The World.




The days of my life (both past and projected) represented as (representations of) pennies. The day I was born (Marcmas, March 20th, 1977) is the penny in the upper left corner. Subsequent Marcmas-pennies are also black. The string of 20 black pennies near the middle left (pennies #9,942 through #9,961) represent June 7th-26th, 2004, the days when The Epic took place.



# Preparations

Memento mori.

(Remember that you'll someday die.)

 was 10 years old when I first realized that there were some things that I'll have died not having done. It was while I was reading a book of math puzzles, and one was especially tedious (or so I thought). I decided to move ahead in the book and come back to the problem later. I asked myself "When?", and it dawned on me that I might never find motivation to finish the puzzle<sup>12</sup>.

80 years is longer than the average life span for people in America, and it's about as long as I can expect to live. It's easy for me to think of such a lifespan as virtually endless. However, on my bedroom floor (which isn't very big), I can lay out a rectangle of 210 rows of 140 pennies each (this would be about 13 feet by 8.75 feet). If each penny represented a day, this rectangle would fit over 80 years worth of pennies. There it is, the days of my life strewn out before my eyes (at a cost of \$294). The day in kindergarten when I found a frog in the playground sandbox is a particularly shiny penny in the 15th row. The day I made the realization of the finiteness of life is a penny near the left of the 28th row, and today is a 1977 Denver minted penny in the middle of the 78th row. Who knows what row I'll actually make it to.

I met Andy Ekdahl in the fall of 1993, nearly 11 years before **Day 00** of The Epic, when he (a Swede) was an exchange student at my highschool, and it had been 10 years since I told Andy I'd visit him in Sweden. It had also been several years since I told Astrid and Anna<sup>13</sup> that I'd visit them in Amsterdam and Freiburg, respectively. It was one of those things that I thought I'll have died not getting around to. I couldn't imagine many "natural" paths that would result in me visiting Sweden. That is, if I just let things "float" and waited for some accident to pull me, it'd be unlikely that, by pure circumstance, I'd even leave the country. Realizing this, I was more inclined to take action to control my path.

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<sup>12</sup>This in itself became motivation, and 14 years later I wrote a computer program that found not only a solution, but all possible solutions to the puzzle.

<sup>13</sup>Anna and Astrid were students on the Baden-Württemberg exchange program for graduate students at the University of Massachusetts Amherst from 1998-2000, which I attended from 1999-2002. Astrid and I (along with 4 other people) were Mitbewohner (fellow lodgers) for a year in a large house in Amherst. (So far, that's been the best living situation of my life.) Anna lived 2 houses down the street, and shared the same landlord. So we all got to know each other fairly well over the next year.



“Chimpanzee Politics”[4] is a fascinating book about events at the chimpanzee colony at the Burghers’ Zoo in Arnhem, The Netherlands. This book details just how intricate the social systems of these chimps are. It’s interesting to draw parallels from chimpanzee groups to human groups. I view watching chimpanzees as being somewhat like stepping into a time machine to watch how our ancestors behaved<sup>14</sup>. After reading this book, I decided it’d be neat to actually visit the colony and watch the chimps myself. I figured I could visit Astrid while I was there, and some more thought made me realize I could finally visit Andy and Anna as well. Thus, I decided that I’d make a trip to Europe in the summer.

My copy of Chimpanzee Politics was sent via Amazon who had recommended it to me because I’d ordered “Chimpanzees Don’t Wear Pants” by Ed Long[14]. (Another interesting book with observations about chimpanzees and consequent reflections on humanity.) I found out about Ed Long’s book when a flight from Colorado had been delayed due to weather, which allowed me to go to Yogi’s bar with my friend Charles and his father Bill, who’s a friend of Ed Long.

Thus, the exact timing of my trip was a consequence of snowy weather in Denver. Maybe there were a number of other paths I could’ve taken that would’ve caused me to take the trip when I did, and maybe I would’ve met someone on my flight that would’ve caused me to write a different story, but this is how the events unfolded. The probability of any particular Gin Rummy hand (which is 10 of the cards from a 52 card deck) is 1 in 15,820,024,220, but I never act shocked when I get a particular hand. I have to get *something*. I have the feeling that it was in the cards to visit Europe eventually (given that I pushed things in that direction), and the randomness was just a matter of particulars.

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<sup>14</sup>In the book “Demonic Males”[22], Richard Wrangham and Dale Peterson argue that the common ancestor of chimpanzees and humans was probably much more similar to modern chimpanzees than to humans. This is because our common ancestor lived in an environment more like that in which chimpanzees live today (the Burghers’ Zoo excepted).

## Day 00: Monday, June 07th, 2004: Baltimore and JFK Airport

Not quite a year before **Day 00**, I'd bought a Honda Insight, which is a hybrid gas/electric car and gets spectacular gas mileage<sup>15</sup>. This was the car I drove from my friend, Mike's, wedding in Louisville, KY back to Baltimore. (It got about 55 miles per gallon on the 600 mile trip.) I arrived in Baltimore at around 2 in the morning, 6 hours before the plane was to leave. Earlier in the year, I had asked my friend and labmate, Gabe, if he wanted to go on a trip to Europe with me. This would be his first time in Europe. As for myself, I'd been only once: to southern Germany for 10 days in the fall of 2000. Our current trip was bookended by my trip to Mike's wedding at the front end, and by Gabe's first day at his new job at the tail end.

So I was in Baltimore at 2AM on Monday, June 7th, 2004. 7 hours later, both Gabe and I were on a plane bound for New York's John F. Kennedy Airport. Also on the plane was a 17-year cicada that was one of the swarm of millions that had emerged after 17 years of being underground. The cicadas were everywhere in Baltimore: swarming in trees, in buildings, occasionally "hitching a ride" on your back, and, of course, on our small plane. On the short flight, I tried my hand at writing a poem about Cicadas in German<sup>16</sup>:

### Die Zikaden

Die Zikaden rrrrrrrrennen und singen,  
durch Wald mit Antennen abrrrrrringen!

### The Cicadas

The Cicadas are rrrrrunning and singing,  
through the woods with antennae a-leaping!

(It's not quite Goethe, but, it was a *very* short flight.)



We spent our time in JFK Airport trying to exchange our money for Swedish Kronor, a task at which we were unsuccessful. After transferring planes, we were 30,000 feet above the Atlantic Ocean.

You might as well try to dry up the Atlantic ocean with a broom  
straw, or draw out this here stump from beneath my feet with a

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<sup>15</sup>The reason I bought the car wasn't environmental, but because I thought it was a neat idea. If I had a political reason for buying the car, it was to get the U.S. off of oil from the Middle East.

<sup>16</sup>The "rrrr"s are meant to be twirled like the sound a 17-year cicada makes.

harnessed gadfly as to convince me that I ain't gwinna be elected  
this heat.

—Excerpt from a 19th century American political speech

“The pond” has an average depth of 12,881 feet, and covers an area of 31,660,000 square miles. That’s over 11 million million million (11,000,000,000,000,000) cubic feet of water. All this water would be enough to fill a cube 425 miles on a side. (That’s longer than the east-to-west distance across Kansas.) If the entire state of West Virginia were mined out as a wedge to the core of the Earth, this would nearly hold all of that water.



It took us just over 7 hours for us to cross the Atlantic, during which we mostly slept. When we woke up, we were in Europe<sup>17</sup>.

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<sup>17</sup>One aspect of travel is how you get there. Had we taken a cruise ship, we would’ve had a greater appreciation of the distance we’d gone (over 3,000 miles). Had we taken a carrack-style sailboat like Columbus used, we may have felt as if we’d traveled to another planet. (Well, not quite: It took Columbus “only” 5 weeks to cross the Atlantic. It took the Mars rover over 6 *months* to make its journey.)

## Day 01: Tuesday, June 08th, 2004: Brussels

Confessedly, Europe has always been a place for me that one hears stories about, but that seems to exist only in the imagination, like Tatoonie or Oz. And now we were suddenly in Brussels, with people speaking French and Flemish. Despite this, it helps to realize that there's a continuous path (albeit a long, 3,000 mile one) from Baltimore to Brussels<sup>18</sup>.



You can “know” things on one level, yet not fully intuitively appreciate that knowledge. For example, if you ask me (or just about anyone else), I’ll tell you that I believe that the world is round. Yet, in my day-to-day dealings, with (e.g.) navigation while driving around Baltimore, I treat the world as flat. Likewise, it’s still hard for me to realize that Brussels (and the rest of Europe) exists in the same continuous World where I spend the rest of my time (dubbed “Marcland”). Something makes me intuit that Brussels stops when I’m not there, or it ceases to exist and becomes like Tatoonie. But the reality is that Brussels has been around since long before I was born, and it continues going about its paces when I’m not there whether I’m thinking about it or not. (I also have a nagging feeling that things are somehow different when I’m not there, that the proverbial tree in the forest doesn’t, in fact, make a sound.)

I once took a timelapse movie looking from the front window of my car on an 11 hour road-trip from Portland, Maine to Baltimore, Maryland. The movie is 22 minutes long, and the novelty of seeming like you’re driving at Mach 2 wears off after the first few minutes, but the point of taking this movie was to drive home (pun intended) the idea that there really is a continuous path between the 2 towns. There is also a continuous path in time and space, a *path of causes and effects* from (say) the death of Socrates to myself. Socrates drank the hemlock, was buried, the sun set. His body began to decompose. Days, weeks, years, centuries passed. And some of the people alive then were my ancestors. Some of the cattle alive then were ancestors of the cow whose milk I drank with breakfast this morning.

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<sup>18</sup>Had we taken the sailboat, we would’ve better realized the continuity. I’ve both flown and driven across America, and by driving, you get a feeling for the continuity that’s hard to get by flying.

There's also a connection from my computer, Lappidactus Secundus, to things that existed in the time of Socrates. Certainly, Lappy was designed with ideas that can be traced back to the logic of Aristotle, who was a student of Plato, who was a student of Socrates. But there's also a more direct physical connection: Suppose you were stranded alone on a gigantic, uninhabited continent the size of Africa, but you were naked with absolutely no supplies or *tools*. Further, suppose that food and other necessities were somehow taken care of, and that you somehow had access to all current human knowledge (e.g., by sending messages (but not tools or material) in a bottle<sup>19</sup>). How long would it take you to make a functioning laptop computer? The task is possible (assuming you could live long enough), since this is more than what people started with when they diverged from chimpanzees millions of years ago, and laptops exist today. A tool as simple as a brass hammer could save you years. Lappy was produced using advanced machinery and tools. These tools were made using other tools, which were made using other tools... Such that Lappy was ultimately a product of physical tools that existed when Socrates was alive (and these ultimately "ground out" in the natural world perhaps hundreds of thousands of years before that).

For the purpose of connecting "book-facts" with my intuitive experience, I think it'd be useful to have an airplane hangar filled with a composite aerial photograph of all of Massachusetts. If these were at a scale of 1 mile to 1 yard, then a 10-foot car would be about  $\frac{1}{16}$  inch on the photograph, so we'd be able to see the individual cars (the scale of which we're familiar with), but we'd also be able to see all of Massachusetts as a picture the size of a couple of football fields. The aerial pictures already exist. It'd just be a matter of printing them out, getting a hangar, then aligning them and pasting them to the floor.

Another fact that's hard for me to reconcile: The first atomic bomb was built in Los Alamos and detonated near Alamogordo, New Mexico in 1945, yet just 60 years earlier, *within a human lifetime*, in the same area there was a war with Native Americans, horses, and single-shot rifles. As late as 1886, the Native American warrior, Geronimo, and his band were still being pursued, *on horseback*, by a 4th of the entire U.S. Army.

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<sup>19</sup>You also weren't allowed to use the bottle (which could be quite useful as exemplified in the movie "The Gods Must Be Crazy") except for passing messages.

This reconciliation of models of the world at different scales is also what prompted me to write “The Sizes of Things” which shows to-scale pictures of a person next to a silver dollar, then a silver dollar next to a flea, a flea next to a mite, all the way down to the size of an atom’s nucleus, then from a person all the way up to the assumed size of the universe.<sup>20</sup> There’s also a movie/book called “Powers of Ten”[17], which deals with the same idea. Ultimately, The Sizes of Things and Powers of Ten show that (and *how*) viruses and giant celestial bodies, like Jupiter, can inhabit the same universe. This reconciliation of models is also what prompted me to lay out the rectangle of 29,400 pennies. Conceivably, I could also layout a square of 1,000 by 1,000 pennies, which, at a cost of \$10,000, would be a square 62.5 feet on a side, which could easily sit in a gymnasium, never mind the hangar. If the pennies represented days, this would cover 2,737 years, more than the 2 and a half millennia from the death of Socrates to today.



Our first task in Brussels was to get some of the local currency. These slips of paper (such as the €50 bill) don’t prove their value to our intuition until we’ve used them a few times. Before that, they’re just play money. The Euro was convenient for not needing to have a different currency for each country visited, but I still missed the German 10 Deutschmark bill (which I used on my previous visit), with Karl Friedrich Gauß (1777-1855), a first-class mathematician, physicist, and astronomer, and his equation for the bell curve (also called a “Gaussian” curve, appropriately). There’s something to be said about a nation that chooses to put a mathematician on their currency rather than, say, a politician. Perhaps it’s not a coincidence that Germany is known as the Land of “Dechter und Denker” (Poets and Thinkers).

My credit union is still with Sandia National Laboratories in New Mexico. I had withdrawn money from ATMs in America, Canada, Mexico, Panama, Costa Rica, and New Zealand. Therefore, I was surprised that not a single machine in the entire Brussels airport would give me Monopoly money for my plastic. This meant that I couldn’t pay the €4.40 fare to take the train to the actual city of Brussels. I thus relied on Gabe, and decided to stop making fun of him for exchanging his currency for everything he could get his hands on back in New York.

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<sup>20</sup>You can view this at [http://ai.cs.umbc.edu/~marc/libro/insignificance\\_full.html](http://ai.cs.umbc.edu/~marc/libro/insignificance_full.html).

Real-valued money in hand, Gabe and I took the metro one stop too many. To confuse things, the Belgians have made it that the main station in Brussels is not the “Centrale/Centraal” station, but the “Midi” station. To further confuse things, all the signs and announcements were only in languages that started with F. (Surprisingly, my Flemish seemed to be better than my French, both of which were far superior to my Chinese.) We were to meet Astrid at the Centrale/Centraal station, and we decided, after having sat on a plane or in an airport for the past 16 hours, that we’d walk back from the station we were at, “Gare du Midi”, to the station we had passed, “Gare Centrale”. So, we were finally outside and “on our own” in Europe. We could walk in whatever direction we liked. It was then that we had our first experience lugging our 60-pound packs (complete with 4 cases of Odwalla bars<sup>21</sup>). I’d also decided to bring my laptop computer, Lappidactus Primus, on the trip. Although Lappy weighed less than a thousandth of some of his “ancestors”, such as Babbage’s Analytical Engine, I was beginning to feel his weight. After the first few hours with our packs, our top priorities became to put the packs somewhere where we didn’t have to carry them, and to eat the Odwalla bars as quickly as possible to lighten our loads.

Our hike from Gare du Midi to Gare Centrale took us through only a tiny slice of Brussels, only an hour of time over a few dozen acres of space<sup>22</sup>, and it’s hard to characterize a system as complex as a city with such a limited exposure. But our walk was our only exposure to the city at that point, and our assumption then was that Brussels consisted mostly of Moroccan neighborhoods<sup>23</sup>.



At Gare Centrale we met up with Astrid. Astrid’s among the most creative of my friends. She’s the kind of person from whose shining brilliance comes idea after idea. I hadn’t seen her for quite some time. It would’ve been 4 years had it not been for a Kevin Bacon experience that had us hanging out in Berkeley California about a year earlier. Astrid had met Jens at a conference in Jena, and Jens went to the University of California at Berkeley, which wasn’t too far from where I’d landed an internship (at Sandia National Laboratories, in Livermore (thus, the Sandia credit union)) since

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<sup>21</sup>We brought Odwalla bars partially because we’d heard that food was expensive in Scandinavia (which it was), but also because it’s sometime tough to find food in an unfamiliar city at 2 in the morning.

<sup>22</sup>Can we call these units of observation “acre-hours”?

<sup>23</sup>This is like the computer database, Cyc[12], that makes the inference that most people are illustrious, because most of the people it was told about were illustrious.



one of my lab mates at the University of Massachusetts, Pippin, had worked there and recommended it to me.



At lunch in a square in Brussels, Gabe and I had our first European culture shock (aside from people speaking French and Flemish): Europeans don't drink water. At least that's how it seemed. Bread in Brussels was cheap, but to wash it down with something was expensive. The act of ordering water will get you a tiny and expensive *bottled* water if you're lucky. If you're less lucky it will be a tiny, expensive, bottle of warm, carbonated water. You're better off ordering beer. I considered not tipping our waitress due to my annoyance about the lack of free (and bubble-free) water, but then came our 2nd European culture shock: Europeans don't tip. Apparently, the restaurant owners pay their employees enough that tips aren't necessary to make a living wage. The last culture shock was that taxes were included in the listed prices, and they were round numbers. I never saw anything for €9.99. It seems that European marketing realizes that Europeans aren't so stupid as to think that 9.99 isn't very close to 10. You win some; you lose some.

Gabe and I considered opening an American themed restaurant where we 1. used the clever marketing ploy of charging a Euro-cent less than the full Euro (e.g. €9.99) for things, 2. added 8% tax and a 15% "gratuity" to all meals (though it'd be charged whether the person paying was grateful or not), and 3. provided the diners with "all you can drink" water. Our restaurant would utilize an invention that must be completely unfamiliar to all European restaurateurs. This invention is called a "water faucet", and from this marvelous invention, one is able to draw large quantities of uncarbonated water *for free* (or a very small cost). I think our restaurant would be a hit. We just needed a main dish and a name. Codeword Bifislurf<sup>24</sup>.



After lunch, Gabe, Astrid, and I checked in to our hostel and dropped off the burdens we called our backpacks. We then proceeded to be tourists in Brussels. We went to the Grand Platz, had beer, coffee, and mussels, which placed the song "Land Down Under" by Men at Work firmly into my head for the next several hours<sup>25</sup>.

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<sup>24</sup>About the "codeword" mechanism: This basically translates to "remind me to get back to the topic (typically a digression) denoted by the term (in this case) "Bifislurf"". Later, when there's a lull in the conversation (or writing), I'll say "Recall Bifislurf".

<sup>25</sup>The relevant lyric goes "Buying bread from a man in Brussels. He was 6 foot 4 and full of muscles..."

We continued with our touristy agenda for the rest of the day, which, for us, meant randomly wandering the city (making it a poor exemplar of an agenda) and being observers. Most of the sightseeing was just that: seeing.

It wasn't as if we could've interacted with the Manneken Pis, the famous statue of a urinating infant that somehow represents Brussels<sup>26</sup>. Many of the sights appeared exactly as they did in the pictures in the travel guide, except for the scale. The Manneken Pis, for example, was smaller than I'd expected, a life sized toddler about 2 feet tall (yes, I'm still thinking in American terms). For me, this was about the only thing I got out of seeing the Manneken Pis. Perhaps "interacting" with the statue would have consisted of buying one of the many miniature (and some actual size) Manneken Pis statues being sold in the nearby gift shop.

So, why did we see the Manneken Pis? It certainly wasn't my motivation for paying over \$600 for my plane ticket. Perhaps it was a sense of obligation. The fear that someday, someone would accost me with "You were in Brussels, and you didn't see the Manneken Pis?!". (Not to ruin the story ahead of time, but later, when we were in Copenhagen, we didn't go out of our way to see the Little Mermaid Statue, and for this failing, several people later accused us of touristic negligence.)

Also out of obligation came taking pictures of the ever-peeing statue, as if the pictures that thousands of other tourists had taken didn't capture some feature that we could capture. One new feature we captured was the statue with Sammy Vasa. Sammy is a bright green bouncy ball that we stole from our labmate, Mitesh Vasa. Our goal was to take pictures of Sammy all over Europe, then return Sammy, along with a slideshow of his adventure, to Mitesh. I thought this was our original idea, but we must have lifted it from somewhere since most every European we told about our "Vasa Project" asked us if we'd heard about a group of people that did something similar with people's garden gnomes. (We hadn't.)

Of course, there were other parts of the Manneken Pis experience that are hard to capture in a travel guide<sup>27</sup>: the precise smell of the pool into which the Manneken

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<sup>26</sup>To be accurate, we could've interacted, just not legally: The statue has been stolen (and replaced) several times.

<sup>27</sup>After a good deal of reading about places in travel guides, then visiting those places, one starts to learn a mapping from the description to the actual experience. That is, with experience, you get better and better at figuring out what a place will actually be like from just reading the travel guide. Along similar lines, I've read/watched enough books and the movies of the book (or vice versa), that I've gotten pretty good at predicting what the movie will be like just from reading the book (or vice versa). This is why I've only read 1 of the Harry Potter books.

sprinkled, the sounds of the pub across the corner, the babbling cacophony of the other tourists speaking in tongues, the cool moist air.

The sights and sounds can be captured by cameras and microphones, but the feel of the air is more difficult, and the smells are probably the most difficult. This is significant because, evolutionarily, smell is one of the oldest senses we have, and it's also one of the strongest triggers for memories. For people, any color can be broken down into the 3 primary colors of light: red, green, and blue (which is what color TVs and computer monitors use for their displays). The same goes for scents. You can construct almost any smell using 7 primary scents: camphoraceous, pungent, musky, ethereal, floral, pepperminty, and putrid. (Likewise, any taste can be broken down into the 4 primitives of sweet, salty, bitter, and sour. Of course, this will just give the raw taste, the texture of a food is a different matter.) So, if one had a jar of some substance that was the pure odor (or something close) of each of the primary scents, then one could construct virtually any smell. The recipe would just be a list of 7 numbers saying how much of each of the ingredients to add. If one wanted to be more precise, one could also change the humidity, temperature, and thickness of the surrounding air.

More generally, since for much of our travel, Gabe and I would be passive observers, there's the question of what parts of the experiences of travel are difficult or impossible to capture by words and pictures. What we read from a book, we understand on one level, but for some reason, it sometimes takes an actual experience to fully intuitively understand the knowledge<sup>28</sup>.

What is laid down, ordered, factual is never enough to embrace the whole truth: life always spills over the rim of every cup.

–Boris Pasternak



Another note about the Manneken Pis: Although it was a fine statue, there were plenty of other great works of art in Brussels. How this statue came to symbolize Brussels might be an interesting story. Oftentimes standards, protocols, or symbols are chosen rather arbitrarily, and one symbol doesn't need to be much better than

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<sup>28</sup>In Shakespeare's play *The Tempest*, there's a character, Miranda, who grew up stranded on an island with her father, Prospero, and his books. Virtually everything Miranda knows about The World is through these 2 sources. Near the end of the play, Miranda sees other people for the first time and exclaims "How beauteous mankind is! O brave new world, that has such people in it!". Despite Prospero's wisdom and the high quality of the books and her education, Miranda was still missing some tacit knowledge that she didn't get with all her book learnin'.

another. Sometimes one protocol merely needs to be the first to be established, then other protocols, even though they might be superior, will have a hard time displacing them due to *cultural inertia*. A famous example of cultural inertia is the Qwerty computer keyboard, which is the keyboard layout that Lappy (and virtually every other computer in America) has. The Qwerty layout was designed sometime before 1868 (when it was patented) to work well for the machinery of mechanical typewriters. Around 1936, August Dvorak came out with a new layout design built for efficiency of typing English (since the mechanical issues of typewriters had long since been resolved). This design is believed to be significantly more efficient, but people still use Qwerty. Another example is the prevalence of the Video Home System (VHS) format for videotape over Betamax. Betamax had a slight technical advantage, but was introduced a number of months after VHS, and VHS had gotten a foothold and become the standard. Other examples are driving on the left side of the road in England<sup>29</sup>, and using the English rather than the metric system in America.



While wandering Brussels, we found a dessert shop that had free wireless internet. I had Lappy with me and was able to use him to access this network to browse the web and check my email. The ease of doing this prompted me to occasionally check for wireless ethernet during the vacation.

Some sort of reinforcement mechanism is still at play in the human brain, which I consider to be an obsolete relic from the time before people evolved their higher cognitive capacity. But this mechanism is so basic, and has been with us so long (since before we were mammals), that it's still heavily entrenched in our nervous system. The mechanism I'm referring to is basic reward prediction in what psychologists call "classical conditioning". This is where a stimulus (such as bell ringing) occurs right before a reward (such as food) is given. Psychologists (and dog trainers) found that animals (and people) eventually associate the stimulus with the reward itself. It's as if Pavlov's dogs eventually associated the bell itself to be almost as good as food and would take actions to *hear the bell*.

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<sup>29</sup>People used to drive on the left in Sweden, which was a problem because its neighbors drove on the right. So at 5 in the morning on Sunday, September 3rd, 1967 (called "Dagen H"), by order of Swedish parliament, everyone switched to driving on the right. Of course, many signs and some roads had to be changed, but Sweden was "pushed out of its local optimum".

Researchers working with animals and rewards have learned a few things about how this reward feedback works in animals. To make this concrete, let's say (hypothetically) that we have a laboratory with a bunch of monkeys, some crack (and crack-pipes), a cattle-prod, and a huge pile of dirty dishes. Suppose we show the monkeys how to use a crackpipe, so that they know what to do with it, and that we want the monkeys to wash as many of the dishes as possible (we've also shown the monkeys how to wash dishes while smoking a crack pipe, quite a feat if you've never attempted this<sup>30</sup>).

There are a few strategies we could try:

- (1) The most fun-sounding strategy would be to cattle-prod the monkeys any time they take a break from washing dishes (or when they break the dishes), so that the monkeys associate not-washing-the-dishes with being zapped. This is probably the least effective strategy.
- (2) In addition to prodding for not-washing, one could also give the monkeys crack for washing dishes, but the fact is that negative reinforcement (i.e., the cattle-prod) simply leads to the monkeys associating the whole process of dish-washing with zaps, which will cause them to try to escape.
- (3) Another strategy is to give the monkey a tiny crack rock for every dish that they wash. This will cause stacks of shiny dishes.
- (4) Finally, there's a strategy that's even more effective: for every dish that a monkey washes, roll a 20 sided die, and if the monkey rolls a 20, give the monkey a sizable crack rock (say about 10 times the size of the tiny crack rocks used in the previous strategy). This strategy will have the dishes cleaned at top monkey-speed. The reason this works is that doing any dish could potentially be worth a big crack rock. The randomness ensures that the big-crack-rock dish could be the very next dish at any time.

The phenomenon of the last strategy might explain why some people can spend an entire day in front of a slot machine at a casino, why one might repeatedly check their mailbox while expecting the next Victoria Secret catalog, why one might do the same with email (for the electronic version of the Victoria Secret catalog), or why I

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<sup>30</sup>It's quite a feat for all 3 parses: Where the monkeys are smoking during the lesson, where the monkeys will be smoking while they're washing the dishes, and where *you* are smoking during the lesson of teaching the monkeys to wash dishes.

continued to check for free wireless ethernet throughout our trip to Europe<sup>31</sup>. (To spare you the suspense of this drama, I only found *free* wireless ethernet in a handful of places along the trip, although I found plenty of not-free wireless ethernet.)



After dark (which came quite late, as it was June and we were about as far North as Maine), we made our way back to the Grand Platz and saw the ancient ornate buildings, which were brilliantly illuminated by modern lighting. It's hard for me to imagine that these marvels of architecture were built centuries ago without the aid of trucks or motorized cranes. For me, these structures are a testament to the creativity and ingenuity of the people who built them. I felt a sense of awe upon seeing them. However, I was later to discover that such architecture seems to be the standard in all the other cities we visited on our trip, and either I became used to a perpetual state of awe, or my standards for awe were greatly raised. At any rate, I eventually stopped drooling at every wonder of construction.



It was getting late, and Gabe and I were all kinds of underslept and jetlagged. So along with Astrid, we started making our way back through the labyrinth of the city toward our hostel. On the way, we stopped by the European Union headquarters (technically, the headquarters of the Council of the European Union). Over the course of our Europe trip, almost everyone European we talked to about it seemed to have devoted a substantial amount of thought to the EU. The opinions of the European Union seemed to boil down to where to land on the balance between independence and solidarity.

Europeans, in general, seemed to have more interest in politics than Americans. This might be because most Americans have to travel quite a distance to go to another country, and this is usually either Canada or Mexico. And aside from Quebec, most of Canada seems more like another state than another country. Although it irks Canadians, I can't help but think of them as Americans. To me, at least, the difference between Boston and Vancouver, BC feels smaller than the difference between Boston and Los Angeles. As for Mexico, the relationship between it and America is so lopsided that there's not as much to be considered. In Europe, your

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<sup>31</sup>This phenomenon might also explain why surfers will spend entire summers on the beach waiting for "the perfect wave", or why people will play hand after hand of the card-game Pinochle waiting for the perfect "1,000 Aces" hand, or any number of analogous activities waiting for a windfall.

neighboring countries, only a few hours drive away, are almost economically and socially equal, but the cultures are as different as those of San Diego and Tijuana (but how can you measure a thing like that?).



We made it back to our hostel and within less than a minute of crawling into bed, both Gabe and I were sound asleep in a quasi-coma, we had so much new information to process. Thus ended **Day 01** of our European adventure.





## Day 02: Wednesday, June 09th, 2004: Amsterdam

**D**reams are one of the most fascinating mysteries for me, and I rarely had enough time to enjoy them fully on the trip. To do so, I would've had to lie in bed all day. I still haven't figured out the purpose of sleep and, in particular, the purpose of dreams. My guess is that both are primarily cognitive needs, as I need to sleep about the same amount whether I'm sedentary or active the day before. Psychologists have killed rats merely by not letting them sleep. Psychologists have also killed rats by letting them sleep, but not letting them dream (i.e., waking them every time they go into REM sleep). (Psychologists seem to hate rats.) So, dreaming is essential for living? And dreams are usually so interesting to the person having them (but rarely to the person they're telling them to).



I was able to finish whatever dream I was having, awoke, and began to wonder why I was in this strange room before I remembered I was on vacation in Brussels. It was late morning, and Astrid had already left for Amsterdam to meet up with us there later that day.

It had been some time since I last showered, and I was beginning to smell like what must be man's "natural" scent, in the days before bathing was commonplace (i.e., only a few millennia ago). I imagine that just as there's a horse smell, a sheep smell, and a pig smell, there must also be a human smell. I've probably gotten pretty close to smelling like it before, but by that time, my nose had probably gotten used to it, so the smell didn't register. It seems a bit odd to me that for most of human existence people didn't shower, shave, or trim their hair or nails (as chimpanzees still don't), but to skimp on these actions today would make one a pariah. I don't see why the human smell should be foul since we've had so many thousands of years to get used to it. I also wonder about toilet paper, and what people used instead before it was invented (within only the past couple of centuries). What could the Eskimos have used? Why hadn't nature endowed us with the same sorts of digestive outlets as dogs so that this wouldn't be a necessity? Shaving's puzzling to me too. I'd think that if it were advantageous to have a hairless face, then evolution would've provided me with a naturally hairless face.

I then came to the conclusion that ladies wouldn't be interested in a "human smelling" stubbled guy, and caved in and shaved (as most ladies, I figured, wouldn't have gone through the preceding lines of reason). If women didn't exist, I don't think I'd pay any attention to my appearance at all. I'd stop doing my laundry for starters. I'd also stop shaving, and I'd start growing out my gut. I don't think I'd ever jog or go to the gym again. I'd probably just sit at home all day and play video games. (I feel sorry for the woman who marries me.) If women didn't exist, I get the feeling that men would be much nicer to each other. At least that's how it was in 9th grade shop class (which was all boys, since for some reason I still don't fully understand, testosterone makes one interested in wood-working). The boys in the class were more themselves because there weren't any girls to impress. Had even a single female been introduced into the class, the guys (myself included) probably would have started pretending to be macho and started bullying each other in efforts to impress the girl. After showering, Gabe and I made our way toward the main train station (Midi, not Centrale), took in some last-minute sights of Brussels, and hopped on a train toward Amsterdam.



Our agenda for our European trip was only roughly spelled out: We'd fly in and out of Brussels, and we'd spend some time in Amsterdam, Malmö, and Freiburg (in that order). I also preferred to be somewhere up north for the summer solstice on June 21st, which was also Gabe's birthday, or Gabemas, but such a loose agenda still gave us a lot of room in between. Furthermore, we had Euro-rail passes which allowed us to hop on a train at any station. In planning, there's a scale that one must balance. On one side is a completely delineated plan with no room for improvisation, and on the other side is a completely open plan. Had we not planned at all, we would have never been able to buy our plane tickets, but overplanning would've caused us to miss out on opportunities that we hadn't anticipated<sup>32</sup>.

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<sup>32</sup>I had a friend who rode his bike (with another of his friends) from San Francisco to Boston over the course of 6 weeks. For the first week or so, they focused only on meeting each day's schedule. This became miserable for them, and they soon switched to another strategy: to just ride, try to have fun, and to check out neat things when coming across them without worrying so much about the schedule. This turned out to be much more enjoyable (despite not making as much distance as they would have with their initial strategy), and they got a lot more out of the remainder of the trip.

This is a manifestation of the more general principle of the “explore vs. exploit” tradeoff. That is, one sometimes must decide whether one should *exploit* the knowledge that they know already, or *explore* their options (and gain new knowledge). For example, while at dinner in Brussels, I decided to explore and order the mussels, rather than exploit by ordering the pizza, which I knew I liked.



Europe is much more pedestrian-friendly than the U.S.. Or maybe the parts we were in seemed more pedestrian-friendly since we didn’t have a car to get to the pedestrian-unfriendly parts. The former assertion might make sense since the layout of most of Europe’s cities was set before the invention of cars, whereas many American cities (especially in Southern California) have done most of their evolution after the onset of cars. I had a friend from California visit me in Boston, and he felt uncomfortable not having a car within walking distance, since where he was from, if you don’t have a car you’re stranded.

One southern Californian experience I had was when I was scoping out the University of California at Irvine for graduate school. I was at the John Wayne airport, and I wanted to get to my hotel across the street. The hotel clerk said she’d send a shuttle to pick me up. I thought that this was ridiculous, as I had 2 functioning legs, and the hotel was less than 100 yards away... It took me half an hour to traverse those 100 yards (and I maintain that my legs served me especially well for this venture). I had to negotiate bushes, dodge cars, climb rails, and mount a not very tall (but nevertheless existent) fence. There were no cross walks, and next to my hotel, no sidewalks: just road, curb, bushes, then the building. I classify this area as “pedestrian-hostile”. Since southern Californians depend so much on their cars, and spend so much time with them, they start to identify with them. Some view their cars as an extension of themselves. (I decided to attend the University of Massachusetts for graduate school.)

Europe’s pedestrian-friendliness has several entailments. It means you get more exercise (Europeans seemed to be trimmer than Americans), and that the European cities make more efficient use of their land. More importantly, it means that you actually meet and interact with people on the streets rather than just communicating with people using your horn and blinker (and finger on occasion). This changes one’s outlook on strangers, which becomes shifted from [stranger = someone in a car in

front of me = obstacle] more toward [stranger = person with whom to interact and possibly share ideas]. Additionally, in a car-culture, you're less inclined to develop any kind of substantial relationship with people you meet since you're unlikely to cross paths with them frequently. This lack of mental stimulation leads many to the dreary existence of having only professional interaction at work, then "interacting" with the actors on their TV screen.



On our trip in general, we got a feel for how the rest of the world views Americans. This is something you tend not to think of in America since most of the people you meet are American (or Mexican). One view is that Americans are rude, rowdy tourists. On our train ride to Amsterdam we encountered some Americans who were encouraging this stereotype (pretending that languages other than English don't exist, being well into their cups early in the afternoon). But Amsterdam encouraged this sort of encouragement. With its "coffee shops" (shops in which to smoke weed) and red lights, the central area was a non-stop party. If you had the urge to be surrounded by Americans and Germans (and not very many Dutch), then central Amsterdam was the place to be.



Our train arrived in Amsterdam's Centraal Station (which, logically and happily, was also the main station), and we found our way to Astrid's office at the University of Amsterdam. A native speaker of German, Astrid has become fluent in English, French, and now Dutch, which she used to order our dinner at the cafe by the University. In general, I was impressed with Europeans' mastery of English. Gabe and I had some knowledge of French and German, respectively, but it was a rare (and lucky) occurrence when we ran into someone whose English was worse than our knowledge of their native language.

I put the blame for this on the genius of James Watt and his ilk. My thinking goes like this: The thoughts of James Watt et al. started the industrial revolution in England, which provided England with wealth, which allowed it to colonize half the globe, and create the largest empire ever, and establish English as the world's lingua franca.

I find the movie "Zulu", which is about the Battle of Rorke's Drift, to be particularly interesting. In 1879, in modern day South Africa, some 4,000 Zulus attacked

a remote hospital housing 139 British soldiers (and medical personnel, etc.), many of whom were sick or wounded. In the end, the British, who suffered only a few dozen casualties (only 19 British died as a result of the battle), inflicted heavy losses on the Zulus (it's estimated that the Zulus lost 600 men), and the Zulus withdrew. To me, this movie illustrates how ideas, from the invention and production of the firearms used by the British, to the clever strategy devised by Lieutenant John Chard, the British commanding officer, can manifest themselves in a reality of blood and flesh. In this movie, ideas, *such as strategy and inventions*, meant the life and death of several hundred people. Had Chard been somewhat more dimwitted, the British could have easily been wiped out by the sheer numbers of the Zulu horde. (This happened at Isandlwana just a few days before.) Even more decisive was the battle of Ulundi, in which a square of about 5,000 British soldiers defeated an onslaught of some 20,000 Zulus. Zulus losses numbered in the thousands, while the British casualties were less than 20. (A full account of these battles can be found in "The Zulu War" by Michael Barthorp[2].)

My thoughts of James Watt and Zulus were interrupted by our waitress, who asked me, in English (thank James), if I'd care for anything to drink. "Water.", I said out of habit before remembering that the steam engine somehow failed to establish free drinking water in European restaurants.



After supper, Astrid took me and Gabe on a whirlwind tour of the town so that we could get oriented. The city seemed to be designed to disorient tourists. I had learned my navigational skills on the grid of Denver (with its straight streets, and its mountains consistently visible in the west), so I had to adopt a new strategy for navigation in Amsterdam. I threw out my notions of North, South, East, and West, and adopted a system of landmarks.

The final stop on our tour was Astrid's place, which would be the headquarters for our stay in Amsterdam. For landmarks' sake, I noted that Astrid's apartment was near a canal. When I first moved to western Massachusetts, I kept getting lost because I used patches of trees as landmarks. This is because patches of trees are relatively rare in the plains of Denver, and they make good landmarks there, but in Massachusetts, clumps of trees are fairly common. In Amsterdam, canals make

terrible landmarks. Sighting a canal merely confirms that you are, in fact, somewhere in Amsterdam.



At Astrid's apartment, we met her roommates: 2 students from Costa Rica, and one of their girlfriends (from Romania), all studying at the University of Amsterdam. The Romanian student was reading "Guns, Germs, and Steel"[5], which I had a bookmark in (which doesn't say much since I usually have a bookmark in about 30 books at any point<sup>33</sup>). The discussion led to books (which happens to be one of Astrid's favorite topics), and Astrid lent me her copy of "The Curious Incident of The Dog in The Nighttime". Astrid's friend, Sanaul, had gotten this book, read it, and sent it to Astrid, who had read it and given it to me, (and afterwards I had read it and given it to a friend who read it and had given it to her brother, who had read it, and I'm not sure what happened to it from there). This book is written in the first person, and the narrator has Asperger's syndrome (a mild form of autism), and knows a lot about math, but little about people. Astrid said the narrator reminded her of me, and I took offense. But it worked to get me to read the book (out of vanity), which was an interesting view into the mind of someone who is lacking in intuition, and therefore must substitute Reason.

My goal in life (since I was 17 years old) is "to help cause the emergence of a machine that is able to pass the Turing test on all levels". The Turing test<sup>34</sup> is a method for determining whether an entity has human level intelligence. So, my goal is to help create Artificial Intelligence. Therefore, I'm interested in theories about how minds work. One of the theories that comes up in various forms is that of the "left-brain/right-brain". I still think the theory's interesting (and may be of some use to AI researchers) even though it's been shown that the cerebral hemispheres

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<sup>33</sup>I've since finished Guns, Germs, and Steel, and was ultimately disappointed. The book didn't seem to be so much an objective scientific exploration of The Truth as much as a case you might make in a debate club (or in court). The book was very thesis driven. The thesis being that "Some groups of people are more advanced than others not because of biology, but because of geography.". Diamond's argument was so single sided as to not be convincing. The idea that there are no significant biological differences among groups of people that have been separated for 2000 generations seems absurd to me. However, this book is worth reading as you learn a lot about the roots of civilization and also interesting factoids like that cabbage, brussel sprouts, cauliflower, and broccoli are all descended from kale.

<sup>34</sup>This test was first proposed by Alan Turing (1912-1954), whose name is also attached to some other important ideas in Computer Science that he originated (or that ultimately came from his work), such as a "Turing Machine" (a simple design for a computer) and "Turing Completeness" (which is a quality of a computer that's as powerful (in a mathematical sense) as any other computer.). A (Universal) Turing Machine is one of the simplest computers that's Turing Complete.

aren't as polarized as once believed. The core ideas of the "brainedness" theory, "left-hemisphere" and "right-hemisphere", correspond roughly to ideas from Logic and ideas from Statistics, respectively. So Christopher, the narrator of "The Curious Incident of The Dog in The Nighttime", was very "left-brained", but not very good with noticing subtle statistical patterns (e.g. facial expressions). My guess is that the "statistical/intuitive" style of thought is useful for very complex things, such as people, that can't be characterized completely, and that Christopher's style of thought is useful for things that can be more completely (and therefore precisely) characterized such as computer programs, mathematical equations, planetary motion, and jet engines.

A question that's been with me ever since I met Astrid is why there are so many people who are good with one style of thought or the other, but so few people who are skilled at both (like Astrid). There's some truth to the stereotype that engineers have poor people skills. Maybe this is for the same reason why people are left or right handed (but so few people are ambidextrous). An economic division of labor (or grey matter, in this case): put twice the precision into one hand.




I read the first few chapters of my new book, and fell asleep on Astrid's roommate's couch's pull-out-bed's mattress.





## Day 03: Thursday, June 10th, 2004: Amsterdam

very morning when I wake up, I experience an exquisite joy –the joy of being Marc Pickett I of Padelford– and I ask myself in rapture, “What wonderful things this Marc Pickett I of Padelford is going to accomplish today?”. (With apologies to Salvador Dali.)

This day, Gabe and I woke up excited to do some exploration of Amsterdam on our own (as Astrid had to work). Gabe and I made our way from Astrid’s apartment toward the downtown area. One thing that struck me about Amsterdam was the abundance of bicycles. Amsterdam’s flat terrain made it very friendly for street bikes (the entire city seemed to be exactly 4 meters above sea level). And there were a lot of them. The citizens of Amsterdam ride bikes. Old ladies and businessmen alike. Crossing the street on foot reminded me of playing the video game Frogger. From one sidewalk, we had to dodge bikes, then cars, then the trolley, then cars going the other way, and finally bikes going the other way before reaching the other sidewalk (and catching the fly on our lily pad).

Though it was gently sprinkling, Gabe and I settled at an outdoor cafe for our first meal of the day (somewhere between breakfast and lunch). (I’m not sure why there have to be 3 meals. That’s one of those thousands of conventions that I won’t have time to ever fully learn about.) The couple at the next table offered us a seat since their table had some cover from the drizzle. It turned out that this couple worked for a cruise ship that was docked at the port. He was from Australia, and she was from Vancouver, BC.

Once while in Hamilton, New Zealand, I told a man that I was living in Maryland. His response was “Which state’s that in?”. This wasn’t an isolated incident. So, I told the cruise ship couple that I was living in Washington D.C.. The Canadian woman asked where that was. I got self righteous about the kind of ignorance that some people had about geography... until I realized that I had no idea what the capital of Canada is. I’ve since looked it up (Ottawa), but I still couldn’t point it out on a map. Gabe’s from Portage, Indiana, which is not too far from Gary, Indiana, which isn’t too far from Chicago. On our trip, Gabe initially told people he was from Gary. The only thing that was worse than people having never heard about Gary, was that

they had heard about it. Gary has a reputation for being one of the most dangerous and “ghetto” cities in America<sup>35</sup>, and Gabe preferred not to have the association, so he just said he was from Chicago.

From the couple we learned something about what life is like working on a cruise ship (a life-slice I had never really thought about), moving from city to city over the course of months.

We eventually said our goodbyes and continued our exploration of the city. We stopped in a grocery store to buy that precious and seemingly rare substance known as water, where we also began our love affair with Dutch caramel cookies. Another group of rowdy tourists (from Italy, maybe) were loading their cart with bags of 10-packs of cookies that looked like miniature waffles. “They’re addicting.” one of them warned in accented English. These cookies (when I can find them) are one of those distinct combinations of taste, smell, and texture that somehow triggers memories of the “mood” I felt in Amsterdam, sort of like an old song can trigger the memory of a personal Zeitgeist. These feelings are one of the most difficult things to describe in words or even will into memory.



What makes a land? For me, it’s partially the climate and landscape, but more importantly, the culture. And northern Europe is one of the world’s leaders in cultural achievements and innovations: architecture, the sciences, literature, political and social movements, inventions, engineering, and overall quality of life. These cultural achievements rest squarely on the shoulders of its people, and for this reason, I was very interested in making the acquaintance of, and learning something from as many people as possible.

Astrid had told us about a social hour at a bar at the University of Amsterdam, and, for the purpose of meeting and getting to know more Europeans, Gabe and I decided to infiltrate... We found our way to the University bar where the social hour was supposed to be, but things seemed pretty low-key. Being in Amsterdam, we ordered Heinekens and people-watched for several minutes. After striking up a

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<sup>35</sup>Gary was ranked (according to an analysis of crime statistics) the 10th most dangerous city in America (with a population of over 100,000) in 2006. This was considered a major improvement since it had been #1 in 1997 and 1998. (Interestingly, Irvine, California, which I’ve been hard on for being an exemplar of a pedestrian-hostile city, was ranked the *safest* city in 1995.) Gary’s reputation isn’t new: the actor, Frank Cooper (1901-1961), changed his first name to Gary to evoke the tough nature of the city.

conversation with some fellow bar patrons, we got directions to where the happy hour was supposed to be. We finished our Heinekens and left.

Along route and needing a bathroom, we discovered another bar and decided to pass our beer there and refuel with another. At this bar, we learned another cultural lesson: I ordered 2 beers in my best Dutch, and just to be sure, I put up two fingers like Richard Nixon. The bartender brought back 3 beers, which we were happy to accept. In Holland, and probably most of Europe, counting goes thumb (for 1), thumb and index finger (for 2), thumb, index finger, middle finger (for 3), etc..

Recall Bifislurf: At this bar we also ate Bifistik, which is like Slim Jims, but with a much hipper name, and probably without the Macho Man Randy Savage endorsement. Re-codeword “Bifislurf” (i.e., more on Bifislurf later).

Gabe and I finally made our way to what we could only assume was the university party that Astrid had told us about. Whether it actually was or not, it had what we were looking for: wine, women, and song. I brought my camera, so I could reconcile my memory with the less-alcohol-influenced photographic evidence. For example, my camera argued that the gorgeous 9.5 blonde I was talking to was actually closer to a 5.9. I tried to construct some theory about lighting and camera angle that could produce such an unflattering picture of a supermodel, but I finally yielded to the far less appealing but more parsimonious theory that it was Beer Goggles.

In the world, there are many more books, movies, and pictures than a person could view in a lifetime, but despite the number of things that are recorded or that there are pictures or movies of, far more goes unrecorded<sup>36</sup>. Thus, I have no photographic evidence to contradict the beliefs that the other girls were all supermodels, that my conversation was brilliant and unslurred, and that John Travolta would have been envious of my dance moves.

As more alcohol was consumed, the more ancient suborgans of my brain became freed of Rational Thought’s guiding hand. This, I conjecture, is why my hair is in pigtails in some of the evening’s later pictures. This, I also conjecture, is how I lost the sheet of paper that had Astrid’s address and directions. This was a problem because it was about 2 in the morning, the party was beginning to wind down, and Gabe and I had no means of contacting Astrid. Therefore, we were effectively

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<sup>36</sup>Perhaps any 20 days of anyone’s life could be a book or a movie. (Let’s just hope it’s not a boring movie.)

homeless in a strange city. Making the best of it, we decided to see the strangest part of the strange city when both it and we were at our strangest. Walking in the direction that we thought Astrid's apartment must've been, we put our drunk selves in the middle of Amsterdam's famous Red Light District at 3 in the morning on a summer Friday.

The Red Light District, of course, is known for its brothels. The prostitutes sit "on display" in a window lined with red lights and smile or otherwise try to entice men to come into their booths. I'd seen hookers in Tijuana, Panama, and Sydney, and in each of those cases, a person would've had to pay *me* a considerable sum of money to consider sleeping with them. Whatever habits or paths of life destined these women to sell their bodies was never easy on making them easy on the eyes. With this viewpoint, I was shocked to find that some of the prostitutes were actually healthy and attractive, some could even be easily described as beautiful. This left a hole in my world model that has yet to be resolved (unless, of course, it can be chalked up to the universal explanation of Beer Goggles).

In my not-totally-rational state, I hadn't considered the removal of my pigtailed a worthwhile pursuit, which brought more attention than usual from the prostitutes. I was drunk enough to suppress the idea that they merely wanted my money, that they somehow knew that I wasn't going to be a client, yet still thought I was hot, and therefore let the attention inflate my drunken ego.


Eventually, things started to wind down even in the Red Light District, and Gabe and I started sobering, so we got back to our original plan of finding Astrid's place: Operation Hibernate. Sitting in one of the alleys near the red light district, poring over the disconnected map in the back of the Lonely Planet Amsterdam travel guide, 2 police women on bikes found us, and asked us if we were allright. After explaining our situation, one of the police women said "Well, it's not so clever to be sitting in the middle of the red light district at 4 in the morning.". Slightly insulted, Gabe and I started walking west toward the area where we remembered Astrid's apartment to be.

It was sometime between 5 and 7 when I realized just how bad of a landmark a canal is in Amsterdam. Gabe and I wandered, sobered, retraced our steps, and wandered until what still seems like a miracle to me, we arrived back at Astrid's place after the sun had risen. Had it not been for Gabe's presence, I think I would

still be wandering those canals, asking for change, and I'd probably wind up as a pigtailed hooker.



## Day 04: Friday, June 11th, 2004: Amsterdam

abe and I didn't wake up until it was well into the afternoon. Our early morning odyssey gave us the benefit of having gone to bed completely sober, so we escaped any threat of a hangover. We'd planned to leave Amsterdam to visit the Burghers' Zoo in Arnhem the next day, so we were motivated to do our best to take advantage of our quickly decreasing time in Amsterdam. But the previous night's excursion also meant that this day would be a short one.

I don't remember if it was by plan, or by wandering the city, but Gabe and I ended up visiting the NEMO, which is the Netherlands's national science museum. This museum is shaped to look like a giant ship. It's somewhat prominent on the skyline, so it was hard to let the idea [that we wanted to go there] slip our minds. (This is contrasted to the also very visible Atomium in Brussels, which we never managed to visit.) The NEMO was as big on the inside as it was on the outside. It was filled with all sorts of neat "scientific" gadgets. For example, there was a gyroscope in a box with a handle on it. When you picked the box up and tried to turn it, it'd resist. The NEMO also had a platform you could stand on and be engulfed by a giant soap bubble. There were so many interesting exhibits, I wanted to make sure I didn't miss anything. So we frantically went from exhibit to exhibit until we were sure we'd seen everything the NEMO had to offer<sup>37</sup>.

Alas, we only had so much time, and we were to meet Astrid at the Amsterdam Zoo, where her department was having some sort of function. At the zoo, we made the discovery that the Dutch word for trunk (as in of an elephant) is "slurf". Recall Bifislurf: we now had a name for our restaurant's main dish: Bifislurf. It would be processed "beef" in the shape of a trunk. Sillier things have sold. Sometimes, I'll see a confection such as a nose-shaped container with green candies on the inside. It makes me wonder whose job it is to come up with such things. I'd be interested to see what ideas didn't make the cut...

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<sup>37</sup>I prefer museums to be "linearized" so I can follow a single path and be sure that I saw everything. Ultimately, I'll see the exhibits in some order anyway (because I can't split time), and some order might be optimal. This is a little like an author dumping out a semantic structure. The semantic structure's really a network, but anyone who looks at the network will follow some path anyway, and the author (or museum curator) can "suggest" a path by linearization.

We spent a while at the zoo. There was a petting zoo inside with goats, one of my favorite animals. I worked at a petting zoo (Davis Farmland, more like a petting zoo on steroids) between getting kicked out of grad. school and working at Sandia Labs. The Farmland in Massachusetts had the standard petting zoo fare, but also very rare and exotic animals. There was a podonk (a mule that was a cross of a rare breed of a donkey and a rare breed of pony) of which there are only a few hundred in the world. The Farmland also had Scottish highland cattle (with very wide horns), emus, llamas, and Belgian draft horses (some of the largest horses in the world). But, the animal that impressed me the most was the seemingly lowly goat. Despite having hooves, goats are surprisingly agile. The kids would stand on their mothers' backs. If you bent over to clean their food tray, the kids were apt to jump on your shoulder. They were also the most playful and interactive of the animals at the farmland. The llamas tended to be shy, and most of the other animals seemed to be only interested in food. Occasionally, a goat would escape to the main part of the Farmland, and I'd have to go catch it and take it back. Most of the other animals abhorred being handled, but once a goat was caught, it wouldn't struggle other than bleating out a "Maaaaa!".



Goats are one of the grains of sand through which I understand The World. Goats have their own set of properties: horns, hooves, agility, rectangular pupils, lack of upper incisors, and their extraordinarily unselective palate. I'd guess goats would make excellent pets if it weren't for the fact that they'd eat everything in the house. In fact, there are companies that rent out goats to people who have overgrown lots to be cleared. Goats are also born knowing how to run and walk, which tells me a lot as a developmental roboticist (getting a robot to run around and avoid obstacles is a difficult problem).



Despite it being Friday night, we decided to take it easy since 1. we'd have to leave early the next morning for the Burghers' Zoo in Arnhem and 2. we were still recovering from our excursion from the night before. So, we made a stop at a coffee house (not to be confused with a "coffee shop"<sup>38</sup>), wrote some postcards, and eventually

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<sup>38</sup>As a refresher: In Amsterdam, a coffee *house* is where you get caffeinated, a coffee *shop* is where you get stoned.



made it back to Astrid's where I read more of *The Curious Incident of the Dog in the Nighttime*.



## Day 05: Saturday, June 12th, 2004: Arnhem and Duisburg

**I**e woke up early, said our goodbyes to Astrid (with regrets that we couldn't have visited longer), and took the train to Arnhem, which was not quite as tourist/English friendly as Amsterdam. Arnhem is a bit closer to the German border, so there were a fair number of Germans, and I finally got to put my highschool German to a bit of use. Despite this, it took us a while to figure out which bus to take to the Burghers' Zoo, but we finally got there. My heart was racing. I'd only read about the saga that went on in this spot (albeit 25 years ago), and now I was about to see the chimpanzees myself.

I was excited because I'd be able to see the chimpanzees' "politicizing" myself. I'd get to watch the coalitions, the bargaining, and the coups firsthand, and through this microcosm, this time machine, I'd understand the whole of humanity and finally have an answer to the human question! As I found out, I was overoptimistic. This was a little like my first day of 1st grade. I knew that we'd learn to read in 1st grade, and, for some reason, I thought they'd teach this to us all on the first day, and I was very excited...

We entered the gate and went straight to the chimpanzee enclosure. To my delight, we arrived just in time for the chimps' breakfast. With goats at the Farmland, feeding time was when you really got to see their group dynamics. This was when the dominance hierarchy was made most clear, and when it was sometimes challenged, which caused a disturbance in the equilibrium and sparks to fly. I remember goats butting other goats who took their place in line so hard it sounded like being punched with a boxing glove.

The chimpanzees were a little less dramatic, although feeding time was still interesting. The chimps and their caretakers (and us) were separated by a canal (yes, the Dutch seem to have a thing for canals) several yards wide<sup>39</sup>. It appeared that the caretakers were throwing fruit to whichever chimp clapped the loudest. So,

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<sup>39</sup>One common complaint about the famous chimpanzee exhibit is that the observers feel "distant" from the chimps. I was excited that I might learn how chimpanzees smell, which would give me some idea of what man's "natural" scent might be. Alas, the chimps were too far for my insensitive nose to get much more than fleeting whiffs. The problem with having people closer to chimps in an open area was made apparent to me at the San Francisco Zoo, where the alpha male often flung poo at (and sometimes hit) zoo visitors.

it seemed like the caretakers were the stars of a simian concert. (After feeding time was over and the caretakers left, we found that the chimps would also clap for Sammy Vasa, the bright green bouncy ball that we stole from our labmate.)

It turns out that the chimps were pretty subdued after breakfast. No coalitions, no life-or-death fights, no mating, no poo-flinging, no hooting, not even any grooming. It was just a bunch of apes lounging around. It must have been one of the stable periods when there was no question about the dominance hierarchy. Since the chimps weren't being very exciting, I took a timelapse movie of them over the next half hour. The most exciting thing that happened in the timelapse was that it started sprinkling, so all the chimps left to find shelter. Then it cleared up, and they returned.



So, this was life for the chimps. Their world was a few acre enclosure (which is huge as far as chimpanzee enclosures go). I wonder what the Weltanschauung of these chimps has in it: other chimps, fruit, trees, the electric fence surrounding the bases of the trees, the moat surrounding their enclosure, their caretakers, fruit, certain birds... I have little doubt that they dream<sup>40</sup>. But what do they dream about?

There are a lot of concepts that probably never enter chimpanzees' limited Weltanschauungs. I doubt they ever conceive of such concepts as Bach, black holes, Niagara Falls, Jupiter's great red spot, Wall Street, the ocean, *c. elegans* (the tiny worm), differential equations, World War II (or modern human warfare in general), synapses, Chaucer, vampires, all night coke binges, hang gliding, Pangaea, the central limit theorem, the Industrial Revolution... or many of the other concepts that might occupy the human mind.

The Chimps probably never understand many aspects of their lives that we count as common sense. For example, I doubt that chimps understand paternity. To be sure, there's probably some inherited instinct that tells the males "Be nice to baby chimps if you've had lots of sex with their mothers.", but I doubt that the chimps have really made the connection between mating and procreation. The chimps probably don't even understand that the visitors to the zoo have paid money to see them (and they probably don't understand the concept of money, though they certainly *do* understand the basic idea of exchanged services). Of course, this makes me pretty

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<sup>40</sup>The fact that chimpanzees are so closely related to people causes me to suspect that chimpanzees dream. I also suspect that dreaming serves some cognitive purpose (as REM sleep seemed essential for rats' wellbeing, as mentioned on **Day 02**). Though it *seems* like an unanswerable question, I think fMRI technology will be able to answer whether or not chimps dream.

sure that there are plenty of patterns and explanations in my own existence that I'll never notice or learn about. For example, I could easily imagine a life in which I never think about the rules of grammar by which I abide (or don't abide) every time I talk or write.



My parents' dog, the late Rex (golden retriever, black lab mix) perhaps had an even more limited Weltanschauung. He spent 95% of his time in our backyard (about a 10th of an acre), with the other 5% being spent on walks and trips to my parents' property in the mountains. The highlights of most of his days were walks, feeding time, and appearances of the squirrel that would run along the top of the fence. Unlike the chimpanzees, Rex didn't have much interaction with others of his own kind, so perhaps humans occupied the part of his brain that would be the analog of other chimps for the Arnhem apes. Rex's life of 12 years was also much shorter than the average captive chimp's lifespan (over 50 years). However, given a fuller range of experiences, I still doubt that Rex would've had the cognitive capabilities to comprehend many of the more sophisticated concepts that a fully intelligent person might have.

I'd be willing to bet that had Rex been aboard the HMS Beagle, and experienced everything Darwin had, he would never have conceived of the idea of evolution by natural selection. And this despite not only being a product of evolution himself, but an integral part of the "natural selection" among the squirrel population of the backyard. (Maybe he didn't even notice that the squirrels were getting faster.)

I always thought Rex was something of a dog genius, especially compared to our other dog Oreo (a Brittany-Spaniel/Chow mix). I thought this until I found out about the "A-not-B" experiment used in Developmental Psychology. In this experiment, infants are shown a toy that is then placed in 1 of 2 bowls (with the infant watching). The bowls are within the infant's reach, but are angled such that the baby can't see inside them. If the baby's immediately allowed to reach for the toy, he or she will grab the toy from the correct bowl. However, in A-not-B, the experimenter will distract the baby for just a second. Up to a certain age, the babies won't always reach for the right bowl. I was surprised to learn that even adult monkeys don't do so well at this task. I figured that my dog-genius could ace the A-not-B test, so I tried it (replacing the toy with a doggy treat). Rex failed. He

always went to the correct bowl when he wasn't distracted, but it was a craps shoot which bowl he went to if I distracted him for even an instant. Well, at least (adult) chimps can pass this test, which means they're probably smarter than my dog.

Rex's involvement with evolution is maybe a little like my own involvement with cell phones. I use a cell phone almost every day, but I don't really know how they work. I have a basic idea (from reading the HowStuffWorks.com article on them (which coincidentally happens to be 1 of the top 5 most popular articles there)), and if I took one apart, I could probably tell you what each part is, and maybe even conjecture about the routing and cell-assignment algorithms, but it'd probably take me a *long* time to design a cell phone in detail from scratch. I imagine there are a fair number of people like myself who regularly use a cell phone (and are virtually dependent on them), but have little idea how they work. On the other hand, maybe Rex was actually pondering deep thoughts as he lay out in the sun. Maybe he had thought of the solutions to the deep philosophical and scientific problems, but just couldn't express them. Well, probably not.

It's not that Rex is completely mute when it comes to communication. After spending a lot of time with a dog, one gets to notice more subtle cues in their "body" language. Different barks send different signals, and a dog's tail can say a lot. For example, whenever I'd get out his leash, Rex would wag his tail and start jumping around, which I interpreted as "Oh boy! I'm excited! We're going on a walk! Oh boy!". (Of course, it's easy to anthropomorphize or read more into a dog's signals than what's actually there.) At any rate, it would've taken a great deal of effort for Rex to convey such a seemingly simple idea as "Timmy just fell into a well!". (This is assuming that Rex could've handled such an idea, which I have my doubts about in light of his performance on the A-not-B test.)



This brings me to the idea of The Lonely Chimpanzee: Chimpanzees have no verbal language. Sure, some chimps have been taught a much simplified form of sign language, but this language is limited: The number of signs is typically less than 1,000, and the grammar of this language has nowhere near the structure of English or full American Sign Language (ASL). I'd be quite surprised if a chimpanzee constructed a meaningful sequence of signs with the same number of words that are in this sentence. The question arises whether chimpanzees have thoughts that are as complex as "A

ball bigger than the ball that is beneath the largest chair.”. I’d hazard a guess that they do, and that this is testable by devising games that require mastery of these concepts<sup>41</sup> (to get food). At any rate, it’d take a long time for a chimp (signing or not) to tell you about its day<sup>42</sup>, although I suspect the chimp knows what its day was like. Even if a single chimp learns full ASL, it couldn’t talk to other chimps that didn’t know the language. So, in a sense, each chimp is isolated with its thoughts. They can communicate with other chimps, but I suspect that it’d take a good deal of effort to communicate some of their more abstract thoughts (like the ball under the chair or that Timmy fell into a well).

I sometimes wonder if English is also like this, or whether English is a complete description language<sup>43</sup>. That is, is English enough to express all thoughts one might have (given an unlimited amount of time)? I suspect it is (because one can describe a Turing Machine with English and then anything with a Turing Machine<sup>44</sup>). I also suspect, that all natural human languages are equivalent in this sense (though

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<sup>41</sup>Psychologists have found that a pigeon can subitize (“count” just by recognizing the pattern, without actually counting) up to 4 or 5. The psychologists were able to test whether the pigeons had (or were capable of developing) these concepts by devising reward tasks that required their mastery to perform. Interestingly, there are some human languages that didn’t have the term “5”: just “1”, “2”, “3”, and “many”. I doubt that those people didn’t have the concept 5, if a pigeon can have it. They probably didn’t have the word “subitize” either. I know I didn’t have this word until a few years ago, even though I knew the concept because there was a Saturday Night Live skit that had Rain Man subitizing “57 cheese-balls”.

<sup>42</sup>One way of testing the power of chimpanzee communication would be to give them cooperative tasks (leading to mutual rewards). For example, you could have 2 chimpanzees in cages side by side, and show cues to just one of the chimps that he’d have to convey to his partner to perform some action so they could both be rewarded.

<sup>43</sup>English has one of the largest vocabularies of modern languages. It’s interesting to note that the size of English’s vocabulary is constantly growing. If we extrapolate backwards (a precarious thing to do when working with history, which tends to work in non-linear dynamics, cycles and so forth), we might believe that English (or whatever the name of the language would be) had fewer than 10,000 words. Languages with fewer words, like Tok Pisin (a Creole spoken in Papua New Guinea) have to rely on circumlocution to address concepts that English might be able to describe with a single word. Presumably, Tok Pisin can describe all the concepts that English can. An English book translated into Tok Pisin might just be longer. (The Bible in modern English is 786,154 words, using 4,167,390 letters and spaces. The same book translated into *Haitian Creole* has 17% more words (922,276) and 1% more letters and spaces (4,234,395). If we are smart about our encoding (using fewer bits for more frequent words using what’s called a “Shannon optimal” encoding[20]), the Haitian bible requires 3.8% more bits to encode than the Standard American translation, 4.3% more than the King James Version, and 4.6% more than Young’s English translation. The Basic English version uses a limited vocabulary, but Haitian Creole still requires 3.5% more bits than even this limited vocabulary version. Interestingly, the most compact translation of the Bible I found was Esperanto, the artificial language. Haitian Creole used 10.9% more bits than the Esperanto translation (and 10.2% more bits than Spanish.) The Aboriginal Tasmanians were the least technologically advanced culture in modern times. I’d be curious how large their vocabulary was (it’d be a bit like going into a time machine). Unfortunately, they were largely destroyed and much of the language has been lost.

<sup>44</sup>It’s interesting to think about how many words or “conceptual primitives” a language *needs* in order to be complete. That is, if you’re designing a lingua franca, like Esperanto or Newspeak (or, slightly more practically, you want to write a book in another language), what’s the *minimum* number of words you need to have. Some cognitive scientists[16] put the number of *irreducible* semantic primitives at about 30.

any bilingual person (or computer programmer) can tell you that certain languages are more efficient for expressing certain ideas<sup>45</sup>). However, “a picture’s worth 1,000 words” and there are some concepts that take a lot of talking to get across. Sometimes, it’s difficult to find the right set of words<sup>46</sup>. I sometimes wish I could just mind-meld because it takes so long to dump out my conceptual structure and all its tacit knowledge. (In a sense, writing a long narrative (such as *The Epic*) is a way of expressing these more subtle packages of knowledge.)



After about half an hour of taking a timelapse of the chimps, watching people (mostly Dutch and Deutsch) come and watch the chimps (of whom I wish I could’ve taken a timelapse as well), I started getting bored (and I assume Gabe was even more so). Perhaps, if I’d been more observant, I would’ve picked up on all sorts of interesting subtleties of the chimps’ behavior, and not gotten bored. Though, my camera was running out of memory space and battery charge, and there was the rest of the zoo to see, so we left the chimpanzee enclosure.

One of the other exhibits was “De Amerikaanse Bizon” or “buffalo<sup>47</sup>” as we say back in Colorado. I always get a bit of a tickle when I see buffalo (or especially prairie dogs) in zoos. On a drive from Denver to Cheyenne, you’re as likely to see buffalo as you are to see cattle (and prairie dogs are more common than pigeons or squirrels, and are often considered a nuisance by ranchers). I imagine that Australians have a similar feeling when they see kangaroos in foreign zoos.

We continued our wandering through this zoo and entered a building that had areas with different “ecosystems” set up (desert, mountain, tropical, etc.). The enclosure and its exhibits must’ve been of extraordinary quality, because when announcement (which must’ve been in English as well as Dutch) came over the intercom that the zoo’d be closing in 15 minutes, Gabe and I had no idea that so much time had passed. We spent the better part of those 15 minutes trying to figure out how to leave the enclosure without setting off the fire alarm.

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<sup>45</sup>The Whorf Hypothesis[21] states that the words in a language influence the concepts developed by speakers of that language. On the one hand, I had the concept of “to subitize” (to know the number of objects without explicitly counting them) before I’d ever heard the word. On the other hand, having a word for it makes it easier for me to discuss, and thus reinforces the concept (more so than if English didn’t have that word).

<sup>46</sup>Several psycholinguists, such as Stephen Pinker[18] or Jerry Fodor[7], give arguments for an internal Language of Thought or “mentalese”.

<sup>47</sup>Technically, they’re American Bison.





Gather ye rosebuds while ye may,  
 Old Time is still a-flying;  
 And this same flower that smiles today  
 Tomorrow will be dying.

–Robert Herrick (from *To the Virgins, to Make Much of Time*)

A bus and a train ride later, we were in the German town of Duisburg. It was 21:00, and our overnight train to Copenhagen was scheduled to leave at 23:30. Which meant that we had 3 and a half hours to spend in Duisburg on a Friday night. Having never noticed Duisburg before, we realized that it was conceivable that we might live out our entire lives with never visiting this town again. With this in mind, we put our backpacks in lockers and soon found a bar/club near the train station (or “Bahnhof” in German, which for some reason comes more naturally to me than the English word). We figured we had 2 and a half hours before we needed to leave the bar, head to the Bahnhof, retrieve our backpacks, and catch our train.

In the bar, there was precious little time to waste in ordering beers, “doing” my hair, and getting onto the dance floor. It was a little liberating knowing that in just 2 hours, there’d be little chance of ever seeing any of the crowd again. Any shyness or inhibitions were completely gone even before the alcohol hit. I can’t speak for Gabe, but I was jumping around the dance floor in pigtails making a total ass of myself. But, our situation afforded us total confidence, and our attitude was one of to-hell-with-what-anyone-thinks pure letting-the-good-times-roll. To my surprise, we seemed to be quite popular with the crowd. The question of whether the popularity was ironic didn’t even matter. We’d be gone in an hour and a half regardless. Probably because of this attitude, the girls wanted to dance with *us*. (As **my mom** might say, “He who cares the least, wins.”.)

There’s nothing like a realization of an end to make one live a life in full. As the saying goes: “There’s nothing like the prospect of being hanged in the morning to focus one’s mind.”. So Gabe and I made 60-minute friends, and danced and partied with these new friends until it was time to go. Welcome to Germany!



A dozen songs, 4 beers, 50 minutes, and a few hundred yards later, we were aboard the night train to Copenhagen in a sleeper car with several other American guys. Having no girls around, I was reminded of 9th grade shop class. So it was Saturday night with no girls around. What can you do? We ordered beers from the Conductor, a German

lady of about 30, who seemed really cool, like we'd probably be good friends had we lived in the same town. She reluctantly declined our offer to hang out and have beers with us, but did make frequent stops back at our car to exchange our empty bottles. A few hours of conversation and good old fashioned male bonding with our compatriots, then Gabe and I headed to our own car and fell asleep somewhere in Northern Germany.

## Day 06: Sunday, June 13th, 2004: Copenhagen and Malmö

Awake, awake my little Boy!  
Thou wast thy Mother's only joy:  
Why dost thou weep in thy gentle sleep?  
Awake! thy Father does thee keep.

—William Blake (from the Land of Dreams)

**S**ur lady conductor's voice was teasing us about being such heavy sleepers. It took me a while to figure out where I was, who this lady was, and why the room felt like it was moving (which it was, as we still had a few more minutes before reaching Copenhagen). Surprisingly, I wasn't hung over, and to date, I've still never heard of Gabe being hung over. I think it's strange that we just accept that virtually everyday, everyone enters a state of unconsciousness, and that this is an accepted excuse for not noticing events that take place well within the proximity of one's senses, such as the conductor's instructions for us to grab our bags and get ready to depart at Copenhagen.



Ahh, Copenhagen! Our first order of the day was to find some breakfast and maybe some coffee. While traveling, this usually takes me an unusually long time to do, and Copenhagen was no exception. To complicate matters, we realized that Euros were no longer the coin of the realm. Additionally, we were still a bit groggy (from what was surely less than a full 8 hours of sleep), and we were weighed down and slowed down by our backpacks.

These are all the mundane things that I have little interest for, but we had to take care of. In my mind, eating (refueling the machine) is placed near the same semantic area as other acts of ever-recurring “maintenance”: fueling up the car, taking showers (as mentioned on **Day 02**), paying bills, sleeping (though I do enjoy dreaming), and doing laundry<sup>48</sup>.

I don't wanna do my laundry!  
I don't wanna do my laundry!  
Why won't you do it for me?!  
Why won't you do it for me?!  
—From Weird Al's “The Compleat Al”

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<sup>48</sup>I'm sure I did laundry several times on the trip, but I can't remember doing it. I don't know if this is because I blanked this part of my life out (time doing laundry is still time *living*), or if it's because Sara, Andy's wife, did it for me. (Tack, Sara.)



To counteract our groggy state and the tedium of all our little tasks, we had the realization that we were in *Copenhagen, Denmark!* Home of Hans Christian Andersen<sup>49</sup>, Tycho Brahe, and Søren Kierkegaard! It was a mid-morning summer Sunday in Copenhagen, with the sun shining.

As it was in Duisburg, our time in Copenhagen was rationed. I called Andy Ekdahl (my friend in Malmö, Sweden, which was just to the East about 10 miles across the water on the other side of the Öresund<sup>50</sup>, the strait separating Sweden and Denmark), and he said he'd pick us up from the Bahnho. train station in Malmö in about 5 hours, which gave us about 3 hours to experience Copenhagen. Unlike Duisburg, I could see several natural paths leading me to revisit Copenhagen, so I decided not to make a total ass of myself. However, we still wanted to make the most of our time.

From what I could tell (given our rather limited experience), downtown Copenhagen seemed very walkable, with a long pedestrian mall full of vendors, street performers, and people walking, having coffee, talking, and reading. This, I thought, is how a city should be. Irvine could take a lesson from Copenhagen.



Gabe and I walked the length of the pedestrian mall, stopping occasionally to duck into a shop or grab a sausage on a bun. Eventually, we grabbed a table at a coffee shop with a great view for people-watching, and we sat, people-watched, talked, drank coffee, and wrote postcards. Since the view was interesting, I also took the opportunity to take a timelapse movie of all the people walking, having coffee, talking and reading.

The timelapse must've captured thousands of people. But it might not be as many as it actually seems. I'd be willing to bet, if one were patient enough, that they could go through the video and note several cases where the same person walked past the camera more than once. I'd go so far as to guess that some of the people in this

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<sup>49</sup>Among other stories, Hans Christian Andersen wrote *The Emperor's New Clothes*. In this story, The Emperor pays a pair of swindlers to make him a new set of clothes. The swindlers say that the clothes are made of a special cloth that's invisible to anyone who's stupid. Everyone then pretends to see the clothes out of fear of appearing stupid and because they believe everyone else sees the clothes (because everyone's pretending to see the clothes). In fact, the Emperor has nothing on at all.

<sup>50</sup>The strait is called the Øresund in Danish, and maybe the Ore Sound in English (like the Puget Sound by Seattle). I don't know what Øre/Öre/Ore means except that a 100th of a Danish/Swedish Krone/Krona is called an Øre/Öre (from the Latin word for gold "aureus"). But the Swedish word for gold is "guld".

timelapse were also seen by me and Gabe in Sweden (as we were in a touristy area, and we probably weren't the only tourists skipping along Scandinavian capitals).

I've always wondered what it'd be like if I could paint every person I've ever seen blue. Then, I might be in a coffee shop in Auckland, New Zealand, and a blue person might walk in. If I had perfect memory, I might be able to know that I saw that person in a crowd in New York City on Marcmas 3 years earlier. If I had even more information, I might know that I was that person's cousin's, father's, uncle's, step daughter's, son's, former roommate. Or maybe I'd know that this person was the architect for the bank building that I saw from an airplane flying from Boston to San Francisco. And also I passed this person on the interstate 2 years earlier while driving from Baltimore to Worcester, MA.

It's illegal (or rude, at least) to paint people blue, and my memory's not good enough to remember every person I've ever seen, but, conceivably, a computer could go through the timelapses and look for recurring people. Actually, Artificial Intelligence isn't to the point yet where it can consistently recognize unfamiliar people from different angles, but current techniques in AI *can* read license plates on cars (which as far as I can tell, (along with the type and color of car) is the only identifying thing people see of strangers in Irvine). Sometimes I'll notice the same car while driving to work and back. Usually the car will have some distinct feature. This makes me wonder how many cars I've missed. One idea would be to put a webcam on my car, hook it to my computer, then hook up some computer vision routines so that it would read license plates of cars as I'm driving. It'd then store the license plate into a database, and it would let me know, for example, that I saw the car that just cut me off at 11:23 3 days before and also at 20:25 2 weeks before.



Eventually, either we got bored or my camera ran out of memory/batteries (which seem to be the main stopping conditions for taking timelapses), and we quit the timelapse and started meandering through the city again. We ran into a British street performer, who was juggling on a unicycle. I felt a little sorry for him because he was putting on a decent show, but wasn't able to gather much of a crowd. (I think it was his choice of a performance area in the sun.) Gabe and I stayed to watch his routine, and Gabe even volunteered to help to hand the performer his torches. As I mentioned earlier, our meandering didn't take us past the statue of

The Little Mermaid, but I felt like the street performer was a better choice because there are plenty of pictures of The Little Mermaid, but the street performer was actually someone with whom you could interact. Well, at least Gabe could.

After the performance, it was time to catch our train that would take us over the somewhat impressive<sup>51</sup> bridge across the Öresund to Malmö to see Andy, whom I hadn't seen for a couple of years (when he came to visit Colorado).



Andy drove us from the train station to his house. Along the way, we stopped at a grocery store, in which Gabe and I were interested to see the little differences (and similarities) to the grocery stores we were used to in America. Along the ride, we finally got to see the area surrounding Malmö. I'd heard a lot about Malmö from Andy when he was in Colorado, but it was still quite a bit different from what I expected. I was surprised at the amount of unpopulated space surrounding the town. I was also surprised at how flat the land was. Andy told me that Malmö was in the middle of Skåneland<sup>52</sup>, the southernmost part of Sweden, and that residents of this area (called Skånes), were considered the "rednecks" of Sweden (compared to the sophisticates of Stockholm in the north). This also surprised me. I'd implicitly believed that "hicks" or "rednecks" were strictly American phenomena, but it makes sense. I've since read the play *Lysistrata* by the ancient Athenian playwright, Aristophanes, in which he depicts the Spartans as rednecks. In every translation I've read, Lampito (a Spartan woman) is given an American southern twang, and speaks in colloquialisms of the American South.

Since I'd last seen Andy, he and his wife, Sara, had had a baby boy, David, who was now about year and a half old. Andy, Sara, and David lived in an apartment complex a little ways outside the center of town. The people in the complex seemed friendly with each other. In fact, that evening, we went to a neighborhood cookout with Andy's neighbors. Andy's a pretty friendly, outgoing guy. He once told me a

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<sup>51</sup>At nearly 5 miles in length, this bridge is almost 3 times the length of the Golden Gate bridge in San Francisco.

<sup>52</sup>In Swedish orthography, "å" is pronounced like the "o" in "cold" as spoken in American English. I had a professor of physics at the University of Colorado who taught us about the ångström, a unit of (tiny) distance named after the Swedish physicist Anders Jonas Ångström (1814-1874). My professor said "I'm Swedish, and it's not pronounced "ayy-ngstrom", it's "ahngstrom".". An ångström is a 100,000,000th of a centimeter. Now, it'd be an honor to have almost any unit of measurement named after you, but I wonder if Dr. Ångström ever felt any ångst about having his distance being so small. I'd rather have the "pick" (from Pickett) be a unit of area-time equal to an acre-hour. Now, a farad, named after the English physicist (for some reason, they never name these units after politicians or professional basketball players) Michael Faraday (1791-1867), is a huge amount of capacitance, so big that people usually talk about microfarads ( $\mu\text{F}$ ).

story about taking the bus (as I may have mentioned, public transportation’s better in Europe than in Irvine): He’d ride the bus every day to work (or university), and eventually he noticed that almost the same set of people rode the bus every day (if only he’d been able to paint the passengers blue<sup>53</sup>). Andy was disappointed that none of the passengers talked to each other. He said he felt like standing at the front of the bus one day and announcing “Hi, I’m Andy. I’ve been riding this bus for the past 4 months. We should get to know each other.”. I never found out whether Andy actually did that, but this shows a bit about his nature, and might explain why he knew his neighbors so well, whereas I don’t know what my neighbors’ names are. (It could be a Swedish/American thing; it’s hard to tell.)



Despite being less than a year older than me, Andy has already made 3 major transitions in life that I haven’t: going from studying to working at a “real” job, going from being single to being married, and Andy is among the first of my friends (my age, at least) to have kids.

My goal in life is to build a robot baby. This is a little different from what might be considered the more direct goal of Artificial Intelligence: to build an intelligent being. The difference being that a robot baby wouldn’t be any more intelligent than a human newborn, but would learn about The World through its sensors and effectors, eventually tapping into the sea of accumulated knowledge known as culture to become a full adult intelligence. Building a robot baby is very hard. No one has succeeded even remotely. There are some systems that learn, but these all have their limitations. Andy and Sara succeeded where thousands of computer scientists, psychologists, philosophers, and cognitive scientists have failed, and they did it in less than a year using only a fraction of the hundreds of millions of dollars spent on AI research.

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<sup>53</sup>Speaking of blue people in Malmö: Andy told me another story of The Viking of Malmö. Malmö’s not huge, but it’s not tiny either. The city itself has about 270,000 people, and the metro area has over 600,000 people. Andy doesn’t know who The Viking is, but he has seen him 2 or 3 times. The Viking may as well be painted blue: The Viking is a young man with long hair and bushy sideburns coming out to here (hold hands a little less than shoulder width). Andy told me that several of his friends have also seen The Viking.

Not only that, but they produced sentience<sup>54</sup>, the ability to *feel* and be aware. Consciousness is one of the 2 Great Mysteries for me (the other being Existence). I've thought about consciousness for many hours and finally gave up. I couldn't even get a foothold on it. I decided that intelligence (as hard as it is to understand) would be simpler, and that it'd be better to first understand intelligence, and maybe this understanding would shed some light on consciousness. The reason that consciousness is so tough is that I have to take it *on faith* that other people (such as David Ekdahl) are conscious just as I am. I'd likewise take it on faith that if a machine mimicked what a human brain does neuron for neuron, then that machine would be sentient.

I'm still undecided on whether an intelligent robot would necessarily be conscious. The mind of an intelligent robot would probably have some major differences from that of a person. People came about because of evolution, and this process installed in people an innate Will for self preservation, for example. A robot I designed wouldn't necessarily have such a Will (unless I programmed it in). Without this Will, I could tear off the robot's gripper and throw the robot off a cliff, and the robot would *feel* none of the terror that a person would feel. If it were smart enough, it would come to the conclusion that it wouldn't survive the fall, but the robot would look at the situation with as objective nonchalance as if it were observing a cloud being whisked apart by the wind. I could give the robot goals, and maybe even a reward signal, but I'm not sure that the robot would *feel* pleasure when I set its reward signal to **high**.



Along with what I assume must be the unrivaled joy of creating and nurturing another human being, a continuation of the genetic wave of yourself, and thereby helping to fulfill the biological meaning of life (making you, in a sense, immortal), comes the responsibility of being entirely in control of the wellbeing of this person. When Gabe and I left on this trip, I simply left my furniture where it was, locked the door to my apartment, took my heavy bag and left for the airport. While we were in Malmö, I had no thought whatsoever about the furniture. I knew that when I returned, my

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<sup>54</sup>It's also a wonder to me that David didn't exist 4 years before that. The atoms that made up David did, but these are constantly being replaced, and it's doubtful that even half of the same molecules that made up David when I saw him will still be part of him 4 years from now. In reality, people are really "waves" of a sort: a pattern of molecules, though individual molecules can move into and out of this wave. A similar thing happens with traffic jams: cars move in and out of them, and the "wave" of the traffic jam moves backward against the flow of traffic. It's like Granddad's Axe: it's had 5 different handles and 3 different heads, but it's still Granddad's Axe. So, where was the "wave" of David Ekdahl 4 years before?



furniture would be waiting for me (perhaps with a fresh layer of dust). It's ill advised to take that kind of attitude with a baby.

Fortunately, the Swedish system is set up such that parents get a good deal of leave from work, so Andy, Sara, and David had plenty of time to spend with us. This is one of the upsides of paying 60% of your income on taxes.



David was at the point where he was just learning to talk. He seemed to understand a good deal more than he could speak. In fact, he was beginning to understand too much. With each new skill David learned, Andy and Sara had to adapt. When he learned to crawl, this meant that dangerous things had to be kept out of the entire area David was in. When he learned to walk, a table top was no longer inaccessible to David. As many couples might spell out words they didn't want their children to hear (such as C-O-O-K-I-E-S), Andy and Sara would simply discuss David-sensitive subjects in English (hoping that it would take a while for David to learn that). In the course of our stay, David already began to pick up some of the English that Gabe and I (and Andy and Sara) were speaking.

At 1.5 years old, David was already well beyond mine and Gabe's proficiency at conversational Swedish, but it was still nice for us to have someone a little closer to our level. At least that's what we thought. David, the learning machine, was picking up words faster than both of us combined. He said his first grammatical sentence ("Momma, sitta." = "Mom, sit.") while we were there, surpassing our knowledge of Swedish grammar. David's pronunciation was also much better. David had a fascination with large or loud vehicles. Whenever a motorcycle went past, David would shout out "motorr". This is Swedish for motorcycle, and in Skåneland, one should pronounce this with the "r" as far back in the throat as possible, almost like you're gargling. And this, David had already mastered. Our learn-Swedish-with-David backfired at least once though. David was still a toddler, and still had some baby-speak in him. For example, he'd say "ote" instead of "osten" for "the cheese". David would also sometimes enthusiastically say "bil" for car (short for Automobile, I assume), but the machine that fascinated him the most was traktorr (tractor, of course). When a tractor (or sometimes just a big truck) would appear in his field of view, the rest of The World would stop. And there would be only David and the tractor. Then David would come to his senses and realize there were other people

in the world too, and that they must also be informed of the awesome presence of...  
The Traktorrrrrr!



During highschool, Andy tried to teach me the song Eloise which was Sweden's entry for the 1993 Eurovision contest. Lest Andy sue me for libel, let me add the disclaimer that this would be the equivalent to teaching a non-English speaker to sing Britney Spears or a Spice Girls' song, and this song isn't the best to teach Americans, just the most amusing. At any rate, the song was too difficult for me. I got the first half of the chorus, but it would've taken some practice to get the whole thing.

David's songs were more at my level. Sara taught music and so had a number of musically inclined friends, one of whom babysat, and recorded an album of children's songs. One of the songs on this album was among David's favorite songs, and it also became one of my favorite Swedish songs<sup>55</sup>:

#### Klaras Hoppsång

Hoppa hoppa hoppa hoppa.	Jump jump jump jump.
Hoppa jag kan inte stoppa.	Jump. I can't stop.
Hoppa hoppa hoppa loppa.	Jump jump jump flea.
Jag känner att jag bara måste hoppa.	I feel like I just have to jump.



At the end of the evening, Andy and Sara made beds for us in the living room, on which we slept soundly.

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<sup>55</sup>My favorite Swedish song is actually "Du Skåne", which is beyond my ability. If you ever run into Andy, ask him to sing it for you. I'd recommend the "extra thick Skånes accent" style.

## Day 07: Monday, June 14th, 2004: Malmö

Malmö lies at a northern latitude of  $55^{\circ}35'$  (farther north than parts of Alaska) which means that, as close as we were to the summer solstice, the sun would rise quite early (about 6, while it set less than 7 hours before). So we felt surprisingly refreshed since the sun was shining brightly, and we awoke to the music of the “pitter-patter of little feet”. Again, it took me a while to get my bearings and remember that I was now at Andy’s place.

After a breakfast of cheese, bread, caviar, and coffee, we set out to see the town with Andy’s younger brother, Nils. I’d met Nils just over 10 years before when he came to visit Andy in Colorado. He’d changed since then. Nils now looked more like a Viking than the boy I remembered him being, with his brawny face and flaxen hair and beard. (He also seemed to be popular with the ladies as we found out when we were out on the town and ran into several girls he knew.)



Among the places to which Nils took us was a museum that had an exhibit about Palestine and Israel. It was interesting to see a different perspective on the conflict. Malmö has a higher percentage of Muslims than most parts of America<sup>56</sup>. The percentage of Jews in Malmö (and in Sweden in general (0.2%)) was also much lower than in the American East (at least 2.0%). So, the presentation put Israel in a darker light than most news sources Gabe and I were used to.



Unbeknownst to me and Gabe until this day, there was a major soccer tournament going on all over Europe. It was the 2004 UEFA European Football Championship<sup>57</sup>

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<sup>56</sup>A fair number of Malmö’s population are non-Swedes. In fact, the most common name for males born in Malmö is “Mohammed”, not a very traditional Swedish name. The number of Muslims in the area isn’t so huge (certainly less than 50%), but the Swedes themselves have a low birthrate, the Muslims tend to have high birthrates, and I’d guess that the variance for baby boy names is much higher for Swedes than Muslims (or people living in Sweden with Islamic heritage). In fact, “Mohammed” is the most common male given name in the world (and either “Chang” or “Lee” is the most common surname, but there are very few people named “Mohammed Chang” or “Mohammed Lee”). Therefore, I’ve been enthusiastic about Andy and Sara having more kids, thus increasing the number of Swedes and helping to keep up with the non-Swedes.

<sup>57</sup>UEFA stands for the Union of European Football Associations, so the full title for the tournament would be the “Union of European Football Associations European Football Championship”, which has the phrase European Football 2 times. I have 2 possible explanations for this seeming redundancy: either the UEFA has championships in other sports in other regions (e.g., “The Union of European Football Associations Zimbabwean Badminton Championship”), or people got so used to thinking of “UEFA” as an atomic chunk that they didn’t realize that

(or the Euro 2004), which is held every 4 years (in even years between World Cups), and is the 2nd most important soccer tournament in the world (after the FIFA World Cup, of course). Gabe and I decided we'd join Andy later that day in a pub to watch Sweden play Bulgaria in this tournament<sup>58</sup>. So Nils took us to a sporting goods store where we bought yellow and blue soccer socks<sup>59</sup>, and I bought a yellow and blue soccer shirt. Andy told us he'd be wearing his "SWEDEN" Boxers (blue boxer underwear with the word "SWEDEN" in yellow printed on the back), so we had to keep up.



After more Malmö sightseeing, Gabe and I (now wearing our new blue and yellow socks and shirt) met up with Andy in the pub. There was already a game on the screens: Denmark against Italy. The bridge over the Öresund (called the Øresundsbron, which was completed in 2000 at a cost of over €4,000,000,000) had made travel between Denmark and Sweden easier (despite the €32 toll each way). This might explain why there was a tableful of Danes rooting for their country's team (which eventually tied 0-0). As was Andy's nature, he struck up a conversation with the Danes. Danish and Swedish are largely mutually intelligible (especially in this region), and it seemed that virtually all Danes and Swedes between the ages of 16 and 60 spoke fluent English besides.

I've never really understood sports fanaticism. I was used to being surrounded by Broncos fans back in Denver, but unlike professional sports in America, the players on the teams in the Euro 2004 tended to actually be from the countries they represented. The Danish players were actually mostly Danes, countrymen to the fans rooting for their team. In the American system, players tended to simply play for the team that

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"European Football" was already in the name. I'd guess it was the latter, as I'm reminded of a similar phenomenon whenever I'm directed to an ATM *Machine* that asks for my PIN *Number*, when I'm asked for my scores on the SAT *Test* or the GRE *Exam*, or I'm asked to *Please RSVP* for the benefit to fund study of the HIV *Virus*. (The phrase "German 10 Deutschmark", which I used while writing about **Day 01**, is also redundant, being literally "German 10 German-Mark".) In Computer Science (as in many other fields) acronyms are so common that, while obtaining my Bachelors degree (in C.S.), we were impressed with anyone who could "expand" more than a handful of them (ASCII, ANSI, HTML, USB, SCSI). I was also surprised when I found out that the words radar, laser, scuba, sonar, and okay (OK, thought to be originally for "Oll Korrekt" (probably a deliberate misspelling)) were all acronyms.

<sup>58</sup>The game wasn't actually at the pub, it (like all the Euro 2004 games) was played over 1,000 miles away in Portugal. I still think it's interesting that we could've *driven* to Lisbon. The round trip would've been 1,800 miles and taken almost 2 days of straight driving.

<sup>59</sup>Gabe and I still wear these socks on special occasions. I don't wear the shirt much, as it's now too small. There are number of theories to explain this: the shirt shrunk, tighter clothes are more fashionable for heterosexual men in Europe than in the U.S. (which seems to be the case), or perhaps the argument most appealing to Ockham's Razor, I've simply put on a few pounds since then.

offered them the most money, and there was little correlation to where a player was from and which team they played for. In fact, many professional baseball players in the American league aren't actually American at all, but Dominican.

Social scientists have done experiments with children at summer camp where they assigned each child into 1 of 2 groups (say The Wolves and The Bears) via a coin toss. They tried different variations, even allowing the kid to watch the coin toss that determined his designation, but the results were always the same: the kids had strong loyalty toward their own group, and just as strong hostility toward the other group. The Danes at the pub, however, shared with each other and their soccer players a language, culture, upbringing, some genes (more so than they would with a randomly chosen Italian), and of course, they shared the same geographic region as “home”. If the Danish team won a game, then a Danish person could share in the pride. Maybe the thought's not nearly so explicit, but put into words, it might be, “Look! A person that has my traits just did something great! Therefore, *I* should be able to do something great.”.



But my motives for wanting Sweden to beat Bulgaria were a little different. I wanted the area I was in to be festive, and the people I was around to be happy. Plus Andy's enthusiasm for his team was contagious. So, maybe it was all just a case of The Emperor's New Clothes: everyone wanted Sweden to win, not because they genuinely cared about the results of the game, but because they wanted other people (who genuinely wanted the team to win) to be happy. But in actuality, perhaps there were no people who simply wanted Sweden to win.

This is a little like the current housing situation in Baltimore. Right now, it's fashionable to buy old dilapidated houses and “fix them up”. To do this, people install granite counter tops (among other measures). My theory is that no one actually likes granite counter tops, but everyone is willing to pay more for granite counter tops because it increases the resell value of the house. It increases the resell value of the house because people are willing to pay more for it.

This is also a little like what happens in the stock market (or even the “tulip market<sup>60</sup>”) on occasion: when people don't actually value a stock (or a tulip) for

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<sup>60</sup>In the 16th century tulips were introduced to Europe from Turkey. The tulips became popular in what's now The Netherlands, and a “bidding war” among members of the upper classes caused some tulip bulbs to reach very high levels. The most famous bulb, the *Semper Augustus*

its intrinsic worth, but because they believe (often rightly) that other people would be willing to pay more for it, but sometimes it turns out that *no one* is actually interested in the stock's (or tulip's) intrinsic value<sup>61</sup>.



During the Sweden/Bulgaria game, the feeling in the pub was also contagious. Apart from the Danes, and us Americans, it seemed that *everyone* in the fairly crowded pub had a strong emotional investment in the Swedish team's success. Strangers would hug each other after every goal made by Sweden. I found it a little touching, and it was impossible not to get swept up in this wave. Sweden eventually won 5-0 (which is a landslide as far as soccer scores go).

It was interesting that Gabe and I hadn't heard of the Euro 2004 until we got to Sweden. Neither Astrid nor any of her friends had mentioned anything about it. This is in contrast to the feeling at the pub where the Euro 2004 consumed the attention of everyone there. From the context of the pub (and later games in Germany and Brussels), it seemed like everyone in the world was focused on this tournament. The pub felt like "This is where everything's happening!", it felt like it was the center of The World<sup>62</sup>. As the song goes

When it's a rainy night in Georgia.  
It seems like it's rainin' all over the world.  
—Tony Joe White

In general, it's easy to be overly influenced by your particular context in time or place. If all your friends are students at the University of Colorado (somewhat of a party school), you can get the impression that all college students party hard every weekend (and that everyone your age is a college student). If you live your whole life in America without visiting other countries, it's easy to forget that not everybody's an American. A teenage boy in Santa Domingo, in the Dominican Republic, might think that the 2 most important values in life are being good at playing baseball and

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sold for a price equivalent to 40 times the average yearly income of the area at the time. This event is called "Tulip Mania".

<sup>61</sup>Gold is thought to be a "solid" form of money compared to fiat currency, but gold is almost groundless too. Gold is malleable, conducts electricity well, is dense, and chemically inactive. These intrinsic properties are sometimes useful, but not nearly enough to justify its high price. This price is the product of an ultimately circular belief that *other* people think it's valuable.

<sup>62</sup>From the observation level of the World Trade Center in Baltimore (not to be confused with the destroyed towers in New York City), you can see for miles and miles. You can see all the other skyscrapers of the city, the harbor, and the bridges far off in the distance. You feel almost like you can see The whole World. But this feeling dissipates when you think of all the places from where you *can't* see the World Trade Center. For starters, anywhere farther than a 50 mile radius. That includes all of Europe. Even in Baltimore, you can't see the World Trade Center from virtually anywhere indoors, or at the street level of most places outdoors.

dancing merengue. And it's still easy for me to "forget" that Brussels continues to unfold even when I'm not there.

The World is too big to fit into our heads. This is obvious if for no other reason than that our heads are in The World. So I can't keep track of Brussels if I'm trying to keep track of Baltimore. But on the other hand, I can keep averages in my head. From my experience, I have an intuition of what the average height of American men is (and it's wrong). If you asked me, I'd say it's about 5'11", but it's actually 5'9". My skewed perception is somewhat due to the fact that the average height of *white* American men may be 5'10.2", but the average for *Hispanic* American men (about 12% of American men) is 5'6.8". With the *de facto* segregation that happens virtually anywhere there are distinct ethnic groups, my friends and acquaintances tend to be less than 12% Hispanic. After doing the research, I can now recite the correct number, but when you ask me to imagine an American man of average height, unless I give extra effort, he'll be taller than 5'9". This is another example of the disconnect between our intuition and our more symbolic reasoning.

But height is easy. What about things like people's average values (i.e., what's important to people). In the Dominican Republic, Baseball is king. In Denver, it's football. If the Broncos lose the Super Bowl, it seems like worse news than a stock market crash in Tokyo (which, in reality has a larger long-term effect on the lives of Denverites). People's intuitions tend to be overly skewed not only by their place, but also by their time. The most recent events tend to have too much weight in most people's minds<sup>63</sup>. I'm now writing this over 2 years after the game in the pub in Malmö, and already the Euro 2004 seems to be overshadowed by the older but bigger 2002 World Cup, which itself is forgotten compared to the more recent 2006 World Cup<sup>64</sup>. Thus, it might pay to study History and Astronomy if for no other reason

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<sup>63</sup>This is why it's useful to wait a few years to make a historical assessment of a current event. It's also why it's useful to wait to write up a trip to Europe. The downside for both is that details get harder to remember as more time passes.

<sup>64</sup>I think of the overshadowing of events in memory as being like a road sign that gives cities and the distances to them. (Newspapers also use a similar strategy in reporting news. There are at least 2 factors: how "big" the event is, and the proximity of the event.) The only way a city can make it on the sign is by having a significant population or by being nearby. In fact, there's a sign at the beginning (at the eastern end) of U.S. Interstate 70 (I-70 for short) in Baltimore, that has 4 cities listed on it (with their distances from Baltimore in miles):

<b>Columbus</b>	<b>420</b>
<b>St. Louis</b>	<b>845</b>
<b>Denver</b>	<b>1700</b>
<b>Cove Fort</b>	<b>2200</b>

than to get a better idea of our time and place in the grand scheme of things. Or when feeling overwhelmed, it's useful to think of the following axiom:

No matter how great your accomplishments, nor how tragic your failures, there are about 1.3 billion Chinese who couldn't care less.

–Lazlo's Chinese Relativity Axiom

Jorge Luis Borges tells the story of The Aleph, which is a specific point somewhere on Earth, that a person can look into a see everywhere else in The World. In the story, when the narrator finally looks into The Aleph, it takes him pages to describe what he saw, and he still laments his "despair as a writer". "How, then, can I translate into words the limitless Aleph, which my floundering mind can scarcely encompass."

So, it's hard to have an "average flavor" of The World. This average is always biased by the most recent thoughts. It'd be even harder to have an average flavor of all of existence: the entire universe and it's whole history and future. There's a famous (and often copied) painting called the 3 Vinegar Tasters. 3 men, the Eastern philosophers Confucius, Buddha, and Lao Tzu, stand around a vat of vinegar. Each of the men has a spoon and is tasting from the vat. The vinegar represents the substance of The World, and each man's expression (sour, bitter, and happy, respectively) represents his general sentiment toward life and existence. Suppose you filled a jar with this substance. Suppose you could stir the entirety of existence, both the present and all of history, until it's thoroughly mixed, then scoop out a

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I sometimes wonder how those cities, and not others, were chosen. Following is a table of the biggest cities along I-70. (Cove Fort is the western end of I-70.) I've included the cities' populations, as well as their "Marc-index", which is the population divided by their distance. The idea is that a city's prominence (and thus whether it makes it to the sign) is proportional to its population, and inversely proportional to its distance:

	Distance	Population	Pop./Dist.
Pittsburgh, Pennsylvania	250	316,718	1,266.87
<b>Columbus</b> , Ohio	<b>420</b>	730,657	1,739.66
Dayton, Ohio	500	158,873	317.76
Indianapolis, Indiana	600	784,118	1,306.86
<b>St. Louis</b> , Missouri	<b>845</b>	352,572	417.24
Kansas City, Missouri	1080	444,965	412.00
Topeka, Kansas	1145	121,946	106.50
<b>Denver</b> , Colorado	<b>1700</b>	557,917	328.19
<b>Cove Fort</b> , Utah	<b>2200</b>	0	0.00

I'm wondering why, with a Marc-index of 1,307, Indianapolis didn't beat out St. Louis's measly 417. My only guess is that it'd leave too big a gap between Indianapolis and Denver. It's also interesting to note that Denver's roughly twice as far as St. Louis, which is roughly twice as far as Columbus. (Maybe the Marc-index should be inversely proportional to the *square* of the distance. After all, the apparent brightness of a star (or a light bulb) follows the *inverse-square* behavior. On the other hand, for practical purposes, the country is a surface rather than a volume, so the plain linear inverse still makes sense. Actually, reality is more complicated than any of these simple models describe.)



jarful. The jar would contain almost impossible juxtapositions. All the extremes of the human condition, *whatever's the lot of all mankind*, taking place in the same world. Sometimes, these events are happening at the same moment with different people. Sometimes at different times with the same people. I can't imagine what this substance would taste like. My context is too strong.

The power of context was brought home after we returned to America and we tried to find a place to watch the championship game of Greece vs. Portugal. No sports bar in Baltimore that I called had even heard of this event (much less did they plan on showing it). Finally, I found a bar in Washington D.C. that was charging \$20 per person to watch the game. We figured we'd just find out who won the game online the next day (it was Greece, who beat Portugal 1 to 0). I doubt that many of the people in Washington D.C. were concerned with whether Greece would defeat Portugal, or that many people in D.C. even knew there was a championship going on. The game was on the 4th of July, and if there was a common thought among the Washingtonians, it was the Independence Day parade and celebration. On the other side of the Atlantic, I doubt many Europeans had the anniversary of our nation's independence at the forefront of their thoughts. In this pub in Sweden at the moment, however, it felt as a list the most important issues in The World would have gone: World peace, The Euro 2004, The European Economy, Global Warming<sup>65</sup>.



Gabe is of Welsh, Norwegian, and German ancestry, and he might be able to pass for a Swede if you saw him on the street (or in a pub in Malmö). I'm of primarily German and English descent (with  $\frac{1}{32}$  Polish and  $\frac{1}{32}$  Frenchman<sup>66</sup>), and with my brown hair, I might be able to pass for an Englishman, German, Austrian, or Northern Italian<sup>67</sup>, but I'd have some trouble passing as a Swede. Because of this, a man at the pub said something to me in a language that was neither English nor Swedish. Eventually, I found out that he was a Polish man who had been living in Malmö for several years, and he figured I was one of the city's other 5,000 Poles. (Poles are the 4th largest immigrant group in Malmö, after the 6,000 Danes, 6,500 Iraqis, and 9,000

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<sup>65</sup>Actually, we can get a pretty good guess at what the issues were in the forefront of Malmö's by looking at the Malmö newspaper stories for the next day. The local importance of an issue roughly corresponds to its prominence in the paper.

<sup>66</sup>There are also rumors that my grandma had a distant Native American ancestor, which she vehemently denied.

<sup>67</sup>I was thought to be an Italian when I was in the Dominican Republic. For some reason, people didn't believe I was American.

Yugoslavians.) Sweden has one of the highest immigrant populations in Europe. In fact, some 20% of people living in Sweden have at least 1 non-Swede parent. This is partially because of Sweden's political climate which tends to favor liberal immigration policies. In the U.S., patriotism is viewed as a high virtue, and the American flag is omnipresent. Despite the displays at the soccer game, the Swedes are a little more timid about Swedish patriotism. Andy explained that Swedes tend to associate strong patriotism with racism and Neonaziism.



The game ended, and it was time to go “home” (yes, that is what Andy’s place had begun to feel like).

## Day 08: Tuesday, June 15th, 2004: Malmö

**S**weden is one of the most socialist countries in the world, and perhaps in line with that attitude, Andy's neighbors had all gotten together for yardwork: weeding from the communal flower beds, raking leaves, and tending to the flower beds. By the time Gabe and I got to Malmö, there were a few dozen large garbage bags filled with weeds, dirt, trash, and mulch that needed to be cleared from the communal yard. After breakfast, our first task for the day was to dispose of these bags. So Andy rented a large wagon/trailer that he hitched to his car, and into which we lifted the bags. The bags were so heavy that if you weren't careful with your grip, they would tear. We then hauled the bags to a landfill, and unloaded them there. The last major epic written in English about a Swede was Beowulf, and here's my attempt at topping that:

### **The Weeds: A Mini-Epic**

Andy, Gabe, and Marc had harbored hefty heaves.  
So they did embark to rid the yard of leaves.  
Of men of Malmö town, indeed amongst all Swedes,  
Andy's most renowned for decimating weeds.

Gabe, who was most feared by plantlife big and small,  
had hordes of hedges sheared, and vowed to bag them all.  
A Colorado gulch, is from where Marc comes,  
this mensch moved mishmashed mulch made of mismatched mums.

Bags were brought which bound the weedage in their sides.  
But these bags were found to have too thin of hides.  
A wagon (which was needed to bear the bags that held  
the refuse which was weeded) was by a "bil" propelled.

To wagon car was hitched without a hitch or snags,  
Into it they pitched those big and bulky bags.  
The heavy load was dragged by this "traktorr" to the dump.  
The weeds that they had bagged were thrown into a clump.

Now did it appear that they fulfilled their quest,  
since the yard was clear, and weeds were laid to rest.  
I've not seen such bravery or heroic deeds  
as when Andy "Oak-Valley" hauled those heavy weeds.



It seems that all the neighbors contributed roughly equally to the communal yard-work. In a somewhat socialist country such as Sweden, it seems like it'd be tempting for people to exploit the products of these policies such as the extensive welfare system. I'm not sure that the attitudes of Americans (or at least Baltimoreans) would prevent them from doing so, and I don't know what beliefs or value system enables the Swedes to escape from the Tragedy of the Commons. This occurs when there's a shared resource, and the actions that are best for each person aren't the actions that are best for the common good. For example, suppose a group of otherwise independent ranchers have a shared plot of land (in addition to their own private lot) on which they can let their cattle graze. From any individual rancher's point of view, it's always better to let their cattle graze on the shared land, no matter what the state of the plot. But if every rancher did this, the land would soon become so overgrazed as to be almost worthless. Each rancher is likely to do this because he figures that the land will become worthless anyway, and (to stay competitive) he must let his cattle graze on the shared plot without restraint. If all the cattle (and land) were owned by a single rancher, he could "ration" the shared plot to prevent overgrazing and thus ensure that the land would continue to produce a maximal amount of grass for his cattle. The tragedy is that the single rancher will do much better than the group of ranchers.

Another example of the tragedy of the commons is Goat Island. Suppose there's a tropical island with a number of goats on it, and that the island's covered with a kind of grass that the goats can eat. If the conditions are right (or wrong, rather), over the course of several generations, the goats will multiply and consume all the vegetation on the island until it's barren, at which point all the goats will starve to death. From each individual goat's perspective, it's taking the locally optimal strategy, which maximizes its own progeny in the next generation. Even if the goat were smart enough to realize that the island was doomed, it still might not change its strategy. The goat might reason (if it could reason) that it will be doomed whether it curtails its eating and rutting or not, since if it doesn't, the island will soon be populated by other goats that didn't curtail *their* eating and rutting. Therefore, the goat would conclude that it may as well "eat, drink, and rut, for tomorrow we go extinct". The tragedy, of course, is that the island had the potential to support a population of goats indefinitely, if the goats had all agreed to ration their resources.

The goats would need to create what amounts to a form of government. They'd have to form a pact where they all agreed not to overgraze or overrutt. There'd also need to be incentives for goats to keep from overgrazing (such as cattle-prodding for errant goats)<sup>68</sup>.

My first personal experience with the Tragedy of the Commons occurred when I lived in a house with 6 people (one of whom was Astrid) and 1 refrigerator. Through this experience, I realized why Communism would never work: Everyone realized that the refrigerator would usually be full, so when some space was cleared, then (like a run on the bank) there'd be a rush to fill it with each person's own stuff (and thereby stake out more refrigerator "territory"). For example, when space permitted, I'd buy twice as much cheese as normal just so I'd be guaranteed to have cheese in the refrigerator. Furthermore, no one took responsibility for certain things in the refrigerator (assuming that the item was someone else's) and those items stayed indefinitely as "dead-weight". Had we been more organized (or less lazy), we would have established a "refrigerator government" to keep this from happening. Or we could have had a more capitalistic system: give each person a quadrant of the refrigerator real estate, and let that person be responsible for it. In that case, we might have had the situation where one person's quadrant goes mostly unused while another person can't find room for all their stuff, so there'd still be waste. (Another way of dealing with "unaccounted-for dead-weight" would be to paint everything in the refrigerator blue (which is legal for food, unlike people) once a month. Then, every month, clear out everything that's blue.)



After hauling the weeds, I found out the answer to the question of why more people don't exploit Sweden's socialism when Andy treated us to a visit to a sauna by the Öresund. Although he never said as much, I assumed the sauna visit was a reward for our heroism and contribution to the common good. "But I didn't bring a bathing suit.", I pointed out. No need, the sauna would be "Finnish Style", which meant I'd be surrounded by nude Swedes. I was a little disappointed to find out that the sauna would be separated by sex. (Since arriving in Copenhagen, I found that there was a good deal of weight to the stereotype about Scandinavian women being the most

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<sup>68</sup>Stories of similar events happening with goats that were introduced to islands in the Galapagos inspired Thomas Malthus to publish *An Essay on the Principle of Population*[15] in 1798. Although some of the conclusions of Malthus's essay have been questioned, the Goat Island Gedankenexperiment is still useful in illustrating the Tragedy of the Commons.

beautiful in the world.) Andy’s brother Nils joined us at the spa. The sauna was kept at a nearly boiling  $95^\circ$  Celsius ( $203^\circ$  Fahrenheit), and the spa also had a “bathing” area in the waters of the Öresund which were probably around  $50^\circ$  Fahrenheit<sup>69</sup>. It was a somewhat chilly day, and our bodies welcomed the heat of the sauna. But after 10 minutes or so, Nils decided he’d had enough and it was time for a dip in the Öresund. Of this, Andy was a little ashamed: the Americans had outlasted a Swede in the game of “sauna chicken”.



Suppose you had to figure out a stranger’s personality. Suppose, also, that you could ask only 3 short-answer questions (which the stranger would answer honestly and accurately). What would those questions be?

Psychologists have developed a number of models for concisely describing a person’s personality. Given the complexity of people and the combinatorially huge number of possible people you could have, it’s not feasible to characterize even a single person *in full*<sup>70</sup>. However, we can get the “gist” of a person across with these models. For example, if you could describe a particular person (say, your best friend) with just 1 adjective, what would it be? How about 2 adjectives? What “percentage” of that person’s personality could you capture with just 5 adjectives? One of the more principled personality models uses a formalization of this idea called Principal Component Analysis (or PCA for short) or the generalized version called Factor Analysis. Basically, the psychologists will give a personality test to a large group of people. The questions will be multiple choice, and will ask things like “Do you prefer watching movies or going out to bars?” or “On a scale of 1 to 5, how important is family?”. There will be several hundred of these questions, and the psychologists will notice correlations in the answers. For example, if a person answers “true” to “Generally, I prefer reading in bed over playing football.”, he’ll be more likely to answer “true” to the question “Generally, I prefer tea to beer.”. Principal Components are also *statistically independent*. If you already had the answer to the question of whether

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<sup>69</sup>Celsius/Fahrenheit is another example of knowing something without having an intuitive understanding of it. I can know that the Öresund water is  $10^\circ$  Celsius, but I’d have to convert it to Fahrenheit if I want to have some intuition of how that *feels*.

<sup>70</sup>It was a great moment when I realized that I could never fully understand the inner workings of even something so simple as the mind of a rat in a lab. “What are its motivations? What is it thinking about?” This was inspiring because I didn’t feel so bad about not fully understanding human intelligence.

someone prefers reading over football, it'd almost be a waste to ask them about the tea/beer question.

Once these correlations are known, you don't have to ask all the questions to find out about a person's personality (which could take a lot of time). You could just ask a few of the questions, then use the known correlations to get a good idea of what the person's answers would *probably* be for the others. But some of the questions are more telling than others. Principal Component Analysis is a way of figuring out which questions (or personality features) would be most useful<sup>71</sup> for predicting people's answers to the other questions. The 1st of these features is called the 1st Principal Component, and it contains the most information about a person's personality, the 2nd Principal Component attempts to answer as much about the *remaining* unknowns as possible, and so on...

So what are the principal features of human personalities? The top 3, described as the Three Factor "P-E-N" model by Hans Eysenck[6] (there's also a 5 factor model[10], but it wasn't based explicitly on PCA) are called: Psychoticism (which is basically aggression), Extraversion (which deals with peoples desired level of stimulation, and is related to the relative likelihood that the person will tend to explore or exploit), and Neuroticism (which is how easy it is to put the person into a "negative" emotional state (e.g., anger, guilt, sadness)). Eysenck claims that there's a physiological basis for these traits<sup>72</sup>, and Psychoticism is directly correlated with a person's *testosterone* level<sup>73</sup>. Therefore, a question that might tell you some about a person's personality would be "What's your testosterone level<sup>74</sup>?"

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<sup>71</sup>Actually, Principal Components Analysis gives a set of the most telling "basis questions", which is a combination of all the questions (with some weighted more heavily than others). So, ideally, a psychologist would develop a few new questions that correlate highly with the basis questions.

<sup>72</sup>The physiological basis of these traits means that the theories can be applied to the personalities (animalities?) of other animals, such as dogs, cats, rats, and chimpanzees. (Frans de Waal, the author of *Chimpanzee Politics*, argues that chimpanzee personalities differ nearly as much as those of people.) The correlations of the P-E-N model were found on human subjects, though, so they *might* not be the optimal description of the animals' personalities.

<sup>73</sup>Another thing I think is interesting is how widespread testosterone is in the animal kingdom. Even bull sharks (which are separated from people by millions of generations of evolution) have testosterone *and it serves basically the same function: aggression*. This is interesting to me because, from a computational perspective, testosterone is basically just an arbitrary symbol. Unlike glucose (where the molecule actually has energy), there's nothing fundamental to most hormones that make them behave the way they do. My guess is that we could swap dopamine receptors and serotonin receptors, and the respective neurotransmitters, then serotonin would act like dopamine (meaning lots of serotonin would have the same psychological effect as lots of dopamine would have) and vice versa.

<sup>74</sup>You might not ask the stranger this because (as Sherlock Holmes may have) you'll have already picked up on cues about the person's testosterone level just by glancing at him or her. For example, if the person's a *him*, you can guess (with over 80% certainty) that he'll have a higher



Andy is the middle of 3 boys, and his family follows the same pattern as my own (I'm the middle of 3 boys too): the youngest Nils/Jason has the lowest testosterone level (we'll call this a "1"), Andy and I are a notch higher (we're "2"s), and our older brothers, Per and Matt, respectively, grew up being older, bigger, and dominant, and are a notch higher still (as "3"s).

Testosterone levels increase with success, and decrease with failures[3]. This makes sense from a computational point of view, as (in the words of Michael Mozer, professor at the University of Colorado specializing in artificial neural networks) "there's always a knob", which means that we can't be perfectly rational, so we have to have some *heuristics* or educated guesses. For example, some robots (or other learners) have a "knob" that adjusts how likely they are to explore or exploit. One view of testosterone is that it's a knob that controls the ratio of thought to action. It balances the adage "Look before you leap." with the adage "He who hesitates is lost.". If you act without thinking much, you're liable to make a not-well-thought-out decision. If you spend all your time thinking, you'll never act, and you'll let a lot of opportunities pass you by. So, you adjust your testosterone level based on experience. If you meet a success, you turn the knob up a bit ("That was good. Let's try being a little bolder."), and if you fail you turn it down a bit ("You need to put a bit more thought into it next time."). This uses an (evolutionarily) old trick for "automatically" adjusting internal thermostats, and the trick is seen throughout the endocrine and nervous systems.

Higher testosterone is correlated with higher competitiveness, and Per was especially competitive in sauna chicken. Per would never be the first to suggest leaving the sauna, no matter how unbearable it got. Andy just hoped that Per never went to the sauna with another Per. He imagined they'd both end up dead. Luckily, we were with Nils, so at Nils's suggestion, we all left the sauna and jumped into the Öresund. The water was well above freezing, but I wouldn't have believed that at that point. In the Öresund, there was little pretense of being comfortable: the water was *cold*, and after about 2 minutes, the idea of the boiling sauna started to seem like a comfortable prospect. So, back and forth we went sauna, Öresund, sauna, Öresund.




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testosterone level than 50% of the human race (namely, women). Men tend to be more aggressive as evidenced by the number of violent crimes, etc.. (As **my mom** would say "Well, no duh!".)



At the spa, I also ran into something of a rarity: a Swede who didn't immediately speak English as naturally as if he were from Nebraska. Unlike the stereotypical Parisian, who can speak fluent English, but doesn't on the grounds that everyone who visits France should learn French, the Swedes tended to have more understanding that it might be a bit harder for an American to learn Swedish than vice versa. This isn't to say that English is a simpler language than Swedish, just that, with only 9.3 million Swedish speakers vs. 377 million native English speakers, there are more opportunities for a Swede to be exposed to English than vice versa. This man was probably in his mid 70s<sup>75</sup>, so I suspected that he might not have known English (rather than that he knew it but was reluctant to speak it). However, I was later surprised at the number of "elderly" Swedes I met who spoke fluent English. Here, the issue was about the towels that the spa issued for people on which to sit their otherwise naked bottoms. On one of the trips out of the Öresund back to the sauna, in my eagerness to defrost, I'd left my towel on the hanger and was about to sit down, when this man unambiguously gestured that fact to me. (Maybe those chimpanzees weren't so isolated with their thoughts after all.)



After being alternately frozen and boiled for a few hours, we stopped back at "home" to change, met Nils back at his place for supper, then grabbed a movie on the way home. The video store was surprisingly similar to a video store you'd find in America. For the most part, the selection of movies was the same. Many of the Hollywood movies were subtitled, and (unlike in Germany) few of the Hollywood movies were dubbed. I suspect that this is one of the reasons for not only why Swedes are so fluent in English, but also why Swedes tended to have almost imperceptible accents. As part of our cultural experience, Andy found a specifically Swedish movie called "Skenbart: en film om tåg". It's English title was "Illusive Tracks". This movie, being a good example of a Swedish comedy, was a *dark* comedy. Indeed, I remember murder, conspiracy, and adultery, all during a train ride to 1945 Berlin. The movie wasn't bad, but being exhausted from moving mishmashed mulch, I soon fell fast asleep.

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<sup>75</sup>Sweden has one of the highest life expectancies in the world. The life expectancy at birth is 80.51 years, vs. 78.80 for Germany, 77.85 for America, 71.73 for the Dominican Republic, and a mere 32.62 for Swaziland.



## Day 09: Wednesday, June 16th, 2004: Malmö and Lund

“My dear fellow,” said Sherlock Holmes, as we sat on either side of the fire in his lodgings at Baker Street, “life is infinitely stranger than anything which the mind of man can invent. We would not dare to conceive the things which are really mere commonplaces of existence. If we could fly out of that window hand in hand, hover over this great city, gently remove the roofs, and peep in at the queer things which are going on, the strange coincidences, the plannings, the cross-purposes, the wonderful chains of events, working through generations, and leading to the most outré results, it would make all fiction, with its conventionalities and foreseen conclusions, most stale and unprofitable.”

–Opening of “A Case of Identity” by Sir Arthur Conan Doyle

There’s a reason behind everything.

–Craig Pickett



The World is a system of consequences. Every event is caused by a *conspiracy of events* before it, and, in turn, every event has a series of logical effects that follow it. Time is just one instance of the broader concept of causality. For example, I don’t have to remember that Skåneland is in southern Sweden if I know that there’s a bridge between Copenhagen and Malmö, and that Denmark is mostly to the south of Sweden. This is causality of space. It was this sort of reasoning that allowed me to deduce (instead of remember) that we had this day’s picnic before going to the Skånes Djurpark (or Scanian Zoo<sup>76</sup>) as opposed to after. This is because I know 1. that we had our picnic by the zoo, and 2. that no picnic basket would be able to keep lunchmeat fresh long enough to last through my stay at almost any zoo.

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<sup>76</sup>The word “deer” in English (a Germanic language, like Swedish) originally had the more general meaning of any 4-legged animal. So in German (also a Germanic language, go figure), the word for animal is *Tier*, and in Swedish, it’s *djur*. (Maybe this means that, for the English, a deer is the epitome of an animal, an animal’s Platonic form.) So the word for zoo in Swedish looks like “Deerpark”, or animal park. Sensible enough.

The Skånes Djurpark specialized in Scandinavian animals. So there were deer, bears, moose, and boars<sup>77</sup>. Andy, Gabe, Sara, David, and I enjoyed our picnic (after a hike) then entered the zoo. David and I had a similar fascination with the animals in the zoo, but I suspect for different reasons. When I was David's age, I wasn't thinking about evolution, ecological networks, or metabolic tradeoffs, but now I saw the zoo with a fresh "adult" perspective. The animals began to make even more sense (though still deeper mysteries remain).

Take the peacock's tail, for example. When I was 2, the peacock was fascinating for its brilliant colors and loud call (and that it was one of the few animals allowed to roam among the people visiting the zoo). But now I wondered how such an intricate design came about. There wasn't much conscious thought going into it. Rather, the peacock tail's design is an emergent property of the process in which a peahen mates with the peacock that has the "best" tail. The definition of "best" is a little tricky. The peahen (consciously or unconsciously) mates with the peacock whose genes will cause her male descendents to have the kind of tail so that future generations of peahens will mate with them. So this definition of "best" is recursive. Certainly, size and shine play a roll, but style also plays a part. For example, peahens might prefer a tail that's symmetrical over a slightly longer asymmetrical tail. I'm willing to bet that a long, shiny, symmetrical tail with a very different color-scheme wouldn't yield its owner very good reproductive results. So any tail that was very different from the status quo would be unlikely to be successful. On the other hand, a tail that was exactly the status quo would likely be outdone by a slightly longer or "better" designed tail. Countless pea-generations ago, this was grounded in fundamental fitness: going for a male with a longer or shinier tail made sense. A longer tail was a sign of being well fed, and a longer tail may have even had a functional use. But this process has resulted in a tail that's so long that not only is it not functional, but it's rather cumbersome for its owner.



Andy, Gabe, and Sara finally succeeded in luring me away from the zoo, and we drove toward the university town of Lund, just northeast of Malmö. Along the way, we stopped to walk through the Skånes countryside, then again to pick up Nils. Apart

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<sup>77</sup>Boars were a symbol of fertility for the Norse god, Freyr, and now I saw why: about a dozen boar piglets ("boarlets?") lay cuddled together in one of the enclosures, all from the same litter.

from being the home of the appropriately-named Lund University, Lund is also the home of the also-appropriately-named Lund Cathedral. This was our first stop. Every cathedral we saw in Europe was amazing in scale, design, and grandeur, but after seeing 7 or 8, they started to blend together. Despite their richness, the cathedrals tended to have some sameness about them (which probably raised my standards for what was required to strike me with awe). The Lund Cathedral, however, did have something different: an astronomical clock. The *Horologium mirabile Lundense* was built in about 1424, a quarter century before the birth of Christopher Columbus, and, having been restored in 1923, it was still working<sup>78</sup>.

The word “old” to a Coloradan might refer to stegosaurus bones (about 150 million years) or the Rocky Mountains (about 100 million years old, young compared to the Appalachians). But when applied to things created by people, such as buildings, “old” means anything built over 50 years ago. For example, the gold domed Colorado State Capitol building in Denver is *old*, being built “way back” in 1920. There are, however, some Native American ruins on the western slope that are *ancient*. For example, Mesa Verde was built by people that some call the *Anasazi* or “the ancient ones”. The prehistoric *Anasazi* left their cliff dwellings, but otherwise they seemed shrouded in mysteries lost to eons. The builders of Mesa Verde seemed so old, they may as well have been contemporaries of the stegosauri, and used them to haul their building supplies...

In reality, Mesa Verde was built around 1250 A.D., over a century *after* the completion of the Lund Cathedral. Lacking any form of writing or other way of recording history, the *Anasazi* were prehistoric, and I feel more of a connection to the Swedes and Danes who built this cathedral (despite living most of my life in closer proximity to the *Anasazi* ruins). In fact, the *Anasazi* are about as mystical, in my mind, as the ancient Egyptians (who are about 5 times as old). This is because the story of how the Lund Cathedral was built is well documented, as are the names of many of the people involved. There was King Eric I of Denmark (also called Ejegod or Eric “Evergood”), for example, who visited Pope Paschal II to make Lund the seat of an archdiocese, thus requiring construction of a cathedral. There is also

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<sup>78</sup>The clock kept track of not only the time, but also the day, year, phase of the moon, and where the sun would set. Furthermore, at 3PM (while we were there), the clock put on a mechanical puppet show of a nativity scene and autonomously played *In dulci jubilo* on an organ.

documentation (on Wikipedia<sup>79</sup> and elsewhere) of the ancestral line from this Eric I to the current Queen of Denmark, Queen Margrethe II, who is now living<sup>80</sup>. The present day Pueblo people are thought to be descended from the Anasazi, but the names of the individual people involved in the construction of Mesa Verde have been lost along with their stories and what they dreamt about. The Anasazi ruins were abandoned centuries ago, while the Lund Cathedral is still in use today, as it was in a continuous line back to Eric I.



Walking around Lund, we also saw rune-stones from Sweden's Viking Age. These were rocks, about 8 feet high, carved with pictures, designs, and runic inscriptions. I don't know what these rune-stones said, but similar rune-stones typically say something like "Harold, son of Erik, had me erected in memory of his brother, Canute.". The rune-stones were older than the cathedral, probably 10th or 11th century (or even before). Though many of these rune-stones were made after Sweden's conversion from Norse paganism to Christianity, they still seem to symbolize the Viking Age, when Norsemen raided the coasts of England, Ireland, Continental Europe, and even got as far as Spain, Italy, and inland Russia. A common prayer heard in England at the time was "From the fury of the Northmen, good Lord deliver us."

I doubt that most Swedes were Vikings 1100 years ago, but I still don't understand how a nation can go from this Viking culture to being a shining example of civilization. The former Viking countries are in the top places of the Human Developmental Index, which is a combined score for life expectancy, literacy, education, and standards of living. For the 2006 report (which was compiled with 2004 data) Norway was number 1 (of 177 countries), Iceland was number 2, Sweden was number 5 (after Australia and Ireland), "slacker" Denmark was number 15. (America was number 8, Germany was 21, The Dominican Republic was number 94, and Swaziland was number 146. Last place (177) went to Niger.)

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<sup>79</sup>I'll occasionally get stuck in a *Wikipedia Trap*, where I look up one thing, but find a whole set of interesting entries that I've always wondered about, each of these opens up another set of doors until I have up to several dozen tabs open, all "pushes" needing to be "popped". The longest Wikipedia Trap I've been in yet lasted over 24 hours. The range of subjects the trap covered was *wide*, partially due to the "6 degrees of separation" between virtually any 2 concepts. Fortunately, I'm finally starting to saturate Wikipedia. That is, I'll want to follow a link, but I'll see that I've already followed it.

<sup>80</sup>The lineage of the current British monarchy can be also be traced to Eric I: Alexandra of Denmark (a descendent of Eric's) married King Edward VII of Great Britain (the son of Queen Victoria), and was the mother of George V, who was the father of George VI, who was the father of Queen Elizabeth II.



We were taking pictures of the bouncy ball, Sammy Vasa, by the rune-stones when we dropped Sammy into the dirt, and David went chasing after it and put the dirt covered ball into his mouth (at which point Sammy took some “battle damage”). Gabe and I scrambled to retrieve the ball lest David ingest all sorts of “germs”, but Andy and Sara said not to worry. Their theory (sometimes called the Eat Dirt or Hygiene Hypothesis) is that by putting dirt (and other things) into their mouths, children get exposure to allergens at a young age. By doing so, their immune systems “learn” what are benign or naturally occurring microbes, so that when the child grows up, he won’t have an allergic reaction when he’s exposed to these. This sounds like a good theory to me. Kids have been around for millions of years, and presumably have been putting stuff into their mouths for at least that long. If the tendency to do this were a disadvantageous trait, it should’ve been bred out long ago. (At the Burghers’ Zoo, I didn’t notice whether the baby chimpanzees were constantly putting twigs into their mouths, though I’m certain that their mothers didn’t know about germ theory.)



After Lund, we left for supper at the house of Sara’s parents, Bengt and Kerstin. Bengt was a dairy farmer and had very recently decided to change careers. Until then, he’d worked *every day* for the past 20 years: holidays, weekends, and even “sick” days. He was the sole provider for his cattle, and if he were to take a day off, his cattle wouldn’t be fed or milked. Our dinner had milk that was from the last of this 20 year line.

I think it’s interesting that Sara’s dad actually produced stuff that you could touch, like milk and cheese. For most people I know (myself included), it seems that the connection between their work and a tangible good is much more vague. For example, I earn a living by lecturing in Computer Science and doing research in Artificial Intelligence. In return, I get tangibles such as a house to live in, a car (and gasoline), and food every day. Yet, it would take some thought to figure out how lecturing causes more cars to be produced: One track might be that I teach people, who then write programs to help people design processors, that allow for faster computation, so that a person can use Computer Aided Design to design an engine that a factory in Japan can use to make more cars using slightly less steel.

The Artificial Intelligence research, despite having potential to have profound effects, seems to be even further removed. Most people I know exchange services for services (e.g., “I’ll show you how to eat better if you prepare my latte.”), but where does the buck stop? When does it reach the ground where something’s actually produced?



Andy had done the right thing by going on an exchange. How much of a country’s character can you get by visiting only the tourist zones? On the other hand, how much of the national character (or Zeitgeist even) is in an individual? When Andy was in Colorado, he was the only Swede I knew, and it was virtually impossible for me to tell which of Andy’s qualities were “Swedish”, and which were Andy’s distinct characteristics as an individual. Now that I’d gotten to interact with many other Swedes, I began to get a glimmer of an answer to that question, but mine and Gabe’s experiences were too short with too few people to have more than a guess. It might be the case that any “national character” would be washed out by the strength of the individual’s character, but on the other hand, the national character wasn’t meaningless for Sweden. It’s an emergent property of the individuals and has very real consequences: for example, Sweden being #5 on the Human Developmental Index, despite relatively meager natural resources (compared to, say, #151 Zimbabwe, which has food shortages despite having some of the richest soil in the world).



After a huge supper at Sara’s parents’, we headed back home, chatted a while, then went to bed.



## Day 10: Thursday, June 17th, 2004: Malmö

**F**ish and guests have something in common, my grandpa used to say: after 3 days, they stink. As I mentioned before, Marc also stinks after 3 days if he doesn't shower. Fortunately, I'd showered, but we'd already stayed with the Ekdahls for 4 nights, when we originally had planned for only 2 or 3. We had toyed with the idea of going to Norway, but we were enjoying our time with the Ekdahls, and kept staying for "just 1 more day". If Andy or Sara (or David) thought we were getting a fishy smell, they hid it well.

Perhaps it was just a coincidence, but this day Andy had arranged a special treat for us: fishing the Öresund. Nils and Nils's and Andy's dad, Sven Erik, came along too. We chartered a boat, the Ekeskär (which is Swedish for "cut oak", and is pronounced "Ehk-eh-whar" with a puff of air on the "wh" and a proper Skånes "rrrr" at the end), with a Captain and a First Mate, and took off toward the Øresundsbron, which was as impressive underneath as it was from the side. We cast our bait into the water and waited. This reminded me a little of searching for a free wireless connection for my computer. There's always a chance that any one of us could catch The Big One, but all we could do was wait. Well, at least that's what I thought. Gabe and I both got several "bites", but it turned out to be lumps of seaweed. Maybe there was more skill to fishing than just waiting. By the end of the day Andy, Nils, and their dad had each caught at least 1 fish, but neither Gabe nor I caught anything (other than seaweed, of which we caught plenty). The score at the end of the day was Swedes: 4, Americans: 0. I'm pretty sure Gabe and I would've starved had this been our only way of finding food. On the other hand, the trip along the Öresund made for great views.



By the end of the fishing trip, we were sufficiently tired<sup>81</sup> that we decided to go home and watch England play against Switzerland in the Euro 2004. Andy donned his "football watching" outfit (the SWEDEN boxers and a fishnet tanktop), had a couple of friends come over, and we were all trying to decide which team to root for.

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<sup>81</sup>Not that we were actually doing anything apart from sitting in the windy boat. My theory is that the wind and excitement puts a person on "high alert", thus raising their metabolic rate, and causing them to be tired after a while.

The Swedes were considering England because their head coach, (Sven Sven Sven) Sven-Göran Eriksson, was a Swede.

10 years before, Andy had taught me a Swedish expression, and I wanted to see if I remembered it. In English, it translated to “Taste is like the butt, divided.”, which is the Swedish equivalent to the Latin phrase “De gustibus non est disputandum.” (Matters of taste shouldn’t be disputed.). Having never seen the expression written, I remembered it as “Smoken es la bocken, delot.”, which is a ways off the actual expression “Smaken är som baken, delad.”. This corruption might give some insight as to how human memory works, being more plastic than a standard computer’s memory. It also made me wonder how much cultural knowledge (linguistic, mythological, historical, and otherwise) “drifted” before writing was invented. With this phrase, I had little to “tie it down”. I knew the meaning of the phrase, and I also knew that “schmecken” meant “to taste” in German, but aside from that, it was a series of meaningless symbols to me. In this case, I had only myself to remember the phrase, but I’m not sure that I’d be accurate even if I had another person to help me. Both the other person and I might agree on the *wrong* phrase. So maybe this is how languages drift apart from each other<sup>82</sup> or maybe even how they form in the first place<sup>83</sup>.



After the soccer game, Andy’s friends left, and Andy, Gabe, and I continued an 11 year tradition by starting a game of RISK (a tactical board game, where the goal is to acquire armies and conquer the world). As friendly as we are in our non-RISK lives, we’re the opposite when we play this game. Andy’s known as much for his political maneuvering as he is for his battlefield strategy. Arnhem’s chimps had nothing on Andy when it came to Machiavellian coalitions, playing 2 ends against the middle, and making truces. A favorite tactic of Andy’s is to get 2 of his opponents to weaken each other, then come through and annihilate both.

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<sup>82</sup>My younger brother, Jason, and I sometimes practice German with each other, but without grounding, I’m not convinced that we’re not drifting a bit and making up our own German dialect (with our own pronunciation, vocabulary, grammar, and morphology), which is perfectly understandable to us, but maybe not very comprehensible to a native German speaker. (We *can* occasionally ground our vocabulary and grammar some with written German, but this still leaves our pronunciation floating.)

<sup>83</sup>The emergence of a spoken language, at least as a thought experiment, may be grounded. Perhaps language started as onomatopoeia (i.e., each word sounded like what the word mean). This would be the ground. The driving forces for development would probably be descriptive power, ease of use, and understandability. Thus, not tied to the ground, a great variety of languages emerged.

People I've met either seem to love the game of RISK or hate it. Maybe this feature, whether you love or hate RISK, can be viewed as one of the principal components of a person's personality. That is, perhaps love of RISK tends to correlate with love of gadgets, Star Trek and a general left-brained nerdiness. Thus, if I know that a person likes Star Trek, I might also guess that that person likes RISK, and telling me so wouldn't add much information.

I like RISK for a number of reasons, one of which is that a certain amount of RISK playing is useful. You can transfer some of the abstract concepts learned from playing RISK to real life. For example, you can waste a lot of time in life by competing when you're using your resources against a similarly committed adversary. In RISK, this happened when Gabe and I battled each other for control of the Americas while Andy sat back until we'd thinned ourselves out, and then wiped us both out. This same principle was behind the Cold War's arms race<sup>84</sup>. 2 companies (e.g., Coke and Pepsi) can also go into an "advertising race", where each company is spending huge amounts on advertising to out-advertise the other company who's trying to out-advertise the first company (like a hall of mirrors). I had firsthand experience with this when I wanted to advertise a room I had for rent. The University of Massachusetts had an extensive bulletin board to which you could attach flyers, but some people had put copious copies of their flyer on the board. This meant that if I wanted my flyer to be noticed, I'd have to add *even more* copies of my flyer, to which my "competition" (who might be advertising something of a completely different nature than rooms for rent, selling a car, for example) would respond by posting even more of their own flyers. The tragedy (like that of the commons) is that it would have been as effective if we'd both agreed to post only 1 flier, thus getting a lot more calls with a lot less effort<sup>85</sup>.

I also think RISK is interesting because when you have more than 2 players, "governments" emerge. The fundamental philosophy in RISK is "Macht macht Recht."

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<sup>84</sup>A more direct example of an arms race happens in RISK when players own adjacent territories and build up their armies on those territories because the other player is building up his armies.

<sup>85</sup>This is also an example of what economists call "Prisoner's Dilemma". The situation is that there are 2 captives accused of a crime, and they're put into separate rooms and both are offered this deal: "If neither of you confess to the crime, you'll both get 1 year in prison, but if you confess and your partner doesn't, you'll get off free, and he'll go to jail for 5 years (and vice versa if he confesses and you don't). If you both confess, you both get 3 years in jail." Assuming the partners don't care about each other, no matter what the other guy does, each partner will be better off if he confesses. But the "tragedy" here is that both partners will confess and both serve 3 years, when they could've gotten just 1 year each.

or “Might makes right.”. Ultimately, someone *will* end up conquering the world. Andy can make verbal treaties with Gabe, but it’s not in the rules that they need to abide by those agreements. However, a “government” emerges when Andy becomes more powerful than me or Gabe, but not more powerful than both of us together. At this point, Gabe and I will realize that we’re both doomed unless we might cooperate by forming a pact to pound on Andy at least until he’s not so powerful. There’s nothing in the rules of the game to prevent either player breaking the pact though. (Perhaps it’s the understanding of cooperation gained by playing RISK that keeps the Swedish socialist-ish system from collapsing.)



People who hate RISK tend to complain that the games are *long*. In fact, it was already well past time for bed, and our game wasn’t even half over.

## Day 11: Friday, June 18th, 2004: Stockholm

**Q**uite a few concepts come to mind when I think of Stockholm: Nobel Prizes, Stockholm Syndrome, beautiful land and beautiful people, long winter nights, and long summer days. Having heard about the “sophistication” of Stockholm: the capital of Sweden and the largest city in Scandinavia (with over 750,000 people in the city and 1,700,000 in the metro area), Gabe and I decided we’d check it out for ourselves for the weekend (thus also giving Andy and Sara a break from their visitors). Stockholm lies about 370 miles and a 4 hour train ride north of Malmö. On the ride, we slept off our wild RISK night and took in the Swedish landscape (which got hillier and more forested as we moved north).

It took us a while to get oriented in Stockholm. It wasn’t as confusing as Brussels, but it was bigger and our hostel lay a bit outside of the city center to the north. The street names weren’t easily pronounceable (or memorable) for anglophones, so Gabe and I started making up our own names for them: Rödbodgatan became Rowdy Roddy Piper Street, Strömgatan became Storm Trooper Street, and Kungsträdgårdsgatan became Kindergarten Street. Aside from the street names, Stockholm was extremely walkable (perhaps even more so than Copenhagen) with street performers, an even longer pedestrian mall than Copenhagen, and lots of museums. The parks were plentiful too. It was in one of these parks that Gabe and I saw a group of people playing a game with wooden pegs. After watching a while, we got the courage to ask them about the game, which they (a group of Stockholmers who worked together) were enthusiastic to let us play.



The game’s name was Kubbs. Basically, it’s played on the lawn where each team sets up a set of wooden blocks (called “kubbs” about half a foot high), and another block (the “king” that’s about a foot high) is put in the middle. Then, teams take turns lobbing cylindrical pegs at the other team’s blocks (without knocking down the king). There were a number of other rules as well. For example, if a team knocks down all the kubbs on the other side and still has pegs to throw, they can try to knock down the king (and win the game), but if they don’t knock them all down, the pegs are thrown onto their side and become “targets” for the other team. This turned

out to be a fun game, and our new friends offered us beer, which we welcomed. I wondered who came up with this game, or if it was an evolutionary process. Maybe, like Frazier’s idea about the development of songs I mentioned in the Dedication, Kubb started out as a game by a couple of bored lumberjacks, then rules were added by other people to make the game more interesting (or to patch up a “bug” in the rules).

Many games (and other systems, such as computer programs) are like this: you set up a set of “rules” that govern the dynamics of the system, then let the system operate with those rules, then you discover “bugs” in those rules and add new rules. For example, before 1954, there was no shot clock in basketball. Before then, teams realized that if they got ahead, they could “stall” to run out the game clock and win the game. This was against the “spirit” of basketball: it made for boring games. So a 24-second shot clock rule was instated: teams now had 24 seconds to take a shot at a basket. This resulted in higher scoring (and more exciting) games. Other “loopholes” have been exploited and patched so that the National Basketball Association’s rule-book is now over 40 pages long.

Legislation follows a similar pattern: there’s an idea of what you (or congressmen) want to accomplish, so they codify these ideas into laws, but invariably there’s some bug or loophole that someone will find and exploit, so further laws are created to patch up the “cracks”.



Life for the chimpanzees in Arnhem (and elsewhere) can also be thought of as a game of this sort. A few “ground rules”, or first principles, are set up by circumstance. For chimpanzees, they’re the rules of evolution. (The chimps that are likely to be around in the future are the ones who inherited the traits for survival.) The rules are those of the environment and the niche that the chimps are in. “Turn the mill’s crank” for these rules, and much of chimpanzees’ behavior emerges. For example, the chimps are living in trees, so they evolved some way of grasping the branches: hands (maybe it could’ve been claws). For another example, a chimp’s diet of leafy vegetables means that it needs to spend a lot of its time sitting around waiting for its stomach to digest the leaves (the plants have been evolutionarily “selected” to be hard to digest, and the better the monkeys’ stomachs get, the more indigestible the plants evolve to be) and have to do *something* while waiting (sleeping, running around, etc.). This is

probably why life isn't all about fundamentals for the chimps, because at this point, the fundamentals are as taken care of as they can be, and there's nothing left to do but "technicals" (like a good deal of their politicizing) that are only loosely grounded in what they need to do for survival.

Ants have a much different set of ground rules of what they must do to be successful. Because of the premises that ants reproduce using a queen (which, as described in *Journey to the Ants*[9], comes from the ants' peculiar genetics), and that ants are so small, etc., the ants' strategies for survival is quite different from that of the chimps. *The Private Life of Plants* (both a book[1] and a documentary series), again sets up the premises and constraints for success as a plant, then shows the strategies that plants have developed (via evolution) to succeed. All these systems of ideas set up a list of constraints and axioms, then show how these systems unfold and what is entailed by the constraints.



Food (and everything else) was expensive in Stockholm, so we decided to cook supper back at the hostel. After a trip to an underground supermarket, Gabe (who I've learned is something of a chef) had all the ingredients for a spaghetti dinner, and made our way to our new Stockholm "home".

We walked into our room and we suddenly felt like we were in a beer commercial. We had a 4-person room, and when we initially checked in, the other 2 beds were empty, but now we saw our new roommates: 2 sunny blonde girls in their early 20s. They were Finnish and were visiting Stockholm on an overnight trip. After chatting with the girls for a while, we decided it was time for spaghetti.

In the kitchen, there was an Italian man in his mid 30s who saw that Gabe was making spaghetti, and was excited to lend advice. It turns out that there's some truth to the saying that "too many cooks spoil the broth", as there was little integrity in the spaghetti dinner. We ended up with far too much of it, but it was so overcooked that people we offered it to preferred to spend large amounts of Kronor on the overpriced food outside. But by offering the food, we made a number of friends at the hostel, and soon had a group of people (that, sadly, didn't include the Finnish girls, who stayed in for the night) with whom to experience Stockholm's nightlife. (Strangely, most of the males in the hostel were American, Italian, German, or Australian, but all the girls seemed to be Scandinavian. My theory is that all of the American girls

were in Italy and Spain, and not in Scandinavia, because the Scandinavian women offered such stiff competition.)



Some of the Swedes who were familiar with Stockholm agreed to show our group around the local nightspots. So off we went in search of the best of what a Stockholm summer Friday night has to offer, stopping in bar after bar and club after club (after which, we were pretty well on). One thing that struck both me and Gabe was the Italian man's actions with the Swedish women. He was very forward, which seemed to put the Swedish women off. I've never been to Italy, but I suspect that Italian women might be more open to that sort of behavior. As a lady friend once told me "They say if you're a young woman in Italy and you haven't been whistled at for 10 minutes, you might want to check in the mirror to see what's wrong." (Andy had also mentioned that his Italian friends tended to be less reserved in general than his Swedish friends.)

Finally, the group of about 20 made it to a club with a dress code that didn't have Gabe's shorts on the "approved" list, so Gabe and I continued exploring on our own. Eventually, we made it to a bar that served absinthe, which is said to cause hallucinations. Gabe and I tried this, but in the words of the late comedian, Mitch Hedberg "I did not trip. I just got really drunk." The percentage wasn't anywhere as extreme as Amsterdam, but a good number of the people we met at the bars were fellow tourists: a fellow Coloradan, an Oklahoman, and a Dutch fellow by the name of Mark.



Eventually, we made it back to our hostel. The Finnish girls were "already" asleep (it was about 2 or 3 in the morning), and we soon joined them.



## Day 12: Saturday, June 19th, 2004: Stockholm

**B**y the time we awoke, the Finnish girls were gone, and Gabe had developed a bit of a cold. Many of our fellow group members were just waking as well, and so we compared notes about our different adventures from the previous night. (It turned out that the club that didn't like Gabe's shorts was actually pretty boring while still being expensive.) This would be our only full day in Stockholm, and there was a lot to see and do.

We headed downtown through the pedestrian mall (along with some of our new friends from the hostel). Eventually, Gabe and I split from the group to visit the Nobel Museum. This is located in "Gamla Stan" (the "Old Town" in the center of Stockholm), which is on the island of "Stadsholmen" on the Riddarfjärden/Stockholms-Ström waterway (the "fjord" connecting Lake Mälaren to the Baltic Sea).

I somewhat expected the museum to be fairly dull with pictures of ceremonies and rote facts like: "In 1923 Robert Millikan won the Nobel Prize for Physics. In 1948 Paul Müller won the Prize for Medicine.". But this turned out to be my favorite museum on the entire trip to Europe, and our visit was one of the trip's biggest highlights for me. The museum did, of course, have a list of who won which prize which year, but the museum was more of a monument to human creativity in general. It focused more on the winners' endeavors and their creative processes than on the pomp and circumstance of the prize itself. The museum looked at creative inspiration and the kinds of cultures that led to its heroes' great discoveries.

There were several exhibits dedicated to this purpose, the most inspiring of which was by the German pair of artists M+M called "Gutes Morgen, Dr. Mad!". This was a blend of film and computer animation showing a scientist in a floating laboratory

interacting with his creation, the “homunculus”. The scientist, Dr. Mad, was chanting about Zuse<sup>86</sup> and Leibnitz<sup>87</sup>:

Clever Pythagoras	think for us.
Clever Zuse	think for us.
Clever Nash	think for us.
Clever Leibnitz	think for us.

Dr. Mad then began interacting with his creation using dialogue from several science fiction stories: 2001 (my favorite movie),  $\pi$ , Blade Runner, etc.. This exhibit pointed out the unifying theme in these works (from Faust to Frankenstein): the will to create, to understand and master nature so that we can use it to further our cause.

It was at this exhibit and the factors surrounding it –Stockholm, the Nobel Prize, the pinnacle of modern science and thought<sup>88</sup>, all these geniuses– that I had almost a spiritual experience, or as an atheist<sup>89</sup>, as close to a spiritual experience as I get. I suddenly came to view human creativity and the accumulation of human knowledge as a huge collaborative project on which the great minds (some of whom were named in the room I was in) have already worked, and on which every living person could partake. I understood that there’s no fundamental difference between the great minds and myself or any other person. Pythagoras, Zuse, and Leibnitz were living, breathing people, not some mythical beings (just as Brussels, unlike Tatooine or Oz, is a real-life bustling city). (I don’t know if the exhibit’s designers would’ve predicted my reaction. I was so impressed by this exhibit that I later emailed M+M, who cordially sent me back the full script for Dr. Mad.)

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<sup>86</sup>Konrad Zuse (1910-1995) was a German computer pioneer who created the first programmable computer in 1941, and designed the first high-level programming language. Although not a Nazi himself, Zuse was a German citizen (and even asked for financial support from the Nazi government), and thus unable to collaborate with another great computer pioneer of the day, Alan Turing, who was working for the British government on breaking German cyphers. I view this as yet another tragedy of the 2nd World War. What a shame that these 2 countries (Germany and England) had to resort to so much bloodshed.

<sup>87</sup>Gottfried Wilhelm Leibnitz (1646-1716) might be considered the “Isaac Newton of Germany”. Leibnitz and Newton (1643-1727) were contemporaries and both developed Calculus independently of each other. Leibnitz, a first-class genius, also invented a calculating machine, the binary system, and had writings on politics, law, history, among a wide range of other accomplishments. The political situation in Europe was conducive to collaboration between Leibnitz and Newton, but instead, they just bickered over who really invented Calculus. So who knows if Turing and Zuse would have worked together. Had they been infantrymen on the battlefield, however, they would’ve tried to *kill* each other (knowing nothing about the other except that he was a soldier from the other country).

<sup>88</sup>I wonder what 10th century mainland European would’ve guessed that, 1,000 years hence, descendants of the “furious Northmen” who were raiding their coasts would establish the world’s most prestigious awards for Physics, Chemistry, Medicine, Literature, Economics, and (perhaps most ironically) Peace.

<sup>89</sup>I wrote a 10 page essay, called “Godless” about my experiences with Christianity, and why I’m now an atheist. Basically, our understanding of the brain eliminates the possibility of a non-material soul, which is a core belief of Judea-Christianity. Therefore, I conclude, we have to throw out the assumption of Judea-Christianity.



I've always felt a little guilty about not having a patent. There's kind of a Zipf distribution<sup>90</sup> in creation of ideas. Something like 80% of the thinking is done by 20% of the people. (This is a theme in the book *Atlas Shrugged*, by Ayn Rand.) I'd be willing to bet that 99% of the patents in the world are produced by 1% of the people, The Thinkers. So, I've basically been benefiting from the inventions of other people my whole life, and I feel that I owe some ideas in return. This is related to why I feel a little guilty about not *really* understanding how cell phones work. Sometimes I just take those devices for granted with little appreciation for the technology and genius that went into making them possible.



The Nobel Museum could've been much lamer if those who set it up had been much lazier. I was willing to pay the 40 Kronor (about \$5) entrance fee expecting much less. But the Swedes seem to have a sort of work ethic that causes them to take great pride in their occupation and view their job as an extension of themselves (as some people in Southern California might view their cars as an extension of themselves), as opposed to just treating their job as merely a means to make a living. While we were in Malmö, Andy, who was supposed to be on parental leave, kept heading back to his office to "clear a few things up". Andy was working on designing the interface for his company's cell phone, and he put himself into this. There was a certain amount of pride in Andy's voice when he told us about the usability of the cell-phone *he* was helping to design. I was beginning to believe that this pride in work was a more general Swedish trait.

Although there are plenty of exceptions, this universal pride in work certainly isn't the general rule in Baltimore. A number of years ago in that city, there was a parking meter right next to a fire hydrant. Not just barely within the 15 foot limit of where you're supposed to park, but *right on top* of the hydrant. One of Baltimore's local newspapers found out about this and called the city. It turns out

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<sup>90</sup>Zipf's law states that, "In a natural language (such as Swedish or English), the frequency of a word is inversely proportional to its rank in frequency." So the top 100 most frequent words in written English (*the, of, and, to, a, in, etc.*) will account for nearly *half* of the words in a written document (such as this one). A generalized version of this principle can be seen elsewhere: in America, the wealthiest 10% of the people own (depending on where you get your figures) from 70% to 80% of the nation's wealth. 90% of the productivity at company *X* is created by 10% of the workforce. You can reach 90% mastery of learning Swedish (or playing Kubbs, or being a Family Practice doctor (since most patients are the "common cases" that you quickly learn what to do about)) with the first 10% of the effort. This is also related to the Pareto Principle or the 80/20 rule: "80% of the effects come from 20% of the causes."

that the hydrant was installed after the parking meter. I can only imagine the scene when the hydrant was put in. The workers must've had to work *around* the meter. "Hey, watch that you don't bang your knee on that parking meter!". This is a pretty extreme example, but others abound: street signs are occluded by "No Parking" signs, pedestrian street crossing signals go off whether a pedestrian pressed the button or not, and the city will close a street without a thought of posting signs for a detour. I have the feeling that the people who installed the fire hydrant didn't think much about it after they got off work. I don't suppose they felt a sense of pride when they drove by it, thinking "*I* installed that fire hydrant.". I suspect that, if the workers *did* consider the contradiction that the parking meter posed, the attitude was that resolving it was "not my job", and they left it at that.



I'm guilty of this kind of ethic myself. For example, I once worked a job loading trucks in a warehouse where I kept watching the clock waiting for the shift to end so I could go home. If I could've just had the time sucked from my life (so that I magically found myself at the end of the day \$70 richer, but 8 hours older), I imagine I would've done that. That's virtually what I was doing anyway: sleepwalking through the job doing as little as possible to ensure that I got paid.

It might sound like a tautology (because it is one), but every second of our lives is our time to live. The World is a fascinating and explorable place. It has a plethora of patterns to be found and millions of mysteries ready to be unlocked for anyone with some brains, luck, and the curiosity to try unlocking them. Still, it's bigger than I can ever comprehend in my lifetime even if I spent every second optimally. Realizing this, it makes sense to make every second count (and never let *laziness* or *fear* influence our decisions). Even in my warehouse job, there was plenty I could have learned if I had taken a different attitude. This includes concepts like the "Just In Time" inventory strategy (to reduce warehouse storage), all the complexities of optimal routing, insurance, and the whole business end of warehousing. There was also more I could've learned about the subculture of my fellow warehouse workers. I was young, but many of my coworkers were much older and had been doing the same job for over 20 years. I didn't realize that this might be the most interaction I'll ever have with the "blue collar" subculture, and I didn't take full advantage of it.

If I could always keep an eye on the clock and the calendar, not waiting for it to end, like I did working in the warehouse, but like Gabe and I did while we were in Duisburg, treating every hour with full awareness of its finiteness<sup>91</sup>, then I'd be less apt to sleepwalk and I could live a fully inspired life.



The bulk of the rest of the day was spent wandering about Stockholm, taking in the city, finding affordable things to eat, and going to various other museums. For example, there was the Vasa Museum, which housed a previously sunk 17th warship called (you may have guessed it) the Vasa. The story of this huge ship is that it was loaded with an intimidating 64 guns and set out on its maiden voyage. It hadn't gotten much more than a mile before capsizing due to a gust of wind and being top heavy from all those guns. The Vasa lay on the bottom of Stockholm's harbor for 3 centuries until, in 1961, a team of ships, divers, and engineers succeeded in lifting the ship from its would-be grave. Seeing the sheer bulk of this ship along with all the sculptures, carvings, and other adornment, with a representation of how the ship (and ornaments) would have been painted originally (brightly), I couldn't help but wonder how awesome it must've been to the 17th century Stockholmers who saw it go out into the harbor. Originally, the Vasa had been designed with just a single gun deck, but the King insisted on having 2 (probably to the protests of the ship's builders<sup>92</sup>).



Our museum hopping also brought us to the Nordiska Museum, which was both mine and Gabe's least favorite museum of our European trip. I don't think it was anything to do with the design of the museum, but the content: clothes and furniture, *lots* of clothes and furniture. The history and design of furniture was interesting, but it just couldn't get out of the shadow of the noble Nobel or the awesome Vasa. Furthermore, there were a few improvements in materials and manufacturing techniques that caused design changes, but for the most part the clothes and furniture seemed to be following the seemingly arbitrary esthetics and fashion of their eras,

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<sup>91</sup>Of course, there's the saying that if you lived every day as if it were your last, then you'd never do laundry (because who wants to do laundry on their last day). But my recommendation isn't to treat each hour as the last, just as the *only* time you'll get to experience that particular hour.

<sup>92</sup>One can draw parallels from the Vasa to the Titanic or the 1986 Challenger disaster: the engineers wanted to delay take-off until the weather got warmer, but political pressure (such as showboating the Teacher in Space Program) caused the shuttle to be launched prematurely.

as opposed to functional design. The Swedes say “Smaken är som baken, delad.”, but I say form should follow function<sup>93</sup>. Visiting the Nordiska was like watching a *timelapse* of changing fashions, which made me realize that inertia in fashion is like putting multiple hamsters in a hamster ball.

If you put a single hamster in a hamster ball, it will decide where it wants to go, and go in that direction. If it sees an obstacle or that it’s about to go over a cliff, it’ll stop. If you put 2 hamsters in a hamster ball<sup>94</sup>, they’ll start climbing in various directions and the hamster ball will rock back and forth, but it’ll stay put until the hamsters eventually wind up going in the same arbitrary direction. At this point, the hamster ball will start rolling, and both hamsters will keep going in that direction because if one of the hamsters stops, it’ll be tossed around in the ball. So, if the ball comes to an obstacle or a cliff, it’ll hit it with full force<sup>95</sup>. Without explicit coordination or an objective “ground” guiding the hamsters, their direction, like the direction for the design of a peacock’s tail, or for much of fashion, is largely arbitrary.

But the fashion of these clothes and furniture isn’t *entirely* arbitrary: it’s designed by the collective mind of consumers and designers to be “neat”. The peacock’s tail wasn’t arbitrarily designed either. It was designed by the somewhat *limited* mind of the peahen. Peafowl have to be somewhat economical with their brainspace, one of the reasons being that brains have a high metabolic cost (that could be “better” spent on flashy tails).

From my work in robotics, I can say that perception is a tricky computational problem. Like gravity, our perception is so omnipresent that it’s easy to assume that it takes little effort. It’s not until working with a robot’s perceptual system or image processing that one develops an idea of how difficult perception is. The task of simply taking an image and identifying the objects in it can be tricky (and, to date, no one has figured out a foolproof way to do this autonomously as well as a person’s

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<sup>93</sup>Actually, the form of these clothes and furniture *does* follow a function: to be fashionable, which means to be a step “ahead” of the current fashion. This follows a similar hall of mirrors that designed the peacock’s tail.

<sup>94</sup>I’ve seen this happen firsthand, in my 9th grade English class, which had a pair of pet hamsters and a single hamster ball

<sup>95</sup>A lot of work presented at conferences in Artificial Intelligence (and other fields, I’m guessing) falls into this hamster trap: someone will do very thorough work on something totally irrelevant to actual Artificial Intelligence because they’re building on the work of someone who’s building on the work of someone who thought that his or her work *might* have something to do with AI. In my opinion, many AI conferences have a lot of work that’s so mired in the details of either an arcane mathematical formalism or a specific application that they forgot that the conference was about Artificial Intelligence to begin with.

perceptual system can). This is because, fundamentally, perception is a problem of “Squiggly Lines”.

To illustrate what’s meant by a problem of “squiggly lines”, suppose we wanted to create a robotic bumblebee. Further suppose, by some miracle, we were given the entire bee and we just had to program its “brain”. The bee’s compound eye is really just a set of light-sensors. Basically, each “surface” reports a value proportional to how much light’s striking it (and different surfaces might be sensitive to different colors). Unless we explicitly “tell” it, our robot doesn’t know what its sensors mean. It just has the sensor readings over time, which look like a bunch of *squiggly lines* if you plot them out. Suppose I gave you plots of these sensors’ readings, but I didn’t tell you which sensor was which. Suppose I didn’t even tell you that these are light sensors from a robotic bumblebee’s eye. As far as you would know, these could even be readings from (a simulation of) a mobile robot in a 5 Dimensional world. From this perspective, it’s very difficult to tell the difference between the squiggles produced by a flower and the squiggles produced by a female bumblebee. The bumblebee’s perceptual system has 2 limiting factors. The 1st is that its compound eye isn’t sophisticated enough to tell the difference. The 2nd is that a significant amount of computation is needed to tell the difference. Although it’d look silly, we could give the bumblebee human eyes, but there’d still be the problem of processing all that data. The bee’s tiny brain couldn’t do it. (Our own visual processing system (the visual cortex) is many times the mass of a bee.)

The Bumblebee Orchid (*Ophrys bombyliflora*) takes advantage of the limited perceptual systems of male bumblebees. It’s flowers “look” and smell like fertile female bumblebees. That is, the flowers have the rough shape and coloring of female bumblebees, but other than that, they don’t actually look very much like female bumblebees. (I can’t say how similar they *smell* like them.) With a glance, a person can easily tell the difference between a bumblebee and a Bumblebee Orchid (though I have trouble telling males from females because of *my* limited olfactory perceptual system). However, they’re good enough to trick the “low resolution” compound eyes and tiny brains of the randy males, and the male bumblebees attempt to copulate with the flower, picking up and dropping off the flower’s pollen so that *the flower* can mate successfully.

So what does this have to do with peahens (and what does it have to do with fashion and the Nordiska Museum, for that matter)? I'm getting to it. A peahen's perceptual system and brain is much more sophisticated than that of a male bumblebee, but it's still limited (as is ours!). Bird's perceptual systems are particularly good at finding eyes. A number of butterflies and moths such as the Common Buckeye Butterfly, and the Promethea Silkmoth (*Callosamia Promethea*) take advantage of this by having eyespots (because eyes are a giveaway that something's animate). These look a lot more like owls' eyes than the bumblebee orchids looks like bumblebees, but a person can still easily tell the difference. (Though birds might not be able to tell the difference, or they just might not stick around long enough to find out.) So, I assume that, like other birds and even some insects, peahen's brains are good at recognizing eyespots. That is, eyespots have a special place in the perceptual system of peahens. So I'm guessing that eyespots are so prevalent on peacock tails partially because of their special place in the perceptual systems of peahens. Another (not incompatible) reason is that eyespots were originally useful for the peafowl (as they are for the Buckeye Butterflies), and the genes got "recycled". (The former reason at least seems plausible to me, and is the point that's relevant to the changing fashions at the Nordiska Museum.)

Until he retired, my godfather worked as an engineer at the Ford Motor Company in Detroit. He'd bought one of their new models, and said that although Ford's model was more aerodynamic, Chevrolet's competing model had higher sales because people "didn't like the way the Ford model *looked*". There's a way that people develop their tastes in cars. People see both the designs and the performance of fish, jet fighters, and cars. After a while, people develop an intuition for what kinds of features (e.g., sleekness) make for a high performance thing-traveling-through-medium. People then associate these features with their performance. So, without ever having taken a course on aerodynamics, people can eyeball a car's body design and tell you (with better than random accuracy) whether it will outperform some other body design. This is in contrast to the more *analytical* conceptual system of car design which is what the designers at Ford use when they apply equations and principles of aerodynamics to come up with a more exact answer for how aerodynamic the car is. In reality, most systems in our heads (and in the heads of the designers at Ford) are both intuitive and analytical.



This, I believe, is the basic principle of how tastes are developed in general. Like peahens, our perceptual abilities are limited (where we can't tell a car's drag coefficient just by looking at it). So, we have to develop associations of features to "value" (speed or performance in the case of cars) so that we have an intuition to give us some idea of the value.

Suppose I want to evaluate a piece of clothing. For instance, I have *fundamental* criteria such as how comfortable a shirt'll be, whether it'll keep me warm on chilly days, and how difficult it'll be to wash it. I also might be concerned with how it will *look* (or how I'll *look* in it), and I won't be looking at myself much. So I'm really concerned with associations other people will make of me when I'm wearing the shirt.

Now, there's one more factor of taste: associations made of people based on their appearance. One can take a Holmesian approach and use logical reasoning to deduce things about a person from their appearance<sup>96</sup>, but we don't have enough time/brainpower to do this with every person we meet, so we have to rely on our intuitions (or associations developed through experiences), just as we might in determining how "functional" a car will be just from eyeballing it.

Some associations are formed from "fundamentals". If I see a picture of a person wearing a heavy coat and hat, I'll "guess" that the person's somewhere cold. This is because a heavy coat keeps you warm regardless of the coat's social context. If a person's wearing glasses, they probably don't have perfect vision without them. Fundamentals are pretty easy, at least compared to what I'll call "technical<sup>97</sup>". These

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<sup>96</sup>Sir Arthur Conan Doyle based this aspect of Sherlock Holmes on Joseph Bell, who was Doyle's real life teacher at the medical school of Edinburgh University. Bell would frequently deduce things about strangers, such as their job, merely by reasoning from superficial observations.

<sup>97</sup>The origin of this term is from fundamental vs. technical analysis of the stock market. A pure technical analysis of a company's stock looks only at the "trends" in the stock's selling price. Books are written about how to "predict" what a stock will do given *only the history of the stock's price*. Generally, if a technical investor predicts that the stock's price will raise, he'll buy, and sell if the technical analysis predicts the stock will drop. In its most extreme form, a technical analysis wouldn't even look at what the company *does*. A fundamental analysis is at the opposite extreme: it will ignore the history of the stock's price, then make a prediction of the company's earnings (and dividends) based on factors such as what capital the company owns, the "quality" of the people working for the company, and whether the current economic situation means that people will want to buy the company's goods. You can then assign the stock a fundamental value based on the expected dividends and interest and inflation rates. (For example, if you expect a share of Bifislurf Inc. to yield \$5 in dividends over the next year, and the inflation-adjusted interest rate is 5% per year, then a share of Bifislurf Inc. would have a fundamental value of about \$100, because that's how much money you'd need to put in the bank to get \$5 of interest in a year.) Generally, a pure fundamental trader will buy if the stock's current price is (significantly) less than its fundamental value and sell if it's price is higher. An interesting thing is that if everyone invested solely on fundamentals, the plot of the Dow Jones Industrial Average would be much smoother, practically flat because it'd only reflect "real" changes in the companies' values. (Tulip Mania also would've never happened if the tulip traders used only fundamental analysis. Tulips have little intrinsic value.) In reality, most traders use results from both fundamental and technical analyses.

don't have to do so much with the intrinsic properties of things, but more with what the thing means for other people. With clothes, technicals would be "ornamentation"<sup>98</sup>, such as printed designs, the particulars of the cut of the fabric, and "flair".

So, how do technicals and intuitions formed about technicals work to influence fashions? Take bell bottom pants, for example. The theory is that attractive people originally started wearing bell bottoms. (The reason for doing so may have been to distinguish themselves from "the masses", or perhaps for the same reason very fit gazelles will flaunt their fitness in the face of approaching lions as if to say "Don't waste your time chasing me, look how fit I am.".) Then people began to associate bell bottoms with being attractive. Then, (knowing about this association (or having the association themselves), and maybe it's not explicit) less attractive people began wearing the bell bottoms so the association would be transferred to *them*. Eventually, so many unattractive people started wearing them, that *after a lag*, the association became extinguished, and there was little reason to wear bell bottoms.

The book *Freakonomics*[13] talks about similar trends with babies' names: people of high Socio-Economic Status<sup>99</sup> (or SES) start naming their kids with a particular group of names. Then, the trend catches on because other people see that "The Beautiful People" are called by these names. Thus, people (from lower classes) form the association from the name (a nearly arbitrary symbol, practically) to the person's SES, and name their own kids with that name. Eventually, the name becomes "common", the association is extinguished, and the upper classes find new names.

This association from technicals to fundamentals might be why people have certain tastes in food. Oncologists have long known that you can cause people to develop a strong aversion for almost any kind of food simply by putting their chemotherapy medicine in it a number of times. My theory is that you can similarly cause people to like just about any flavor by creating a fatty food with that flavor: I remember the first time I had the Greek candy *halvah*. My friend, Charles's, mom, Zabia (who's

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<sup>98</sup>I'd guess fashion designers spend 99% of their thought on technicals. Ornamentation has its own abstract (and often intuitive) "rule system" as well. Like the peacock, you can't stray too far from the status quo. The "fundamental" problems of clothing are pretty straightforward. Like the stock market, if clothes were designed only by fundamentals, fashions would hardly change at all. (Changes would only be with innovations such as with materials and manufacturing techniques, and with changes in what people use the clothes for. For example, a much lower percentage of Americans farm than was the case a century ago, so the average American doesn't need clothes designed for farm work.)

<sup>99</sup>Although there are arguments to the contrary, I'll assume that we agree that wealth or Socio-Economic Status is generally an enviable quality. My only argument for this is to consider what the average income is for people who are on the cover of *People* magazine (or the cover of most magazines).

father was Greek), offered it to me. Despite its taste, which I would've described as awkward but not *bad*, I ate it out of curiosity and politeness. I had halvah several times after that, and soon developed a taste for it. Once, I found some commercially packaged halvah, and I read the label: halvah's made from crushed sesame seeds, and is about 20% fat and 60% sugars by weight. My theory is that fundamental "yumminess" is mostly fat and sugar, and that eventually we (or our taste buds and the associated brain areas, to be precise) associate the flavor with the fat and sugar content.

Another example of fundamentals and technicals: Flugtag is a contest/event sponsored by the Red Bull company in which teams build non-motorized flying contraptions and launch them (carrying one of their members who is the "pilot") off a 30 ft. high ramp into a pool of water. The teams are judged primarily by 2 criteria: 1. the distance flown before landing in the water, and 2. the "creativity" of the contraption's design. If it weren't for the 2nd rule (which I'll call the "technical" rule), Flugtag would be a much more boring event. What would happen, I predict, is what happens with a myriad of other "purely fundamental" pursuits. Initially, there'd be a broad range of designs, but eventually one of the designs (or its basic principles, at least) would emerge as the "optimum", and most entrants would be minor variations on this optimum. Take airplanes, for example. After the Wright Brothers' success, there was a blossoming of all sorts of crazy designs. Take the Langley Flyer, for example. It actually predated the Wright Brothers' Flyer by several years. It's full scale model was never fully capable of sustained flight, but the smaller models had some success. The interesting thing is that it looks completely unlike any airplane I've ever seen. By World War II, the basic body of the airplane (with a single aerofoil wing) converged to what's still used by commercial jets. A similar process happened with locomotives, automobiles, and computers. Thus, Red Bull's 2nd rule explicitly puts a limit on the kind of convergence that would otherwise happen.



So far I've been focusing on the *design* of the peacock's tail. There's also another factor, and that's the *resources* attached to it. A nice peacock tail is expensive (in terms of what the peacock has to devote to it as far as food and preening). A large peacock tail is also cumbersome. The analog of peacock tails for people also has a cost associated with it. So fashionable clothes tend to be *expensive*. There's some time

investment you need to make to learn the hip slang (or jargon even) for a particular group. (Such a group might be called a “Shibboleth Club<sup>100</sup>”.)

In Victorian England, being able to quote in Greek would get you respect, despite the fact that Greek’s practical “survival” value was low. Greek did have survival uses on occasion, however. Initially, learning Greek was useful because it allowed one to read ancient texts. After a while, (as translations became plentiful) reading Plato took a back seat to *appearing* educated. In fact, a peacock’s tail gets the peacock peahens *because* it has a negative fundamental survival value. It shows the peahens that the peacock has resources to spare<sup>101</sup>. Other “peacock tails” include being good at basketball, being a good RISK player (in some circles), being well traveled (which also has some practical uses), buying expensive tulip bulbs (in Holland in 1636), and wearing mink coats<sup>102</sup>.

Neither basketball nor RISK have value in and of themselves. Up to a certain point, skills and general lessons learned from these games transfer to “real” tasks, but after that point, the skills become pretty specific. It’s a rare occasion outside of basketball where it’d be a useful skill to be able to consistently throw a sphere into a foot-wide ring 16 yards away, but teams in the National Basketball Association would pay millions of dollars for such a person to “work” for them (the distance for a 3 point shot is just under 8 yards, and such a person would be able to shoot from as far back as half-court). The star basketball player (of even a highschool or college team) is an envied individual.

Peacock tails takes different forms in different cultures. In the Dominican Republic, it’s baseball and merengue. In Victorian England it was learning Latin, Greek,

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<sup>100</sup>This term comes from a story in the Bible that documents one of the several cases where the Hebrews commit genocide. In Judges 12:5-6, 42,000 people lost their lives due to an accent that made them mispronounce the word “Shibboleth” (or שְׂבֹלֶת “an ear of wheat” in Hebrew).

Then said they unto him, Say now Shibboleth: and he said Sibboleth: for he could not frame to pronounce it right. Then they took him, and slew him at the passages of Jordan: and there fell at that time of the Ephraimites forty and two thousand.

–Judges 12:6

<sup>101</sup>An ironic twist here is that an extreme peacock tail could theoretically lead to the extinction of a species. If a peacock spends all its resources on its tail, it spends less on “survival” value. It might be forced to spend more on its tail than what’s valuable for it because of how much *other* peacocks are spending on their tail (another arms race). It’s my theory that this has some explanatory power about why the Dominican Republic is so poor as a country: the peacock tail level is high. There’s such an emphasis on dancing merengue well and being good at baseball that little fundamental *work* gets done.

<sup>102</sup>Mink coats, luxury cars, (overly) expensive wines, and tulip bulbs in the 17th century are sometimes called Veblen goods[11]. These goods are purchased for the same fundamental reason that a peacock grows such a huge tail: to prove that you have resources to spare.

becoming cultured, and mastering the vast array of rules of etiquette. In surfer sub-cultures, it's, well, surfing well<sup>103</sup>. The ultimate peacock tail for people, though, is the human brain. There's a book called *The Red Queen*[19] which argues that a good deal of human intelligence is driven by an escalating arms race (though it makes no reference to RISK). Basically, people were trying to outsmart other people. Then, the bigger brained people reproduced (more than the dumber people) and the intelligence level for the whole group rose, meaning that the successful people of the next generation had to be even smarter. (It's like the Red Queen's race in *Alice in Wonderland* where the earth moves backwards as fast as the sprinters move forward so that the net gain is 0.)



Gabe still had his cold, I was tired from all the thinking at the Nordiska Museum (I didn't say that I *disliked* it, it was just my least favorite.), and we figured there was enough drunken debauchery from the previous night to last the whole weekend, so we went to bed relatively early after some time spent reading and reflecting. Plus, our train back to Malmö was scheduled to leave in the early afternoon, and there was a lot of daytime-Stockholm that we still wanted to experience. Sadly, our Finnish girls from the hostel had forgotten to order replacements for themselves.

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<sup>103</sup>Though in the context of a surfer sub-culture, you might feel like *everyone's* goal is to surf well.



## Day 13: Sunday, June 20th, 2004: Gabemas Eve in Malmö

### Gestapáttir 77, from Hávamál

Deyr fé,	Cattle die,
deyja frændr,	kinsmen die,
deyr sjálfir et sama;	the self must also die;
ek veit einn,	I know one thing,
at aldri deyr:	which never dies:
dómr of dauðan hvern.	a dead man's reputation.

Although it was only 8 in the morning, Gabe and I were in a rush. Our train would be leaving at 1 in the afternoon, so, as in Duisburg, we were fully aware of the amount of time (5 hours) we had left to *carpe diem* and experience the wonderful city of Stockholm. A shower and a quick breakfast, and we were once again on the streets of Stockholm. This time we were searching for the Viking-oriented Historiska Museum. (What trip to Scandinavia would be complete without a visit to a Viking museum?) The Historiska Museum was everything I had hoped the Nordiska (clothes and furniture) would be: Viking artifacts and history. There were even some people dressed up as Viking Royalty for a Sunday event the museum was having.

There was a group of kids probably in their mid-teens dressed up as Vikings, traders, kings, princesses, and other occupations of 10th century Sweden. I'd seen people in America dressing up and doing historical reenactments, or just experiencing The World as their "character", but usually it was us nerdy kids doing things like that. What struck me about the kids at the Historiska museum was that, as far as I could tell, they were the *cool* kids. Maybe if Americans had Sweden's Viking heritage to reenact, the cool American kids would also be dressing up.

We ended up staying at the Historiska Museum for several hours, so we didn't have much time before we had to get back to the train station. We soaked up as much of Stockholm as we could with the little time remaining, and we were soon on a train back to Malmö.



On the train, we met Carly, an American (one of the very few American girls we met up this far north) with a Swedish father (so that explained it). Carly had been working in Sweden as a nanny for 6 months trying to become fluent in Swedish. She'd

already picked up some of the language from her dad while growing up, but it seemed futile. The Swedes' fluency in English made it almost impossible to learn more than superficial Swedish. She'd made plenty of Swedish friends and tried to keep speaking in Swedish, but constant vigilance was needed to make sure that the conversation didn't leap back into English. (A little like blindfolding yourself to see if you could learn to navigate with a cane. You'd constantly be tempted to take the blindfold off.) The children she was nannying were about David's age, so we told her about David's fascination with *traktors*. Carly, who counted among her friends a number of Swedish farmboys, said that the fascination is lifelong: the farmboys will gawk at a tractor as another group of men might ogle a pretty woman.

"I think you'll find everyone has a traktor.", Carly said. "What's yours?" Gabe's was easy: beer (and evil Serbian women, but that's another story). But I wasn't sure what mine was. I've since compiled a list: ants, goats, chimpanzees, hybrid cars, windmills (the big electricity generating kind), robots, factories, didgeridoos, harpsichords, and bagpipes, for starters. On the anti-traktor list are cats<sup>104</sup> and mosquitos.

Before getting off the train in Lund, Carly gave us her contact information and we said we might stop back for Midsommar, the midsummer celebration (which would be celebrated on the coming Friday), after visiting Anna in Germany. (We fully intended to do this, but unfortunately, we ran out of time before that plan became a reality.)




Carly's traktor question turned out to be a good one and a good way to get to know people. Andy's were Soccer and Sara. David's were motorcycles, his blanket that he called Sisa, and (of course) tractors. Sara's were nature walks and Andy. Sara also said she figured out my traktor: everything. The rest of the day was spent on talking, supper, and continuing our RISK game. Plus it was Gabemas Eve: the day before Gabe turned 25, and the summer solstice, which made for a long day in Malmö.

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<sup>104</sup>My theory is that cats cause low self esteem. Cats evolved as mostly solitary creatures, while dogs are pack-animals. Thus, to a cat, you're just part of the environment. To a dog, you're part of its "pack". I figure it must be disheartening to know that your cat, who mostly ignores you, is dependent on you for its survival. (Also, I'm allergic to cats. I've always wondered if I'd still hate them if I weren't.)



## Day 14: Monday, June 21st, 2004: Gabemas in Skåneland!

leasant and relaxing days are nice to experience, but usually don't make for the most exciting stories afterwards. But this was Gabemas Day, and Gabe woke up this morning having completed his 25th orbit around the sun. Gabemas is a cause for celebration and gift giving. There are several different ideas for giving gifts. For example, there's The Astrid gift giving model: where there's no connection between particular dates (such as Christmas, birthdays, anniversaries, or even Gabemas) and giving gifts. At any time of year, when Astrid sees something that someone she knows might like, she'll get it and give it to them. There's also the Christmas gift model that my brother, Jason, proposes. Around Christmas time, everyone will make a list of everyone else for whom they plan to shop with how much money they plan to spend on each person. Then, on Christmas, everyone will bring their list and some amount of cash. The lists will be compared with each other to see who owes how much money to whom, and everyone will pay or get paid accordingly. For example, if Jason said he'd spend \$10 on me and I said I'd spend \$15 dollars on him, then I pay Jason \$5. Jason calls cash the "Universal Gift Certificate". Jason has very pointed tastes, and unless someone knows him really well, it's usually better just to give him the Universal Gift Certificate and let him buy his own present. That way, he's guaranteed to like it.

There's also my own philosophy behind gifts and favors, which is strictly Economics: I'll give someone a gift if it's easier for me to obtain the thing than it would be for the recipient to do the same (taking into account the other person's *utility* in having the thing or favor). This also accounts for a situation where I happen upon a windfall. The economically sound advice when you make a gain by a good deal of luck is to share the wealth, the reciprocity will pay off in the long run<sup>105</sup>. I assume that the other person will eventually return a similar favor, a little like mutual back

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<sup>105</sup>Vampire bats do just this. Whether a vampire bat gets blood or not on a particular night is a good deal of chance. So when they come back to the cave, they share, thus evening out the highs and lows. It's better to have a little food every night than no food most nights and a lot of food on a few nights. (Presumably, they remember who they gave blood to, and who gave blood to them, so they'll give blood to another bat only if that bat gave to them when they were in need (or vice versa).) Under this theory, the crack monkeys from **Day 01** would be most likely to share their crack under the last strategy (where they were randomly given huge chunks of crack for washing a dish).

scratching. For example, the Dutch caramel cookies are kind of tricky to find in the U.S., but when I was in Amsterdam it was little expense or effort to buy them (aside from having to haul them around in my backpack for the remainder of the trip). I figured **my mom** would like them a lot, so I picked up a package for her. (Or I meant to at least. I think I ended up getting her a bar of soap.)

In particular, I like the Ekdahl gift giving model, or at least the way that Andy and Sara celebrate each other's birthdays. Since they share the same bank account and make roughly the same amount of money, it doesn't make sense for them to exchange material goods. (Plus, their place is kind of short of space as it is.) Instead, they give each other experiences. So, around Andymas time, for example, Sara will tell Andy to set aside a particular day. On that day, Sara will do something like taking Andy for a picnic at the park, where she'll teach Andy how to paint a watercolor. Thus, Gabemas was an Ekdahl "experience" (which I got to experience too, since I was tagging along).



We started off by going to the beach with Nils. About Sweden's beaches: In late June, it's still too cold to swim (as we found out at the sauna by the Öresund). On the other hand, we were on the *other* side of Sweden, and I figured that I wouldn't soon have another opportunity to swim in the "icy Baltic", so wading was mandatory. When Andy first came to America, he had the following conversation more than once:

- American:** You're from Sweden. Cool! Do they have nude beaches there?  
**Andy:** Yeah, there are a few.  
**American:** Wow! Do you go?  
**Andy:** No, I've never been.  
**American:** *Why not?!*

Sadly, it was still too chilly for nude beaches, but the beach we went to was among the best in Sweden (a country not known for its beaches). It actually reminded me of the beaches of Cape Cod, some of the best in New England (which isn't world renowned for its beaches either). Unlike Cape Cod, we had the beach almost entirely to ourselves. Having lived most my life in Colorado, beaches are still something of a novelty for me, and I still get "hypnotized" by watching the waves come in and listening to the seagulls. I sometimes wonder how many great ideas have been conceived while the thinker was under "sea-hypnosis". On the other hand, the stimulus is the same for everyone who sits and thinks at the beach: waves and the everpresent

seagulls, and “similar situations stir similar symptoms”, so maybe everyone ends up taking the same train of thought.



For our next leg of The Gabemas Experience, we headed toward one of Malmö’s castles. Along the way, we saw a girl on the side of the road selling strawberries. It turned out that she was a student in one of Sara’s music classes. So Sara bought some strawberries for a purpose that would be made clear to us later<sup>106</sup>. Eventually we made it to the castle, which, like the “ideal” castle in my mind, had a moat (but unlike my Platonic castle, it didn’t have 4 turrets). Castles are even more of a novelty for me than the ocean. The grounds of the castle were open, but, unfortunately, the interior of the castle was closed for Gabemas (or because it was Sunday).



Back at home, Sara used the strawberries she bought from her student to make a Gabemas cake, which we quickly consumed. Then it was time for the serious business of Gabemas: deciding who the RISK Champion of the Northern Hemisphere would be. After further politicizing, coalition formation, and truces, Gabe finally emerged as the victor of our multi-day game. (No, we didn’t let him win.)




Gabe and I planned to leave for Freiburg, Germany the next day to visit Anna. We had less than 5 full days before our flight was to leave from Brussels, so this would be our last day with the Ekdahls (unless we could somehow make it back for Midsommar, which turned out to be impractical). Realizing this, I was feeling a little melancholy. We’d been staying with the Ekdahls for about a week, which was enough time for me and Andy to get back into the groove of our old friendship. So, partially because I didn’t feel like sleeping, and partially as a thank-you/farewell present, I stayed up for a couple more hours drawing a portrait of Andy and Sara. When I was finished, I attached it to the side of the refrigerator such that they wouldn’t notice it until after we were gone. (I’m not sure if they ever found it.)

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<sup>106</sup>Chekhov’s gun is a literary technique where attention is brought to some detail (like a gun hanging above a mantle) that has significance later. (In this case, Sara used the strawberries to make a delicious Gabemas cake.) It’s a little like the “codeword” convention, but not as explicit.



## Day 15: Tuesday, June 22nd, 2004: Freiburg

ust 8 hours later, we had said our goodbyes and were on a train bound for Hamburg. If our train to Copenhagen had taken a ferry, Gabe and I slept through that experience. But *this* train took a ferry, and we were awake for it. The train was loaded onto the ferry a section at a time, then the passengers were allowed to detrain onto the ferry. I thought of the science fiction movies where one ship (which the viewers already thought was huge) would be caught in the tractor beams and “swallowed” by an even bigger ship that dwarfed the first one. It was hard to gauge the size of the ferry from the inside, but I guessed it could’ve carried several Vasa warships. The “upstairs” of the ferry featured a full shopping mall complete with restaurants and duty-free shops, but my favorite part was the outside deck. It was *windy*. Standing up straight on the deck was a chore, but the view was spectacular. The disappearing landmass of Sweden was to the north and what must have been Germany lay to the south. In this panorama, I was gripped by one of my traktors: dozens of giant windmills lining the coast! Given the amount of wind on deck, this was a great place to put them. I wandered about the several floors of the explorable ferry, which was interesting both inside and out<sup>107</sup>.



We had a 20 minute stopover in Hamburg. This was only enough time to run out of the Bahnhof, walk down what we guessed was a central street, then rush back to catch our next leg, to Frankfurt. Anna is from Hamburg originally, so I’d heard some about it. Hamburg’s a huge port city, and, with over 1.7 million people, it’s the 2nd largest city in Germany (after Berlin). It’s more than 5 times the size of Malmö, twice the size of Stockholm, and it’s bigger than Denver and Baltimore combined. There’s a whole miniature world in that city of 1.7 million souls living their lives, but we had just a 20 minute slice. Hamburg also has a long history dating back to 808 A.D., and its history includes both the ancient and the modern<sup>108</sup>.

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<sup>107</sup>Years ago, I read about pictures of flies etched into men’s urinals. The idea was that men would “aim” for the fly, and the floors would be cleaner. I’d always wondered where these urinals were, and on the ferry, I finally found them in the men’s room.

<sup>108</sup>It was repeatedly bombed by the Allies during World War II, which caused a firestorm and killed at least 50,000 innocent civilians (more of the senseless waste caused by that war).

Gabe and I had spent 2 days checking out Stockholm, and we still had just a tiny sample. Stockholm was a city we had heard of in passing, read about some in our travel guide, and then we arrived at the central train station, found our hostel, met people, and found places unique to Stockholm and its history. Even though it was a very limited sample, we'd learned a great deal about the city, and some of the things (especially my experience at the Nobel Museum) will stay with me for the rest of my life. Hamburg looked like it could be similar. We had heard about Hamburg, and now we arrived at the train station, and were actually *in* Hamburg. And maybe there was some future where we explored that city and found the wonderful things unique to Hamburg and its history. But that future didn't happen, because doing so would mean we couldn't experience the path that we actually took to Freiburg and Anna.

I'll have a similar feeling when driving across America, and seeing a new city on the horizon (such as Kansas City, MO) without having time to go for a visit. I've had enough experiences driving into cities in America, that I now view the skyline as the "wrapping" on the "package" of the city, and all it takes to "unwrap" the package is to spend a number of days inside the city and try to figure out what the city's all about. (On the other hand, perhaps one could take a view of The World as being similar to the dictionary: I've always accepted that I'll probably never look up most of the words in the dictionary (and certainly, I'll never read the entire phone book), and I doubt that many people do<sup>109</sup>.)

During our short stay in Hamburg, we did find out that food, at least, was much more affordable than in Scandinavia. It was at this point that Gabe and I stopped losing weight, and started gaining it back. Sausages, cheese, and pastries were cheap and plentiful. My taste buds are pretty simple. If a food has lots of fat and/or sugar, my taste buds tell me it's delicious. Eventually, I might associate a particular *flavor* (e.g., chocolate or vanilla) with the fattiness, and thus find the flavor more appealing, but it's all grounded out in fat.



Our next stop was Frankfurt (with a population of over 640,000), and our experience there was similar to our Hamburg experience: 20 minutes to run out into the city,

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<sup>109</sup>It could also be like having a fancy *versal* font (the font used to make the large ornate letters at the beginning of a book or chapter). You'd always want a full set of 26 of these, even if you never use some of the letters (like X and Z, those high scoring, and therefore hard-to-use Scrabble letters) for a book.

with a tinge of regret that we couldn't experience this city either<sup>110</sup>. I'd heard less about Frankfurt than Hamburg, so the regrets weren't as deep. From Frankfurt, we caught our final train to Freiburg. On this train, we struck up a conversation with a group of German engineers (who are among the best in the world) who were familiar with the area. There were more windmills on the ridges of the mountains, and I was disappointed to learn from one of these engineers that there's not really enough wind in the area to make them worthwhile. The windmills, he told me, were more to get people talking about wind power and where else they might use it.



Finally, after a long day of "training", we arrived in Freiburg. The last time I'd seen Anna was nearly 4 years before in Stuttgart, so we caught up some on the past 4 years over coffee (for me) and beer (for Gabe). Anna was studying for her Diplom<sup>111</sup> in Literature at the University of Freiburg, or Albert-Ludwigs-Universität Freiburg, one of the oldest universities in Germany (founded in 1457, 35 years before Columbus landed in what would become the Dominican Republic).

Anna took us on a quick walking tour of the town she'd lived in for the past 4 years. Freiburg's population is just over 210,000 (a little smaller than Malmö's 270,000), and the town made efficient use of its land (due to being wedged in the Black Forest mountains, like a bowl), so it was easy to get around the core of the town by walking. Our tour included the old city gates, which made me realize that this city was founded and built in a different time, when the general Zeitgeist must've been much different. The idea of Boulder or Denver having city walls is unthinkable (of course there are "gated communities" in the U.S., but these stop individual criminals, not entire armies), as is the idea of the Army of Nebraska coming to sack Denver. As our tour wound down, we headed back to Anna's apartment where we slept.

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<sup>110</sup>From such cursory visits, Frankfurt and Hamburg are pretty similar in my mind, almost interchangeable. I'm willing to bet that there are plenty of Hamburgers and Frankfurters who'd beg to differ.

<sup>111</sup>A Diplom is a degree in Germany that's stronger than a Master's, but not quite a doctorate.





## Day 16: Wednesday, June 23rd, 2004: Basel and Freiburg

**R**arely do I pay much attention to toilets, but an interesting thing about the toilet in Anna's apartment (and many toilets in Germany in general) was that there were 2 flush buttons: a half-flush or a full-flush depending on how much you had to flush down. Apparently, this can save a good deal of water after a while. I wondered why these were so common in Germany, but not in Colorado. In fact, I never saw one during the entire 18 years I was in Colorado, a state that has always kept relatively close tabs on its water use.

Much of Germany had been bombed out by the Allies during World War II, so a good percentage of the buildings were "modern" (built after 1945). Thus, Munich's subway system is the smoothest I've ever been on. I thought that this might explain it (the "advanced" 2 button toilets are only in new buildings) until I remembered (as I thought of the Cathedral in Lund) that it was rare to find a building in Denver built as long ago as 1945. On the other hand, flush toilets were unheard of as recently as 2 centuries ago. To a farmer from then, the idea that you could take care of your business *in your house* without the use of bedpans, would seem absurd. I tried to imagine some analog to a person from today: maybe taking care of your business without removing clothing, and without diapers.

Maybe the water bills are higher in Germany, I thought, but it's also possible that the 2-button toilet was built with the same principle as the windmills on the mountain ridge between Frankfurt and Freiburg: they don't actually save a significant amount of water (compared to the virtual lakes used to irrigate crop-fields), but it makes us *feel* like we're doing our part to conserve water (or just as a reminder that fresh-water's a limited resource). Just one of the millions of mysteries in *The World*.

I didn't have too much time to think about the toilet, as Anna's apartment had only 1 bathroom, and Gabe and Anna both needed to use it to take showers. Anna had to leave for school/work, and while she was there Gabe and I were to visit Basel, Switzerland, which was about an hour away by train, just across the border.



We packed our day-bags, and were soon on the train to Basel. It being so close, it hardly felt like we were going to another country. *States* aren't this close to each

other in Indiana and Colorado. For instance, the buffalo-filled drive from Denver to Cheyenne, Wyoming is nearly 2 hours.

Being in the heart of Western Europe, Switzerland has been surprisingly uninvolved in European political affairs. It was a neutral non-combatant in both World Wars, uses its own currency (the Swiss Franc, which wins the award for Most Colorful Currency Notes on our trip), and unlike all its neighbors besides tiny Liechtenstein (i.e., Germany, France, Austrian, and Italy), and every other European country we visited on our trip, it's not a member of the European Union. So, it was brought to our attention that we were, in fact, entering another country when a couple of uniformed men asked us for our passports. I had mine, but Gabe had left his at Anna's. These guards said something to the effect that "To enter Switzerland, you'll need a passport.", then they moved on. We weren't sure what to do. The next stop, from what I could gather, would be Basel, and I assumed that the guards would have us (or Gabe, at least) board the first train heading back to Freiburg.

The train stopped. No guards. So we alighted, and headed for what we assumed would be customs and the passport check. We found the exit, but it went straight out to whatever town we were in. We weren't sure if this was the Basel stop or not. It couldn't have been, we figured, because no one asked for our forgotten passports. "Well, I'll play the dumb American and ask a stupid question. Hmm... Oh boy, a chance to use my 3 years of German!" I thought. (Asking exactly these kinds of questions was the focus of my first quarter of class.) I then used my best German to ask the lady behind the ticket counter at the Bahnhof: "We're in Basel, and Basel's in Switzerland, right?" (I'm still proud of this, so I'll write it now, "Wir sind in Basel, und Basil ist in die Schweiz, stimmt?")

It might sound like racial profiling, but I'll say that Gabe doesn't *look* like a terrorist or an illegal immigrant: clean cut, glasses, light complexion, and an American accent. At least, Gabe is pretty far from my mind's stereotypical terrorist exemplar. He must've been for the guards too, because her answer was that we were indeed in Basel, Switzerland. That's the good news. The bad news was that her answer was in English, despite my best efforts at proper grammar and pronunciation.



I liked Basel as much as I liked Freiburg, but the 2 towns seemed to be fairly different. If I were forced to paint a picture of Freiburg, but could use only 3 colors (aside from

black and white) and I wasn't allowed to mix the paint, I'd choose light reddish brown (for the buildings), dark green (for the mountains), and light blue (for the sky). Basel would take light-grey and more blue (as it seemed like there was more sky)<sup>112</sup>. Basel *also* seemed fairly walkable. I was coming to the conclusion that there isn't an Irvine-style city in all of Europe. I'd never even heard of Basel before this trip to Europe, much less had I looked at a travel guide or even a map. So, we had to figure out Basel with legwork. The design<sup>113</sup> and its small size<sup>114</sup> made this a pretty simple task, and soon we were in the central downtown plaza. Our time in Basel (like our time in Duisburg, Stockholm, and life in general) was limited. We'd planned to meet Anna back in Freiburg around 15:00, which meant we had about 4 hours in the city.

We found a history museum with an exhibit on Ancient Egypt, which we went to out of curiosity. What do the Swiss think of Ancient Egypt? Pretty much the same thing Americans do, it seemed, but in German. I've never been to France, but from Basel, Gabe and I could see that country, and also the famous Rhine, on which Basel lies. After much walking, Gabe and I decided to sit at an outdoor cafe, sip coffee, people-watch, and maybe chat with some of the Baseliens. Our waitress at one of the cafes was speaking "Schwyzerdütsch," or Swiss German, and I had a hard time understanding her. It turns out that Schwyzerdütsch is hard even for Germans to understand<sup>115</sup>. After eating a "Barfi-steak" that we bought from a vender (who might not sue Bifislurf Inc. for copyright infringement), we headed back to Freiburg.



We met Anna back at the Bahnhof. Her office hours had gone longer than expected so she was a little late, and I took advantage of this to take a timelapse of the train

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<sup>112</sup>The Colorado plains would be blue and light brown. Baltimore'd be grey, more grey, and a hint of green. Washington D.C. would be green, white, and blue. Amherst, MA, and Portland, OR, would have the same scheme: green, green, and blue-grey. In practice I could actually do this: Gather all the pictures I took from each of these places and compute the average pixel value for each place. People have done this with movies: e.g., Total Recall (which takes place on Mars) is a dark reddish color. This is also a little like computing the "average flavor" of an area. (You could also use Principal Component Analysis to find the principal colors)

<sup>113</sup>I doubt that Basel (or Irvine) had a single planner. Instead, it's design emerged over the centuries (or decades for Irvine) from the decisions and plans of thousands of individuals. No one in Irvine wanted or planned to have unwalkable sprawl, but thousands wanted a good sized yard "away from it all" or a corporate park.

<sup>114</sup>Basel has about 166,000 inhabitants (in the city itself), making it the 3rd most populous in Switzerland after Zürich (333,000) and Geneva (172,000). Strange that I'd heard so little about Basel, given the world class prominence of Geneva and Zürich.

<sup>115</sup>Schwyzerdütsch isn't as hard for Germans to understand as the dialect known as Pickettdeutsch. Developed and spoken in Colorado, Pickettdeutsch drifted from the standard German known as Hochdeutsch due to the limited size of its speaker base: about 2 (namely, Marc and Jason Pickett).

station. In this movie, you can see the clouds moving, the trains pulling into and out of the station, and the people piling up and being “ingested” by the trains<sup>116</sup>. After a few minutes, we met up with Anna and launched part 2 of our Freiburg tour.

Anna took us to a very German Biergarten high on a green hill with a great view of the town. It was here that Gabe discovered the joy that I’d discovered on my first trip to Germany: Weißwurst, a white sausage with a thin wrapping (that, as I later found out, is usually pork guts) that you dip in spicy mustard before eating. Weißwurst must be almost pure fat, because it makes my mouth water just writing about it. Accompanying our Weißwurst was some Weißbier. Combined with the view and hanging out with Anna, I don’t think we could’ve been much happier.



Alas, it finally became time to go: Germany was about to play against The Czech Republic in the Euro 2004, and we were to meet some of Anna’s friends at an Irish Pub (strangely enough) to watch the game. This game would be crucial to whether Germany would make it to the playoffs, so virtually all of Germany, it seemed, would be watching it. Much like the pub during Sweden’s game in Malmö, this pub was crowded, with the emotions of everyone tied to what was happening on the screens. I ordered Bier in German, and the bartender replied in English (dammit). She didn’t have a German accent, so I asked her if she was American. Indignantly, she told me she was Irish (go figure).

Gabe and I felt like detached observers, as if we were watching a fiction movie. Of course we wanted Germany to win for the same reasons we wanted Sweden to win back in Malmö, but our emotional investment in the game was miniscule compared to what seemed to be the bar’s average. In the end, Germany lost<sup>117</sup>, and a silent melancholy spread over the crowd as if they’d just received news that the Chancellor had been hospitalized from a car accident. We all filed out of the pub and off to our respective places to sleep for the night. I imagine that a win would’ve had the

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<sup>116</sup>It has taken some experience to get an idea of what will make a good timelapse, and what won’t. Having clouds in the background is usually good as it gives an idea of the time-scale. So do shadows caused by the sun. It has happened several times that something I expected to be neat (in timelapse) turned out not to be, and vice versa. This is partially because what makes timelapses interesting are the things you don’t notice at normal speed, and if you don’t notice them, it’s hard to know about them. It’s something of an art.

<sup>117</sup>I remember that Germany lost, as the people in the bar seemed genuinely sad. I remember their disappointment, but I didn’t remember what the exact score was. A quick search on Wikipedia told me, though. The score was Germany 1 to Czech Republic 2. There’s a Wikipedia entry on the Euro 2004 game of Germany vs. the Czech Republic. Amazing! Just 10 years ago, I wouldn’t have been able to do such a thing.

opposite effect: revelry, brotherhood, and love-making. (Oooh, maybe *that's* why everyone was so sad.)



## Day 17: Thursday, June 24th, 2004: Freiburg

### Permutations of Dreams

What is it that can make a dream?  
Most any thought that's ever found  
a home in men's minds' conscious stream,  
and even those that in it drowned.

Vast landscapes by all still unseen,  
created while we sleeping lie.  
The hills of green and lakes serene.  
Made earth and simulated sky.

Nostalgia of yesteryears,  
and memories of paths we've crossed.  
All desires and all our fears,  
and longing for the loves we've lost.

A flight from horrors with no name:  
just parables of problems posed.  
Played with as if as in a game  
our answers thus become disclosed.

And every train of logic went,  
what could have been or still could be.  
Extraordinary wonderment,  
such endless possibility.

If from these Worlds one would awake,  
and cause these visions to disperse,  
and from the realm of dreams to take  
within a skull a universe,

returning to what may be real,  
a realization may reveal:  
that reality we can know,  
and "The World is my idea." show.

Virtually every one of our nights is at least partially filled by the strange systems of (not entirely sensical) consequence called dreams. In this night's permutation, I was David Ek Dahl, watching hybrid cars driving by and excitedly shouting "Bil! Bil! Bil! Traktorrrrrr!". I then awoke, again as Marc Pickett I of Padelford, in Anna's apartment. It was early, and our plan was to take the sleeper train this night to Köln, and then back to Brussels, so we started the day relatively early.

This time, Anna didn't have school/work, so she'd take us on our all day tour. Freiburg was small enough (or Anna had lived there long enough) that there were a number of "blue people" for her. For example, Anna knew the waitress at the cafe we went to for breakfast, and that she was an aspiring model (she had the looks for it). We stopped in the Münsterplatz, an open air market (of the type that has long been replaced (if it ever existed) by supermarkets and indoor shopping malls in Irvine) with fruits, Würste (that's the plural of Wurst), and crafts. The Münsterplatz was named after the huge cathedral in its center called the Freiburg Münster. With its ornate,

latticework spire, the Münster was among the most impressive of the cathedrals that we saw on our trip<sup>118</sup>. The remainder of the morning and early afternoon was spent in bookstores, cafes, and walking along Freiburg's green-lined streams.



Later in the day, we went to one of Anna's friend's places to watch the Euro 2004 game of Portugal against England. Gabe and I decided to make the game a bit more interesting and choose a side to root for. We somewhat arbitrarily picked England. Well, almost arbitrarily. First, both of us certainly have more English blood than Portuguese. But more importantly, if we were British football fans, we could be hooligans. I told Anna we decided to be British hooligans, and, not quite sure how to be one, asked her if she knew what hooligans did. Anna's reply was "Hooligans are very polite. They speak only when spoken to, and, most importantly, they have no personal emotional attachment to the game whatsoever.". Aside from myself, Gabe and one other of Anna's friends, the rest of the people at the Fußballfest were girls, who decided to root for Portugal because "the Portuguese players [were] cuter".

I decided to live up to my hooligan persona, and get rowdy (well, maybe not proper *hooligan* rowdy). Gabe and I became a good deal more emotionally attached to England's performance than I expected. *I* felt proud when England made a great play, and *I* felt ashamed when England got scored against. How could I care at all about this arbitrarily chosen team when I had no influence on their performance? Maybe it was that the girls' stated reason for rooting for Portugal made it personal (having no Portuguese blood). Maybe it was a Gabe-Marc hamster ball effect. (It was probably just the Bier.)



A tornado is a *conspiracy of events*. There has to be the right temperature, pressure, humidity, sunlight, wind direction, etc.. If this weren't the case, we'd either always have tornadoes or we'd never have them (and there *are* occasionally tornadoes in Eastern Colorado, but they're not an everyday occurrence). (If every event has a set of causes, then everything that happens is a conspiracy of events.)

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<sup>118</sup>I wasn't always an atheist. I was raised Catholic, and when I had my first questions about the validity of Catholicism, I reasoned that God must exist because of all the money and energy that people put into building cathedrals. The Münster would be a perfect example of such a cathedral. Someone like 12-year-old Marc would've come to the conclusion that if God didn't exist, then this huge, beautiful, awesome cathedral would be a waste. Therefore, God must exist. An older version of Marc eventually saw the circular reasoning: I believed in God because the cathedrals existed, but the cathedrals existed *because* people believed in God, and so existence of the cathedrals wasn't a good reason to believe in God.



A goal in a soccer game is also a conspiracy of events. A certain sequence has to build up. The goalkeeper has to be slightly off his mark, the ball has to be on the right side of the field, the defensive players have to be out of the way, etc.. Somehow, it was interesting just to watch the game, like a simulation of planets orbiting a star, and a goal would be like the rare occurrence when all the planets lined up in a particular way. Watching the game, I felt like the crack monkey (from **Day 01**), where my crack was England's goals, and washing the dishes was watching the game. The people who set up Euro 2004 were using the 4th and best strategy: a big goal (or a near-goal) every now and then in exchange for lots of watching. What was strange is that I had no way of influencing *the game* at all, I could only influence my knowledge of the game.

Eventually, Portugal won in overtime (making the final score 6-5). We were having a great time (as men with degrees in Computer Science, we weren't used to the extremely high female:male ratio, especially not the *beautiful* and *intelligent*<sup>119</sup> girls at the Fußballfest), but we had to leave so we could catch our train.



The laptop that I'm using now is not the same laptop that I had when I was in Europe. From taking the old laptop, Lappidactus Primus (or Lappy I), on so many trips and inflicting other kinds of abuse, Lappy I soon became kaput (but I was able to transfer my files, so the "wave" of information didn't die). The screen of my current computer, *Lappidactus Secundus*, is the same height, but wider than that of Lappy I. The dimensions of Lappy I were such that it was best to put my "dock" (Apple's virtual gadget for starting and monitoring applications) at the bottom of the screen. When I first got Lappy II, I put the dock at the bottom without much thought, because that's where it had been with Lappy I. After a few weeks (and with just a little bit of thought), I realized that, with the wider screen, the dock should go at the side. I call this process "cognitive inertia", where you reach a conclusion, then "discard" the reasoning behind that conclusion<sup>120</sup>. Habit is necessary. We don't

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<sup>119</sup>One puzzle I still haven't worked out is that good looking American girls (of a certain age, at least), tend to be ditzy or "cute". Good looking German girls seem to have no problem having a deep philosophical discussion. I don't have a good theory to explain this (or even a bad theory).

<sup>120</sup>Cognitive inertia is different from cultural inertia (which can sometimes mirror cognitive inertia, but can have much longer staying power). For example, the Qwerty keyboard layout's still used despite the Dvorak layout being more efficient. I still use Qwerty for 2 reasons: cognitive inertia (I'd have to unlearn the old layout and learn the new one), and cultural inertia: I can change Lappy's layout, but what if I work on someone else's computer? I'd like to switch to the Dvorak layout, but I don't change my layout because I think the standard (i.e., what everyone

have enough brainpower to rederive *why* we drive on the right side of the road (in the U.S.) every time we get in the car<sup>121</sup>, or remember why we write from left to right and top to bottom<sup>122</sup>. However, sometimes the assumptions underneath the conclusion will shift, and this can lead to problems.

For example, there's a saying that goes something like "The good generals are still fighting the last war. The bad generals are still fighting the war before that.". The point being that military strategy should be adjusted for advances in technology. The American Civil War had a high casualty rate because (at least in the early stages of the war) generals were still using tactics developed (ultimately) for bows and arrows, certainly before high powered rifles and easily mobile canons became standard issue. The tactics in the day of swords and spears were basically to line your respective armies up and crash them into each other. Camouflage was unnecessary because you had to be *close* to a person to attack them. The introduction of guns greatly increased the distance you needed to be from a person to kill them. Heavy artillery means that you shouldn't group your soldiers up tightly lest a single shell take out an entire platoon. And, as seems obvious today, soldiers shouldn't wear brightly colored uniforms lest they get picked off by a sniper. Camouflage didn't become standard issue until well after the Civil War. There are dozens of other military examples: The Germans had spectacular success during the early stages of World War II by fighting "the next war" using Blitzkrieg tactics. The battle of Midway demonstrated that airplanes and aircraft carriers made gunships almost obsolete, a hard learned lesson for the Japanese.

It was cognitive inertia that caused us to leave early from the Fußballfest. Our original plan was to take a sleeper train to Köln. That way, we could kill 2 birds with 1 stone: travel and sleep. I then "discarded" the reasoning, and just held onto the conclusion: we would arrive in Köln on Friday morning. This turned out to be for the worse. We found out that there were no spots open on the sleeper car, but there

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else uses) will be Qwerty. It's interesting that a significant percentage of other people are thinking the same thing. So, here we have an ungrounded situation similar to the Emperor's New Clothes. A difference here is that it's a problem of coordination instead of thinking that no one wants to change.

<sup>121</sup>I drive on the right side of the road "because everyone else does". There's not much ground to it, but I won't challenge the protocol.

<sup>122</sup>Leonardo Da Vinci is famous for writing from right to left. I don't think this was to "encrypt" his writing, but because of 2 important qualities of his person: 1. he had an incredibly inquisitive mind that caused him to question assumptions, and 2. he was left handed. We write from left to right, top to bottom so we don't smudge what we've just written. (I don't know what the Arabs and Hebrews do about this.) I'd guess Leonardo realized this and concluded that lefties should do the reverse.

were spots on the sitting car. Had I redone my reasoning, I would've remembered that the point of taking the night-train was to get some sleep while we traveled, but it wasn't until early Friday morning in Köln that I remembered this. We could've stayed one more night in Freiburg!



We took a trolley to the Bahnhof. The trolley seemed to be synchronized with the traffic lights, so that the trolley rarely had to wait for cars. In theory, cars should rarely have to wait for each other. If you could just synchronize everyone, that'd be the case. In the German fashion, the trolley followed a precise schedule and so the traffic lights could be synchronized with it. I wondered how many years it would take before the traffic lights in Baltimore would become this smart.

We grabbed our *seats* on the night train, and tried to get a decent sleep before our arrival in Köln.



## Day 18: Friday, June 25th, 2004: Köln and (back to) Brussels

Köln (or Cologne) was not a very busy city at 5:30 in the morning on a summer Friday, despite its large size (at over 980,000, it's the 4th largest city in Germany, after Berlin, Hamburg, and Munich). The central square was chilly and not much was open. Gabe and I were underslept and feeling peckish. I would've been willing to pay Swedish prices for a cup of coffee and some Würste<sup>123</sup>, but we'd have to wait an hour and a half before the first shops opened.

So we took a stroll through empty central Köln. The city's cathedral was also awesome. Its ornate spires towered above us, yet another tribute to the idea of God. We continued our walk until we were on a bridge over the Rhine. Maybe some of the water we saw in the Rhine in Basel was just now reaching us here. If I could paint the water blue too! In this case I didn't have to. I calculated: As the crow flies, it's about 300 miles from Basel to Köln. If you follow the meandering path of the river, it's about double that. So 600 miles in 40 hours makes about 15 miles per hour. That'd be a fast-flowing river!

At the Bahnhof, we acquired our passes back to Brussels. The bad news was that the price was much higher than we expected to pay. We'd forked over \$500 for our Eurail passes, and now it'd be another \$40 apiece to go back to Brussels. The good news was that she answered *in German*! Finally, 3 years of German classes had paid off. "Why so much?" I asked<sup>124</sup>. She explained (in German!) that it was the express train (and a few other things that I didn't quite catch), and that it was basically the only choice we had. I bought the tickets, and concluded the transaction, all without a word of English being spoken by either party. I doubt Gabe was as excited about the deal as I was, but we boarded the train, and eventually found ourselves back in Brussels.



I used to go downhill skiing quite a bit when I lived in Colorado. I'd take a bus with my school's ski club, and I'd always have to make a decision for the day: whether

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<sup>123</sup>At that point, all our Odwalla bars had been eaten, digested, and assimilated into the waves of ever-changing cells that we call our bodies. Parts of the Odwalla bars were surely trimmed off my face the morning before, when I shaved.

<sup>124</sup>"Do you have anything cheaper?" is one of the first phrases you might want to learn in almost any foreign language.

to ski with a group, or to break off and go by myself. The tradeoff here is that with a group you'd always have to wait for the slowest skier, and you'd have to "vote" on which run to do next. The downside to being by yourself is that you don't have anyone to talk to on the long chairlift rides to the top<sup>125</sup>. I was a good skier for my age, so unless I was with a good friend who was at about my skill level (such as Andy), I'd usually opt for the latter option. Some days, I'd want to "master" a particularly difficult run, so I'd end up taking the same chairlift over a dozen times. In doing this, I'd experience what I call the "chairlift phenomenon": the chairlift ride would seem to get shorter near the end of the day. No, the actual ride wasn't any quicker (I timed it), it just *seemed* shorter.

The phenomenon of years seeming to go by faster as a person ages is similar<sup>126</sup>. One explanation (for both) goes like this: during the 1st ride on the chairlift, everything I see is new and unpredicted: an odd rock formation, a beautiful view, or a particularly treacherous looking piece of slope. When I've reached the top of the lift, there are a number of things I'll know that I didn't know when I was at the bottom. It's not this conscious, but when I get to the top for the 1st time, I might implicitly think "Just 10 minutes ago, I didn't know about (such and such a hazard) or a certain enticing tree-trail.". During my 12th ride on the chairlift, there'll be much less significant that's new, so I'll have noted or *learned* less. So the change in my brain-state (in terms of information) from the bottom to the top for the 1st run is greater than the change in brain-state for the 12th run, and in general, more change is correlated with more time passing<sup>127</sup>. A corollary of the chairlift phenomenon is that if you

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<sup>125</sup>The altitude change between the base and the peak at the Winter Park Resort in Colorado is over 3,000 feet (and over 1,600 feet for a single lift), which means that the lift can take over 10 minutes.

<sup>126</sup>The chairlift phenomenon is also related to that of dreams seeming to last longer than the time it takes to have them. Perhaps dreams are sometimes simulated at an abstract level, and when we wake up, we remember the same abstract parts that we would've remembered if we'd had the actual experience. For example, I probably won't remember how many cars I saw on the way to work (and certainly not their license plate numbers), but I'll have a "feel" for how many I saw, and that's what I'll remember. If I woke up with only this "feel", it'd be the same as if I had actually had the full experience. I can't *do* the commute to work without those details being filled in (every car *must* have a license plate number), but I can *simulate* going to work in my mind, and the simulation will probably skim on those details, thus allowing me to do the simulation much faster than reality (at a cost of some accuracy).

<sup>127</sup>There are other explanations, but they're pretty much all equivalent. Hofstadter[8] gives a theory using people creating bigger and bigger "chunks" (or concepts) as they get older. You're able to form these chunks only by seeing the same patterns over and over. Another explanation is that, when you're 6, the next year is 14% of your life, vs. a year being 1.25% of your life when you're 80. This explanation fails for the chairlift phenomenon, which takes place in a single day.

want your life to seem long *in retrospect*<sup>128</sup>, you should have diverse experiences<sup>129</sup> and avoid routines.

We were made aware of the chairlift phenomenon when we arrived back in Brussels. We headed for the same hostel we'd stayed in with Astrid when we first arrived in Europe, and remembering that day now made it seem like months and months ago, though it had been only 16 days since we left Brussels. Since we were last there, we'd been to Amsterdam, Arnhem, Duisburg, Copenhagen, Malmö, Stockholm, Freiburg, and Basel. At least 8 new cities in 5 new countries speaking 4 new languages, using 3 new currencies. Baltimore was an even more distant memory, and the thought that we were there just a few weeks before seemed like a contradiction, even though it was true. "Wow, just 3 weeks, and so much has happened. I could write *a book* about all the experiences we've had.", I thought.



We left our hostel, and as it was too late in the day to *explore* and visit the Atomium, we decided to *exploit* and hang out at our favorite Brussels bar/cafe downtown (not too far from the only place on our trip where I found free wireless internet). This would be our last night in Europe, and we wanted to enjoy it. (On the other hand, we had to wake up early the next day to catch our flight back.) So, Gabe and I drank beer and coffee, chatted with passersby, and generally enjoyed the early evening. It was around this time that we suddenly heard cheering, horns honking, whistling, and music blasting from passing cars.

I remember the first time I saw the Greek flag. I was flipping through my dad's almanac, which had pictures of all the flags of the world. I decided that the Greek flag, elegant and somehow captivating, had the neatest design. In fact, Vexillologists<sup>130</sup> often use the flag of Greece as an exemplar of the 5 principles of good flag design. A flag should: 1. be simple, 2. use meaningful symbolism, 3. use only a few basic

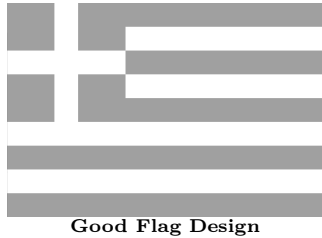
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<sup>128</sup>Another interesting thing about the chairlift phenomenon, is that the 12th lift seemed longer *during* the ride (presumably because my mind was occupied with things other than how long the ride was), but shorter in retrospect. The character, Dunbar in *Catch-22*, realized this, and tried to make his life seem longer by occupying it with boring tasks. But a summary of his day would be short.

<sup>129</sup>One problem with this is that new experiences that are wholly different from past experiences get harder and harder to find. This is partially due to the brain's ability to generalize and find patterns. For example, once you've seen many different customs, new customs cease to be *new* even if you've never seen them before, because you can chalk them up to the "new customs" category.

<sup>130</sup>Vexillology is the study of flags. Who knew there was such a discipline?

colors, 4. not use lettering or seals, and 5. be distinct from other flags (unless there's actually a connection to what the other flag represents).



Now, *in Brussels*, I was seeing hundreds of Greek flags. I had never seen so many Greek flags. People were waving them in the streets and from windows, and they were flowing from makeshift flagpoles attached to cars passing by. The cause of all this lay in what had just happened in Lisbon, Portugal: Greece had just beaten France in a playoff game in the Euro 2004. Until then, Gabe and I hadn't heard anything about this game, but now it was impossible to ignore. Gabe and I hadn't watched the game, but we had no doubt about who had won. It turned out that the game had been close (1-0), which usually makes for greater excitement at the end and either a more thrilling victory or a more agonizing defeat.

I was a little puzzled, though. Although we were in a French-speaking country, we were neither in Greece nor France, yet there were people ablaze with Hellenic pride. The celebrants *looked* like what I thought Greek people looked like: curly hair, semi-dark features, but what were they doing in Brussels? Did Brussels have such a large Greek community<sup>131</sup>? The flags all seemed to be converging to a square a few hundred yards away. Gabe and I paid our tab and went to investigate. A crowd of several hundred people, many painted with Greece's blue and white and/or donning Greek flags were gathered, chanting a Greek phrase ending with "Ελλάς! Ελλάς!". The air was electric. All the excited enthusiasm and the general positive mood was contagious. Although I'm not Greek myself, I couldn't help but smile (despite the protests from the  $\frac{1}{32}$  Frenchman in me). As Mark said, the same was happening in

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<sup>131</sup>I later emailed Mark (the Dutchman we'd met in Stockholm), and asked him if he understood what had happened. His reply was that "Soccer in Europe is a very, very emotional happening. Every country really lives up for the Euro 2004. It's a very popular sport here. I think the situation in Brussels was pretty ordinary: After a big game, the winning country goes out on the streets and celebrates... For the Greeks this is magnificent: Greece never even scored a goal in a European or World Championship. The fact that they won the title defender is wonderful. Every Greek was celebrating the whole night. It was the same in Holland."



other cities, though I'd be curious as to what the situation was like for the Greeks in Paris. Athens must've been on fire.



After an hour or so, the cheering waned, and people started heading off to various pubs, clubs, and other night spots. Partially because we needed to wake up so early and that the previous night's "sleep" left us unusually tired, and partially because this wasn't "our" celebration, Gabe and I headed back to the hostel at a pretty early hour for a Friday summer night.



## Day 19: Saturday, June 26th, 2004: Back to Baltimore

Usually, Gabe and I were enthusiastic to wake up and see what the day had to offer, but we had a pretty good idea already this morning: hours of airport security lines, check-in counters, and baggage checks. About these, we weren't as excited as we would've been about another day in Brussels. Little did we know that the day (a *long* one) would still hold a few "treats" for us.

I had another "chairlift experience" when we arrived back at the Brussels Airport. The airport was virtually unchanged since the first time I'd seen it, when we were just arriving from America. After all, it was only 18 days since we'd last been there, but it felt like so much had happened since then. Furthermore, I was seeing the airport with slightly more experienced eyes. My *Weltanschauung* had changed somewhat over the past few weeks. I now *knew* what Sweden was like on the solstice, what the chimps in Arnhem smelled like<sup>132</sup>, and that Swedes, Germans, Swiss, and Dutch, at a fundamental level, aren't all that different from Americans (at least when compared to chimpanzees).

On our trip back to New York, we gained back the 6 time zones we'd "lost" on our way coming from America. I'd bought a copy of Dr. Jekyll and Mr. Hyde in Freiburg which I'd already read on the train back to Brussels, and this is what Gabe read on our flight. The plane was traveling nearly as fast as the surface rotation of the Earth at that latitude, so we touched down in New York only 2 hours "later" than we'd left Brussels. It was now just 2 in the afternoon on Long Island (and Gabe had finished the book in "2" hours).



I'm a great believer in luck,  
and I find the harder I work the more I have of it.  
—Thomas Jefferson (attributed)

On one hand, The World is far too complex to a fit in a person's head. A person can't hold a complete description of *everything*. Much less can he completely predict,

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<sup>132</sup>I might be able to describe the chimp smell as something like 1 part camphoraceous, 2 parts pungent, 5 parts musky, and 1 part putrid, but that'd have little intuitive meaning for me, much like 45° Celsius doesn't have as much intuitive meaning as 113° Fahrenheit, which took years to develop an intuition for, and temperature is just 1 number, not 7.

much less can he completely control The World. The World's not random at all<sup>133</sup>. Everything that happens has a reason. Not a reason as in a conscious purpose from a greater being, but a reason in the sense that there are a set of physical laws that cause things to happen. However, certain systems of The World (like the weather or a cointoss) are *chaotic*, which makes them so hard to predict that we call them "random".

On the other hand, I like to think that one's destiny lies in oneself alone. A person *can* control a good deal of their future. In my life, I usually err too far on the side of thinking that I don't have control. In reality, I have lots of (though not total) control over things. It was through our actions that we went to Europe to begin with. It was through my actions that I was able to develop and maintain the relationships that allowed us to have such a wonderful experience with our friends in Europe. It was through our actions that we got to do and see all we did in Stockholm and Duisburg. But, I can't think of what actions we could've taken that would've prevented our flight from JFK back to Baltimore to be delayed for 6 hours. That's how long the airline's estimate was.

You can't control the cards you're dealt in life, but you can count them. That is, you can't have complete control over or complete knowledge about everything, but, through thought and investigation, you can influence where the randomness is. With some thought or investigation into the affairs of the airlines, it wouldn't have been as big a surprise that our plane would have such a delay.



We viewed the extra 6 hours on Long Island as an opportunity. One of our former labmates, Joe, lived only a 15 minute drive from the airport, so we gave him a call, and soon we were hanging out with Joe in his home town. Being a native Long Islander, many of Joe's personality traits seemed quirky back in Baltimore. He'd constantly complain about slow drivers and slow service. But here, Joe's personality suddenly made a lot of sense.

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<sup>133</sup>A Quantum Physicist might take issue with this statement. According to Quantum Physics, quantum effects *are* random, God *does* "play dice" with the universe, and the Heisenberg Uncertainty Principle says that we *can't* know the simultaneous position and velocity of a particle. This might be true, but, generally, when quantum effects are averaged into macroscopic effects, the law of averages comes into play, and the randomness mostly "cancels itself out", and The World again becomes "deterministic", or at least "Pert Near Probably Deterministic" (PNPD). With this in mind, a cointoss *is* deterministic. If I wanted to, I could write a simulation using Newtonian mechanics that, given the weight of the coin, its angular momentum, elasticity, etc., could predict (with nearly 100% accuracy) the outcome of the cointoss.

It's as if everyone on Long Island agreed to an unwritten protocol of behavior (e.g., "Don't waste my time, and I won't waste yours."), and Joe was just following that protocol. Baltimore had a different set of protocols (e.g., "Don't rush me, and I won't rush you."), but Joe still followed the one he knew from Long Island. It'd be like being in France, where everyone has "agreed" to speak French, and then speaking English. But here, Joe was "speaking the language". As the cliché goes: "When in Rome, do as the Romans do." (which, like most adages, is contradicted by another cliché: "If all your friends jumped off the Empire State Building...").



When we got back to the airport, we were informed that the plane would be delayed even longer, and that we'd be *bussed* back to Baltimore. Despite taking nearly 3 times as long as flying, bussing turned out to be a blessing in disguise. Gabe had never been in Manhattan before, and this was a great opportunity for him to see The City. My initial experience in Manhattan had also been on a bus, several years earlier when my car broke down in Binghamton, NY, and the bus back to Amherst went through Grand Central Station. I remember my awe at the Lincoln Tunnel, the wall of skyscrapers, and the general hugeness of the place. Our bus's route was a scenic one, right through Times Square, then through the Lincoln Tunnel. By Times Square, I pulled out Lappy I, and found 20 or 30 wireless networks (which I couldn't take advantage of because we were moving).



At the end of this long day (with over 20 hours of sunlight), our friend, Bill, picked us up at the airport in Baltimore. It was well after midnight on the 27th, and we were back: the New and Improved Gabe and Marc.



## Afterward

In life, there are observers, and there are participants, and it's always safer to be an observer... Be a participant.

—Bill Holstein

**Y**ou need to step back on occasion and examine things. So, the next day I spent a good deal of time catching up on sleep and reflecting on our trip. I reflected on the purposes of the trip<sup>134</sup>, and whether we achieved them. As the saying goes, if you go on a journey, and don't return as a different person, then you may as well not have traveled at all. Ultimately, just by observation we learned a good deal of tacit knowledge (about how The World (or a part of Europe, at least) works) that would've been difficult to obtain just by reading a travel guide. But we also met and *interacted* with people (though it wouldn't have hurt to interact even more). We shared stories and ideas, and developed friendships. Our friendships with the "A"s, Andy, Astrid, and Anna, allowed us to experience life a little outside of the typical tourist trek.



*Baltimore* had moved on while we were in Brussels. The cicadas, which had been so prevalent when we left, were nearly all gone when we came back, with their eggs laid and the new larva gone back into the ground to feed on tree roots for another 17 years. It had also gotten hotter, so while in Europe we missed some of the nicest days of Baltimore's year. Whenever you choose to do something, you do just one thing, but you exclude a combinatorially huge number of other possibilities.

When you concretize an abstract idea by instantiating it, it goes from all its possible forms to just the single instantiation. This *was* our trip to Europe. Before the trip, there were billions of possible Europe trips we could've had, but like being dealt a hand of Gin Rummy, I only get a single hand at a time. The problem with life is that you *must* choose an instantiation of it. You have to do *something*. Time doesn't give you a choice. If you don't actively choose to do something, your "choice" is to float and let that time of your life slip past.




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<sup>134</sup>Let's hope growing my peacock's tail wasn't one of them, but you can't be sure.

I've noticed that my life seems to go through phases, and usually the general flavor that epitomizes each phase is really only knowable when viewed from a good distance down the road. What separates these seasons is interesting, and typically the separators are individual tragedies. However, I view the trip to Europe as a positive landmark, and I now have some distance to gauge the general flavor of life before, during, and after the trip.



As I mentioned on **Day 07**, the morning of the 4th of July was spent trying to find a place to watch the Greece vs. Portugal Euro 2004 Championship (which started in the early afternoon in Washington D.C. because of the 5 hour time difference). I spent the evening of the 4th of July in Annapolis with Bill and other friends. Among them was Leo, who was a girl who had just arrived from Spain a few days before, never having been in America before. Our experience in Europe gave me a bit more perspective of what the celebration must've been like for her (as well as realizing that not the whole world was setting off fireworks of red, white, and blue).



As Gabe and I only scratched the surface of some places like Hamburg, and completely skipped entire countries, like France and the Czech Republic (not to mention the Continent of Asia, or other galaxies<sup>135</sup>), I also could only scratch on some of the ideas in my mental landscape, and had to entirely leave out others altogether. Also, as the cities that we visited are ever-changing, as people and buildings are coming and going, so too are the concepts of my Weltanschauung.



We made a slideshow of The Adventures of Sammy Vasa (the ball) and showed it to Mitesh (along with returning Sammy and giving Mitesh coins from the places we'd been). The joke was on us though: Mitesh didn't even notice Sammy's disappearance. (He enjoyed the slides and the coins, though, and he didn't seem to mind Sammy's "battle damage".)



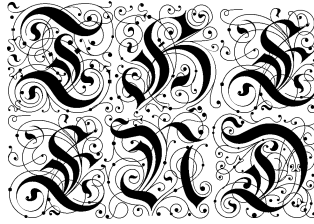
On March 23rd, 2005, Sara gave birth to Frida Elise Ekdahl (3 days after the "expected" due date of March 20th, 2005). This being my own birthday (Marcmas, March 20th, 1977), I'm well aware that my immaculate conception (as **my mother's**

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<sup>135</sup>At the galactic scale, the Earth is a grain of sand.



a virgin) must've been near the summer solstice on the year before. So for Frida, this would've been... Gabemas 2004!






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## Tack

 Like all people, I'm a product of genes and environment. This work wouldn't exist in its present form without the influence of the people I met along the way. Of course, there are the people in the story itself: not only Gabriel Chaddock, Astrid Hopfensitz, Andreas Ekdahl, and Anna Flügge, but also The Ekdahls (Sara, David, and Frida, as well as Nils, Per, and Sven Erik), Sara's family (Bengt, Kerstin, Marita, Sofi, and Anders), Mitesh, Tanya, Katarina, Ernesto, Mark the Dutchman, Carly, and all the other "blue people" that I remember despite forgetting your names! I'd also like to thank Matt "The Filthy Critic" Weatherford for letting me know about National November Novel Writing Month, which was the impetus to finish writing this.

I had an audience in mind when writing this book<sup>136</sup>. If you made it this far, thanks for reading. I hope you got something out of it. (If you didn't, it looks like you'll have to go back and read it again.) This list is in the chronological order we met: Charles Holstein, Bill Holstein, Kristin Alexander, Ivan Ganey, Jad Davis, Mike Roberts, Jennifer Pfau, Alyssa Piccinni, Doug Stark, Patricia Howard, Jesse Davis, Tom Armstrong, Bill Krueger, Błażej Bułka, Helen McLaughlin, Lucie Kýrová, Julie Oberle, and Eva van den Broek. Also my parents, **JoAnn** and Craig Pickett, and my brothers Matt and Jason Pickett. I mentioned my younger brother, Jason, in the book, who'll soon be heading to Korea to teach English there. My older brother, Matt, is currently on a year long trip around the world with his girlfriend, Amy Murashige (who's my friend because she now answers her phone calls). I'll be waiting for "World Debris: The Epic of Matt and Amy 'round the World", as well as Jason's "Die Weltanschauung des Jason Pickett". Finally, I'd like to thank Tim Oates, my advisor, and apologize to him for working on this when I should've been solving the AI problem.

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<sup>136</sup>Who'm I kidding? A good deal of writing this was (a possibly futile) attempt to impress girls. So, I'd like to thank my muses past and present: *Дюшъ Анна моего моего друга.*

## About the Author

Marc Pickett I of Padelford was born in Los Alamos, New Mexico in 1977, but was raised mostly in Colorado. He has since lived in Seattle, Portland, Oregon, Amherst, Massachusetts, and Livermore, California. He currently lives in Baltimore where he's a doctoral candidate in the Computer Science Department of the University of Maryland, Baltimore County, specializing in Artificial Intelligence, which has been his focus since high school. His dissertation is on autonomous concept formation.

