

## The Persistence of (Someone Else's) Memory

Sol Moneta felt uniquely refreshed as the temp – he had told Sol his name, was it Ryan? Dave, maybe? – in his insurance agent's office detached the cables trailing from a port about two inches below the base of Sol's occipital bone.

“Ah, that feels great. Y'know, there's just something about the transfer process that just gets you in a good mood, Ryan,” he said sincerely but somewhat stiffly. That refreshed feeling was giving way to slight social anxiety as he was faced with the prospect of having to make conversation with a new, unfamiliar presence in the office. Although, he noted, he would probably have been just as flustered at the prospect of chatting with the usual secretary, Antonia, if she hadn't been on vacation. “Have you ever thought about getting a port yourself?”

“Uh, it's Pat, Sir,” the sheepish temp replied. “But actually, yes – I've got an appointment next month in Cleveland. I'm definitely looking forward to it. They said my rates could go down as much as \$230 a month.”

Sol felt like a big, dumb idiot for so confidently uttering the wrong name. He thought about apologizing with a lame excuse about the sensory transfer protocol literally draining his short term memory while he was hooked up, but the kid probably knew that wasn't how it worked. Instead, leisurely pulling himself out of the leather armchair of the kind you could lately only find in cigar lounges, dentists' waiting rooms, and – apparently – his agent Alec's office, he just tried to carry on with more small talk.

“Cleveland, yeah? Cheaper surgery across the state line, I bet. Alec isn't paying you well enough here?” Sol fumbled with his right hand behind the back of his head to pop back in the discreet, flesh-colored STP2.0 stopper.

“Oh, it's actually my insurance company – I'm with Omnistate, not Expeditors. They're actually paying for the whole procedure, but the nearest approved in-network clinic is in Cleveland,” Pat cheerfully explained. Full procedure payment, PLUS savings – it seemed like Omnistate was trying to corner the market. Expeditors only gave Sol half off his 'port installation, and he was salaried at their home office! He would have to bring this up with his boss, or possibly even whine a bit to his agent.

As if on cue, Alec Murklin of Murklin & Sons Insurance, LLC returned from his lunch break and greeted Sol.

“Mr. Moneta! What an unexpected pleasure! What brings you to the office on this fine day?” Murklin enquired with a phony-sounding ebullience.

“Alec, we've known each other since, like, seventh grade. Don't 'Mr. Moneta' me,” Sol replied. “I just thought I'd drop in to do my weekly sensory upload. Got to keep providing the data if I want those Safe Sensation™ reward checks, man! I actually better be getting back from lunch myself now, though.”

“Maybe *you* knew *me* since seventh grade, but I swear I thought your name was Brandon until our junior year. And obviously that's what you *were* doing here. But why come all the way to the office for that, huh? I know you've got one of those freaky boxes to jack into at your own house.” Alec was, to say the least, not a big believer in sensory transfer technology. Yet he surely had no qualms about offering state-of-the-art upload hardware to his clients. Sol didn't think he'd have to stretch the truth too far in his response.

“Yeah, but the commercial unit you've got is so much quicker and easier. It's just a couple blocks from my office, anyways. I really ought to come down here to do it more often.” Alec wasn't necessarily a “booksmart fella” like Sol, as he would be the first to tell you, but he did have a keen BS detector. His nose wrinkled as he prepared for further interrogation.

“Sure, Sol. But you have to go now? Did Dave here take care of everything for you? Nothing you want to go over about your auto or your life with me?”

“Uh, it’s P—” the temp began before giving up.

“No, really, Alec, I just came in to do the upload—” started Sol. Alec began to grin slightly.

“Wait, I bet you came in because you felt the ad.” Ever since version 1.0 of the sensory transfer protocol was invented about eight years ago, biological understanding of sensory perceptions had deepened every year and new biotech gimmicks popped up like clockwork. The flavor of the last few months was the “haptic advertisement,” where a prospect would get a hard-to-describe desire to shop after touching a public object like a handrail encoded with the ad. As with online advertisements in bygone generations, technology to block these advertisements proliferated – although the preferred way to avoid unwanted spam was the low-tech practice of wearing gloves. “Not wearing gloves when you went to lunch, I bet!” Alec chuckled. “Let me guess – ‘it just doesn’t feel the same with protection on.’”

Sol started to blush and crack open his lips to show a paper’s-width smile that said “isn’t this embarrassing?” “Yeah, you got me. I left them in cubicle when I went out to lunch, pressed the crosswalk button when I was getting a sandwich and just felt my feet moving here.”

“Oooh, the crosswalk on 5<sup>th</sup> and Davis? Isn’t that one funny?”

“Yeah,” Sol agreed. “I can’t describe why, but it kind of had me chuckling when I thought of coming here. Look Alec – I really do have to get back to work, though.” He jammed his hands in his coat pocket and headed toward the door.

“Sounds good, Sol,” Alec called after him. “Hey, do you actually get to do anything with the stuff that you weirdos pull out of your brain? I know that Expeditors can’t just be giving people money to get their skulls scraped for no reason.” At this, Sol did turn back from the doorframe with real animation.

“I sure am, actually. The actuarial department is working on a really interesting new application for sensory data k-means clustering that’s well beyond—”

“Hah!” Alec slapped him on the left shoulder affably. “Sensory data clumping! Sol, you’re one in a million. You get so excited about this stuff but it’s all Greek to me. I swear you guys just use words like that to get us to stop asking questions. You’re probably just paying all these reward checks so you can look at people in their bathrooms. Take care bud.”

“That’s not how it works, and I wouldn’t want to see you in the bathroom in my worst nightmares, Alec. I’ll see you around.” Sol made his exit and walked the two blocks back to the Expeditors home office deep in thought. He actually kind of liked Alec, but he was always bothered by how much guys like him didn’t care about getting things right. You couldn’t see, hear, or directly read what anyone upload through the STP2.0. The data he got back was really more like an association matrix that revealed the objects or topics someone was observing and a limited amount of sentiment associated with each observation. It was complex stuff, but it was already paying dividends in the insurance space – you could build models to figure out when someone was driving but was paying attention to something other than the road and flag them for underwriter review. Or, just last week, he heard about a policyholder with a home policy who had smelled something funny in the morning before work, did his weekly upload at his office, and had firefighters automatically called to his house before the gas leak he smelled but couldn’t place ignited. The risk identification models the company was using were already operating in close to real time and outperforming human perceptions in some ways. It was really, really interesting and not at all like the impression people like Alec had.

Also, Sol always hated that expression “one in a million.” It wasn’t what Alec meant, but by that measure there were 9,000 people out there exactly like him. Learn to be more precise, guy.

Sol stepped into the elevator and went straight to his cubicle on the 8<sup>th</sup> floor. It was time to get back to work. It was only after a few minutes of coding that he grew irritated with the sticky feeling on his palms and took off the pleather gloves he’d been wearing since he left his apartment in the morning.

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While STP technology had been around for almost a decade now, it was neither popular nor profitable for the first five or six years of its existence. The original (niche) use for the port installation and sensory neuron connections was a kind of cybernetic free love movement initiated by the Silicon Valley tribe of hippie-ish transhumanists who invented the technology in the first place. The experience of connecting to someone else’s STP jack was supposed to allow some kind of near-spiritual communion that nobody in flyover country or not already under the influence of micro-dosing had much time for. It was only when STP2.0 was introduced about three years ago and integrated memory neurons with the ‘port that people and companies with real money started to care. Being able to digitally transcribe not just a rough outline of what someone was experiencing in the moment, but also some kind of history of stimuli and their response in the individual was a game-changer.

The insurance industry had the capacity as well as the ability to incentivize the collection of massive amounts of new, untapped data that STP2.0 represented. It wasn’t feasible to directly set prices based on sensory information yet, but it was worth plenty of incentive dividends to start collecting that trove of information. In a few years, life premiums would be based on variable such as: how many times have you looked at a flower and felt sad? So many higher-risk undiagnosed depressive cases would easily be caught and charged a higher rate, and hopefully incentivized to get some help so they could lower their costs. The driver attention models and home hazard detectors were already pretty advanced. But it was still relatively early days for the surgical enhancement route. By the time it was universal, the insurance uses would be limited and the big data brokers would have overtaken the insurers and their actuaries for most other applications, like advertising. Even right now, plenty of insurers seemed to be well ahead of Expeditors. Yet Sol was still excited to work each day, because he thought he was playing around in a space where the big data brokers couldn’t go yet with their limited STP databases, and where no one else had even thought of going except maybe those original Bay Area hippies: he was going to programmatically find love.

Well, perhaps not love. But compatibility, or something like it. The way he reasoned, what were actuaries if not natural groupers of people and things – demographers? John Graunt had made the first life table by lumping together similar Londoners – grouping by age, sex, and so forth. Later luminaries in the profession used a single number like credit score to describe a swath of otherwise disparate people who had a very similar propensity for filing a claim, or realized that two neighborhoods that got 43 inches of rain in a year and elevated 640 feet above sea level but within 180m of a river would have similar flood risks – even if one neighborhood was in Massachusetts and the other in Oklahoma. What Sol wanted to do was to group the customers who sent in weekly sensory impressions into even finer clusters of maybe a few dozen highly-similar individuals. The combination of what these individuals experienced and how they really felt about it offered something that no previous matchmaker could obtain: objective and verifiable likes, dislikes, interest levels, and behaviors.

So far it seemed to be working better than Sol could have initially hoped. He was letting a veritable freight train-length chain of cloud computers run some unsupervised clustering algorithms across thousands of dimensions of sensory data and the clusters generated were amazingly small and distinct. What’s more, Sol was able to cross-reference the customer IDs of the individuals in each tiny basket against policy records to de-anonymize the data and find names and relationships. In validation subset he was examining right now, Sol was seeing 82... no, 83% of the spouses that he identified from policy records wound up in the same cluster that the machines assigned. In one of the clusters, he even found his own mother and father. No doubt that

cluster represented people who responded positively to hundreds of reruns of “Machete Lawyer” and found enjoyment in asking their 31-year-old son why he was still single.

“...we meeting?” a voice pushed past the acid jazz playlist Sol was very deep into and hit him in his left eardrum. It was Christa, his one direct report. “Sol, did you forget again?”

“No, no, of course I remembered we were meeting,” said Sol despite his complete lack of any mental record on the subject. “I was just checking out the latest validation reports. There’s some really encouraging stuff in these.” He got to his feet and poked his head down the East aisle next to his cube. He spotted an open conference room at the very end. “Hey, let’s grab Halley 081 for this.”

“Yeah, I was seeing the same results you were, I think,” said Christa as they walked. “83%, right? That’s insane!” As they sat in the rather garish aubergine room, Christa pulled out her laptop for some notes. “But I was thinking we should still try the second validation method to be sure before we go to Ian with results. I think I can get that done by Thursday if you want?” Ian was Sol’s boss and could be said to be very supportive of this special project, in the sense that he didn’t really know anything about the project yet and hadn’t told Sol to do or not do anything in particular over the last month or so. He was a hands-off guy.

“No, no, I think what we were seeing *was* the second method, and it’s still good,” said Sol, though he was really only 70% sure he had remembered to run Christa’s idea for the recent validation run. “I personally think we, or at least I, need to try validation method three before talking to Ian.”

“Method three?”

“Yes, it’s a little odd – but follow me here. I told Ian we were spending some time to just play around with the new data and trying to ‘innovate’” (Sol said this last bit with finger-quotes in bracketing his head). “He was OK with that but I do think at the end of the day we have to show a) this works as a prediction method, and b) we can make money from this somehow. Now, the money part is easy if part a) is demonstrated. I think that we can do all kinds of things – simply offer a matchmaking service to customers, people might pay for that if it’s actually good. They spend lots of money on stupider stuff like that already. We could even come up with new products: divorce insurance! Figure out how likely people are to split up if they’re in different clusters and instead of paying a lawyer for a prenup, they pay us a premium and we pay out settlements as ‘losses’ in case of divorce. Lots of stuff could work,” Sol slowed down to build suspense for his grand proposal. “The tricky thing is getting iron clad proof that this will actually work. You and I and Ian – the 83% or whatever is good enough. But folks who will say yea or nay to our ideas love anecdotes. I think I’ve got to actually try this out and get a story out of it.” If Christa was plugged into an STP2.0 uploader right now, the association matrix that would populate their database would have some high-magnitude component vectors for “sentiment:perturbed” and “visual:boss making a fool out of himself.”

“Sol, it sounds like you want to... set yourself up on a date with a random customer?”

“...not ...*random*. But yes.” He cast his eyes down at the white pressboard table. “Let’s try and figure out some options there.”

It was not his finest moment as a supervisor, and the whole idea was a bit ethically gray at best. Yet, whether it was due to office power dynamics or just sheer pity, Christa did pull up Sol’s sensory identifier and they were able to find his cluster. Sol crossed out his eleven male co-occupants immediately (although he conceded that maybe if his dating life continued to atrophy the way it had for the last couple years, perhaps he should at least have an open mind for one experiment). Four of the women appeared to already be married, and nine of the remaining ten lived at least four hours away. Remarkably, the one prospect left, Hannah Lethe, lived only seven minutes from his apartment in the city.

He wasn't sure how to introduce himself. Christa somehow helped convince him that his uncertainty and the strangeness of the whole situation could be an asset. Who wouldn't be at least a little intrigued, they reasoned together, with the story of finding a stranger through something of a science experiment? He eventually decided on a phone call.

"Hello, Hannah – you don't know me, but my name is Solomon Moneta – if you call me back, you can just call me Sol. Anyways, this is a bit odd, but I was analyzing some STP data for my job, and I noticed we have a really high 99% stimulus response similarity. Fun facts: it looks like we both see, uh, house fires on the news and associate intrigue with them and it appears we like the same Eric Dolphy album. If you'd like to meet up sometime, please give me a call back at (876) 555-3819, again that 555-3819 and the name is Sol."

Against all odds, the cold-call voicemail received a response and they had a dinner date set up for Esteban's the following Tuesday. "I've been looking for someone to maybe have a couple of fellow pyromaniac babies with, so why not?" she said in her return call, and then recommended the restaurant – Sol's favorite Mexican place in the city – as a meeting place herself. Sol knew he was getting his hopes up too much, but he was already feeling as smitten as he'd been with anyone since that last disastrous date with Antonia. Actually, he ruminated, the date itself was the opposite of a disaster, but the follow-up was. It had actually been at Esteban's, and everything was going swimmingly, but she had just stopped responding after he texted her his ranking of the original Toho Godzilla films. He had tried to figure out where he went wrong, like that time earlier in the week that he dropped by Alec's office just to surreptitiously try and see her, but had no luck – maybe she was offended that he trashed "All Monsters Attack," or maybe they were just too different in many ways. It was all behind him now – a month ago, he would have actively avoided Esteban's due to the bad associations, but he was looking forward to his next visit to the Mango St. establishment.

Just before getting on the subway that Tuesday, Sol hooked himself up to his home machine to do his weekly upload. He needed that residual relaxation to make it through the first five minutes of dinner. If he could keep his cool for that long, he was sure he'd make it through the rest of the night. When he first hooked himself up, a nagging thought about "checking for duplicates" abruptly seized his mind, but the calmness of the upload process soon took over. He was in fine spirits when he approached the door to Esteban's at 6:52 and saw Hannah for the first time.

Sol did not consider himself a shallow man, but he couldn't deny that he had previously worried that Hannah might not have what he diplomatically thought of as "conventional" looks. All his fears were assuaged when she turned out to be more or less exactly his type: slim but not formless at 5'6", a bit on the paler side, with cute glasses and the precise fake shade of red hair that he dreamed of when he had a rare dream of women. She didn't actually introduce herself; he just spotted her making her approach on the sidewalk and knew the specimen that turned his head had to be Hannah. Somehow, she looked equally sure that the gentleman making a show of opening the door for her had to be Sol (opening the door turned out to be a gallant mistake – Sol wasn't wearing his gloves, and got a sort of tone-jingle for cinnamon gum stuck in his head from the haptic ad embedded on the handle).

Once seated, the pair did make their formal introductions but it seemed like they had known each other for years. Sol surprised even himself when he volunteered "two beef, one chicken" to the waiter asking Hannah how she wanted her three enchiladas apportioned – he somehow just knew what she wanted, because that's what he would want. As they ate their appetizers, the pair discovered a number of shared interests, 38 to be exact (keeping rigorous but pointless statistics was one of those shared interests). If they played that childhood game of "jinx," someone would be buying the other Cokes for life given the number of times they simultaneously blurted out the same favorite movie, song, or (improbably) rating scale (1 through 4 stars) for local pizzerias. Sol was feeling so good by dessert that he decided to unload one of the biggest guns in his arsenal: the bison story.

The bison story was usually a last-ditch appeal to get someone to pay attention to Sol or laugh at/with him. It was simultaneously funny, exciting, and unusual and it showed that he had a bit of an unexpected side to him, while the way he told it usually struck listeners as hitting the perfect tone of self-deprecation. On a good night, it could reignite a stalled conversation and keep Sol talking to a woman for up to 45 additional minutes. Tonight, with Hannah, he felt like it was going to lead to an evening and, heck, maybe even a morning at his place.

“...and at the exact moment I jumped under the picnic table, the bison reached the edge of the grassy part of the enclosure and its front hoof kind of slipped. It was still only four feet away and I think it still wanted to kill me, but it looked so embarrassed that such an unathletic person kind of juked it out that it just kind of snorted, stood there for a minute, and then walked away! My friends thought they were going to have to dall my parents to tell them I died a week after graduating...” Sol had told the story so many times by now, but he still couldn’t help grinning and occasionally chuckling along with his audience by the tale’s conclusion. Yet he looked up for the first time since beginning his spiel and realized his guest wasn’t even smiling. “Wait, Hannah? What’s wrong? Sorry, I bored you.”

“No, it’s not that...” Hannah replied, uneasily peering out of the corner of her eye. “It’s very interesting. Well, it’s interesting to me because the same thing happened to me. Sol, I mean the *exact* same thing happened. Not just an encounter with a bison – it was in the Badlands, I was going to my glovebox to get a map to Wall Drug, and an old couple pulled me under a picnic table as it started to charge. How do you explain that? Did you... can you read these memories your company pulls?”

Sol was stunned. “No... no, that’s not how it works at all. I would never do something like that anyways... why would telling your story impress you? No, this really happened to me. Was it really exactly the same? The bison stopped by your tent and peed before you started to move?”

“For a full minute. My best friend reprimanded me for starting to smile when it did that...”

“...because it can mistake your teeth showing for a sign of aggression.” Sol completed the sentence. “Hannah, when did this happen? What year? What day?”

“It was the summer after my college graduation. We’re the same age. It was June something, no – June 13<sup>th</sup>, because it was the day after my cousin’s birthday.” Sol felt a quantum of relief, but the deep uneasiness that had settled in couldn’t fully dissipate no matter what they talked about the rest of the night.

“I went earlier – it was May 6<sup>th</sup>, because it was a week before my parents’ anniversary,” Sol said. The only other thing he said to Hannah that night was something about getting the check.

It was exactly the same. Not in a “ha! Isn’t that a coincidence” way. It was the same in a way that made him feel disposable – like he was, well, literally just one in a million. And somehow one of the other 9,000 people exactly like him was his date the night before. Christa knew not to ask about the date when she saw him punch in at 8:30. He was possessed, going over the data byte by byte.

That nagging thought about duplicates came back to him again – he had forgotten to look for duplicates in his original database. That was the other validation check Christa had mentioned. It was crazy to think – but his whole night had been crazy – was his memory a duplicate record? Was Hannah’s? Obviously, there were one or two cosmetic differences, but what if the upload process had somehow been screwy? If it implanted an imperfect copy of his memory when she hooked up, and her mind just filled in the gaps? Sol knew there was almost no chance that was possible, but he wasn’t a biologist or a computer scientist. He wasn’t even behaving much like an actuary at the moment. He was acting like what he was – a freaked-out man. His phone buzzed.

It was Alec Murklin. Sol really wasn't in the mood for a blue joke and a fifteen minute conversation about his deductible that could have been a text message. He let it go to voicemail and resumed his search. Despite hours of looking for exact duplicate records, he couldn't find any evidence that memories or senses or whatever came through the STP2.0 data pipeline were being copied and uploaded to new brains. Yet it was the only explanation that held emotional weight with him. Why had an otherwise good evening driven him crazy, unless there was a corruption in the data? Why did he match up with this creepy clone?

At the end of the day, he was too exhausted to work himself up too much anymore. Christa somehow sensed that it was OK to approach.

"Boss?" she said, quietly knocking on his cubicle wall even though there was no privacy to violate. "I think you want to see this." Sol didn't want much of anything unless it made his life make sense again, but he went along with Christa back to her cubicle. One of her computer monitors displayed a graph of numerous tightly-packed scattered points and the other had a list of alphabetized forenames.

"This is that second validation method that I was talking about last week. I know you said you ran it, but you seemed kind of out of it that day. Anyways, I thought I would double-check it and this is what I found." She gestured to two highlighted names in the alphabetized list. Diane Weathers and Diane Olsavsky. There were birth dates next to each name – the same birth date, actually. "See here? This is the same person – Diane Weathers is the maiden name and the current name. It looks like she got married to Eric Olsavsky and then got divorced last year. When you ran the validation the first time, though, you had two little dots for Diane here." Duplicates. "But you included her and Eric in the 'married' column when you did your analysis, even though the final marriage wasn't successful."

The wheels were turning in Sol's brain again. "So for those 83% of couples who wound up in the same cluster..."

"Only about 40% of those stayed married. You were actually showing that the people who are at the 99<sup>th</sup> percentile of similarity as you are more likely to become your ex-spouse than your spouse. Maybe it's possible to be too similar." Sol nodded. It was making sense. "Then I ran another check," Christa said, gesturing to the chart on the left monitor. "When you dive into the components that make people in the same cluster, a lot of the reason that you reach that level of similarity is because you live in the same household and see, hear, smell, taste the same stuff. Not all reactions are going to be the same, but a lot of time, you become similar because you are or were married to someone – you don't get married because of similarity. So I tried modeling again with a time element – only compare distinct individuals at a time before they were located at the same address. Then check on the outcomes later. The new clusters are processing right now, I think we can learn a lot." Sol's phone buzzed again. It was Alec. Again.

"Christa, this makes so much sense. I didn't even know what outcome I was really looking for. But I should probably take this real quick." He stepped into the hallway. "Alec, to what do I owe the displeasure?"

"Sol, I am so sorry, buddy." The voice on the other end sounded unusually sober and sincere. "I found a huge problem with the machine in my office." The machine? Sol wondered. "That day you came in and Dave—"

"Pat," interjected Sol.

"Pat hooked you up, well – later that day, something was actually smoking in the transfer port. I got an IT guy to finally come over this week and he said there was a crazy short circuit that was messing up a lot of stuff. He doesn't think that there are any long term effects, but basically, your memory may have temporarily been screwed up if you plugged into that thing. Before it broke down completely, it was blocking people from remembering stuff from the last day or two. Those memories should come back in a week or two but I just

want to apologize to you personally, because I know you used that piece of crap. Never buy used, dude.” Short term memory problems – it was making sense to Sol. That’s why he hadn’t remembered Pat’s name right after he mentioned it, or the second validation test to find duplicates...

“Uh, don’t mention it Alec. I’ll stick to the home machine for now. Thanks though, this makes a lot of stuff make sense. Well, as much sense as it can.”

“Sure thing, Sol. And remember, if you ever need to increase that life face, I’m your guy. Just make an appointment with Antonia.”

“Oh, she’s back?”

“Yeah, didn’t she tell you? She spent a month in Italy – the motherland for her. Had a great time, just got back. She said you actually took her out the day before she left. Poor kid had her phone stolen while she was over there, though.” Sol wondered...

“She never told me...did she upload anything the day before she left?”

“When you two went to Esteban’s? Come to think of it, she did. She said she felt bad that she forgot to tell you, but somehow it slipped her mind. Then she wanted to text you, but by the time she remembered, she was out of international data and then the whole theft thing...”

“Thanks, Alec, gotta go.” Sol hung up abruptly and walked back into Christa’s meeting room. “Christa – when your new model is done running, I want you to pull up similarity scores for...” he thought about it for a second and turned toward the door. “For a bunch of people tomorrow. It can wait. Right now, I’ve got to see someone about a life face amount.”

Sol nearly skipped down the stairs. He only felt a little regret when he opened the door with his bare hand and had a sudden craving for corn dogs.