EXPLORING THE STRANGE DYNAMICS OF EXPERIENCE

Fred Voorhorst & John Flach

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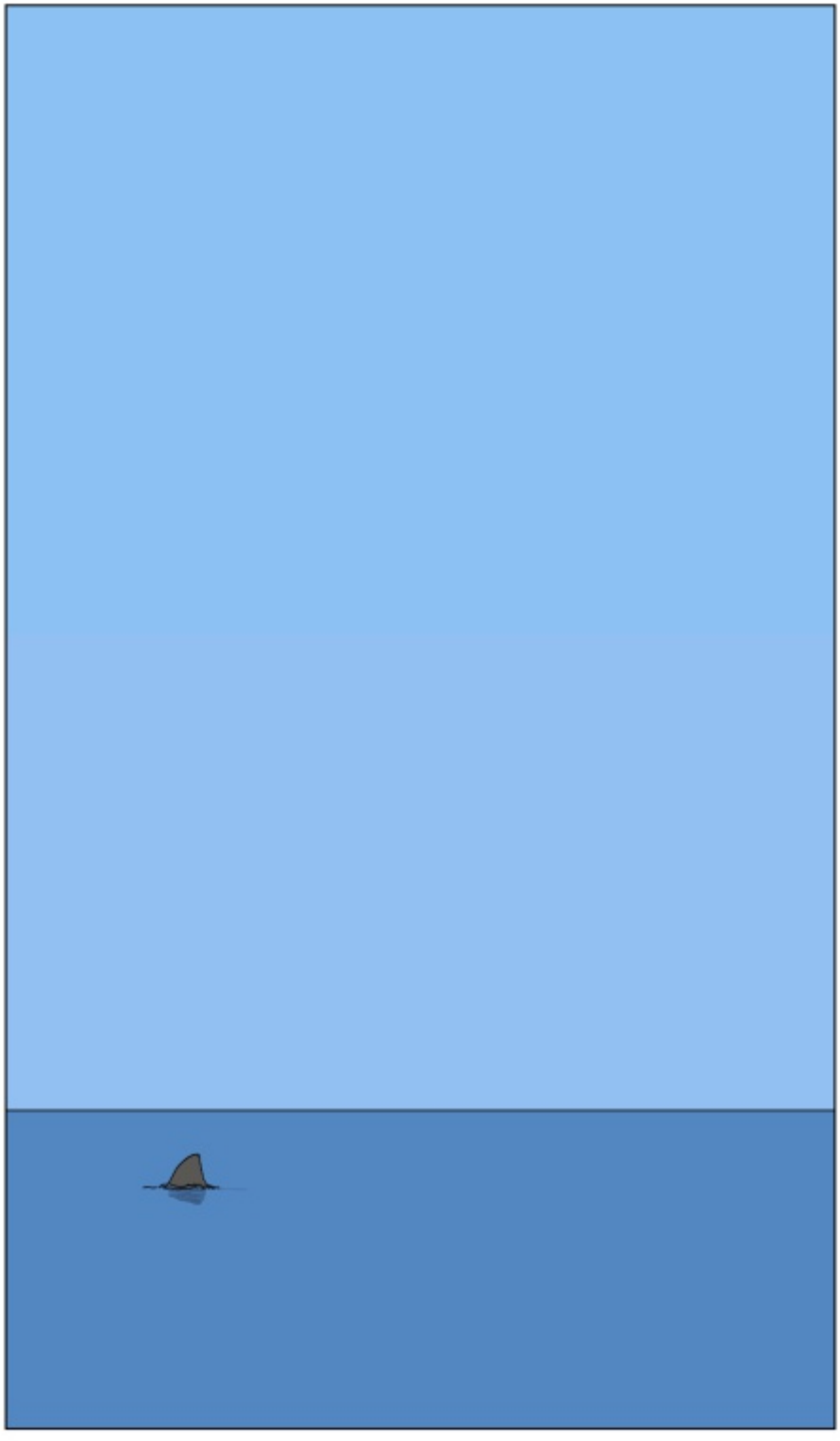
IMAGINE THAT!
PICTURE THAT?
YES PLEASE

CONTENT



The cartoons collected here freely explore life, the universe, and everything, mainly exploring the strange dynamics of human experience. From the physics of space-time to theories of cognition and the minutiae of daily life, our comics invite contemplation on the ever-evolving, unpredictable nature of existence.

These cartoons have fueled many interesting discussions between John and me, and have also sparked public conversations on LinkedIn, as reflected in the brief text passages added to each of the cartoons. These passages direct the curious reader to additional sources where they can explore the ideas more fully.

We hope this collection will generate a few laughs, elicit some nods of recognition, evoke some surprises, and spark curiosity and reflection on the complexities that define our journey through our vast, ever-changing, and interconnected lives.

Fred, May 2024

ABOUT THE CONTRIBUTORS...

John Flach, Professor Emeritus, with a PhD in human experimental psychology and diverse experiences teaching and working at the intersection of social science, engineering, and design. Having retired from academic life he devotes his time to teasing grandkids and exploring human expertise and the potential to use advanced information technologies to amplify human capabilities (instead of replacing them). As a recovering academic, John still often speaks an erudite language that few can understand.

Fred Voorhorst, product / innovation manager by day, and a cartoon wizard by night. Trained as a mechanical engineer with a PhD in industrial design engineering, he typically spends his days applying what is now commonly referred to as design thinking and agile development. But when the sun sets, Fred becomes a cartoonist extraordinaire, expressing things beyond mere words. He is particularly adept at translating the erudite language of academics in a way that engages and makes sense to a more general audience.


SOMEWHERE IN VENICE..
HEY, DID YOU EVER LOOK AT RASMUSSEN'S ABSTRACTION/ DECOMPOSITION SPACE COMBINED WITH WIMSATT'S SEVEN DIMENSIONS?
IT IS A WAY TO GET INSIGHT INTO HOW WE PARSE DETAILS OF A SITUATION AND UNDERSTAND HIGHER-LEVEL VALUE..
WELL.. THIS IS SOMETHING FOR WHICH I DO NOT NEED TO KNOW ANYTHING ABOUT FILTERS OR PARSING TO UNDERSTAND THE VALUE ...
....THIS IS ABSOLUTELY BEAUTIFUL..!
AGREED..

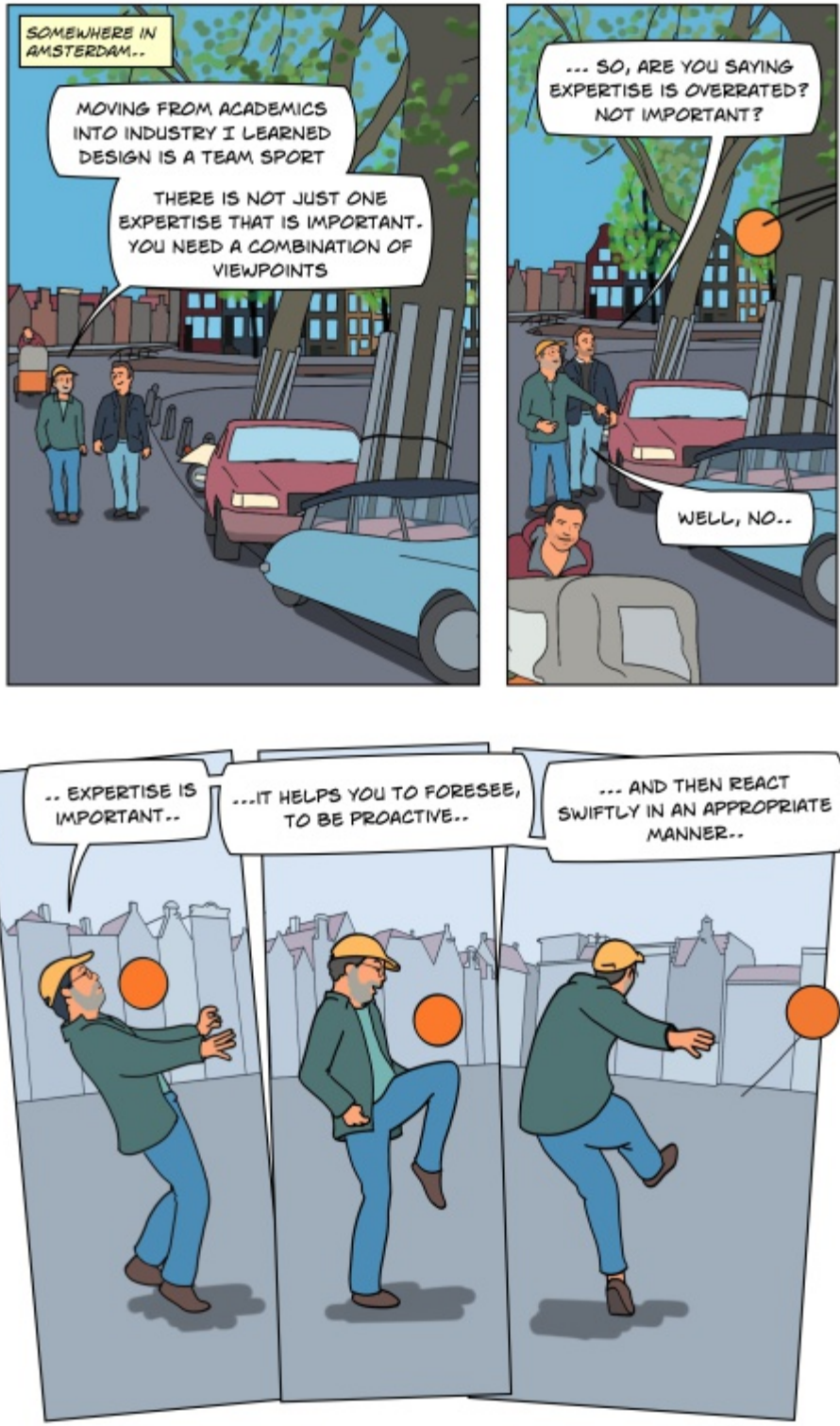
Parsing information - Experiences are multifaceted and dynamic, shaped by various constraints and relationships that operate across different levels of experience. They can be characterized by multiple levels of functional limitations and relationships. Scientists employ various methods and techniques to describe and capture these experiences. The scientists "parse" the experience. Not an easy feat as the experience of any situation is complex. Rasmussen (1986), Wimsatt (1972), and Hayakawa (1990) all suggest that the experience of a situation (or object) might involve multiple different layers of abstraction. These layers


OH ISN'T THIS WONDERFUL--
A CLEAR BLUE SKY, ONLY 5 DEGREES BELOW ZERO, NO WIND...
...IT'S COLD

are jointly shaped by physical (objective) and mental (subjective) constraints which set the boundaries on both what can be done and on what is desirable to do. For example, physical laws of motion constrain where a person can go, and mental constraints associated with values and intention constrain where a person would like to go.

In describing and parsing human experiences, deciding what to include and not include, scientists are not ‘objective’ observers. There is the risk that the scientist projects interpretations onto the internal mental processes of the individual being studied. William James aptly identified this tendency as the "Psychologist's Fallacy," This recognition underscores the need for a nuanced and cautious approach when interpreting and articulating experiences as the same objective situation may be experienced differently depending on the intentions and values of the observer.

What is fascinatingly interesting is that even if there is no purely objective experience, all experiences are shaped by objective constraints.


SOMEWHERE IN AMSTERDAM..
MOVING FROM ACADEMICS INTO INDUSTRY I LEARNED DESIGN IS A TEAM SPORT
THERE IS NOT JUST ONE EXPERTISE THAT IS IMPORTANT. YOU NEED A COMBINATION OF VIEWPOINTS
... SO, ARE YOU SAYING EXPERTISE IS OVERRATED? NOT IMPORTANT?
WELL, NO..
.. EXPERTISE IS IMPORTANT..
...IT HELPS YOU TO FORESEE, TO BE PROACTIVE..
... AND THEN REACT SWIFTLY IN AN APPROPRIATE MANNER..

Diversity - Teamwork is not just about assembling a group of people who are superstars in specific disciplines. Pentland (2014) notes that "the standard story about innovation and creativity is that there are a very few super bright people who have the almost magical ability to think up great ideas, and the rest of us have occasional lucky breaks. But that is not what I see. Instead, I see that the best ideas come from careful and continuous social exploration." While expertise is undoubtedly valuable, its true power is realized when it harmoniously integrates within a diverse, collaborative group. A team composed of brilliant individuals who lack social skills will typically deteriorate into arguments and power struggles. At best, the result will reflect the narrow expertise of the person who wins the arguments, at worse nothing of value will be produced. However, when a team engages in a constructive dialogue, the collective intelligence and synergy can surpass the capabilities of any single expert. The key lies not just in individual brilliance but in the ability of team members to work cohesively, leveraging diverse strengths and perspectives to achieve greater outcomes.


SOMEWHERE IN ZURICH...
MOM, LOOK THERE IS A CAROUSEL WITH HORSES. CAN WE GO THERE?
THAT CAROUSEL BACK THERE. MAYBE WE CAN USE THAT TO ILLUSTRATE CIRCULAR DYNAMICS AS COMPARED TO US ON THE TRAM ILLUSTRATING LINEAR DYNAMICS AND THINKING?
YOU MEAN LIKE, WE GET ON, ENJOY THE RIDE AND THEN GET OFF
EXACTLY!
...WHEREAS WITH THE CAROUSEL....
EH... BUT I WAS TALKING ABOUT THE CAROUSEL...

Linear thinking - There has been a tendency to describe the world in terms of causal chains of discrete stimuli and responses.

The computer metaphor of mind fits nicely within this causal narrative. This metaphor has led many to think about cognition as a discrete series of isolate information processing stages, and that “thinking”, similar to a computer, is a linear process, that can be broken down into sequential steps that can be isolated and individually studied. For example, memory becomes a matter of encoding and storing information, decisions become discrete choices that

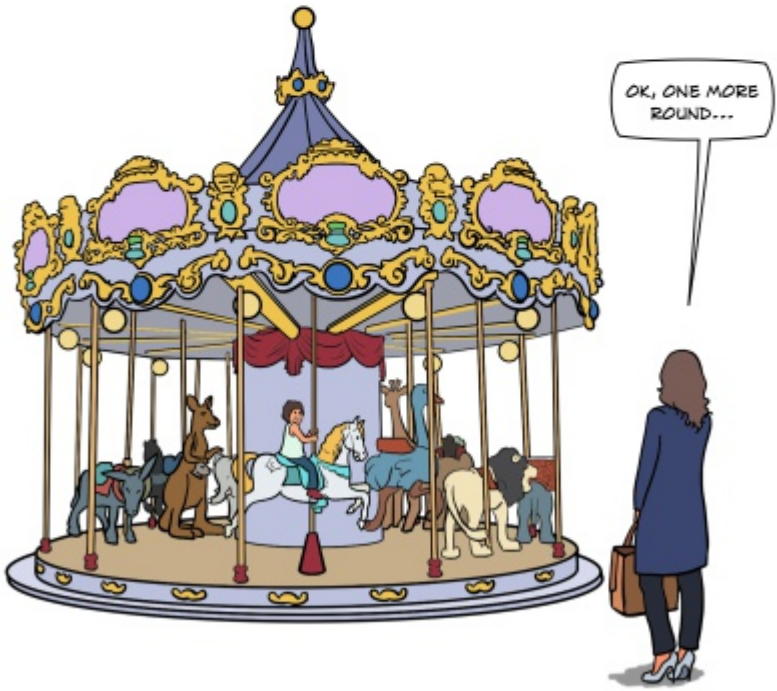
can be evaluated relative to logical and statistical computations. Much of the experimental literature focused on illusions, errors, and processing limitations, motivated by the belief that these would reveal the internal constraints within each isolated processing stage.

However, Wiener's Cybernetic Hypothesis (1948) offered an alternative metaphor – the servomechanism or control system. Explorations of the dynamics of closed-loop control systems help many to recognize that circular couplings were pervasive in the nervous system and in social systems. This circular dynamic has also been represented as John Boyd's circular OODA Loop – Observe, Orient, Decide, and Act. The more sophisticated versions of the OODA Loop reflect the capacity for adaptive control systems that can learn from experience (Osinga, 2207).

Even simple control systems (e.g., auto pilots) have emergent properties like stability that are difficult to explain with classical causal narratives. Similarly, decisions and actions made in pursuit of goals can have surprising consequences as feedback is used to shape subsequent decisions. Thus, decisions are not independent, and they must be understood relative to intentions, expectations about the future, and values. One could try to describe this as a linear process, zooming into the single decision and identifying its cause and its consequences. But in the larger context nature is like a web where everything is connected to everything else with their interdependencies and relations. A change in one part of a system has consequences for other parts of the system often unexpected and unforeseen. So, plans often have to be adapted in response to the consequences of these unexpected changes. In many respects, everyday human rationality (e.g., common sense) is the capacity to muddle

skillfully in response to the requisite variety generated by the web of nature.

This is an inherently circular dynamic in which perception, cognition, and action are intimately coupled. The computer metaphor reflecting a causal narrative does not do justice to its complexity, and even the servomechanism and adaptive control metaphors have their limitations with regards to explaining human performance.




SOMEWHERE IN SPAIN...
SO JOHN, ARE YOU PARTIAL TO HUME OR TO KANT?
I PREFER PEIRCE'S TRIADIC MODEL, WHICH STATES THE IMPORTANCE OF A DYNAMIC COUPLING BETWEEN MIND & MATTER, BETWEEN ACTION & PERCEPTION, WHICH IS FUNDAMENTAL FOR EXPERIENCES TO EMERGE...
... AND EXPERIENCE IS WHAT MATTERS
RIGHT, THAT MAKES SENSE

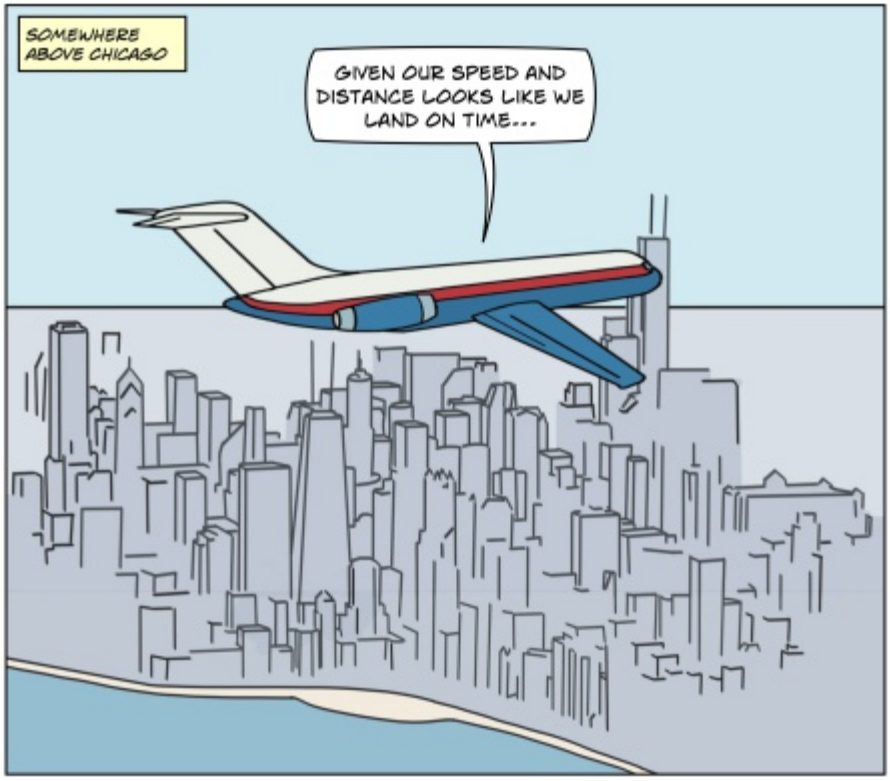
Active perception - Experience shapes who we are, how we perceive the world, and how we navigate life's complexities. As such, it is important to embrace and learn from every experience, whether joyful or challenging, as a means of cultivating personal growth, understanding, resilience, and fulfillment. The Roman poet Horace tells us we have to make the most of the present moment, embracing opportunities, and living life to the fullest. Carpe Diem! Important to understand is that experience is what is co-created or what emerges as a joint function of the coupling between action and perception. Action and perception are coupled because they are fundamentally intertwined processes in how we experience, how we interact with and how we understand the world around us.

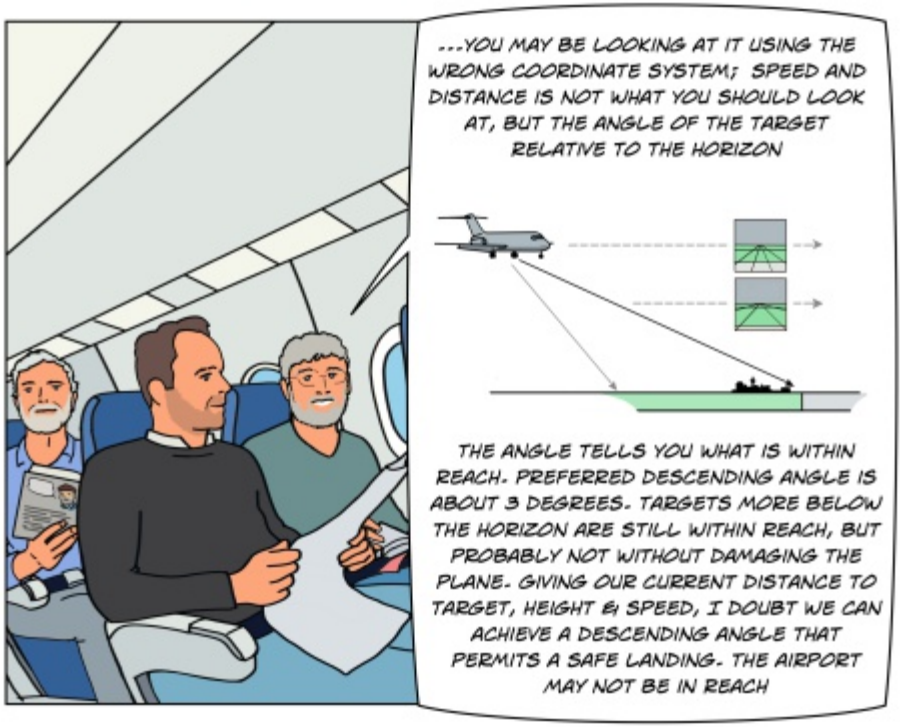

SOMEWHERE IN NEW YORK...
DID YOU HEAR ABOUT THE POSITIVE IMPACT RE-INTRODUCING THE WOLF HAD ON THE YELLOWSTONE PARK?


Short-tailed weasel
Raven
Coyote
Elk
Gray Wolf
Pocket gopher
Grizzly bear
Bison
Deer mouse
Snowshoe hare
Beaver
Berries
Aspen, Willow leaves & twigs
Grass
THEY DISCOVERED "THE MAZE OF LIFE"; THAT EVERYTHING IS CONNECTED, AND IS INFLUENCED BY EVERYTHING. THE RE-INTRODUCTION OF THE WOLF EVEN CHANGED THE FLOW PATH OF THE RIVER.

Nature's wisdom - The stability of complex systems does not solely depend on any single element within the system. For instance, while the presence of wolves might contribute to stability in the ecosystem of Yellowstone National Park, the same element could be a source of instability within the intricate dynamics of Wall Street. This stark contrast highlights the difference between the principles governing wilderness ecology and the intricacies of the human economy.

It serves to illustrate the wisdom inherent in the balance of nature and, conversely, the potential folly embedded in unchecked human greed, which can disrupt the delicate equilibrium essential for the stability.


SOMEWHERE ABOVE CHICAGO
GIVEN OUR SPEED AND DISTANCE LOOKS LIKE WE LAND ON TIME...


...YOU MAY BE LOOKING AT IT USING THE WRONG COORDINATE SYSTEM; SPEED AND DISTANCE IS NOT WHAT YOU SHOULD LOOK AT, BUT THE ANGLE OF THE TARGET RELATIVE TO THE HORIZON
THE ANGLE TELLS YOU WHAT IS WITHIN REACH. PREFERRED DESCENDING ANGLE IS ABOUT 3 DEGREES. TARGETS MORE BELOW THE HORIZON ARE STILL WITHIN REACH, BUT PROBABLY NOT WITHOUT DAMAGING THE PLANE. GIVING OUR CURRENT DISTANCE TO TARGET, HEIGHT & SPEED, I DOUBT WE CAN ACHIEVE A DESCENDING ANGLE THAT PERMITS A SAFE LANDING. THE AIRPORT MAY NOT BE IN REACH

Metrics of Experience - Classically, the metrics of physics and the metrics of mathematical logic have been used to probe human experience. The laboratory puzzles derived from the physical and logical analyzes have been taken as representations of 'reality' and responses to the puzzles that are inconsistent with the physical/logical prescriptions have been called illusions, errors or biases. But maybe these variations simply indicate that the phenomenon of experience requires different metrics than those used in physics or mathematical logic. The challenge is to discover the intrinsic dimensions and metrics of experience.

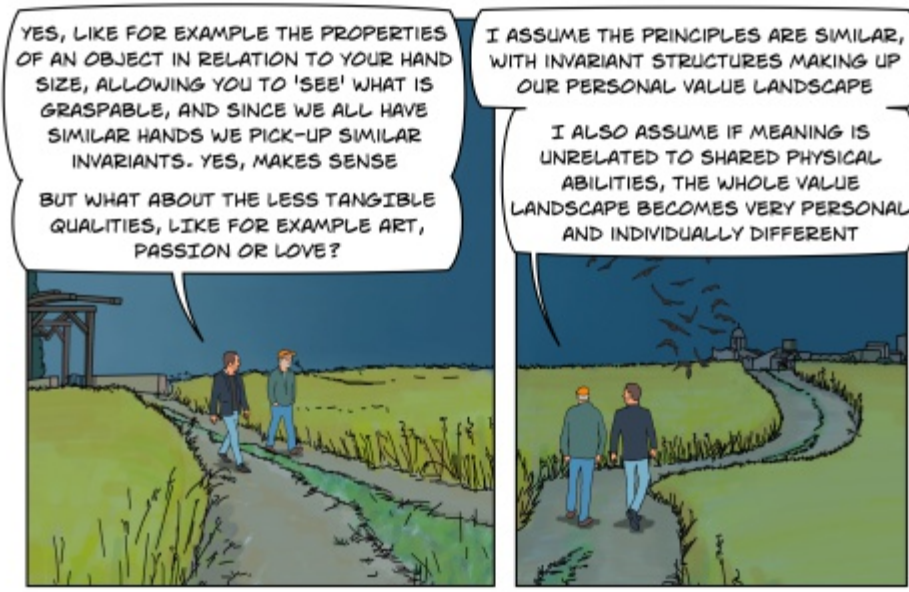
A prime example of a phenomenon that is invisible to an observer independent physics is optical flow (e.g., Gibson,

1979). The flow is not a property of light and not a property of eyes. Rather optical flow is created by moving eyes. Flow is constrained by the physical properties of light, but it is created by the movement of an observer. Optic flow has its own geometry and unique metrics (angles and angular flow rates) that are emergent properties of experience.

A first step toward understanding experience is to move from observer independent descriptions of the environment to observer relevant descriptions of the ecology or Umwelt (Uexkull, 1957; Gibson, 1979). It is to recognize that the experiences of time and distance (e.g., closeness, reachability, grasp ability) cannot be defined using only a meter stick and a clock. If a chair is 2 meter away, is it reachable? Is it graspable? Can I sit on it? We are taught that the distance is real, yet to us, distance by itself has no meaning. What is real to us is whether we can reach the chair and sit down. These real experiences depend on the affordances for acting (affording), the feedback information for controlling (specifying), and the intentions of an observer (satisfying) (Flach & Voorhorst, 2020).

Whether the airport is only a few miles away does not mean it is within reach. The plane may be at the wrong altitude, have the wrong speed given the wind, or the incorrect angle of approach given the wind speed and direction. If I have two hours to my next meeting, what does that mean? What if the meeting is in the next room? What if it is in the next town, what if it is on the next continent? Time and distance is not meaningful by themselves, only in context of my current situation, in context of my abilities and my intentions.


SOMEWHERE IN FRANCE..
INVARIANT PATTERNS, OR SIMPLY INVARIANTS, IS WHAT PERCEPTION IS ALL ABOUT
FOR EXAMPLE IN CASE OF THE OPTIC ARRAY, INVARIANTS SPECIFY A RELATION BETWEEN THE OBSERVER AND WHAT IS OBSERVED. THESE PATTERNS REMAIN CONSTANT EVEN WHILE THE OBSERVER MOVES AND ACTS. ERGO INVARIANTS


YES, LIKE FOR EXAMPLE THE PROPERTIES OF AN OBJECT IN RELATION TO YOUR HAND SIZE, ALLOWING YOU TO 'SEE' WHAT IS GRASPABLE, AND SINCE WE ALL HAVE SIMILAR HANDS WE PICK-UP SIMILAR INVARIANTS. YES, MAKES SENSE
BUT WHAT ABOUT THE LESS TANGIBLE QUALITIES, LIKE FOR EXAMPLE ART, PASSION OR LOVE?
I ASSUME THE PRINCIPLES ARE SIMILAR, WITH INVARIANT STRUCTURES MAKING UP OUR PERSONAL VALUE LANDSCAPE
I ALSO ASSUME IF MEANING IS UNRELATED TO SHARED PHYSICAL ABILITIES, THE WHOLE VALUE LANDSCAPE BECOMES VERY PERSONAL AND INDIVIDUALLY DIFFERENT

Social invariants - Gibson's insights into optical invariants guiding safe navigation through physical spaces prompts a compelling question: What are the social invariants that delineate a satisfying path through the complex landscape of human relationships? What is the affordance of a friend. What is the invariant of constructive collaboration? In the social realm, these invariants would serve as cues or patterns that help individuals navigate trustworthy and fulfilling connections. Research on team and organizational dynamics suggests that navigating the social space may be a critical determinate of the ability of organizations and communities to self-organize to solve complex problems (Ostrom, 2010; Pentland, 2014). Just as optical invariants aid in determining a secure path through a cluttered environment, understanding the social equivalents could offer a nuanced perspective on the complex dynamics of human interaction and interpersonal relationships.

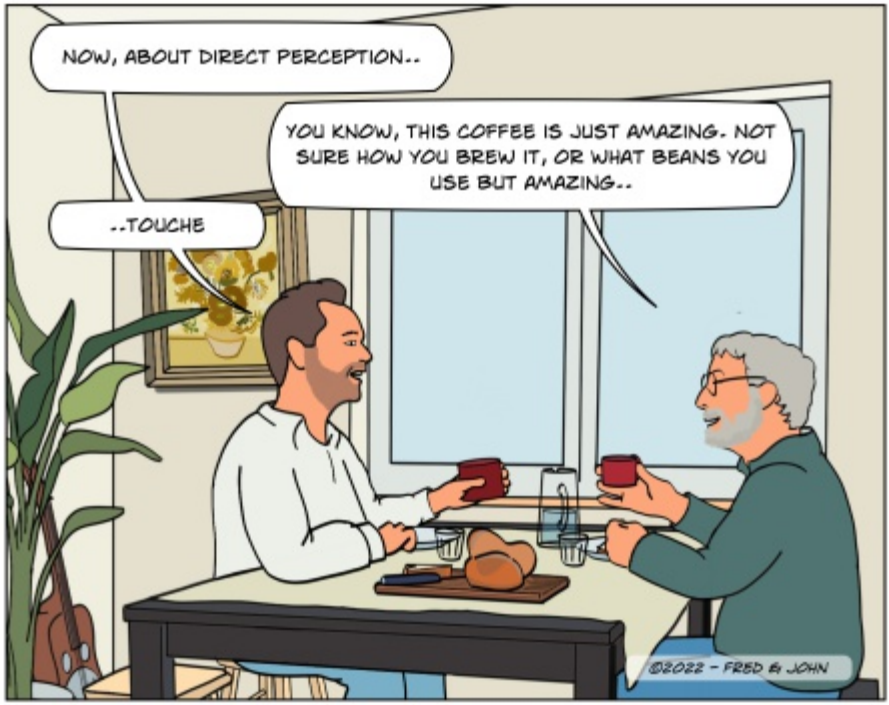

SOMEWHERE IN TOKYO..
WHY DO WE STILL HAVE DAY NUMBERS? DAYS, WEEKS, EVERYTHING JUST BLENDS TOGETHER. WHY DON'T WE USE NAMES THAT BETTER CAPTURE THE MEANING OF DAYS?
OMEGA
LIKE TODAY, BRIGHTLY CRISP, WITH A SOMEWHAT UN- GRASPABLE BEAUTY. IT SHOULD NOT HAVE A NUMBER, BUT MAYBE A SHORT, ALMOST UNPRONOUNCEABLE NAME. TO FULLY GRASP THE VALUE OF TODAY?
BUT DON'T YOU THINK THAT MEANING IS OUT THERE, THAT WE DISCOVER IT THROUGH EXPLORATION, OR THAT WE CREATE IT THROUGH OUR ACTIONS? THE NUMBER OR THE NAME OF THE DAY IS JUST A LABEL, TO REMEMBER THE DAY AND THE DAY'S VALUE BY

Meaningful constructs - Names bring a whole bouquet of memories, and serve as powerful cues that unlock a treasure trove of personal and shared memories, evoking a multitude of associated memories and experiences related to that individual. Our ability to remember names likely evolved as part of our broader social cognition, to support complex social interactions and cooperation among individuals. Remembering names enhances our social cognition, allowing us to navigate social networks, build alliances, and establish meaningful relationships that contribute to our survival and reproductive success. However, names may not always be the most suitable option for clear communication due to the added baggage of context, ambiguity, and personal perspectives. In contrast, constructs like numbers and dates, devoid of emotional associations, can be more effective for crisp and clear communication.

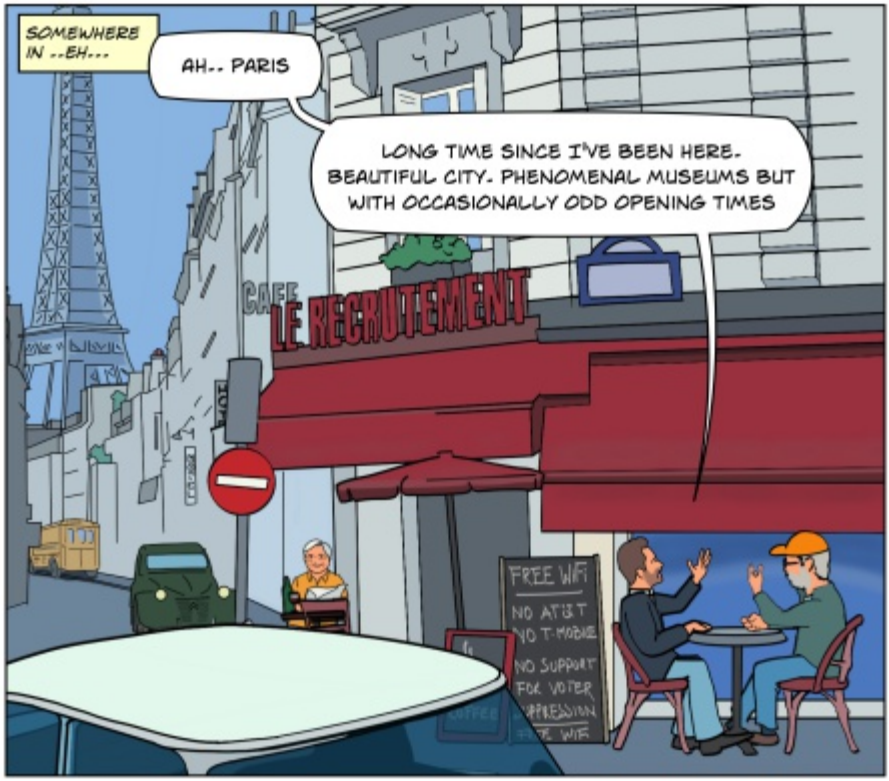

SOMEWHERE IN DAYTON...
THANKS FOR THE TOUR, BEAUTIFUL OFFICE. BUT CAN YOU WORK IN THESE OPEN SPACES?
WELL, YES
IT ACTUALLY WORKS WELL, THE 'NOISE' TELLS ME HOW THINGS ARE GOING
THE HUMMING OF THE MACHINE LEARNING TEAM TELLS ME THEY ARE PROGRESSING NICELY
THE WRIGHT PATTERSON AIRFORCE BASE TEAM MAKES SOME NOISE, BUT THEY JUST GOT THEIR FIRST CUSTOMER FEEDBACK
I SEE, THE NOISE GIVES YOU INSIGHT..
BUT IT SOUNDS LIKE IT IS QUIETER ON THE OTHER SIDE OF THIS FLOOR, SO YOU CAN ALWAYS WORK FROM THERE

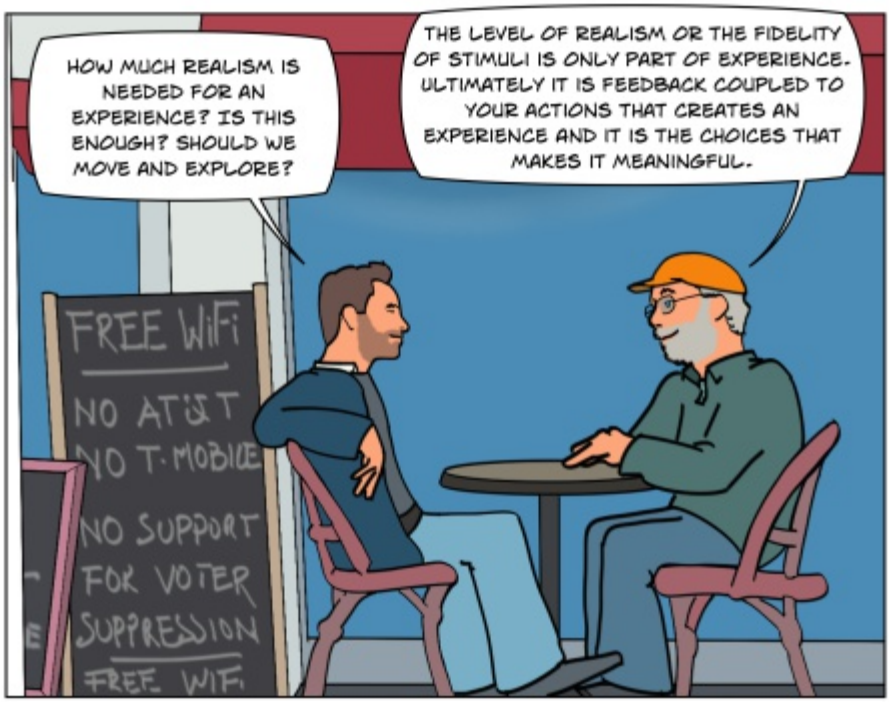
The sound of silence - The term "noise" often refers to unstructured signals and is typically considered to be an impediment to analysis. However, environmental noises contain possibly valuable information. Yes, in a laboratory we can create pure random signals (e.g., white noise), but in the practical context of experience, any signal has a source, and alterations in this noise have a cause and therefore can serve as precursors to critical shifts in a system's behavior. Rather than dismissing noise as an obstacle, a more insightful approach is to recognize it as variability laden with information about the underlying dynamic constraints (e.g., Van Orden, Holden, & Turvey, 2005). It often takes years of experience and certain expertise to pick-up on subtile alterations. Embracing this perspective allows for a more nuanced understanding and interpretation of the intricate dynamics at play within complex systems.

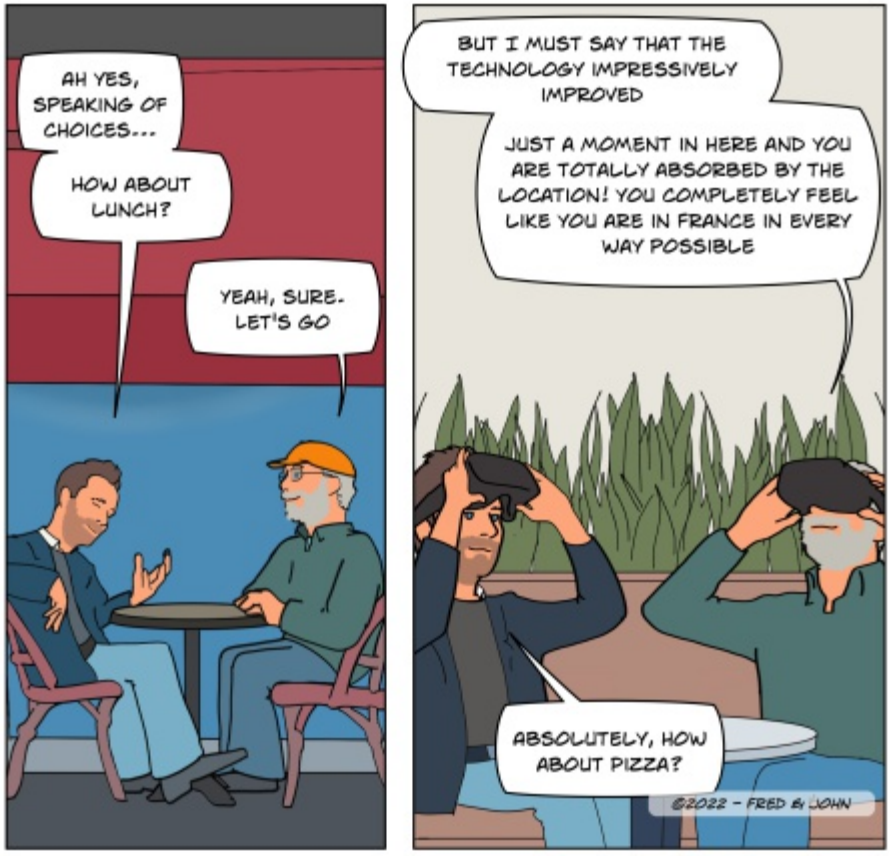

SOMEWHERE IN TICINO...
ABOUT DIRECT PERCEPTION...
GIBSON SEEMS TO HAVE ELIMINATED THE NEED FOR INFORMATION PROCESSING. BUT HOW CAN YOU EXTRACT 'MEANING' WITHOUT PROCESSING? HOW CAN YOU TELL IF SOMETHING IS GOOD WITH OUT AN ANALYTIC PROCESS? IS IT POSSIBLE TO TUNE IN DIRECTLY – AND PERCEIVE THE SIGNIFICANCE OF SOMETHING WITHOUT ANALYSIS?
OOOH... HOLD THAT THOUGHT
A BRIEF MOMENT OF AMAZING INSPIRATION
NOT SURE WHY, OR EVEN HOW IT HAPPENS. MAYBE A DOOR OPENS? A CAR PASSES? MAYBE JUST THE PERFECT KIND OF MORNING DEW?
IT IS RARE, AND ALWAYS TOO SHORT. BUT WHEN IT HAPPENS, IT IS BEYOND WORDS, BUT MEANINGFUL JUST THE SAME



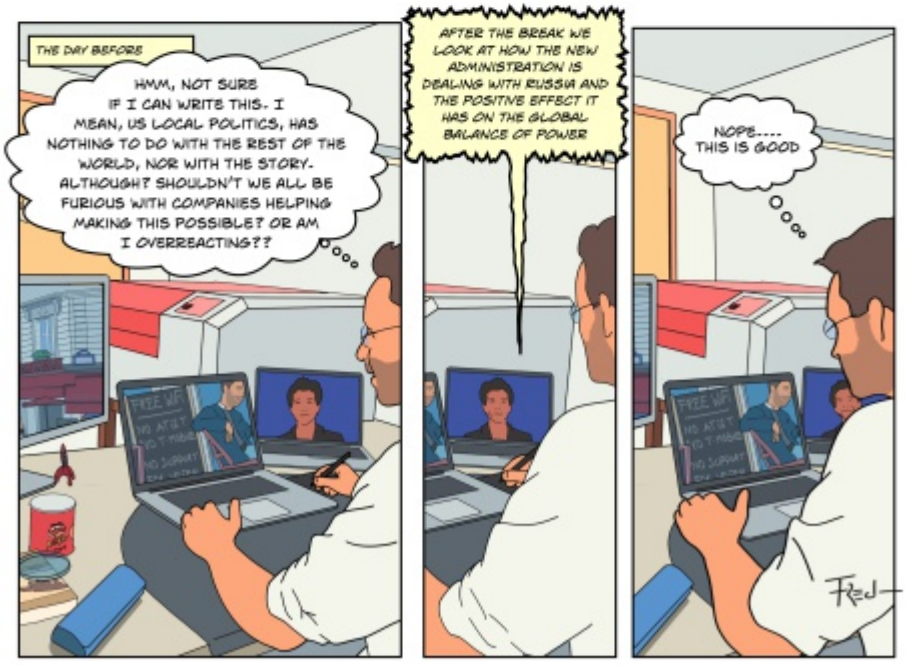
Inspiration - Certainly, we can parse and analyze our experiences (e.g., a satisfying taste, a sense of danger, or a sense of 'seeing' or 'recognizing' a solution to a problem) to build explanations but are the experiences themselves the product of such analyses or processing - or are the experiences precursors to the analyses. The central question that Gibson (1979) asked was "What comes first the experience or the analysis?" William James coined the term Psychologist's Fallacy to refer to situations where an external observer (the analyst) attributes differences in the analytic qualities to underlying mechanisms inside the person being observed. A current example is the construct of loss of Situation Awareness (SA) that aptly describes the perspective of the observer but is often treated as if it represents distinct internal processes in the mind of the person being observed. An alternative approach is to consider the impact of the situation as a potential source for the inspiration.


SOMEWHERE IN ..EH...
AH.. PARIS
LONG TIME SINCE I'VE BEEN HERE. BEAUTIFUL CITY. PHENOMENAL MUSEUMS BUT WITH OCCASIONALLY ODD OPENING TIMES
CAFE
LE RECRUTEMENT
FREE WiFi
NO AT&T
NO T-MOBILE
NO SUPPORT FOR VOTER SUPPRESSION
FREE WiFi


HOW MUCH REALISM IS NEEDED FOR AN EXPERIENCE? IS THIS ENOUGH? SHOULD WE MOVE AND EXPLORE?
THE LEVEL OF REALISM OR THE FIDELITY OF STIMULI IS ONLY PART OF EXPERIENCE. ULTIMATELY IT IS FEEDBACK COUPLED TO YOUR ACTIONS THAT CREATES AN EXPERIENCE AND IT IS THE CHOICES THAT MAKES IT MEANINGFUL.
FREE WiFi
NO AT&T
NO T-MOBILE
NO SUPPORT FOR VOTER SUPPRESSION
FREE WiFi



Mapping of affordances - Affordances, a concept introduced by psychologist James J. Gibson (Gibson 1979), capture the fit between us and our environment. For example, they refer to the potential actions that an object or environment offers to an individual. Gibson suggested that these affordances are fundamental to human experience. Similarly, Pirsig's (1974, 1991) Metaphysics of Quality suggest that a quality like "goodness" is the most basic foundation for human experience. This challenges the notion that the dimensions employed in the physical sciences such as meters, time, weight, constitute the bedrock of the "real world." While these dimensions serve the practical purposes of science and engineering, Pirsig suggests it might be a



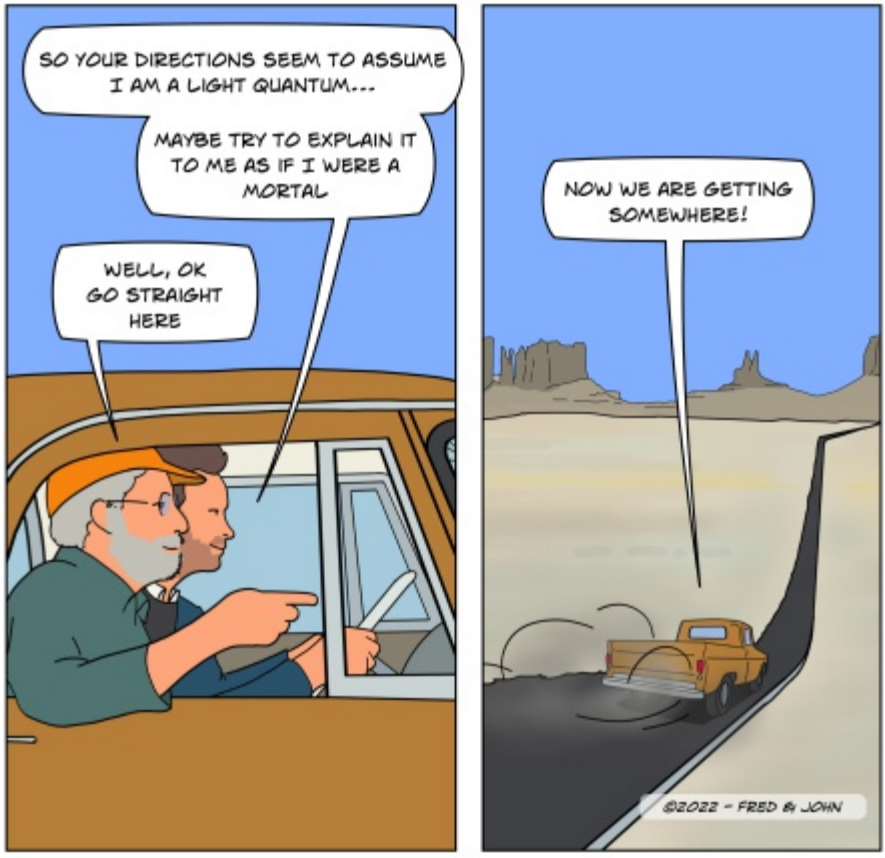
mistake to consider them as the elemental building blocks of human experience. Instead, he proposes that these dimensions are derived from, rather than foundational to, the intricate tapestry of human experience.

A key implication for designers is that they are not simply determining the form and layout of objects (e.g., the placement of buttons on a screen). Rather they are designing human (e.g., user) experiences.

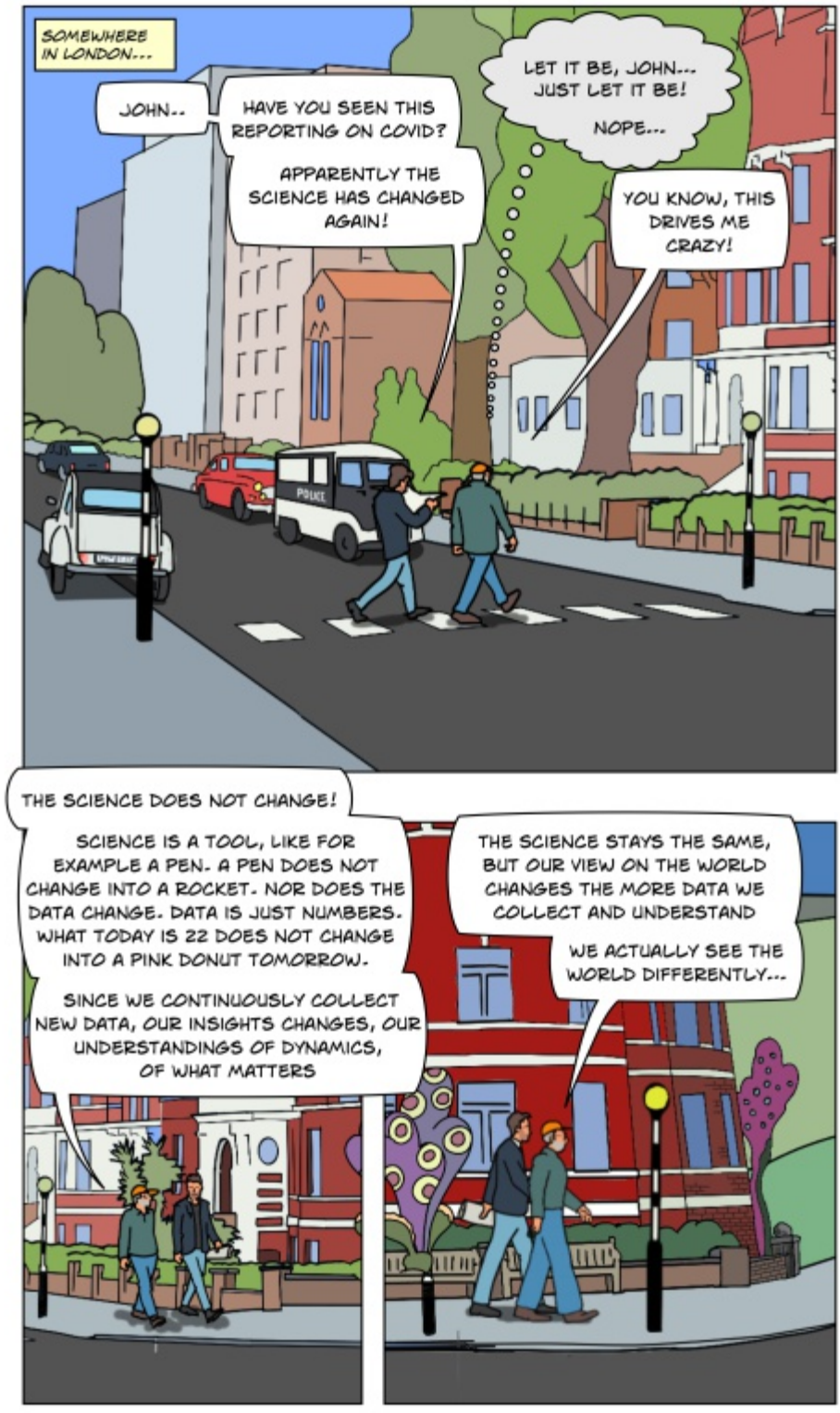
In Flach and Voorhorst (2020), we suggest three constructs for describing the dynamics of experience – affording, specifying, and satisfying. Affording refers to the joint constraints of the agent and ecology on the possibilities for action. Specifying refers to the joint constraints on the pick of information. Satisfying refers to the consequences of choices relative to the intentions or preferences of an agent. Each

construct spans the dichotomy of subjective and objective to emphasize the joint contributions of situations and awareness to experience.

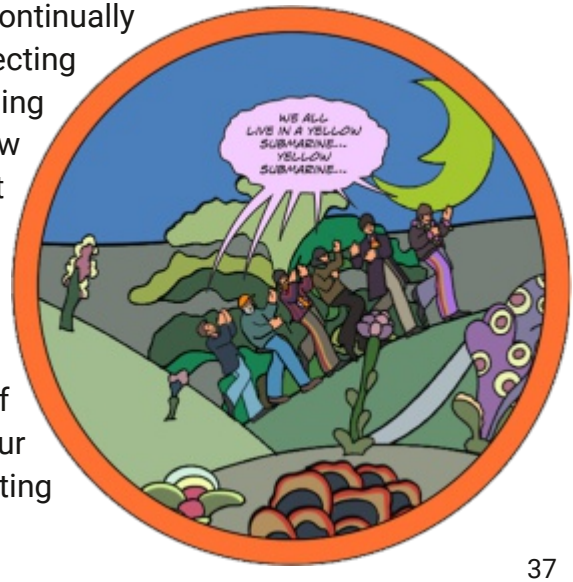

SOMEWHERE..., WELL, SOMEWHERE
JOHN, THOSE DIRECTIONS LEAD ME NOWHERE. THEY DO NOT HELP. LET ME TRY TO EXPLAIN..
FOR US MORTALS THE WORLD IS A FLAT SURFACE, WHERE A STRAIGHT LINE BETWEEN TWO POINTS IS EXPECTED TO BE THE SHORTEST ROUTE
EVEN IF WE KNOW THAT WE LIVE ON A SPATIAL GLOBE, WHERE THE SHORTEST ROUTE STRANGELY LOOKS LIKE A CURVE ON OUR FLAT MAP
WHERE THE SUN IS
WHERE THE SUN APPEARS TO BE
AND THAT WE SORT OF UNDERSTAND THAT WE LIVE IN A SPACE-TIME CONTINUUM, GRAVITY WARPED, WHERE ONLY LIGHT GOES IN A STRAIGHT LINE, EVEN IF FOR US MORTALS IT APPEARS BENDED AND CURVED IN A MIND BOGGLING STRANGE WAY...

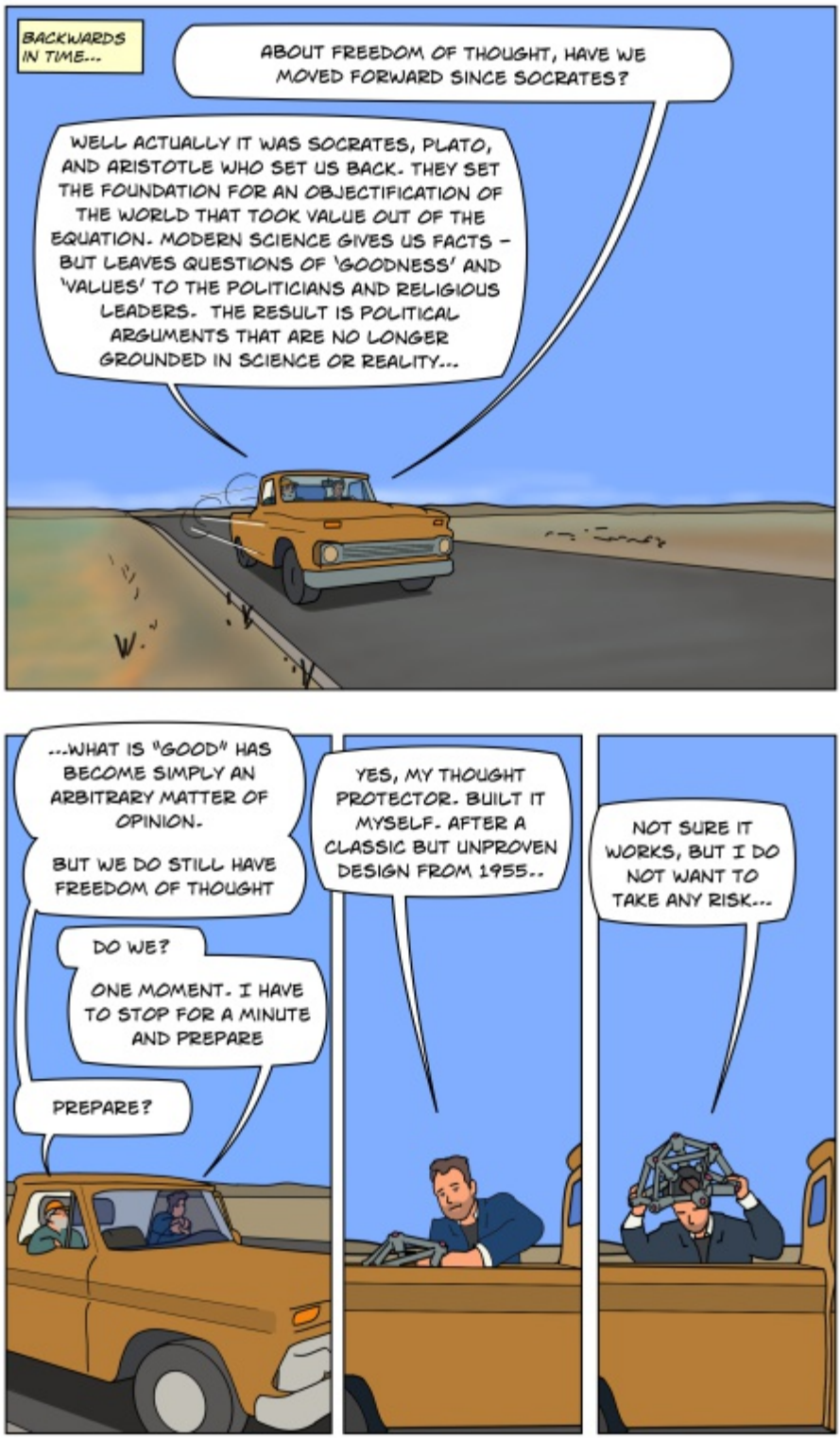


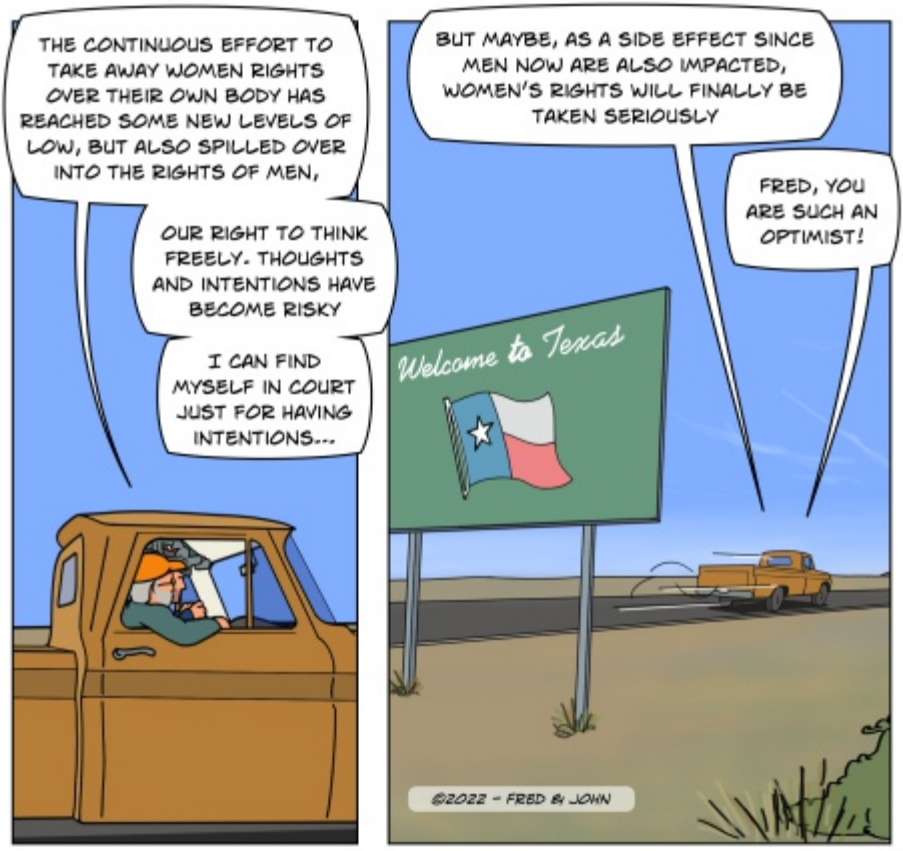
Rocket science - Those of us with extensive experience in a particular field may become deeply immersed in the intricate theoretical aspects and historical origins of concepts. However, on a multi-disciplinary design and development team, it's crucial to recognize that not everyone shares the same level of interest in such detail. Team members are often focused on acquiring sufficient information to advance the project. Embracing this diversity of interests is an asset, and it's essential not to be disheartened when colleagues may not share the same passion for delving deeply into a narrow aspect of the world. Express your enthusiasm and knowledge but avoid convoluted lectures or transforming it into a debate.


SOMEWHERE IN LONDON...
JOHN..
HAVE YOU SEEN THIS REPORTING ON COVID?
APPARENTLY THE SCIENCE HAS CHANGED AGAIN!
LET IT BE, JOHN... JUST LET IT BE!
NOPE...
YOU KNOW, THIS DRIVES ME CRAZY!
POLICE
THE SCIENCE DOES NOT CHANGE!
SCIENCE IS A TOOL, LIKE FOR EXAMPLE A PEN. A PEN DOES NOT CHANGE INTO A ROCKET. NOR DOES THE DATA CHANGE. DATA IS JUST NUMBERS. WHAT TODAY IS 22 DOES NOT CHANGE INTO A PINK DONUT TOMORROW.
SINCE WE CONTINUOUSLY COLLECT NEW DATA, OUR INSIGHTS CHANGES, OUR UNDERSTANDINGS OF DYNAMICS, OF WHAT MATTERS
THE SCIENCE STAYS THE SAME, BUT OUR VIEW ON THE WORLD CHANGES THE MORE DATA WE COLLECT AND UNDERSTAND
WE ACTUALLY SEE THE WORLD DIFFERENTLY...

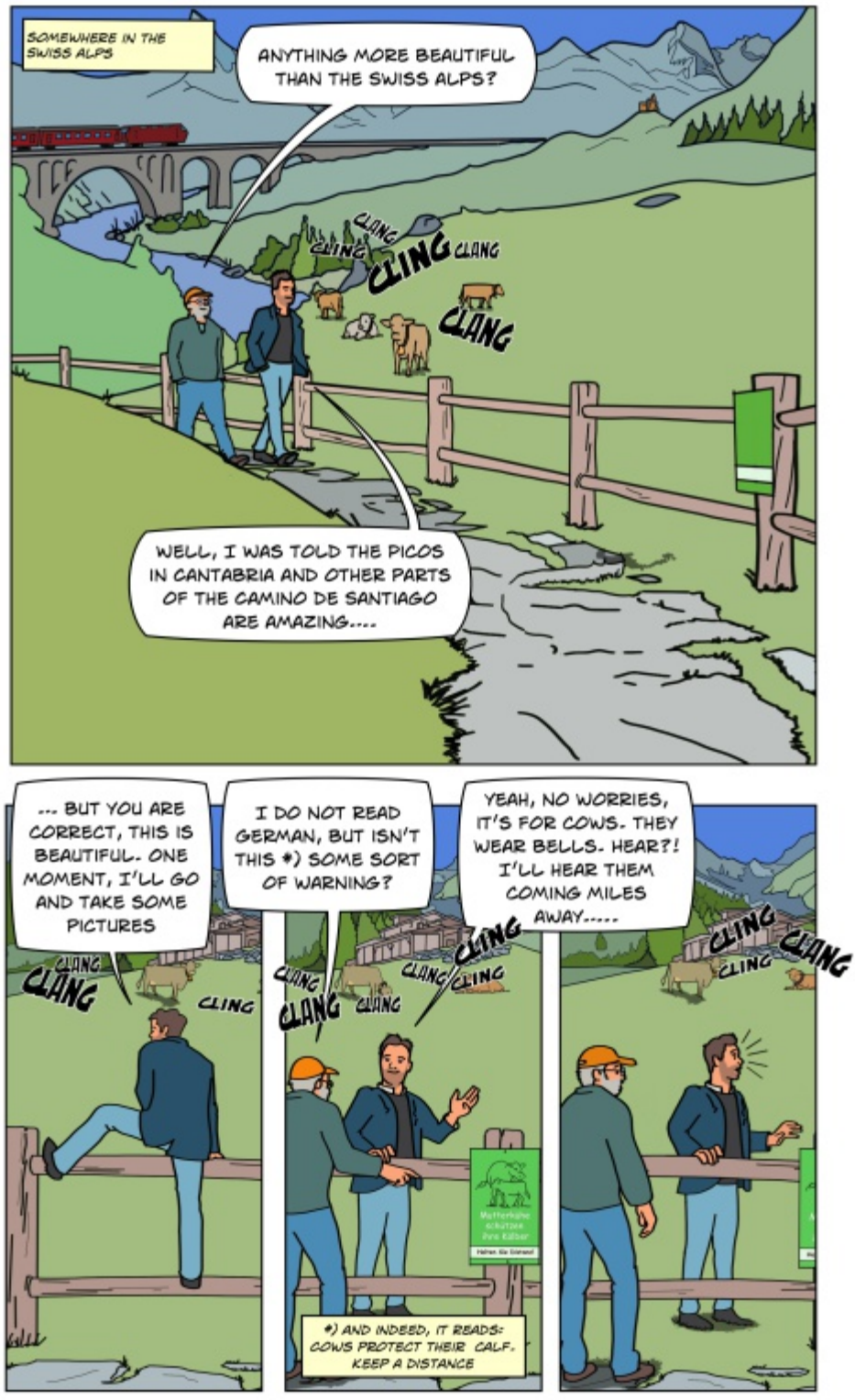
Ever changing science - Science is a vehicle for delving into the mysteries of our changing world. The vehicle doesn't change but the view out the windows is continually changing reflecting a dynamically changing landscape and new perspectives on that landscape. Science is not a destination but rather a journey, which can be a fabulous journey into the magical mysteries of nature, expanding our understanding and creating many practical benefits.

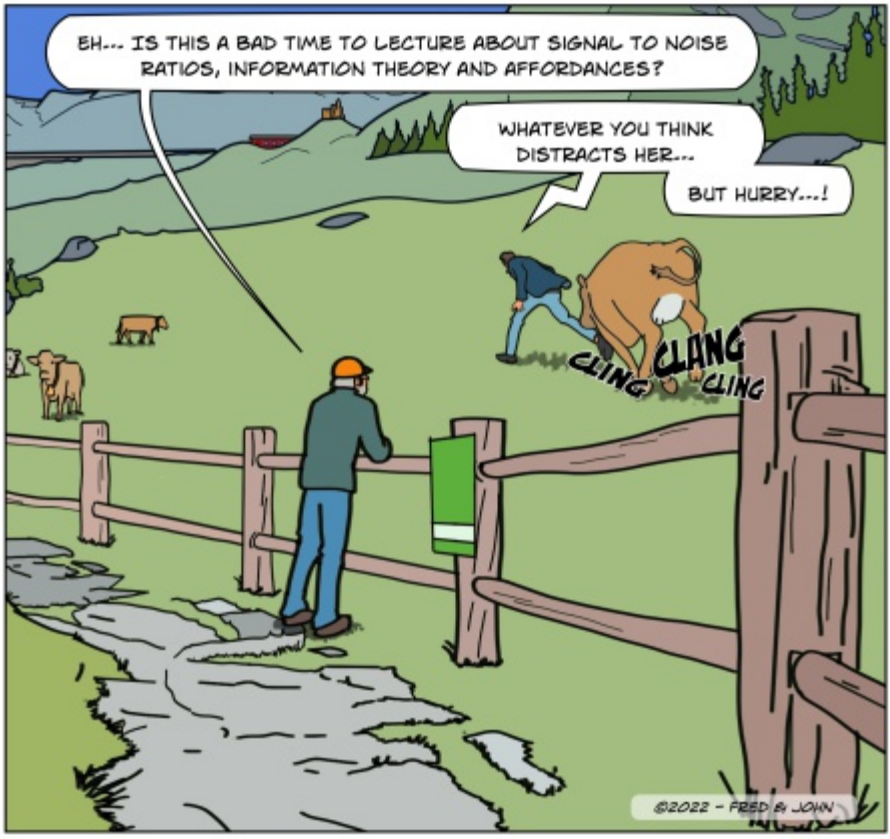



BACKWARDS IN TIME...
ABOUT FREEDOM OF THOUGHT, HAVE WE MOVED FORWARD SINCE SOCRATES?
WELL ACTUALLY IT WAS SOCRATES, PLATO, AND ARISTOTLE WHO SET US BACK. THEY SET THE FOUNDATION FOR AN OBJECTIFICATION OF THE WORLD THAT TOOK VALUE OUT OF THE EQUATION. MODERN SCIENCE GIVES US FACTS – BUT LEAVES QUESTIONS OF 'GOODNESS' AND 'VALUES' TO THE POLITICIANS AND RELIGIOUS LEADERS. THE RESULT IS POLITICAL ARGUMENTS THAT ARE NO LONGER GROUNDED IN SCIENCE OR REALITY...
...WHAT IS "GOOD" HAS BECOME SIMPLY AN ARBITRARY MATTER OF OPINION.
BUT WE DO STILL HAVE FREEDOM OF THOUGHT
DO WE?
ONE MOMENT. I HAVE TO STOP FOR A MINUTE AND PREPARE
PREPARE?
YES, MY THOUGHT PROTECTOR. BUILT IT MYSELF. AFTER A CLASSIC BUT UNPROVEN DESIGN FROM 1955..
NOT SURE IT WORKS, BUT I DO NOT WANT TO TAKE ANY RISK...

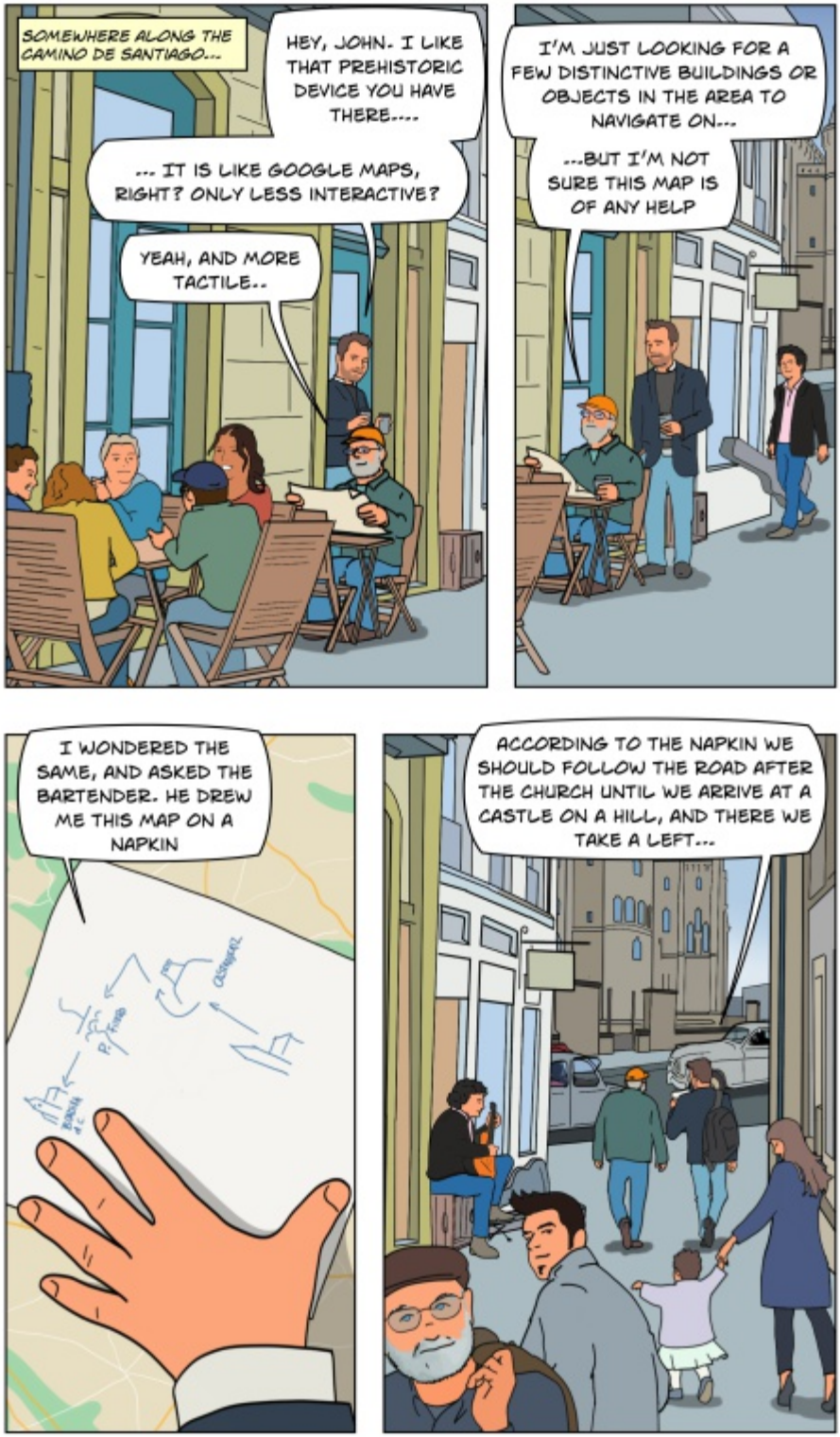


Science & Morality - The cold logic and objectification of the world inspired by Plato and Aristotle set the stage for modern science. However, a side effect was the separation of the pursuit of the "truth" from the pursuit of the "good." Science abdicated authority for determining the 'good' in favor of authority for determining the 'truth.' Determining what was good was left to the politicians and the church. Today - this chasm is wider than ever. 'Good' has become a purely subjective opinion - with any opinion being as valid as any other. Our sense of good with respect to women's health, pandemics, and global warming is no longer grounded in reality. Scientific guidance about what would be good is being treated as just another opinion. This reflects the schism that Pirsig (1974) artfully describes in Zen and the Art of Motorcycle Maintenance.


SOMEWHERE IN THE SWISS ALPS
ANYTHING MORE BEAUTIFUL THAN THE SWISS ALPS?
CLANG
CLING
CLING
CLANG
CLANG
WELL, I WAS TOLD THE PICOS IN CANTABRIA AND OTHER PARTS OF THE CAMINO DE SANTIAGO ARE AMAZING....
... BUT YOU ARE CORRECT, THIS IS BEAUTIFUL. ONE MOMENT, I'LL GO AND TAKE SOME PICTURES
CLANG
CLANG
CLING
I DO NOT READ GERMAN, BUT ISN'T THIS *) SOME SORT OF WARNING?
CLANG
CLANG
CLANG
CLING
CLING
*) AND INDEED, IT READS: COWS PROTECT THEIR CALF. KEEP A DISTANCE
YEAH, NO WORRIES, IT'S FOR COWS. THEY WEAR BELLS. HEAR?! I'LL HEAR THEM COMING MILES AWAY.....
CLING
CLANG
CLING

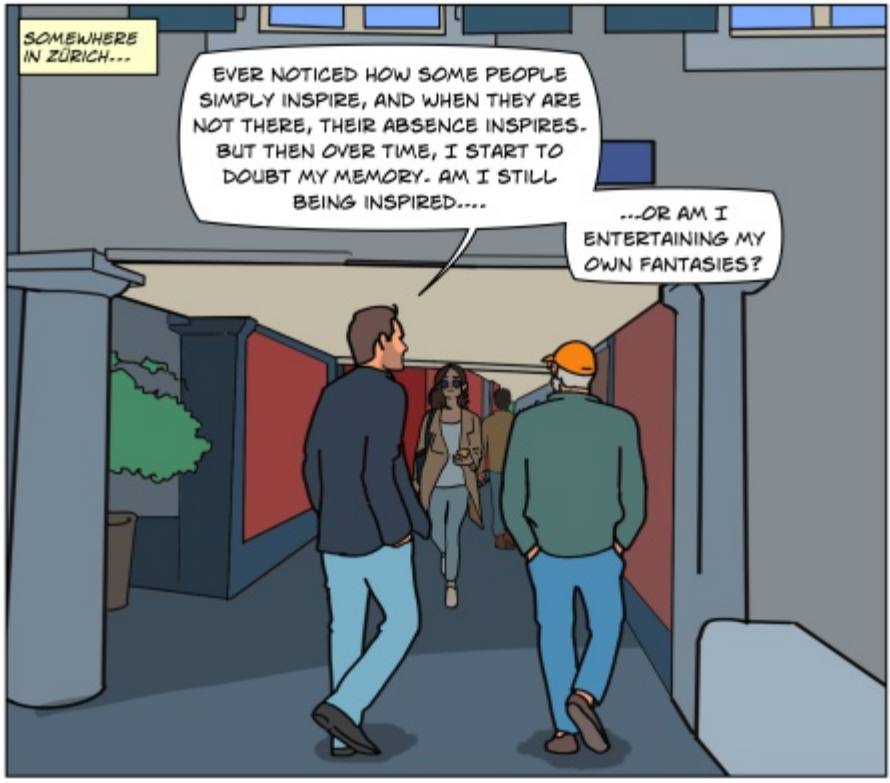


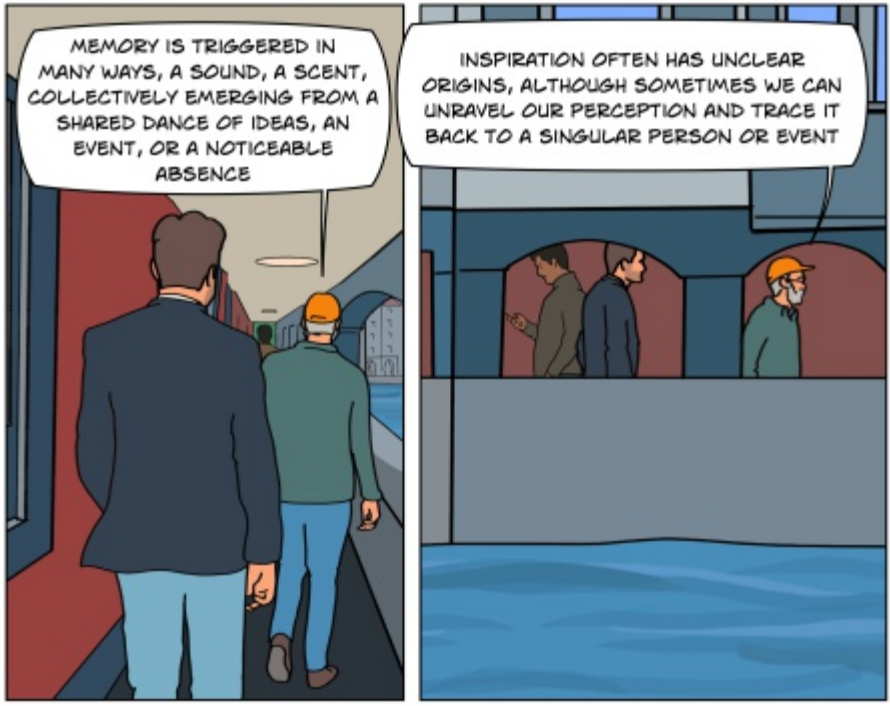
Signal detection - Lopes (1982) proposes that signal detection theory surpasses classical logic or inference as a more fitting model for most day-to-day decisions. Essentially, actions are dictated by signals, and the effectiveness of choices often hinges on the ability to pick-up or attune to the right signals. E. Gibson's (1969) research on perceptual learning indicates that expertise in decision-making is contingent on learning to attune to signals specifying affordances. This principle also underlies Gary Klein's (2022) theories of expertise and recognition-primed decision-making. Experts are distinguished by their ability to perceive and proactively act on the diagnostic signals. Ironically, even novices can see like experts due to hindsight - because, in retrospect (once events play out), the signals often tend to be glaringly obvious.

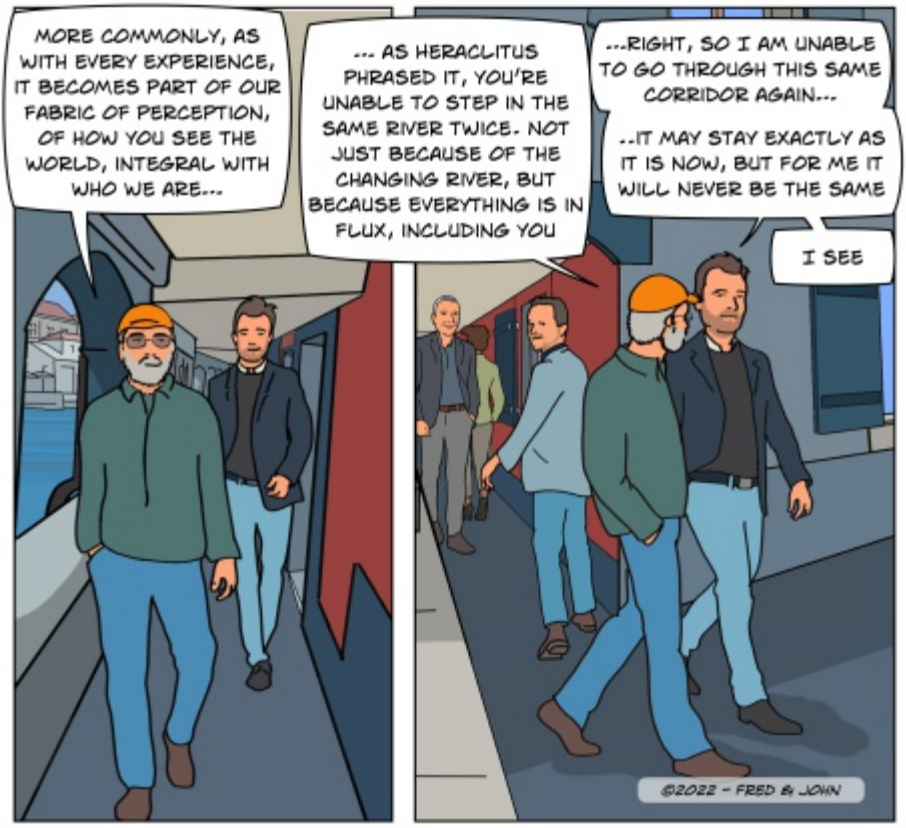

SOMEWHERE ALONG THE CAMINO DE SANTIAGO...
HEY, JOHN. I LIKE THAT PREHISTORIC DEVICE YOU HAVE THERE....
... IT IS LIKE GOOGLE MAPS, RIGHT? ONLY LESS INTERACTIVE?
YEAH, AND MORE TACTILE..
I'M JUST LOOKING FOR A FEW DISTINCTIVE BUILDINGS OR OBJECTS IN THE AREA TO NAVIGATE ON...
...BUT I'M NOT SURE THIS MAP IS OF ANY HELP
I WONDERED THE SAME, AND ASKED THE BARTENDER. HE DREW ME THIS MAP ON A NAPKIN
ACCORDING TO THE NAPKIN WE SHOULD FOLLOW THE ROAD AFTER THE CHURCH UNTIL WE ARRIVE AT A CASTLE ON A HILL, AND THERE WE TAKE A LEFT...

Distinctive landmarks - In a recent competitive training exercise, soldiers engaged in land navigation, with varying degrees of success. The standout teams grasped that effective navigation goes beyond mere compass angles and distances. It extends beyond terrain maps, necessitating the anchoring of maps in key landmarks such as distinct topography like ravines and roads. The successful teams used the landmarks to guide them to their targets. While angles and distances serve as primitives for geographers, to plot a route on a map, they aren't the fundamental tools for navigating the intricacies of the real world.

Skilled orienteers utilize heuristics like aiming off in which they let distinctive boundaries in the ecology (e.g., coastlines, rivers, mountain ranges) guide them to their destinations. For example, when navigating cross country to find a small bridge over a river – the aiming off heuristic suggests intentionally missing the bridge on the nearest side and then following the river to the bridge. Otherwise, if you aim for the bridge and miss, you will be uncertain about which direction to go (up or down river) to find the bridge.


SOMEWHERE IN ZÜRICH...
EVER NOTICED HOW SOME PEOPLE SIMPLY INSPIRE, AND WHEN THEY ARE NOT THERE, THEIR ABSENCE INSPIRES. BUT THEN OVER TIME, I START TO DOUBT MY MEMORY. AM I STILL BEING INSPIRED....
...OR AM I ENTERTAINING MY OWN FANTASIES?


MEMORY IS TRIGGERED IN MANY WAYS, A SOUND, A SCENT, COLLECTIVELY EMERGING FROM A SHARED DANCE OF IDEAS, AN EVENT, OR A NOTICEABLE ABSENCE
INSPIRATION OFTEN HAS UNCLEAR ORIGINS, ALTHOUGH SOMETIMES WE CAN UNRAVEL OUR PERCEPTION AND TRACE IT BACK TO A SINGULAR PERSON OR EVENT



Stepping in the same river twice - Change is universal. No matter how vivid our memories of an event – the images in our mind are not static snapshots of the past. Rather, they have been changed and updated to reflect our experiences since the event. Thus, rather than talk about memory as a static piece of information encoded in a memory bank, we should think about remembering as a dynamic process in which the information is constantly being revised and updated. It is ironic that memory and learning are often treated as distinct, unrelated chapters in Introductory Psychology texts. This is an artifact of the computer metaphor of memory. A strong case can be made that remembering and learning are overlapping if not identical processes that reflect how people change as a function of experience.

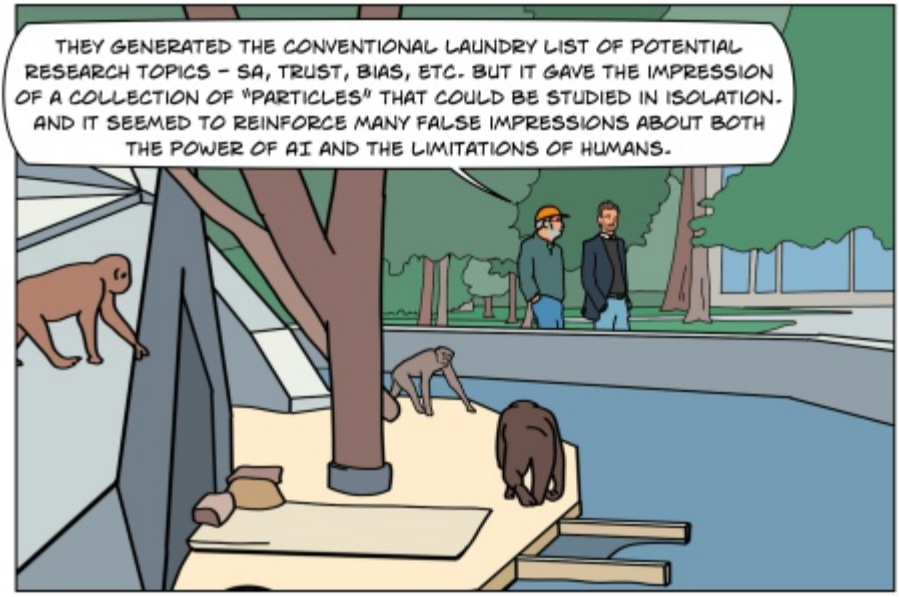

SOMEWHERE IN BERN...
HAVE YOU SEEN THOSE POSTS WITH THE IMAGE OF THE PLANE AND BULLET HOLES, ILLUSTRATING ABRAHAM WALD'S OBSERVATION THAT THE REAL INFORMATION IS IN THE MISSING DATA

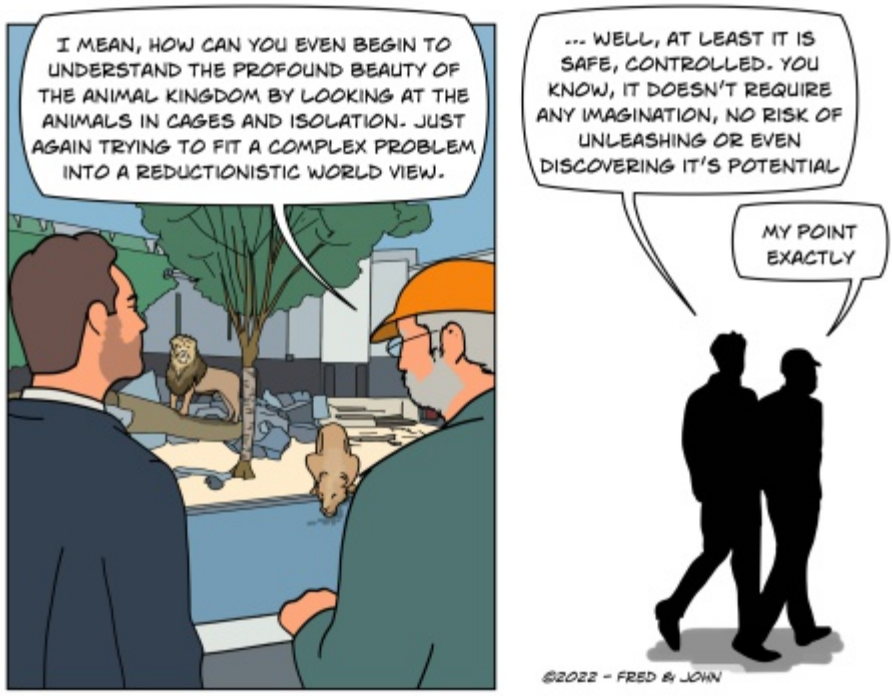

WHEN WE ANALYSE PHENOMENA THROUGH DATA, WE SOMETIMES HAVE TO STEP BACK AND CHANGE OUR PERSPECTIVE TO GET THE FULL PICTURE..
AH! CHANGE IN PERSPECTIVE! I KNOW HOW TO DO THAT..


OH CAPTAIN, MY CAPTAIN

Different perspective - The interpretation and importance of data (including absent data) vary based on your framework or viewpoint. Each perspective inherently carries biases or selectivity, and the sole method to distinguish framework biases from phenomenon invariants is by altering frameworks or perspectives. It is impossible to discover optical invariants if you never move. In a similar way, it is impossible for science to discover the invariants of nature from within a single framework or paradigm. It is by moving across paradigms that we can distinguish the invariants of nature from the limitations of our assumptions. The inclusion of diverse perspectives is imperative for a science of complexity.


SOMEWHERE IN AMSTERDAM...
DID YOU HEAR THE NAS WEBINAR ON HUMAN – AI TEAMING THE OTHER DAY?


THEY GENERATED THE CONVENTIONAL LAUNDRY LIST OF POTENTIAL RESEARCH TOPICS – SA, TRUST, BIAS, ETC. BUT IT GAVE THE IMPRESSION OF A COLLECTION OF "PARTICLES" THAT COULD BE STUDIED IN ISOLATION. AND IT SEEMED TO REINFORCE MANY FALSE IMPRESSIONS ABOUT BOTH THE POWER OF AI AND THE LIMITATIONS OF HUMANS.



Redustionist view - A reductionistic science composed of myriads of clever puzzles for people (and mice and other organisms) to solve is great for building CVs - but it does not necessarily lead to insights that will help in the design of more effective joint cognitive systems. Any experimental approach and in fact any form of observation reduces the complex phenomena being observed. So, practically it is impossible to avoid some degree of reductionist thinking. However, the problem is a reductionist world view that assumes that the whole can be understood as a sum of the parts.

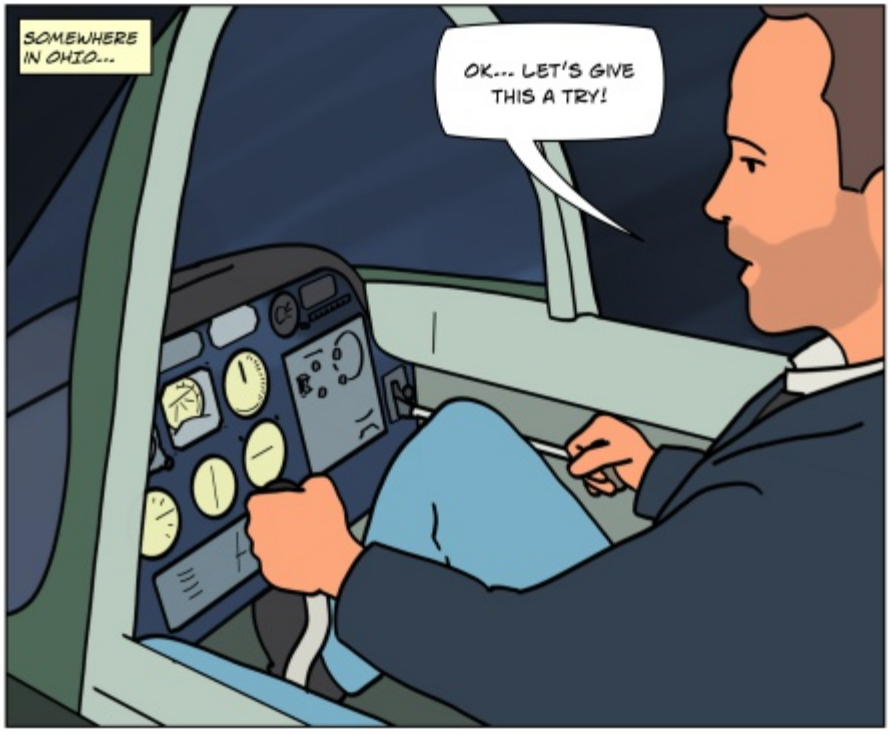
In contrast, a world view framed around complexity theory recognizes the limitations of each perspective and frames the problem in terms of integrating multiple perspectives to discover invariant properties of the wholistic dynamic. It is possible to make sense of the parts in the context of a more wholistic view of the dynamic. But it is not possible to discover the wholistic dynamic from a collection of parts.


I KNOW...
...BUT IT IS SOOOO QUIET...
...HE THERE, LITTLE ONE, ARE YOU OK..?
WHEEA!!!

Silence, an uncomfortably loud cry - For a new father, the absence of sound can speak volumes, becoming the most conspicuous signal. This underscores the significance of context in a system of meaning processing, emphasizing that in the realm of semiotics, the interpretation of signals is intricately tied to the specific circumstances and context in which they unfold. To a new father the silence of a child can convey a wealth of emotions, needs, or states, highlighting the nuanced nature of communication within the intricate tapestry of human relationships. To a new father, silence becomes an uncomfortably loud cry, impossible to overlook.

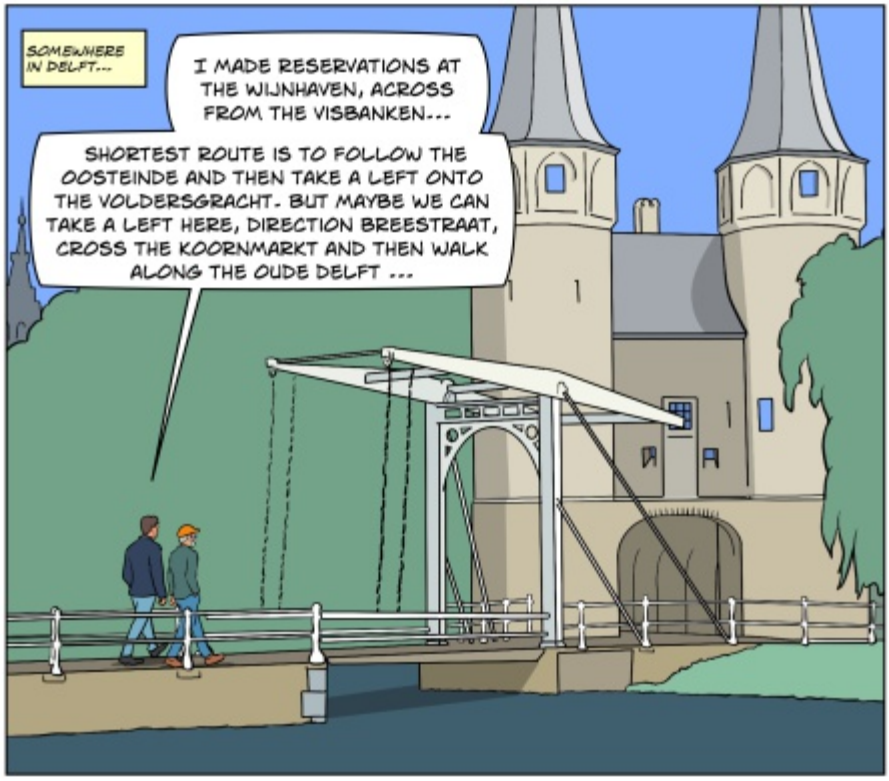

SOMEWHERE IN BRASIL...
SO, A SINGLE PERSON, HOW MUCH INFLUENCE DO YOU THINK ONE CAN HAVE ON COMPANY CULTURE, LIKE BEST PLACE TO WORK, DIVERSITY & GENDER-EQUALITY, MOST INNOVATIVE, ETC.
THERE ARE OF COURSE SOME FAMOUS EXAMPLES , LIKE STEVE JOBS ETC, BUT PROBABLY ANYBODY CAN HAVE AN IMPACT, LIKE THE BUTTERFLY FLAPPING HER WINGS, CAUSING A TORNADO OR CREATING A DENT IN THE UNIVERSE.
WITH COMPLEX DYNAMIC SYSTEMS ANY RIPPLING CAN GROW INTO A DENT IN THE UNIVERSE
WHAT IF THE UNIVERSE HAS CREATED THE CONDITIONS INVITING THE BUTTERFLY TO FLAP HER WINGS? IS IT STILL THE BUTTERFLY? OR MAYBE THE BUTTERFLY INVITED THE UNIVERSE TO CREATE THOSE CONDITIONS?
MAYBE I'M GOING DOWN A RABBIT HOLE HERE...
WELL, THIS IS WHERE IT GETS TRICKY. ALTHOUGH WE OFTEN ANALYSE PHENOMENON IN ISOLATION, IN THE REAL WORLD EVERYTHING IS CONNECTED.
WHERE IS CAUSE AND EFFECT IN CIRCULAR DYNAMICS?

All butterflies - Our world operates in a manner that is far from simple or linear. We exist in a world of intricate dynamics marked by non-linearity and intricate interconnections, in which behaviors and interactions of the various elements are highly complex and often unpredictable. The "butterfly effect" refers to the idea that in such complex systems, even the smallest, seemingly insignificant events (like the flapping of a butterfly's wings) can have far-reaching and significant impacts, leading to unpredictable outcomes. Seemingly insignificant actions or events can initiate a chain reaction of changes, with outcomes that are sometimes imperceptible and occasionally beyond comprehension. This also applies to all of us. We all take part in our complex world and our actions, however small, may have far reaching consequences. Your actions carry weight. You matter.... You count in ways that you can't even imagine.


SOMEWHERE IN OHIO...
OK... LET'S GIVE THIS A TRY!

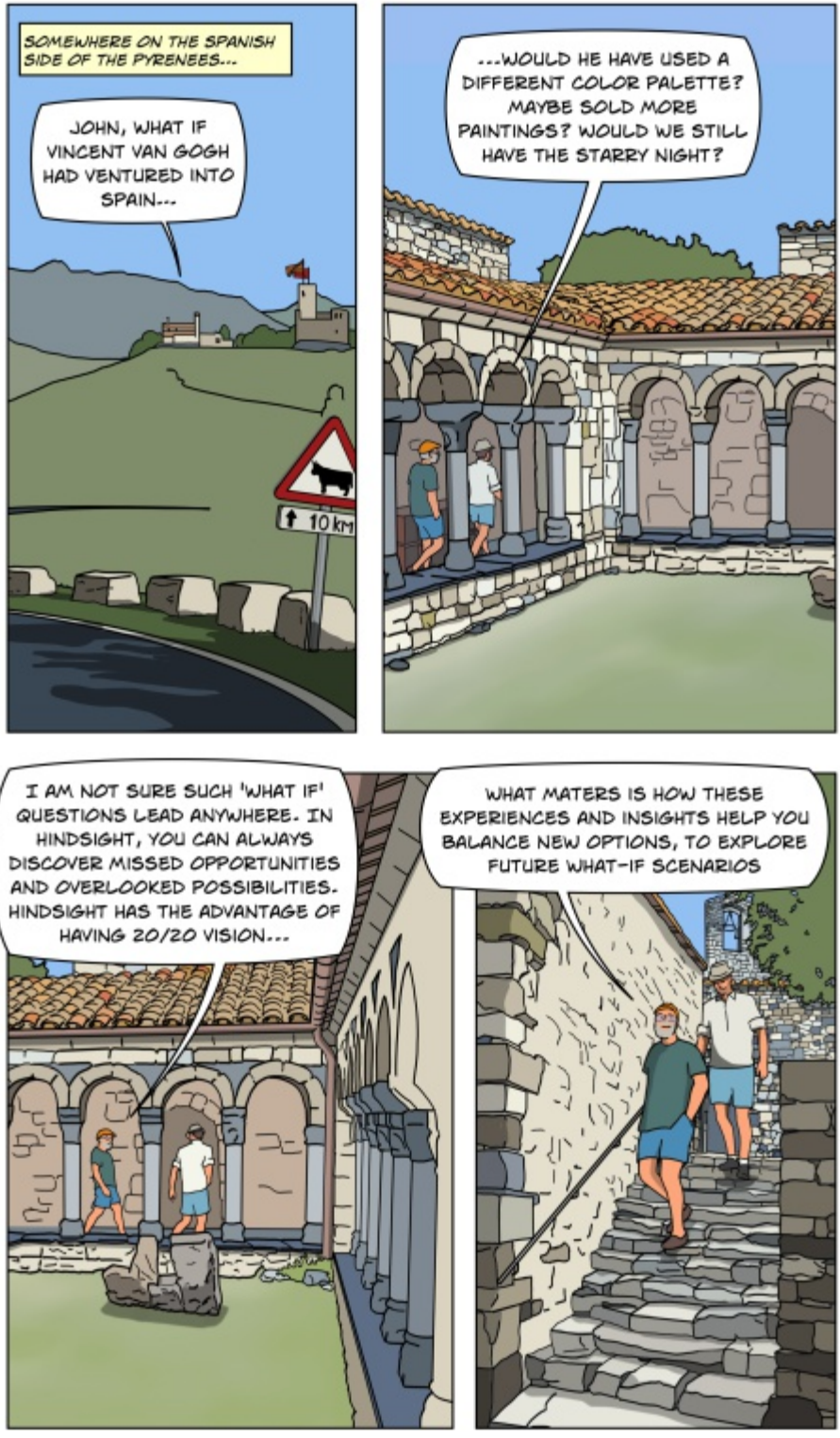

WELL..
...EH..
AAAH...

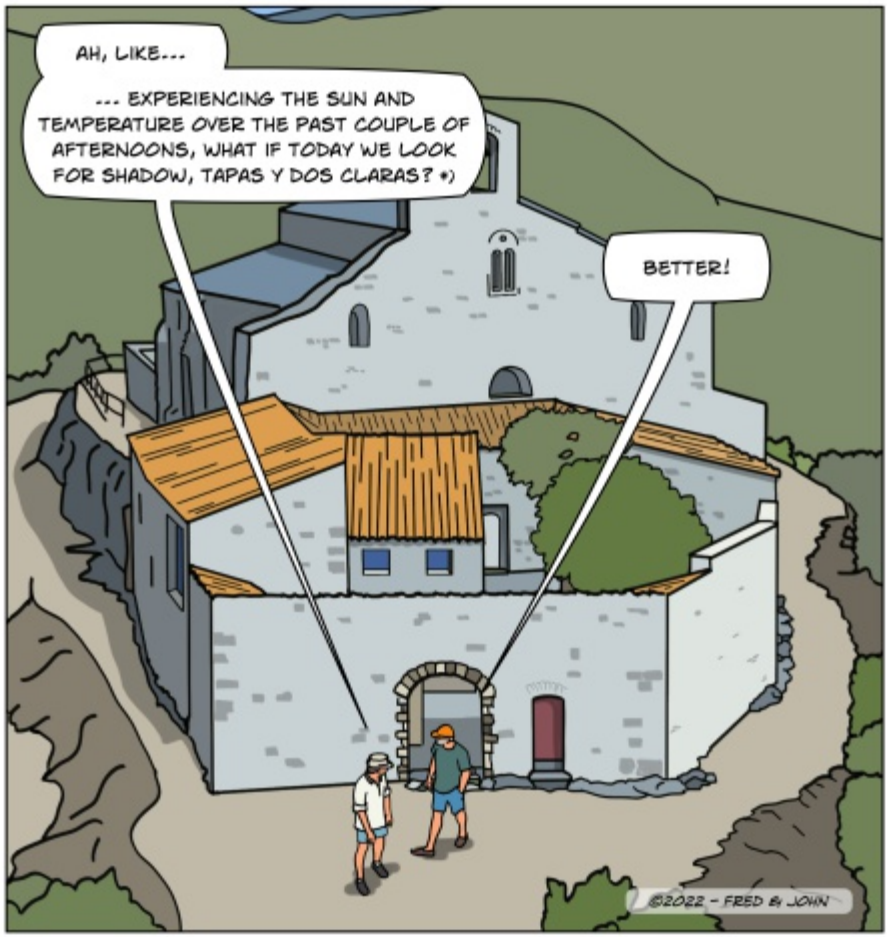
Taking a User's Perspective - It continues to amaze us that a terrestrial animal can learn to manipulate a throttle, a stick and rudders to soar through the sky! The narrative of the Wright Brothers serves as an exceptional lesson in the art of creative envisioning and pushing the boundaries of what was once thought possible (e.g., Crouch, 1989; McCullough, 2015). Before the Wright Brothers, most people assumed that steering an aircraft would be identical to steering a ship. No one could image why you would want to intentionally tilt an aircraft. In light of the increasing impact of advancing technologies, the Wrights provide a strong testament to the value of taking the user's perspective. Their patents were on enabling humans to control flight. When others were building motors and wings, they were focusing on putting humans into control. Is anyone considering how we will steer Artificial Intelligence?


SOMEWHERE IN DELFT...
I MADE RESERVATIONS AT THE WIJNHAVEN, ACROSS FROM THE VISBANKEN...
SHORTEST ROUTE IS TO FOLLOW THE OOSTEINDE AND THEN TAKE A LEFT ONTO THE VOLDERSGRACHT. BUT MAYBE WE CAN TAKE A LEFT HERE, DIRECTION BREESTRAAT, CROSS THE KOORNMARKT AND THEN WALK ALONG THE OUDE DELFT ...


THERE WE HAVE THE OUDE JAN, FROM 1246. NOT ONLY THE OLDEST CHURCH OF DELFT BUT ALSO OUR OWN TOWER OF PISA, THOUGH IT STANDS ONLY 1.96 METERS OUT OF PLUMP. IN 1843 THE DECISION WAS TAKEN TO PARTLY DEMOLISH THE TOWER. LUCKILY THEY NEVER EXECUTED ON IT.
LET'S TAKE A SMALL DE-TOUR ACROSS THE BOTER BRUG
THE WIDEST BRIDGE IN DELFT. BUILT IN 1558, THE BRIDGE WAS FIRST RENEWED IN 1865 AND WIDENED IN 1954. IT BASICALLY COVERS THE CANAL CONNECTING THE OUDE DELFT AND THE WIJNHAVEN.

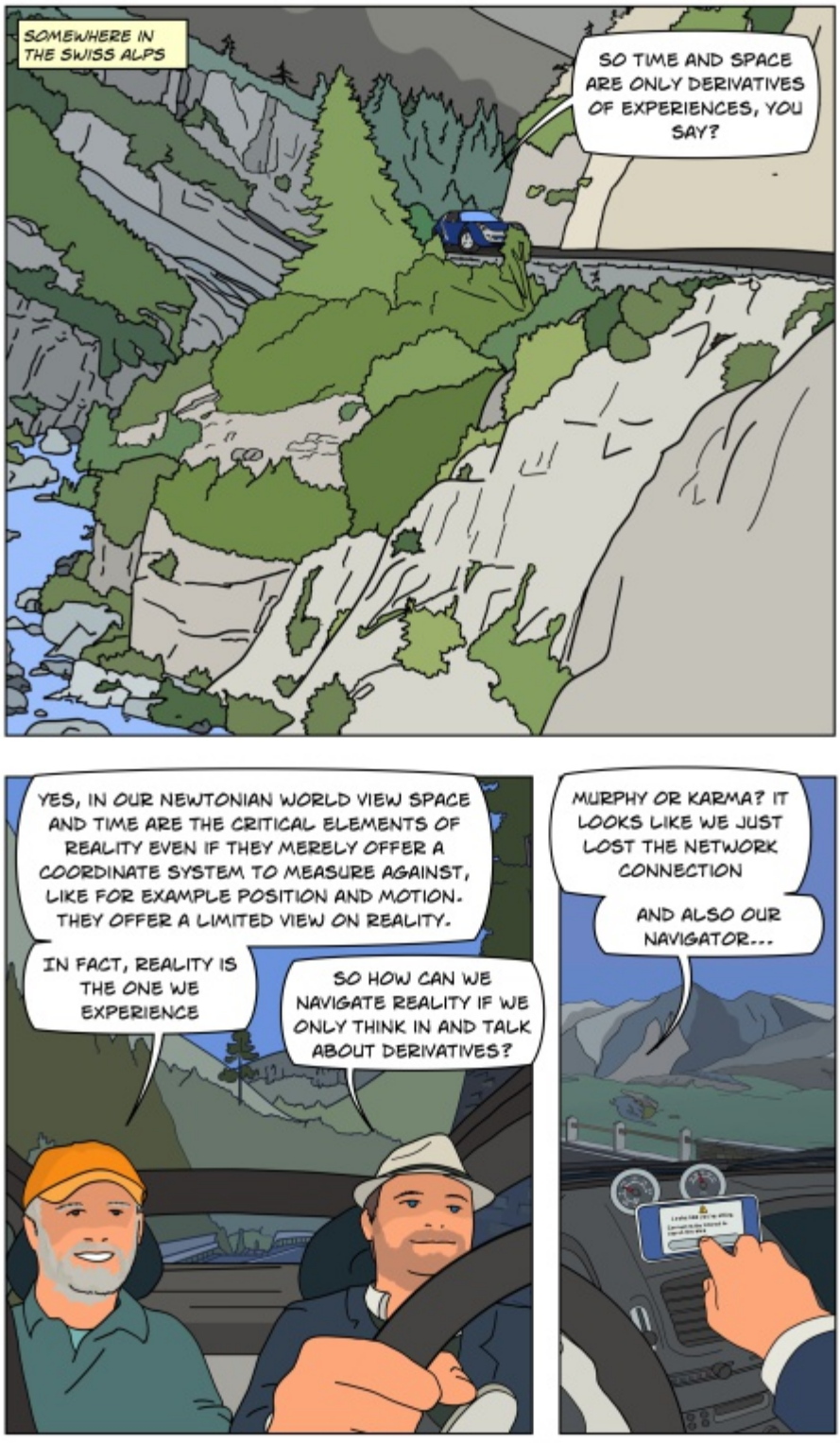
Creating Structures - James Gibson (1979) described how we use structure in optic flow fields as information to skillfully navigate through a cluttered environment. These structures exist as a function of the physics of light, surfaces, and motion. For skillfully navigating through a social ecology - we create 'structure' (e.g., calendars) that allows skilled coordination with the people around us. In a virtual, digital world, there are no physical constraints - thus, one of the challenges of designers is to introduce constraints that allow people to skillfully realize the affordances that digital technologies offer. Without constraints, skilled coordination is not possible. Physical and social constraints create the fields of possibility. The shift from a clockwork narrative based on deterministic causes to a field-based narrative focusing on opportunistic possibilities begins with describing the functional constraints that shape the fields of possibilities. For example, consider Gibson and Crooks (1938) description of the safe field of travel or Uexkull's (1957) description of the Umwelt. The field of safe travel described space relative to the capabilities of an car. The Umwelt described the ecology relative to the capabilities of different animals. Thus, for example the same objective space would be experienced differently by a spider and a human.

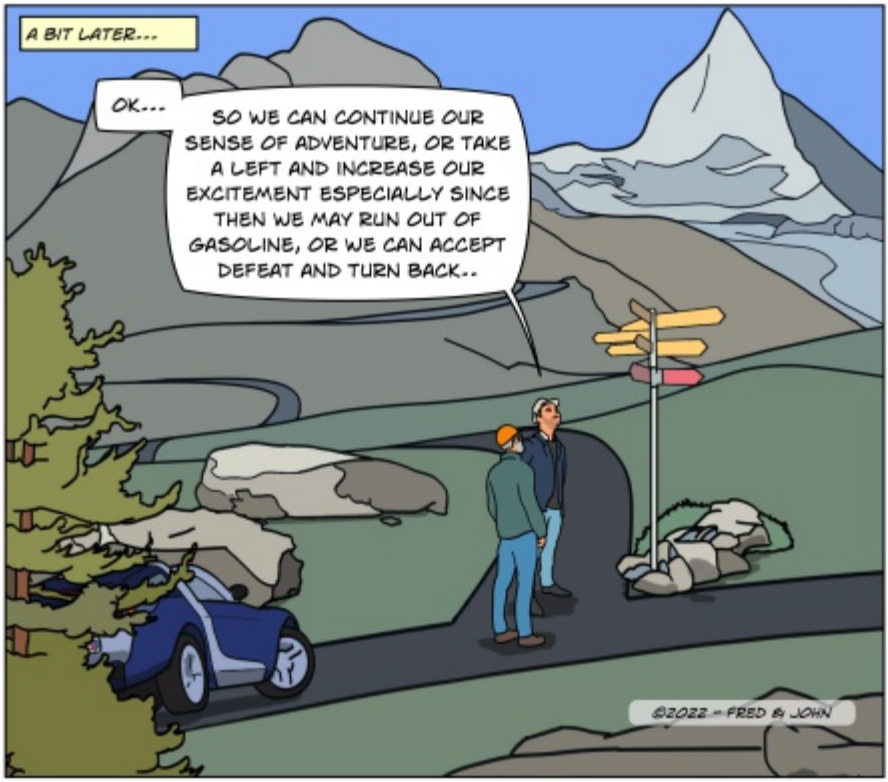

SOMEWHERE ON THE SPANISH SIDE OF THE PYRENEES...
JOHN, WHAT IF VINCENT VAN GOGH HAD VENTURED INTO SPAIN...
10 km
...WOULD HE HAVE USED A DIFFERENT COLOR PALETTE? MAYBE SOLD MORE PAINTINGS? WOULD WE STILL HAVE THE STARRY NIGHT?
I AM NOT SURE SUCH 'WHAT IF' QUESTIONS LEAD ANYWHERE. IN HINDSIGHT, YOU CAN ALWAYS DISCOVER MISSED OPPORTUNITIES AND OVERLOOKED POSSIBILITIES. HINDSIGHT HAS THE ADVANTAGE OF HAVING 20/20 VISION...
WHAT MATERS IS HOW THESE EXPERIENCES AND INSIGHTS HELP YOU BALANCE NEW OPTIONS, TO EXPLORE FUTURE WHAT-IF SCENARIOS



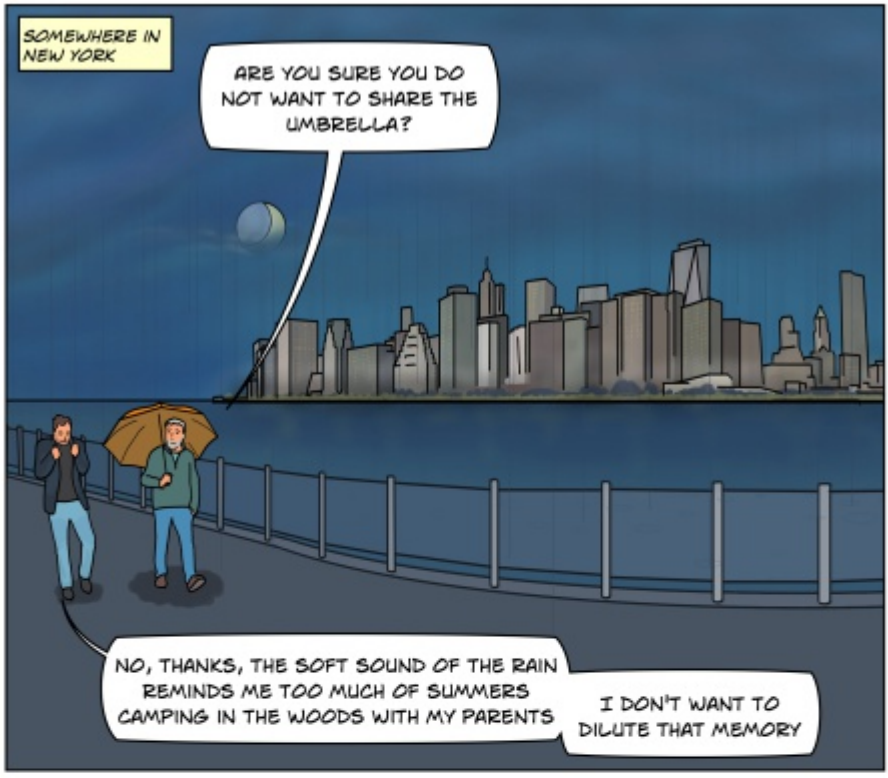
*) CLARA IS A BEER & SODA MIX, ALSO KNOWN AS XAMPÚ, PANACHÉ, OR RADLER

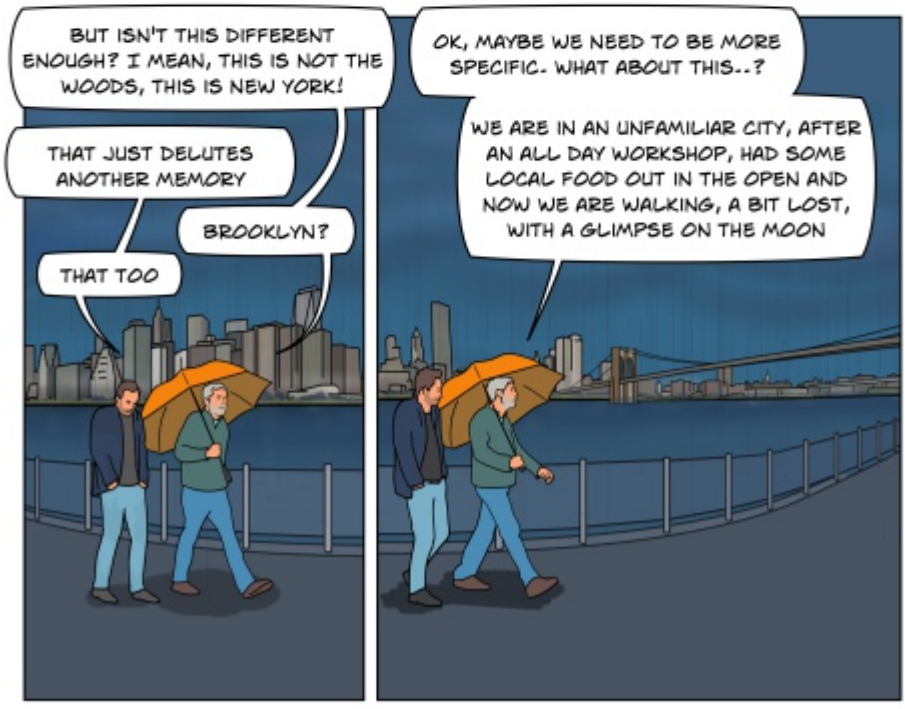
20/20 Hindsight - Hindsight often leads to plausible causal narratives to explain known outcomes. However, these narratives typically trivialize many of the complexities associated with the actual experience of living forward. If we shift the goal of historical analysis from looking for causes (reductive) to simulating situations (reproductive), we may be in a better position to empathize with historical figures, to appreciate the challenges faced, and to learn lessons that will prepare us to address similar challenges in the future. Since we have to live forward – we should try to avoid backward thinking. This has important implications for how we conduct and interpret the results from safety investigations (e.g., Dekker, 2011).


SOMEWHERE IN THE SWISS ALPS
SO TIME AND SPACE ARE ONLY DERIVATIVES OF EXPERIENCES, YOU SAY?
YES, IN OUR NEWTONIAN WORLD VIEW SPACE AND TIME ARE THE CRITICAL ELEMENTS OF REALITY EVEN IF THEY MERELY OFFER A COORDINATE SYSTEM TO MEASURE AGAINST, LIKE FOR EXAMPLE POSITION AND MOTION. THEY OFFER A LIMITED VIEW ON REALITY.
IN FACT, REALITY IS THE ONE WE EXPERIENCE
SO HOW CAN WE NAVIGATE REALITY IF WE ONLY THINK IN AND TALK ABOUT DERIVATIVES?
MURPHY OR KARMA? IT LOOKS LIKE WE JUST LOST THE NETWORK CONNECTION
AND ALSO OUR NAVIGATOR...

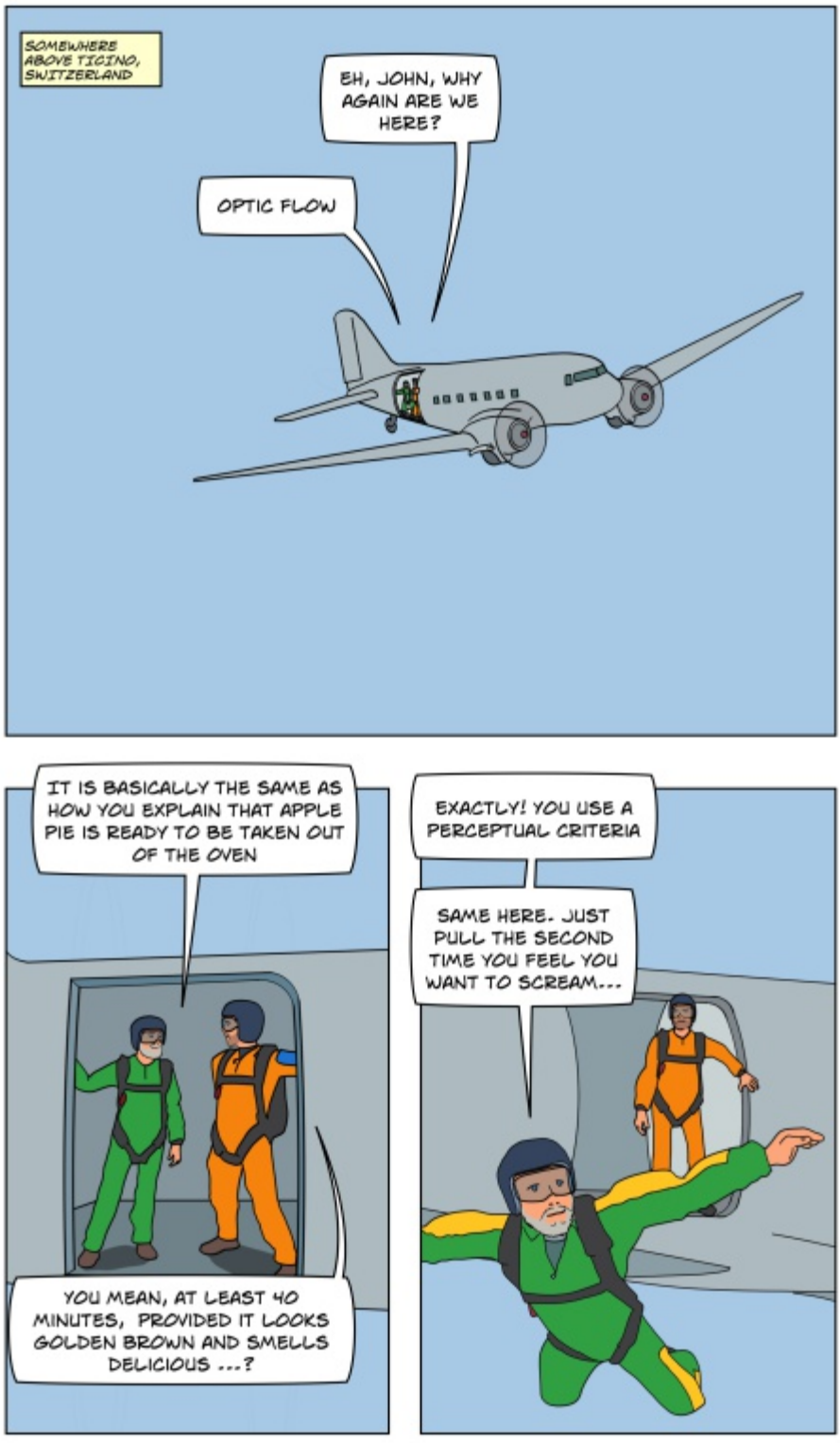


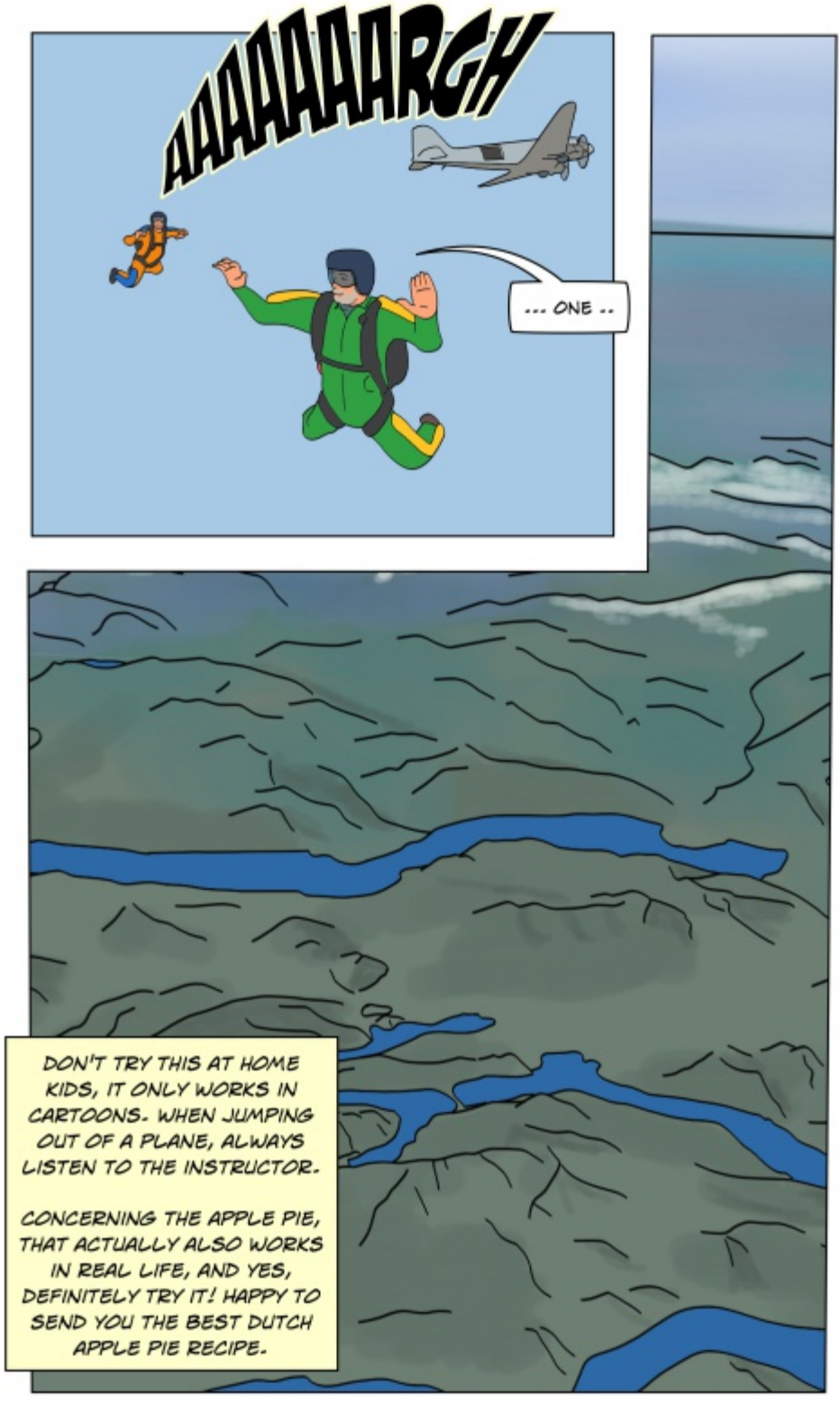
Derivatives of experience - Time and space are constructs that we derive from our experiences. Our understanding of time is shaped by the sequence of events we undergo and observe. Moments unfold in a linear fashion, creating our perception of time's passage. Similarly, our concept of space is derived from the spatial relationships we encounter as we move through the world. The distance between objects, the layout of environments, our movements and interactions with objects provide the basis for spatial understanding. Unfortunately, our culture tends to treat time and space as if they are part of an objective reality, independent of our experiences. The ticks of a clock and the marks on a meter stick are considered to be absolute, and when our perceptions are not consistent with these our perceptions are discounted as subjective or illusionary. Gibson (1979) suggested that the physicist's constructs of time and space have little to do with perception.


SOMEWHERE IN NEW YORK
ARE YOU SURE YOU DO NOT WANT TO SHARE THE UMBRELLA?
NO, THANKS, THE SOFT SOUND OF THE RAIN REMINDS ME TOO MUCH OF SUMMERS CAMPING IN THE WOODS WITH MY PARENTS
I DON'T WANT TO DILUTE THAT MEMORY

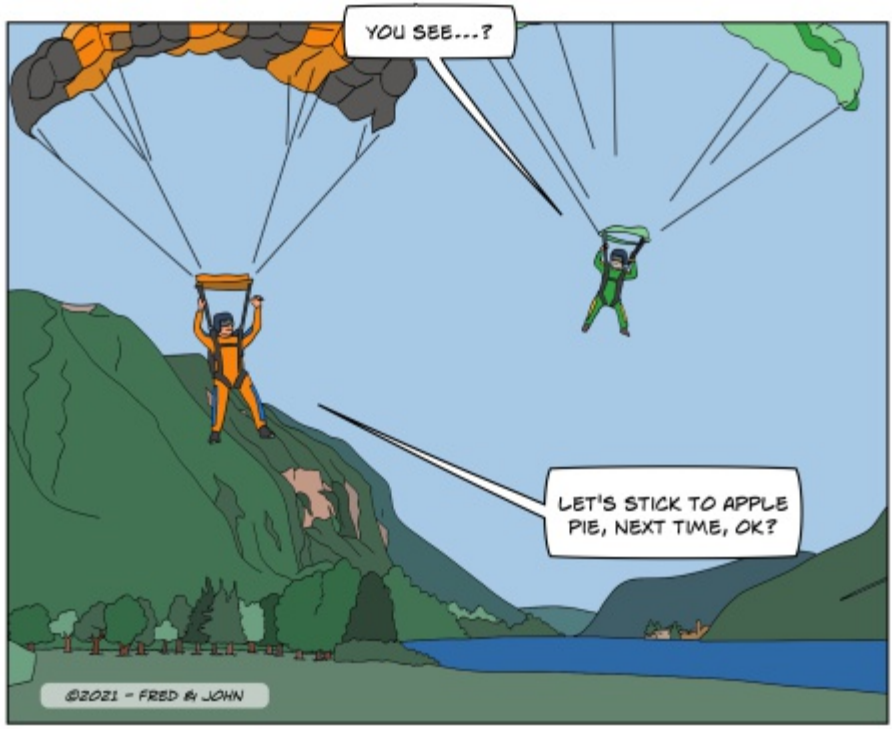

BUT ISN'T THIS DIFFERENT ENOUGH? I MEAN, THIS IS NOT THE WOODS, THIS IS NEW YORK!
THAT JUST DELUTES ANOTHER MEMORY
BROOKLYN?
THAT TOO
OK, MAYBE WE NEED TO BE MORE SPECIFIC. WHAT ABOUT THIS..?
WE ARE IN AN UNFAMILIAR CITY, AFTER AN ALL DAY WORKSHOP, HAD SOME LOCAL FOOD OUT IN THE OPEN AND NOW WE ARE WALKING, A BIT LOST, WITH A GLIMPSE ON THE MOON

Evolving memories - Memories are not static imprints of the past; rather, they actively shape our current experiences and are themselves subject to continuous reshaping. As we navigate the present, our memories serve as a lens through which we perceive and respond to the events confronted with. Conversely, current experiences have the power to reshape memories. Every time we recall an event, it becomes susceptible to alteration based on our current emotional state, perspective, and the context in which we find ourselves, allowing memories to be updated and adapted to align with our evolving understanding of the world (Bartlett, 1932).

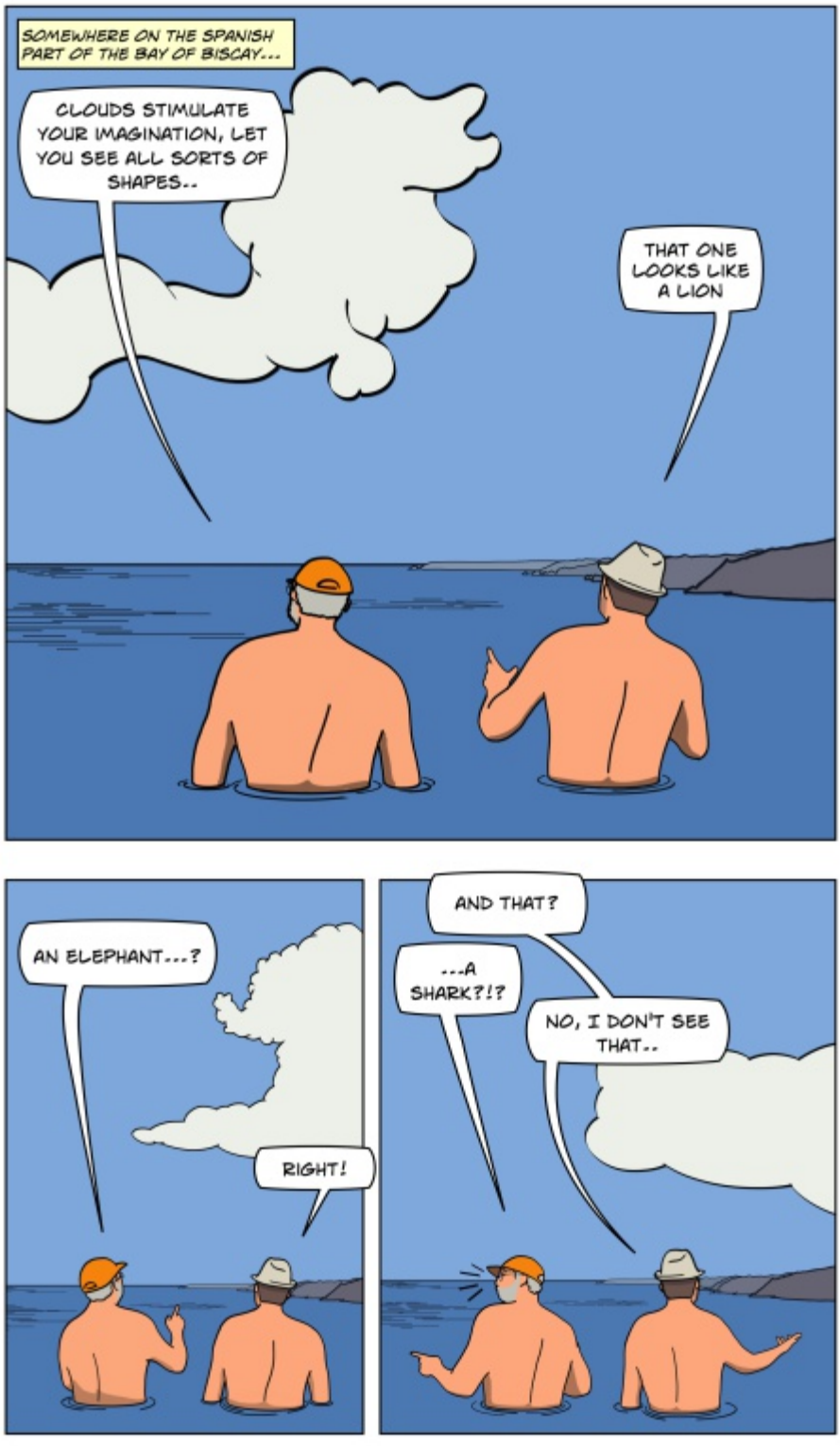

SOMEWHERE ABOVE TICINO, SWITZERLAND
EH, JOHN, WHY AGAIN ARE WE HERE?
OPTIC FLOW
IT IS BASICALLY THE SAME AS HOW YOU EXPLAIN THAT APPLE PIE IS READY TO BE TAKEN OUT OF THE OVEN
YOU MEAN, AT LEAST 40 MINUTES, PROVIDED IT LOOKS GOLDEN BROWN AND SMELLS DELICIOUS ...?
EXACTLY! YOU USE A PERCEPTUAL CRITERIA
SAME HERE. JUST PULL THE SECOND TIME YOU FEEL YOU WANT TO SCREAM...

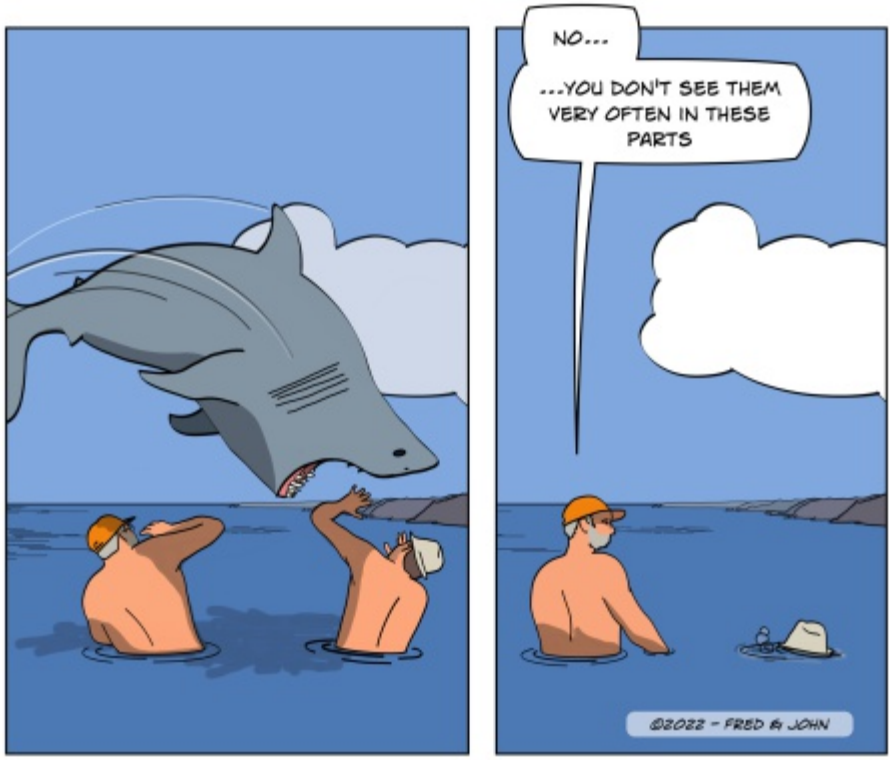

AAAAAAARGH
... ONE ..
DON'T TRY THIS AT HOME KIDS, IT ONLY WORKS IN CARTOONS. WHEN JUMPING OUT OF A PLANE, ALWAYS LISTEN TO THE INSTRUCTOR.
CONCERNING THE APPLE PIE, THAT ACTUALLY ALSO WORKS IN REAL LIFE, AND YES, DEFINITELY TRY IT! HAPPY TO SEND YOU THE BEST DUTCH APPLE PIE RECIPE.


--- WOW --
AAAAAAARGH

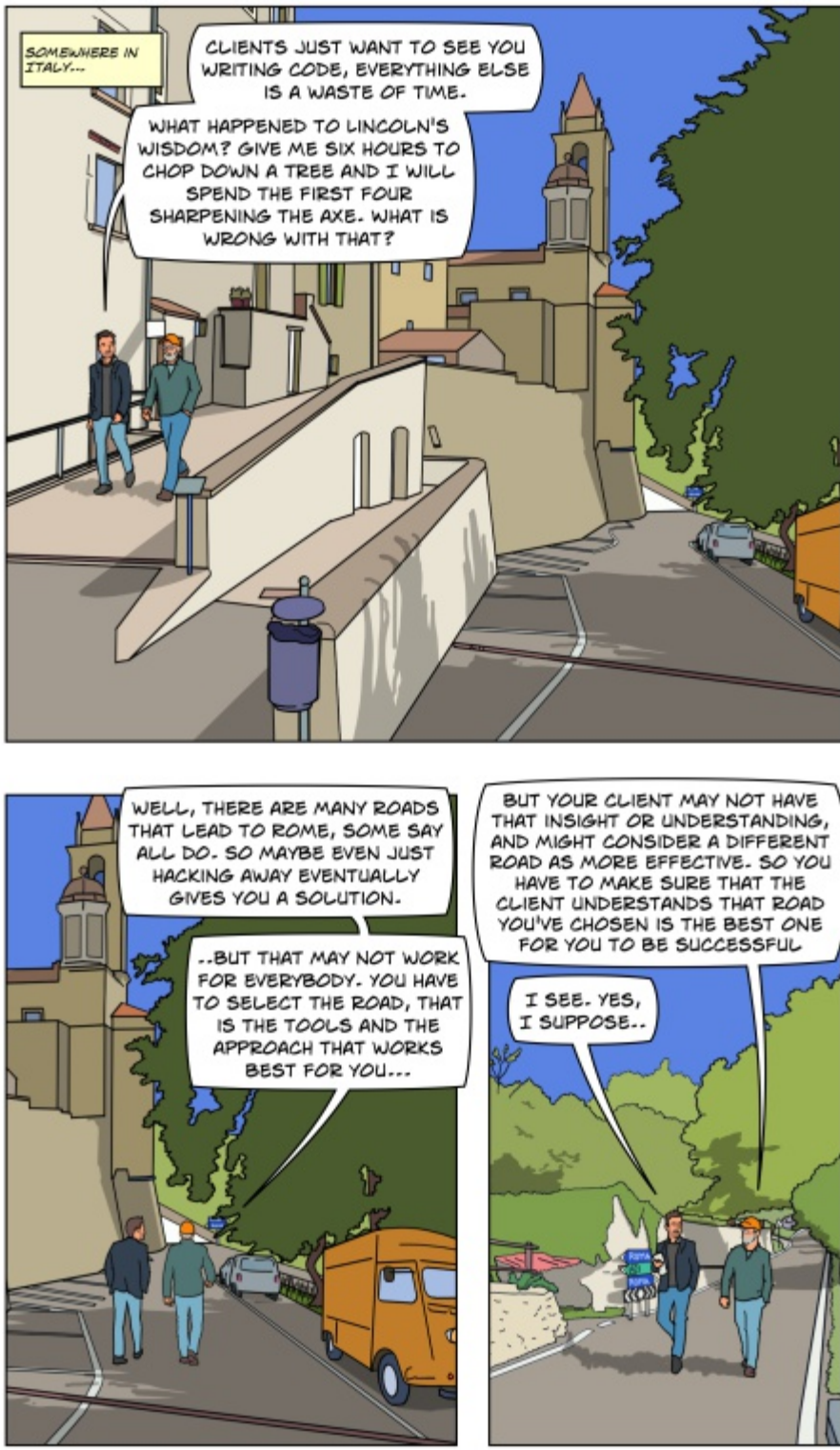


Specifying Affordances - While many designers commonly reference "affordances" as inherent properties of the technologies they create, there is a less explored aspect of Gibson's (1979) work that deserves attention. Gibson proposed that affordances can be specified by the information unveiled through action—consider, for example, the optical flow patterns that unmistakably indicate an impending collision. The interface representations we design play a pivotal role in determining the clarity of the feedback elicited by our actions. Schneiderman's (1982) direct manipulation interfaces are consistent with this principle. Direct manipulation interfaces allow people to test hypothesis and discover functionality though direct feedback of the consequences of actions. The intuitiveness of an application will largely depend on how well the affordances are specified. The intimate relations between technology affordances, work demands, and interface representations is the motivation for the construct of Ecological Interface Design (Rasmussen & Vicente, 1989; Vicente & Rasmussen, 1990; Bennett & Flach, 2011).

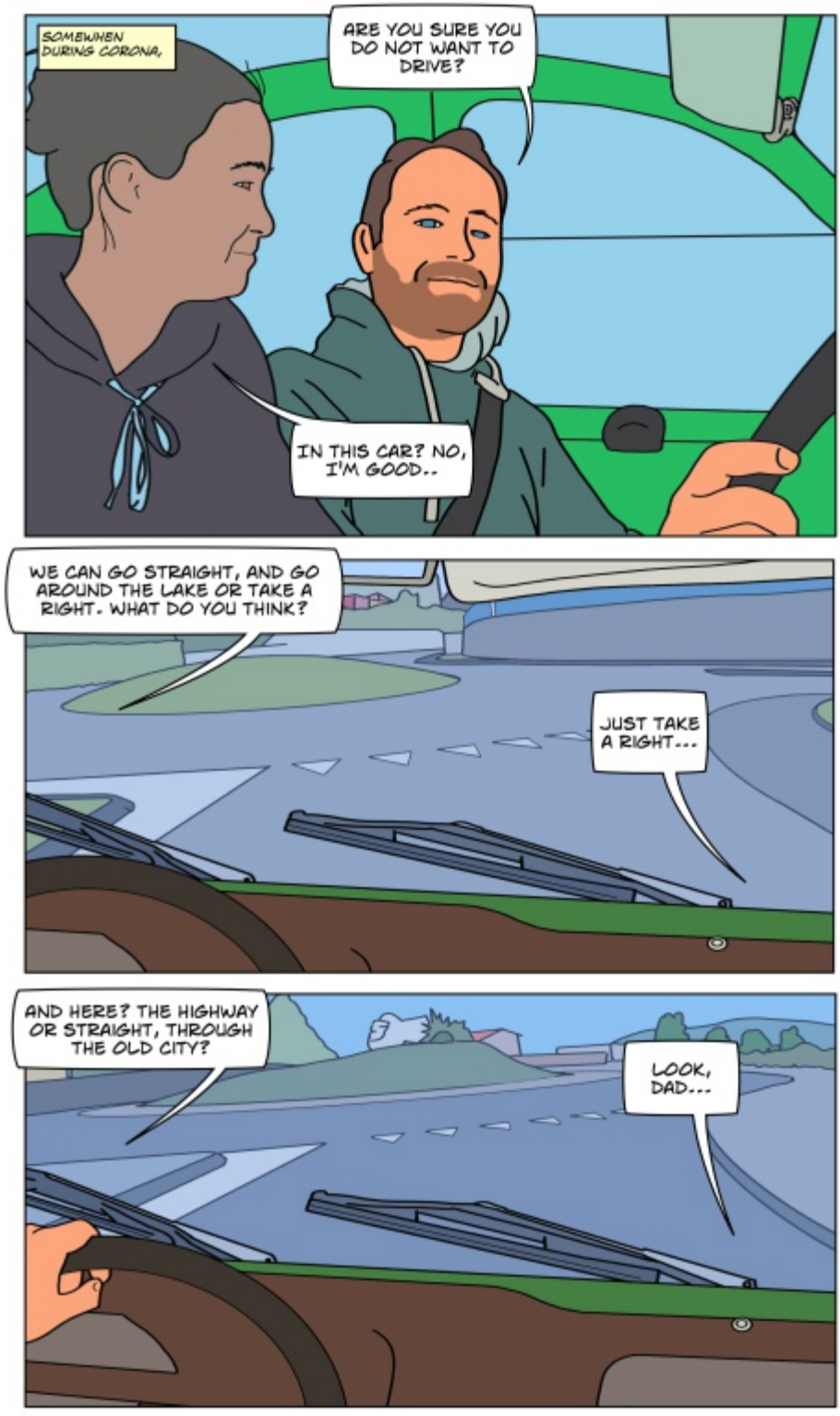

SOMEWHERE ON THE SPANISH PART OF THE BAY OF BISCAY...
CLOUDS STIMULATE YOUR IMAGINATION, LET YOU SEE ALL SORTS OF SHAPES..
THAT ONE LOOKS LIKE A LION
AN ELEPHANT...?
RIGHT!
AND THAT?
...A SHARK?!?
NO, I DON'T SEE THAT..

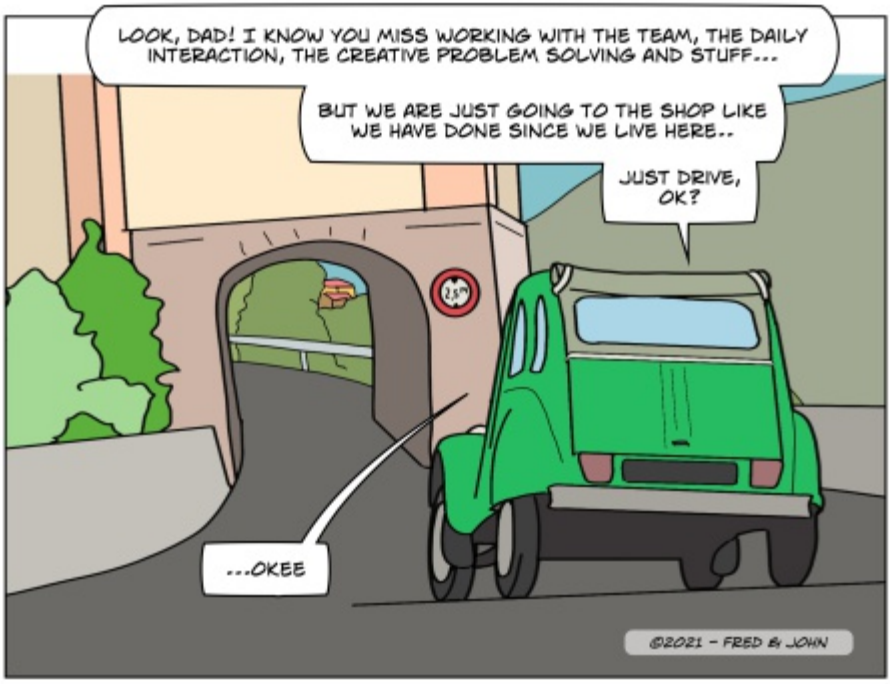


Situation awareness - At times, our survival depends both on intensive concentration on a specific target (e.g., to catch a smaller prey) AND on simultaneously being alert for unexpected surprises (e.g., an approaching predator). McGilchrist (2009) has hypothesized that the hemispheres of the brain have been specialized to support this dual demand for situation awareness. The left hemisphere seems to be specialized for focal attention on details and the right hemisphere seems to be specialized for distributing attention to be attentive to the larger context. Ideally, these two hemispheres work together in a complementary way. However, it is a delicate balance to manage. At times, the details of our current endeavor may take precedence, causing us to momentarily lose sight of the larger picture or the environment that frames our actions. This phenomenon underscores the importance of periodically zooming out, reassessing the surroundings, and ensuring that our actions align with the overarching goals and context of our work.


SOMEWHERE IN ITALY...
CLIENTS JUST WANT TO SEE YOU WRITING CODE, EVERYTHING ELSE IS A WASTE OF TIME.
WHAT HAPPENED TO LINCOLN'S WISDOM? GIVE ME SIX HOURS TO CHOP DOWN A TREE AND I WILL SPEND THE FIRST FOUR SHARPENING THE AXE. WHAT IS WRONG WITH THAT?
WELL, THERE ARE MANY ROADS THAT LEAD TO ROME, SOME SAY ALL DO. SO MAYBE EVEN JUST HACKING AWAY EVENTUALLY GIVES YOU A SOLUTION.
..BUT THAT MAY NOT WORK FOR EVERYBODY. YOU HAVE TO SELECT THE ROAD, THAT IS THE TOOLS AND THE APPROACH THAT WORKS BEST FOR YOU...
BUT YOUR CLIENT MAY NOT HAVE THAT INSIGHT OR UNDERSTANDING, AND MIGHT CONSIDER A DIFFERENT ROAD AS MORE EFFECTIVE. SO YOU HAVE TO MAKE SURE THAT THE CLIENT UNDERSTANDS THAT ROAD YOU'VE CHOSEN IS THE BEST ONE FOR YOU TO BE SUCCESSFUL
I SEE. YES, I SUPPOSE..

Work Domain Analysis: Is the Juice Worth the Squeeze - When designing technologies to support complex work it is conventionally considered to be good practice to begin by doing a work domain analysis to gain a deep understanding of the functional demands of the work (e.g., Vicente, 1999; Jenkins et al. 2009; Naikar, 2013). In practice it is rarely done, not only because the time and effort involved, but also because complex domains are constantly evolving and changing. Typically it is done while designing and prototyping. This blending of analysis and prototyping may be a very efficient way to learn about the work domain. This is consistent with Schrage's (1999) description of 'serious play' where innovations result from interacting with (playing with) design prototypes. Often, the process of playing with prototypes can lead to the discovery of novel uses and unexpected risks. Thus, work domain analysis should not be a hurdle that has to be cleared prior to building prototypes. Rather prototypes should be used to probe work experiences in pursuit of a deeper understanding of the domain of possibilities.


SOMEWHEN DURING CORONA,
ARE YOU SURE YOU DO NOT WANT TO DRIVE?
IN THIS CAR? NO, I'M GOOD..
WE CAN GO STRAIGHT, AND GO AROUND THE LAKE OR TAKE A RIGHT. WHAT DO YOU THINK?
JUST TAKE A RIGHT...
AND HERE? THE HIGHWAY OR STRAIGHT, THROUGH THE OLD CITY?
LOOK, DAD...



Computer Supported Cooperative Work - Prior to the pandemic there was a pervasive expectation that work meant going to an office where you would cooperate with colleagues to accomplish work tasks. However, post pandemic, remote working is becoming a norm. Working from home, away from regular team interactions, poses challenges like isolation, communication barriers, and difficulties in maintaining team cohesion. Fortunately, the internet and a host of new technologies such as video conferencing, instant messaging, shared production and editing of documents, and interactive white boards offer new opportunities for collaborations between teams that are widely distributed in both space and time. However, these technologies impact the social demands of work. Will the absence of face-to-face contact impact both individual well-being and collaborative efforts? The informal, spontaneous interactions that contribute to team bonding become more challenging to replicate virtually. The challenge is to find the appropriate balance, safeguarding the emotional aspects of work that are often taken for granted in a traditional office environment.


SOMEWHERE IN MORCOTE...
HOWEVER MARVELOUS THE ENVIRONMENT, IT IS THE SHARING WITH OTHER PEOPLE THAT TURNS AN EVENT INTO AN EXPERIENCE

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