Winky Dink and Me: Origins

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A b s t r a c t

Through early childhood experiences and then recollections of the many cyberneticians he knew in the 1970s and 1980s, the author traces his personal trajectory toward interaction design and cybernetics. He moves from fascination with technology, through disillusionment about AI, to seeing that living in cybernetics is a journey of return to uncertainty, risk, and possibility.

Keywords: cybernetics, interaction design, conversation, artificial intelligence, Gordon Pask.

'The joy of creating ideals, new and eternal, in and of a world, old and temporal, robots have it not. For this my Mother bore me.'

> – Warren S. McCulloch,
> 'Why the Mind Is in the Head'

S c r e e n

My first interactive technology pleasure is named 'Winky Dink.' The theme song goes, 'Winky Dink (pause) and me, Winky Dink (pause) and you....' Winky Dink's TV show is called 'Winky Dink and You'. I am 4 years old, and the 'you' is me.

I focus intently on the small, glowing TV screen just inches from my eyes. Winky Dink has a round face and a big, star-shaped hairdo (Mentzer 2013). Winky Dink is my friend. His TV show is full of gray monochrome adventure. Its animation is rendered by cross-fades between static hand drawings. Winky Dink dances and moves in his stop-action way, all the while setting the stage for my part to come.

I pull out my interface tools: A plastic, aquamarine-colored sheet to cover the screen, held taut by static electricity from the screen's magnetic field; crayons for drawing on the screen. My interface is enabled. The first frame appears with a few seemingly random lines on it. Winky Dink smiles reassuringly in a corner. I trace the lines and make fat, gloppy streaks on my display. I bathe in electromagnetic waves. Another frame appears, with different lines, Winky Dink in a different corner, still smiling. I trace these lines, also, participant in the scene, interacting with self-importance. A third and then fourth frame and then suddenly letters appear from my tracings to form words, and the words are a message about the next show. Now I know what will happen with Winky Dink tomorrow! I see into Winky Dink's future!

And for me, what of my future? Even then I felt destined to be a member of the programmed digerati. For decades to come I sit before keyboards and screens and graphical interfaces claiming to be 'user-friendly' — *but as friendly as Winky Dink?* I will connect to vast networks of communities via mobile devices with facial-recognition security — *but will I be OK?* In my earliest childhood memories, human interactions are unpredictable, threatening, and perilous, while technology seems predicable, friendly, and safe. With Winky Dink, *I feel better because I can control the world through my interactions.*

V o i c e

My childhood is rich with singing and piano-playing, by parents, aunts and uncles, brothers and cousins. Opera is constantly heard, poetry often read, performances of plays often seen and sometimes performed by me (angel in a Christmas pageant; prophetess in a cub-scout show).

Into a wall socket I insert the plug coming from a child-sized suitcase, its canvas surfaces of plaid design. I flip the power lever, place the arm over a fresh, new 45-RPM vinyl record, and listen to the voice of Domenico Modugno. '*Volare!*', he sings in Italian, *to fly*! *Contare!*, I sing with him, *to sing*! For the next 2 hours I do nothing else but sing the same song, over and over. I learn it all, every rise of the voice, every lilt of joy to have his fantasy:

> *Penso che un sogno cosi' non ritorni mai piu'*
> *[I do not think a dream like this one can ever come back]*

With his screen, Winky Dink guides my hand. When I interact with him I get a message that is more about him than about me. With his voice, Domenico Modugno makes a suggestion, offers an example. By starting from his place, *I see where I might go*. My history is the threading of those two themes: technology that shows itself as friendly yet constrains; and relationships that demand much more but 'let fly.' I am to learn that this is the difference between computer science and cybernetics, and between the computers of today and the possibilities of tomorrow.

U s e r   C o n t r o l

Wikipedia claims Winky Dink is 'the first interactive electronic medium' and 'interactive TV' (Winky Dink and You n.d.). But of course, no matter what I do, Winky Dink just keeps going. He pretends to respond to me, *making me think I matter.* This is simply a precursor to our life with digital technology today, where Facebook, Snapchat, Google, and other massive internet platforms fulfill their business models at human expense (Harris 2016).

Today's digital technologies tend to glorify the meaning of 'interactive' through 'services' that are more responsive than Winky Dink. But they serve their own needs more than mine or yours or anyone else's. Technologies control the dialog and don't much notice if I'm not there. Still, when Winky Dink smiles or when online 'friends' say they 'like' me, I feel better. Winky Dink, genderless and beguiling, guides me from a glowing screen, bright and warm with promise of participation.

But each screen is just a way to narrow human action to programmed response. First I am programmed to buy devices and then I am programmed to tap and scribble on their screens (Solon 2017). I put commitment into my actions but mistake my actions as originating with me. Today's digital technologies are mostly like that too, because us 'users' do far more of what they want, than what we want. (The term 'user' was invented so we could all feel better about what we were using.)

M a r v i n   a n d   S e y m o u r

Through grammar school and high school, the attractive glow of screens burns bright in my imagination. Technology more advanced than TV is only available to me in the books on the engineering shelves of my local library. I read every one. I enter MIT as an undergrad in 1969 and discover a place swirling with bright people and bright ideas and chunky technology in every corner. Never having

seen a computer before, now I sit at huge, powerful machines, with screens that offer far more than my old TV ever did. Computers give me confidence that *I* can determine what it will do, because I myself write lines of instructions whose details *it* must follow. *I mistake this reliability for a relationship, but it makes me feel better.*

MIT swirls with Marvin Minsky and Seymour Papert talking artificial intelligence (AI). They are talking symbolic programming, not the subset of AI that has overwhelmed the world since 2016, called 'machine learning' (which they tried hard to kill (Pangaro 2017)). At MIT they are the high priests of AI. They lecture in tag-team format: One steps up to knock out an idea until it's on the ropes, then the other guy comes in to knock out the next one. Minsky writes a book called *Computation: Finite and Infinite Machines*. Its title is dramatic. Its diagrams are clean and perfectly clear, and its concepts are elegant. It reduces computation to its sterilized essence: 'Turing machines', the conceptual breakthrough that was the blueprint for making digital machines (Minsky 1967).

My first personal Turing Machine is a PDP-7 computer, 8K of magnetic core memory, no disk storage at all. But it has something very rare for that time, a screen that I could program, simple line drawings, slow animations, aquamarine on dark grey, *my very own Winky Dink.*

I am addicted.

Sitting here I forge my future. I study AI. I write code for smart programs that solve puzzles. But just like the beautiful, albeit dispassionate diagrams in Minsky's book, the processes of AI are ascetic, body-less,

unconvincing. Can our complex brain be doing that trivial dance of zero-and-one logic, like digital computers? Humans are a mess with emotions and irrationality, and these programs of data-driven binary steps are rigid, formulaic, un-compelling. I am uncomfortable with human interactions — *aren't they unreliable?* Studying humanities brings such pleasure (MIT's expert courses in Shakespeare, Chaucer, playwriting, acting).

These are some of my guides to rejecting AI. Like the name says, AI is artificial and just doesn't fit my experience of being human. *I live in the contradictions of wanting to interact with machines I can explain and control; of wanting human interactions that are more reliable and fulfilling. Of ultimately wanting to make machines more human.* I am no longer satisfied with computers or with Winky Dink or with AI. Disillusioned, I go drifting. Until I meet Jerry.

Jerry

Artificial intelligence and its instrumentality, digital computers, were of the church of MIT, but there were less promoted and more subversive enchanters lurking. Jerry Lettvin, neurophysiologist and M.D. without Ph.D., taught biology. You have to take his class, everyone said. But biology didn't interest me. *I want to avoid the messiness and wetness of the body if I can, the likely cause of unreliable human interactions.*

But here, in the spell of Jerry's lectures, the organism is no longer an input/output machine, like a computer; it is part of a loop from perception to action and back again to perception. It doesn't seek knowledge for its own sake (like science, like AI); it acts in order to know in order to act (Pickering 2015). Jerry begins my education in cybernetics.

On the outside, Jerry's method of 'teaching' is one of building arguments; but it's really a form of cognitive seduction. You can only love the ideas that come from him, because they caress your thinking. Minsky and Papert knock them around; Jerry breathes them into life.

I graduate with a BS in Humanities/Computer Science and pursue projects with Jerry in building computer models of how the axon trees of the nervous system might process the codes that travel in train of nerve impulses. His research lab is the only one asking this question — nowhere else at MIT and nearly nowhere else — even today (Cariani 2007 is a rare exception). Jerry sits at the aquamarine lines on the display of my personal Turing Machine, my PDP-7, controlling the inputs and watching the outputs, making the simulated nervous system dance with him. It is a *pas de deux* I never forget. (My close relationship with him brings me one of the most affectionate moments of my life: His bear hug, in front of his class in the biggest MIT lecture hall, on my birthday. *It is a warm hug and he lifts me easily off the ground, to a great height.*)

From here on I find individuals like Jerry irresistible, more than any technology could be, and I pursue a path of finding them, in history or in the flesh.

Warren and Rook

If Jerry never mentions cybernetics, all the time he mentions Warren McCulloch. McCulloch was a legend, a genius, a poet, a profoundly original thinker. McCulloch and Lettvin and others had been looking at the nervous system in ways that others had not: With an organic sensuality that brought the experience of living to their work. McCulloch was a deep influence on Minsky and Papert,

many would say (and they themselves would say; for example, Papert 1965).

McCulloch's contemporary, Norbert Wiener, had coined the word 'cybernetics' with his colleagues (Wiener 1948) because they wanted to name a new discipline, one to embody what steering a ship is about: Having a goal, aiming for it, getting blown off course, adjusting and re-aiming, and so on (Pangaro 2012). It was McCulloch who was perhaps the single most important force behind cybernetics as a movement and a discipline — yes, more than Wiener, because of his organizing of conference series called the Macy Meetings that forever imprint the concepts of cybernetics on the culture of scientific thought (Heims 1991).

Warren McCulloch dies in the month I arrive at MIT, September 1969. But in the mid-1980s I visit the McCulloch Farm in Old Lyme, Connecticut, a handful of times, at the invitation of Rook, Warren's widow. She was a critical force at the farm and in her husband's orbit (as was Mai von Foerster, Heinz von Foerster's wife, who I knew in a later era). After a meal that is rich with love and conversation, she sits with her guests amidst myriad books and plays LPs of music that is important to her. Her stories of Warren are definitive, of course.

On one occasion I visited Rook and her family with Gordon Pask, who looked up to Warren as to a father (as Gordon himself would say). Walking with Gordon across the farm, past the horse stables on a very windy night, I say it feels like Warren is still emphatically present. Gordon, with his cape flapping uncontrollably, agrees with a grave seriousness. But I am getting ahead of introducing the protagonist of my story.

_G o r d o n_

I learn the richest meaning of cybernetics from Gordon Pask. I'm in my first-ever full-time job, a position on research staff at the MIT Architecture Machine Group (Wright Steenson 2017). In the job interview I show the head of the group, Nicholas Negroponte, the computer-animated films I made with my collaborators on the PDP-7. The job is mine. (Eight years later, Nicholas morphs ArchMach and some other MIT research groups into the MIT Media Lab.)

I don't recall how long into the job but one fateful day I walk into Nicholas' office to find Pask standing at a desk, looking down at papers with his head tilted sideways and lighting his peculiar metal pipe. 'Hello, Paul, how-do?', Gordon Pask says to me, his side-angle gaze reaching toward me. _His aura is both friendly sprite and probing sorcerer._ Nicholas tells Gordon I am an 'actor' (having been in MIT student productions continuously for the last 4 of my 5 undergraduate years) and tells me that Gordon is a 'producer and writer for the stage.' I shall always be grateful for that start; it was as if Nicholas wanted to distill each of us to an essence that the other would recognize. I don't think he predicted that _I would get hooked on the performance, hooked on the man, hooked on the cybernetics._

At Negroponte's lab Pask plays the role of genius critic and cybernetician of conversation, bearing a general theory of everything and a gender-bending pharmacopoeia, all of which he is willing to share. Pask's cybernetics says everything arises from interaction ('In the beginning was the interaction.', is how I paraphrase it later). And I learn so much from my interactions with him. I recognize the way I had always experienced the world, before I could articulate it — _we exist in interaction, even if unreliable and scary._ Here is someone who has made a framework for me, far beyond reliable computers and inhumane AI, richly generative and with a sensibility I can relate to. A spirit of performance and participation, _of being alive._

We talk at length that first day and, following a pattern that would be repeated for the decade to come, we continue into dinner at a noisy restaurant where listening is a strain, and then late into the night where amazing ideas meld with dreaming. There is always more to know, more to ask, more to be fascinated by. For every idea I could speak, Gordon has so much to say. I ask how his human-made artifacts could have attributes that humans have, such as intelligence (Pask 1980). And most of all, how could his machines hold conversations with humans or with each other (Pask 1961, Pask 1982). These questions occupy my waking and sleeping dreams from now onwards.

On the paper placemat he sketches out his first performance/art installation, Musicolour (Pask 1971). Having been immersed in the world of Turing machines and symbolic computing and then seduced and prepared by Jerry, my eyes are ready to see how Paskian machines, made even from crude technologies of the 1950s and 1960s, create possibilities within generative, unpredictable, novel interactions _that are conversations._ And why would I want anything else — with computers I thought I was in control, with that do-my-bidding power that all computer hackers are supposed to seek (Weizenbaum 1976).

But Gordon had another way: To see interaction as a _shared participation and responsibility._ Neither _controls_ the outcomes.

Each is an agent. I could reframe my history, no longer casting myself as victim of unreliability. I could be responsible for what I bring to the relationship and for what I want from it, and negotiate. *The unreliability of human exchange becomes an opening of possibility and not a closing down.* Someday this will be my framing of interaction design.

After dinner on this same first night we head back to his hotel room with intent, where Pask performs an archeological dig through oversized leather luggage to fetch a particular journal paper. Beyond the layers of white permanent-press shirts and double-breasted suit jackets are crinkled plastic bags containing bottles of pharmaceuticals. Next, spare wire and wiring connectors and tools, all loose and strewn about. Finally a compressed 'wadge' of reprints and overhead transparencies emerges with his goal within it, a small pink pamphlet with tiny, rusted staples: *An Outline Theory of Media for Education and Entertainment* (Pask 1976). It is well after 1 AM and I begin to take my leave.

But wait, he wants to give me his business card. Another archeological dig, this time into his jacket. Double-breasted and always a visual frame for a tie-able bow-tie (defined as a 'proper bow-tie'), his jacket weighs probably 8 pounds, every pocket stuffed with materials all essential to his daily living. Tobacco tins, pipe, cigarettes, lighter, matches, pills, thick wads of papers, passport, small screwdrivers used for cleaning his pipe… We review nearly all of these with audio identification and affirming commentary, all while he seeks his business card. *I realize every item is a prop, every comment a means to have a personal conversation, all to linger in the interaction.*

Finally, his business card appears as if from up his sleeve, stained with pipe ashes, corners crumpled. I express my thanks as best I could, as much my gratitude for his existence as for the evening together. I try to leave gracefully and walk down the hall but he keeps speaking from his hotel room door, his words trailing off to inaudibility. As I walk to the elevator, the paisley in the hotel's wallpaper dances to ideas that are swirling within me.

T r a n s i t i o n
Though previously steeped in all the hardware and software and concepts that MIT could offer, I know quickly that nothing is more interesting than Pask. And most useful of all, I could read his papers and write code. So I drop out of Negroponte's Ph.D. program (his first-ever Ph.D. student, for all of a matter of weeks) and flee MIT for New York and its cheap flights to London. (Nicholas understands my defection and is completely gracious about it.) To England I go and impose myself upon Pask's time, his lab people, and his family. All of them were, of course, used to it: Unknown student-type appears with paisley in his eyes and wants in.

F a m i l y
I ring the bell at the front door. It swings open to reveal a roundish, slightly stern woman with glasses who says, 'I am Elizabeth Pask' — Gordon's wife. She is cordial but a bit cold, weary it seems of yet another meal to be served to a new visitor of unknown quality. 'Gordon is getting up' — said as if a constant state of affairs — and I am invited to wait in the living room/dining room. It is darkly painted, with antique gold sitting-sofa and chairs, and dark drapes over the tall windows in the bay. The dinner table is set for the family and myself; the center of the table holds a raised plate with some dozen pepper cellars of all sizes and styles. The lighting is

stark; the ceiling has been modified to hold spot lights that shone down, casting clear shadows on any character who enters the scene.

Amanda emerges, teen-age daughter. A combination of both parents, totally, implausibly. Then Hermione, younger and smaller, 'making eyes' to keep a stranger's attention. Elizabeth returns for chit-chat and some sizing-up. Looking for an 'in', I say I have come via Negroponte. I try not to be too American (because I might appear uncouth, except) except where I might be a conduit to yet more hardware. Pask's impoverished and sometimes bankruptcy-making research laboratory, situated just below the dining room in his dank basement, had already benefitted from machinery tossed off by MIT as too old.

R i t u a l s

Steps in the upper hallway — sharp, deliberate taps, each step intentional — sound like Gordon's. Now he's coming down the stairs. I see him pass in the hallway and go into the kitchen; then he comes out with purpose and goes right back upstairs. Must have forgotten something. I wait but he does not return for some time. Then the same timed steps down stairs, into the kitchen, and return back up the stairs without break. I try not to notice but after this occurs some 5 times I look un-committedly toward the family, hoping for a clue. Elizabeth says, 'Gordon is doing his rituals' as if to say, 'Today is Monday.' 'Aha', I casually reply. Six times, seven, eight times down the stairs I count, and this time Gordon swings into the dining room with a flourish and says, 'How-do, Paul, have a good flight?'

The dinner atmosphere holds a tension, Elizabeth is not happy with something. Surely living with a genius is not easy, I think, but little did I know at the time. Main course, salad, sweet, cheese, savory for Gordon, all made by Elizabeth, yet again tonight. Lots of wine, poured at frequent intervals into all the adults' glasses by Gordon. Each time that he drains his glass, faster than anyone, he refills my glass and Elizabeth's and then his, near to the top. Does he want company, or justification of his own drinking, or all of us drunk?

W o r k

Dinner finished, the family leaves the table and we talk. The surface is friendly, the undertone demanding. Did I understand his papers? What programming could I do? Was I available to meet with the Admiralty to discuss their needs? Here in his own element, smaller yet more powerful in his Edwardian dining room with high ceilings and ceiling-inset stage lighting, he is elfin, a creature, and not a person *per se*.

His company, System Research, Ltd., had been awarded a contract by a group of research psychologists in the UK Admiralty, as a result of his relationship with research psychologists in the US Army. They all knew that existing approaches to the problems of training and planning were too limited. They were intrigued (and a bit bewildered) by Pask's 'conversation theory', a formal, comprehensive, explanatory framework for harnessing the processes of learning and therefore a strategy to build software interfaces that support it.

And that is where I found my place: Purported interlocutor between The Maestro and those interested in applying his ideas. (I could also provide access to America's advanced technological prowess; in that era, technology available in the UK was 5 years

behind that of the US.) Could entailment meshes be a practical way to improve strategic training systems? Could a re-implementation of THOUGHTSTICKER (Pangaro 2001) in a sensible (and reproducible, and reliable, and documented) environment provide an advance in capability? Could Pask stay focused on a client's problem long enough to complete a working prototype?

Answering these questions becomes the blueprint for our shared future, but the delays in his appearing for dinner become metaphor for the ten-plus years of collaboration that follow. His staying up all night to work on correspondence, write and re-write papers, and carry on his theoretical work mean that Gordon doesn't get to bed much before mid- or late morning. So he really didn't care to wake up on any schedule (nor could he). Getting him out of bed requires countless reminders and some badgering; alarm clocks are irrelevant, a reliable technology of no use here. (The barbiturates he takes to sleep don't help. Besides he has to take enough to cancel the amphetamines he takes to work through the day. All the coffee and wine doesn't seem to make much difference. Only the Perrier matters: It is necessary to flush everything through.)

T i g e r (Butler)
On my earliest visits I wait for him to get up and come to dinner, engaged in wonderful conversations while getting to know the daughters better. Elizabeth one day suggests that I wake him myself. It is a clever and expedient idea on her part, and now I better understand her tense demeanor. *Of course I am thrilled at the idea of becoming closer to the daily habits of this creature I have chosen to follow.*

I climb the stairs and listen outside the bedroom. The snoring is resonant, clear. I knock and push open the door. The bedroom has tall ceilings, patterned-papered walls, and dark drapes drawn closed against the day's now-waning evening sun. There is a shamble of clothing everywhere. Two small twin beds, impossible to tell which holds The Pask, until the sound of snoring brings my attention to the one on the left.

As my eyes adjust to the dark, I see his tiny frame outlined under the covers. His hair, always a salt-and-pepper fright wig, is matted with sweat. 'Gordon', I call, gently at first and then louder until he responds by not snoring. 'Gordon, it's time for dinner!' 'Oh…what?' I hear his surprise in this unexpected voice disturbing him, one he can't as easily ignore. He turns, rubs his hair and sits up on the side of the bed, a flat board with no mattress, lying near to the floor. Bedding aside, I see how he sleeps: In socks, briefs, and the white shirt he will wear that day on rising. (Fortunately it is of the wash-and-wear variety and by the time he dons his jacket, it is relatively wrinkle-free.)

We are both a bit embarrassed. I begin to talk about the day and what must come next in the Admiralty contract. This focus is welcome to us both, and lets him awaken the body while his mind is already working fine. In time, over years, this ritual repeats but becomes more difficult. He is less willing; I am less innocent and less patient; he is less patient or more pulled down by the drugs, or both.

F u t u r e s
The years that follow contain elation, enmity, and uncertainty. On a given day, would Gordon be intuitively compassionate (loaning me US$7,000 in today's money without hesitation) or willfully induce conflict

(attacking me in front of sponsors that we both need on our side)?

In our next interaction would he be friendly sprite or probing sorcerer?

No matter — I could never return to the banal (if predictable) interactions with trivial machines, nor to the fallacious claims of AI. Pask showed me how to live in a coherence of my personal worlds, integrating computer science and cybernetics, coding and opera, description and experience, Winky Dink and *Volare!*

My years with him are seductive and challenging, generative and exhausting. I would repeat them, not happily but willfully. *Living in interaction is more like singing and opera than computing and devices.* From unreliable humans to Winky Dink to MIT and its computers and AI, he brought my trajectory full cybernetic circle, back to unreliable human interactions again.

If Winky Dink is a comforting illusion of connection and reliability, Pask is a volatile embrace of precariousness and vast, seductive possibility. We may *make sense* through interactions with the physical world, but we *co-create meaning* in our living through interactions with human beings.

For me personally, that journey of meaning-making is well portrayed by my interactions with Gordon and best explained by Pask's conversation theory. For me professionally, I use his ideas in every project and interaction design, long after his lifestyle takes him away prematurely (Pangaro 1996). My future trajectory is made simple, as with any great theory: *In meaning-making every day in the forty years since meeting Pask, I shall act, and learn, and act again, drawing strength and trust from the coherence I make in my own living.*

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