The Colorado College
Department of Music
and The Arts at CC
present

THE BUTTERFLY EFFECT

Ryan Bañagale
Opening Remarks

Sage Behr
Literature

Ofer Ben-Amots
Composition

Zach Ben-Amots
Poetry

Surbhi Bhutani
Computer Science

Shane Burns
Physics

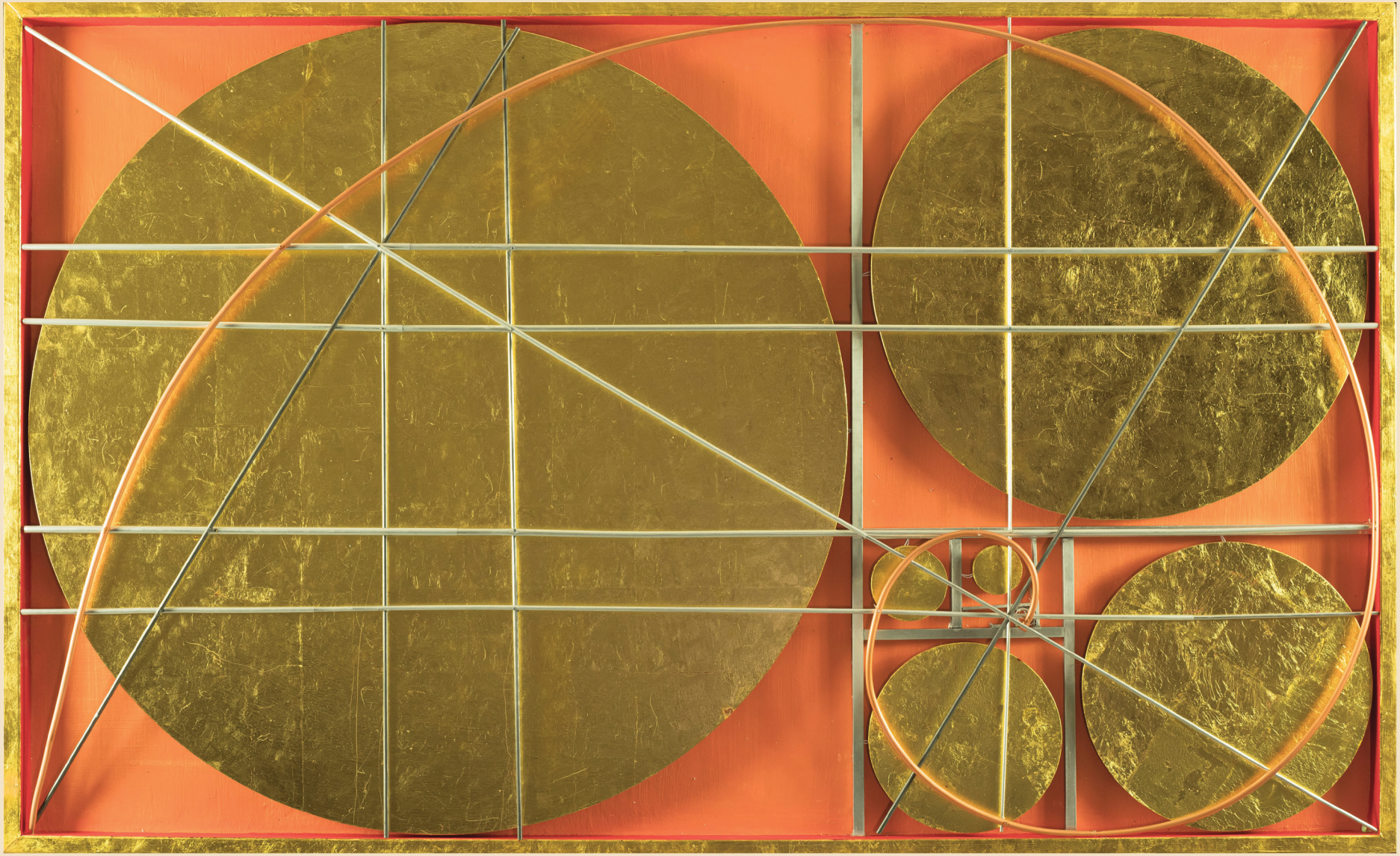
Susan Grace
Piano

Karen Mosbacher
Visual Art

Jameel Paulin
Digital Art

7:30 P.M.
APRIL 14, 2022
PACKARD HALL

An arts and sciences interdisciplinary event with CC faculty, students, and guest artists.



The Butterfly Effect – Back Panel, 2022
© Karen Mosbacher
Lead Artist & Designer, Karen Mosbacher
Engineer & Artist, Al B Johnson
Photo Credit, The Optical Alchemist

PROGRAM

Opening Remarks ..... Ryan Bañagale
Director, The Arts at CC

Introductions ..... Ofer Ben-Amots
Professor, Department of Music

"I Paint Music" ..... Karen Mosbacher
Special Guest, Visual Artist

"The Butterfly Effect in Recursive Sequences" ..... Surbhi Bhutani '22
Math and Computer Science Double Major

"Chaos" ..... Zach Ben-Amots
Special Guest, Poet

"La baldosa floja" ..... Sage Behr
Pre-recorded Special Guest, Author

"The Butterfly Effect: Small Changes Matter" ..... Shane Burns
Professor, Department of Physics

"Order & Chaos" ..... Jameel Paulin
Assistant Professor, Department of Art

***The Butterfly Effect* - for piano** ..... Susan Grace
Artist-in-Residence, Department of Music

Question and Answer Session ..... All Presenters

PRESENTERS

RYAN RAUL BAÑAGALE is an Associate Professor of Music at Colorado College and Director of The Arts at CC. He received his Ph.D. at Harvard University and has published widely on the music of George Gershwin, including his book *Arranging Gershwin*: Rhapsody in Blue *and the Creation of an American Icon* (Oxford University Press, 2014). He is co-editor of *"We Didn't Start the Fire": Billy Joel and Popular Music Studies* (Lexington Books, 2020) and is currently compiling the Oxford Handbook on Arrangement Studies. His scholarship also appears in the *Journal for the Society for American Music*, *Jazz Perspectives*, and the *Cambridge Companion to Gershwin* (Cambridge University Press, 2019).

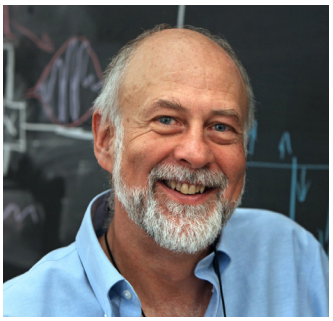
As a faculty administrator, he amplifies the role of the arts in the academic mission of the college, supporting the collaborative and creative impulses of the campus and community. Between the endeavors of the academic arts departments, the innovative co-curricular student groups, and the expansive programming of the Colorado Springs Fine Arts Center at Colorado College, his Office of The Arts facilitates the cross-disciplinary connections that remain an essential component of the liberal arts experience.

SAGE BEHR is an actor, writer, and translator from Iowa City, Iowa. Her writing can be found in *Cutleaf Journal*, *Peach Mag*, and *Points in Case Blog*. Sage is currently a Fulbright Arts Research Grantee at the Universidade de Campinas in Barão Geraldo, Brazil.

Born in Haifa, in 1955, Israel, **OFER BEN-AMOTS** gave his first piano concert at age nine and at age sixteen was awarded first prize in the Chet Piano Competition. Later, he continued his composition studies in Tel Aviv, Geneva, Switzerland, and the Academy of Music in Detmold, Germany, where he graduated with degrees in composition, music theory, and piano. Upon his arrival in the United States in 1987, Ben-Amots studied with George Crumb at the University of Pennsylvania where he received his Ph.D. in music composition. Currently Chair of the Music Department at Colorado College, Dr. Ben-Amots teaches composition and theory. Ofer Ben-Amots' compositions are performed regularly in concert halls and festivals Worldwide. His music has been performed by such orchestras as the Zürich Philharmonic, Munich Philharmonic, Austrian Radio Orchestra, Brooklyn Philharmonic, Colorado Orchestra, Concerto Soloists of Philadelphia, and Portland Chamber Orchestra, among others. His compositions have been recorded by the Gewandhaus Orchestra of Leipzig, Munich Chamber Orchestra, Barcelona Royal Philharmonic, Odessa Philharmonic, BBC Singers, and the renowned Czech choirs Permonik and Jitro. He is the winner of the 1994 Vienna International Competition for Composers, 1988 Kavannagh Prize, the Gold Award at South Africa's 1993 Roodepoort International Competition for Choral Composition. His *Avis Urbanus* for amplified flute was awarded First Prize at the 1991 Kobe International Competition for Flute Composition in Japan. In 1999, Ben-Amots was awarded the Aaron Copland Award and the Music Composition Artist Fellowship by the Colorado Council on the Arts. Ofer Ben-Amots' works have been repeatedly recognized for their emotional and highly personal expression. The interweaving of folk elements with contemporary textures, along with his unique imaginative orchestration, creates the haunting dynamic tension that permeates and defines Ben-Amots' musical language.

ZACH BEN-AMOTS is a Chicago-based video journalist and writer. His video work has been featured on Hulu, *Good Morning America*, and *The Washington Post*, as well as PBS and ABC stations across the country. His creative writing has been published in small independent journals. Ben-Amots completed his undergraduate studies at Lawrence University and went on to receive his master's degree in journalism at Northeastern University. He grew up in Colorado Springs, which is still home for him.

As a math-magician with a deep appreciation for sound, **SURBHI BHUTANI** has always been fascinated by the ties between math and music. As a child, Surbhi used to figure out music using simple integers. When she heard a song on the radio as a young child, she assigned four numbers to it, because the song had four chords. As she grew older, she realized that she was using chord theory and transcription. As Surbhi's math abilities have improved, so have her observations of music. She now uses more advanced score analysis, which helps her with her interpretation of more advanced music. Surbhi is a fourth-year computer science and mathematics double major at Colorado College and is a candidate for distinction in mathematics.



Professor **SHANE BURNS** earned his BA in physics at UC San Diego in 1979. He began graduate work at UC Berkeley in 1979 where he worked on an automated search for nearby supernovae. After after being awarded a Ph.D. in 1985, Professor Burns became a postdoctoral researcher at the University of Wyoming. He spent the summer of 1988 as a visiting scientist at Lawrence Berkeley National Lab where he helped found the Supernova Cosmology Project (SCP). He continued to work as a member of the SCP group while a faculty member at Harvey Mudd College, the US Air Force Academy, and Colorado College. The 2011 Nobel Prize in Physics was awarded to the leader of the SCP for the group's discovery of the accelerating expansion of the Universe through observations of distant supernovae. During his career Professor Burns has observed using essentially all of the world's great observatories including the Keck Observatory and the Hubble Space Telescope.

Grammy nominated pianist and Steinway Artist **SUSAN GRACE** has performed solo and chamber recitals, and has appeared as soloist with orchestras in the United States, Europe, the former Soviet Union, Korea, India and China. She has also performed in the Aspekte Festival in Salzburg, St Paul Chamber Orchestra's new-music series Engine 408, Phillips Collection in Washington, D.C., the Grand Teton Festival, the Cape Cod Music Festival, Festival Mozaic, Concordia Chamber Players, Music at Oxford, and the Helmsley Festival in England. She is a member of *Quattro Mani*, an internationally acclaimed two-piano ensemble with NY pianist Steven Beck. Recent performances include CUNY Graduate Center, Bargemusic, National Sawdust, Subculture and Weill Recital Hall at Carnegie Hall and Steinway Hall in NY, La Labortoire Cambridge, Curtis Institute in Philadelphia and the Alabama and Austin Symphonies. Grace has recorded for Bridge Records, the Belgium National Radio, WFMT in Chicago, the Society of Composers, Wilson Audio, Klavier International and Klavier Music Productions. Her recording on the Bridge label of Stefan Wolpe's violin and piano music was listed in the *London Sunday Times* as one of the top ten Contemporary recordings of 2015 and was also included on the *Fanfare* "Critics Want List 2016." Bridge Records recently released 4 new CDs by *Quattro Mani* featuring American and European composers; *Lounge Lizards* and *Re-Structures* in

2018 as well as Stefan Wolpe's music for two pianos and the Poul Ruders Edition, Volume 15 released in 2019, all to critical acclaim. Grace was awarded 2020 Gresham Riley Award, Alumni Association's highest honor for service to Colorado College.

Grace is associate chair, artist-in-residence and senior lecturer in music at Colorado College. She is also music director of the renowned Colorado College Summer Music Festival, now in its 36th season. She was awarded the Christine S. Johnson Professorship of Music from 2014-16. In June 2014, Mayor Steve Bach and the city of Colorado Springs presented Ms. Grace with the *Spirit of the Springs* award for her work with the Colorado College Summer Music Festival. Grace was nominated for a Grammy in the Best Small Ensemble Performance category.

International award-winning artist **KAREN MOSBACHER** is an abstract expressionist painter, known for the synesthetic qualities in her work. Her work typically focuses on oil and cold wax, acrylic, and mixed media on canvas and panel. In 2018 Ms. Mosbacher's body of work *All.That.Jazz.* which exemplifies her resonance with rhythm and color, was welcomed by galleries in the United States and France. Earlier projects included two series called *Welcome Home* and *The Enchanted Land*, both depicting synesthetic visions of scenes from living in Santa Fe after a two-year residency in Atlanta. She is also the published author of *Grief Exposed*, a two-book series of Poetic Illustrations exploring the process of grief.

Ms. Mosbacher shows in G44 Gallery, Kreuser Gallery, and Cottonwood Center for the Arts in Colorado Springs, Farrell's Gallery, Gallery 4945, and I.D.E.A. Galleries in Atlanta, JRB ART at the Elms in Oklahoma City, and in Victoria at Home in Santa Fe. Her recent body of work, *Before I was Me* is receiving notable acclaim, and has been praised by lauded Chicago artist and teacher Helen Dannelly as "museum worthy". Ms. Mosbacher's upcoming show *The Alchemy of Gesture* is a multisensory series explaining the importance of gesture in expression and communication. Her other projects include a collaboration with musical ensemble The Ezra Duo and, a multidisciplinary collaboration on "The Butterfly Effect" with composer Dr. Ofer Ben-Amots and others. She lives and works alongside her canine studio assistant, Ruby, in Colorado Springs, Colorado.

JAMEEL PAULIN: "My work is motivated by a profound love of African descendants. In my studio practice, I use Afrofuturism as a conceptual framework to explore the experiences, utopian visions, and aesthetic traditions of the African diaspora. As a visual artist who grew up during the hip-hop era and the digital age, my relationship with Afrofuturism has been shaped by the evolution of digital technology and hip-hop music. Presently, I create immersive digital soundscapes; using African artifacts and Afro-diasporic music as the basis for developing virtual worlds.

In my effort to synthesize a hip-hop studio practice, vis-a-vis Afrofuturism, I settled on three elements to form the basis of a new method: digital immersion, appropriation through sampling, and episodic (or asynchronous) time. In this context, my work offers the viewer an experience of episodic time that is mediated through thematic and symbolic worlds, or visualized soundtracks, as embodied in virtual space. I have shown my recent work, as well as previous projects, locally and nationally. In October 2020, I presented my virtual reality work as a TEDx talk, titled Afrofuturism: A Practice of Radical Self Love, at TEDxKingLincoln-Bronzeville in Columbus, Ohio."

MUSIC EXCERPT

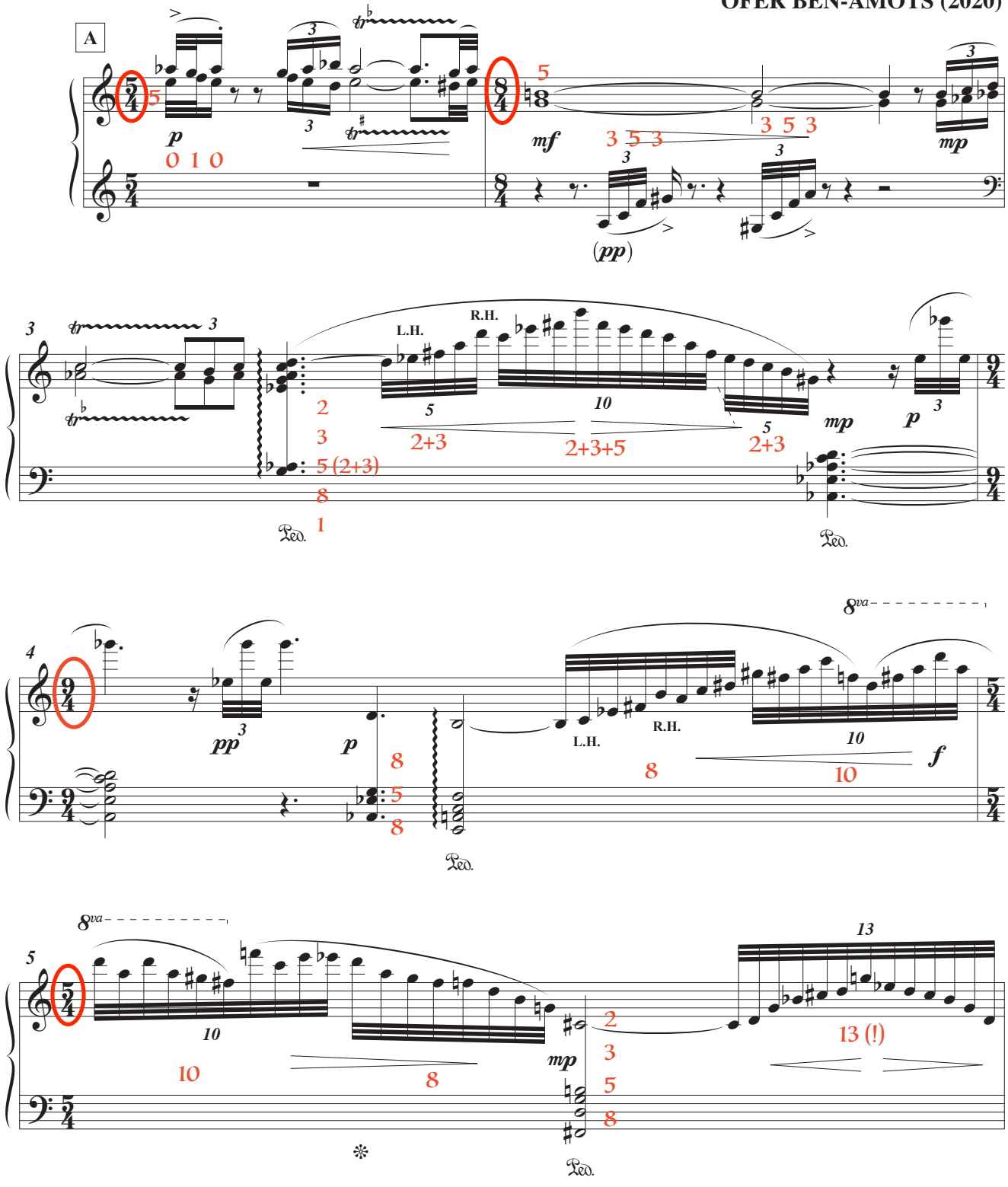
בס״ד

The Butterfly Effect

To Laura Farré Rozada

Moderato, poco liberamente (𝅗𝅥=34, ♩=68)

OFER BEN-AMOTS (2020)



POEM TEXT

Chaos Theory, or musings from a wikipedia education in weather predictability (and basic quantum physics?) by someone with knowledge of neither

It was a rounding error that sparked Chaos Theory into being. The computer for Edward Lorenz's weather prediction model rounded a temperature and made two sets of starting conditions appear the same, despite one being infinitesimally warmer. The seemingly minor mathematical difference (a smaller value than we even use to *measure* temperature) had a major long-term effect. Lorenz thus reached this vital conclusion: it is impossible to know the precise conditions of the present, and if we are imprecise in any-way, our predictions will be inaccurate.

"If, then, there is any error whatsoever in observing the present state," Lorenz wrote, "an acceptable prediction of an instantaneous state in the distant future may well be impossible."

Chaos Theory. Simple. Beautiful. Hard to misinterpret. But Lorenz just had to go and make it easy to misinterpret by giving the world its favorite misunderstood analogy: the butterfly effect. "Does the flap of a butterfly's wings in Brazil set off a tornado in Texas?" By the time that Lorenz posed that question, he had already worked through a rounding error in a computer prediction model. He did not account, however, for an oversimplified understanding of the analogy (read: a human rounding error). The Great Misunderstanding of Lorenz's Chaos Theory seems to be that people believe a small thing *will* cause a massive impact, not just that it *could* and we wouldn't know it.

The people answered Lorenz's hypothetical question. "Yes," they said, stupidly. "A butterfly's wings flapping will cause a tornado." They had no time and no care for something more nuanced and accurate: "Sure, something so small as a butterfly's wings could have long-term impact on the scale of a major weather event. But it would be hard to connect the two factors, harder to confirm the causal relationship, and impossible to predict. So we should remain resolutely humble in our faith in long-term prediction models."

What was the effect of Lorenz first stating his butterfly/tornado analogy in a speech? In a way, Lorenz's butterfly effect model caused, itself, a butterfly effect. Lorenz set out to construct a mathematically accurate weather prediction system, and in turn reframed prediction models on a global level for economics, business, politics, society, war, and more. One rounding error, and he changed the world. In the public sphere, though, Lorenz's humble chaos theory actually had its greatest impact in the arena of time-travel fiction, in which it has been continually misapplied and simplified to the point of inaccuracy.

Its impact may have been that prediction models in any realm of study were changed forever. Or its impact could be that we now have a movie titled 'The Butterfly Effect,' starring Ashton Kutcher. Of course, that's only the most obvious reference in popular culture. The butterfly effect can be found (wrongly applied) in movies and books everywhere.

"It simply deals with predictability in a complex system," Jeff Goldblum says in Jurassic Park. Sure, why not.

The Butterfly Effect in time-travel fiction boils down to what has become a clichéd plot point: any change to the past, no matter how small, will lead exponentially toward chaos in the future. McFly's mom might marry Biff: *gasp*. But that idea ignores the facts of chaos theory: that time itself is a rapid, exponentially accelerating growth of errors (Deterministic Chaos) shooting

through the forward-moving Arrow of Time. Had time-travel never occurred, the exponential growth of chaos could have been (in fact, was) exactly the same. Have I lost you? Back to basics.

Deterministic Chaos is just the concept that one chaotic factor leads to exponentially more chaotic factors. Chaos begets chaos. Hence, even one imprecision and the entire model will descend out of order. On Lorenz's computer models, chaotic factors were displayed through what he called 'fractals' (short for fractional dimensialities). I can't fully grasp what fractals are, but somehow, they are tiny individual patterns that break from the expected route and that also mirror the larger pattern of chaotic behavior as a whole. Have I explained that wrong? Back to basics.

The Arrow of Time is just the concept that we can use chaos as a measure of whether time is moving forward (toward the future) or backward (toward the past). If we add this concept to the above-described Deterministic Chaos, we recognize that chaos increases exponentially *as time passes*. It follows that if we worked backward into the past, chaos would decrease. The Arrow of Time thus points one way or the other (future or past), depending on whether chaos is increasing or decreasing. To this end, some have argued that time itself depends on chaos to exist, or that, without chaos, time would cease to be linear. It's entirely possible, though, that I simply misunderstood the topic. Back to basics.

Opposite Chaos Theory is the belief that we can accurately predict the future. But inherent to either position is that the future is determined by what preceded it, that the world's events are a series of cause-and-effect factors (on any scale). Large: Had 3 men in Chernobyl *not* prevented a second explosion by risking their lives to turn off underwater valves, "half of Europe would have been destroyed and rendered uninhabitable for half a million years." Small: I forgot to set my alarm, and thus I woke up late. The major difference between the two (belief in Chaos Theory vs. the belief that we can accurately predict the future) is that for Lorenz, cause and effect relationships are too complex to precisely draw connections between. No matter how precise we believe our knowledge to be, we will always be imprecise. We will always miss certain factors.

Not only that, but *the more precise we are the less useful our information is*. Weather – our prime example – is accepted by most people as an imprecise science. Even though our local meteorologists occasionally (or seemingly, always) get it wrong, we keep tuning in. We know that they're relying on predictive models that cannot account for everything. And yes, I know we've got the weather on our phones now. But I've worked in a local TV newsroom, and people still watch for the weather (in fact, that's pretty much all they watch for). And that's because, whatever our perception at home, the 7-day weather report usually is accurate. Generally speaking, meteorology is as accurate as we need it to be, when we keep our prediction models from stretching too far into the future.

"Now I'm here by myself, uh, talking to myself. That, that's chaos theory," Goldblum says in Jurassic Park, after Laura Dern bails on his impromptu lecture about the butterfly effect. Yes, Jeff, that's chaos theory. You bored her, so she left. But I also could have predicted that.

SHORT STORY TEXT

La baldosa floja
by Sage Behr

S. Christie stepped on a baldosa floja as she walked down Guatemala Street towards the bookstore. She had just learned the phrase, *baldosa floja*, from the guidebook she had purchased upon arriving to Ezeiza Airport. It meant loose tile. The vocabulary came paired with a warning: the loose tiles that paved the Buenos Aires sidewalks burped dirty water on the legs of unscrupulous pedestrians, who didn't understand the intricate particularities of walking in this city. S. Christie swiveled her leg to see brown liquid dripping down her calf onto the clean white socks that poked out of her combat boots.

S. Christie was going to a talk by a British author at an English language bookstore in San Telmo, a tango neighborhood with lots of interesting bars that S. Christie made a mental note to dip into afterwards, to get a fernet or a vermouth soda, or something else suitably Argentinian. She had seen the talk advertised on the corkboard of a hostel she had stepped into earlier that day, to escape the rainstorm that had charged the baldosas flojas with the water that would squirt onto S. Christie's leg as she strode to the bookstore a few hours later.

The flyer was handwritten with Sharpie on an orange sheet of construction paper. *Find out how*, it said, *the beating of a butterfly's wings in the Amazon can cause a tornado in Texas — with Dermot Melvin, author of the bestseller* Temptress Entropy*, at The Walrus Bookstore.*

S. Christie had taken out the small notebook her mother had given her to record the minutiae of her travels and jotted down the address of the bookstore. It struck her as fantastical, the idea of an Amazonian butterfly creating a tornado in Texas. But as she was in South America, and her family lived in Kansas — at the very center of Tornado Alley — the concept also felt somewhat threatening on a personal level. She resolved to attend the talk.

When S. Christie arrived to the bookstore, she saw that she was one of just two attendees. A makeshift bar was set up by the desk in the doorway. S. Christie accepted a small glass of Malbec from the young woman in a black button-down, unsure whether to persist with her slow but assured Spanish when she knew the woman must speak English.

"Gracias," she decided, lifting the wine in a pert toast.

"De nada," the woman responded warmly, giving S. Christie a look of kind complicity.

The bookstore was dark and musty, all red drapes and mahogany bookshelves lined with shabby secondhand books. S. Christie ran her fingers over an old copy of Borges in translation, a travel guide to Peru, and the powder pink cover of a novel that she recognized from middle school. She imagined the travelers offloading these books before embarking on the next leg of their journey: academics and backpackers; rich families traveling with young kids.

"Please," the young woman said, touching S. Christie's arm. "Have a seat."

S. Christie moved to the third row of plastic folding chairs. A total of ten chairs were set up in uneven rows before a haggard looking podium. The other attendee was a man slumped in the front row. His brown hair fell in curtains around his face. He appeared to be sleeping. The young woman approached him cautiously, placing a hand on his shoulder.

"Sir?" she said. "Sir? The talk will be starting now."

The man lifted his head in a jolt.

"Of course," he said. The man stood up, shaking his head slightly, and proceeded to the podium. He shielded his eyes sarcastically as he surveyed his meager audience.

"Well," he began. "Glad to see such a good turnout. Must have forgotten to post those flyers around town, eh, Vivian?"

The young woman in black had taken her seat at the far end of the second row.

"I assure you I did," she responded evenly. "And my name is Viviana."

The man waved a hand airily, unconcerned. "Never mind," he said. "My ferry to Montevideo leaves in a few hours. So let's get on with it, shall we?"

S. Christie sat up straight, pen poised above her notebook.

"My name, as no doubt you saw on the flyers our dear mademoiselle *Viviana* posted in the area," the man began, "is Dermot Melvin. I'm a novelist, but more importantly, I am a thinker. And today I'm here to talk to you about one of the things I've contemplated the most in my life." Dermot paused for dramatic effect, then went on: "It's called Chaos Theory, but you may know it as…*the Butterfly Effect*."

The Butterfly Effect. S. Christie noted the title at the top of the page, underlining it with an assured stroke of her pen. Dermot cleared his throat.

"We're going to touch on a number of topics in this lecture," he said. "And I hope that you can follow along."

Number of topics, S. Christie wrote in her neat shorthand. *Follow along.*

"In 1963, a meteorologist named Edward Laurenz began to study the effect of tiny variations in predictive models producing massively different longterm outcomes."

Tiny variations, S. Christie jotted down. *Different outcomes.*

She looked down at her notes, then added: *1963.*

"Take a butterfly," Dermot said. "A single butterfly fluttering its wings in the Amazon. Insignificant enough."

Butterfly fluttering, S. Christie wrote. *Amazon insignificant.*

"Yet imagine," Dermot continued. "That in the flapping of its tiny wings, the butterfly sets off another minuscule phenomenon — say, a nearly imperceptible temperature change — which in turn triggers a larger phenomenon. Eventually, those phenomena all build up to a large weather event, the tornado in Texas, if you will. Not so insignificant after all."

S. Christie looked down at her notes. Her neat handwriting had begun to break down as she struggled to keep up. *Flapping tiny…trigger large…Texas*. She pressed her lips together with slight frustration, then raised her eyes back to Dermot, who ran a hand through his hair before he went on.

"Laurenz found that the margins in predictive models were so strict, that the smallest of differences could produce virtually opposite results. While his findings were originally meant to apply to the world of meteorology, Laurenz's so-called 'Chaos Theory' caused a stir in the scientific world. Now, it is used in every field of study that involves predictions."

Dermot finally paused, and locked eyes with S. Christie briefly.

"Lost yet?" he said.

S. Christie reached for her Malbec self consciously, cheeks burning.

“I have a question,” Viviana suddenly said, raising her hand slightly from the end of her row. Dermot raised his eyebrows.

“Yes?” he said.

“Don’t you believe,” Viviana said, “that deterministic chaos would apply whether or not a butterfly flapped its wings?” Dermot cocked his head slightly.

“Of course,” he responded. “Chaos Theory constitutes the complete breakdown of causal relationships. Butterfly or no butterfly, deterministic chaos applies.”

“But that is not a breakdown of causal relationships at all,” the woman said. “It is simply a dictum by which to understand the butterfly: chaos grows exponentially. No matter what you do.”

*“*The butterfly is simply a tool to understand the effect,” Dermot responded, sighing impatiently. “Let’s not belabor the point.”

“With all due respect,” Viviana responded, “you wrote a novel on the subject.”

Dermot stared at her. S. Christie looked from the storm gathering on Dermot’s brow to Viviana, whose face was alight with some wild species of excitement. She capped her pen and folded her hands in her lap. To this, she would simply have to listen.

“Well, yes,” Dermot finally said. “I suppose I did.”

“Then let me rephrase my question,” Viviana said, sitting up somewhat taller in her chair. “Do you think that you can predict a butterfly?”

“Excuse me?” Dermot said. A small, mocking smile seemed to play around his lips once more. “I don’t think I understood the question.” Viviana lifted her chin.

“Do you think,” she repeated slowly, “that you can predict a butterfly?”

Dermot’s smile began to fade again.

“Look,” he said. “I don’t know what you’re getting at, but if you don’t mind I —”

“In *Temptress Entropy*,” Viviana cut him off, “your female characters are all agents of chaos.”

“Well, the Temptress certainly is,” Dermot responded. “You can glean that just from the title.”

“Right,” Viviana said. “And the protagonist is an author, similar to yourself,” she went on, “who must keep the woman from destroying a small artifact that holds the meaning of life.”

“That’s right,” Dermot said.

“And isn’t the Temptress, in the end, presented as the very personification of chaos, of randomness, of *entropy,* as you write in your title? And yet somehow her foil, is a man who represents…what? The arrow of time?”

“Look,” Dermot said irritably, “Vivian—”

“Viviana,” the woman snapped.

“Viviana, Viviana — look. It’s fiction.” Dermot’s breathing was slightly heavy now. “So you could really cut me a break.”

Viviana smirked slightly.

“Now, if you don’t mind, I’ll return to our audience.”

Dermot cast his frenzied eyes to S. Christie, who sat riveted by the exchange.

“Any questions?” he demanded.

S. Christie reeled slightly backwards in her folding chair.

"Oh," she said. "No. I just —"

"Did you follow the lecture?" he said.

"I — I —" S. Christie stammered.

"The real question," Viviana cut in. "Is whether *you* understand what you are saying, Mr. Melvin."

"Of course I do!" Dermot blustered. "What are you implying?"

"I'm not implying anything," Viviana said coolly. "You misunderstood the butterfly in your own novel."

"What?" Dermot was leaning over the podium now, staring at Viviana with something like hate. Viviana's nostrils flared.

"Clearly, the Temptress was never a deviation. She was not a fractal. The Temptress was no butterfly!"

"Then what was she?" Dermot roared, frustrated. "What was she, then? Tell me!"

Viviana shook her head, her eyes narrow.

"Don't you see?" she laughed derisively. "The Temptress was the tornado."

The Temptress was the tornado.

Dermot stood, speechless for a moment. S. Christie watched his eyes grow big, and his lips silently form the words: *The Temptress was the tornado*.

For a moment, a smile spread across Dermot's red face. Then he remembered where he was.

Dermot's lip curled, and he glared at Viviana, who was watching him with a mix of contempt and pity.

"I don't have to take this," he snarled.

Viviana smiled placidly as Dermot grabbed his jacket, pushing several plastic chairs aside as he stormed to the front of the bookstore. He threw open the door and strode outside, not bothering to pull it closed behind him. Almost immediately upon exiting, Dermot stepped on one of Buenos Aires' infamous loose tiles, which squirted steaming brown water up his pant leg. With a bellow of frustration, the author stomped away.

"Baldosa floja," S. Christie whispered. Viviana looked over at her approvingly.

"Muy bien," she said. "You already know to avoid the loose tiles in this city."

"Yes," S. Christie responded, smiling slightly.

"They're one of a few things you can count on here," Viviana responded. "That, and the fragile ego of a man. One little question — and suddenly: chaos."

S. Christie pulled out her notebook to make one last note of what she had learned that day: *question chaos…man fragile…watch where you step.*

DIGITAL ART

Join the "Order & Chaos" WebVR Experience by Jameel Paulin

Scan the QR code or visit
hub.link/G5pqK5z

UPCOMING MUSIC DEPARTMENT EVENTS

Unless indicated, all concerts are in Packard Hall, are free, and require no tickets.
www.coloradocollege.edu/music

Live from Packard Hall! Faculty Artists Concert
Tuesday, April 19, 3 pm

AJ Lee and Blue Summit with Don Rigsby, Tim Crouch and Keith Reed
Opening Act: The CC Rocky Mountain Tops
Tuesday, April 19, 7:30 pm
Free ticketed event. Register for general admission seating at forms.gle/DWmSEsLm4DA23huR8 or by calling 719-389-6042

Interrupted Music Project (Rescheduled from January)
Tuesday, April 26, 7:30 pm
Presented in partnership with Chamber Orchestra of the Springs

Chamber Chorus Concert
Sunday, May 1, 3 pm

Concert Band Concert
Cornerstone Arts Center – Celeste Theatre
Tuesday, May 3, 7:30 pm

Summer Music Festival Intermezzo Series: The Ying Quartet
Wednesday, May 4, 7:30 pm
Tickets: $30/general public, $5/non-CC students; CC students and faculty free with ID.