


ATTRACTORS!



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Brought to you by Irens of Gitcoin
Artwork & Lettering by Horacio Borjotti
Concept & Art Direction by Owocki & TW



I'VE HEARD OF ATTRACTORS IN DYNAMIC SYSTEMS... BUT WHY ARE THEY SO POWERFUL? WHY ARE THEY SO RELEVANT TO ETHEREUM?

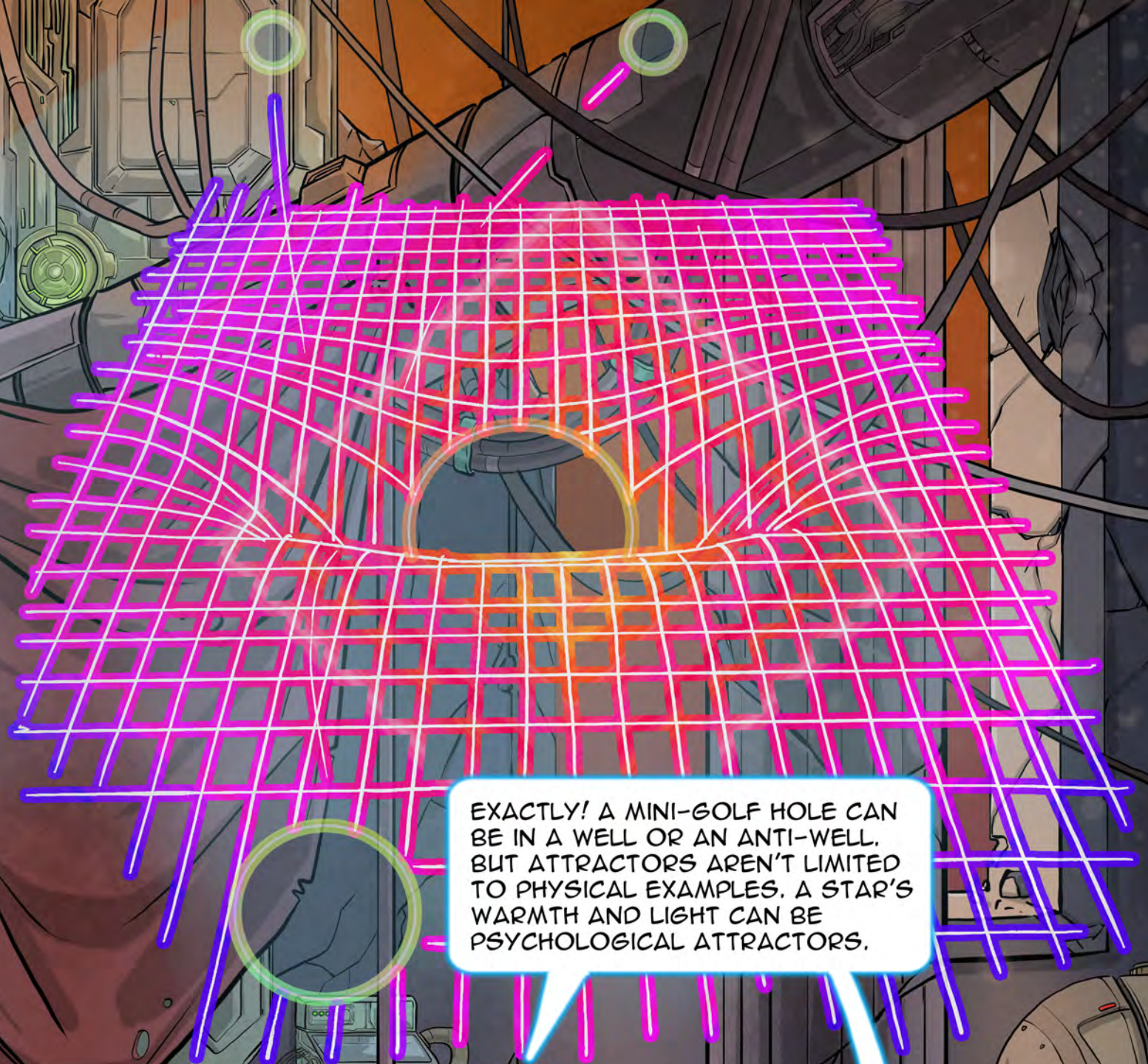
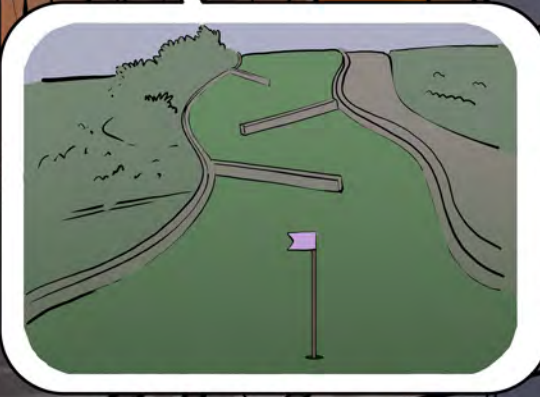
ATTRACTORS ARE A SET OF STATES A SYSTEM TENDS TO EVOLVE TOWARD. THEY CAN BE PHYSICAL, PSYCHOLOGICAL, OR JUST STRANGE.

HERE'S AN ATTRACTOR. THE VERTICAL AXIS MEASURES HOW OFTEN POINTS ARE VISITED. THE SYSTEM IS ATTRACTED TO THE POINT WITH THE HIGHEST VERTICAL AXIS.

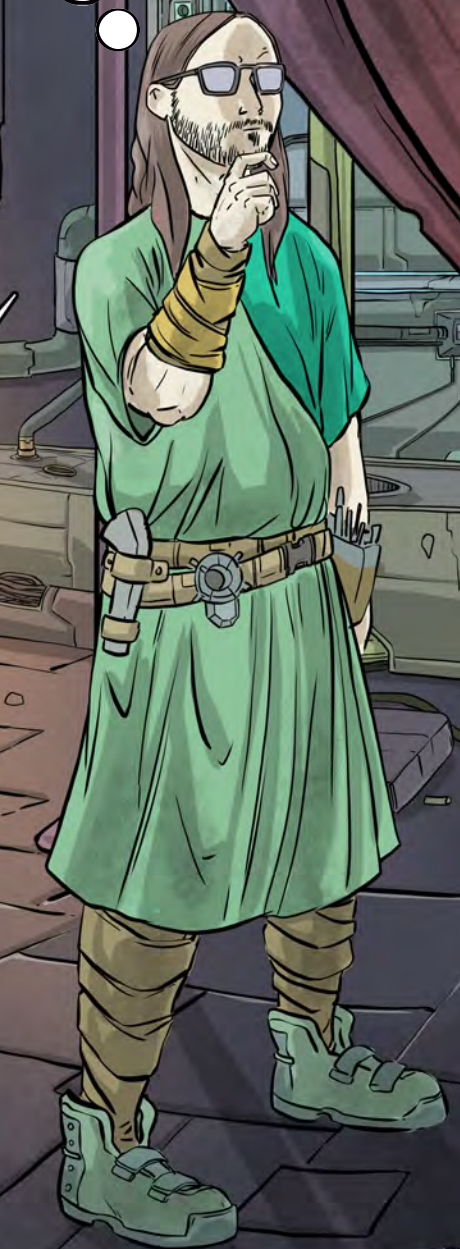
... AND WHAT'S A GRAVITATIONAL WELL?

A WELL IS THE REGION IN PHASE SPACE WHERE OBJECTS ARE DRAWN TOWARD THE VORTEX. CHECK OUT THIS EXAMPLE.

I SEE! AND THESE GRAVITATIONAL WELLS CAN BE IN THE PHYSICAL WORLD, LIKE WITH MINI-GOLF?



WHAT ABOUT DIGITAL OR PSYCHOLOGICAL ATTRACTORS?



EXACTLY! A MINI-GOLF HOLE CAN BE IN A WELL OR AN ANTI-WELL, BUT ATTRACTORS AREN'T LIMITED TO PHYSICAL EXAMPLES. A STAR'S WARMTH AND LIGHT CAN BE PSYCHOLOGICAL ATTRACTORS.

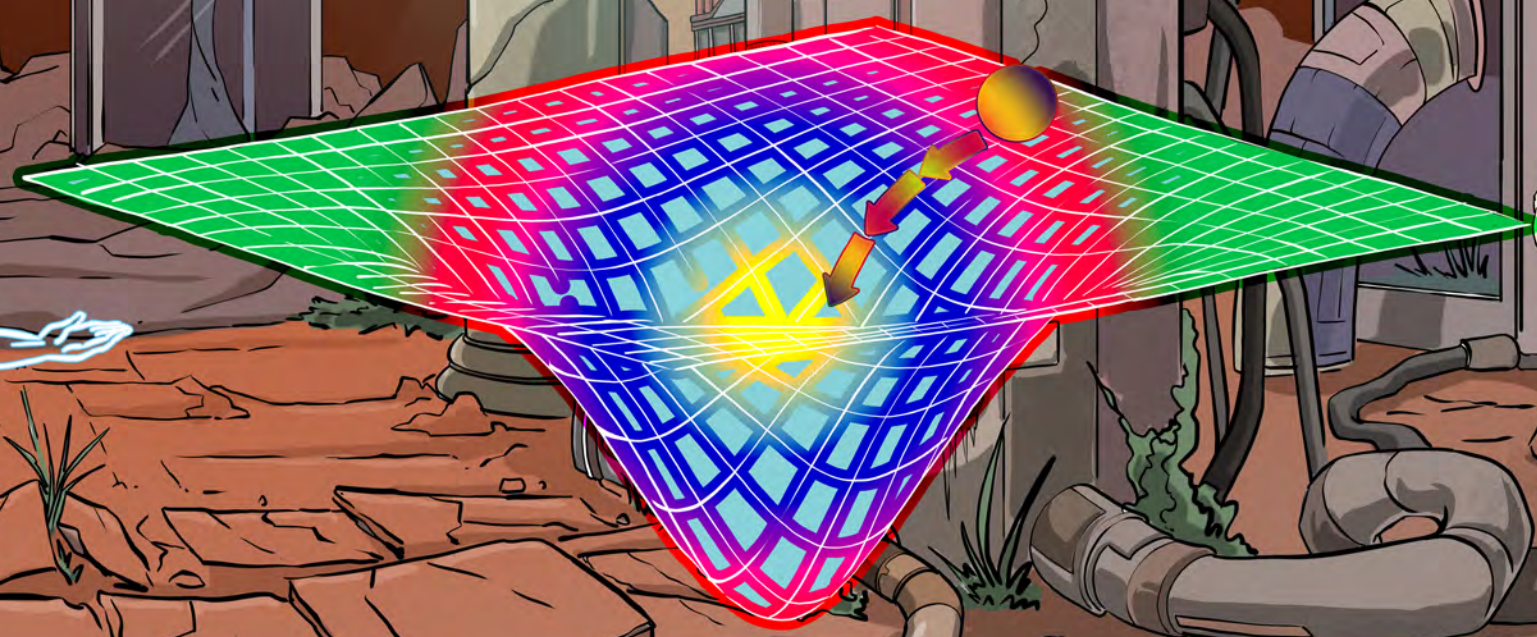


THEY EXIST TOO! VISUALIZING THEM ISN'T AS EASY, BUT IT'S WORTHWHILE FOR ETHEREUM ENGINEERS AND BLOCKCHAIN STRATEGISTS TO THINK ABOUT ATTRACTORS VISUALLY.

AURIS, CAN YOU EXPLAIN THE DIFFERENT TYPES OF ATTRACTORS IN DYNAMIC SYSTEMS?

YES, XANDER. THERE ARE FOUR MAIN TYPES: FIXED STATE, LIMIT CYCLE, LIMIT TORUS, AND STRANGE ATTRACTORS.

A FIXED STATE IS AN ATTRACTING FIXED POINT THAT A DYNAMICAL SYSTEM EVOLVES TOWARDS. IT'S THE FINAL STATE OF THE SYSTEM.

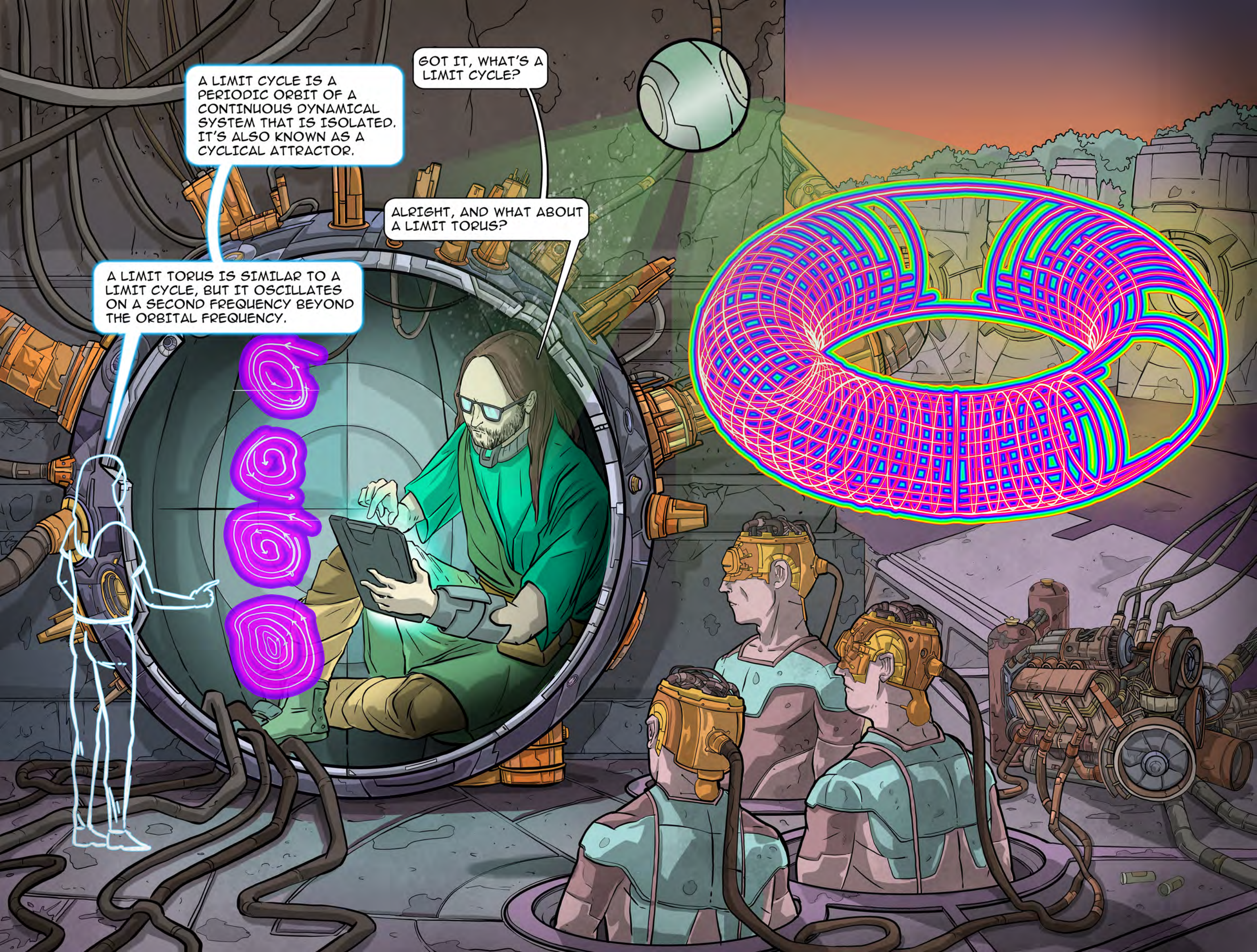
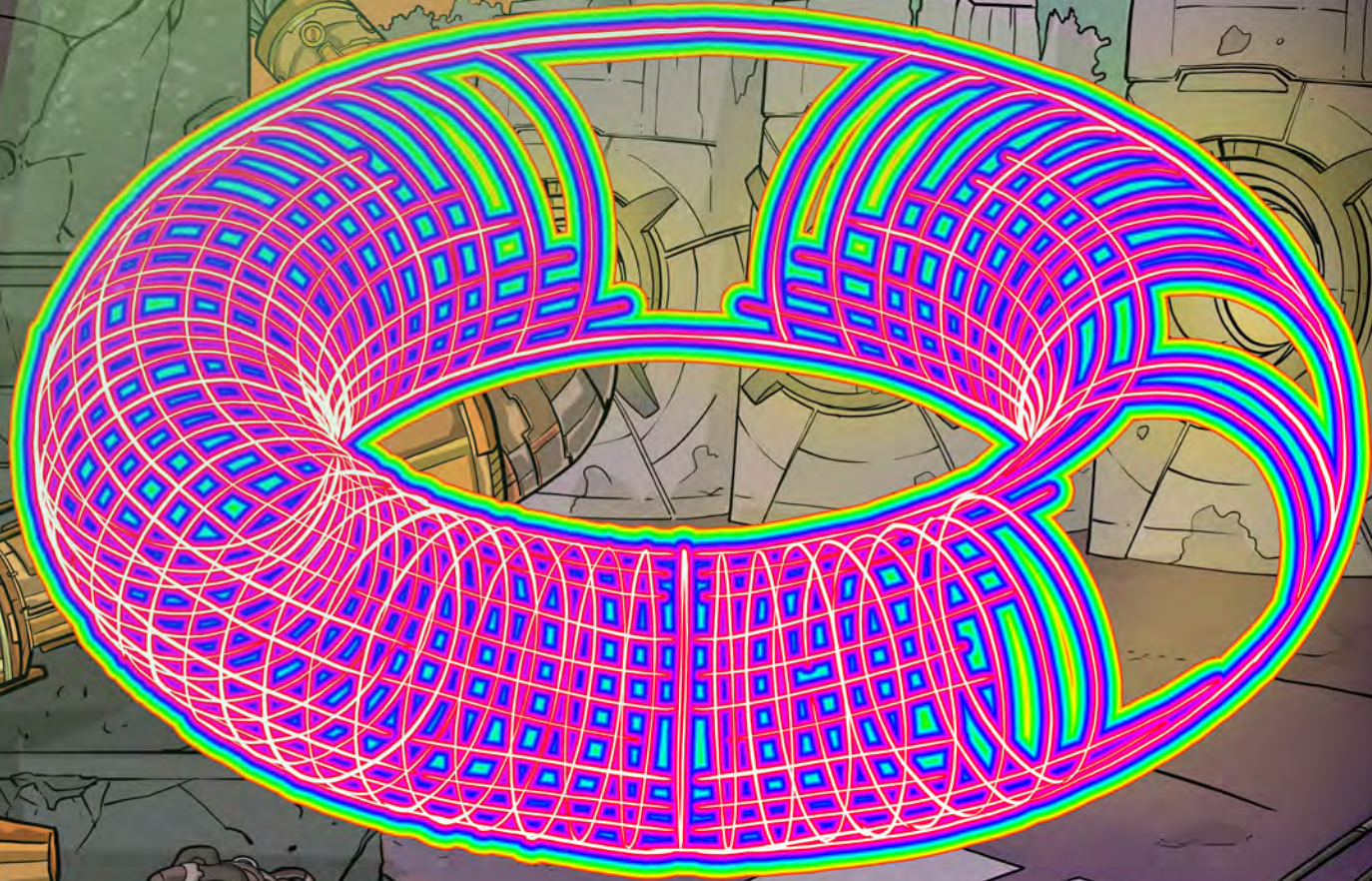


A LIMIT CYCLE IS A PERIODIC ORBIT OF A CONTINUOUS DYNAMICAL SYSTEM THAT IS ISOLATED. IT'S ALSO KNOWN AS A CYCLICAL ATTRACTOR.

GOT IT, WHAT'S A LIMIT CYCLE?

ALRIGHT, AND WHAT ABOUT A LIMIT TORUS?

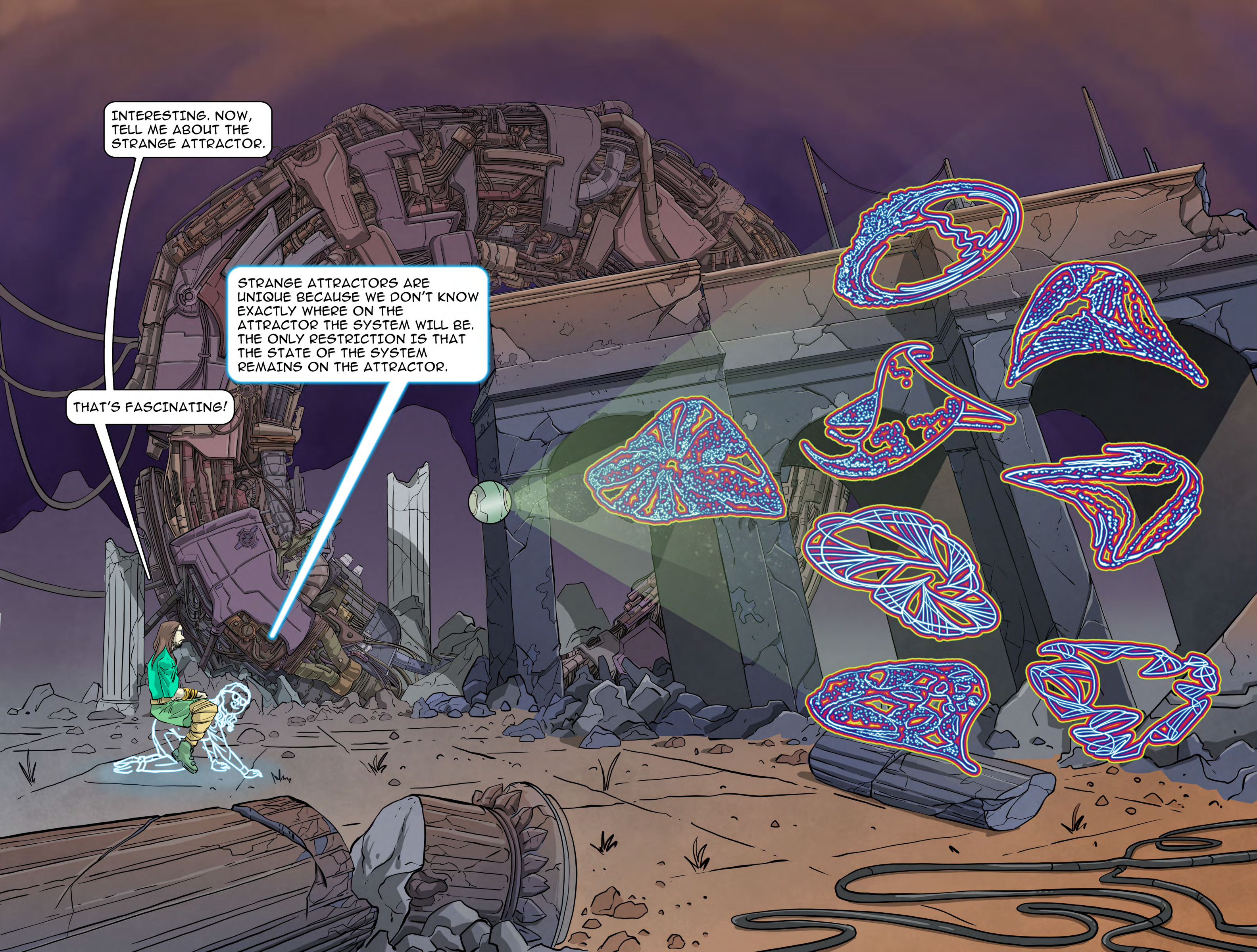
A LIMIT TORUS IS SIMILAR TO A LIMIT CYCLE, BUT IT OSCILLATES ON A SECOND FREQUENCY BEYOND THE ORBITAL FREQUENCY.



INTERESTING. NOW,
TELL ME ABOUT THE
STRANGE ATTRACTOR.

STRANGE ATTRACTORS ARE
UNIQUE BECAUSE WE DON'T KNOW
EXACTLY WHERE ON THE
ATTRACTOR THE SYSTEM WILL BE.
THE ONLY RESTRICTION IS THAT
THE STATE OF THE SYSTEM
REMAINS ON THE ATTRACTOR.

THAT'S FASCINATING!



WHAT ABOUT OUR DAOS WITHIN ETHEREUM? ARE THEY STABLE OR UNSTABLE? CAN WE CLASSIFY THEM AS ONE OF THESE ATTRACTORS?



SO, IF WE CAN MEASURE, ISOLATE, AND ENGINEER SUBATTRACTORS, WE CAN CREATE A STRONGER OVERALL ATTRACTOR FOR OUR DAO?

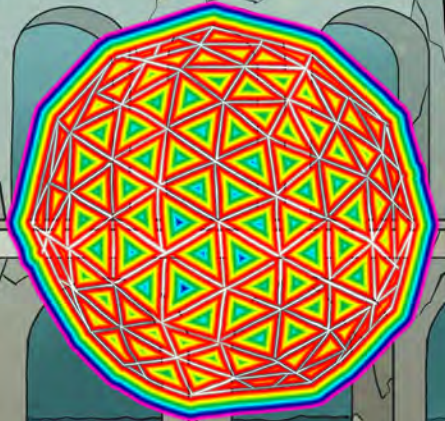


AURIS, HOW CAN WE APPLY ALL THIS KNOWLEDGE IN PRACTICE?

MOST DAOS, LIKE COMPLEX SOCIAL SYSTEMS, RESEMBLE STRANGE ATTRACTORS. HOWEVER, MANY OF THESE CAN BE COMPOSED OF MULTIPLE SIMPLER ATTRACTORS OR SUBATTRACTORS.

THAT'S RIGHT, XANDER! UNDERSTANDING AND MANAGING THESE ATTRACTORS WILL HELP OUR DAOS THRIVE WITHIN ETHEREUM.

NOW THAT WE'VE GOT ETHEREUM, WE'VE GOT PROGRAMMABLE MONEY. ANYONE CAN DESIGN ECONOMIES THAT AUGMENT HUMAN BEHAVIORS. WHETHER OR NOT THEY KNOW IT, THEY ARE DESIGNING ATTRACTORS!



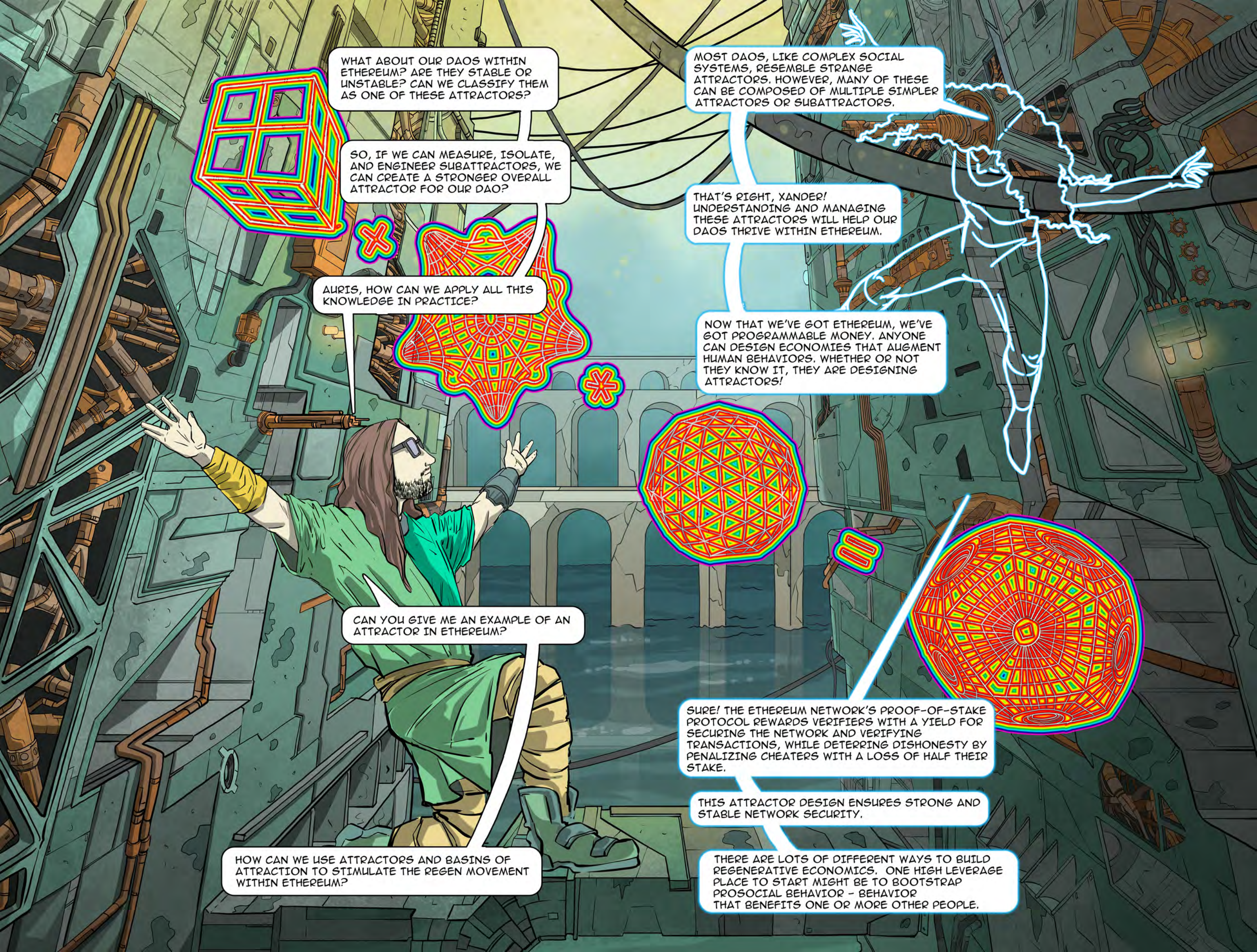
CAN YOU GIVE ME AN EXAMPLE OF AN ATTRACTOR IN ETHEREUM?

SURE! THE ETHEREUM NETWORK'S PROOF-OF-STAKE PROTOCOL REWARDS VERIFIERS WITH A YIELD FOR SECURING THE NETWORK AND VERIFYING TRANSACTIONS, WHILE DETERRING DISHONESTY BY PENALIZING CHEATERS WITH A LOSS OF HALF THEIR STAKE.

THIS ATTRACTOR DESIGN ENSURES STRONG AND STABLE NETWORK SECURITY.

HOW CAN WE USE ATTRACTORS AND BASINS OF ATTRACTION TO STIMULATE THE REGEN MOVEMENT WITHIN ETHEREUM?

THERE ARE LOTS OF DIFFERENT WAYS TO BUILD REGENERATIVE ECONOMICS. ONE HIGH LEVERAGE PLACE TO START MIGHT BE TO BOOTSTRAP PROSOCIAL BEHAVIOR - BEHAVIOR THAT BENEFITS ONE OR MORE OTHER PEOPLE.



HOW DO WE BUILD AN ATTRACTOR FOR MORE PROSOCIAL BEHAVIOR?

WE BUILD A NETWORK WHERE PEOPLE SUPPORT EACH OTHER'S PROSOCIAL BEHAVIORS WITH FINANCIAL CONTRIBUTIONS.

RIGHT! AND HOW DO WE DO THAT??

WE INCREASE THE ECONOMIC PAYOFFS FOR DOING IMPACTFUL, REGENERATIVE, OR PROSOCIAL THINGS.

TO DO THAT, WE NEED A WAY THAT COMMUNITIES CAN IDENTIFY AND FUND WHAT MATTERS TO THEM.

SO INSTEAD OF A CENTRAL PLANNER LIKE A FEDERAL GOVERNMENT DECIDING WHERE MONEY GOES, THE COMMUNITY GETS TO DECIDE?

YES, EXACTLY.

EMPOWERING COMMUNITIES WHO ARE CLOSEST TO GROUND TRUTH TO IDENTIFY AND FUND WHAT MATTERS, WE HELP COMMUNITIES EARN A LIVING CREATING IMPACT, AND CREATE AN UPWARD SPIRAL OF HOPE, EMPOWERMENT, FINANCIAL PROSPERITY, AND POSITIVE VIBES.

WHAT PREVENTS A MALICIOUS ACTOR FROM FUNDING SOMETHING THAT'S NOT ACTUALLY IN THE COMMUNITY'S BEST INTERESTS?

AH! I SEE THAT YOU ARE LEARNING TO THINK ADVERSARIALLY.

THE ATTRACTOR MUST BE CHEAPER TO DEFEND THAN ATTACK, JUST LIKE THE ETH PROOF-OF-STAKE PROTOCOL.

THERE ARE MANY DIFFERENT ELEGANT MECHANISMS FOR CONSTRUCTING STABLE ATTRACTORS THAT PRE-EMPT MALICIOUS ACTORS. SOME OF THE MOST PROMISING ARE CALLED LIQUID DEMOCRACY, QUADRATIC FUNDING, HYPERCERTS, RETROACTIVE PUBLIC GOODS FUNDING, AND CONVICTION VOTING.

MOST PROMISING? SO THIS ISN'T A SOLVED PROBLEM YET?

NOT YET. BUT THERE ARE SMART PEOPLE WORKING ON IT. AND SMART MONEY IS BEGINNING TO BACK SOME OF THE BEST ATTRACTORS.

AS OF 2024, THE STRONGEST ATTRACTORS ARE OPTIMISM, PROTOCOL GUILD, BITCOIN, GIVETH, CLRFUND, AND OCTANT. TOGETHER THEY ARE GIVING OUT ALMOST \$100M/YEAR.

A CURIOUS THING IS HOW THE AGENTS WITHIN THESE ATTRACTORS WORK TOGETHER. THESE ATTRACTORS ALL COMPOUND AND MULTIPLY EACH OTHER'S STRENGTH.



SOUNDS LIKE WE CAN USE ATTRACTORS TO CREATE ENGAGING AND DYNAMIC GAME DESIGNS THAT KEEP PLAYERS IMMERSSED IN PROSOCIAL BEHAVIORS.

BY ENGINEERING ATTRACTORS THAT STIMULATE REGENERATIVE CRYPTO ECONOMIC MOVEMENTS, WE CAN WORK TOWARDS A MORE REGENERATIVE FUTURE, BOTH WITHIN ETHEREUM AND BEYOND.

PRECISELY, XANDER! BY UNLOCKING THE POTENTIAL OF ATTRACTORS, WE CAN SHAPE THE FUTURE BY CREATING MORE WEBSCALE POSITIVE SUM GAMES!

XANDER, I BELIEVE IT'S TIME. THE ATTRACTOR ATTRACTOOOR... IT'S YOURS NOW.

BUT... HOW DO I...

YOU'VE LEARNED EVERYTHING YOU NEED. YOU UNDERSTAND THE ATTRACTORS, THEIR IMPLICATIONS, AND HOW TO MANIPULATE THEM

SO, I CAN...WITH PROGRAMMABLE MONEY, I CAN CREATE STRONG AND STABLE ATTRACTORS?

I WILL SHAPE A MORE POSITIVE SUM WORLD FOR ALL OF US!

THAT'S AMAZING!

