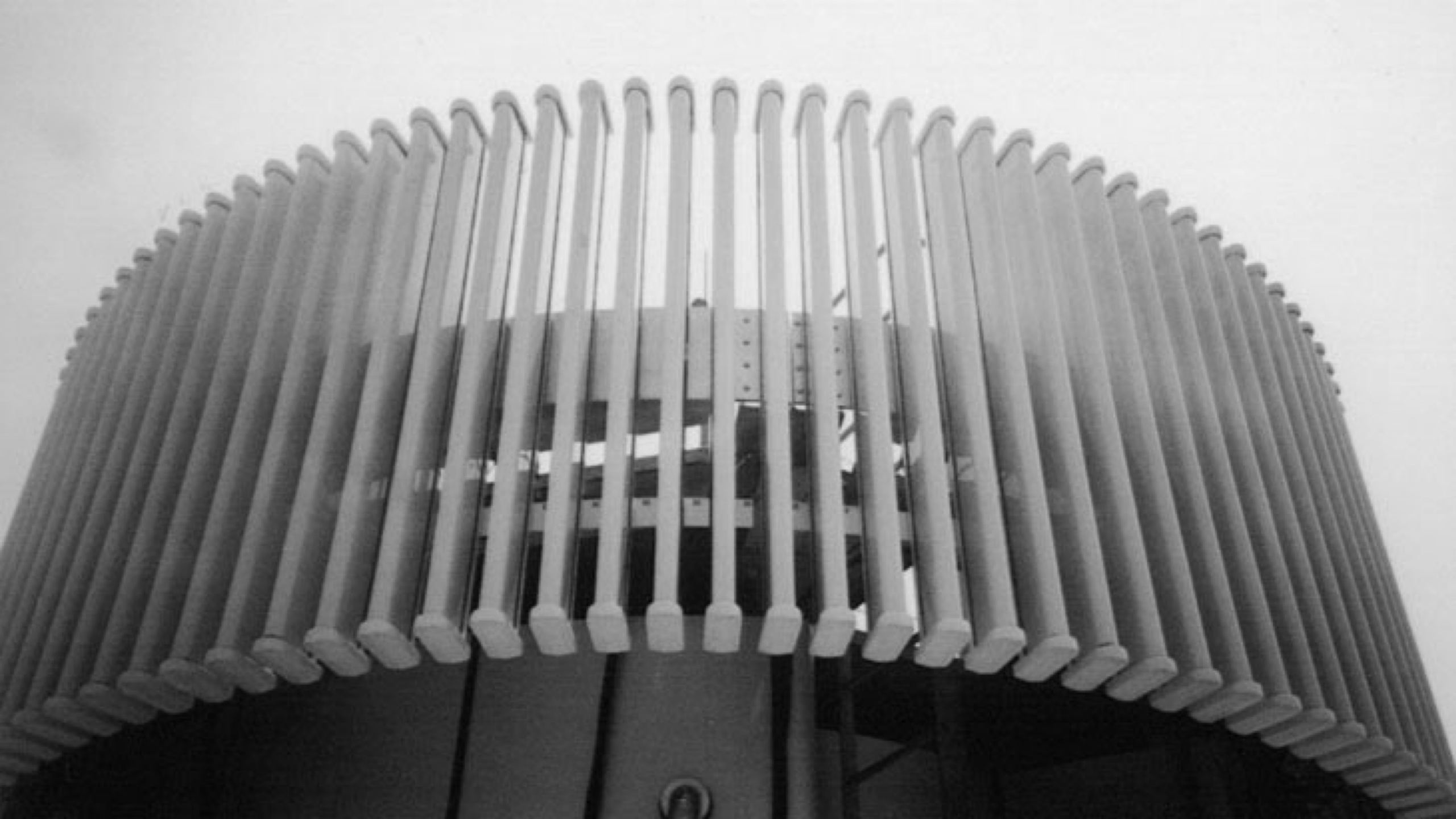
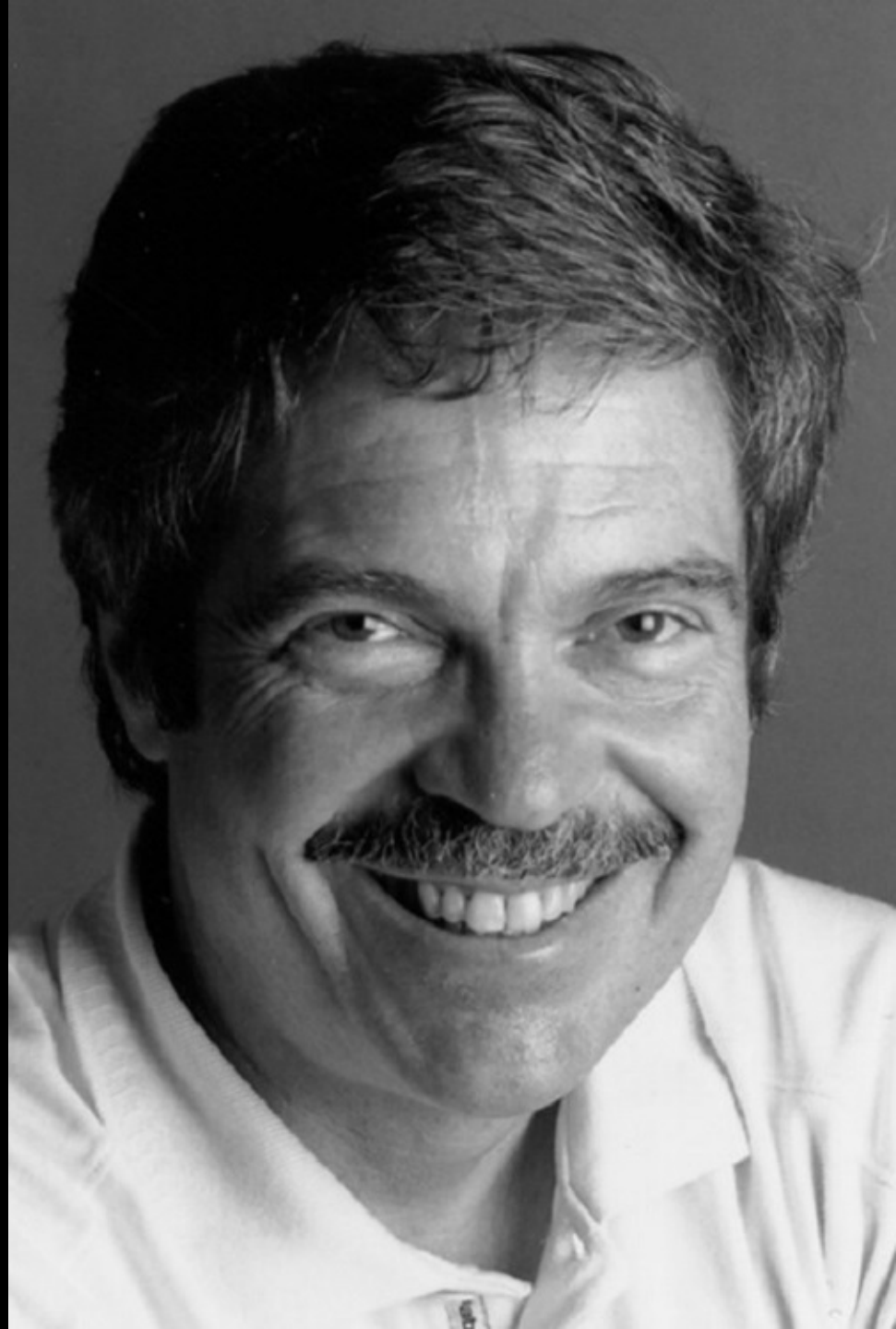


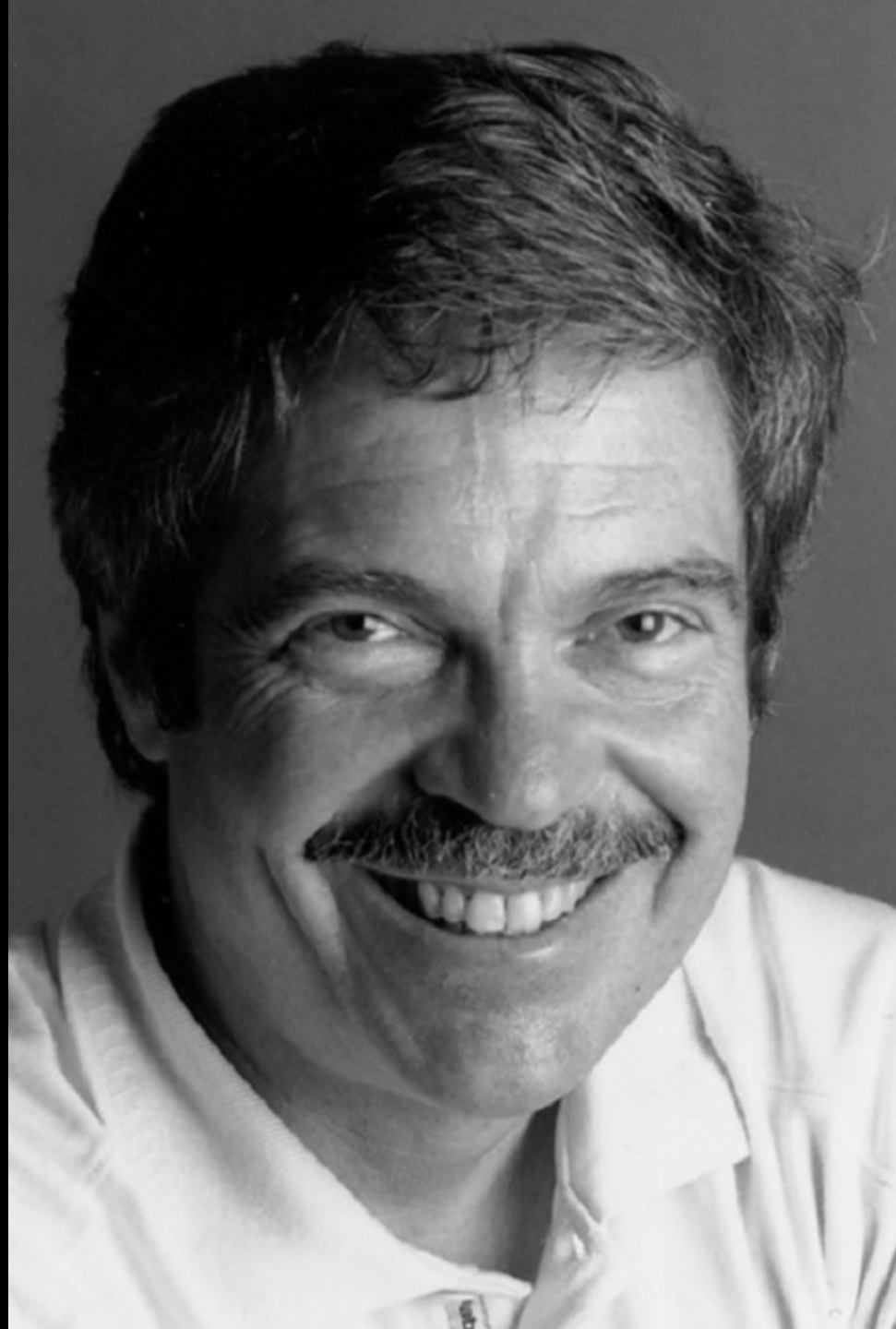
Polymorphism!

OBJECT-ORIENTED PROGRAMMING

OOP to me means only messaging, local retention and protection and hiding of state-process, and extreme late-binding of all things.

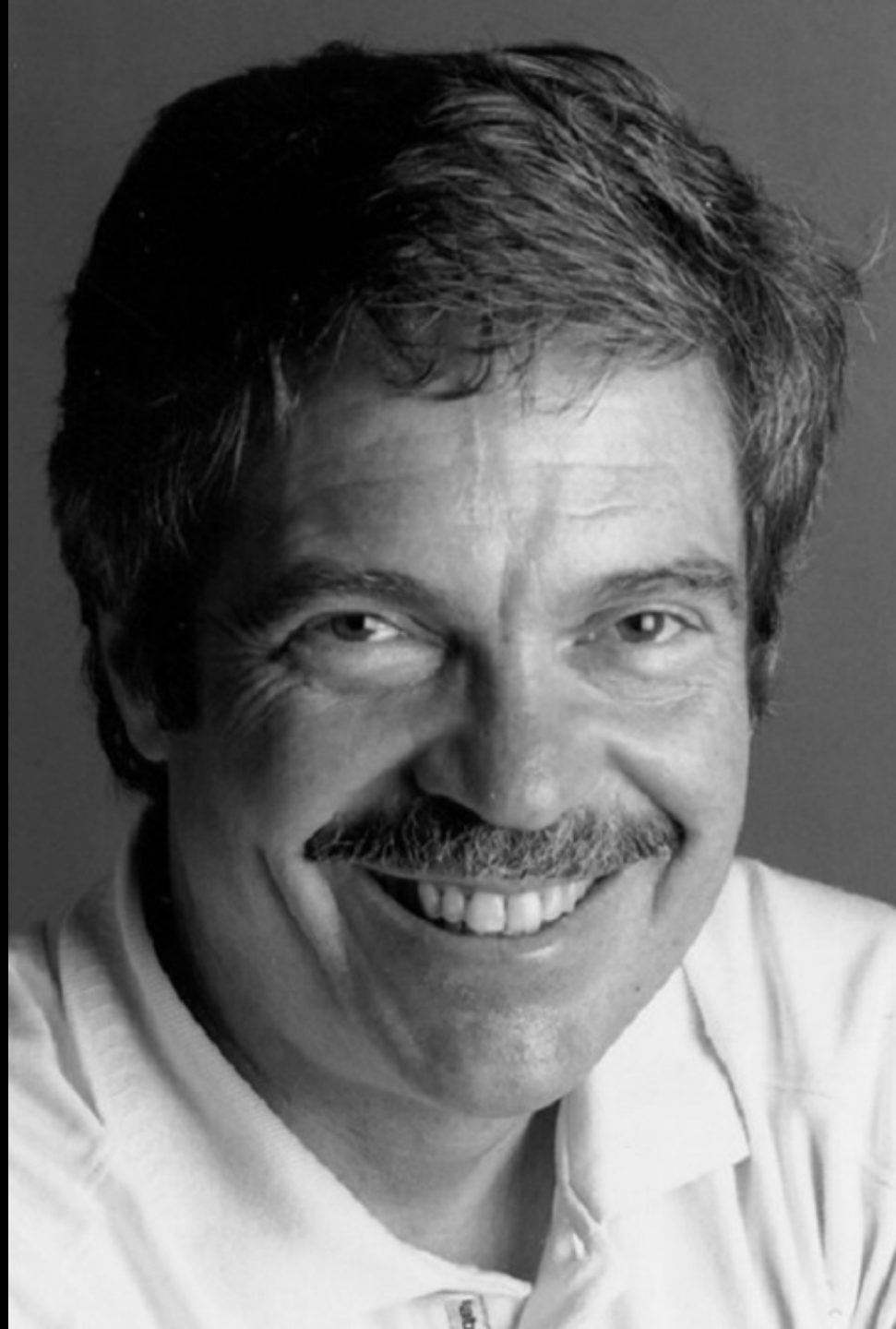


*I thought of objects being **like biological cells and/or individual computers** on a network, only able to communicate with messages*.



I'm sorry that I long ago coined the term "objects" for this topic because it gets many people to focus on the lesser idea.

The big idea is "messaging"





	Real Message	OO Message
Content		
Bad content		
Missing recipient		
Concurrency		

	Real Message	OO Message
Content	Information	References
Bad content		
Missing recipient		
Concurrency		

	Real Message	OO Message
Content	Information	References
Bad content	Benign	Catastrophic
Missing recipient	Benign	Catastrophic
Concurrency		

	Real Message	OO Message
Content	Information	References
Bad content	Benign	Catastrophic
Missing recipient	Benign	Catastrophic
Concurrency	Asynchronous	Synchronous

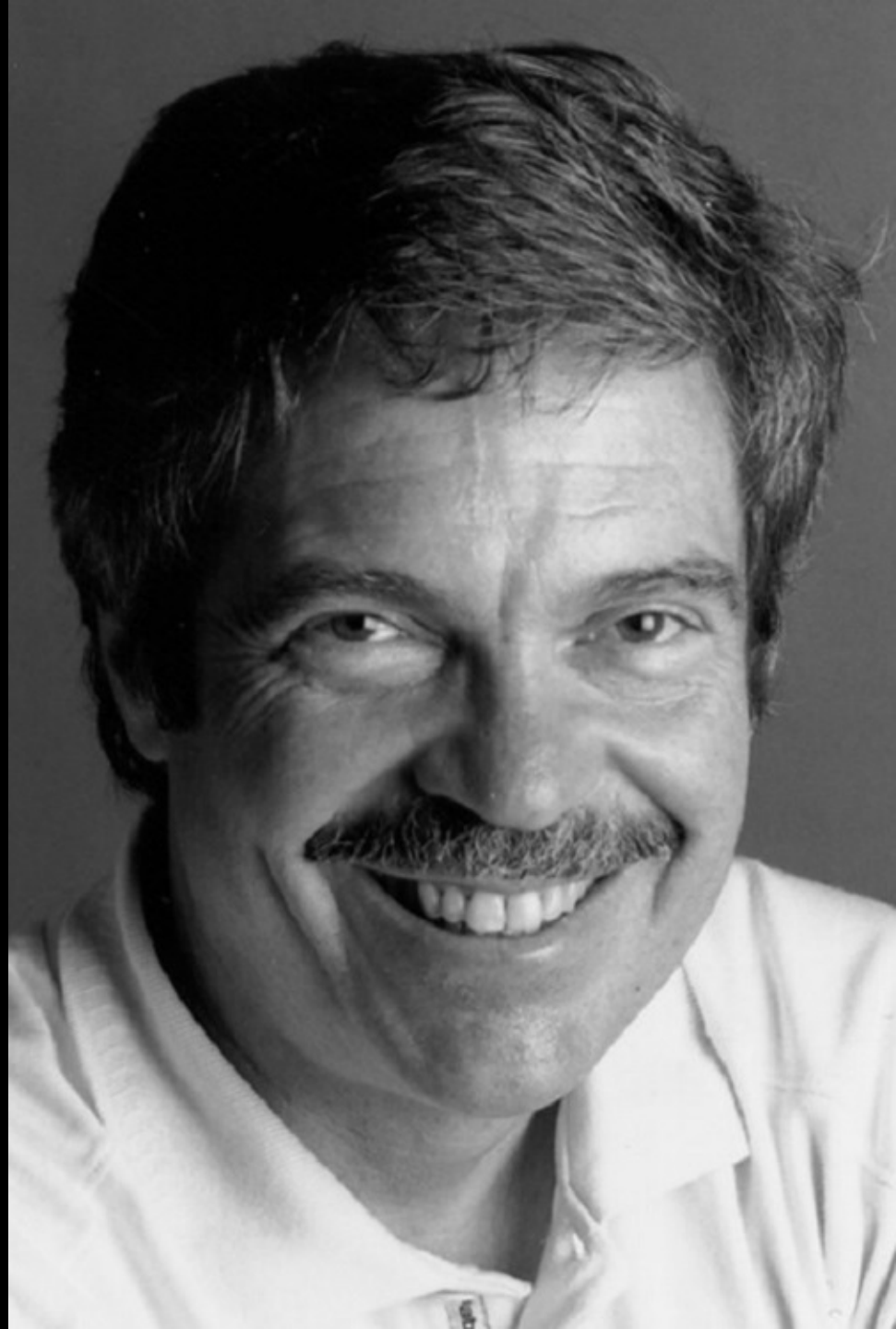


RETURN VALUES

I thought of objects being like biological cells and/or individual computers on a network, only able to communicate with messages.

…it's something that was never quite completed in our Xerox PARC phase…

…subsequent Smalltalk's… backslid towards Simula.



The Messaging Myth

None of our “OO” languages are message-oriented.

Call-and-return rules all.

Goal-Obsessed Uninterrupted Blocking Procedures Fixated on Success

TRANSACTIONS

```
17  function succeedAtLife(life) {
18      life.employment = getSoftwareJob();
19      life.employment = life.employment.goFullTime();
20      life.partner = marrySpouse({numKids: 2});
21      life.children.push(...life.partner.kids());
22      life.expertise  = learnAllOfTheThings();
23      life.employment = life.employment.getPromotions();
24      life.employment = switchJobs();
25      life.reputation.push(startBlogging());
26      life.children.push(haveAnotherKid());
27      life.reputation.push(startPodcasting());
28      life.children.push(haveAnotherKid());
29      life.employment = getStartupJob();
30      life.children.push(haveAnotherKid());
31      life.reputation.push(startSpeakingAtConferences(), writeABook());
32      life.employment = startABusiness();
33      life.children.push(haveAnotherKid());
34      life.home = buyBigHouseInTheMountains();
35      return(true);
36  }
```

```
return({success: true})
```



```
17  function succeedAtLife(life) {
18      life.employment = getSoftwareJob();
19      life.employment = life.employment.goFullTime();
20      life.partner = marrySpouse({numKids: 2});
21      life.children.push(...life.partner.kids());
22      life.expertise  = learnAllOfTheThings();
23      life.employment = life.employment.getPromotions();
24      life.employment = switchJobs();
25      life.reputation.push(startBlogging());
26      life.children.push(haveAnotherKid());
29      life.employment = getStartupJob();
30      life.children.push(haveAnotherKid());
31      life.reputation.push(startSpeakingAtConferences(), writeABook());
32      life.employment = startABusiness();
33      life.children.push(haveAnotherKid());
34      life.home = buyBigHouseInTheMountains();
35      return(true);
36  }
```

[FATAL] DivorceError

THE TRANSACTIONAL FALLACY



Substance vs. Process Metaphysics

We often see the world as a world of things… Objects are the paradigmatic mode of existence, the basic building blocks of the Universe.

Process philosophers… think we should… instead examine the processes that make up the world. Processes, not objects, are fundamental.

Process philosophy invites us to look at longer stretches of time, blurred boundaries and connected relations. Identity as a… process welcomes innovation through small, recurring changes.

— **Celso Vieira** (Aeon, November 2016)

PROGRAMMING IS APPLIED PHILOSOPHY




AS ABOVE
SO BELOW



THE TRANSACTIONAL FALLACY



Contact Info

Name

First

Last

Address

Street Address

Address Line 2

City

State / Province / Region

ZIP / Postal Code

Country

Phone

Medical History

Have you ever experienced:

- [ ] Cooties
- [ ] Dragon pox
- [ ] Whooping cranes
- [ ] The krunk
- [ ] Twitterpation
- [ ] Ennui

Step 1 of 2

50%

Contact Info

Name

First

Last

Address

Street Address

Address Line 2

City

State / Province / Region

ZIP / Postal Code

Country

Phone

Next

ZIP / Postal Code

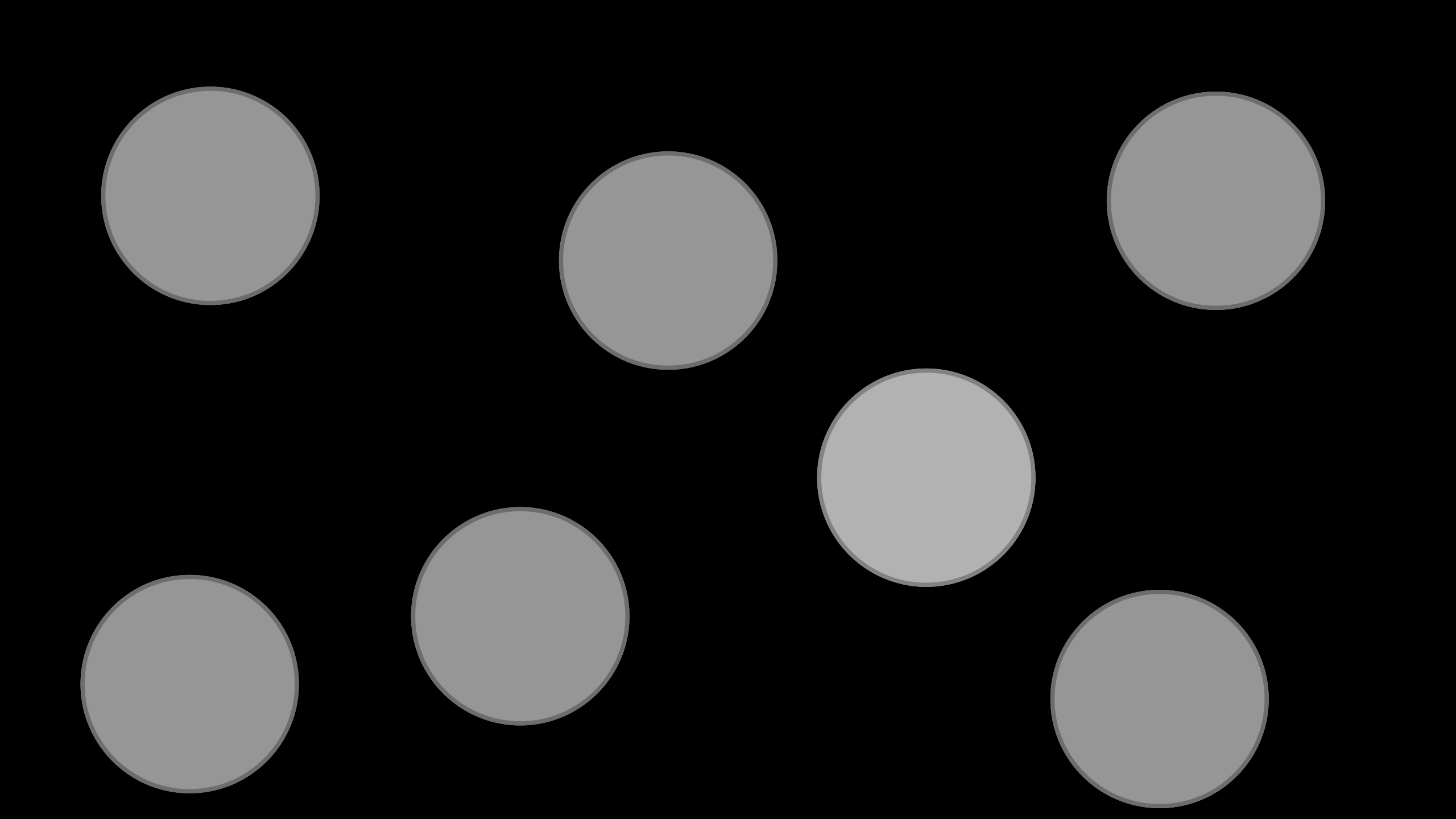
Country

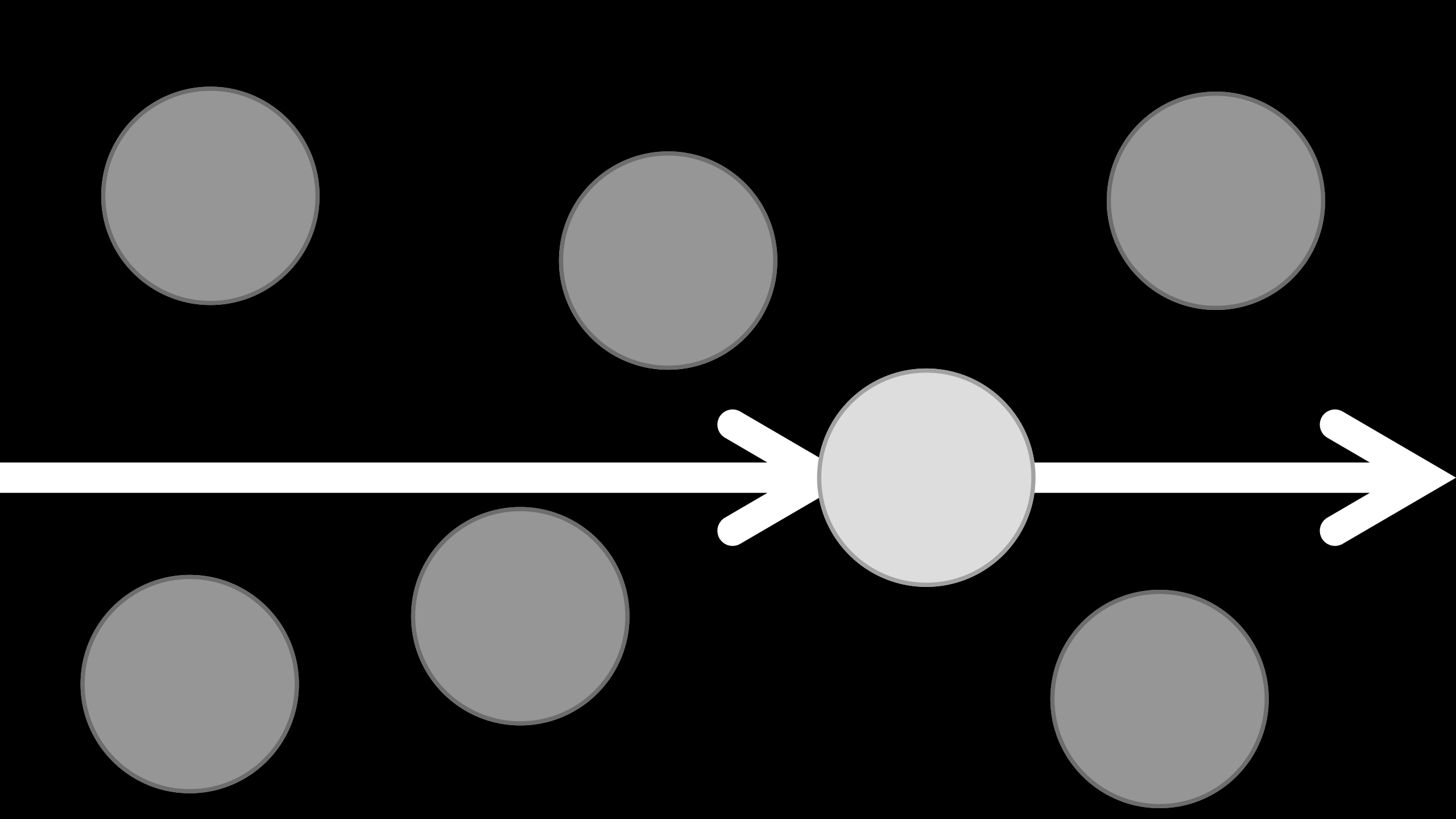
Phone

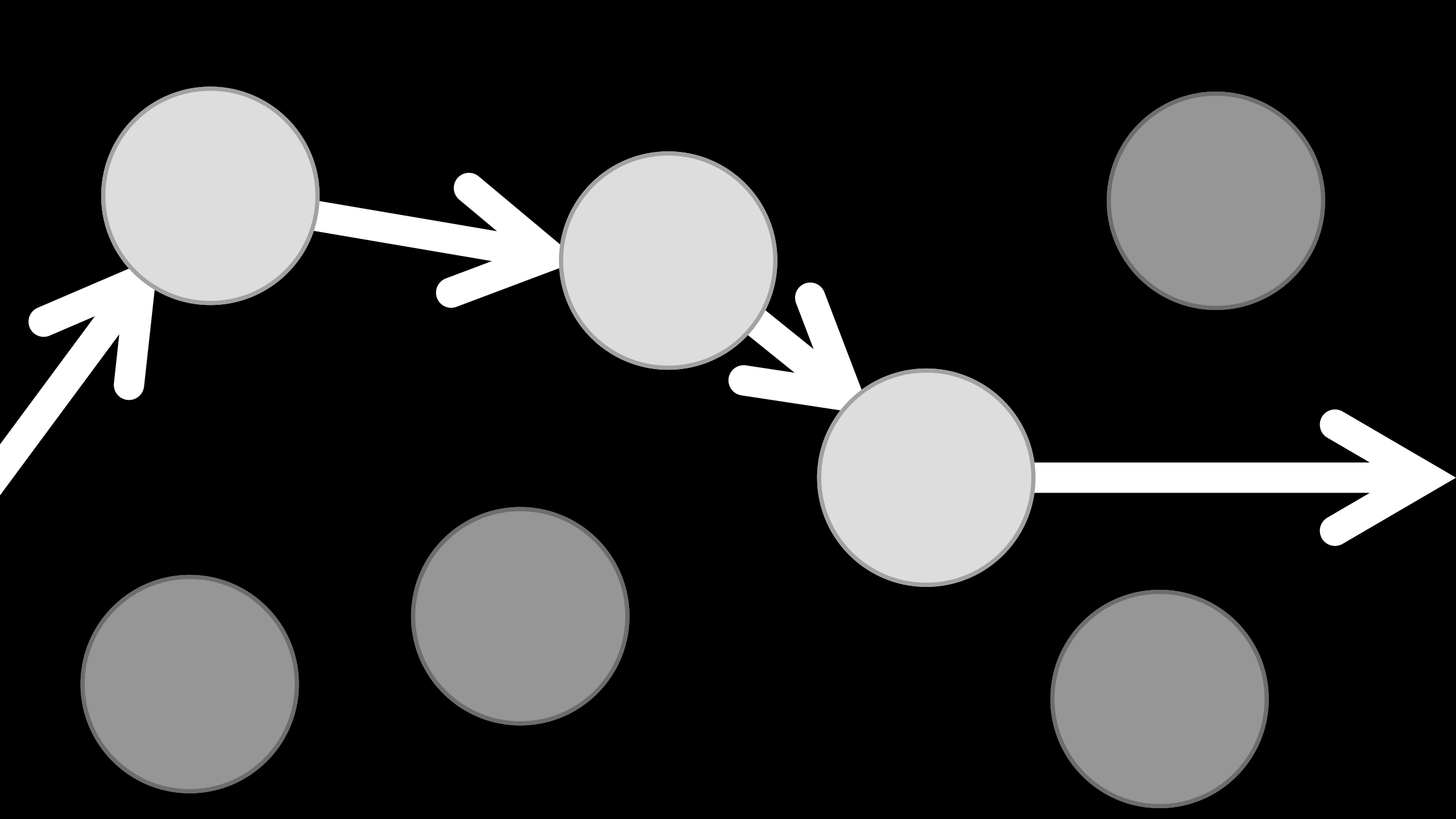
Next

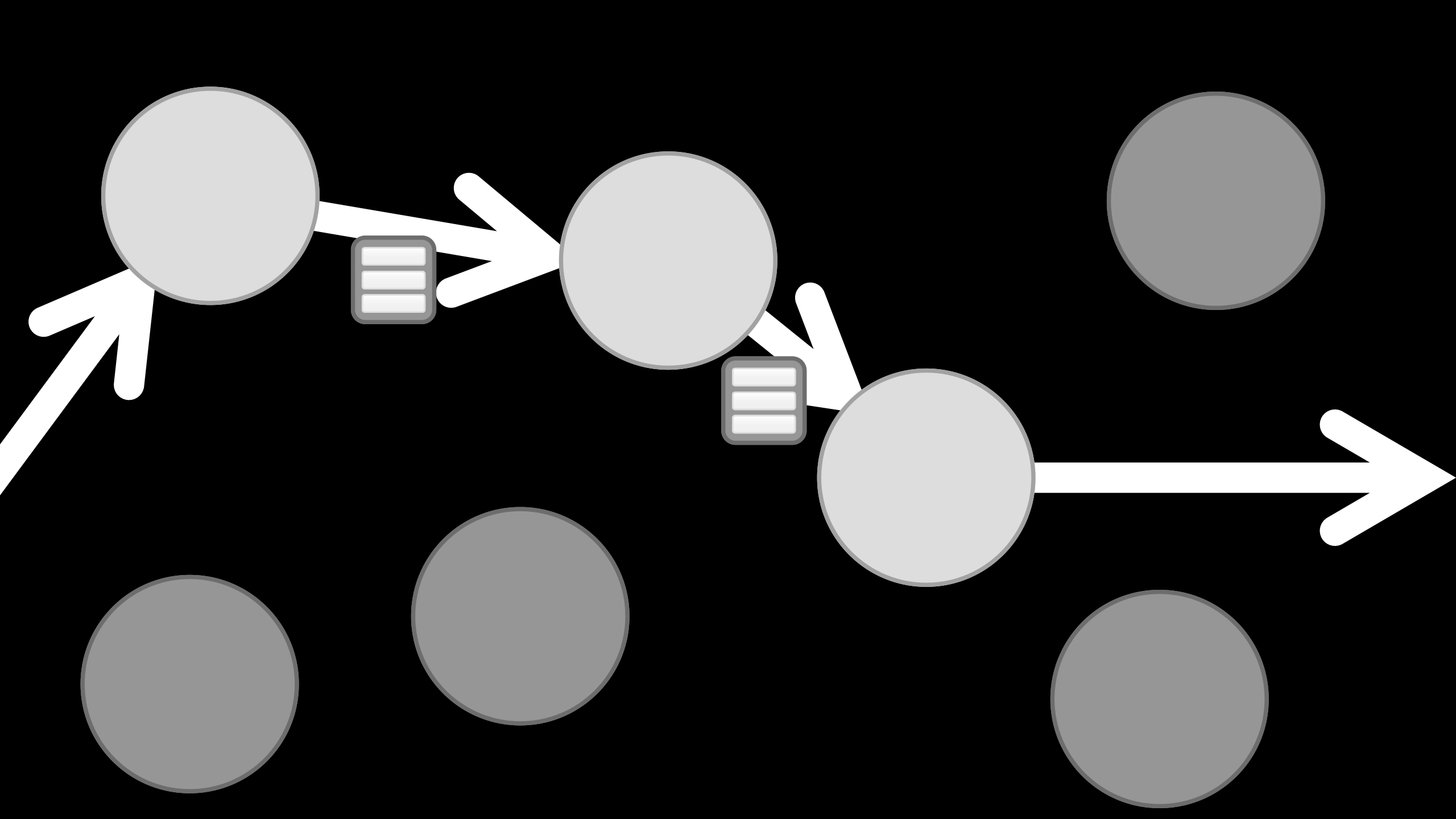
Save and Continue Later

```
SELECT * FROM intake
WHERE status = “incomplete”
AND …
```









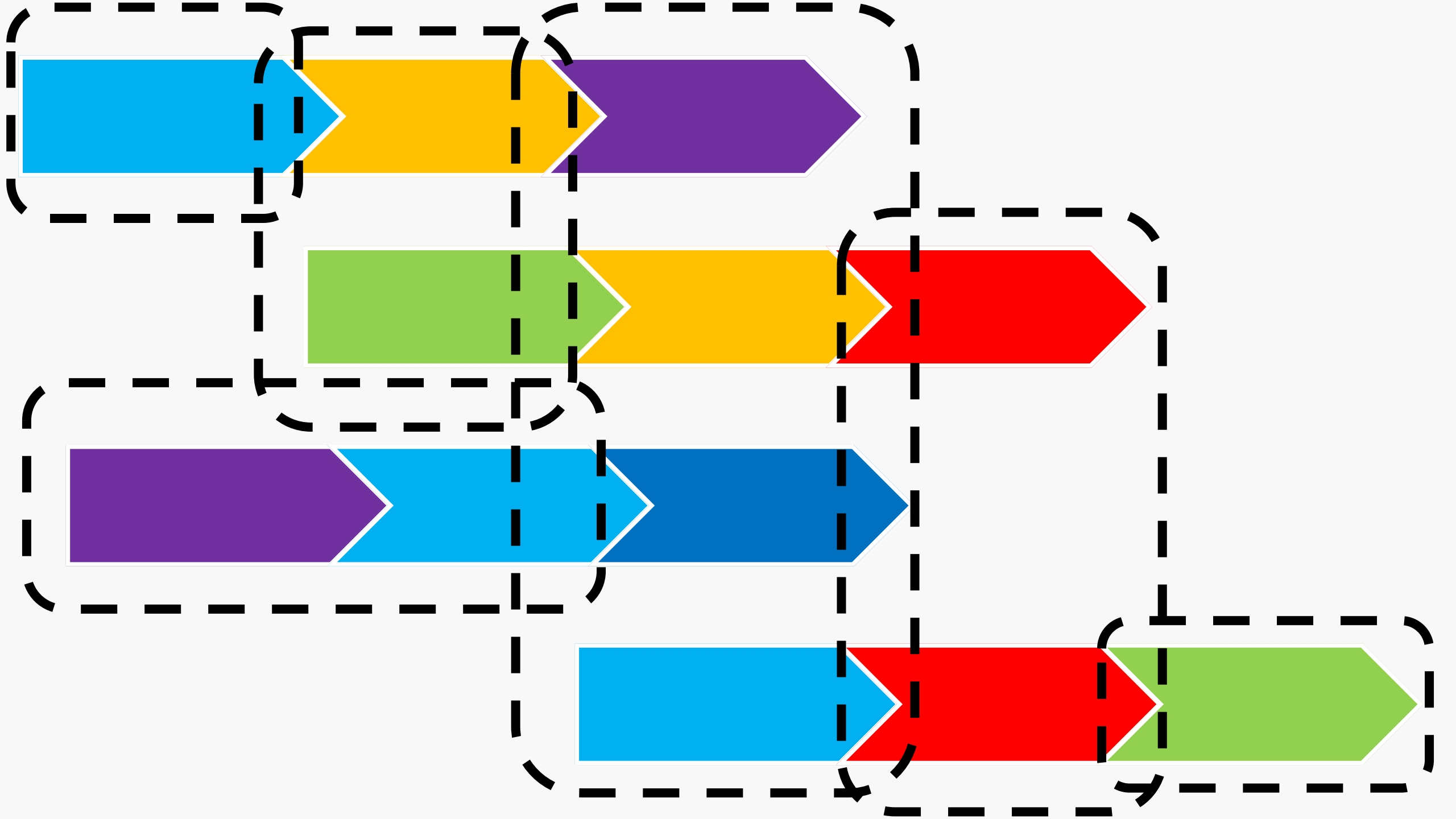
THE TRANSACTIONAL FALLACY



THE TRANSACTIONAL FALLACY



```
* Trying 138.68.39.196...
* TCP_NODELAY set
* Connected to api.open-notify.org (138.68.39.196) port 80 (#0)
> GET /astros.json HTTP/1.1
> Host: api.open-notify.org
> User-Agent: curl/7.55.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Server: nginx/1.10.3
< Date: Fri, 24 Apr 2020 22:30:42 GMT
< Content-Type: application/json
< Content-Length: 178
< Connection: keep-alive
< access-control-allow-origin: *
<
{"number": 3, "message": "success", "people": [{"craft": "ISS", "name": "Chris Cassidy"}, {"craft": "ISS", "name": "Anat
oly Ivanishin"}, {"craft": "ISS", "name": "Ivan Vagner"}]}* Connection #0 to host api.open-notify.org left intact
```



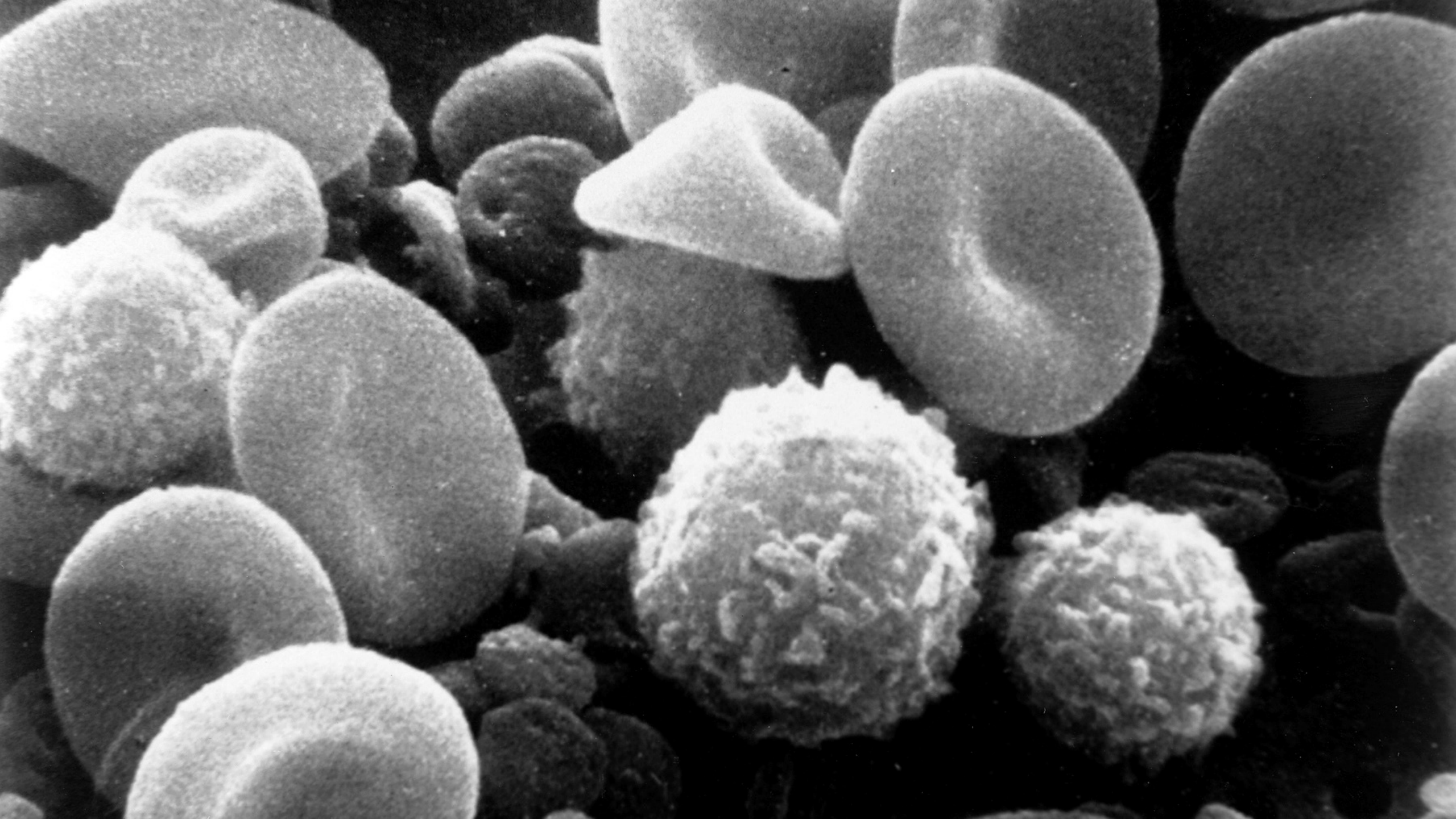
LOOK FOR THE PROCESSES



LOOK FOR THE ~~PROCESSES~~ NARRATIVES




© M.C. Escher



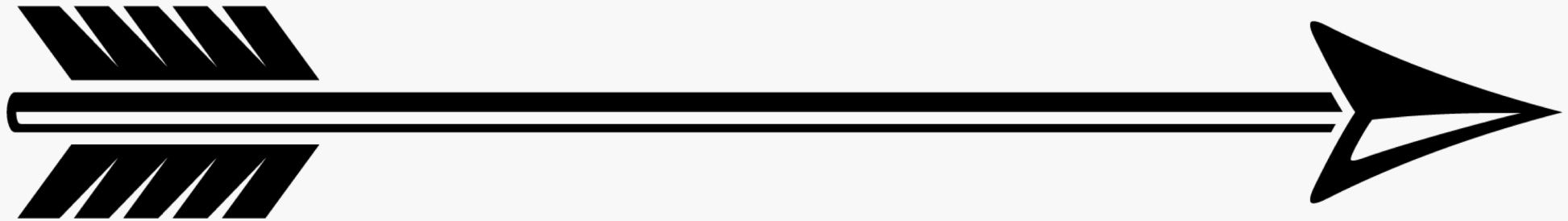
YOUR LIFE IS A NARRATIVE

And there is no return.

Narrative Values

1. Have a direction
2. Sense yourself
3. Embrace state
4. Fail forward
5. Be interdependent

A NARRATIVE HAS A DIRECTION, NOT A GOAL









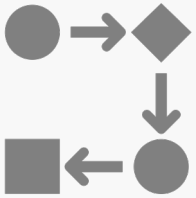
Direction over Goals, in Code



Actor Model



Batching



Streaming

A NARRATIVE IS AWARE OF ITSELF

EMBODIMENT







THROW AWAY YOUR

FITBIT

Self-Awareness, in Code



Observability first



Tell the story of results

A NARRATIVE EMBRACES STATE


60
55
5
50
10

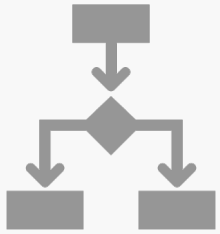

Ctrl
Alt
Del



Embracing State and History, in Code



Temporal Modeling



Event Sourcing



Event Storming

A NARRATIVE FAILS FORWARDS


321-sn





Failing Forwards, in Code



Outcomes, not Exceptions



Sagas



Mitigation & Remediation



Resilience Engineering

A NARRATIVE IS INTERDEPENDENT



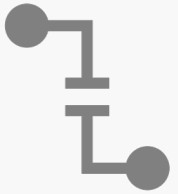
Interdependence, in Code



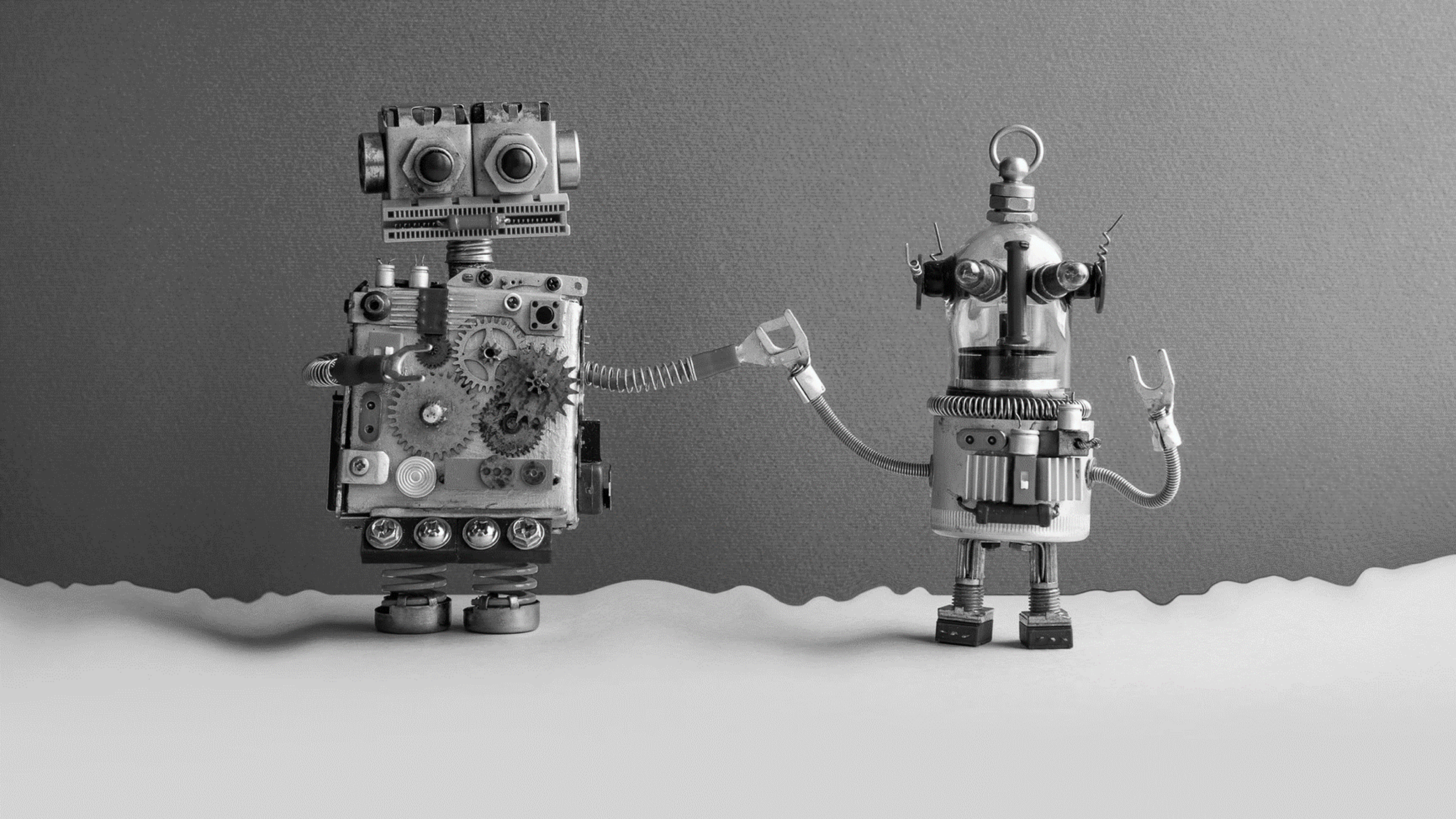
Backpressure



Back-offs



Circuit breakers





*…scientific psychology is only too willing to adopt individualistic Cartesian assumptions that cut away the webbing that ties the self to others. There is a Zulu phrase, 'Umuntu ngumuntu ngabantu', which means '**A person is a person through other persons.**' This is a richer and better account, I think, than 'I think, therefore I am.'*







Narrative Values

1. Have a direction
2. Sense yourself
3. Embrace state
4. Fail forward
5. Be interdependent

AVDI.CODES/NORETURN

...for references and more.

Avdi Grimm // @avdi