SCARCITY


Scarcity


Scarcity


Scarcity

Scarcity of Data

QUANTITATIVE

Fisher

QUALITATIVE

Geertz

QUANTITATIVE

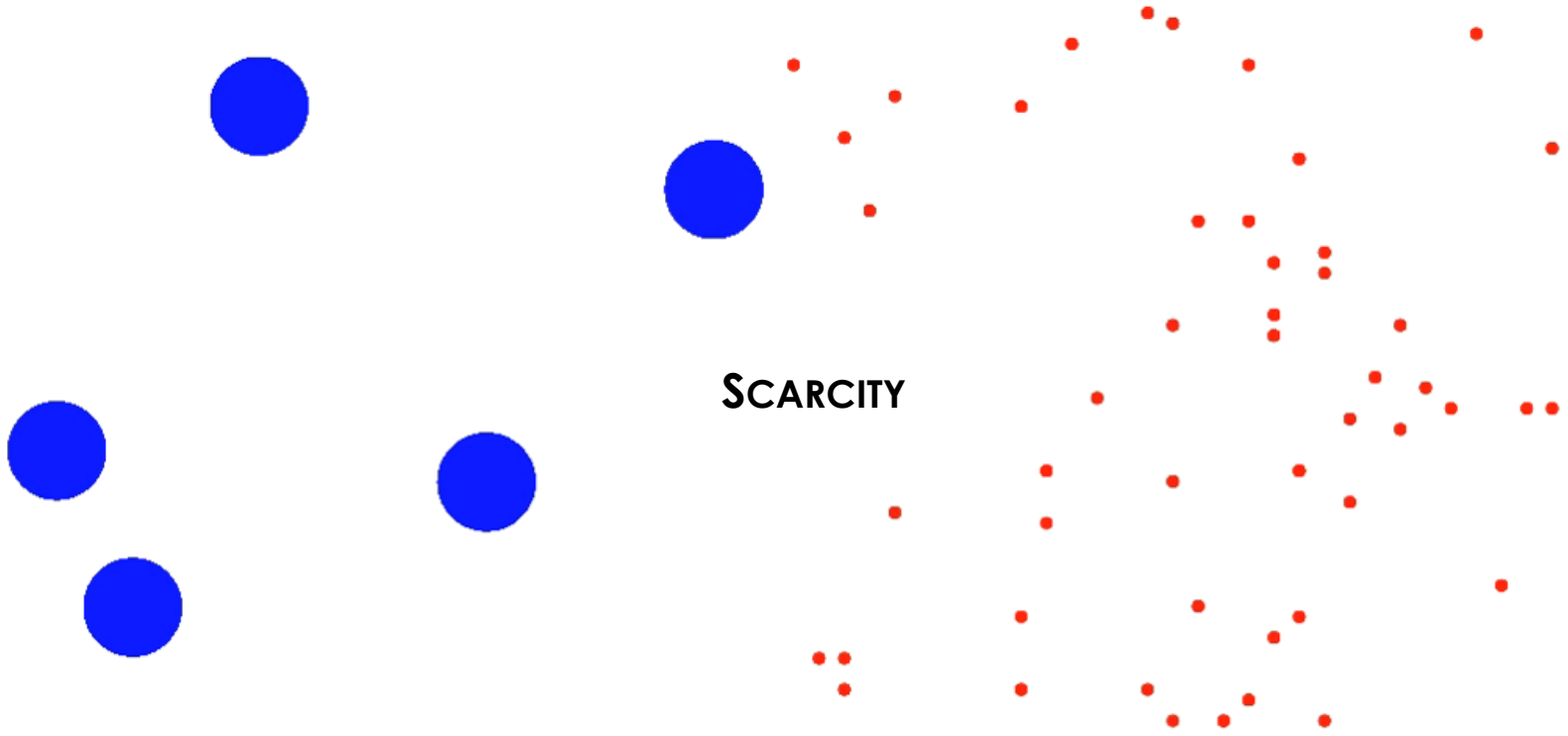
Entwisle

QUALITATIVE

Tarlo

QUALITATIVE

QUANTITATIVE



QUALITATIVE QUANTITATIVE

QUALITATIVE

Qualitative

Underpowered

Confirmation Bias

Cherry Picking

Quantitative

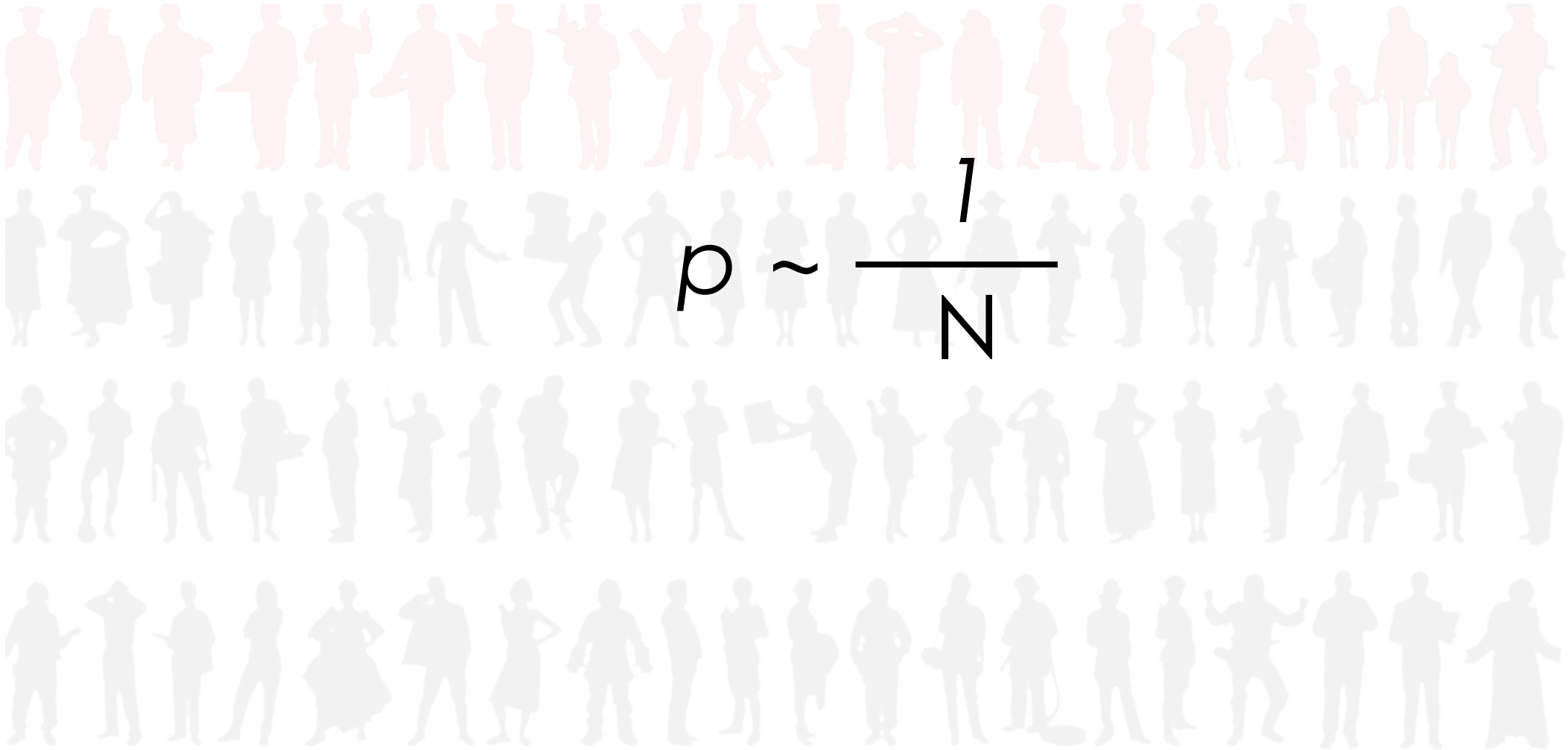
False Positive or Type I error

$p > 0.05$

# $p < 0.05$

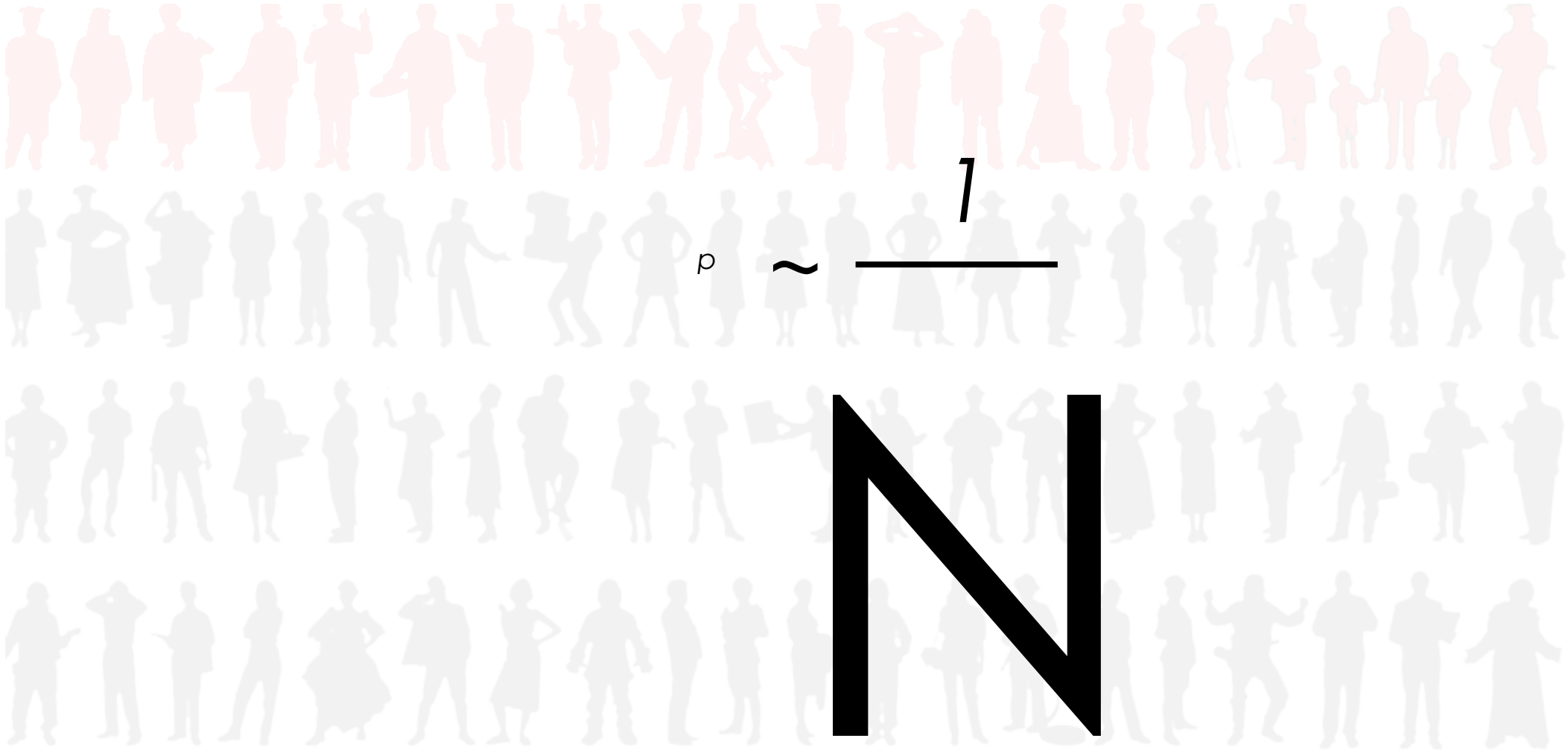
Statistically Significant

Statistically Significant



$$p \sim \frac{1}{N}$$

Statistically Significant

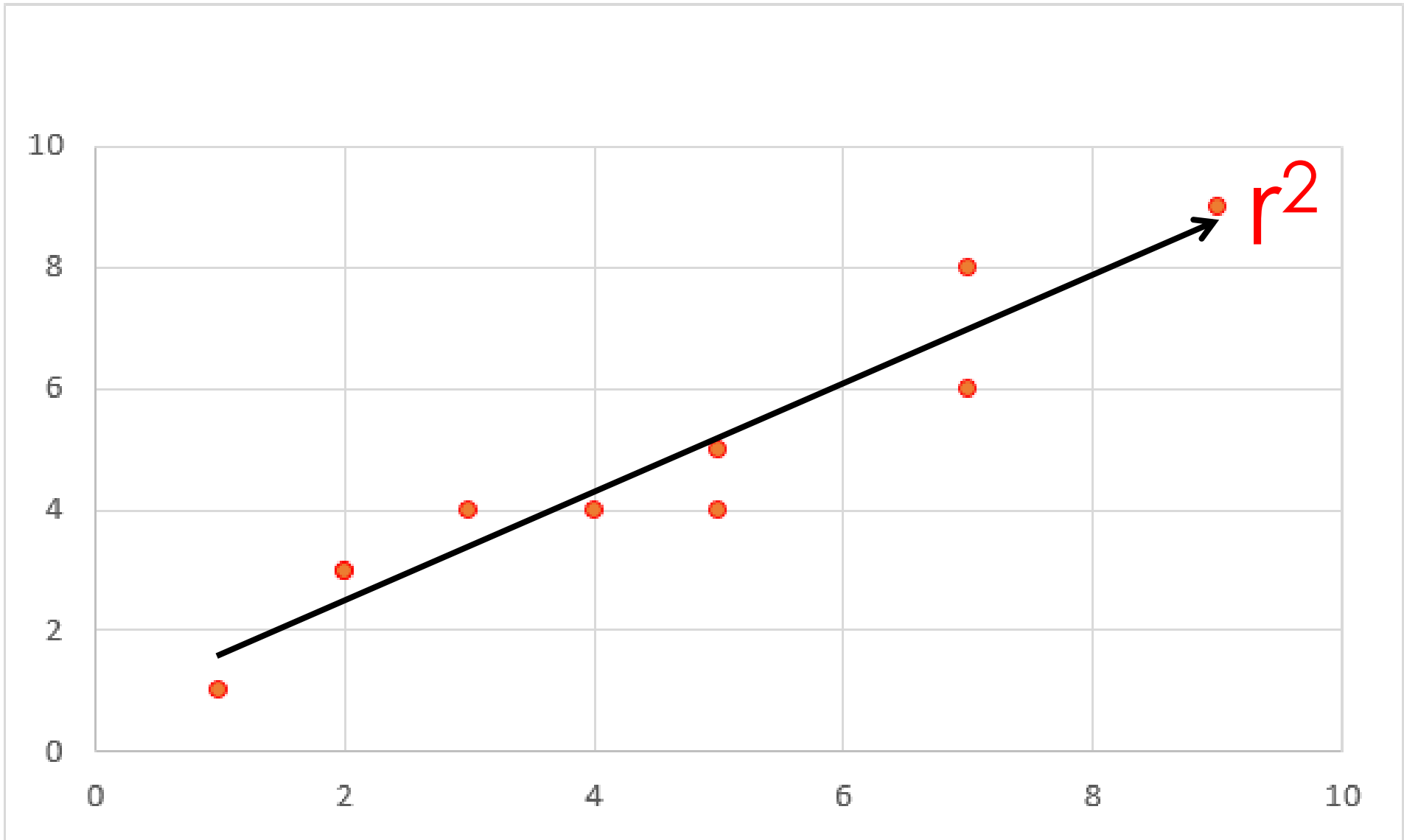


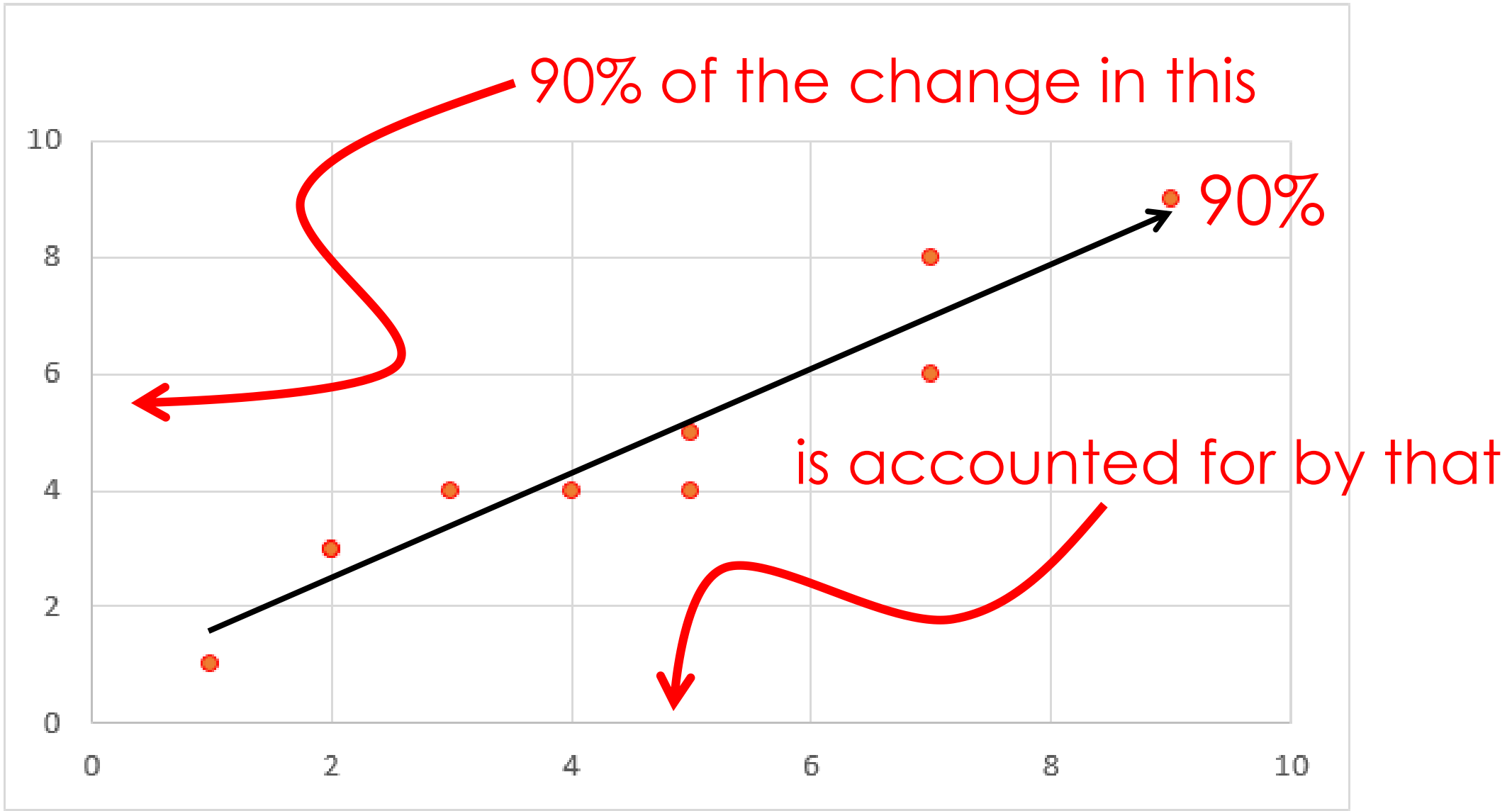
Statistically Significant

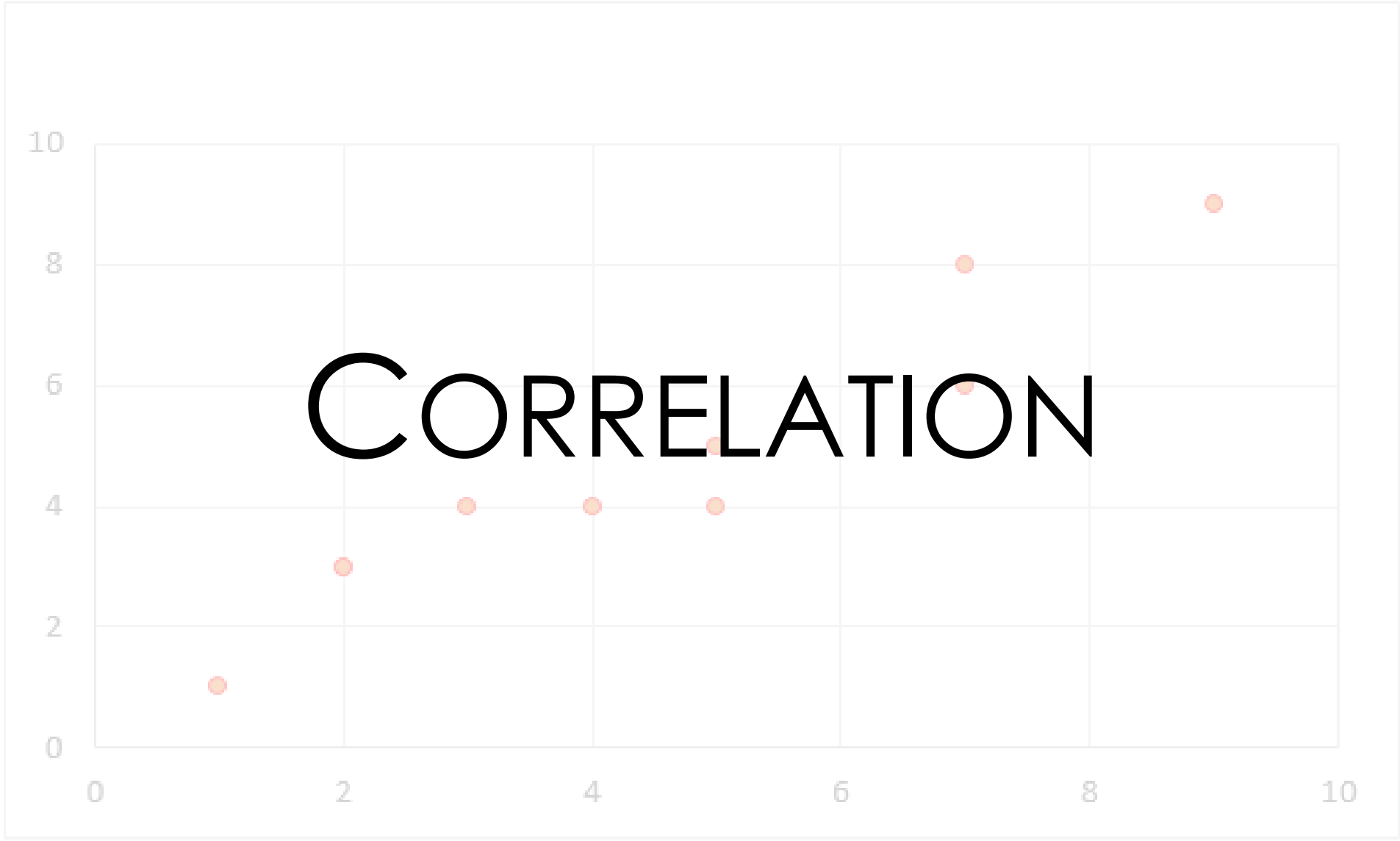
We have enough data
to make this claim

Statistically Significant

We always have enough data
to make this claim


10
8
6
4
2
0
0
2
4
6
8
10
r2

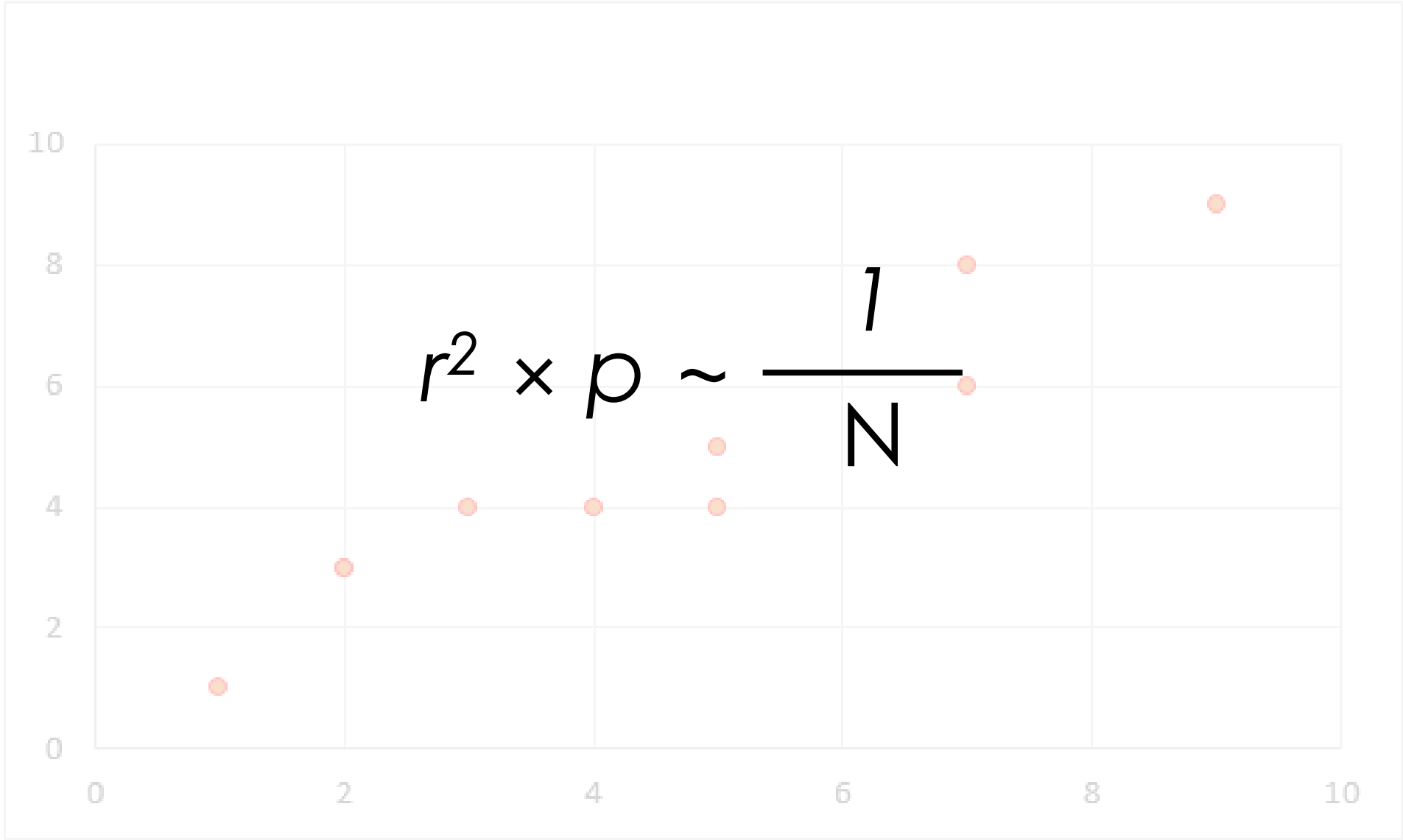

90% of the change in this
90%
is accounted for by that
10
8
6
4
2
0
0
2
4
6
8
10

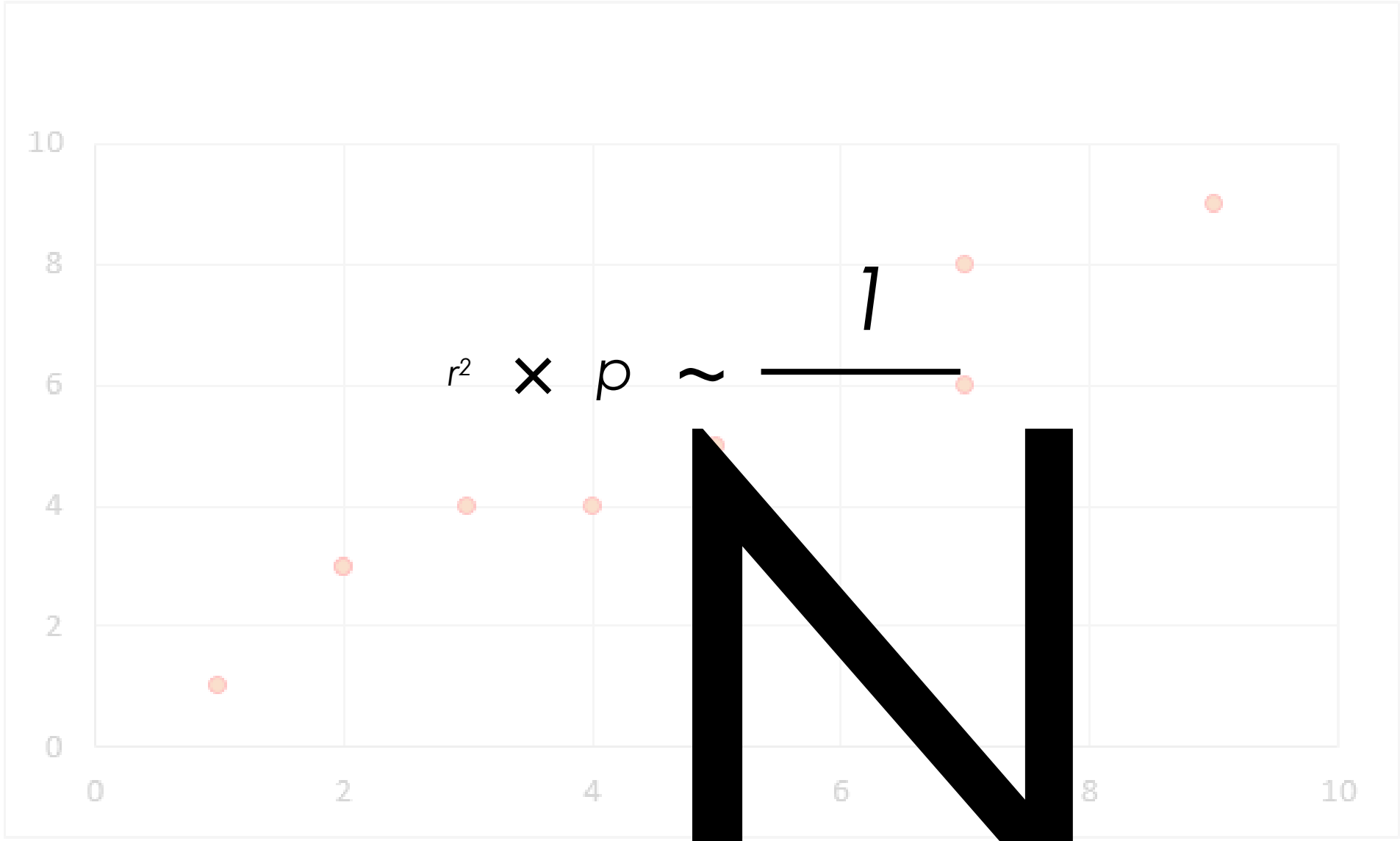


Correlation

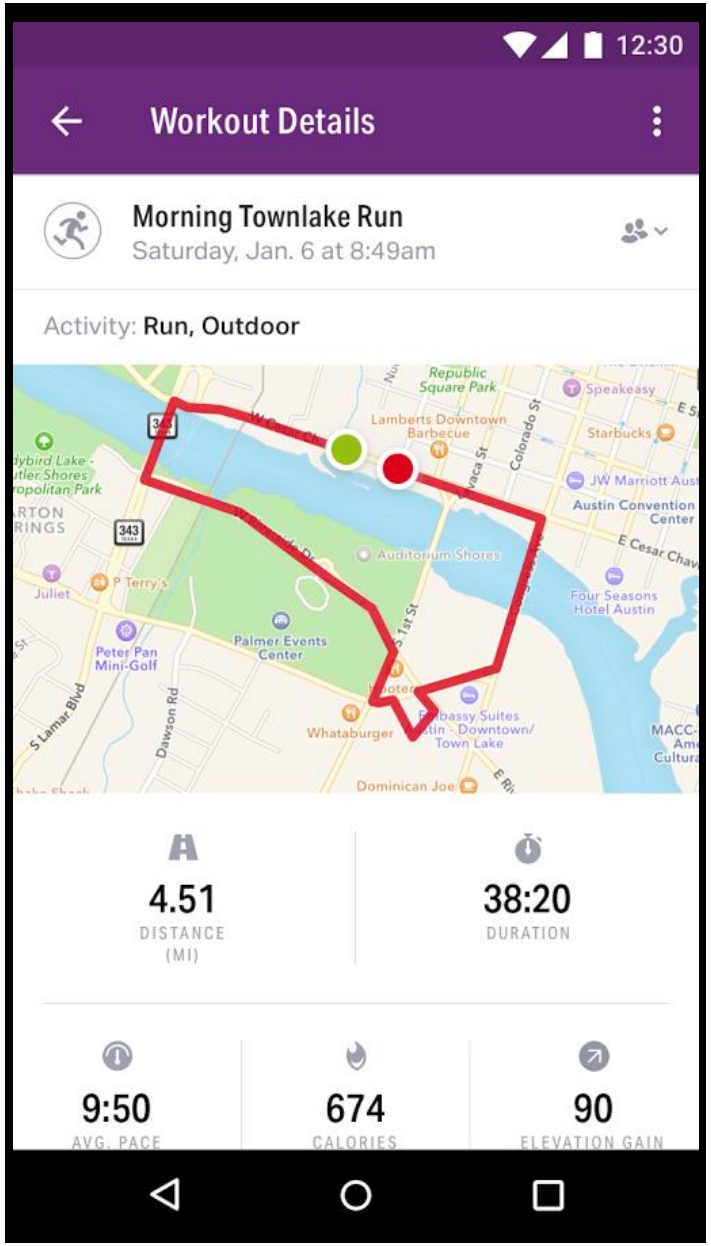
Teacher Feedback	24%
Peer Tutoring	6%
Simulation and Games	3%
Instructional Media	2%
One grade level	6%

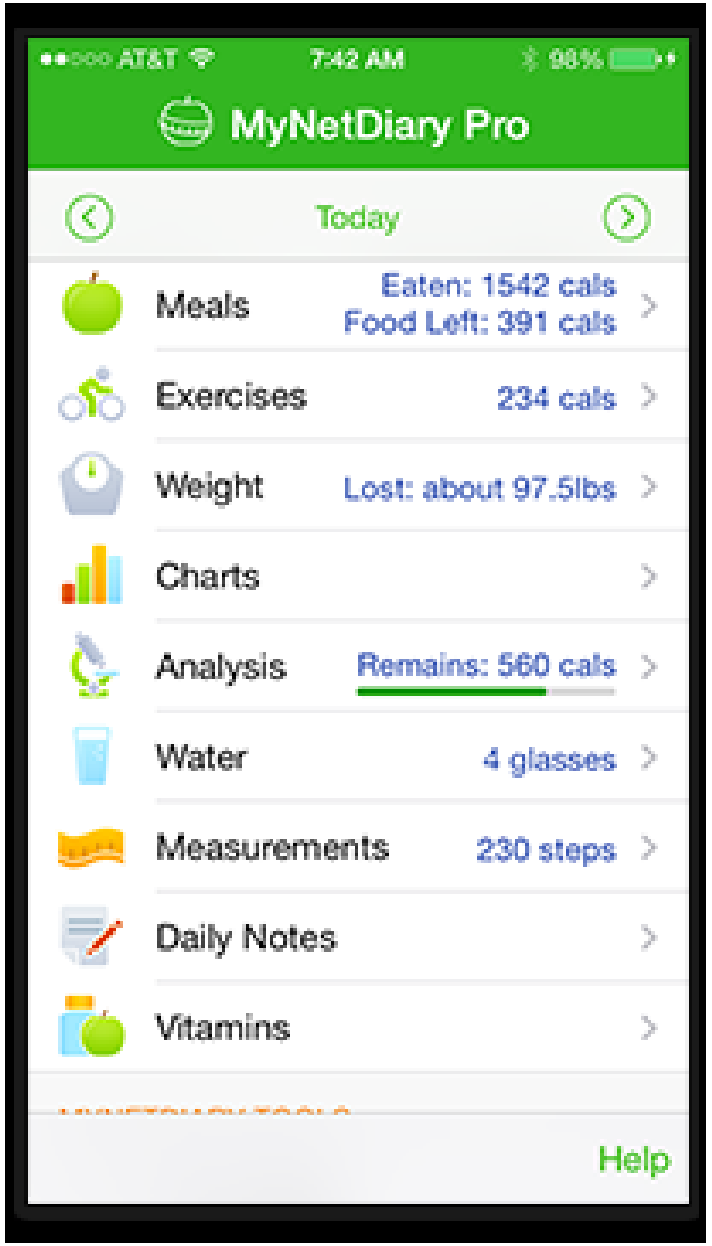
Effect size = 0.5

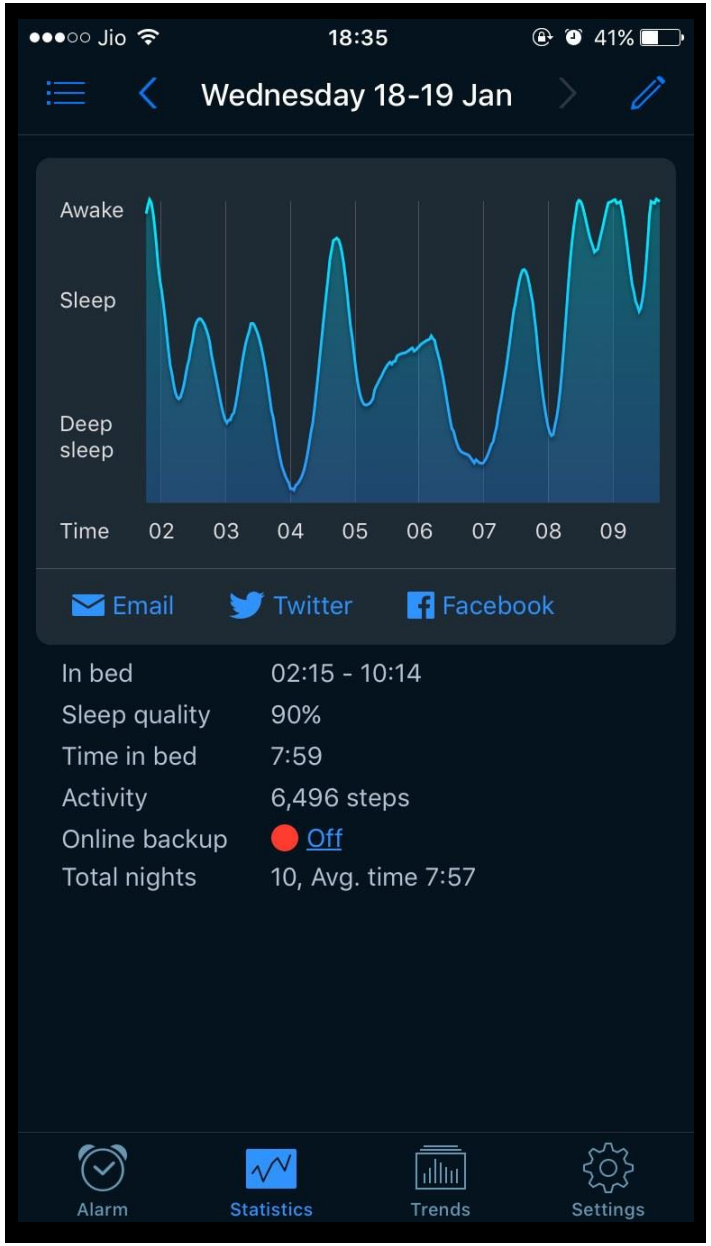

10
8
6
4
2
0
0
2
4
6
8
10
$r^2 \times p \sim \frac{1}{N}$


10
8
6
4
2
0
0
2
4
6
8
10
$r^2 \times p \sim \frac{1}{N}$

Example #1


12:30
Workout Details
Morning Townlake Run
Saturday, Jan. 6 at 8:49am
Activity: Run, Outdoor
4.51
DISTANCE (MI)
38:20
DURATION
9:50
AVG. PACE
674
CALORIES
90
ELEVATION GAIN


AT&T
7:42 AM
98%
MyNetDiary Pro
Today
Meals
Eaten: 1542 cals
Food Left: 391 cals
Exercises
234 cals
Weight
Lost: about 97.5lbs
Charts
Analysis
Remains: 560 cals
Water
4 glasses
Measurements
230 steps
Daily Notes
Vitamins
Help


Jio
18:35
41%
Wednesday 18-19 Jan
Awake
Sleep
Deep sleep
Time
02
03
04
05
06
07
08
09
Email
Twitter
Facebook
In bed
02:15 - 10:14
Sleep quality
90%
Time in bed
7:59
Activity
6,496 steps
Online backup
Off
Total nights
10, Avg. time 7:57
Alarm
Statistics
Trends
Settings

1-16 of 59,791 results for **"garden hose"**

Sort by Relevance

Show results for

Patio, Lawn & Garden
- Garden Hoses
- Gardening Sprayers & Accessories
- Pressure Washer Accessories
- Pressure Washer Hoses
- Lawn & Garden Watering Equipment
- See more

Automotive
- Car Washing Nozzles & Hose Attachments
- RV Freshwater Systems
- RV Freshwater Hoses & Fittings
- Automotive Tools & Equipment
- RV Parts & Accessories

Tools & Home Improvement
- Power Tools & Hand Tools

Electronics
- Electronic Equipment
- Warranties

Industrial & Scientific
- Industrial Water Hoses
- Industrial Hose Nozzles
- Additive Manufacturing Products

Sponsored

HEAVY DUTY {Improved Design} 50' Feet Expandable Hose Set, Strongest Garden Hose On Earth. With All Solid Brass Connector + Storage Sack, by GrowGreen

by GrowGreen

$24.95 prime | FREE One-Day
Get it by **Tomorrow, Nov 8**
FREE One-Day Shipping on qualifying orders over $35

4.5 stars 280

Product Features
... New Designed Expandable *Garden Hose* Is The ONLY Expanding Hose ...

Sponsored

Growfast Garden Hose , 100FT Expandable Lightweight and Durable Water Hose with 3/4 Nozzle Solid Brass Connector Flexible Stretch Hosepipe for Heavy Duty Commercial Use and Watering, Washing

by Growfast

$43.99 prime
Get it by **Thursday, Nov 9**

5 stars 55

ALL NEW 2017 Garden Hose 50 Feet Expandable Hose With All Brass Connectors, 8 Pattern Spray Nozzle And High Pressure, {IMPROVED} Expanding Garden Hose

by GrowGreen

$24.98 prime | FREE One-Day
Get it by **Tomorrow, Nov 8**
FREE One-Day Shipping on qualifying orders over $35

4.5 stars 934

prime | FREE One-Day
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Show results for
- Any Category
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- Crafts, Hobbies & Home
- Gardening & Landscape Design
  - Garden Design

Refine by

Delivery Day
- Get It by Tomorrow

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- prime
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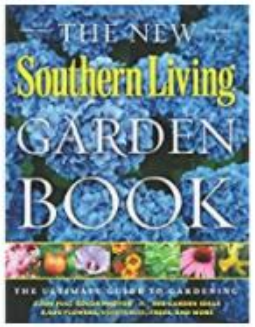
- prime | FREE One-Day

New Releases
Last 30 days
Last 90 days
Coming Soon

Craft & Hobby Book Format
- Kindle Edition
- prime

Purchase Type
Purchase
Rental

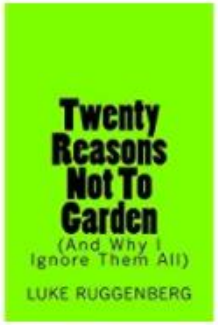
Genre
Documentary
Drama
Educational
Exercise & Fitness
Faith & Spirituality
Kids & Family
Music Videos & Concerts



Sponsored
The New Southern Living Garden Book: The Ultimate Guide to Gardening (Southern Living (Paperback Oxmoor)) Jan 13, 2015
by The Editors of Southern Living Magazine

Flexibound
$28.65 ~~$34.95~~ prime
Get it by **Tomorrow, Nov 8**

192



Sponsored
Twenty Reasons Not To Garden (And Why I Ignore Them All) Jul 15, 2016
by Luke Ruggenberg

"You'd have to be totally devoid of any sense of humor or dead in order not to laugh out loud..." -Indie Book Reviewers

6

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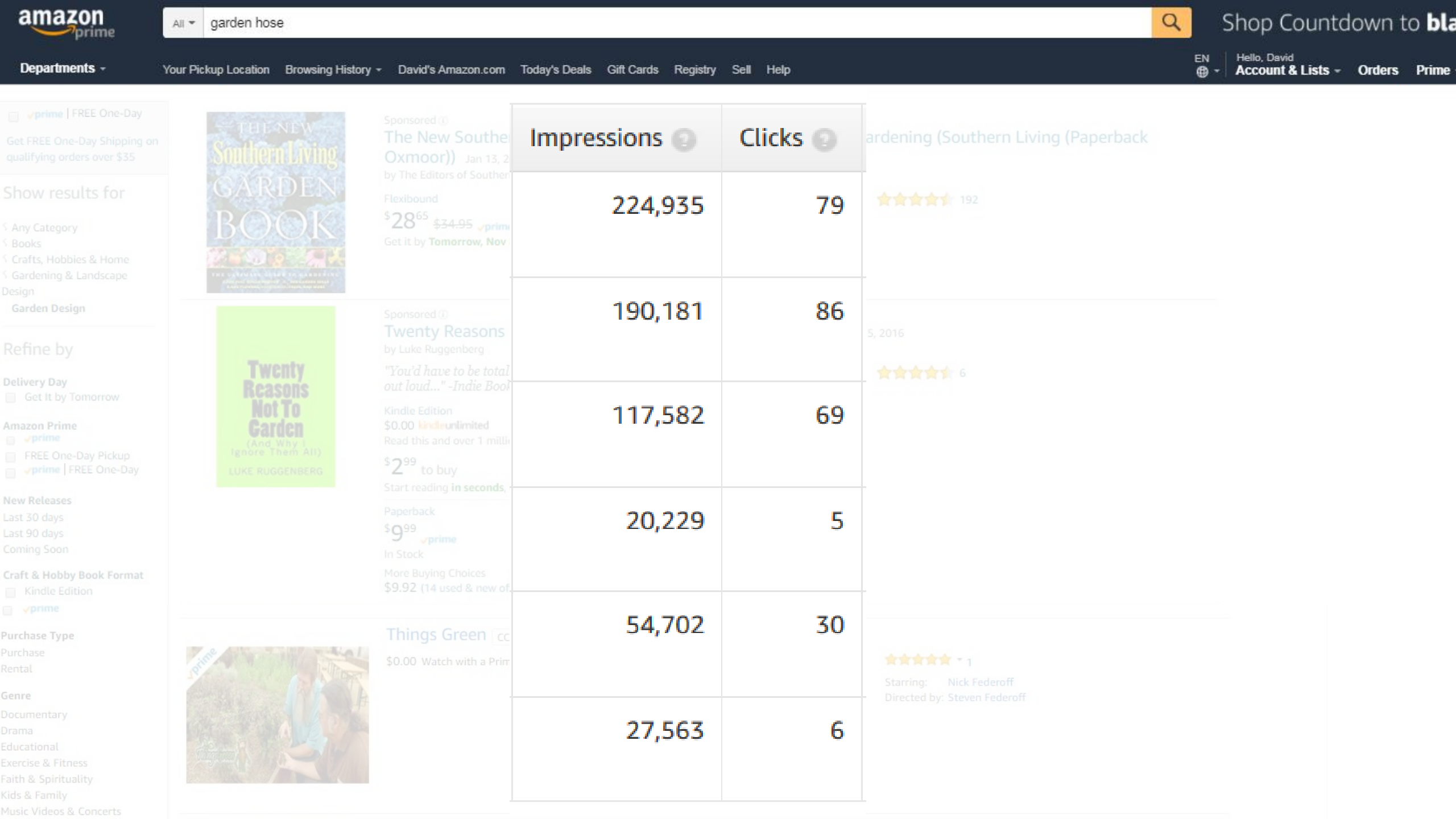
Things Green CC
$0.00 Watch with a Prime membership

1

Starring: Nick Federoff
Directed by: Steven Federoff



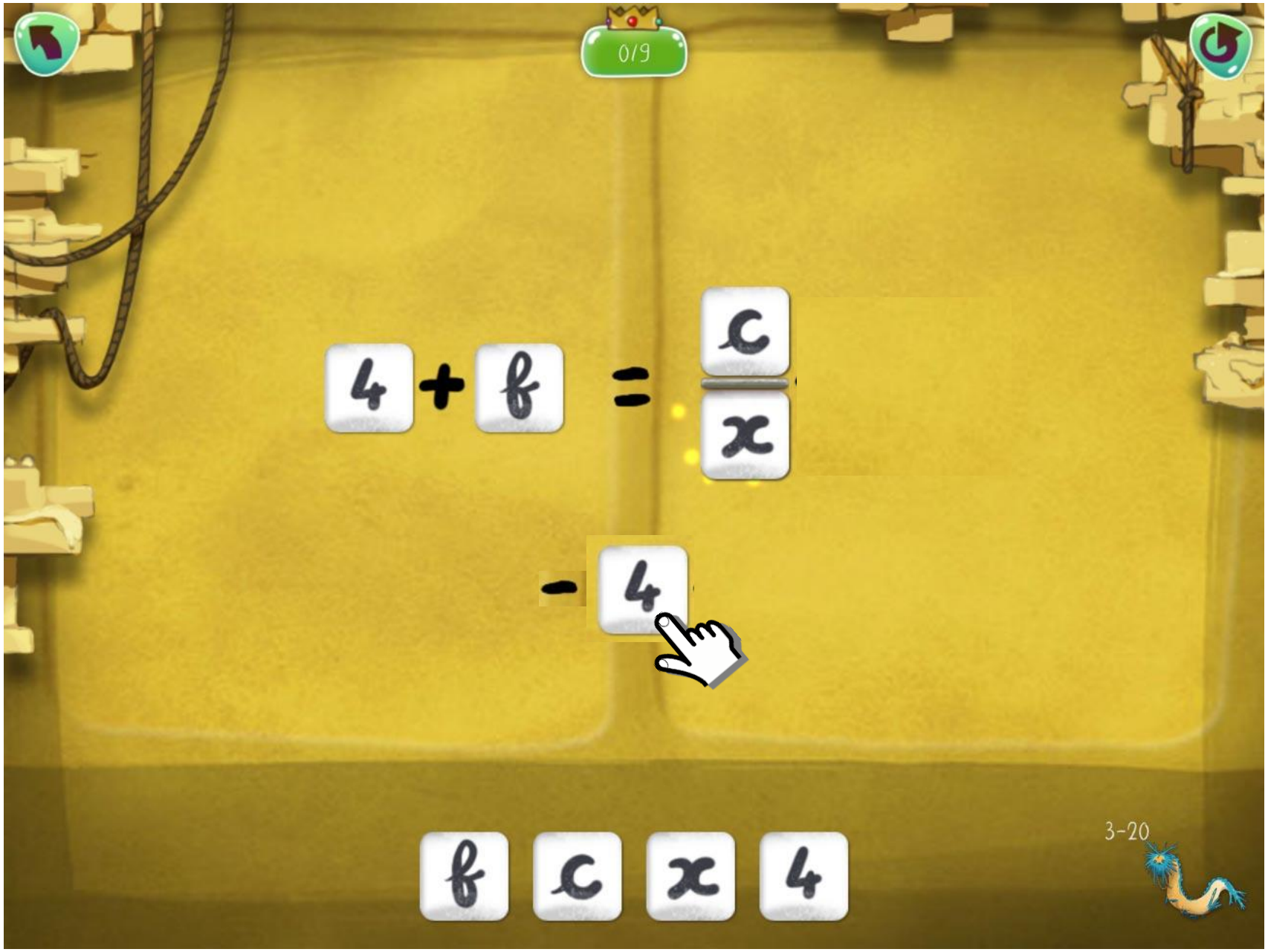
Impressions	Clicks
224,935	79
190,181	86
117,582	69
20,229	5
54,702	30
27,563	6

Feedback examples

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
• Quality of staff • Responsiveness • Organizational chart • Accessibility of staff • Good legislative support • Easy "give me" grants and good grants administration • Forward-thinking philosophy • Librarian–dense staffing at GPLS • Size and resources of state • PINES/Evergreen • Sharing of resources • Flexibility to adjust to changing needs • Flexibility on funding (grants) • Professional resources at state library • Willingness to embrace input /ask for input (ex. R-PLAC, etc.) • Approachable • Ability to attract good staff • Approachability with legislatures • Meetings/communication opportunities • Close monitoring of legislative process • Excellent IT availability/connectivity for libraries • Bridge between libraries and BellSouth(AT&T)/ Georgia	• Some of the staff responsiveness; some never answer back • Need stronger construction support, more help with process • Availability of staff -- sometimes we need answers ASAP (under-staffing) • State library not my advocate – too independent –GPLS tied by BOR/State –can't help • Attention to children's services/children's services staff w/o attention to others (example: PINNACLE email to directors and children's services librarians) • Lack of clear standards for public libraries • Competing interest of various kinds of libraries (divides resources) • Need help with paraprofessional training esp. those on desk • Concentration of staff in ATL area • When I call, everybody is gone • Turnover of staff • Location inconvenient (except for Darro) • No scholarship money for library school • Would like more web meetings	• Create more training opportunities or participation in more training • More responsive on a daily basis • Every director should have an advisor (GPLS staff) • Economics of scale for purchasing (i.e. downloadable audio, etc.) • Legislature that listens and values us • BOR computer replacement plan • Tuition assistance program • Re-examine directors mtg- less GPLS talk and more about public library issues – more global and more local (most learning happens at breaks) • Less structured time, more interaction • Capital asset replacement on cycle replacement • Advertise libraries statewide – David Baker • Create taxing/millage rates for libraries • Marketing versus PR • Genealogy database in Galileo-- work on purchasing power • Vision for future-- fiber optics • PINES and PINES-like projects-- include schools and	• Being swallowed up by BOR • Loss of identity • Funding –budget cuts • Loss of significance in community (libraries) • Can't advance our budgetary needs because BOR doesn't agree • GPLS too unselfish w/ funds because libraries need funds • Too much focus on one issue, ignoring others • Political pressures--not in line with priorities • Sometimes GPLS hands are tied in legislative process • Salaries too low …turnover • GPLS staff inadequately trained in rules--no time or $$ for training • Costs of technology going up • Money, lack of • State laws outdated • People without vision • Manpower, lack of-- understaffed • Staff retention • Censorship • Lack of unified front (library community) • We are tiny speck at BOR • Infrastructure –mistreated by parent organizations (DOE, DTAE, BOR)

Example #2


DRAGON
BOX
Web
PLAY
Bonus
Options


0/9
4 + f = c / x
- 4
f c x 4
3-20

24,000 students

24,000 students
21,000,000 data points
540,000 moves
$p<.001$

Likely to find 540 by chance alone

0.000025% of differences observed
1.4 seconds of instruction

Example #3

Results of the latest PISA survey conducted in 2012 were published in December 2013. According to the results, Finland is one of the few countries where girls performed better in mathematics than boys.

The purpose of this work is to refine the analysis of this observation by using education data mining techniques.

“Those students who are

socially and economically less advantaged,

have high anxiety towards mathematics

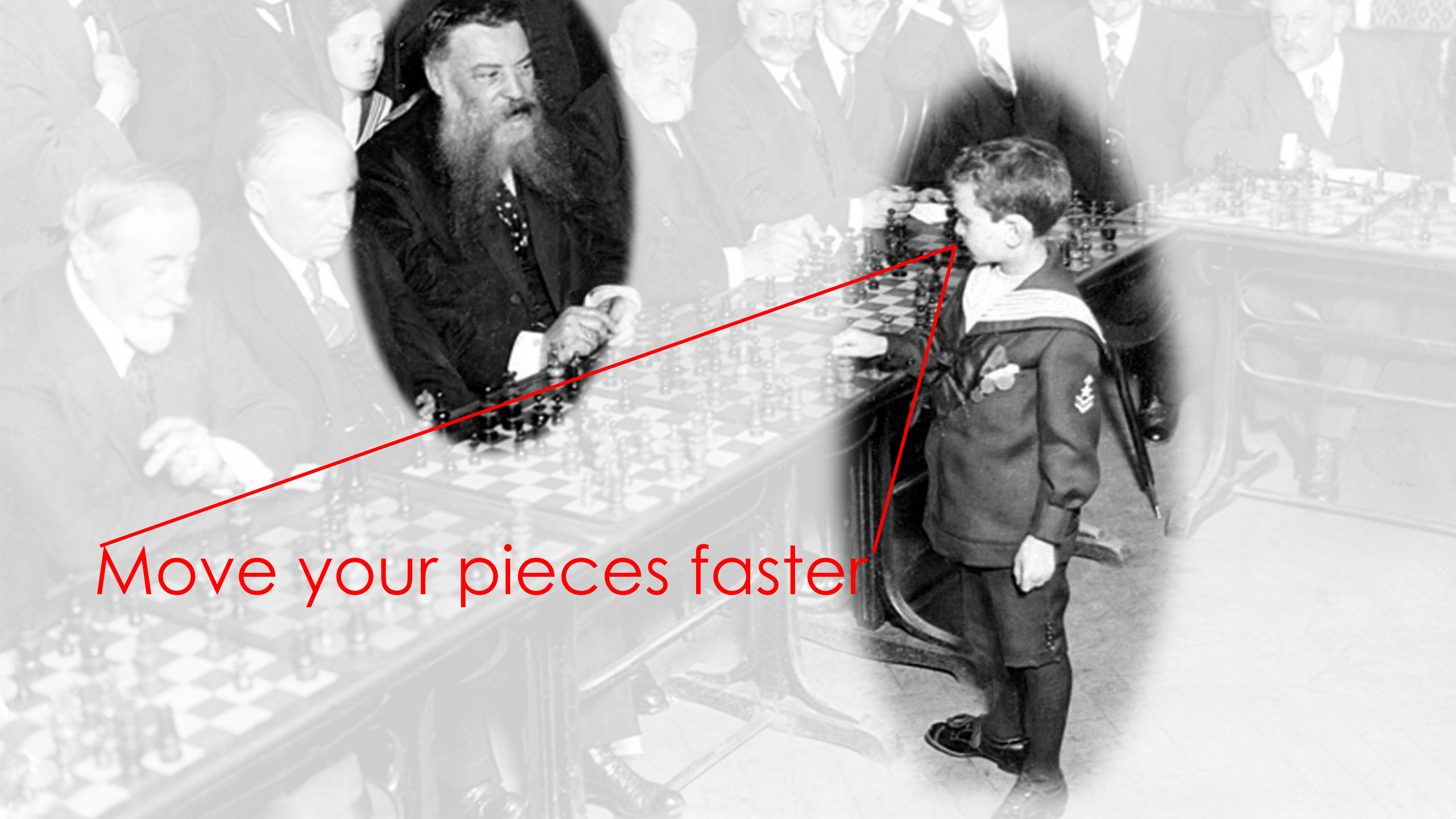
and a low self-concept in mathematics,

but still clearly above average attitude towards school,

are girls who perform below Level 3.”

Example #4

Experts move pieces faster


Move your pieces faster

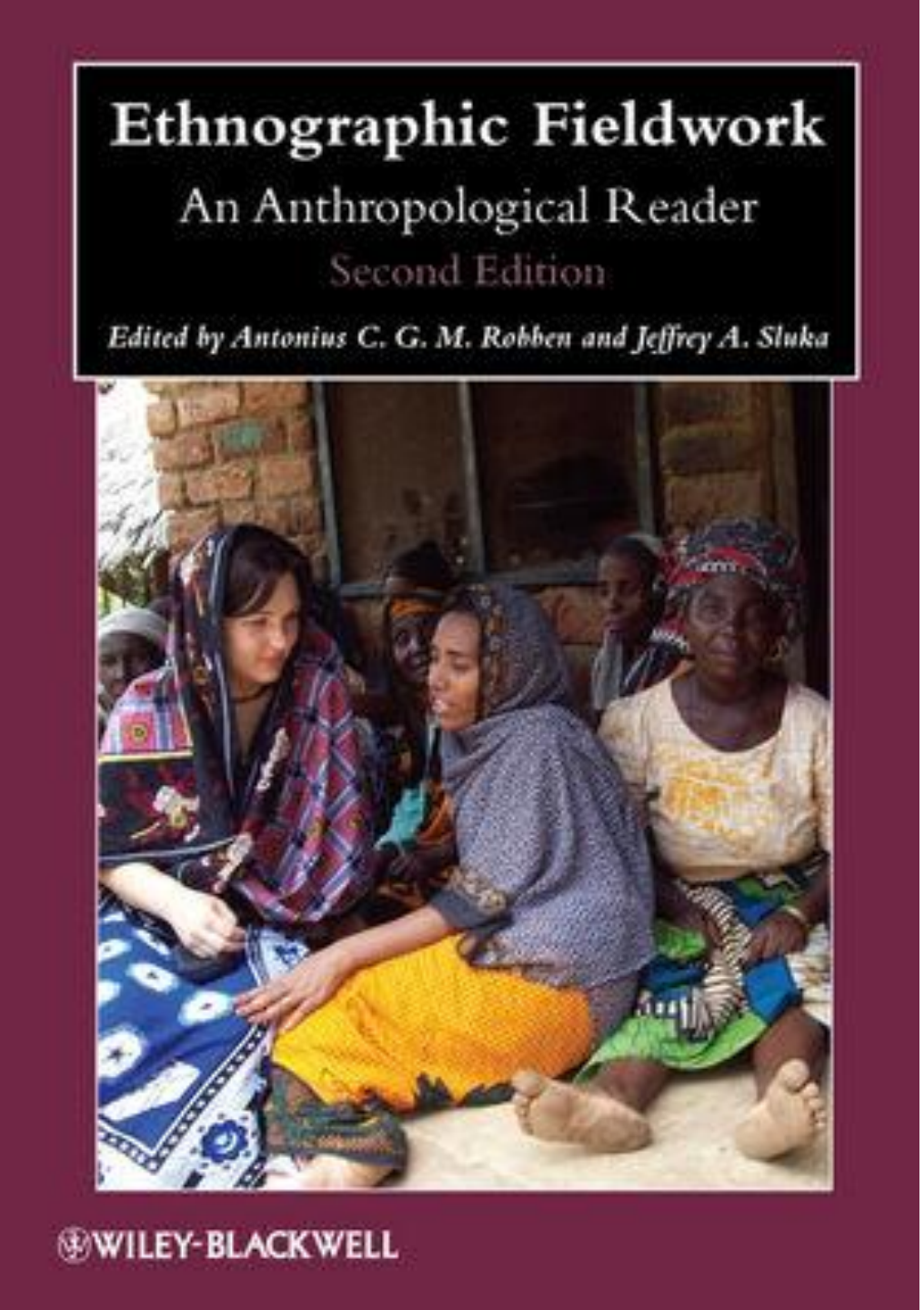
QUANTITATIVE

Things that are important

What those things mean

And that they are not isolated examples

ETHNOGRAPHY



Science of understanding

Things that are important *to some group of people*

What those things mean *to them*

Learning is a process of Enculturation

Learning is a process of Enculturation

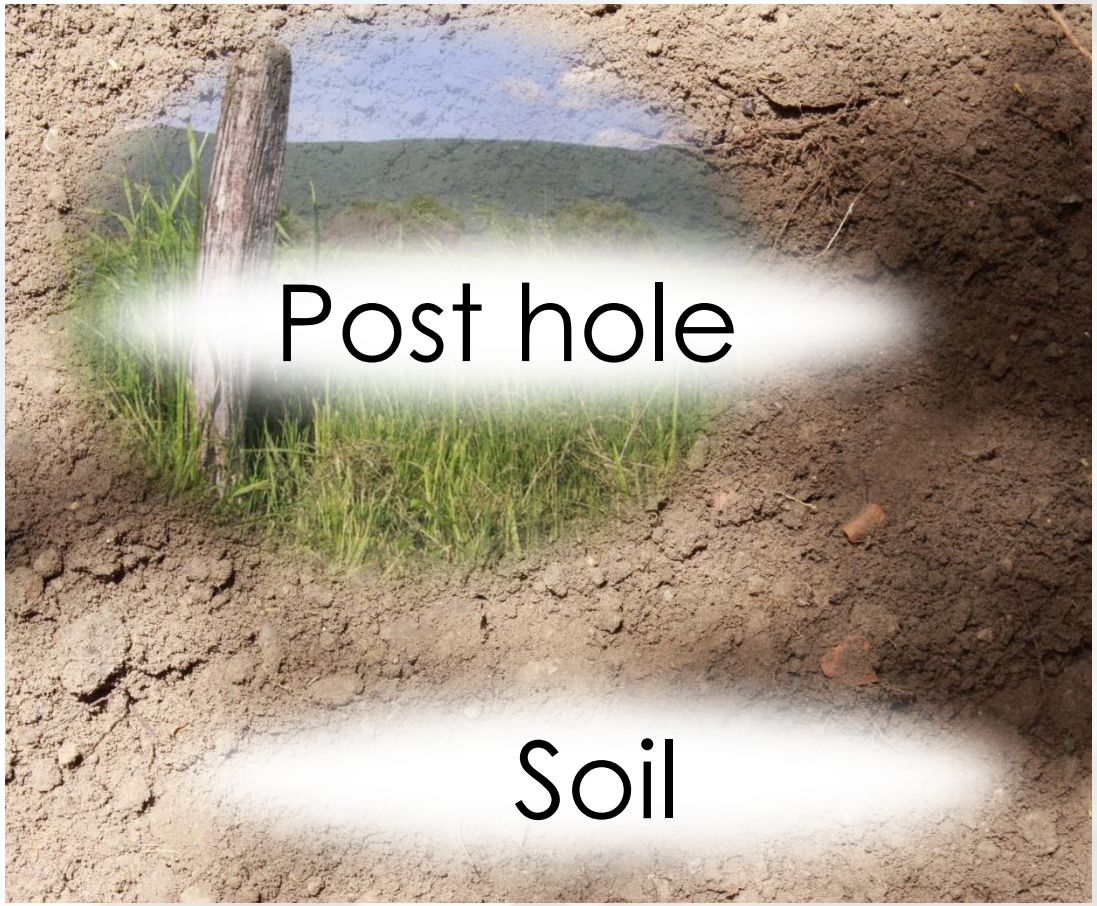
"A DISCOURSE is a socially accepted association among ways of using language, of thinking, feeling, believing, valuing, and of acting that can be used to identify oneself as a member of a socially meaningful group… or to signal (that one is playing) a socially meaningful role."

- Jim Gee

Learning is a process of Enculturation

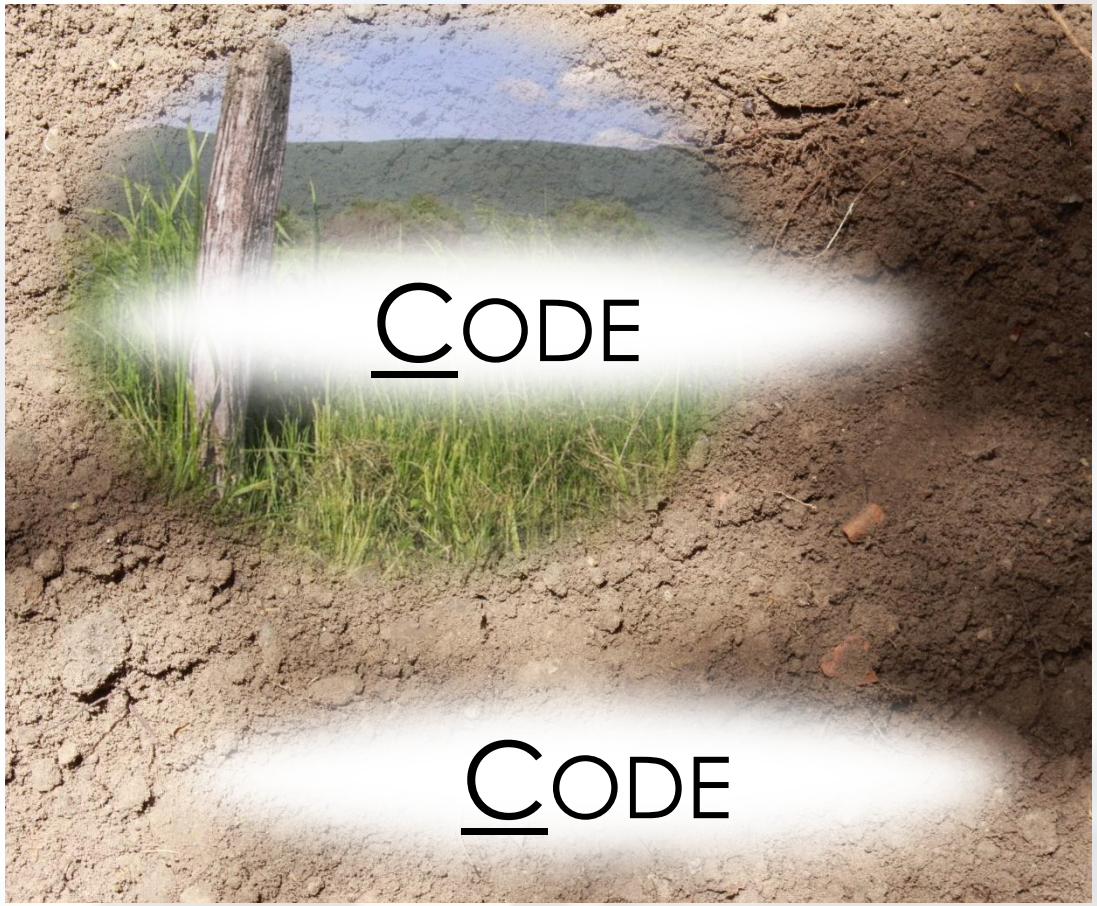
—David Williamson Shaffer

Learning is a process of Enculturation



—Charles Goodwin

Learning is a process of Enculturation



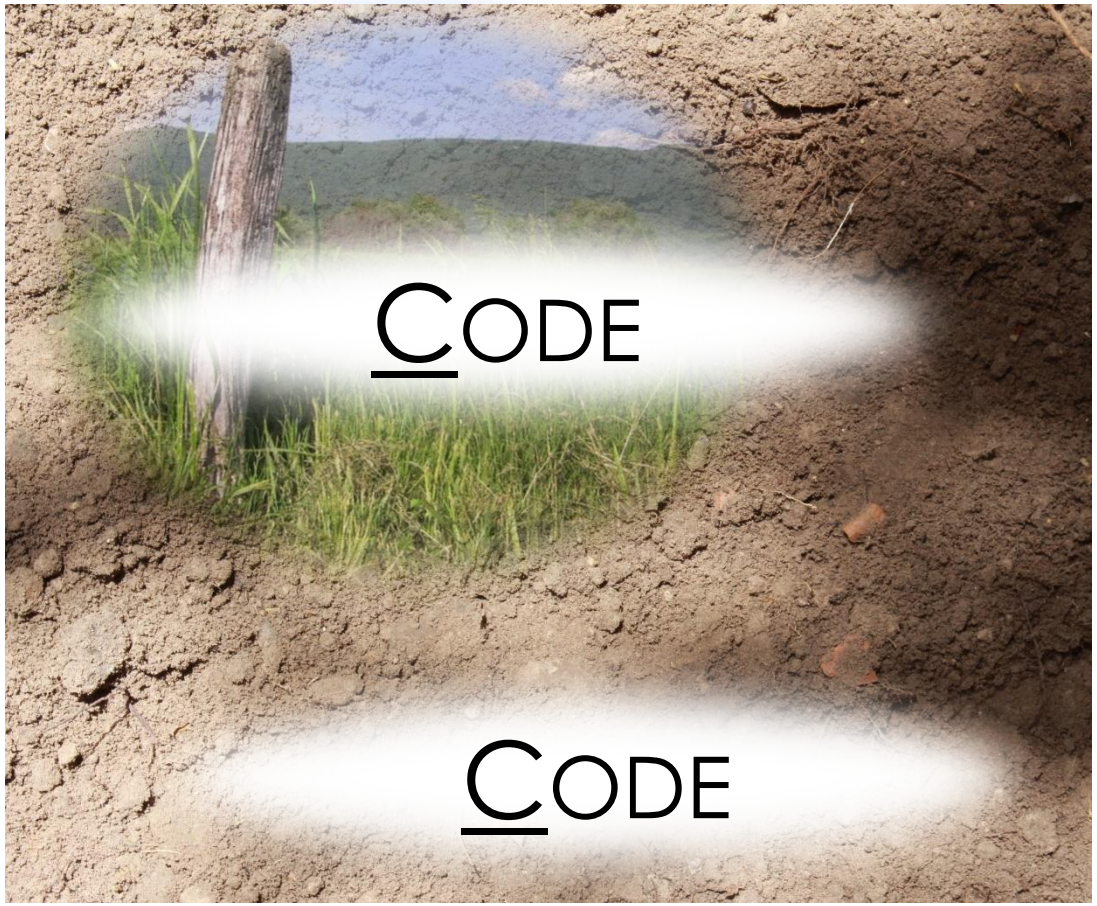
—Charles Goodwin

A CODE is

a culturally-relevant and meaningful part of a

DISCOURSE

Learning is a process of Enculturation



—Charles Goodwin

CODE

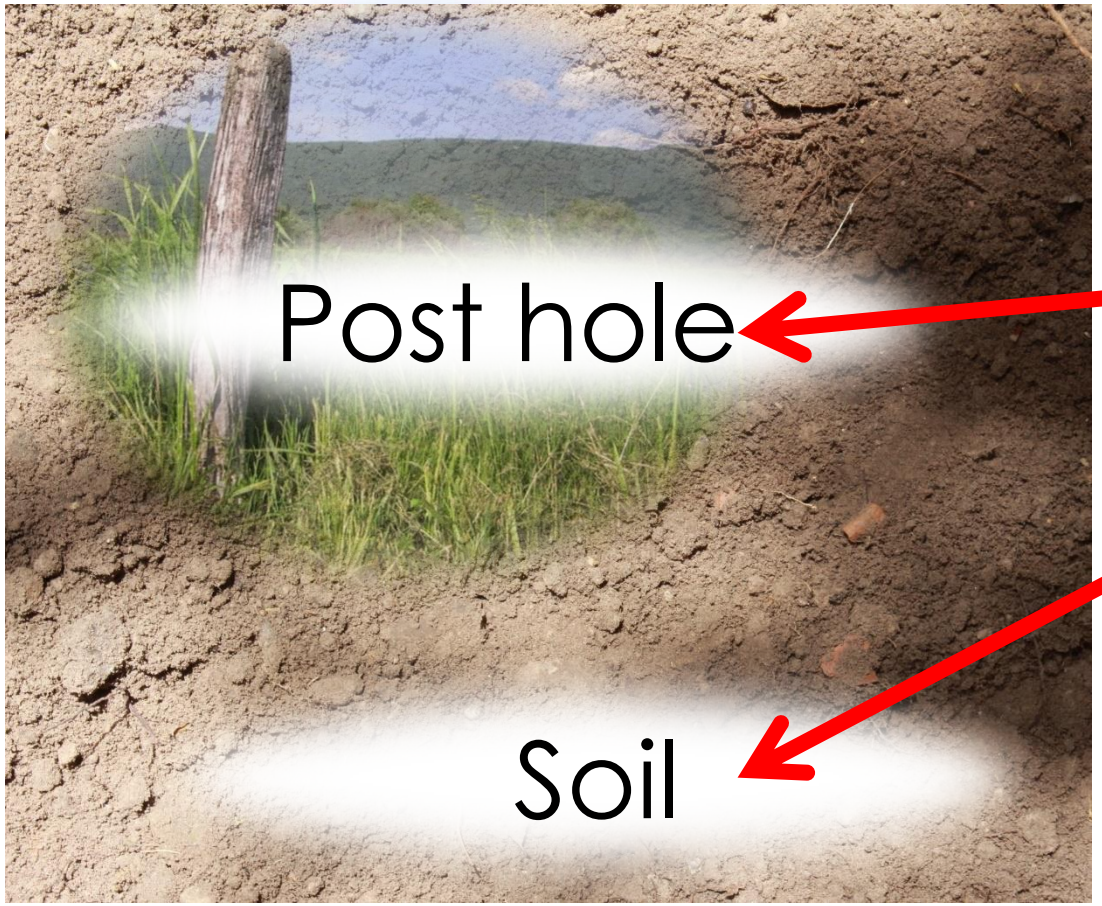
↓

DISCOURSE

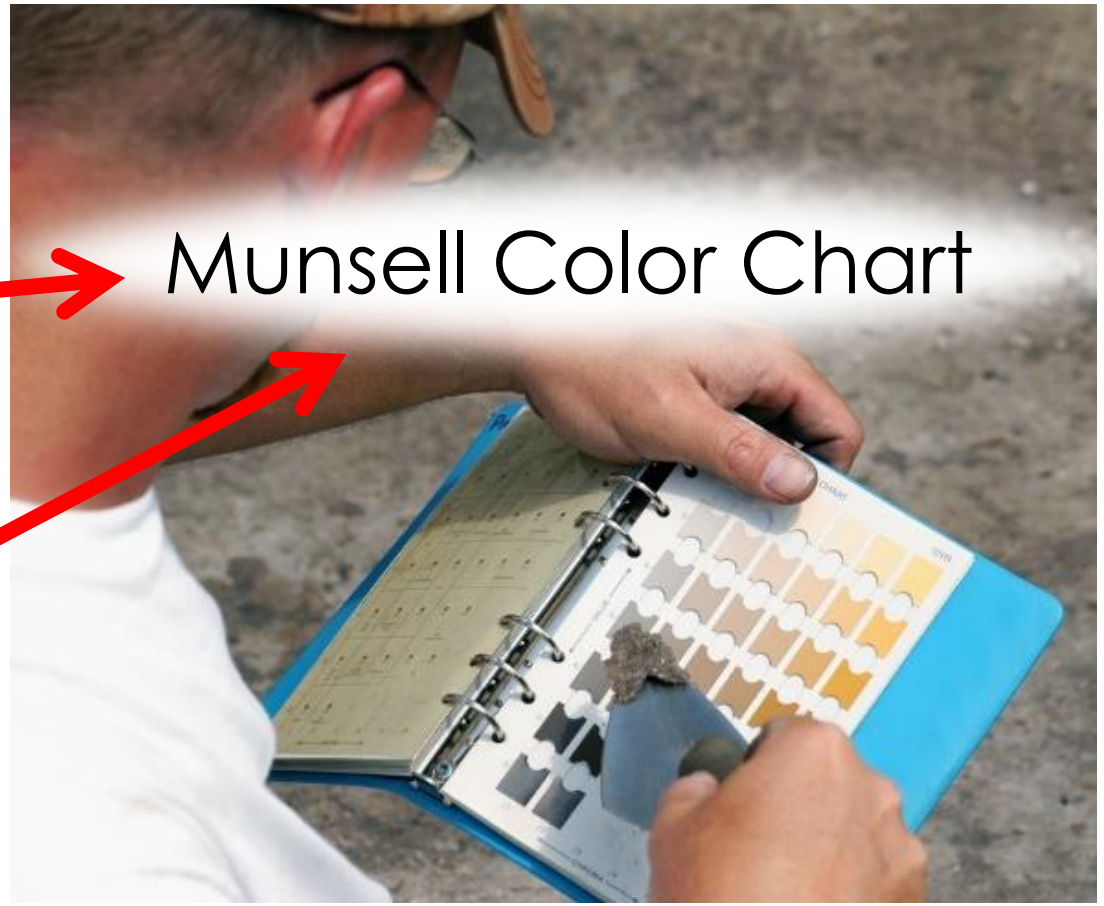
↓

culture

Learning is a process of Enculturation

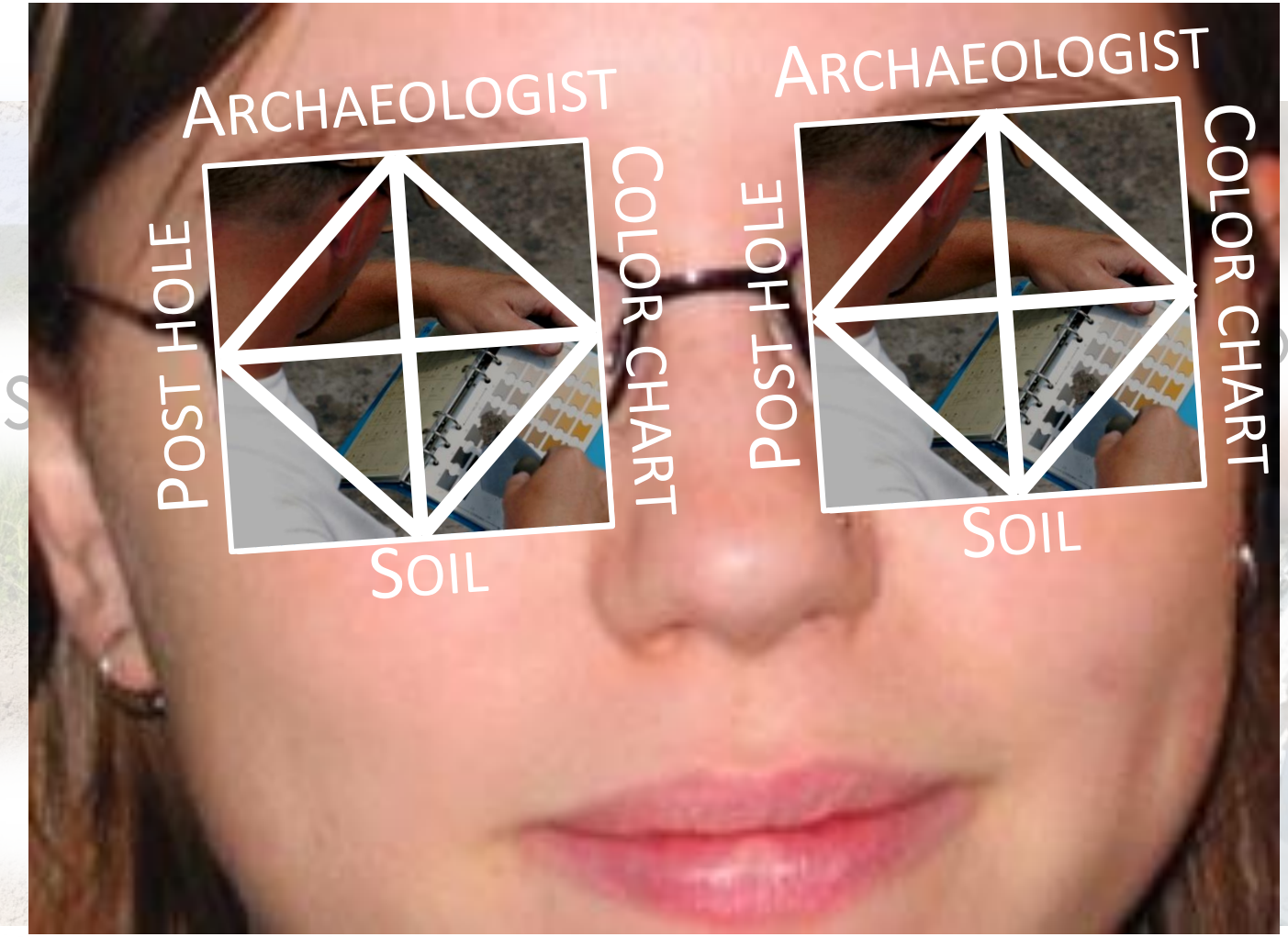


—Charles Goodwin



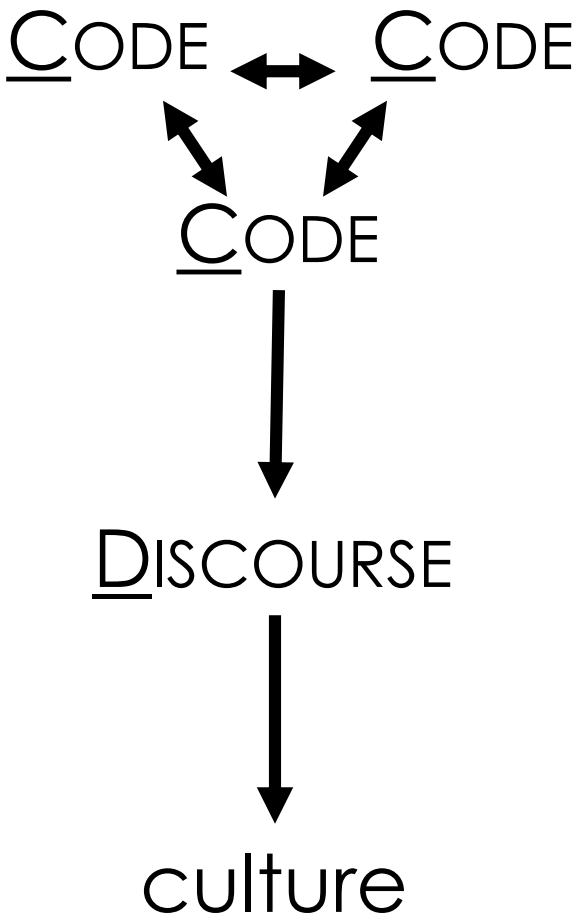
—David Williamson Shaffer

Learning is a process of Enculturation



Epistemic Frame

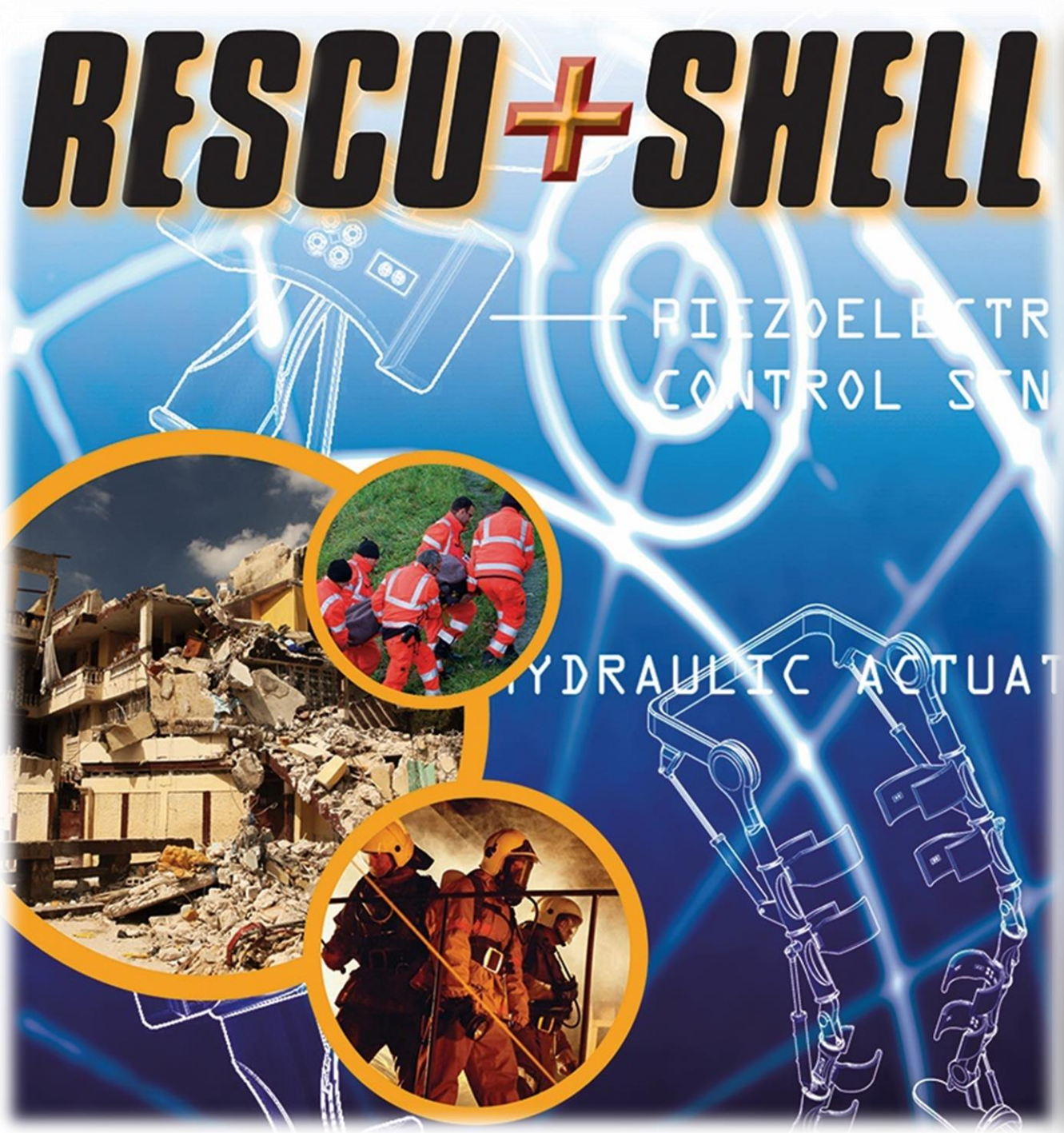
Learning is a process of Enculturation



RESCU+SHELL

PIEZOELECTR
CONTROL SYN

HYDRAULIC ACTUAT


RESCU+SHELL
PIEZOELECTR
CONTROL SYN
HYDRAULIC ACTUAT

Justin Kim	Please take a moment to introduce yourselves and indicate what actuator you have experience with.
Elizabeth E.	Hi everybody!
Gabrielle F.	Hi I'm Gabby
Elizabeth E.	I'm Elizabeth, and I spent the first part of this internship working with PAM
Gabrielle F.	I'm from Pneumatic
Lena H.	I am Lena and I worked with electric
Michael T.	I'm Michael and I also worked with PAM
Daniel M.	Im Danny and worked with series
Daniel M.	So what was everyones results?

Justin Kim	Please take a moment to introduce yourselves and indicate what actuator you have experience with.
Elizabeth E.	Hi everybody!
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Elizabeth E.	I'm Elizabeth, and I spent the first part of this internship working with PAM
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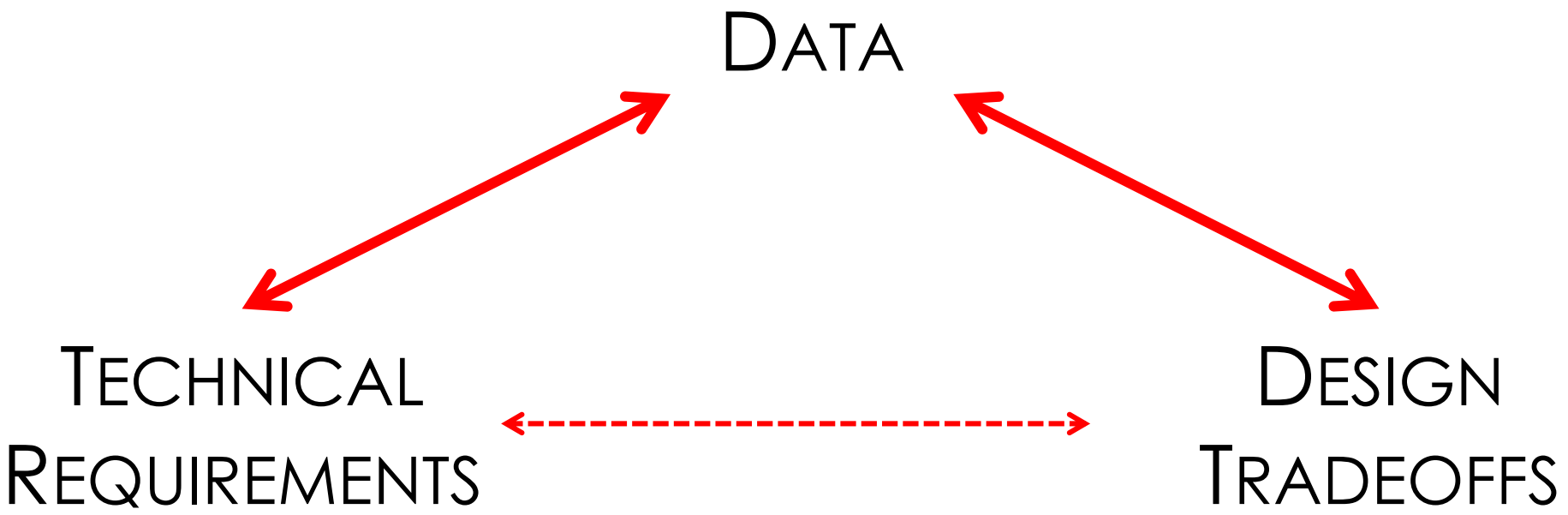
Lena H.	I am Lena and I worked with electric
Michael T.	I'm Michael and I also worked with PAM
Daniel M.	Im Danny and worked with series
Daniel M.	So what was everyones results?

Zachary H.	For hydraulic, payload and recharge interval were strengths, but safety was close to the company requirement.	Technical Requirements
Daniel M.	Elizabeth that was very similar to my group. We were able to reach all internal consultant requests, but the machine costed a lot.	Technical Requirements
Gabrielle F.	We used Pneumatic and it seemed to meet everyone's required and most preferred!	Technical Requirements
Gabrielle F.	Ourcost always met preferred costs	
Lena H.	Yes and electric, depending on the other aspects, also met all required and most preferred	
Michael T.	What were the results of the best prototype for pneumatic and electric?	Data

Zachary H.	The best prototype for hydraulic was payload 1044, agility 203, recharge interval 8.7, cost $14540, and safety 214.	Data
Lena H.	It consisted of safety 190, cost 12875, recharge interval, 8.32, payload 552,and agility 263	Data
Gabrielle F.	Payload 608 agility 257 RI 8.52 cost $12740 and safety 206	Data
Zachary H.	It seems like most performed well with one or two attributes scoring low.	
Lena H.	I mean if we need to improve safety we can us the PFC power source, even though it has a pretty poor rating in all other aspects	
Elizabeth E.	I think we need to determine which attributes are the most important to us so that we can meet those internal requirements and then just company for the ones we find less important	Design Tradeoffs


DATA
TECHNICAL REQUIREMENTS
DESIGN TRADEOFFS

Gabrielle F.	We used Pneumatic and it seemed to meet everyone's required and most preferred!	Technical Requirements
Gabrielle F.	Ourcost always met preferred costs	
Lena H.	Yes and electric, depending on the other aspects, also met all required and most preferred	
Gabrielle F.	Ourcost always met preferred costs	
Zachary H.	The best prototype for hydraulic was payload 1044, agility 203, recharge interval 8.7, cost $14540, and safety 214.	
Lena H.	It consisted of safety 190, cost 12875, recharge interval, 8.32, payload 552,and agility 263	
Gabrielle F.	Payload 608 agility 257 RI 8.52 cost $12740 and safety 206	Data

Code book

Code	Definition	Examples
Technical Requirements	Discussion of one or more criteria for device functionality: agility, payload, cost, recharge interval, and/or safety.	We used Pneumatic and it seemed to meet everyone's required and most preferred!
Data	Referring to or justifying decisions based on numerical values, results tables, graphs, research papers, or relative quantities.	Payload 608 agility 257 RI 8.52 cost $12740 and safety 206

Code book

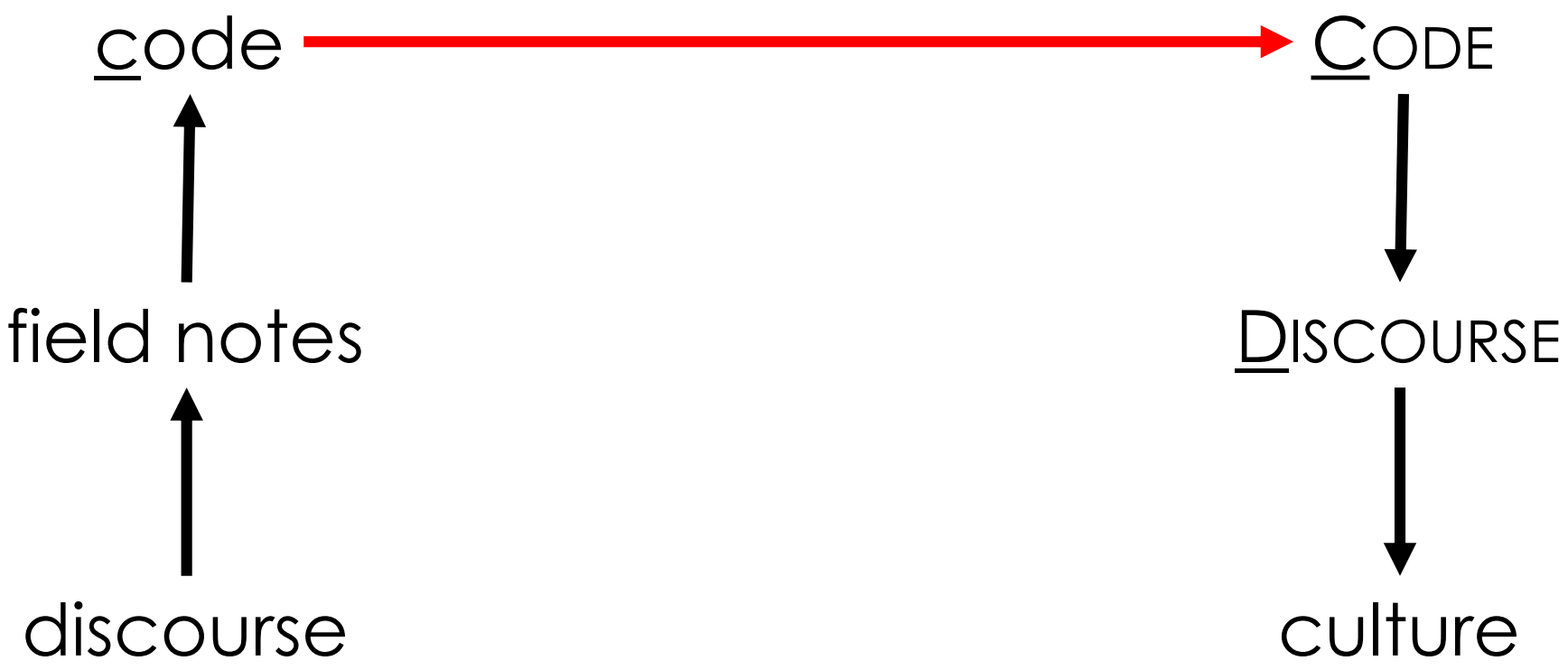
Things that count as evidence or *warrants* for

Codes

Code book

Culturally-relevant and meaningful aspects of a

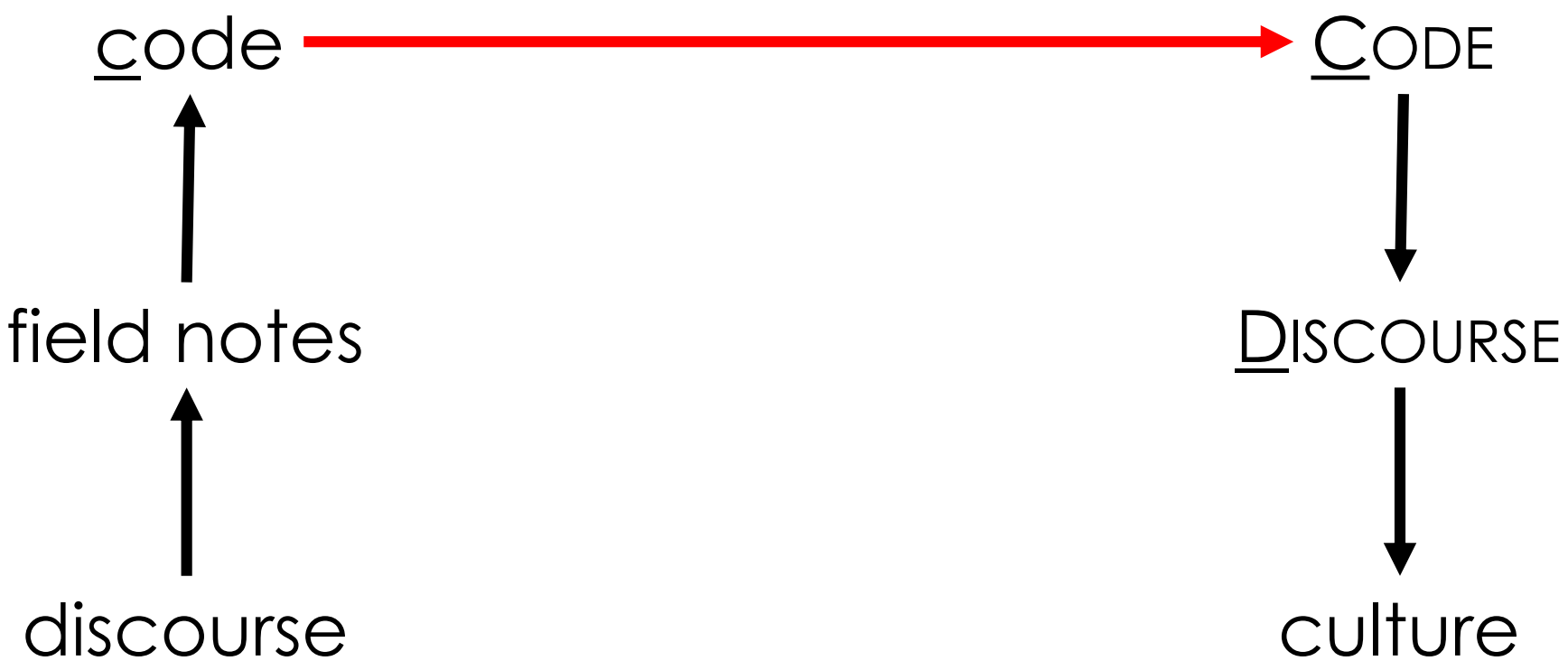
Discourse



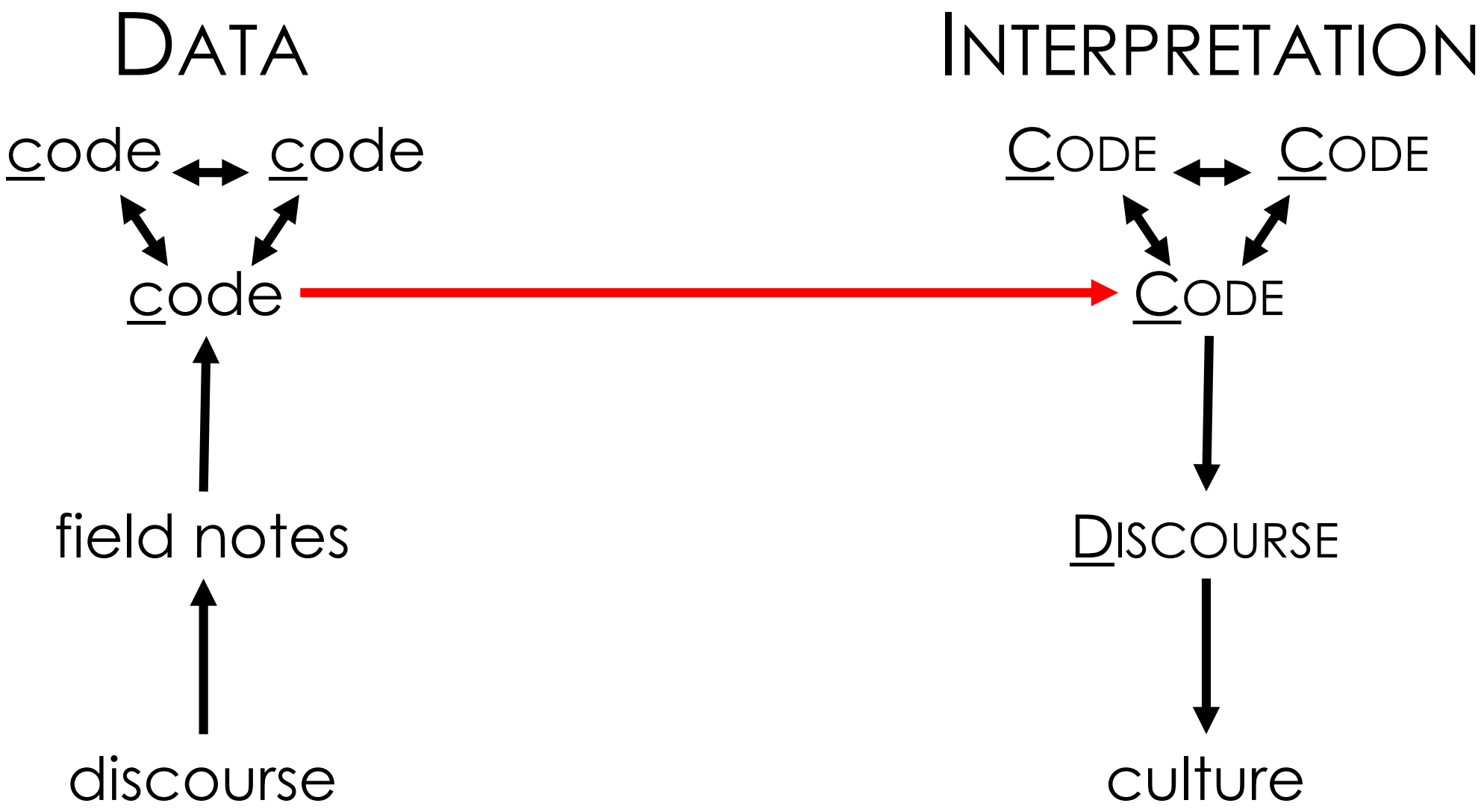
Code book

DATA

INTERPRETATION



Code book


DATA
INTERPRETATION
code
code
code
CODE
CODE
CODE
field notes
DISCOURSE
discourse
culture

Code book

Code	code	Examples	IRR
Technical Requirements	Discussion of one or more criteria for device functionality: agility, payload, cost, recharge interval, and/or safety.	We used Pneumatic and it seemed to meet everyone's required and most preferred!	$\kappa = 0.88$ **$\rho(.65) < 0.05$**
Data	Referring to or justifying decisions based on numerical values, results tables, graphs, research papers, or relative quantities.	Payload 608 agility 257 RI 8.52 cost $12740 and safety 206	$\kappa = 0.94$ **$\rho(.65) < 0.01$**

Test set

1 0 1 1 0 0 0 0 1 0 0 1 0 0 0 0 0 0 0 1 0 1 0

1 0 0 1 0 0 0 0 1 0 0 1 0 0 0 0 0 0 0 1 1 1 0

$\kappa = 0.78$

1 0 1 1 0 0 0 0 1 0 0 1 0 0 0 0 0 0 0 1 0 1 0

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$\kappa > 0.65$

1 0 1 1 0 0 0 0 1 0 0 1 0 0 0 0 0 0 0 1 0 1 0

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$\kappa > 0.65$

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“Common Method”

Journal of Learning Sciences
(1997-present)
International Journal of Computer-Supported Collaborative Learning
(2006-present)

Articles using kappa

44

Kappa values computed

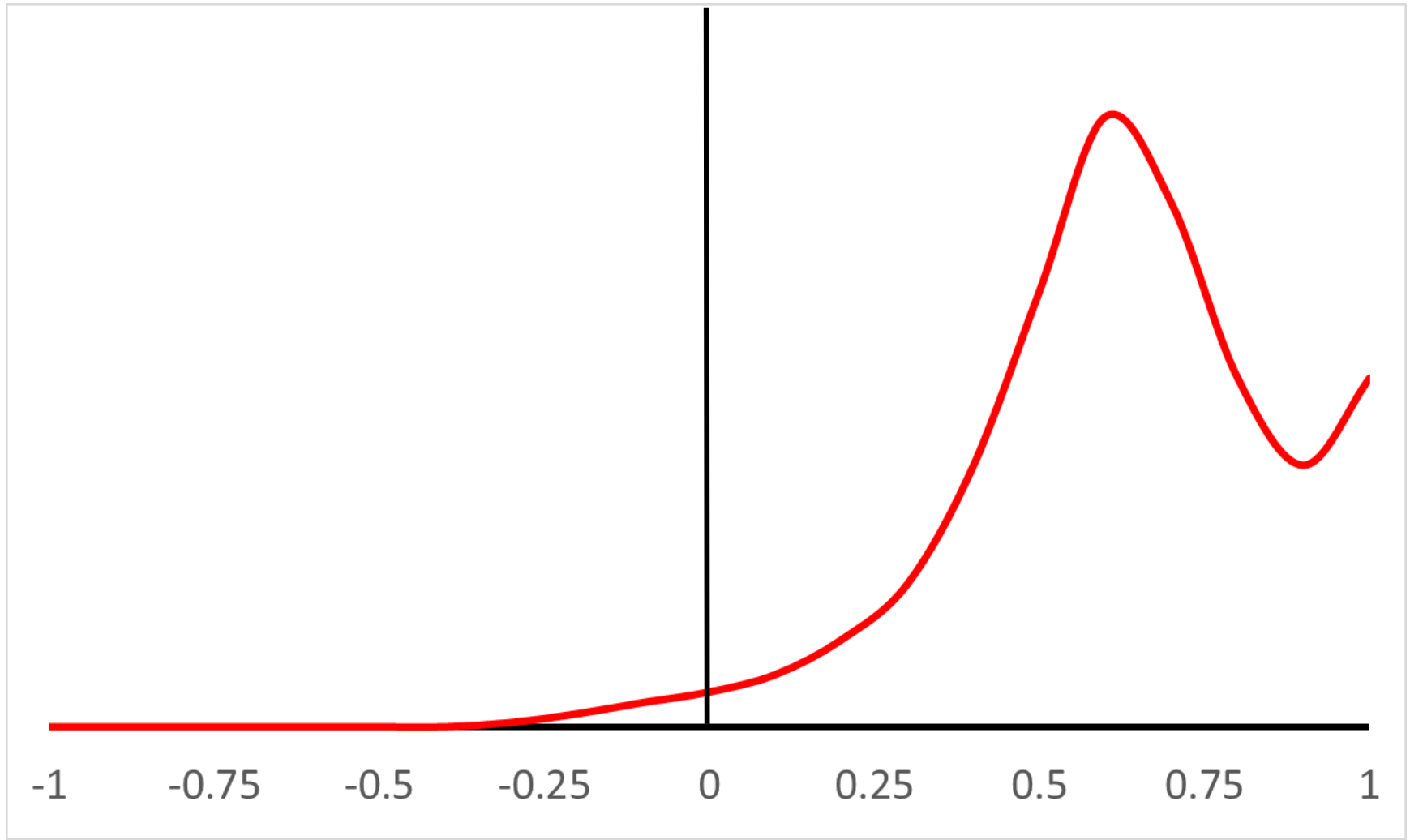
141

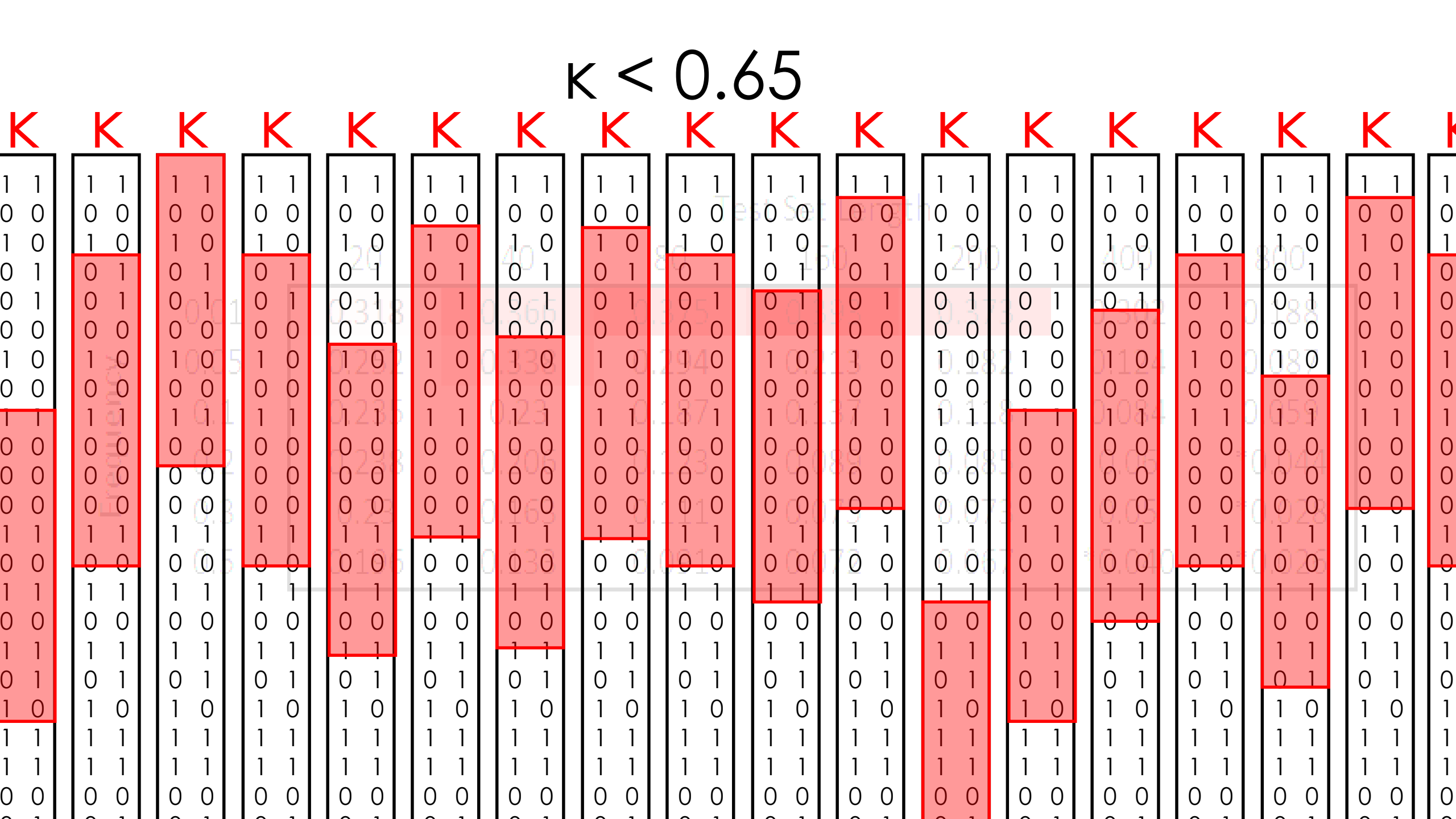
Times kappa was tested

0

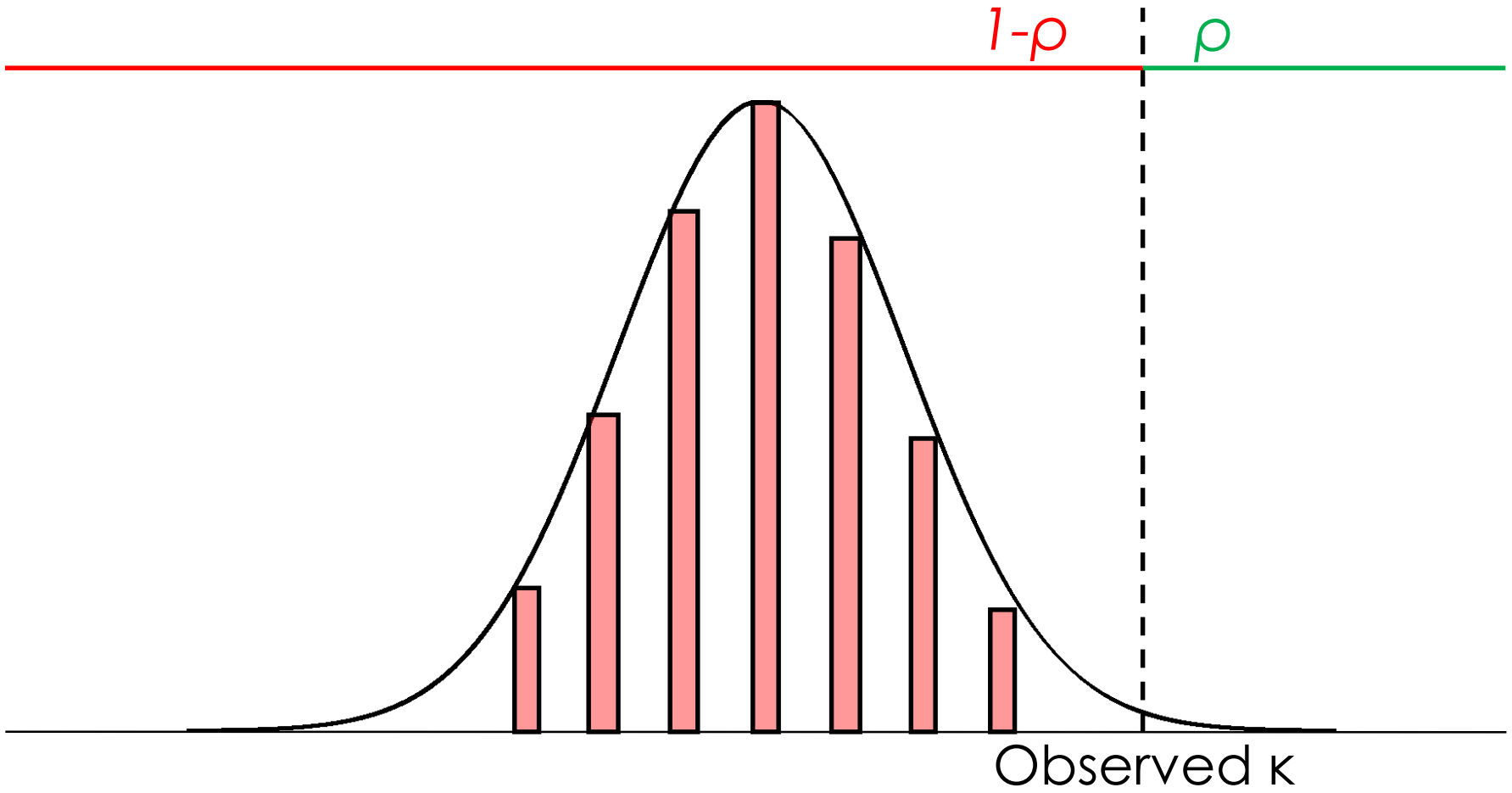
		Test Set Length						
		20	40	80	160	200	400	800
Frequency	0.01	0.318	0.366	0.375	0.393	0.373	0.302	0.188
	0.05	0.252	0.338	0.294	0.213	0.182	0.124	0.087
	0.1	0.235	0.23	0.187	0.137	0.118	0.084	0.059
	0.2	0.238	0.206	0.123	0.089	0.085	0.06	*0.044
	0.3	0.23	0.163	0.111	0.075	0.073	0.05	*0.028
	0.5	0.196	0.133	0.091	0.072	0.067	*0.040	*0.026

K




κ < 0.65
K K K K K K K K K K K K K K K K K K K

distribution of κ under the null hypothesis



κ of Test Set from sets with κ < 0.65


rhoR!

Percent positive agreement (>70%)

	20	40	80	160	200	400	600	800	900	1000
0.01	0.723	0.638	0.517	0.339	0.284	0.167	0.124	0.0933	0.0925	0.0877
0.05	0.46	0.292	0.179	0.11	0.0867	0.0609	0.0491	0.0377	0.0382	0.0318
0.1	0.308	0.189	0.114	0.0684	0.0608	0.0471	0.0353	0.0274	0.0273	0.0239
0.2	0.194	0.129	0.0851	0.057	0.0512	0.0329	0.0256	0.0226	0.0221	0.0206
0.3	0.169	0.116	0.0782	0.0539	0.0464	0.0316	0.0272	0.023	0.0211	0.0214
0.5	0.183	0.144	0.0976	0.0658	0.0605	0.0448	0.0318	0.0311	0.0255	0.0232

Recall (>0.65)

	20	40	80	160	200	400	600	800	900	1000
0.01	0.73	0.661	0.561	0.419	0.374	0.227	0.175	0.142	0.119	0.115
0.05	0.519	0.383	0.25	0.147	0.12	0.0734	0.0613	0.0549	0.0499	0.0441
0.1	0.396	0.271	0.15	0.0926	0.0788	0.0574	0.041	0.039	0.0354	0.0329
0.2	0.289	0.179	0.104	0.0721	0.0695	0.0428	0.0369	0.0293	0.0278	0.0268
0.3	0.228	0.141	0.101	0.0692	0.0624	0.0422	0.0348	0.0308	0.0302	0.0257
0.5	0.232	0.166	0.128	0.0882	0.0784	0.0536	0.0415	0.0374	0.0387	0.0328

Precision (>0.65)

	20	40	80	160	200	400	600	800	900	1000
0.01	0.609	0.609	0.569	0.544	0.576	0.496	0.521	0.48	0.472	0.456
0.05	0.565	0.558	0.544	0.501	0.463	0.422	0.422	0.387	0.395	0.376
0.1	0.57	0.508	0.48	0.46	0.432	0.391	0.339	0.324	0.313	0.338
0.2	0.53	0.466	0.431	0.417	0.392	0.318	0.306	0.273	0.267	0.24
0.3	0.509	0.417	0.401	0.393	0.389	0.305	0.271	0.229	0.212	0.229
0.5	0.464	0.339	0.384	0.338	0.333	0.258	0.246	0.231	0.226	0.248

F statistic (>0.65)

	20	40	80	160	200	400	600	800	900	1000
0.01	0.8	0.789	0.75	0.611	0.563	0.362	0.263	0.215	0.196	0.18
0.05	0.722	0.578	0.377	0.219	0.195	0.12	0.0962	0.0846	0.0817	0.0799
0.1	0.581	0.372	0.229	0.142	0.126	0.0912	0.0741	0.0625	0.0587	0.0545
0.2	0.4	0.253	0.166	0.121	0.103	0.0736	0.0561	0.0501	0.0544	0.0466
0.3	0.339	0.227	0.158	0.11	0.114	0.0709	0.0585	0.0521	0.0466	0.0475
0.5	0.349	0.264	0.235	0.168	0.159	0.113	0.0841	0.0728	0.0684	0.0672

nCoder

</> Code List

NewCode

+ New Code

Upload Code (.Rdata)

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Overview Handcode Test Resolve

Name

NewCode

Definition

This is the definition

Excerpts

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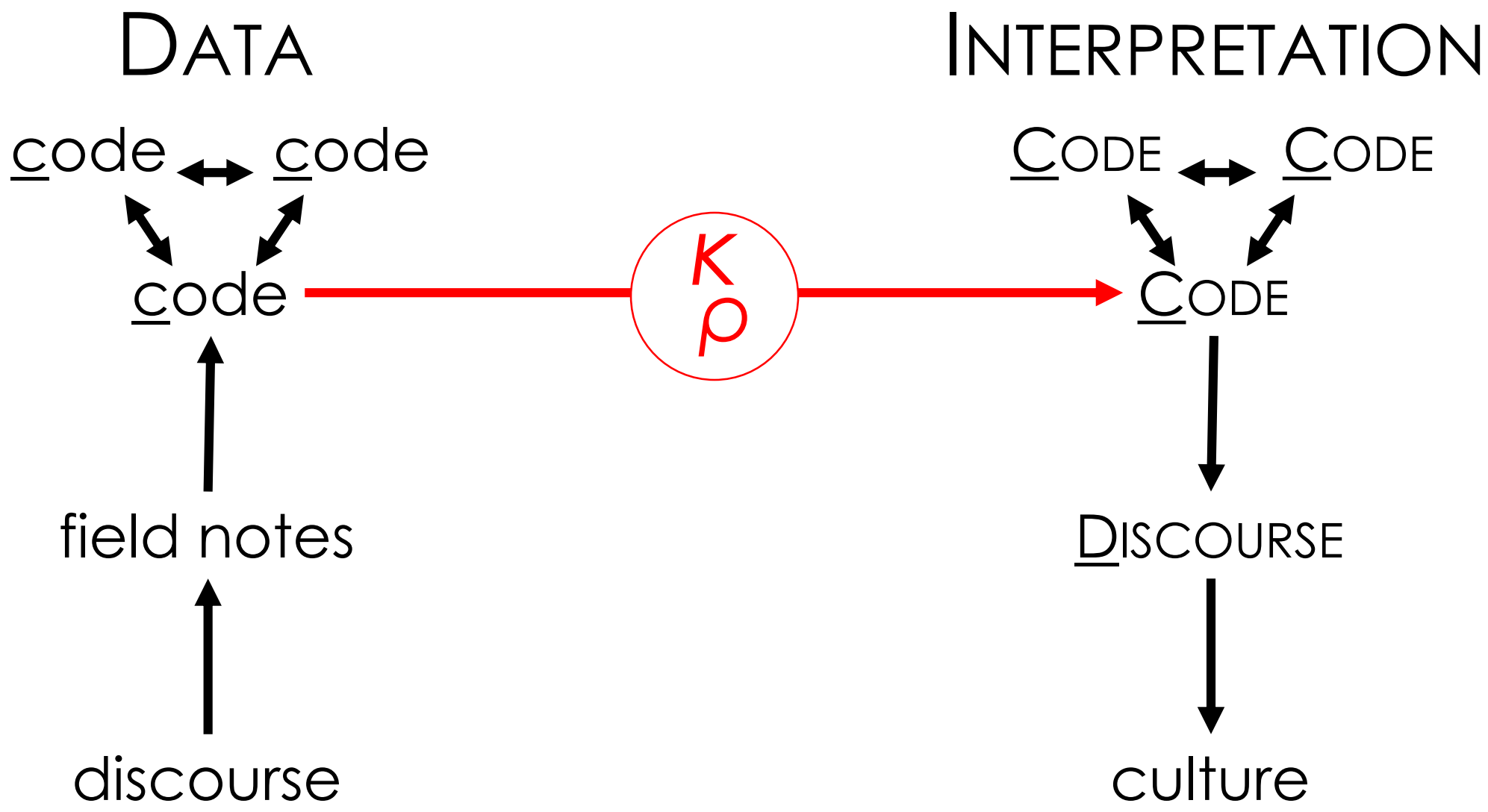
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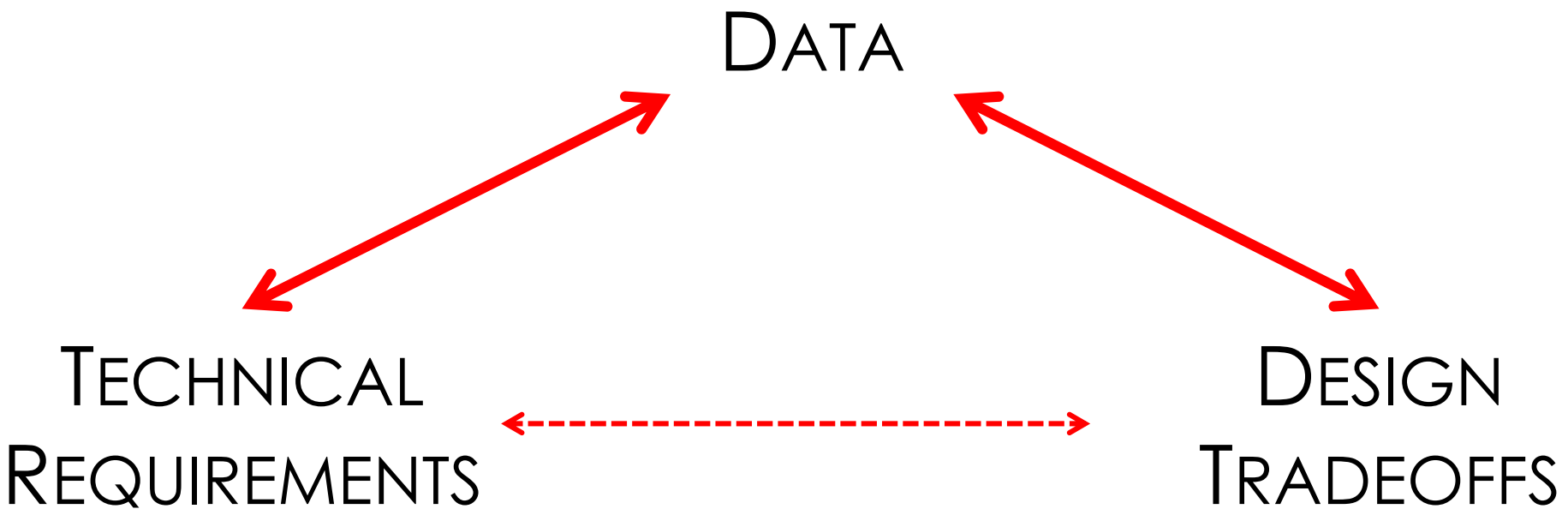
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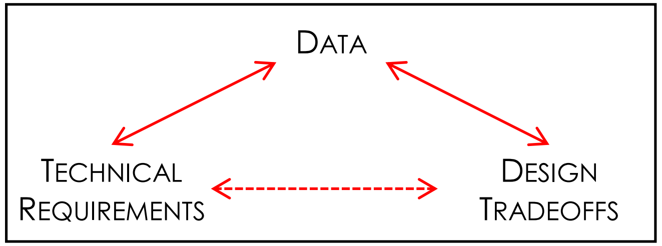
DESIGN TRADEOFFS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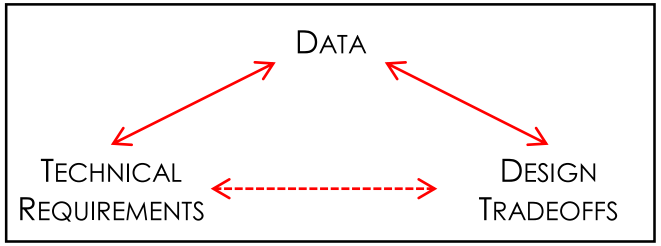
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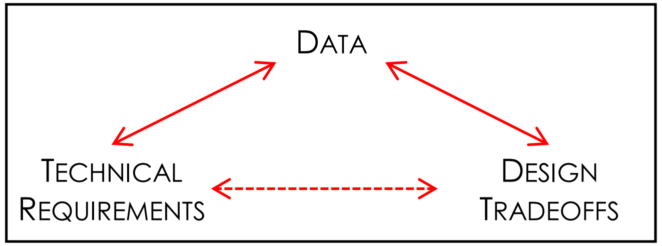
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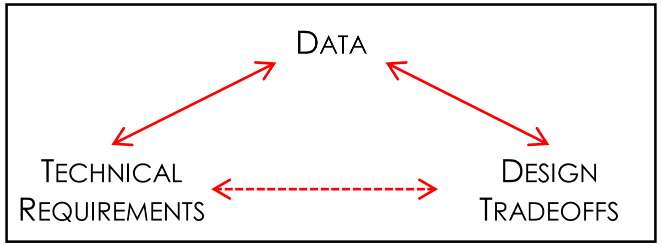
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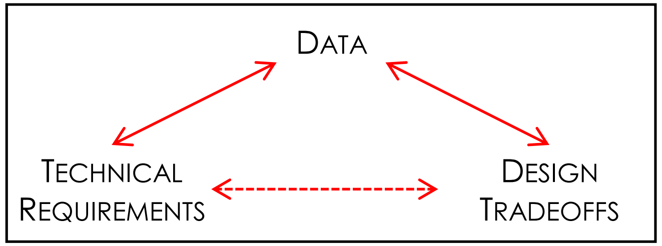
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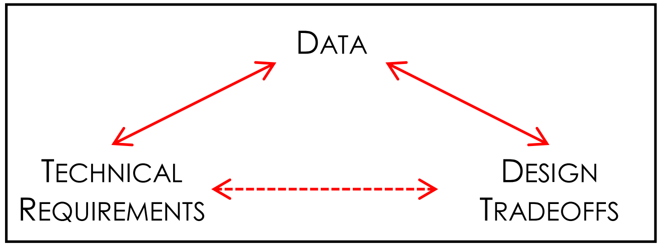
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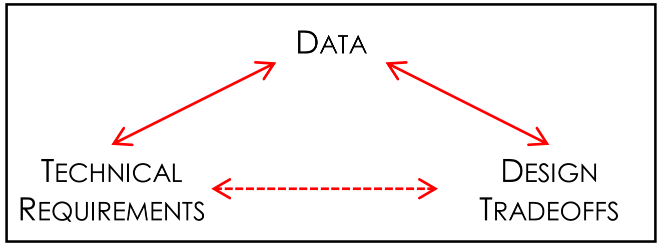
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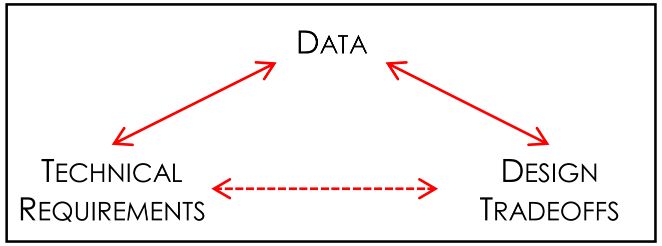
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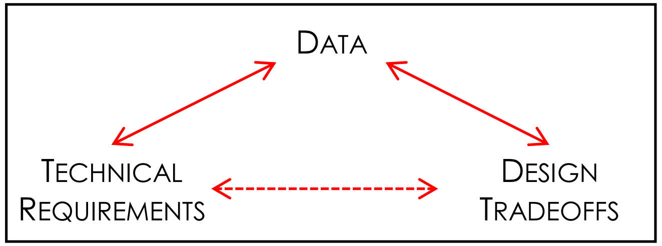
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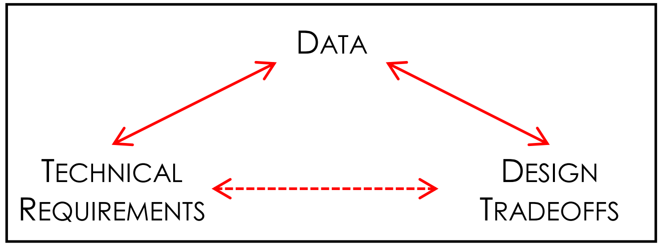
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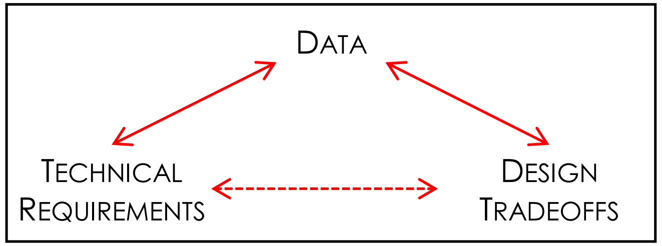
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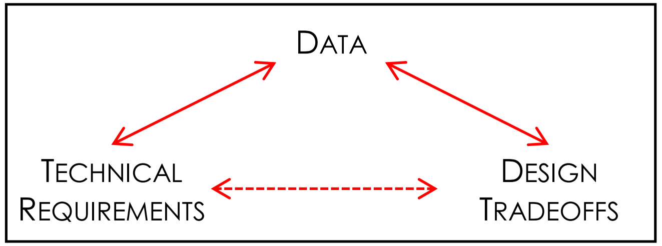
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Design Tradeoffs


Requirements
Data
Design
Requirements
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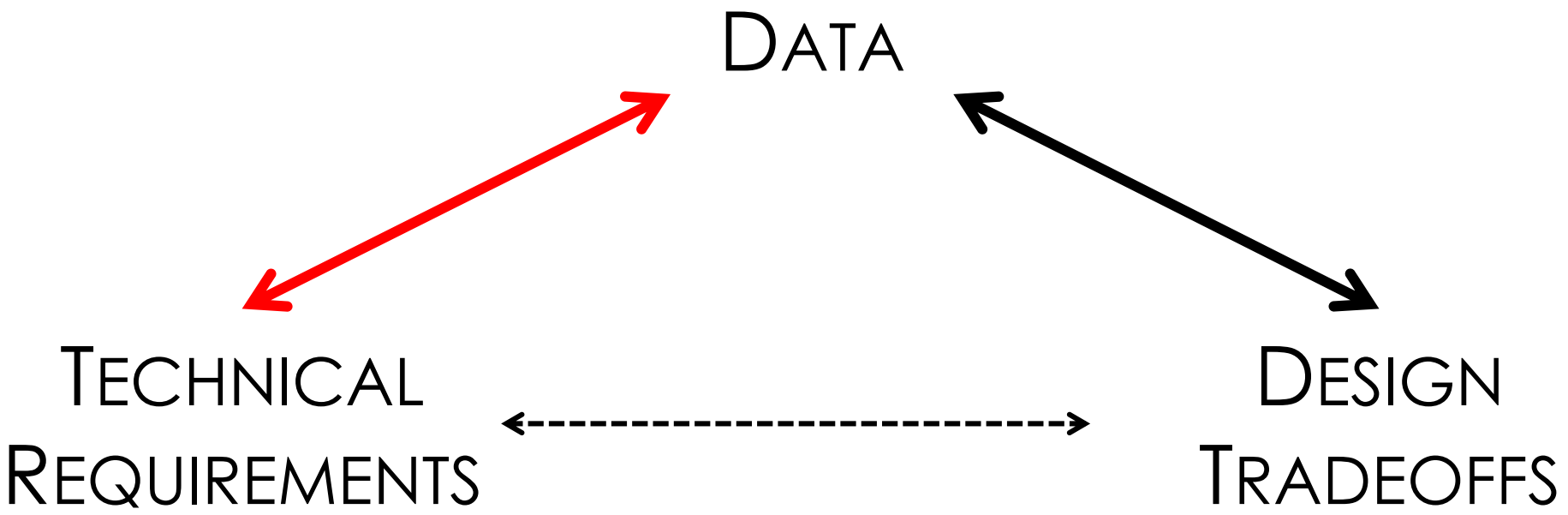
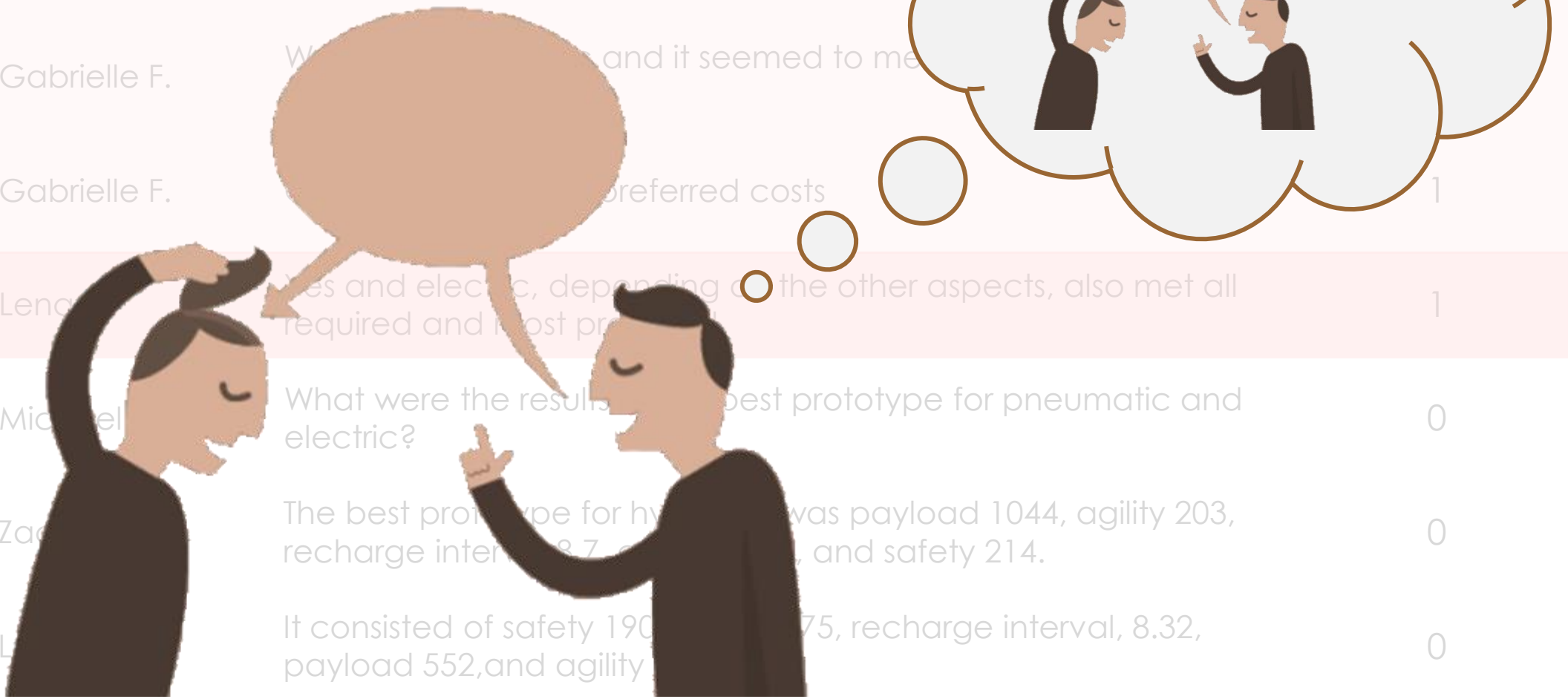
Design


DATA
TECHNICAL REQUIREMENTS
DESIGN TRADEOFFS

Zachary H.	For hydraulic, payload and recharge interval were strengths, but safety was close to the company requirement.	Technical Requirements
Daniel M.	Elizabeth that was very similar to my group. We were able to reach all internal consultant requests, but the machine costed a lot.	Technical Requirements
Gabrielle F.	We used Pneumatic and it seemed to meet everyone's required and most preferred!	Technical Requirements
Gabrielle F.	Ourcost always met preferred costs	
Lena H.	Yes and electric, depending on the other aspects, also met all required and most preferred	
Michael T.	What were the results of the best prototype for pneumatic and electric?	Data

		Technical Requirements	Data
Zachary H.	For hydraulic, payload and recharge interval were strengths, but safety was close to the company requirement.	1	0
Daniel M.	Elizabeth that was very similar to my group. We were able to reach all internal consultant requests, but the machine costed a lot.	1	0
Gabrielle F.	We used Pneumatic and it seemed to meet everyone's required and most preferred!	1	0
Gabrielle F.	Ourcost always met preferred costs	1	0
Lena H.	Yes and electric, depending on the other aspects, also met all required and most preferred	1	0
Michael T.	What were the results of the best prototype for pneumatic and electric?	0	1
Zachary H.	The best prototype for hydraulic was payload 1044, agility 203, recharge interval 8.7, cost $14540, and safety 214.	0	1
Lena H.	It consisted of safety 190, cost 12875, recharge interval, 8.32, payload 552,and agility 263	0	1

		Technical Requirements	Data
Zachary H.	For hydraulic, payload and recharge interval w safety was close to the company requirem		0
Daniel M.	Elizabeth that was very similar to my group all internal consultant requests, but the ma		0
Gabrielle F.	W and it seemed to me		0
Gabrielle F.	preferred costs	1	0
Lena	yes and electric, depending on the other aspects, also met all required and most pr	1	0
Mic el	What were the result best prototype for pneumatic and electric?	0	1
Zac	The best prot ype for hy was payload 1044, agility 203, recharge inter 8.7 , and safety 214.	0	1
L	It consisted of safety 190 75, recharge interval, 8.32, payload 552,and agility	0	1



		Technical Requirements	Data
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Daniel M.			
Gabrielle F.	Common Ground		
Gabrielle F.			
Lena H.	Yes and electric, depending on the other aspects, also met all required and most preferred	1	0
Michael T.	What were the results of the best prototype for pneumatic and electric?	0	1
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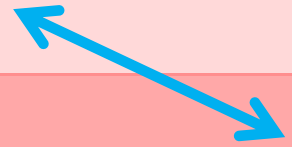

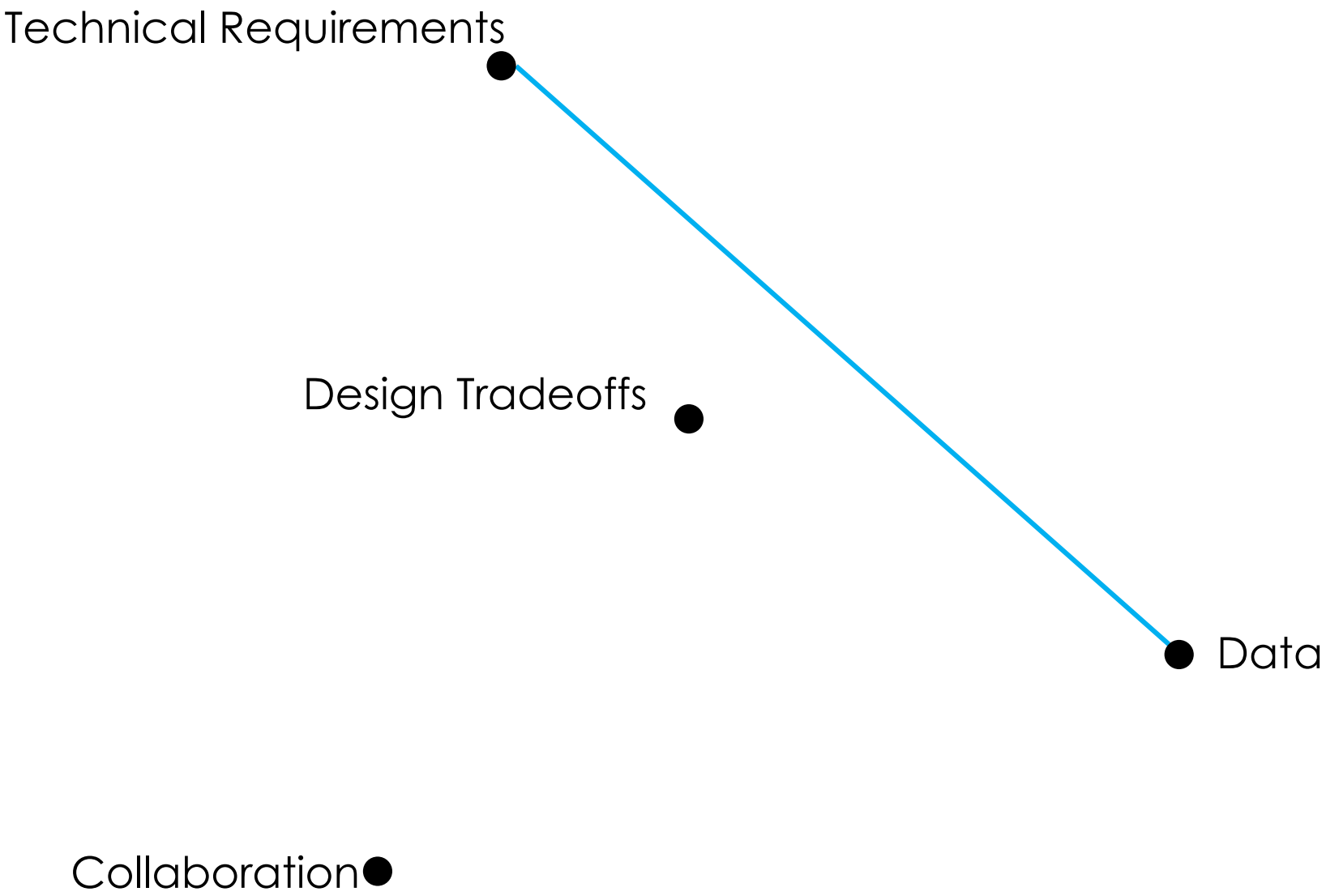
Technical Requirements
Design Tradeoffs
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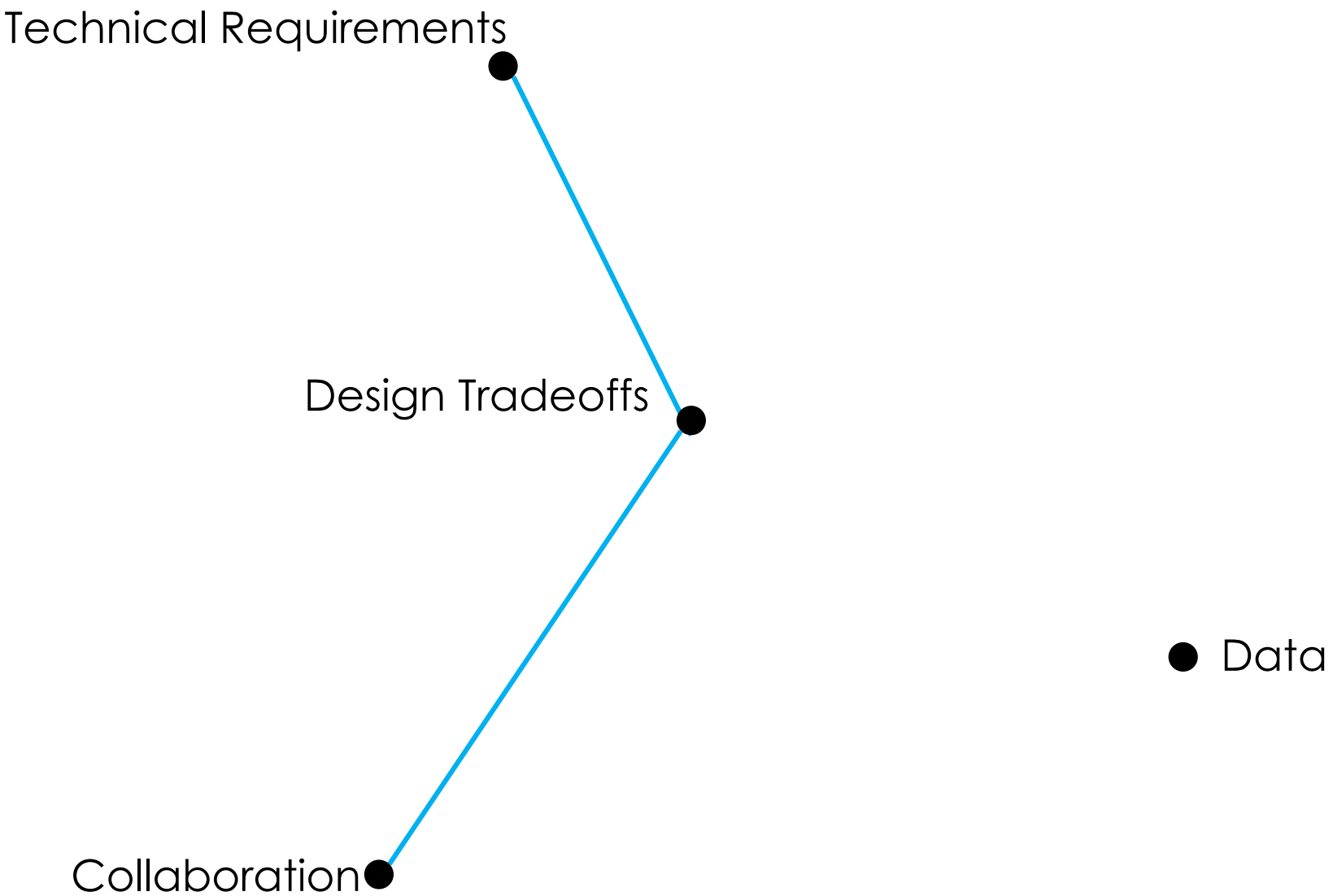
Collaboration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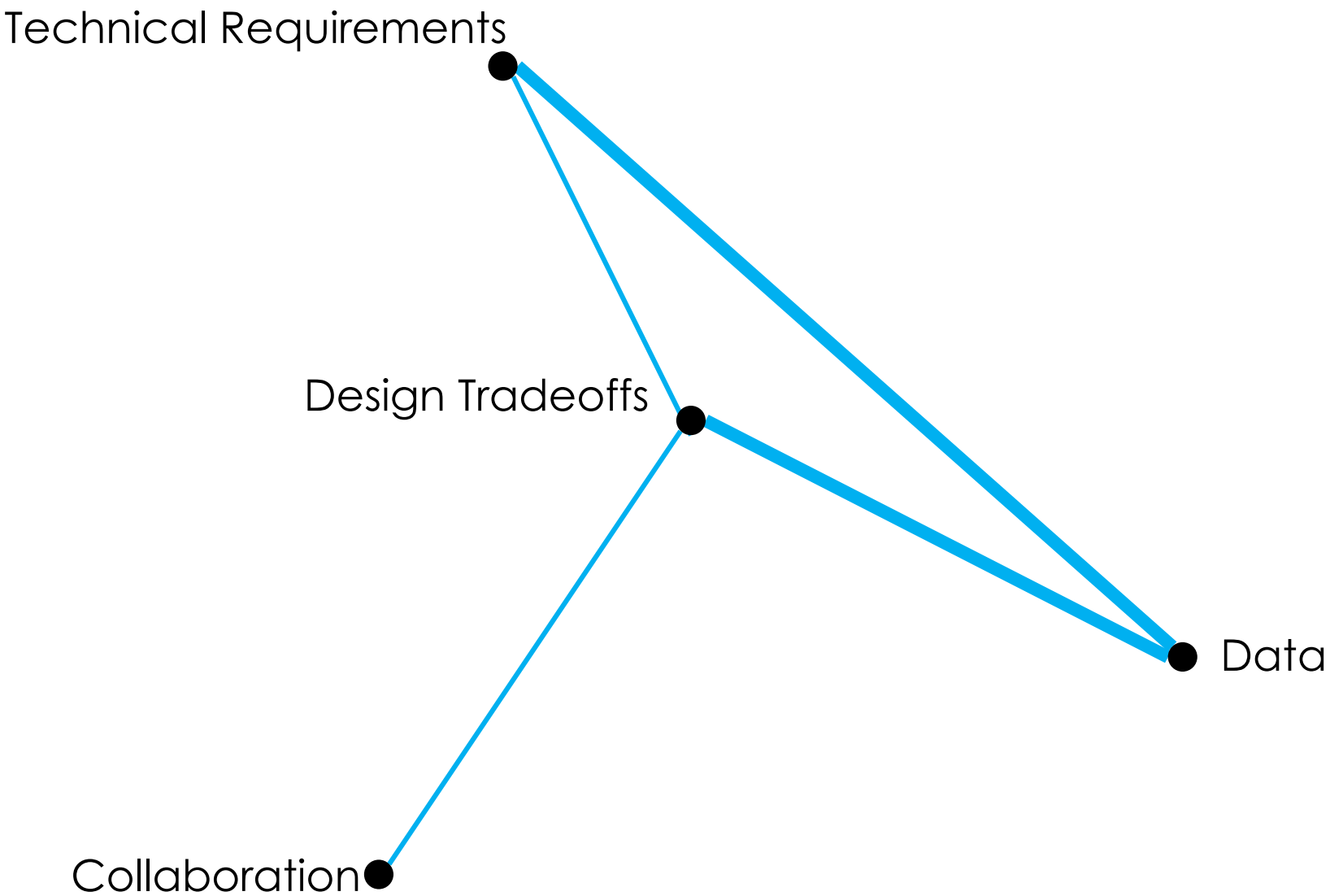
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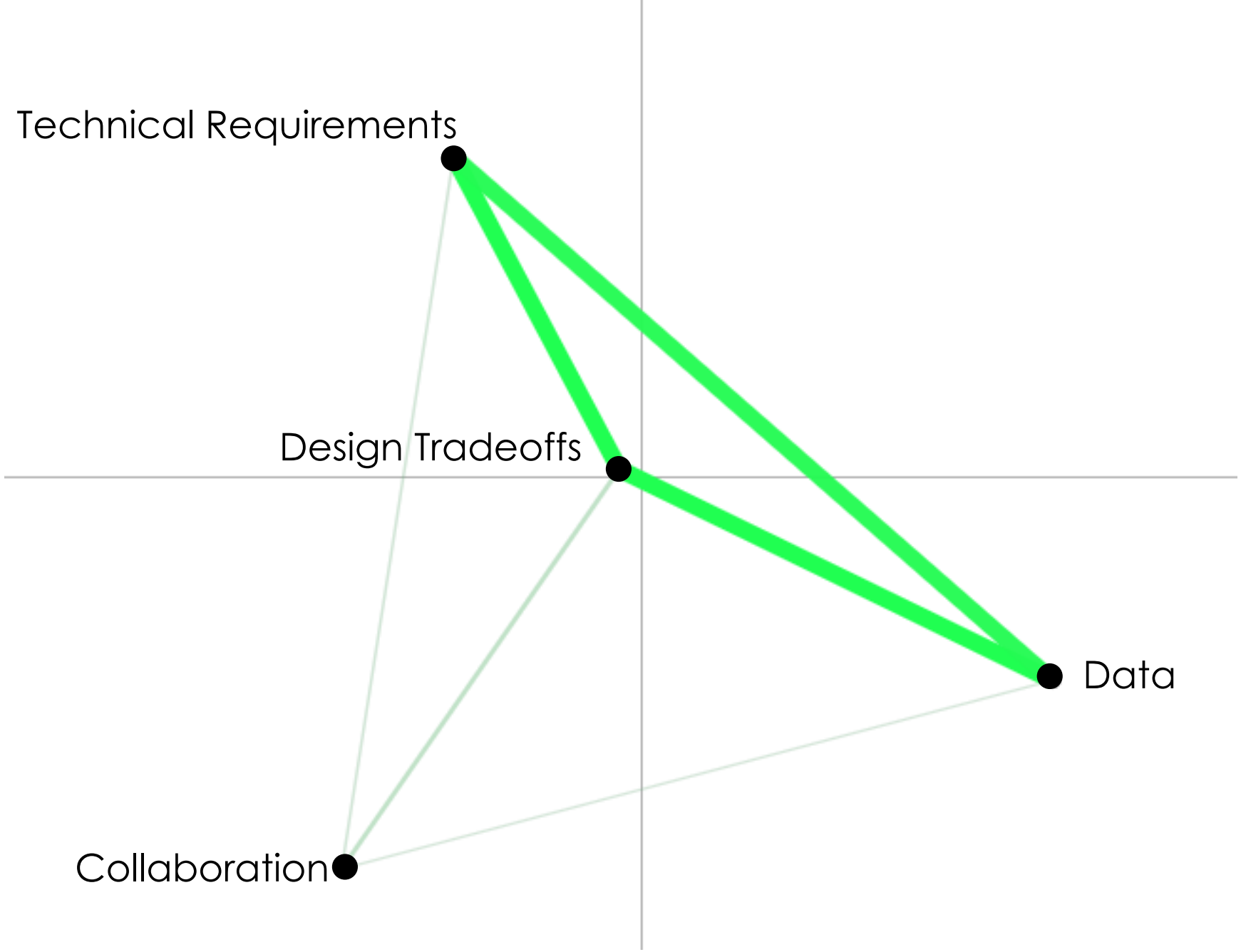
Epistemic Network Analysis (ENA)

VIDEO AT:

HTTP://WWW.EPISTEMICANALYTICS.ORG/2017/01/25/ANALYZING-CONVERSATIONS-USING-ENA/

Justin Kim	Please take a moment to introduce yourselves and indicate what actuator you have experience with.
Elizabeth E.	Hi everybody!
Gabrielle F.	Hi I'm Gabby
Elizabeth E.	I'm Elizabeth, and I spent the first part of this internship working with PAM
Gabrielle F.	I'm from Pneumatic
Lena H.	I am Lena and I worked with electric
Michael T.	I'm Michael and I also worked with PAM
Daniel M.	Im Danny and worked with series
Daniel M.	So what was everyones results?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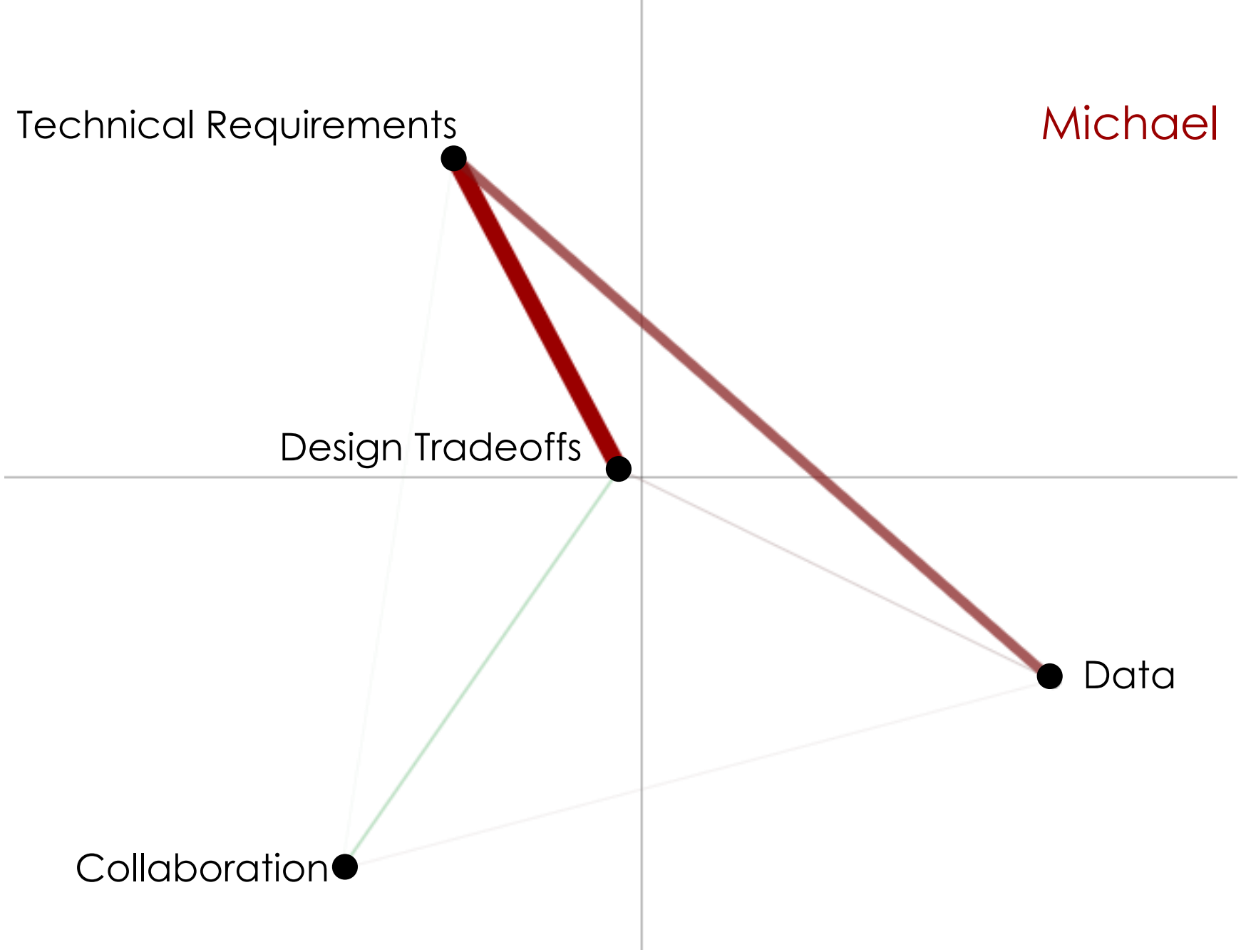
Technical Requirements
Michael
Design Tradeoffs
Data
Collaboration

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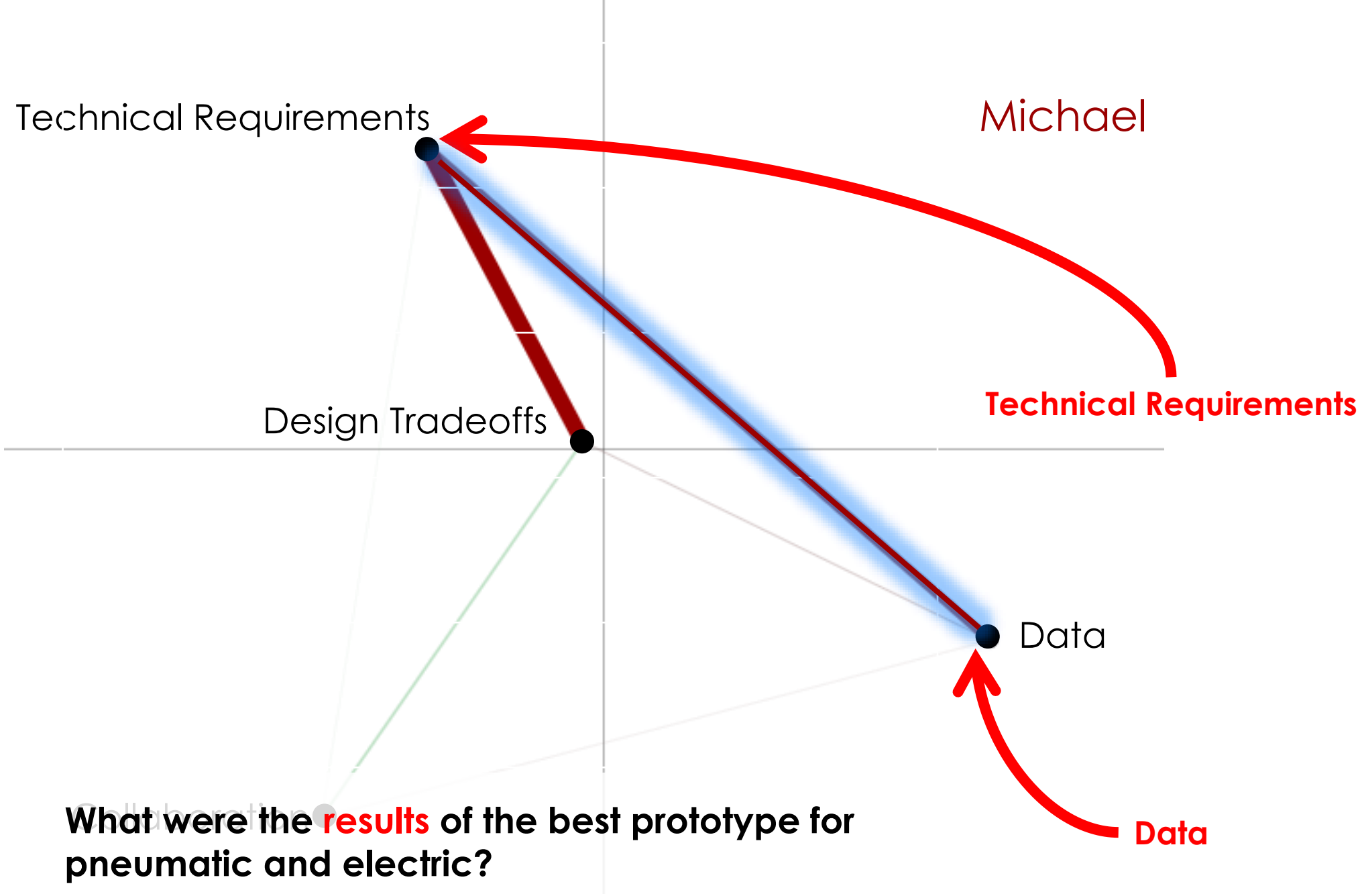
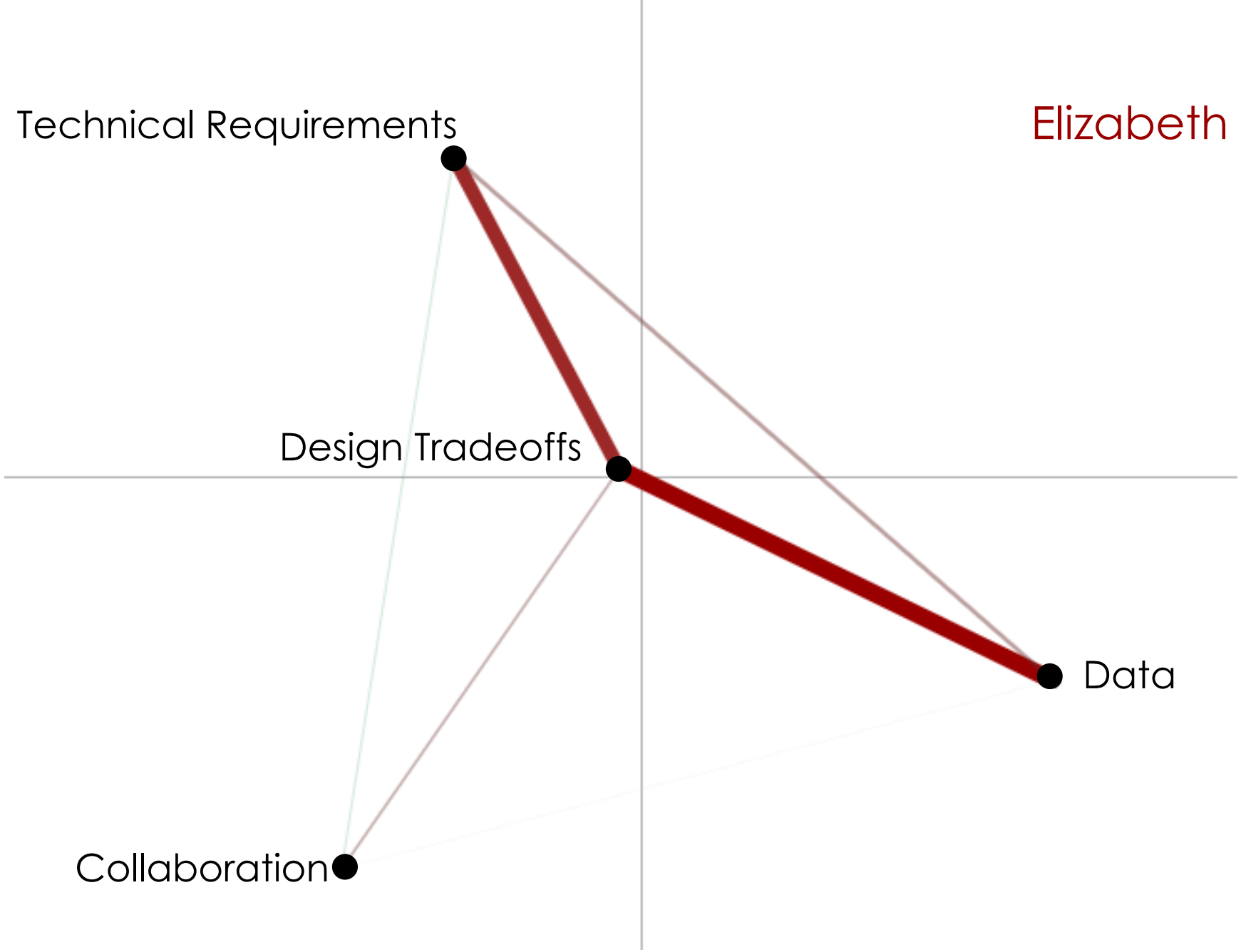
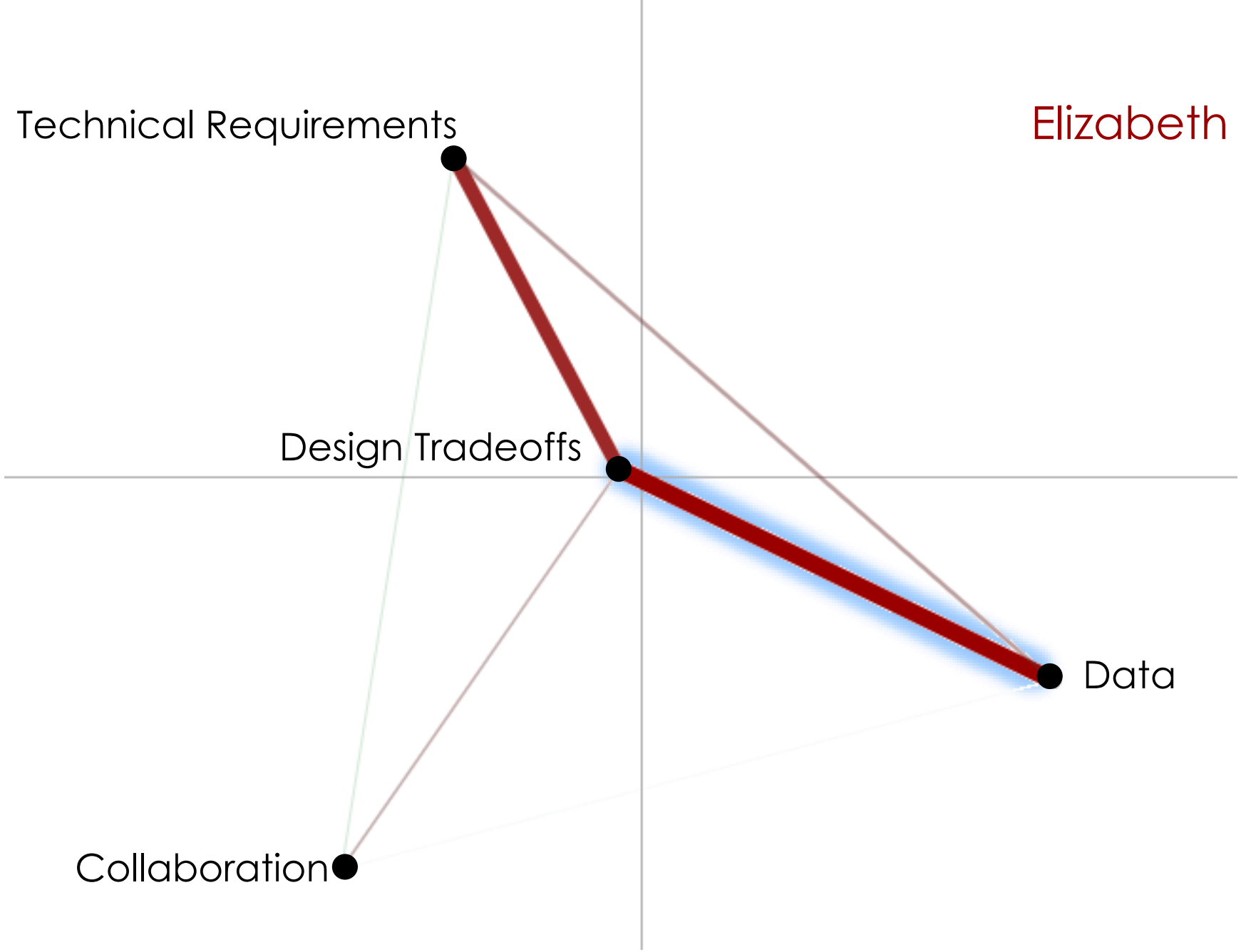
Michael T.	**What were the results of the best prototype for pneumatic and electric?**	**Data**



Michael T.

What were the results of the best prototype for pneumatic and electric?


Technical Requirements
Elizabeth
Design Tradeoffs
Data
Collaboration


Technical Requirements
Elizabeth
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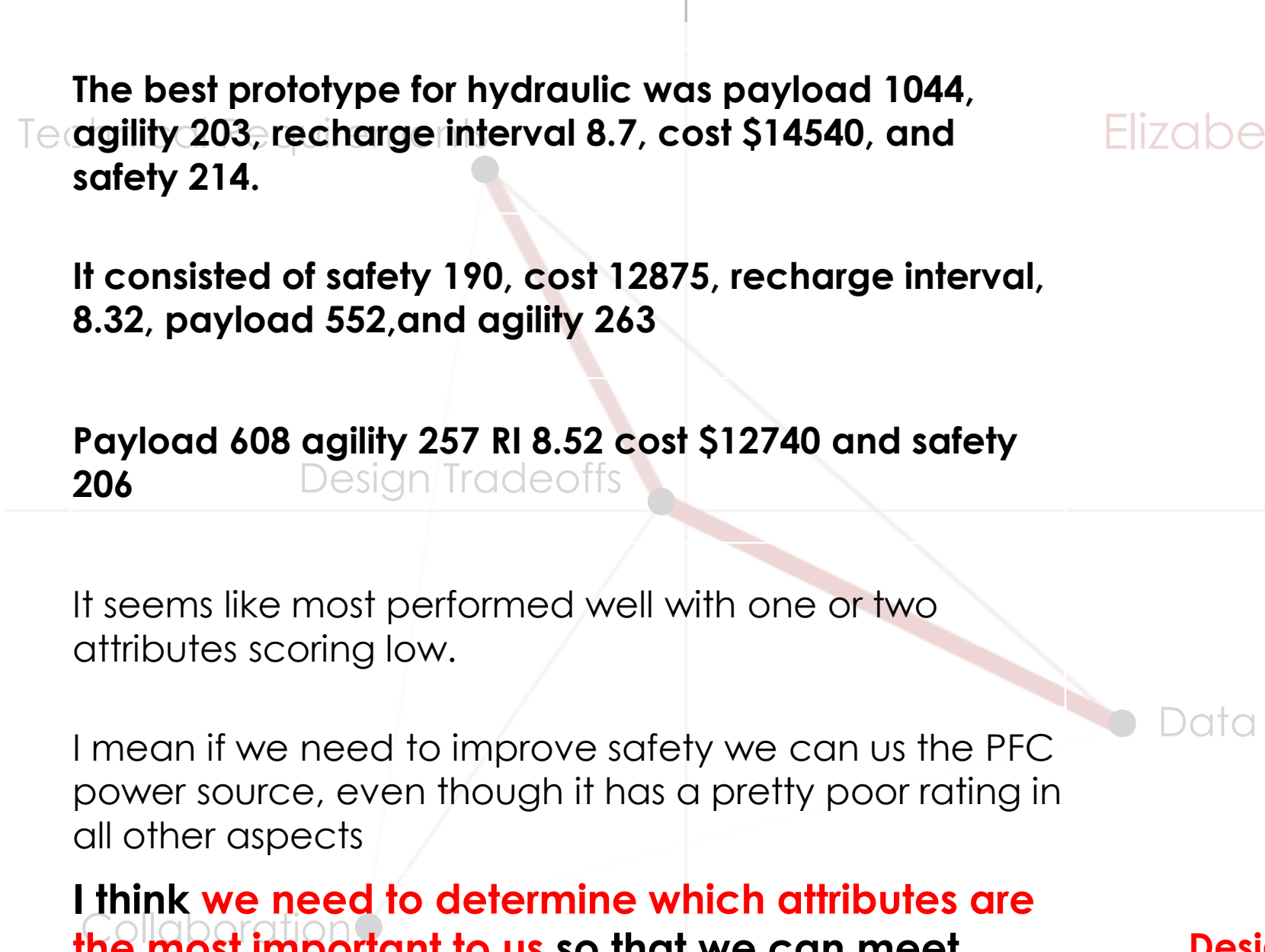
Collaboration



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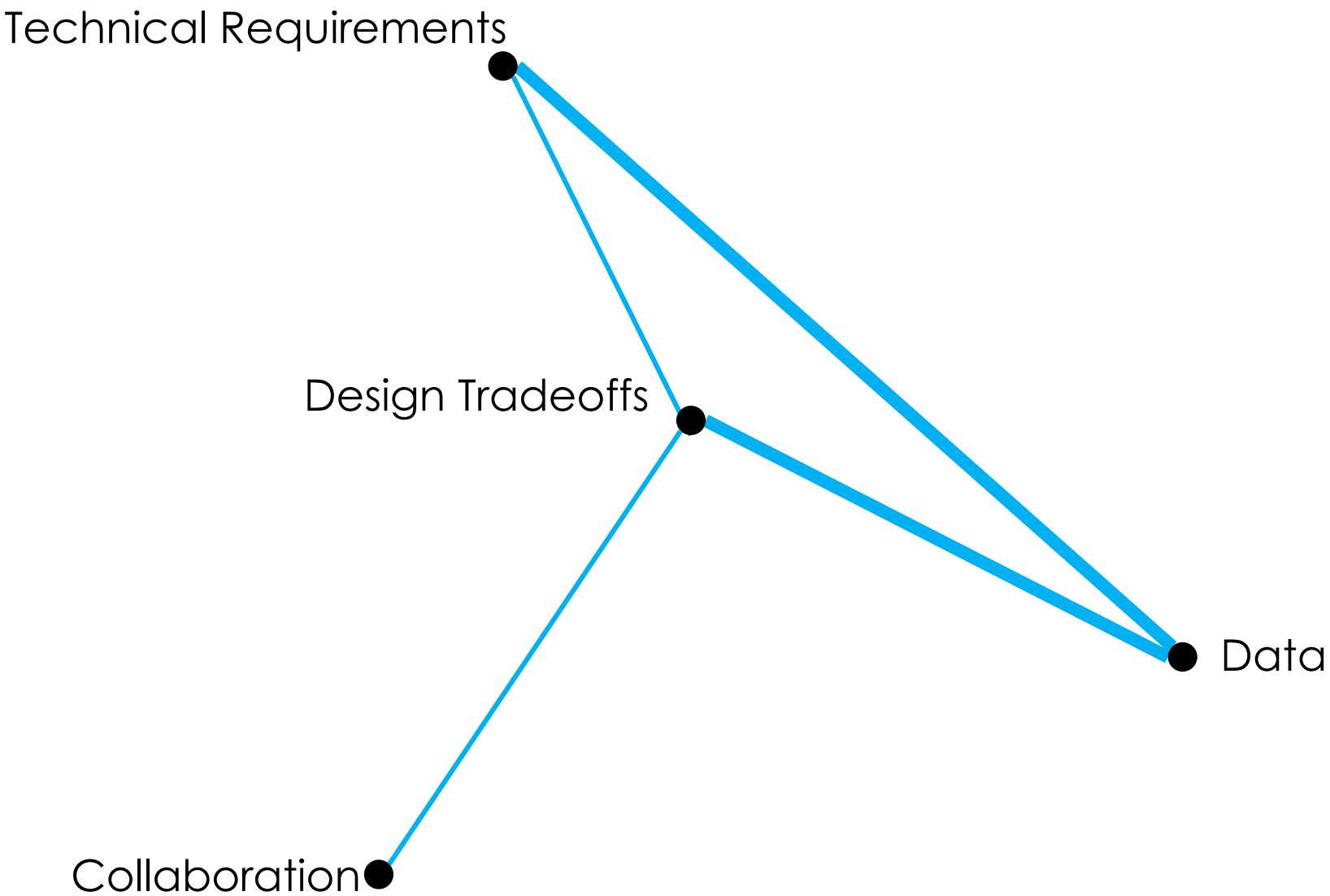
Lena H.	**It consisted of safety 190, cost 12875, recharge interval, 8.32, payload 552,and agility 263**	**Data**
Gabrielle F.	**Payload 608 agility 257 RI 8.52 cost $12740 and safety 206**	**Data**
Zachary H.	It seems like most performed well with one or two attributes scoring low.	
Lena H.	I mean if we need to improve safety we can us the PFC power source, even though it has a pretty poor rating in all other aspects	
Elizabeth E.	**I think we need to determine which attributes are the most important to us so that we can meet those internal requirements and then just company for the ones we find less important**	**Design Tradeoffs**


Technical Requirements
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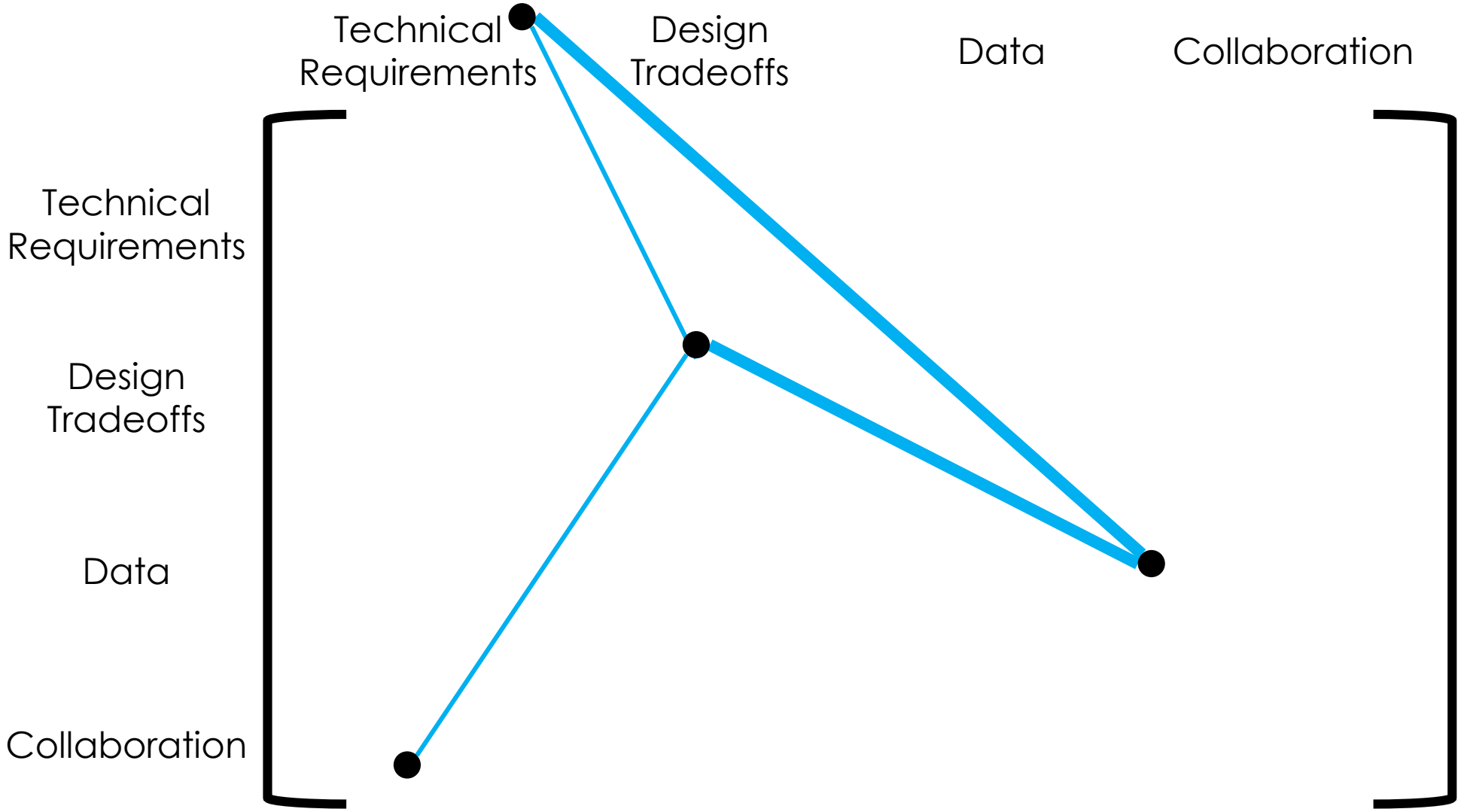
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Design Tradeoffs
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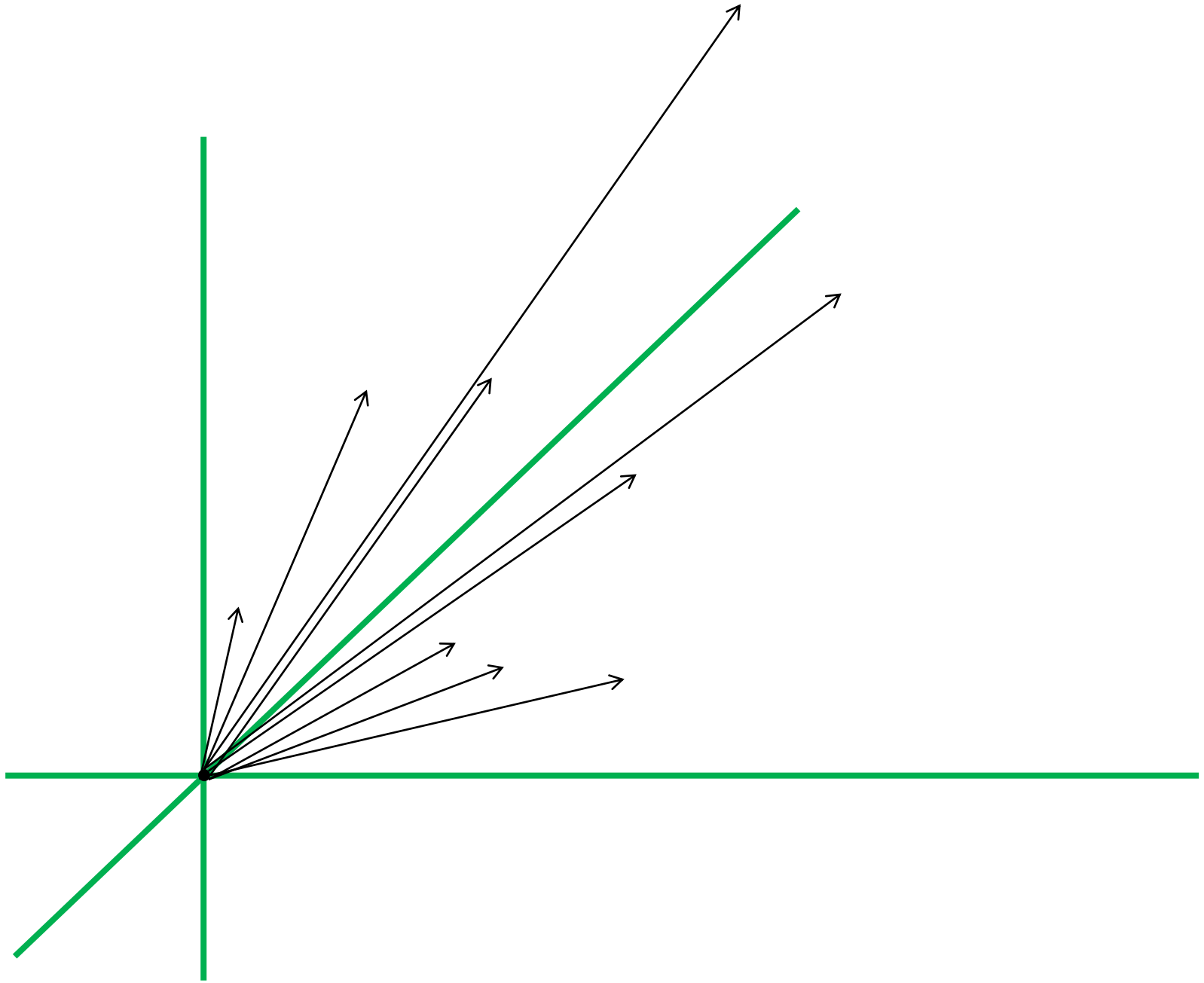
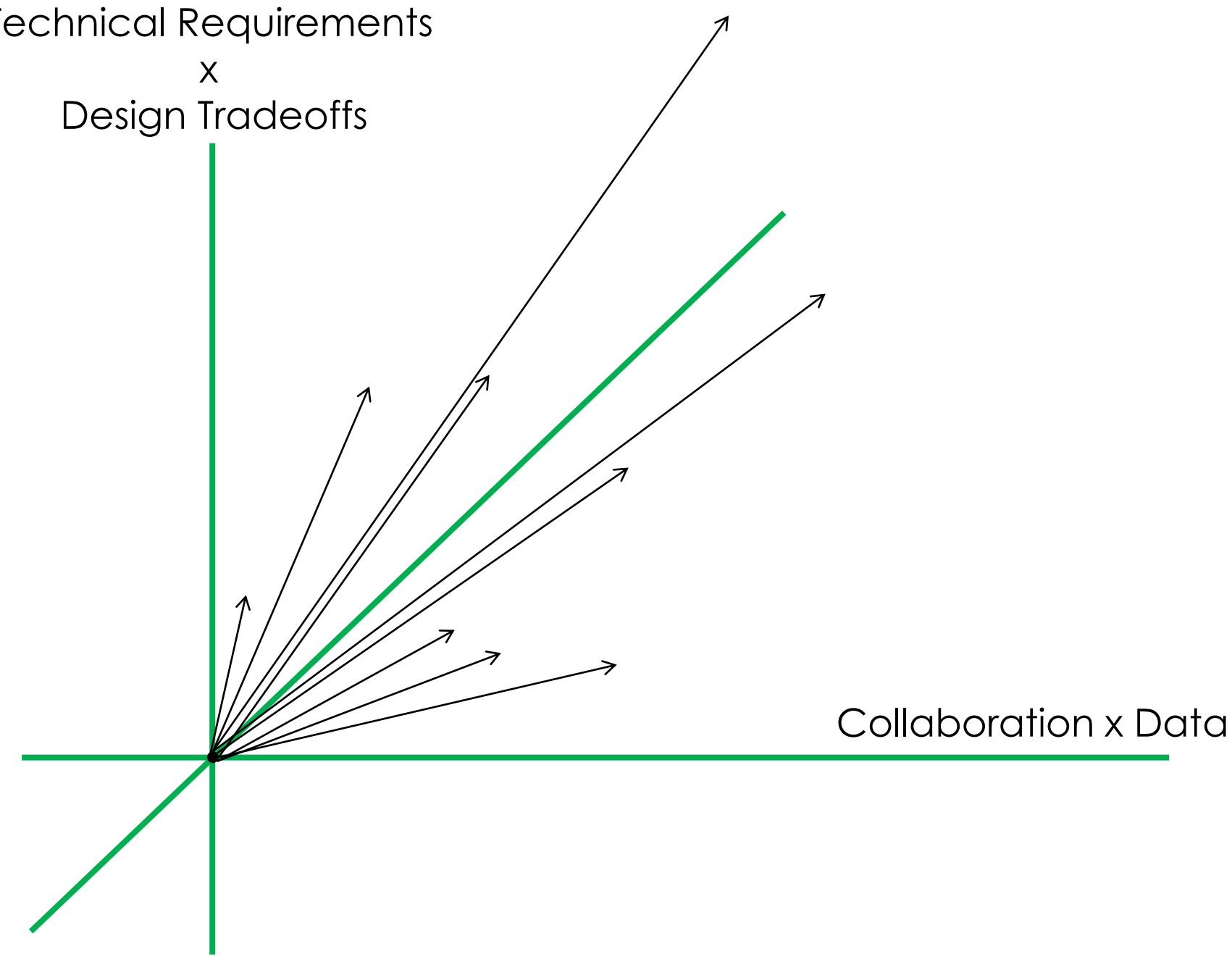
Technical Requirements
Design Tradeoffs
Data
Collaboration

	Technical Requirements	Design Tradeoffs	Data	Collaboration
Technical Requirements	**0**	**5**	**3**	**1**
Design Tradeoffs	**5**	**0**	**2**	**4**
Data	**3**	**2**	**0**	**1**
Collaboration	**1**	**4**	**1**	**0**

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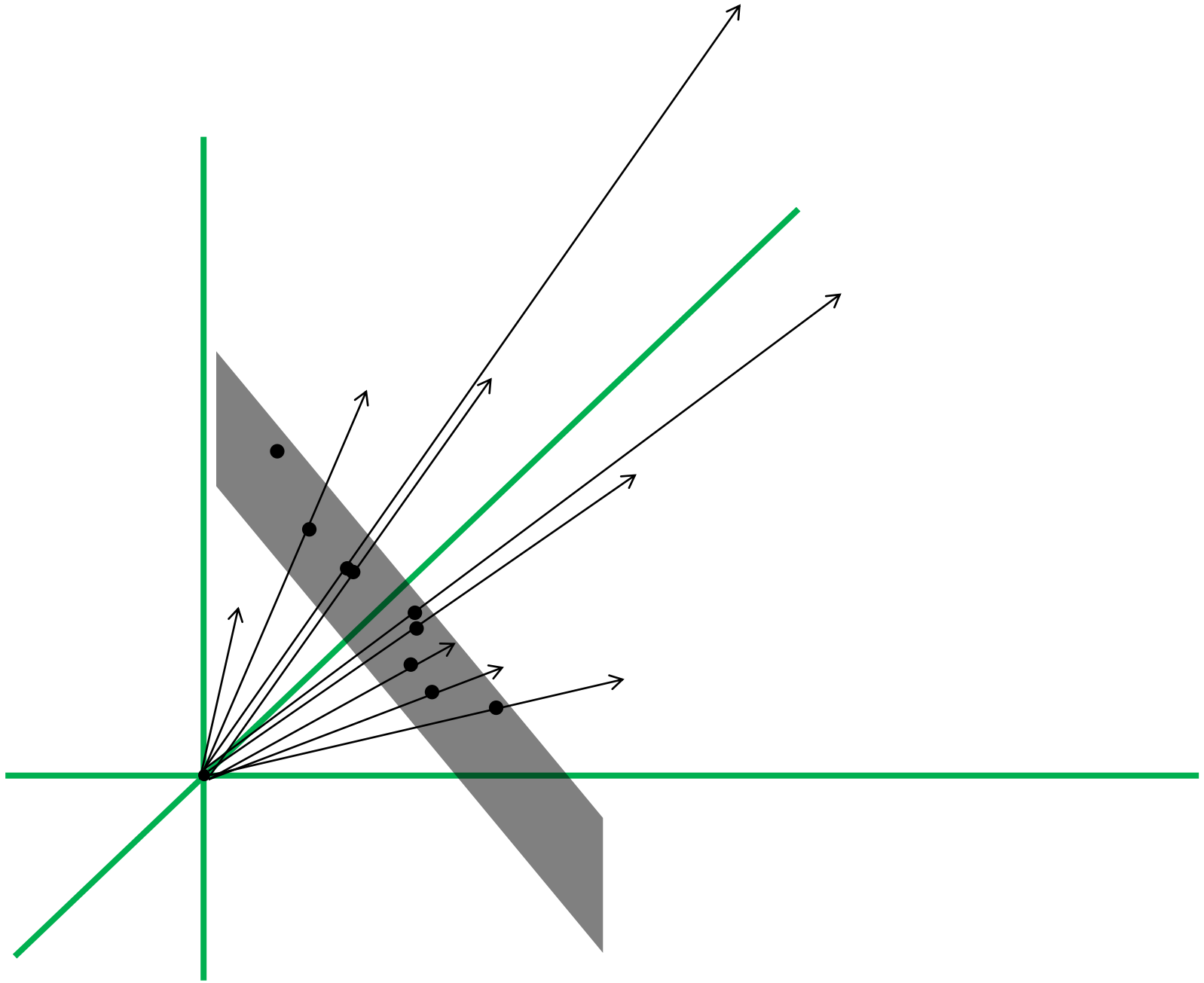
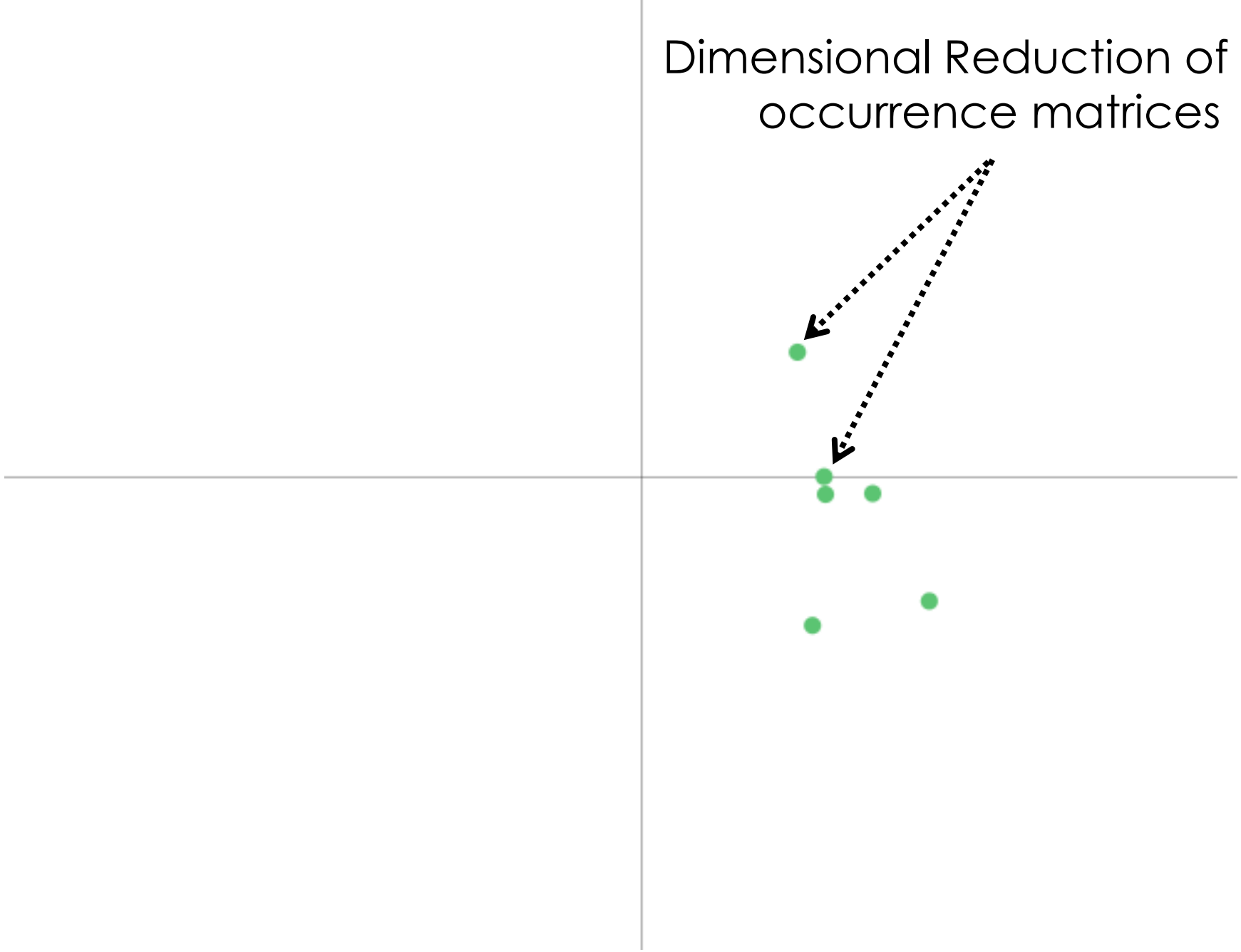
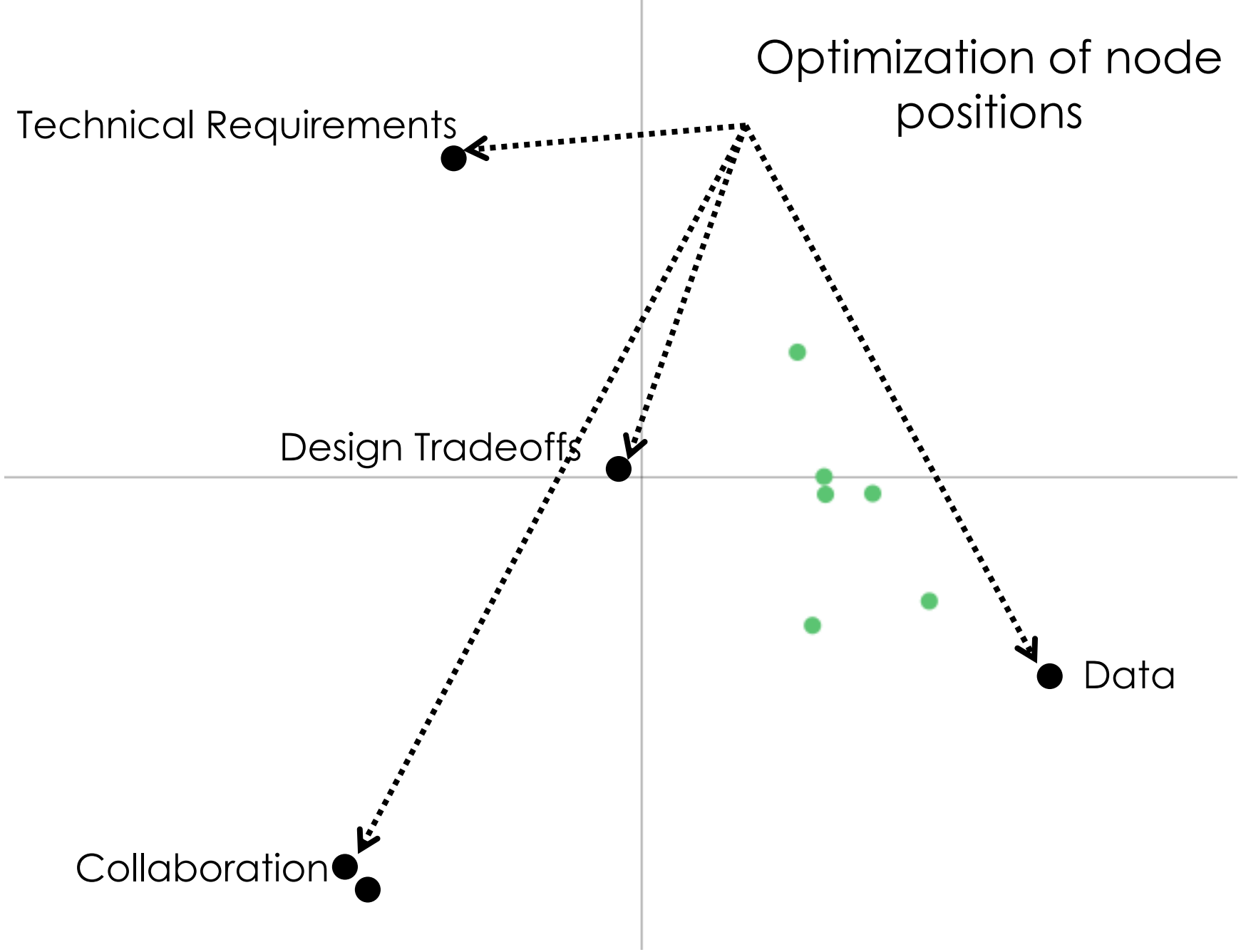
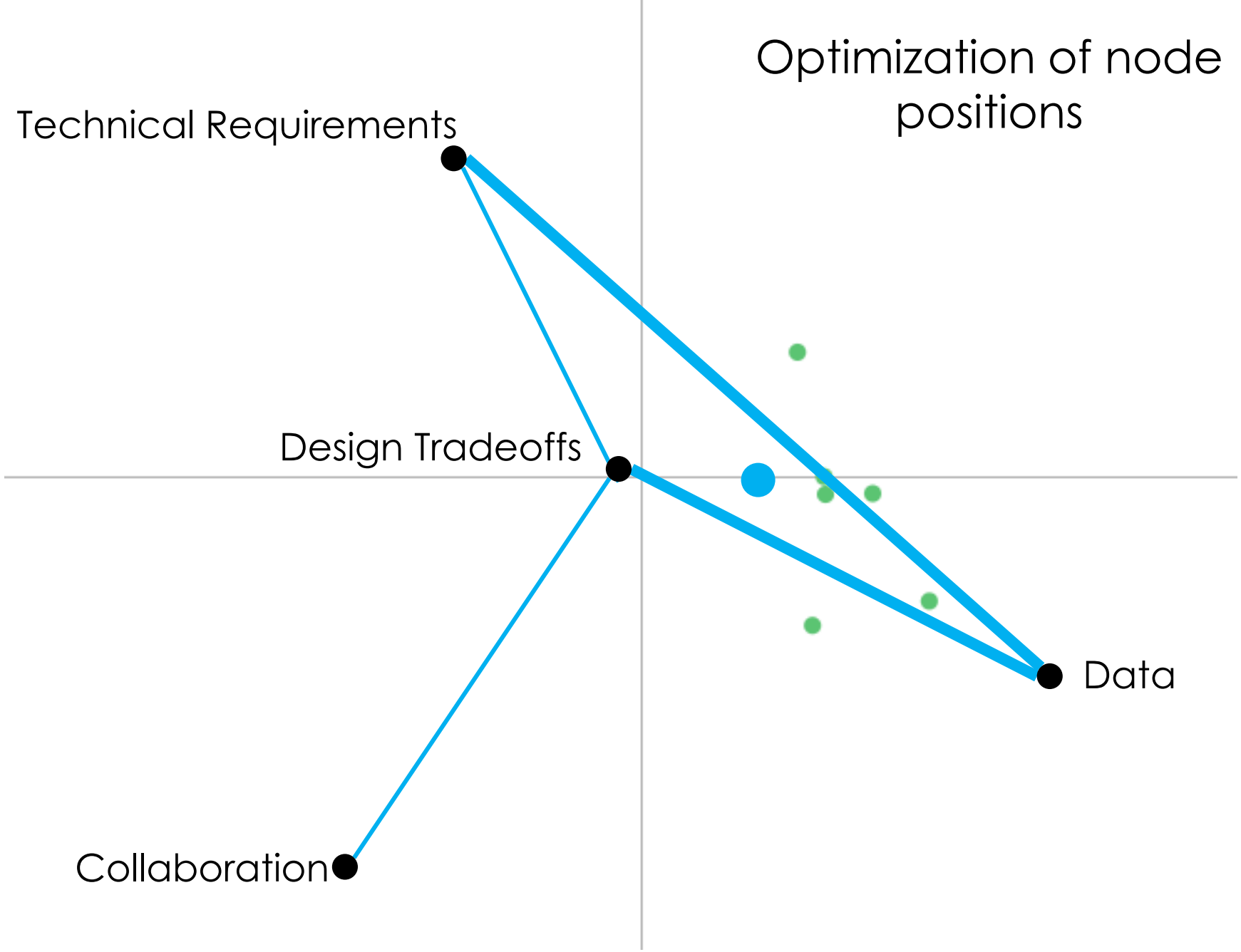


Dimensional Reduction of co-occurrence matrices




Optimization of node positions
Technical Requirements
Design Tradeoffs
Data
Collaboration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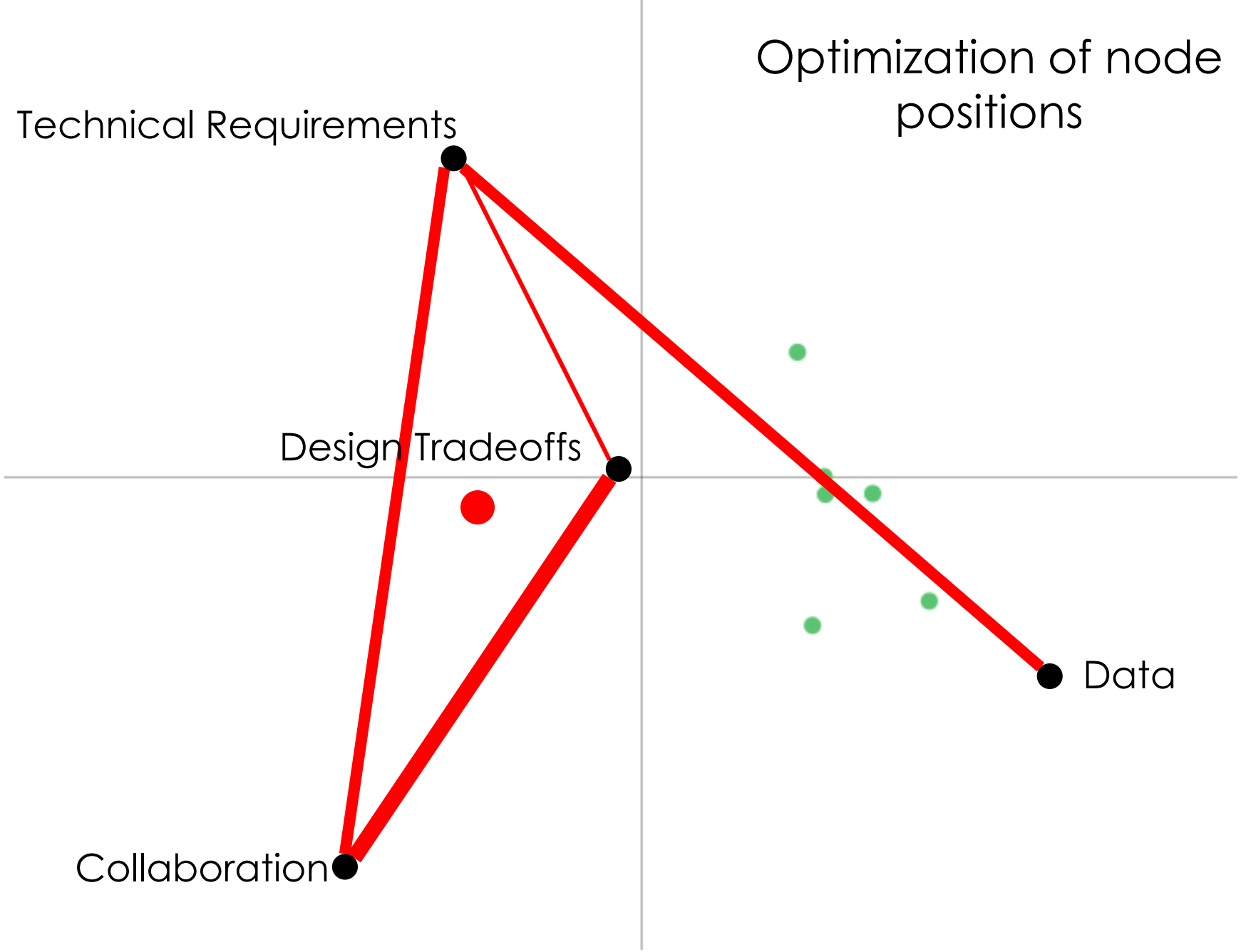
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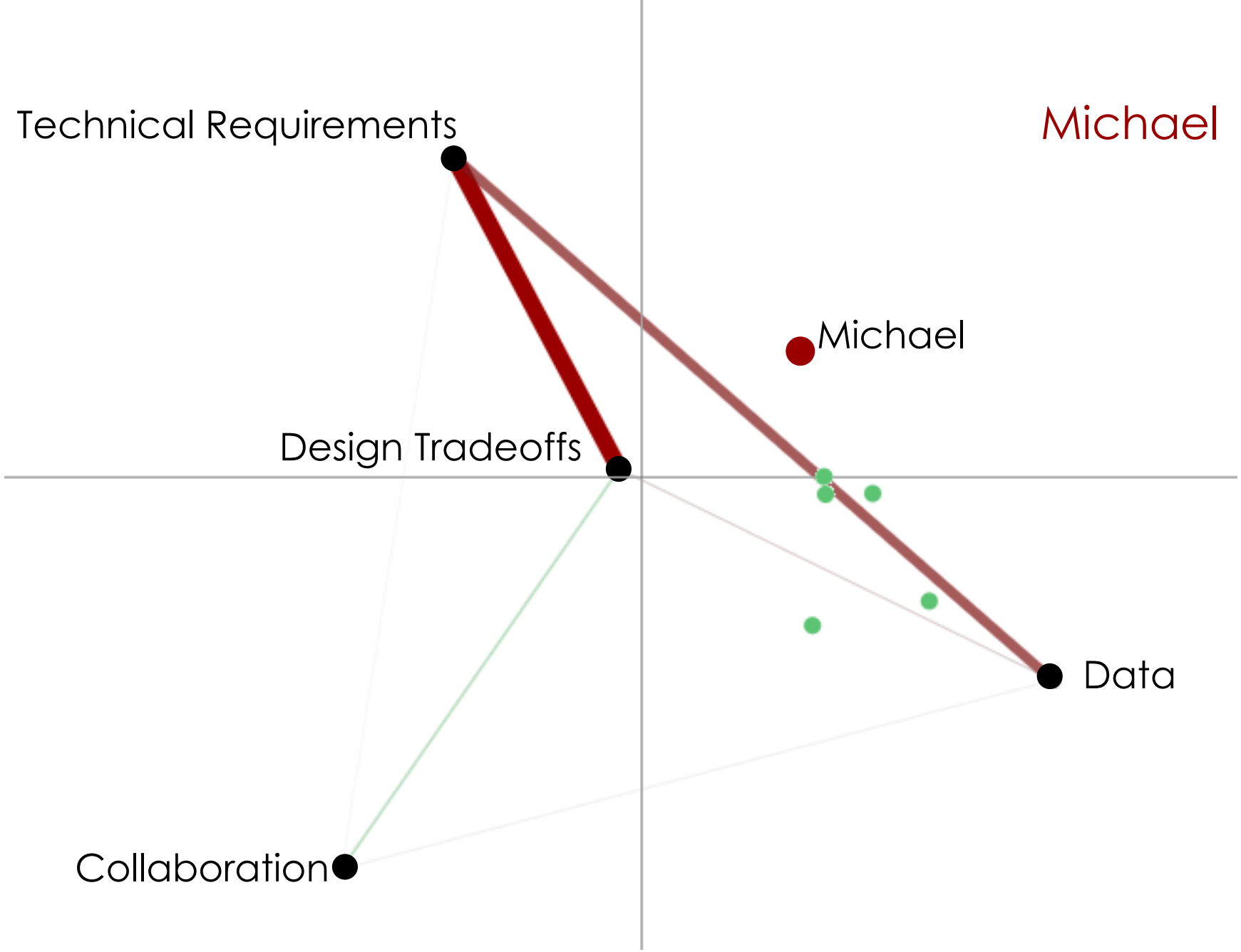
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Michael
Design Tradeoffs
Data
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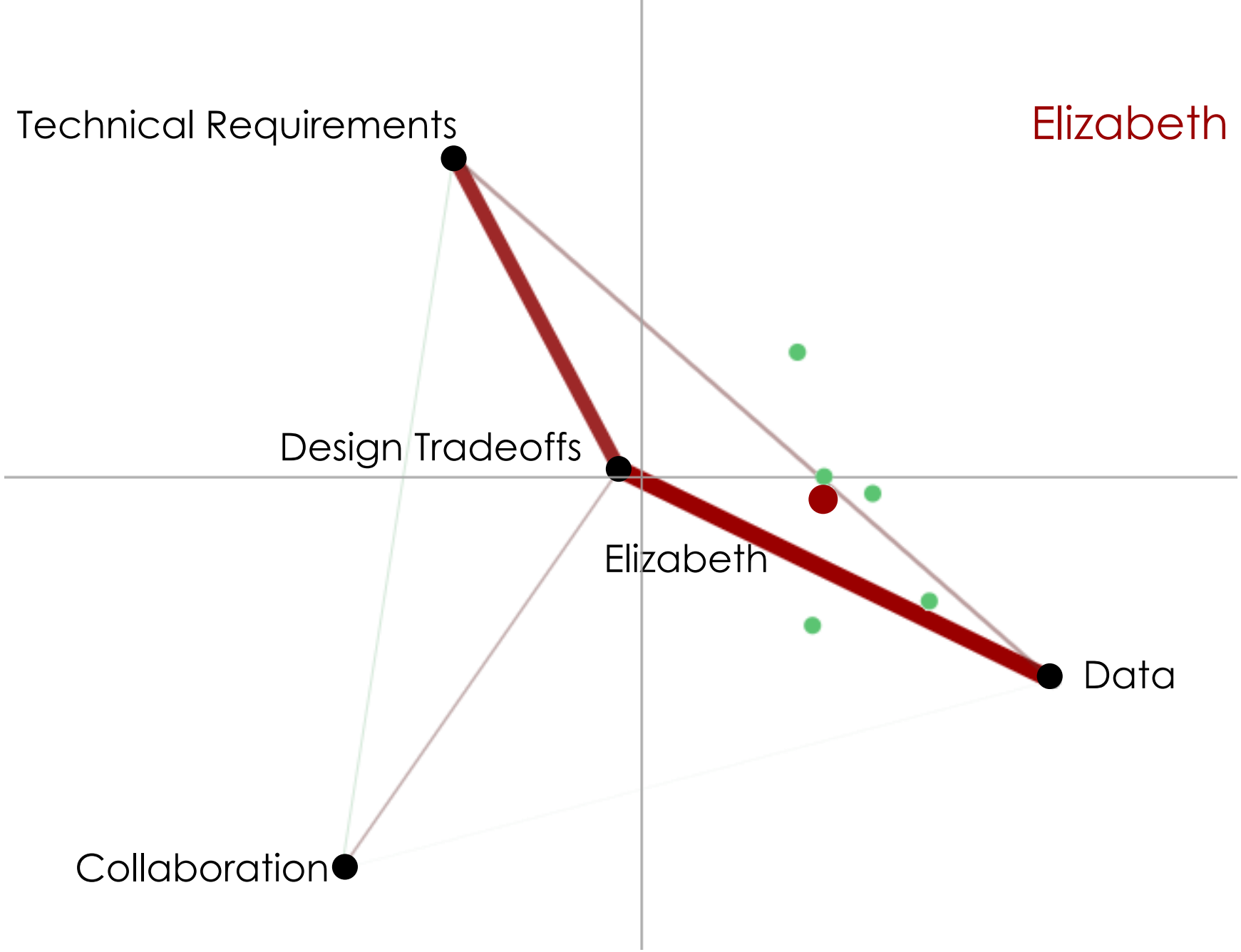
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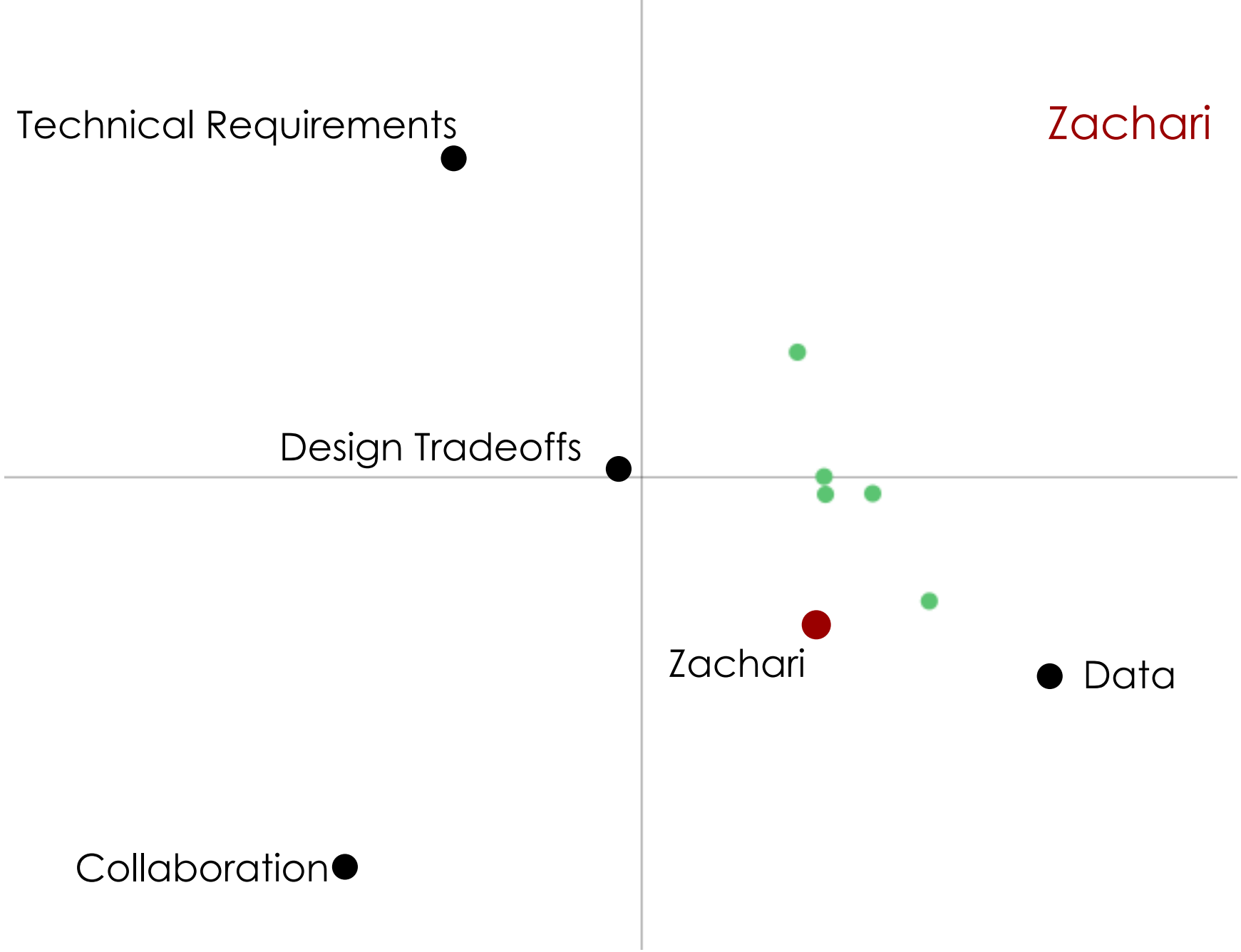
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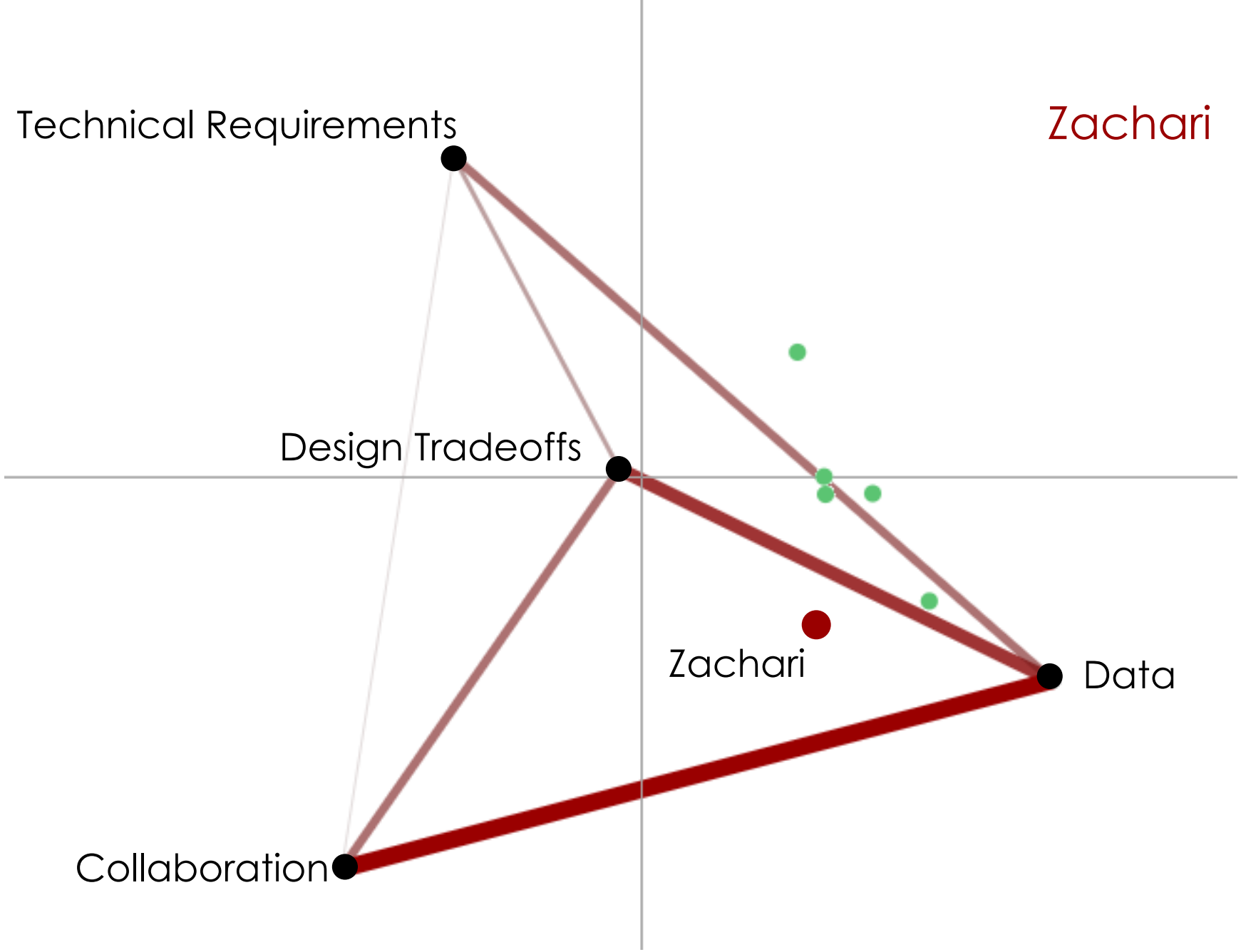
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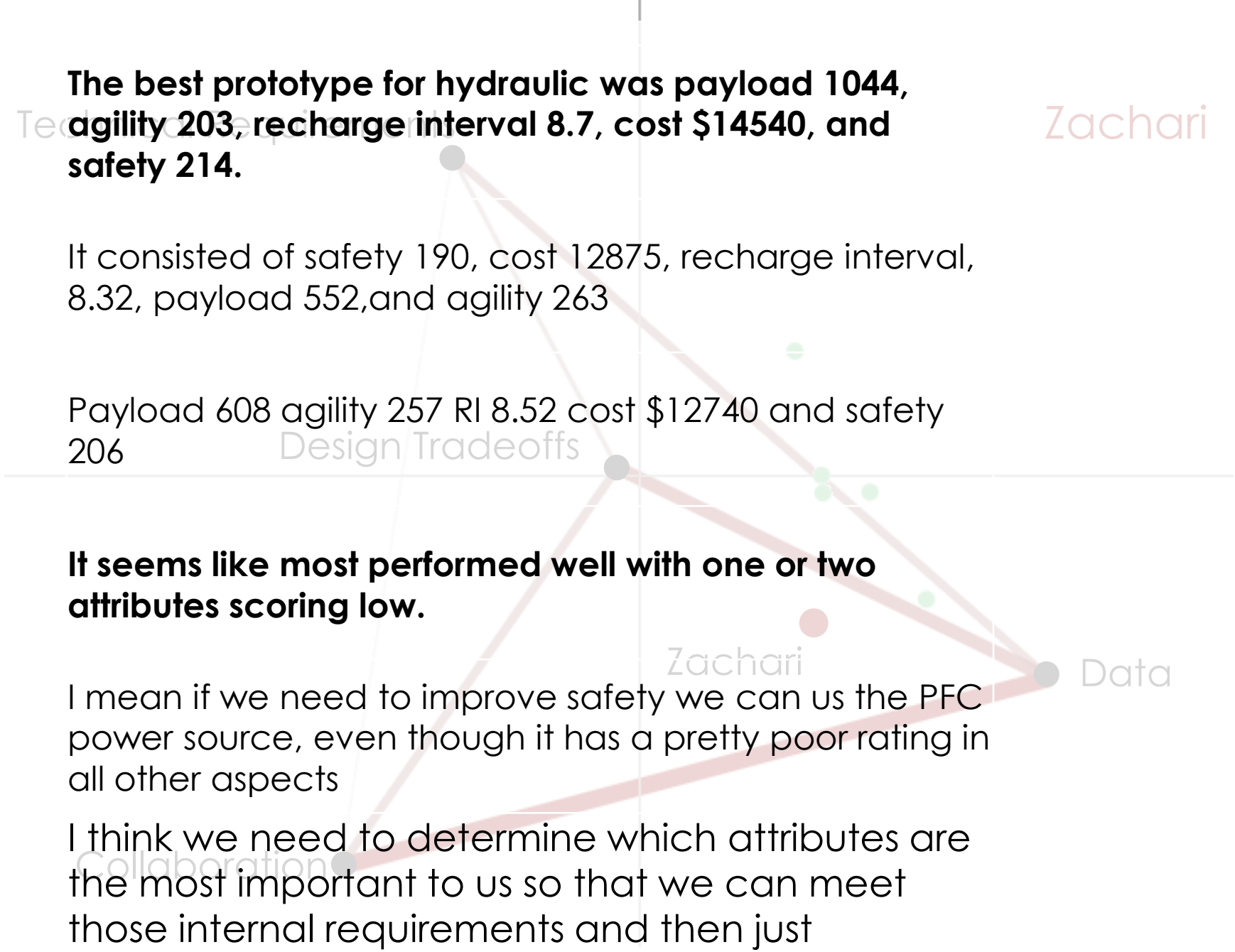

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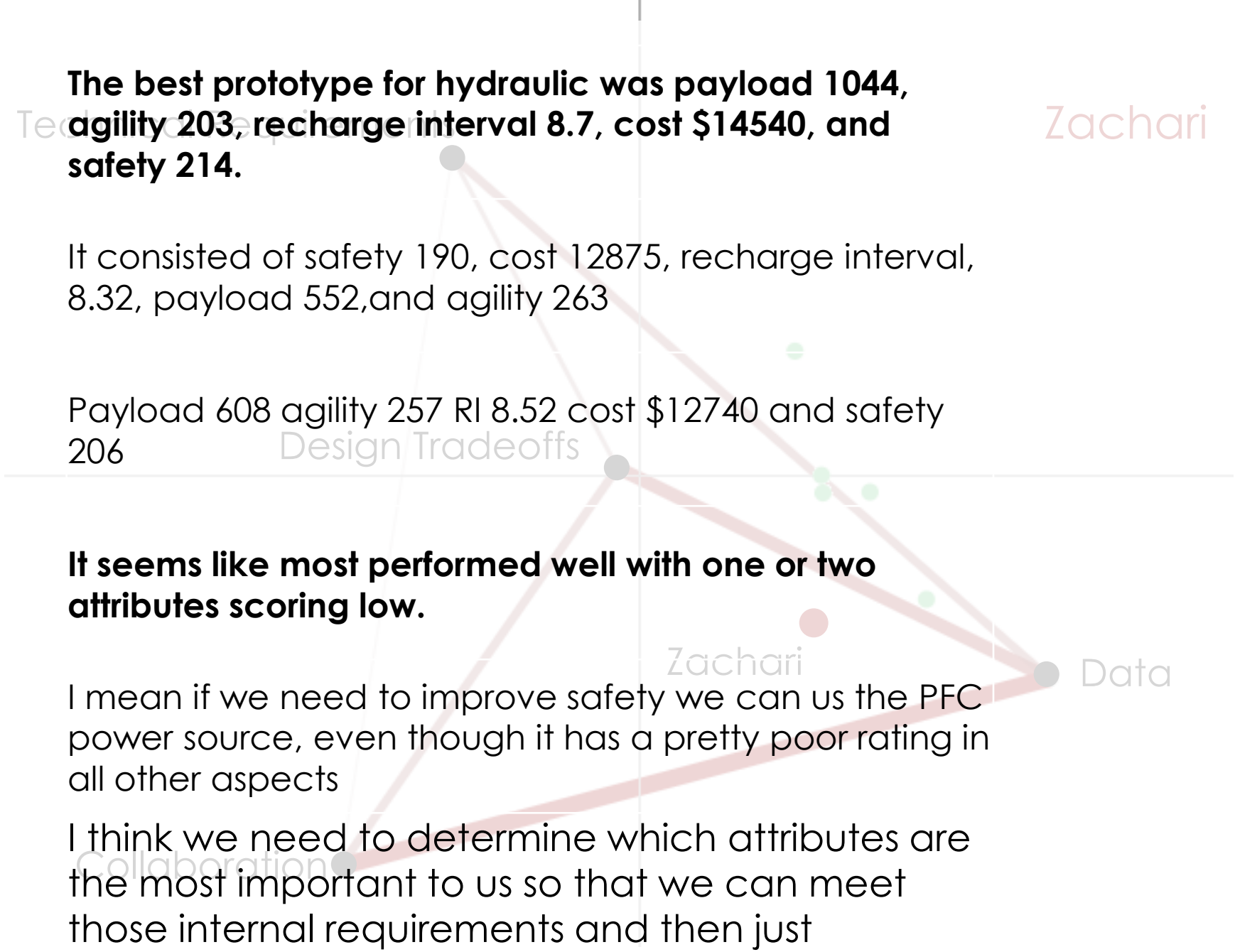

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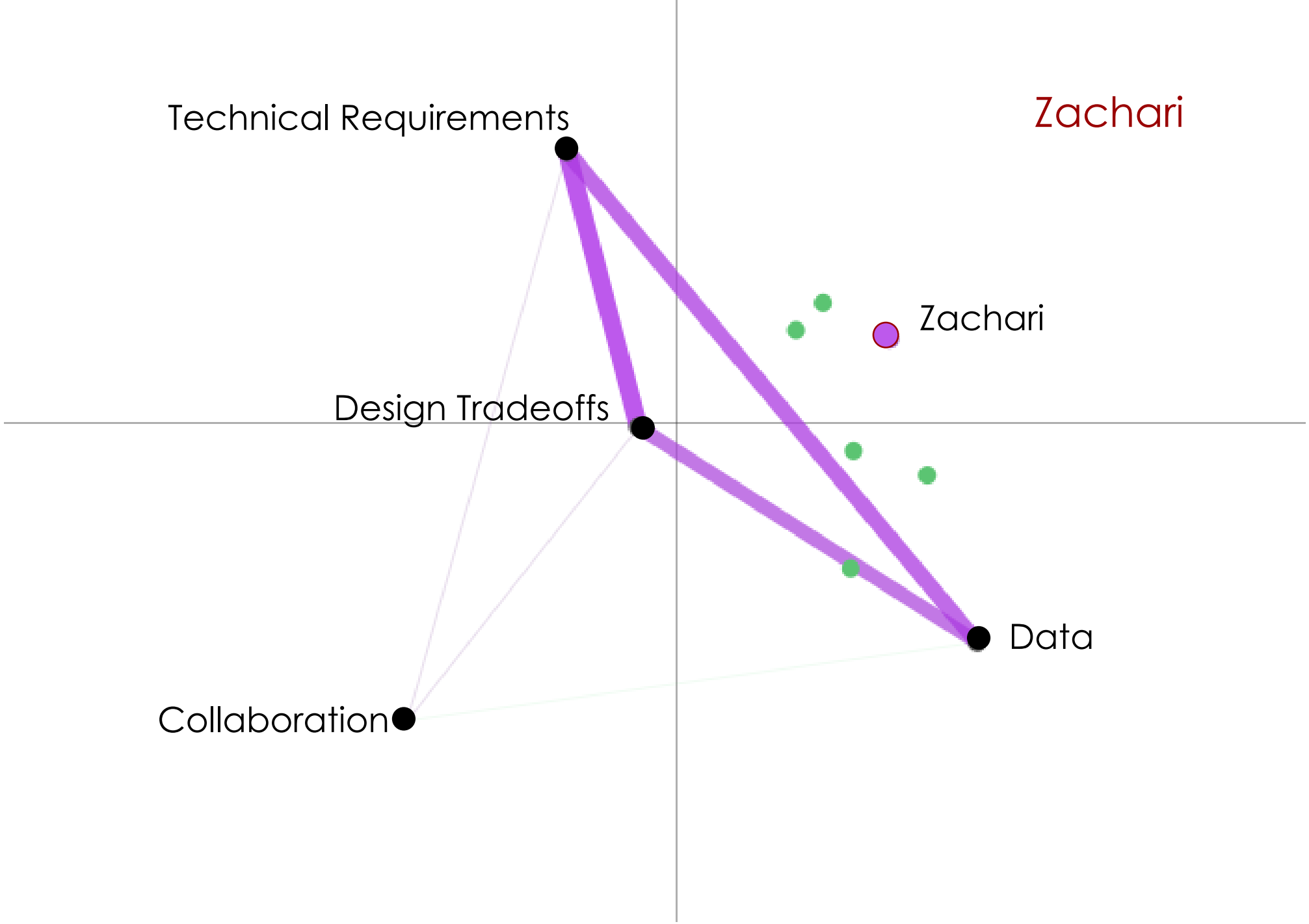
Technical Requirements
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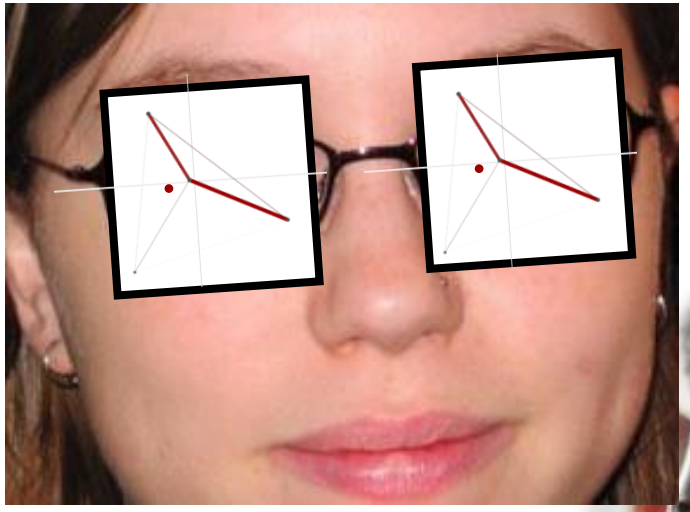

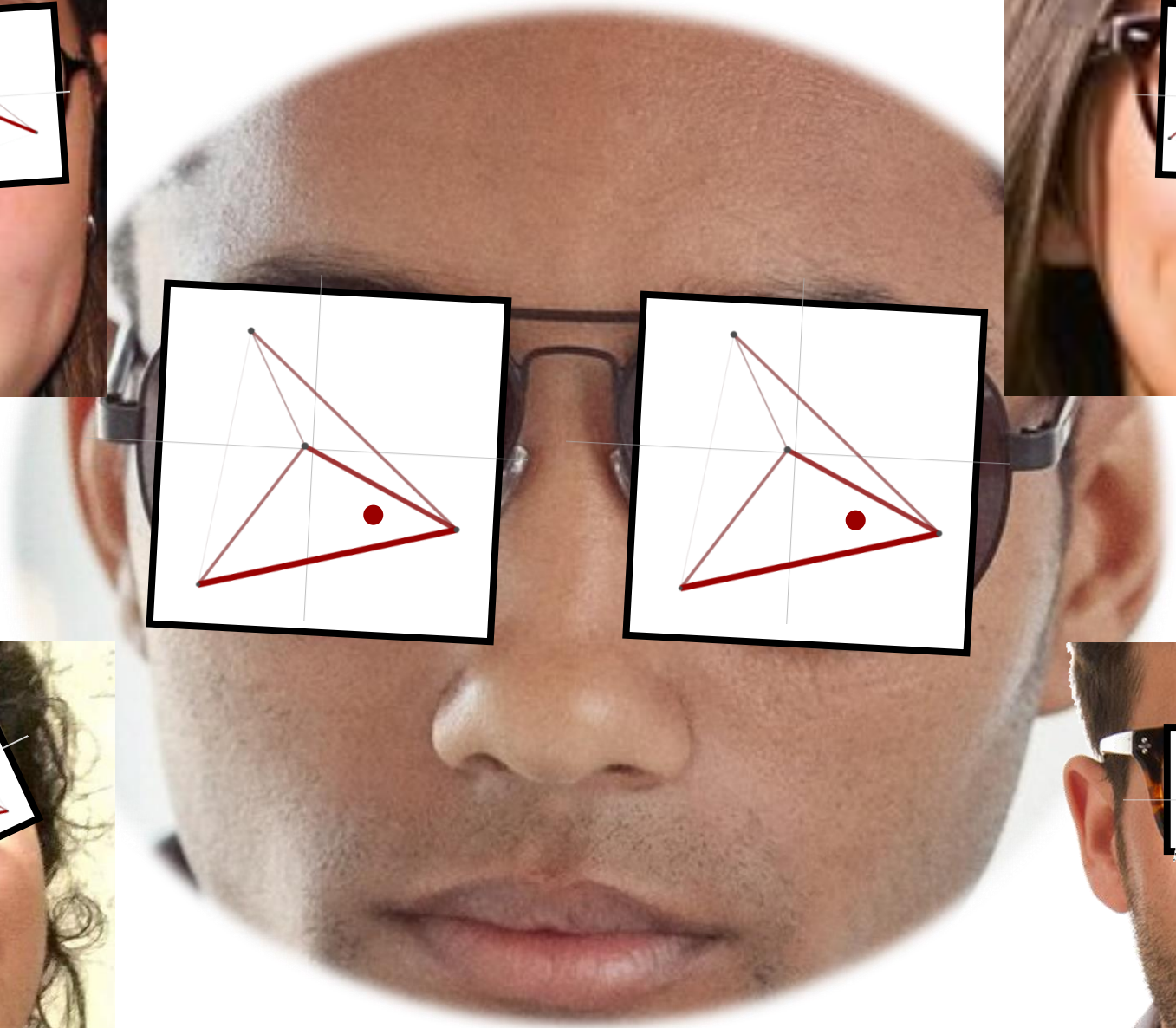

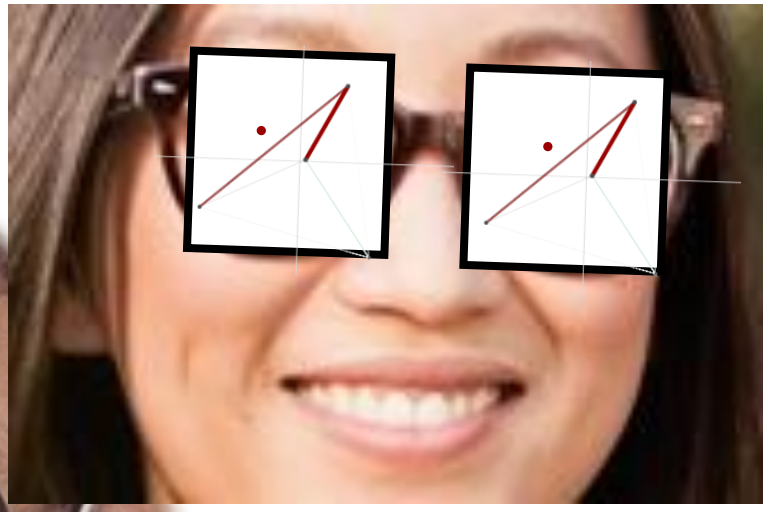

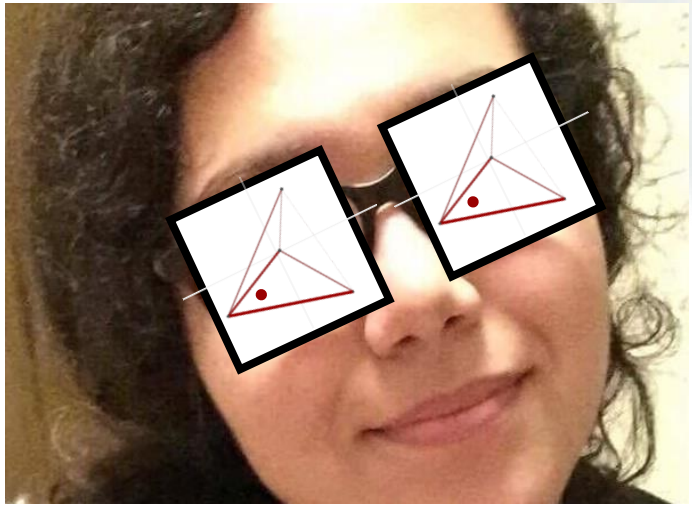

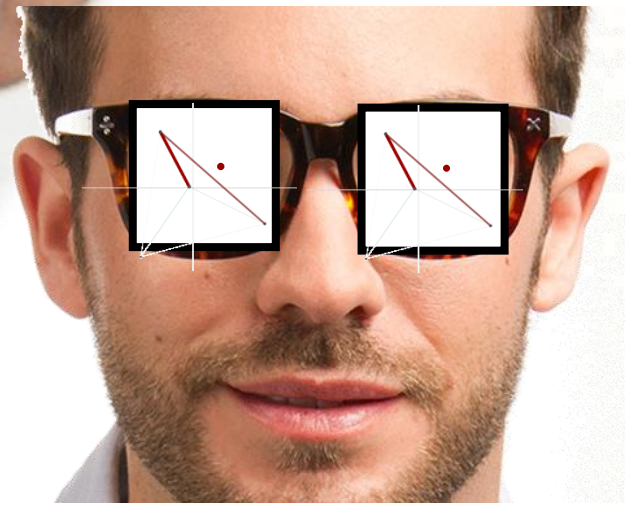

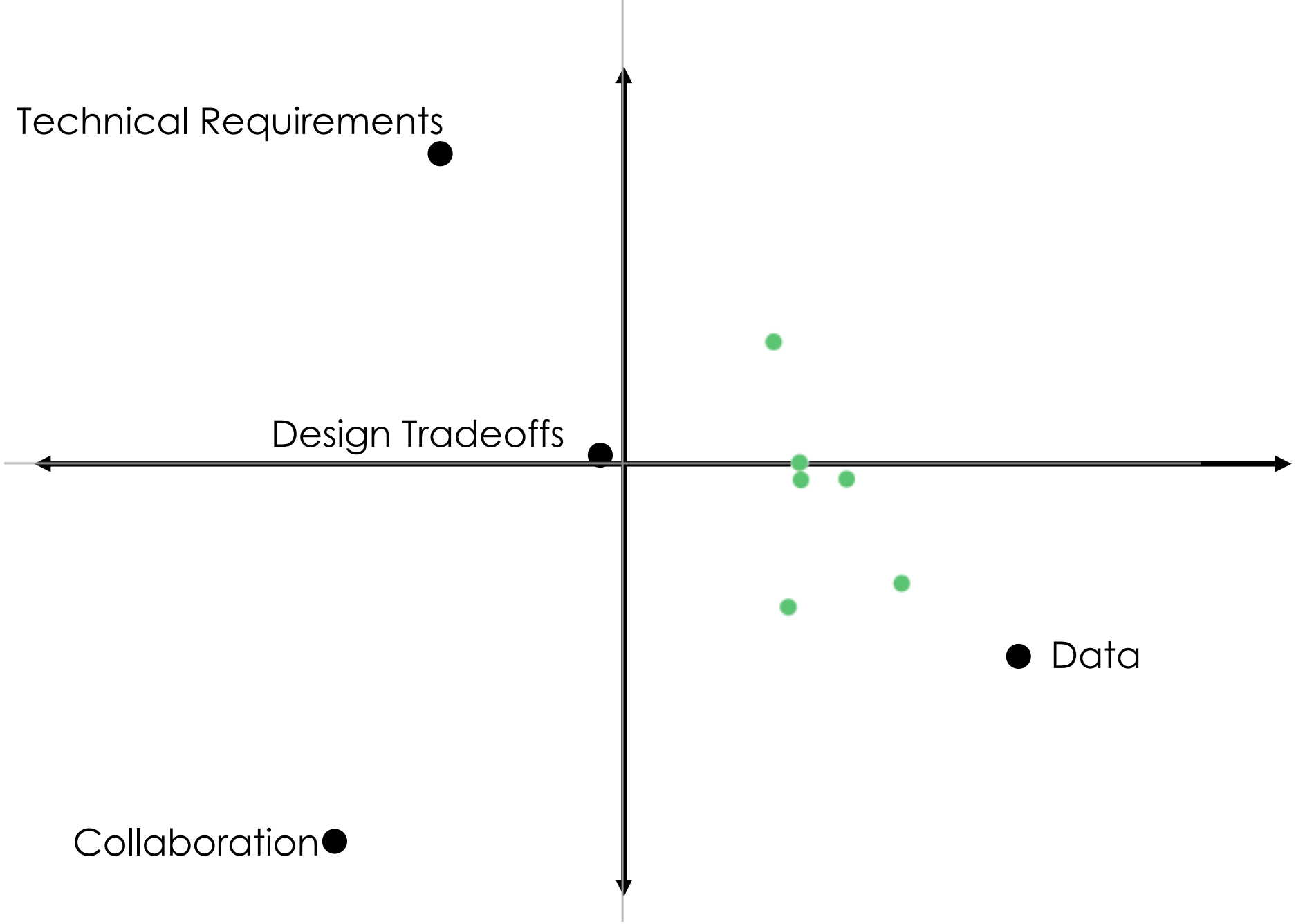
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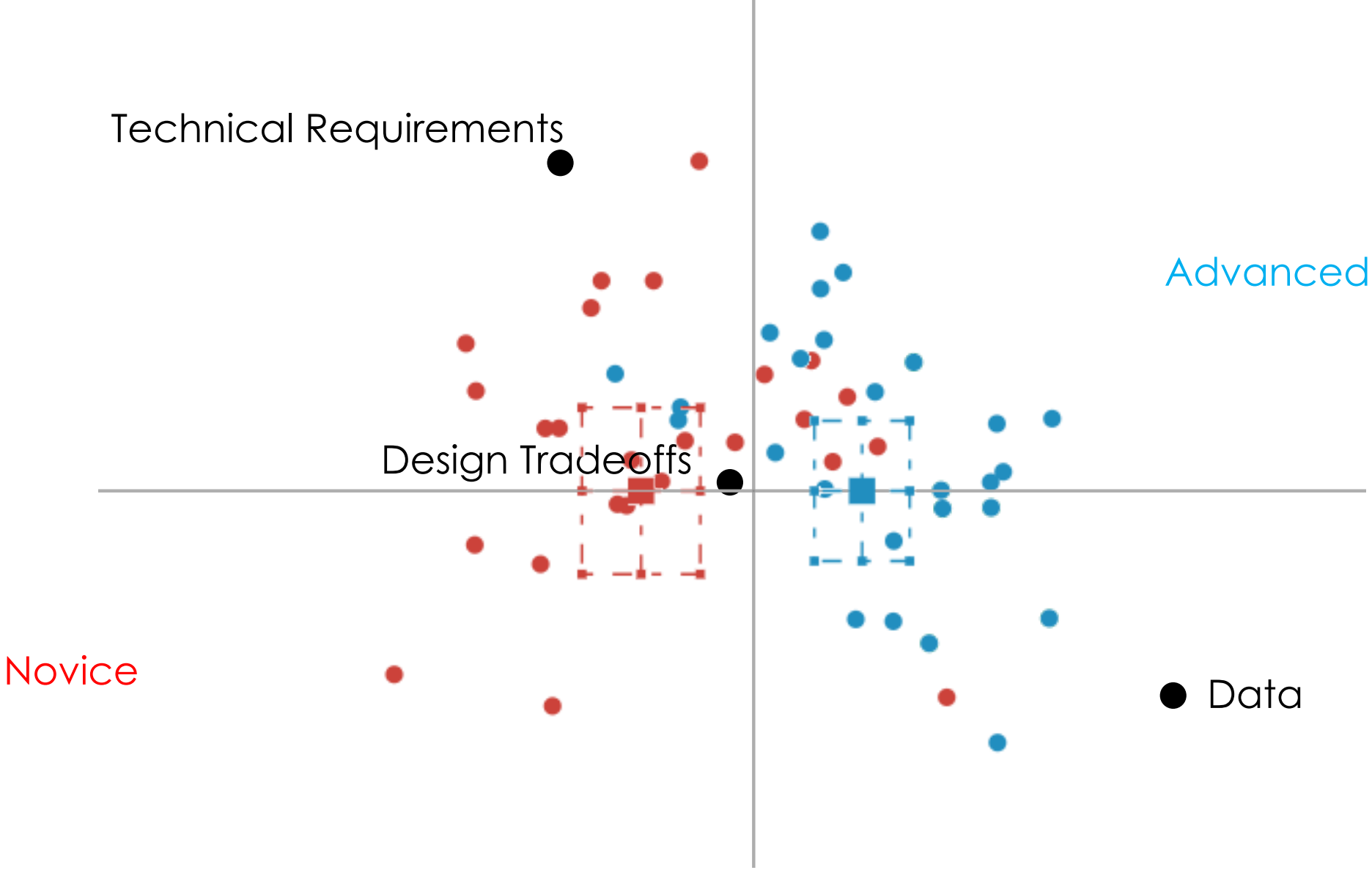
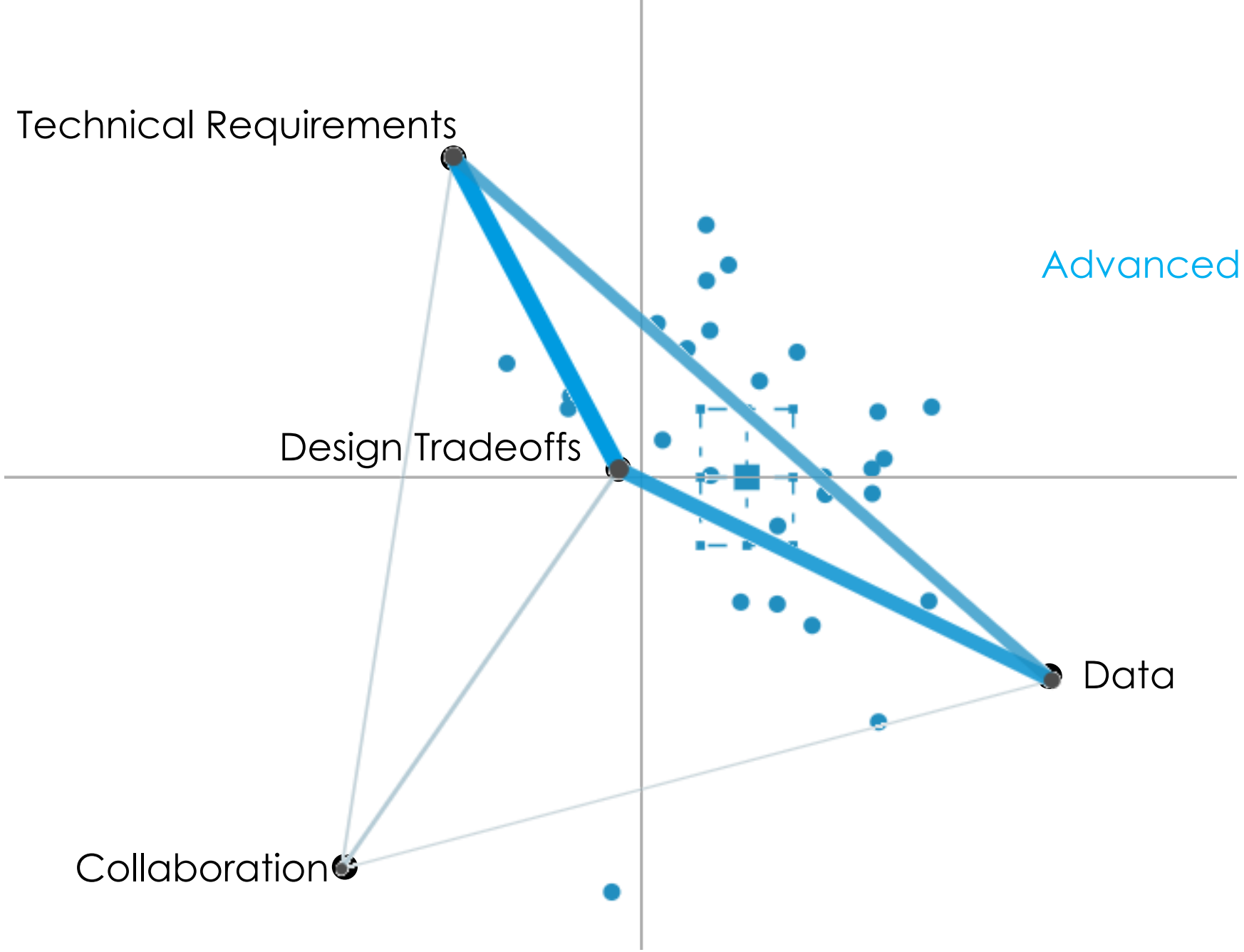


Along the X axis, a two sample t test assuming unequal variance showed Novice (mean=0.05, SD=0.57, N=326) was statistically significantly different at the alpha=0.05 level from Advanced (mean=-0.08, SD=0.53, N=189; t(419.78)= 2.63, p=0.01, Cohen's d=0.24, r^2 = 12%).


Technical Requirements
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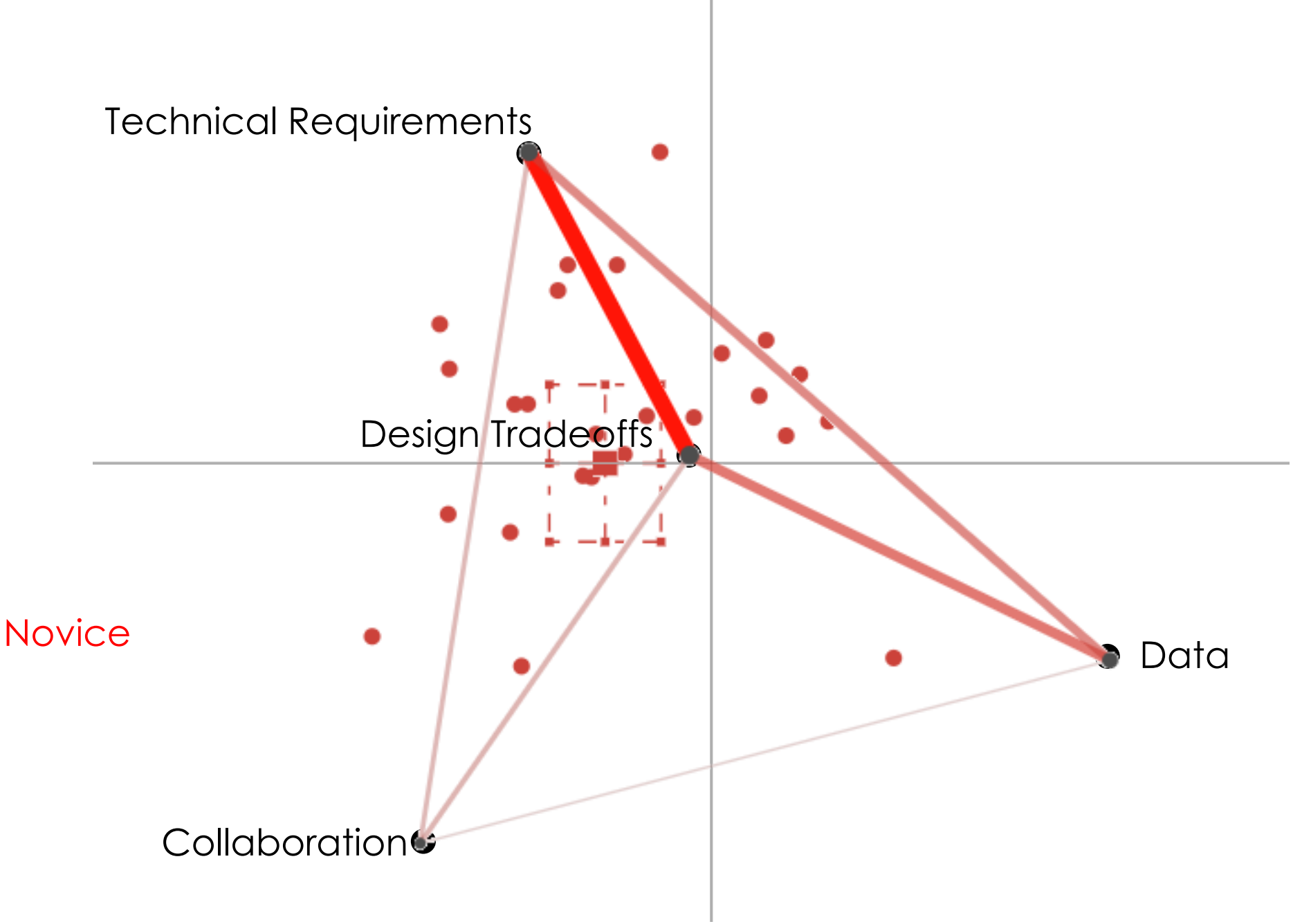
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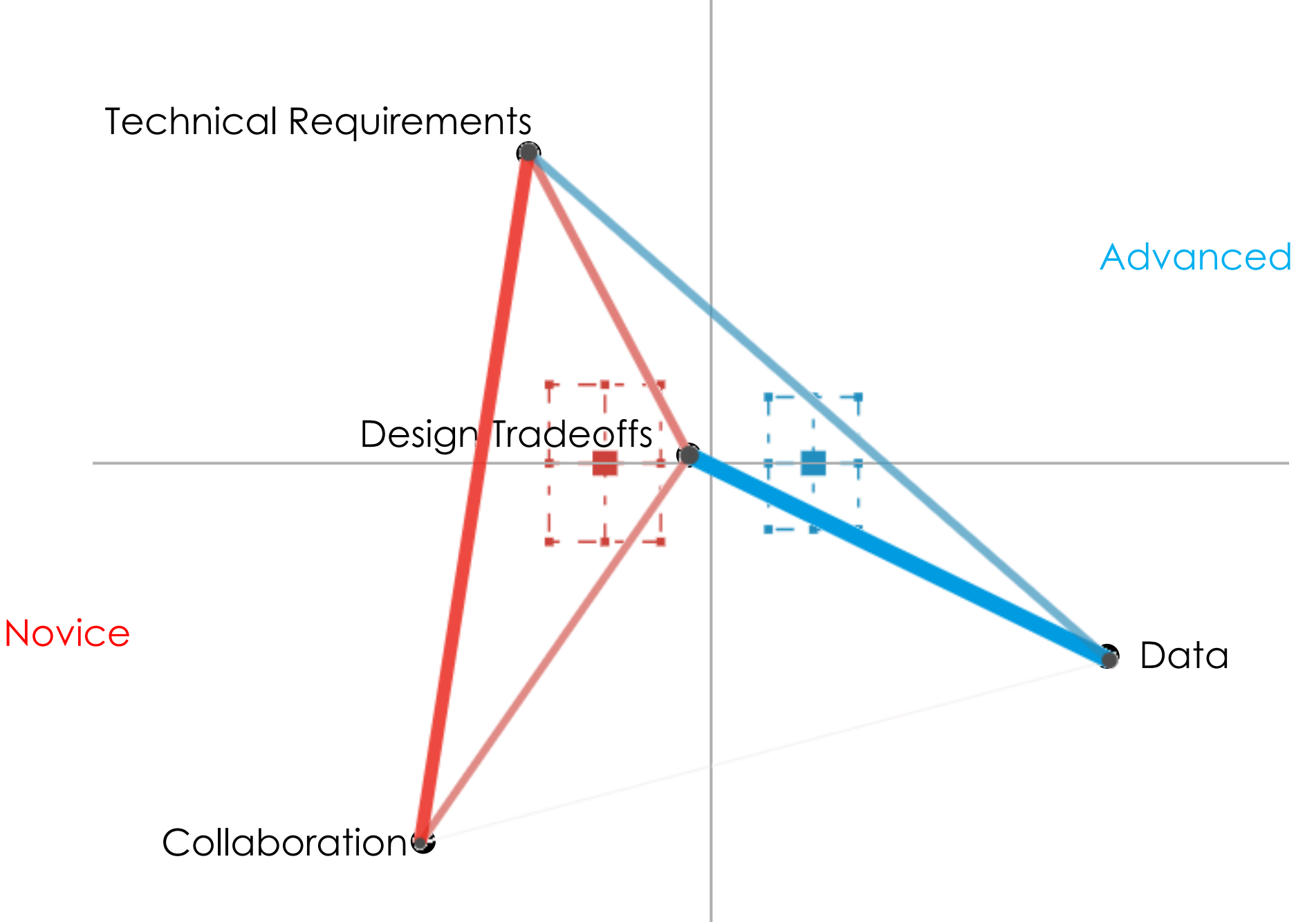
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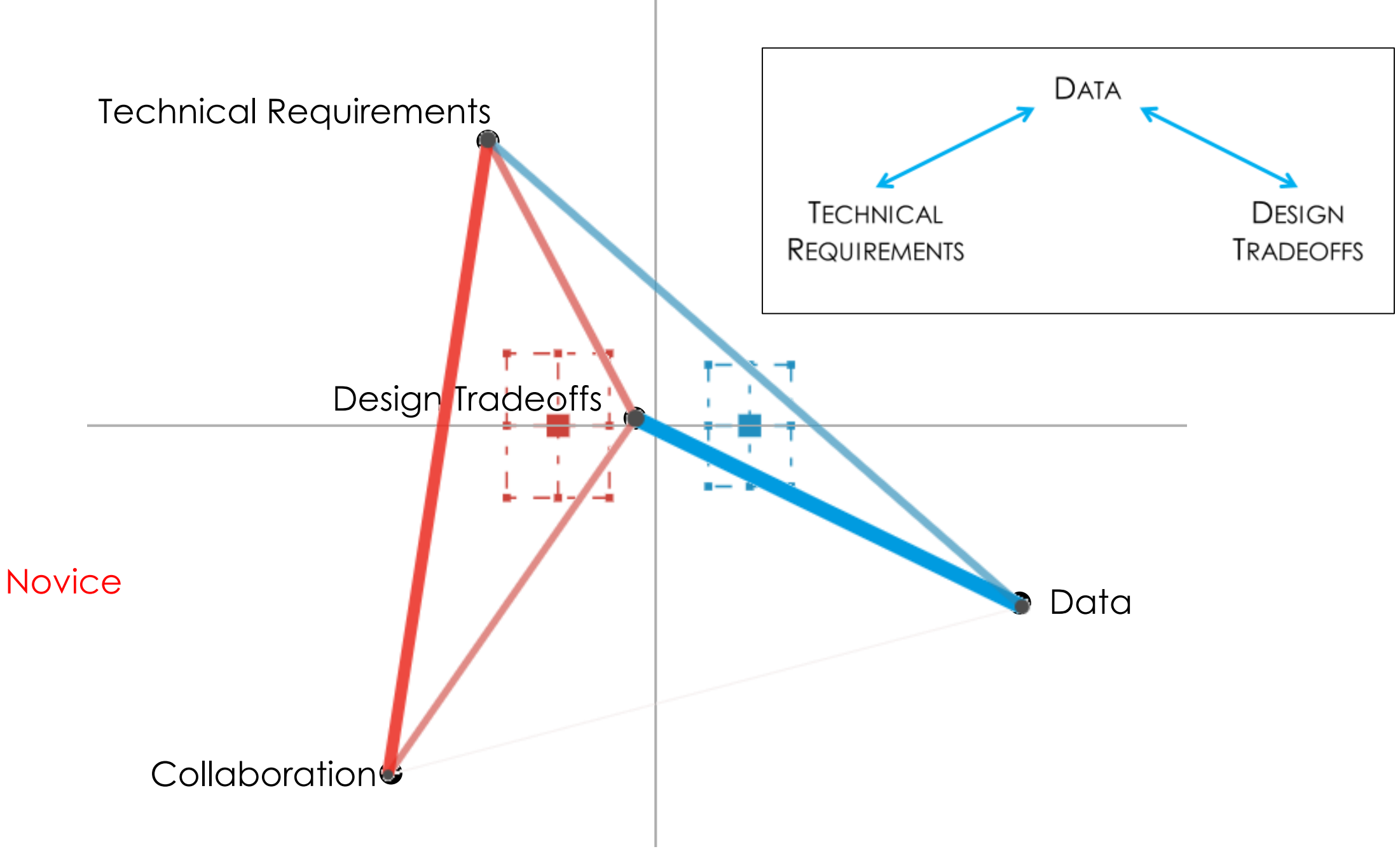
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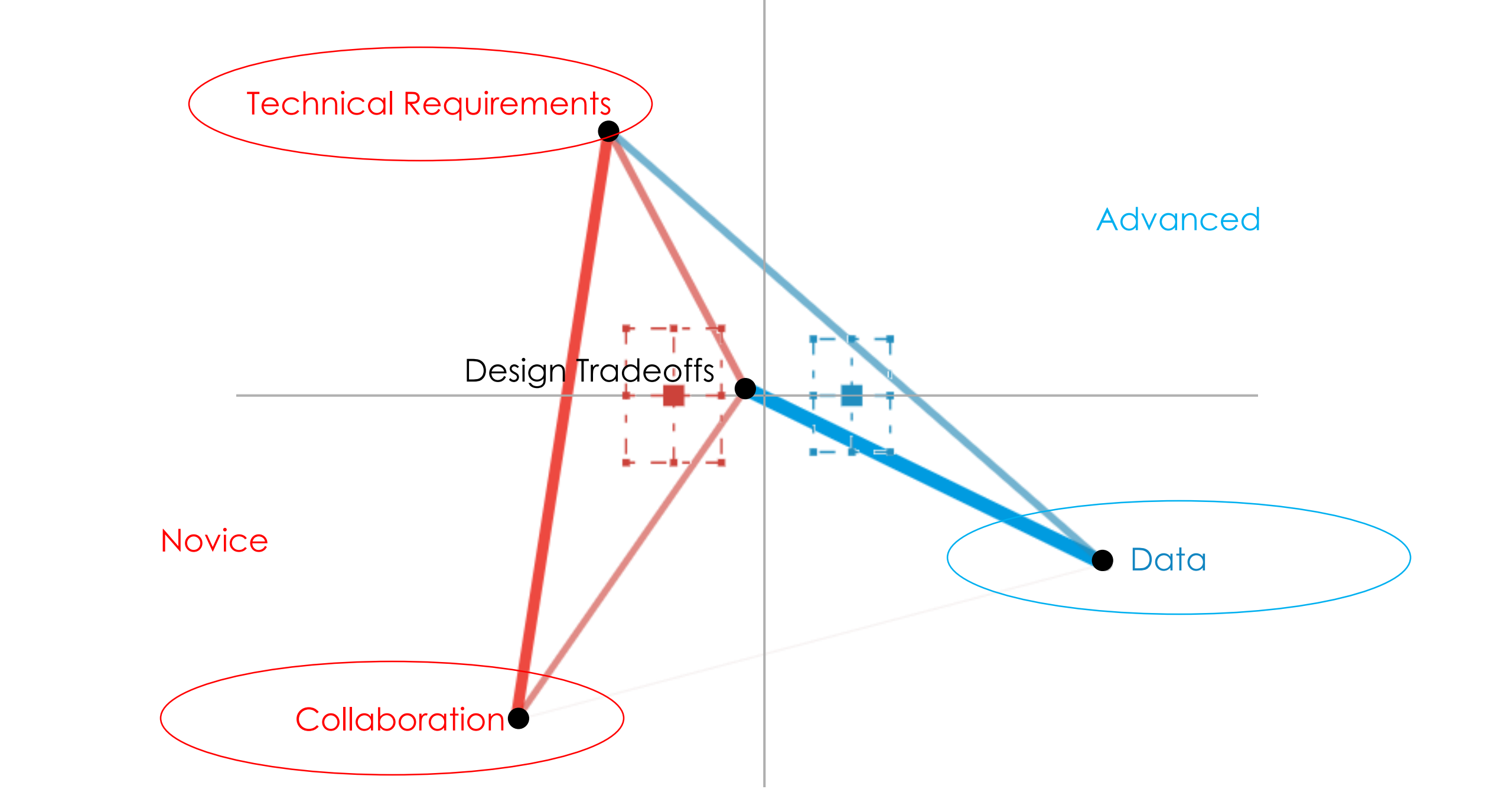
TECHNICAL REQUIREMENTS
DESIGN TRADEOFFS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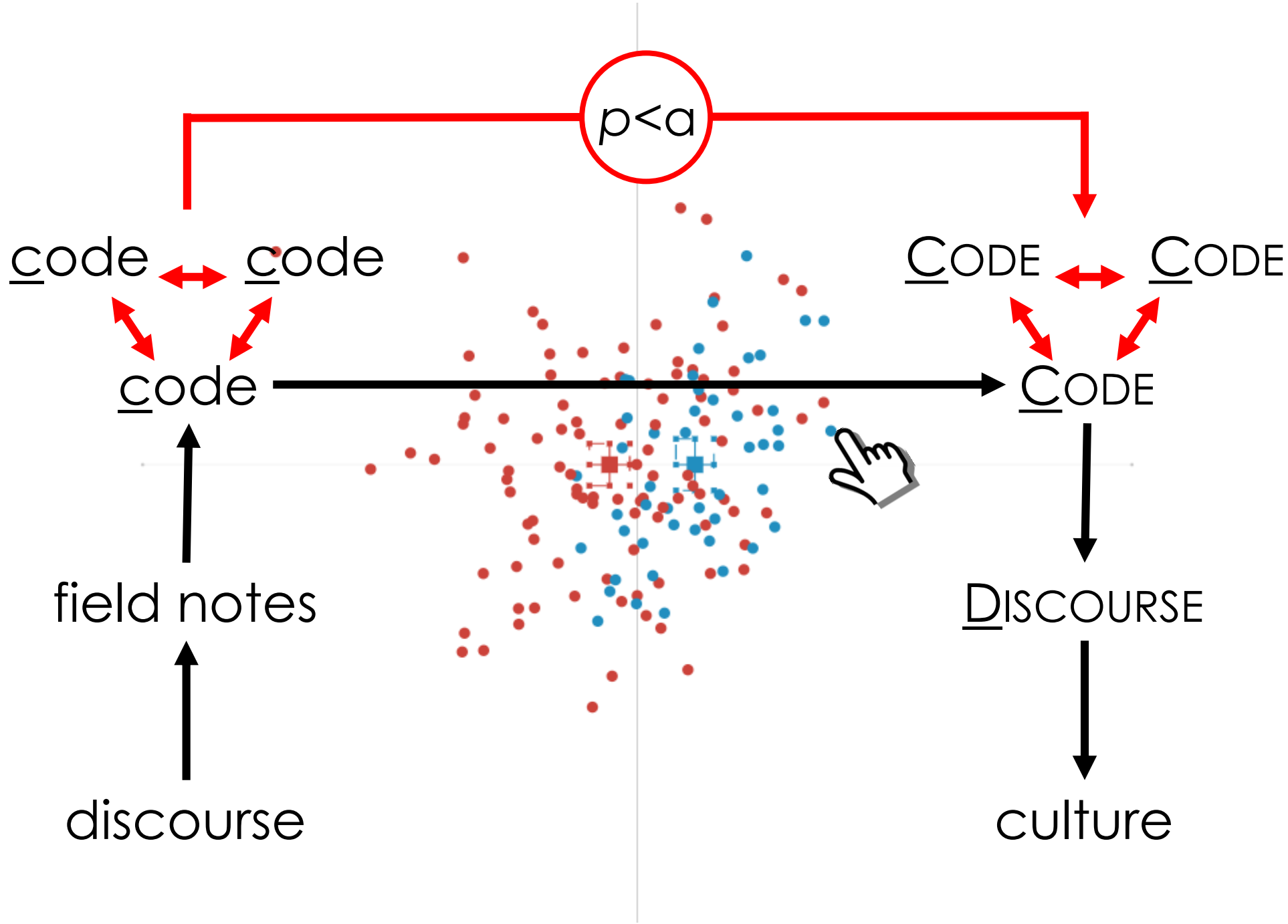
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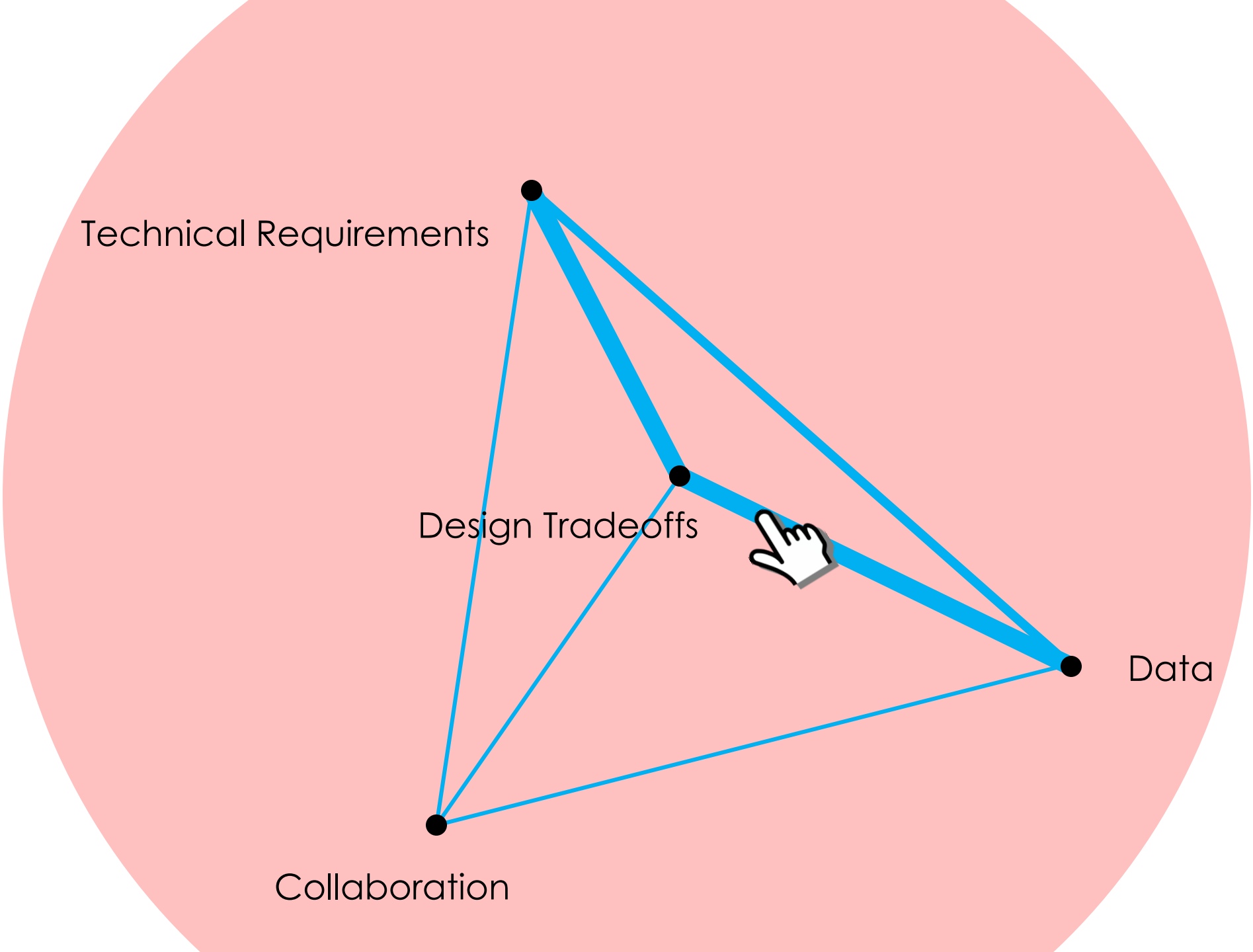
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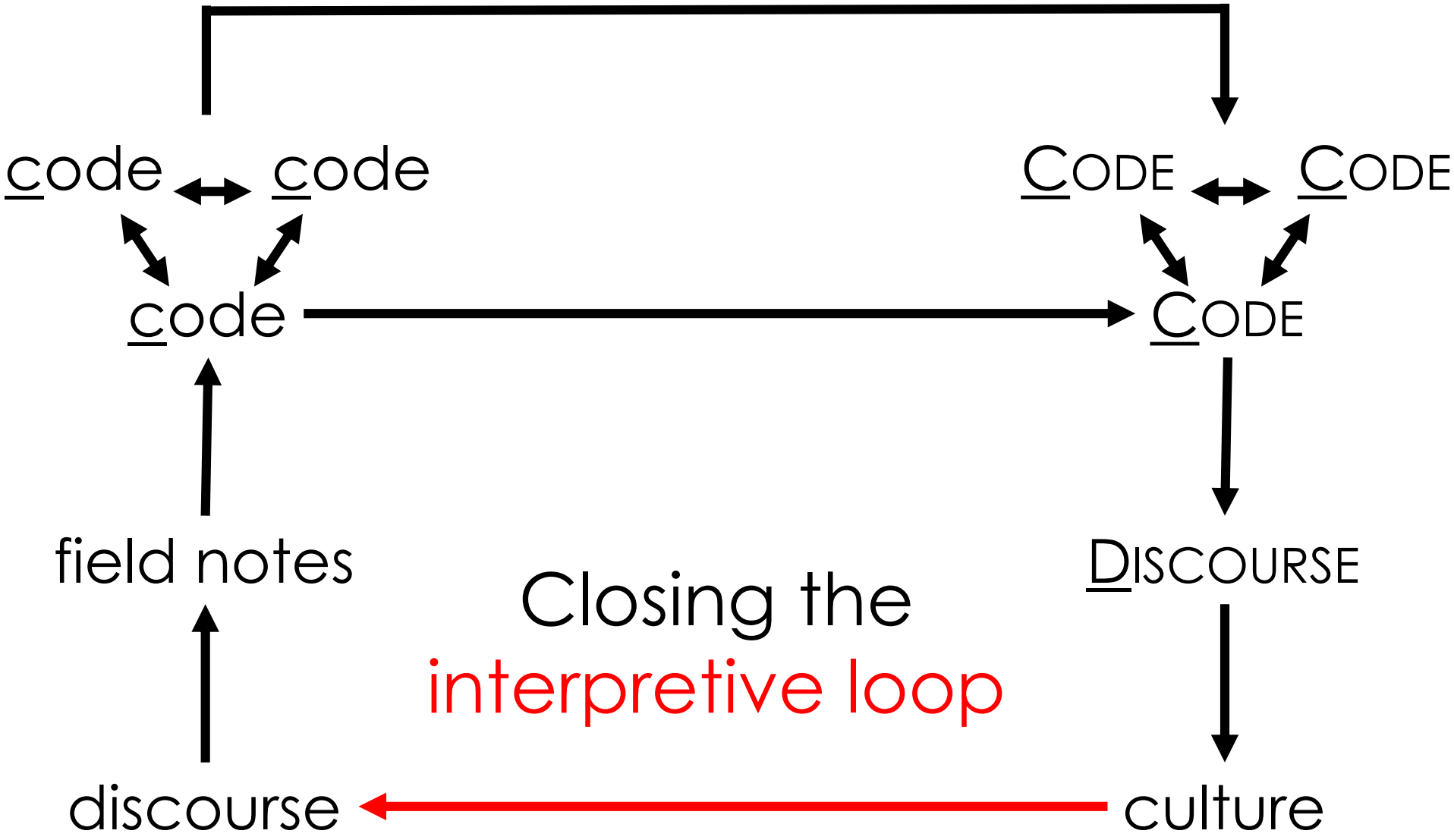
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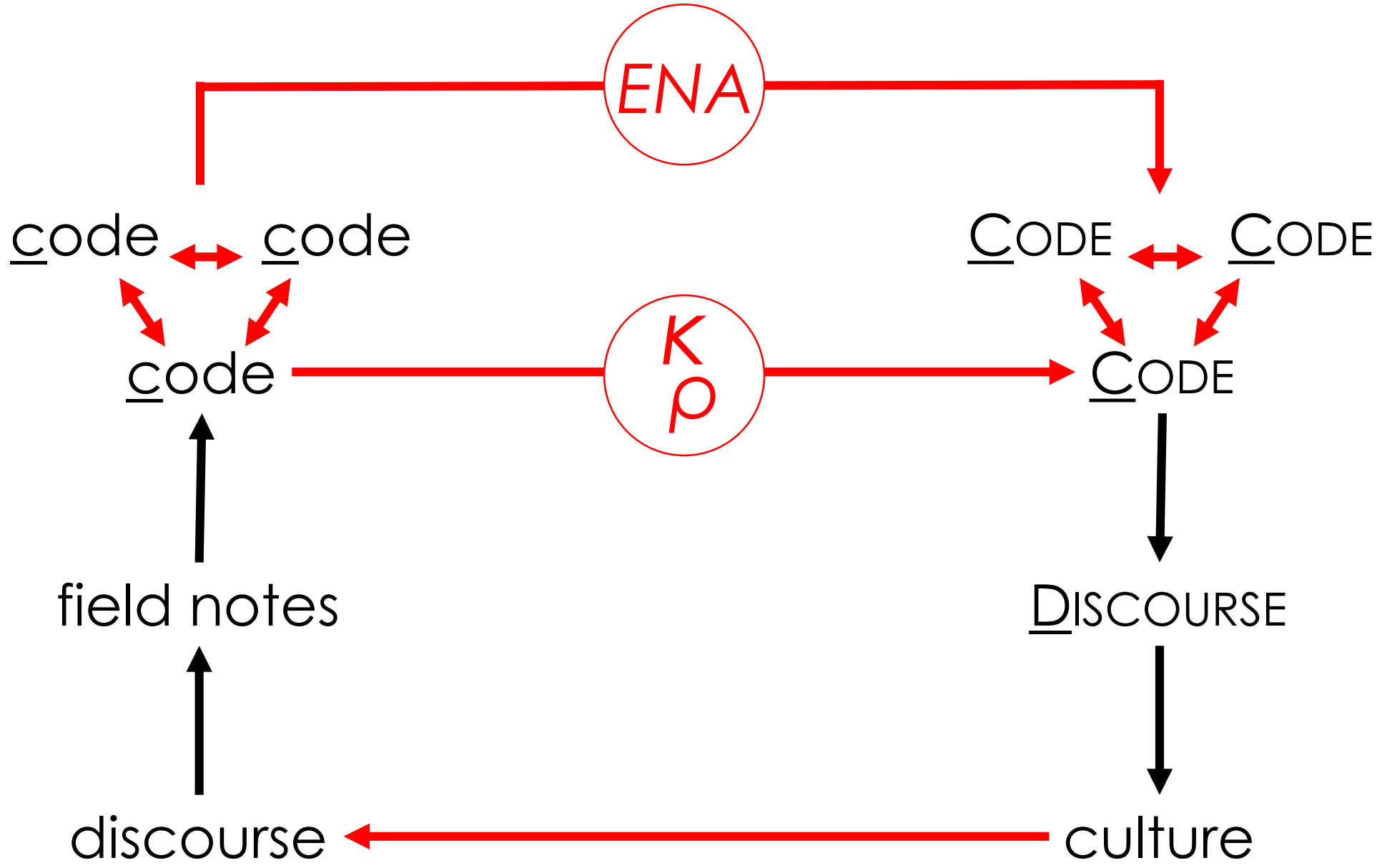
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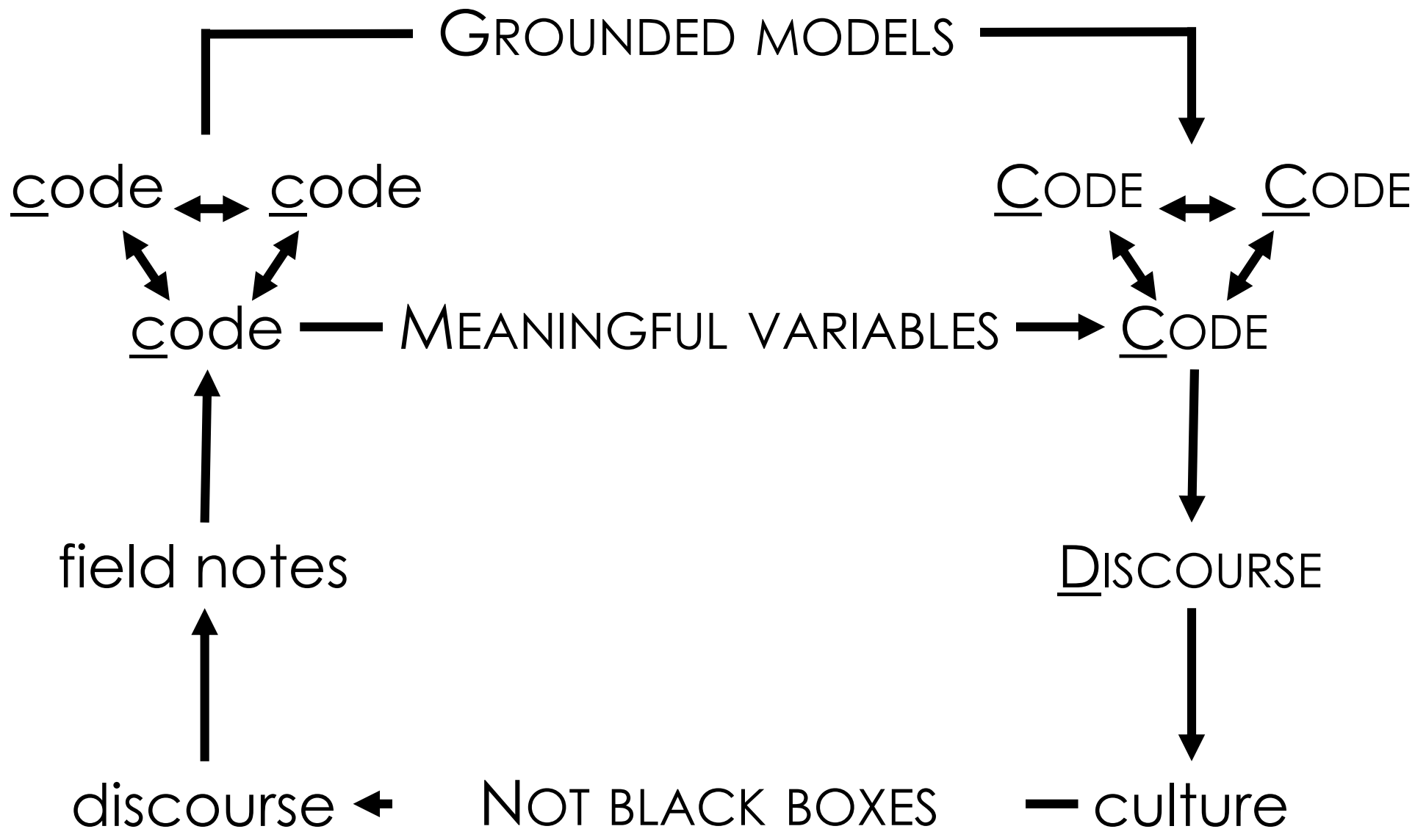
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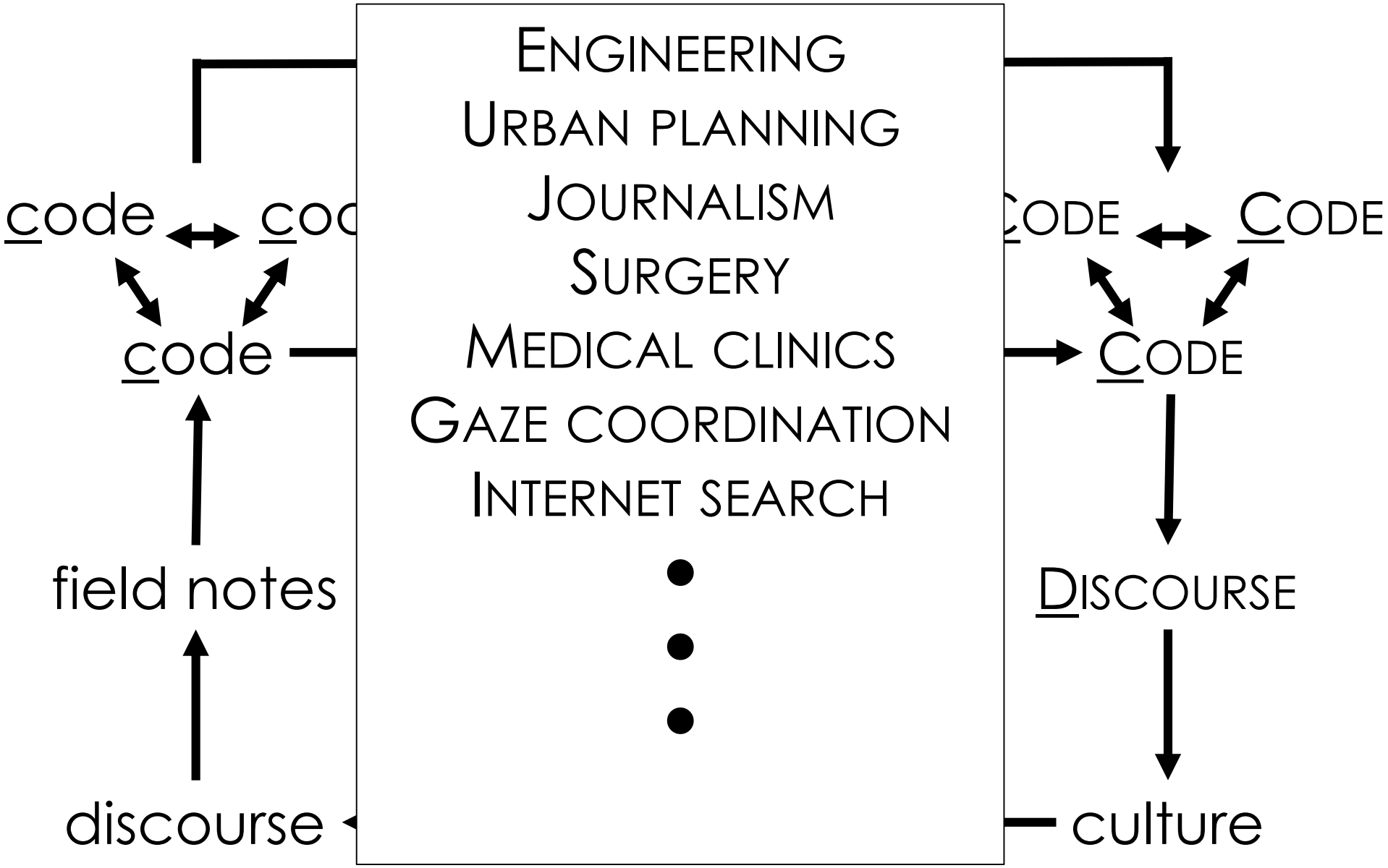
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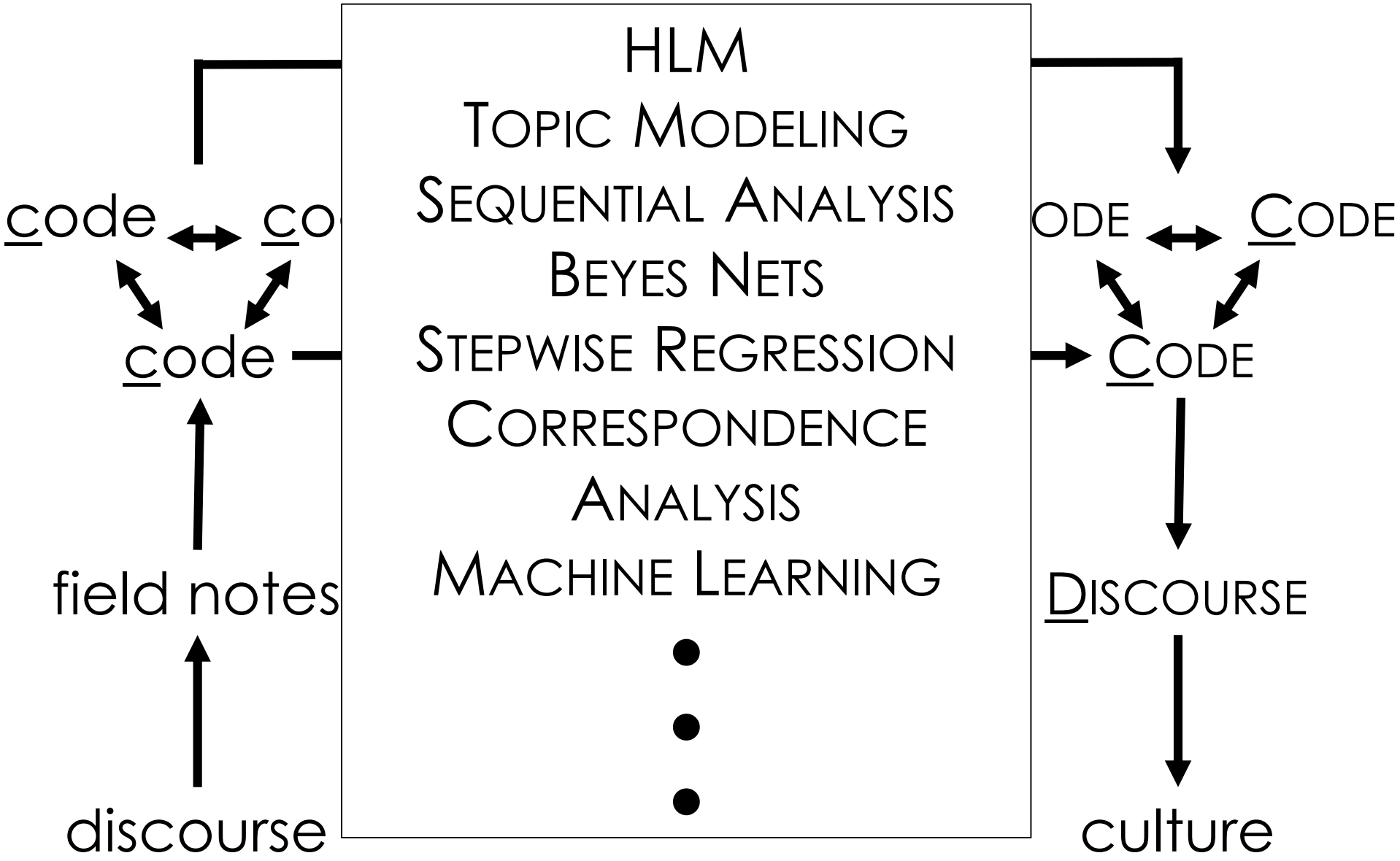
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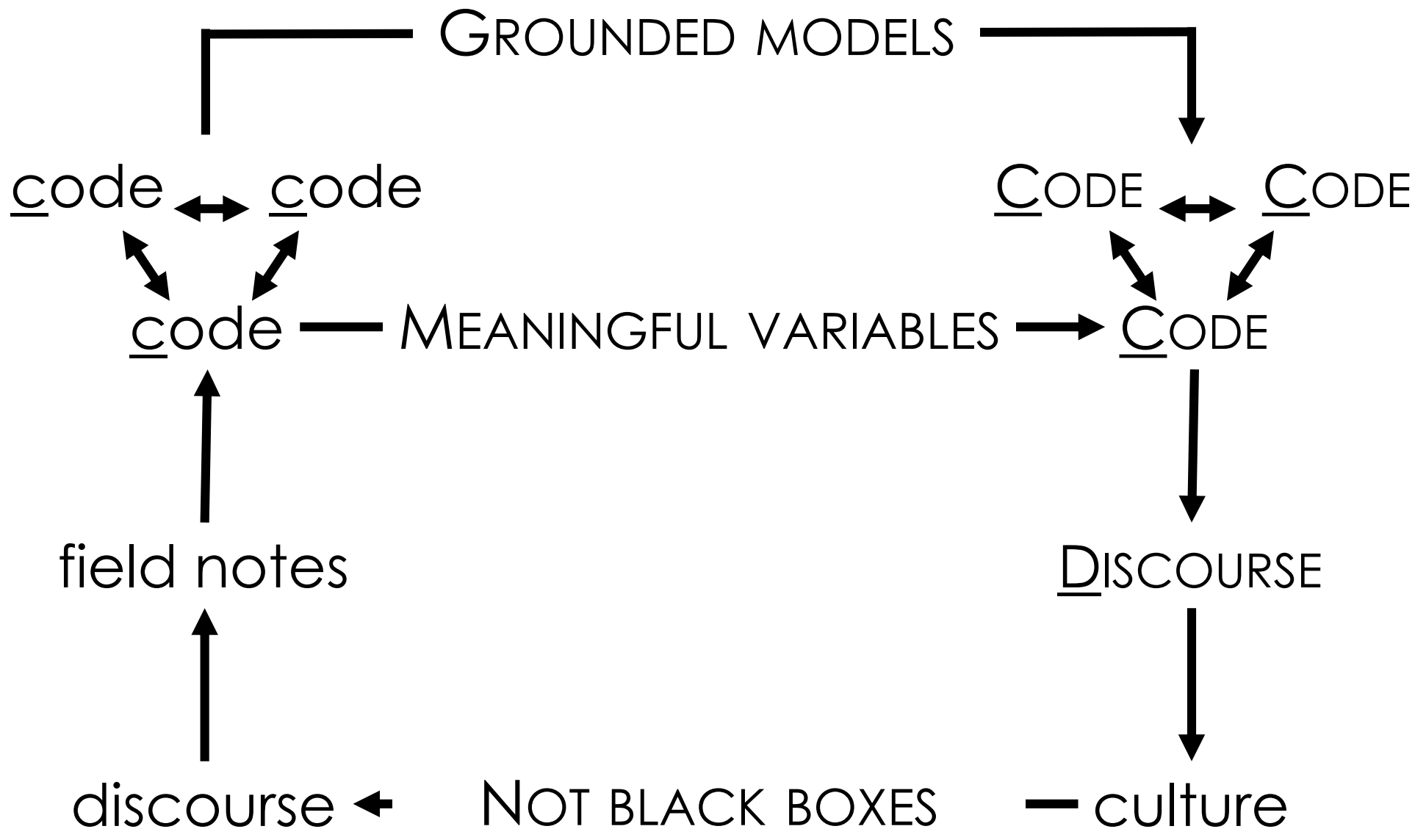
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Feedback examples

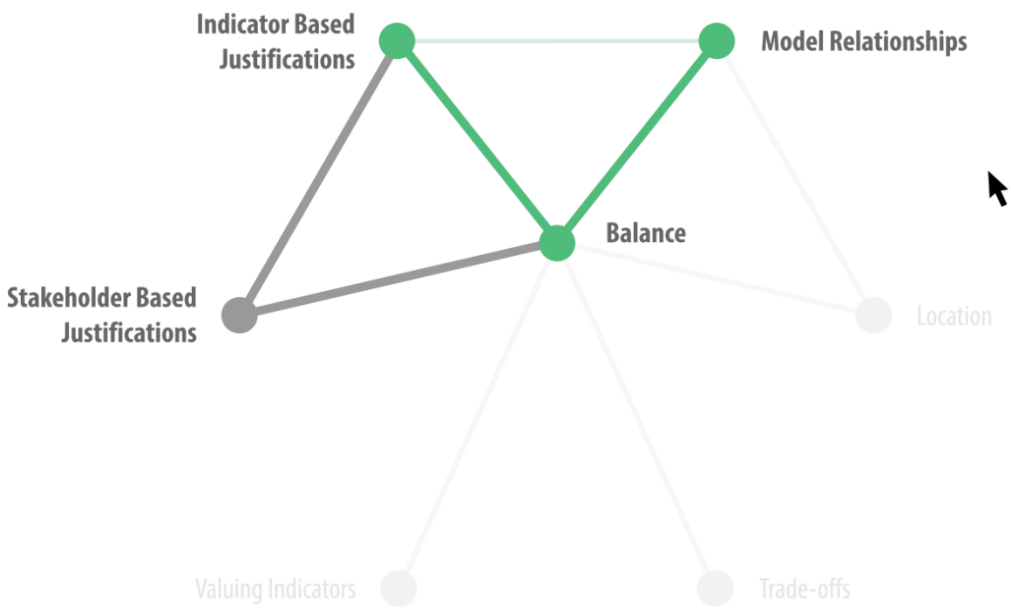
STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
• Quality of staff • Responsiveness • Organizational chart • Accessibility of staff • Good legislative support • Easy "give me" grants and good grants administration • Forward-thinking philosophy • Librarian–dense staffing at GPLS • Size and resources of state • PINES/Evergreen • Sharing of resources • Flexibility to adjust to changing needs • Flexibility on funding (grants) • Professional resources at state library • Willingness to embrace input /ask for input (ex. R-PLAC, etc.) • Approachable • Ability to attract good staff • Approachability with legislatures • Meetings/communication opportunities • Close monitoring of legislative process • Excellent IT availability/connectivity for libraries • Bridge between libraries and BellSouth(AT&T)/ Georgia	• Some of the staff responsiveness; some never answer back • Need stronger construction support, more help with process • Availability of staff -- sometimes we need answers ASAP (under-staffing) • State library not my advocate – too independent –GPLS tied by BOR/State –can't help • Attention to children's services/children's services staff w/o attention to others (example: PINNACLE email to directors and children's services librarians) • Lack of clear standards for public libraries • Competing interest of various kinds of libraries (divides resources) • Need help with paraprofessional training esp. those on desk • Concentration of staff in ATL area • When I call, everybody is gone • Turnover of staff • Location inconvenient (except for Darro) • No scholarship money for library school • Would like more web meetings	• Create more training opportunities or participation in more training • More responsive on a daily basis • Every director should have an advisor (GPLS staff) • Economics of scale for purchasing (i.e. downloadable audio, etc.) • Legislature that listens and values us • BOR computer replacement plan • Tuition assistance program • Re-examine directors mtg- less GPLS talk and more about public library issues – more global and more local (most learning happens at breaks) • Less structured time, more interaction • Capital asset replacement on cycle replacement • Advertise libraries statewide – David Baker • Create taxing/millage rates for libraries • Marketing versus PR • Genealogy database in Galileo-- work on purchasing power • Vision for future-- fiber optics • PINES and PINES-like projects-- include schools and	• Being swallowed up by BOR • Loss of identity • Funding –budget cuts • Loss of significance in community (libraries) • Can't advance our budgetary needs because BOR doesn't agree • GPLS too unselfish w/ funds because libraries need funds • Too much focus on one issue, ignoring others • Political pressures--not in line with priorities • Sometimes GPLS hands are tied in legislative process • Salaries too low …turnover • GPLS staff inadequately trained in rules--no time or $$ for training • Costs of technology going up • Money, lack of • State laws outdated • People without vision • Manpower, lack of-- understaffed • Staff retention • Censorship • Lack of unified front (library community) • We are tiny speck at BOR • Infrastructure –mistreated by parent organizations (DOE, DTAE, BOR)

Individual Group

Close

Justine

Made at least one critical connection



Intervention

Justine is:

- balancing issues stakeholders care about

You might suggest that Justin thinks about:

- how land use changes affect indicators in the model, and how that can help balance issues stakeholders care about

Chat

know how to balance that out.

Bel: 6/29/16 02:45 PM

as we change things the indicator graphs would change things, like more commercial zones increased sales and more industrial zones increased the Carbon monoxide and job

Bel: 6/29/16 02:45 PM

good

Justine: 6/29/16 02:45 PM

That sounds right

Justine: 6/29/16 02:45 PM

I feel I need to know more about zoning and its implications.

Ryan: 6/29/16 02:45 PM

I think it was very hard to change anything without having repercussions in a different category. It was definitely challenging to try and satisfy all of the different demands of the stakeholders.

Ryan: 6/29/16 02:45 PM

Several

Justine: 6/29/16 02:45 PM

I tried to change carbon monoxide but clearly it didn't work.

Nic: 6/29/16 02:45 PM

I feel like I was just randomly changing industrial plots to open space/wetlands for more nesting sites and less carbon emissions but I feel like if I really knew how to successfully zone, the outcome would be better.

Nic: 6/29/16 02:45 PM

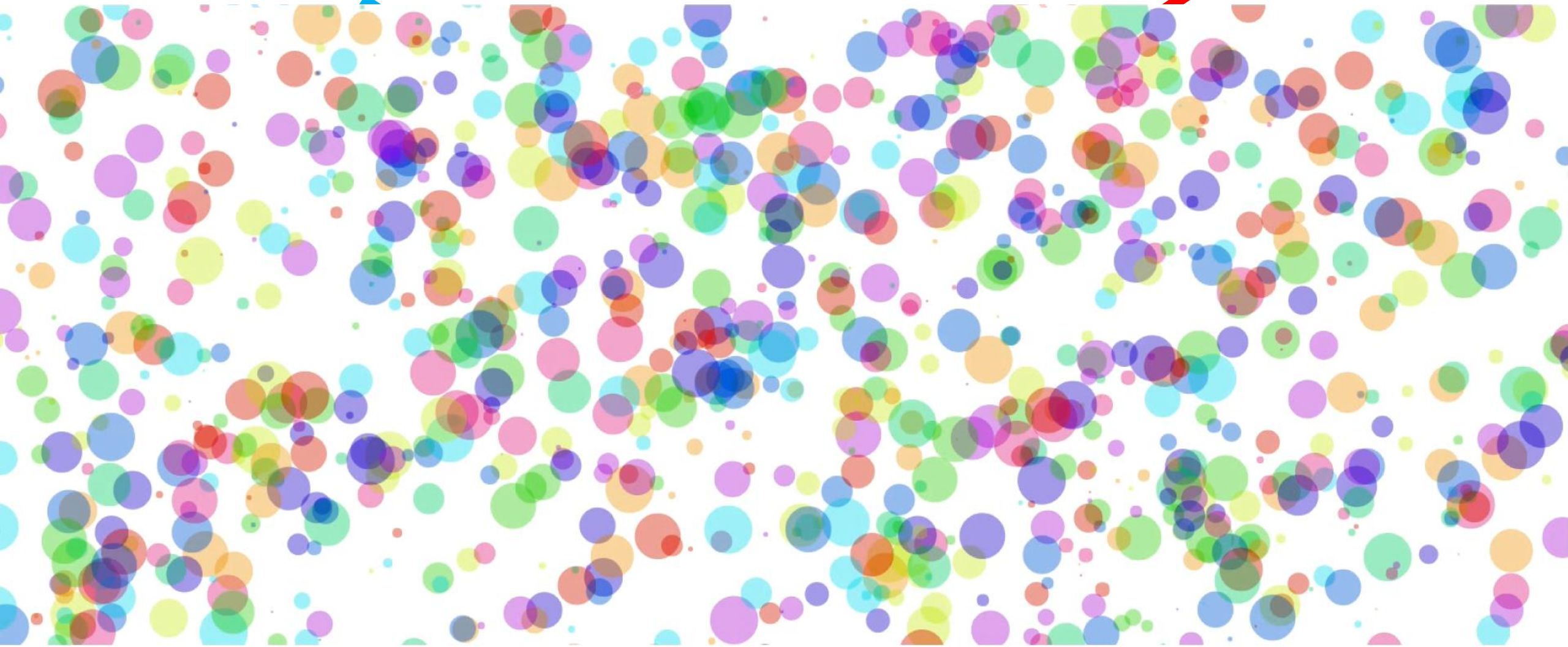
Also several indicators

Justine: 6/29/16 02:45 PM

It seems almost impossible to please every stakeholder because you have to sacrifice jobs and sales to reduce carbon emissions and increase nesting sites, so we will have to compromise.

QUALITATIVE

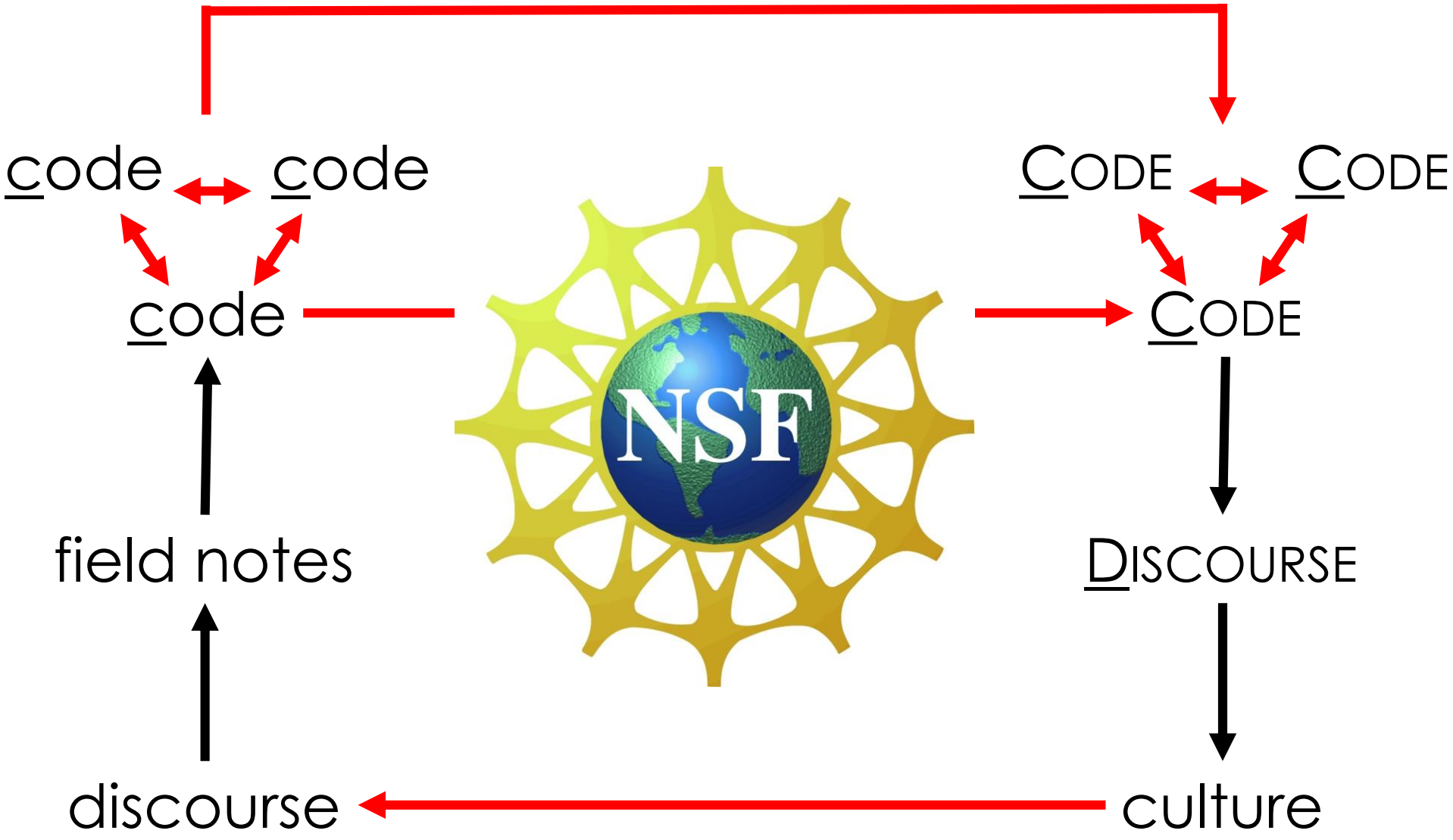
QUANTITATIVE



MEANINGFUL

STATISTICALLY SIGNIFICANT

QUANTITATIVE ETHNOGRAPHY



Art Graesser
Psychology

Michael Gleicher
Computer Science

Morten Misfeldt
Math Education

Zhijiang Cai
Computer Science

Naomi Chesler
Engineering

Jeff Linderoth
Engineering

Vasile Rus
Computer Science

Ken Frank
Statistics

Lew Friedland
Journalism

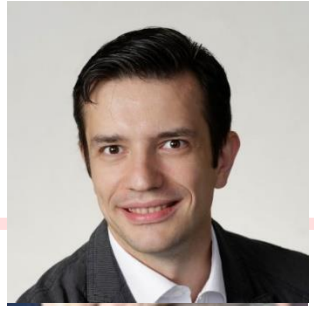
Dragan Gašević
Learning Analytics

Kristine Lund
Learning Sciences

Simon Fougt
Teacher Ed

Simon Knight
Epistemology

Carla Pugh
Surgery



Vitomir Kovanovic
Learning Analytics

Golnaz Arastoopour
Learning Sciences

Xiangen Hu
Computer Science

Srecko Joksimovic
Learning Analytics

Art Graesser
Psychology

Michael Gleicher
Computer Science

Morten Misfeldt
Math Education

Zhijiang Cai
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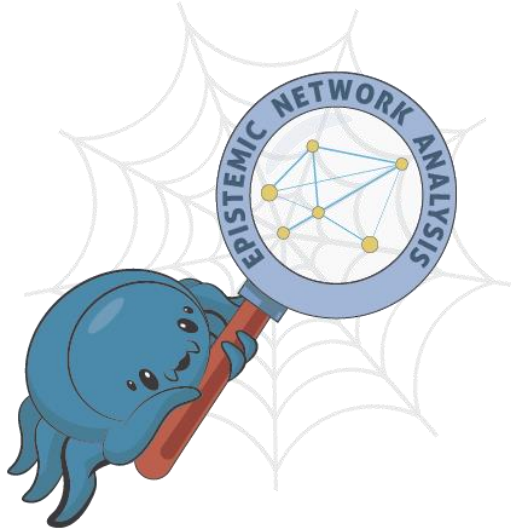


rhoR package

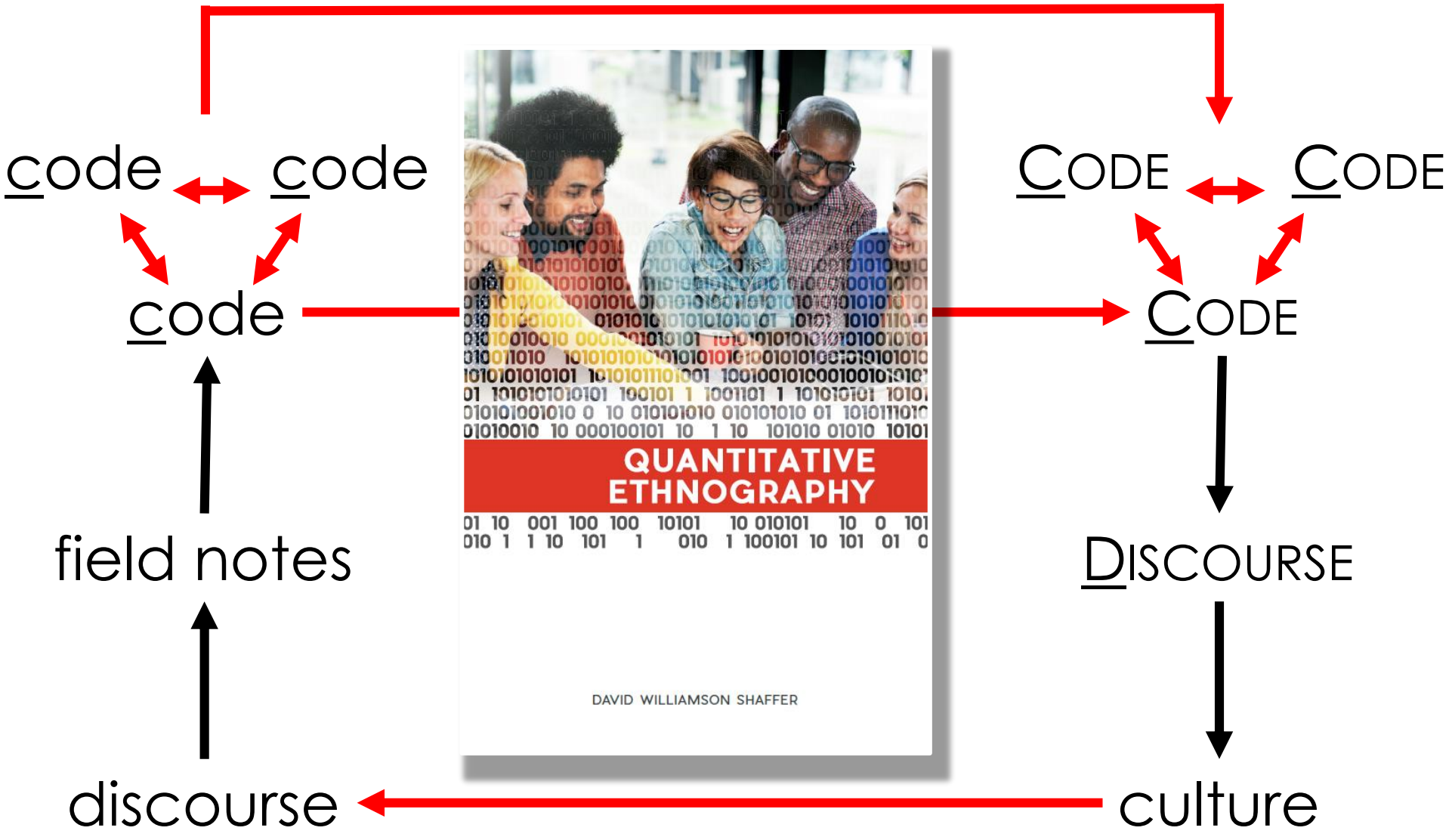
ncodeR package

nCoder web tool

rENA package

ENA web tool

epistemicanalytics.org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