



A Gold Star! For Me? Thanks!
What's a Gold Star?



Social Comparisons



Individual Social Comparisons



Andrea Wiggins

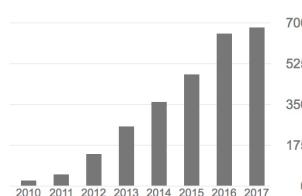
Assistant Professor, [University of Nebraska at Omaha](#)
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citizen science social computing open collaboration

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A Wiggins, K Crowston
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[Public participation in scientific research: a framework for deliberate design](#) 348 2012
J Shirk, H Ballard, C Wilderman, T Phillips, A Wiggins, R Jordan, ...
Ecology and Society 17 (2)

[Free/libre open source software development: What we know and what we do not know](#) 347 2012
K Crowston, K Wei, J Howison, A Wiggins
ACM Computing Surveys 10 (X), 1-37



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Small Groups CSCW CSCL Social Computing Social Network Analysis

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[Building a model explaining the social nature of online learning](#) 71 2008
I Tsai, B Kim, L Pei-Ju, SP Goggins, C Kumalasari, JM Laffey
Journal of Educational Technology & Society 11 (3), 198

[Participation-based student final performance prediction model through interpretable Genetic Programming: Integrating learning analytics, educational data mining a...](#) 66 2015
W Xing, R Guo, E Petakovic, S Goggins
computers in Human Behavior 47, 168-181

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Social Comparison

Collective Social Comparisons



- Population
- Economic Activity
- Location
- Climate
- Local Universities
- Local University Football teams



Social Comparison and Log Data



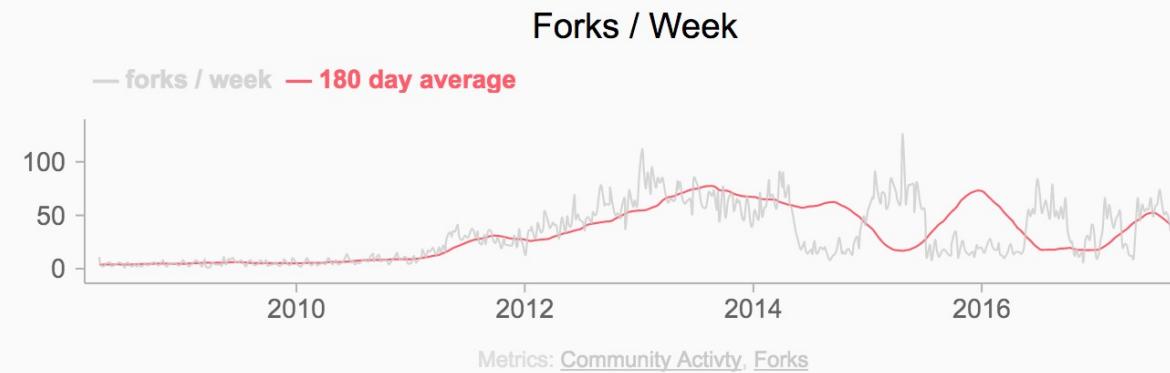
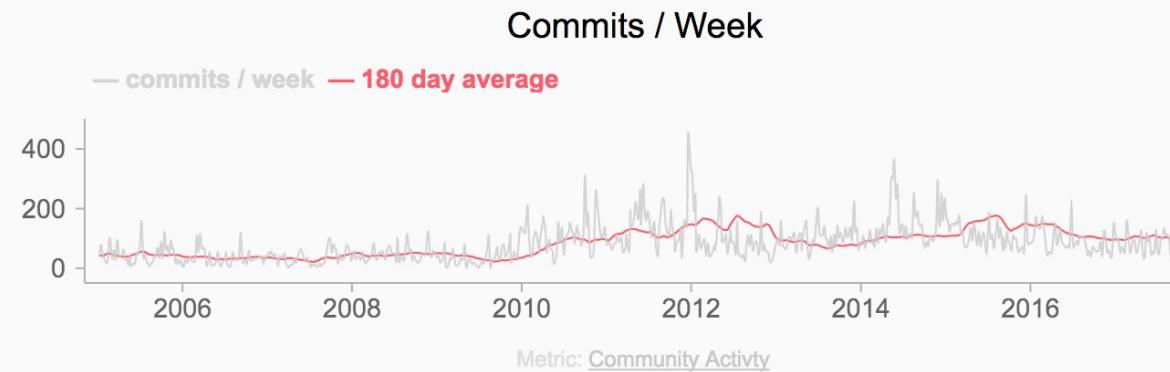
What can we see in order to compare?
What are we interested in?



Comparisons

Activity

rails/rails



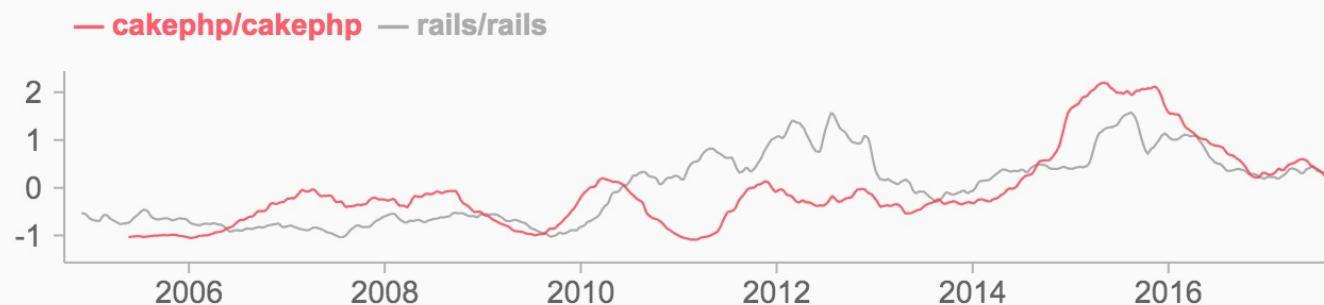


Comparisons

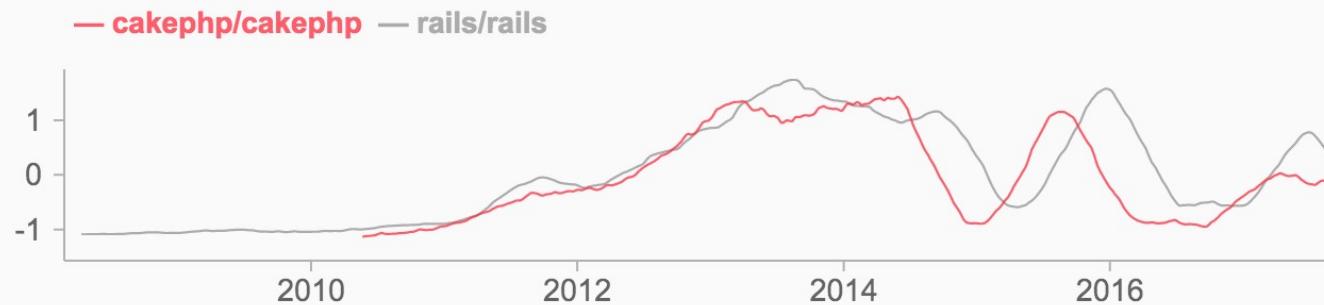
Activity

`rails/rails` versus `cakephp/cakephp`

Commits / Week



Forks / Week





Comparisons

Base Repository

Start Date
01/01/2014

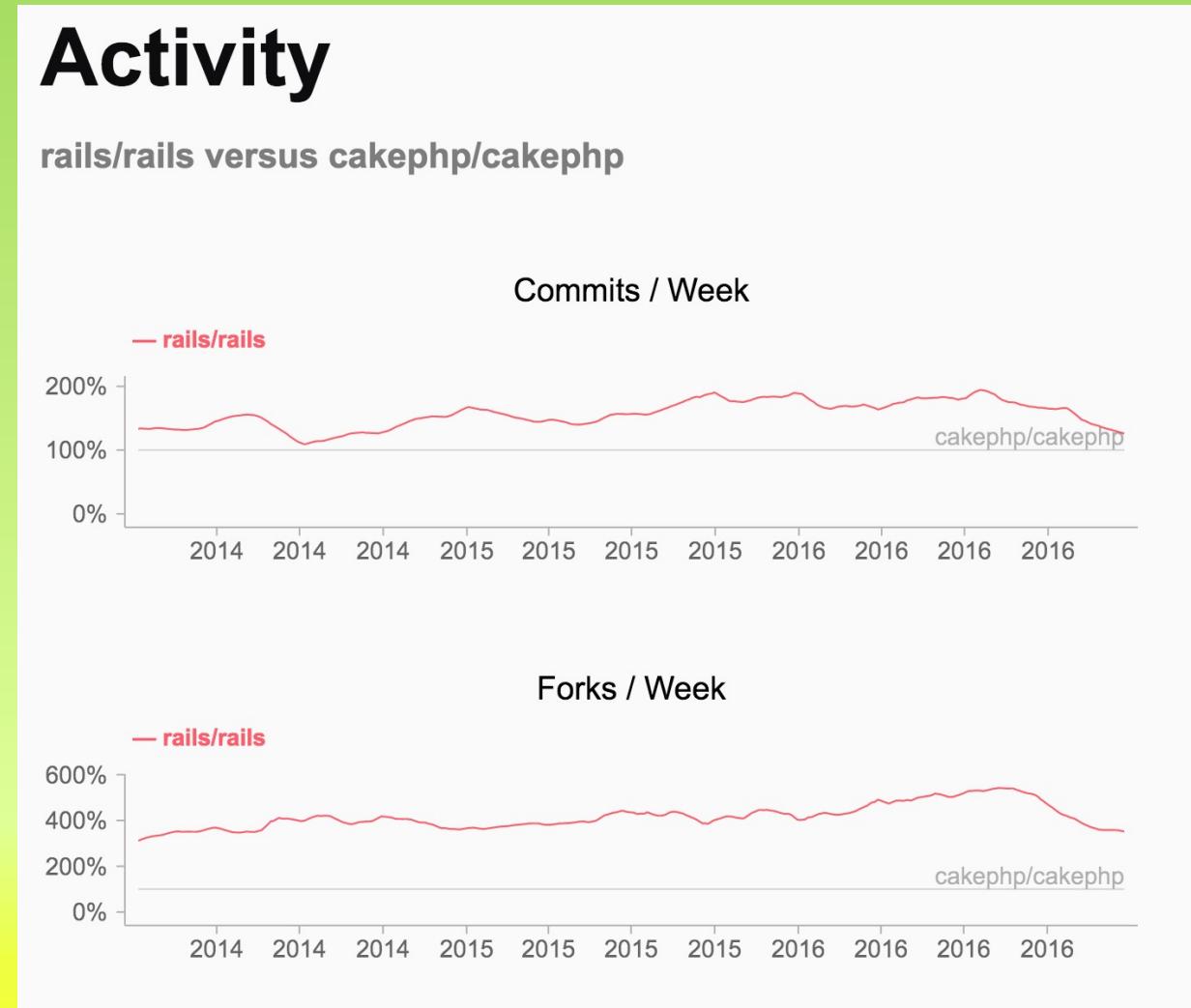
End Date
01/01/2017

Trailing Average
180 days

Comparisons

Z-score trailing average
 100% is the compared project

Render





Comparisons

Base Repository

Start Date
01/01/2014

End Date
01/01/2017

Trailing Average
180 days

Comparisons

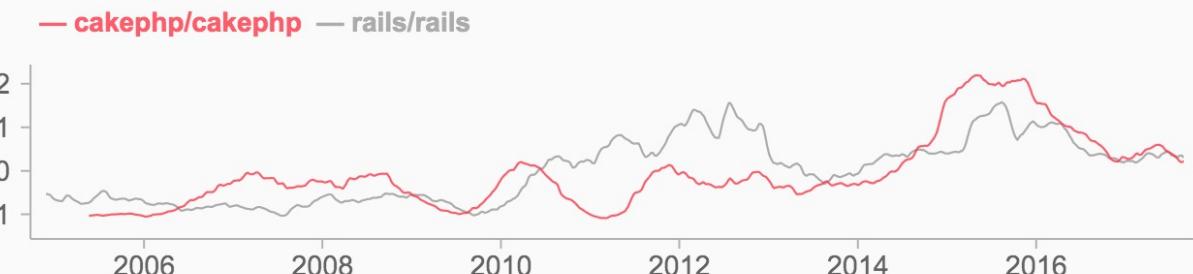
Z-score trailing average
 100% is the compared project

Render

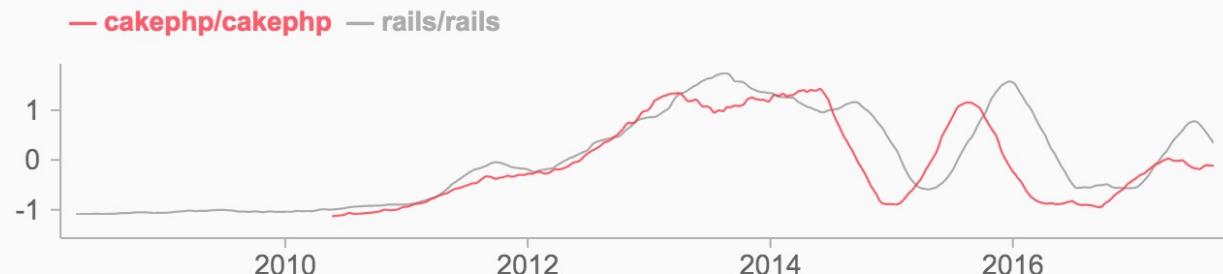
Activity

rails/rails versus cakephp/cakephp

Commits / Week



Forks / Week





Enabling Comparisons in Open Source

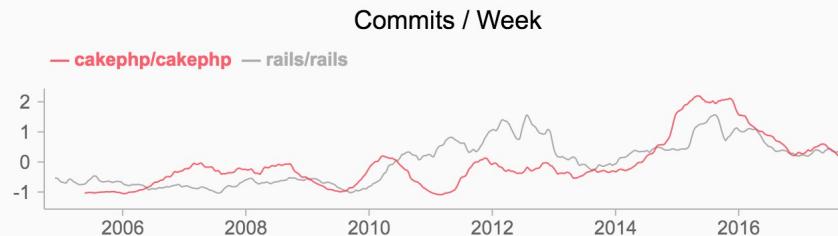


What do statistics mean?

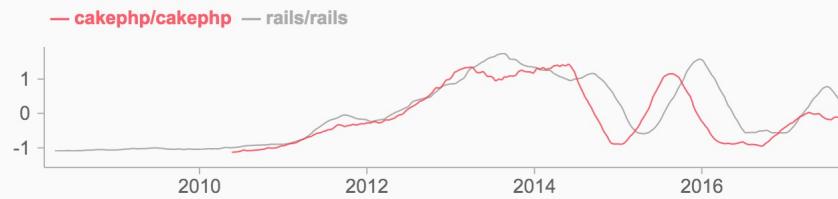
Commits Pull Requests
Issues Comments Number of Participants

Activity

rails/rails versus cakephp/cakephp



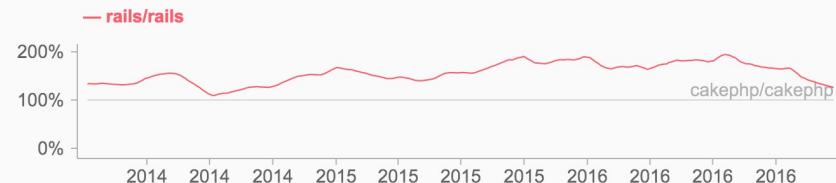
Forks / Week



Activity

rails/rails versus cakephp/cakephp

Commits / Week



Forks / Week





Design of Metric Representation



Comparisons

Within Project Comparison: Time

Cross Project Comparison: Side by side

- Absolute Differences
- Z-Scores

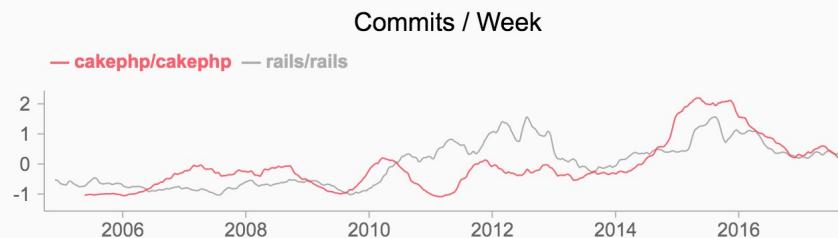


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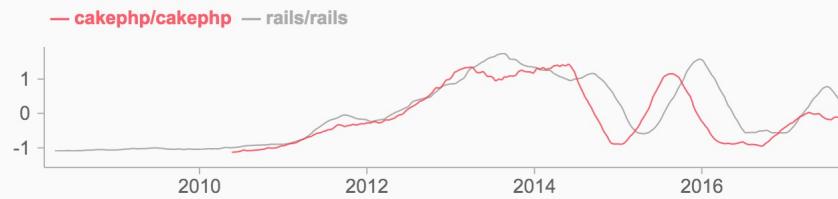
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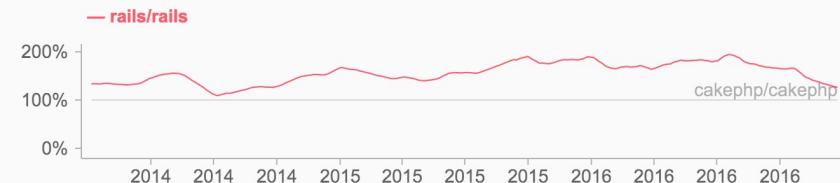
Forks / Week



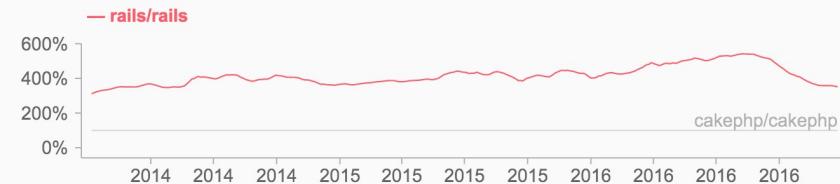
Activity

rails/rails versus cakephp/cakephp

Commits / Week



Forks / Week





What Does Group Informatics Draw From?

Group informatics is the

- ① systematic application of social network and set theory oriented methods** for analysis of online, human trace data,
 - ① skepticism about the reality presented by analysis of raw trace data, and
 - ② the integration of other, context relevant social computational methods and approaches,
 - ③ in concert with established and emerging qualitative approaches
- ② Computational Linguistics and Topic Modeling to identify a) Topics discussed, b) sentiment, c) nature of interaction structure
- ③ to produce reliable and repeatable science in the study on online phenomena.



Networks and Language



Infrastructure

A Sociotechnical ~~MECHANISM~~ for Online Support proVISION



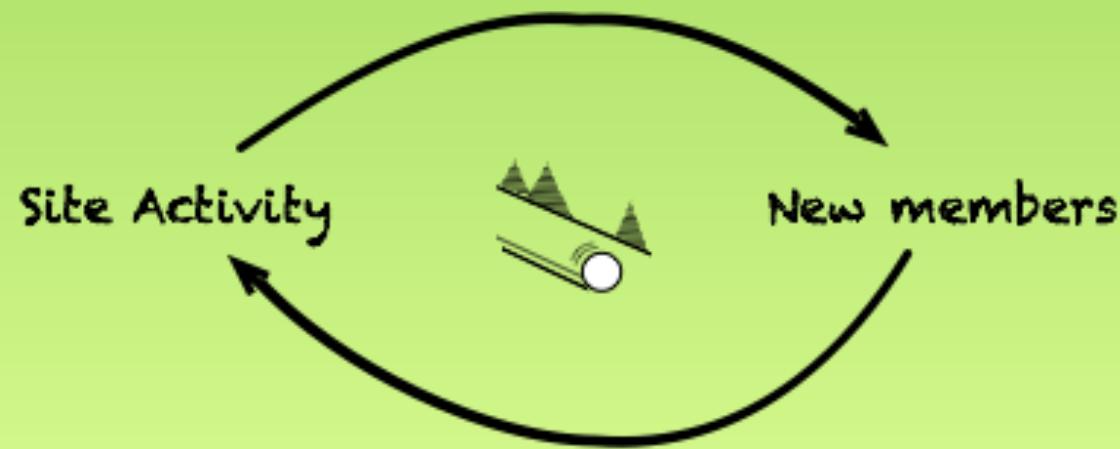
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This work was supported by NSF grant VOSS-142298

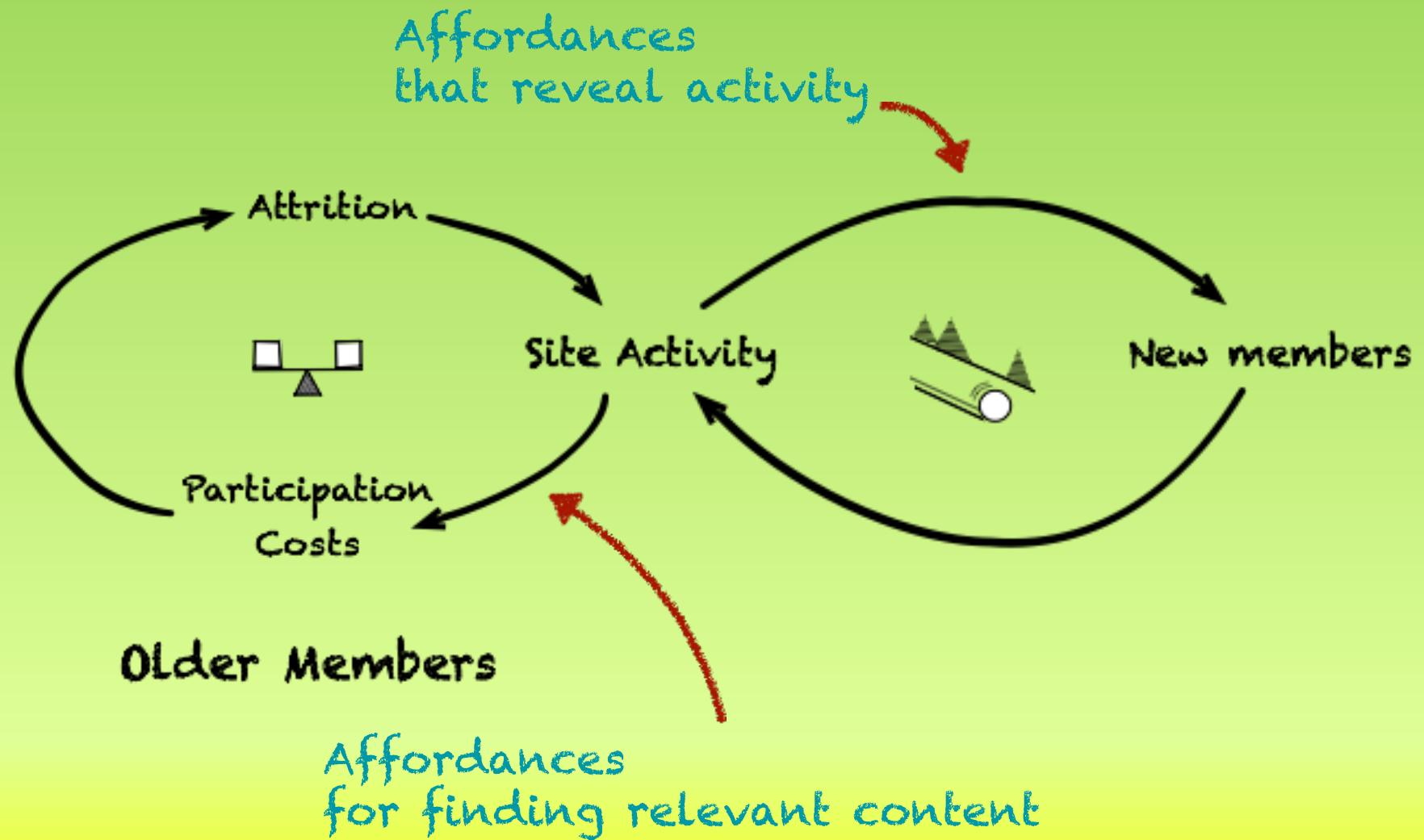


ONLINE SUPPORT

- A place online where people with medical conditions can go to find social support that complements the services of professional health care providers.
- Different kinds of support:
 - Informational support
 - Emotional support
 - Community support / companionship



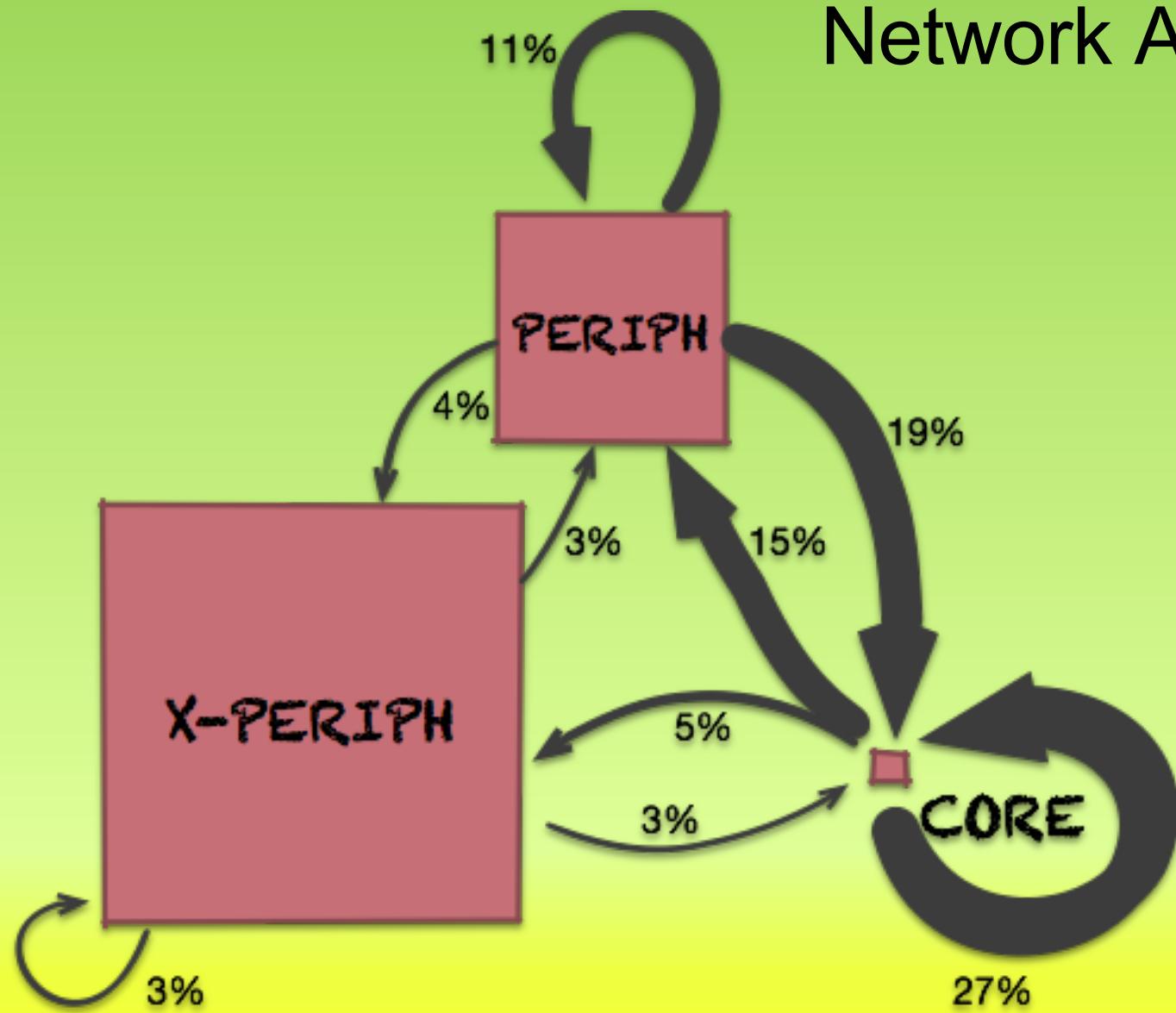
Butler, B. S., Bateman, P. J., Gray, P. H., & Diamant, E. I. (2014). An attraction-selection-attrition theory of online community size and resilience. *Mis Quarterly*, 38(3), 699–728.



Butler, B. S., Bateman, P. J., Gray, P. H., & Diamant, E. I. (2014). An attraction-se
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Network Analysis



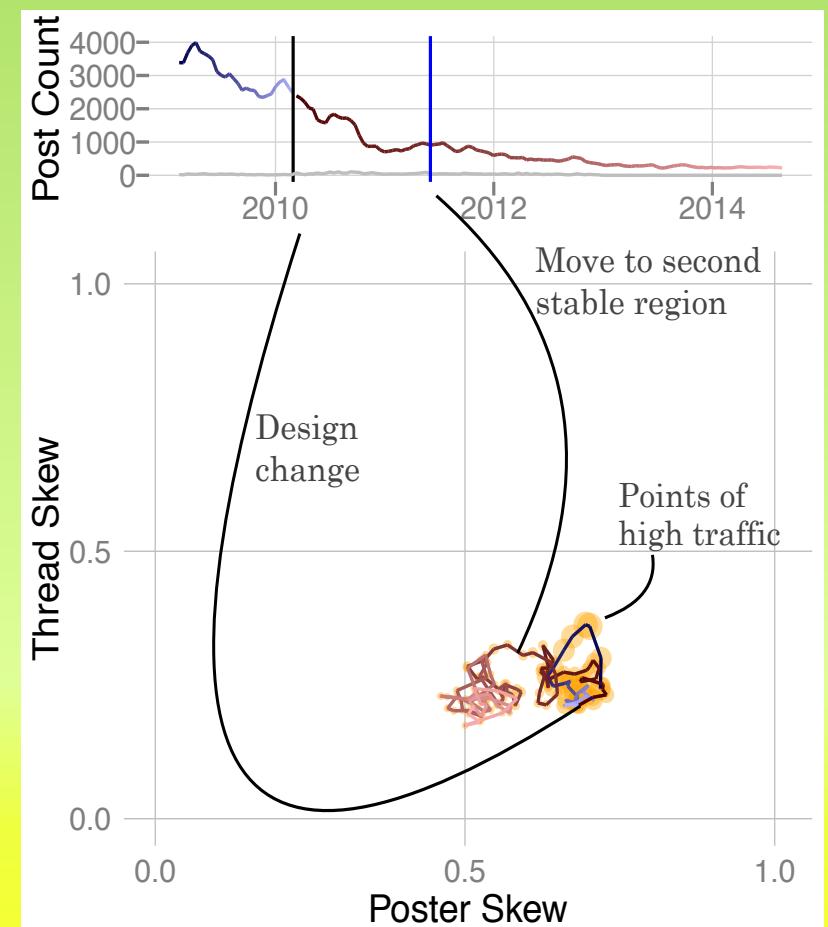


Online Health Support Forums

Network Analysis

Table 1: Core / periphery / extra-periphery sizes and activity. Proportion of total in parentheses. Coloring reflects proportion to improve readability.

	Number of Messages			Unique Posters		
	C	P	X	C	P	X
Fibromyalgia	105579 (.5)	83362 (.4)	21938 (.1)	41 (.)	2359 (.25)	6961 (.74)
Diabetes	42540 (.6)	19959 (.28)	7999 (.11)	25 (.)	1095 (.2)	4467 (.8)
MS	13145 (.43)	14070 (.46)	3705 (.12)	21 (.01)	892 (.28)	2322 (.72)
Breast Cancer	12281 (.46)	8854 (.33)	5709 (.21)	17 (.01)	673 (.26)	1923 (.74)
Epilepsy	6262 (.49)	4580 (.36)	1984 (.15)	7 (.)	541 (.28)	1379 (.72)
Alzheimer's	4425 (.69)	1402 (.22)	572 (.09)	13 (.02)	215 (.3)	478 (.68)
Lupus	4366 (.3)	7424 (.51)	2882 (.2)	8 (.)	472 (.24)	1483 (.76)
HIV/AIDS	3878 (.36)	4264 (.39)	2729 (.25)	3 (.)	708 (.32)	1494 (.68)
Asthma	3328 (.35)	3164 (.33)	3126 (.33)	8 (.)	342 (.14)	2162 (.86)
Osteoporosis	1085 (.3)	1154 (.32)	1370 (.38)	2 (.)	268 (.21)	986 (.79)
Parkinson's	1064 (.28)	1410 (.36)	1391 (.36)	5 (.)	247 (.2)	985 (.8)
Hepatitis	983 (.18)	2191 (.4)	2253 (.42)	3 (.)	241 (.2)	963 (.8)
ADD and ADHD	959 (.11)	3615 (.41)	4305 (.48)	2 (.)	493 (.14)	3017 (.86)
Total	199895 (.48)	155449 (.37)	59963 (.14)	155 (.)	8546 (.23)	28620 (.77)





Support Classification

Computational Linguistic Analysis

Emotional support: messages provide understanding, encouragement, affirmation, sympathy, or caring.

Informational support: messages provide advice, referrals or knowledge.

Community support

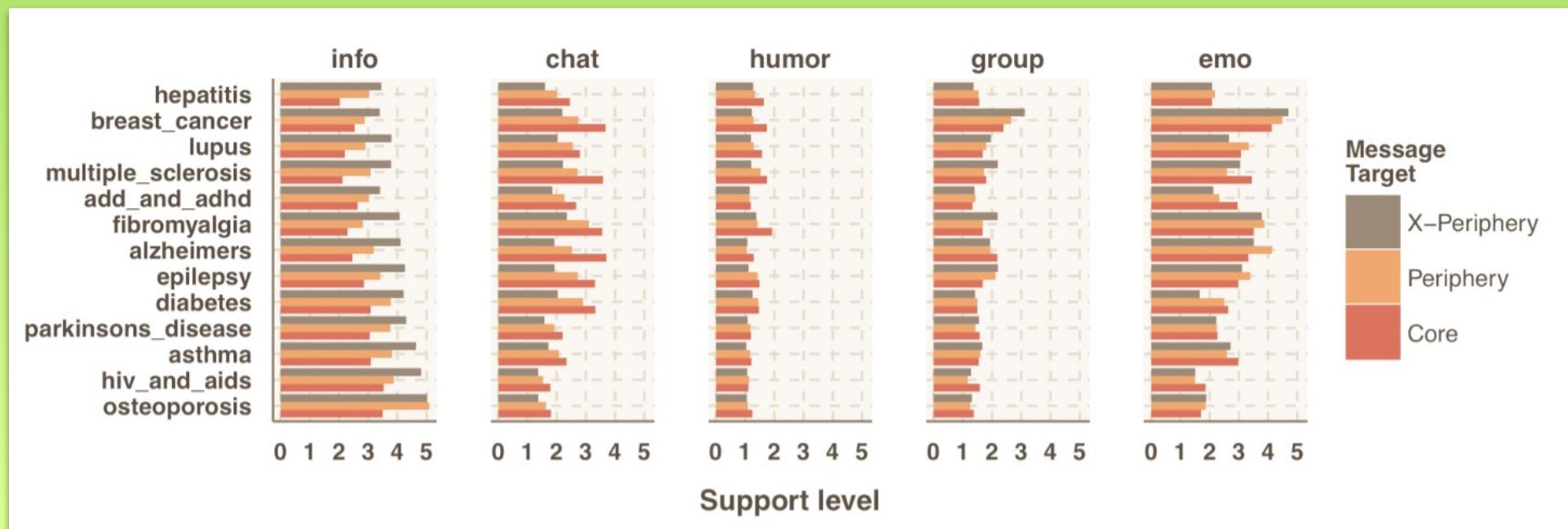


Chatting: light-hearted conversation focusing on non-disease related information

Humor: jokes or expressions of humor or teasing.

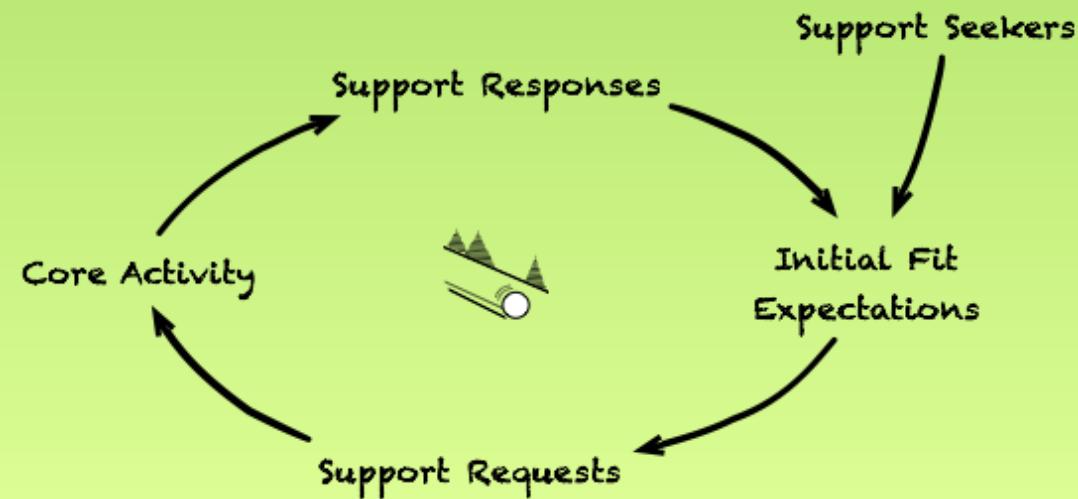
Groupness: involves references to the forum participants as a group or community

Bambina, A. (2007). Online Social Support: The Interplay of Social Networks and Computer-Mediated Communication. Cambria Press.



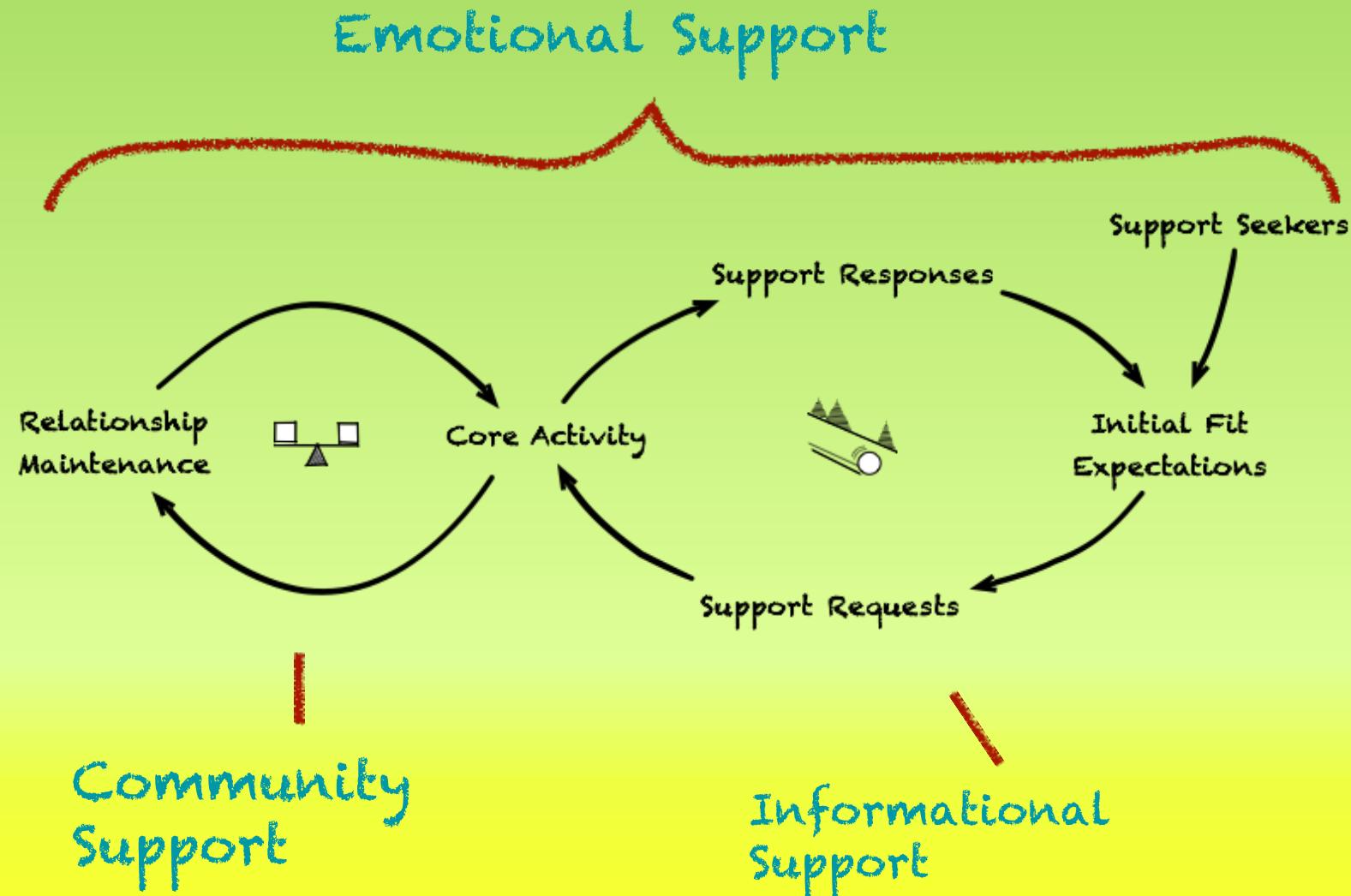


A Sociotechnical INFRASTRUCTURE for Online Support provision





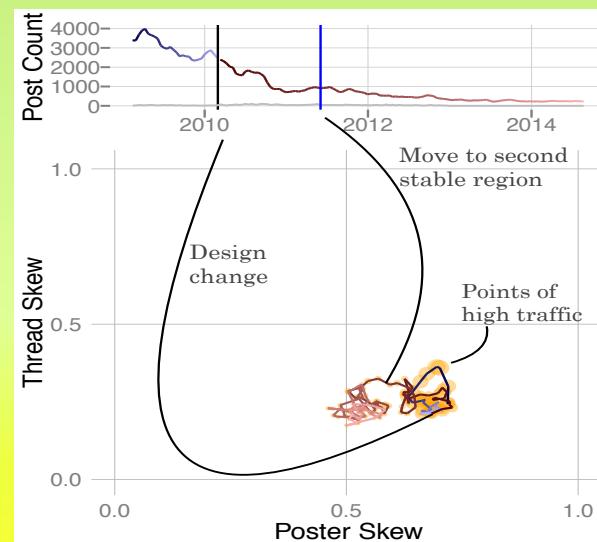
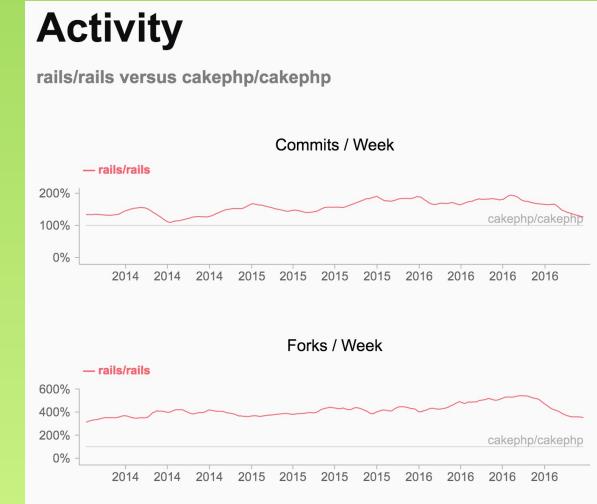
A Sociotechnical INFRASTRUCTURE for Online Support provision





Social Comparisons From Trace Data

- Organizational
- Project
- Individual



Making Them Visible



The End

Questions?