

For electronic journals, total  
downloads can predict number of  
users

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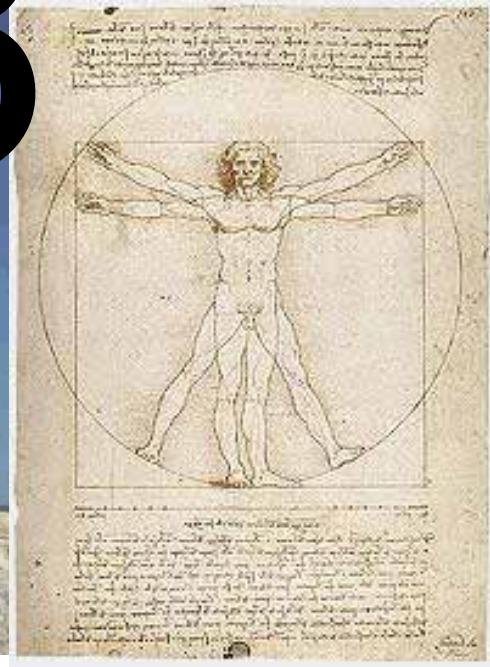
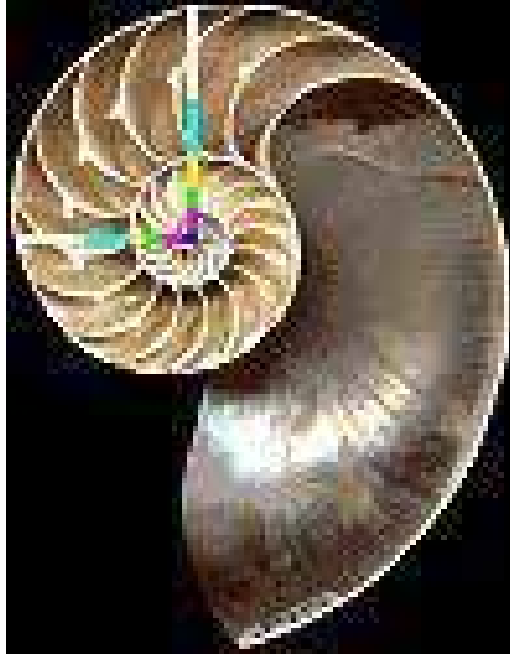
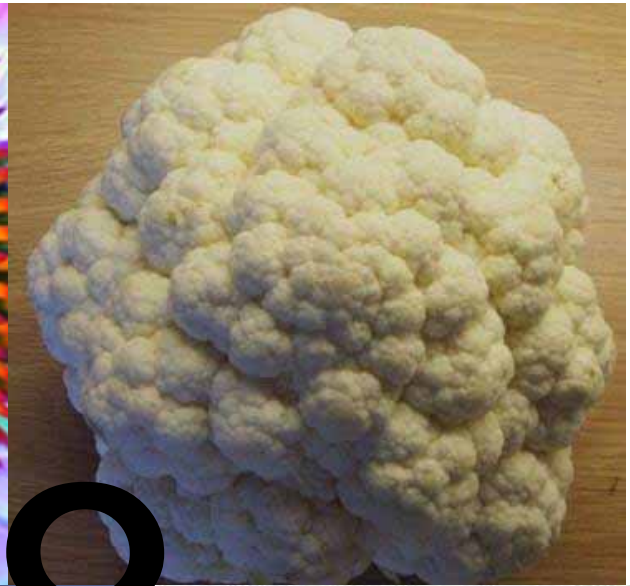
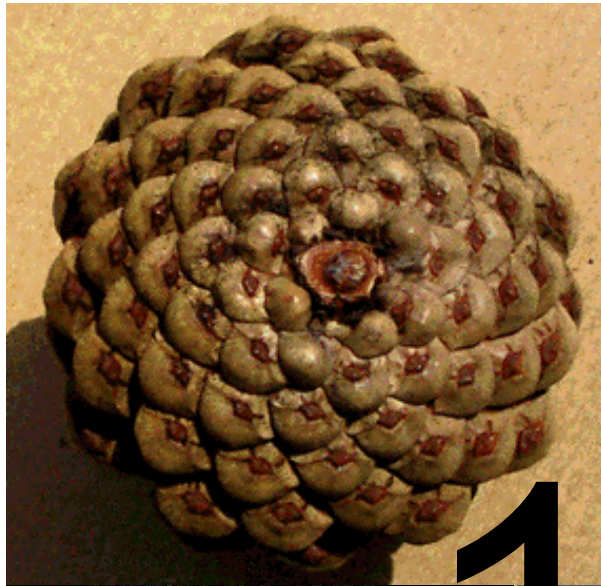
# Leonardo Pisano (c.1170 to c.1240) Leonardo Fibonacci



1    1    2    3    5    8    13    21    34

1 + 1 = 2 + 3 = 5 ... etc.

1/1    2/1    3/2    5/3 .... = 1.618 **Golden Ratio**



1.618

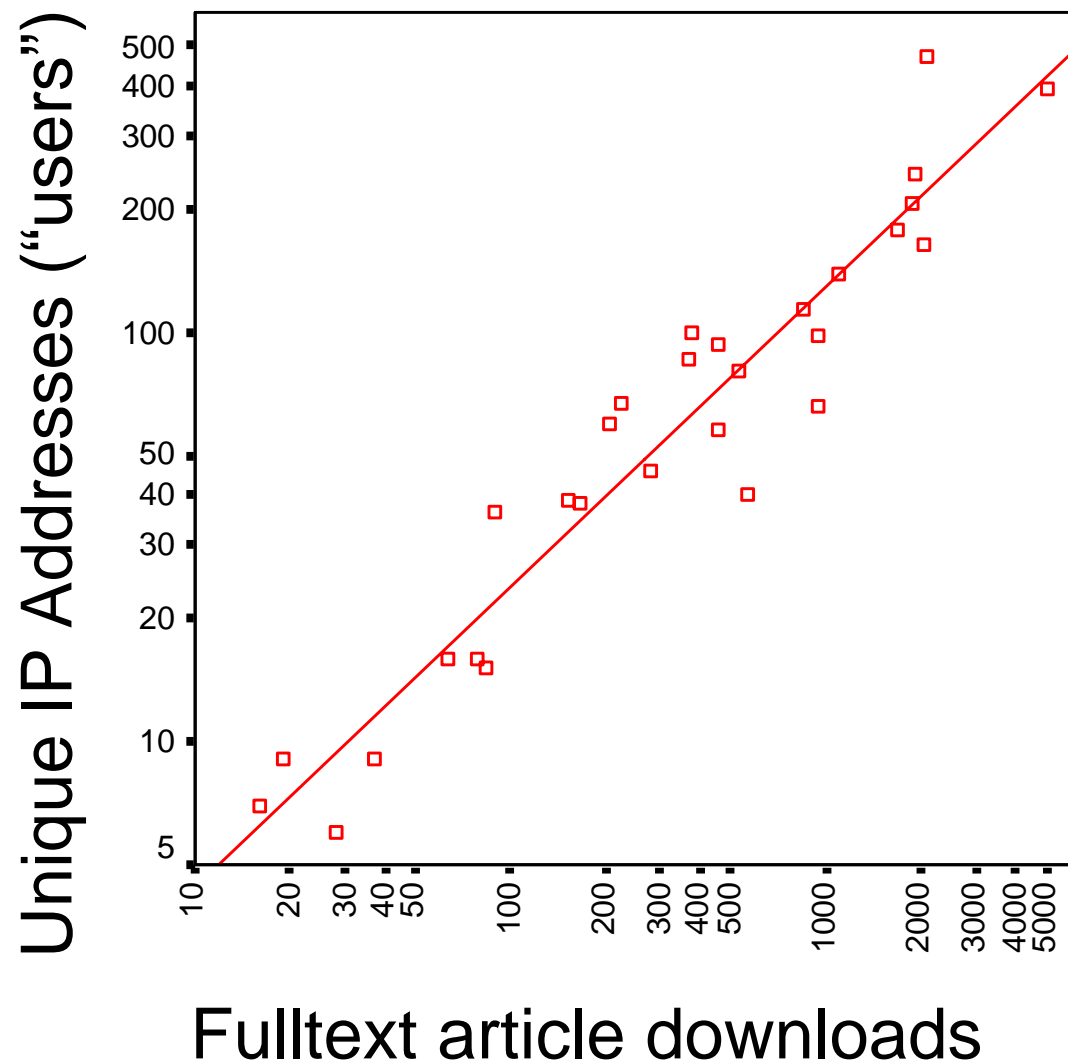
# From Last Fiesole Retreat

What do these statistics represent?

<b>A. Monthly Statistics by Journal</b>							
<b>Journal</b>	<b>Subscribed Journal Usage</b>						<b>Total Use</b>
	<b>Jan 2002</b>	<b>Feb 2002</b>	<b>Mar 2002</b>	<b>Apr 2002</b>	<b>May 2002</b>	<b>Jun 2002</b>	
<b>A</b>	<b>100</b>	<b>131</b>	<b>136</b>	<b>193</b>	<b>80</b>	<b>56</b>	<b>696</b>
<b>B</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>10</b>
<b>C</b>	<b>8</b>	<b>6</b>	<b>39</b>	<b>5</b>	<b>88</b>	<b>368</b>	<b>514</b>

What are the number of Users?

# From Last Fiesole Retreat



- For ACS journals, number of article downloads can predict number of users
- Logarithmic (non-linear) relationship
- Q: Is this relationship constant over time, between institutions and between publishers?

# Downloads vs. Users

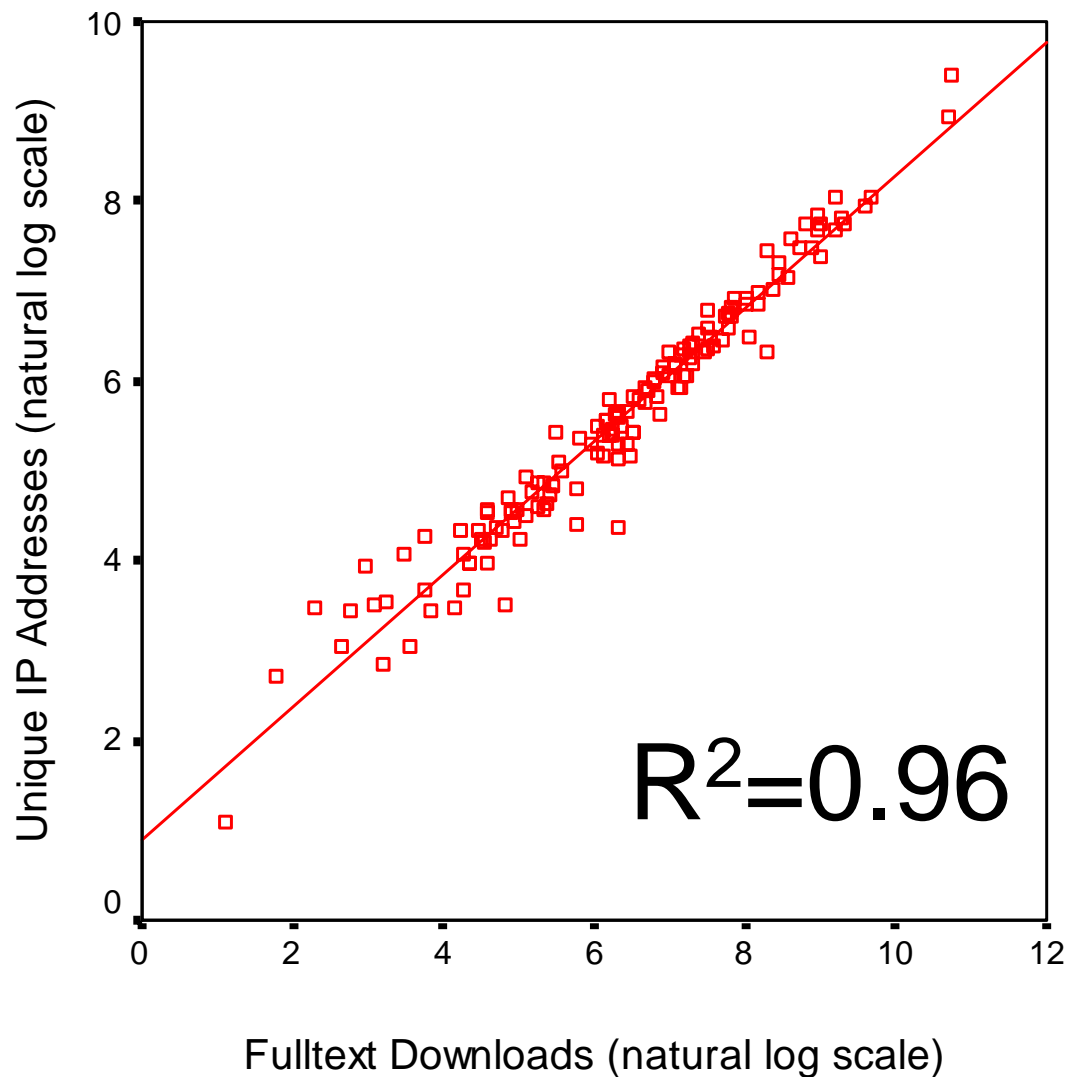
0.71

- Constant over time and across institutions
- Irrespective of subject, size or popularity of journal
- Logarithmic relationship
- Not consistent between publishers
- “Interface” or “counting” effect
- Impossible to compare use of journals across publishers
- Implications for Project COUNTER

# Participating Institutions

Cal Tech
Cambridge University (UK)
Columbia University
Cornell University
Iowa State University
Kings College, London (UK)
Lund University (Sweden)
MIT
Rutgers University
University Georgia
University of Bristol (UK)
University of California, Berkeley
University of Liverpool (UK)
University of Nevada, Reno
University of North Carolina, Charlotte
Yale University

# Downloads can predict Users



Each datapoint is a journal

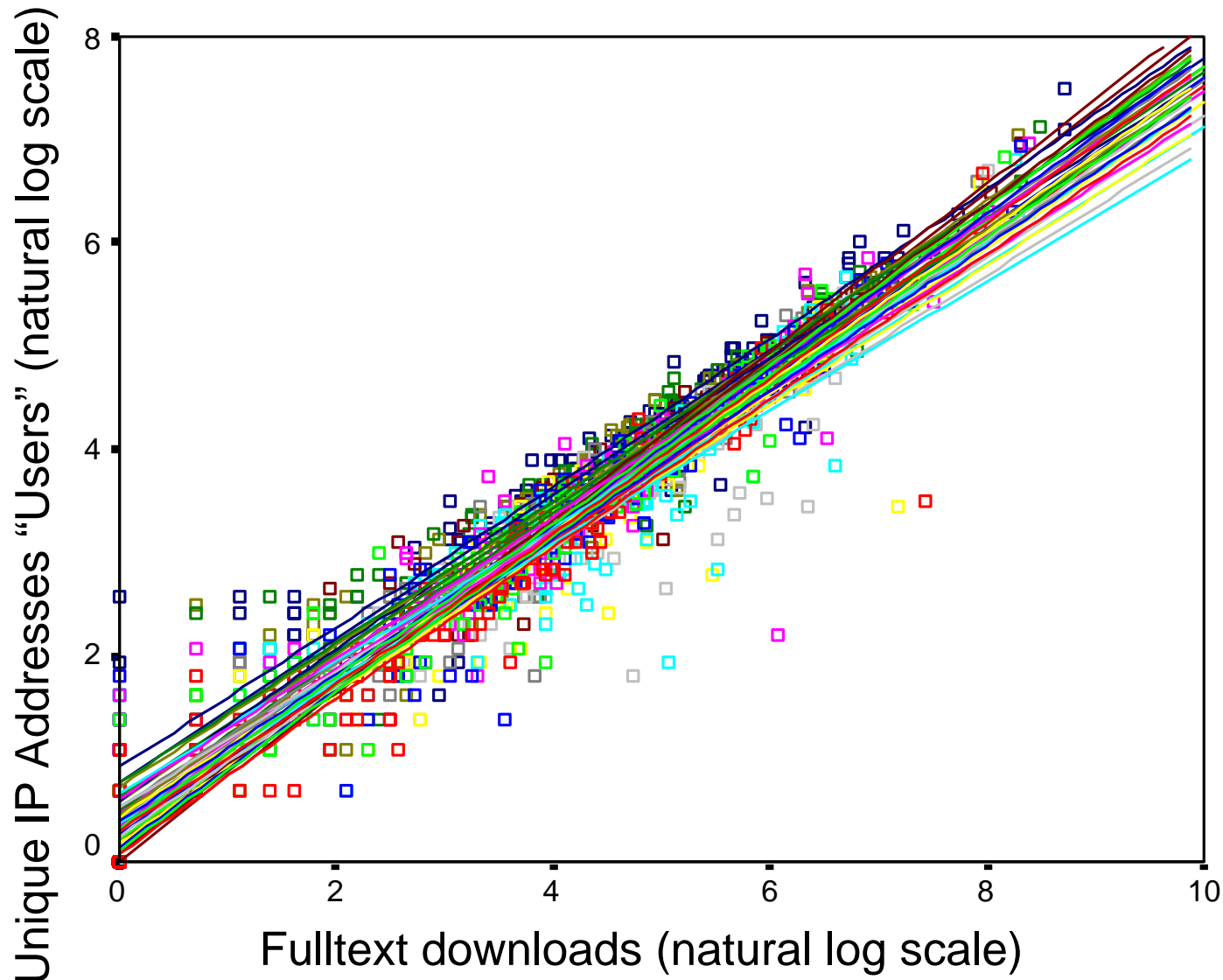
Cornell all months (2003)

96% of the variation can be explained by just knowing the number of downloads

Slope of the line=**0.71**



# Testing the effect of time (months)



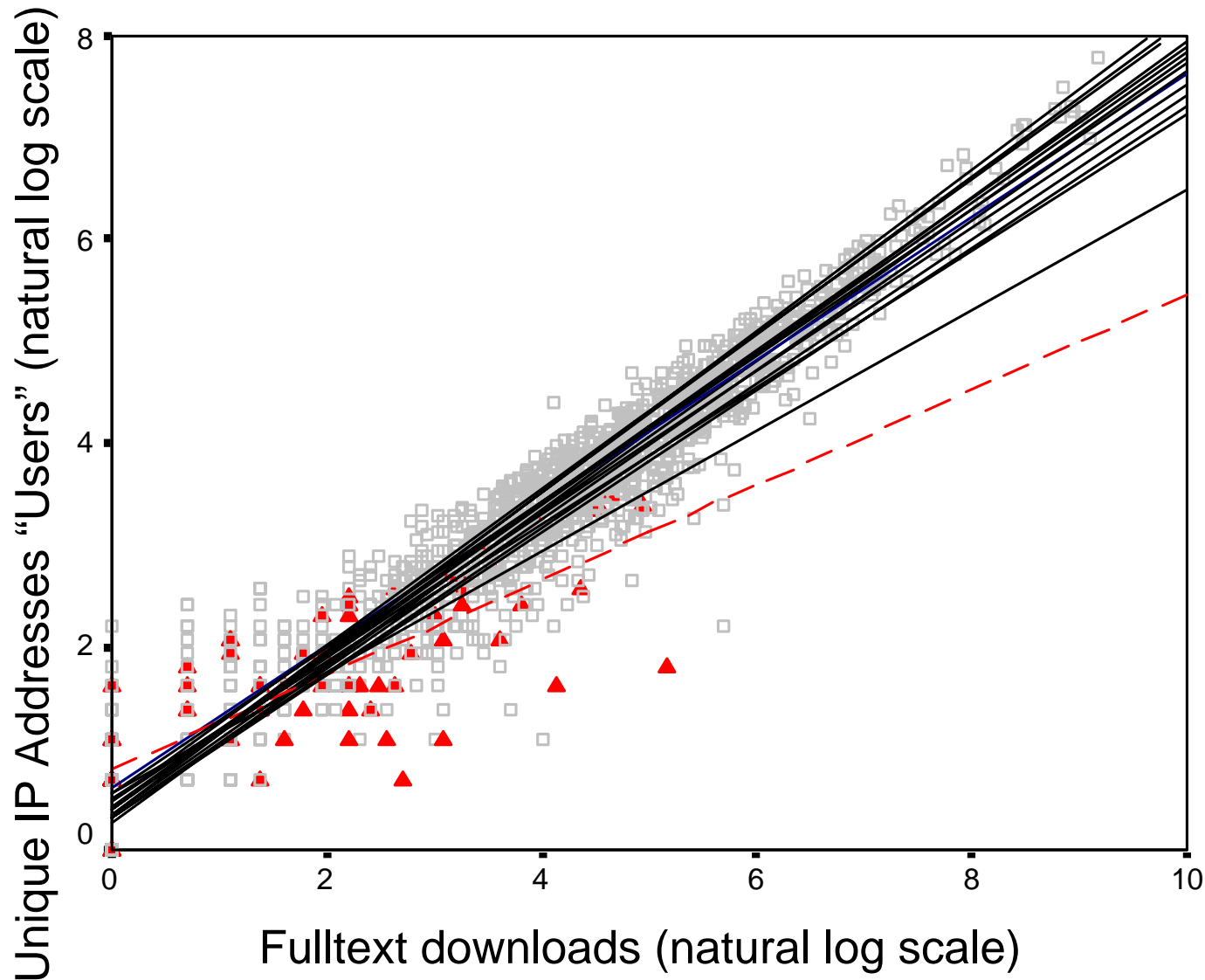
Each datapoint is a journal

Each line is a separate month

Slope of all lines=

**0.71**

# Testing the effect of institution



Each datapoint is  
a journal

Each line is an  
institution

Slope of all lines=

**0.71**

# Why are the ratios different?

Am. Chem. Soc.

HighWire

0.093

0.71

1. Subject? Unlikely
2. Size of Community? Unlikely
3. Interface effect
4. Counting effect (extreme users)

# Interface Effect (browsing, linking)

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HighWire

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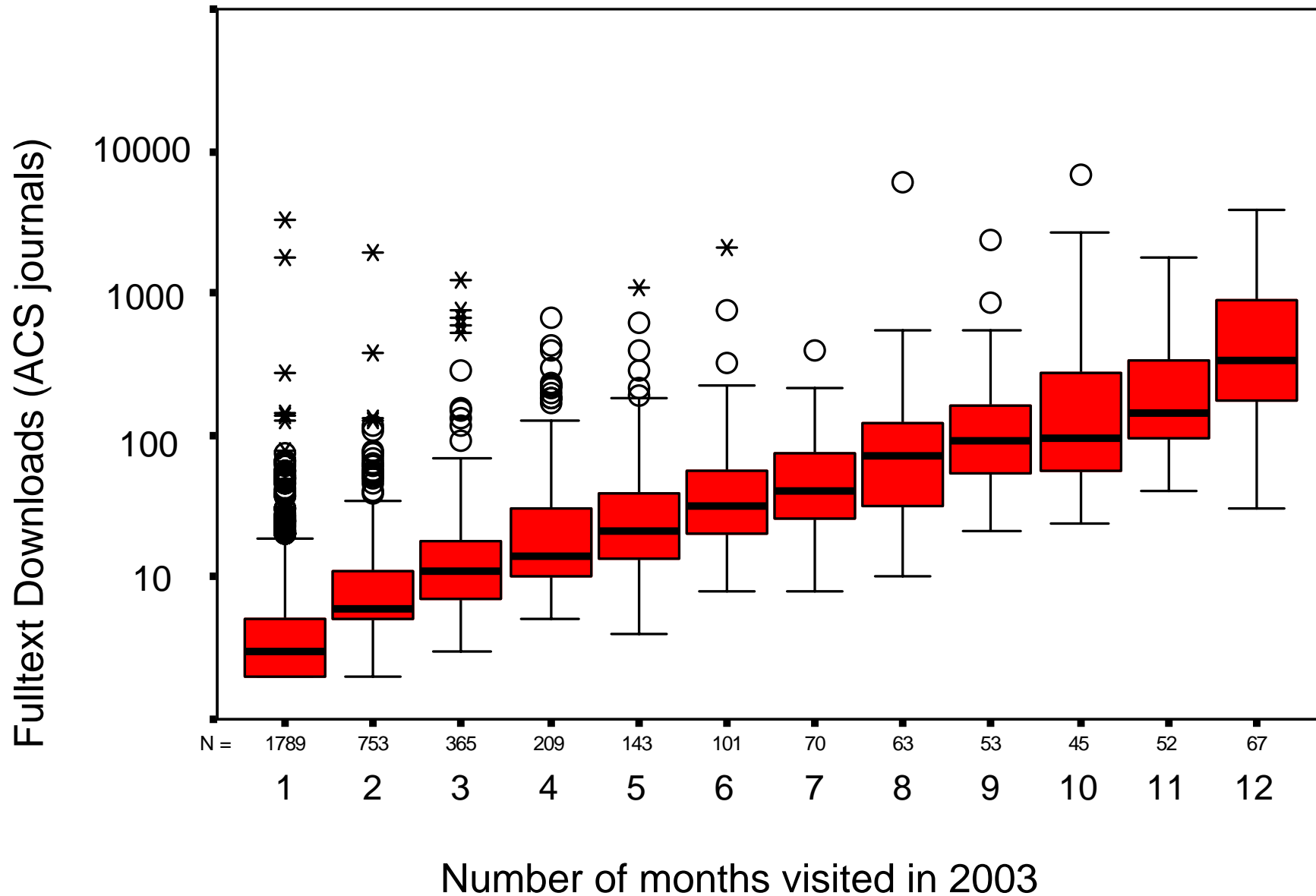
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# Effect of “Extreme” Users



# 0.71?

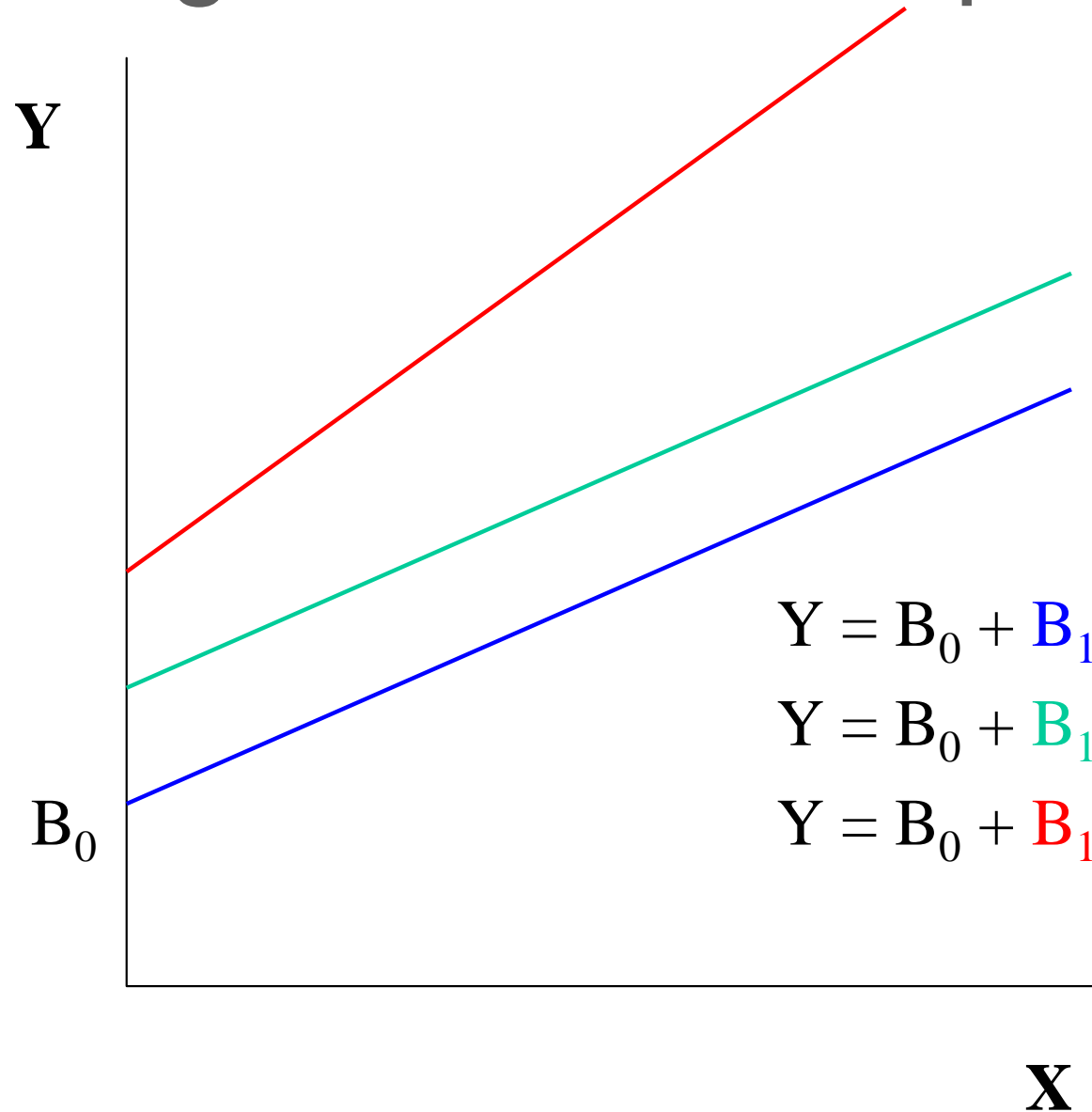
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Preprint Available:

<http://people.cornell.edu/pages/pmd8/>

# Regression & multiple regression



$$Y = B_0 + B_1 X + e$$

$$Y = B_0 + B_1 X + B_2 X + e$$

$$Y = B_0 + B_1 X + B_2 X + B_1 * B_2 + e$$



# Solution to nonlinear relationship using raw numbers

