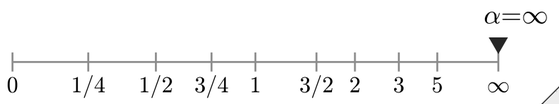
Ω_1: Baby boy names in 1880

Ω_2: Baby boy names in 1930

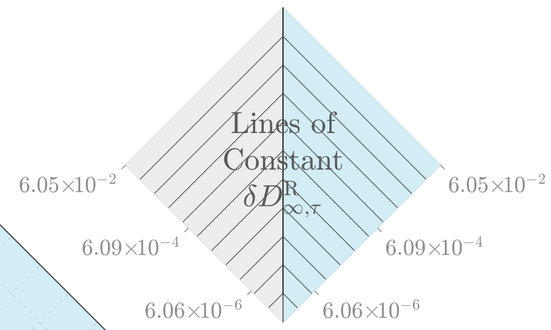
Instrument: **Rank-Turbulence Divergence**



$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.733$

$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$

$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$



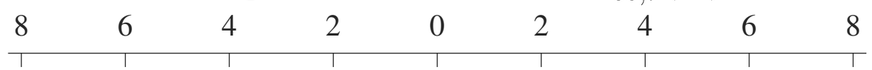
Balances:

9.1% total counts 90.9%

23.1% all names 99.3%

3.2% exclusive names 77.5%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)



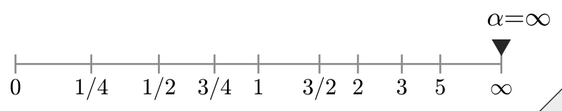
John	1⇌3	
	10⇌1	Robert
William	2⇌4	
	3⇌2	James
Charles	4⇌6	
George	5⇌8	
	23⇌5	Richard
Frank	6⇌13	
Joseph	7⇌9	
	245.5⇌7	Donald
Thomas	8⇌11	
Henry	9⇌22	
	11⇌10	Edward
Harry	12⇌28	
	60⇌12	Paul
Walter	13⇌19	
Arthur	14⇌23	
	77⇌14	Jack
Fred	15⇌32	
	18⇌15	David
Albert	16⇌24	
	87⇌16	Raymond
Samuel	17⇌55	
	294.5⇌17	Kenneth
	116.5⇌18	Harold
Louis	19⇌34	
Joe	20⇌27	
	776.5⇌20	Billy
	53⇌21	Eugene
Clarence	21.5⇌39	
Charlie	21.5⇌91	
Andrew	24⇌62	
Daniel	25⇌47	
	54⇌25	Ralph
Ernest	26⇌43	
	42⇌26	Carl
Will	27⇌354.5	
Jesse	28⇌94	
Oscar	29⇌124	
	34⇌29	Willie

53.2%—46.8%

Ω_1: Baby boy names in 1885

Ω_2: Baby boy names in 1935

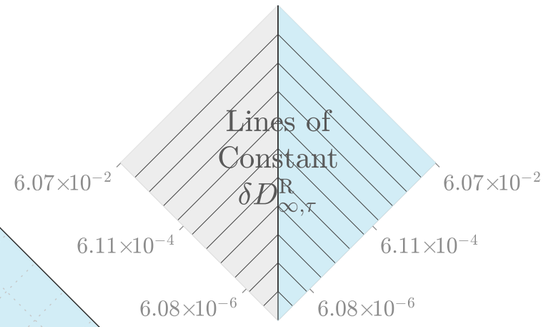
Instrument: **Rank-Turbulence Divergence**



$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.731$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$



Balances:

9.4% total counts 90.6%

26.2% all names 98.8%

4.5% exclusive names 74.7%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

53.3%—46.7%

Ω_1: Baby boy names in 1890

Ω_2: Baby boy names in 1940

Instrument: **Rank-Turbulence Divergence**

α=∞

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.733$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

John
William
Charles
George
Frank
Edward
Henry
Harry
Fred
Clarence
Charlie
Jesse
Oscar
Ben
Will
Otto
August
Harrison
Claud
Edd
Abe
Archibald
Zack
Chas
Axel
Love
Byrd
Troyce

James
Robert
Richard
David
Paul
Michael
Donald
Jerry
Kenneth
Ronald
Wayne
Gary
Jimmy
Billy
Alan
Bobby
Darrell
Ronnie
Duane
Kent
Melvyn
Julio
Whitney
Buddie
Valerian

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

6.06×10^{-2} 6.06×10^{-2}
6.11×10^{-4} 6.11×10^{-4}
6.08×10^{-6} 6.08×10^{-6}

1 10 100 1,000 10,000 100,000

← more popular

less → popular

Popularity rank r for Baby boy names in 1890

Popularity rank r for Baby boy names in 1940

1 10 100 1,000 10,000 100,000

Counts per cell

Balances:

8.7% total counts 91.3%

29.0% all names 98.4%

5.7% exclusive names 72.2%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

8 6 4 2 0 2 4 6 8

John	1⇌3	
	3⇌1	James
William	2⇌4	
	8⇌2	Robert
George	4⇌11	
Charles	5⇌6	
	25⇌5	Richard
Frank	6⇌20	
Joseph	7⇌12	
	26⇌7	David
	12⇌8	Thomas
Henry	9⇌31	
	131.5⇌9	Donald
Harry	10⇌47	
	409.5⇌10	Ronald
Edward	11⇌16	
Walter	13⇌25	
	363⇌13	Larry
Arthur	14⇌33	
	137⇌14	Jerry
Fred	15⇌40	
	187.5⇌15	Kenneth
Albert	16⇌41	
Clarence	17⇌64	
	31⇌17	Paul
Roy	18⇌42	
	48⇌18	Michael
Louis	19⇌50	
	615.5⇌19	Gary
Samuel	20⇌65	
Charlie	21⇌111	
	257⇌21	Gerald
Ernest	22⇌58	
	36⇌22	Raymond
Willie	23⇌35	
	46.5⇌23	Harold
Earl	24⇌52	
	139⇌24	Dennis
	230.5⇌26	Roger
Carl	27⇌32	

53.3%—46.7%

Ω_1: Baby boy names in 1895

Ω_2: Baby boy names in 1945

Instrument: **Rank-Turbulence Divergence**

α=∞

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.737$

$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$

$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$

John
William
Charles
George
Frank
Edward
Henry
Harry
Fred
Clarence
Earl
Charlie
Elmer
Oscar
Ben
Will
Otto
Charley
Jake
Claud
Dock
Gustave
Archibald
Axel
Florence
Gertrude
Reinhard
Royden

James
Robert
Thomas
Richard
Paul
Michael
Raymond
Donald
Kenneth
Ronald
Roger
Gary
Johnny
Terry
Tommy
Gregory
Keith
Bobby
Barry
Craig
Marc
Robin
Delano
Les
Antony
Lamon

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

6.05×10^{-2} 6.10×10^{-4} 6.07×10^{-6}

1 10 100 1,000 10,000 100,000

← more popular

less → popular

Popularity rank r for Baby boy names in 1895

Popularity rank r for Baby boy names in 1945

← less popular

more → popular

1 10 100 1,000 10,000

Counts per cell

Balances:

8.0% total counts 92.0%

32.1% all names 98.0%

6.2% exclusive names 69.2%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

8 6 4 2 0 2 4 6 8

John	1⇌3		
3⇌1		James	
William	2⇌4		
8⇌2		Robert	
George	4⇌15		
Charles	5⇌7		
31⇌5		Richard	
Frank	6⇌21		
32⇌6		David	
Joseph	7⇌14		
11⇌8		Thomas	
Henry	9⇌37		
52⇌9		Michael	
Edward	10⇌18		
386⇌10		Ronald	
297.5⇌11		Larry	
Harry	12⇌47		
96⇌12		Donald	
Walter	13⇌27		
624⇌13		Gary	
Arthur	14⇌34		
Fred	15⇌51		
Albert	16⇌49		
131⇌16		Kenneth	
Clarence	17⇌82		
20⇌17		Paul	
Willie	18⇌31		
Roy	19⇌40		
142.5⇌19		Dennis	
153⇌20		Jerry	
Louis	21⇌55		
207⇌22		Roger	
Carl	22.5⇌39		
Earl	22.5⇌71		
26⇌23		Raymond	
Ernest	24⇌60		
40⇌24		Daniel	
Samuel	25⇌62		
193⇌25		Gerald	
103.5⇌26		Stephen	

53.1%—46.9%

Ω_1: Baby boy names in 1900

Ω_2: Baby boy names in 1950

Instrument: **Rank-Turbulence Divergence**

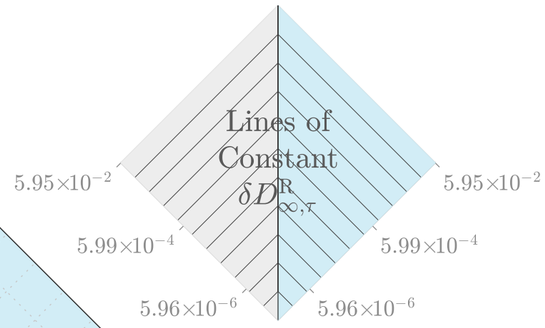
α=∞

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.750$

$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$

$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$



John, William, Charles, George, Joseph, Edward, Frank, Henry, Harry, Fred, Clarence, Charlie, Jesse, Sam, Jessie, Will, Ed, Charley, Mckinley, Claud, Dock, Ambrose, Pearl, Green, Chas, Wm, Nora, Fredrik, Denise

James, Robert, Thomas, Michael, Paul, Daniel, Donald, Stephen, Larry, Ronald, Gary, Terry, Gregory, Danny, Bobby, Darrell, Jeffrey, Kevin, Ricky, Kerry, Kenny, Ramiro, Margarito, Jerrel, Markus

1 10 100 1,000 10,000 100,000

← more popular

Popularity rank r for Baby boy names in 1900

less → popular

Popularity rank r for Baby boy names in 1950

← less popular

more → popular

1 10 100 1,000 10,000

Counts per cell

Balances:

7.8% total counts 92.2%

34.9% all names 97.2%

8.2% exclusive names 67.0%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

6 4 2 0 2 4 6

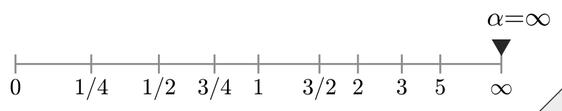
John	1⇌3	
	3⇌1	James
William	2⇌6	
	6⇌2	Robert
George	4⇌20	
	51⇌4	Michael
Charles	5⇌9	
	32⇌5	David
Joseph	7⇌13	
	24⇌7	Richard
Frank	8⇌29	
	11⇌8	Thomas
Edward	9⇌22	
Henry	10⇌47	
	934.5⇌10	Gary
	260⇌11	Larry
Walter	12⇌40	
	346⇌12	Ronald
Harry	13⇌61	
Willie	14⇌42	
	79⇌14	Donald
Arthur	15⇌46	
	90⇌15	Kenneth
Albert	16⇌56	
	333⇌16	Steven
Fred	17⇌84	
	158.5⇌17	Dennis
Clarence	18⇌95	
	19⇌18	Paul
	127.5⇌19	Stephen
Harold	20⇌45	
Roy	21⇌51	
	44⇌21	Daniel
Joe	22⇌54	
Raymond	23⇌31	
	152⇌23	Mark
	113⇌24	Jerry
Charlie	25⇌151	
	763.5⇌25	Gregory
Louis	26⇌66	

53.2%—46.8%

Ω_1: Baby boy names in 1905

Ω_2: Baby boy names in 1955

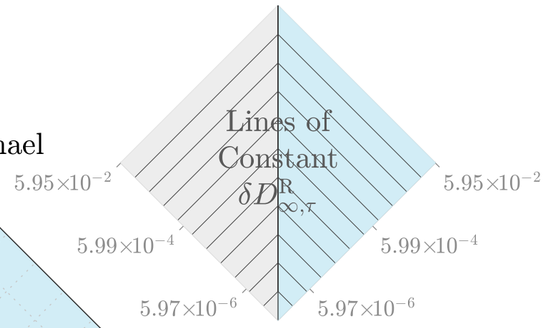
Instrument: **Rank-Turbulence Divergence**



$$D_\infty^{\mathrm{R}}(\Omega_1 \,\|\, \Omega_2) = 0.752$$

$$\propto \sum_\tau \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$



Counts per cell

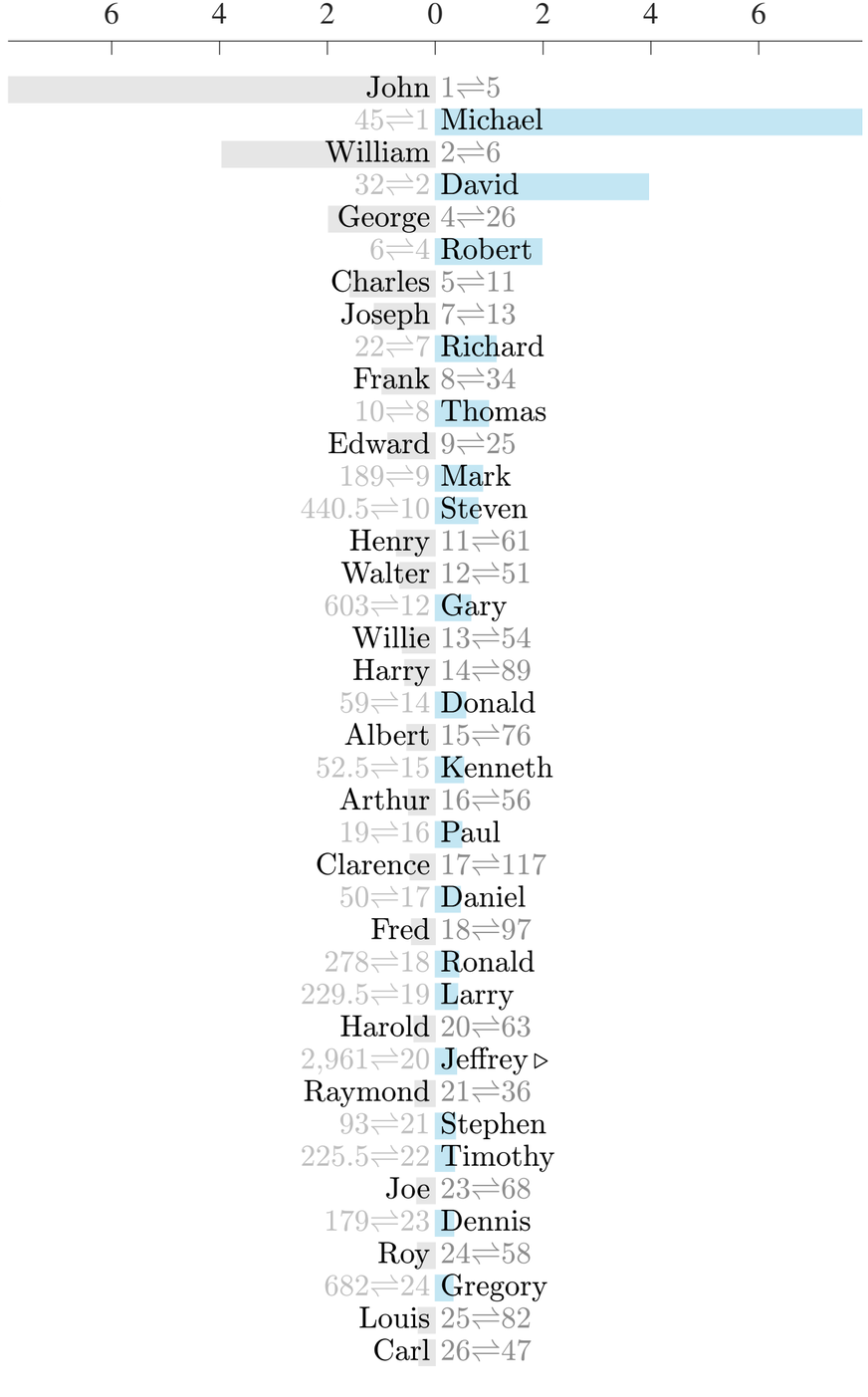
Balances:

6.0% total counts 94.0%

31.6% all names 97.7%

7.2% exclusive names 70.0%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

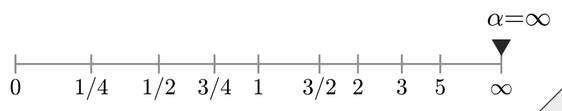


53.4%—46.6%

Ω_1: Baby boy names in 1910

Ω_2: Baby boy names in 1960

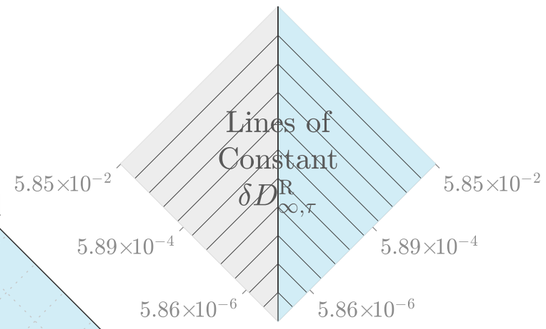
Instrument: **Rank-Turbulence Divergence**



$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.773$

$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$

$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$



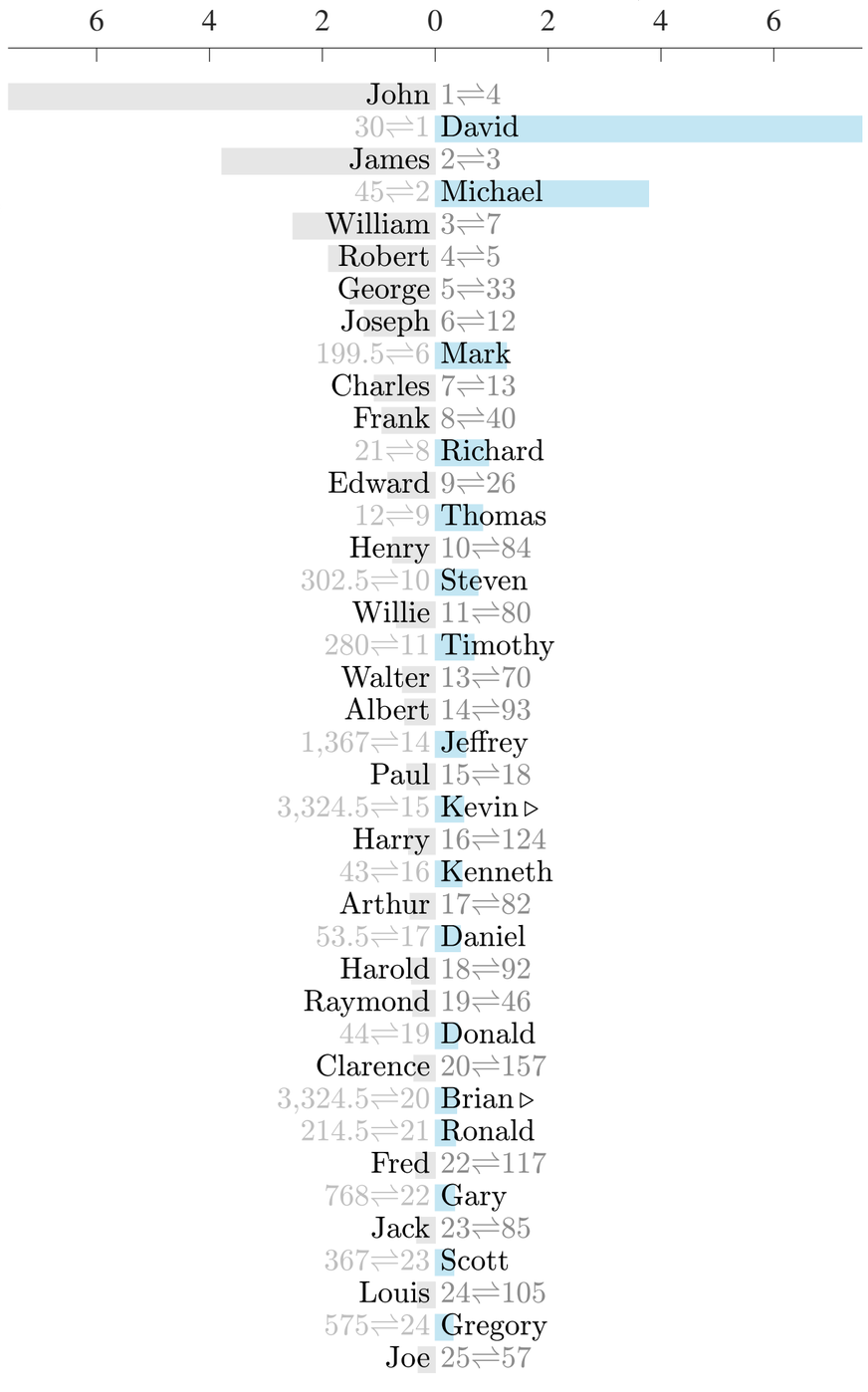
Balances:

8.3% total counts 91.7%

38.2% all names 95.6%

11.6% exclusive names 64.6%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

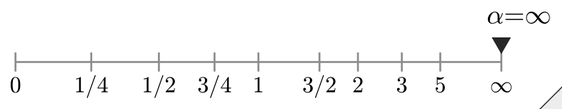


55.8%—44.2%

Ω_1: Baby boy names in 1915

Ω_2: Baby boy names in 1965

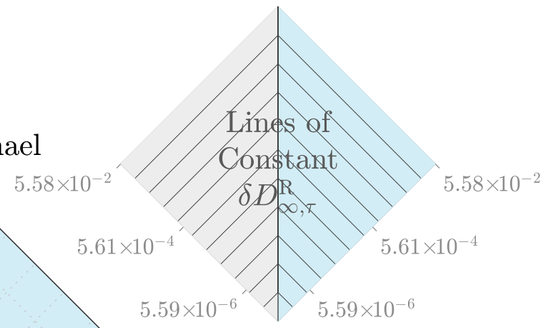
Instrument: **Rank-Turbulence Divergence**



$$D_\infty^{\mathrm{R}}(\Omega_1 \,\|\, \Omega_2) = 0.755$$

$$\propto \sum_\tau \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$



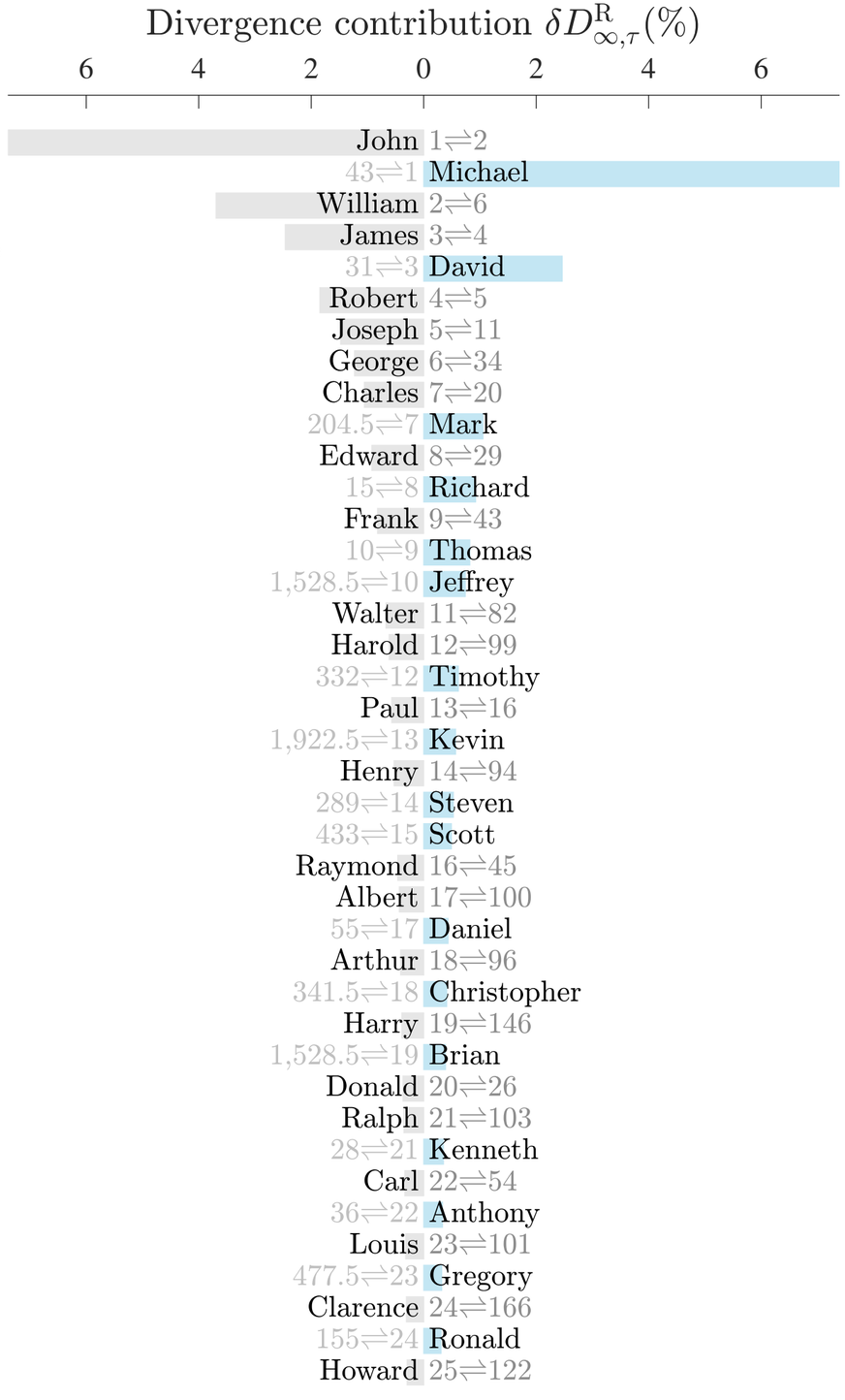
Balances:

31.3% total counts 68.7%

70.0% all names 70.5%

42.1% exclusive names 42.5%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

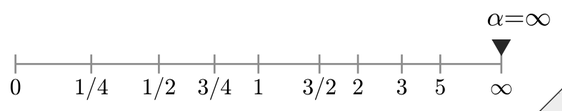


56.6%—43.4%

Ω_1: Baby boy names in 1920

Ω_2: Baby boy names in 1970

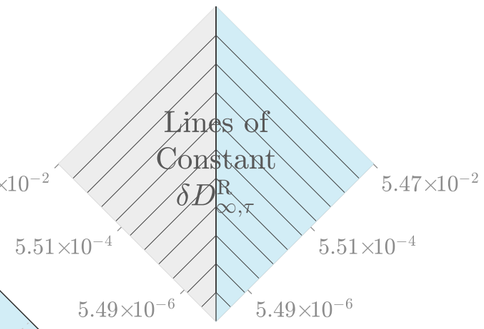
Instrument: **Rank-Turbulence Divergence**



$$D_\infty^{\mathrm{R}}(\Omega_1 \,\|\, \Omega_2) = 0.778$$

$$\propto \sum_\tau \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$



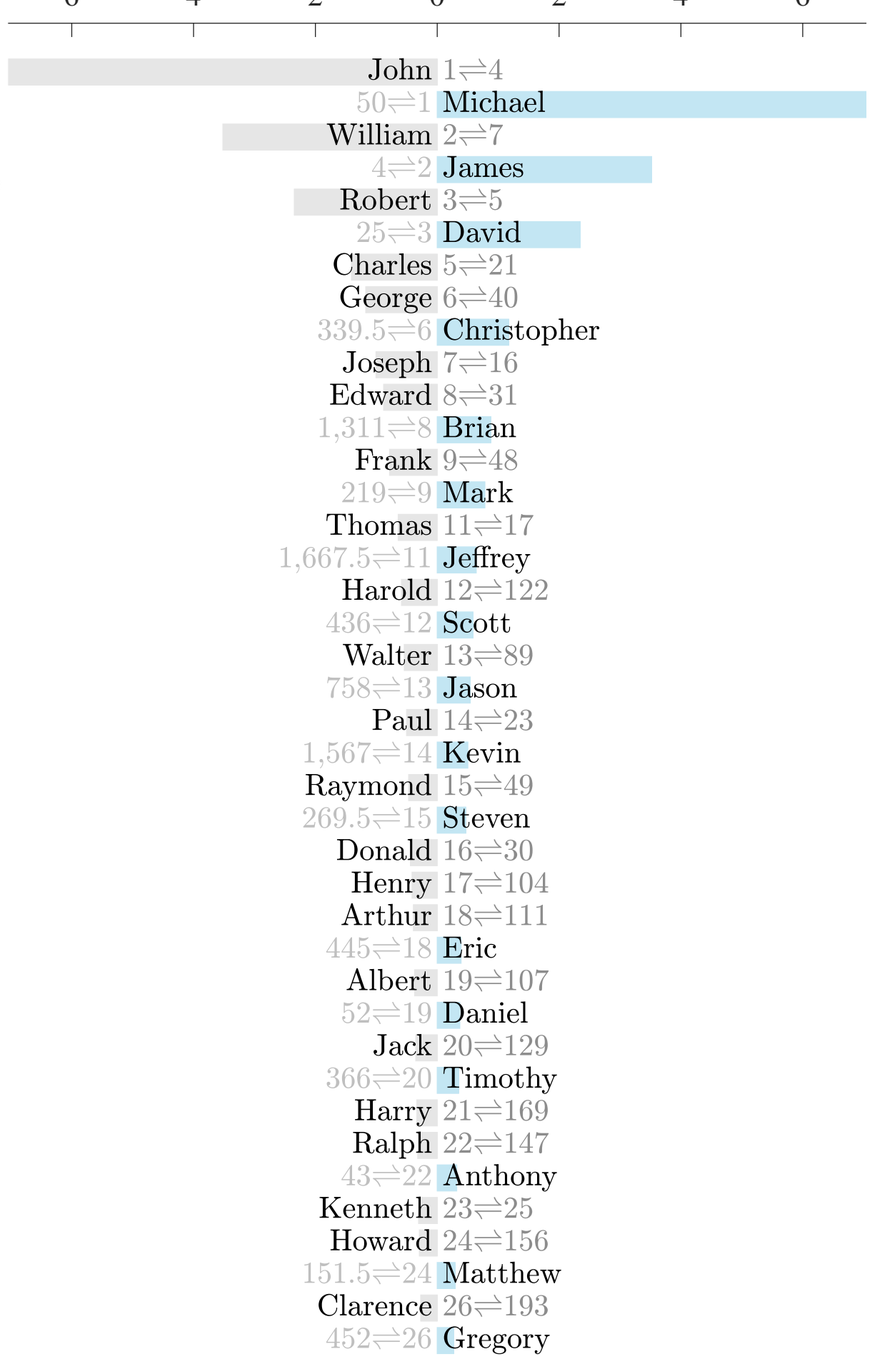
Balances:

36.4% total counts 63.6%

65.2% all names 71.0%

44.5% exclusive names 49.0%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)



54.2%—45.8%

Ω_1: Baby boy names in 1925

Ω_2: Baby boy names in 1975

Instrument: **Rank-Turbulence Divergence**

α=∞

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.795$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right) \times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.44×10^{-2} 5.44×10^{-2} 5.47×10^{-4} 5.47×10^{-4} 5.45×10^{-6} 5.45×10^{-6}

Robert John William Charles George Edward Frank Raymond Harold Arthur Harry Clarence Herbert Leo Elmer Willard Wilbur Irving Norbert Elwood Laverne Seymour Claud Casimir Merton Hideo Gladys Ellen Corydon

James David Daniel Anthony Michael Matthew Mark Eric Jason Brian Kevin Jeffrey Gary Ryan Chad Sean Shawn Shane Derek Tyrone Darin Jamal Branden Rahsaan Veronica Shae Vashaun

1 10 100 1,000 10,000 100,000

← more popular

less → popular

Popularity rank r for Baby boy names in 1925

Popularity rank r for Baby boy names in 1975

1 10 100 1,000 10,000

Counts per cell

Balances:

41.7% total counts 58.3%

57.1% all names 74.4%

44.9% exclusive names 57.7%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}(\%)$

6 4 2 0 2 4 6

Robert	1⇌6	Michael
55⇌1		Michael
John	2⇌7	Jason
602⇌2		Jason
William	3⇌10	Christopher
345⇌3		Christopher
Charles	5⇌25	David
22⇌5		David
George	6⇌53	Joseph
7⇌12		Richard
8⇌16		Brian
876.5⇌8		Edward
9⇌41		Matthew
174⇌9		Donald
10⇌42		Thomas
11⇌20		Daniel
44⇌11		Frank
12⇌66		Paul
13⇌29		Eric
411.5⇌13		Harold
14⇌153		Jeffrey
1,471.5⇌14		Raymond
15⇌63		Kevin
854⇌15		Walter
16⇌112		Jack
17⇌142		Scott
442.5⇌17		Henry
18⇌124		Steven
288⇌18		Kenneth
19⇌35		Mark
211⇌19		Arthur
20⇌128		Albert
21⇌129		Anthony
39⇌21		Timothy
319⇌22		Harry
23⇌204		Ryan
2,252.5⇌23		Eugene
24⇌160		Jeremy
2,511⇌24		Ralph
25⇌173		

53.5%—46.5%

Ω_1: Baby boy names in 1930

Ω_2: Baby boy names in 1980

Instrument: **Rank-Turbulence Divergence**

α=∞

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.822$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.41×10^{-2} 5.41×10^{-2} 5.45×10^{-4} 5.45×10^{-4} 5.43×10^{-6} 5.43×10^{-6}

Robert John William Richard Charles Thomas Donald Kenneth Frank Jack Harold Ralph Harry Herbert Floyd Bill Elmer Bob Wilbur Orville Dick Laverne Morton Seymour Orval Betty Ignatius Okey Toshio Harless

Michael Daniel Christopher Matthew Jason Nicholas Joshua Brian Jonathan Bryan Ryan Brandon Chad Sean Dustin Corey Shaun Kristopher Jarrod Derick Kasey Zackery Christofer Mickel Fran Renarda

1 10 100 1,000 10,000 100,000

← more popular

Popularity rank r for Baby boy names in 1930

less popular →

more popular →

Popularity rank r for Baby boy names in 1980

← less popular

1 10 100 1,000 10,000

Counts per cell

Balances:

38.1% total counts 61.9%

49.4% all names 79.4%

41.7% exclusive names 63.7%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

6 4 2 0 2 4 6

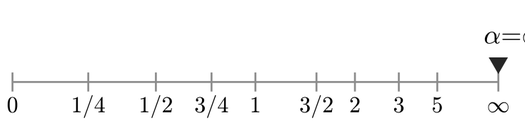
Robert	1⇌9	
54⇌1		Michael
James	2⇌5	
344.5⇌2		Christopher
John	3⇌8	
582⇌3		Jason
William	4⇌14	
15⇌4		David
Richard	5⇌26	
Charles	6⇌29	
204⇌6		Matthew
Donald	7⇌53	
649⇌7		Joshua
George	8⇌60	
Joseph	9⇌10	
Edward	10⇌52	
Thomas	11⇌25	
47⇌11		Daniel
Paul	12⇌35	
649⇌12		Brian
Frank	13⇌81	
566⇌13		Justin
Jack	14⇌158	
2,128⇌15		Ryan
Raymond	16⇌66	
408.5⇌16		Eric
Kenneth	17⇌41	
147⇌17		Nicholas
Harold	18⇌207	
1,853.5⇌18		Jeremy
Walter	19⇌137	
62⇌19		Andrew
Billy	20⇌100	
316⇌20		Timothy
Eugene	21⇌191	
601.5⇌21		Jonathan
Henry	22⇌135	
337⇌22		Adam
Arthur	23⇌147	
682.5⇌23		Kevin

52.5%—47.5%

Ω_1: Baby boy names in 1935

Ω_2: Baby boy names in 1985

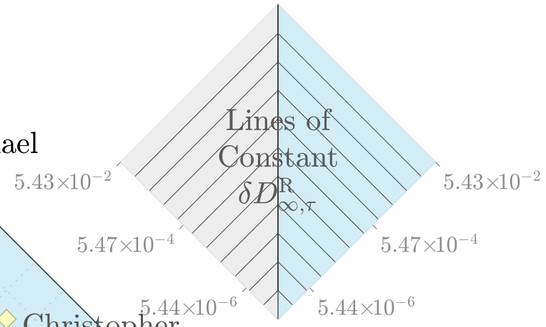
Instrument: **Rank-Turbulence Divergence**



$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.827$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$



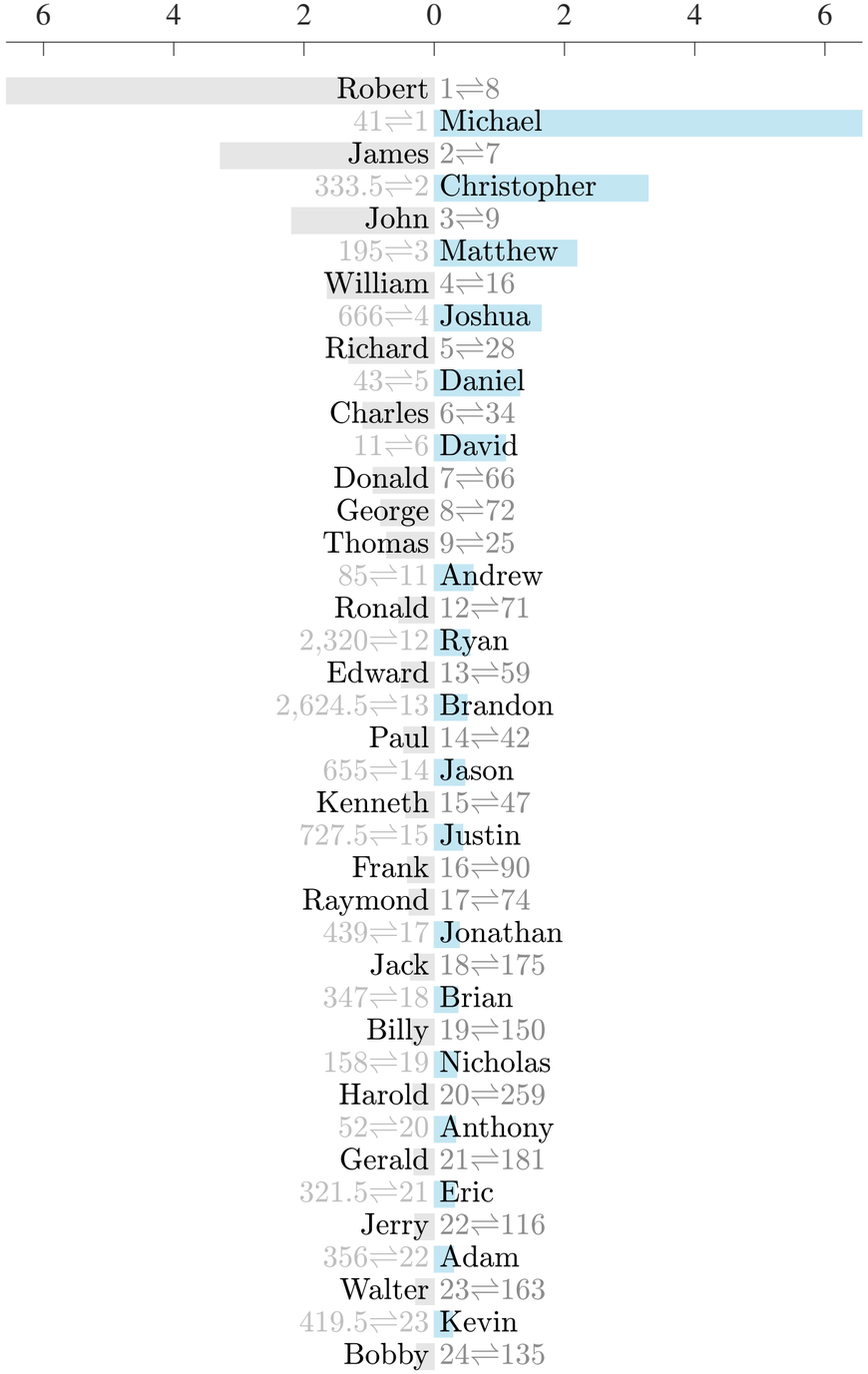
Balances:

36.0% total counts 64.0%

44.8% all names 82.0%

40.1% exclusive names 67.3%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}(\%)$



52.0%—48.0%

Ω_1: Baby boy names in 1940

Ω_2: Baby boy names in 1990

Instrument: **Rank-Turbulence Divergence**

α=∞

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.842$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.38×10^{-2} 5.38×10^{-2}

5.42×10^{-4} 5.42×10^{-4}

5.39×10^{-6} 5.39×10^{-6}

James, Robert, John, William, Richard, Charles, Donald, Ronald, Larry, Dennis, Gerald, Harold, Ralph, Fred, Don, Bill, Wendell, Bob, Lynn, Carroll, Pat, Dick, Gale, Wilburn, Shirley, Arther, Judy, Charls, Troyce, Justina

Michael, David, Joseph, Daniel, Christopher, Matthew, Nicholas, Joshua, Justin, Kevin, Kyle, Ryan, Brandon, Cody, Dustin, Corey, Shane, Cory, Dylan, Kristopher, Dakota, Chance, Darrin, Cedrick, Kramer, Jeramey, Kajuan, Demetrous

1 10 100 1,000 10,000 100,000

← more popular

Popularity rank r for Baby boy names in 1940

less popular →

more popular →

Popularity rank r for Baby boy names in 1990

← less popular

1 10 100 1,000 10,000 100,000

Counts per cell

Balances:

36.1% total counts 63.9%

36.1% all names 87.1%

35.8% exclusive names 73.4%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

6 4 2 0 2 4 6

James	1⇌8	
	18⇌1	Michael
Robert	2⇌13	
	241⇌2	Christopher
John	3⇌12	
	198⇌3	Matthew
William	4⇌16	
	628⇌4	Joshua
Richard	5⇌35	
	34⇌5	Daniel
Charles	6⇌38	
	7⇌6	David
	84⇌7	Andrew
Thomas	8⇌26	
Donald	9⇌87	
	662.5⇌9	Justin
Ronald	10⇌97	
	12⇌10	Joseph
George	11⇌79	
	1,653.5⇌11	Ryan
Larry	13⇌144	
Jerry	14⇌146	
	154⇌14	Nicholas
Kenneth	15⇌52	
	46⇌15	Anthony
Edward	16⇌68	
Paul	17⇌49	
	342⇌17	Jonathan
	614⇌18	Kyle
Gary	19⇌114	
	2,399.5⇌19	Brandon
Frank	20⇌109	
	235⇌20	Jacob
Gerald	21⇌212.5	
	1,120.5⇌21	Tyler
Raymond	22⇌92	
	1,546⇌22	Zachary
Harold	23⇌324	
	332.5⇌23	Kevin
Dennis	24⇌129	

50.5%—49.5%

Ω_1: Baby boy names in 1945

Ω_2: Baby boy names in 1995

Instrument: **Rank-Turbulence Divergence**

$\alpha = \infty$

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.860$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.37×10^{-2} 5.37×10^{-2}

5.40×10^{-4} 5.40×10^{-4}

5.38×10^{-6} 5.38×10^{-6}

James, Michael, Robert, William, David, Richard, Charles, Joseph, Daniel, Matthew, Anthony, Jacob, Ronald, Larry, Samuel, Dennis, Joshua, Roger, Tyler, Gerald, Justin, Harold, Ryan, Ralph, Brandon, Fred, Cody, Bill, Logan, Tom, Caleb, Chester, Connor, Bob, Dylan, Tim, Dakota, Carroll, Tanner, Pat, Tristan, Dick, Chance, Elwood, Devonte, Gale, Deonte, Gaylord, Jade, Judy, Malique, Claire, Baylor, Lenton, Tiffany, Keegen, Cayleb, Vuthy

1 10 100 1,000 10,000 100,000

← more popular

less → popular

Popularity rank r for Baby boy names in 1945

Popularity rank r for Baby boy names in 1995

← less popular

more → popular

1 10 100 1,000 10,000

Counts per cell

Balances:

41.4% total counts 58.6%

32.2% all names 87.9%

37.6% exclusive names 77.1%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}(\%)$

6 4 2 0 2 4 6

James	1⇌17	
	9⇌1	Michael
Robert	2⇌22	
	198⇌2	Matthew
John	3⇌13	
	160⇌3	Christopher
William	4⇌20	
	292.5⇌4	Jacob
Richard	5⇌42	
	613.5⇌5	Joshua
David	6⇌16	
	151⇌6.5	Nicholas
	989⇌6.5	Tyler
Charles	7⇌44	
Thomas	8⇌27	
	2,317⇌8	Brandon
	24⇌9	Daniel
Ronald	10⇌146	
	381.5⇌10	Austin
Larry	11⇌210	
	86⇌11	Andrew
Donald	12⇌155	
	14⇌12	Joseph
Gary	13⇌190	
	1,557.5⇌14	Zachary
George	15⇌115	
	1,112⇌15	Ryan
Kenneth	16⇌72	
Paul	17⇌71	
Edward	18⇌88	
	541⇌18	Justin
Dennis	19⇌185	
	46⇌19	Anthony
Jerry	20⇌200	
Frank	21⇌157	
	178⇌21	Alexander
Roger	22⇌278	
Raymond	23⇌124	
	179⇌23	Jonathan
	669.5⇌24	Kyle

49.9%—50.1%

Ω_1: Baby boy names in 1950

Ω_2: Baby boy names in 2000

Instrument: **Rank-Turbulence Divergence**

$\alpha = \infty$

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.857$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.29×10^{-2} 5.33×10^{-4} 5.30×10^{-6}

Jacob

Michael Joseph Daniel Matthew Nicholas Joshua Alexander Eric Tyler Brandon Cameron Ethan Jared Cole Connor Dylan Tristan Dakota Jalen Cristian Kameron Elian Jaren Daveon Diante Quincey Kentavius Priest

James John Robert Thomas Richard Steven Kenneth Ronald Gary Dennis Roger Bruce Wayne Ralph Barry Fred Gene Lynn Earnest Bob Kim Carroll Pat Dick Gail Elmo Kay Natale Clayburn Kolter

1 10 100 1,000 10,000 100,000

← more popular

less → popular

Popularity rank r for Baby boy names in 1950

Popularity rank r for Baby boy names in 2000

1 10 100 1,000 10,000

Counts per cell

Balances:

47.7% total counts 52.3%

30.6% all names 88.4%

37.9% exclusive names 78.5%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}(\%)$

6 4 2 0 2 4 6

James	1⇌18	
	318⇌1	Jacob
Robert	2⇌29	
	4⇌2	Michael
John	3⇌14	
	174⇌3	Matthew
	537⇌4	Joshua
David	5⇌16	
	72⇌5	Christopher
William	6⇌11	
	124⇌6	Nicholas
Richard	7⇌65	
	68⇌7	Andrew
Thomas	8⇌33	
	13⇌8	Joseph
Charles	9⇌51	
	21⇌9	Daniel
Gary	10⇌275	
	771⇌10	Tyler
Larry	11⇌280	
Ronald	12⇌203	
	940⇌12	Brandon
	687.5⇌13	Ryan
Donald	14⇌217	
Kenneth	15⇌94	
	553⇌15	Zachary
Steven	16⇌54	
Dennis	17⇌252	
	36⇌17	Anthony
Paul	18⇌100	
Stephen	19⇌95	
	604.5⇌19	Justin
George	20⇌130	
	189⇌20	Alexander
	163⇌21	Jonathan
Edward	22⇌108	
	412⇌22	Christian
Mark	23⇌79	
	429.5⇌23	Austin
Jerry	24⇌264	

49.3%—50.7%

Ω_1: Baby boy names in 1955

Ω_2: Baby boy names in 2005

Instrument: **Rank-Turbulence Divergence**

α=∞

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.848$

$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$

$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$

Michael
David
James
John
Robert
Thomas
Richard
Mark
Kenneth
Jeffrey
Gary
Larry
Terry
Carl
Wayne
Ralph
Fred
Rickey
Garry
Ted
Kim
Bob
Wilbur
Hal
Pat
Barney
Linda
Ricci
Otho
Jenny
Jakaylon
Quian

Daniel
Jacob
Matthew
Joshua
Nicholas
Alexander
Ethan
Ryan
Tyler
Logan
Caleb
Dylan
Lucas
Connor
Chase
Aidan
Brayden
Caden
Ayden
Skyler
Jaxson
Amare
Zaid
Akash
Kobi
Damaris
Jahziel

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.25×10^{-2} 5.25×10^{-2}
5.29×10^{-4} 5.29×10^{-4}
5.26×10^{-6} 5.26×10^{-6}

1 10 100 1,000 10,000 100,000

← more popular

Popularity rank r for Baby boy names in 1955

less → popular

more → popular

Popularity rank r for Baby boy names in 2005

← less popular

1 10 100 1,000 10,000

Counts per cell

Balances:

50.8% total counts 49.2%

29.2% all names 88.7%

38.8% exclusive names 79.9%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

6 4 2 0 2 4 6

Michael	1⇌2	
	303⇌1	Jacob
David	2⇌12	
James	3⇌17	
	471⇌3	Joshua
Robert	4⇌37	
	105⇌4	Matthew
John	5⇌18	
	1,039⇌5	Ethan
William	6⇌11	
	66⇌6	Andrew
Richard	7⇌94	
	17⇌7	Daniel
Thomas	8⇌40	
	31⇌8	Anthony
Mark	9⇌114	
	13⇌9	Joseph
Steven	10⇌83	
	49⇌10	Christopher
Charles	11⇌56	
Gary	12⇌338	
	208⇌13	Alexander
Donald	14⇌289	
	554⇌14	Ryan
Kenneth	15⇌122	
	141⇌15	Nicholas
Paul	16⇌130	
	677.5⇌16	Tyler
Ronald	18⇌255	
Larry	19⇌358	
	116⇌19	Jonathan
Jeffrey	20⇌171	
	232⇌20	Nathan
Stephen	21⇌143	
	71⇌21	Samuel
Timothy	22⇌84	
	385⇌22	Christian
Dennis	23⇌317	
	646⇌23	Noah
Gregory	24⇌202	

51.2%—48.8%

Ω_1: Baby boy names in 1960

Ω_2: Baby boy names in 2010

Instrument: **Rank-Turbulence Divergence**

$\alpha = \infty$

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.862$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.22×10^{-2} 5.22×10^{-2}

5.26×10^{-4} 5.26×10^{-4}

5.23×10^{-6} 5.23×10^{-6}

Michael David James John Robert Thomas Charles Mark Brian Jeffrey Gregory Donald Douglas Bruce Mike Jeff Barry Tim Greg Kerry Gregg Bob Kim Doug Pat Barton Vern Milford Dickey Jearl Bosten

William Daniel Anthony Jacob Andrew Alexander Ethan Benjamin Noah Mason Logan Jackson Jayden Liam Aiden Connor Colton Brayden Ayden Jaden Easton Zion Brycen Tristin Yair Jarrod Aizen Brycin Zyad

1 10 100 1,000 10,000 100,000

← more popular

less → popular

Popularity rank r for Baby boy names in 1960

Popularity rank r for Baby boy names in 2010

← less popular

more → popular

1 10 100 1,000 10,000

Counts per cell

Balances:

52.6% total counts 47.4%

28.6% all names 88.9%

38.6% exclusive names 80.2%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}(\%)$

6 4 2 0 2 4 6

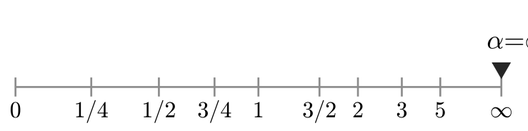
David	1⇌15	
353⇌1		Jacob
Michael	2⇌3	
791⇌2		Ethan
James	3⇌19	
John	4⇌26	
10,318⇌4		Jayden ▹
Robert	5⇌54	
7⇌5		William
Mark	6⇌162	
232⇌6		Alexander
666.5⇌7		Noah
Richard	8⇌125	
17⇌8		Daniel
Thomas	9⇌62	
10,318⇌9		Aiden ▹
Steven	10⇌116	
25⇌10		Anthony
Timothy	11⇌114	
454⇌11		Joshua
Joseph	12⇌20	
845.5⇌12		Mason
Charles	13⇌63	
29⇌13		Christopher
Jeffrey	14⇌222	
51⇌14		Andrew
Kevin	15⇌58	
Kenneth	16⇌160	
61⇌16		Matthew
1,011⇌17		Logan
Paul	18⇌177	
579.5⇌18		Elijah
Donald	19⇌377	
Brian	20⇌101	
Ronald	21⇌343	
383⇌21		Gabriel
Gary	22⇌475	
155⇌22		Benjamin
Scott	23⇌351.5	
408⇌23		Ryan

50.0%—50.0%

Ω_1: Baby boy names in 1965

Ω_2: Baby boy names in 2015

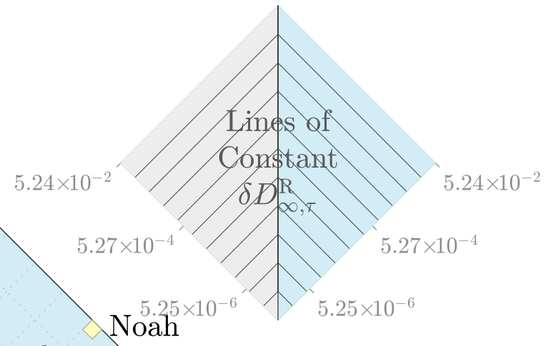
Instrument: **Rank-Turbulence Divergence**



$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.867$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$



Balances:

49.3% total counts 50.7%

28.3% all names 90.0%

35.1% exclusive names 79.6%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

Michael	1⇌9	
677.5⇌1		Noah
John	2⇌26	
1,263.5⇌2		Liam
David	3⇌18	
864⇌3		Mason
James	4⇌7	
346⇌4		Jacob
Robert	5⇌63	
6⇌5		William
565⇌6		Ethan
Mark	7⇌196	
Richard	8⇌155	
191⇌8		Alexander
Thomas	9⇌51	
Jeffrey	10⇌290	
133⇌10		Benjamin
Joseph	11⇌21	
673.5⇌11		Elijah
Timothy	12⇌147	
17⇌12		Daniel
Kevin	13⇌79	
10,011.5⇌13		Aiden ▷
Steven	14⇌154	
1,060⇌14		Logan
Scott	15⇌457.5	
36⇌15		Matthew
Paul	16⇌200	
822⇌16		Lucas
727.5⇌17		Jackson
Christopher	18⇌32	
Brian	19⇌189	
446⇌19		Oliver
Charles	20⇌50	
10,011.5⇌20		Jayden ▷
Kenneth	21⇌199	
Anthony	22⇌25	
84⇌22		Samuel
Gregory	23⇌346	
301⇌23		Gabriel

50.2%—49.8%

Ω_1: Baby boy names in 1970

Ω_2: Baby boy names in 2020

Instrument: **Rank-Turbulence Divergence**

$\alpha = \infty$

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.867$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1}, r_{\tau,2}}\right) \times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$

Lines of Constant $\delta D^{\mathrm{R}}_{\infty,\tau}$

5.18×10^{-2} 5.22×10^{-4} 5.19×10^{-6}

Michael
William
David
Daniel
Christopher
Robert
Benjamin
Noah
Liam
Thomas
Charles
Elijah
Brian
Steven
Jacob
Jeffrey
Lucas
Scott
Mason
Gregory
Jackson
Donald
Logan
Todd
Mateo
Craig
Asher
Brent
Aiden
Darrell
Maverick
Jeff
Luca
Brad
Jayden
Greg
Easton
Leslie
Greyson
Stacy
Kaiden
Gregg
Amari
Scot
Colson
Tod
Zain
Carroll
Seven
Sharon
Yeshua
Shean
Dekari
Barrie
Sakari
Dinesh
Nolin
Olivar

1 10 100 1,000 10,000 100,000

← more popular

less → popular

Popularity rank r for Baby boy names in 1970

Popularity rank r for Baby boy names in 2020

← less popular

more → popular

1 10 100 1,000 10,000

Counts per cell

Balances:

52.0% total counts 48.0%

33.7% all names 87.0%

38.7% exclusive names 76.2%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}(\%)$

5 0 5

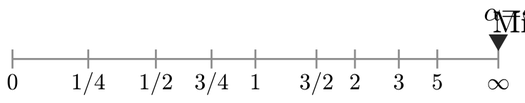
Michael	1⇌12	
1,183.5⇌1		Liam
James	2⇌6	
444.5⇌2		Noah
David	3⇌28	
428⇌3		Oliver
John	4⇌27	
597.5⇌4		Elijah
Robert	5⇌80	
7⇌5		William
Christopher	6⇌47	
81⇌7		Benjamin
Brian	8⇌270.5	
645⇌8		Lucas
Mark	9⇌235	
104⇌9		Henry
Richard	10⇌208	
136⇌10		Alexander
Jeffrey	11⇌388	
609⇌11		Mason
Scott	12⇌565.5	
Jason	13⇌119	
494.5⇌13		Ethan
Kevin	14⇌157	
19⇌14		Daniel
Steven	15⇌222	
253⇌15		Jacob
Joseph	16⇌26	
1,109⇌16		Logan
Thomas	17⇌45	
789⇌17		Jackson
Eric	18⇌198	
685.5⇌18		Levi
632⇌19		Sebastian
Timothy	20⇌193	
2,093⇌20		Mateo
Charles	21⇌46	
129⇌21		Jack
Anthony	22⇌41	
523.5⇌22		Owen

50.7%—49.3%

Ω_1: Baby boy names in 1971

Ω_2: Baby boy names in 2021

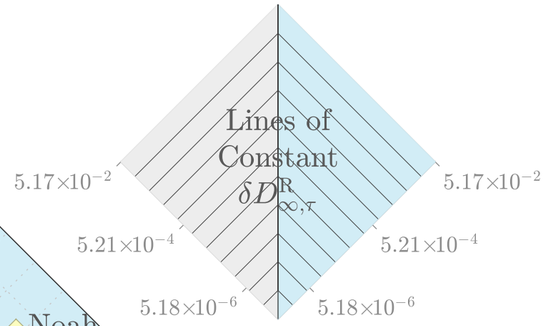
Instrument: **Rank-Turbulence Divergence**



$$D^{\mathrm{R}}_{\infty}(\Omega_1 \,\|\, \Omega_2) = 0.866$$

$$\propto \sum_{\tau} \left(1 - \delta_{r_{\tau,1},r_{\tau,2}}\right)$$

$$\times \max\left\{\frac{1}{r_{\tau,1}}, \frac{1}{r_{\tau,2}}\right\}$$



Balances:

50.5% total counts 49.5%

34.8% all names 86.2%

39.5% exclusive names 75.6%

Divergence contribution $\delta D^{\mathrm{R}}_{\infty,\tau}$(%)

50.8%—49.2%