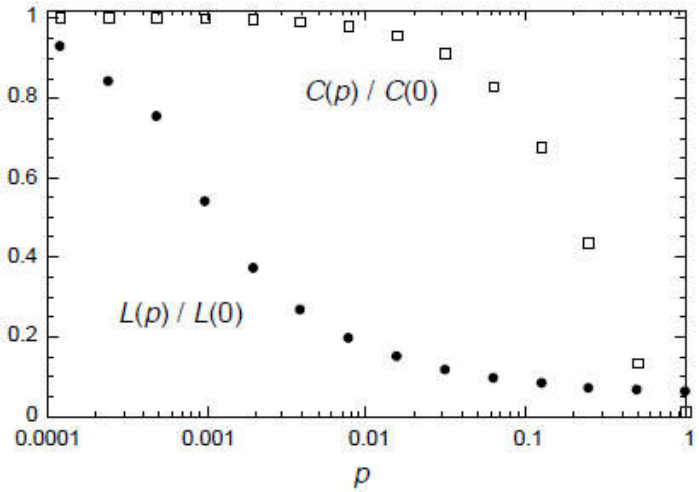
Redes de “mundo pequeño”

Regular Real Aleatoria

1. Alto coeficiente de agrupamiento.
2. Longitud característica pequeña.

Incremento de aleatoriedad



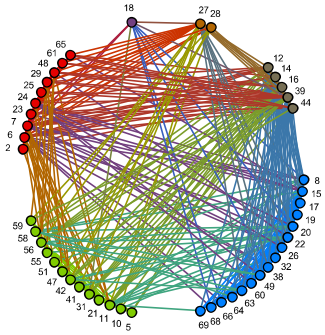
Collective dynamics of ‘small-world’ networks

Duncan J. Watts* & Steven H. Strogatz

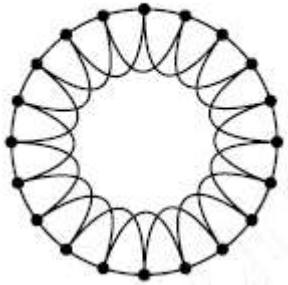
Department of Theoretical and Applied Mechanics, Kimball Hall, Cornell University, Ithaca, New York 14853, USA

NATURE | VOL 393 | 4 JUNE 1998

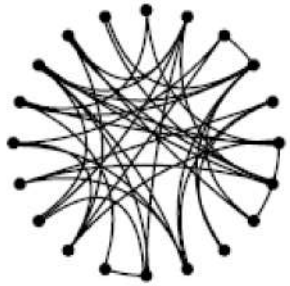
Mediciones

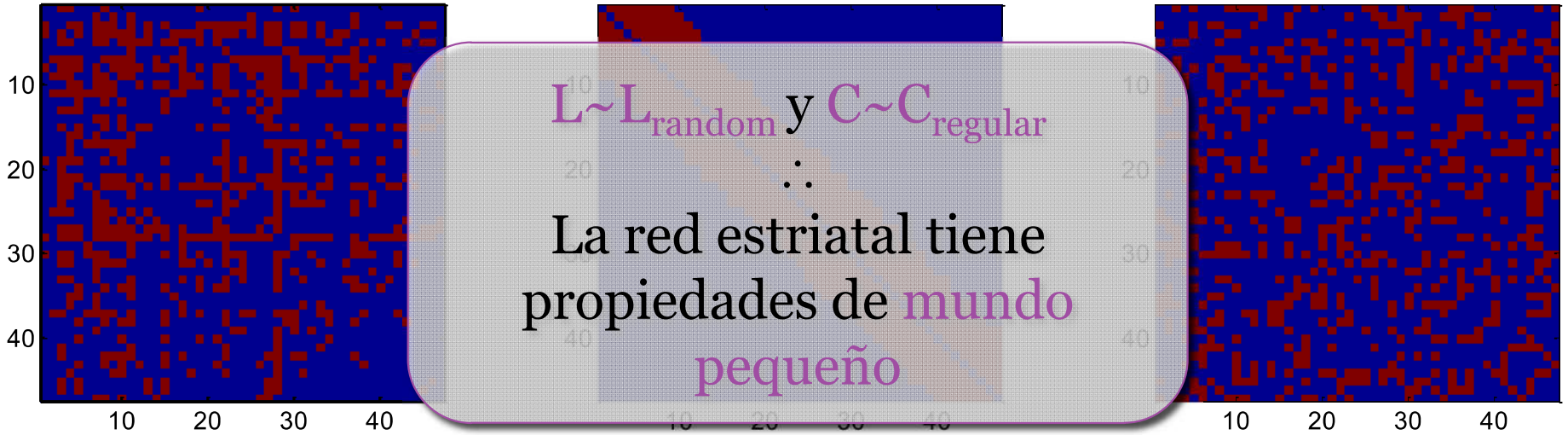


Regular



Random





$L \sim L_{random}$ y $C \sim C_{regular}$

∴

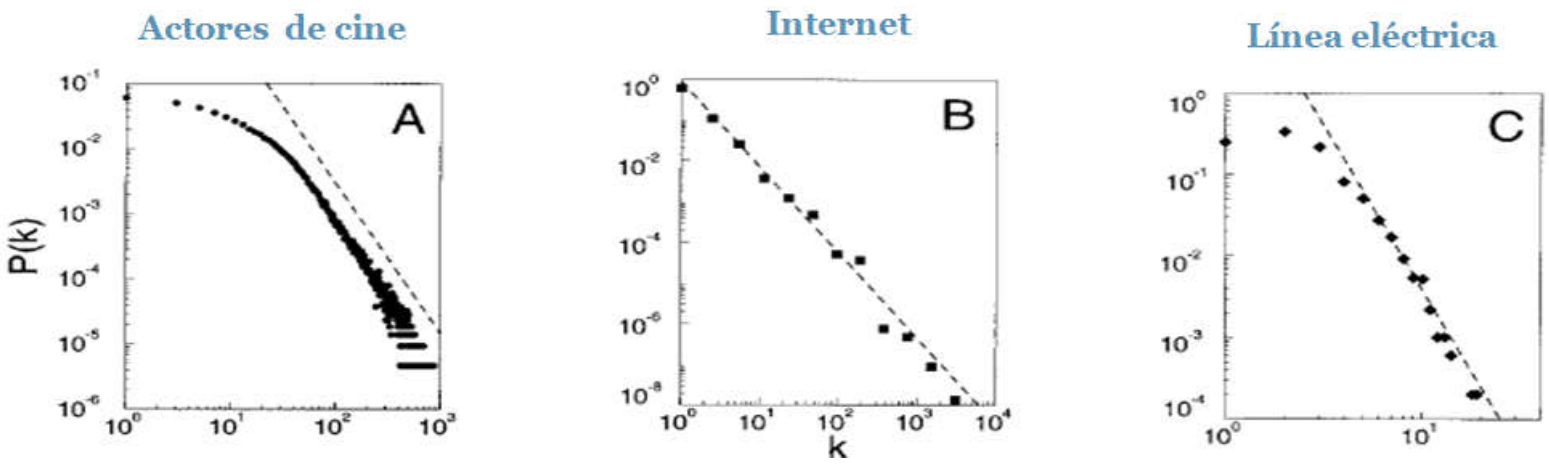
La red estriatal tiene propiedades de mundo pequeño

$L = 1.7$
$C = 0.75$

$L_{regular} = 2.57$
$C_{regular} = 0.75$

$L_{random} = 1.68$
$C_{random} = 0.29$

Redes de escala libre



La distribución de grados sigue una función llamada Ley Potencia.

Hubs: Nodos que tienen muchos enlaces.

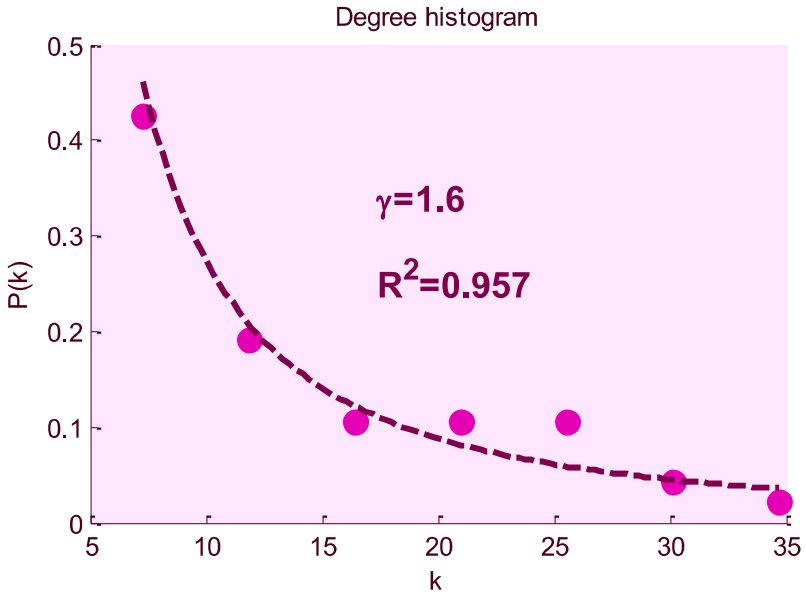
Emergence of Scaling in Random Networks

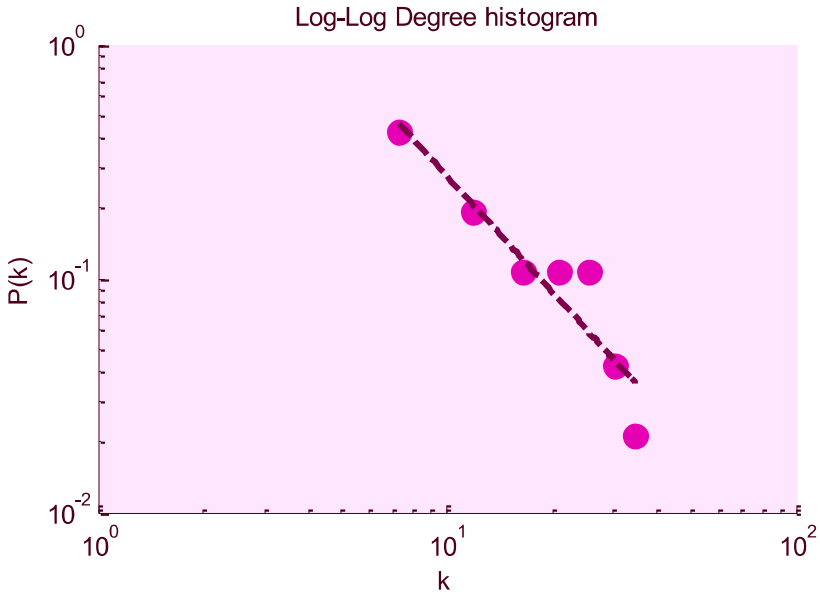
Albert-László Barabási* and Réka Albert

SCIENCE VOL 286 15 OCTOBER 1999

Distribución de grados
Pendiente de decaimiento (γ)

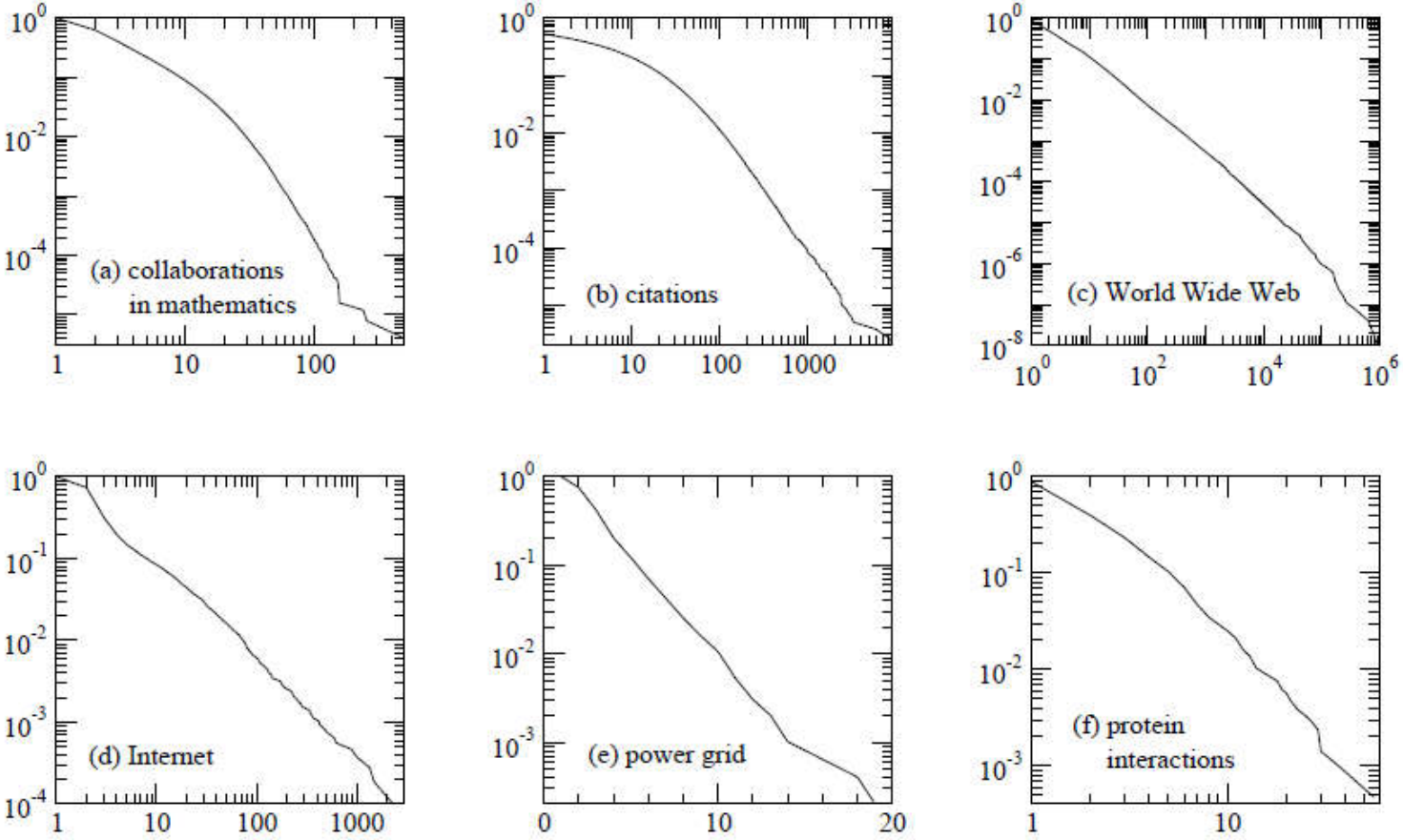
- El grado de un nodo es el número de enlaces que inciden sobre él.





Red de escala libre

Ejemplos de otras redes de escala libre



(Newman 2003)