

# Big data y cantantes: Cómo millones de versiones nos hablan de la música popular contemporánea

José Luis Ortega

IESA-CSIC

# Datos a lo grande (*Big data*)

## Producción masiva de datos

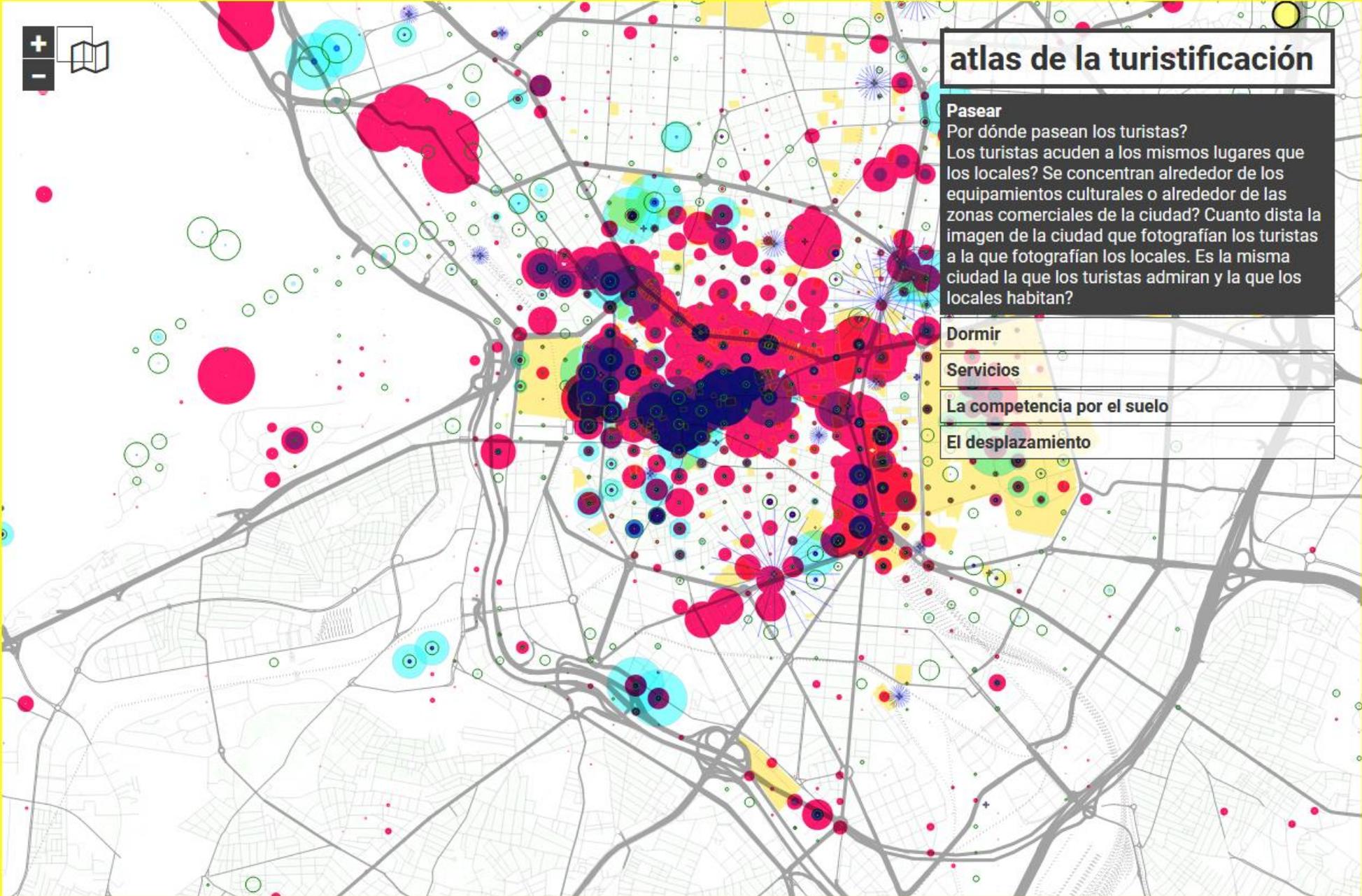
- Objetos (internet de las cosas)
- Personas (redes sociales)

## Acceso

- La Web
- Inter operatividad

## Análisis

- Estadísticas (*Machine learning*)
- Gráficos
- Mapas



# Cantantes

Música popular: fenómeno cultural del s. XX

- Medios de difusión: (Radio, TV, Web)
- Grabación (Micrófono, Vinilo...)

¿Qué es una versión?

- Interpretación de una canción no original

¿Qué significa?

- Tributo
- Popularidad/Standard
- Crítica

# SecondHandSongs.org

Enlaces entre canciones y versiones

- 155k canciones
- 143k artistas
- 1,1M versiones

The screenshot shows the website's navigation bar with links for EXPLORE, DISCUSS, PARTICIPATE, PLAY, and SIGN IN. A search bar is present with the text "Find cover songs, artists and more" and a "GO" button. Below the navigation bar, there are two main sections: "Discover The Original" and "Listen to The Cover". The "Original" section features a photo of The Textones with the song title "Vacation by The Textones". The "Cover" section features a video thumbnail of Go-Go's performing "Vacation by Go-Go's". A central "VS SHUFFLE" button is positioned between the two sections. At the bottom, a "DATABASE STATISTICS" section displays the following counts: ORIGINALS (108296), COVERS (920690), SAMPLES (003415), ARTISTS (157347), and VIDEOS (302687). A "MORE" link is available to the right of the statistics.

ORIGINALS	COVERS	SAMPLES	ARTISTS	VIDEOS
108296	920690	003415	157347	302687

[Ejemplo](#)

# Allmusic.org

Género y estilo

Producción total

Periodo de actividad

- 175k perfiles de artistas

[Ejemplo](#)

The screenshot displays the AllMusic website interface. At the top, the 'ALLMUSIC' logo is on the left, and a search bar is on the right. Below the logo, a navigation bar includes links for 'New Releases', 'Discover', 'Articles', 'Recommendations', 'My Profile', and 'Advanced Search'. On the right side of the navigation bar, there are links for 'Sign Up' and 'Log in', along with social media icons for Facebook, Twitter, YouTube, and RSS. The main content area features a large image of a woman conducting, with the title 'Recent Classical Highlights' and a short paragraph of text below it. Below this, there is a 'Featured New Releases' section with three album covers: AC/DC, Elton John's 'Jewel Box', and a placeholder for another release. To the right of the album covers, there are four buttons for user feedback: 'Not interested in this ad', 'Seen this ad multiple times', 'Ad was inappropriate', and 'Ad covered content'.

# Metodología

## Extracción de datos

- Web Scraping: extrae datos de páginas web a partir de patrones
- Web crawler: navegador automático

## Limpieza de datos

- Variaciones de títulos de canciones (traducciones, cambios, etc.)
- Eliminación
  - Popurrís (1%)
  - Samples

# Resultados

# Características de la red

Baja densidad ( $d > .01\%$ )

Versiones (outdegree)

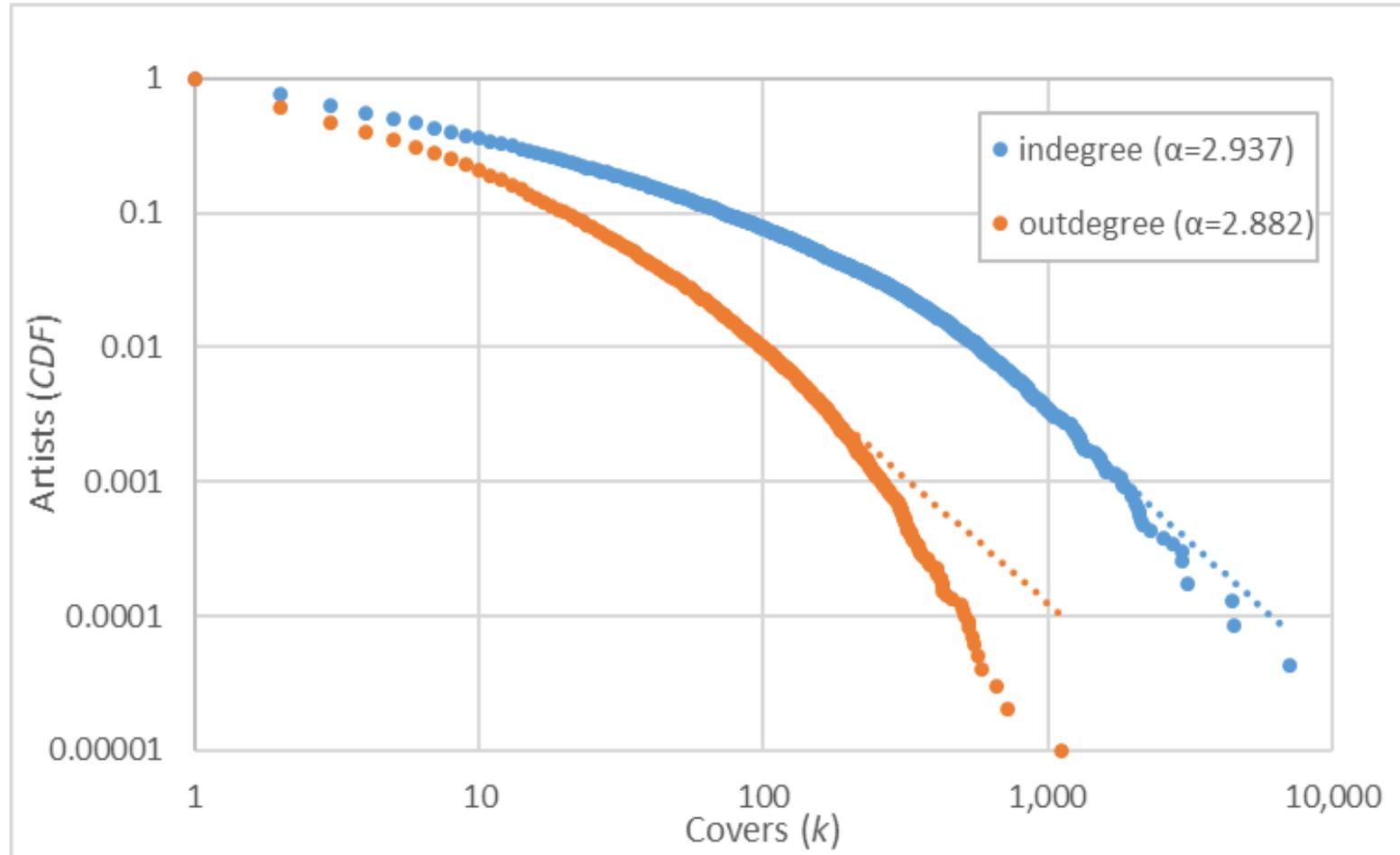
7% no realiza versiones

48% versiona al menos 2 artistas

Versionados (indegree)

78% no ha sido versionado

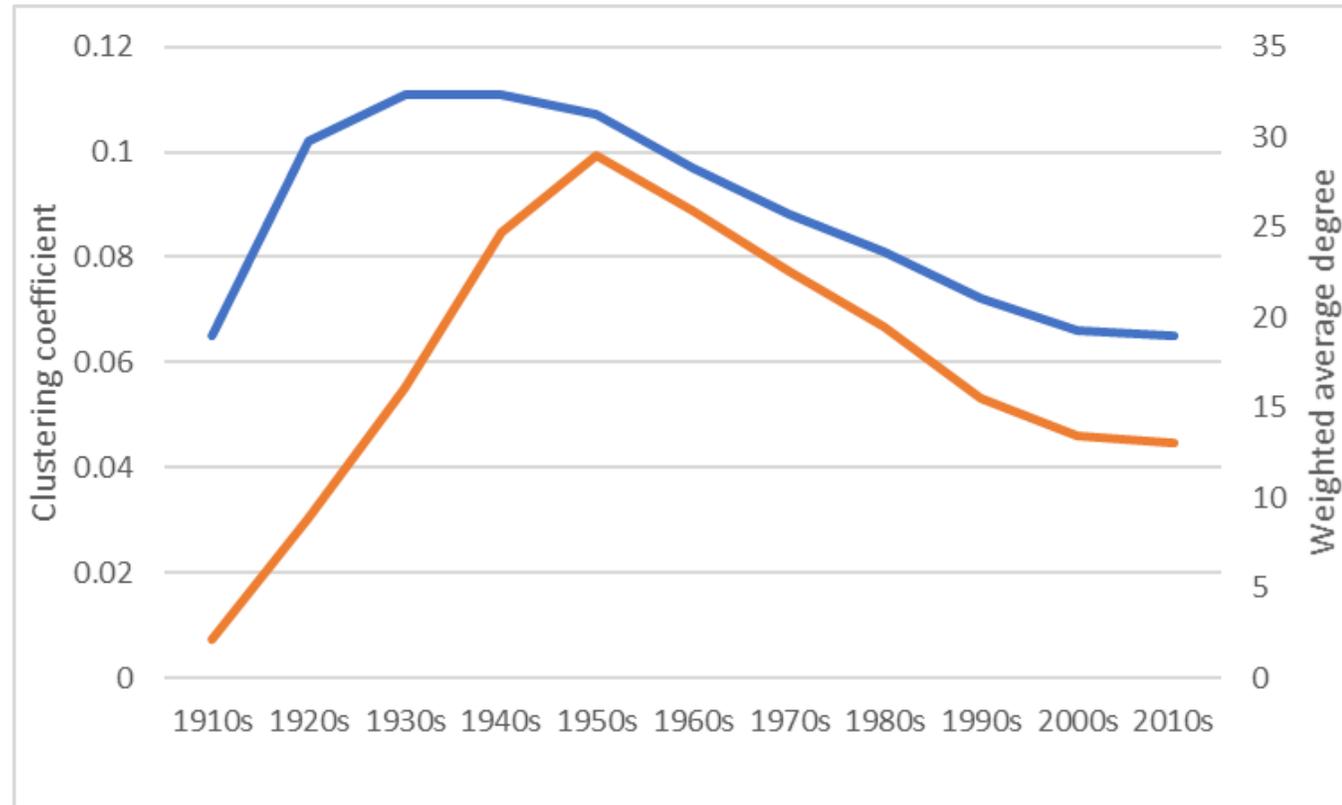
100 artistas (.01%) reciben el 41%



# Crecimiento de la red

1910s – 1950s: Fuerte crecimiento  
( $k_{1910s}=2.12$ ) a ( $k_{1950s}=28.97$ )

1960s – 2010s: descenso gradual  
( $k_{1960s}=25.91$ ) a ( $k_{2010s}=12.98$ )



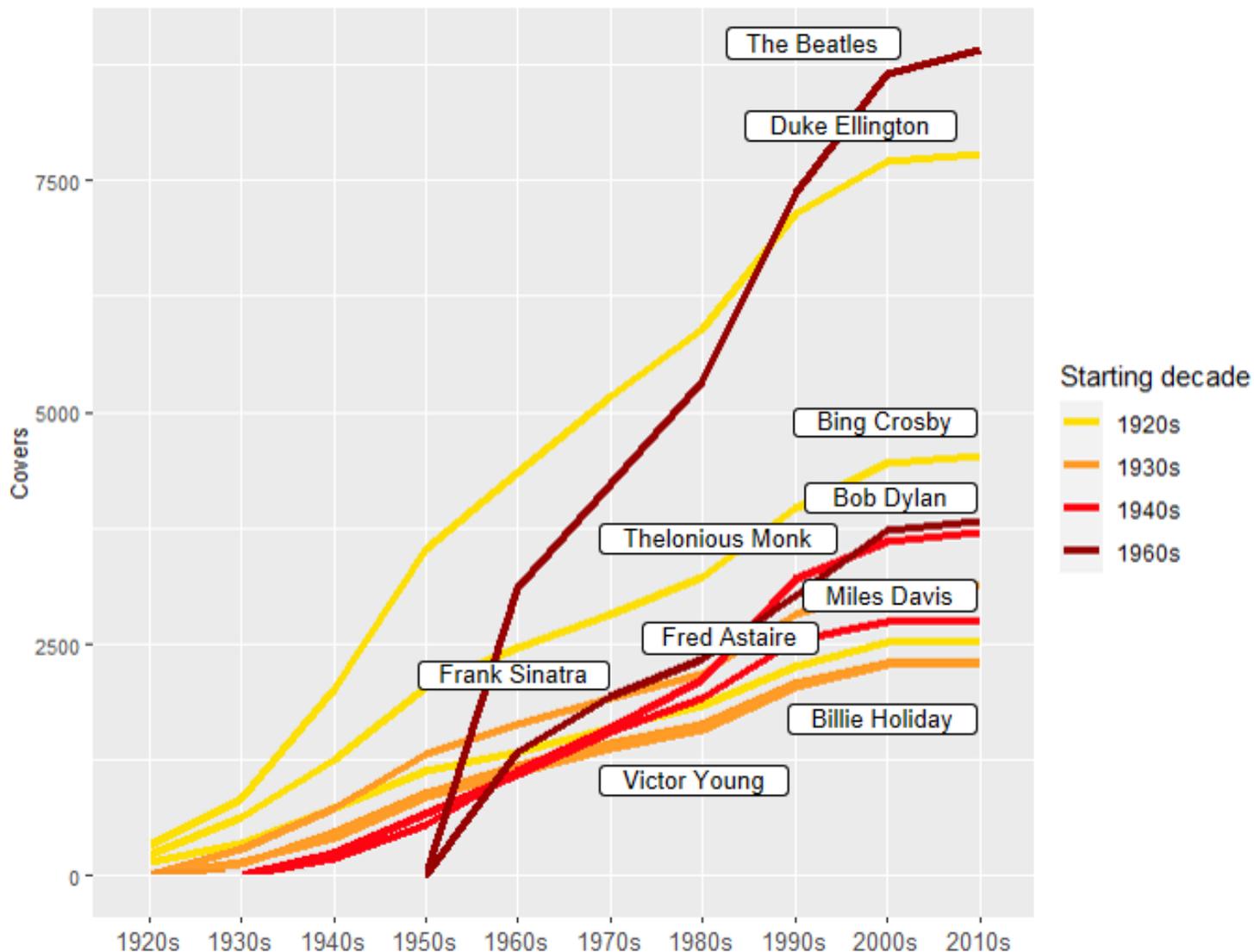
# Canciones más versionadas

<b>artists name</b>	<b>genre</b>	<b>song name</b>	<b>first release</b>	<b>covers</b>
Franz Gruber and Joseph Mohr	Classical	Silent Night	1818	2411
Abbie Mitchell	Stage & Screen	Summertime	1935	2176
Bing Crosby	Vocal	White Christmas	1942	1586
Georgie Stoll and Judy Garland	Vocal	Have Yourself a Merry Little Christmas	1944	1560
Bert Ambrose	Jazz	Body and Soul	1930	1258
Judy Garland	Vocal	Over the Rainbow	1939	1202
Mitzi Green	Stage & Screen	My Funny Valentine	1937	1137
Emily Laurey	Classical	O Holy Night	1847	1097
Richard Humber	Jazz	Winter Wonderland	1934	1054
The King Kole Trio	Jazz	The Christmas Song	1947	1052

# Artistas más versionados

Cuanto mas jóvenes, mayor y más rápido es el impacto

Músicos influyen más en su inmediata generación que en las anteriores







1920s

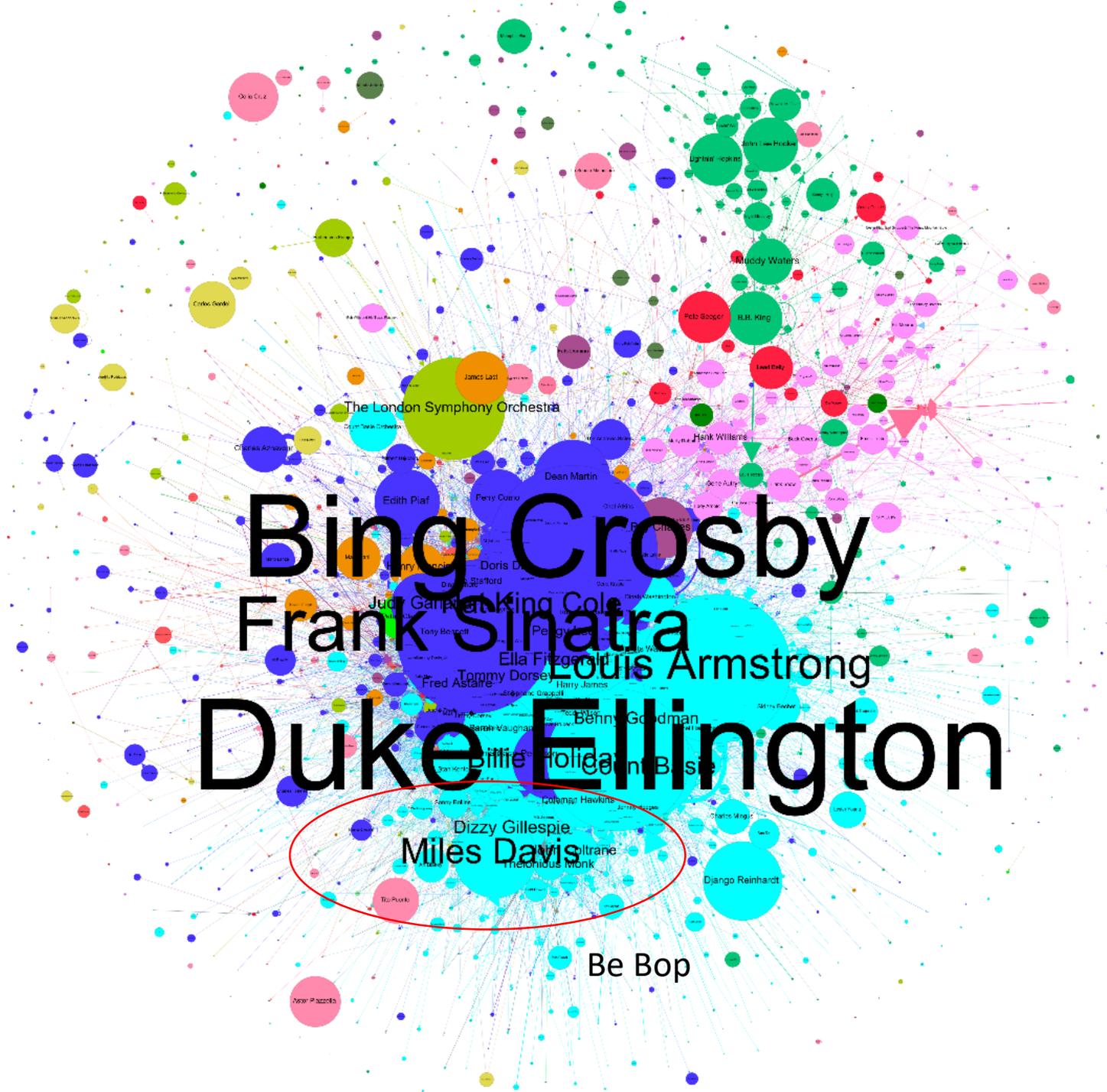
- Jazz
- Vocal
- International
- Blues
- Stage & Screen
- Classical
- Latin
- Folk
- Easy Listening
- Religious
- Comedy/Spoken
- Country





# 1940s

- Jazz
- Pop/Rock
- Country
- Vocal
- Alternative/Indie Rock
- International
- Blues
- R&B
- Stage & Screen
- Classical
- Latin
- Folk
- Easy Listening
- Electronic
- Rock & Roll/Roots
- Heavy Metal
- Hard Rock
- Religious
- Rap
- Soft Rock
- Punk/New Wave
- Foreign Language Rock
- Reggae
- New Age
- Comedy/Spoken
- Dance
- Singer/Songwriter
- Children's
- Folk/Country Rock
- Art-Rock/Experimental
- Euro-Pop
- British Invasion
- Psychedelic/Garage
- Avant-Garde



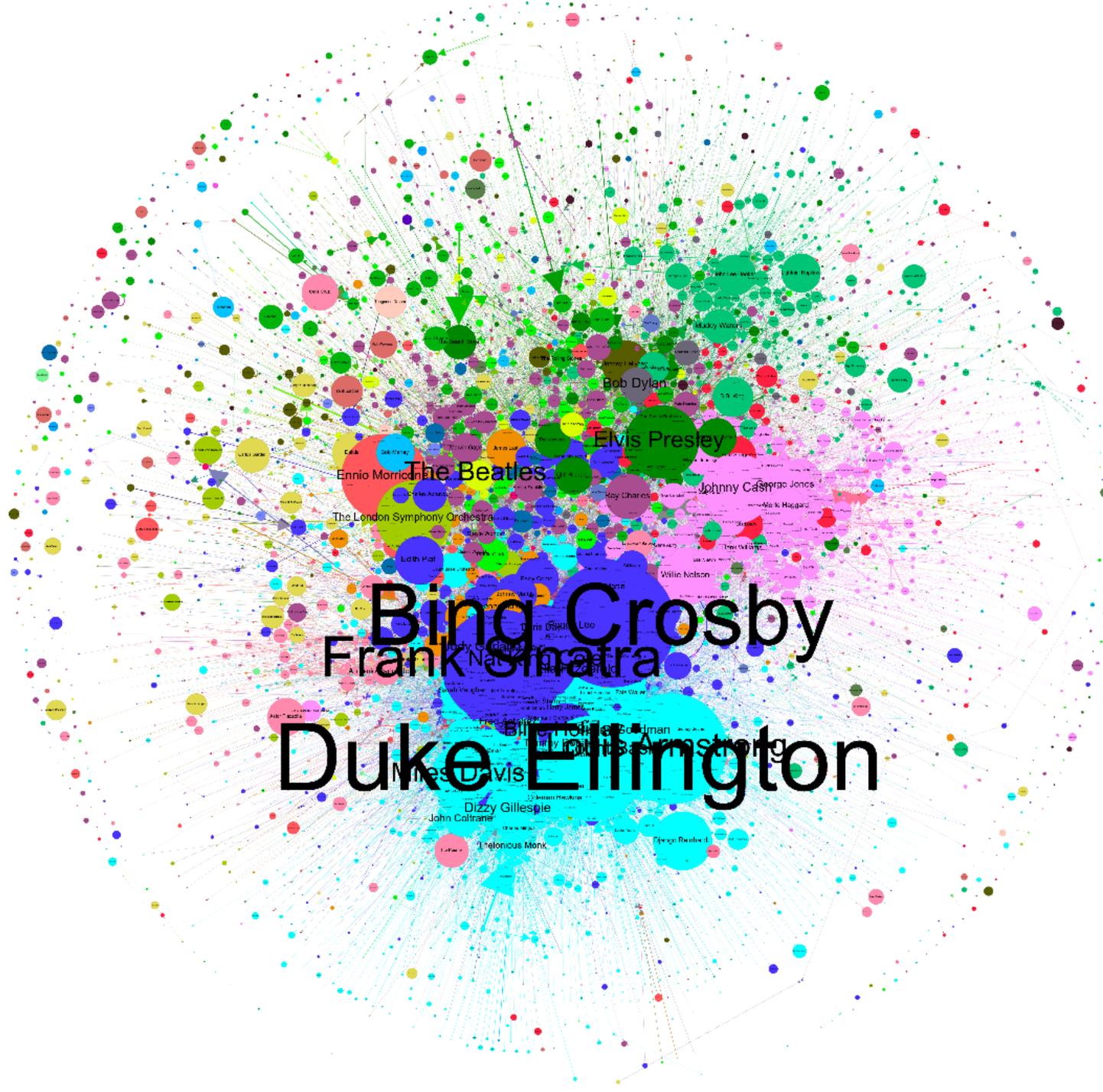
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# 1960s

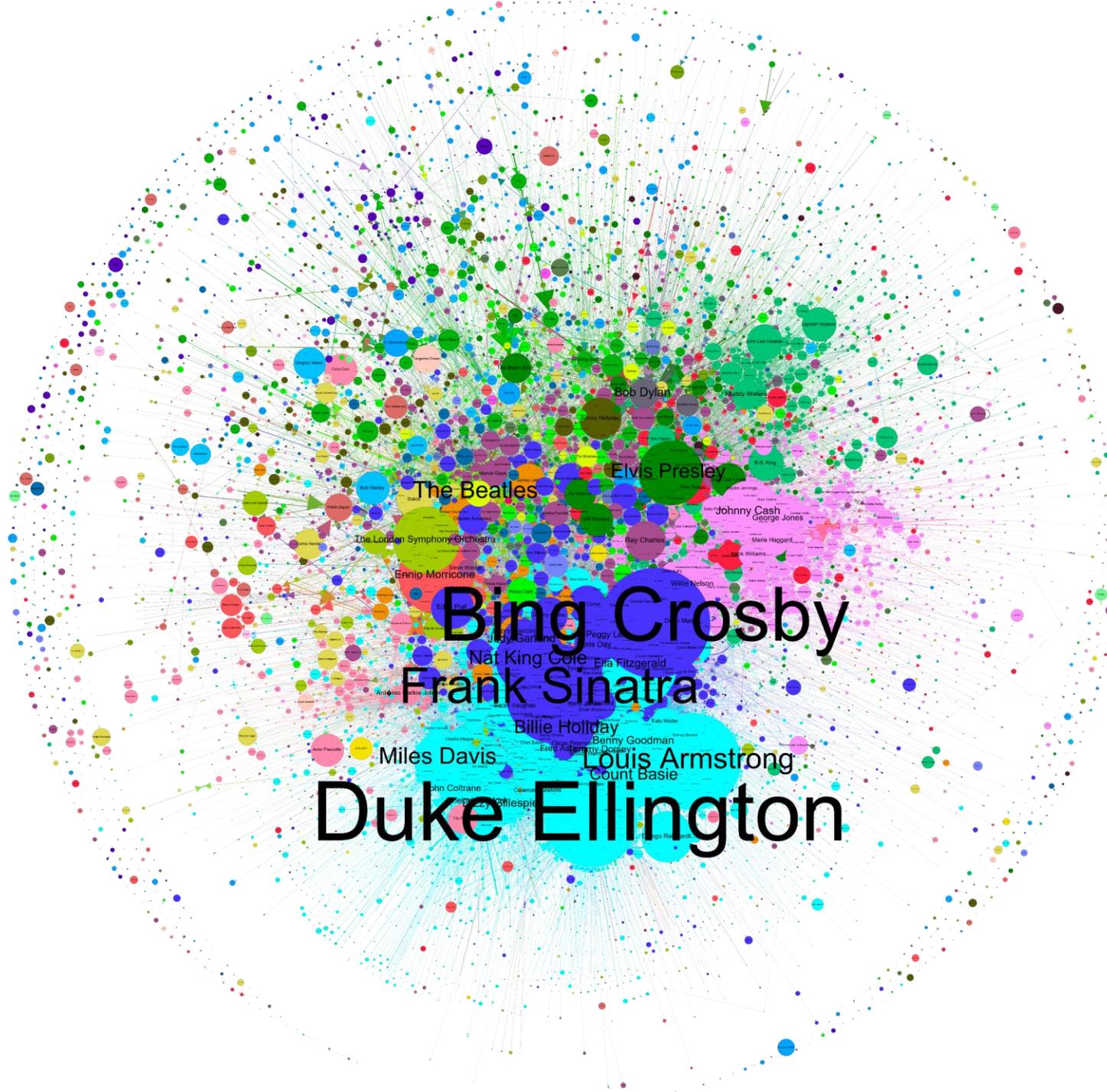
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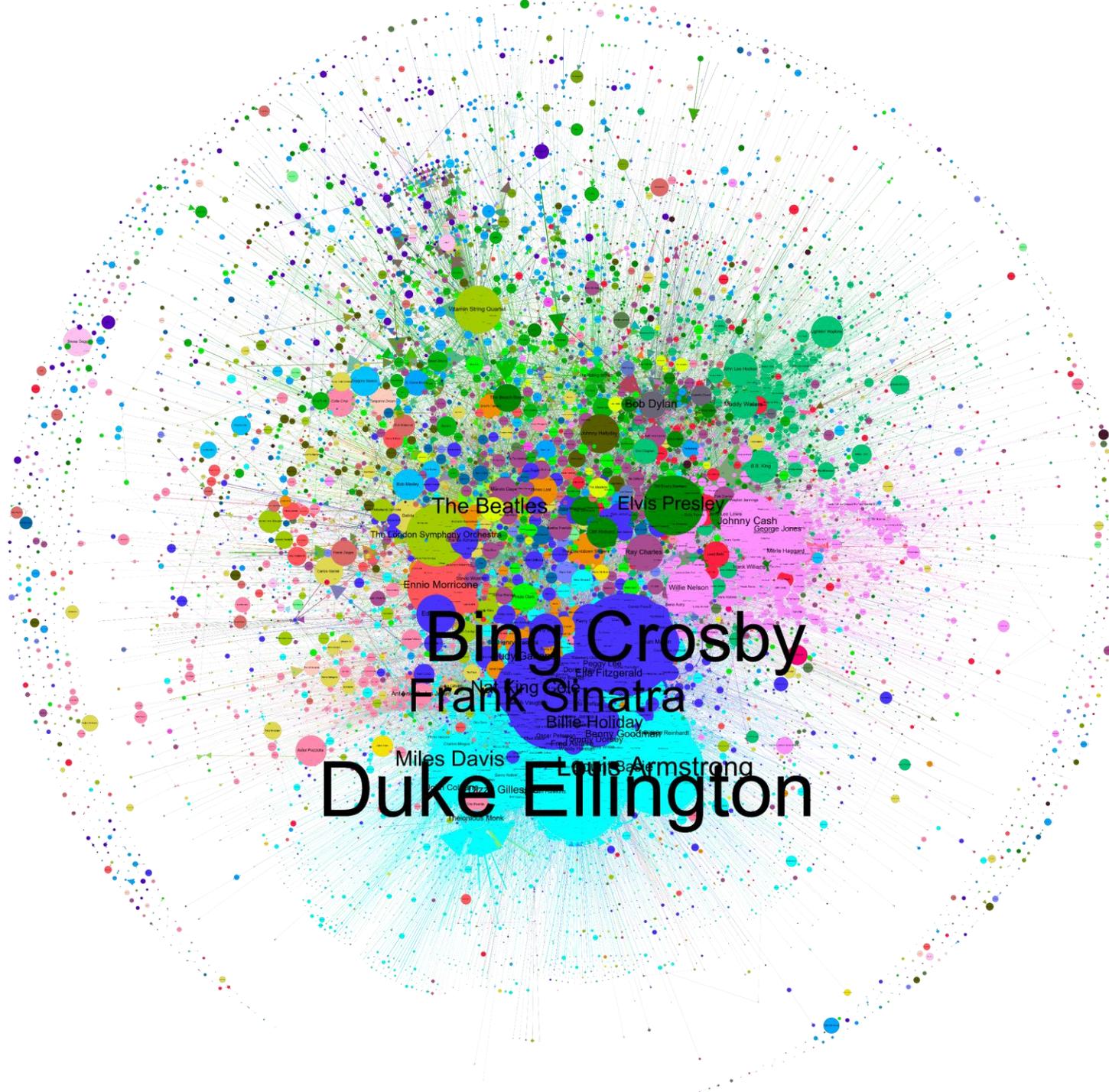
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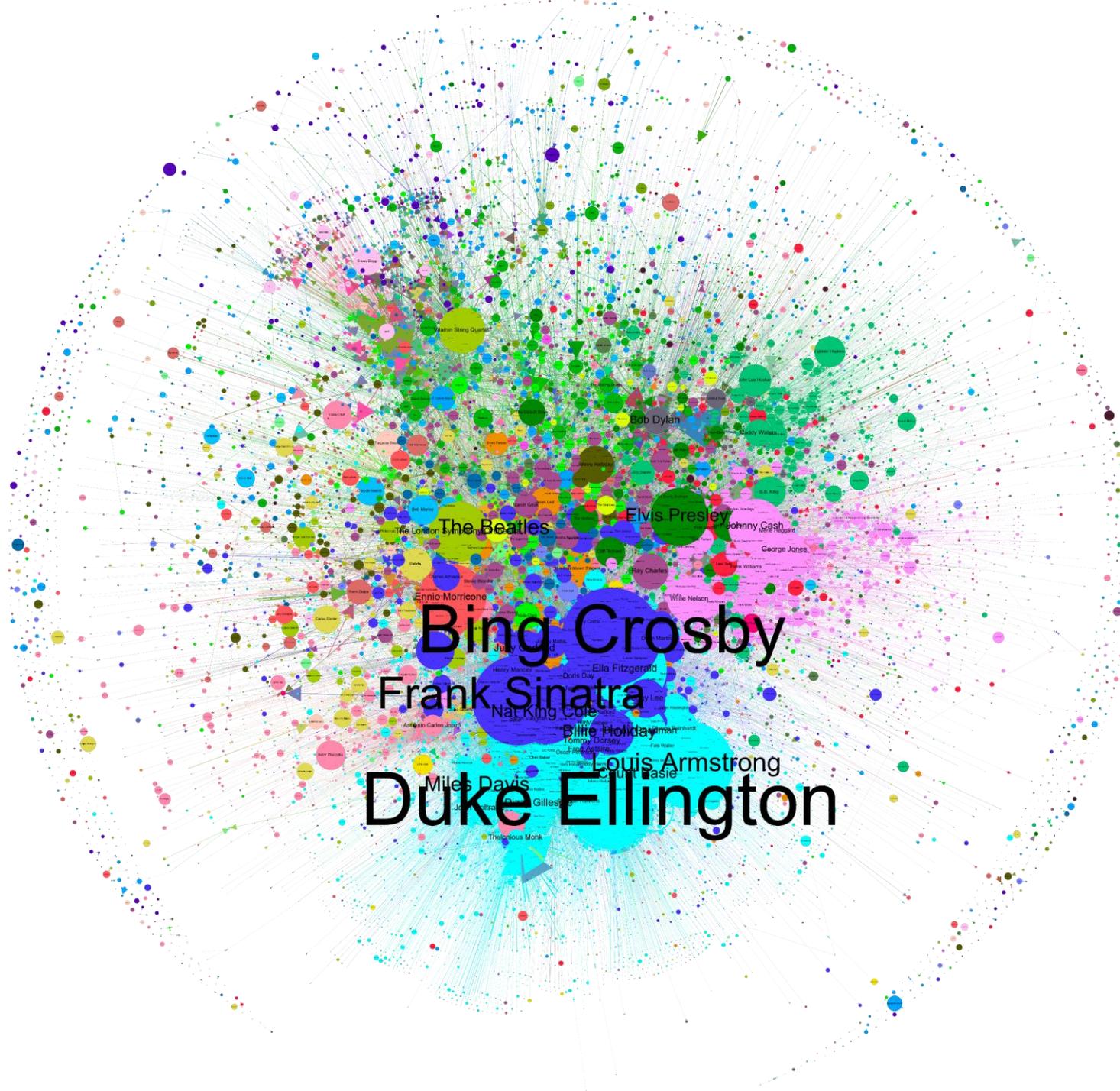
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# 2010s

- Jazz
- Pop/Rock
- Country
- Vocal
- Alternative/Indie Rock
- International
- Blues
- R&B
- Stage & Screen
- Classical
- Latin
- Folk
- Easy Listening
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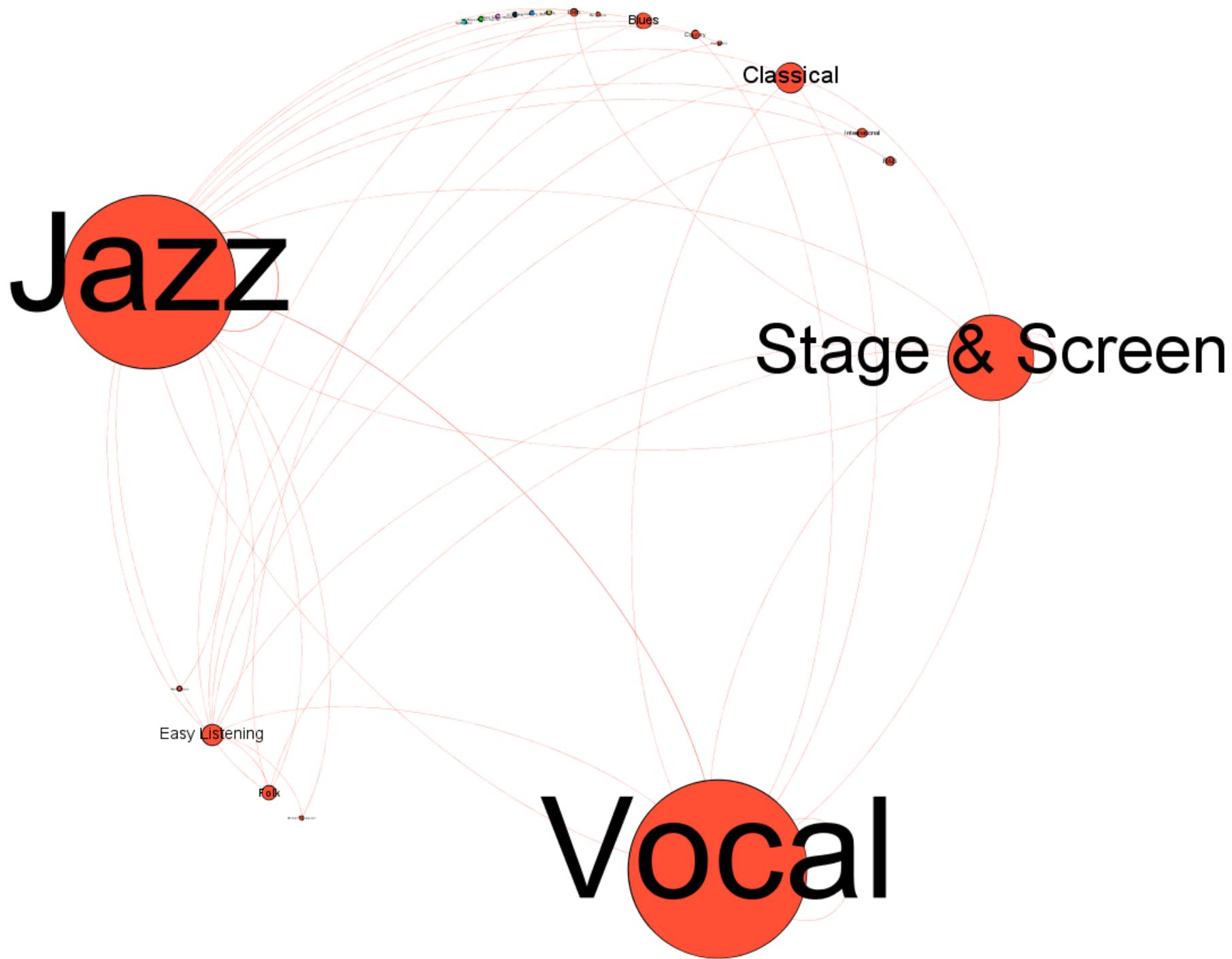
# Géneros musicales



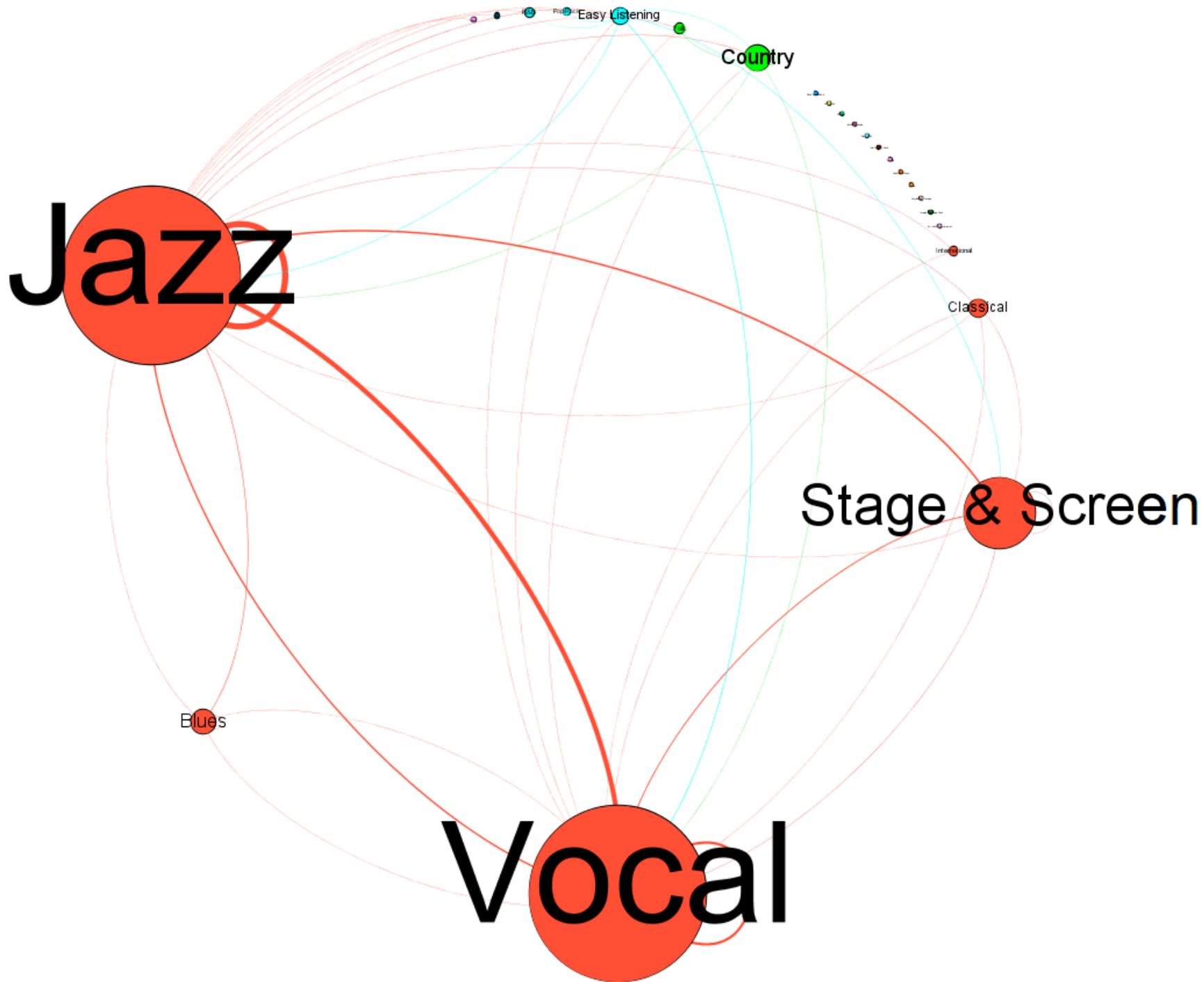
# Influencia entre géneros

Alternative/Indie Rock	0.0%	0.0%	0.0%	0.0%	0.4%	1.0%	4.7%	4.4%	12.1%	34.1%	35.6%	7.5%
Rap	0.3%	0.0%	0.0%	0.3%	1.2%	1.6%	5.9%	6.2%	8.4%	21.1%	39.1%	15.9%
Heavy Metal	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	5.1%	2.6%	10.3%	41.2%	34.4%	6.2%
Punk/New Wave	0.1%	0.0%	0.0%	0.0%	0.3%	1.6%	4.8%	10.2%	23.1%	32.1%	23.5%	4.3%
Art-Rock/Experimental	0.1%	0.0%	0.0%	0.2%	0.4%	3.9%	11.8%	16.2%	15.6%	30.4%	19.1%	2.3%
Electronic	0.0%	0.0%	0.0%	0.0%	0.5%	2.8%	7.3%	6.3%	10.0%	26.2%	30.0%	16.7%
Dance	0.0%	0.0%	0.1%	0.1%	0.4%	1.5%	4.8%	3.4%	5.0%	14.4%	47.4%	22.7%
Foreign Language Rock	0.0%	0.0%	0.2%	0.2%	0.7%	5.3%	21.2%	14.7%	14.9%	20.2%	20.0%	2.7%
Country Rock	0.0%	0.0%	0.2%	0.7%	2.5%	9.2%	22.2%	14.1%	11.6%	19.2%	17.2%	2.9%
Hard Rock	0.3%	0.0%	0.1%	0.3%	0.9%	4.2%	12.1%	12.6%	16.8%	25.6%	23.6%	3.6%
Psychedelic/Garage	0.1%	0.0%	0.2%	0.0%	0.7%	7.6%	17.9%	16.1%	21.4%	19.1%	15.3%	1.7%
Reggae	0.0%	0.0%	0.4%	0.8%	2.0%	8.2%	14.7%	20.4%	13.3%	17.5%	17.9%	4.8%
Soft Rock	0.1%	0.0%	0.2%	1.1%	2.6%	9.2%	15.2%	12.6%	11.8%	22.6%	20.3%	4.4%
British Invasion	0.2%	0.1%	0.6%	1.3%	2.8%	11.8%	20.5%	12.8%	12.1%	20.3%	14.7%	2.8%
Pop/Rock	0.1%	0.1%	0.5%	1.2%	2.9%	11.2%	17.2%	11.5%	9.1%	17.0%	21.2%	8.1%
Children's	0.1%	0.3%	2.1%	6.0%	9.2%	15.6%	12.3%	9.1%	10.0%	20.0%	13.9%	1.5%
Rock & Roll/Roots	0.1%	0.0%	0.2%	0.7%	3.1%	18.6%	25.1%	13.8%	9.9%	15.7%	10.8%	2.0%
R&B	0.1%	0.0%	0.4%	1.1%	3.2%	15.7%	23.3%	12.7%	10.0%	16.6%	13.4%	3.5%
International	0.1%	0.2%	1.4%	3.9%	7.7%	15.7%	16.8%	10.5%	9.9%	17.8%	14.3%	1.8%
Easy Listening	0.1%	0.5%	3.2%	8.2%	13.3%	20.0%	12.4%	8.1%	8.0%	15.1%	9.8%	1.2%
Country	0.0%	0.0%	1.6%	4.8%	8.7%	22.5%	19.4%	10.8%	7.1%	13.9%	9.3%	1.9%
Blues	0.1%	0.2%	2.7%	3.8%	7.6%	16.0%	20.9%	13.0%	9.6%	17.0%	7.9%	1.2%
Jazz	0.0%	0.5%	3.7%	6.3%	13.1%	18.3%	11.6%	10.6%	9.4%	17.3%	8.1%	1.1%
Latin	0.0%	0.2%	0.8%	3.6%	7.2%	15.1%	17.8%	9.7%	10.1%	20.0%	14.0%	1.5%
Vocal	0.1%	0.5%	4.0%	7.8%	13.6%	18.9%	10.6%	8.9%	8.6%	16.0%	9.7%	1.3%
Folk	0.0%	0.3%	1.2%	2.3%	4.7%	12.7%	17.5%	13.0%	10.5%	19.5%	14.7%	3.5%
Stage & Screen	0.1%	0.5%	3.1%	6.6%	13.2%	18.5%	10.4%	9.1%	9.1%	17.1%	10.7%	1.6%
Religious	0.0%	0.3%	2.9%	5.3%	7.5%	16.4%	11.4%	10.0%	9.3%	17.2%	17.2%	2.4%
Classical	0.6%	0.7%	3.3%	5.1%	7.9%	13.1%	10.7%	9.4%	11.3%	19.4%	15.5%	3.1%
	1900s	1910s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s

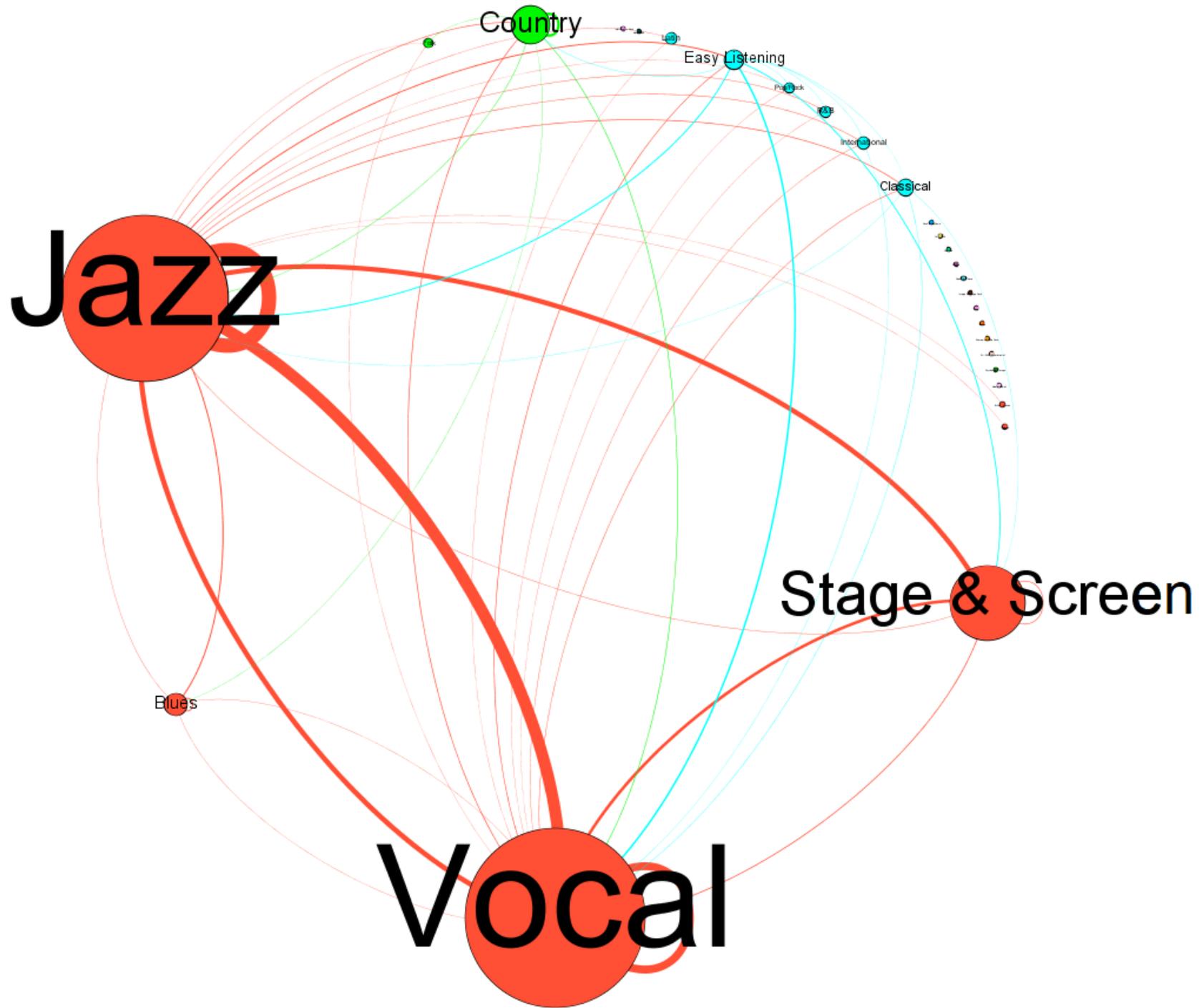
1910s



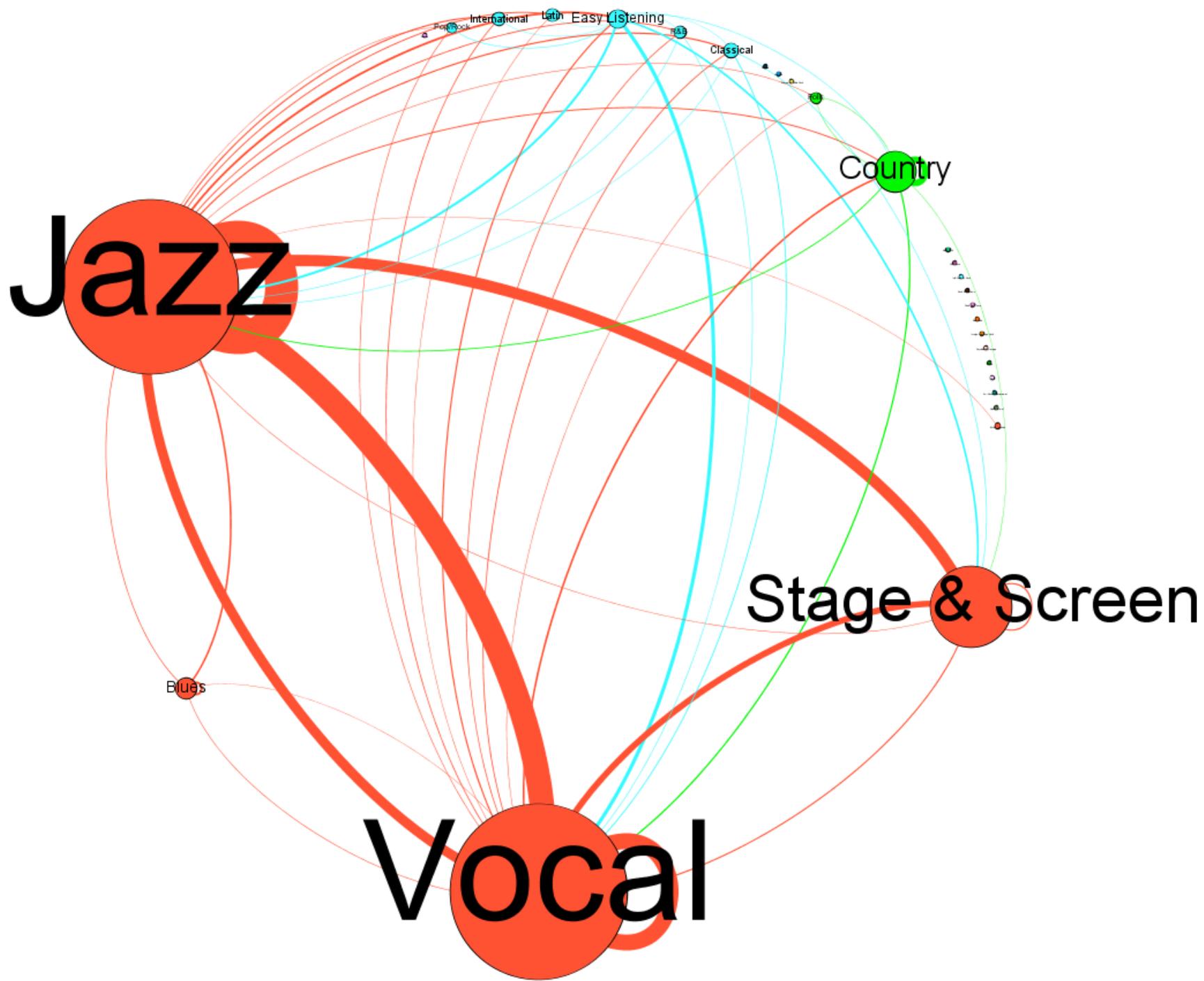
1920s



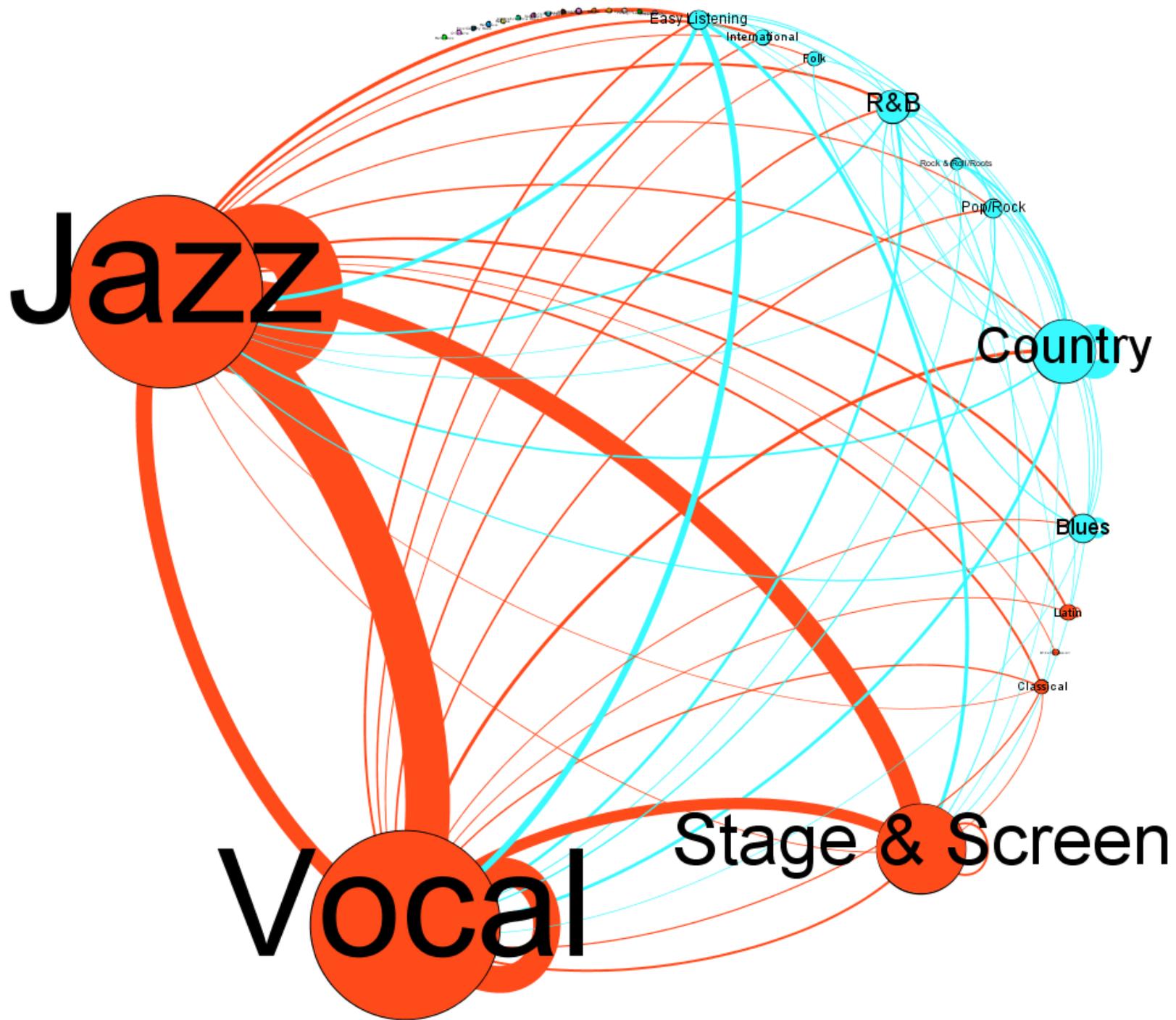
1930s



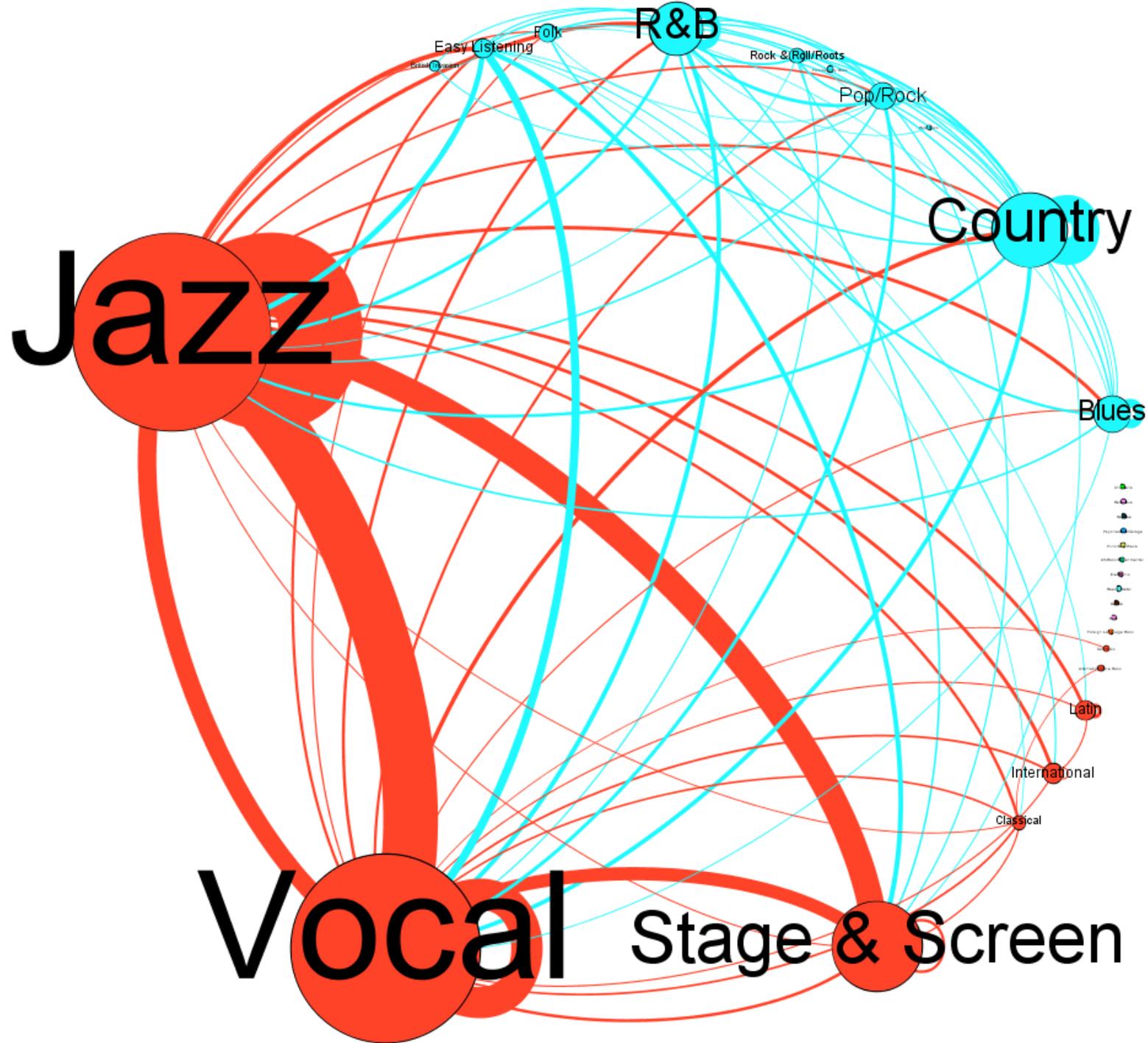
1940s



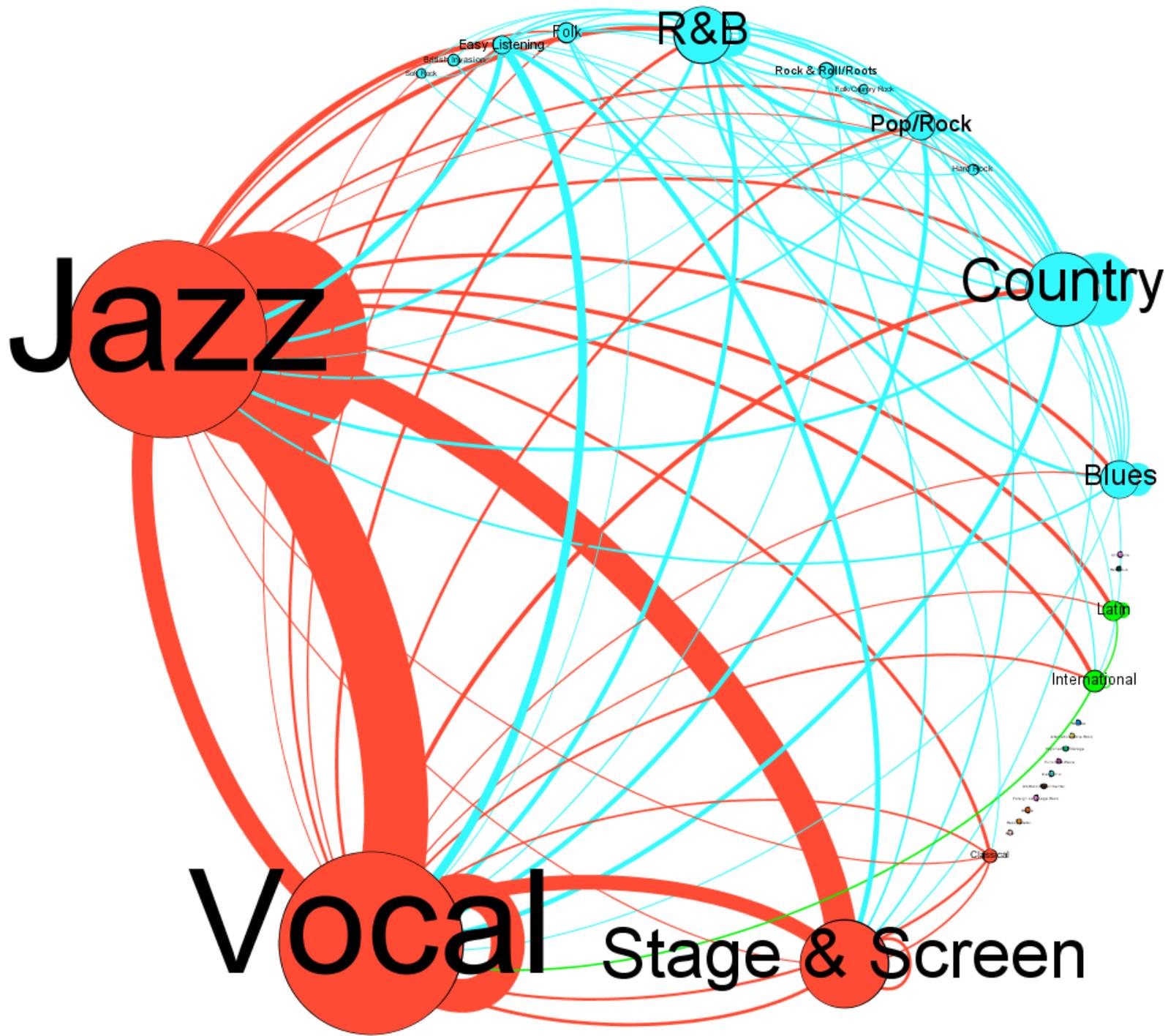
1950s



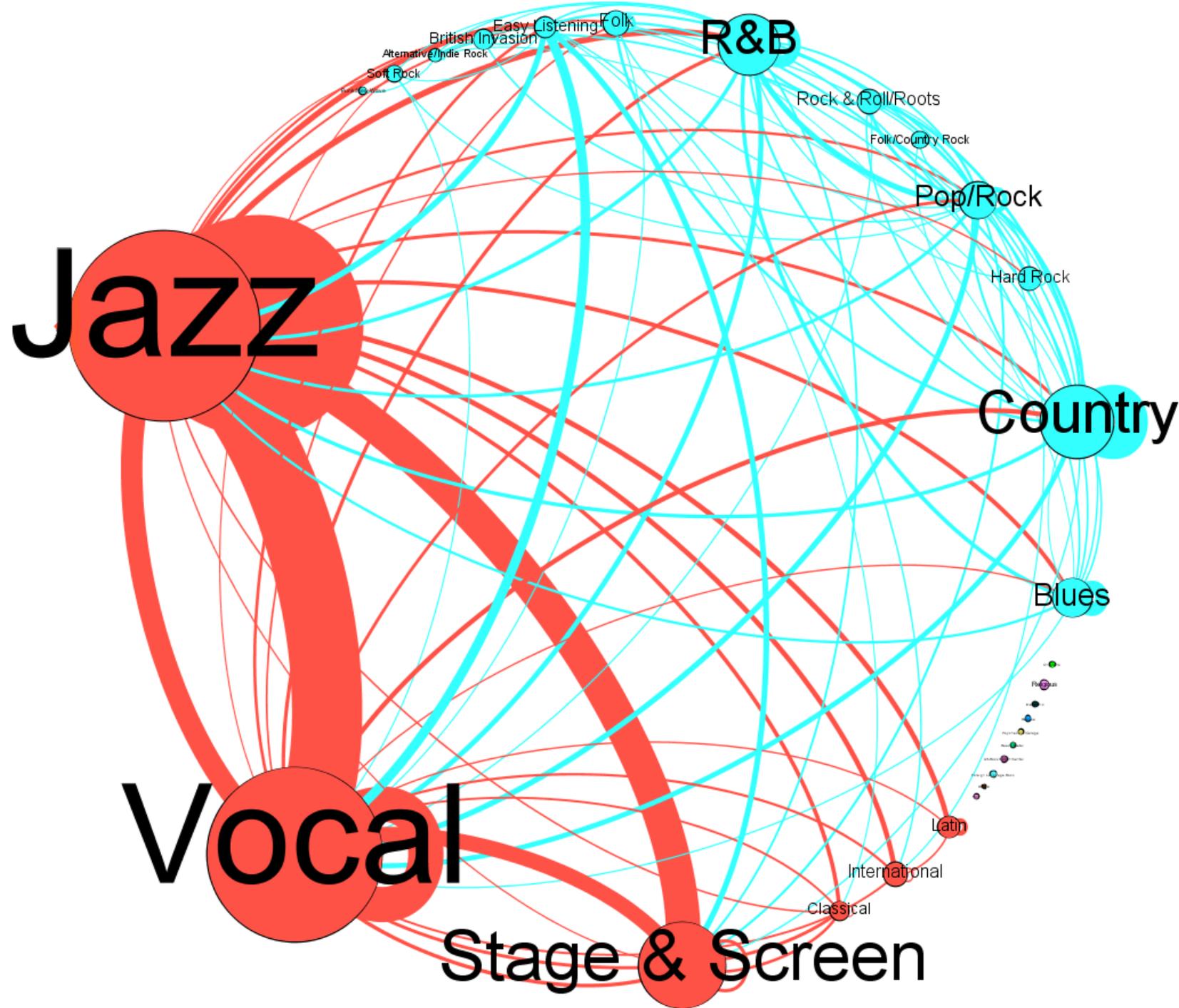
1960s



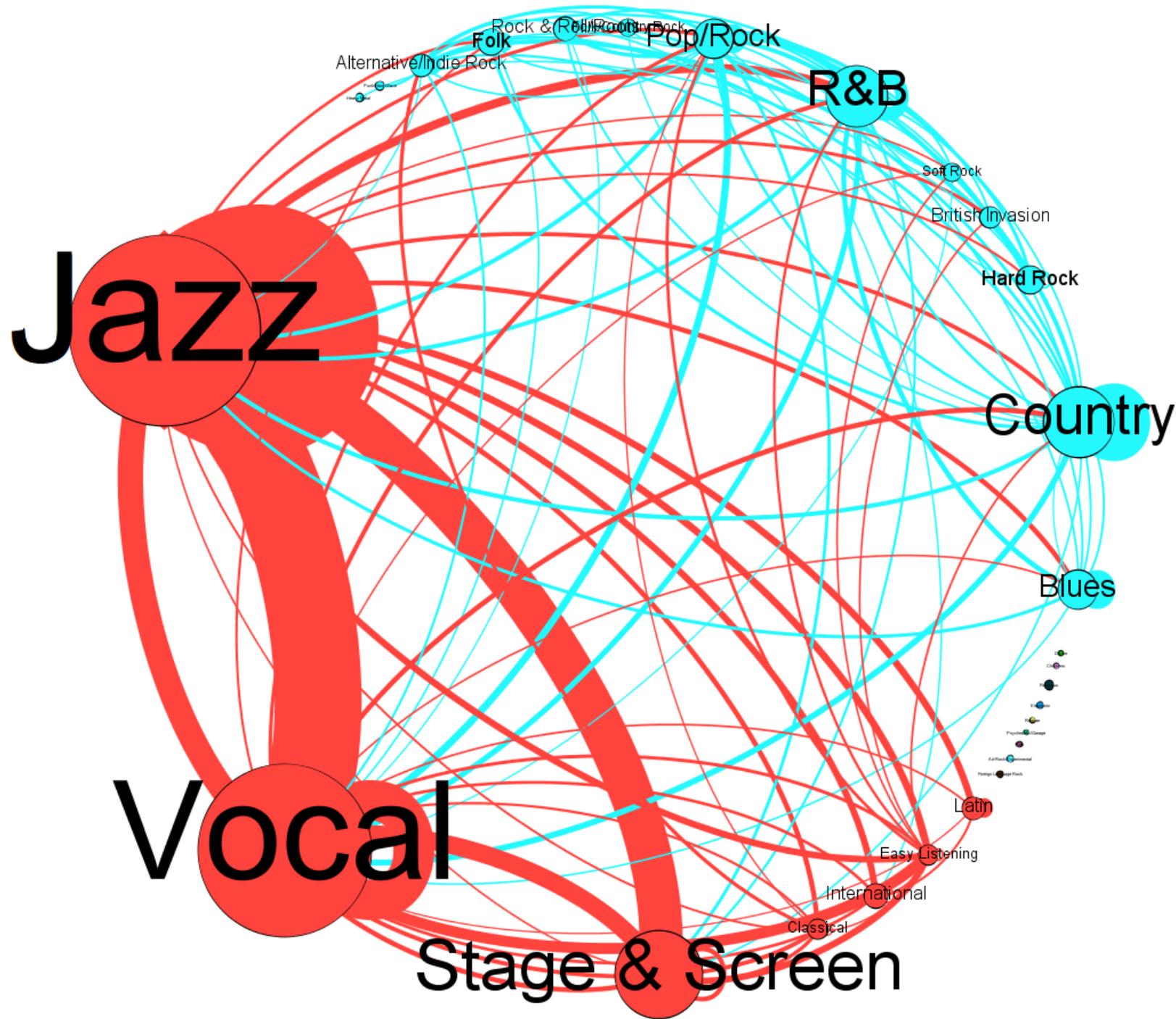
1970s



1980s

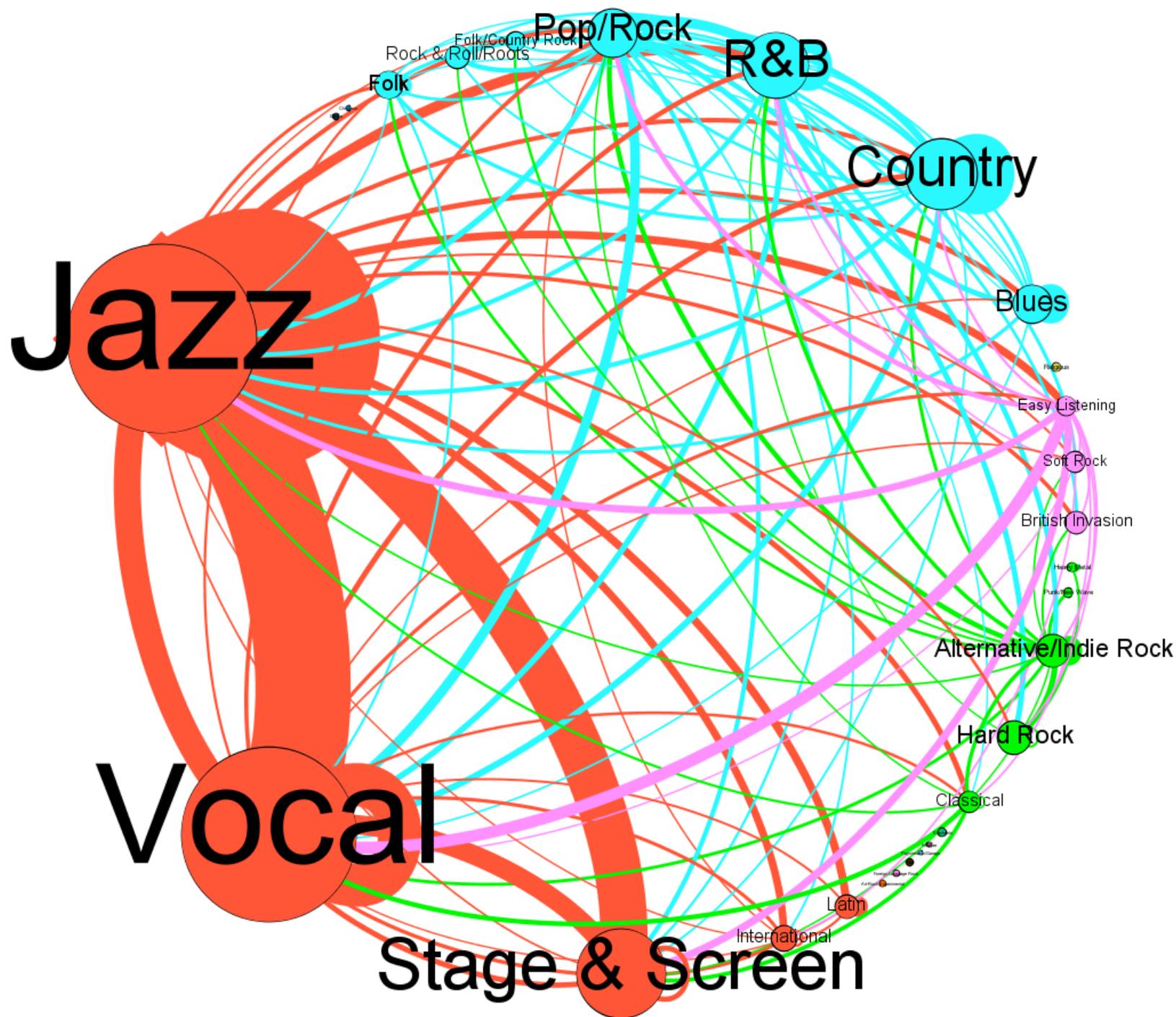


1990s





2010s



# Conclusiones

Es frecuente versionar canciones, pero muy infrecuente ser versionado

- Sólo los mejores, señal de impacto

Las versiones crecen mucho hasta 1950s, luego decaen

Villancicos, las canciones más versionadas

Cuanto más joven, mayor impacto

Dos momentos generacionales:

- La Era del Jazz (1920s)
- La Revolución del Rock (1950s)

# Muchas gracias!

[jortega@iesa.csic.es](mailto:jortega@iesa.csic.es)  
@JLOrtegaPriego