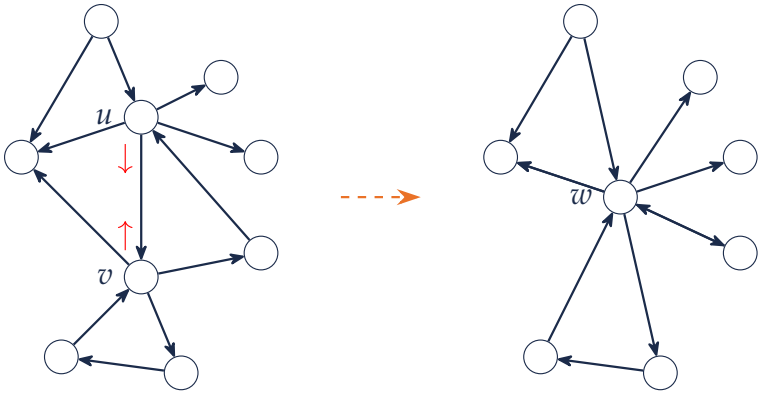
Progettazione di una Struttura Dati per Rappresentare e Analizzare Collezioni di Sogni

Marco Caputo
marco.caputo@studenti.unicam.it

22 Luglio 2024

Contrazione di Grafi

Contrazione di archi



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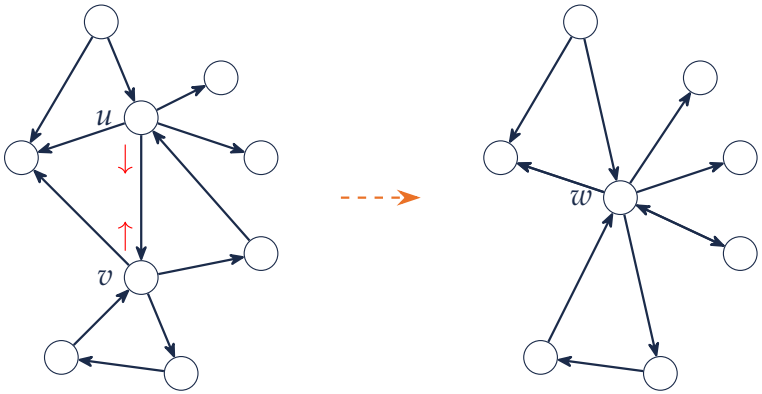
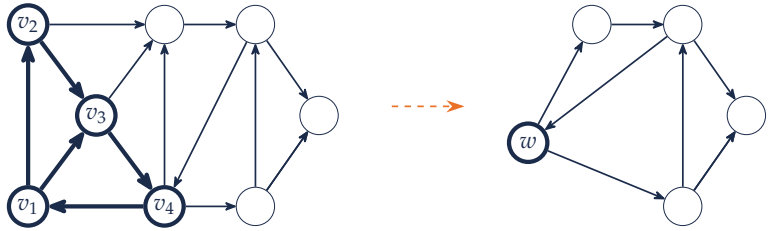


Contrazione di sottografi



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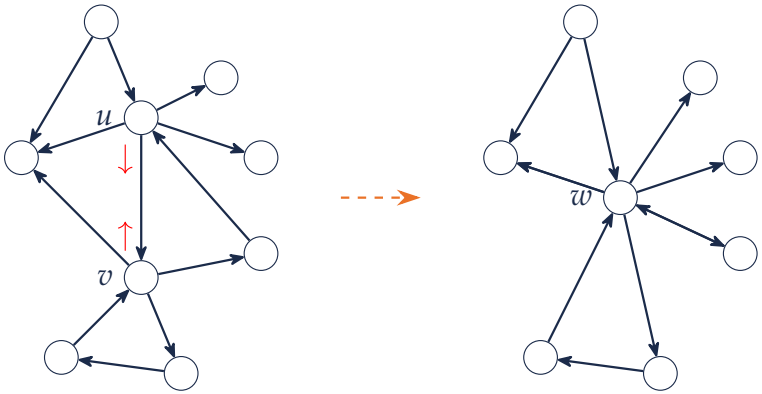

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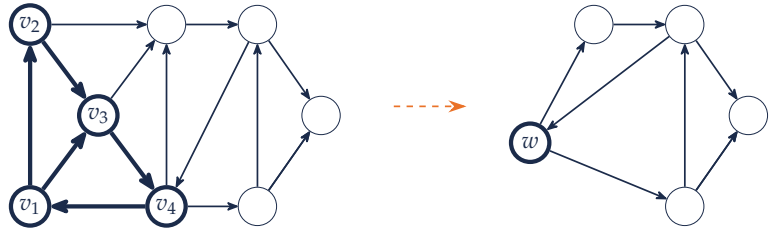
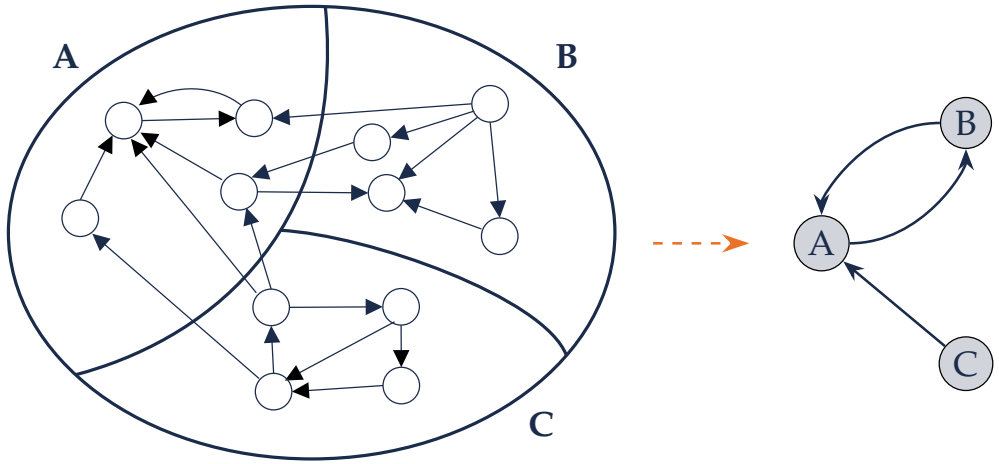


Grafo quoziente



Grafo multi-livello

Definizione (Grafo multi-livello)

Un **grafo multi-livello** M è una coppia (G, Γ) dove:

- $G = (V, E)$ è un grafo;
- $\Gamma = \langle f_{C_1}, f_{C_2}, .., f_{C_k} \rangle$ è una sequenza di funzioni di contrazione.

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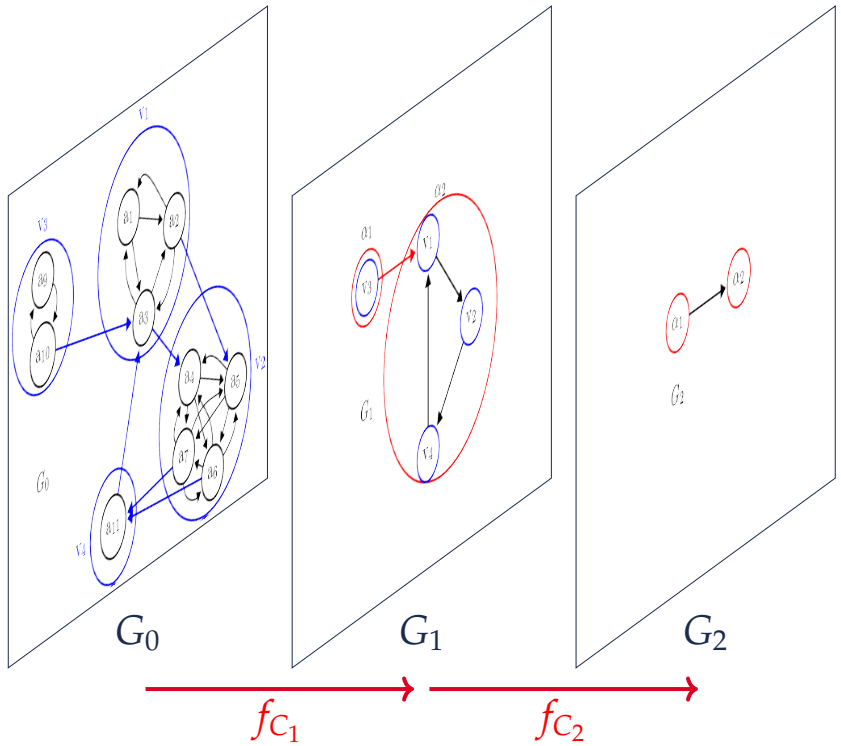

Grafo decontraibile

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Un **grafo decontraibile** è una quadrupla $G = (V, E, dec_V, dec_E)$ dove:

- V è un insieme di elementi detti **supernodi**;
- $E \subseteq V \times V$ è un insieme di coppie ordinate di supernodi, dette **superarchi**;
- $dec_V : V \to \mathcal{G}_D$ è una funzione tale per cui $dec_V(v) = (\mathcal{V}_v, \mathcal{E}_v, dec_{\mathcal{V}_v}, dec_{\mathcal{E}_v})$ è un grafo decontraibile rappresentato dal supernodo v;
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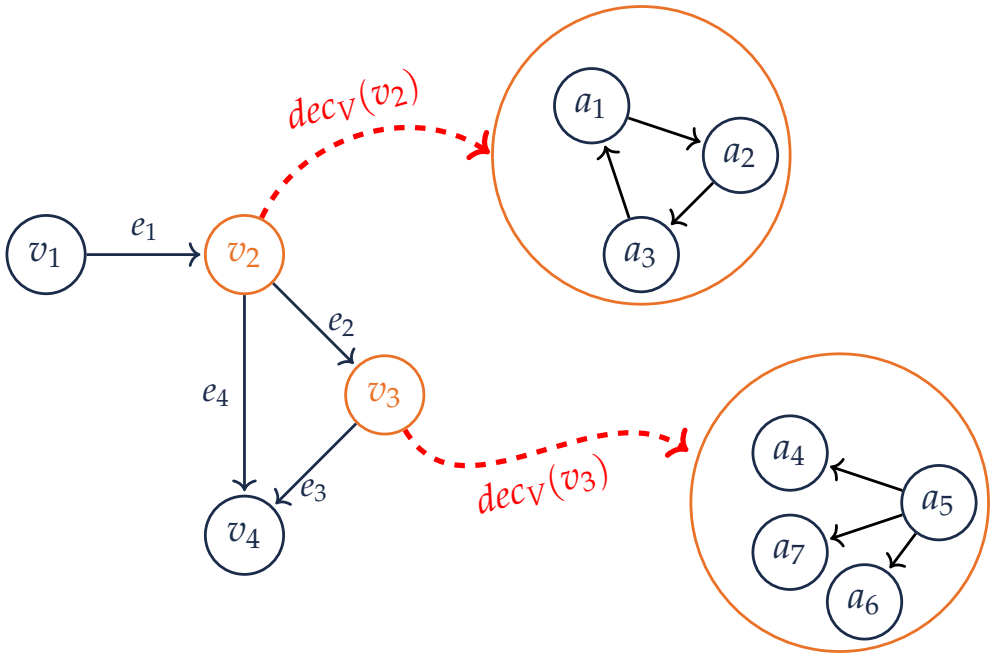

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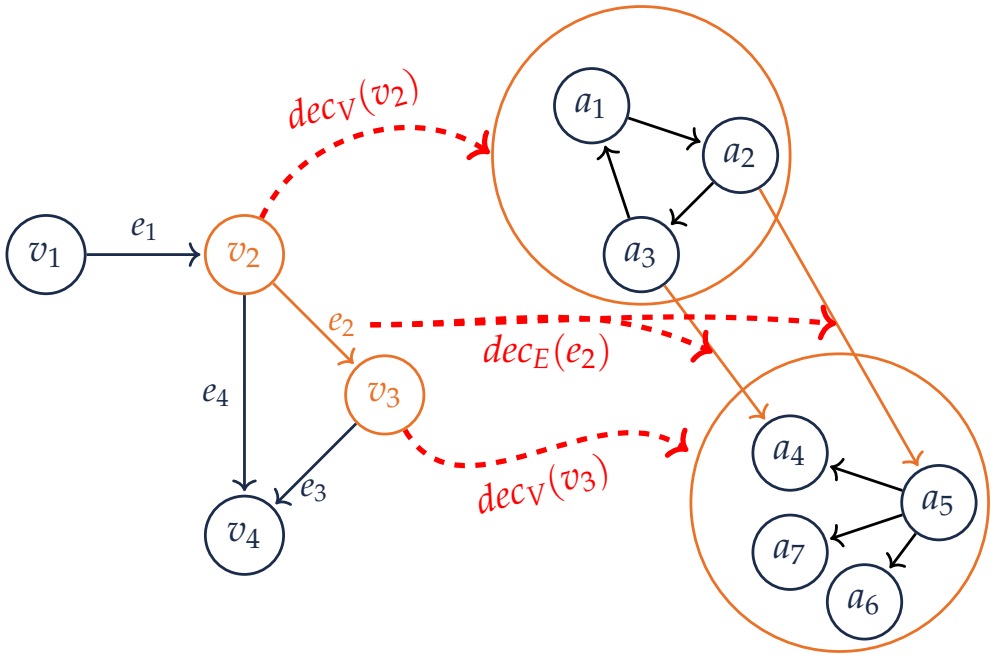
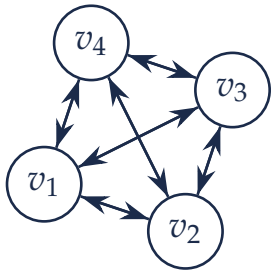


Schemi di contrazione

Schema Algoritmo Complessità

Schemi di contrazione

Schema	Algoritmo	Complessità
Cricche	Algoritmo di Bron-Kerbosch	$O(3^{\frac{n}{3}})$



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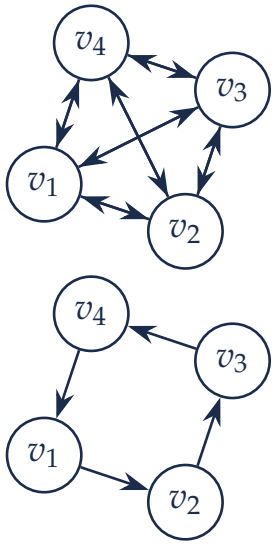

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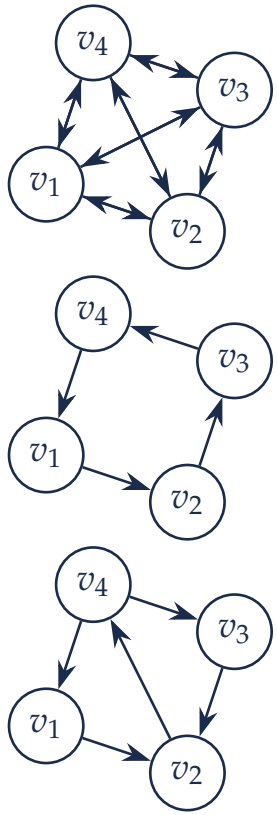
Componenti fortemente connesse	Algoritmo di Kosaraju-Sharir	$O(n+m)$



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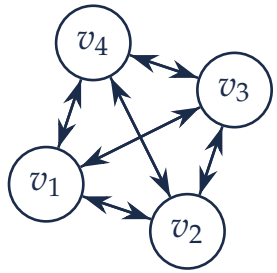
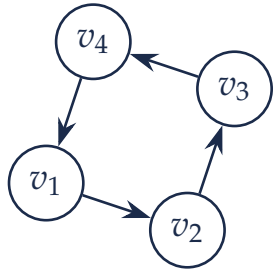
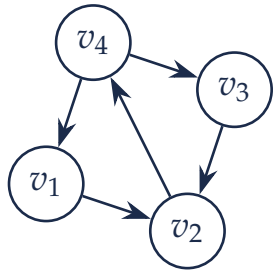
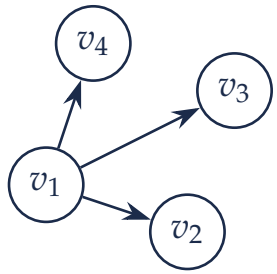
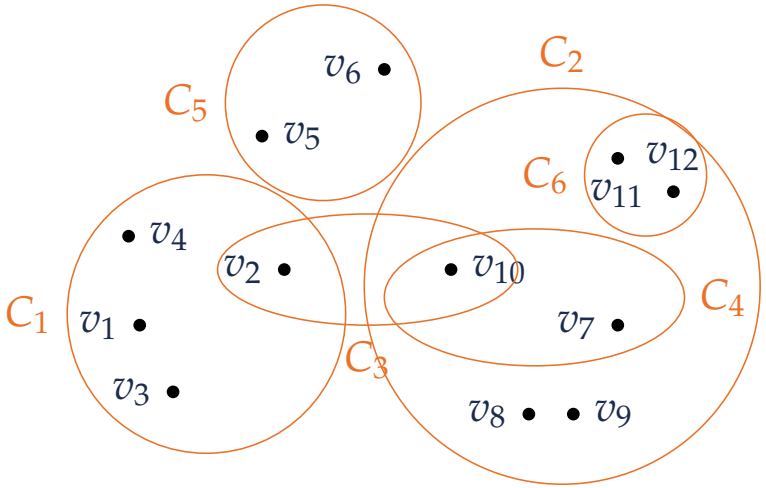
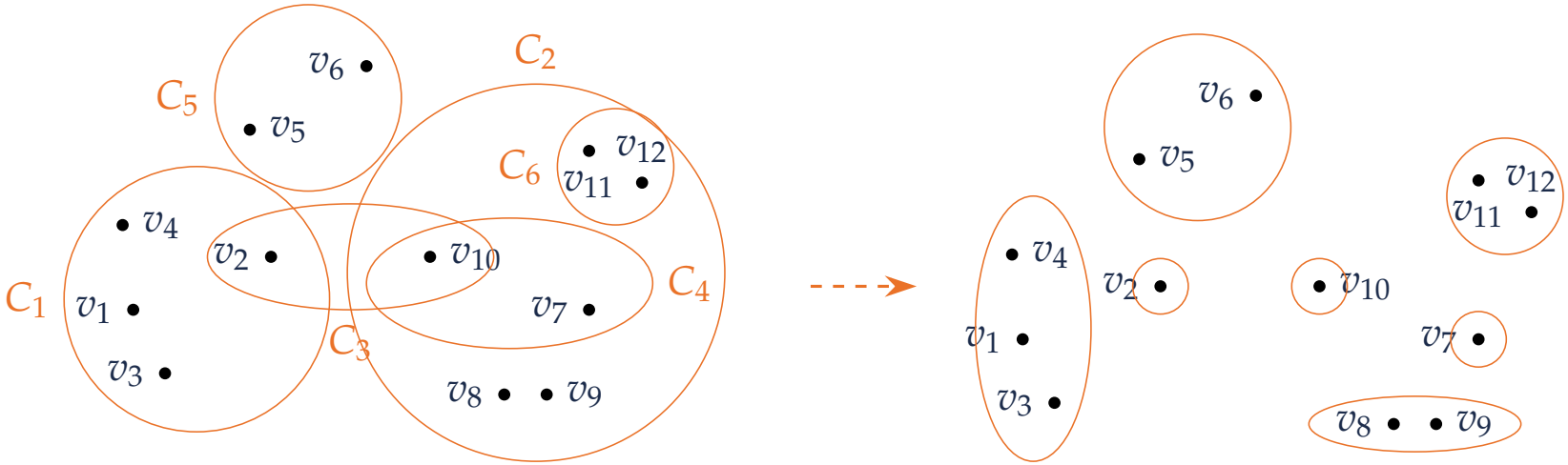
Cricche	Algoritmo di Bron-Kerbosch	$O(3^{\frac{n}{3}})$	
Circuiti semplici	Algoritmo dei circuiti semplici di Johnson	$O((n+m)\,c)$	
Componenti fortemente connesse	Algoritmo di Kosaraju-Sharir	$O(n+m)$	
Stelle	Algoritmo custom	$O(n+m)$	

Contrazione di sottoinsiemi



Contrazione di sottoinsiemi



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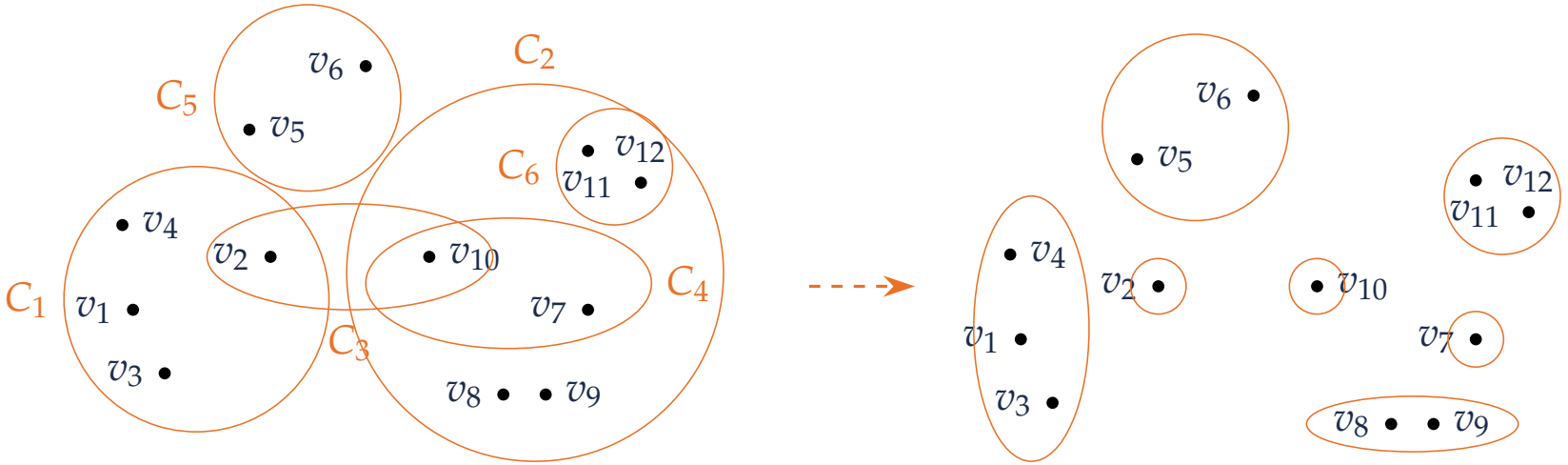
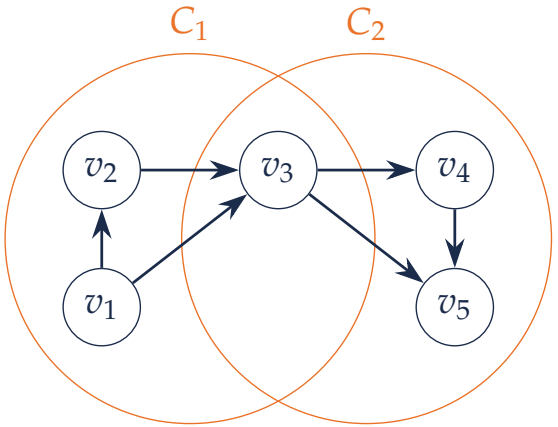


T

v_1	$\{C_1\}$
v_2	$\{C_1\}$
v_3	$\{C_1, C_2\}$
v_4	$\{C_2\}$
v_5	$\{C_2\}$



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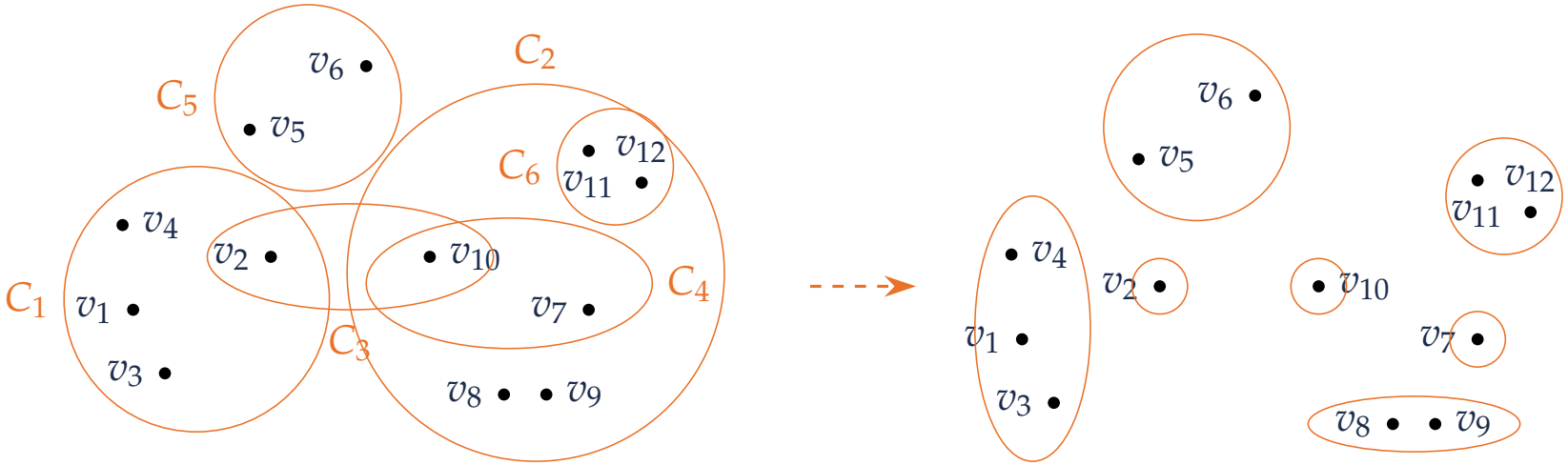

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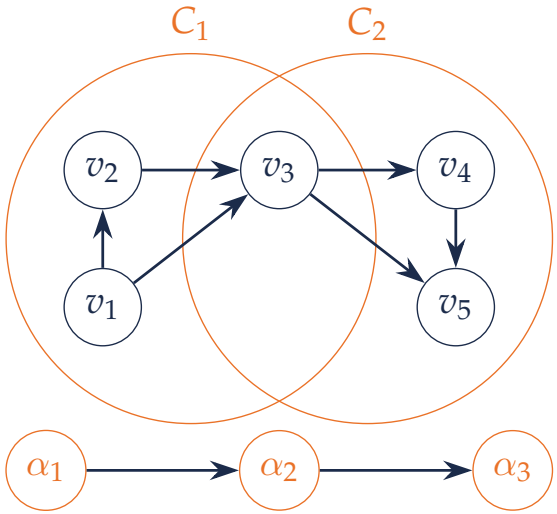
T'

$\{C_1\}$	α_1
$\{C_1, C_2\}$	α_2
$\{C_2\}$	α_3



Analisi sintattica dei sogni

"I am at a lake in my hometown. Something is going on there and we are in a hurry to get away. We get in a station wagon and have a hard time getting two pet deer, with the same names as my son and daughter, corralled. Finally we get them into the vehicle and we are almost all the way out when the wheel goes off one side of the road and the vehicle is stuck and the deer is about halfway out. At this point I notice my mother-in-law is cutting off a Christmas tree which is growing in the water at the end of the dock."

Analisi sintattica dei sogni

"~~I~~ ~~am~~ ~~at~~ ~~a~~ lake ~~in~~ ~~my~~ hometown. something ~~is~~ going ~~on~~ ~~there~~ ~~and~~ ~~we~~ ~~are~~ ~~in~~ ~~a~~ hurry ~~to~~ get away. ~~We~~ get ~~in~~ ~~a~~ station wagon ~~and~~ ~~have~~ ~~a~~ hard time getting two pet deer, ~~with~~ ~~the~~ ~~same~~ names ~~as~~ ~~my~~ son ~~and~~ daughter, corralled. finally ~~we~~ get ~~them~~ ~~into~~ ~~the~~ vehicle ~~and~~ ~~we~~ ~~are~~ almost ~~all~~ ~~the~~ way ~~out~~ ~~when~~ ~~the~~ wheel goes ~~off~~ one side ~~of~~ ~~the~~ road ~~and~~ ~~the~~ vehicle ~~is~~ stuck ~~and~~ ~~the~~ deer ~~is~~ ~~about~~ halfway ~~out~~. ~~At~~ ~~this~~ point ~~I~~ notice ~~my~~ mother-in-law ~~is~~ cutting ~~off~~ ~~a~~ christmas tree ~~which~~ ~~is~~ growing ~~in~~ ~~the~~ water ~~at~~ ~~the~~ end ~~of~~ ~~the~~ dock."

Rimozione stopwords

Analisi sintattica dei sogni

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Rimozione stopwords

Lemmatizzazione

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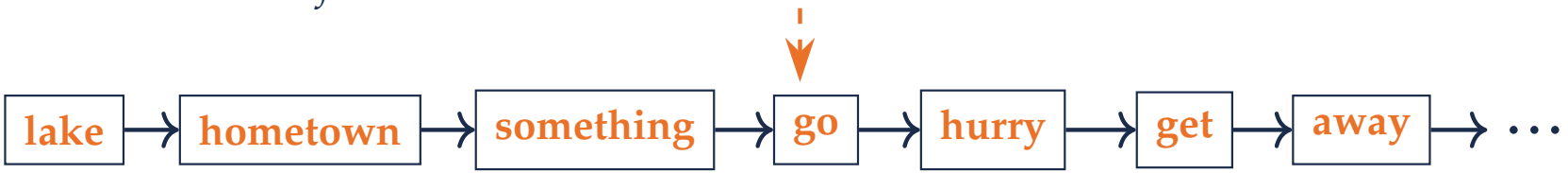

ANALISI SINTATTICA DEI SOGNI

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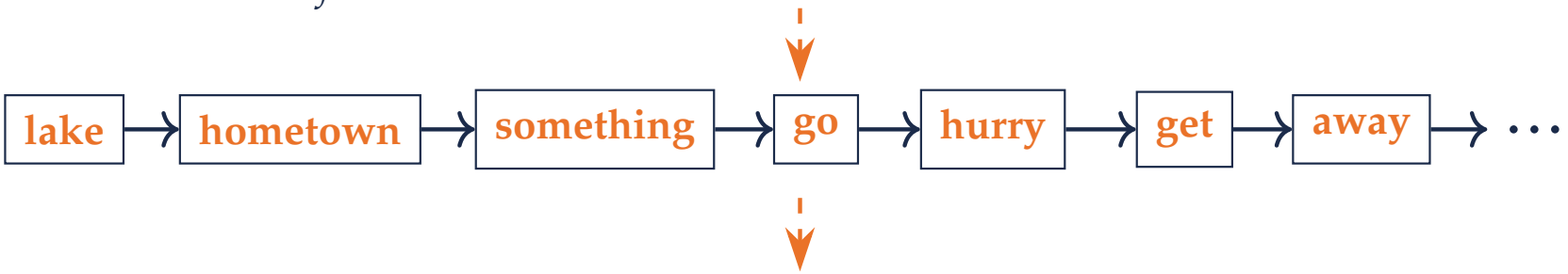
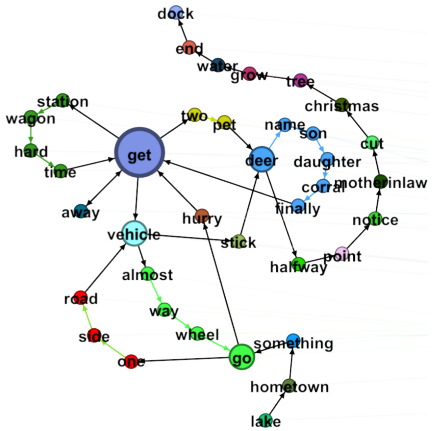
RIMOZIONE STOPWORDS

LEMMATIZ-ZAZIONE





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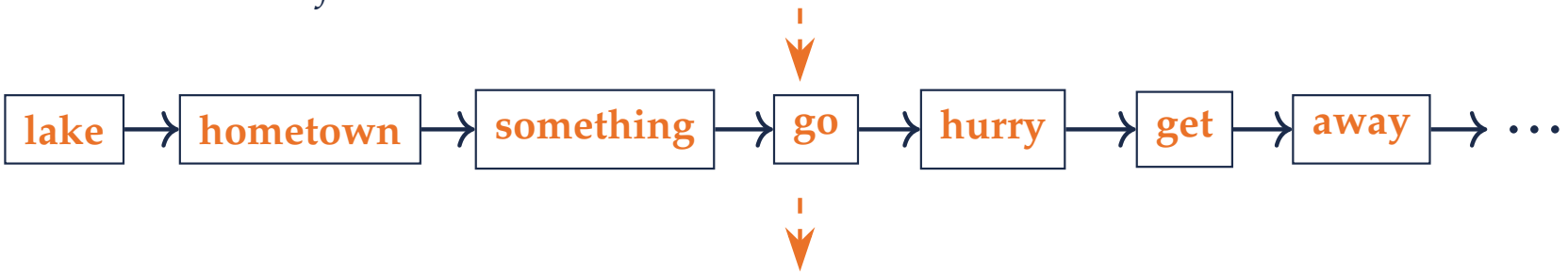
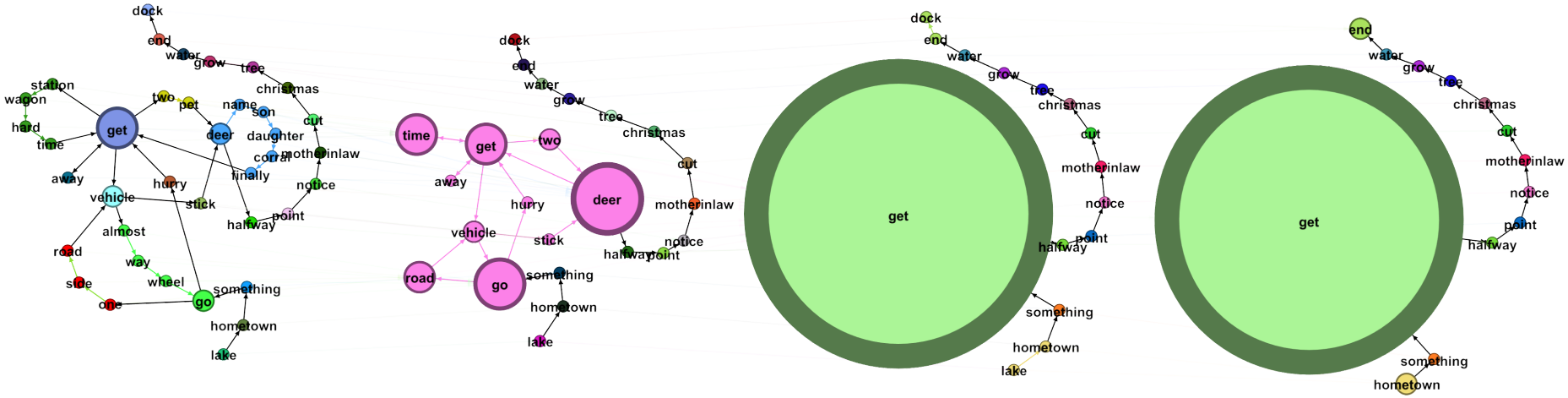
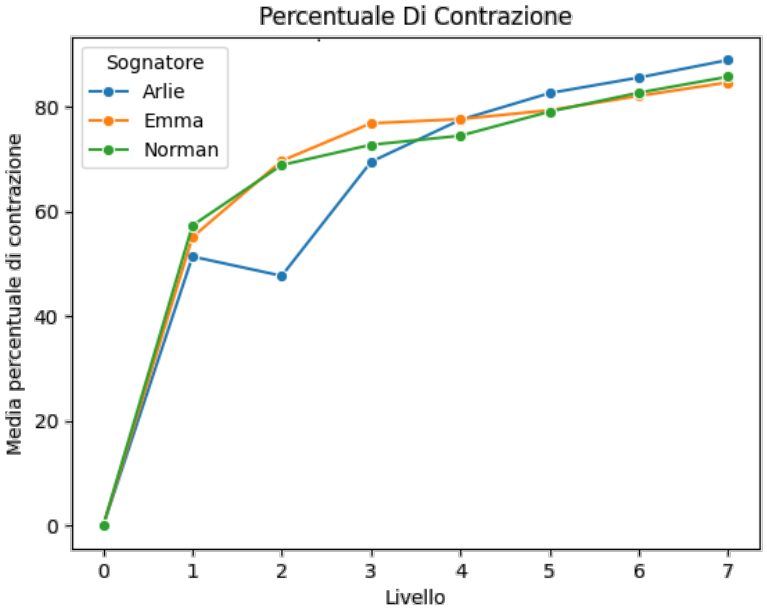
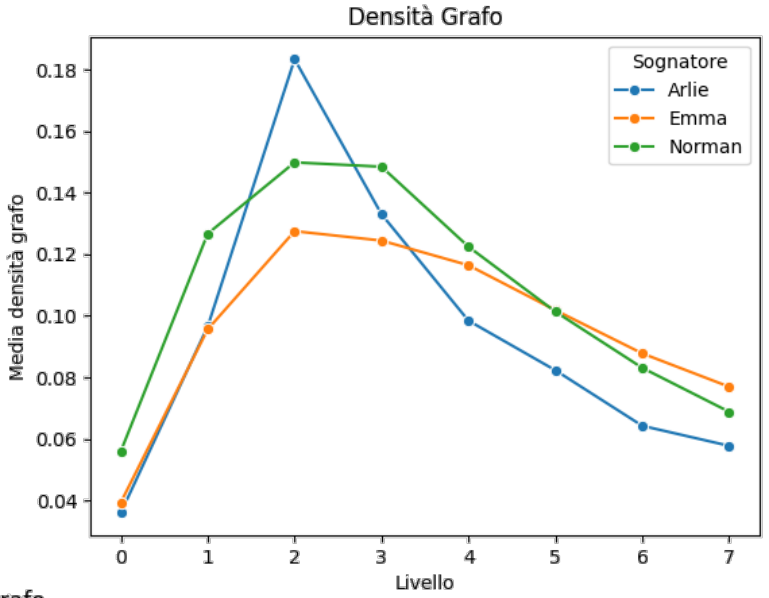
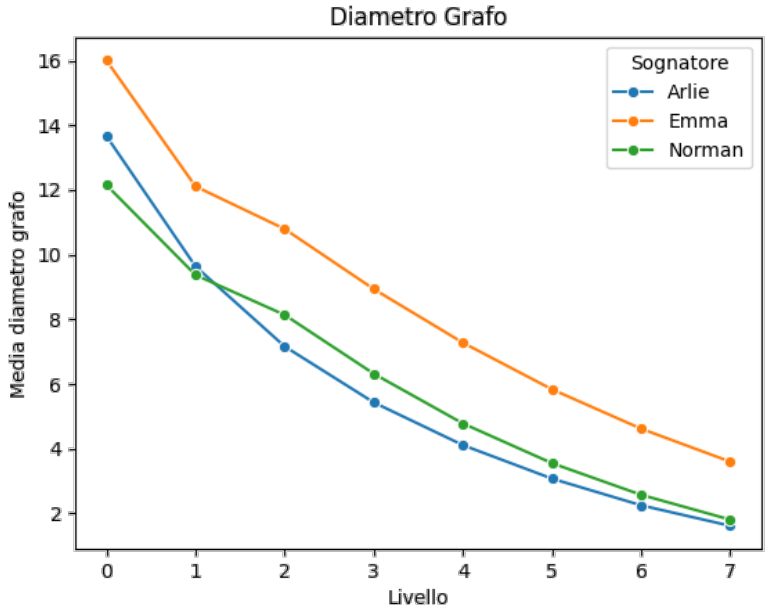




Analisi sintattica dei sogni







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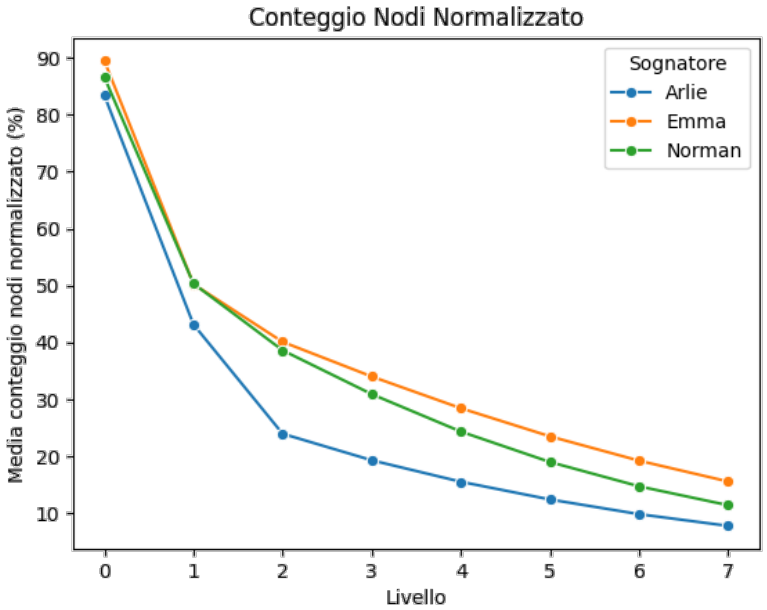
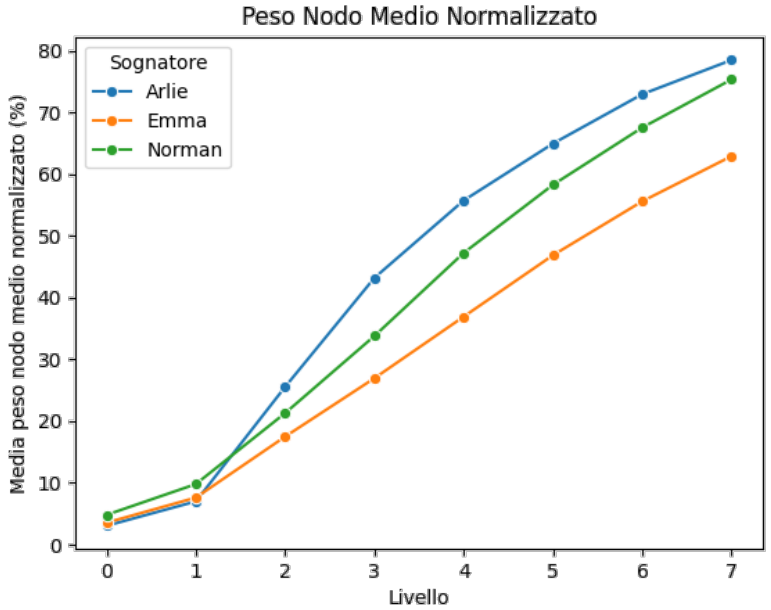
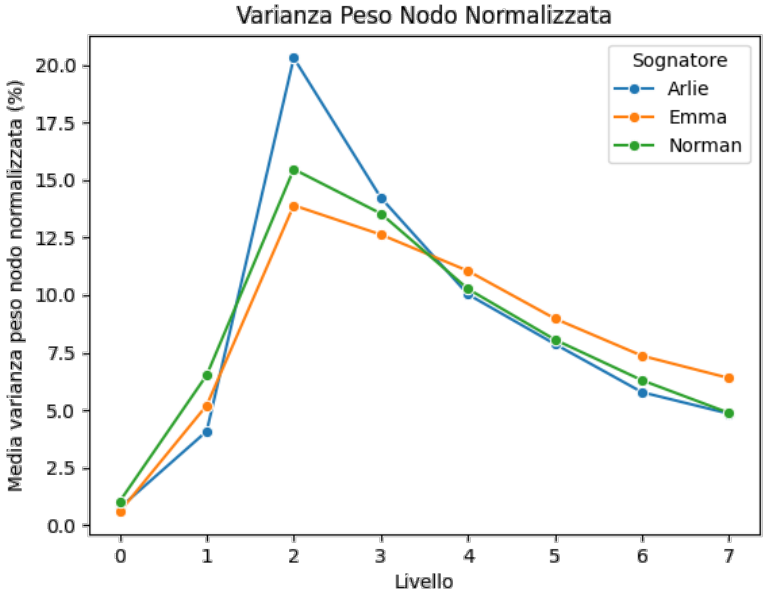
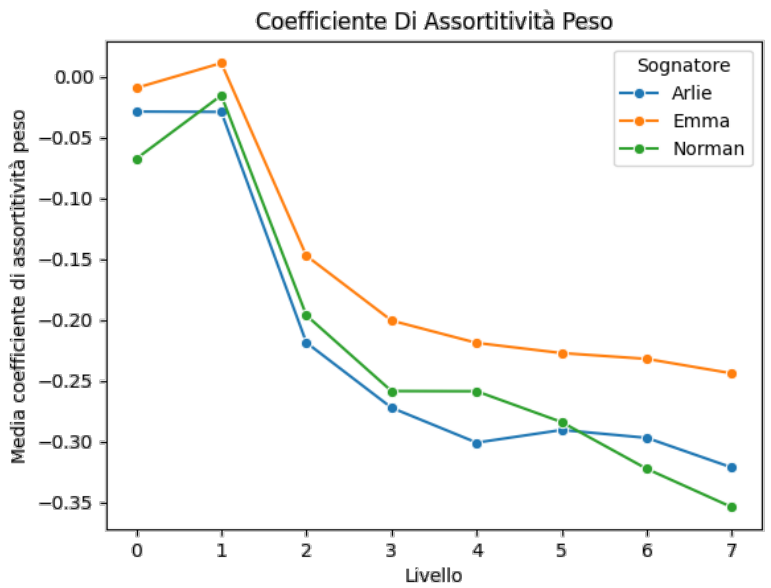
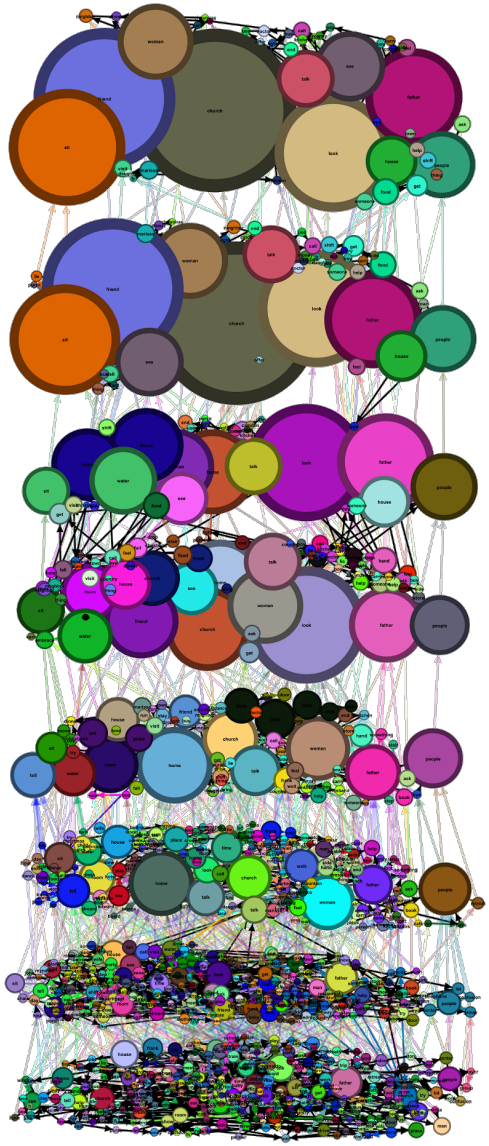








Analisi semantica dei sogni



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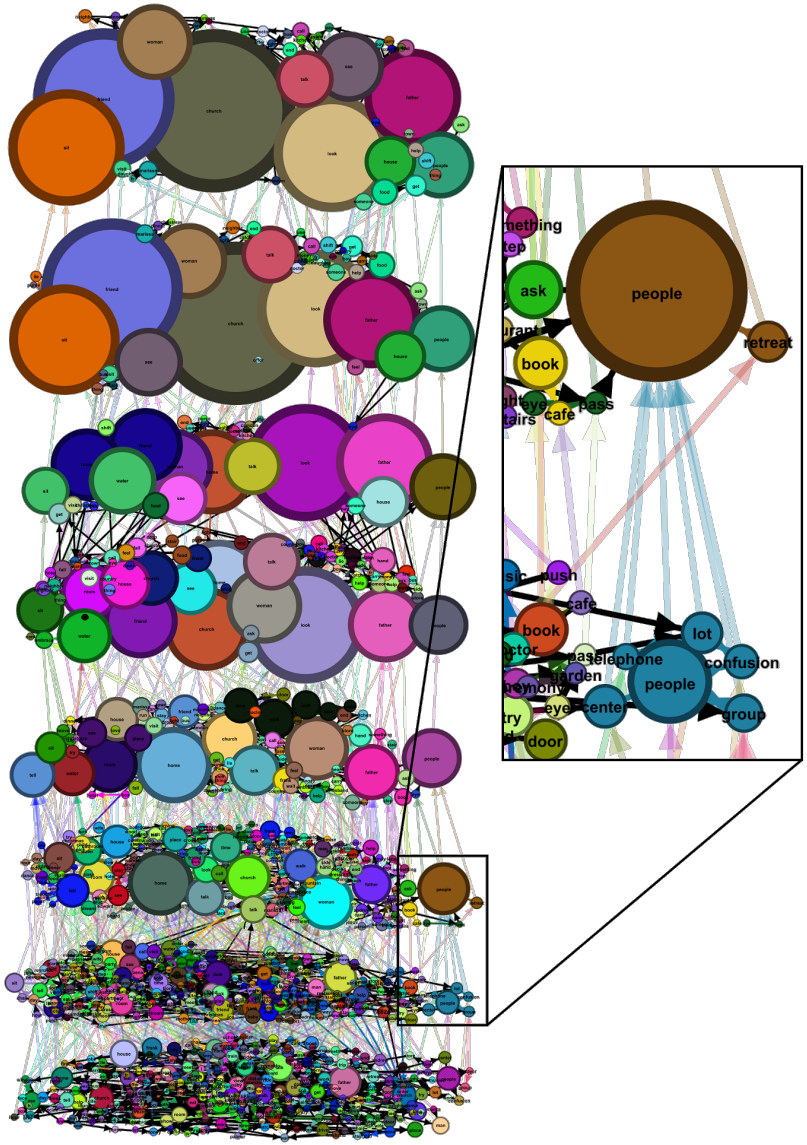
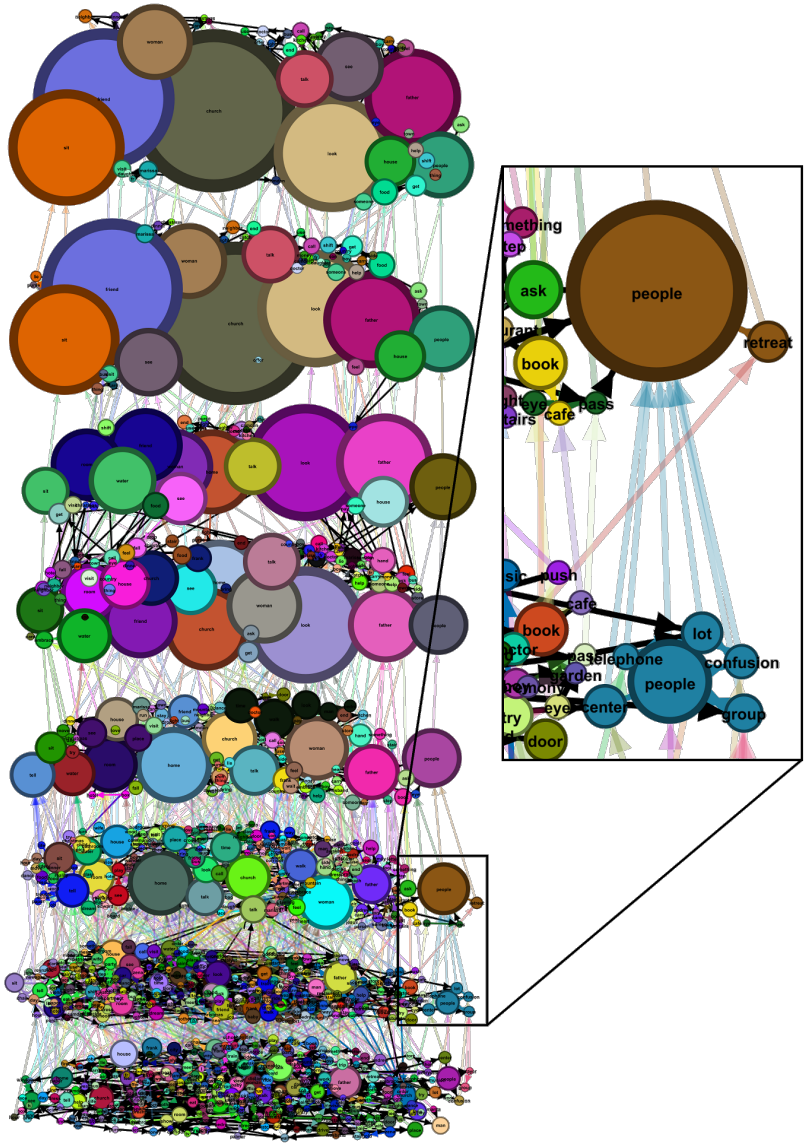


Analisi semantica dei sogni

Esempi di circuiti

- “cake”-“party”
- “boat”-“lake”-“water”
- “trip”-“train”-“station”
- “road”-“car”-“drive”-“hill”
- “liturgy”-“church”-“music”



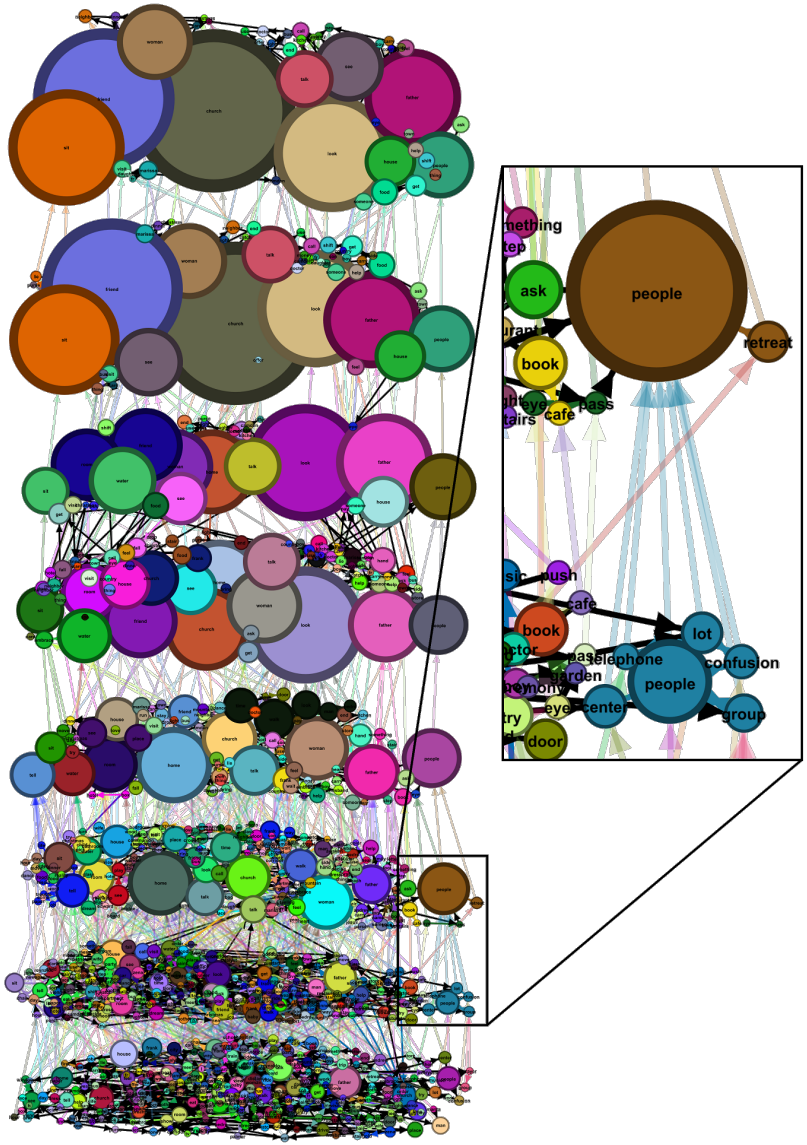
Analisi semantica dei sogni

Esempi di circuiti

- “cake”-“party”
- “boat”-“lake”-“water”
- “trip”-“train”-“station”
- “road”-“car”-“drive”-“hill”
- “liturgy”-“church”-“music”

Esempi di SCC

- “sit”-“chair”-“front”-“porch”-“seat”-“plane”
- “lake”-“boat”-“water”-“rise”-“pool”-“swim”-“rush”




thank you
danke
gracias
merci
obrigado
謝謝
ngiyabonga
teşekkür ederim
спасибо
dziękuję
bedankt
sukriya
kop khun krap
go raibh maith agat
mochchakkeram
terima kasih
grazie
arigatô
dakujem
tapadh leat
мерси
감사합니다
ありがとう
tack
dank je
hvala
mauruuru
takk
taiku
sagolun
Баярлалаа
рахмат
хвала
ευχαριστώ