Data Science and Lyricism

Gabriel Bond

Motivation

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- Isolated analysis of lyrics

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- Find trends in lyrics of different genres

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- Isolated analysis of lyrics

- Find trends in lyrics of different genres

- Provide a tool for music exploration/creative process

Methods: Data

Methods: Data

- Pitchfork's top 200 albums of the 2010s
    - Variety of genres
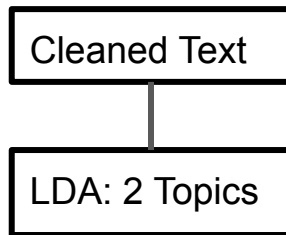   - Current
    - Good!
    - Small :(

Methods: Data

- Pitchfork's top 200 albums of the 2010s
  - Variety of genres
  - Current
  - Good!
  - Small :(

- Cleaning
  - NLP
  - Lemmatization
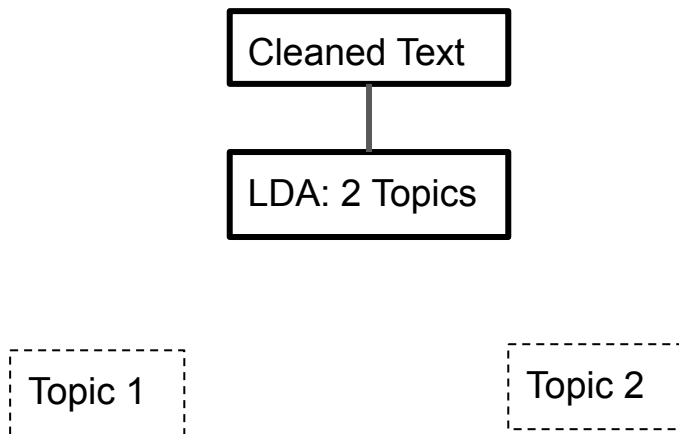 - Nouns and verbs
  - Stop words

Methods: Model
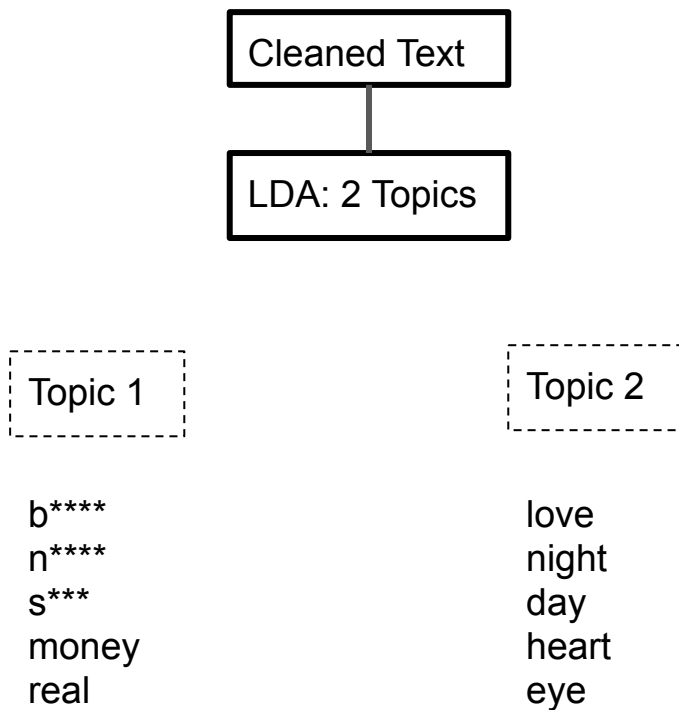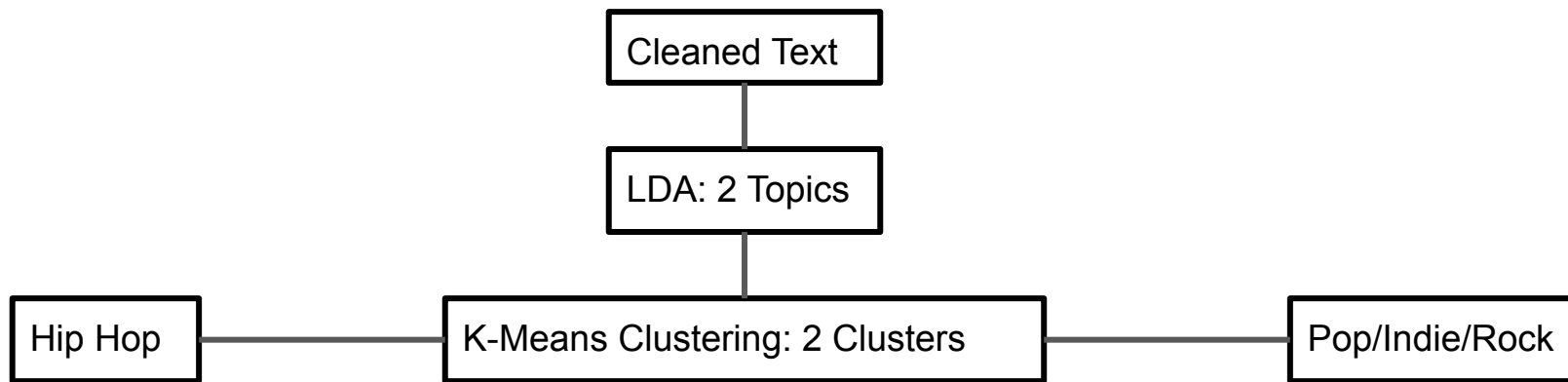
Cleaned Text

Methods: Model

Cleaned Text

LDA: 2 Topics

Methods: Model

Cleaned Text

LDA: 2 Topics

Topic 1

Topic 2

Methods: Model

Cleaned Text

LDA: 2 Topics

Topic 1

Topic 2

b****
n****
s***
money
real

love
night
day
heart
eye

Methods: Model

```
                    ┌──────────────┐
                    │ Cleaned Text │
                    └──────────────┘
                            │
                    ┌──────────────┐
                    │ LDA: 2 Topics│
                    └──────────────┘
                            │
┌─────────┐   ┌──────────────────────────────┐   ┌──────────────┐
│ Hip Hop │───│ K-Means Clustering: 2 Clusters│───│ Pop/Indie/Rock│
└─────────┘   └──────────────────────────────┘   └──────────────┘
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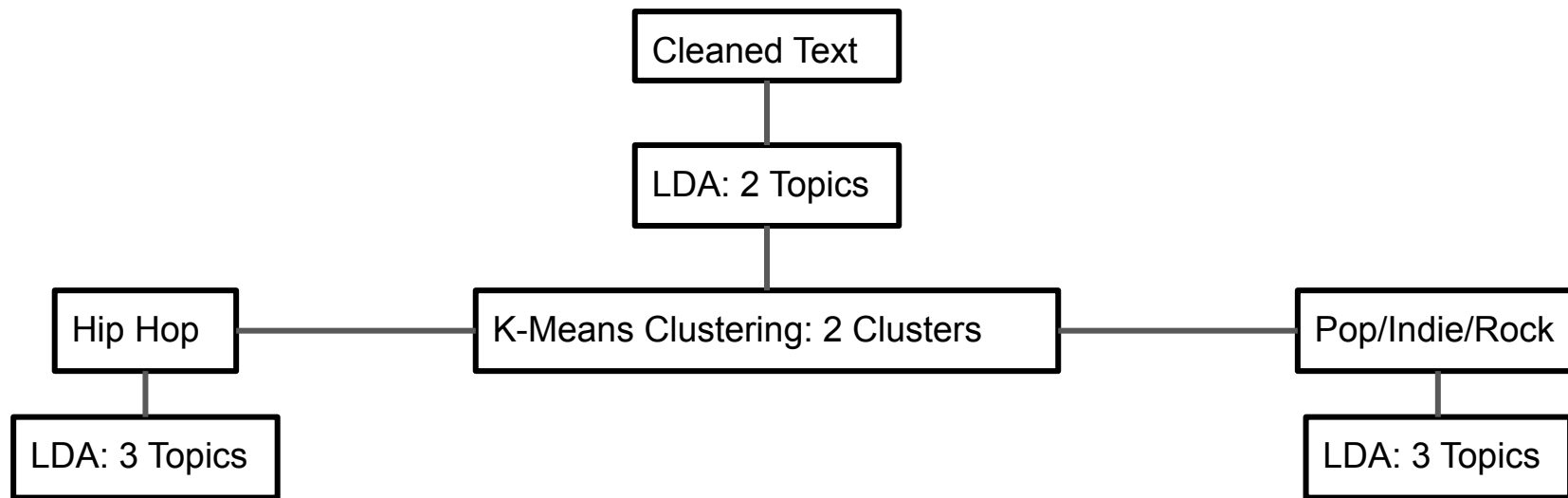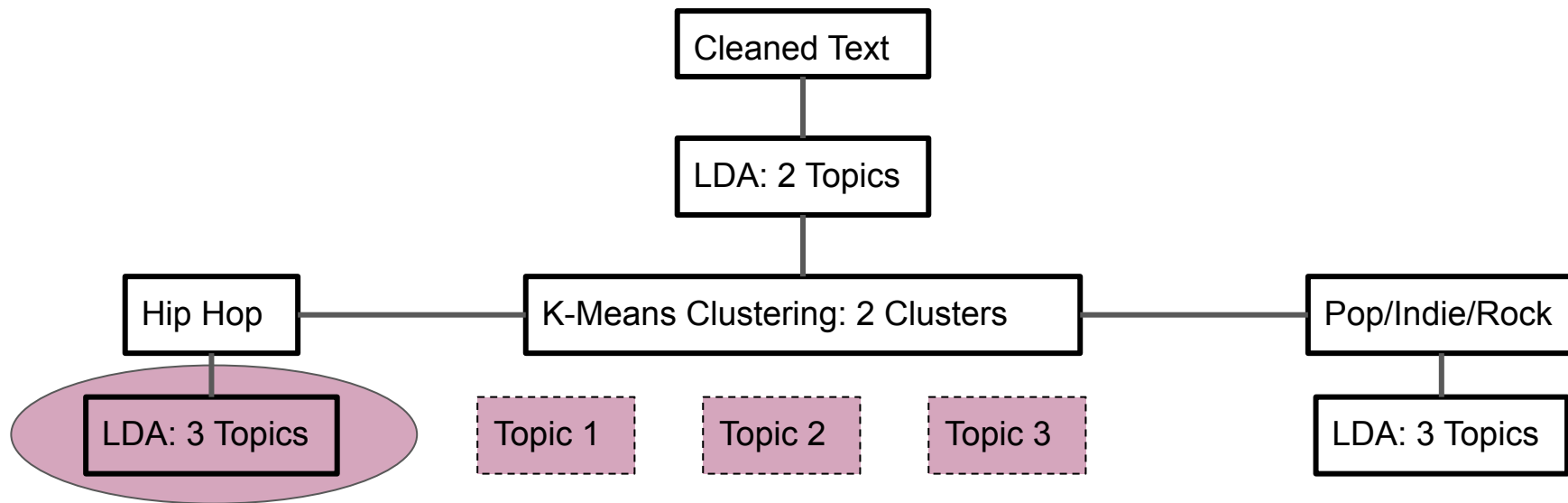
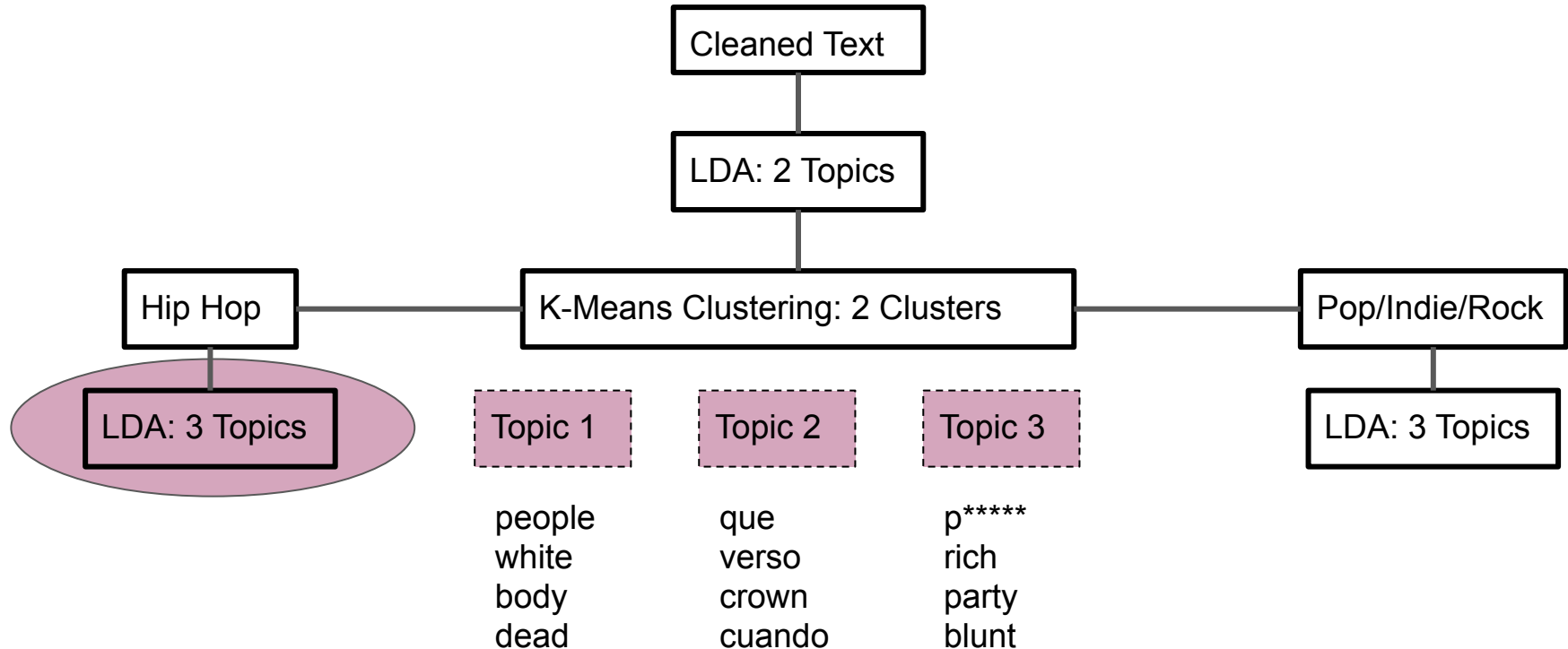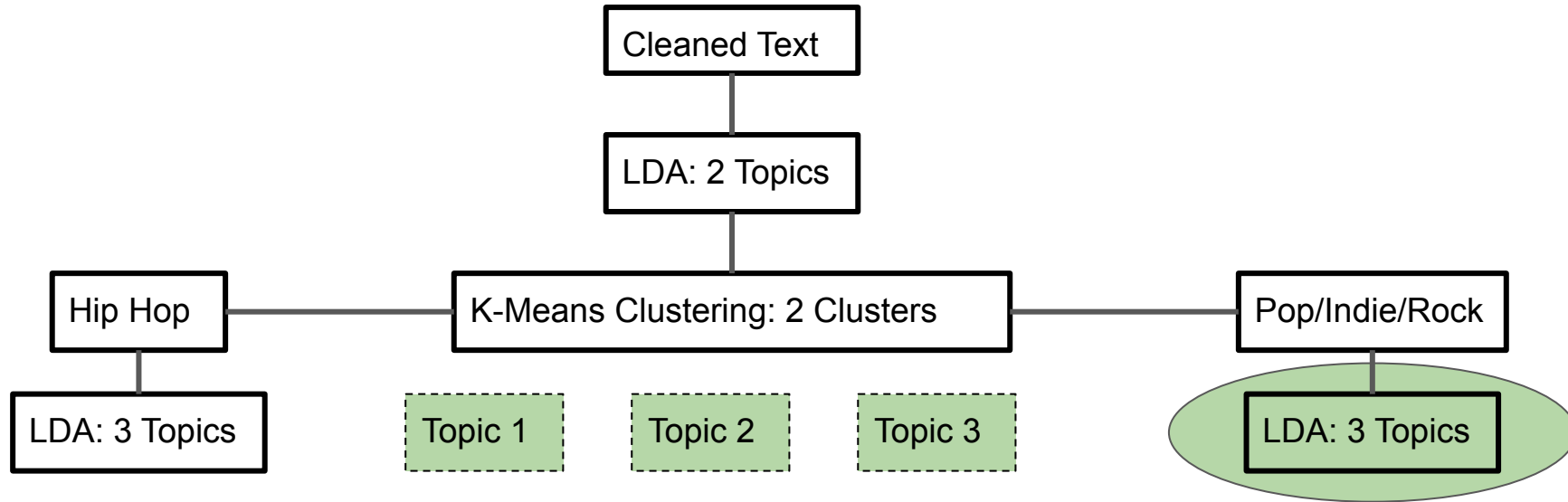# Methods: Model

Methods: Model

Methods: Model

Methods: Model

Methods: Model

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                    ┌──────────────┐
                    │ Cleaned Text │
                    └──────┬───────┘
                    ┌──────┴───────┐
                    │ LDA: 2 Topics│
                    └──────┬───────┘
┌─────────┐   ┌────────────┴──────────────────┐   ┌────────────────┐
│ Hip Hop ├───┤ K-Means Clustering: 2 Clusters├───┤ Pop/Indie/Rock │
└────┬────┘   └───────────────────────────────┘   └───────┬────────┘
┌────┴─────────┐                                  ┌────────┴───────┐
│ LDA: 3 Topics│                                  │ LDA: 3 Topics  │
└──────────────┘                                  └────────────────┘
```

Topic 1

honey
heat
touch
drunk

Topic 2

tonight
moment
chance
feeling

Topic 3

blood
body
city
blue

Methods: Model

```
                    ┌──────────────┐
                    │ Cleaned Text │
                    └──────────────┘
                            │
                    ┌──────────────┐
                    │ LDA: 2 Topics│
                    └──────────────┘
                            │
┌──────────┐     ┌─────────────────────────────────┐     ┌────────────────┐
│ Hip Hop  │─────│ K-Means Clustering: 2 Clusters  │─────│ Pop/Indie/Rock │
└──────────┘     └─────────────────────────────────┘     └────────────────┘
     │                                                            │
┌──────────────┐                                          ┌──────────────┐
│ LDA: 3 Topics│                                          │ LDA: 3 Topics│
└──────────────┘                                          └──────────────┘
```

Results

Old Friends by Pinegrove   ⟶   Julia Holter

"Walking outside labyrinthian
Over cracks along under the trees
I know this town grounded in a
compass
Cardinal landing in the dogwood"

"Sally, things close early
It's a holiday, they tell me
How long have you lived here?
Have you seen the river?"

Results

Trash by Show Me The Body ⟶ The Weeknd

"Take drugs when I need to
Get love when I need to, fuck when I need to
Show love when I need to
Get rough if in need, get up if I need to"

"I only call you when it's half past five
The only time that I'll be by your side
I only love it when you touch me, not feel me
When I'm fucked up, that's the real me"

Results

Dark Web by Teejayx6 ⟶ Danny Brown

"The government tried to ban me from the dark web (Tried to ban me)
I downloaded Tor Browser, then got back in (Back in)
Went and got a VPN, just bought another BIN
I'ma keep searching these bitches on my 'site 'til I can slide a Benz"

"30!
Colder than them grits they fed slaves
Me to rap is like water to raves
AK's with bayonets on deck, rep my set
Sorta like Squidward and his clarinet"

Conclusions

- Text helps but cannot alone distinguish genre

- Song lyrics often pose a vagueness challenge for topic modeling

- More advanced methods are required to investigate nuanced differences in writing styles

- Fun recommender!

Thank you!