Text Visualization of Song Lyrics

cs448b: initial project presentation (11/11)

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I. Motivation: lyrics search
Looking up song lyrics is a commonly performed task for musicians and non-musicians alike.
Currently, if one searches for song lyrics, they show up in plain text (often broken into stanzas like poems)

[Verse One: Puff Daddy]
Seems like yesterday we used to rock the show
I laced the track, you locked the flow
So far from hangin on the block for dough
Notorious, they got to know that
Life ain't always what it seem to be (uh-uh)
Words can't express what you mean to me
Even though you're gone, we still a team
Through your family, I'll fulfill your dream (that's right)
In the future, can't wait to see
If you open up the gates for me
Reminisce some time, the night they took my friend (uh-huh)
Try to black it out, but it plays again
When it's real, feelings hard to conceal
Can't imagine all the pain I feel
Give anything to hear half your breath (half your breath)
I know you still living your life, after death

[Chorus: Faith Evans]
Every step I take, every move I make
Every single day, every time I pray
I'll be missing you
Thinkin of the day, when you went away
What a life to take, what a bond to break
I'll be missing you
Problem:

It is quite difficult to tell how the lyrics actually fit in with the musical elements, and what the resulting perceptual experience is for hearing the song.
II. Goal:
“what you see is what you hear”

clean\(^1\) and expressive\(^2\) visualization* of song lyrics
1. Does not hinder performance on the primary use case by outputting clean, readable song lyrics

2. Offer useful hints to key elements in the music to maximally convey the song as

\[(\text{linguistic features})_{\text{lyrics}} + (\text{musical features})_{\text{tune}}\]

* It is not my goal to encapsulate the entire musical score into the visualization
As far as I know, there is no existing work on automatic text visualization of song lyrics based on musical features. I’d to combine elements from the following concepts.
1. Medieval Chant

Letters in black, vowel points in red, cantillation in blue

Cantillation signs serve syntactic, phonetic, and musical functions.
Source: http://en.wikipedia.org/wiki/Cantillation
2. Tag Clouds

Using *Wordle* by Jonathan Feinberg

Typographic Tag Clouds

www.monster-munch.com/typographic-tag-clouds/

(related work)

Colorful Tag Clouds

9/11 accountability activism Adam Smith
Problem advertising America antiwar artsy fartsy blogging business capitalism change citizen media community Congress corruption corruption creativity disturbing experience design film funny George Bush government graffiti Greensboro Hip hop
3. Motion Graphics

examples:
http://www.youtube.com/watch?v=cTIVeY7bqjk
http://vimeo.com/379281
http://vids.myspace.com/index.cfm?fuseaction=vids.individual&videoid=54579165
4. Martin Wattenberg’s *Shape of Song*

http://www.bewitched.com/song.html

Visualizes musical structure/form using an arc diagram
5. Edward Tufte’s Sparkline

A possible idea is to generate one comprehensive Sparkline per a line of lyrics to encapsulate key musical features (i.e. pitch, rhythm, harmony, expressions)

*Every step I take, every move I make*
IV. Approach/ Storyboard
1. **Linguistic Features:**
   embed key phonetic and salient semantic elements in the text itself (as in the “Medieval Chant” example)

2. **Musical Features:**
   summarize pitch contour, metric/ rhythmic info, harmonic progression, and nuanced expressions in a sparkline above the text (as shown in “Sparkline” slide)

3. **Context & Overall Form:**
   Show the overall song structure using a vertical timeline to the left, with time stamps for each line of text
I'll be Missing You  -  Puff Daddy / Faith Evans

I -
Seems like yesterday we used to rock the show

I laced the track you locked the flow

II -
So far from hanging on the block for dough

No-Tori-ous they got to know that
V. Challenges

Design & Technical Challenges
1. Need an algorithm general-enough for all major music genres, yet flexible-enough to accommodate nuances to specific features

2. The experience of listening to music is largely subjective. How important is having user annotations to visualize features that are not made explicit on the musical score, or that are missing from the sparklines?

3. Need to transform inputs to a format easily usable by the visualization algorithm (might require some manual work, which is undesirable to mass-produce results)

4. Time aligning lyrics with Musical Score and/or MIDI: reliance on LRC files

5. Optimal implementation tool? (any advice or suggestions are welcome!)
VI. Milestones

• week of 11/9:
  Prototype design and detailed storyboard
• week of 11/16:
  Implementation and initial iterations
• week of 11/23:
  Final touch on implementation
• week of 11/30:
  Poster & write-up