Identifying Emotion in Lyrics
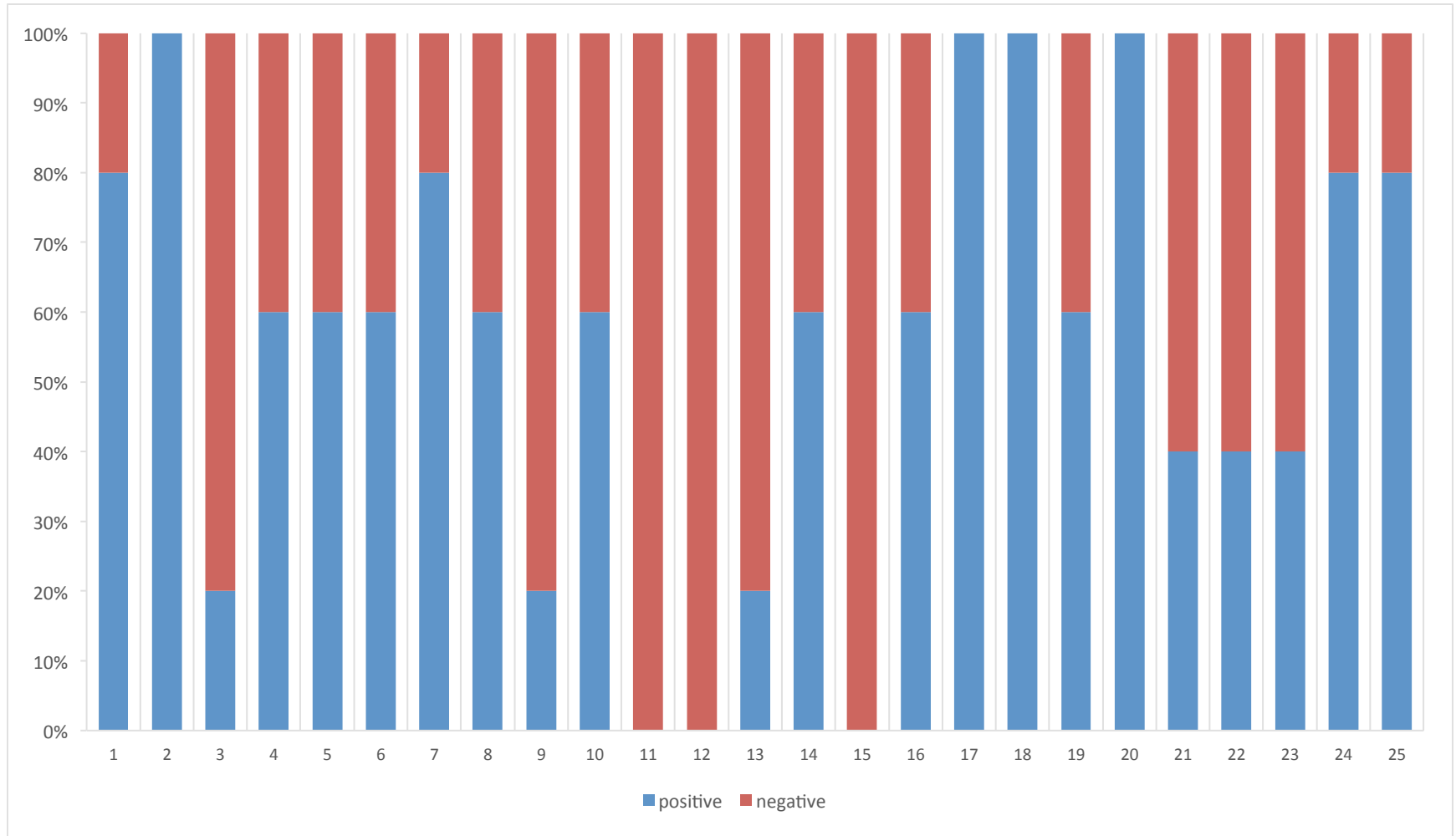
Project for the Course DD2380
at KTH

Coldplay – Fix You

And the tears come streaming down your face

When you lose something you can't replace

When you love someone but it goes to waste

Could it be worse?

Lights will guide you home

And ignite your bones

And I will try to fix you

…

Group 31:
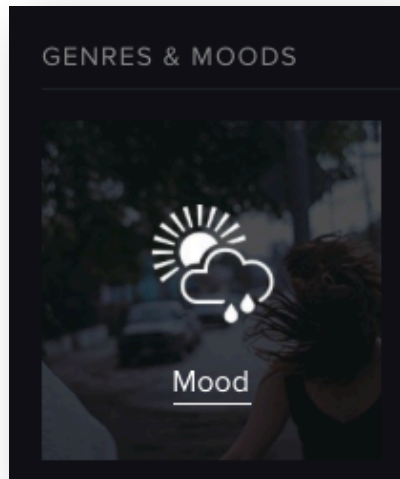A. Patel, C. Kaiser, L. Schmitz, N. Tatarakis

Survey of Labeling Emotions

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Areas of Application

[1]

Psychological therapy

[2]

Music player

Edutainment

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Bag-of-Words Model

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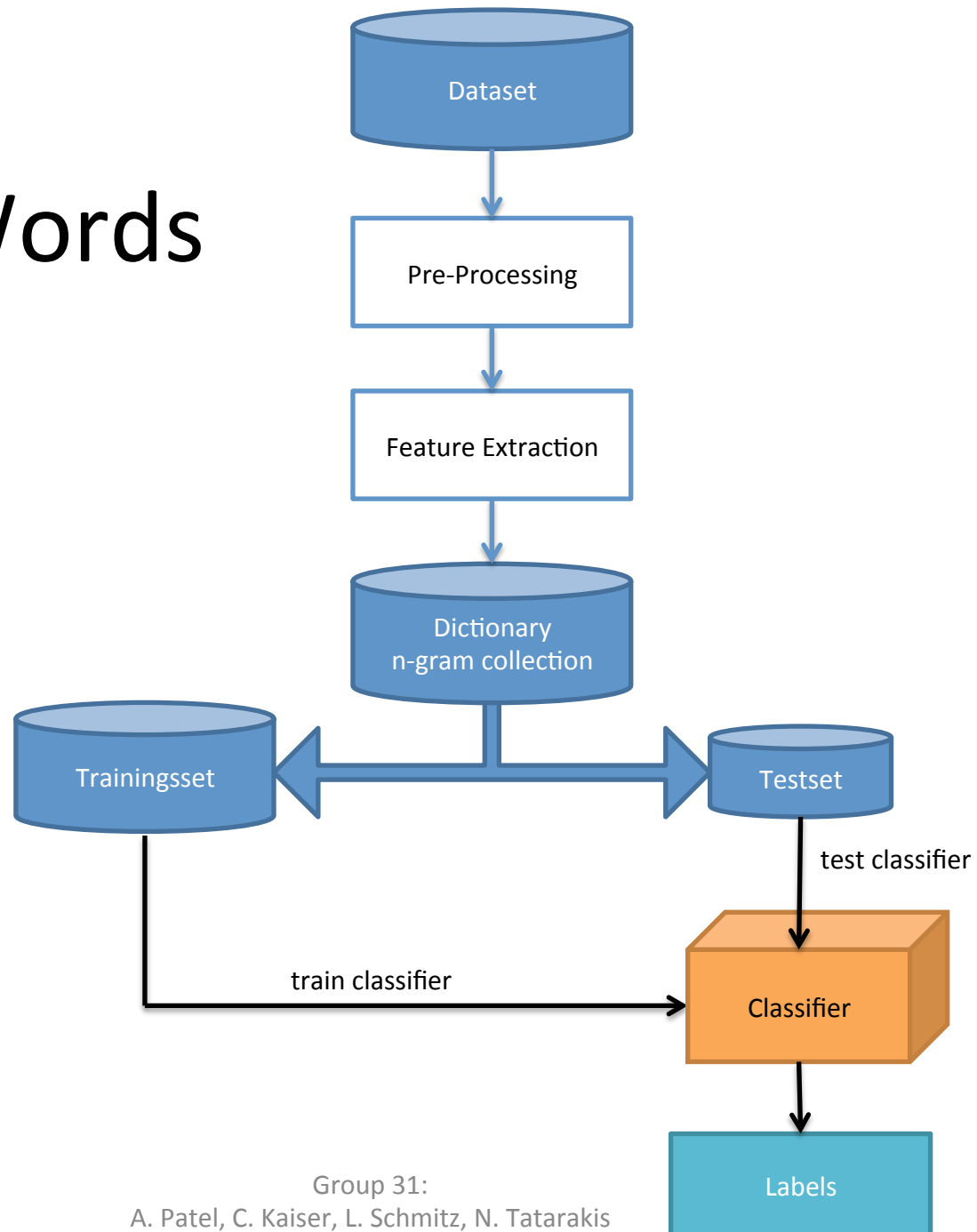
Difficulties

Acerbic, Aggressive, Agreeable, Airy, Ambitious, Amiable/Good-Natured, Angry, Angst-Ridden, Anguished/Distraught, Angular, Animated, Apocalyptic, Arid, Athletic, Atmospheric, Austere, Autumnal, Belligerent, Benevolent, Bitter, Bittersweet, Bleak, Boisterous, Bombastic, Brash, Brassy, Bravado, Bright, Brittle, Brooding, Calm/Peaceful, Campy, Capricious, Carefree, Cartoonish, Cathartic, Celebratory, Cerebral, Cheerful, Child-like, Circular, Clinical, Cold, Comic, Complex, Concise, Confident, Confrontational, Cosmopolitan, Crunchy, Cynical/Sarcastic, Dark, Declamatory, Defiant, Delicate, Crunchy, Cynical/Sarcastic, Dark, Declamatory, Defiant, Delicate, Demonic, Desperate, Detached, Devotional, Difficult, Dignified/Noble, Dramatic, Dreamy, Driving, Druggy, Earnest, Earthy, Ebullient, Eccentric, Ecstatic, Eerie, Effervescent, Elaborate

Elegant, Elegiac, Energetic, Enigmatic, Epic, Erotic, Ethereal, Euphoric, Exciting, Exotic, Explosive, Extroverted, Exuberant, Fantastic/Fantasy-like, Feral, Feverish, Fierce, Fiery, Flashy, Flowing, Fractured, Freewheeling, Fun, Funereal, Gentle, Giddy, Gleeful, Gloomy, Graceful, Greasy, Grim, Gritty, Gutsy, Happy, Harsh, Hedonistic, Heroic, Hostile, Humorous, Hungry, Hymn-like, Hyper, Hypnotic, Improvisatory, Indulgent, Innocent, Insular, Intense, Intimate, Introspective, Ironic, Irreverent, Jovial, Joyous, Kinetic, Introspective, Ironic, Irreverent, Jovial, Joyous, Kinetic, Knotty, Laid-Back/Mellow, Languid, Lazy, Light, Literate, Lively, Lonely, Lush, Lyrical, Macabre, Magical, Majestic, Malevolent, Manic, Marching, Martial, Meandering

Mechanical, Meditative, Melancholy, Menacing, Messy, Mighty, Monastic, Monumental, Motoric, Mysterious, Mystical, Naive, Narrative, Negative, Nervous/Jittery, Nihilistic, Nocturnal, Nostalgic, Ominous, Optimistic, Opulent, Organic, Ornate, Outraged, Outrageous, Paranoid, Passionate, Pastoral, Patriotic, Perky, Philosophical, Plain, Plaintive, Playful, Poignant, Positive, Powerful, Precious, Provocative, Pulsing, Pure, Quirky, Rambunctious, Ramshackle, Raucous, Reassuring/Consoling, Rebellious, Reckless, Refined, Reflective, Regretful, Relaxed, Reserved, Resolute, Refined, Reflective, Regretful, Relaxed, Reserved, Resolute, Restrained, Reverent, Rhapsodic, Rollicking, Romantic, Rousing, Rowdy, Rustic, Sacred, Sad, Sarcastic, Sardonic, Satirical, Savage, Scary, Scattered, Searching, Self-Conscious

Sensual, Sentimental, Serious, Severe, Sexual, Sexy, Shimmering, Silly, Sleazy, Slick, Smooth, Snide, Soft/Quiet, Somber, Soothing, Sophisticated, Spacey, Sparkling, Sparse, Spicy, Spiritual, Spontaneous, Spooky, Sprawling, Sprightly, Springlike, Stately, Street-Smart, Striding, Strong, Stylish, Suffocating, Sugary, Summery, Suspenseful, Swaggering, Sweet, Swinging, Technical, Tender, Tense/Anxious, Theatrical, Thoughtful, Threatening, Thrilling, Thuggish, Tragic, Transparent/Translucent, Trashy, Trippy, Triumphant, Tuneful, Turbulent, Uncompromising, Understated, Trippy, Triumphant, Tuneful, Turbulent, Uncompromising, Understated, Unsettling, Uplifting, Urgent, Virile, Visceral, Volatile, Vulgar, Warm, Weary, Whimsical, Wintry, Wistful, Witty, Wry, Yearning

[2]

- Finding a labelled database

- Allmusic.com
  - Labelled with about 290 moods
    - → overspecified

Emotional Categories Model

- ## Binary Model

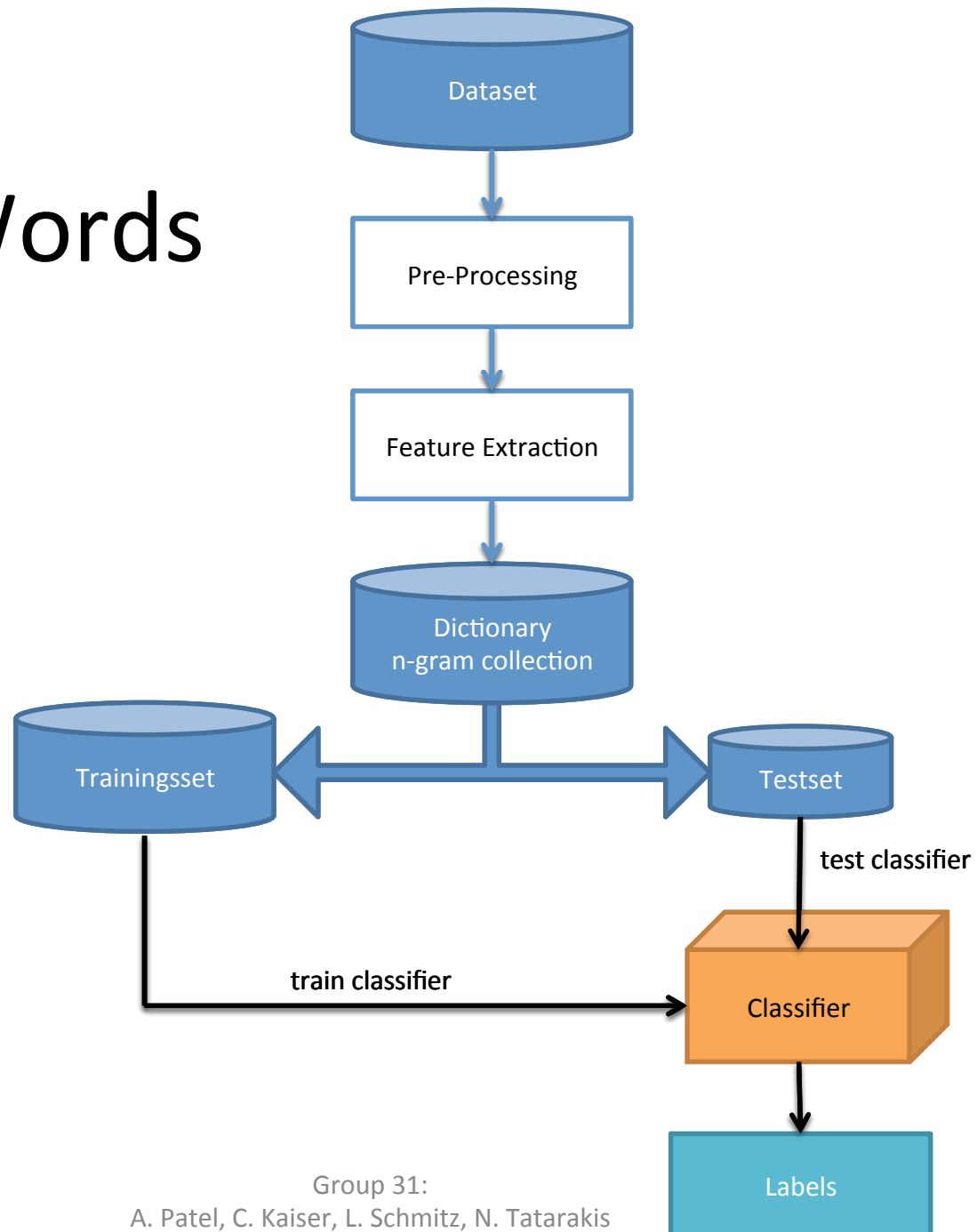| Positive	Negative
amiable-good-natured, boisterous, bright, campy, cheerful, effervescent, euphoric, exuberant, fun, giddy, gleeful, happy, joyous, laid-back-mallow, lazy, light, pastoral, precious, reverent, romantic, sensual, silly, smooth, sparkling, spicy, springlike, stylish, sugary, summery, sweet, thrilling, warm	aggressive, angry, anguished-distraught, autumnal, bleak, brittle, brooding, circular, cold, complex, dark, detached, difficult, druggy, eccentric, eerie, enigmatic, epic, fierce, fractured, gloomy, harsh, hostile, hungry, insular, knotty, manic, meandering, naive, outraged, outrageous, paranoid, rustic, self-conscious, spacey, sparse, spooky, suspenseful, thuggish, uncompromising, volatile, wintry

Group 31:
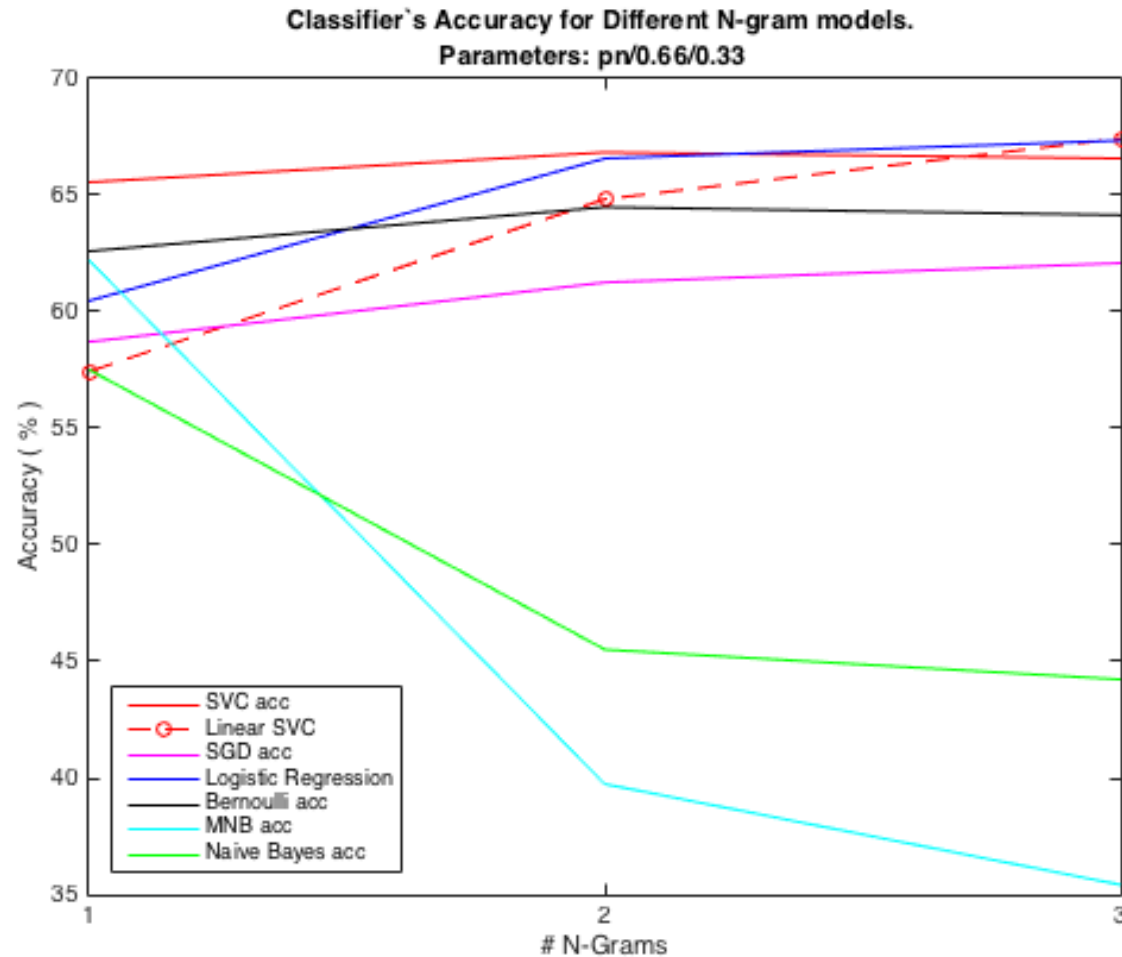A. Patel, C. Kaiser, L. Schmitz, N. Tatarakis

Emotional Categories Model

- 5 Cluster Model

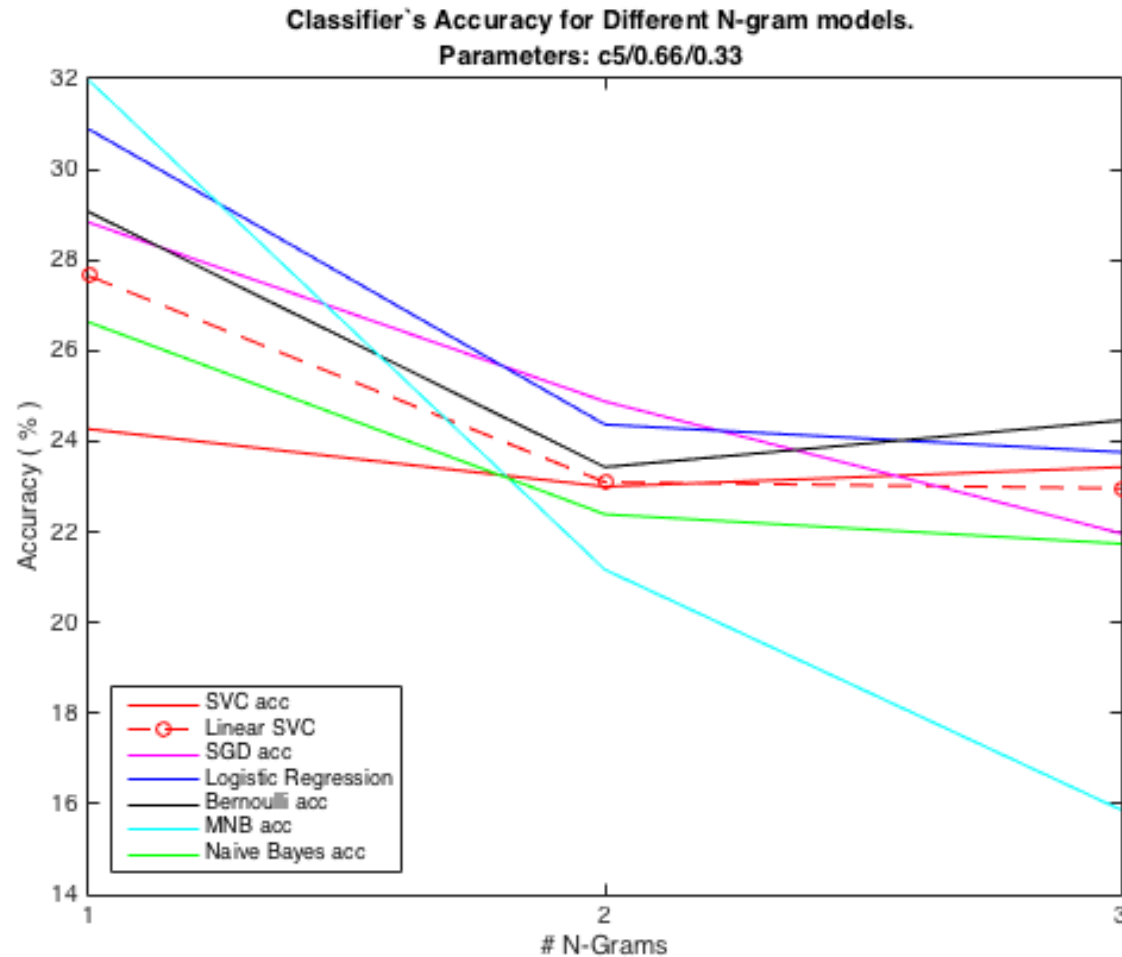| Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
passionate, rousing, confident, boisterous, rowdy	rollicking, cheerful, fun, sweet, amiable-good-natured	literate, poignant, wistful, bittersweet, autumnal, brooding	humorous, silly, campy, quirky, whimsical, witty, wry	aggressive, fiery, tense-anxious, intense, volatile, visceral

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Bag-of-Words Model

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Results – pos/neg Model

Classifier's Accuracy for Different N-gram models.
Parameters: pn/0.66/0.33

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Results – 5 Cluster Model

Classifier`s Accuracy for Different N-gram models.
Parameters: c5/0.66/0.33

Group 31:
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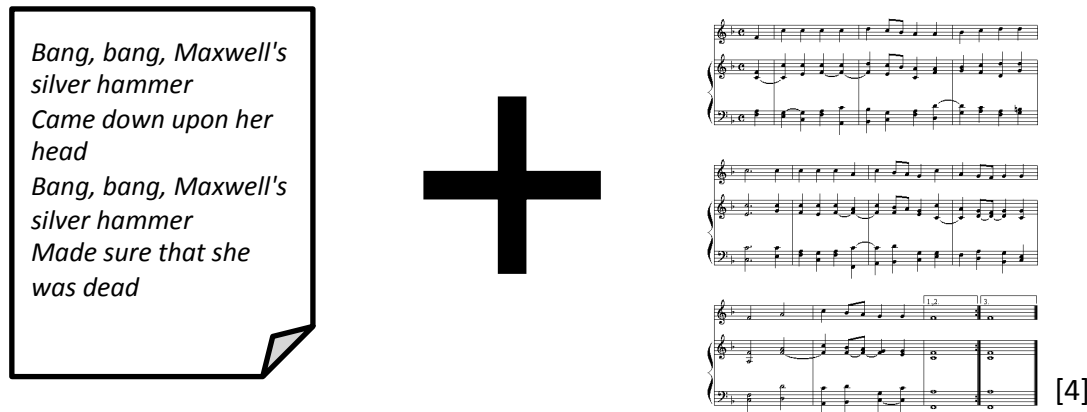
Interpretation Difficulties

The Beatles – Maxwell's Silver Hammer

Bang, bang, Maxwell's silver hammer

Came down upon her head

Bang, bang, Maxwell's silver hammer

Made sure that she was dead

Group 31:
A. Patel, C. Kaiser, L. Schmitz, N. Tatarakis

Further Research

- Incooperate more features

Bang, bang, Maxwell's silver hammer
Came down upon her head
Bang, bang, Maxwell's silver hammer
Made sure that she was dead

+

[4]

- Larger Database

→ do survey to get more reliable labels

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QUESTIONS?

Group 31:
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References

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- Yi-Hsuan Yang, Yu-Ching Lin, Ya-Fan Su, and Homer H Chen. A regression approach to music emotion recognition. Audio, Speech, and Language Processing, IEEE Transactions on, 16(2):448– 457, 2008.

Resources

- [1] http://respiratio-coaching.de/wp-content/uploads/2013/08/therapie_small.png
- [2] https://player.spotify.com/browse
- [3] http://www.allmusic.com/moods
- [4] http://ingeb.org/images/lobtgott.GIF

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Bag-of-Words Model

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