### An introduction to sentiment analysis

The science and method behind understanding emotion



#### What is sentiment analysis?



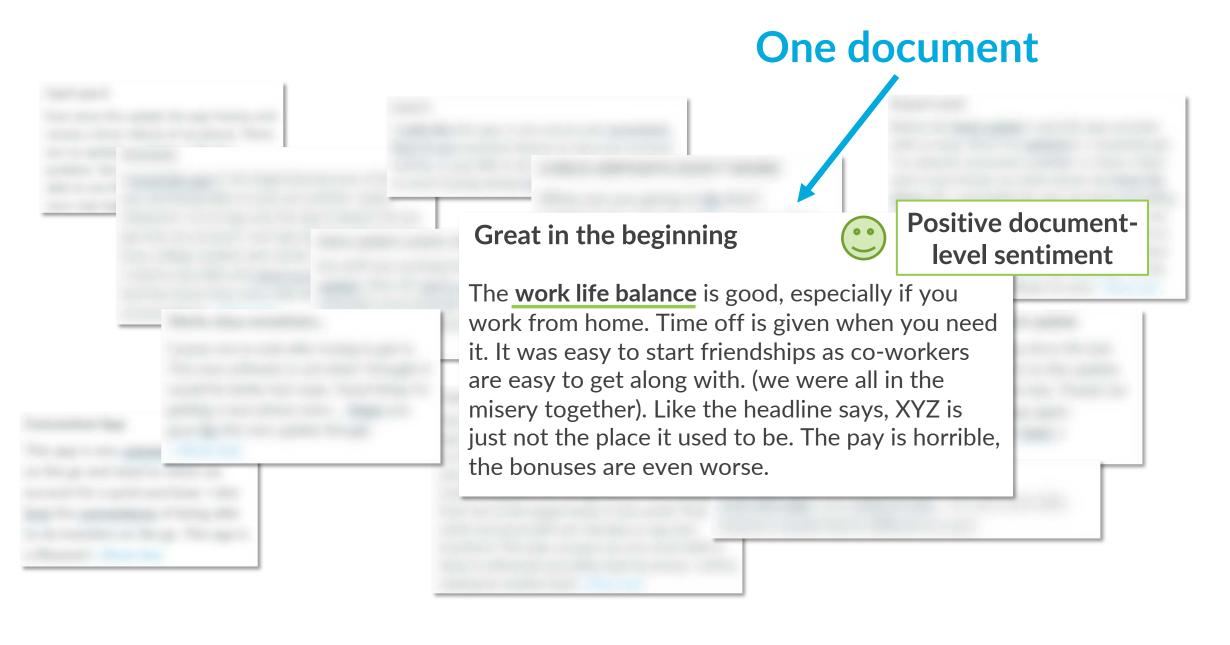
#### Multiple documents

#### Can't use it Doesn't work Love it Ever since the update the app freezes and Before the latest update I used this app everyday I really like this app, is very secure and convenient. causes a force reboot of my phone. There with no issue. Since I've updated it, I constantly get Easy to use awesome feature to view your account are no updat Annoved "no network connection available" or when it does activity, to pay bills to do CHECK DEPOSITS DON'T WORK problem. Ver loved this app in the beginning because of tl no more buying stamps k open it just freezes my entire phone and shuts the able to use tl pay and being able to track any activity. Lately-When are you going to fix this?! phone off. I uninstalled the app and tried reinstalling your crap tog and am having same issues. Every other app on my whenever I try to log onto the app it doesn't let me EVERYONE is having this problem. Stop get into my account I can't get p latest update creates a black screen telling ; phone has a network connection and I'm using it in I always have where it worked prior busy college student who works Great in the beginning the staff was working fine for me an because h tells me its not my phone- its the I need to pay bills and check my update. Now all I get is a black scree THE PF issue. Please fix soon. « Show less find the issues that come with th The work life balance is good, especially if you uninstall it and reinstall it and it still work from home. Time off is given when you need Works okay sometimes... ince last update sses up the screen entire it. It was easy to start friendships as co-workers are Causes me to wait after trying to get in. the app since the last easy to get along with. (we were all in the misery This new software is not what I thought it it prior to the update. together). Like the headline says, XYZ is just not the would be better but nope. Good thing I'm vs work fast. Thanks for place it used to be. The pay is horrible, the bonuses Completely Useless getting a new phone soon.... Hope you are even worse. pen app again. Like so many other users, a Convenient App guys fix this new update though. ng to 5 stars.:) app no longer works at all. It will entire say there is This app is very conve « Show less « Show less no network connection, or it will completely freeze on the go and need to check my and reboot my phone. I have never seen such an Simple account for a quick purchase. I also invasive problem with an app before. And coming Love the app. very easy to use . I'm not sure why from one of the largest banks in the world? Their love the convenience of being able anyone would find it difficult to use! entire tecnnical staff can't develop an app that to do transfers on the go. This app is functions? This does not give me very much faith in a lifesaver! « Show less them to efficiently and safely hold my money. I will be looking for another bank. « Show less



#### One document Great in the beginning The work life balance is good, especially if you work from home. Time off is given when you need it. It was easy to start friendships as co-workers are easy to get along with. (we were all in the misery together). Like the headline says, XYZ is just not the place it used to be. The pay is horrible, the bonuses are even worse.







# Document-based analysis vs. aspect-based analysis



### Document-level sentiment analyzes feedback at the **highest** level.

This tablet is good, especially if you work and travel. The screen is a great size. It has easy-to-use apps. But the sound quality is horrible, especially for movies.



### Aspect-level sentiment analyzes feedback at the **concept** level.

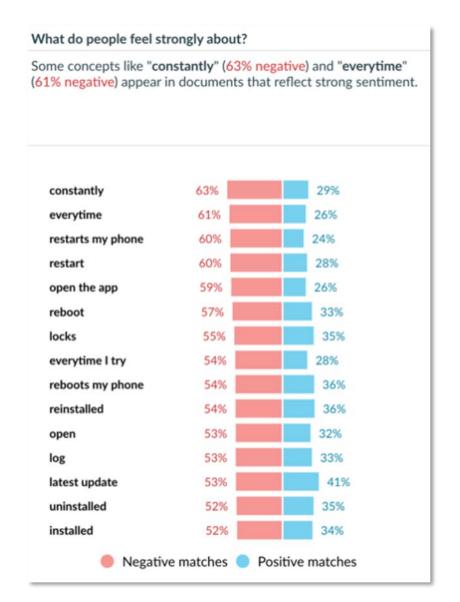
This tablet is good, especially if you work and travel. The screen is a great size. It has easy-to-use apps. But the sound quality is horrible, especially for movies.



#### With sentiment analysis ...

- Automate
- Speed up
- Closely monitor
- Understand

... how people feel about your offerings.





# A sentiment lexicon is a list of words with assigned emotion scores.



# Challenges in using a pre-existing sentiment lexicon



# Pre-existing sentiment lexicons can't handle domain-specific information.



# Challenges in creating your own sentiment lexicon



# Sentiment lexicons vs. supervised learning models



#### sentiment lexicon

I used to love this app but now they have "improved" it it won't let me deposit checks. It just freezes my phone. I have uninstalled and reinstalled the app and it still doesn't work. Please fix this ASAP and then stop trying to "improve".



#### sentiment lexicon → transformer model

I used to love this app but now they have "improved" it it won't let me deposit checks. It just freezes my phone. I have uninstalled and reinstalled the app and it still doesn't work. Please fix this ASAP and then stop trying to "improve".

I used to love this app but now they have "improved" it it won't let me deposit checks. It just freezes my phone. I have uninstalled and reinstalled the app and it still doesn't work. Please fix this ASAP and then stop trying to "improve".



#### Addressing bias in sentiment analysis



### Q&A



