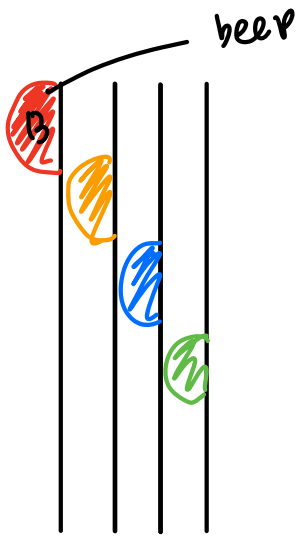
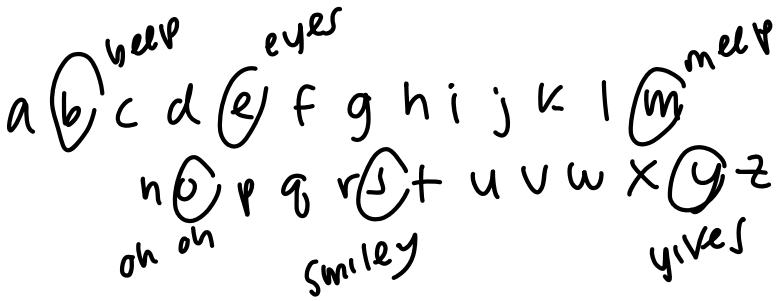
Hanna Tuomi
4.032 Final Project

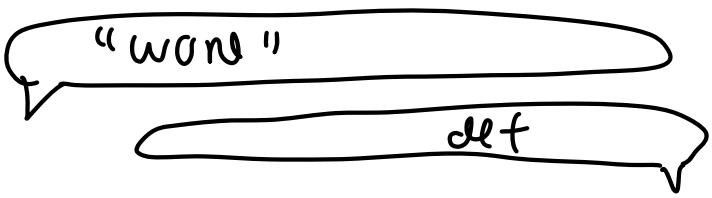
Interface Design

① Referencing dictionary idea





② Instant read: text messages



present info as text bubbles

③ Color palette

→ reference messenger apps? (telegram blue)

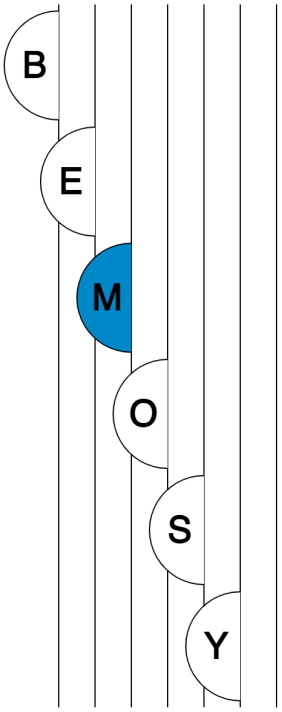
presentation notes / next steps

① data limitations

- messages from my perspective
- chose words I know I use significantly
  ↳ alternative ways of selecting words
- didn't want to cherry-pick messages to show as examples
  ↳ could be cool to have pop-up of the interaction

② design / interaction

- making transition between timing + frequency smoother
  ↳ animation of bars collapsing into bar
- being able to see messages or examples when hovering over the bars
- colors ⇒ what other color could help?
  ↳ highlighting myself?
- some glitches on entry to the program

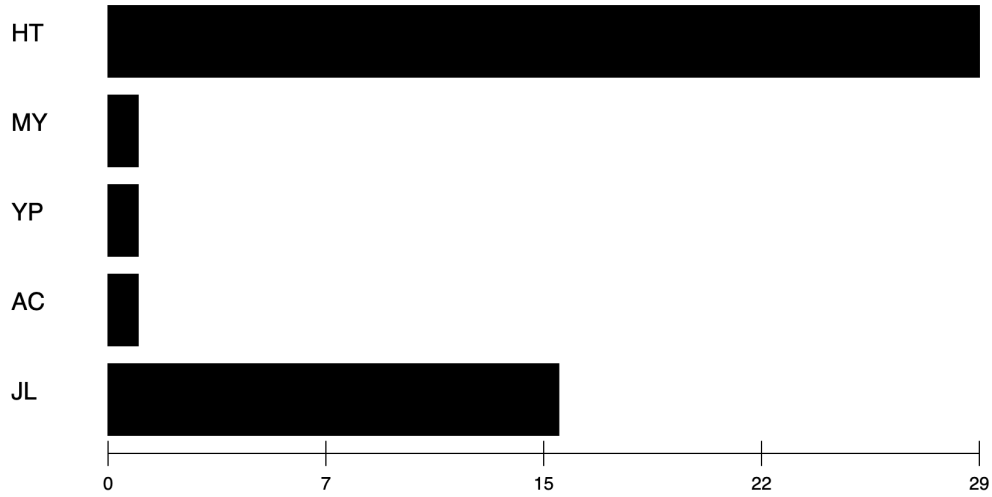


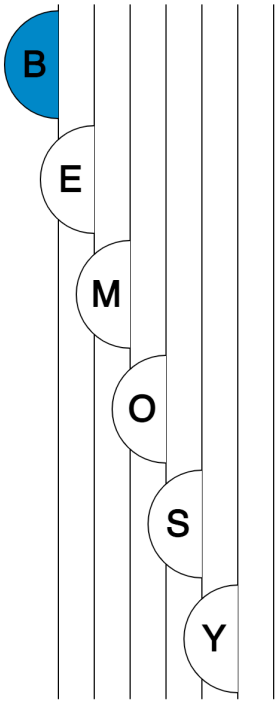
meep

filler word to either a) get someone's attention, or b) to fill awkward space

When did this word get said?

How often was this word said?



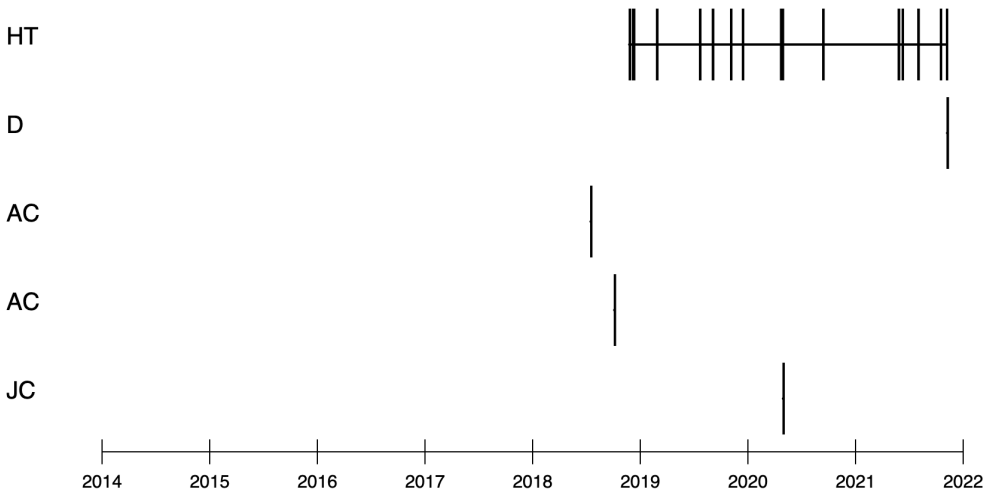


beep

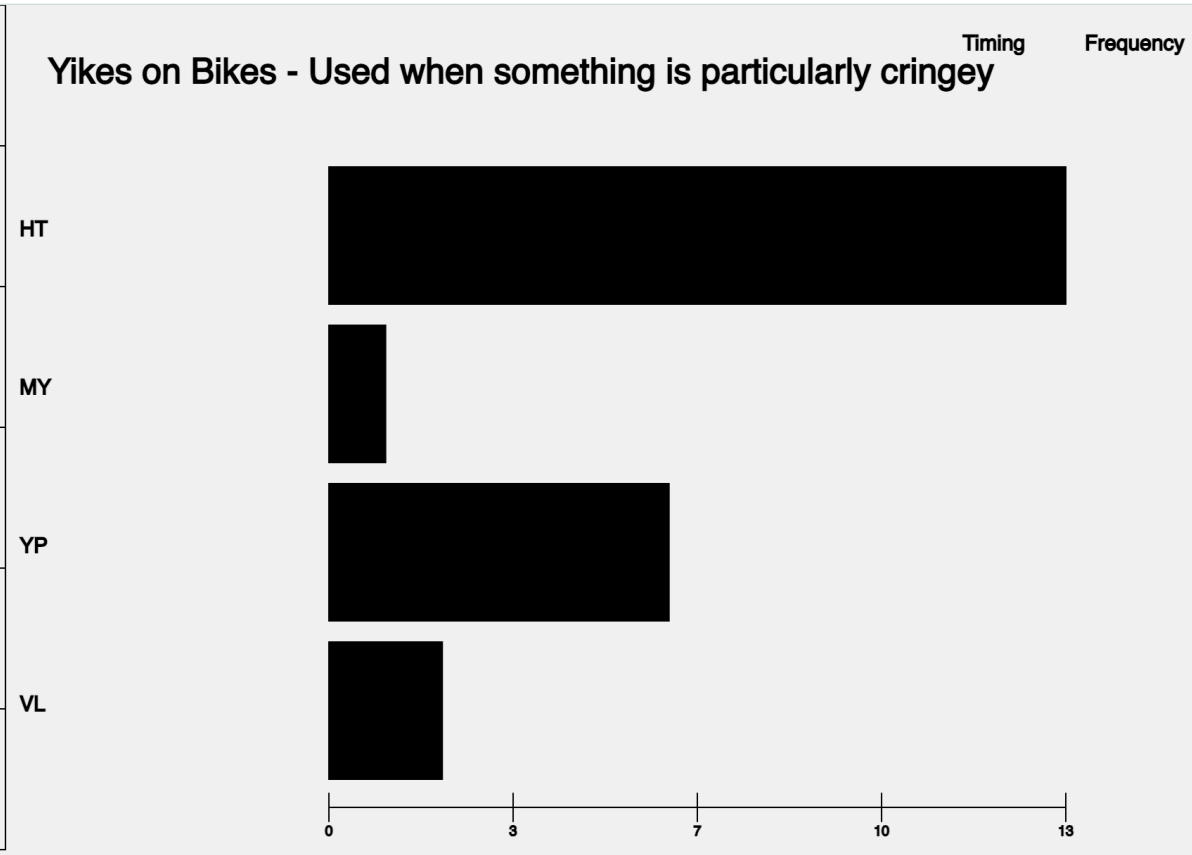
When did this word get said?

How often was this word said?

Filler word to get someone's attention

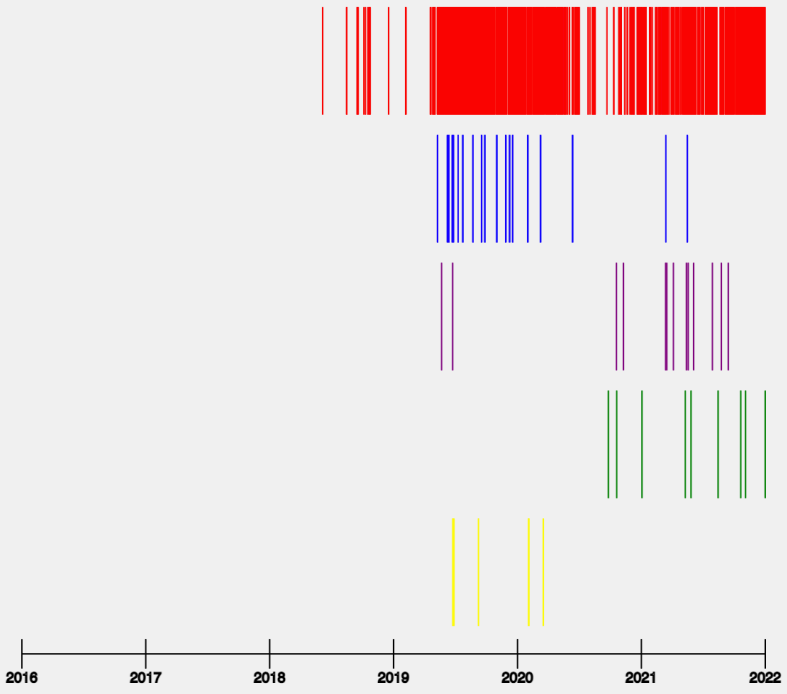


Yikes on Bikes
Meep
👀
:')
oh oh
Beep



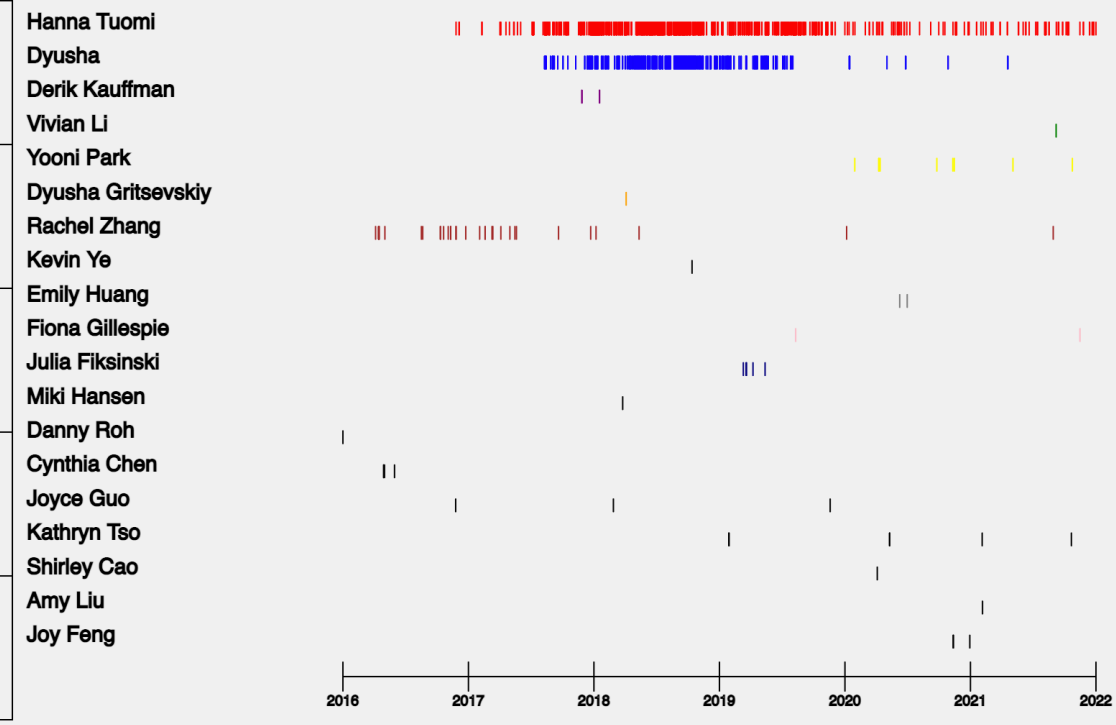
Yikes on Bikes
Meep
👀
:')
oh oh
Beep

👀 - emoji response when something is particularly interesting or excting, but is self-explanatory

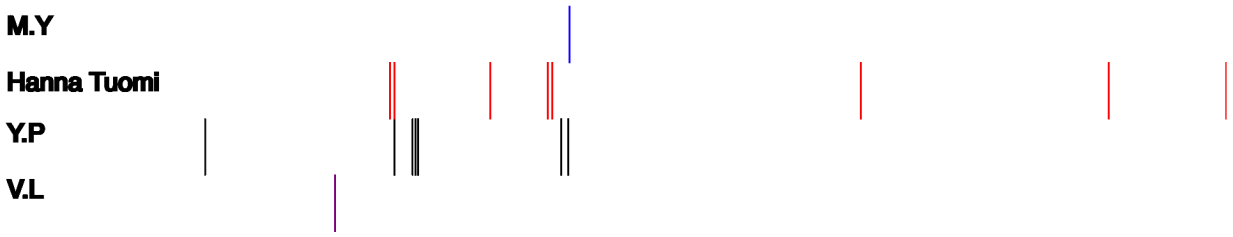


Yikes on Bikes
Meep
👀
:')
oh oh
Beep

:') - emoji response when you feel slight disappointment or want to express struggle



"Yikes on Bikes"



```python
import pandas as pd
import numpy as np
import os
import string, json, csv
from facebook_df import get_facebook_df
from telegram_df import get_telegram_df
import heapq

# load the data
tele_df = get_telegram_df()
fb_df = get_facebook_df()

################################################
## create a word frequency dictionar ##
################################################

# # ignore 1000 most common words
# a_file = open("common_words.txt", "r")

# common_words = set()
# for line in a_file:
#   stripped_line = line.strip()
#   line_list = stripped_line.split()
#   common_words.update(line_list)

# a_file.close()

# freq_dict = {}
# for data in [tele_df.text, fb_df.content]:
#     for mess in data:
#         try:
#             mess = mess.translate(str.maketrans('', '', string.punctuation))
#             words = mess.rsplit(" ")
#             for w in words:

#                 if w not in common_words:
#                     w = w.lower()
#                     try:
#                         freq_dict[w]['uses'] += 1
#                         freq_dict[w]['users']
#                     except:
#                         word_dict = {"uses": 0, "users": {}, "flag": 0}
#                         freq_dict[w] = 1

#         except:
#             # print('errored on message:', mess)
#             continue

# # open file for writing, "w" is writing
# w = csv.writer(open("word_freq_dict.csv", "w"))

# # loop over dictionary keys and values
# for key, val in freq_dict.items():
#     # write every key and value to file
#     w.writerow([key, val])

# d = dict((k, v) for k, v in freq_dict.items() if v >= 500)
```

```
# # print(d)

################################################
## try to look at possible phrases of interest ##
################################################


def get_initials(name):
    if name == "":
        initials = "NA"
    else:
        try:
            name_list = name.split(' ')

            initials = ""
            for n in name_list:  # go through each name
                initials +=  n[0].upper()  # append the initial
        except:
            initials = "none"
    return initials


base = "/Users/hannatuomi/Desktop/Message Data"
os.chdir(base)

possible = ["yikes on bikes", "meep", " beep ", "oh oh", ":'\)", "👀"]

for p in possible:
    print('working on word:', p)
    word_df = pd.DataFrame()
    for i in [0,1]:
        if i == 0:
            data = tele_df
            data['used'] = data['text'].str.contains(p)
            data['initials'] = data.apply(lambda row : get_initials(row['from']), axis = 1)
            # indexer = (data['text'].str.contains(p))
            cols = ['date', 'from', 'used', 'initials']
            user_name = 'from'
            dataset = "telegram"
        else:
            data = fb_df
            if p == "👀":
                p = "\xF0\x9F\x91\x80"
            data['used'] = data['content'].str.contains(p)
            data['initials'] = data.apply(lambda row : get_initials(row['sender_name']), axis = 1)
            # indexer = (data['content'].str.contains(p))
            cols = ['timestamp_ms', 'sender_name', 'used', 'initials']
            user_name = 'sender_name'
            dataset = "fb"

        data = data[data['used'] == True]
        data = data[cols]
        data.columns = ['date', 'from', 'used', 'initials']
        word_df = pd.concat([word_df, data])

```

```
    users = word_df['from'].unique()

    # get only top 5
    if len(users) > 5:
        freq = []
        for user in users:
            d = word_df[word_df['from'] == user]
            freq.append(d.loc[:,'used'].sum())
        indexes = [i for x, i in heapq.nlargest(5,((x, i) for i, x in
enumerate(freq)))]

        keep_users = [users[i] for i in indexes]
        word_df = word_df.loc[word_df['from'].isin(keep_users)]

    # get the updated users
    users = word_df['from'].unique()
    print('The users for ' + p +  ' are: ', users)
    word_df.to_csv('word_users/' + p + "_use.csv")
```

```python
import json, pandas as pd, csv
import numpy as np

#####################################
# working with telegram message data #
#####################################

def get_telegram_df():
    with open("result.json") as json_file:
        data = json.load(json_file)

    # reduce data down to the actual chat data
    chats = data["chats"]["list"]

    # get the individual data points of the chat
    cols = chats[0]["messages"][0].keys()
    chat_deets = ["chat", cols]


    base_chat = chats[0]
    chat_name = base_chat["name"]
    mess = base_chat["messages"]
    tele_df = pd.DataFrame(mess)
    tele_df["chat_name"] = chat_name

    # take each chat and transform into csv
    for c in chats:
        # ensure that we don't look at messages that I've sent to myself
        if c["type"] != "saved_messages":
            chat_name = c["name"]
            chat = c["messages"]
            chat_df = pd.DataFrame(chat)
            chat_df["chat_name"] = chat_name

        tele_df = tele_df.append(chat_df)


    tele_df = tele_df.drop(columns=['reply_to_message_id', 'photo', 'width', 'height', 'via_bot',
                      'file', 'thumbnail', 'media_type', 'mime_type', 'duration_seconds', 'forwarded_from',
                      'self_destruct_period_seconds', 'contact_information', 'sticker_emoji', 'performer',
                      'discard_reason', 'location_information', 'live_location_period_seconds', 'game_title',
                      'game_description', 'game_link', 'game_message_id', 'score', 'poll'])

    tele_df['date'] = pd.to_datetime(tele_df['date'])
    tele_df['date'] = tele_df['date'].astype('int64')


    print("Done Telegram Data")
    # tele_df.to_csv("telegram_df.csv")
    return tele_df
```

```python
import json, pandas as pd, csv
import numpy as np
import os

#####################################
# working with facebook message data #
#####################################

def get_facebook_df():
    # assign directory
    archived = "/Users/hannatuomi/Desktop/Message Data/fb_messages/archived_threads"
    inbox = "/Users/hannatuomi/Desktop/Message Data/fb_messages/inbox"
    base = "/Users/hannatuomi/Desktop/Message Data"

    fb_df = pd.DataFrame()

    for direct in [archived, inbox]:
    # for direct in [archived]:
        print('entered loop')
        os.chdir(direct)
        for dir in os.listdir():
            try:
                os.chdir(direct + "/" + dir)

                for file in os.listdir():
                    if file.endswith("json"):
                        with open(file) as json_file:

                            data = json.load(json_file)

                            # get list of the people in the chats
                            people = []
                            for p in data["participants"]:
                                people.append(p["name"])

                            # only care about non-massive group chats
                            if len(people) < 12:
                                chats = data["messages"]
                                chat_df = pd.DataFrame(chats)
                                chat_df["chat_name"] = data["title"]
                                chat_df["thread_type"] = data["thread_type"]

                                # add chat members data
                                chat_df["members"] = np.NaN
                                chat_df["members"] = chat_df["members"].astype('object')
                                for row in range(len(chat_df)):
                                    chat_df.at[row, "members"] = people

                                fb_df = pd.concat([fb_df, chat_df])

            # account for non-directories
            except:
                continue

    fb_df = fb_df.drop(columns=['is_unsent', 'reactions', 'photos', 'files', 'sticker', 'share','gifs', 'videos', 'call_duration', 'audio_files', 'ip', 'missed'])
    fb_df['timestamp_ms'] = pd.to_datetime(fb_df['timestamp_ms'], unit='ms')
```

```
    fb_df['timestamp_ms'] = fb_df['timestamp_ms'].astype('int64')
    fb_df = fb_df[fb_df['content'].notna()]

    # attempt to throw out data that is not related to relevant people (TO DO)
    # chatters = fb_df['sender_name'].unique()
    # chatter_freq = {}
    # for c in chatters:
    #     chatter_freq[c] = len(fb_df[fb_df['sender_name'] == c])

    # for i in range(len(fb_df)) :
    #     fb_df.loc[i,]['user_freq'] = chatter_freq[fb_df.loc[i,]['sender_name']]

    # fb_df = fb_df[fb_df['user_freq'] > 50]

    print("Done FB Data")
    # os.chdir(base)
    # fb_df.to_csv("facebook_df.csv")
    return fb_df
```