TINNITUS NARRATIVES: ANOTHER SOCIAL MEDIA PERSPECTIVE

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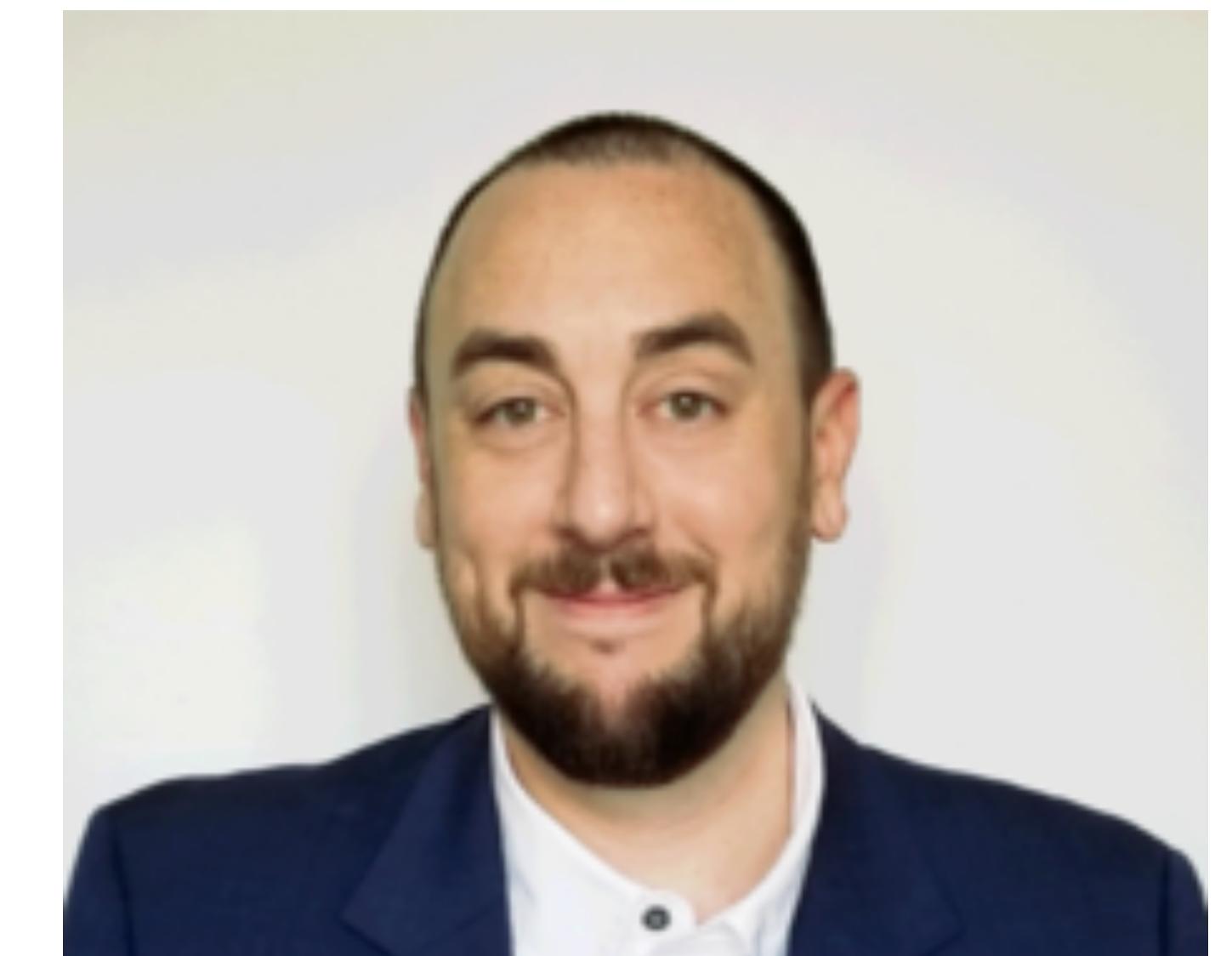
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THE STORY

✤ Online forums concentrate hundreds of thousands of spontaneous patients' reports, not biased by the medical interaction

✤ Machine learning proves to be a handy tool to extract information from these reports

✤ Comprehensive summaries of the heterogeneity of perceptions to provide insights

SOCIAL MEDIA DATA AND MEDICAL RESEARCH

◉ Manchaiah, Londero, Deshpande, Revel, Palacios, Boyd & Ratinaud. **What can we learn about tinnitus from Reddit data.** *Forthcoming,* 2021.

◉ Ni, Bellon-Harn, Zhang, Li & Manchaiah. **Twitter Usage Using Common Reference to Tinnitus.** *American Journal of Audiology,* 2020.

◉ Deshpande, Deshpande & O'Brien. **Hyperacusis and social media trends.** *Hearing, Balance and Communication,* 2019.

◉ Manchaiah, Ratinaud & Andersson. **Representation of tinnitus in the US newspaper media and in facebook pages: Cross-sectional analysis of secondary data.** *Interactive Journal of Medical Research,* 2018.

◉ Deshpande, Deshpande & O'Brien. **Study of Social Media Utilization by Individuals With Tinnitus.** *American Journal of Audiology,* 2018.

◉ Basch, Yin, Kollia, Adedokun, Trusty, Yeboah & Fung. **Public online information about tinnitus: A cross-sectional study of YouTube videos.** *Noise & Health,* 2018.

REDDIT DATA

➤ Posts from **February 2011** to **September 2019**

➤ 101,000 posts created by 12,000 users were retained after data processing

Medical Interactions
Controlled and Filtered
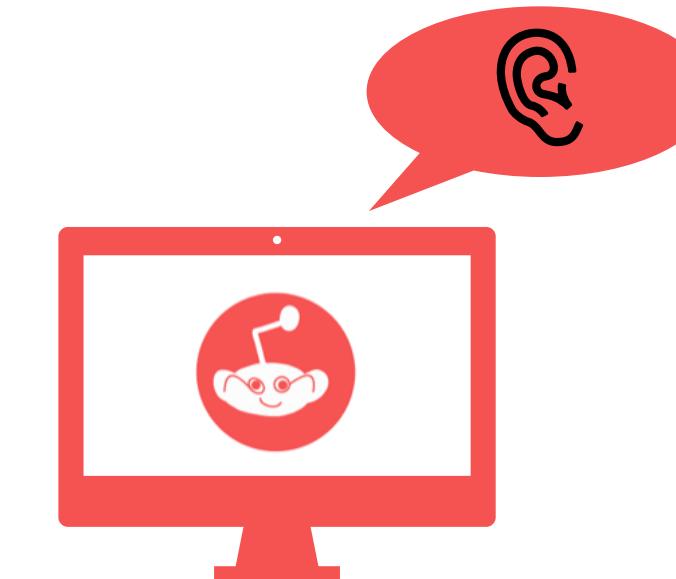
Online Anonymity
Heterogeneity of perception

DATA ANALYSIS
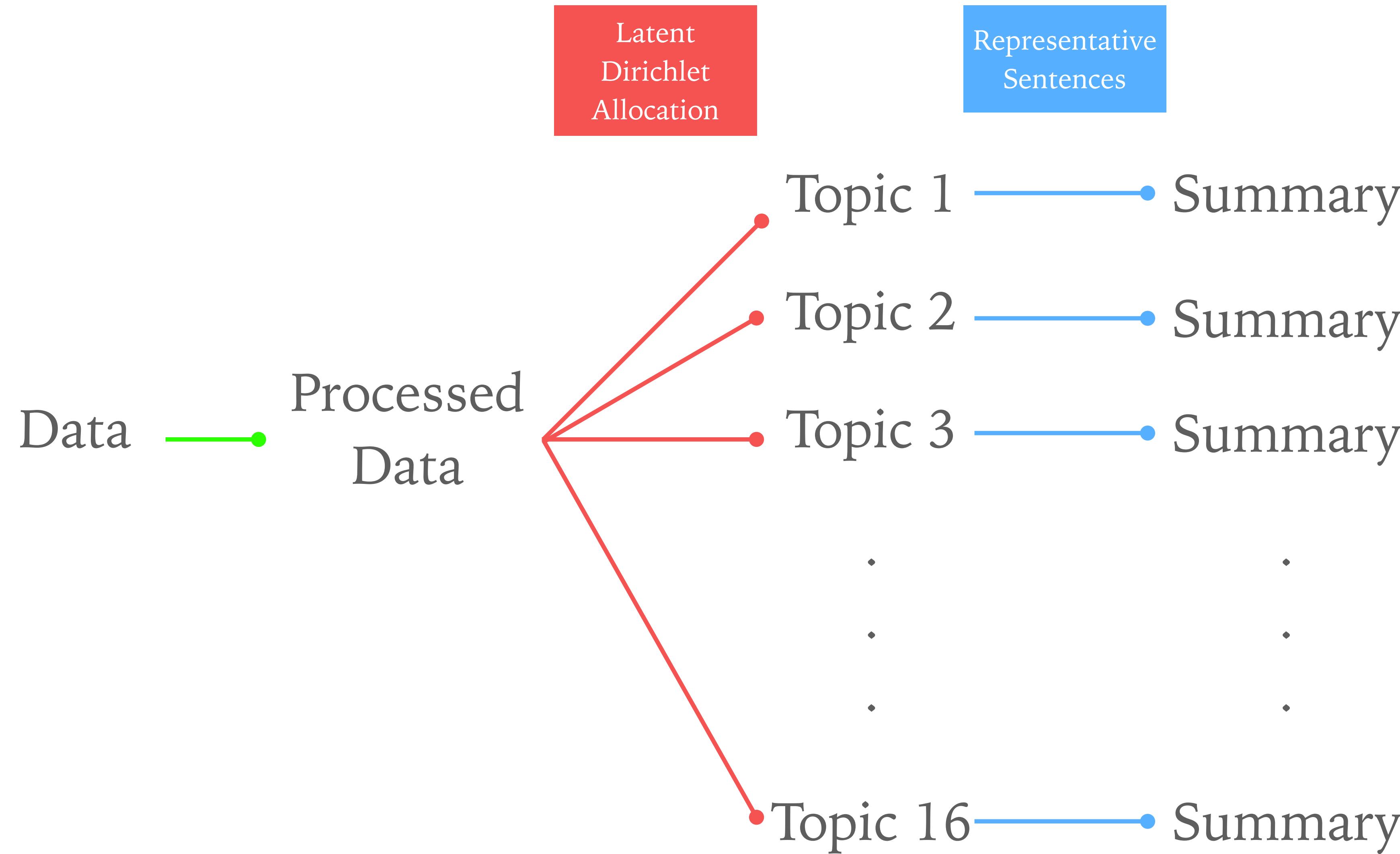
LATENT DIRICHLET ALLOCATION

Corpus

Corpus

Hello I like cats

hello, I ate an orange

Hello! I like cats and dogs
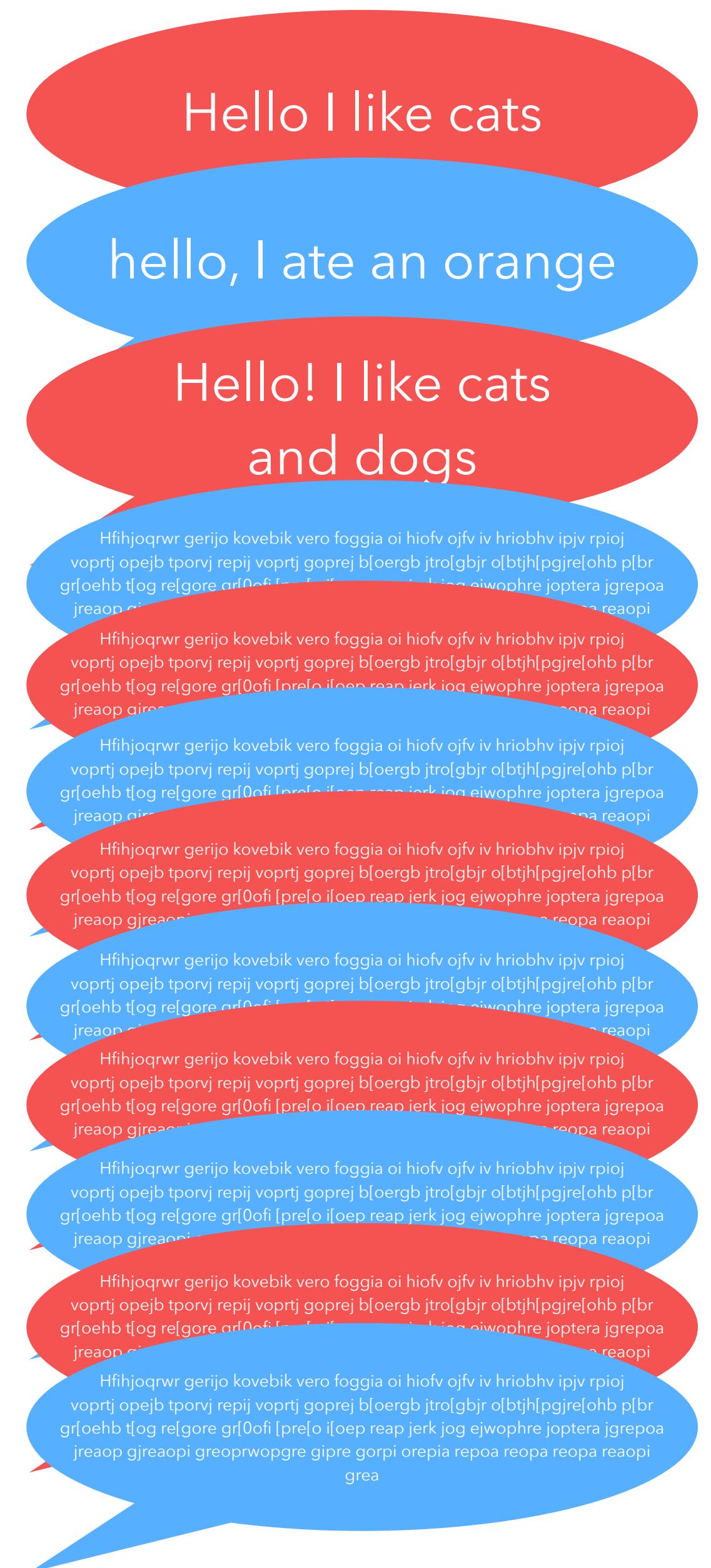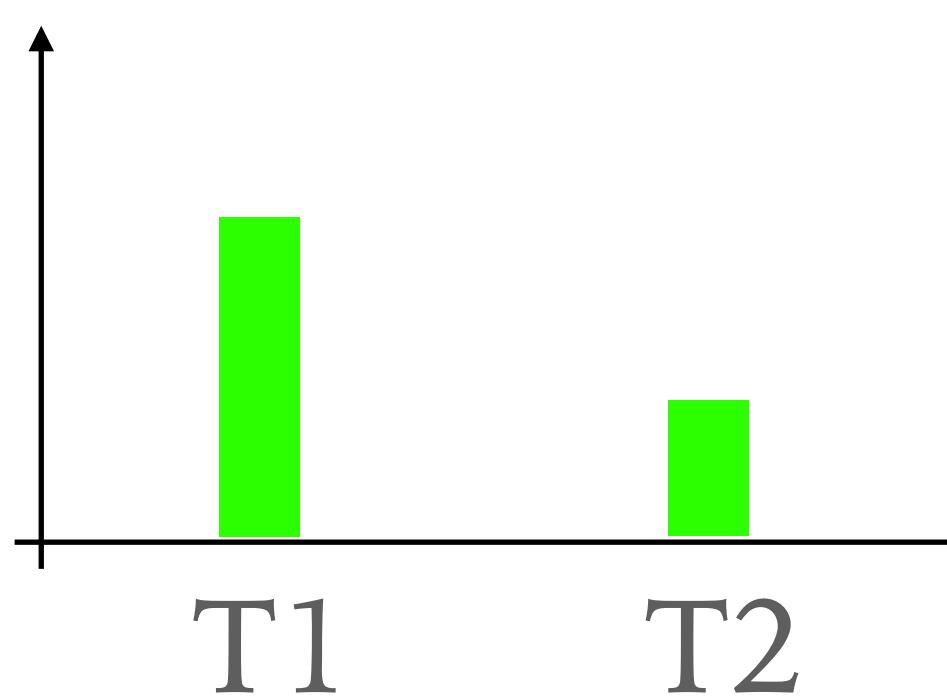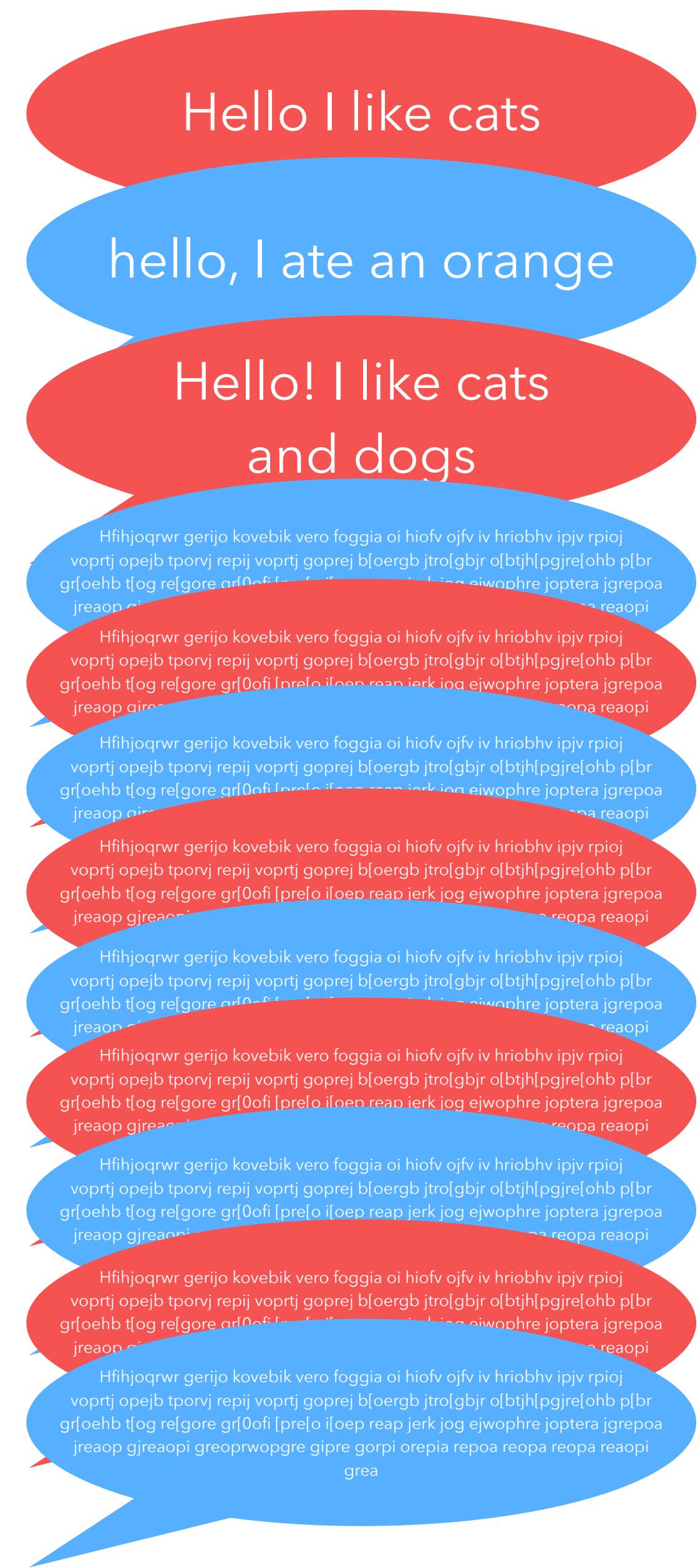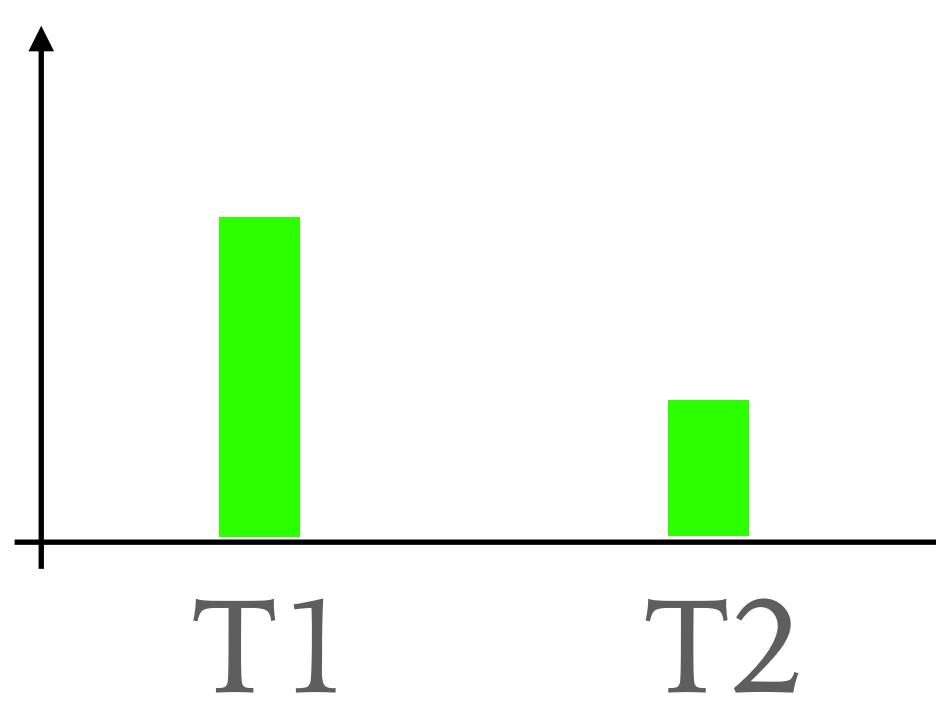
V = {cat, dogs, hello, orange}
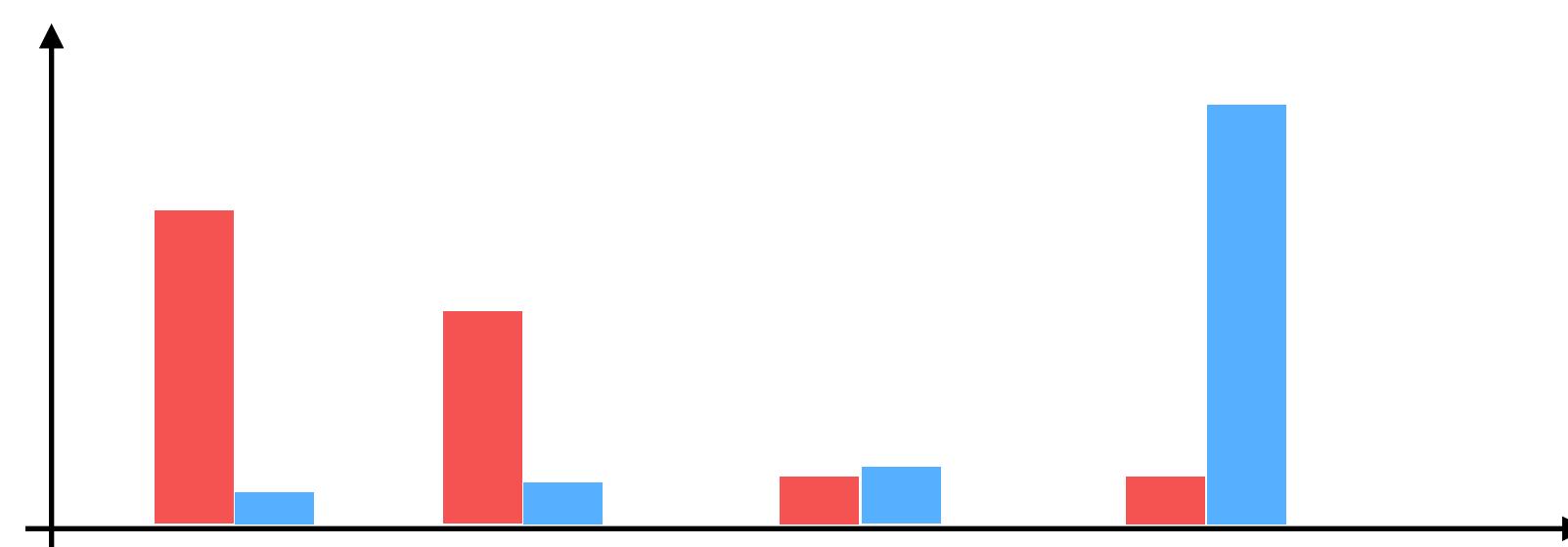
$w_1, w_2, w_3 . w_4$

Corpus
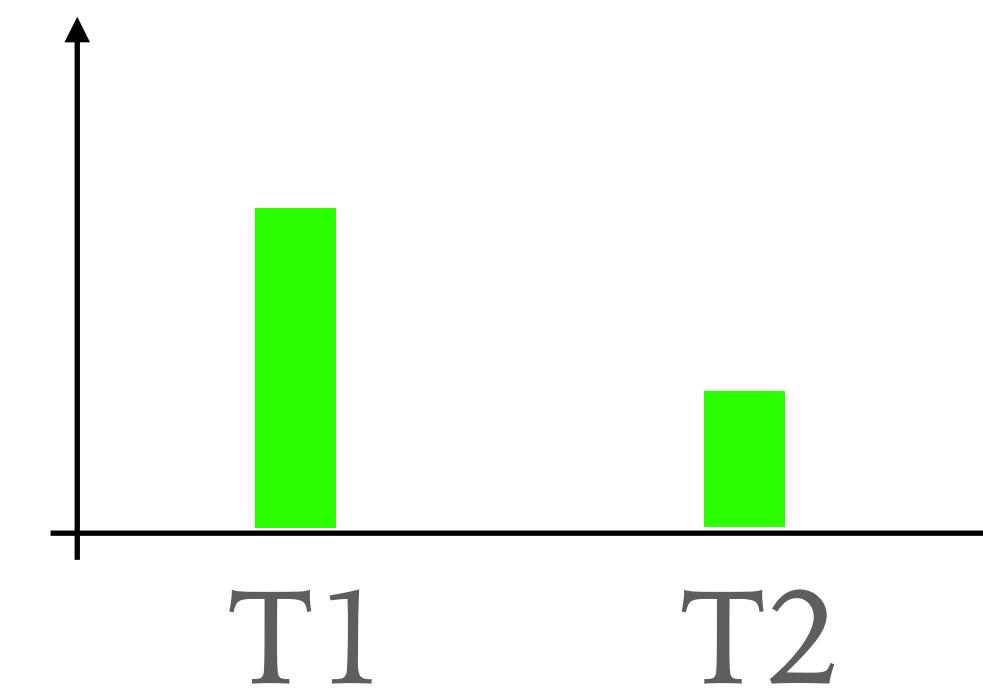
T1   T2

* Choose the topic T of the first word

* Given the topic T, choose a word w_1

* Repeat for all the words

T1   T2

V = {cat, dogs, hello, orange}
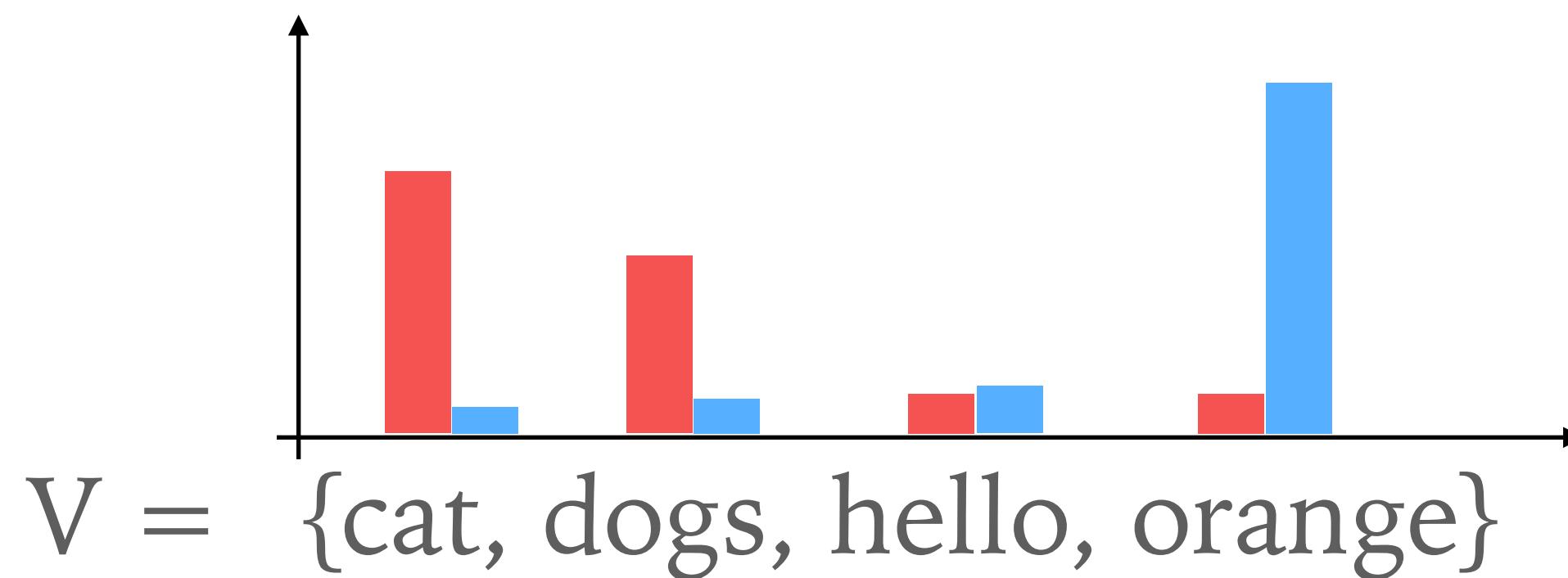
TINNITUS NARRATIVES ON SOCIAL MEDIA

C1 - 6.3%	C2 - 4.6%	C3 - 5.3%	C4 - 9%	C5 - 9%	C6 - 3.9%	C7 - 6.8%	C8 - 4.4%
life live feel thing deal learn time depress habitu accept part mind point ignor cope abl hard posit	wa year didnt thought start becaus time sinc befor back made wasnt felt rememb couldnt told ago point realli end	day month week time start back ago everi year notic hour stop coupl spike onli happen befor onc	ear left jaw infect pressur pain feel caus tmj wax neck ring full pop tube remov teeth muscl side sinus	loud music ear headphon earplug volum listen wear plug protect concert db level nois play club damag	ive ring ha notic sinc anyon alway ani louder veri realli long els time recent feel onli loud happen heard	nois sleep night tri work mask white play quiet sound room fan listen focus silenc background bed put video app	caus brain damag case perman problem nerv relat possibl sever hyperacusi issu hair condit trauma due

| C9 - 5.2%	C10 -8%	C11 - 4.4%	C12 - 5.5%	C13 - 6.7%	C14 - 4.8%	C15 - 8.5%	C16 - 7.6%
sound high pitch sometim head veri tone mine frequenc low chang differ turn someth doe constant louder lower volum usual	cure work treatment research studi therapi effect ha trial devic result drug clinic interest money patient current inform base	peopl dont becaus lot mani thing someth whi talk person everyon problem reason differ isnt	make tri thing wors stress lot anxieti work le doe drink bodi chang good reduc eat medit mind exercis alcohol	doctor ent ani medic check effect caus side anyth possibl symptom told recommend noth issu wait suggest	hear loss test onli normal ani audiologist veri aid frequenc abl year fine deaf khz rang probabl	dont realli wors bad make becaus yeah doesnt fuck mine pretti care worri feel shit bother probabl wont anymor honest	hope good read give post tri ill find advic sorri luck pleas great ani question mayb comment guy answer edit

Time Perception
- ✦ Tinnitus Chronology
- ✦ Ever lasting Tinnitus

Peer Support
- ✦ Experience Sharing
- ✦ Support System
- ✦ Hope
- ✦ Complaints

Benefit of having people that understand
Deception of lack of understanding from the doctors

Cure and Coping
- ✦ State of Research
- ✦ Stress Management
- ✦ Interactions with Doctors

Identify sources of stress in caffeine, sugar, drugs…
Management with vitamins, natural products (mg)

Life's Impact
- ✦ Sleep Issues
- ✦ Depression

Causes
- ✦ TMJ
- ✦ Brain Damage
- ✦ Hear Loss
- ✦ Loud Music

Teeth and Dental Surgeries
Neck and shoulder tensions
Jaw clinching and misalignment

FURTHER RESEARCH

➤ Leverage the users dynamics to quantify cooccurrence of topics

Common factors per different topic
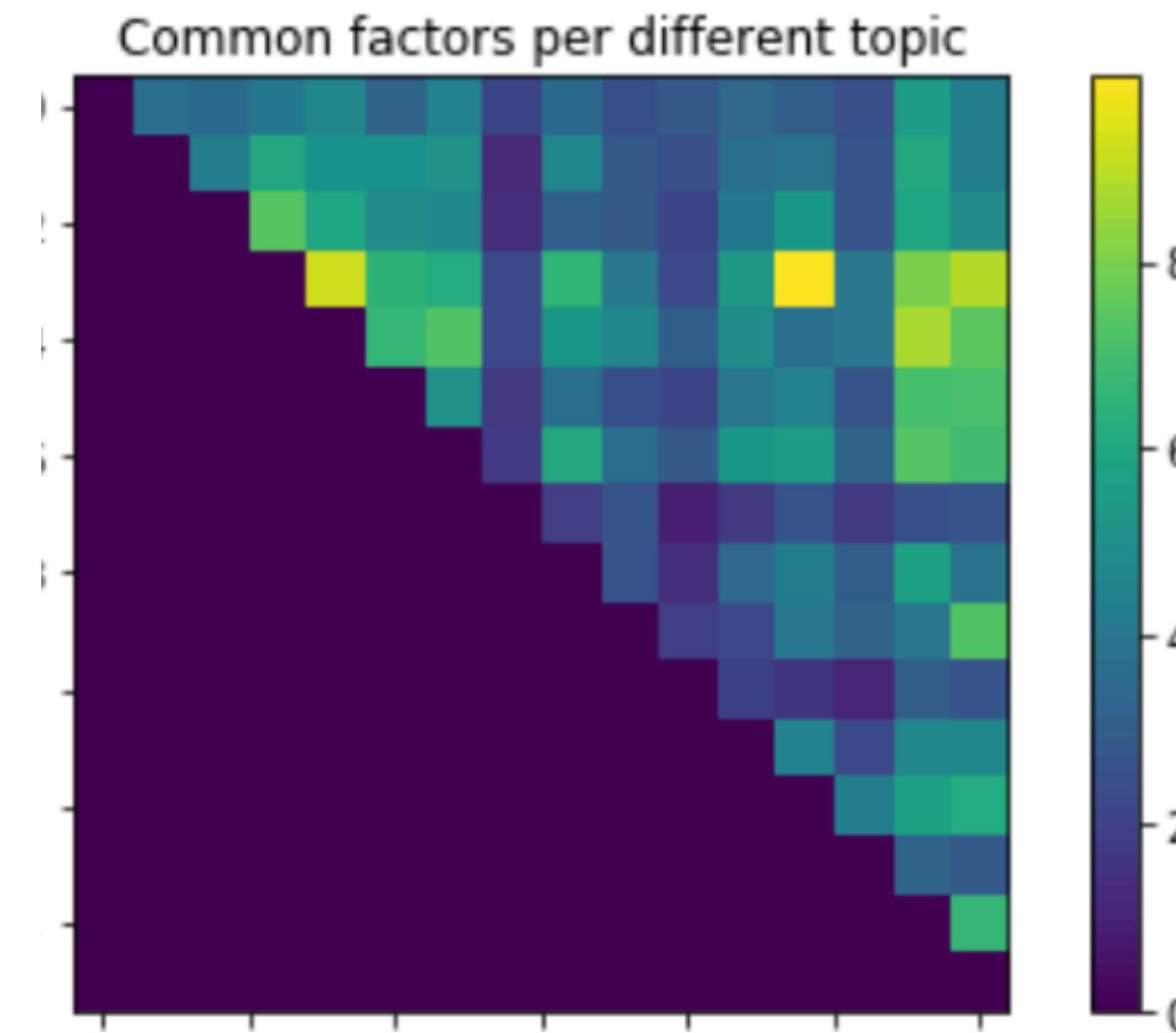
CONCLUSION

✤ Tinnitus online data can be a complementary way to interact with the patients symptoms, provided that the large amount data can be digested comprehensively

✤ There is a lot of room for further collaboration with therapists and practitioners to make the most from these analyses
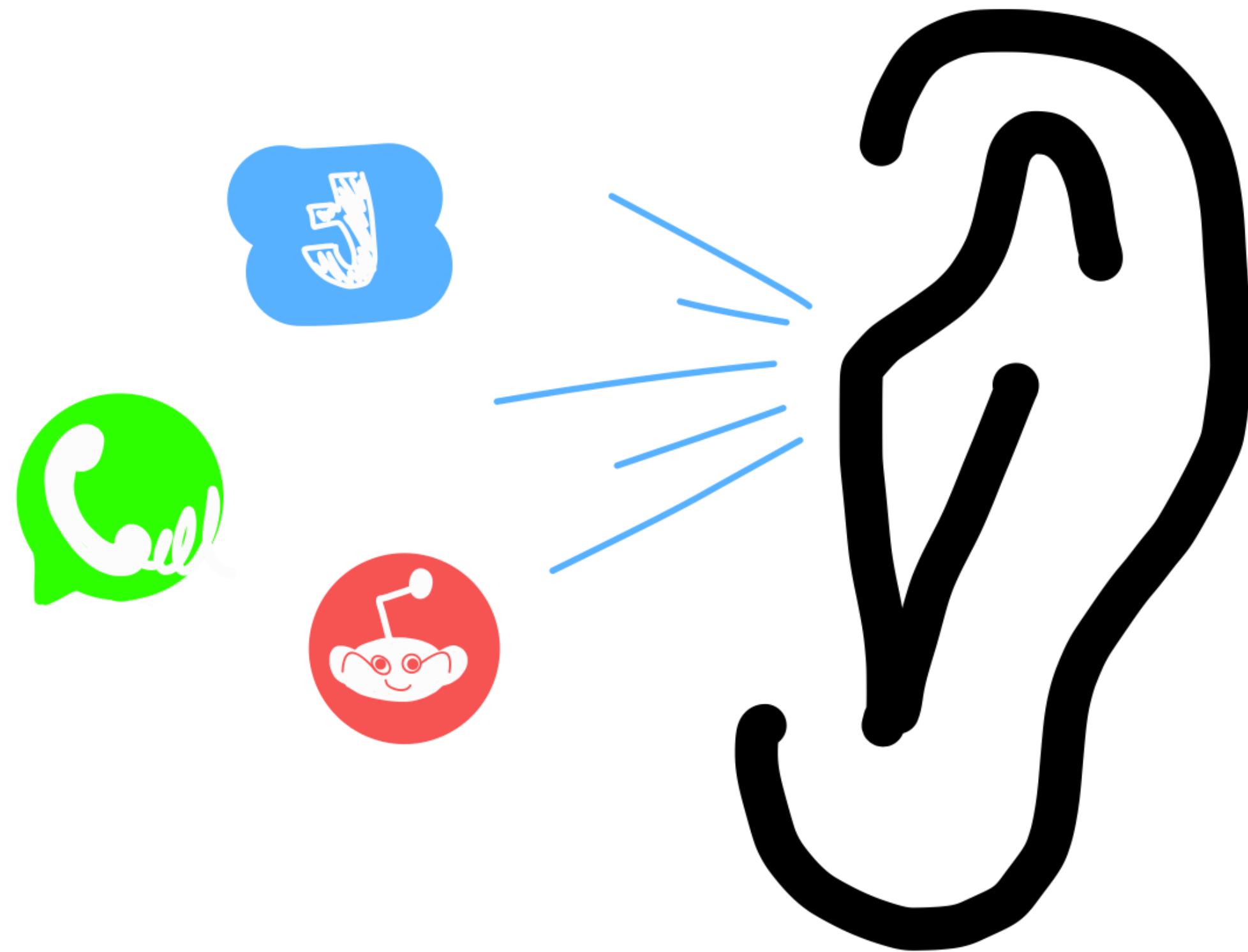
THANK YOU!

Virtual Conference on Computational Audiology
June 25, 2021

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