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& Paula González Ávalos**

INTERACTIVE VISUALIZATION OF COMPLEX TEXTS



e-Rum 2020
17/20 JUNE
MILANO

hello world!

We are **Paula & Renate**

We bring you a shiny app
to explore linguistic data

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**Explaining how to get
somewhere is a very
complex cognitive task**

Where do you want to go?

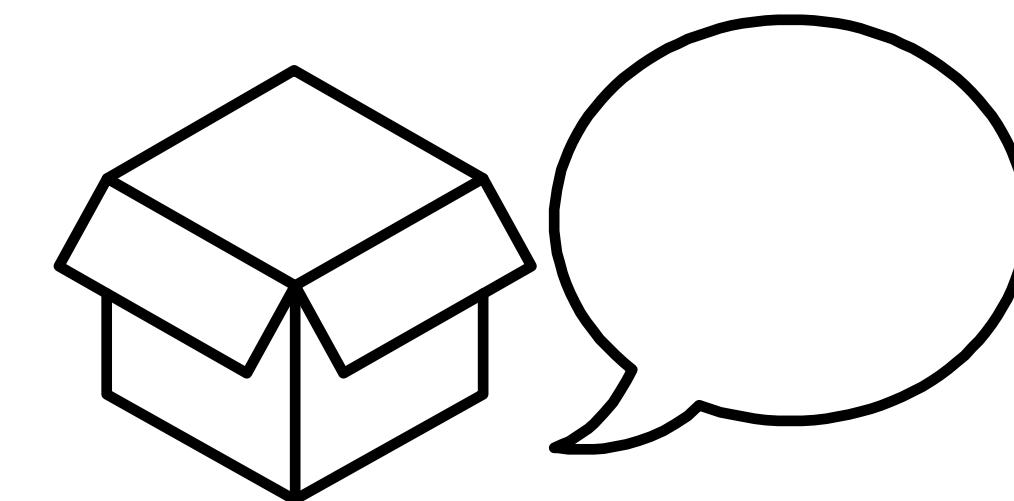
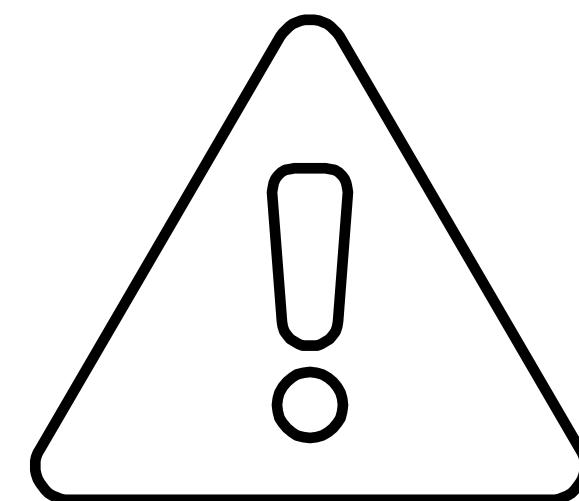
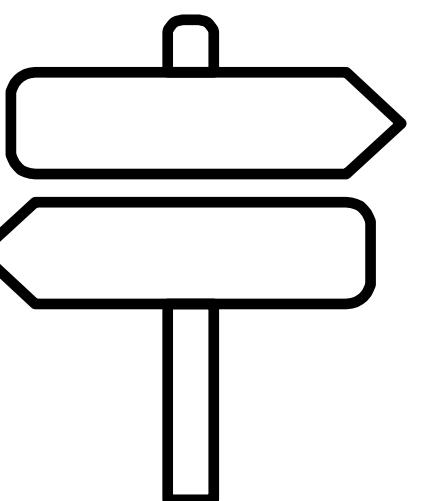
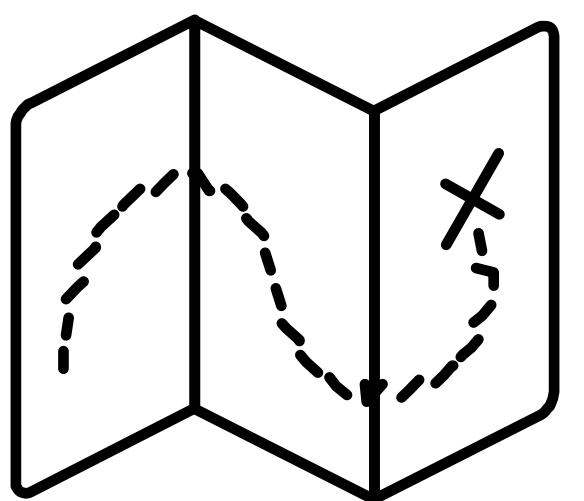


Enter starting point

Enter destination

GET DIRECTIONS

Cognitive processes



1

linguistic wayfinding research

2

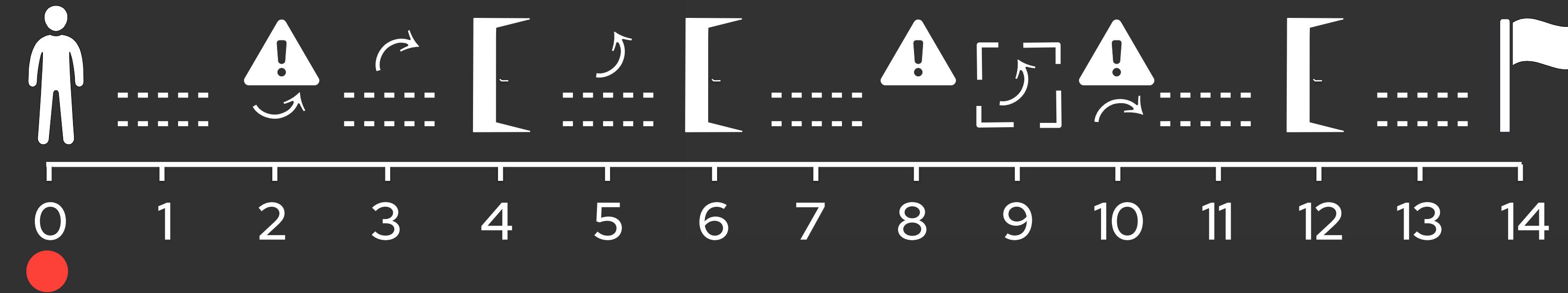


Google Maps for mobile devices feat. GPS turn-by-turn navigation



BAD TIMING!

WAYFINDING EXPERIMENTS





VPspa006_2i

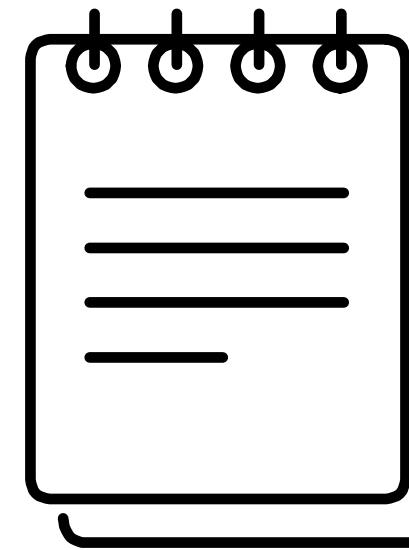
| Text | info | | | | | | | | | | verb | | | | | | verb_particle | | | | | | adjunct | | | | | | IMP | fig_loc | | | | | | | | | | | | | |
|--|------|-----|---|---|---|---|--------|-----------|---|---|------|---|---|---|---|---|---------------|---|---|---|---|---|---------|---|---|---|---|---|-----|---------|---|---|---|---|---|---|--------|----|-----|--|---|--|--|
| | Ä | Seg | A | P | L | S | Ns | Verb | x | a | d | f | s | u | m | b | c | r | z | g | x | d | f | s | u | m | b | c | r | z | g | w | f | z | 1 | 0 | orient | PW | neg | | | | |
| 01 Sales de la oficina 108 | 1 | 0 | 1 | | | | | salir | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 y caminas hacia la mano derecha | 2 | 1 | 1 | | | | | caminar | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 hasta {X} | 2 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| 03 {llegar a la puerta} | 3 | 4 | 1 | | | | D | llegar | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | 0 | | | | | | |
| 04 Abres esa puerta | 4 | 4 | 1 | | | | | abrir | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 y entras en un corredor, | 5 | 5 | 1 | | | | | entrar | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | 0 | | | | | | |
| 06 caminas por él | 6 | 5 | 1 | | | | | caminar | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| 06 hasta {X} | 6 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| 07 {llegar a la puerta} | 7 | 6 | 1 | | | D | llegar | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 0 | | | | | | |
| 08 Abres la puerta | 8 | 6 | 1 | | | | | abrir | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| 09 y aparece otra puerta directamente. | 9 | 6 | | 1 | | | | aparecer | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 Abres también esa puerta | 10 | 6 | 1 | | | | | abrir | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 y caminas derecho, | 11 | 7 | 1 | | | | | caminar | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| 12 Illegas a un hall, | 12 | 9 | 1 | | | | | llegar | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 0 | | | | | | |
| 13 pero sigues derecho | 13 | 9 | 1 | | | | | seguir | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| 14 sin detenerte. | 14 | 9 | 1 | | | | | detenerSe | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| 15 Así llegas hasta la puerta 110 unos pasos más allá. | 15 | 14 | 1 | | | | | llegar | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 0 | | | | | | |
| 16 Esa es la meta. | 16 | 14 | | | 1 | | | ser | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

A black and white photograph of a person lying down on a bed or sofa. Their head is propped up by their right hand, and they are looking directly at the camera with a neutral expression. They are wearing a light-colored t-shirt and dark trousers. The background is slightly blurred.

LINGUISTICS CRASH COURSE

Don't worry, it will be short and painless

selection of information



route
direction

person

space

localization

action

landmark

description

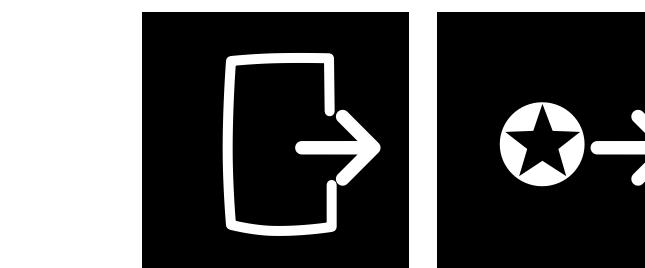
movement

figure

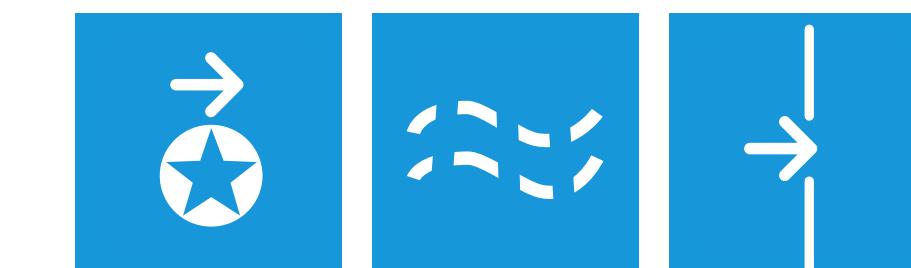
ground



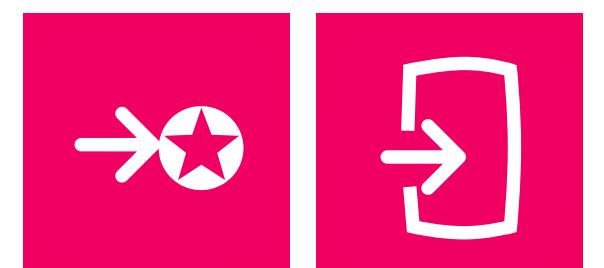
source



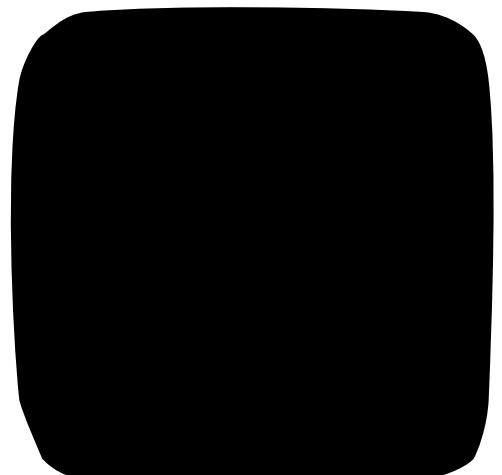
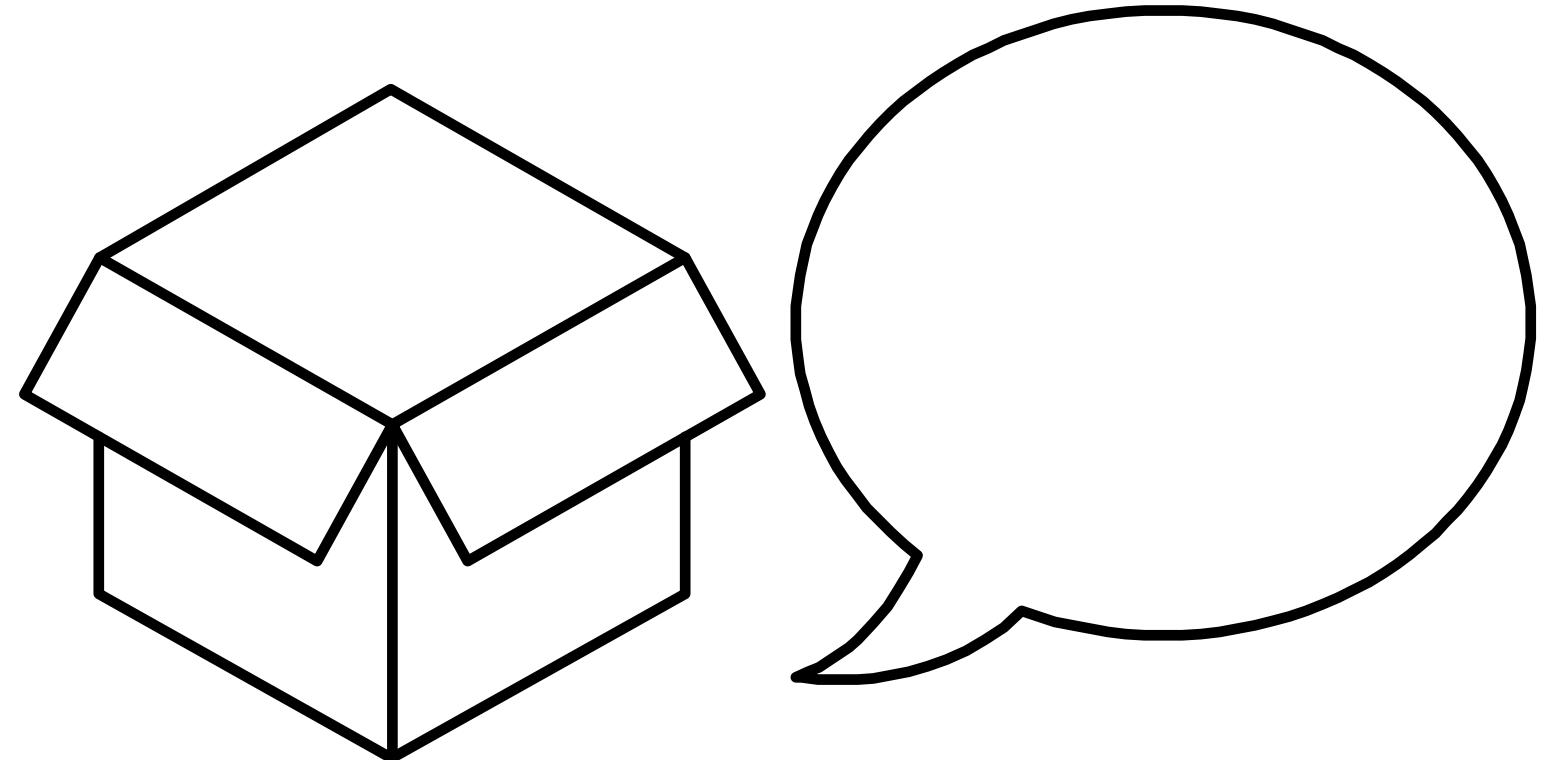
trajectory



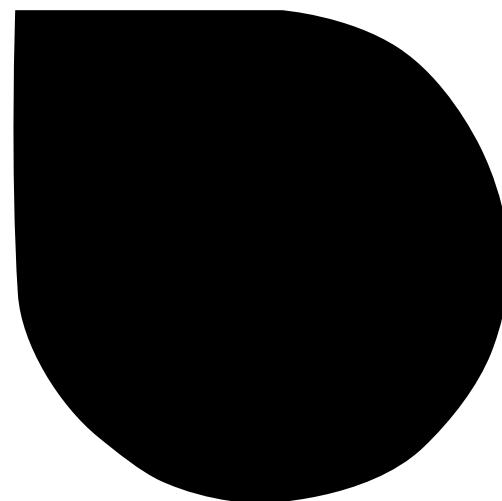
goal



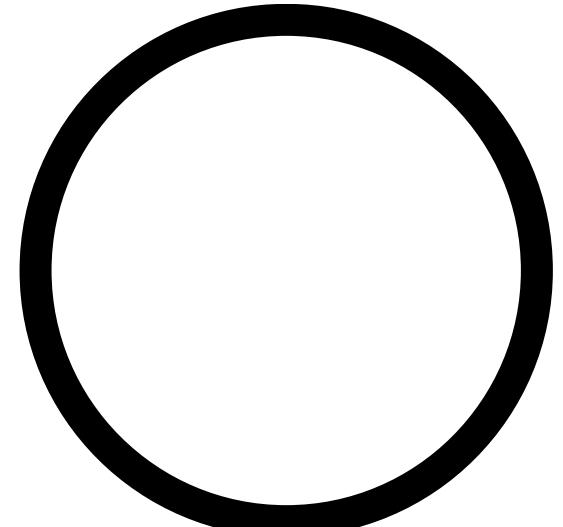
linguistic packaging



verb

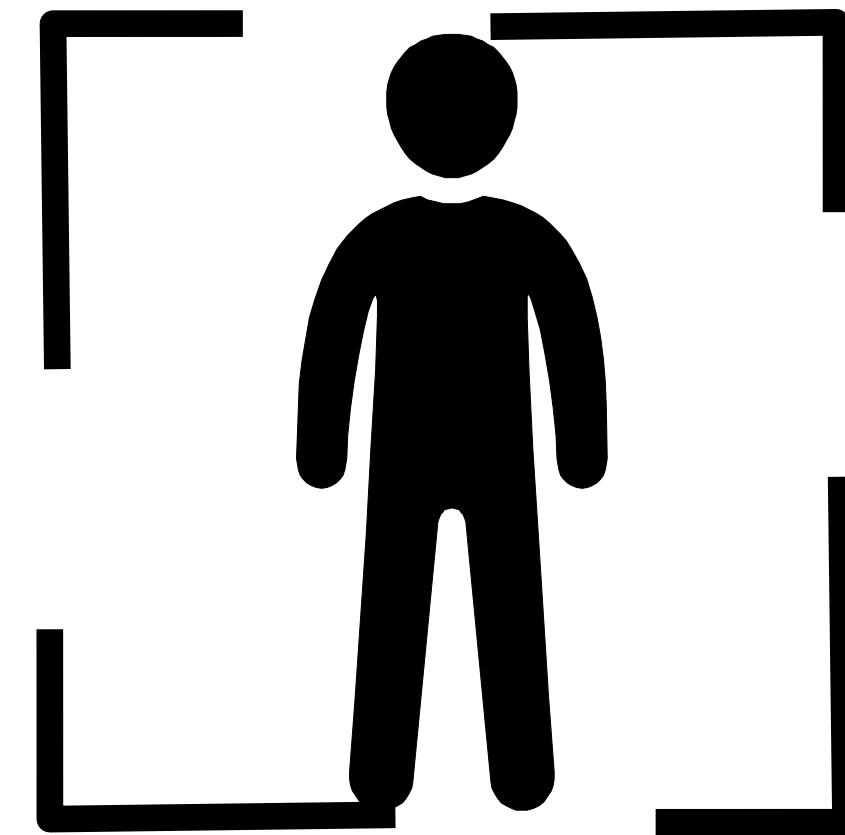


particle



adjunct

Betrete die Halle



Laufe in die Halle rein



Laufe bis zur Halle



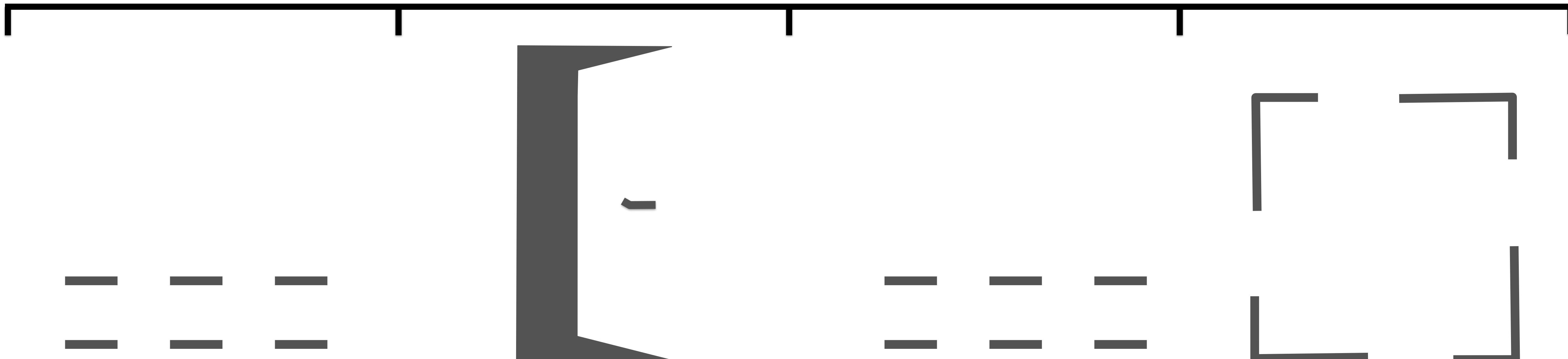
mapping linguistic material into the segments of the route

Sie erreichen die Tür

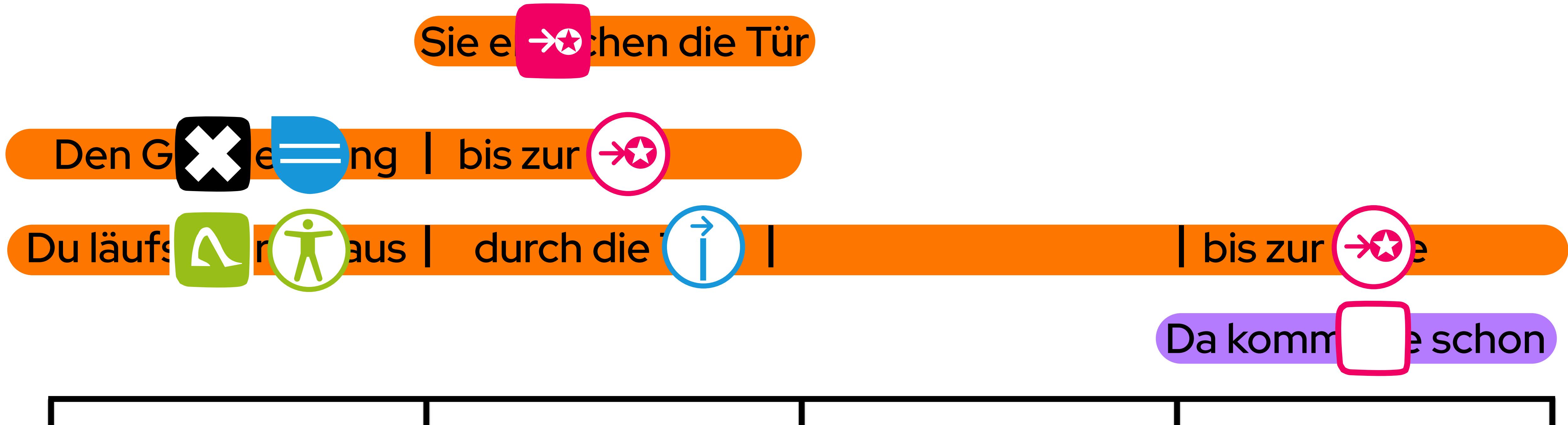
Den Gang entlang | bis zur Tür

Du läufst geradeaus | durch die Tür | | bis zur Halle

Da kommt sie schon



mapping linguistic material into the segments of the route



language dependent task



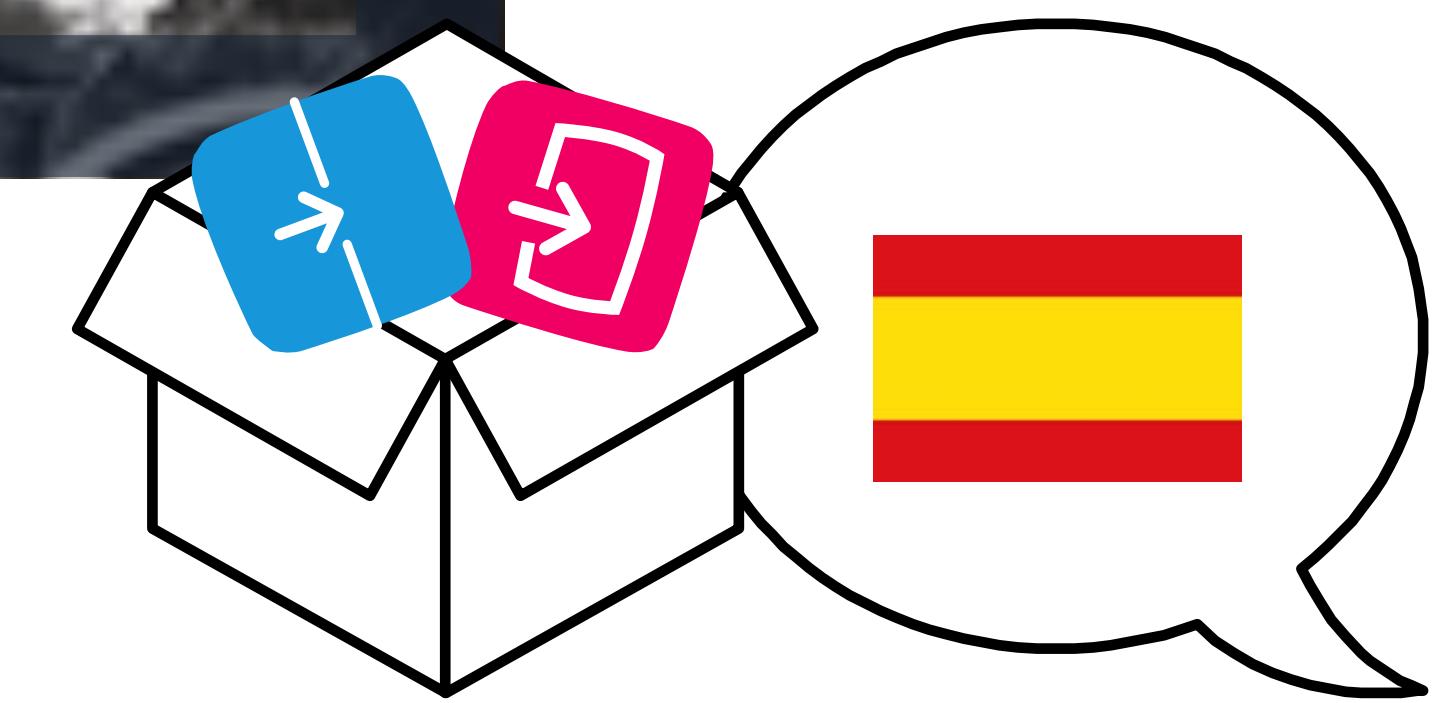
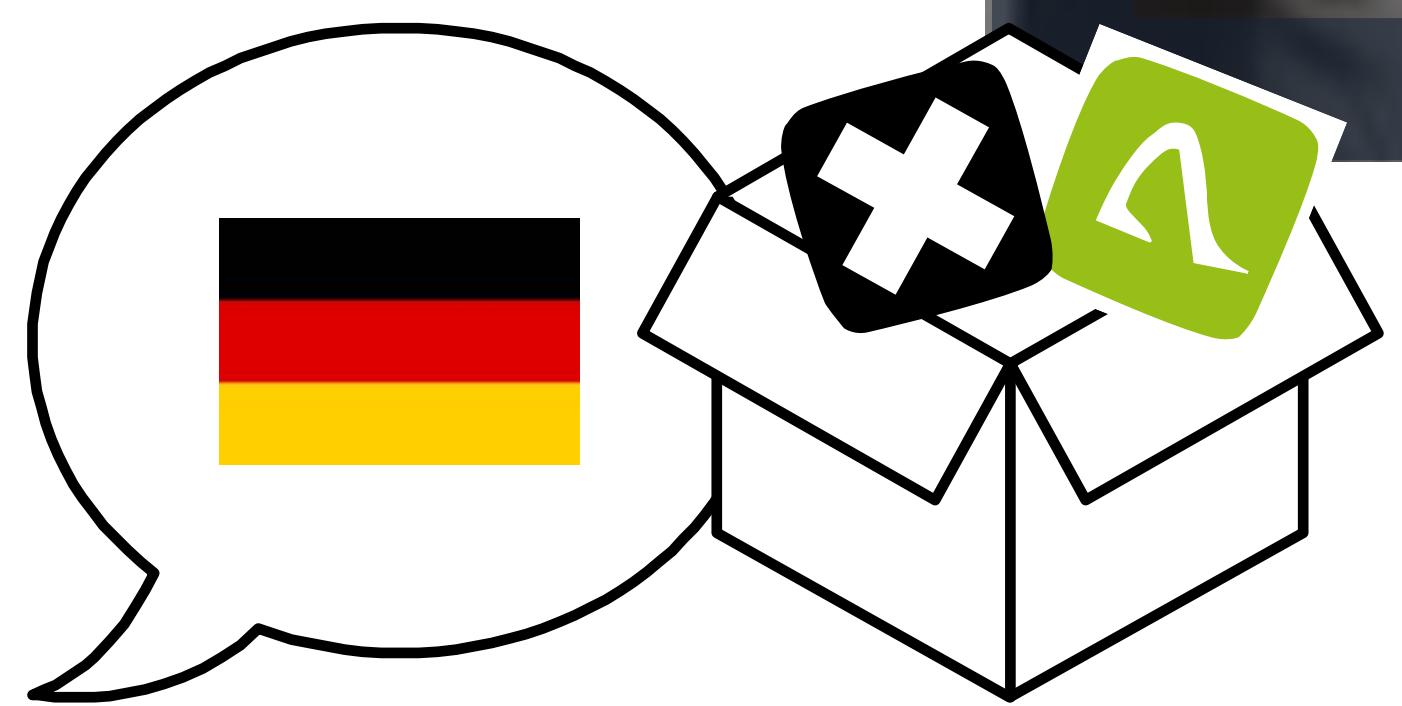
Speakers of different languages explain routes differently

language-specific patterns



Speakers of different languages explain routes differently

language-specific patterns



Gender dependent task (?)



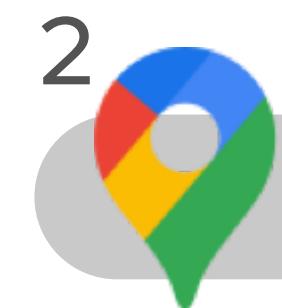


THE ORIGINAL IMPLEMENTATION

half automatized, half artesanal

1

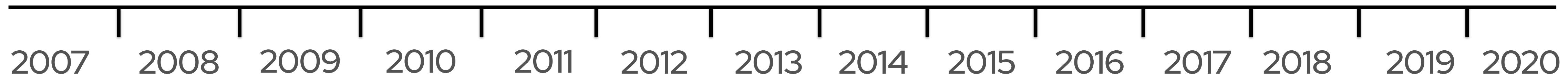
linguistic wayfinding research



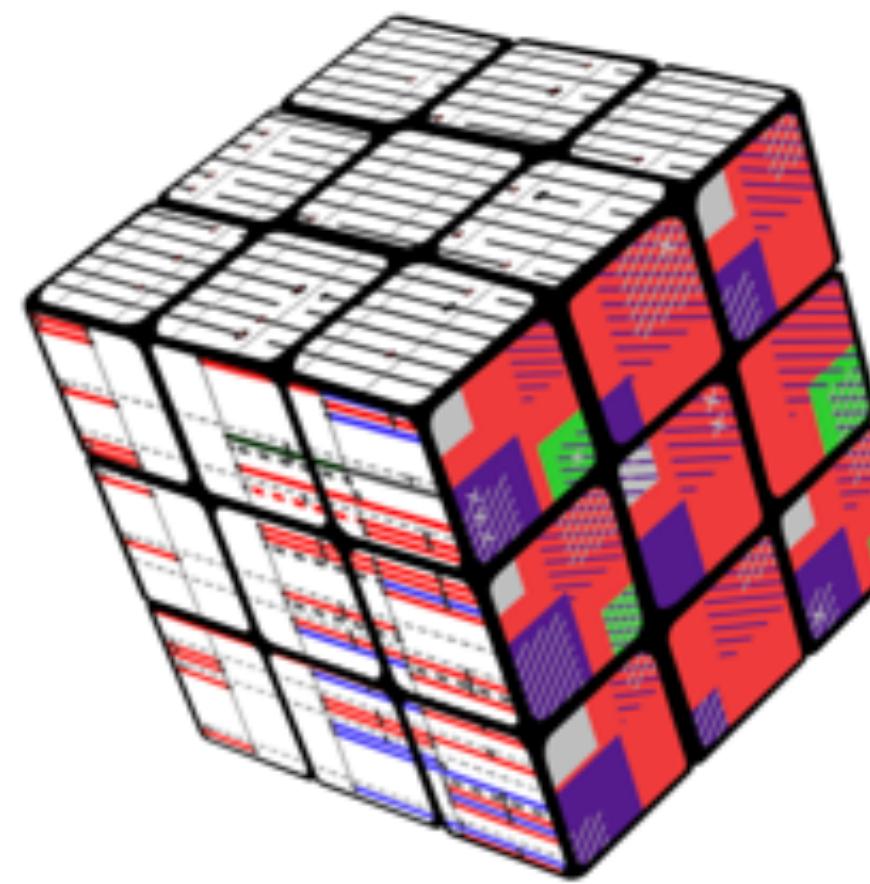
2 Google Maps for mobile devices feat. GPS turn-by-turn navigation

3

R static viz

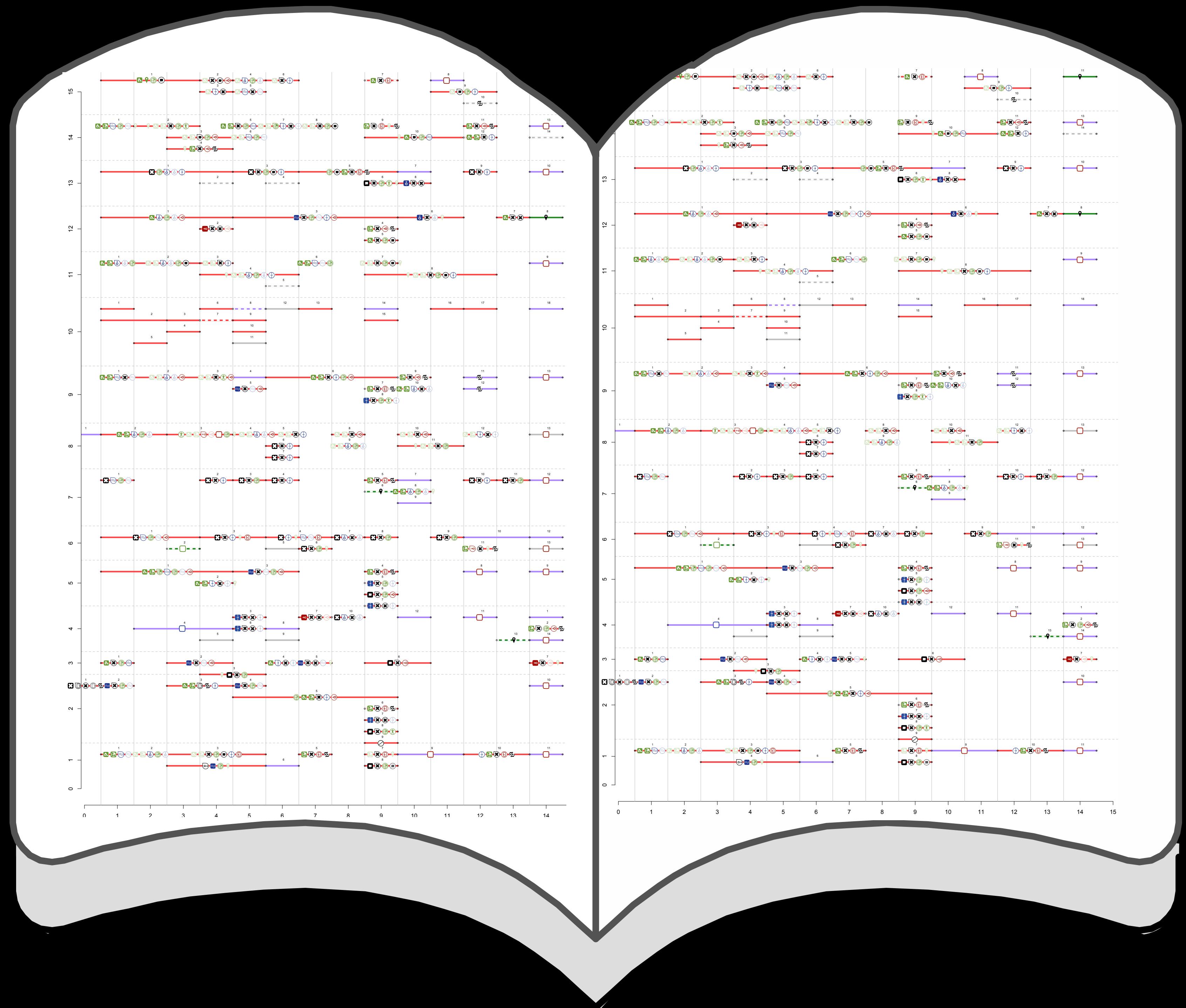


RENATE DELUCCHI DANHIER

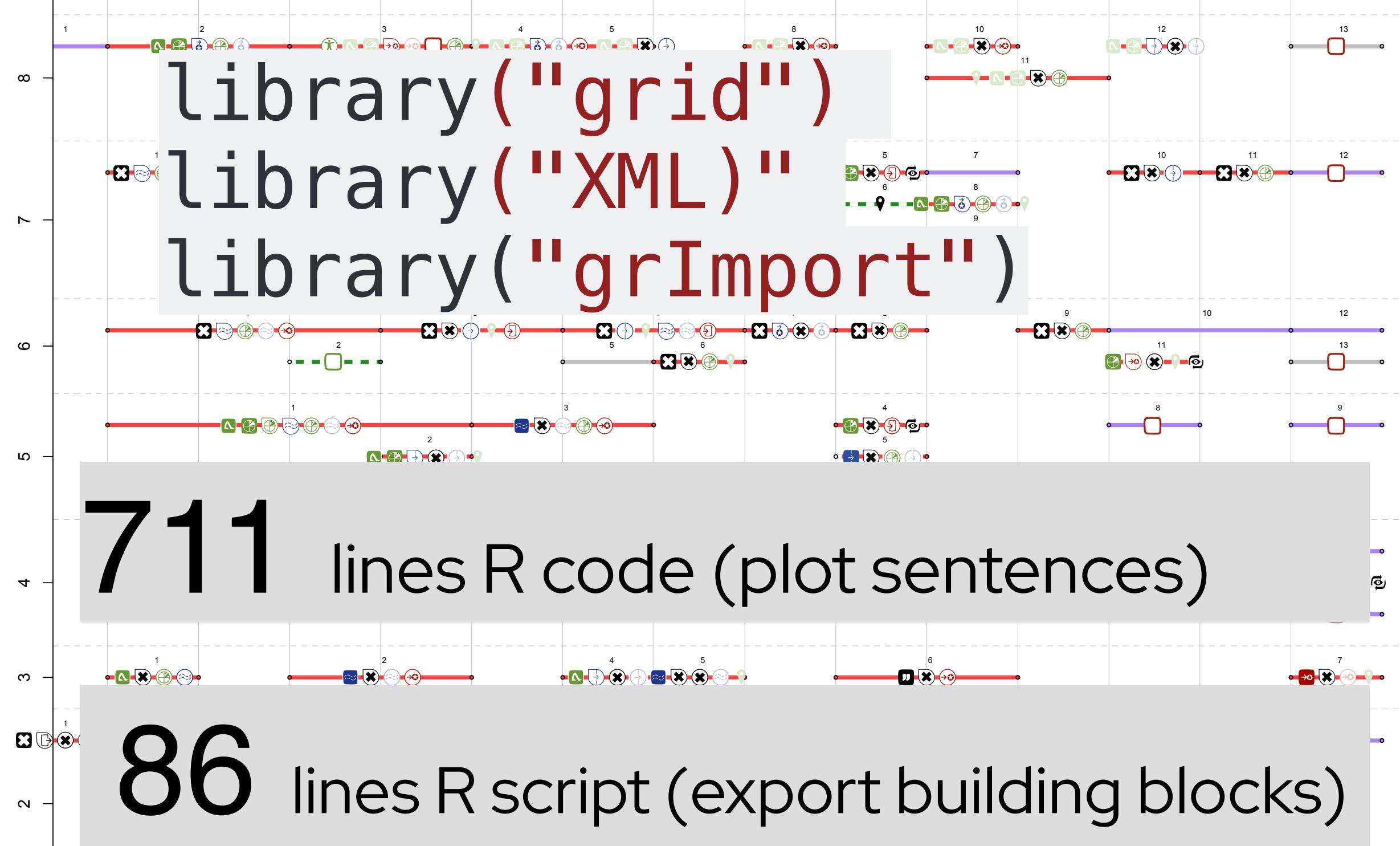
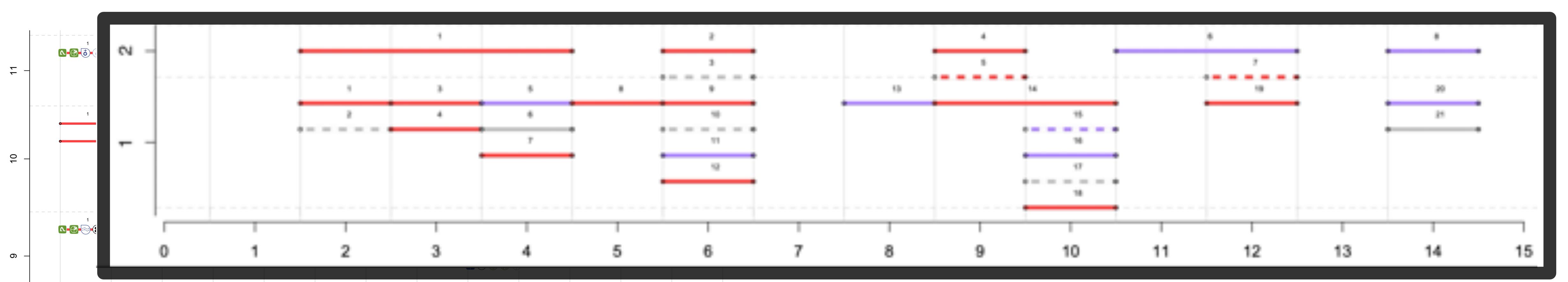


**WEGANWEISUNGEN
IM DEUTSCHEN UND SPANISCHEN:**

EINE VERGLEICHSSANALYSE UNTER ANWENDUNG VON VISUALISIERUNGEN





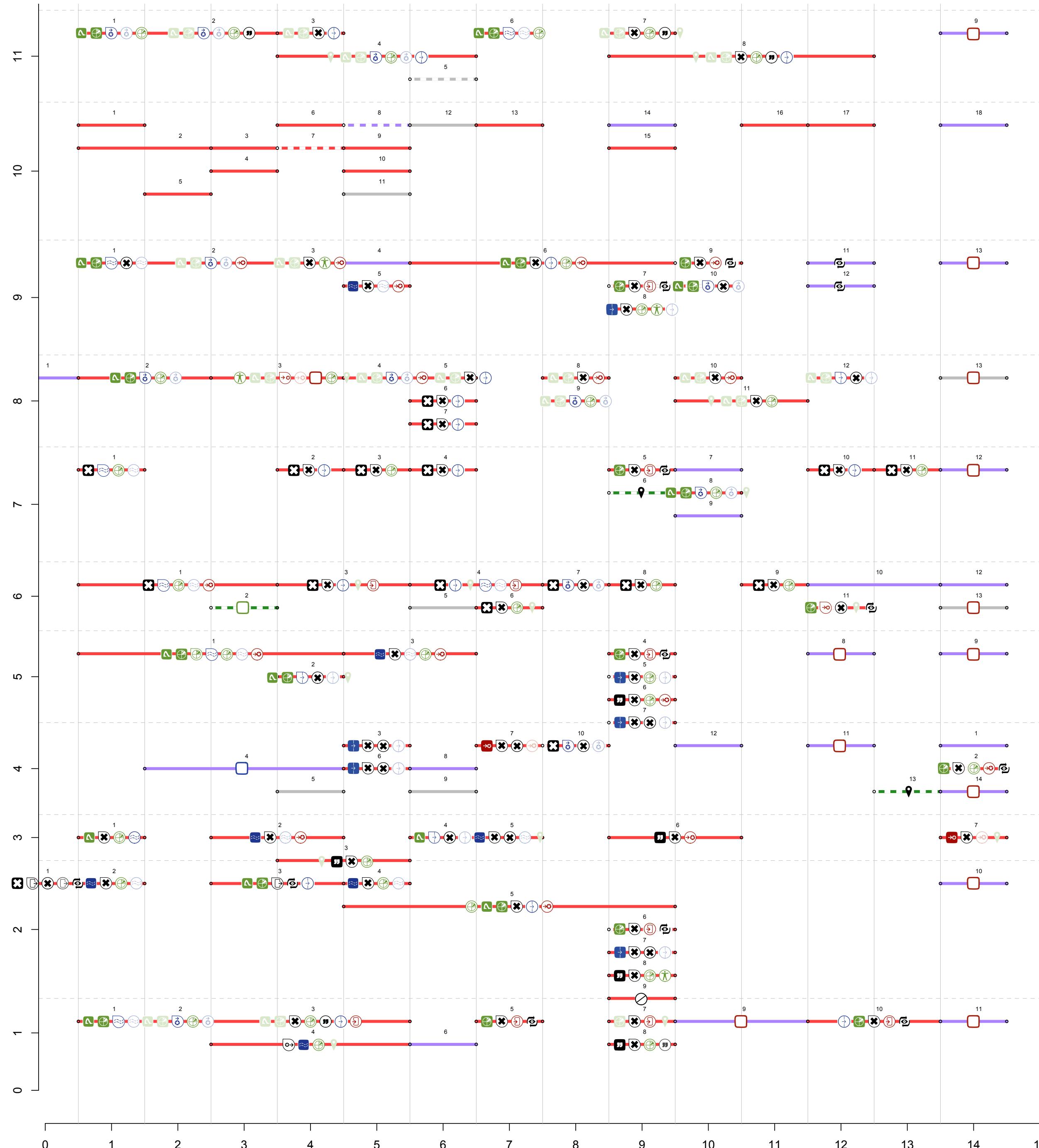


711 lines R code (plot sentences)

86 lines R script (export building blocks)

15 hours putting together the viz by hand

10% luck
 20% skill
 15% concentrated power of will
 5% pleasure
 50% pain

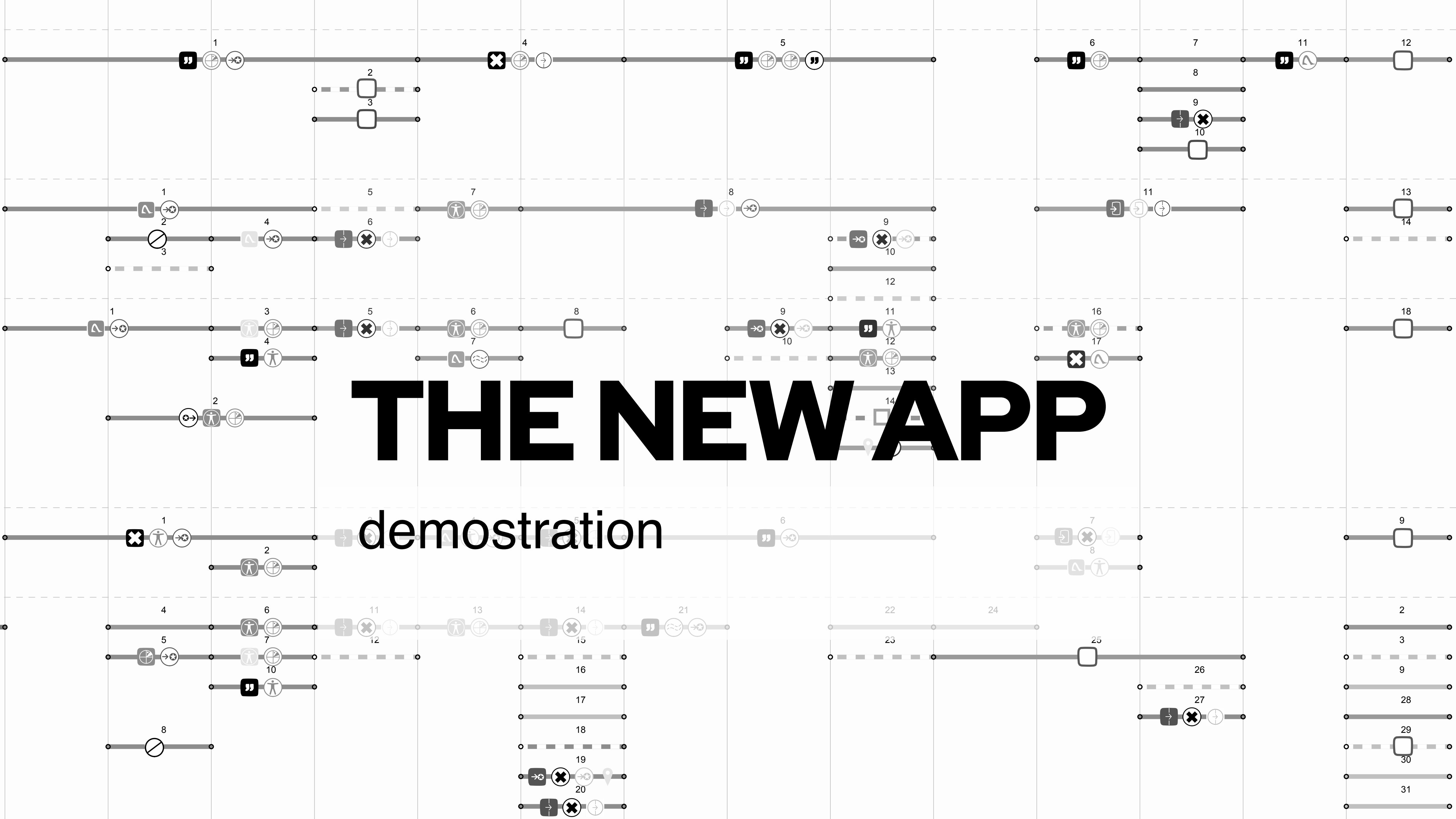


- too much information
- difficult to read (1 proficient reader)
- interactivity needed to make it approachable



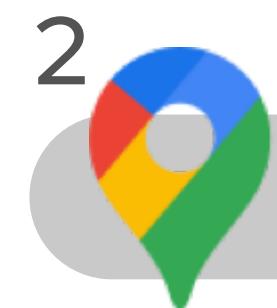
THE NEW APP

demonstration



1

linguistic wayfinding research



Google Maps

for mobile devices feat. GPS turn-by-turn navigation

2

R static viz

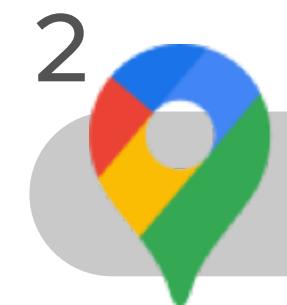
3

ggplot2 tidyverse dplyr Shiny %>%

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

1

linguistic wayfinding research



Google Maps

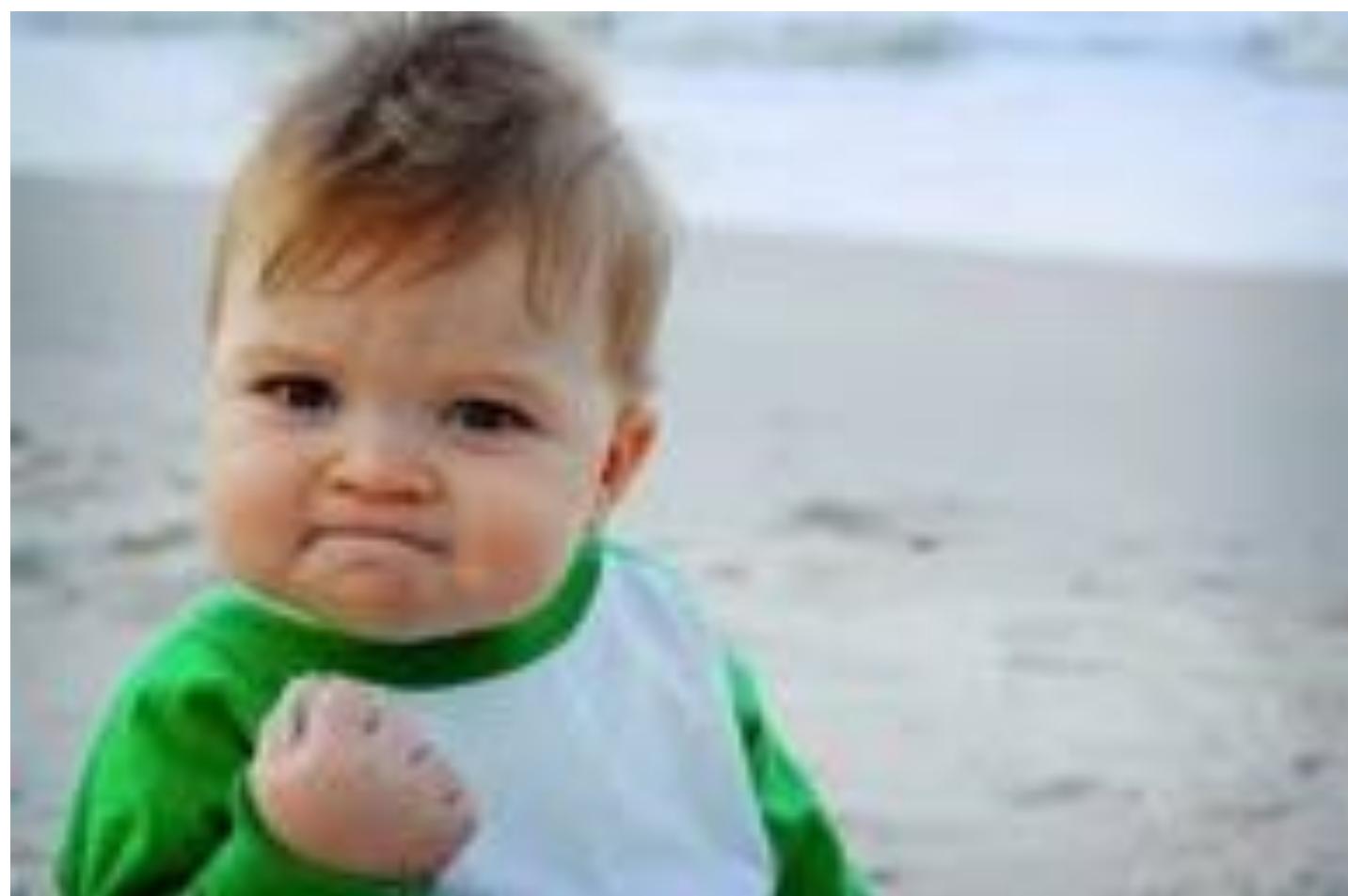
for mobile devices feat. GPS turn-by-turn navigation

2

R static viz

3

ggplot2 tidyverse dplyr Shiny %>% tidyverse



10

2011

2012

2013

2014

2015

2016

2017

2018

2019

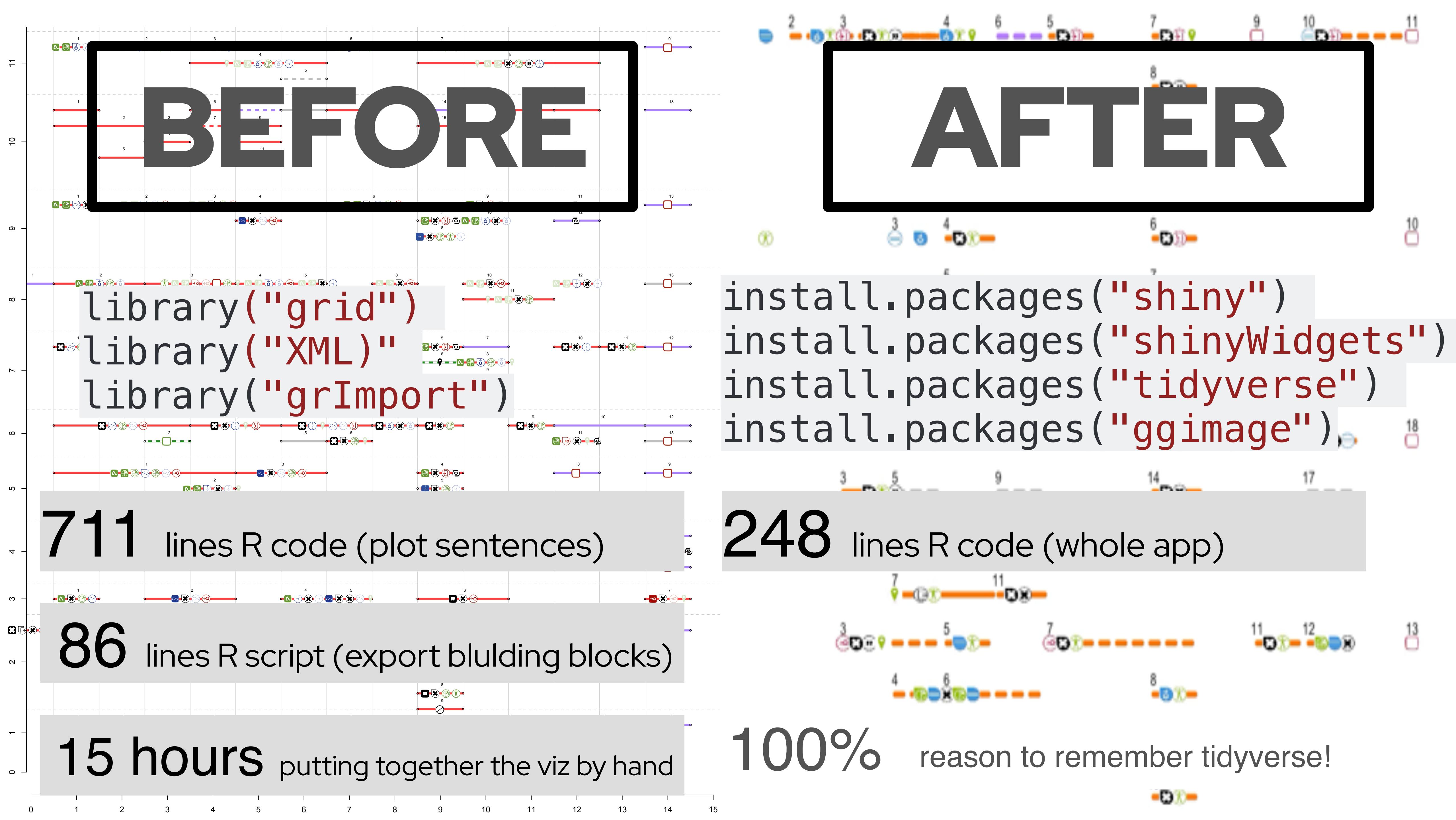
2020

4

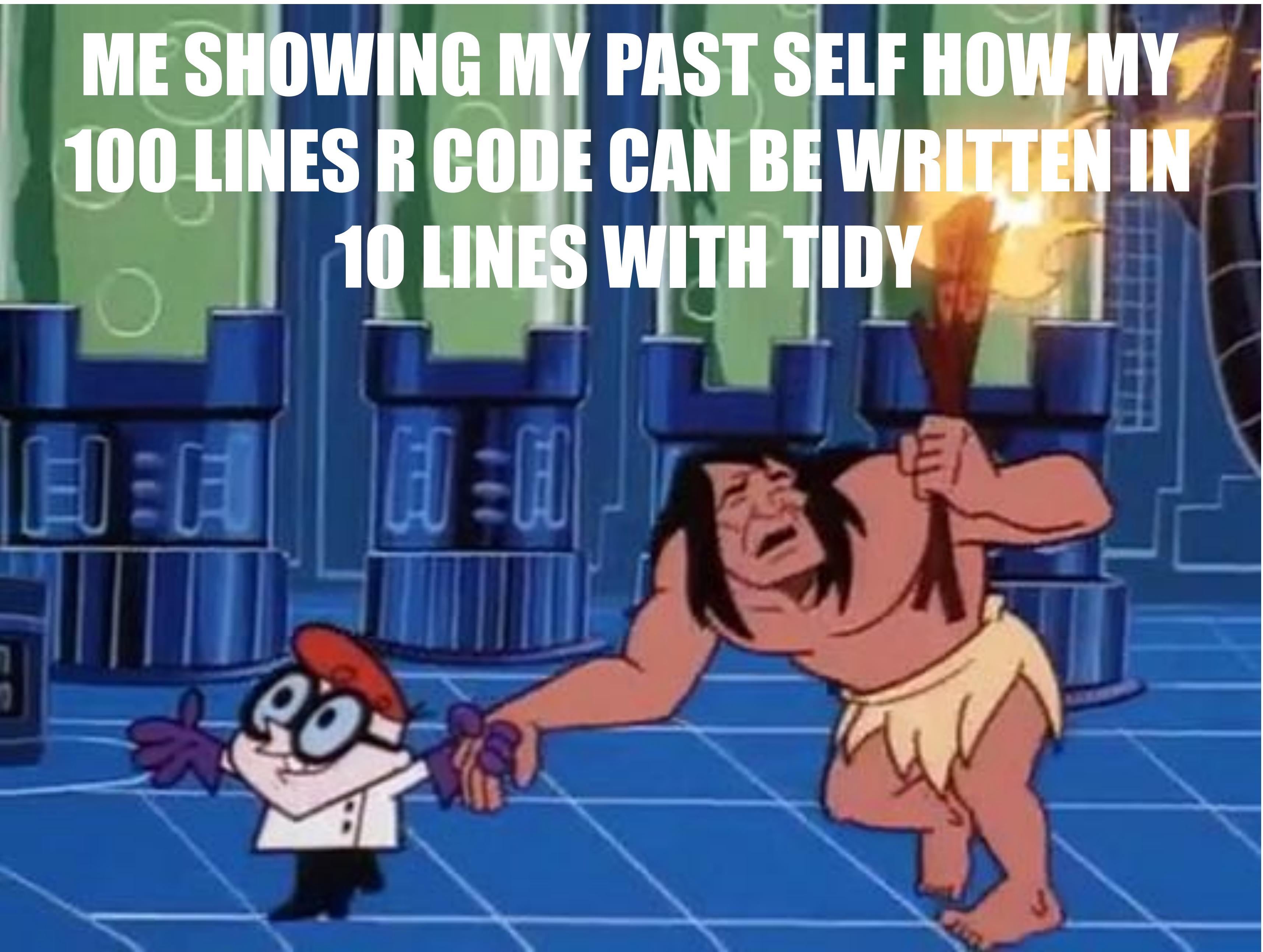


app

GREAT TIMING!



ME SHOWING MY PAST SELF HOW MY
100 LINES R CODE CAN BE WRITTEN IN
10 LINES WITH TIDY



walkthrough of the shiny app



APPLICATION

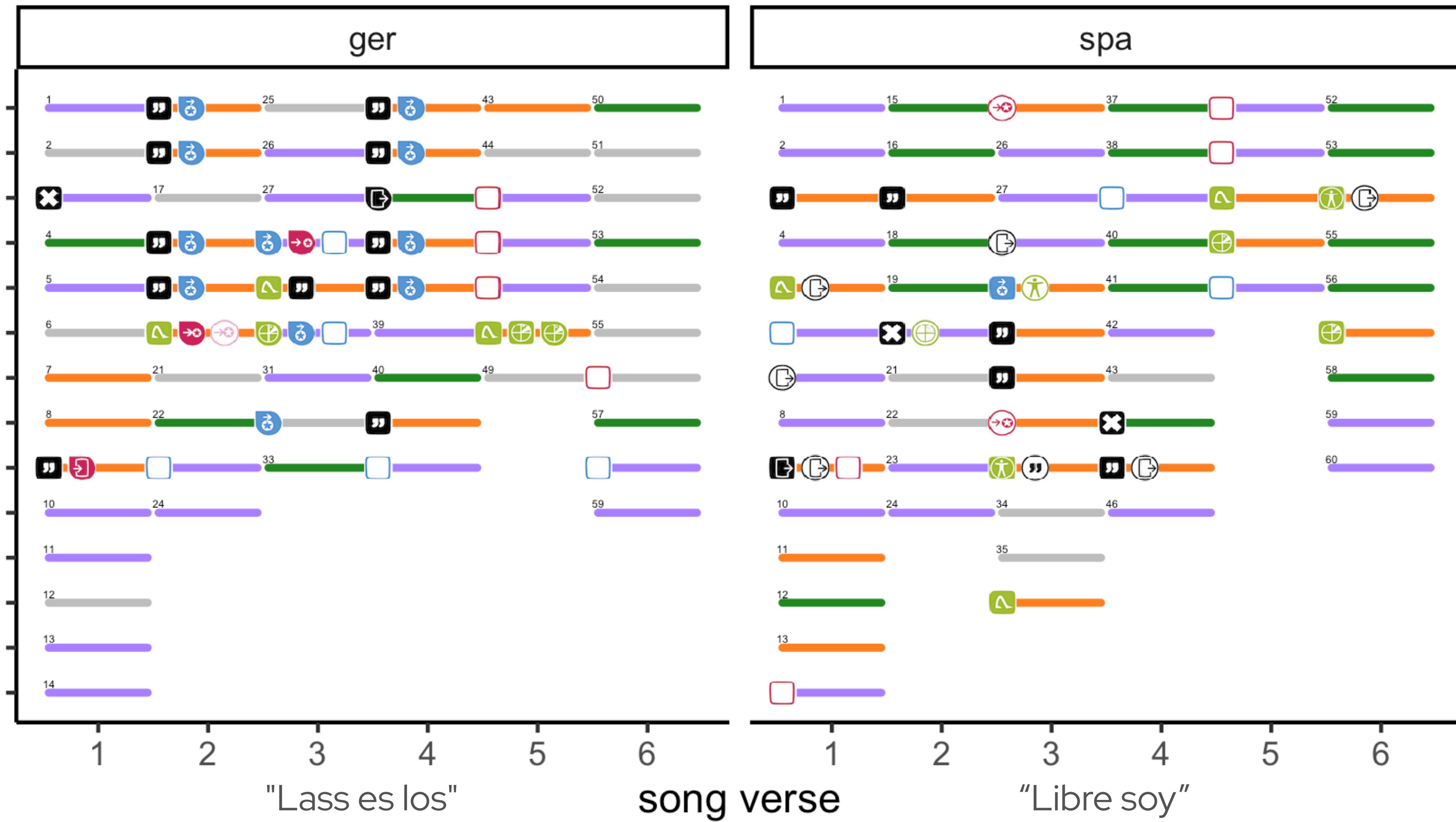
a pedagogical tool

DESKTOP PROJECT

- Hands on visual exploration of linguistic data in class
- Helps students to think abstractly
- Even suitable for virtual teaching



Disney
FROZEN



thanks!

Find us at:

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- @bluehermitcrab | renatedelucchi@gmail.com

