LOWER LITERACY:
IT'S NOT THE USER, IT'S THE PRODUCT

A11yNYC Meetup · June 4, 2019

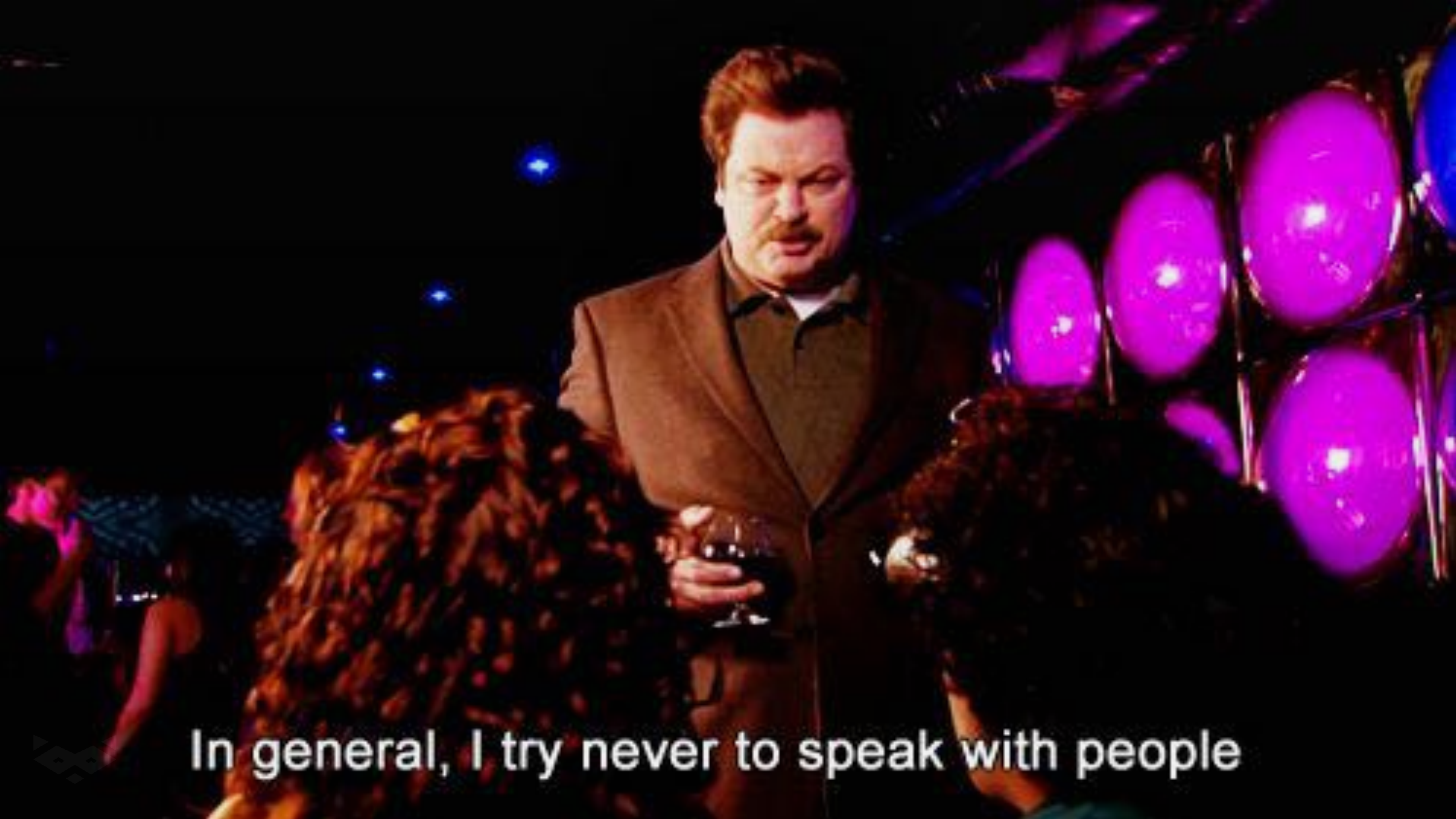# Hi! 👋
I'm Damien.

Hi! 👋

I'm **Damien**.

I am a **digital designer**,
specialised in **accessibility**.

I work for **Castor EDC** in Amsterdam
as a **Design systems & Accessibility Lead**.

Oh, and I use **they/them** pronouns.

In general, I try never to speak with people

Also, good to know:

The slides of this talk are available:

https://speaking.raccoon.studio/ZIbn9M

So! Let's talk about **readability**.

But first,
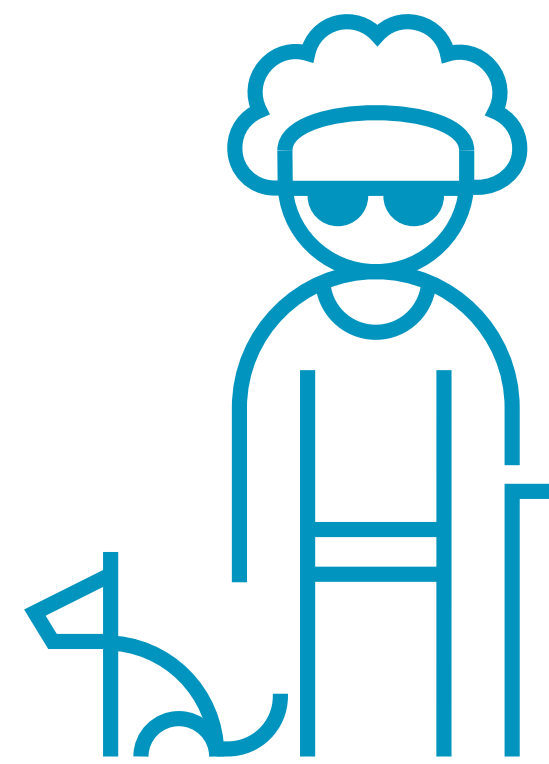# why?

Reading is not an easy thing.

The Web is mainly text-based
And a text is not accessible per se.

There is **two** groups of reading impairments

Vision impairments

Blindness

**Eye infection
Hay's fever**

**Visual
distraction**

Microsoft icons

Cognitive impairments

**Dyslexia
Hyperlexia
(Autism/ADHD)**

Fluency

**Stressful
context**

Microsoft icons

A quick focus on
dyslexia

± 10% of the global population is having a degree of dyslexia.

World Health Organization, 2011
Dyslexia Research Trust, 2014
University of Gothenburg, Sahlgrenska Academy, 2014
United Kingdom NHS, 2017

43% of the U.S. population has low-literacy.

U.S. Department of Education's National Assessment of Adult Literacy, 2013

Commonly associated with
ADHD, autism or dyscalculia.

Not always since childhood:
it can appear after traumatic brain injuries and strokes.

Dyslexia is not only about reading.

Studies show that improving readability for dyslexic users improve the experience for all.

Ten guidelines for improving accessibility for people with dyslexia.
V. Zarach – CETIS University of Wales Bangor, 2012

How do we read?

Reading is **about sounds**.
Reading is **about music**.

Reading is mainly
a phonological process.

The reading experience depends
a lot of the context & environment

Reading is not linear,
we are reading by *saccades*.

And between each saccades,
we have something called *fixation*.

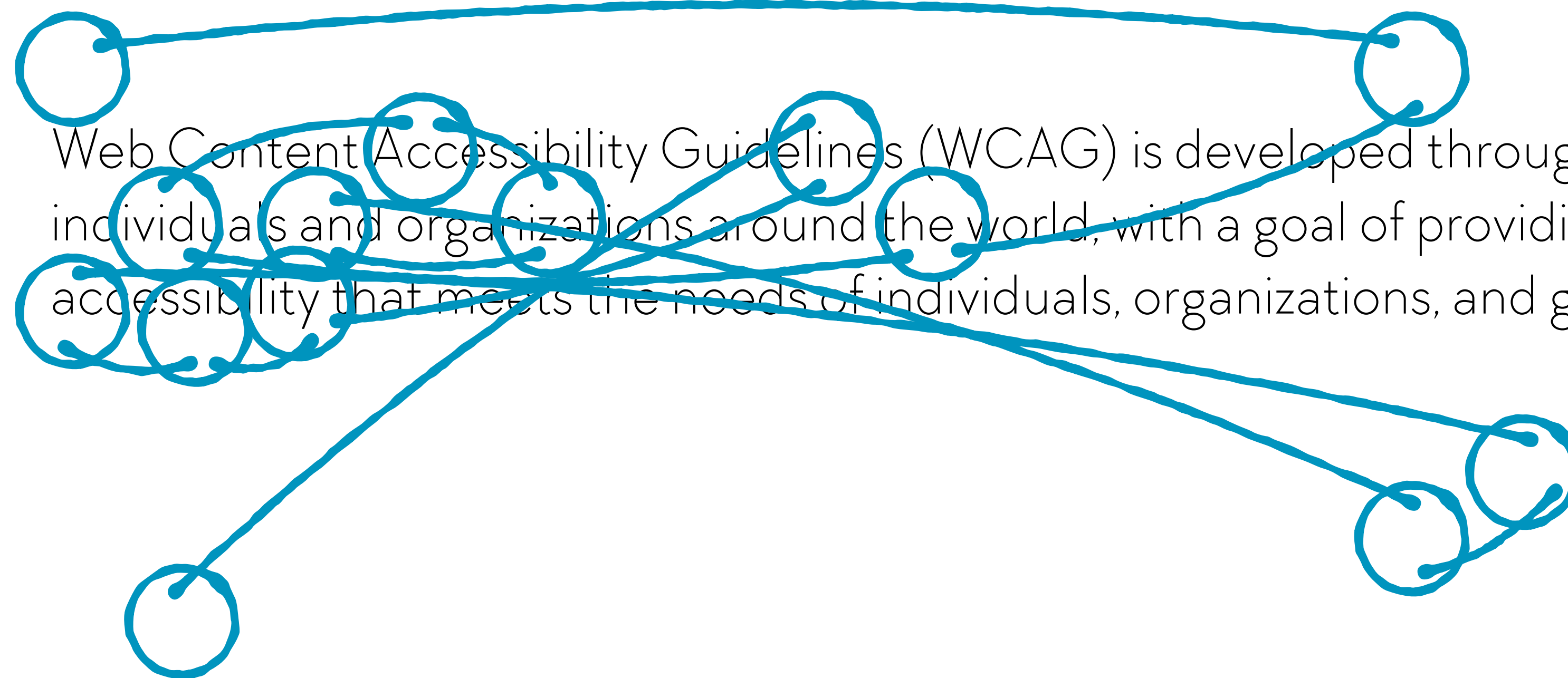# During a fixation, everything except the focus is blurry.

And every few fixations, we need a small break.

The **size of our saccades** and the **duration of fixations** depend of the type of reading.

When browsing websites, we are mainly using our **exploratory reading pattern**.

Web Content Accessibility Guidelines (WCAG) is developed through the W3C process in coopera[tion with] individuals and organizations around the world, with a goal of providing a single shared standard for [web] accessibility that meets the needs of individuals, organizations, and governments internationally.

We are **first analysing the paragraph** before starting to read.

On a screen, we are **not reading in a word-by-word manner**.

Yuo cna porbalby raed tihs esaliy desptie teh msispeillgns.

You can probably read this easily despite the misspellings.

This is possible thanks to letters' *identifying features*

These identifying features allow us to read more easily.

Readability

READABILITY

PRINT

CITE

Since it opened in 2006, the 9/11 Tribute Center in Lower Manhattan has welcomed 4 million visitors, creating insight into the area during impact of 9/11, 2001. Supported by family members who lost loved ones, first responders, rescue and recovery workers, longtime Lower Manhattan residents and other trained volunteers tell their stories in the hopes of providing a greater understanding of the impact of 9/11, as well as the ongoing recovery and resilience of New York City. We asked five of those volunteers to share some of their thoughts, including how 9/11 changed them, what they want people to remember and what advice they would give future generations.

- Joan Mastropaolo was in Jersey City, New Jersey, on 9/11, and later worked with plane crash survivors from one of the towers. Her husband (who survived) was a firefighter with the New York City Fire Department. Paul was just blocks from the World Trade Center when tragedy struck, aboard one member of the Tribute Center.

- Matt Crawford, whose brother, an engineer with the Fire Department of New York (FDNY), was killed when the twin towers collapsed on 9/11. Crawford also worked on the construction of the new World Trade Center plaza.

- Dave Hood, who is an attorney for the Port Authority of New York & New Jersey, was on the 68th floor of the South Tower when the plane hit it on 9/11.

- Paul Ianelli, a detective with the Brooklyn South Narcotics division of the New York Police Department (NYPD), took a ferry to Lower Manhattan from Bay Ridge, Brooklyn, with his fellow officers to get to the World Trade Center on 9/11. He then spent months working on the recovery effort.

- Dave Powers was the Director of Readiness Analysis for the Navy Headquarters at the Pentagon. On 9/11, he walked seven miles to get home to his wife and children in the suburb of Washington, D.C. where they lived.

Looking back at the past 10 years, what has stayed the same for New Yorkers since 9/11 and what has changed?

Matt Crawford: I think what has stayed the same for New Yorkers is the rush-rush, fast-ish mindset. We adapted pretty quickly back to that get it done, get to where you're going mentality. I believe what has changed, though, is the fact that if a New Yorker slows down and takes a minute to think about September 11, obviously they will remember the horrible events of that day, but that will be

Readability
101.

↑ 🧳 Baggage hall | 🚶 Exit

✈ Gates **BDEFGH**

✈ Gates **C**21-26

🔄 Transfer **T2-9**

Understandable even without knowledge of the language

Good visual information architecture

Gate C5

Size clearly adapted to the context

Baggage hall | Exit
Gates BDEFGH
Gates C21-26
Transfer T2-9

Gate C5

Icons, hierarchy & wording consistency across the whole journey

credits: Mijksenaar

The 4C of readability
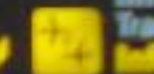
Continuity: repetition of the information until the endpoint

Conspicuity: being easily seen or noticeable, attract people's attention

Consistency: keeping the same wording along the way

Clarity: the message needs to be clearly understandable

Thanks Paul Mijksenaar 👍

Readability
& web content.

1.

First, Open Dyslexia
is not a solution.

There is **no one-fits-all** solution.

So what?

2.

Micro-typography

A good **contrast** is primordial.

But too much **contrast** can create a **blur effect**.

But too much **contrast**
can create a **blur effect**.

Try shades of black for chars, and beige for backgrounds.

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics
L Rello, G Kanvinde, R Baeza-Yates – Proceedings of the international ..., 2012 – dl.acm.org

Font types have an impact on readability of dyslexic folks.

Good Fonts for Dyslexia

L Rello, R Baeza-Yates – Proceedings of the 15th international ACM, 2013 – dl.acm.org

Sans-serif are the most readable fonts, especially Helvetica, Courier and Arial.

Sans-serif, **roman** and **monospaced** fonts increase reading performance.

Italic fonts are doing the opposite.

The most optimal font-size is somewhere around 14 pt.

An eye tracking study of how font size, font type, and pictures influence online reading.
D. Beymer, D. M. Russell, and P. Z. Orton – Proceedings INTERACT 2007, pages 456–460, 2007.

Size Matters (Spacing not): 18 Points for a Dyslexic–friendly Wikipedia
L Rello, M Pielot, MC Marcos, R Carlini – Proceedings of the 10th ..., 2013 – dl.acm.org
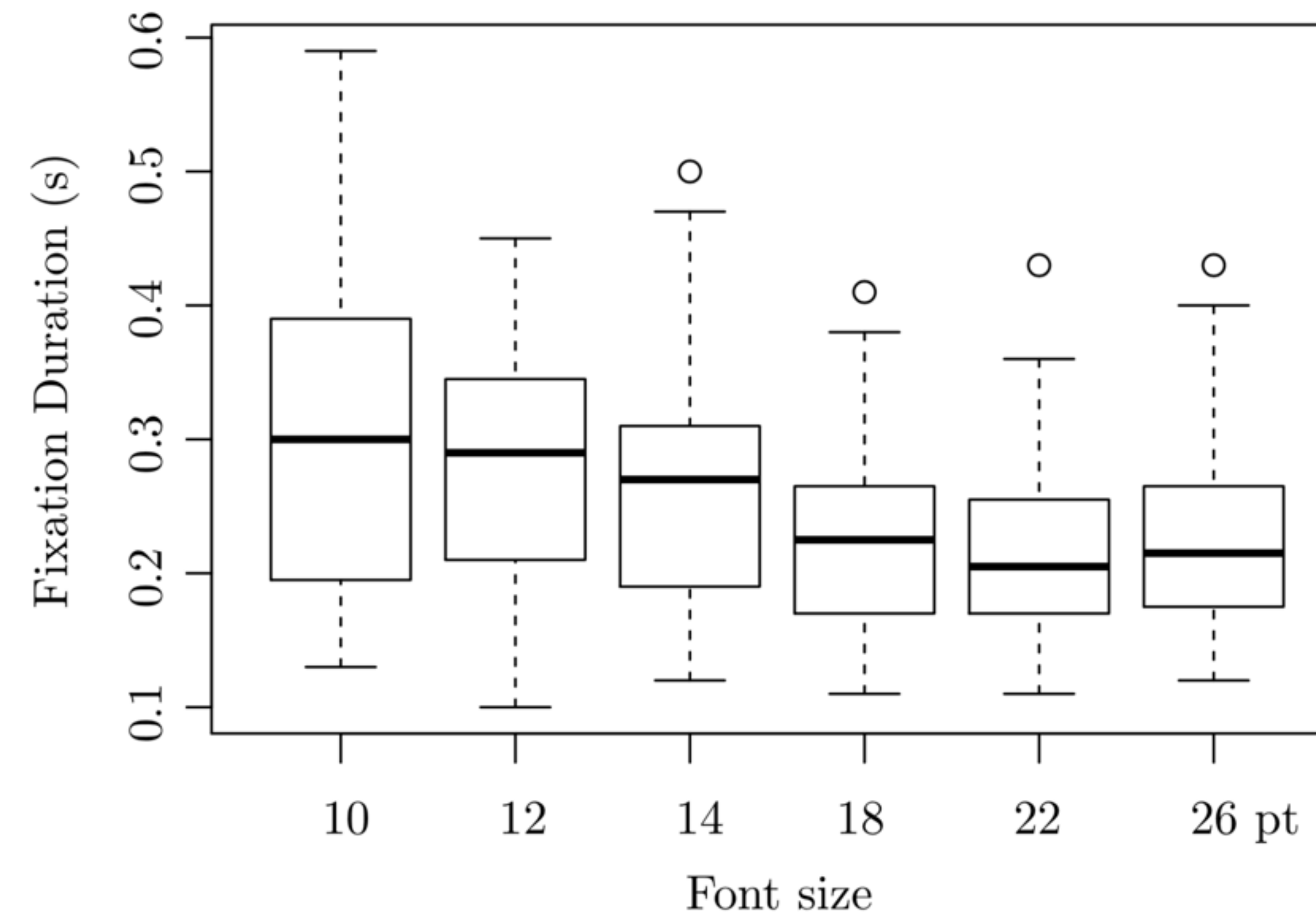
Size Matters (Spacing not): 18 Points for a Dyslexic–friendly Wikipedia
L Rello, M Pielot, MC Marcos, R Carlini – Proceedings of the 10th …, 2013 – dl.acm.org

Line-spacing appears to have few impact on readability.

Size Matters (Spacing not): 18 Points for a Dyslexic–friendly Wikipedia
L Rello, M Pielot, MC Marcos, R Carlini – Proceedings of the 10th ..., 2013 – dl.acm.org

The results can be summarised as size matters, spacing doesn't.

— Luz Rello

Web Research Group & NLP Research Group
Universitat Pompeu Fabra Barcelona, Spain

Spacing doesn't matter...
except when it does.

White space is your best friend.
We need resting space.

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics
L Rello, G Kanvinde, R Baeza–Yates – Proceedings of the international …, 2012 – dl.acm.org

Dyslexic-friendly guidelines for web text:

Line spacing: 1.4
Paragraph spacing: 2

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics
L Rello, G Kanvinde, R Baeza-Yates – Proceedings of the international ..., 2012 – dl.acm.org

Column width is complex:
Narrower is better for readability,
Wider is decreasing the perception of complexity.

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics
L Rello, G Kanvinde, R Baeza-Yates – Proceedings of the international ..., 2012 – dl.acm.org

Column width is complex:
A good compromise is **around 75-80 chars per line**.

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics
L Rello, G Kanvinde, R Baeza-Yates – Proceedings of the international ..., 2012 – dl.acm.org

Use **bold and colours** for important content

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics
L Rello, G Kanvinde, R Baeza–Yates – Proceedings of the international ..., 2012 – dl.acm.org

Avoid underlining and italics,

these tend to make the text appear to run together.

British Dyslexia Association Guidelines for Web Design, 2019

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics
L Rello, G Kanvinde, R Baeza–Yates – Proceedings of the international …, 2012 – dl.acm.org

Avoid text in uppercase or small caps, it is less familiar to the user and harder to read.

British Dyslexia Association Guidelines for Web Design, 2019

When reading a paragraph,
users should be able to highlight text.

Avoid the use of too generic content, be specific for links

3.

Macro-typography & Layout

Layout Guidelines for Web Text and a Web Service to Improve Accessibility for Dyslexics

L Rello, G Kanvinde, R Baeza-Yates – Proceedings of the international ..., 2012 – dl.acm.org

Text alignment is super important.

Left-align text in left-to-right languages.

Avoid justification and centered-text.

Multi-columns content can be confusing.

Group small related content
with a strong visual system

Heading & Information hierarchy

Always include the **most important** points in the **first two paragraphs**.

Start headings with the words carrying most information

Break up the content
with regular section headings.

Offer an outline and a summary for long content.

Basically,
use HTML and design accordingly.

(yeah, *dl* exists and it's amazing)

Keeping consistent layout motivates our users to read more when looking for an information.

Users should have two ways to access an information.

4.

Adopt an inclusive writing-style

Use active voice rather than passive voice.

Use short & simple sentences in a direct style.

Use images, graphics & rich media to support your content.

A list is always clearer than a paragraph.

Avoid abbreviations, domain-specific jargon and double negatives.

5.

Propose distraction-free experiences

trouve ton auto .fr

Mandataire Auto Neuve et Voiture d'Occasion avec Trouve Ton Auto

ANNONCES   GUIDE D'ACHAT   ANNUAIRE DES PROS   SERVICES

Quel type de véhicule vous recherchez ?

OCCASIONS   NEUFS

Taper votre recherche marque ou modèle

KM   ANNÉE   PRIX   RECHERCHER

3884

ANNONCES DISPONIBLES

Recherchez vite la votre !

You know... this kind of really useful distractions
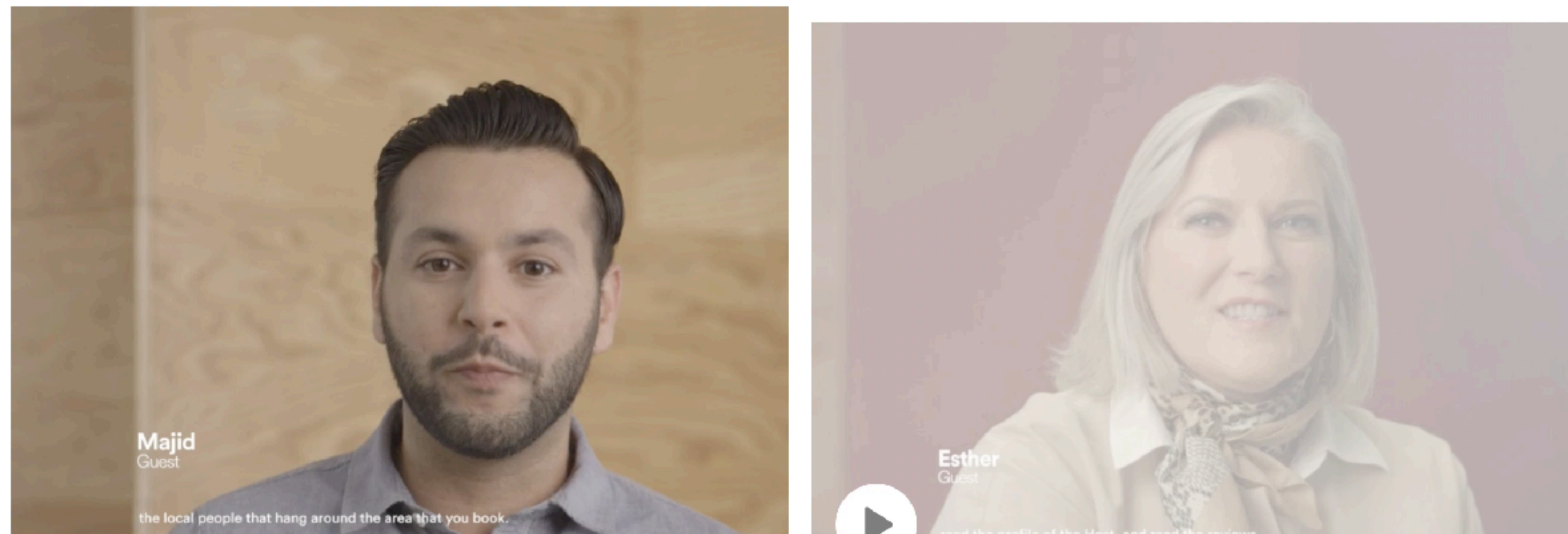
In general, I try never to speak with people

Rather a challenge than routine.

If you want to jointly overcome all before us, we are on the best path to cooperation.

WHAT IS OUR CLIENT LIKE

And please... do not make assumption on the time needed by a user to read a content.

bonus

The last, but not the least...

bonus

✂️

bonus

It's time to **remove unnecessary** content.

How to **experiment** with your projects?

Using recording tools showing
mouse position heat-maps

You can learn what is catchy and how to optimise a page

Using a screen reader
and tools like the Web Rotor.

Headings

1: Hi!Hej!Bonjour ! I am Damien, digital designerand...
2: How may I help you?
3: Building interfaces with inclusivity in mind
3: Bringing accessibility in your work & workflow
3: Raising awareness on accessibility & inclusivity
6: Let's discuss together?

Hi! Hej! Bo

I am Damie
and accessi

✕ heading level 1 10 items Hi! Hej! Bonjour ! I am Damien , digital designer and accessibility advocate .
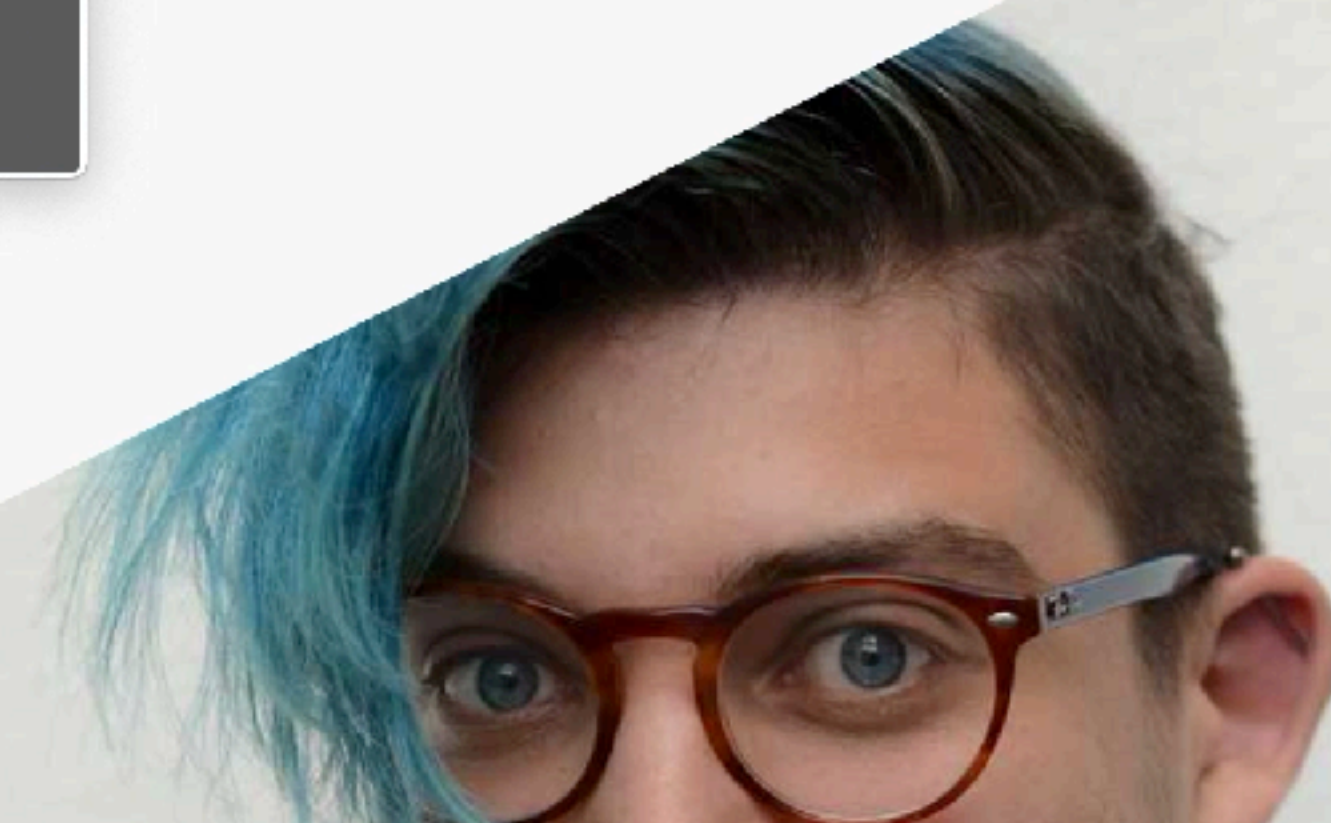
Calculate your **readability score**

Your Results:

Your text: Our interfaces can make people sick This story ...(show all text)

Flesch Reading Ease score: 40.2 (text scale)
Flesch Reading Ease scored your text: difficult to read.
[f] | [a] | [r]

Gunning Fog: 15.9 (text scale)
Gunning Fog scored your text: difficult to read.
[f] | [a] | [r]

Flesch-Kincaid Grade Level: 12.7
Grade level: College.
[f] | [a] | [r]

The Coleman-Liau Index: 12
Grade level: Twelfth Grade
[f] | [a] | [r]

The SMOG Index: 11.6
Grade level: Twelfth Grade
[f] | [a] | [r]

Automated Readability Index: 12.8
Grade level: 18-19 yrs. old (college level entry)
[f] | [a] | [r]

Linsear Write Formula : 14.2
Grade level: College.
[f] | [a] | [r]

Readability Consensus
Based on 8 readability formulas, we have scored your text:
Grade Level: 13
Reading Level: difficult to read.
Reader's Age: 18-19 yrs. old (college level entry)

A series of algorithms exist to help you understand the readability of your content.

# Some good examples.

Download Full Report

DESIGN COMPONENTS

Symbols are becoming a design standard

In April 2016, Sketch re-introduced Symbols to save designers more time.

- Sketch files saw 7.6x growth of Symbols usage
- Even Adobe Xd and Affinity Designer have introduced Symbols to keep up the pace

Learn more

Insert

Amy
Hello
A1

John
Hello
A

Alex
Hello
A2

Carl
Hello
A3
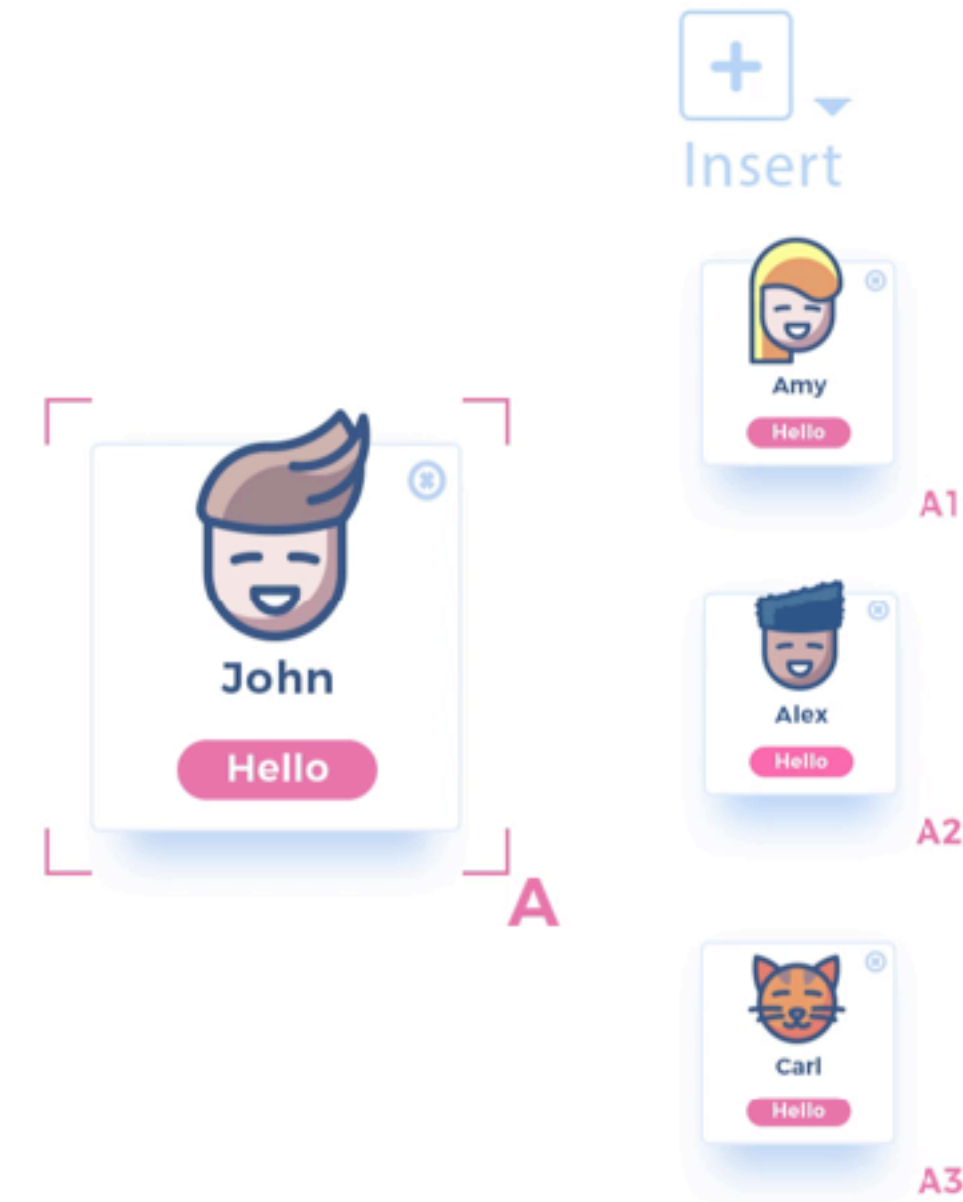
Illustrated by **Benjamin Bely**

Definitely not perfect (😅), but interesting and distraction-limited experience.

SMASHING MAGAZINE

Articles
Design & development

Books
Physical & digital books

Events
Conferences & workshops

Jobs
Find work & employees

Membership
Webinars & early-birds

Topics

OUR ENCHANTING

Smashing Articles

All Smashing Magazine's articles, sorted chronologically. Over 11 years, we've published 2137 articles, written by 229 hard-working authors. Still counting.

Dhimil Gosalia wrote

Building A Pub/Sub Service In-House Using Node.js And Redis

JUNE 12, 2018 — As the size of data for each message in our system differs from a few bytes to up to 100MB, we needed a scalable solution that could support a multitude of scenarios. In this article, Dhimil Gosalia explains why you should consider building an in-house Pub/Sub service, too.

11 min read

Leave a comment

Read More…

Smashing Mag is not afraid using **bold** and **big font-sizes**

Even in ecommerce: a nice & readable design is a must-have for webshop

Merci beaucoup ! 🇫🇷
Thank you! 🇬🇧

Tack! 🇸🇪
Bedankt! 🇳🇱

@iamhiwelo

Damien Senger

Digital designer, specialised in accessibility.

raccoon.studio · noti.st/hiwelo

@iamhiwelo