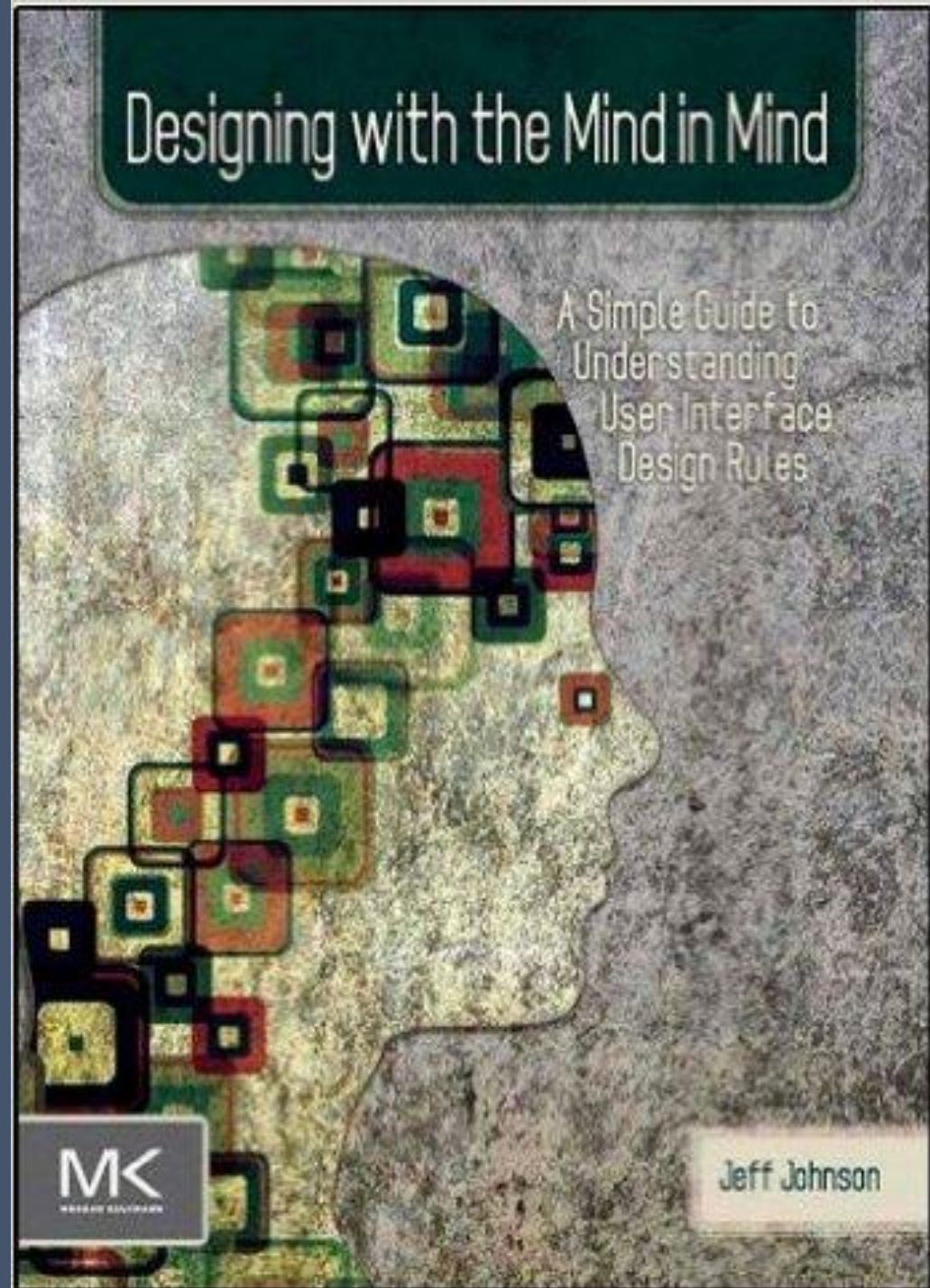# HCI: NAVIGATION AND ACCESSABILITY

Dr Kami Vaniea

First, the news…

- The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information

- https://en.wikipedia.org/wiki/The_Magical_Number_Seven%2C_Plus_or_Minus_Two

Many of the examples in this lecture are drawn from this book

Designing with the Mind in Mind

A Simple Guide to Understanding User Interface Design Rules

MK

Jeff Johnson

Thursday we discussed website layout

The website to the right is an example of how structure can be used to help users scan and find information

Predatory Loans

Most mortgage professionals are trustworthy and provide a valuable service, helping you to buy or refinance your home. But dishonest or "predatory" lenders do exist and engage in practices that increase the chances of borrowers losing their homes to foreclosure. To avoid becoming a victim of predatory lending, you need to understand the process to buy a home and be a smart consumer.

What Is Predatory Lending?

Predatory lenders, appraisers, mortgage brokers and home improvement contractors could use any of these tactics to take away your home or investments:

- Sell properties for much more than they are worth using false appraisals.
- Encourage borrowers to lie about their income, expenses, or cash available for down payments in order to get a loan.
- Knowingly lend more money than a borrower can afford to repay.
- Charge high interest rates to borrowers based on their race or national origin and not on their credit history.
- Charge fees for unnecessary or nonexistent products and services.

Avoid Predatory Loans by Being a Smart Consumer

To avoid becoming a victim of predatory lending, follow these guidelines:

- Before you buy a home, attend a homeownership education course offered by a U.S. Department of Housing and Urban Development (HUD)-approved, non-profit counseling agency.
- Interview several real estate professionals (agents), and ask for and check references before you select one to help you buy or sell a home.
- Get information about the prices of other homes in the neighborhood. Don't be fooled into paying too much.
- Hire a qualified and licensed home inspector to carefully inspect the property before you are obligated to buy. Determine whether you or the seller will be responsible for paying for the repairs.
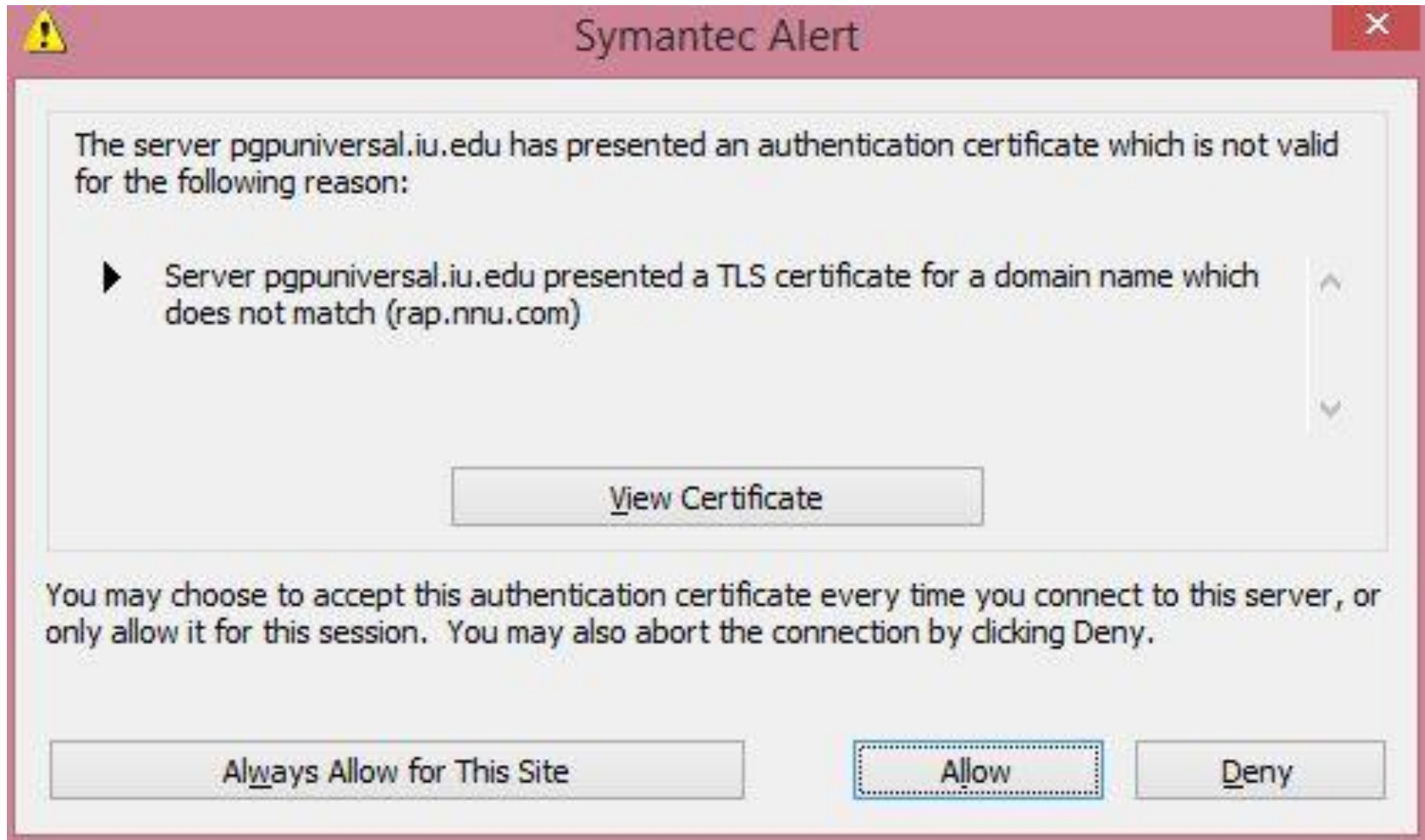- Shop for a lender and compare costs. Be suspicious if anyone tries to steer you to just one lender.

If you believe you have been a victim of predatory lending, you can find a list of federal, state, and local resources at the HUD Office of Housing Counseling.

https://www.usa.gov/mortgages

5

Now lets talk about some of the basics of displaying text

Common issues with text

- Uncommon or unfamiliar vocabulary
- Difficult scripts and typefaces
- Tiny fonts
- Text on noisy backgrounds
- Information buried in repetition
- Centered text
- Too much text (You can usually delete half of most text)

Uncommon or unfamiliar vocabulary

Symantec Alert

The server pgpuniversal.iu.edu has presented an authentication certificate which is not valid for the following reason:

▶ Server pgpuniversal.iu.edu presented a TLS certificate for a domain name which does not match (rap.nnu.com)

[View Certificate]

You may choose to accept this authentication certificate every time you connect to this server, or only allow it for this session. You may also abort the connection by clicking Deny.

[Always Allow for This Site] [Allow] [Deny]

8

Difficult scripts and typefaces

Some example text from
usa.gov/mortgages

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Difficult scripts and typefaces

All capitals is hard to read because it prevents scanning

PREDATORY LOANS

MOST MORTGAGE PROFESSIONALS ARE TRUSTWORTHY AND PROVIDE A VALUABLE SERVICE, HELPING YOU TO BUY OR REFINANCE YOUR HOME. BUT DISHONEST OR "PREDATORY" LENDERS DO EXIST AND ENGAGE IN PRACTICES THAT INCREASE THE CHANCES OF BORROWERS LOSING THEIR HOMES TO FORECLOSURE. TO AVOID BECOMING A VICTIM OF PREDATORY LENDING, YOU NEED TO UNDERSTAND THE PROCESS TO BUY A HOME AND BE A SMART CONSUMER.
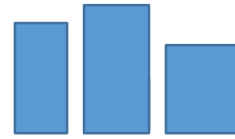
WHAT IS PREDATORY LENDING?

PREDATORY LENDERS, APPRAISERS, MORTGAGE BROKERS AND HOME IMPROVEMENT CONTRACTORS COULD USE ANY OF THESE TACTICS TO TAKE AWAY YOUR HOME OR INVESTMENTS:

- SELL PROPERTIES FOR MUCH MORE THAN THEY ARE WORTH USING FALSE APPRAISALS.
- ENCOURAGE BORROWERS TO LIE ABOUT THEIR INCOME, EXPENSES, OR CASH AVAILABLE FOR DOWN PAYMENTS IN ORDER TO GET A LOAN.

Consider this shape

What word is it?

Difficult scripts and typefaces

Some fonts are easy to read

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Difficult scripts and typefaces

Weird fonts make reading super complex.

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Tiny fonts

Worse than tiny fonts are tiny fonts that cannot be enlarged

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Text on noisy backgrounds

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Information buried in repetition

The options all start and end with the same words making the text hard to read

Keyboard and Documentation

Configure your MacBook with the following language options along with the language of the included user documentation.

- ○ Backlit Keyboard (English) / User's Guide
- ○ Backlit Keyboard (Western Spanish) / User's Guide
- ○ Backlit Keyboard (French) / User's Guide
- ○ Backlit Keyboard (Japanese) / User's Guide

Information buried in repetition

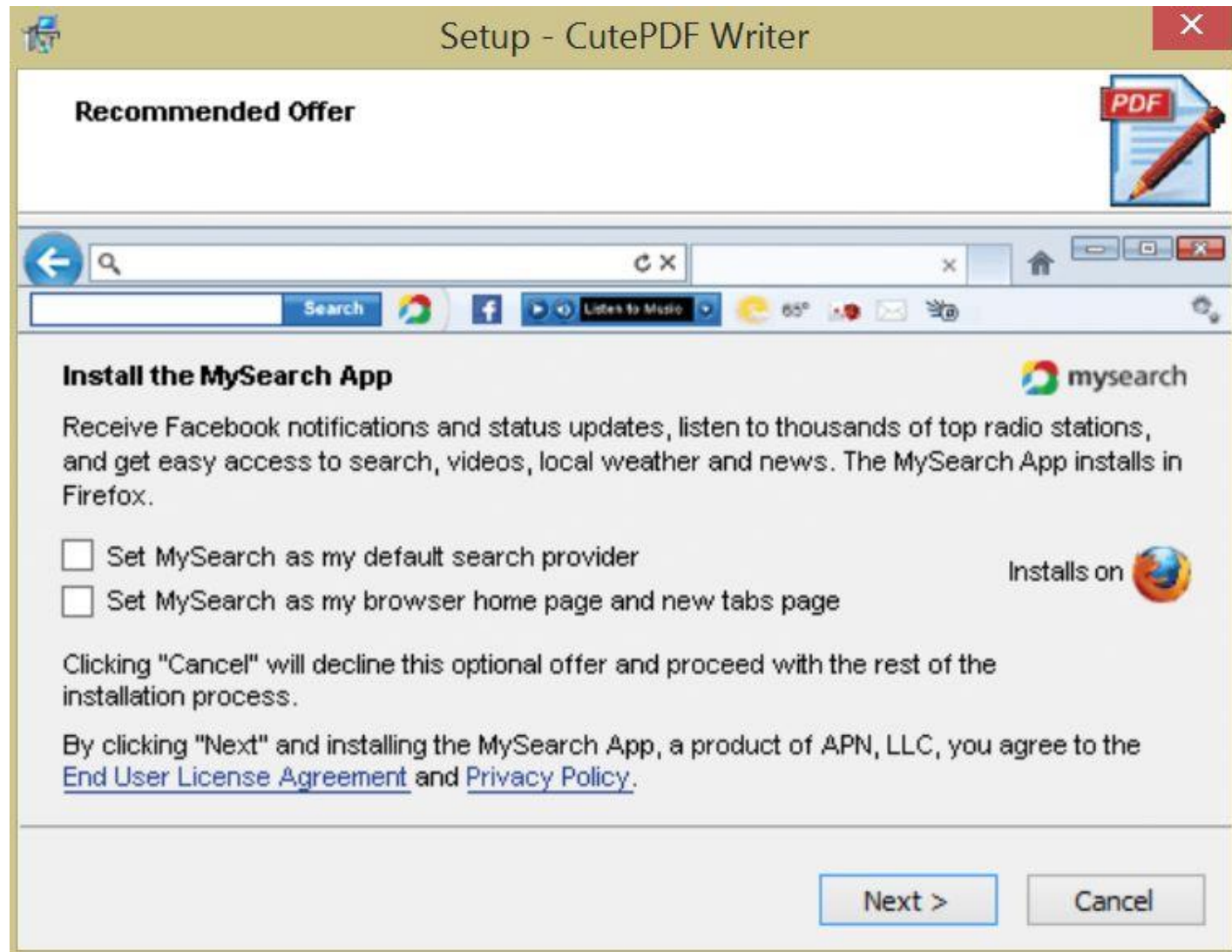Pull the repeated text out and only say it once

Keyboard and Documentation

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Backlit Keyboard and User's Guide in:

○ English

○ Western Spanish

○ French

○ Japanese

Information buried in repetition

Centered text

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Think-pair-share

- I will show three web pages for 20 seconds each
- Answer the following questions about the site:
  - What site is this?
  - What is the purpose of this site?
  - Any errors
  - Any good elements

Philip Wadler's home page

Contact details
Wadler's Blog
Towards Independence
@PhilipWadler
Links
ABCD
Haskell
JFP
FP in the real world
SPLS
Computational Thinking and Outreach

Projects

Interested in applying for a PhD or Internship?

From Data Types to Session Types: A Basis for Concurrency and Distribution, an EPSRC Programme Grant, joint with Simon Gay, Glasgow, and Nobuko Yoshida, Imperial.

TypeScript: The Next Generation funded by a Microsoft Research PhD Scholarship.

Centre for Doctoral Training in Pervasive Parallelism, studentships available for cohort starting September 2016.

Currently:

- Professor of Theoretical Computer Science, Laboratory for Foundations of Computer Science, School of Informatics, University of Edinburgh (2003—).
- ACM Special Interest Group on Programming Languages, Chair (2009-2012), Past Chair (2012-2015).

http://homepages.inf.ed.ac.uk/wadler/

SpeechTrans

≡   🛒 0   🔍   Redesign ⌄

‹   ›

SpeechTrans Smartwatch
Version 4 Quad Core
$199.00 / 365 days / year

SpeechTrans Bluetooth
Wristband
$99.00 / 365 days

SpeechTrans Wireless
Translating Bluetooth
Headphones Earbuds
$149.00 / 365 days / year

● ○

Microsoft
NOKIA
NUANCE n·g
DELL intel
hp invent

Download now from the
App Store and Google
play

Available on the App Store

ANDROID APP ON Google play

Schedule a meeting

📅
Get A Quote

Cole Automotive Group

Everything You Want - Cole's Got It!

Search New ▾   Search Used ▾   Service & Parts ▾

i.e. White Nissan Altima

857 New Vehicles   **1304** Total Vehicles   **73** Certified Pre-Owned

Our Reviews

Google *Aug 29, 2016*
★★★★★

Great salesman. Honest

Read more at Google

http://www.coleautomotive.com/

The human eye is really good at seeing some things and bad at others

They eye is the most detailed at its center, where your focus is.

On the edges things are blurry, but you can easily see movement.
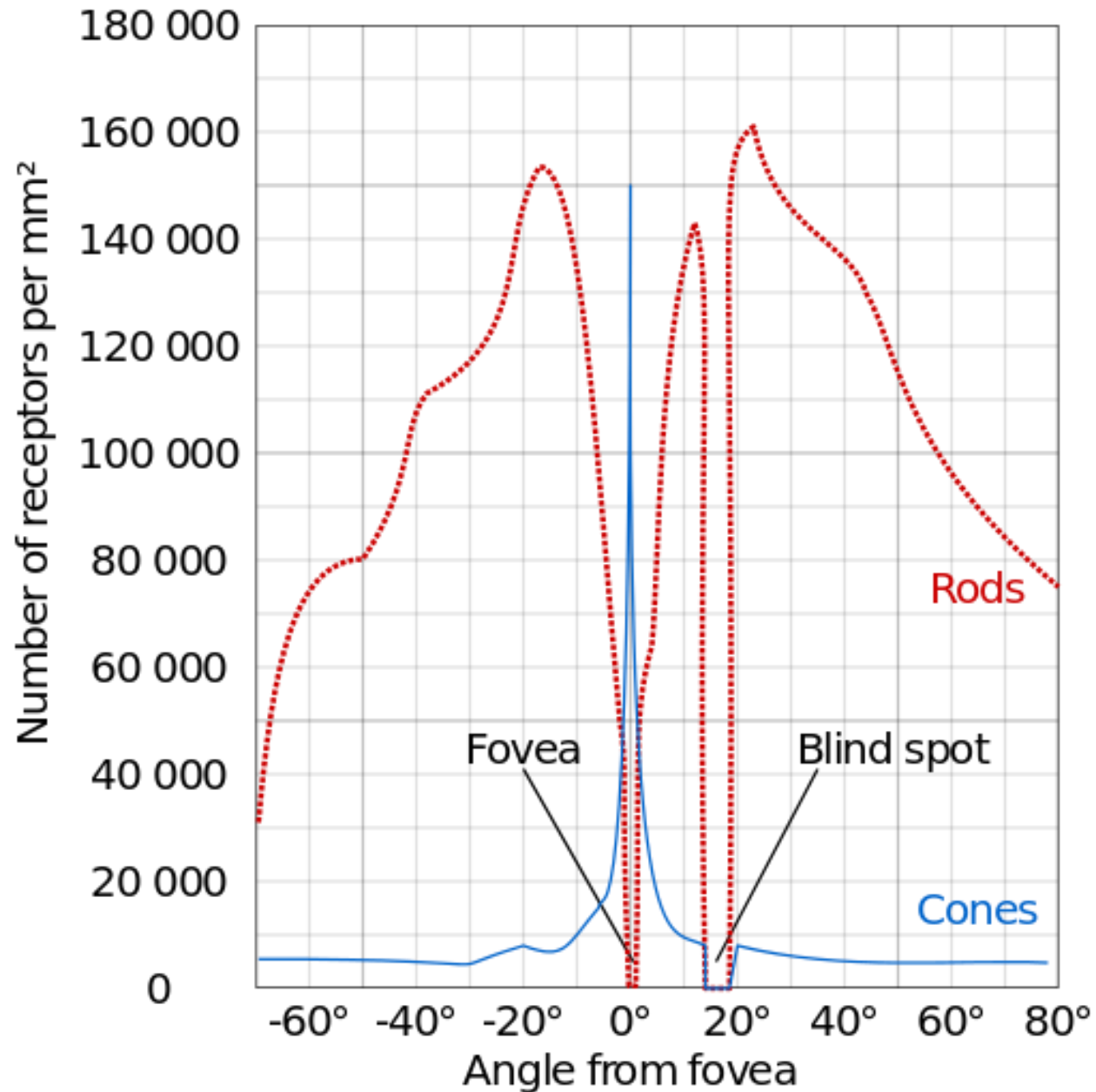
They eye is the most detailed at its center, where your focus is.

On the edges things are blurry, but you can easily see movement.

People only tend to see what they are looking at.

The human eye is built to see different things at different points

Accessability

Pair-share

- I am about to show you a website
- Is it accessible to sight impaired people?
- Why or why not?

Welcome to the BBC
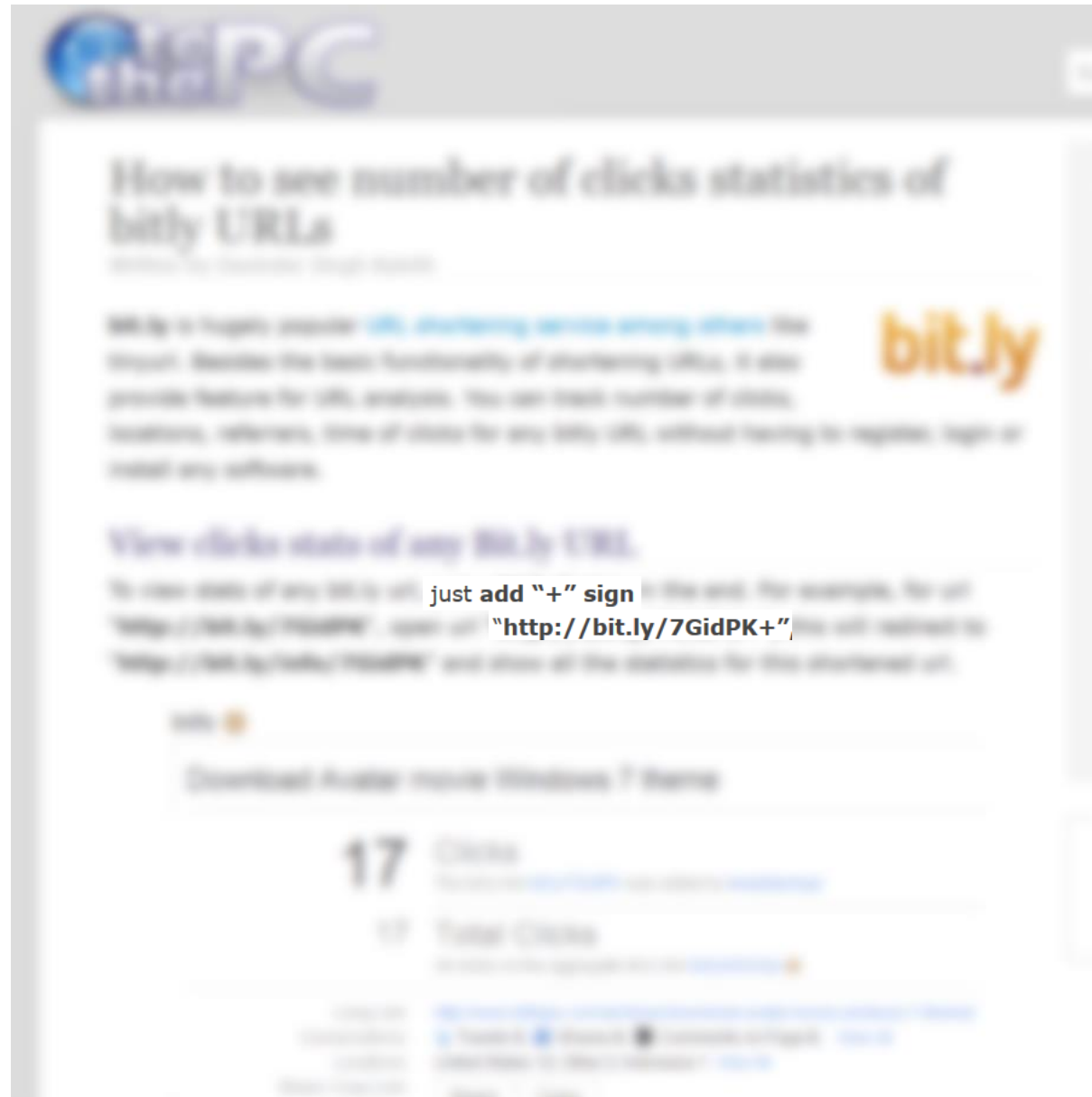Sunday, 13 November

⚙ **Customise your Homepage**

Remembrance Sunday: Services honour war dead
UK

Tsunami hits after powerful New Zealand quake
ASIA

LIVE ### England face Australia in crucial Four Nations match
RUGBY LEAGUE

News headlines >

Nato chief's warning for Trump
US ELECTION 2016

France 'to extend state of emergency'
EUROPE

Iraq 'retakes ancient Nimrud from IS'
MIDDLE EAST

Sport headlines >   ✕

England draw Test as India cling on
CRICKET

Will Rosberg win the battle in Brazil?
FORMULA 1

Murray wants to end season 'on a high note'
TENNIS

35

Basic stuff

- Add appropriate alt text to every image
- Use headings correctly
- Make your forms work with screen readers
- Use a "Skip to Main Content" link at the beginning of each page
- Make all content accessible by keyboard
- Create significant contrast between your text and background
- Use an accessible template

Welcome to the BBC
Sunday, 13 November

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UK

Tsunami hits after powerful New Zealand quake
ASIA

🔴 LIVE **England face Australia in crucial Four Nations match**
RUGBY LEAGUE

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Sport headlines > ✕

England draw Test as India cling on
CRICKET

Will Rosberg win the battle in Brazil?
FORMULA 1

Murray wants to end season 'on a high note'
TENNIS

37

Add appropriate alt text to images


```
▼<div class="col-sm-7 col-md-8">
   <img src="/sites/all/themes/uoe/assets/logo.png" alt="The
   University of Edinburgh home">
</div>
```

Lets look at how the BBC website handles accessibility

Demo using Windows' default narrator

Fangs output for: BBC - Home

Reload Preferences

Help and tutorial

Screen reader output | Headings list | Links list

Screen reader output

Page has ninety-six headings and one hundred fifty-one links BBC dash Home dash Internet Explorer Link Homepage Heading level two Accessibility links List of two items bullet This page link Skip to content bullet Link Accessibility Help List end Link Sign in This page link Notifications List of nineteen items bullet Link News bullet Link Sport bullet Link Weather bullet Link iPlayer bullet Link TV bullet Link Radio bullet bullet bullet bullet bullet bullet bullet bullet bullet bullet bullet bullet bullet This page link More List end Link Search the BBC Edit Search the BBC Heading level one BBC Homepage Heading level two Welcome to the BBC Sunday, thirteen November Link Customise your Homepage Sign in with your BBC ID, or Register to see Weather, Local News and more. Link Sign in with your BBC iD, or Link Register to see Weather, Local News and more Link Heading level three Remembrance Sunday colon Services honour war dead From UK Link Heading level three Tsunami hits after powerful New Zealand quake From Asia Link Heading level three England face Australia in crucial Four Nations match . Live now. From Rugby League Link Heading level two News headlines Link Heading level three Nato chief's warning for Trump From US Election two thousand sixteen Link Heading level three France 'to extend state of emergency' From Europe Link Heading level three Iraq 'retakes ancient Nimrud from IS' From Middle East Link Heading level two Sport headlines Link Heading level three England draw Test as India cling on From Cricket Link Heading level three Will Rosberg win the battle in Brazil? From Formula one Link Watch video Heading level three Murray wants to end season 'on a high note' From Tennis Remove Heading level two three things we love today Link Heading level three How the internet reacted to an epic night of dance From BBC One Link Heading level three Hundreds join Walnut the whippet on his final 'walk' From England Link Watch video Heading level three Murray and Djokovic take on the mannequin challenge From Tennis Remove Heading level two Help us make the BBC Homepage better Want to opt in to our alternative page? Find out more Link here Dismiss Link Try it now Heading level two The BBC around the UK List of five items bullet Link Graphic slash pthree hundred six tteight .png Scotland bullet Link Graphic slash pthree hundred six trm.png ALBA bullet Link Graphic slash pthree hundred six tpeight .png Wales bullet Link Graphic slash pthree hundred six tpeight .png Cymru bullet Link Graphic slash pthree hundred six tqc.png NI List end Dismiss Heading level two Real dash life stories Link Listen to audio Heading level three Bataclan survivor colon It's changed me on every single level From BBC Radio five live Link Watch video Heading level three The teacher who has the world's loudest shout From Northern Ireland Link Listen to audio Heading level three Sole survivor 'miracle girl' tells of fatal air crash horror From BBC World Service Remove Heading level two Link Add more sections This

```html
▼<div id="orb-header" class="orb-nav-pri orb-nav-pri-white
  orb-nav-dyn"> ⓔ
  ▼<div class="orb-nav-pri-container b-r b-g-p">
    ▶<div class="orb-nav-section orb-nav-blocks"></div> ⓔ
    ▼<section>
      ▼<div class="orb-skip-links"> ⓔ
          <h2>Accessibility links</h2>
        ▼<ul>
          ▼<li>
              <a href="#hp-bbc-homepage-content">Skip to content</a>
            </li>
          ▼<li>
              <a id="orb-accessibility-help" href="/accessibility/">
              Accessibility Help</a>
            </li>
          </ul>
        </div>
    </section>
    ▶<div id="mybbc-wrapper" class="orb-nav-section orb-nav-id
      orb-nav-focus orb-nav-id-default"></div>
    ▶<nav class="orb-nav" role="navigation" aria-label="BBC"></nav>
    ▶<div class="orb-nav-section orb-nav-search"></div>
      ::after
    </div>
  ▶<div id="orb-panels"></div> ⓔ
    ::after
  </div>
</header>
```

Headers

Skip to content links

Information does not always have to be presented in a literal sense

UNDERGROUND

RAILWAYS OF LONDON

EDGWARE
BURNT OAK (WATLING)
COLINDALE
HENDON CENTRAL
BRENT
GOLDERS GREEN
HAMPSTEAD
BELSIZE PARK
CHALK FARM
CAMDEN TOWN
MORNINGTON CRESCENT
EUSTON

WOOD GREEN
TURNPIKE LANE

EXTENSION TO COCKFOSTERS
UNDER CONSTRUCTION

HIGHGATE
FINSBURY PARK
MANOR HOUSE
GILLESPIE ROAD
TUFNELL PARK
HOLLOWAY ROAD
DRAYTON PARK
KENTISH TOWN
CALEDONIAN ROAD
YORK ROAD
HIGHBURY & ISLINGTON
CANONBURY & ESSEX ROAD

PRESTON ROAD
WEMBLEY PARK
NORTH WEMBLEY
NEASDEN & KINGSBURY
DOLLIS HILL
WILLESDEN GREEN
KILBURN & BRONDESBURY
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
MARLBORO' ROAD
ST JOHNS WOOD
BAKER STREET
GREAT PORTLAND STREET
EUSTON SQUARE
KINGS CROSS ST PANCRAS
ANGEL
OLD STREET

WEMBLEY FOR SUDBURY
SUDBURY TOWN
ALPERTON
STONEBRIDGE PARK
HARLESDEN
KENSAL GREEN
QUEEN'S PARK
KILBURN PARK
MAIDA VALE
MARLYEBONE
WARREN ST
GOODGE ST
RUSSELL SQ
FARRINGDON
ALDERSGATE
MOORGATE

PARK ROYAL
WILLESDEN JUNCTION (NEW STATION)
NORTH ACTON
WESTBOURNE PARK
WARWICK AVENUE
BISHOPS ROAD
REGENTS PARK
EDGWARE ROAD
TOTTENHAM COURT ROAD
BRITISH MUSEUM
CHANCERY LANE
POST OFFICE
LIVERPOOL STREET
ST MARYS

NORTH EALING
WEST ACTON for Hanger Hill
LADBROKE GROVE
ROYAL OAK
PADDINGTON
PRAED ST
OXFORD CIRCUS
HOLBORN
ALDWYCH
MANSION HOUSE
BANK
ALDGATE
ALDGATE EAST
MARK LANE

EALING BROADWAY
EALING COMMON
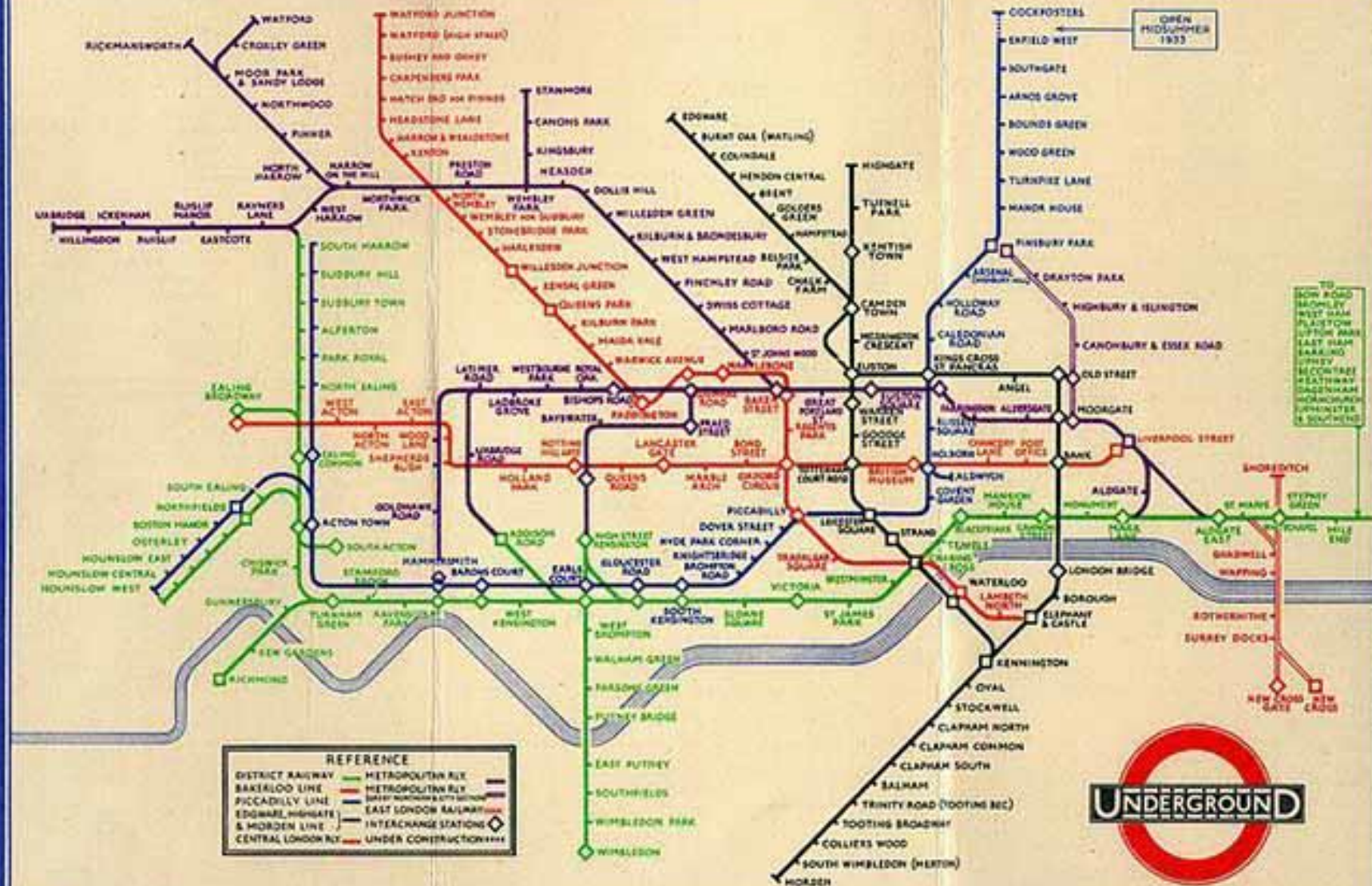LATIMER ROAD
UXBRIDGE ROAD
BAYSWATER
QUEENS ROAD
LANCASTER GATE
MARBLE ARCH
BOND ST
LEICESTER SQUARE
COVENT GARDEN
STRAND
BLACKFRIARS
CANNON STREET
MONUMENT
LONDON BRIDGE

SOUTH EALING
ACTON TOWN
SOUTH ACTON
WOOD LANE
SHEPHERDS BUSH
HOLLAND PARK
NOTTING HILL GATE
PICCADILLY
DOVER ST
DOWN ST
HYDE PARK CORNER
TRAFALGAR SQUARE
CHARING CROSS
STRAND for L.C.C.
WATERLOO
BOROUGH

NORTHFIELDS
GOLDHAWK ROAD
ADDISON ROAD
HIGH STREET KENSINGTON
GLOUCESTER ROAD
KNIGHTSBRIDGE
BROMPTON ROAD
WESTMINSTER
ST JAMES PARK
LAMBETH NORTH
ELEPHANT & CASTLE

CHISWICK PARK
TURNHAM GREEN
RAVENSCOURT PARK
BARONS COURT
EARLS COURT
VICTORIA
KENNINGTON

GUNNERSBURY
STAMFORD BROOK
HAMMERSMITH
WEST KENSINGTON
WEST BROMPTON
SOUTH KENSINGTON
SLOANE SQUARE
OVAL

KEW GARDENS
WALHAM GREEN
STOCKWELL
CLAPHAM NORTH

RICHMOND
PARSONS GREEN
PUTNEY BRIDGE
EAST PUTNEY
SOUTHFIELDS
WIMBLEDON PARK
WIMBLEDON
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TRINITY ROAD (TOOTING BEC)
TOOTING BROADWAY
COLLIERS WOOD
SOUTH WIMBLEDON (MERTON)
MORDEN

RIVER THAMES

REFERENCE

District Railway ....
London Electric Railway {
  Bakerloo Line ....
  Piccadilly Line ....
  Hampstead and Highgate Line ....
}
City and South London Rly. ....
Piccadilly Railway Extensions under construction ....
Central London Railway .....
Metropolitan Railway .....
Metropolitan Railway (Great Northern and City Section) ==
Interchange Stations .... O

Questions?