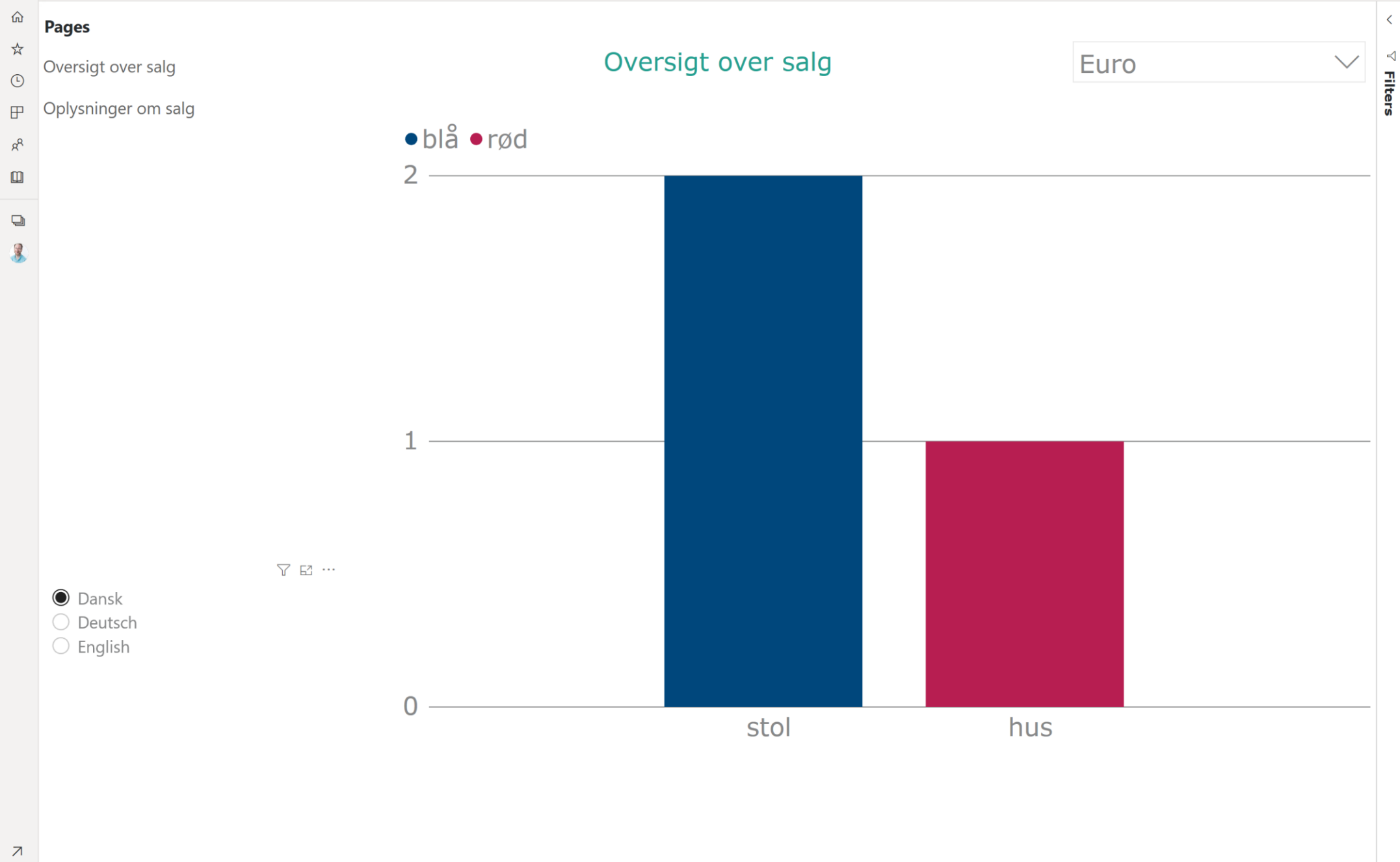


# Do you speak English?

## Localized Reports with Power BI

Markus Ehrenmueller-Jensen





- Pages**
- Sales Overview
  - Sales Details

Page names

Sales Overview

Euro

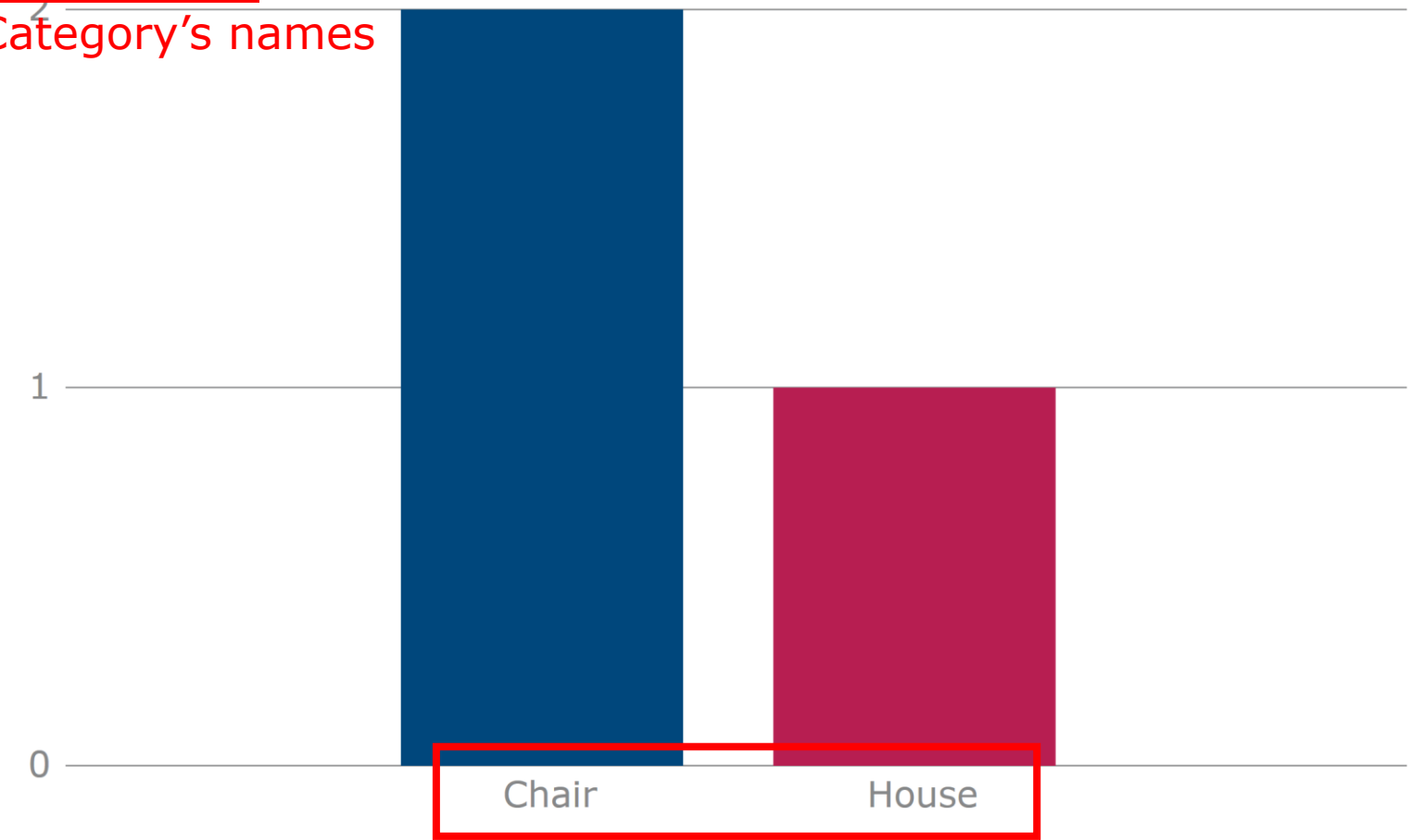
Text elements

● blue ● red

Category's names

Filter icons

- ☐ Dansk
- ☐ Deutsch
- ☒ English



Chair House

Category's names

# Suggestions from the Web

## Bookmarks

e. g. <https://www.powerbi-pro.com/mehrsprachige-berichte-in-power-bi-erstellen/>

Duplicate all elements and hide/show them via bookmarks

## Expression-based titles with measures

e. g. <https://community.powerbi.com/t5/Desktop/Multi-Language-Support-in-Power-BI-Reports/td-p/822596>

SWITCH(SELECTEDVALUE('Language'[Language],"EN"), "EN", "Sales", "Salg")

## Add languages as different columns

e. g. <https://www.youtube.com/watch?v=jZQ4BZmtseo>

You can't easily switch between columns in a visual (despite what the video shows)

## Relationship to language table

e. g. <https://www.linkedin.com/pulse/how-create-multilingual-power-bi-report-proof-concept-emin-uzun/>

Works only with a single dimension table

## Power Query Parameter

e. g. <https://www.powerbi-pro.com/mehrsprachige-berichte-in-power-bi-erstellen/>,  
<https://www.youtube.com/watch?v=JJryD2dXVVw>

Requires refresh of data model with every change of language  
and bookmarks (s. above)

Renaming columns in Power Query breaks existing reports

# My Solution

## Pro

New languages / translations added in data only (no manual change)

## Contra

New text components force a (manual) refresh of Power Query

Complex model / DAX

New dimensions forces an addition in every measure

Preselections have side effect

# Two Goals

Learn something new about Power BI

Implement a multi-language report

# Localization

Textual Content

Report Headlines

Numerical Content

Model Metadata

Power BI Desktop & Power BI Service

# Text Content

E. g. product names in different languages

1. Create a language dimension
2. Add rows per language in every dimension  
Recommended: Add sort order column  
Bonus point: Use Cognitive Services
3. Create bridge table
4. Set relationships right
5. Change your measures

*Pre-saved filters do not work*



# Demo

Text Content



# TREATAS

“Treat as”

```
TREATAS ( <Expression>,  
          <ColumnName> [, <ColumnName> [, ... ] ] )
```

Creates a virtual relationship

Not available in the model, only in the DAX expression

Has no materialized “index”

Which brings a performance penalty

<https://dax.guide/treatas/>



**VIRTUAL  
RELATIONSHIP**

**TREATAS**

**ACTIVE  
RELATIONSHIP**

# Text Components

E. g. titles, buttons, etc.

1. Create a table with text component & display text;  
one row per language
2. Pivot the table  
Must be (manually) refreshed, every time a text component is added
3. Use dynamic texts (*fx*)
4. Hide pages and use buttons instead

# Cognitive Services Translation API

Translate to and from 60+ languages

<https://docs.microsoft.com/en-us/azure/cognitive-services/translator/language-support/>



# Demo

Text components



# Currencies

E. g. EUR, USD, DKK

Create table with currency exchange rates

Bonus point: Use API to fetch exchange rates

Convert amounts

Power Query / M

DAX

Bonus Point: Implement conversion with historic rates

<https://www.daxpatterns.com/currency-conversion/>

# Demo

Currency Conversion





# Model Metadata

e. g. table 'Sales', column 'Sales'[Price] or measure [Sales Amount]

1. Export JSON
2. Translate items
3. Import JSON

Tabular Editor (<https://tabulareditor.com/>)

*Works only in Power BI Premium & Analysis Services*

*Not in: Power BI Desktop, Power BI Pro, Power BI Report Server*

# Demo

Model Metadata



# Power BI Desktop & Service

## Power BI Desktop (Standalone)

Options – Global – Regional Settings

## Power BI Desktop (Windows Store)

Windows Settings – Time & language – Region & language

## Power BI Service

Settings – General – Language

## Power BI Report Server

Internet Browser local options (e. g. Win10: Internet Properties – Languages – Set Language Preferences; equal to the OS language)

<https://theblobfarm.wordpress.com/2016/06/08/changing-ssrs-2016-user-display-language/>

<https://docs.microsoft.com/en-us/power-bi/supported-languages-countries-regions>

# Row Level Security

Alternative 1



# (Mis-)Use Row Level Security

Define a role to filter LanguageID in all tables

No need for TREATAS() in measures

Filter by either USERNAME(), CUSTOMDATA(), or USERCULTURE()

Power BI Desktop

Modeling – View as

*Users must explicitly activate the role*

Power BI Service

Users must explicitly be assigned to role in settings of dataset

*Role settings do not apply to workspace admins*



# Demo

Set Language via Row Level Security



# USERNAME()

e. g. "SavoryData\markus" or "markus@savorydata.com"

Power BI Desktop

Modeling – View as – Other user

Power BI Service

Automatically set

Power BI Embedded

Use CUSTOMDATA() instead to fill ad lib (Username, language, ... or a combination in a single string)

# USERCULTURE()

e. g. "en-US"

Culture code for the user

Power BI Desktop

Options and Settings – Options – Global – Regional Settings

Default: "Use Windows default display language"

Power BI Service

Browser settings

LEFT(USERCULTURE(), 2) to get language part only



# Sync Slicers

Alternative 2



# Synced Filters

Create one filter on LanguageID per Dimension

Sync filters of the group

View – Sync slicers – Advanced options – Sync field changes to other slicers

Hide all filters except one

No need for TREATAS in measures

Which exists per dimension

*Slicer is on ID (and not on description)*

*Has to be implemented in each Power BI report*

*Not part of model – does not work in other client tools*

# Demo

Synced filters



# Limitations and considerations

- No One-stop-shop for all settings

  - But a bunch of workarounds

- Decimal separator is always taken from OS/Browser settings

- Expression-based formatting

  - Not supported everywhere

  - Must be a string data type (numbers or date/time aren't supported)

  - Not carried over when you pin a visual to a dashboard

# Call to Action

Evaluate possible solutions

Implement the least bad one ☺

Vote for ideas

<https://ideas.powerbi.com/ideas/idea/?ideaid=e4944d7e-d6fd-ea11-b5d9-281878a5ca29> (Support multi-language reports in Power BI Desktop & Power BI Service)

<https://ideas.powerbi.com/ideas/idea/?ideaid=4572279d-7c44-43c5-9315-abf219d3c148> (Implement into Power BI & Tabular & Excel Data Models support for multi language translations)

<https://ideas.powerbi.com/ideas/idea/?ideaid=9bd73134-a54e-4041-83ac-575d2a0b17b9> (Provide language translation support present in SSAS to Power BI Service)



# Questions?

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PASS  
AUSTRIA

