

# A Few Thoughts on Beer Statistics

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# ***“What is beer?”***

*“Beer is proof that god loves us  
and wants us to be happy.”*

Attributed to one of the most famous homebrewers, Benjamin Franklin

**In fact he wrote:**

*“Behold the rain which descends from heaven upon our  
vineyards, there it enters the roots of the vines, to be  
changed into **wine**, a constant proof that God loves us,  
and loves to see us happy.”*

■ ■ ■

Reference: [Article](#) by Bryce Eddings



# ***“What is beer?”***

*“Beer is what is produced by Soproni, Dreher or Borsodi and what I can get for cheap at my local söröző or in the ABC around the corner from here.”*

Frustrated Hungarian beer drinker [unknown]



# "What is beer?"

# =OSLO=

# Periodic Table of Beer Styles

I			II			III		
1 Berliner weisse 2.5-5.6 3-12 2-4	2 Lambic 4.7-6.4 5-15 4-15	3 Belgian gold ale 7.0-9.0 25-35 4-6	4 Belgian white 4.5-5.5 15-28 2-4	5 Gueuze 4.7-6.4 15-21 4-13	6 Tripel 7.0-10.0 20-30 4-7	7 American wheat 3.5-5.0 5-20 2-8	8 Faro 4.5-5.5 8-15 4-15	9 Saison 4.5-8.1 25-40 4-10
10 Pale ale 4.5-5.5 20-40 4-11	11 American pale ale 4.5-5.7 20-40 4-11	12 Scottish light 60/- 2.8-4.0 9-20 8-17	13 English mild 2.5-4.1 10-24 10-25	14 Weizenbier 4.3-5.6 8-15 3-9	15 Fruit beer 4.7-7.0 N/A N/A	16 Belgian pale ale 3.9-5.6 10-16 4-14	17 American pale ale 4.5-5.7 20-40 4-11	18 Ordinary bitter 3.0-3.8 20-35 6-12
19 Scottish heavy 70/- 3.5-4.1 12-25 10-19	20 English brown 4.2-6.0 25-60 15-22	21 Dry stout 3.2-5.5 30-50 40+	22 Foreign extra stout 5.0-7.5 35-70 40+	23 German pilsner 4.6-5.4 25-45 2-4	24 American standard 4.1-4.8 5-17 2-6	25 Dortmunder 5.1-6.1 23-29 4-6	26 Doppelbock 6.6-7.9 20-30 12-30	27 Dunkelweizen 4.5-6.0 10-15 17-23
28 Flanders red 4.0-5.8 14-25 10-16	29 Belgian dark ale 7.0-12.0 25-40 7-20	30 India pale ale 5.1-7.6 40-60 8-14	31 Special bitter 3.7-4.8 25-40 12-14	32 Scottish export 80/- 4.0-4.9 15-36 10-19	33 English brown 3.5-6.1 15-25 15-30	34 Robust porter 4.8-6.0 25-45 10-19	35 Oatmeal stout 3.3-6.1 20-30 40+	36 Russian imperial stout 8.0-12.0 50-80 40+
37 American dark 4.1-5.1 35-45 3-5	38 American dark 4.1-5.1 35-45 3-5	39 American dark 4.1-5.1 35-45 3-5	40 American dark 4.1-5.1 35-45 3-5	41 American dark 4.1-5.1 35-45 3-5	42 American dark 4.1-5.1 35-45 3-5	43 American dark 4.1-5.1 35-45 3-5	44 American dark 4.1-5.1 35-45 3-5	45 American dark 4.1-5.1 35-45 3-5
46 American dark 4.1-5.1 35-45 3-5	47 American dark 4.1-5.1 35-45 3-5	48 American dark 4.1-5.1 35-45 3-5	49 American dark 4.1-5.1 35-45 3-5	50 American dark 4.1-5.1 35-45 3-5	51 American dark 4.1-5.1 35-45 3-5	52 American dark 4.1-5.1 35-45 3-5	53 American dark 4.1-5.1 35-45 3-5	54 American dark 4.1-5.1 35-45 3-5
55 Kölsch 4.8-5.2 20-30 4-5	56 Bière de garde 4.5-8.0 20-30 5-12	57 Oktoberfest 5.1-6.5 18-30 7-12	58 Cream ale 4.5-6.0 10-35 8-14	59 Smoked beer 5.0-5.5 20-30 12-17	60 English old (strong) ale 6.1-8.5 30-40 12-16	61 Altbier 4.6-5.1 25-48 11-19	62 Vienna 4.6-5.5 20-28 6-14	63 Steam beer 3.6-5.0 15-45 8-17
64 Barleywine 8.4-12.2 50-100 14-22	65 Strong "scotch" ale 6.0-9.0 20-40 10-40+	66 Strong "scotch" ale 6.0-9.0 20-40 10-40+	67 Strong "scotch" ale 6.0-9.0 20-40 10-40+	68 Strong "scotch" ale 6.0-9.0 20-40 10-40+	69 Strong "scotch" ale 6.0-9.0 20-40 10-40+	70 Strong "scotch" ale 6.0-9.0 20-40 10-40+	71 Strong "scotch" ale 6.0-9.0 20-40 10-40+	72 Strong "scotch" ale 6.0-9.0 20-40 10-40+

## A brief description of beer styles with commercial examples

1. Berliner weisse: Light body, refreshing, slightly tart. Beer. Low influence of hop. (Schlafke's Berliner Weiss, Berliner Kindl Weiss)
2. Lambic: The most unusual souring beer with very little hop aroma. (Oud Cuvee Brussels, Oud Cuvee, Du Val)
3. Belgian gold ale: Light body, slightly tart. Beer. Low influence of hop. (Du Val, Du Val, Du Val)
4. Belgian white: Refreshing, cloudy, spiced with coriander and orange peel. Low bitterness. (Cuvée, Du Val, Du Val)
5. Gueuze: Blend of young and old lambic beers. (Duval's Gueuze, Duval's Gueuze, Duval's Gueuze)
6. Tripel: Light body, slightly tart. Beer. Low influence of hop. (Duval's Tripel, Duval's Tripel, Duval's Tripel)
7. American wheat: Usually clear to opaque and not other wheat beers. Slightly tart. Very refreshing. (Samuel Adams Wheat, Samuel Adams Wheat, Samuel Adams Wheat)
8. Faro: Brewed with malted barley and hops. (Duval's Faro, Duval's Faro, Duval's Faro)
9. Saison: Fruity, complex aroma and high hop bitterness. Medium body. (Duval's Saison, Duval's Saison, Duval's Saison)
10. Pale ale: Low to medium bitterness. High hop bitterness. Medium body. (Duval's Pale Ale, Duval's Pale Ale, Duval's Pale Ale)
11. American pale ale: Low to medium bitterness. High hop bitterness. Medium body. (Duval's American Pale Ale, Duval's American Pale Ale, Duval's American Pale Ale)
12. Scottish light 60/-: Light body, slightly tart. Beer. Low influence of hop. (Duval's Scottish Light 60/-, Duval's Scottish Light 60/-, Duval's Scottish Light 60/-)
13. English mild: Light body, slightly tart. Beer. Low influence of hop. (Duval's English Mild, Duval's English Mild, Duval's English Mild)
14. Weizenbier: Light body, slightly tart. Beer. Low influence of hop. (Duval's Weizenbier, Duval's Weizenbier, Duval's Weizenbier)
15. Fruit beer: Light body, slightly tart. Beer. Low influence of hop. (Duval's Fruit Beer, Duval's Fruit Beer, Duval's Fruit Beer)
16. Belgian pale ale: Light body, slightly tart. Beer. Low influence of hop. (Duval's Belgian Pale Ale, Duval's Belgian Pale Ale, Duval's Belgian Pale Ale)
17. American pale ale: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Pale Ale, Duval's American Pale Ale, Duval's American Pale Ale)
18. Ordinary bitter: Light body, slightly tart. Beer. Low influence of hop. (Duval's Ordinary Bitter, Duval's Ordinary Bitter, Duval's Ordinary Bitter)
19. Scottish heavy 70/-: Light body, slightly tart. Beer. Low influence of hop. (Duval's Scottish Heavy 70/-, Duval's Scottish Heavy 70/-, Duval's Scottish Heavy 70/-)
20. English brown: Light body, slightly tart. Beer. Low influence of hop. (Duval's English Brown, Duval's English Brown, Duval's English Brown)
21. Dry stout: Light body, slightly tart. Beer. Low influence of hop. (Duval's Dry Stout, Duval's Dry Stout, Duval's Dry Stout)
22. Foreign extra stout: Light body, slightly tart. Beer. Low influence of hop. (Duval's Foreign Extra Stout, Duval's Foreign Extra Stout, Duval's Foreign Extra Stout)
23. German pilsner: Light body, slightly tart. Beer. Low influence of hop. (Duval's German Pilsner, Duval's German Pilsner, Duval's German Pilsner)
24. American standard: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Standard, Duval's American Standard, Duval's American Standard)
25. Dortmunder: Light body, slightly tart. Beer. Low influence of hop. (Duval's Dortmunder, Duval's Dortmunder, Duval's Dortmunder)
26. Doppelbock: Light body, slightly tart. Beer. Low influence of hop. (Duval's Doppelbock, Duval's Doppelbock, Duval's Doppelbock)
27. Dunkelweizen: Light body, slightly tart. Beer. Low influence of hop. (Duval's Dunkelweizen, Duval's Dunkelweizen, Duval's Dunkelweizen)
28. Flanders red: Light body, slightly tart. Beer. Low influence of hop. (Duval's Flanders Red, Duval's Flanders Red, Duval's Flanders Red)
29. Belgian dark ale: Light body, slightly tart. Beer. Low influence of hop. (Duval's Belgian Dark Ale, Duval's Belgian Dark Ale, Duval's Belgian Dark Ale)
30. India pale ale: Light body, slightly tart. Beer. Low influence of hop. (Duval's India Pale Ale, Duval's India Pale Ale, Duval's India Pale Ale)
31. Special bitter: Light body, slightly tart. Beer. Low influence of hop. (Duval's Special Bitter, Duval's Special Bitter, Duval's Special Bitter)
32. Scottish export 80/-: Light body, slightly tart. Beer. Low influence of hop. (Duval's Scottish Export 80/-, Duval's Scottish Export 80/-, Duval's Scottish Export 80/-)
33. English brown: Light body, slightly tart. Beer. Low influence of hop. (Duval's English Brown, Duval's English Brown, Duval's English Brown)
34. Robust porter: Light body, slightly tart. Beer. Low influence of hop. (Duval's Robust Porter, Duval's Robust Porter, Duval's Robust Porter)
35. Oatmeal stout: Light body, slightly tart. Beer. Low influence of hop. (Duval's Oatmeal Stout, Duval's Oatmeal Stout, Duval's Oatmeal Stout)
36. Russian imperial stout: Light body, slightly tart. Beer. Low influence of hop. (Duval's Russian Imperial Stout, Duval's Russian Imperial Stout, Duval's Russian Imperial Stout)
37. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
38. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
39. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
40. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
41. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
42. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
43. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
44. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
45. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
46. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
47. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
48. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
49. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
50. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
51. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
52. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
53. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
54. American dark: Light body, slightly tart. Beer. Low influence of hop. (Duval's American Dark, Duval's American Dark, Duval's American Dark)
55. Kölsch: Light body, slightly tart. Beer. Low influence of hop. (Duval's Kölsch, Duval's Kölsch, Duval's Kölsch)
56. Bière de garde: Light body, slightly tart. Beer. Low influence of hop. (Duval's Bière de Garde, Duval's Bière de Garde, Duval's Bière de Garde)
57. Oktoberfest: Light body, slightly tart. Beer. Low influence of hop. (Duval's Oktoberfest, Duval's Oktoberfest, Duval's Oktoberfest)
58. Cream ale: Light body, slightly tart. Beer. Low influence of hop. (Duval's Cream Ale, Duval's Cream Ale, Duval's Cream Ale)
59. Smoked beer: Light body, slightly tart. Beer. Low influence of hop. (Duval's Smoked Beer, Duval's Smoked Beer, Duval's Smoked Beer)
60. English old (strong) ale: Light body, slightly tart. Beer. Low influence of hop. (Duval's English Old (Strong) Ale, Duval's English Old (Strong) Ale, Duval's English Old (Strong) Ale)
61. Altbier: Light body, slightly tart. Beer. Low influence of hop. (Duval's Altbier, Duval's Altbier, Duval's Altbier)
62. Vienna: Light body, slightly tart. Beer. Low influence of hop. (Duval's Vienna, Duval's Vienna, Duval's Vienna)
63. Steam beer: Light body, slightly tart. Beer. Low influence of hop. (Duval's Steam Beer, Duval's Steam Beer, Duval's Steam Beer)
64. Barleywine: Light body, slightly tart. Beer. Low influence of hop. (Duval's Barleywine, Duval's Barleywine, Duval's Barleywine)
65. Strong "scotch" ale: Light body, slightly tart. Beer. Low influence of hop. (Duval's Strong "Scotch" Ale, Duval's Strong "Scotch" Ale, Duval's Strong "Scotch" Ale)

## Ale

## Lager

## Key

Style number (see "brief description of beer styles")	8	1.044-1.056 1.008-1.016
Style name	Faro	
ABV Alcohol by volume	4.8-6.5 15-50	
IBU International bitterness units		12-20

## Original gravity

## Final gravity

## SRM rating

## SRM number

## SRM color

## SRM reference method

## Key to yeast type

- Ale yeast with lactic bacteria
- Wheat ale yeast
- Ale yeast
- Lager yeast

## Style family key

- I Wheat beer
- II Lambic & Sour ale
- III Belgian ale
- IV Pale ale
- V English Bitter
- VI Scottish ale
- VII Brown ale
- VIII Porter
- IX Stout
- X Pilsner
- XI American lager
- XII European lager
- XIII Bock
- XIV Alt
- XV French ale
- XVI German Amber Ale
- XVII American Special
- XVIII Smoked Beer
- XIX Barley Wine
- XX Strong Ale

## Mixed Styles

# ***“What is beer?”***

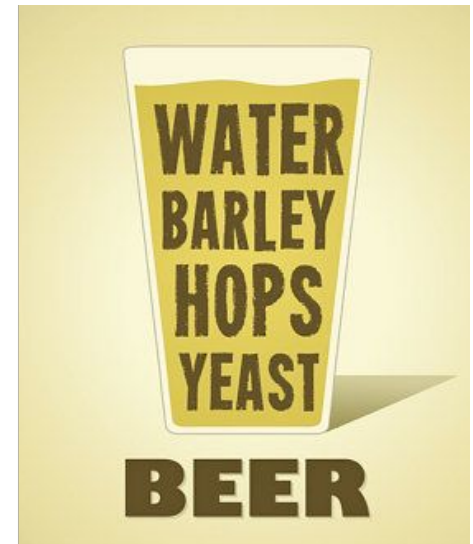
## **Definition:**

Beer is an **alcoholic**, extract-containing and **carbonated** beverage that is produced from certain raw materials.

The **alcohol** must be originated **from fermentation** of the extract of these raw materials **exclusively**.

Raw materials are **hop** and **malt** (partially replaced by regionally available adjuncts (e.g. unmalted barley, rice, corn, sugar) and **water**.

**Yeast** was unknown for a long time.



Reference: H. M. Eßlinger, Lecture “Technologie der Bierherstellung” (2011)

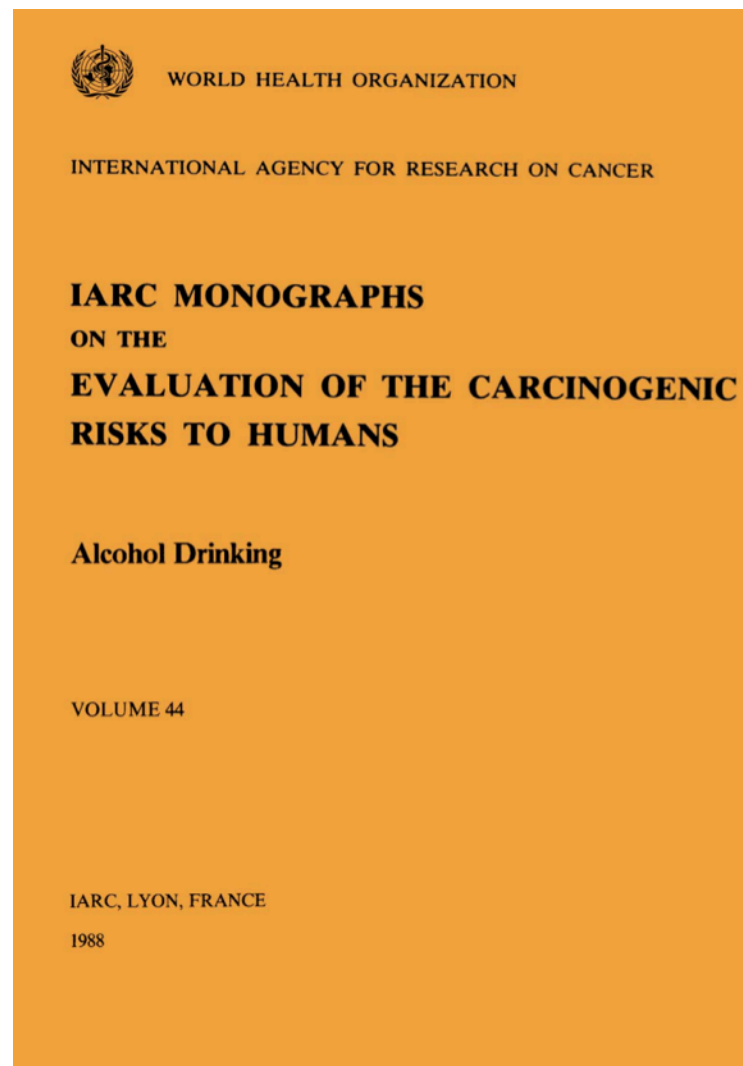


# ***“What is beer?”***

## **For the interested chemist:**

### Chapter 3.1 “Compounds in beer”

- Carbonyl compounds  
(e.g. aldehydes, ketones)
- Alcohols (C<sub>2</sub> and higher)
- Volatile acids
- Hydroxy and oxo acids
- Fixed acids (e.g. oxalic acid)
- Esters
- Amines, amides and other N-compounds
- Aromatics (phenols, aromatic acids)

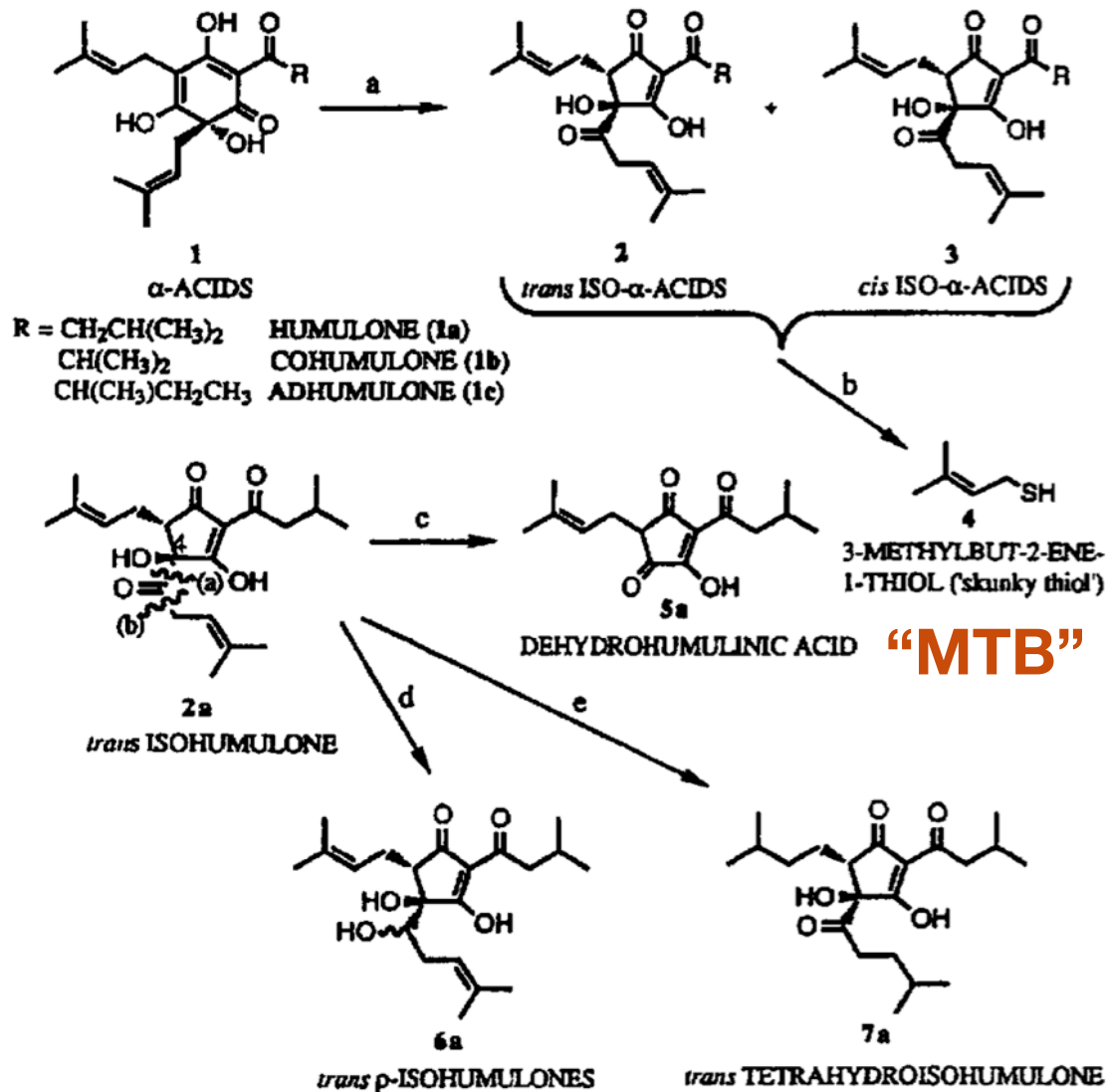




# Photochemistry of beer (courtesy of Tamás Vidóczy)

**Thiol production induced by light!**

**Wiki:** responsible for a class of wine faults caused by an unintended reaction between sulfur and yeast and the "skunky" odor of beer that has been exposed to ultraviolet light

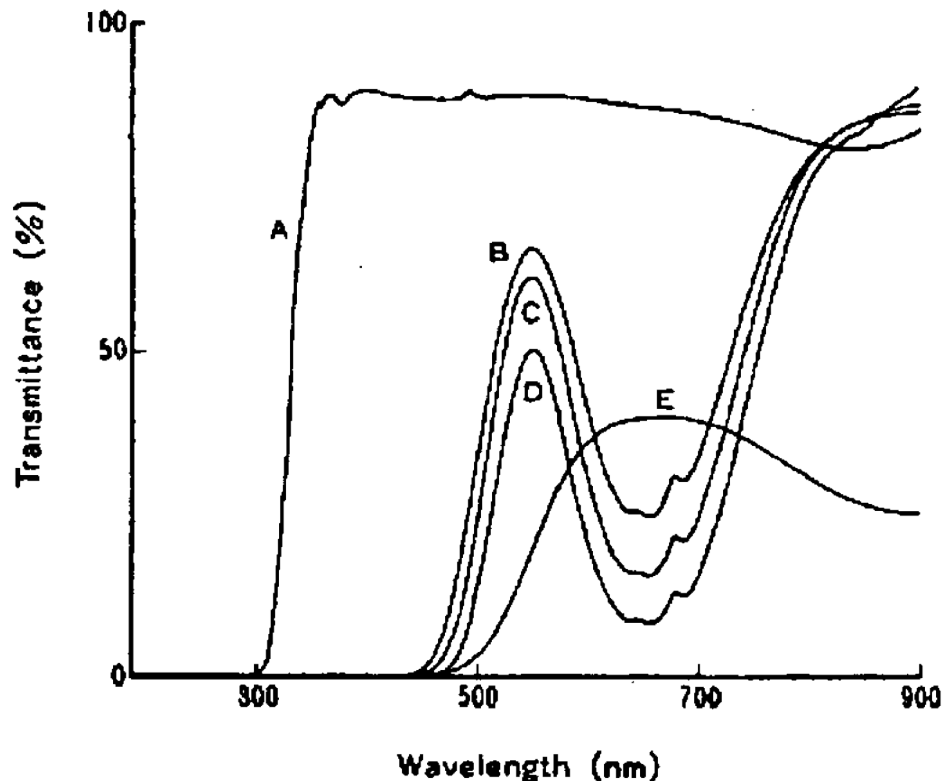


a: wort boiling; b: visible light, 'photosensitizer', sulfur source; c:  $h\nu$  (300 nm), MeOH;  
d:  $\text{NaBH}_4$ , MeOH; e:  $\text{H}_2$ , Pd/C (5%), MeOH.

# Photochemistry of beer (courtesy of Tamás Vidóczy)

## LIGHT TRANSMITTANCE PATTERNS OF VARIOUS BOTTLES

(A = colorless bottle, B = green bottle 1, C = green bottle 2,  
D = green bottle 3, E = brown bottle)



**Homebrewing books say:**  
Don't use green bottles!

**I would say:**  
Play it safe, don't drink Heineken,  
Beck's and the like!  
(even though Heineken nowadays  
uses isohumulone-free hop extracts)

**The internet says:**  
*"MBT is not generally considered  
appropriate in any beer style. [...]  
Many beer drinkers, especially in the  
United States, have come to associate  
this character with the beer itself and  
consider it part of the beer's character."*  
(<http://www.homebrewtalk.com/wiki/index.php/MBT>)





# ***“How do you make beer?”***

*“For the most part, brewing is a series of mundane tasks. From the smallest homebrewer to the biggest commercial producer, the essential brewing tasks are repeated over and over, with each batch that’s brewed. In reality, what makes brewing different from making potato chips or silicon chips is simply the finished product.”*

in: Ray Daniels, *Designing Great Beers* (1996).



# “How do you make beer?”

## The industrial process of lager beer production

### Malting:

Converting insoluble starches to solubles and sugar. Steeping barley in water, germinating, drying in kilns

### Mashing:

Enzymatic extraction and conversion of malt solubles into wort. Ideal mash pH 5.3–5.5

### Lautering:

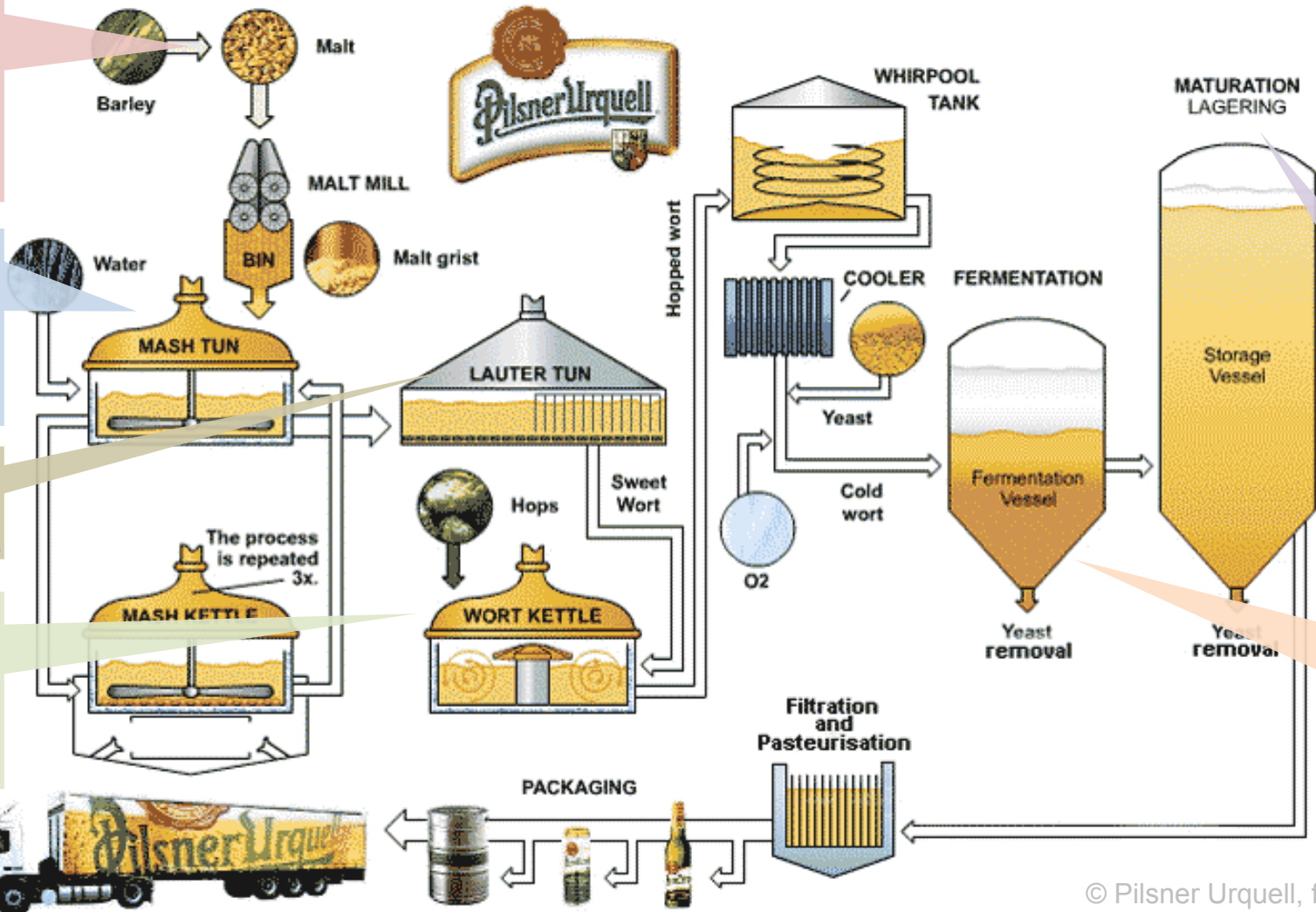
Removal of grains through a straining process

### Sweet wort:

the mash extract

### Bitter wort:

hopped sugar solution before yeast addition (“pitching”)



### Lagering:

A long, cold period of subdued fermentation and sedimentation subsequent to “active” fermentation

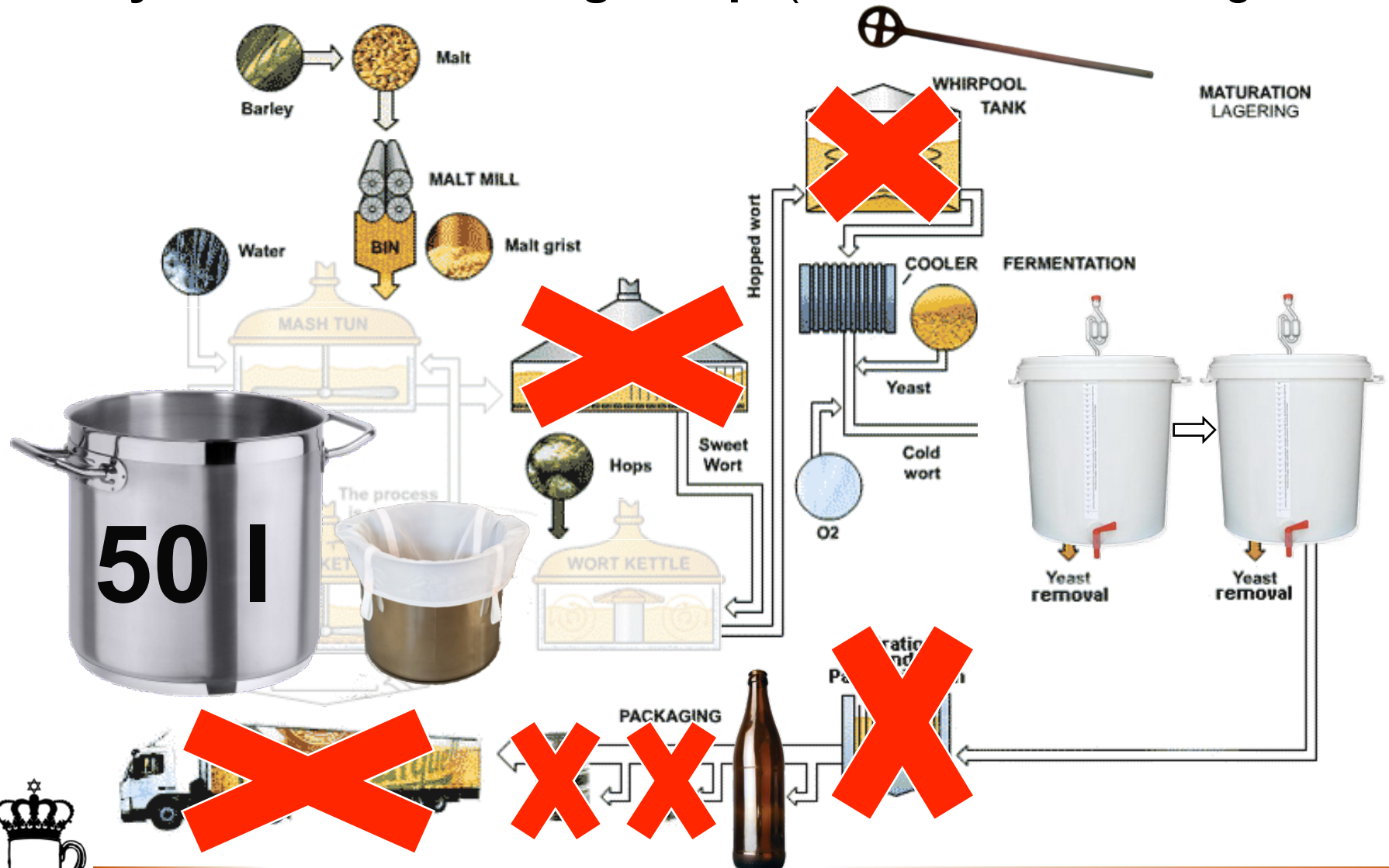
### Fermentation:

Metabolic process of yeast cells converting sugar to CO<sub>2</sub> and alcohol

© Pilsner Urquell, found [here](#).  
Definitions mainly taken from R. Daniels' book.

# ***“How do you make beer?”***

## **My own Homebrewing setup (BIAB: Brew In A Bag Method)**



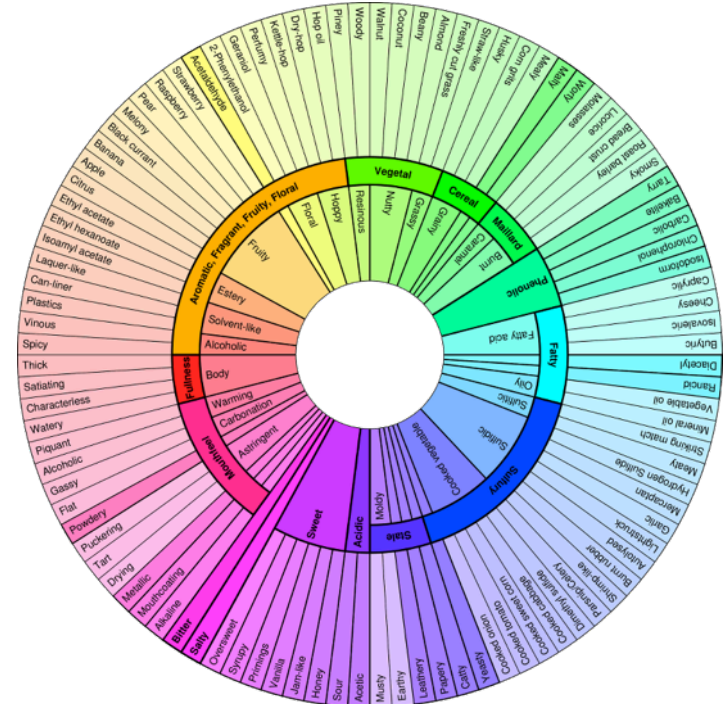
# ***“What makes beer good beer?”***

*“If the only kind of beer you’ve ever tasted has been light American pilsener, you haven’t really experienced beer. However, as a homebrewer or as a beer enthusiast [...] you have undoubtedly tasted an overwhelming complexity of beer flavors.”*

Charlie Papazian, The Complete Joy of Homebrewing, 3<sup>rd</sup> ed. (2003)

**Beer flavor** is described in terms of:

- Appearance
- Aroma
- Taste
- Overall impression



[Beer flavor wheel](#)





# “What makes beer good beer?”

**Overall impression**

**Drinkability** – subjective criteria, “Would I want another one?”

**Taste**

Bitter/Sweet – Malt/Hop/Fermentation Balance

Mouth-feel (full-bodied/light-bodied) – unfermented sugars, dextrins

Aftertaste

Carbonation (amount of bubbles, size distribution) – flat vs. tangy

**Aroma**

Malty sweetness, caramel, toffee, roasted, toasted, smoky, etc.

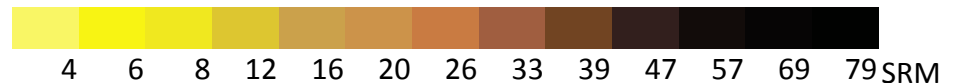
Fruity esters, diacetyl, hop aromas (e.g. flowery, spicy, herbal)

Unwanted odors (skunky, acidic, “wet cardboard”, etc.)

**Appearance**

Head formation, retention and appearance

Clarity (y/n)



Color

Mainly adapted from Charlie Papazian, *The Complete Joy of Homebrewing*, 3<sup>rd</sup> ed. (2003)



# “How do you make good beer?”

## What is good beer for YOU?

- Reproducible quality
- Affordable price
- (nearly) unlimited availability
- Purity, food safety
- Influences of *vintage* and *terroir*?
- Signature of a brewery or the brew master?
- Local production, regional ingredients?
- Authenticity? Degree of innovation?



➡ **The “Promise” of  
Craft Beer Culture**

**My colleague Jóska said:**

*“It is interesting to see how many hand-crafted beers are nowadays produced in Hungary, while one or two million Hungarians barely have enough to eat.”*





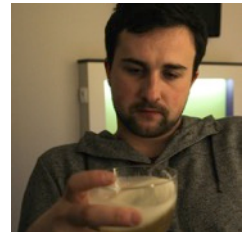
# ***“How do you make good beer?”***

## **You should know your process!**

- **Know what you want** to brew, and if necessary, learn how to do it!
  - Study the characteristics of the beer style you choose
  - If you start from scratch, get inspiration from existing recipes
  - Use software tools and/ or formulas to create recipes
- **Know your ingredients!**
  - Check your water composition, apply water treatment
  - Check the BBD & bitterness of your hops, expect natural products to change
- **Know your equipment!** How can you **improve** it? Sanitation?
- Do regular quality checks! **Be honest** to yourself!



**Enjoy the result of your work and share it!**



# Beer Statistics: A few introductory remarks

- I started this database in 2006 **for private use only** and didn't expect that I would ever present it to the public
- My database is **far from being complete!** I try to keep its content always up-to-date and develop its modules further
- My qualitative judgments are highly **subjective**, not always very meaningful and can be mood-dependent
- I like using **generalizations**, but don't want to offend anybody
- German grading system is used:

**1 (= very good) to 6 (= insufficient)**



# Beer Statistics: A few introductory remarks

- If you need an **objective opinion** about a certain beer, provide a sample and I'm happy to taste it with you! 😊



The image shows a 'Brewer's Friend Beer Party Tasting Sheet'. It features a logo of a beer glass with a star above it. The title is 'Brewer's Friend Beer Party Tasting Sheet' with the URL <http://www.brewersfriend.com>. The sheet is divided into two identical sections for 'Beer:'. Each section has a grid for scoring: Appearance (10), Smell (10), Taste (30), After Taste (20), Drinkability (30), and Total (100). To the right of each grid is a 'Comments -' box.

- Use **online databases** as a reference, or at least to get an idea what kind of beer to expect, e.g.

**ratebeer**.com, **Beeradvocate**.com, labels:

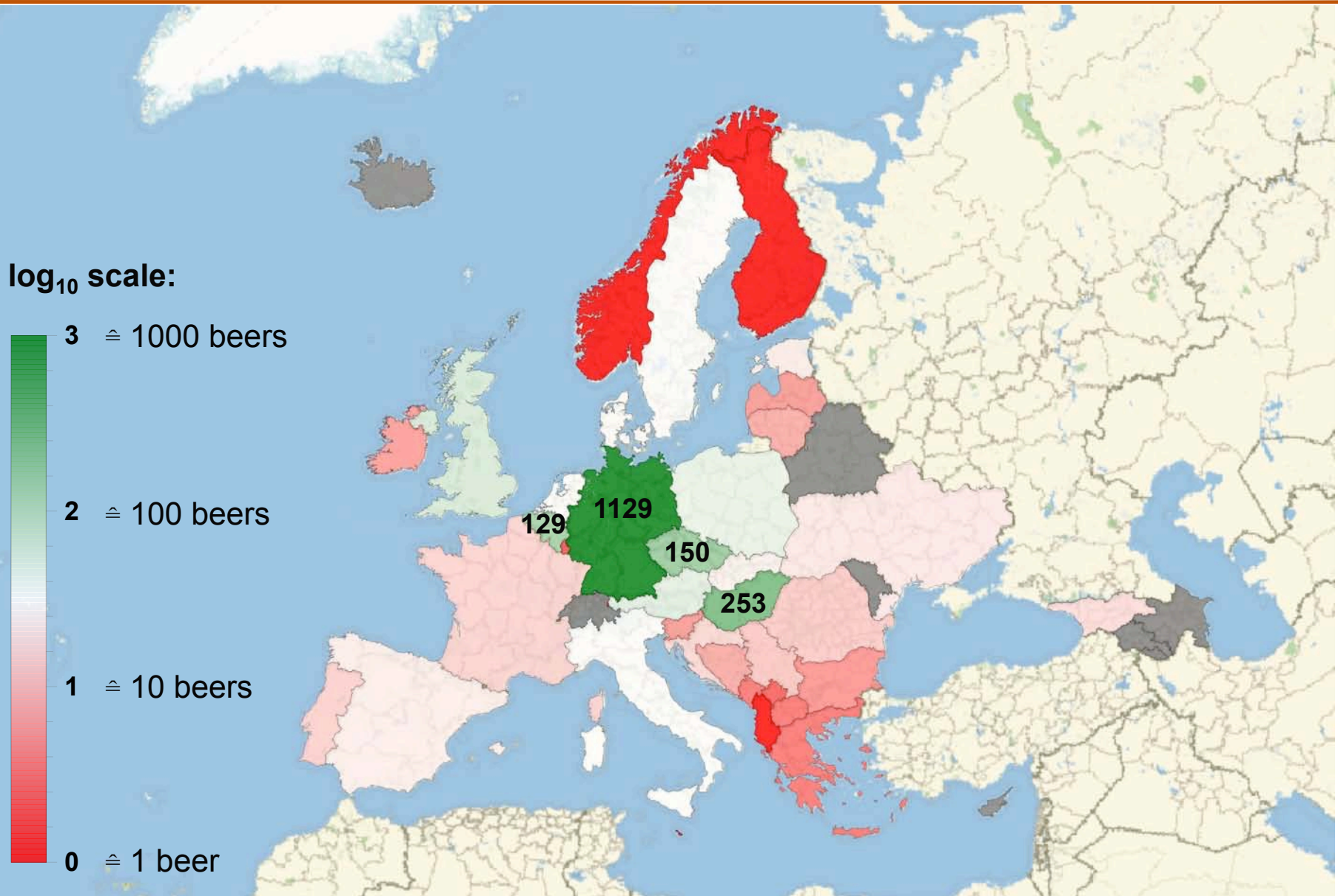


- Style guidelines of the **Beer Judge Certification Program (BJCP)** serve as a common language for “talking beer”

## Let's go!



# Different beers by country: Europe





# Different beers by country: Europe

## My traveling patterns



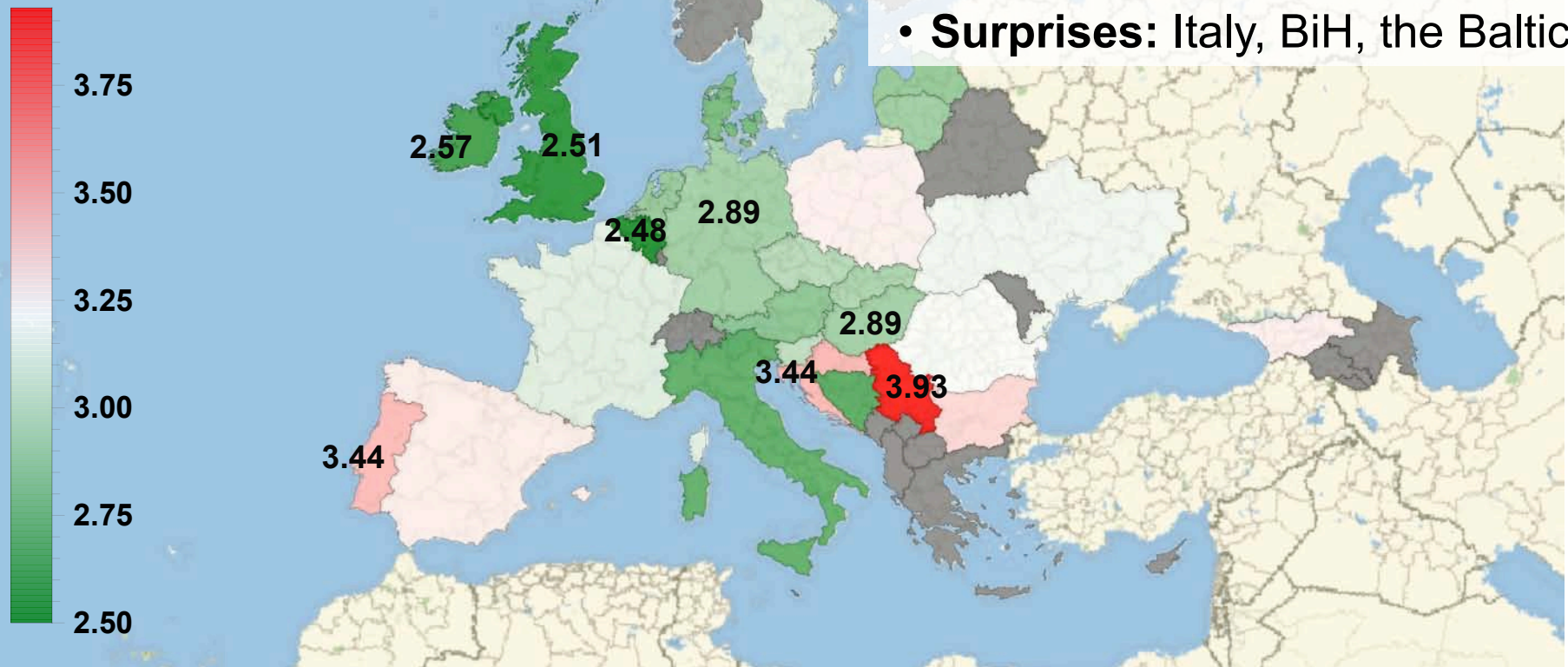
# Beer quality by country: Europe

only countries with  $\geq 5$  beers shown

**Top 3:** Belgium, UK, Ireland

**Bottom 3:** Serbia, Croatia, Portugal

- Hungarian beer is as good as German beer!
- **Trend:** North-South division and/or East-West division?
- **Surprises:** Italy, BiH, the Baltic

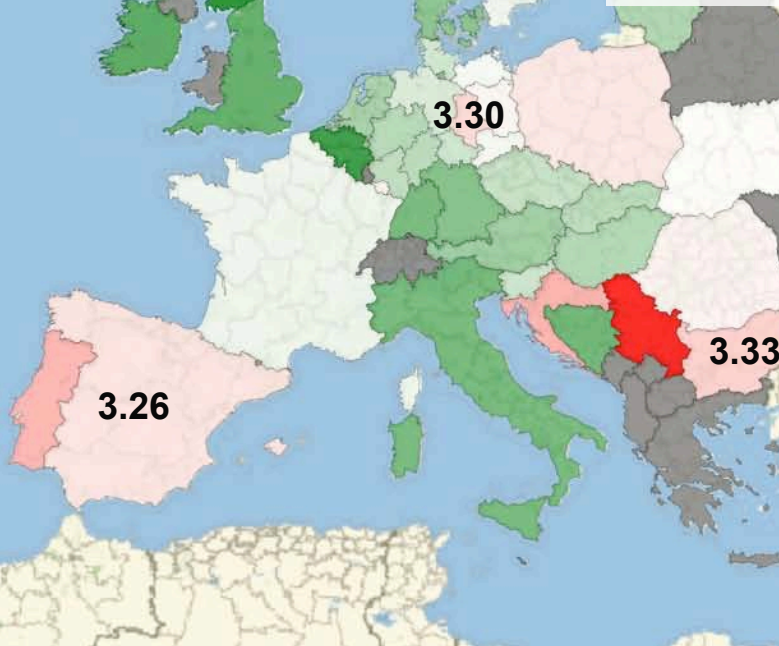
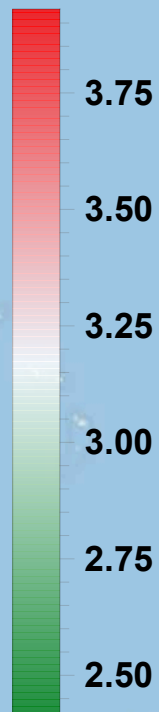




# Beer quality by country: Europe

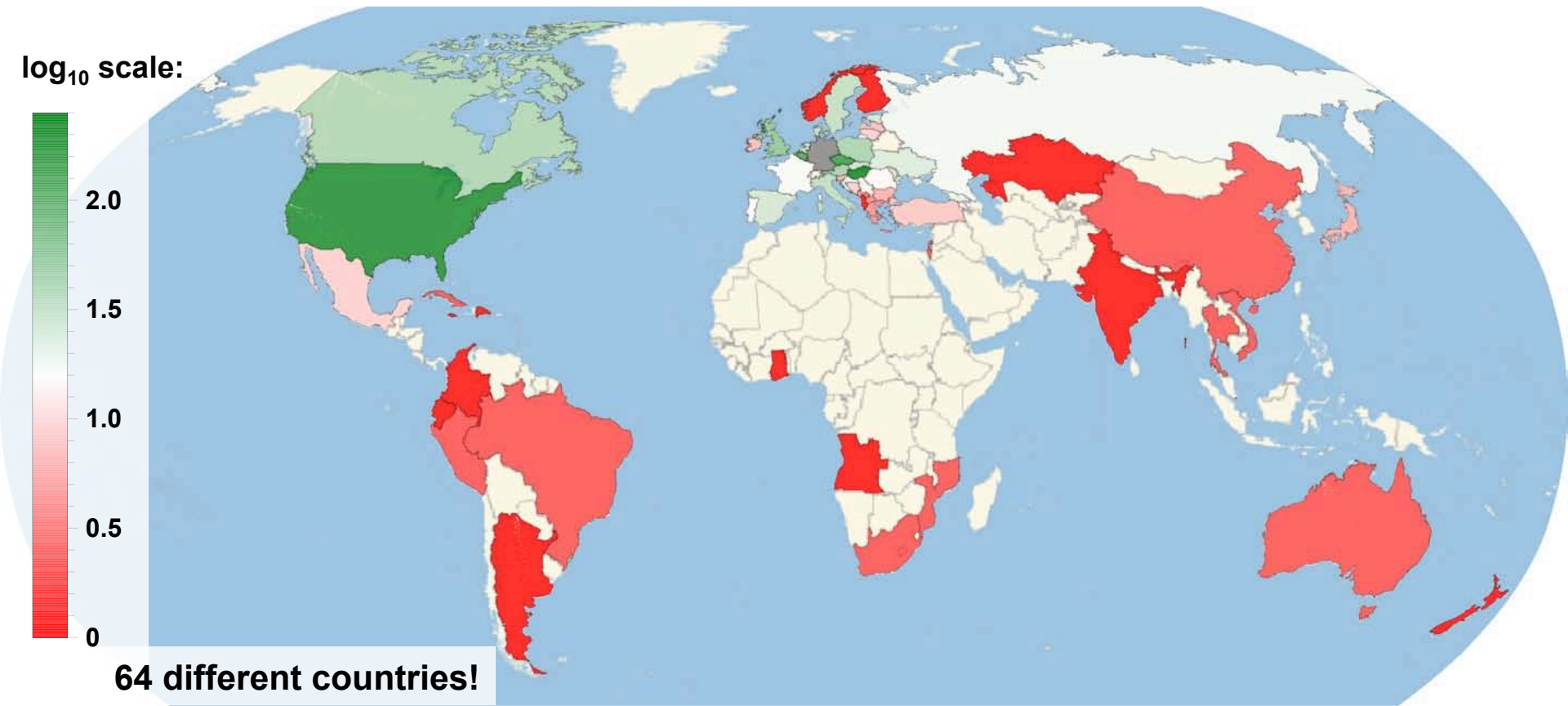
only countries with  $\geq 5$  beers shown

- 25 years after the Fall of the Berlin Wall, beer from East Germany is still worse...
- Saxony-Anhalt ranks in between Spain and Bulgaria!



# My personal BDCs (Beer Developing Countries)

all countries shown except Germany

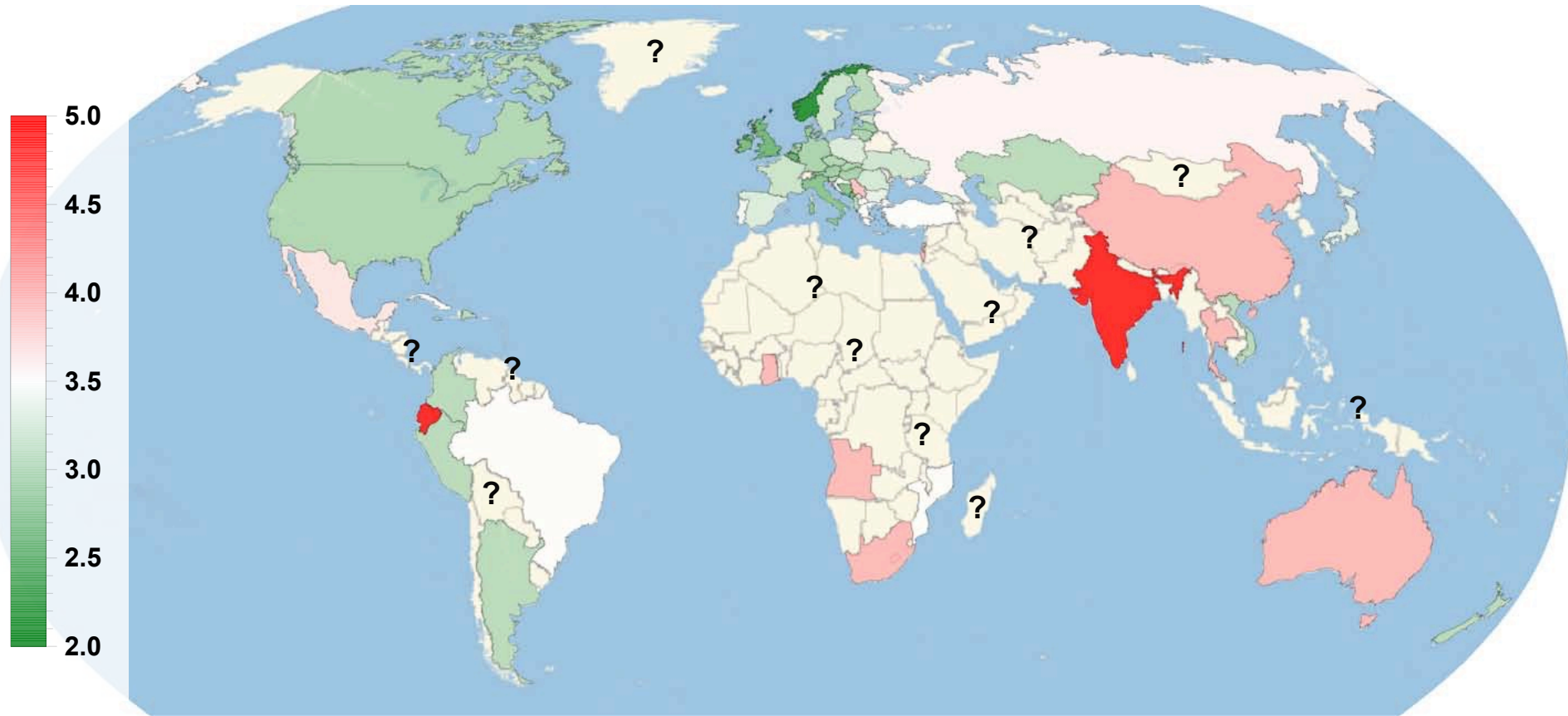


...are mainly in Africa, Australia, Asia and South America



# My personal BDCs (Beer Developing Countries)

all countries shown



In terms of quality, it is probably not going to be a pleasure...



# “Aren’t you drinking a bit too much?”

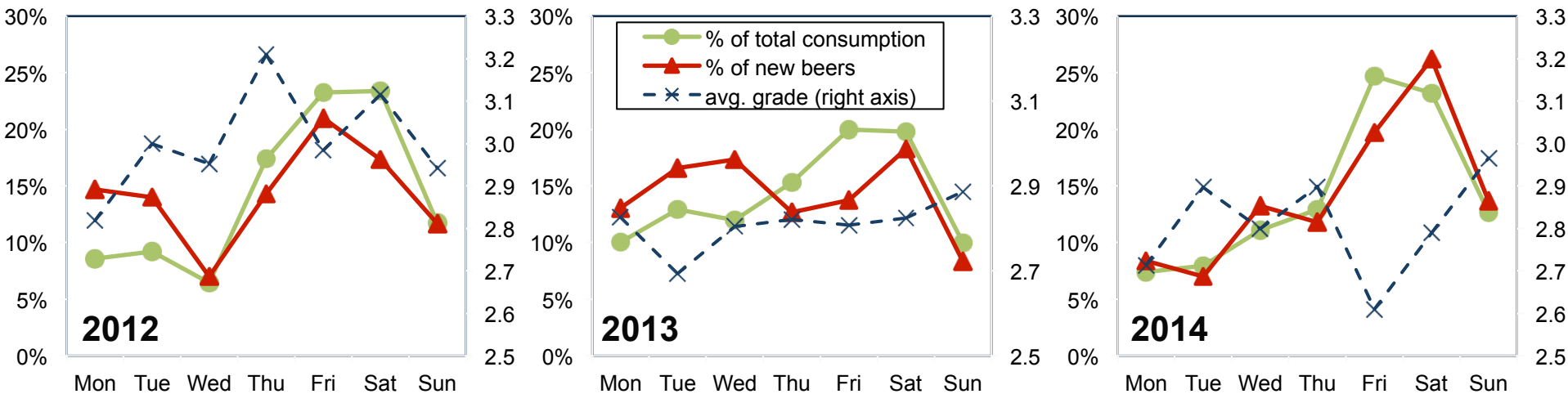
- **H. M. Eßlinger:** for men, drinking 2 l of beer per day



spokesperson of  
the management

(i.e. 60–80 g EtOH/d) is healthy!

- I’m **far below** that (“optimistic”) threshold, but I wanted to know it exactly, so I started to quantify my beer drinking behavior



Daily consumption\*:

New beer every ...: 1.27 l

Beer-free days\*:

-5.8%

0.68 l

-11.1%

-23.5%

0.56 l

+11.0%

\* compared to previous year

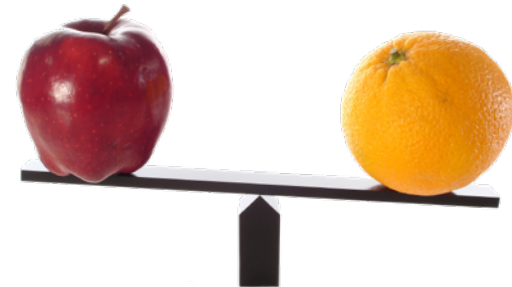
Over the years I became more “efficient” (Good? Bad?)



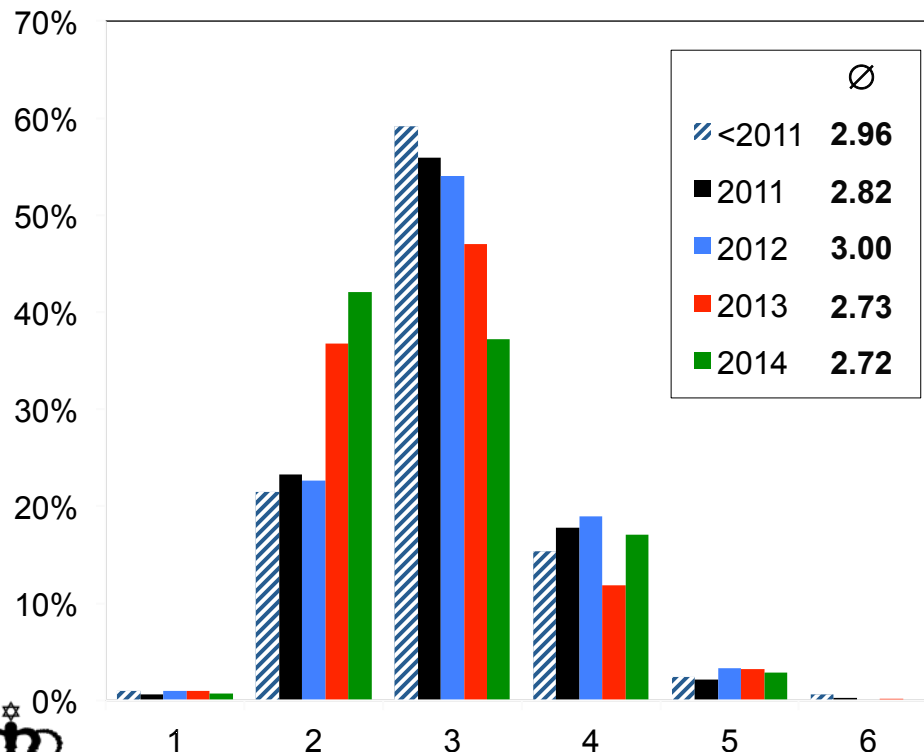


# “What is your favorite beer?”

- Tough question (database spans 8+ years)
- Only 23 beers received “very good” (0.9%)



Distribution of grades by year



## A highly debatable list:

Duckstein Rotblondes Oberbräu	Alt	Germany
Hövels Original	Alt	Germany
Domján Jubileum 20 világos sör	Amber Lager	Hungary
Goldenes Kreuz Landbier	Amber Lager	Germany
bier.pur edition 10 Barley Wine	Barley Wine	Austria
<b>Schoppe Special Barley Wine 2yo</b>	<b>Barley Wine</b>	<b>Germany</b>
Huyghe Delirium Tremens	Belgian Ale	Belgium
Redhook Eisbock 28	Eisbock	USA
<b>Maisel's Weisse Original</b>	<b>Hefeweizen</b>	<b>Germany</b>
Schneider Weisse Weizen Hell	Hefeweizen	Germany
Hedon Credo	India Pale Ale	Hungary
Mikkeller Single Hop Warrior IPA	India Pale Ale	Denmark
Schoppe XPA	India Pale Ale	Germany
Kulmbacher Kommunbräu Hell	Lager/Hell	Germany
<b>Budejovický Budvar Světlý Ležák</b>	<b>Pils</b>	<b>Czech Republic</b>
<b>Westvleteren 12 (XII)</b>	<b>Quadrupel</b>	<b>Belgium</b>
Böhmisch Brauhaus Edel Sünde	Schwarzbier	Germany
BrewDog International Arms Race	Spice/Herb	Scotland
Innis & Gunn Cask Strength Oak Aged	Strong Pale Ale	Scotland
Grimbergen Tripel	Tripel	Belgium
Schneider Tap X Meine Porter Weisse	Weizenbock	Germany
<b>Schneider TAP6 Aventinus</b>	<b>Weizenbock</b>	<b>Germany</b>
BFS Don't Mess Wit Me!	Witbier	Hungary



# “What is your favorite beer style?”

My “philosophy”: A beer should be judged within its style, *i.e.* whether or not it has typical characteristics and “drinkability”

The reality: I have strong preferences (in taste and for idealistic reasons)

Take home message:

Try something new!

Most likely you don’t know favorite beer (style) yet!

Top-fermented			785	Ø	Bottom-fermented			1630	Ø
Alt	14	2.64			Amber Lager/Vienna	49	2.65		
Amber Ale/Red Ale	37	2.78			Bock/Doppelbock/Starkbier	155	2.86		
American Pale Ale	46	2.41			Dunkel/Tmavý	126	2.97		
Barley Wine	5	1.80			Export/Spezial	91	3.05		
Belgian Ale/Belgian Strong Ale	80	2.45			Märzen/Festbier	71	2.65		
Black IPA	6	2.33			Lager/Hell	508	3.29		
Brown Ale	13	2.92			Pils	456	3.14		
Dry Stout	11	3.09			Polotmavý	9	2.67		
Dubbel	22	2.27			Schwarzbier	57	3.04		
English Pale Ale/Bitter	32	2.72			Zwickel/Keller/Landbier	108	2.72		
Golden Ale/Blond Ale	22	2.64							
Grodziskie/Gose/Lichtenhainer/Weisse	4	3.25			Others			158	Ø
India Pale Ale	109	2.42			Alcohol free	17	3.65		
Imperial Stout	16	2.44			California Common	2	3.00		
Imperial/Double IPA	15	2.40			Fruit beer	30	2.97		
Kölsch	13	2.77			Light beer (Low alcohol)	18	4.33		
Sweet Stout/Milk Stout/Cream Stout	12	2.50			Rauchbier	23	2.39		
Hefeweizen, dunkel	32	2.50			Spice/Herb/Vegetable	48	2.56		
Hefeweizen, hell	152	2.79			Specialty Grain	20	2.55		
Hefeweizen, kristall	7	3.14							
Porter	19	3.16							
Saison/Bière de Garde	12	2.50							
Lambic/Gueuze/Faro/Sour	9	2.56							
Stout	6	2.67							
Strong Pale Ale	12	2.58							
Traditional Ale	7	3.14							
Tripel/Quadrupel	23	2.26							
Weizenbock	10	2.00							
Witbier/Wheat Ale	39	2.74							

Total: 2573





# How I ended up being here...

- My boss, Tamás Turányi, suggested me to give this lecture  
→ he must have **good reasons!**
- US study by the *Center for Disease Control and Prevention*:  
**Excessive alcohol use costs \$223.5 billion (in 2006, USA only)**  
→ assuming 319 million US citizens (2014 estimate),  
that is **\$700 alcohol-related societal costs per capita!**
  - 72.2% Lost productivity in the workforce
  - 11.0% Healthcare
  - 9.4% Criminal justice
  - 7.5% Property damage

Reference: [“Societal Costs vs. Personal Costs For Alcohol”](#)



# Acknowledgments

- Baranyai Zsolt & Brandon Davis for their inspiration!
- Hans Michael Eßlinger (→ *Freiberg lecture notes*)
- Tamás Vidóczy (→ *Photochemistry of beer*)
- János Tóth (→ *Teaching me some Mathematica*)
- Bartók Forradalmi Sörfőzde crew

**Thank you for your attention!**

