



WINE NOT?

AN EXPLORATION INTO THE WORLD OF
OENOLOGY

CAN YOU TELL WHAT WINES THESE ARE?

1. ...a bit of white pepper upfront followed by hints of **peach** or **apricot** then **rich** black **cherry** fruit framed by silky **tannins**. **Dry** and **peppery** on the finish
2. ...**rich** and medium. **Dry**, presenting considerable **freshness** as well as **spice**. **Tropical** fruits and intense **acidity**. The texture is **dense** and concentrated; **full** and **fruity**
3. ...nice and **dry** with rich mountain **tannins** and focused, concentrated **blackberry** and black **currant** flavors that finish with a dark **chocolate** and **spice** flourish. **Dense** and **full-bodied**
4. ...has good **acidity**; **crisp green** and white fruits and a **bright citrus** element. **Fresh** and **fruity**; it's ready to drink, with a **light** mineral texture already well integrated

IT'S NOT ALWAYS EASY TO TELL

1. ...pure and a wonderful expression of the variety. There's a bit of white pepper upfront followed by hints of peach or apricot then rich black cherry fruit framed by silky tannins. Dry and peppery on the finish.

Grenache - Red

2. ...rich and medium. Dry, presenting considerable freshness as well as spice. Tropical fruits and intense acidity. The texture is dense and concentrated; full and fruity, just showing signs of maturity.

Pinot Grigio - White

3. ...nice and dry with rich mountain tannins and focused concentrated blackberry and black currant flavor. Dry finish with a dark chocolate and spice flourish. Dry and full-bodied..

Cabernet Sauvignon - Red

4. ...has good acidity; crisp green and white fruits and a bright citrus element. Fresh and fruity; it's ready to drink with a light mineral texture already well integrated.

Chardonnay - White

THE STORY



- Sommeliers use a lot of **fancy words** to describe wines.
- Can unsupervised learning techniques **identify** interpretable **categories** of wine based on descriptions written in this jargon?
- And, if the grapes really speak for themselves, can a wine be **predicted** based on a description?

THE SKILLS AND THE TOOLS

- **Unsupervised Learning**
- **MongoDB**
- **NLP**
- **Topic Modeling (LSA)**
- **sklearn and NLTK**



THE DATA

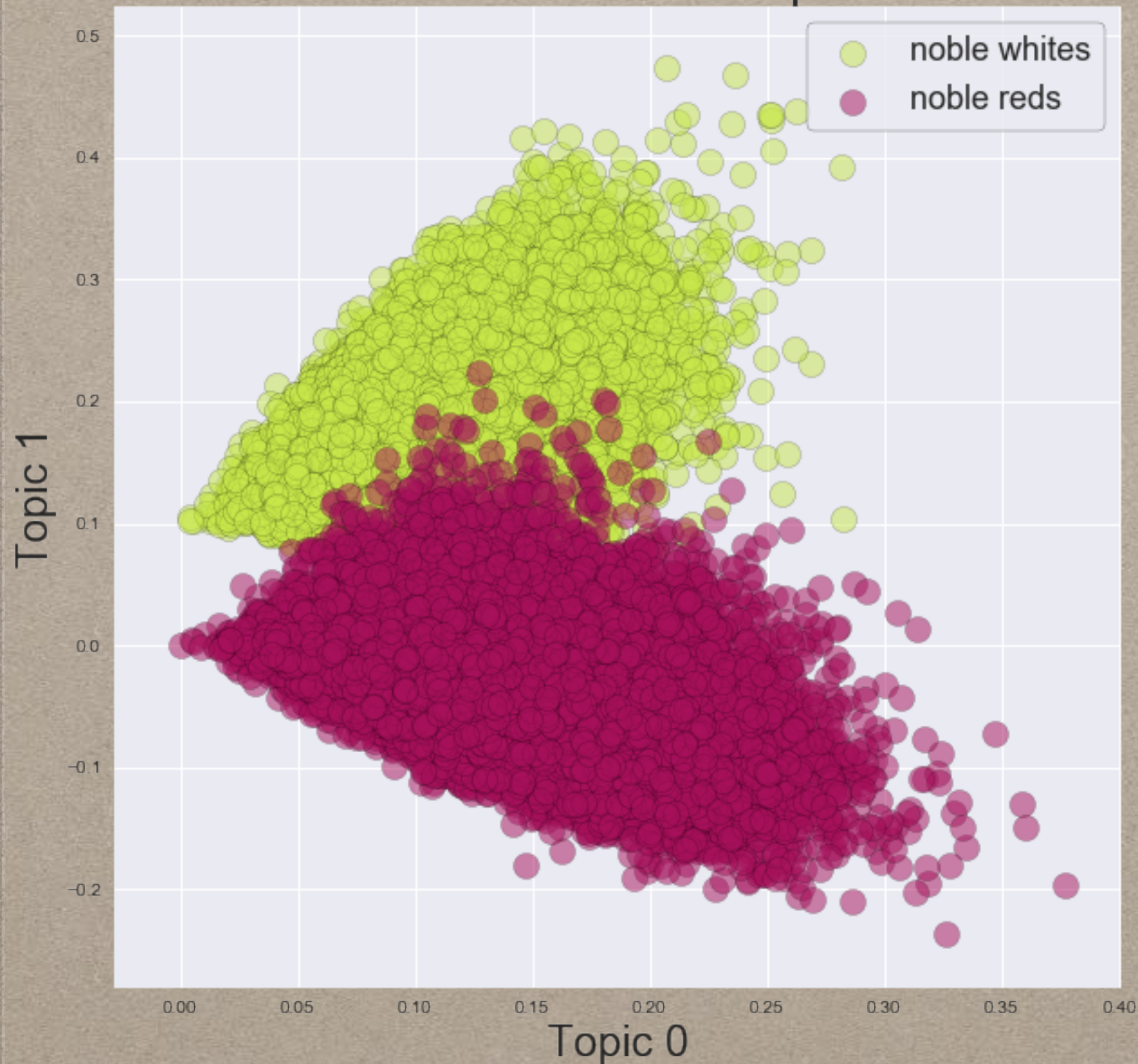
- **From Wine Enthusiast Magazine**
- **Over 97K different wines**
- **Over 600 different varietals**
- **And from over 50 countries**
- **Each with a short description by a sommelier**



THE PROCESS

- **Preprocess:**
 - Remove punctuation, numbers, capital letters, and stop, as well as common words
- **Vectorize:**
 - Create a document-term matrix with TFIDF on unigrams
- **Topic Model:**
 - Utilize LSA to transform descriptions into a topic space
- **Interpret and Recommend**

The 18 Noble Grapes

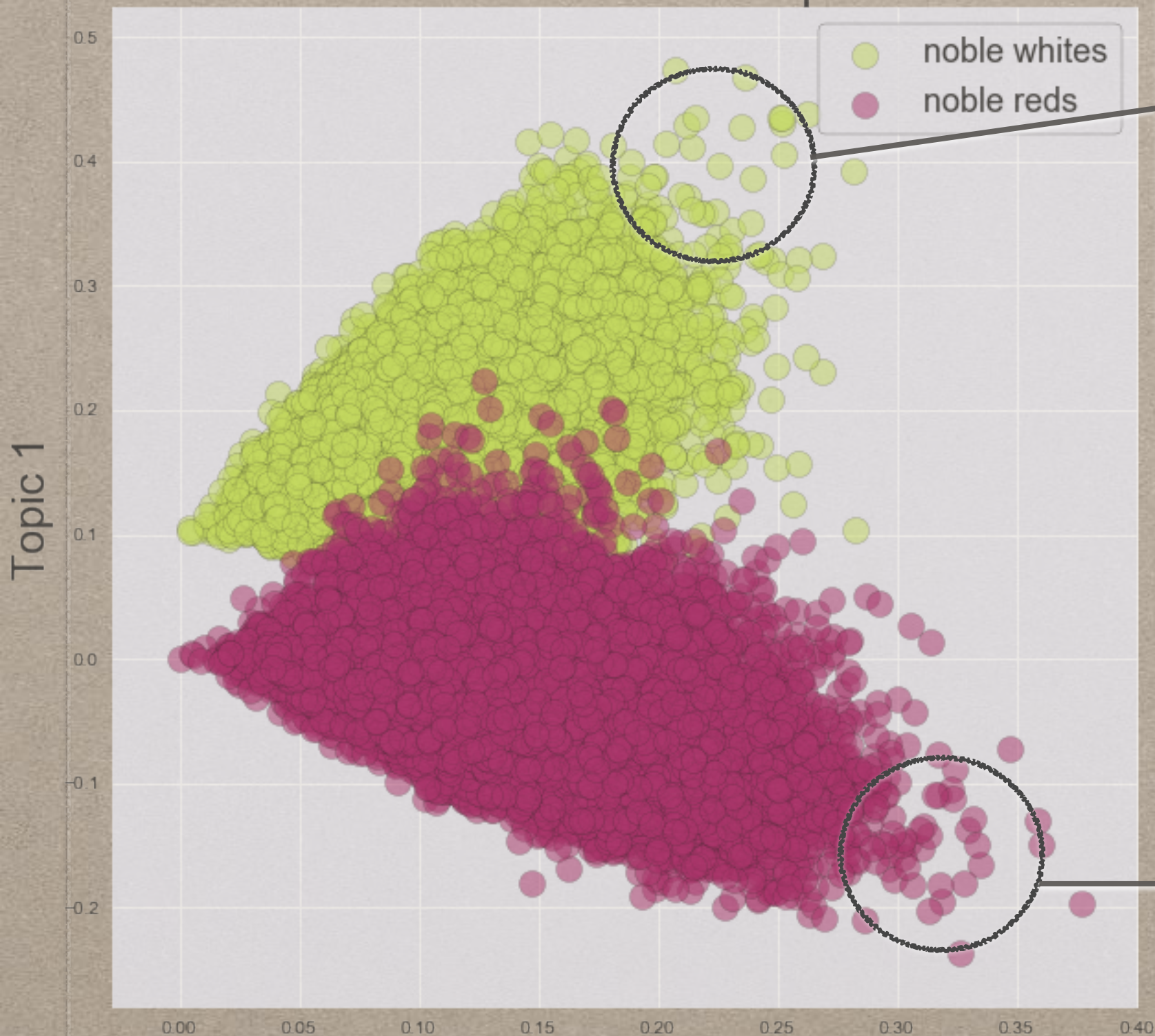


***9 main reds and 9
main whites***

***LSA with two
topics***

***Can we interpret
what Topic 0 and
Topic 1 are?***

The 18 Noble Grapes



White Wine

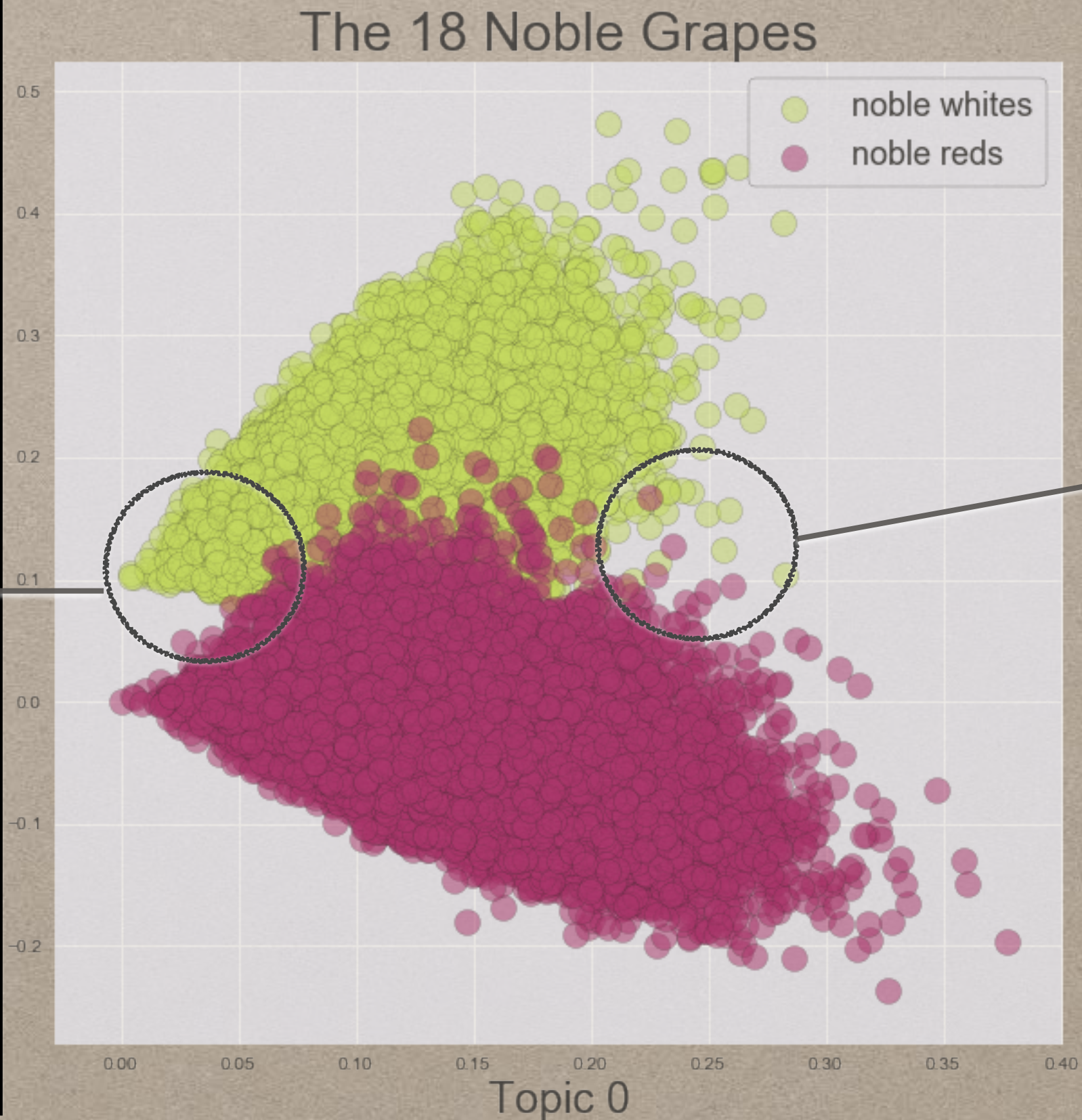
**'crisp', 'apple', 'citrus',
'fresh', 'peach', 'white',
'pear', 'lemon', 'green',
'clean', 'light', 'pineapple',
'lime', 'melon', 'bright',
'grapefruit', 'creamy',
'honey', 'apricot'**

Red Wine

**'tannins', 'black', 'cherry',
'blackberry', 'dark',
'chocolate', 'firm', 'plum',
'currant', 'tannic', 'licorice',
'berry', 'dense', 'tobacco',
'cassis', 'leather', 'red'**

Uncommon

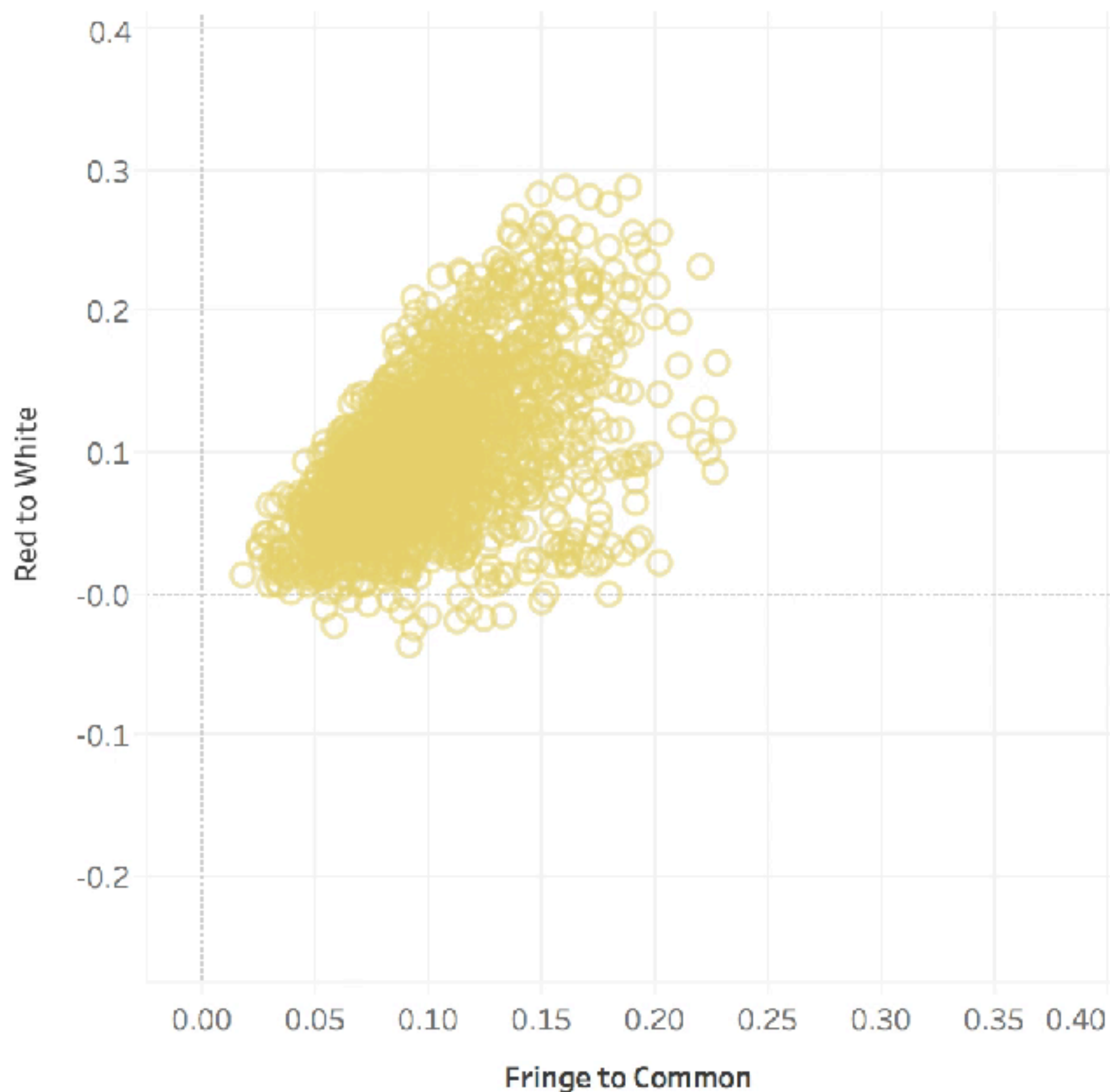
**'flom', 'judi',
'sorensen',
'outnot',
'odiferous',
'publics',
'katrina',
'sympathy',
'promotional',
'cynical',
'dillflavored',
'strawberryb
anana',
'mawkish',
'glueysweet',
'raytheon',
'ceo',
'wilkinson',
'services'**



Common

**'tannins',
'cherry',
'ripe',
'black', 'dry',
'rich',
'spice',
'soft',
'sweet',
'oak',
'blackberry',
'berry',
'fresh',
'good',
'shows',
'plum',
'crisp',
'texture',
'dark'**

The Noble 18 Grapes



- pinot grigio
- riesling
- sauvignon
- chenin blanc
- moscato
- gewürztraminer
- sémillon
- viognier
- chardonnay
- pinot noir
- grenache
- merlot
- sangiovese
- nebbiolo
- tempranillo
- cabernet sauvignon
- syrah
- malbec

< pinot grigio ▾ >

○

◀ ■ ▶

☒ Show history

INSIGHTS AND FUTURE WORK

- Wines are distinguishable by 5 basic characteristics
- User made descriptions can create wine recommendations
- Can descriptions distinguish more specific types of wine?
- Can descriptions be to be used for wine-food pairing?



MAKING A RECOMMENDATION

▼ Choose a type of wine

Select Wine Type:

Red

White

Surprise Me

► Choose one or more fruit flavors

► Choose one or more other flavors

► Choose one or more descriptive terms

Submit ☐

Run Interact



THANK YOU AND CHEERS!

QUESTIONS?

EXTRA SLIDES

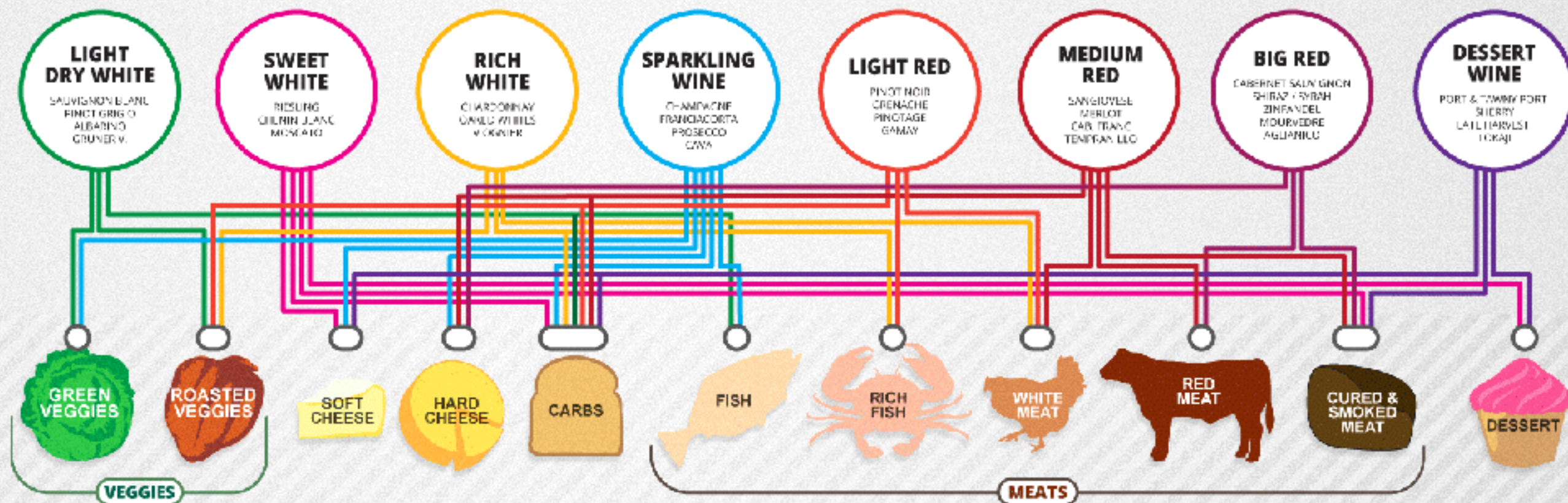
	Top	Bottom
Most Common Words	crisp, apple, citrus, fresh, peach, pear, lemon, green, clean, light, lime, melon, bright, grapefruit, creamy, honey, apricot	tannins, black, cherry, blackberry, dark, firm, chocolate, plum, cassis, currant, tannic, licorice, berry, dense, tobacco, leather
Most Common Wines	White	Red

	Left	Right
Most Common Words	flom, judi, sorensen, outnot, odiferous, publics, katrina, sympathy, promotional, cynical, dill flavored, strawberrybanana, mawkish, ceo, services, glueysweet	tannins, cherry, ripe, black, dry, rich, spice, soft, sweet, oak, blackberry, berry, fresh, good, shows, plum, crisp, texture, dark
Most Common Wines	Fringe, Uncommon	Common, Blends

RED VS WHITE WINE

	Red	White
Grape Color	Black grapes	White grapes
Process	Fermented with skins and seeds	Pressed before fermenting
Aging Technique	Oak barrels to increase tannins	Stainless steel vats to preserve floral and lighter flavors

THE BASICS TO WINE & FOOD PAIRING



FOODS THAT ARE DIFFICULT TO PAIR WITH WINE

asparagus

green bean

artichoke

brussel sprouts

chocolate

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LINKS

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