

Support Vector Machines with Beer

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First Look

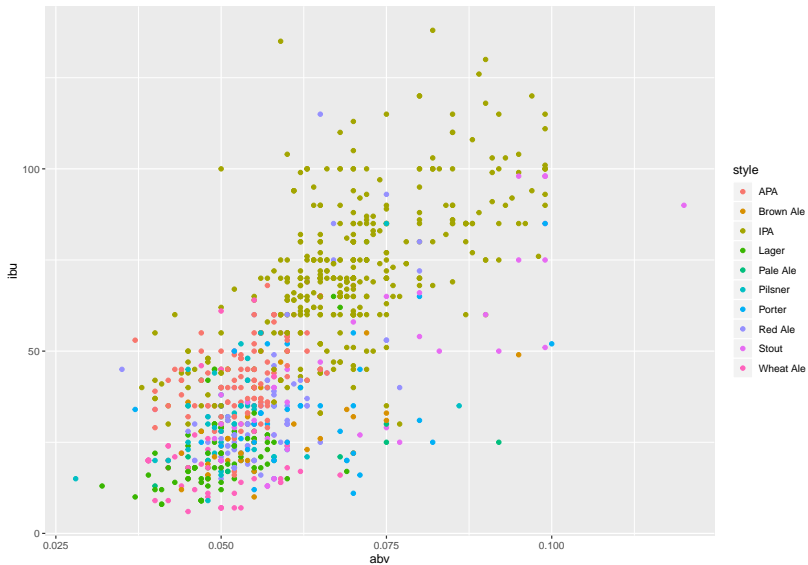
- ▶ Collected from CraftCans.com via Kaggle
- ▶ 100 distinct types of beer
- ▶ Several had to do with region
- ▶ Condensed to 12 beers

abv	ibu	id	name	style	brewery_id	ounces
0.061	60	1979	Bitter Bitch	APA	177	12.0
0.099	92	1036	Lower De Boom	Other	368	8.4
0.079	45	1024	Fireside Chat	Other	368	12.0
0.044	42	876	Bitter American	APA	368	12.0
0.049	17	802	Hell or High Watermelon Wheat (2009)	Other	368	12.0
0.049	17	801	Hell or High Watermelon Wheat (2009)	Other	368	12.0

Summary Statistics

var	mean	max	min
abv	0.0599139	0.125	0.027
ibu	42.7131673	138.000	4.000
ounces	13.5081139	32.000	8.400

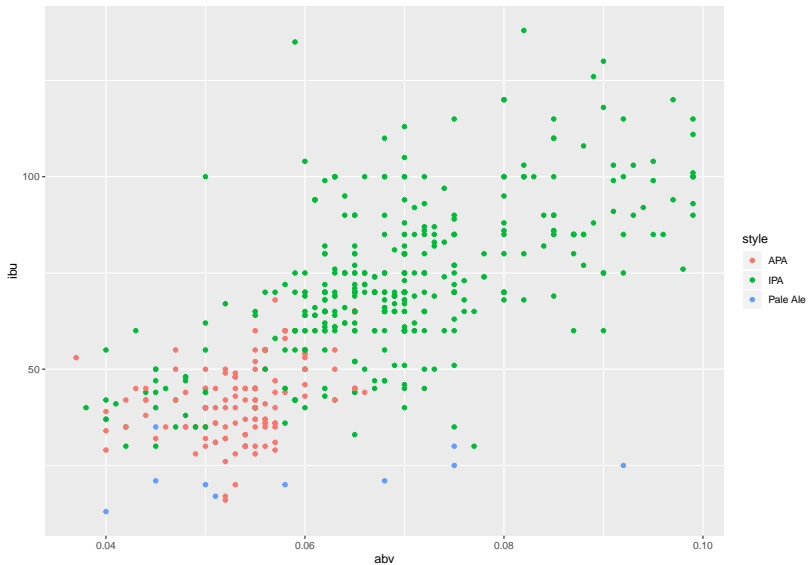
style	count
APA	153
Brown Ale	48
IPA	392
Lager	88
Misc. Ale	184
Other	232
Pale Ale	15
Pilsner	48
Porter	42
Red Ale	85
Stout	51
Wheat Ale	67



Full SVM

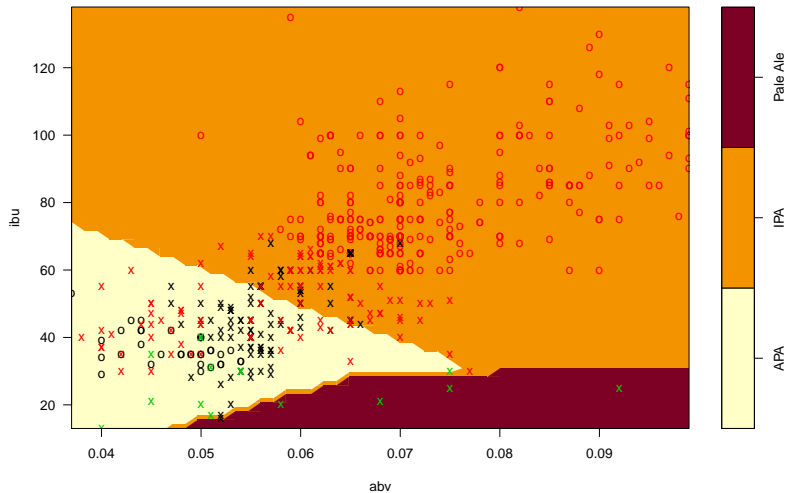
	APA	Brown Ale	IPA	Lager	Misc. Ale	Other	Pale Ale	Pilsner	Porter	Red Ale	Stout	Wheat Ale
APA	91	7	31	5	15	22	6	23	12	22	13	7
Brown Ale	0	0	0	0	0	0	0	0	0	0	0	0
IPA	49	3	355	5	31	14	0	1	6	16	15	2
Lager	0	0	0	0	0	0	0	0	0	0	0	0
Misc. Ale	0	4	2	0	21	9	2	1	3	1	3	0
Other	13	33	3	77	114	183	7	22	20	45	17	46
Pale Ale	0	0	0	0	0	0	0	0	0	0	0	0
Pilsner	0	0	0	0	0	0	0	0	0	0	0	0
Porter	0	0	0	0	0	0	0	0	0	0	0	0
Red Ale	0	0	0	0	0	0	0	0	0	1	0	0
Stout	0	1	1	0	0	2	0	0	1	0	3	0
Wheat Ale	0	0	0	1	3	2	0	1	0	0	0	12

IPA, APA, and Pale Ale

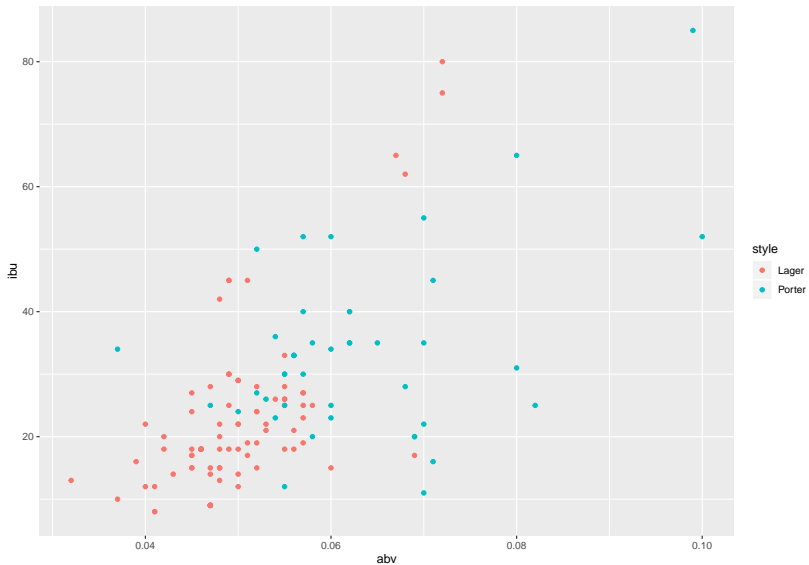


	APA	IPA	Pale Ale
APA	104	45	10
IPA	47	346	0
Pale Ale	2	1	5

SVM classification plot

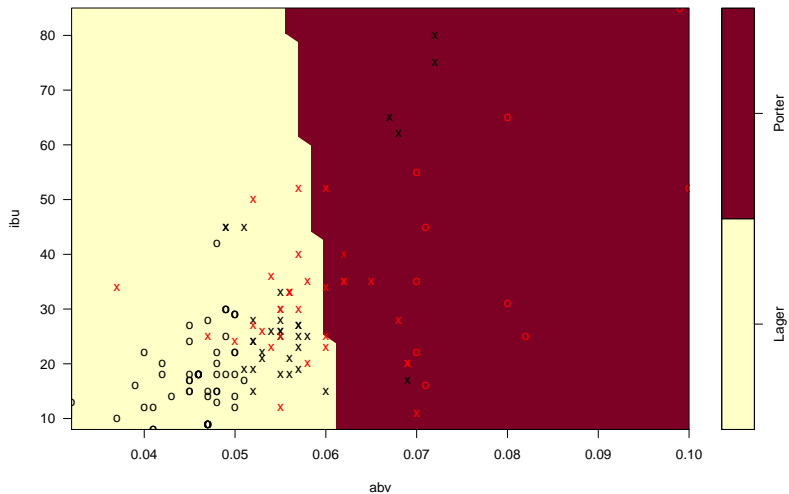


Lager and Porter

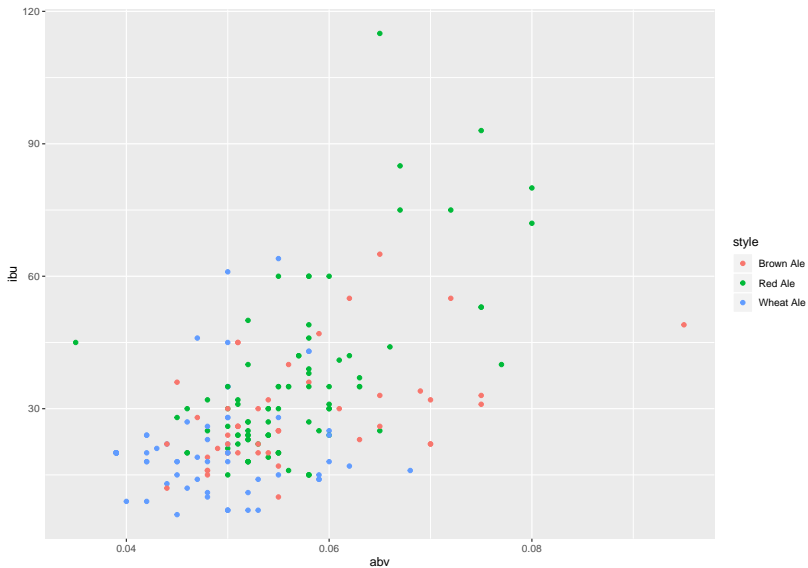


	Lager	Porter
Lager	82	20
Porter	6	22

SVM classification plot

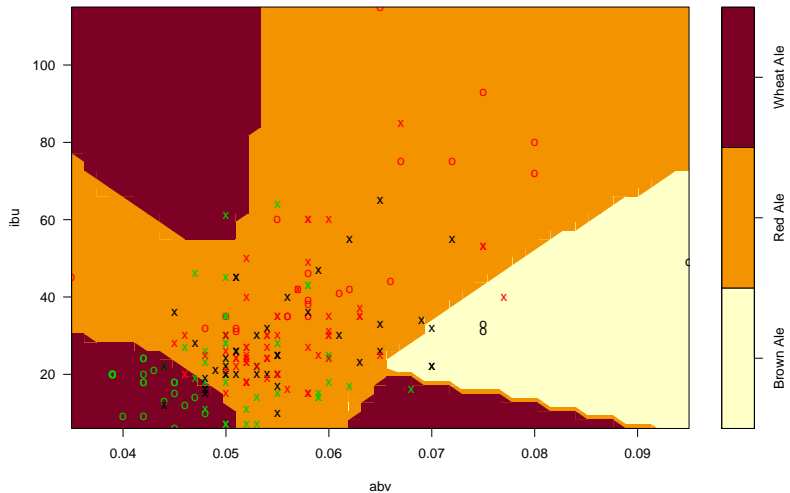


Ales



	Brown Ale	Red Ale	Wheat Ale
Brown Ale	5	1	0
Red Ale	37	82	30
Wheat Ale	6	2	37

SVM classification plot



Conclusion

- ▶ Data only included *abv* and *ibu*
- ▶ Another indicator, such as *color*, may have separated the data more clearly
- ▶ Maybe yeast and fermentation type is the only true indicator