### Visualization of tagged data

The report contains the following visualizations.

- 1. Visualizing objects versus tags
- 2. Visualizing tags versus objects
- 3. Hierarchical object clustering (a dendogram)
- 4. Hierarchical tag clustering (a dendogram)
- 5. Heatmap of objectwise hierarchical clustering
- 6. Heatmap of tagwise hierarchical clustering
- 7. Clusters among objects (using kmeans)
- 8. Clusters among tags (using kmeans)
- 9. Number of tags shared by objects
- 10. Number of objects shared by tags

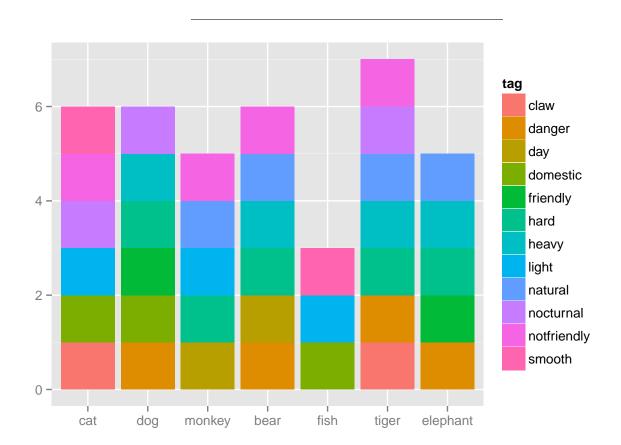
The objects are:

```
## [1] "cat" "dog" "monkey" "bear" "fish" "tiger"
## [7] "elephant"
```

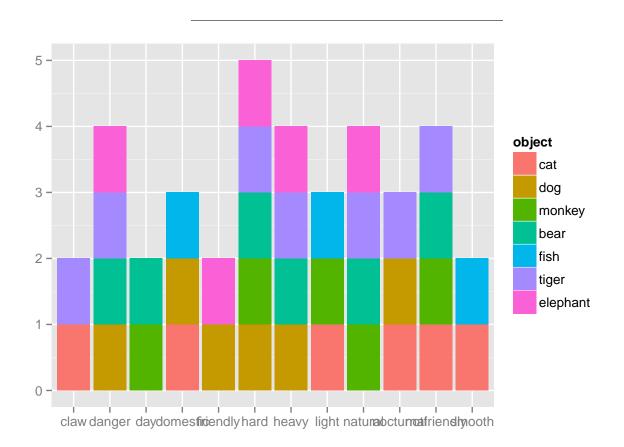
The tags are:

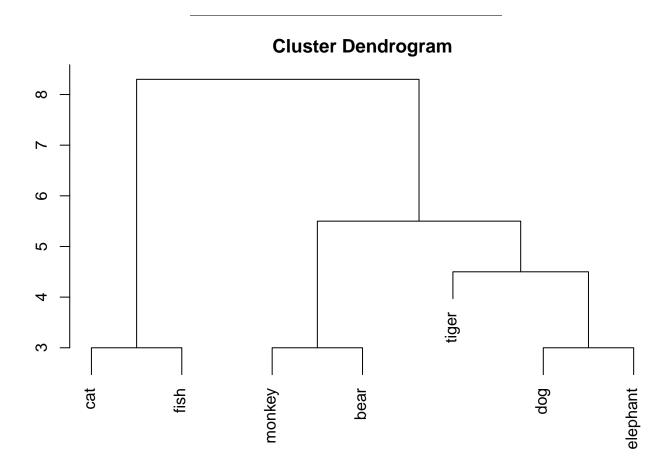
```
## [1] "claw" "danger" "day" "domestic" "friendly"
## [6] "hard" "heavy" "light" "natural" "nocturnal"
## [11] "notfriendly" "smooth"
```

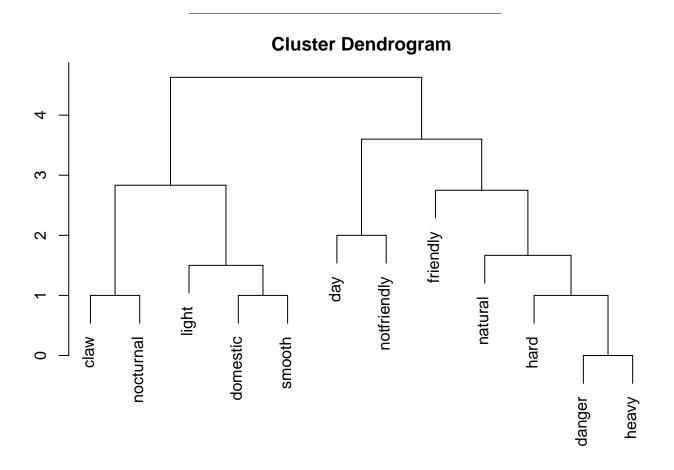
### Visualizing objects versus tags



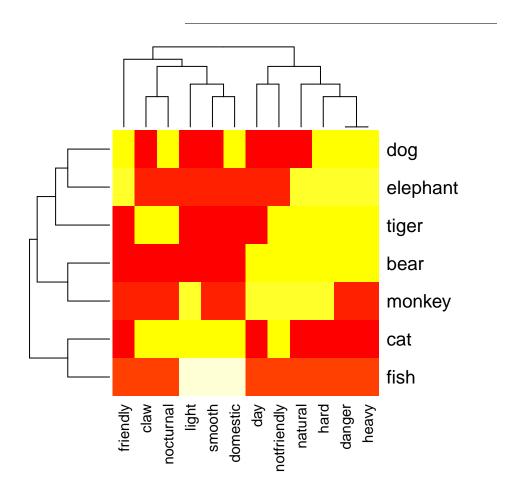
### Visualizing tags versus objects



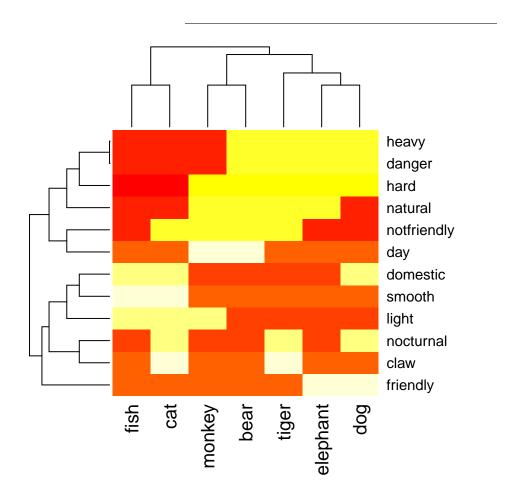




### Heatmap of objectwise hierarchial clustering



### Heatmap of tagwise hierarchial clustering



### Clusters among objects (using kmeans)

```
tiger
bear
monkey
fish
cat
elephant
```

```
## The clusters are:

## $`1`
## [1] "dog" "elephant"
##
## $`2`
## [1] "cat" "fish"
##
## $`3`
## [1] "monkey" "bear" "tiger"
```

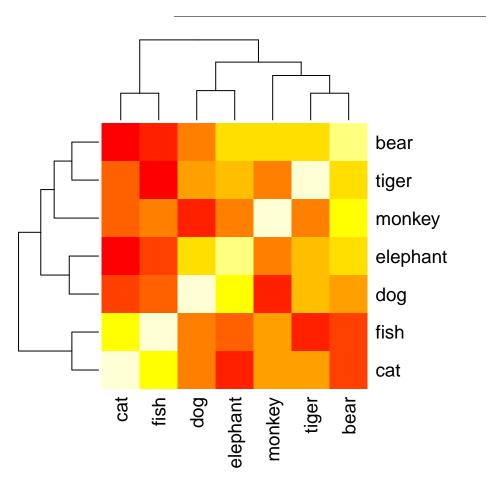
#### Clusters among tags (using kmeans)

## The clusters are:

notfriendly
natural
day
heavy
hard
friendly
danger
smooth
nocturnal
light
domestic
claw

```
## $`1`
## [1] "claw" "domestic" "light" "nocturnal" "smooth"
##
## $`2`
## [1] "danger" "friendly" "hard" "heavy"
##
## $`3`
## [1] "day" "natural" "notfriendly"
```

# Number of tags shared by objects



##	cat	dog	monkey	bear	fish	tiger	elephant
## cat	12	4	5	2	9	5	1
## dog	4	12	3	6	5	7	9
## monkey	5	3	12	9	6	6	6
## bear	2	6	9	12	3	9	9
## fish	9	5	6	3	12	2	4
## tiger	5	7	6	9	2	12	8
## elephant	1	9	6	9	4	8	12

# Number of objects shared by tags

	_						1				
								heavy			
								dange	r		
								hard			
								natura	ıl		
								notfrie	ndly		
								day			
								noctur	nal		
								claw			
								friendl	у		
								smoot	h		
								domes	stic		
				П				light			
	ŧ	유	≥≥	a	<u>⊋</u>	द्व ह	ъ >				
	<u>.</u>	domestic	end	urn	end end	atur ha	ang iea				
		don	Ę	oct	offri	Ĕ	9 -				
		•		_	$\geq$						
					_						
##									ww li	aht n	atural
## ##	claw							ard hea	vy li 3	ght n	atural 3
## ##	danger	claw d	anger d 3 7	lay d 3 3		c frie 4 2	endly h 3 5	ard hea 2 6	3 7	4 0	3 5
## ## ##	danger day	claw da 7 3 3	anger d 3 7 3	lay d 3 3 7		c frie 4 2 2	endly h	ard hea 2 6 4	3 7 3	4 0 4	3 5 5
## ## ## ##	danger day domestic	claw da 7 3 3 4	anger d 3 7 3 2	lay d 3 3 7 2		.c frie 4 2 2 7	endly h 3 5	ard hea 2 6 4 1	3 7 3 2	4 0 4 5	3 5 5 0
## ## ## ## ##	danger day domestic friendly hard	claw da 7 3 3 4 3 2	anger d 3 7 3 2 5 6	ay d 3 3 7 2 3		.c frie 4 2 2 7 4	endly h 3 5 3 4 7 4	ard hea 2 6 4 1 4 7	3 7 3 2 5 6	4 0 4 5 2	3 5 5
## ## ## ## ##	danger day domestic friendly hard heavy	claw d 7 3 3 4 3 2	anger d 3 7 3 2 5 6 7	lay d 3 7 2 3 4		.c frie 4 2 2 7 4 1	endly h 3 5 3 4 7 4 5	ard hea 2 6 4 1 4 7 6	3 7 3 2 5 6 7	4 0 4 5 2 1 0	3 5 5 0 3 6 5
## ## ## ## ## ##	danger day domestic friendly hard heavy light	claw d. 7 3 3 4 4 3 2 3 4	anger d 3 7 3 2 5 6 7	lay d 3 7 2 3 4 3		c frie 4 2 2 7 4 1 2 5	endly h. 3 5 3 4 7 4 5 2	ard hea 2 6 4 1 4 7 6 1	3 7 3 2 5 6 7 0	4 0 4 5 2 1 0 7	3 5 5 0 3 6 5 2
## ## ## ## ## ##	danger day domestic friendly hard heavy	claw d 7 3 3 4 3 2	anger d 3 7 3 2 5 6 7	lay d 3 7 2 3 4		.c frie 4 2 2 7 4 1	endly h 3 5 3 4 7 4 5	ard hea 2 6 4 1 4 7 6	3 7 3 2 5 6 7	4 0 4 5 2 1 0	3 5 5 0 3 6 5
## ## ## ## ## ## ##	danger day domestic friendly hard heavy light natural nocturnal notfriendly	claw d 7 3 3 4 3 2 3 4 3 6 5	anger d 3 7 3 2 5 6 7 0 5 4 3	lay d 3 7 2 3 4 5 2 5		.c frie 4 2 2 7 4 1 2 5 0 5 2	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 4 7 6 1	3 7 3 2 5 6 7 0 5 4 3	4 0 4 5 2 1 0 7 2 3 4	3 5 5 0 3 6 5 2 7 2 5
## ## ## ## ## ## ##	danger day domestic friendly hard heavy light natural nocturnal	claw da 7 3 3 4 3 2 3 4 3 6 5 5	anger d 3 7 3 2 5 6 7 0 5 4 3 1	ay d 3 7 2 3 4 5 2 5 3	lomesti	c frie 4 2 2 7 4 1 2 5 0 5 2 6	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 4 7 6 1 6	3 7 3 2 5 6 7 0 5 4	4 0 4 5 2 1 0 7 2 3	3 5 0 3 6 5 2 7 2
## ## ## ## ## ## ## ##	danger day domestic friendly hard heavy light natural nocturnal notfriendly smooth	claw da 7 3 3 4 3 2 3 4 3 6 5 5	anger d 3 7 3 2 5 6 7 0 5 4 3 1 nal not	ay d 3 7 2 3 4 5 2 5 3	omesti	c frie 4 2 2 7 4 1 2 5 0 5 2 6	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 7 6 1 6 3 4	3 7 3 2 5 6 7 0 5 4 3	4 0 4 5 2 1 0 7 2 3 4	3 5 5 0 3 6 5 2 7 2 5
## ###################################	danger day domestic friendly hard heavy light natural nocturnal notfriendly	claw da 7 3 3 4 3 2 3 4 3 6 5 5	anger d 3 7 3 2 5 6 7 0 5 4 3 1	ay d 3 7 2 3 4 5 2 5 3	lomesti	c frie 4 2 2 7 4 1 2 5 0 5 2 6	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 7 6 1 6 3 4	3 7 3 2 5 6 7 0 5 4 3	4 0 4 5 2 1 0 7 2 3 4	3 5 5 0 3 6 5 2 7 2 5
## ## ## ## ## ## ## ## ##	danger day domestic friendly hard heavy light natural nocturnal notfriendly smooth  claw danger day	claw da 7 3 3 4 3 2 3 4 3 6 5 5	anger d	ay d 3 7 2 3 4 5 2 5 3	endly s	c frie 4 2 2 7 4 1 2 5 0 5 2 6 smooth 5 1 3	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 7 6 1 6 3 4	3 7 3 2 5 6 7 0 5 4 3	4 0 4 5 2 1 0 7 2 3 4	3 5 5 0 3 6 5 2 7 2 5
## ## ## ## ## ## ## ## ##	danger day domestic friendly hard heavy light natural nocturnal notfriendly smooth  claw danger day domestic	claw da 7 3 3 4 3 2 3 4 3 6 5 5	anger d	ay d 3 7 2 3 4 5 2 5 3	endly s	2 2 7 4 1 2 5 0 5 2 6 smooth 5 1 3 6	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 7 6 1 6 3 4	3 7 3 2 5 6 7 0 5 4 3	4 0 4 5 2 1 0 7 2 3 4	3 5 5 0 3 6 5 2 7 2 5
## ## ## ## ## ## ## ## ##	danger day domestic friendly hard heavy light natural nocturnal notfriendly smooth  claw danger day domestic friendly	claw da 7 3 3 4 3 2 3 4 3 6 5 5	anger d	ay d 3 7 2 3 4 5 2 5 3	endly s	c frie 4 2 2 7 4 1 2 5 0 5 2 6 smooth 5 1 3	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 7 6 1 6 3 4	3 7 3 2 5 6 7 0 5 4 3	4 0 4 5 2 1 0 7 2 3 4	3 5 5 0 3 6 5 2 7 2 5
## ## ## ## ## ## ## ## ## ##	danger day domestic friendly hard heavy light natural nocturnal notfriendly smooth  claw danger day domestic	claw da 7 3 3 4 3 2 3 4 3 6 5 5	anger d 3 7 3 2 5 6 7 0 5 4 3 1 nal not 6 4 2 5 4	ay d 3 7 2 3 4 5 2 5 3	endly s	c frie 4 2 2 7 4 1 2 5 0 5 2 6 smooth 5 1 3 6 3	endly h 3 5 3 4 7 4 5 2 3 4	ard hea 2 6 4 1 7 6 1 6 3 4	3 7 3 2 5 6 7 0 5 4 3	4 0 4 5 2 1 0 7 2 3 4	3 5 5 0 3 6 5 2 7 2 5

##	natural	2	5	1
##	nocturnal	7	4	4
##	notfriendly	4	7	3
##	smooth	4	3	7

The document with visualizations was generated using the code from the project  $\bf Analyzing\ tagged\ data\ (https://github.com/talegari/analyzing-tagged-data)$ 

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