Package 'ztable' ver 0.1.0

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Contents

Introduction

I like the **xtable** package very much. But when I use a large font or **flushright** latex environment, there is a caption size discrepancy and misposition of caption.

```
require(xtable)
print(xtable(head(mtcars),caption="xtable: Caption size discrepancy and misplacement"),
      size="footnotesize",latex.environment="flushright",caption.placement="top")
```

% latex table generated in R 3.1.2 by xtable 1.7-4 package % Mon Dec 15 17:44:25 2014

Table 1: xtable: Caption size discrepancy and misplacement

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00	4.00	4.00
Mazda RX4 Wag	21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00	4.00	4.00
Datsun 710	22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00	4.00	1.00
Hornet 4 Drive	21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00	3.00	1.00
Hornet Sportabout	18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00	3.00	2.00
Valiant	18.10	6.00	225.00	105.00	2.76	3.46	20.22	1.00	0.00	3.00	1.00

That's why I developed ztable package.

```
require(ztable)
ztable(head(mtcars),size=3,position="r",zebra=NULL,
       caption="Table 2.ztable: Caption size matching and within the table position")
```

Table 2.ztable: Caption size matching and within the table position

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00	4.00	4.00
Mazda RX4 Wag	21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00	4.00	4.00
Datsun 710	22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00	4.00	1.00
Hornet 4 Drive	21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00	3.00	1.00
Hornet Sportabout	18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00	3.00	2.00
Valiant	18.10	6.00	225.00	105.00	2.76	3.46	20.22	1.00	0.00	3.00	1.00

Package **ztable** consist of one function: ztable. It's main function is creating zebra zebra striping tables(tables with alternating row colors) in both Latex and html formats easily from mainly data.frame or an R object such as matrix, lm, aov, anova, glm and coxph objects. It is fully customizable and you can get similar tables in both latex and html format without changing source. The default output is Latex format, but you can get html format by adding just one sentence.

```
options(ztable.type="html")
```

It's usage is somewhat similar to xtable, but very simple.

data.frame

Basic Use

It's use is very simple. Just use **ztable()** function. You can get the zebra sripig table by default.(default value zebra=1; striping on odd rows).

```
ztable(head(mtcars),caption="Table 3. Basic Use")
```

Table 3. Basic Use

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00	4.00	4.00
Mazda RX4 Wag	21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00	4.00	4.00
Datsun 710	22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00	4.00	1.00
Hornet 4 Drive	21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00	3.00	1.00
Hornet Sportabout	18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00	3.00	2.00
Valiant	18.10	6.00	225.00	105.00	2.76	3.46	20.22	1.00	0.00	3.00	1.00

Tailoring zebra striping

You can get non-zebra table by change parameter zebra=NULL or change zebra striping on even rows by zebra=2.

```
ztable(head(mtcars),zebra=NULL,size=3,
       caption="Table 4. Non-zebra Table with small size")
```

Table 4. Non-zebra Table with small size

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00	4.00	4.00
Mazda RX4 Wag	21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00	4.00	4.00
Datsun 710	22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00	4.00	1.00
Hornet 4 Drive	21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00	3.00	1.00
Hornet Sportabout	18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00	3.00	2.00
Valiant	18.10	6.00	225.00	105.00	2.76	3.46	20.22	1.00	0.00	3.00	1.00

Customize the caption and the font size

You can change the position of table by using parameter position. You can use "r" for right position, "l" for left position and "c" for center position(default). You can change the color of zebra striping by change the parameter zebra.color. You can also change the size of font from 1 to 10(default is 5). You can change the caption.placement("top" or "bottom") and caption.position("c" for center / "r" for right/ "l" for left).

```
ztable(head(mtcars[c(1:7)]),zebra=2,zebra.color="lightcyan",size=7,
       caption="Table 5. Left-sided caption at botom with large font",
       caption.placement="bottom",caption.position="l")
```

	mpg	cyl	disp	hp	drat	wt	qsec
Mazda RX4	21.00	6.00	160.00	110.00	3.90	2.62	16.46
Mazda RX4 Wag	21.00	6.00	160.00	110.00	3.90	2.88	17.02
Datsun 710	22.80	4.00	108.00	93.00	3.85	2.32	18.61
Hornet 4 Drive	21.40	6.00	258.00	110.00	3.08	3.21	19.44
Hornet Sportabout	18.70	8.00	360.00	175.00	3.15	3.44	17.02
Valiant	18.10	6.00	225.00	105.00	2.76	3.46	20.22

Table 5. Left-sided caption at botom with large font

aov object

ztable() can be used for **aov** object. When used for **aov** object, the function call is added as footer to the table. The parameter **show.footer** can be used whether or not include footer in the table. Dafault value is TRUE.

```
out <- aov(mpg ~ ., data=mtcars)
ztable(out)
```

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
cyl	1	817.71	817.71	116.42	0.0000
disp	1	37.59	37.59	5.35	0.0309
hp	1	9.37	9.37	1.33	0.2610
drat	1	16.47	16.47	2.34	0.1406
wt	1	77.48	77.48	11.03	0.0032
qsec	1	3.95	3.95	0.56	0.4617
vs	1	0.13	0.13	0.02	0.8932
am	1	14.47	14.47	2.06	0.1659
gear	1	0.97	0.97	0.14	0.7137
carb	1	0.41	0.41	0.06	0.8122
Residuals	21	147.49	7.02		

Call: aov(formula = mpg ~ ., data = mtcars)

Linear model : lm object

ztable() can be used for **lm** object. When used for **lm** object, the function call is added as footer to the table, too.

```
fit <- lm(mpg ~ cyl + disp + wt + drat + am, data=mtcars)
ztable(fit)
```

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	41.2964	7.5384	5.48	0.0000
cyl	-1.7940	0.6505	-2.76	0.0105
disp	0.0074	0.0123	0.60	0.5546
wt	-3.5870	1.2105	-2.96	0.0064
drat	-0.0936	1.5488	-0.06	0.9523
am	0.1730	1.5300	0.11	0.9109

Call: lm(formula = mpg ~ cyl + disp + wt + drat + am, data = mtcars)

Analysis of Variance Table : anova object

ztable() can be used for **anova** object to show the anova table. When used for **anova** object, headings of anova are added as headings to the table. The parameter **show.footer** can be used whether or not include footer in the table. Dafault value is TRUE.

```
a=anova(fit)
ztable(a)
```

Analysis of Variance Table
Response: mpg

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
cyl	1	817.71	817.71	112.85	0.0000
disp	1	37.59	37.59	5.19	0.0312
wt	1	82.25	82.25	11.35	0.0024
drat	1	0.00	0.00	0.00	0.9939
am	1	0.09	0.09	0.01	0.9109
Residuals	26	188.40	7.25		

This is examples of another **anova** object. The models in this anova tables showed as table headings. You can decide whether or not include the headings in the tableby using parameter **show.heading**(default: TRUE).

```
fit2 <- lm(mpg ~ cyl+wt, data=mtcars)
b=anova(fit2,fit)
ztable(b)
```

```
ztable(b,show.heading=FALSE)
```

Analysis of Variance Table
Model 1: mpg ~ cyl + wt
Model 2: mpg ~ cyl + disp + wt + drat + am

	Res.Df	RSS	Df	Sum of Sq	F	Pr(>F)
1	29.0	191.17				
2	26.0	188.40	3.0	2.77	0.13	0.9429

	Res.Df	RSS	Df	Sum of Sq	F	Pr(>F)
1	29.0	191.17				
2	26.0	188.40	3.0	2.77	0.13	0.9429

Generalized linear model ; glm object

ztable() can be used for **glm**(generalized linear model) object. In this time, **ztable()** shows the **odds ratio(OR) and 95% confidence interval** as well as atandard R output.

```
require(survival)
```

```
## Loading required package: survival
## Loading required package: splines
```

```
data(colon)
attach(colon)
out <- glm(status ~ rx+obstruct+adhere+nodes+extent, data=colon, family=binomial)
ztable(out)
```

	Estimate	Std. Error	z value	Pr(>|z|)	OR	lcl	ucl
(Intercept)	-2.3642	0.3426	-6.90	0.0000	0.09	0.05	0.18
rxLev	-0.0712	0.1203	-0.59	0.5538	0.93	0.74	1.18
rxLev+5FU	-0.6135	0.1231	-4.98	0.0000	0.54	0.42	0.69
obstruct	0.2320	0.1251	1.85	0.0636	1.26	0.99	1.61
adhere	0.4164	0.1429	2.91	0.0036	1.52	1.15	2.01
nodes	0.1845	0.0183	10.06	0.0000	1.20	1.16	1.25
extent	0.6238	0.1142	5.46	0.0000	1.87	1.50	2.34

Call: glm(formula = status ~ rx + obstruct + adhere + nodes + extent, family = binomial, data = colon)

Again, **ztable()** also shows the anova table of this model.

```
ztable(anova(out))
```

Analysis of Deviance Table
Model: binomial, link: logit
Response: status
Terms added sequentially (first to last)

	Df	Deviance	Resid. Df	Resid. Dev
NULL			1821	2525.40
rx	2	34.84	1819	2490.56
obstruct	1	3.66	1818	2486.90
adhere	1	11.74	1817	2475.16
nodes	1	145.01	1816	2330.15
extent	1	32.59	1815	2297.55

More aov object

```
op <- options(contrasts = c("contr.helmert", "contr.poly"))
npk.aov <- aov(yield ~ block + N*P*K, npk)
ztable(npk.aov,zebra=1)
```

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
block	5	343.29	68.66	4.45	0.0159
N	1	189.28	189.28	12.26	0.0044
P	1	8.40	8.40	0.54	0.4749
K	1	95.20	95.20	6.17	0.0288
N:P	1	21.28	21.28	1.38	0.2632
N:K	1	33.14	33.14	2.15	0.1686
P:K	1	0.48	0.48	0.03	0.8628
Residuals	12	185.29	15.44		

Call: aov(formula = yield ~ block + N * P * K, data = npk)

More lm object

```
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)
ztable(lm.D9)
```

```
ztable(anova(lm.D9))
```

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	4.8465	0.1557	31.12	0.0000
group1	-0.1855	0.1557	-1.19	0.2490

Call: lm(formula = weight ~ group)

Analysis of Variance Table
Response: weight

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
group	1	0.69	0.69	1.42	0.2490
Residuals	18	8.73	0.48		

More glm object

```
counts <- c(18,17,15,20,10,20,25,13,12)
outcome <- gl(3,1,9)
treatment <- gl(3,3)
d.AD <- data.frame(treatment, outcome, counts)
glm.D93 <- glm(counts ~ outcome + treatment, family = poisson())
ztable(glm.D93,align="c|rrr|r|rrr")
```

	Estimate	Std. Error	z value	Pr(>|z|)	OR	lcl	ucl
(Intercept)	2.7954	0.0831	33.64	0.0000	16.37	13.84	19.18
outcome1	-0.2271	0.1011	-2.25	0.0246	0.80	0.65	0.97
outcome2	-0.0220	0.0592	-0.37	0.7106	0.98	0.87	1.10
treatment1	-0.0000	0.1000	-0.00	1.0000	1.00	0.82	1.22
treatment2	-0.0000	0.0577	-0.00	1.0000	1.00	0.89	1.12

Call: glm(formula = counts ~ outcome + treatment, family = poisson())

Principal Components Analysis : prcomp object

ztable() can be used in principal components analysis. Followings are examples of ztable() of **prcomp** object.

```
data(USArrests)
pr1 <- prcomp(USArrests)
ztable(pr1)
```

```
ztable(summary(pr1))
```

Rotation:

	PC1	PC2	PC3	PC4
Murder	0.0417	-0.0448	0.0799	-0.9949
Assault	0.9952	-0.0588	-0.0676	0.0389
UrbanPop	0.0463	0.9769	-0.2005	-0.0582
Rape	0.0752	0.2007	0.9741	0.0723

Importance of components:

	PC1	PC2	PC3	PC4
Standard deviation	83.7324	14.2124	6.4894	2.4828
Proportion of Variance	0.9655	0.0278	0.0058	0.0008
Cumulative Proportion	0.9655	0.9933	0.9991	1.0000

Survival Analysis : coxph object

ztable() can be used in principal components analysis. When used for Cox proportional hazard model, **ztable()** showed the hazard ratio and 95% confidence interval ready for publication to medical journal.

```
colon$TS = Surv(time,status==1)
out=coxph(TS~rx+obstruct+adhere+differ+extent+surg+node4,data=colon)
ztable(out)
```

	HR	lcl	ucl	se(coef)	z	Pr(>|z|)
rx1	0.999	0.925	1.079	0.039	-0.030	0.9764
rx2	0.871	0.829	0.915	0.025	-5.464	0.0000
obstruct	1.267	1.079	1.489	0.082	2.885	0.0039
adhere	1.181	0.991	1.409	0.090	1.856	0.0634
differ	1.219	1.067	1.394	0.068	2.906	0.0037
extent	1.523	1.298	1.787	0.082	5.152	0.0000
surg	1.274	1.104	1.469	0.073	3.319	0.0009
node4	2.359	2.059	2.702	0.069	12.383	0.0000

Call: coxph(formula = TS ~ rx + obstruct + adhere + differ + extent + surg + node4, data = colon)

Customize the zebra striping colors

If you wanted to use several colors for zebra striping, you can set the parameter **zebra** to zero(e.g. zebra=0) and set the **zebra.color** parameter with vector of your favorite colors. Your favorite colors are used to zebra striping. For your convienience, ten colors are predifned for this purpose. The predefined colors are: c("peach","peach-orange","peachpuff","peach-yellow","pear","pearl","peridot","periwinkle","pastelred","pastelgray").

```
ztable(mtcars,zebra=0)
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00	4.00	4.00
Mazda RX4 Wag	21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00	4.00	4.00
Datsun 710	22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00	4.00	1.00
Hornet 4 Drive	21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00	3.00	1.00
Hornet Sportabout	18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00	3.00	2.00
Valiant	18.10	6.00	225.00	105.00	2.76	3.46	20.22	1.00	0.00	3.00	1.00
Duster 360	14.30	8.00	360.00	245.00	3.21	3.57	15.84	0.00	0.00	3.00	4.00
Merc 240D	24.40	4.00	146.70	62.00	3.69	3.19	20.00	1.00	0.00	4.00	2.00
Merc 230	22.80	4.00	140.80	95.00	3.92	3.15	22.90	1.00	0.00	4.00	2.00
Merc 280	19.20	6.00	167.60	123.00	3.92	3.44	18.30	1.00	0.00	4.00	4.00
Merc 280C	17.80	6.00	167.60	123.00	3.92	3.44	18.90	1.00	0.00	4.00	4.00
Merc 450SE	16.40	8.00	275.80	180.00	3.07	4.07	17.40	0.00	0.00	3.00	3.00
Merc 450SL	17.30	8.00	275.80	180.00	3.07	3.73	17.60	0.00	0.00	3.00	3.00
Merc 450SLC	15.20	8.00	275.80	180.00	3.07	3.78	18.00	0.00	0.00	3.00	3.00
Cadillac Fleetwood	10.40	8.00	472.00	205.00	2.93	5.25	17.98	0.00	0.00	3.00	4.00
Lincoln Continental	10.40	8.00	460.00	215.00	3.00	5.42	17.82	0.00	0.00	3.00	4.00
Chrysler Imperial	14.70	8.00	440.00	230.00	3.23	5.34	17.42	0.00	0.00	3.00	4.00
Fiat 128	32.40	4.00	78.70	66.00	4.08	2.20	19.47	1.00	1.00	4.00	1.00
Honda Civic	30.40	4.00	75.70	52.00	4.93	1.61	18.52	1.00	1.00	4.00	2.00
Toyota Corolla	33.90	4.00	71.10	65.00	4.22	1.83	19.90	1.00	1.00	4.00	1.00
Toyota Corona	21.50	4.00	120.10	97.00	3.70	2.46	20.01	1.00	0.00	3.00	1.00
Dodge Challenger	15.50	8.00	318.00	150.00	2.76	3.52	16.87	0.00	0.00	3.00	2.00
AMC Javelin	15.20	8.00	304.00	150.00	3.15	3.44	17.30	0.00	0.00	3.00	2.00
Camaro Z28	13.30	8.00	350.00	245.00	3.73	3.84	15.41	0.00	0.00	3.00	4.00
Pontiac Firebird	19.20	8.00	400.00	175.00	3.08	3.85	17.05	0.00	0.00	3.00	2.00
Fiat X1-9	27.30	4.00	79.00	66.00	4.08	1.94	18.90	1.00	1.00	4.00	1.00
Porsche 914-2	26.00	4.00	120.30	91.00	4.43	2.14	16.70	0.00	1.00	5.00	2.00
Lotus Europa	30.40	4.00	95.10	113.00	3.77	1.51	16.90	1.00	1.00	5.00	2.00
Ford Pantera L	15.80	8.00	351.00	264.00	4.22	3.17	14.50	0.00	1.00	5.00	4.00
Ferrari Dino	19.70	6.00	145.00	175.00	3.62	2.77	15.50	0.00	1.00	5.00	6.00
Maserati Bora	15.00	8.00	301.00	335.00	3.54	3.57	14.60	0.00	1.00	5.00	8.00
Volvo 142E	21.40	4.00	121.00	109.00	4.11	2.78	18.60	1.00	1.00	4.00	2.00

The color names used for this purpose are predefined in the data **zcolors** included in **ztable** package. Please type **?zcolors** in R console for help file or just type **zcolors**. You can see 749 color names defined in data **zcolors**.