

# gstat gridded data directional variogram issue

*Bart Rogiers*

*Thu Jan 07 10:21:41 2016*

```
require('gstat')
```

```
## Loading required package: gstat
```

```
## Warning: package 'gstat' was built under R version 3.2.3
```

```
require('sp')
```

```
## Loading required package: sp
```

```
## Warning: package 'sp' was built under R version 3.2.3
```

```
require('ggplot2')
```

```
## Loading required package: ggplot2
```

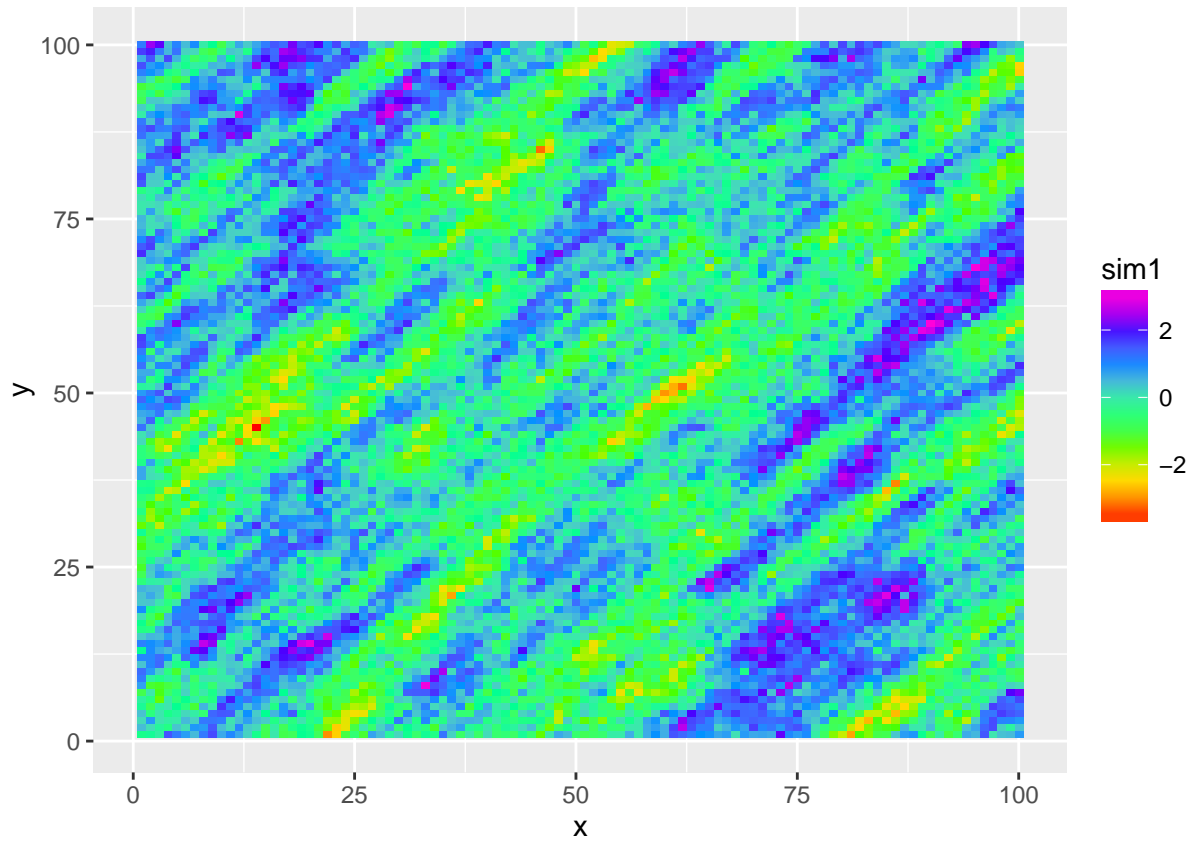
```
## Warning: package 'ggplot2' was built under R version 3.2.3
```

Create artificial data:

```
dat <- expand.grid(x=1:100,y=1:100)
coordinates(dat) <- ~x+y
gridded(dat) <- TRUE
g <- gstat(id='z',formula=z~1,model=vgm(0.9,'Sph',60,0.1,anis=c(45,0.1)),data=dat,dummy=TRUE,beta=0,m
dat <- data.frame(predict(g,newdata=dat,nsim=1))
```

```
## [using unconditional Gaussian simulation]
```

```
ggplot(dat,aes(x=x,y=y,fill=sim1)) + geom_raster() + scale_fill_gradientn(colours=rainbow(7))
```

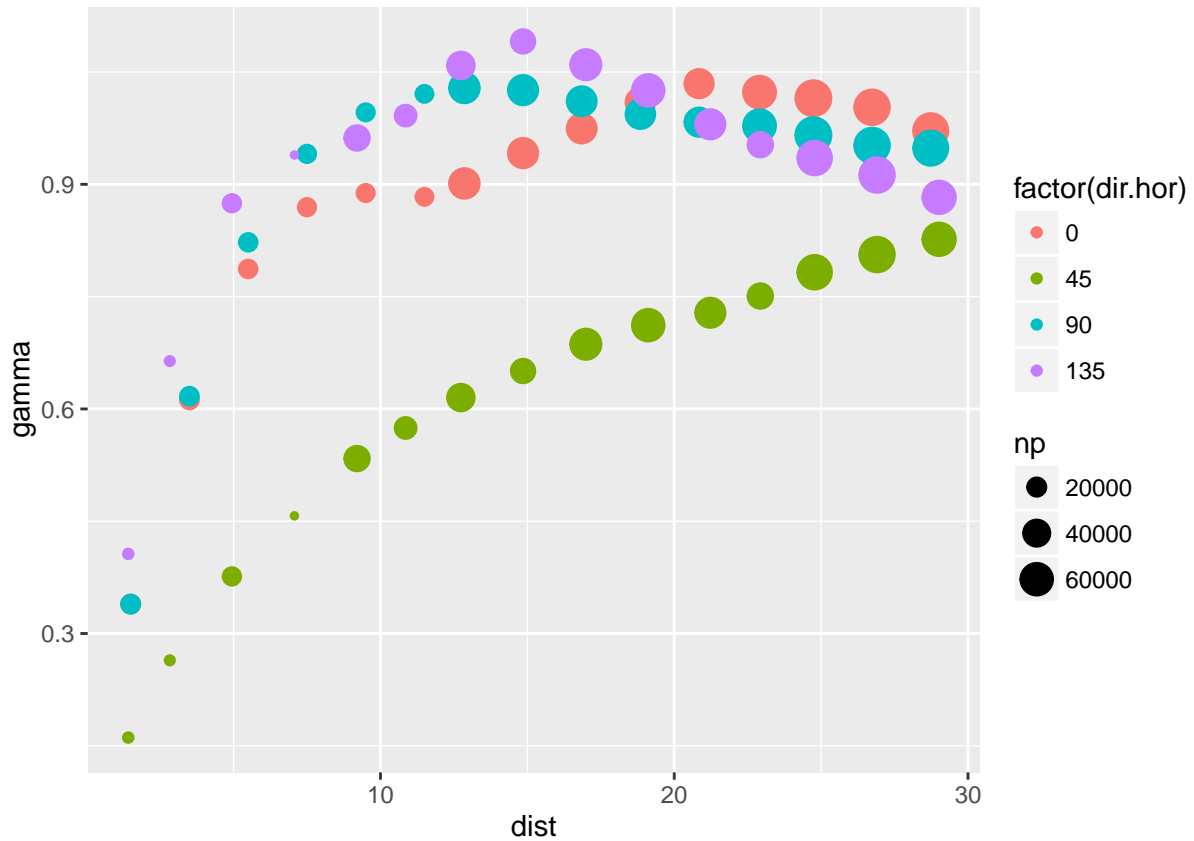


Perform variography:

```

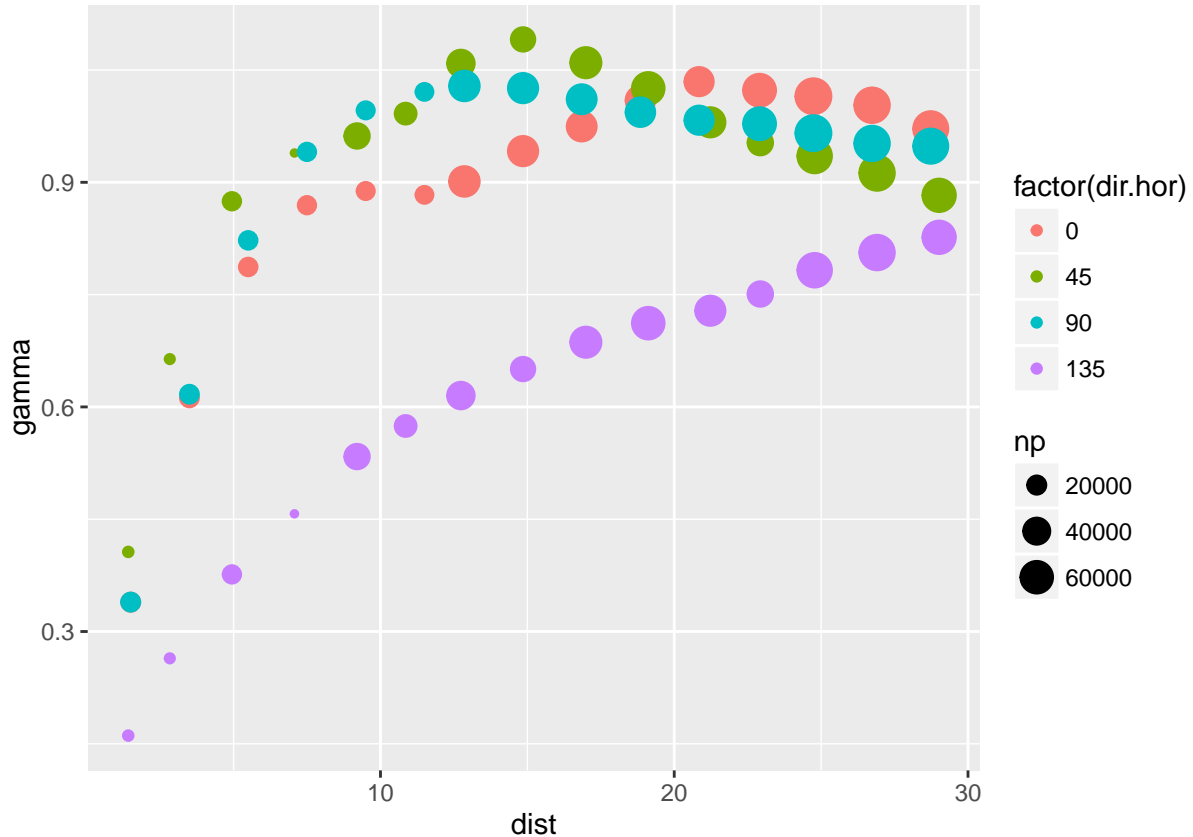
coordinates(dat) <- ~x+y
g <- gstat(id='z',formula=sim1~1,data=dat)
expvar <- variogram(g,alpha=c(0,45,90,135),tol.hor=5,cutoff=30)
ggplot(expvar,aes(x=dist,y=gamma,size=np,col=factor(dir.hor))) + geom_point()

```



Variography with gridded data:

```
gridded(dat) <- TRUE
g <- gstat(id='z',formula=sim1~1,data=dat)
expvar <- variogram(g,alpha=c(0,45,90,135),tol.hor=5,cutoff=30)
ggplot(expvar,aes(x=dist,y=gamma,size=np,col=factor(dir.hor))) + geom_point()
```



The 45 and 135° experimental variogram points seem to have switched. This is not the expected behaviour I suppose?

```
sessionInfo()
```

```
## R version 3.2.1 (2015-06-18)
## Platform: i386-w64-mingw32/i386 (32-bit)
## Running under: Windows 7 (build 7601) Service Pack 1
##
## locale:
## [1] LC_COLLATE=English_United Kingdom.1252
## [2] LC_CTYPE=English_United Kingdom.1252
## [3] LC_MONETARY=English_United Kingdom.1252
## [4] LC_NUMERIC=C
## [5] LC_TIME=English_United Kingdom.1252
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods   base
##
## other attached packages:
## [1] ggplot2_2.0.0 sp_1.2-1    gstat_1.1-0
##
## loaded via a namespace (and not attached):
## [1] Rcpp_0.12.0    lattice_0.20-31 intervals_0.15.1 FNN_1.1
## [5] spacetime_1.1-4 zoo_1.7-12    digest_0.6.8     plyr_1.8.3
## [9] grid_3.2.1     gtable_0.1.2  magrittr_1.5     scales_0.3.0
```

```
## [13] evaluate_0.7.2   stringi_0.5-5     xts_0.9-7        rmarkdown_0.8.1
## [17] labeling_0.3      tools_3.2.1      stringr_1.0.0    munsell_0.4.2
## [21] yaml_2.1.13       colorspace_1.2-6 htmltools_0.2.6  knitr_1.11
```