

Exercise for MDS session

- Perform similar analyses for the Germanic verbs of letting
 - DUT laten
 - ENG let
 - GER lassen
 - SWE låta (represented as lata)
 - NOR la
- Are there differences in grammaticalization and semantic bleaching?

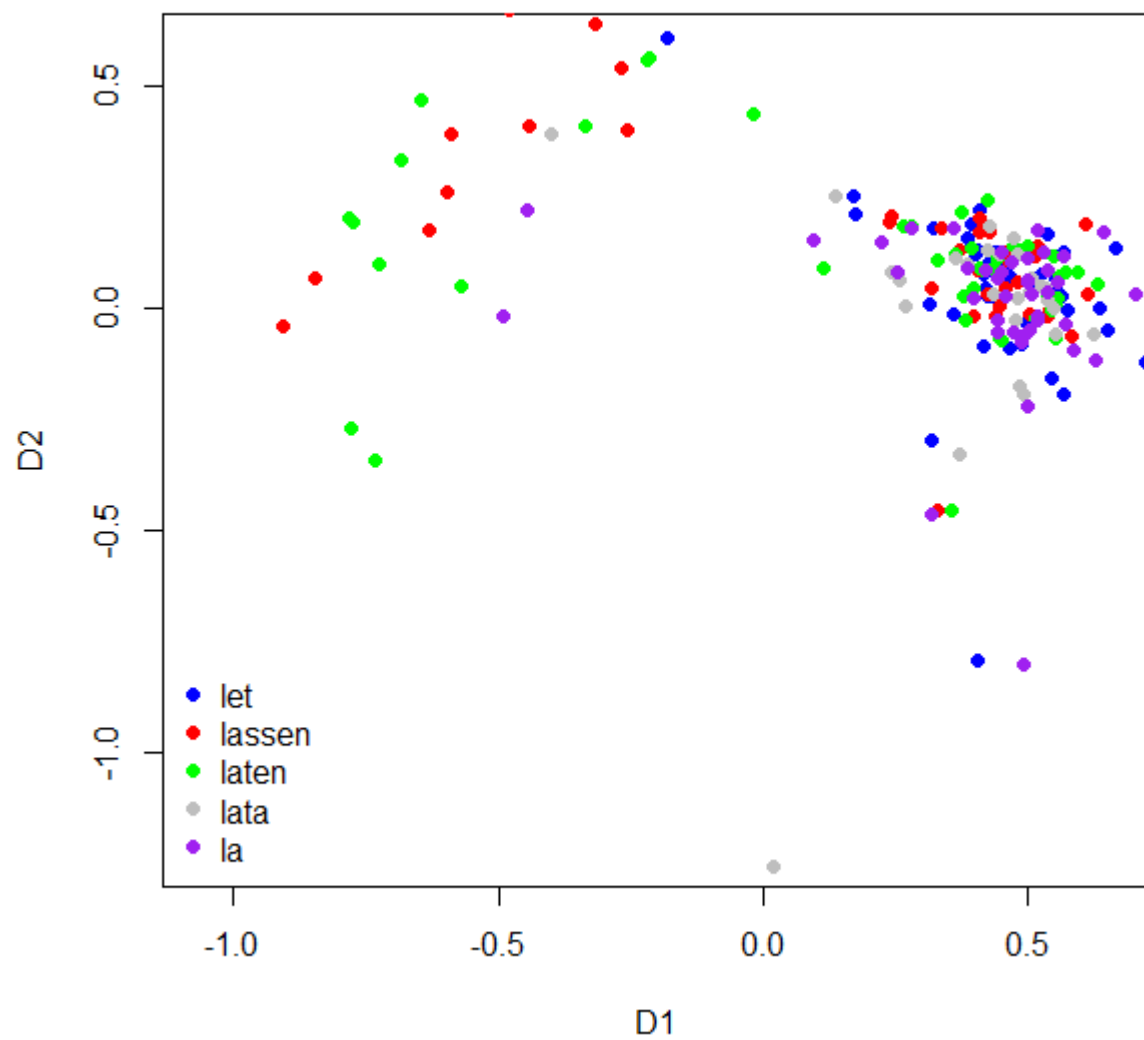
1. Reconstruct the MDS (if needed)

```
> library(cluster)
> causatives.dist <- daisy(causatives[, 3:20])
> causatives.mds <- mds(causatives.dist)
```

2. Plot the occurrences of letting verbs in Germanic

```
> plot(causatives.mds$conf, type = "n", main = "Germanic  
letting verbs")  
  
> points(jitter(causatives.mds$conf[causatives$ENG ==  
"let",], amount = 0.1), col = "blue", pch = 16)  
  
> points(jitter(causatives.mds$conf[causatives$GER ==  
"lassen",], amount = 0.1), col = "red", pch = 16)  
  
> points(jitter(causatives.mds$conf[causatives$DUT ==  
"laten",], amount = 0.1), col = "green", pch = 16)  
  
> points(jitter(causatives.mds$conf[causatives$SWE ==  
"lata",], amount = 0.1), col = "gray", pch = 16)  
  
> points(jitter(causatives.mds$conf[causatives$NOR ==  
"la",], amount = 0.1), col = "purple", pch = 16)  
  
> legend("bottomleft", legend = c("let", "lassen",  
"laten", "lata", "la"), col = c("blue", "red", "green",  
"gray", "purple"), pch = 16, bty = "n")
```

Germanic letting verbs



3. Perform Kriging

```
> y.eng <- ifelse(causatives$ENG == "let", 1, 0)
> y.ger <- ifelse(causatives$GER == "lassen", 1, 0)
> y.dut <- ifelse(causatives$DUT == "laten", 1, 0)
> y.swe <- ifelse(causatives$SWE == "lata", 1, 0)
> y.nor <- ifelse(causatives$NOR == "la", 1, 0)
```

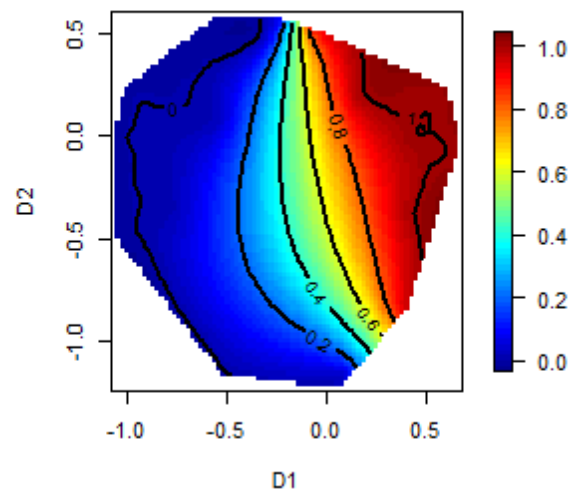
3. Perform Kriging

```
> library(fields)
> Krig.eng <- Krig(causatives.mds$conf,
y.eng, lambda = 0.05)
> Krig.ger <- Krig(causatives.mds$conf,
y.ger, lambda = 0.05)
> Krig.dut <- Krig(causatives.mds$conf,
y.dut, lambda = 0.05)
> Krig.swe <- Krig(causatives.mds$conf,
y.swe, lambda = 0.05)
> Krig.nor <- Krig(causatives.mds$conf,
y.nor, lambda = 0.05)
```

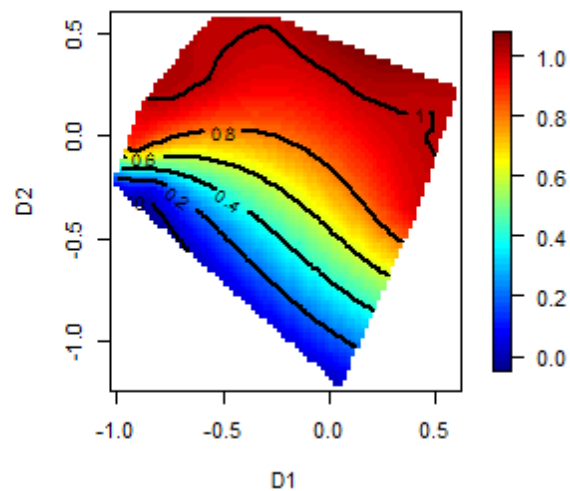
4. Create surface plots

```
> par(mfrow = c(2, 3))  
> surface(Krig.eng, main = "ENG")  
> surface(Krig.ger, main = "GER")  
> surface(Krig.dut, main = "DUT")  
> surface(Krig.swe, main = "SWE")  
> surface(Krig.nor, main = "NOR")
```

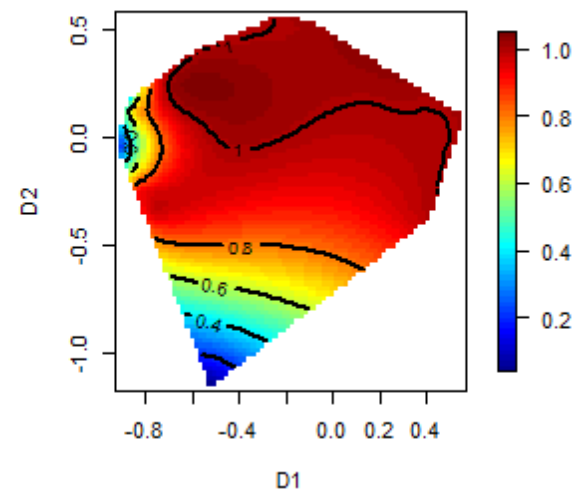
ENG



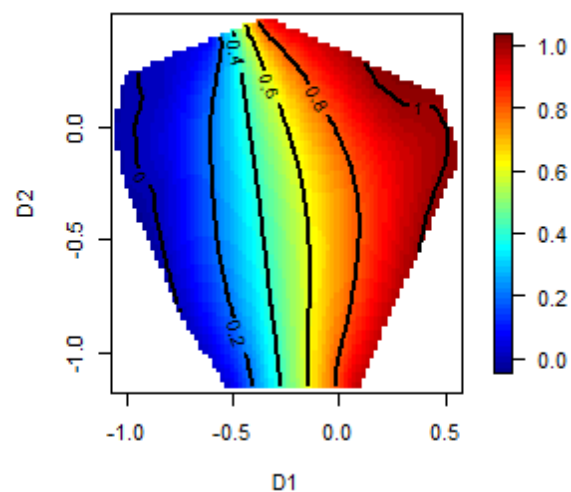
GER



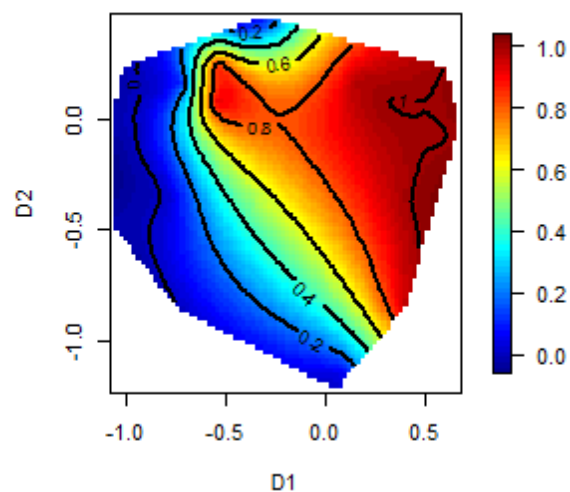
DUT



SWE



NOR



Conclusion

- The German and Dutch letting verbs are more semantically versatile than the other cognates.
- One can also say that the former are more semantically bleached than the latter.