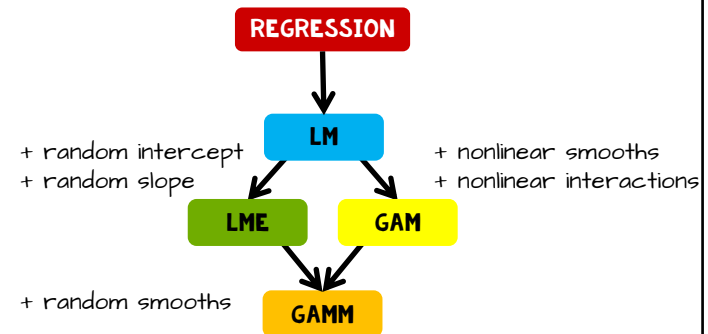


ADVANCED STATISTICAL MODELING

Version 1, 2018

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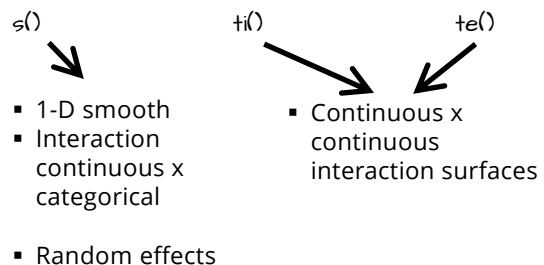
REGRESSION METHODS



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GAMMS

□ Three functions:



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SYNTAX

□ Functions: `gam()` / `bam()` (> 10.000)

□ Linear:

$Y \sim \text{Age} * \text{Group} = Y \sim \text{Age} + \text{Group} + \text{Age}:\text{Group}$

□ Nonlinear:

$Y \sim s(\text{Age})$

$Y \sim \text{Group} + s(\text{Age}, \text{by}=\text{Group})$

`dat$Interaction <- interaction(dat$F1, dat$F2,
drop=TRUE)`

1 CATEGORICAL
PREDICTOR

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SYNTAX

□ Two variants:

- $Y \sim s(\text{Age}) + s(\text{logFreq}) + \text{ti}(\text{Age}, \text{logFreq})$
- $Y \sim \text{te}(\text{Age}, \text{logFreq})$

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SYNTAX

□ Parametric random effects:

- $s(\text{Subject}, \text{bs}='re')$ # intercept
- $s(\text{Subject}, \text{logFreq}, \text{bs}='re')$ # slope

□ Or nonlinear factor smooths:

- $s(\text{logFreq}, \text{Subject}, \text{bs}='fs', m=1)$

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