

# Mapping the time-course of in out of consciousness during binocular rivalry: The case of expressions and gender of face stimuli

Supplementary Materials

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# 1 General approach

We used R (R Core Team, 2012) and lme4 (Bates, Maechler & Bolker, 2012) to perform a linear mixed effects analysis of the relationship between rivalry, consciousness phases and subjects gender. As fixed effects, we entered rivalry and phases and subject gender (with interaction term) into the model. As random effects, we had intercepts for subjects. Visual inspection of residual plots did not reveal any obvious deviations from homoscedasticity or normality. P-values were obtained by anova of the full models for gender blocks and emotion blocks:

```
fit <- lmer(mean ~ rivalry*phase*gender + (1|subject))
```

## 1.1 model selection

The logic of the model selection is to compare the likelihood of different models. First, the model without any factor (the null model), then each model add a factor that we are interested in.

```
model1<-lmer(speed ~ 1 + (1|subject), dat) # null model

model2<-lmer(speed ~ phase + (1|subject), data) # add consciousness phases: formation vs dissolution

model3<-lmer(speed ~ phase + rivalry + (1|subject), data) # add rivalry: emotion(happy vs neutral) OR g

model4<-lmer(speed ~ rivalry*phase + (1|subject), data) # add interaction

anova(model1,model2,model3,model4)

# Stabilisation

model1<-lmer(STB ~ 1 + (1|subject), dat) # null model

model2<-lmer(STB ~ rivalry + (1|subject), data) # add consciousness rivalry: emotion(happy vs neutral)

anova(model1,model2)
```

### 1.1.1 Model selection : Emotion rivalry

term	npars	AIC	BIC	logLik	deviance	statistic	df	p.value
model1	3.000	-28,286.488	-28,265.524	14,146.244	-28,292.488			
model2	4.000	-28,438.196	-28,410.244	14,223.098	-28,446.196	153.709	1.000	0.000
model3	5.000	-28,437.408	-28,402.468	14,223.704	-28,447.408	1.212	1.000	0.271
model4	6.000	-28,504.426	-28,462.499	14,258.213	-28,516.426	69.018	1.000	0.000

### 1.1.2 Model selection : Gender rivalry

term	npars	AIC	BIC	logLik	deviance	statistic	df	p.value
model1	3.000	-35,361.580	-35,340.337	17,683.790	-35,367.580			
model2	4.000	-35,387.699	-35,359.375	17,697.850	-35,395.699	28.119	1.000	0.000
model3	5.000	-35,387.277	-35,351.872	17,698.639	-35,397.277	1.578	1.000	0.209
model4	6.000	-35,385.490	-35,343.004	17,698.745	-35,397.490	0.213	1.000	0.644

### 1.1.3 Model selection : Emotion stability

term	npar	AIC	BIC	logLik	deviance	statistic	df	p.value
modell	3.000	9,689.768	9,703.245	-4,841.884	9,683.768			
model2	4.000	9,375.538	9,393.507	-4,683.769	9,367.538	316.230	1.000	0.000

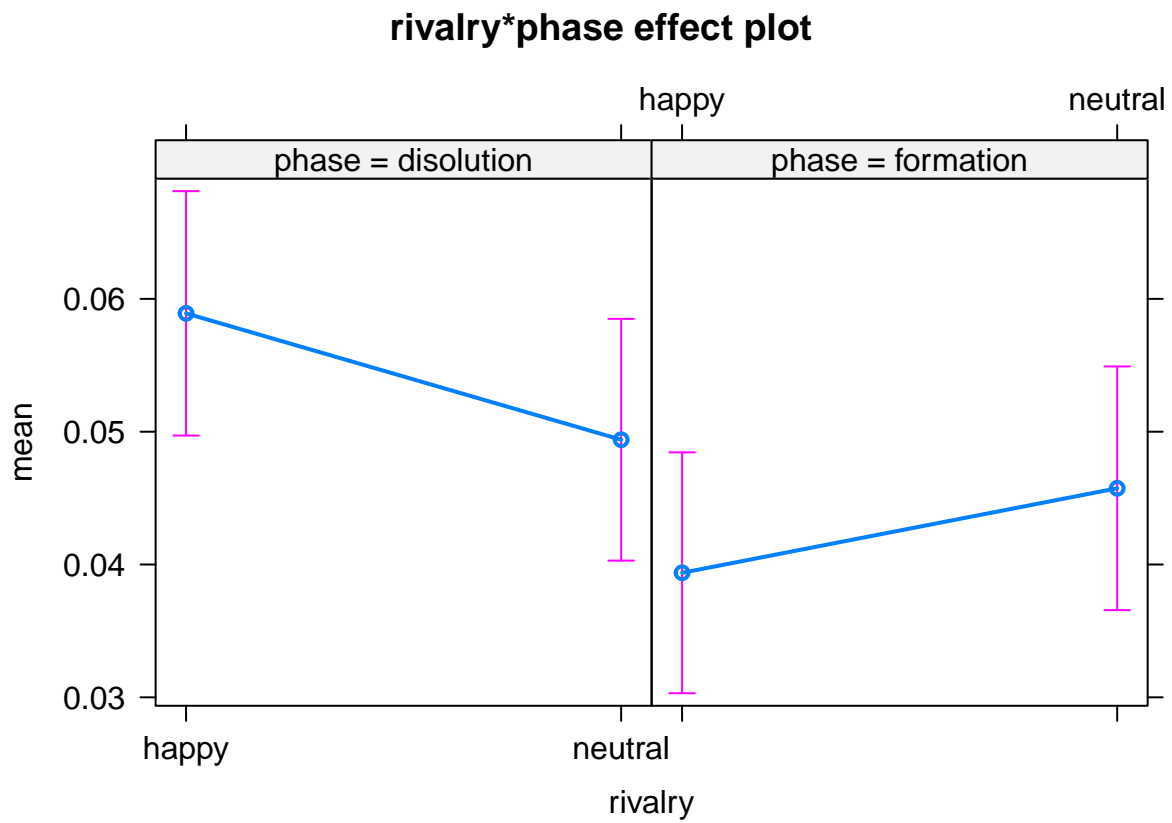
### 1.1.4 Model selection : gender stability

term	npar	AIC	BIC	logLik	deviance	statistic	df	p.value
modell	3.000	7,402.091	7,414.859	-3,698.046	7,396.091			
model2	4.000	7,400.515	7,417.538	-3,696.258	7,392.515	3.576	1.000	0.059

## 2 Emotion Rivalry

### 2.1 Anova model 4 emotion

term	sumsq	meansq	NumDF	DenDF	statistic	p.value
rivalry	0.005	0.005	1	7,964.976	2.811	0.094
phase	0.247	0.247	1	7,964.067	152.138	0.000
rivalry:phase	0.113	0.113	1	7,969.654	69.273	0.000



Warning: Speed mean that higher values are faster.

### 2.1.1 Contrasts main effect phases

Means phases emotion					
phase	emmean	SE	df	asympt.LCL	asympt.UCL
disolution	0.054	0.005	Inf	0.045	0.063
formation	0.043	0.005	Inf	0.034	0.052

Contrasts phases emotion					
contrast	estimate	SE	df	z.ratio	p.value
disolution - formation	0.012	0.001	Inf	12.334	0.000

Note: phases are asymmetric: Dissolution is faster than formation.

### 2.1.2 Contrasts interaction rivalry:phases

Means rivalry phases emotion						
rivalry	phase	emmean	SE	df	asympt.LCL	asympt.UCL
happy	disolution	0.059	0.005	Inf	0.050	0.068
neutral	disolution	0.049	0.005	Inf	0.040	0.058
happy	formation	0.039	0.005	Inf	0.030	0.048
neutral	formation	0.046	0.005	Inf	0.037	0.055

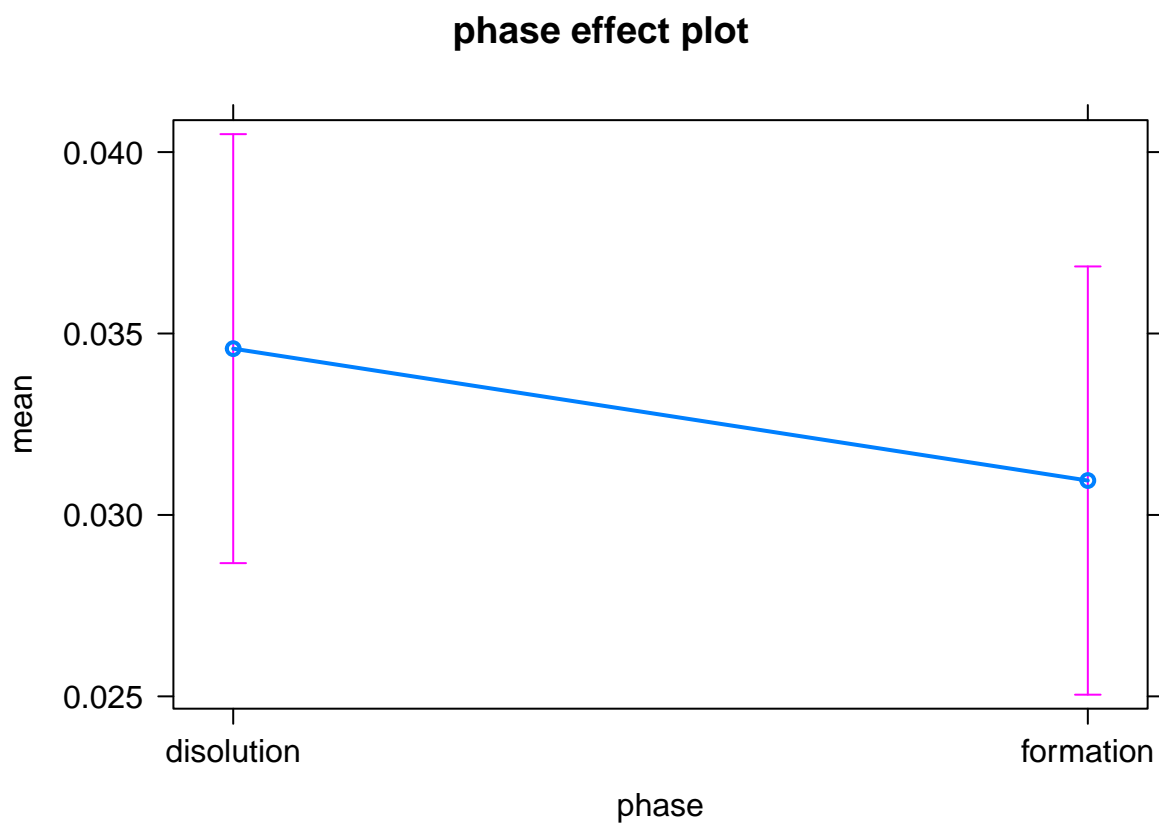
Contrasts rivalry phases emotion						
contrast	phase	estimate	SE	df	z.ratio	p.value
happy - neutral	disolution	0.010	0.001	Inf	6.871	0.000
happy - neutral	formation	-0.006	0.001	Inf	-4.921	0.000

Notes: Happy Dissolution is faster than neutral Dissolution. Neutral Formation is faster than happy Formation.

### 3 Gender Rivalry

#### 3.1 Anova model 2 gender

term	sumsq	meansq	NumDF	DenDF	statistic	p.value
phase	0.029	0.029	1	8,747.810	28.161	0.000



Warning: Speed mean that higher values are faster.



### 3.1.1 Contrasts main effect phases

Means phases gender					
phase	emmean	SE	df	asympt.LCL	asympt.UCL
disolution	0.035	0.003	Inf	0.029	0.040
formation	0.031	0.003	Inf	0.025	0.037

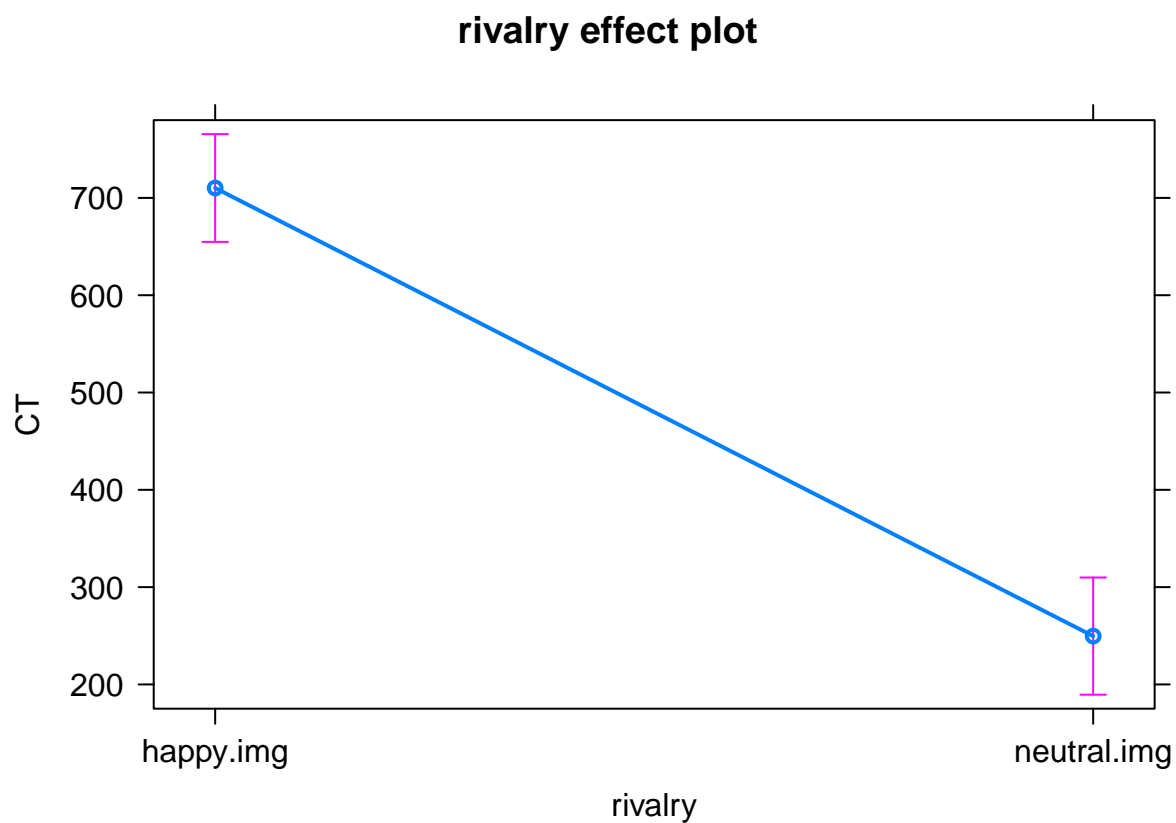
Contrasts phases gender					
contrast	estimate	SE	df	z.ratio	p.value
disolution - formation	0.004	0.001	Inf	5.307	0.000

Note: phases are asymmetric: Dissolution is faster than formation.

## 4 Stability

### 4.1 Anova stability emotion model 2

term	sumsq	meansq	NumDF	DenDF	statistic	p.value
rivalry	31,346,223.674	31,346,223.674	1	635.540	407.072	0.000



Warning: CT mean that higher values are more stable.

#### 4.1.1 Contrasts main effect rivalry

Means rivalry emotion					
rivalry	emmean	SE	df	lower.CL	upper.CL
happy.img	710.185	28.186	46.503	653.467	766.904
neutral.img	249.692	30.679	62.906	188.382	311.002

Contrasts rivalry emotion					
contrast	estimate	SE	df	t.ratio	p.value
happy.img - neutral.img	460.494	22.843	637.213	20.159	0.000