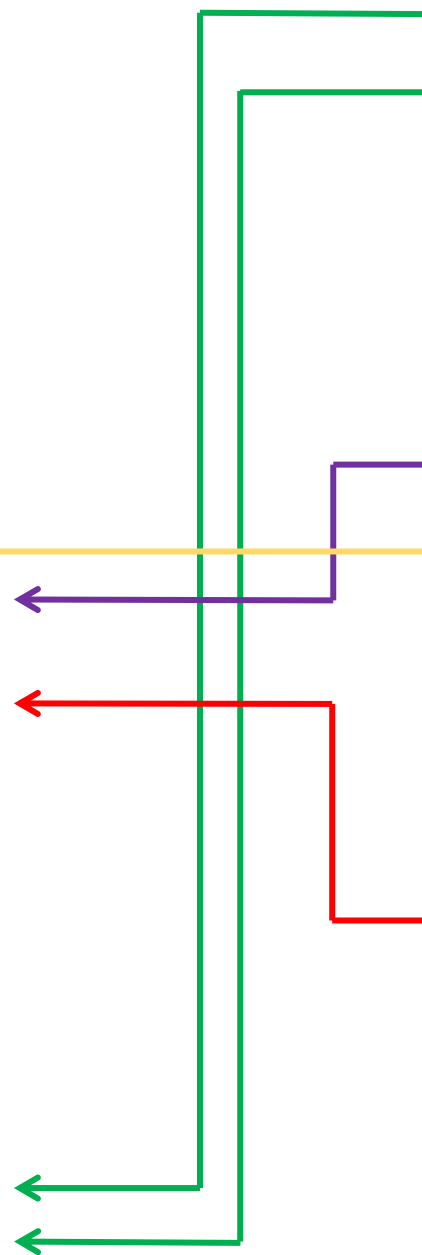


Fixed		
Intercept	1.8650	
Tot_FIX_Dur	0.1420	
Neo_Open	0.0110	
Tot_FIX_Dur*Neo_Open	-0.0050	
Tot_FIX_Dur*[Object=2]	-0.5090	
Tot_FIX_Dur*[Object=3]	-0.6250	
Tot_FIX_Dur*[Object=4]	-0.1210	
Tot_FIX_Dur*[Object=5]	0b	
Tot_FIX_Dur*Neo_Open*[Object=2]	0.0190	
Tot_FIX_Dur*Neo_Open*[Object=3]	0.0220	
Tot_FIX_Dur*Neo_Open*[Object=4]	0.0050	
Tot_FIX_Dur*Neo_Open*[Object=5]	0b	
Residual		
Var(Object=2)	0.243	
Var(Object=3)	0.248	
Var(Object=4)	0.237	
Var(Object=5)	0.266	
	average	
Random		
Var(intercept)	0.167	
FIXED (Nakagawa 2013 Eq. 27)		
Var(hat_Y)	0.004810	
R2_LMM(m) fixed	0.011445	
R2_LMM(c) fixed + random	0.408770	
Eq. 26/ 2.4 ICC_LMM(adj)	0.401925	
/ 2.5 ICC_LMM random	0.397325	
/ 2.7 ICC_LMM+R2_LMM(m)	0.408770	
Xu 2003		
Var(residuals)	0.240141	
Var(response)	0.435793	
R2	0.448956	



The SPSS MIXED procedure does not generate an R-square statistic, which is also rarely reported when mixed-models are used because different definitions have been proposed with no accepted standards (e.g., Nakagawa and Schielzeth, 2013 and references therein). Furthermore, their implementation may require complex calculations that are not easily accessible after model fitting. In this regard, we chose two distinct measures (Xu, 2003; Nakagawa and Schielzeth, 2013), both of which may be calculated directly using values from the SPSS MIXED output. In particular, Xu’s omega square index:

$$\Omega_0^2 = 1 - \frac{\sigma_\epsilon}{\text{var}(y_i)},$$

uses σ_ϵ for the full model residual variance and $\text{var}(y_i)$ for the total variance of the dependent variable; whereas, Nakagawa R-square can be calculated as:

$$R_{LMM}^2 = \frac{\sigma_f + \sigma_\alpha}{\sigma_f + \sigma_\alpha + \sigma_\epsilon}$$

where σ_f is the fixed effects variance, σ_α is the (sum of) random effect variance, and σ_ϵ is the full model residual variance. The last equation could be slightly modified:

$$R_{LMM(m)}^2 = \frac{\sigma_f}{\sigma_f + \sigma_\alpha + \sigma_\epsilon},$$

obtaining Nakagawa “marginal” R-square, which represents the variance explained by the fixed effects only in the linear mixed-model. While σ_α and σ_ϵ are available in the model output, we retrieved σ_f by multiplying the design matrix of the fixed effects (\mathbf{X}), with the vector of fixed effects coefficients (\mathbf{b}), calculating the variance of these predicted values (c.f. Nakagawa and Schielzeth, 2013):

$$\sigma_f = \text{var}(\mathbf{Xb}).$$