



FIGURE 1 | Shows the modulation of the R^2 score for the Att-Asy-1, Att-Asy-2 models (top panel) and Cogn-40-48, Cogn-52-60, Cogn-60-70, Cogn-52-70 models (bottom panel) for the nine dependent variables (i.e., sales performance key performance indicator (KPI) on the movie premiere and the eight following weekends). The model abbreviations are as follows: Att-Asy-1: Attentional asynchrony metric during the first viewing is used as the independent variable; Cogn-52-70: Cognitive-congruency metric calculated in the frequency range between 52 Hz and 70 Hz is used as the predictor variable; Att+Cogn: The combined predictor model where both the Cognitive-congruency metric calculated on the frequency range 52–70 Hz and the Attentional-asynchrony metric (calculated on measurements from the first viewing) are used as predictor variables. The numerical values of R^2 and Standard Error (SE) scores calculated using the bootstrap method are shown in **Table 1**.

In all analyses, regression results are reported on data from 14 out of the 15 videos movie trailers. Trailer with vid:1 was removed as an outlier because its KPI score was four standard deviation above the mean KPI scores of the rest of the movies.

Correlational Analysis Results

We first investigate the correlation between the sales performance KPI during the movie's premiere and the proposed metrics. Correlation analysis showed a strong negative correlation between the attentional-asynchrony metrics and the sales performance KPI (Asy-viewing-1: $r = -0.70$, $p < 0.01$; Asy-viewing-2: $r = -0.67$, $p < 0.01$). The analysis also showed a strong positive correlation between the KPI and cognitive-congruency metrics, calculated on each of the four gamma band ($r = 0.82$ – 0.85 , $p < 0.001$). A moderate negative correlation was observed between the KPI and the cognitive-congruency metric calculated on the beta range (16–18 Hz). However, it failed to reach significance ($r = -0.45$, $p > 0.09$). No correlation was established between the other two beta-band metrics.

Attentional-Asynchrony Prediction Model Results

To investigate the capacity of Attentional-asynchrony metric to predict the sales performance KPI during the movie's

premiere, we employed two univariate regression models. In the first model, we considered the Attentional-asynchrony metric calculated on the first viewing of each movie trailer as the predictor, while in the second model we used Attentional-asynchrony calculated on data from the second viewing of the movie trailer. In both models, Attentional-asynchrony was regressed onto the sales performance KPI for the film's premiere weekend. The results showed that Attentional-asynchrony was a significant predictor of sales performance KPI at the movie's premiere. Specifically, Attentional-asynchrony calculated on eye-gaze data from the first viewing of the movie trailer predicted 49% of the model variance, $R^2 = 0.49$, $F_{(1,12)} = 11.53$, $p < 0.01$, R^2 -adjusted = 0.44, $SE = 0.14$, Standard Error (SE) on R^2 computer using bootstrap, while the corresponding metric calculated on eye-gaze data from the second viewing of the trailer predicted 44% of the variance, $R^2 = 0.44$, $F_{(1,12)} = 9.72$, $p < 0.01$, R^2 -adjusted = 0.40, $SE = 0.16$. The attentional-asynchrony metrics for the two viewings were strongly correlated ($r = 0.91$, $p < 0.001$).

Subsequently, we investigated whether the capacity of Attentional-asynchrony (calculated on the first- and second-viewing independently) to predict the sales performance KPI during the movie premiere propagates to the sales performance KPIs of subsequent weeks. **Table 2** shows the results of the mass-univariate regression where the Attentional-asynchrony