

Mocap/Phone

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1 Data

3 dances captured by 1) MoCap and 2) Mobile phone accelerometer. Dances were captured at the same time by mocap and phone accelerometer.

2 Stimulus

Simple beat at 120BPMs.

3 Pre-processing

Second time derivative was extracted from the Mocap data. Each recording was trimmed to 30 seconds, encompassing from the beginning to the end of the audio stimulus.

Accelerometer data from the phone was resampled to 120Hz to match the sampling rate of the mocap data. Linear interpolation was applied.

The norm of dimensions x , y and z was taken for both accelerometer and mocap data. Finally, the data was centered around zero with z-score for each dance (1, 2, and 3) and source (phone, and mocap).

Each pair of mocap and phone data was paired by means of cross correlation.

4 Data consistency

The correlation between mocap and phone data was assessed visually (Figure 1), and with pearson's R, which indicated correlations of .92, .94, and .92 for dances 1, 2, and 3, respectively.

5 Period analysis

Each time series was divided into windows of 2 seconds, and hops of 0.25. Within each window, periodicity was extracted with an autocorrelation function. Figure 2 shows the distribution of periods within each dance and within each source (phone vs mocap)

To assess the consistency of windowed-periodicities between phone and mocap, I computed Pearson's r for each dance. Results indicated correlations of 0.26, 0.56, and -0.26 for dances 1, 2, and 3, respectively.

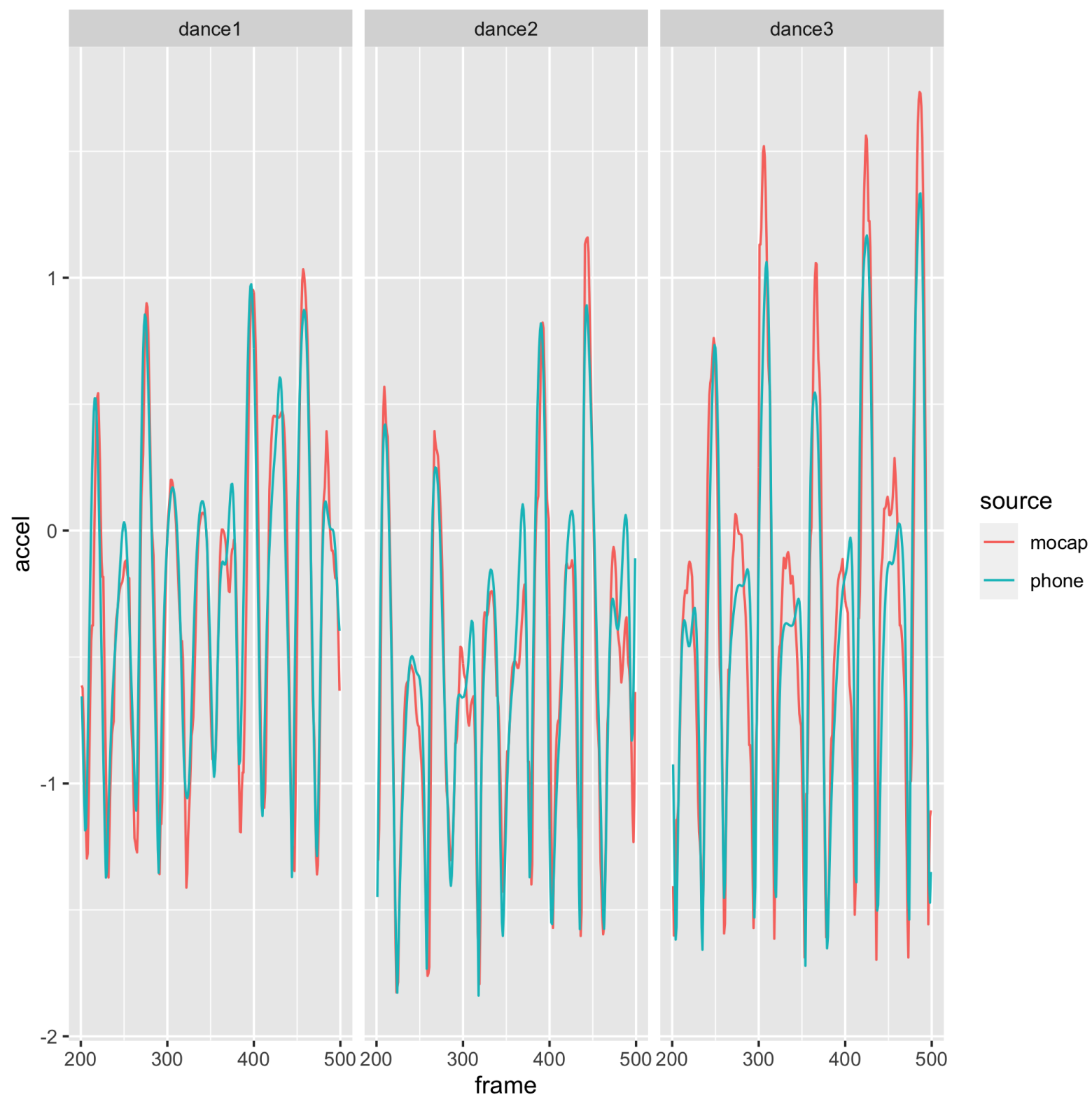


Figure 1: Acceleration for Phone and Mocap, separated by dance

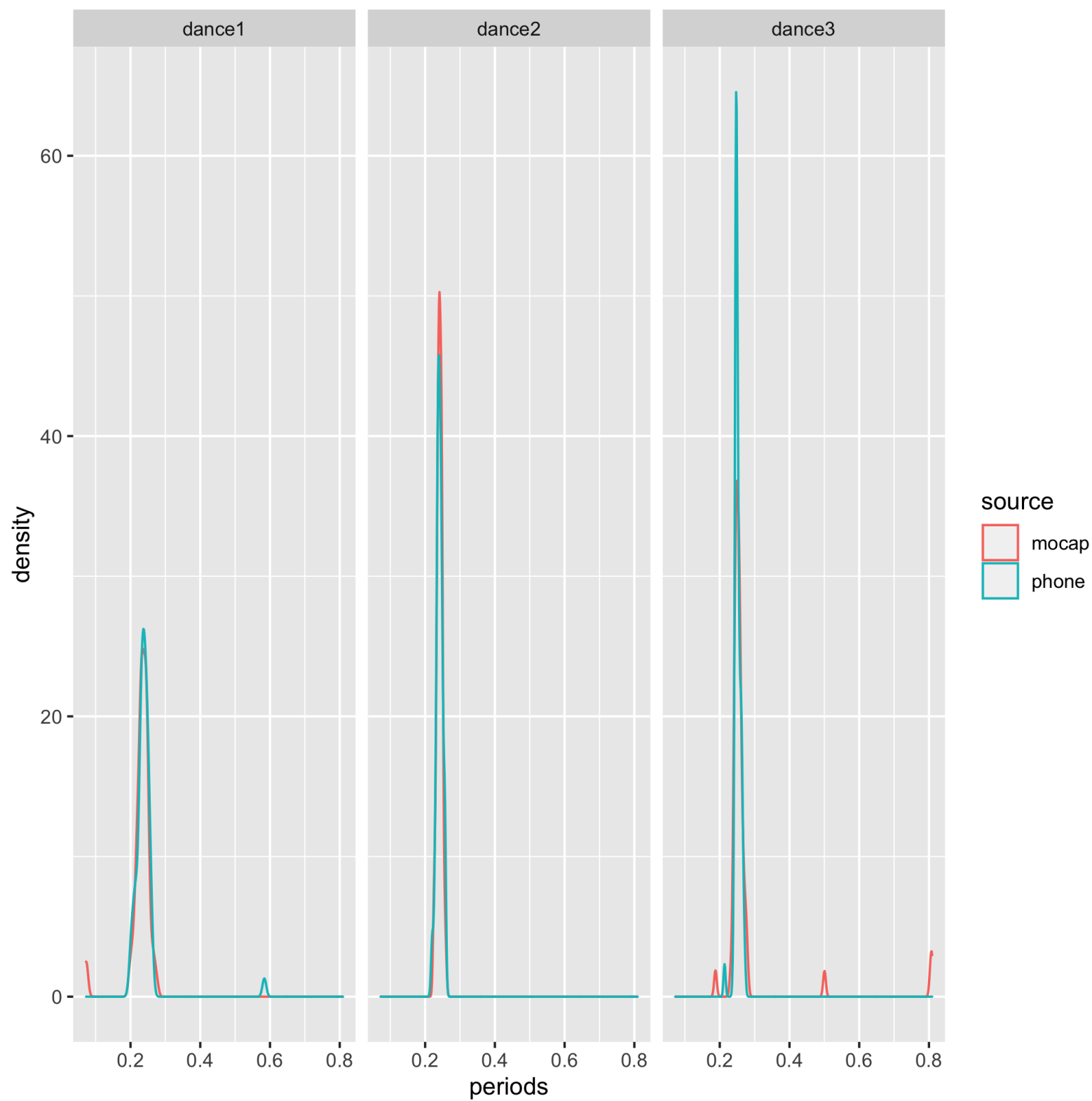
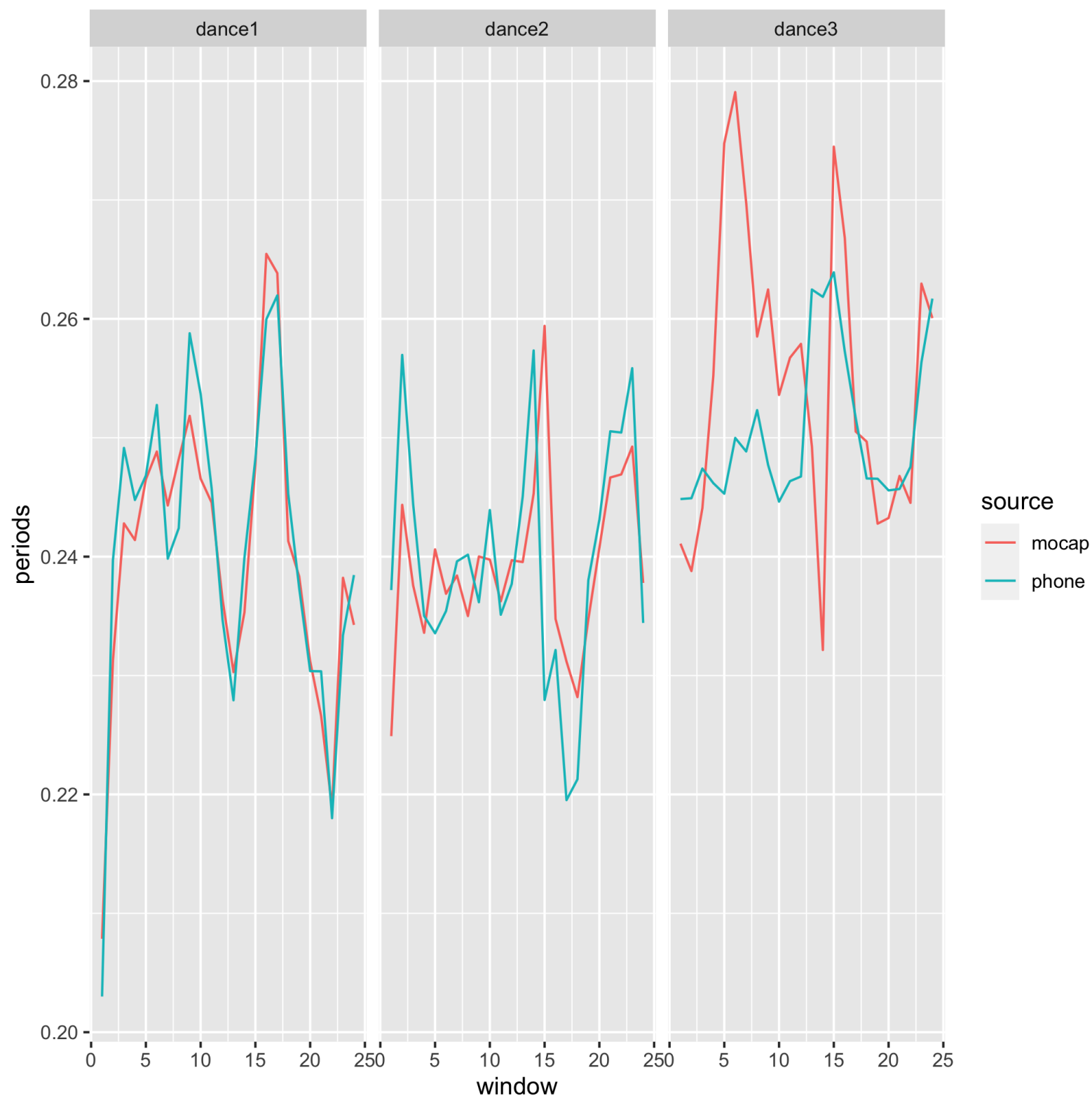


Figure 2: Distribution of periods found for Phone and Mocap, separated by dance



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Figure 3: Windowed periods for Phone and Mocap, separated by dance