Exercise B1. Prove that the periodic points for the shift transformation are dense in Σ_2^+ and that the shift transformation is transitive.

Exercise B2. Prove that the shift transformation is topologically transitive.

Exercise B3. Given the metric on Σ_2^+:

$$d(\underline{x}, \underline{y}) = \sum_{n=0}^{\infty} \frac{|x_n - y_n|}{3^{n+1}},$$

prove that (Σ_2^+, d) is a compact metric space