

Additional Information

Ethics

This research was conducted following the principles of animal care and the Dutch and EU regulations for the ethical treatment of animals in behavioural research and was subject to the health and needs of the animals. All recordings complied with the guidelines outlined by the Veterinary Department of Sealcentre Pieterburen.

Data accessibility

The datasets and codes for statistical analysis used in this article have been uploaded as part of the Supplementary Material.

Authors' contributions

M.A., K.d.R. and A.R. conceptualized the manuscript; M.A., C.B. and A.R. designed the spontaneous interaction experiment; C.B. and A.R. collected the spontaneous interaction data and C.B. annotated the video and audio files; A.R. designed the playback experiment and collected the corresponding data; K.d.R. collected the data for the single pup calling in isolation; M.A. and K.d.R. created the initial datasets and coded the R script to extract the rhythmical measures from the audio annotations; K.d.R. did the data curation; A.S.C. drafted general methods and validated experimental protocols; M.A. conducted the circular statistic analyses and wrote the corresponding sections; T.A.H. conducted the categorical rhythm analyses and wrote the corresponding sections; D.V. conducted the Granger analysis and wrote the corresponding sections; P.K. conducted the ADAM model analysis and wrote the corresponding sections; M.A. drafted introduction, discussions. K.d.R., T.A.H., D.V., A.S.C. and P.K. edited and revised the overall work. P.K. and A.R. validated and supervised the whole work. All authors contributed to the ideas, discussion and interpretation of the results.

Competing interests

We have no competing interests to declare.

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Supplemental Information

Please refer to the electronic Supplemental Information available.