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Prediction versus coupling: testing two different accounts of inter-speaker coordination

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Accounts of inter-speaker coordination based on internal predictive models propose that spontaneous imitation of the partner's speech is due to the need to predict his/her behaviour in the immediate future. These accounts predict a tendency toward imitation each time speakers engage in a conversation. According to accounts based on the notion of dynamical coupling, coordination does not require prediction of the partner's behaviour and imitation is observed only if it directly favours the specific coordinative pattern produced by the interlocutors. To compare the two accounts, we asked 10 Italian speakers to repeat the utterance /topkop/ simultaneously with an artificial agent (AA) designed to repeat that same utterance while coordinating its behaviour with that of a human speaker (HS). In line with accounts based on prediction, we found that HS imitates the intonation of the AA regardless of whether AA is parameterized to cooperate with the HS (by producing its syllables simultaneously with those of the HS) or to compete with the HS (by producing its syllables in-between those of the HS). This occurs even if, as observed in the competitive interactions studied, imitative behaviour does not favour the production of the coordinative pattern targeted by the HS.