Title:	More than just babble: functional and structural complexity of vocalizations of Jungle Babbler
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Abstract:	Animal vocal communication ranges from simple to complex based on repertoire size, structure and composition of calls and the information encoded in them. It is expected that social species will possess a functionally and structurally complex vocal repertoire. While several studies on mammalian systems exist supporting this, evidence from avian systems is comparatively limited. Towards this, we present evidence for complex acoustic communication in a cooperatively breeding passerine, Jungle Babbler. Jungle Babblers were found to possess a diverse vocal repertoire comprising 15 call types produced in either affiliative or agonistic context. These calls mediated the coordination of various social behaviours including group movement, foraging, brood care, aggression and vigilance. Yet, 8 out of 15 vocalizations were produced in the context of vigilance. This disproportionate investment of vocalizations towards coordinated acoustic vigilance is characteristic of many cooperatively breeding birds. Discriminant function analysis based on acoustic features verifies the classification of calls based on behavioural contexts. We also find evidence for the prediction that functionally similar calls are likely to be structurally similar as well. Multisyllabic calls were found to be composed of acoustically distinct notes that occur in a defined order in most cases. This implies that there may be underlying rules that determine call composition to give rise to functional calls to which receivers respond. Our study demonstrates that Jungle Babblers possess a structurally and functionally complex vocal repertoire. It also lays the foundation for future investigations on combinatorial and syntactical rules underlying call function and structure in bird vocalizations.
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