

Read the text and answer the questions that follow.



Grammar finches

Bengalese finches like to sing to each other. Nothing too unusual about that—they are birds after all. However, two researchers at the University of Kyoto in Japan, Dr Kentaro Abe and Professor Dai Watanabe, have made some fascinating observations about these birds: their song follows a grammatical pattern, a skill that was previously thought to be specific to human use of syntax in language.

Syntax is about the way language is organised at sentence level. Humans can swiftly recognise when the rules of syntax are not followed, for example:

On Sunday we will go to the park. ✓

We will go to the park on Sunday. ✓

Park go we will to on the Sunday. ✗

Birdsong is similar to a sentence; the different sounds are like words. In the same way that humans identify errors in syntax, the University of Kyoto researchers suggest that Bengalese finches can recognise syntax errors in birdsong, their principal means of communication. It is known that each male finch has its own call which it varies, but the call still remains distinctive to a particular bird. In the wild, male finches will call back to the unfamiliar songs of intruding male finches.

Based on this known response, the researchers played unfamiliar songs to the finches and the birds responded to the calls. Next the scientists jumbled up the unfamiliar bird calls and played them to individual finches, recording their responses. They found that some jumbled songs elicited a call-burst response while others were met with silence. Interestingly all the birds responded in the same way: if one bird ignored a jumbled song (or bird call), all the others did too. The researchers concluded that the order of sounds in a song mattered to the birds, therefore indicating the use of a type of grammar.

The researchers also wanted to find out if finches could learn new syntactic rules. In one experiment, one of the remixed songs was played repeatedly to the birds. This now familiar version was jumbled again and the birds' subsequent response indicated recognition of the change in syllable structure. In a separate experiment, the researchers reared finches in isolation, then introduced them to an aviary with finches that were familiar with a certain call which was a jumbled song. After two weeks, the birds that had been reared separately began to respond to the call in the same way as the other birds.

Professor Gisela Kaplan, an authority on birdsong at the University of New England, Australia, commented on the significance of these findings: 'Obviously with these birds the syllables can't just be put anywhere, and that suggests that humans aren't unique in being able to order sound logically. The fact that birds can do this, even if only at a simple level, is mind-boggling.'

Now the Japanese researchers are wondering if finches also extract some meaning from calls. Kaplan believes this is a strong possibility, observing that they wouldn't bother with the calls unless these calls conveyed meaning.



49. The purpose of the University of Kyoto research described in this text is to
- (A) promote the learning of syntax and grammar in finches.
 - (B) encourage people to listen to animal noises more carefully.
 - (C) understand how science and the study of language are connected.
 - (D) show that forms of animal communication may use grammar.
50. Which point does the example *'Park go we will to on the Sunday.'* demonstrate?
- (A) that jumbled words still retain their original meaning
 - (B) that errors in syntax can be readily identified
 - (C) that humans sometimes have difficulty expressing themselves clearly
 - (D) that the rules of syntax are complicated
51. The word 'elicited' means
- (A) evoked. (B) recorded. (C) captured. (D) engaged.
52. What evidence enabled the researchers to conclude that the finches used a type of grammar?
- (A) Individual finches responded to all jumbled unfamiliar calls.
 - (B) Some jumbled calls had a response from all finches, while other jumbled calls were ignored by them.
 - (C) Variations in the calls of male finches in the wild received a similar response from other finches.
 - (D) Unfamiliar calls had a response from some finches, but the finches were silent when they heard a familiar call.
53. The scientists reared finches in isolation and then introduced them to other finches that were familiar with a jumbled call. They did this to investigate
- (A) the effect that separating finches might have on their growth.
 - (B) how finches formed new social relationships.
 - (C) the difference in the quality of singing between bird populations.
 - (D) whether finches were able to adopt new rules of syntax.
54. Why does the writer include comments from Professor Kaplan in the text?
- (A) to acknowledge the significance of the Japanese research
 - (B) to highlight other research being conducted
 - (C) to explain the implications of this research for the University of New England
 - (D) to promote the research being undertaken at the University of New England
55. Professor Kaplan uses the phrase 'with these birds' in order to
- (A) emphasise that she is discussing finches who exhibit abnormal behaviour.
 - (B) suggest she is only familiar with the characteristics of some finches.
 - (C) emphasise that the conclusions from the experiments apply to the species of finch used in the study.
 - (D) suggest that the results of the experiments apply only to small populations of finches.