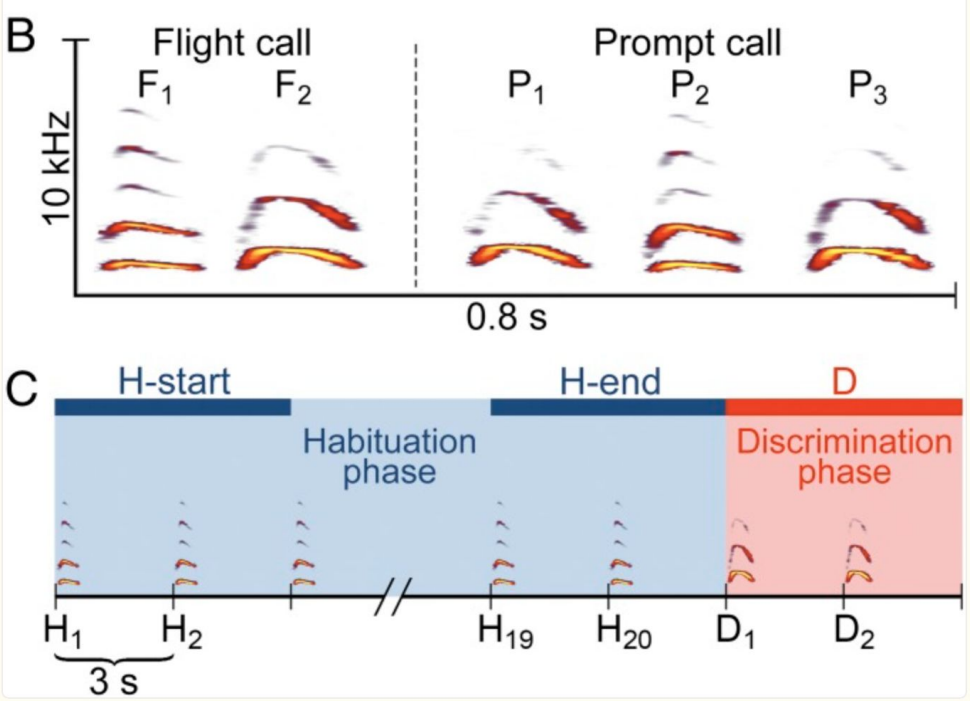
Call Types



Spectrogram

- Flight call: 2 elements
- Prompt call: 3 elements

The elements are not recognized individually (contextually meaningless)

Habituation/Discrimination Experiment

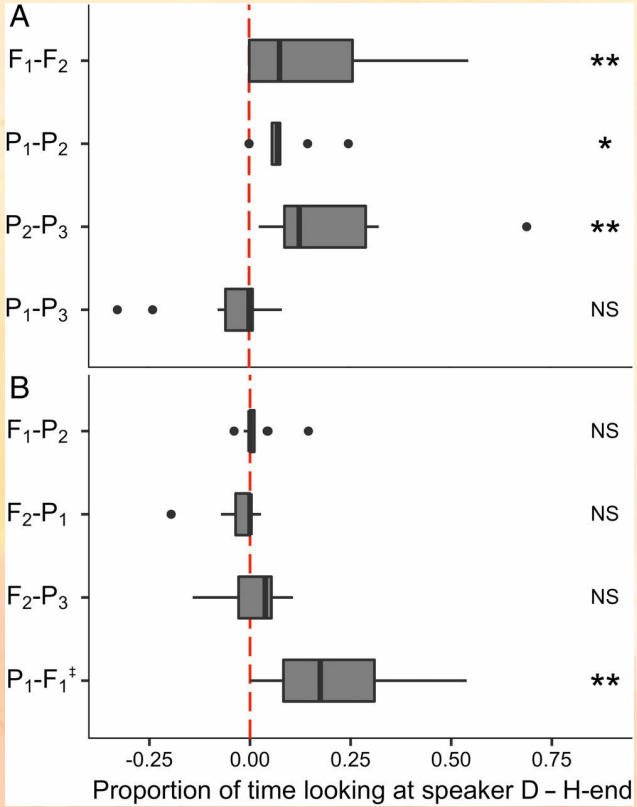
Habituation: Accustomed to 1 element

Discrimination: 2 new elements

Change in proportion between H-end and D measured

(Engesser et al. 2019: 19583)

Parsing & Methods



X-axis: Prop. of time birds look at loudspeaker between discrimination and habituation-end phase

Y-axis:

Group A: Flight OR prompt calls played

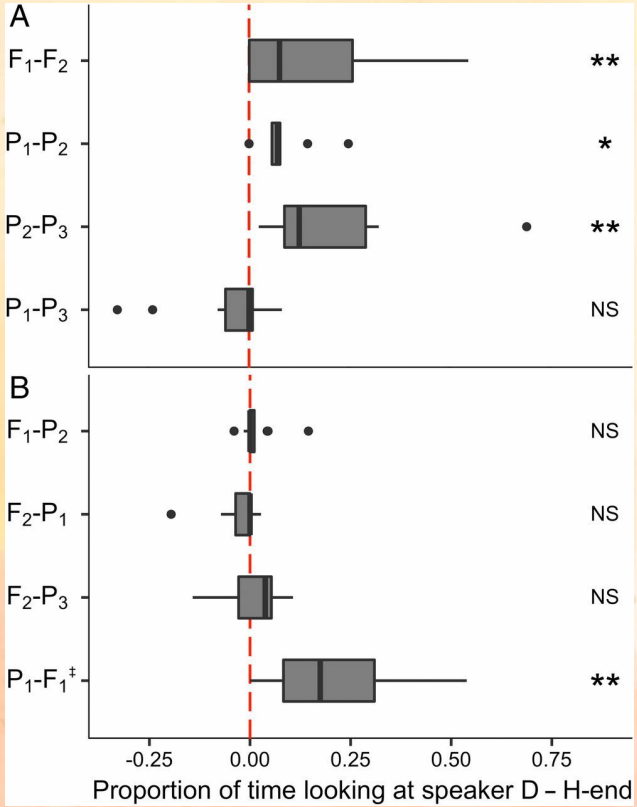
Group B: Combination of flight and prompt calls played

Flight and prompt calls are distinct sounds vocalized by birds

A new sound element is played after a recognizable one to test if the birds notice the difference

(Engesser et al. 2019: 19581)

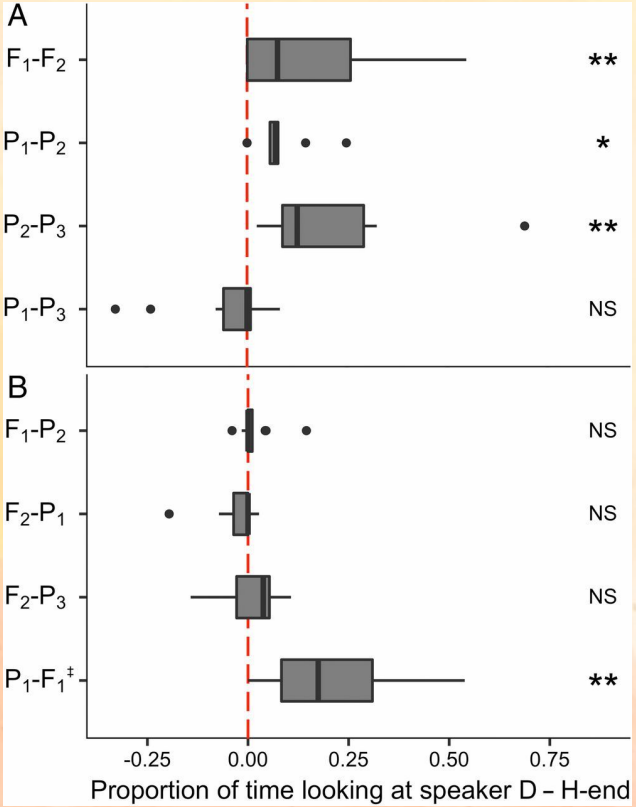
Interpretation Question



Which call elements are in contrastive distribution and which are both audibly and mentally the same to the birds in the trial?

What does this mean for how the birds perceive the call elements across and within calls?

Answer



Contrastive: F1 and F2; P1 and P2; P2 and P3; P1 and F1

Same: P1 and P3; F1 and P2; F2 and P1; F2 and P3

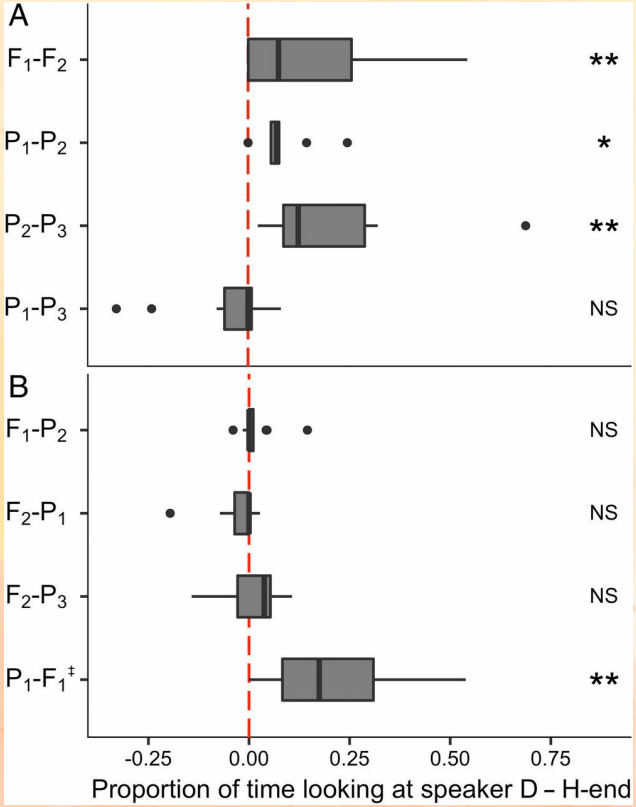
Elements differ within flight and prompt calls, but there are also shared elements between these calls (within the prompt call as well: P1 and P3 are equivalent).

When these elements are presented in combination with each other, it invokes varying responses from the birds. This suggests that some elements are both acoustically and perceptibly distinct, while others are the same.

So, although the elements may be the same, they are used in different orders to form semantically different calls.

(Engesser et al. 2019: 19581)

Discussion Question



How does both the contrast and similarities in call elements contribute to the idea that animal communication systems have characteristics of human language?

How does this relate to Kaplan's myth about animal's understanding and using human language?

Answer

- Contrastive distribution exhibited by the birds' behaviors show that not all of the individual call elements are equivalent, but shared elements across calls are perceptibly equivalent.
- Elements are used in different arrangements to form calls with distinct meanings, even though their **building blocks** are audibly and mentally the same.
  - If $A = F_1 = P_2$ and $B = F_2 = P_1 = P_3$
    - Flight Call: A B
    - Prompt: B A B
- Alike human language phonemes, individual sounds that have no meaning alone are used to build words with distinct meanings.
  - "tap" and "pat" have the same phonemes, but the different arrangements lead to different word meanings.
- These birds have a communication system with an important human language-like characteristic.
- If one species of birds has this attribute, it's likely that other birds and even other animal species have language-related constructs.
- Having a similar language framework would allow for animals to possibly understand human language. (If you have the existing ideas available, it will be easier to apply to other similar systems).