

**1. Why might present day discontinuity *not imply* evolutionary discontinuity? Provide a brief summary of the differences in your own words (no more than a paragraph).**

Present day discontinuity is simply the observation that a trait in one species is not observed in any closely-related species that are alive today. An example of this is the loss of thick body hair on humans when compared to the rest of the non-human primates (who all retain their thick body hair). However, present day discontinuity is not the same as evolutionary discontinuity: the set of evolutionary changes that led to the loss of thick body hair in humans might have happened gradually, with there being several intermediate stages of progressively thinner hair. But we have no direct evidence of this as all of our closely related ancestors on the Homo branch are extinct.

**2. Biologists distinguish between a *signal*, a *cue* and an *index*. When a Lyre Bird makes a sound while foraging this provides a *cue* to any potential predators, whereas an example of a *signal* is when the Vervet Monkey makes an alarm call. Lastly, a spider's vibration frequency is normally a good *index* of its body mass.**

A cue is any aspect of an observed animal used by a perceiver (e.g., by making a rustling sound in a bush a Lyre Bird provides information about its location to a potential predator). A signal is a specific type of cue used by a signaller to affect a perceiver's behaviour (e.g., an alarm call made by a Vervet Monkey informs other Vervet Monkeys to change their behaviour). An index is a signal which is causally bound to the quality being signalled and cannot be faked (e.g., a spider has no control over its body mass and the effect it has on the vibration of webbing).

**3. An innate call system is best defined as:**

The correct answer is *a reliably developing call system without acoustic input from others*. The key difference in this answer is that innate call systems do not require *acoustic input from others*. For instance, dogs do not need acoustic input from other dogs in order to learn how to bark.

**4. Which of these is *not* an example of a communication system?**

The correct answer is *a chimpanzee using a stone tool to crack open a nut*. Tool use is an example of an animal behaviour and cognition. All of the other answers are examples of communication because they involve transmitting information from one organism to another.

**5. Fitch discusses different orders of intentionality. Please provide a sentence-length definition (in your own words) of *second-order intentionality*:**

Second-order intentionality is the goal of using your own knowledge of internal states to intentionally change the state of knowledge in others.

**6. Which of the following is the best description of a *handicap signal*?**

The correct answer is *a signal that is honest and has a high cost*. Think of the Peacock's elaborate plumage: it is an honest indicator of male quality because only high-quality males can bear the cost of transporting and displaying the tail.