

# Animal Communication Systems

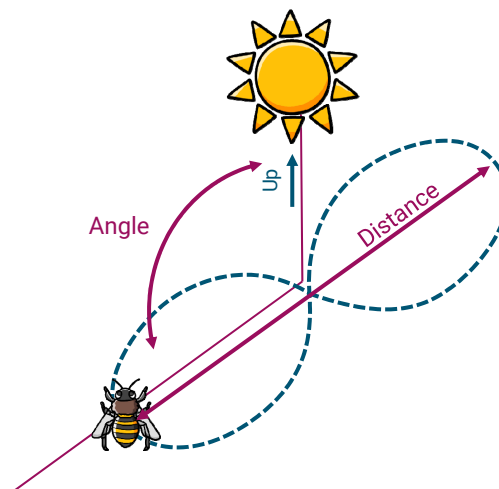
## Iconic Bee Dance

### The Dance Says:

- Direction
- Quantity
- Distance



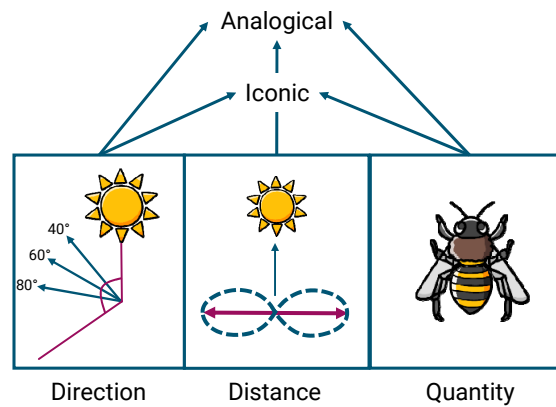
Quantity



Bee: wenchiaawang/iStock/Thinkstock; Sun: wenchiaawang/iStock/Thinkstock

## Iconic Bee Dance

The bees' analog system

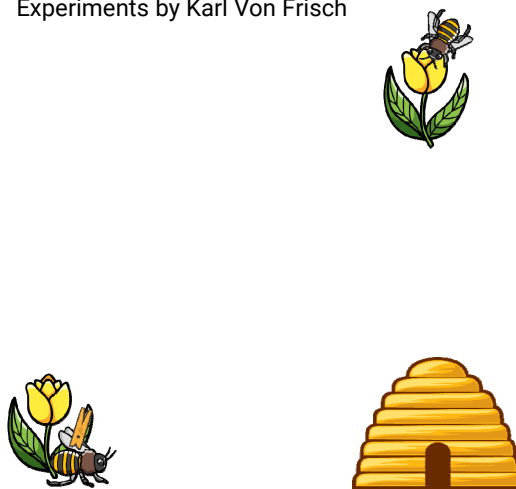


Bees have no combinatoric principals

Bee: wenchiaawang/iStock/Thinkstock; Sun: wenchiaawang/iStock/Thinkstock

## Iconic Bee Dance

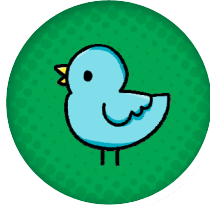
Experiments by Karl Von Frisch



Bee: wenchiaawang/iStock/Thinkstock; Beehive: Tribalium/iStock/Thinkstock; Flower: wenchiaawang/iStock/Thinkstock

## Indexical Bird Calls and Monkey Yelps

Birds' (mostly) digital system



### Calls

Short note sequences associated with discrete functions

Flight, alarm, nesting, enjoyment, flocking, aggression, territorial control, feeding



### Songs

Long, patterned note sequences

Sex, violence

Bird: wenchiaawang/iStock/Thinkstock; Music Notes: wenchiaawang/iStock/Thinkstock

## Indexical Bird Calls and Monkey Yelps



Vervet monkeys' (mostly) digital system

Signal	Meaning	State
Rraup!	Yikes! Something above looks like trouble!	Fear of major avian predator.
Uh!	Yikes! Something in the grass looks like trouble!	Fear of minor mammalian predator.
Nyow!	Yikes! Something just moved which looks like trouble!	Fear of mammalian or major avian predator which has just moved.
Eh, eh!	Hi! Great to see you mommy/babykins!	Joy at mother-child reunion.

Monkey: wenchiaawang/iStock/Thinkstock