

DOMESTIC HENS HAVE DECLARATIVE REPRESENTATIONS

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Information can be stored either as a procedural or as a declarative representation. Procedural representations are the more basic type, and can be likened to a set of instructions that are started by a given stimulus. A declarative representation, on the other hand, contains more general information about the relationships between events in the world of the animal. Only animals that have declarative representations can be said to have a goal with their behaviour (in a proximate sense; McFarland 1989). Declarative representations correspond to level 1 of Dennet's theory of intentionality (Dennet 1988). Studies on declarative representations have mainly been done on rats (eg Holland & Straub [1979]; Adams & Dickinson [1981]), while studies of object permanence, which is a closely related phenomenon, have been done on more species (eg Etienne [1984]; Regolin *et al* [1995]).

A devaluation technique was used to determine whether hens (*Gallus gallus domesticus*) have declarative representations. Individual hens were fed in an enclosure with two containers, each with a new food type. One of the food types was devalued by pre-feeding with that food, after which the hens were tested with empty food containers. The pre-feeding should only affect the choice of the hens if they had learned where a particular food type was (declarative representation) rather than 'go left when coming into the enclosure' (procedural representation). A significant proportion of the hens went to the location previously occupied by the non-devalued food (seven out of eight; $P = 0.035$). This supports the hypothesis that domestic hens can form declarative representations, and thus that they can have a goal with their behaviour.

Acknowledgements

I wish to thank Anthony Dickinson for suggesting the devaluation technique used. This study was funded by the Ministry of Agriculture, Fisheries and Food.

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