

Discuss how the identified frame can incorporate more than one object

Object: Hysterosalpingogram (HSG)

Define concept: A hysterosalpingogram is an X-ray of the uterus and fallopian tubes which allows visualization of the inside of the uterus and tubes.

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(is_a)[diagnostic procedure]
(has_target_organisms)[uterus, fallopian tubes]
(evaluation_by)[Xray]
(evaluates_for)[uterine abnormality, fallopian tube abnormality]
(indicated_for)[fertility workup, follow-up to Ultrasound diagnosis]
(conditions_required)[not during menses, not during pregnancy, mid-cycle]
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Every object has the potential for a unique relationship within each frame, and every object also exists as part of a hierarchy, i.e. it might function as a supergroup, a group, or even a subgroup. Davis, Shrobe, and Szolovits (1993) state that "Frames (or semantic nets) are appropriate for defining terms and for describing objects and the taxonomic class/membership relationships among them."

Within the identified frame, HSG, Xray, and diagnostic procedure are all objects. From a hierarchical perspective, the HSG is part of a broader group (family) of Diagnostic procedures; the HSG is also part of a broader group of Xrays.

In each frame, the primary object is identified (HSG) and the other "objects" such as Xrays and Diagnostic procedures carry additional knowledge that serve to better represent the primary object.

If the ultimate purpose is to communicate the right message (knowledge) to the "reasoner", then the existence of multiple objects within a frame would be used to achieve this goal. Davis, Shrobe, and Szolovits describe that a knowledge representation plays 5 distinct roles, one of which is the guidance that a representation provides for organizing information to facilitate making the recommended inferences.

Davis, R. Shrobe, H. Szolovits, P. (1993). What is a Knowledge Representation? AI Magazine 14(I), 17-33.