

essence of
computing

THE ESSENCE OF

**ARTIFICIAL
INTELLIGENCE**

ALISON CAWSEY

Prentice
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THE ESSENCE OF

ARTIFICIAL INTELLIGENCE

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- Compositional semantics:** Method for finding the meaning of a sentence by combining the meanings of its syntactic constituents.
- Condition-action rule:** Term sometimes used for rules in expert systems, where some action should be taken whenever a condition is satisfied.
- Conditional probability:** Probability of something being true given some evidence.
- Conflict resolution strategy:** Method for deciding which rule to fire when more than one have their conditions satisfied. Used in forward chaining rule-based systems.
- Continuous speech:** Natural speech without deliberate pauses.
- Data driven:** Search or inference that starts with the data and tries to work forward to draw new conclusions or find a goal. Contrast with goal driven; see also **Forward chaining**.
- Decision tree:** Tree structure where each node is labelled with a test or question, each branch with the possible answers, and leaf nodes with some decision or solution. By traversing the tree answering questions and following appropriate branches, leaf nodes are reached and a decision can be made.
- Declarative:** Representing *what* is true rather than *how* something should be done (cf. **Procedural**).
- Default value:** Value given to something in the absence of more specific information.
- Depth first:** Search strategy that involves exploring a given branch of a search tree to its full length before exploring other branches.
- Difference operator:** Function used to find edges in an image based on differences in intensity values in nearby pixels.
- Domain:** Subject area (e.g., medicine). In logic it has a quite different meaning, relating to the set of objects considered when specifying the meaning of a statement.
- Dynamic time warping:** Method used in speech recognition to adjust for the fact that words can be spoken at different speeds.
- Edge detection:** Computer vision technique. Detecting rapid changes in brightness in an image, possibly corresponding to edges of objects.
- Expert system:** System embodying specialist expertise (e.g., medical knowledge).
- Expert system shell:** Skeletal expert system program allowing new expert systems to be (relatively) easily built by adding new expert knowledge.
- Explanation system:** Component of expert system, used in providing explanations or rationale for the conclusions drawn by the system.
- Forward chaining:** Method used in problem solving which involves applying rules starting with the data and drawing conclusions from that data (cf. **Backward chaining**).
- Frame:** Record-like structure used to represent knowledge. A frame is used to represent simple facts about an object or class as slots and slot values, and inheritance used to make inferences.