

UNIVERSIDAD DE BUENOS AIRES

FACULTAD DE CIENCIAS EXACTAS Y NATURALES

DEPARTAMENTO: Computación.....

SIGNATURA:Seminario de Representación de Conocimiento.....

CARRERA/S:..Licenciatura en Cs. de la Computación.....

CARACTER:..optativa.....(indicar si es obligatoria u optativa)

PUNTAJE:...2.....(en caso de ser optativa)

DURACION DE LA MATERIA:....cuatrimestral...(indicar si es cuatrimestral o anual).

HORAS DE CLASE: a) TEORICAS....3. HS. b) PROBLEMAS HS.
c) LABORATORIO... HS. d) SEMINARIOS..... HS.
e) TOTALES.....3. HS.

ASIGNATURAS CORRELATIVAS:...Inteligencia Artificial.....

PROGRAMA:

1- Orígenes de la Inteligencia Artificial. Curso histórico. Programa principal de investigación y programas alternativos. Consolidación del programa principal: Hipótesis del sistema simbólico, hipótesis del nivel del conocimiento, hipótesis de representación de conocimiento. Resultados y consecuencias de dicho programa.

Bibliografía.

GARDNER, H.: The mind's new science, Basic Books, N.Y., 1985. Cap. 8.
GENESERETH, M.R., NILSSON, N.J.: Logical foundations of AI, Kaufmann, Los Altos, 1987, Cap. 1.
HAUGELAND, J.: Semantic engines: An introduction to mind design. en Haugeland, J. (ed.): Mind design, MIT Press, Cambridge, 1981, 1-34.
KIRSH, D.: Foundations of AI: the big issues, AI, 47 (1991), 3-30.
LEVESQUE, H.J., BRACHMAN, R.J.: A fundamental tradeoff in knowledge representation and reasoning (revised version), en Brachman, R., Levesque, H.J. (eds.): Readings in knowledge representation, Kaufmann, Los Altos, 1985, 41-70.
NEWELL, A.: Physical symbol systems, en Norman, D. A. (ed.): Perspectives on cognitive science, Ablex, Norwood, 1981, 37- 86.
NEWELL, A.: The knowledge level. AI. Vol. 18. No. 1. 1982. 87-127.
NEWELL, A., SIMON, H.A.: Computer science as empirical inquiry: Symbols and search, en Haugeland, J. (ed.): Mind design, MIT Press, Cambridge, 1981, 35-66.

2. Problemas y discusiones del programa principal. Programas alternativos. Controversias.

Bibliografía.

BIRNBAUM, L.: Rigor mortis: a response to Nilsson's "Logic and artificial intelligence", AI, 47 (1991), 57-77.
LENAT, D.B., FEIGENBAUM, E.A.: On the thresholds of knowledge, AI, 47 (1991), 185-250.
NILSSON, N.J.: Logic and artificial intelligence, AI, 47 (1991), 31-66.
SMITH, B.C.: The owl and the electric encyclopedia, AI, 47 (1991), 251-288.
WINOGRAD, T., FLORES, F.: Understanding computers and cognition: A new foundation for design, Ablex, Norwood, 1986.

3. El problema de la expresividad vs. tratabilidad del lenguaje de representación. Orígenes, supuestos y planteo del problema. Fundamentos de tratabilidad y resolubilidad. Bibliografía.

DREBEN, B., GOLDFARB, W.D.: The decision problem - Solvable classes of quantificational formulas, Addison-Wesley, Reading, 1979.
GAREY, M.R., JOHNSON, D.S.: Computers and intractability - A guide to the theory of NP-completeness, Freeman, San Francisco, 1979.
LEVESQUE, H.J.: Foundations of a functional approach to knowledge representation, AI, 23 (1984), 155-212.
LEVESQUE, H.J.: The logic of incomplete KBs, en Brodie, M.L., Mylopoulos, J., Schmidt, J.W. (eds.): On conceptual modelling, Springer-Verlag, 1984, Cap. 7.
LEVESQUE, H.J., BRACHMAN, R.J.: A fundamental tradeoff in knowledge representation and reasoning (revised version), en Brachman, R., Levesque, H.J. (eds.): Readings in knowledge representation, Kaufmann, Los Altos, 1985, 41-70.

4. Caso 1. Lógica terminológica. Restricciones lingüísticas y clasificaciones restringidas. Sistemas: Krypton. Klone. Rack. Nickl. Compromiso entre expresividad y tratabilidad.

Bibliografía.

BRACHMAN, R.J., FIKES, R.E., LEVESQUE, H.J.: Krypton: A functional approach to knowledge representation, Computer, Oct. 1983, 67-73.
DOYLE, J., PATIL, R.S.: Two theses of knowledge representation: language restrictions, taxonomic classification, and the utilities of representation services, AI, 48 (1991), 261-297.
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NEBEL, B.: Computational complexity of terminological reasoning in BACK, AI, 34 (1988), 371-383.
NEBEL, B.: Terminological reasoning is inherently intractable, AI, 43 (1990), 235-249.

NEBEL-SCHNEIDER, P.F.: A four-valued semantics for terminological logics, AI, 38 (1989), 319-351.

5. Caso 2. Razonamiento, control del razonamiento. Teorías de racionalidad. Enfoques logicistas vs. pragmáticos. Teoría de decisiones. Revisión de creencias.

Bibliografía.

- DAIAT, M.: Investigations into a theory of knowledge base revision: Preliminary report, Proc AAAI-88, Saint-Paul, Minn, 1988, 475-479.
- DOYLE, J.: Rational belief revision (Preliminary report), Second Int. Conf. on Principles of Knowledge Representation and reasoning, 1991.
- DOYLE, J.: Rational control of reasoning in artificial intelligence, en Fuhrmann, M. Morreau (eds.): The logic of theory change, Springer, Berlin, 1991, 3-18.
- DUBOIS, D., PRADE, H.: Epistemic entrenchment and possibilistic logic, AI, 50 (1991), 223-239.
- ELKAN, C.: A rational reconstruction of nonmonotonic truth maintenance systems, AI, 43 (1990), 219-234.
- FAGIN, R., HALPERN, J.Y.: Belief, awareness and limited reasoning, AI, 34 (1988), 39-76.
- GÄRDENFORS, P.: The dynamics of belief systems: Foundations vs. coherence theories, Revue Int. Philosophie, Vol. 44, No. 1, 1990, 24-46.
- HALPERN, J.Y., VARDI, M.Y.: Model checking vs. theorem proving: A manifesto, IBM Research Rep. RJ 7963, 1991.
- HILPINEN, R.: Inquiry, argumentation and knowledge, en Fuhrmann, M. Morreau (eds.): The logic of theory change, Springer, Berlin, 1991, 3-18.
- NEBEL, B.: A knowledge level analysis of belief revision.
- NEBEL, B.: Belief revision and default reasoning: Syntax based approaches, Second Int. Conf. on Principles of Knowledge Representation and reasoning, 1991.

6. Caso 3. Inteligencia artificial distribuida. Concepción social del conocimiento. Problema de competencia lógica y modelos alternativos. Conocimiento, comunicación, acción, conocimiento común. creencias mutuas. Agentes, sistemas multiagentes, programación orientada a agentes. Semántica de los sistemas abiertos.

Bibliografía.

- CASTILLO HERN, L.E.: On distributed artificial intelligence, Knowledge Engineering Review,
- DAVIS, R., SMITH, R.G.: Negotiation as a metaphor for distributed problem solving, AI, 20 (1983), 63-109.
- DOYLE, J.: A society of mind - Multiple perspectives reasoned assumptions and virtual copies, CMU-CS-83-127, 1983.
- FAGIN, R., HALPERN, J.Y., VARDI, M.Y.: A model theoretic analysis of knowledge, J. ACM, 38, 2, 1991, 302-428.
- FOX, M.S.: An organizational view of distributed systems.
- GÄSSER, L.: Social conceptions of knowledge and action: DAI foundations and open systems semantics, AI, 47(1991), 107-138.
- HALPERN, J.Y.: Using reasoning about knowledge to analyze distributed systems, Ann. Rev. Comput. Sci, 1987, 2, 37-68.
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HALPERN, J.Y., FAGIN, R.: Modelling knowledge and action in distributed systems, Distributed Computing, 1989, 3, 159-177.
HALPERN, J.Y., MOSES, Y.: Knowledge and common knowledge in a distributed environment, J. ACM, Vol. 37, No. 3, 1990, 549-587.
HEWITT, C.: The challenge of open systems, Byte, April 1985, 223-242.
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ISOZAKI, H., SHOHAM, Y.: A mechanism for reasoning about time and belief, 1991.
SHOHAM, Y.: Agent oriented programming. Comp. Scie. Dept., Stanford University, Tech. Report STAN-CS-1335-90, 1990.
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