

Logic Tutorial 1

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Overview

- ▶ 16:00 How to learn
- ▶ 16:10 Recap
- ▶ 16:20 **Q&A**
- ▶ 16:50 Quiz
- ▶ 17:00 **Q&A**
- ▶ 18:00 Feierabend

How to learn (0/3)

msvincognito.github.io/survivingdke

Survivingdke

A survival guide to the Department of Knowledge Engineering at Maastricht University

[View on GitHub](#)

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How to learn (1/3): Exercise

msvincognito.nl/wiki

-  [logic_answersexam1-2006.zip](#) (2020/11/14 22:49 900.2 KB)
-  [logic_exam2004-answers.zip](#) (2020/11/14 22:49 818.2 KB)
-  [logic_exam2005-answers.zip](#) (2020/11/14 22:49 408.4 KB)
-  [logic_exam2007-1-answers.zip](#) (2020/11/14 22:49 887.5 KB)
-  [logic_exam2007-2-answers.zip](#) (2020/11/14 22:49 908.2 KB)
-  [logic_exam2008-1-answers.zip](#) (2020/11/14 22:49 950 KB)
-  [logic_exam2008-2-answers.zip](#) (2020/11/14 22:49 890.2 KB)
-  [logic_exam_2004.pdf](#) (2020/11/14 22:49 104.8 KB)
-  [logic_exam_2005-06-03.pdf](#) (2020/11/14 22:49 81.4 KB)
-  [logic_exam_2006-05-31.pdf](#) (2020/11/14 22:49 81.7 KB)
-  [logic_exam_2007-05-30.pdf](#) (2020/11/14 22:49 102.6 KB)
-  [logic_exam_2007-06-29.pdf](#) (2020/11/14 22:49 105.2 KB)
-  [logic_exam_2008-06-04.pdf](#) (2020/11/14 22:49 36.3 KB)
-  [logic_exam_2008-07-02.pdf](#) (2020/11/14 22:49 35.5 KB)
-  [logic_mockexam_2016.pdf](#) (2020/11/14 22:49 209.7 KB)

How to learn (2/3): Self-study

Z-Library, Library Genesis

Part of Z-Library project. The world's largest ebook library

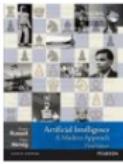
Are you familiar with a high-risk merchant or do you process payments? [Yes, I am.](#) X

[General Search](#) [Fulltext Search](#)

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 [Artificial Intelligence: A Modern Approach, 3rd Edition](#)
Pearson Education
Stuart J. Russell, Peter Norvig

Year: 2016 Language: english File: PDF, 17.25 MB

How to learn (2/3): Self-study

Week 1 24 APRIL - 30 APRIL

	ANNUAL GROWTH	NOTES
Chloromyces	10%	200-250 mm
Cladonia	decreased to 10%	200-250 mm
Cochlidiolema	decreased to 10%	200-250 mm
Conkinea	decreased to 10%	200-250 mm
Coriolus	decreased to 10%	200-250 mm
Leptopodium	decreased to 10%	200-250 mm
Phlebia	decreased to 10%	200-250 mm
PS. PTL	2-5%	0-100 mm

WEEK 2 D.O.T.E.S.H.
1 MAY - 7 MAY

~~Week~~ 3 8 MAY - 14 MAY

Week 4 15 MAY - 29 MAY
 finished blocking
 E.G. go board
 2009-10 bus 1054 2nd 600y
 2010-11 bus 1054 2nd 600y
 2009-10 bus 2315 4pm 1000y
 2009-10 bus 2315 4pm 1000y
 2010-11 2nd 15 2009-10 14, 2004 2nd 600y 2010-11 15 15,
 2010-11 15 2009-10 15 2004 2nd 600y

WEEK 5 22 MAY - 28 MAY

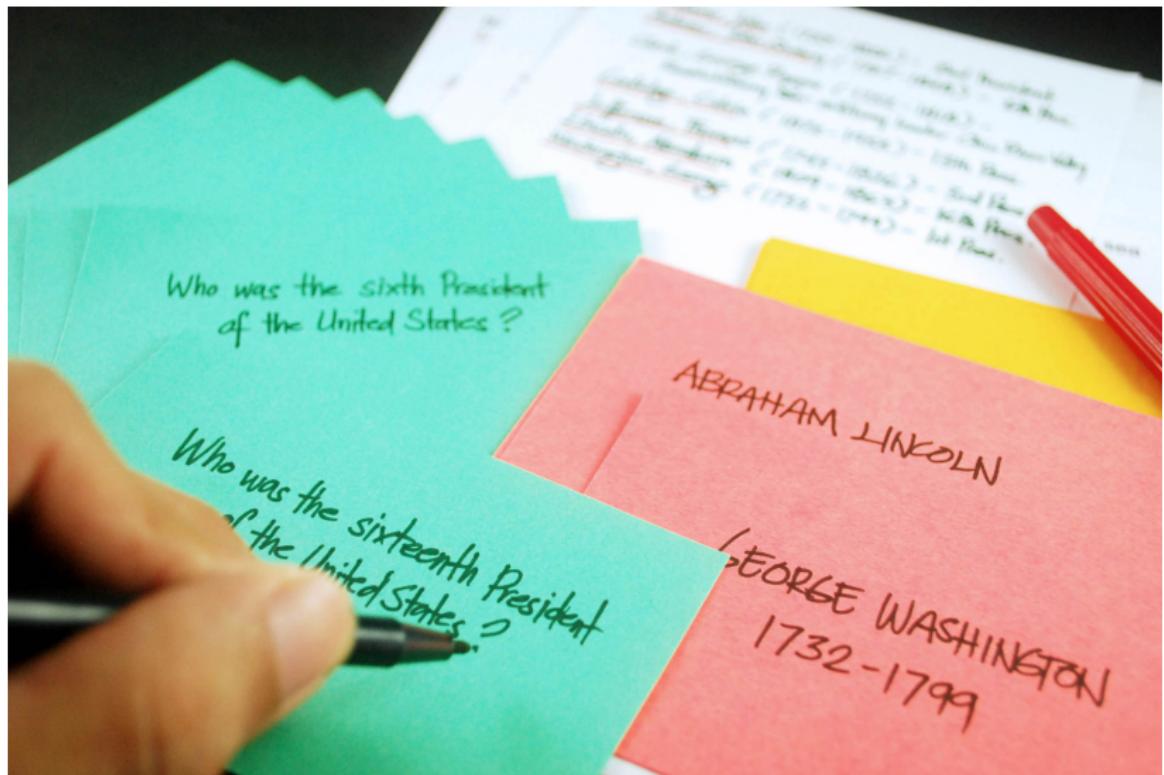
MARK 6 29 MAY - 4 JUNE

week 7 5 JUNE - 11 JUNE
fertilized 100%
P & C 90% healthy

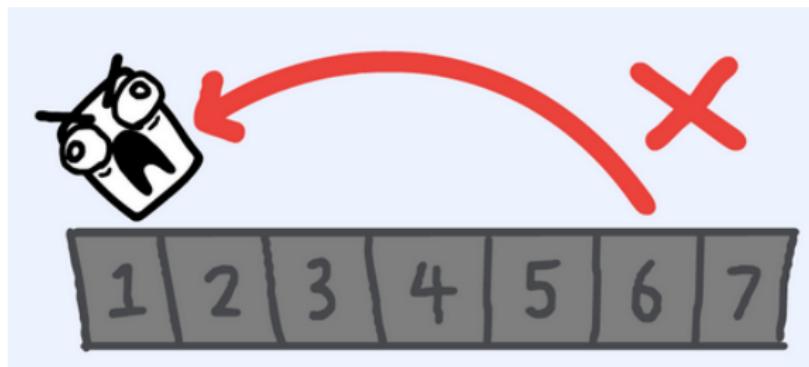
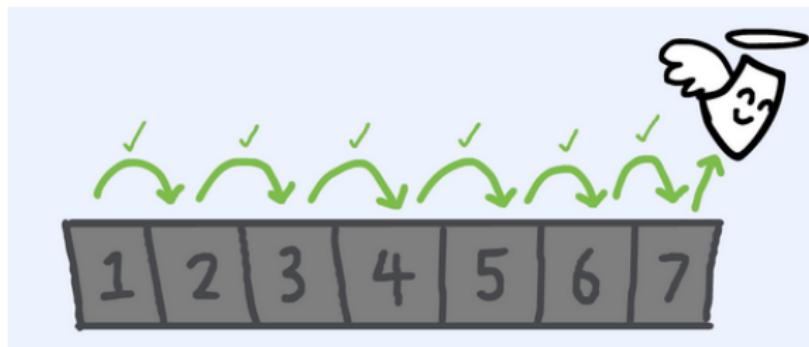
week 8

12 JUNE - 18 JUNE

How to learn (3/3): Spaced repetition

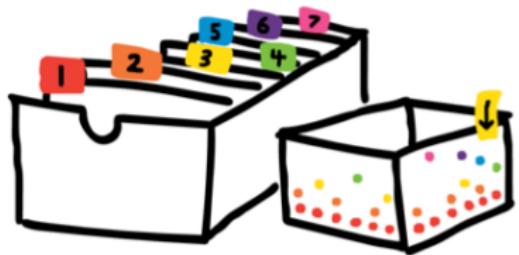


How to learn (3/3): Spaced repetition



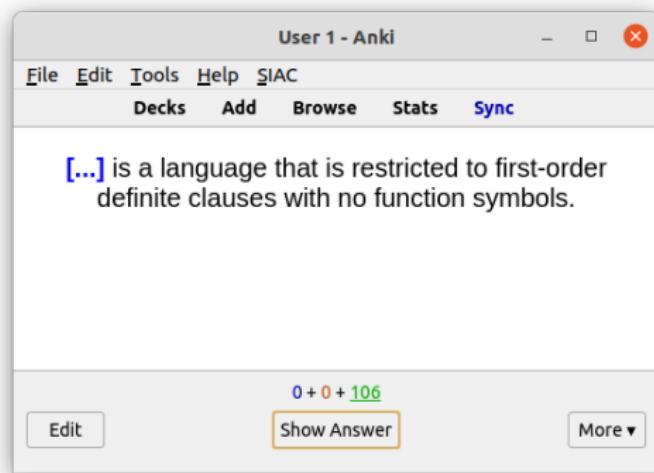
How to learn (3/3): Spaced repetition

LEITNER BÖX



How to learn (3/3): Spaced repetition

Anki



How to learn (3/3): Spaced repetition

RemNote

Russell & Norvig exp

• (ch. 19) knowledge in learning

- a logical formulation of learning
 - Least-commitment search
 - Candidate elimination
 - algorithm

• (ch. 19) knowledge in learning

- a logical formulation of learning
 - can take advantage of prior knowledge about the world
 - dataset → conjunction of all the (example descriptions and goal literals)
 - Extension of a goal predicate → the set of examples with which it is identical
 - a consistent hypothesis should be consistent with every example
- Current-best-hypothesis search
 - rather dull
 - (perhaps first) described by → John Stuart Mill (1843)
 - idea → |

RemNote | Queue

Russell & Norvig exp 47

Learning Arguments > Literature > Relational learning

Russell & Norvig exp

• (ch. 19) knowledge in learning

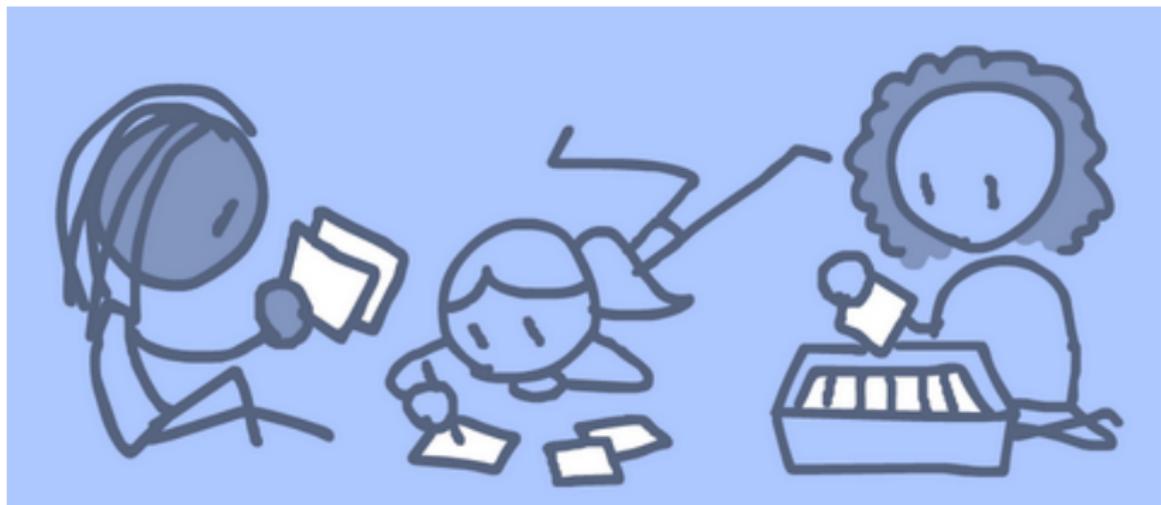
- a logical formulation of learning
 - Least-commitment search
 - Version space: set of hypotheses that are not removed due to inconsistency with the data

1 hour immediate 24 hours

24 hours

How to learn (3/3): Spaced repetition

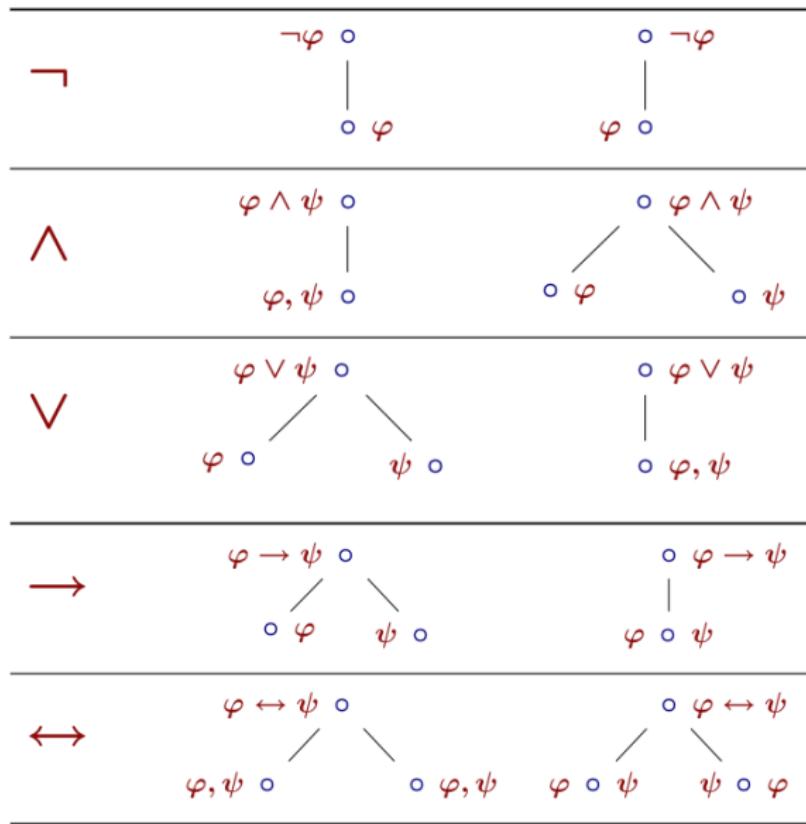
ncase.me/remember



How to learn

1. Exercise
2. Self-study
3. Spaced repetition

Semantic Tableau



Natural deduction

$\frac{\varphi, \varphi \rightarrow \psi}{\psi} \quad \text{modus ponens}$	$\frac{\varphi}{\psi} \quad \begin{array}{c} \\ \vdots \\ \\ \psi \end{array} \quad \text{deduction}$	$\frac{\varphi \wedge \psi}{\varphi} \quad \frac{\varphi, \psi}{\varphi \wedge \psi}$
E_\rightarrow	I_\rightarrow	$\text{E}_\wedge \quad \text{I}_\wedge$
$\frac{\neg\varphi, \varphi}{\perp}$	$\frac{\neg\varphi}{\perp} \quad \begin{array}{c} \\ \vdots \\ \\ \perp \end{array} \quad \text{refutation}$	
E_\neg	I_\neg	
$\frac{\varphi \vee \psi, \quad \begin{array}{c} \\ \vdots \\ \\ x \end{array}, \quad \begin{array}{c} \\ \vdots \\ \\ x \end{array}}{x} \quad \text{E}_\vee$	$\frac{\varphi}{\varphi \vee \psi}, \quad \frac{\psi}{\varphi \vee \psi} \quad \text{I}_\vee$	

Q & A

excalidraw

Q & A

sound	~high precision
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complete ~high recall

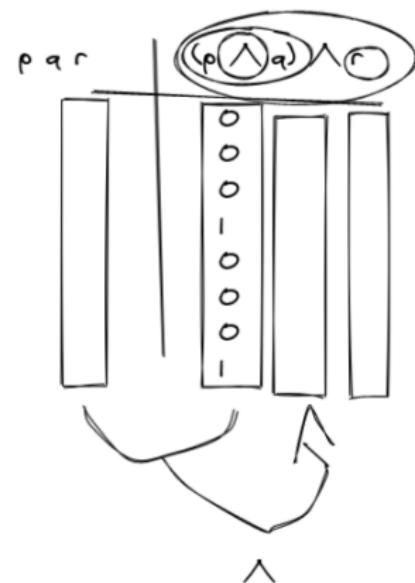
Q & A

a	b	
0	0	
0	1	
1	0	
1	1	

d	a	b	c	
0	0	0	0	
0	0	0	1	
0	0	1	0	
0	0	1	1	
0	1	0	0	
0	1	0	1	
0	1	1	0	
0	1	1	1	
...				

Q & A

p	q	r	$(p \rightarrow q) \wedge (r \rightarrow q)$	$\neg p \vee \neg r$
1	1	1	00	0
0	0	1	0	1
...				
			1	
			1	



Q & A - Mock exam 2016 (Incognito Wiki) - 3 a)

1	$p \rightarrow q$	
2	$(q \wedge r) \rightarrow s$	
3	$p \wedge r$	
4	p	$E \wedge (3)$
5	q	$E \rightarrow (4, 1)$
6	r	$E \wedge (3)$
7	$q \wedge r$	$I \wedge (5, 6)$
8	s	$E \rightarrow (7, 2)$
9	$(p \wedge r) \rightarrow s$	$I \rightarrow (3, 8)$

Q & A - Mock exam 2016 (Incognito Wiki) - 3 b)

$$(p \vee s) \rightarrow (q \vee r)$$

$$(q \vee s) \rightarrow r$$

| p

$$p \vee s$$

$$q \vee r$$

$$I \vee (3)$$

$$E \rightarrow (1, 4)$$

$$q$$

$$q \vee s$$

$$\textcircled{r}$$

$$[I \vee (6a)]$$

$$[I \rightarrow (7a, 2)]$$

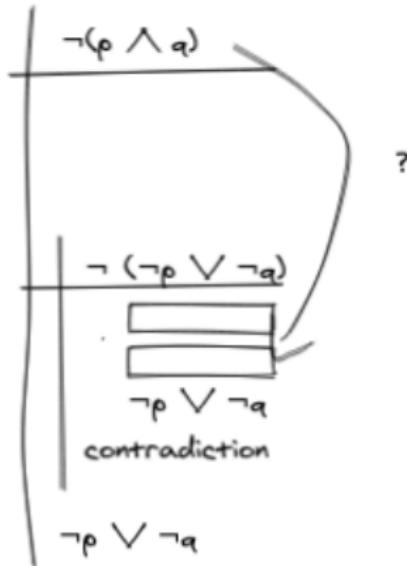
| r

$$E \vee (5, 6b, 8a)$$

$$p \rightarrow r$$

$$I \rightarrow (3, 9)$$

Q & A



Quiz

- ▶ Kahoot
- ▶ Tahook

Feedback

Anonymous feedback form:

- ▶ linktr.ee/davidpomerenke