

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](#)

[Download .zip](#)

[Download .tar.gz](#)

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

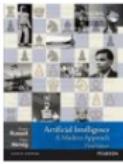
Are you familiar with a high-risk merchant or do you process payments? [Yes, I am.](#) [X](#)

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

[Search](#)

[Search options](#)

[Books \(500+\)](#) [Articles](#) [Most Popular](#) [List](#)

 [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

first day	May 1	Chapter 1	1.1
first Biology	May 2	Chapter 2	1.2
first Geology	May 3	Chapter 3	1.3
second Bio	May 4	Chapter 4	1.4
second Geology	May 5	Chapter 5	1.5
third Bio	May 6	Chapter 6	1.6
third Geology	May 7	Chapter 7	1.7
fourth Bio	May 8	Chapter 8	1.8
fourth Geology	May 9	Chapter 9	1.9
fifth Bio	May 10	Chapter 10	1.10
fifth Geology	May 11	Chapter 11	1.11
sixth Bio	May 12	Chapter 12	1.12
sixth Geology	May 13	Chapter 13	1.13
seventh Bio	May 14	Chapter 14	1.14
seventh Geology	May 15	Chapter 15	1.15

WEEK 5 22 MAY - 28 MAY

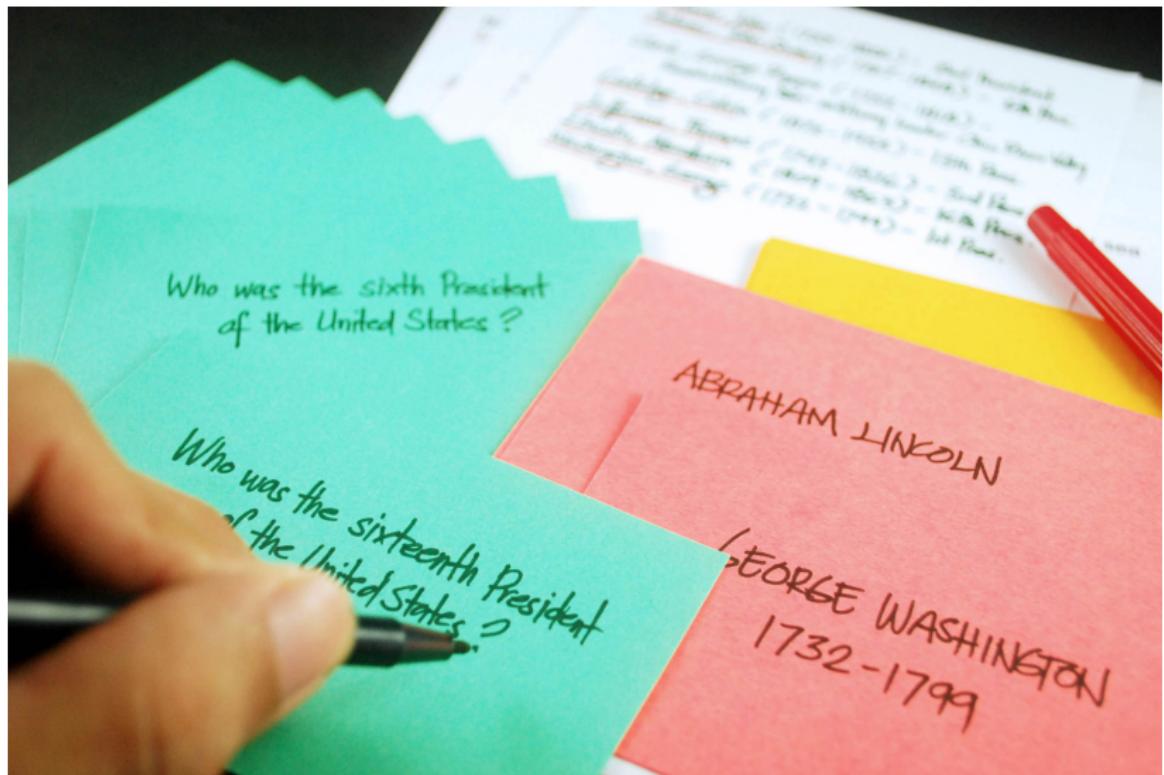
WEEK 6 29 MAY - 4 JUNE

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

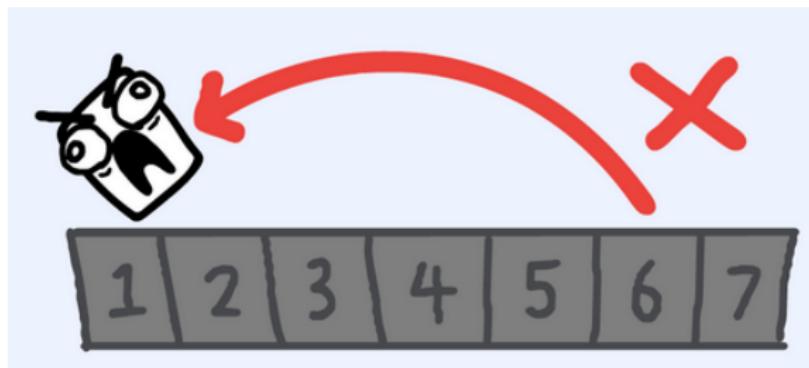
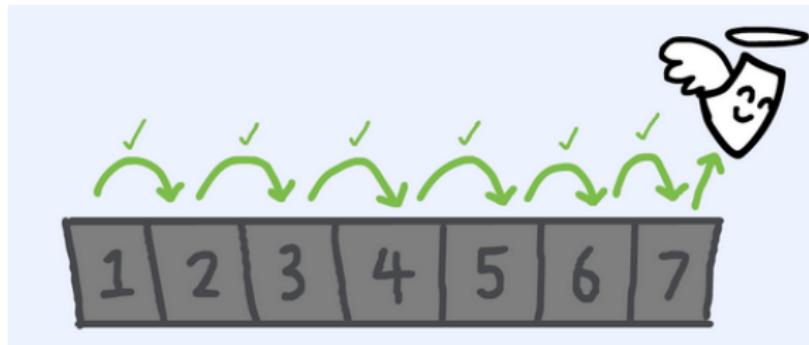
Mark 8 12 JUNE - 18 JUNE

International player

How to learn (3/3): Spaced repetition

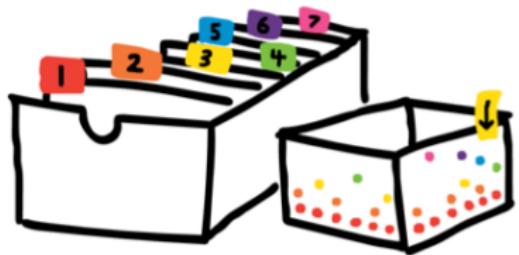


How to learn (3/3): Spaced repetition



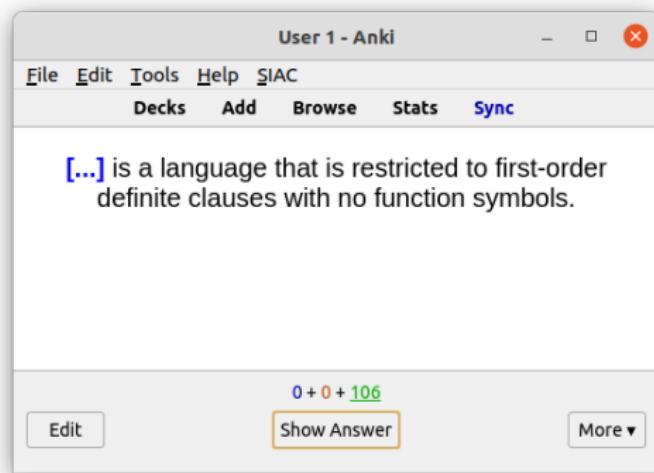
How to learn (3/3): Spaced repetition

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

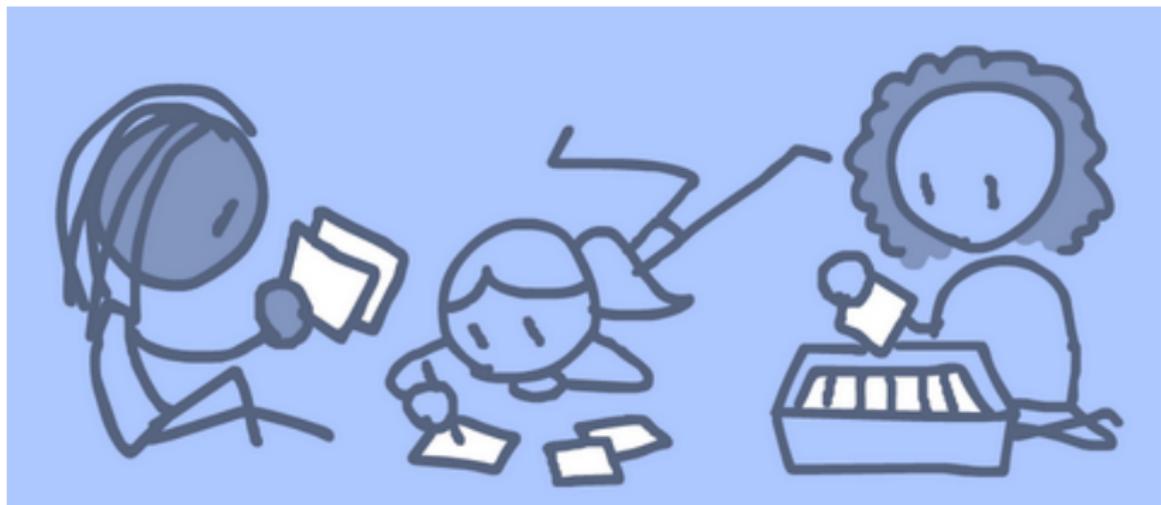
• (ch. 19) knowledge in learning

- 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

How to learn (3/3): Spaced repetition

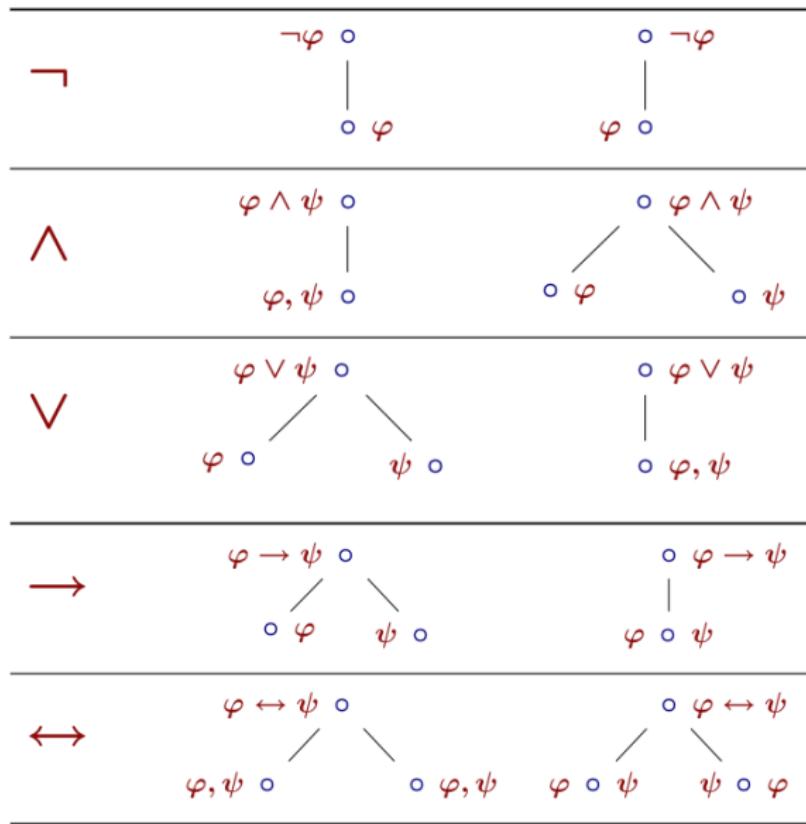
ncase.me/remember



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

complete ~high recall

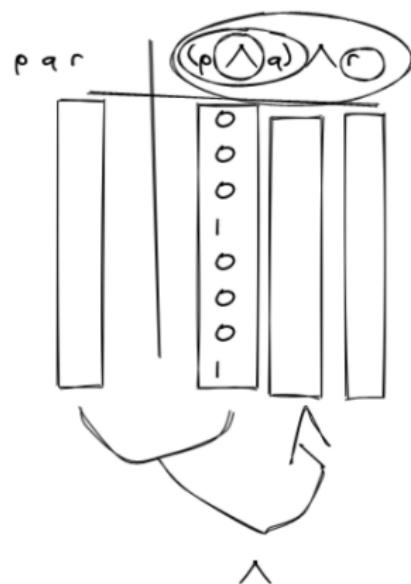
Q & A

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	$(p \rightarrow q) \wedge (r \rightarrow r)$	$\neg p \vee \neg r$
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

$$p \vee s$$

$$q \vee r$$

$$I \vee (3)$$

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

$$q$$

$$q \vee s$$

$$\textcircled{r}$$

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

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

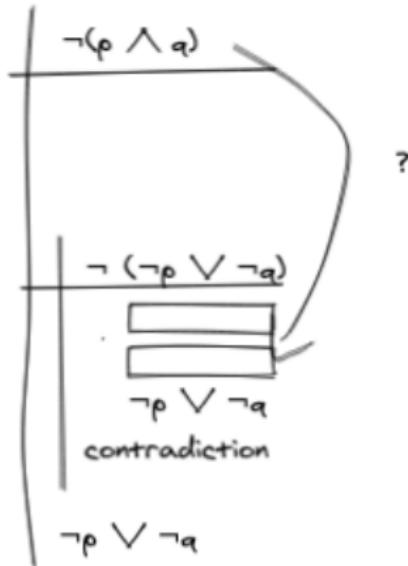
| r

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

$$p \rightarrow r$$

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

Q & A



Quiz

- ▶ Kahoot
- ▶ Tahook

Feedback

Anonymous feedback form:

- ▶ linktr.ee/davidpomerenke