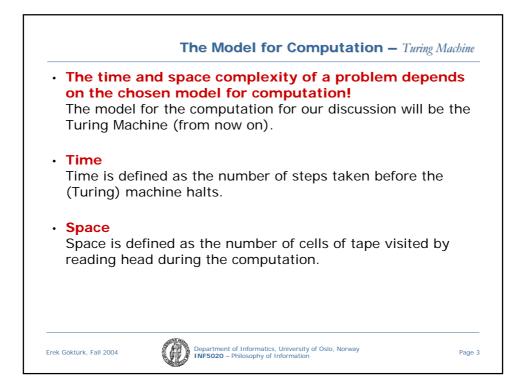
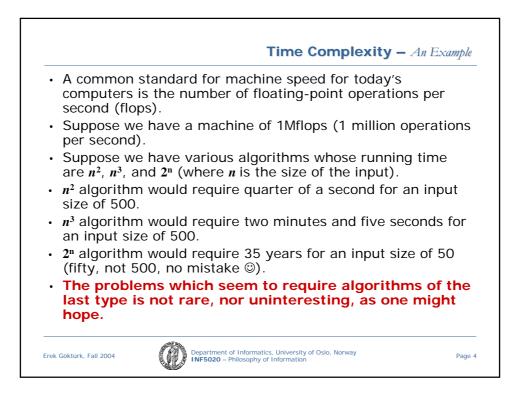
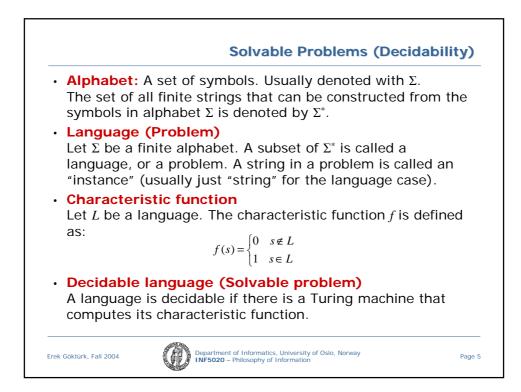


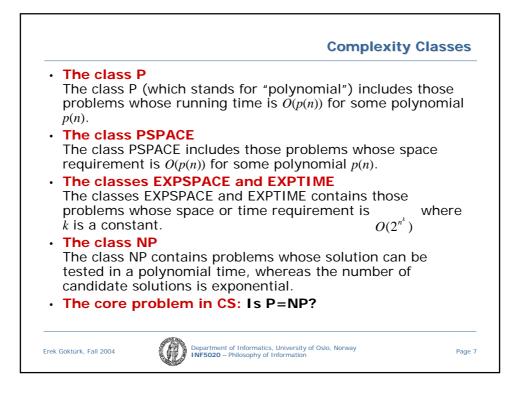
	What is Computational Comple	xity?
5	<b>n</b> of computational complexity is concerned w he resources a computer needs in order to	
Time	ant resources : The number of steps in a computation. : Amount of memory used for computation	
	the theory signify? ems solvable by a form of Turing machine a practice.	are
	ortant finding is that problems fall into stric n accordance with their space and time s.	t
Erek Göktürk, Fall 2004	Department of Informatics, University of Oslo, Norway INF5020 – Philosophy of Information	Page 2



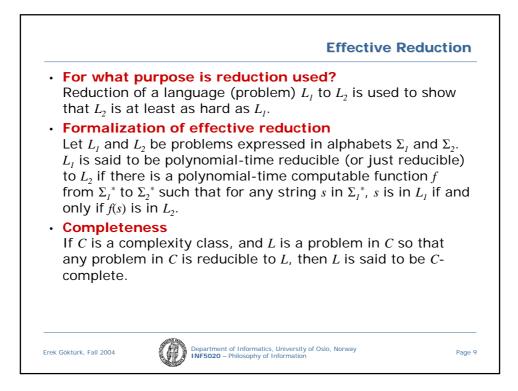




	Time	and Space	Bounds of Alg	orithms
0.0	<b>otation</b> $\Re^2_t f(x)$ is said to t for sufficiently			onstant c
O(T(n)) S	computable funct teps to halt with , then the function	the output	for an input of n	
whose T halting v	e applies to spac uring machine vi vith the output fo f is said to be co	isits $O(T(n))$ or an input	different places of <i>n</i> symbols, th	before
	initions are int s manner.	roduced h	ere in a not-so	)-
Erek Göktürk, Fall 2004		of Informatics, Universit		Page 6



constructible if there is a se bounded, and for each $n$ hich M actually uses $S(n)$
e bounded, and for each n
iich mactually uses s(n)
tmanis, Lewis, and
ctible functions, and $S_2$ y, so that
)
ble in space $S_2(n)$ , but not
the time hierarcy.



Many interesting problems are in NP.		
<ul> <li>The satisfiabil In mathematics satisfiable if tru variables in a w</li> </ul>	ity problem , a formula of propositional logic is said to be th values can be assigned to its free ray that makes the formula true. The blem is deciding whether a given formula is	
The satisfiability	y problem is NP-complete. y problem was the first proven NP-complete reduction, many others have been shown to	
	nd EXPTIME are not the same classes. See e.umbc.edu/help/theory/classes.shtml	

