Mathematical Logic – Proofs by Resolution (recap)

$$P \rightarrow Q \equiv \neg P \vee Q$$
$$\neg(P \rightarrow Q) \equiv P \wedge \neg Q$$

The method:

- negate the statement

Pg 42 - convert to prenex form

 - move quantifiers as prefix

Pg 43 - convert to skolem form

 - remove quatifiers and replace with functions

 - convert to clausal form = conj NF = $(\dots \vee \dots) \wedge (\dots \vee \dots) \dots$

Pg 58 - resolve by resolution (via unifications and substitutions)

Pg 37 - resolution for propositions

Pg 38-40 - examples

Pg 60 - ex 37, example of predicates resolution

 - $P \wedge Q \rightarrow R$ processed as a whole

 - or process separately P, Q and $\neg R$

 - why?

Pg 61 - Prolog computation

Pg 62 - example, the English succession

Pg 64 - Prolog execution of above

fact	$B.$	$\{B\}$
definite clause	$B \leftarrow A_1, \dots, A_n.$	$\{\neg A_1, \dots, \neg A_n, B\}$
goal	$\leftarrow A_1, \dots, A_n.$	$\{\neg A_1, \dots, \neg A_n\}$