Feb 15

Pigeonhole Principle: If $\leq n-1$ pigeons assigned to n pigeonholes, $\implies$ at least 1 empty pigeonhole.

Pf: details of lemma 4:

Assume that w is free and she has proposed to all men.

$\implies$ all n men are engaged $(*)$

(by obs 1 + algo. def.)

	$p \to q$
	If p then q
	contradiction: If
	p then $\neg q$

(CP)

Since w is free $\implies$ $\leq n-1$ women are engaged.

$\implies$ (by PHP) ≥ 1 man is free

P: women
PH: men
$\implies$ $\leq n-1$ men are engaged. (TP)

assign: engaged

$\implies$ contradict $(*)$

$\square$

$\neg \forall x \; P(x)$

$\equiv \exists x \; \neg P(x)$