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Assignment 3

1.
x -> True
q -> True
x ^ y -> a
x -> w
x ^ z -> b
y ^ w -> c
q ^ z ^ a ->d
q -> y
a ^ b ^ c ^ d ->e
w -> z

2.
x, **x->w**, w
q, **q->y**, y
w, **w->z**, z
x, **x^z->b**, b
x, y, **x^y->a**, a
q, z, a, **q^z^a->d**, d
y, w, **y^w->c**, c
a, b, c, d, **a^b^c^d->e**, e

3.
Goal: e

Item to be proved	**Stack**
a^b^c^d->e	e
x^y->a	a, b, c (pop e)
x->True	x,y,b,c (pop a)
q->y	y,b,c (pop x)
q-> True	q,b,c (pop y)
x^z->b	b,c (pop q)
x->w	z,c (pop b , x already proved)
y^w->c	c (pop z)
	Empty (pop c)

4.

a.

KB	CNF
x ^ y -> a	!x or !y or a
x -> w	!x or w
x ^ z -> b	!x or !z or b
y ^ w -> c	!y or !w or c
q ^ z ^ a ->d	!q or !z or !a or d
q -> y	!q or y
a ^ b ^ c ^ d ->e	!a or !b or !c or !d or e
w -> z	!w or z

b.

Add !e

Terms being resolved	Resulting sentence
!a or !b or !c or !d or e	!a or !b or !c or !d
!x or !y or a	!x or !y
!q or y	!q

!q is a contradiction because we know that q->True

Part 5:

The article *The Man Who Would Teach Machines to Think* is about Douglas Hofstadter who is a pioneer in the field of computer science. Douglas Hofstadter is a cognitive scientist who studies various types of reasoning mechanisms such as the process of analogy-making. Hofstadter believes that analogies are essential to human thought and cognition.

The quote about artificial flight means that we should put emphasis on diving deep into the hidden concepts of things rather than observing them and trying to mimic them from the surface level. This relates to the Wright brothers and their success flying planes because they focused on studying the features of aerodynamics instead of trying to replicate the movements of birds. This is relevant to AI because this suggests that in order to create AI, we need to learn more about the human brain and cognition rather than trying to replicate human thought.

Candie is a project created by IBM that is a statistical approach to machine translation. Candie was highly successful because instead of relying on linguistic rules, Candide used a parallel corpus of texts. Candie's success set the standard for machine translation research and is the foundation of natural language processing techniques.

The quote from the last chapter of AIMA compares the progress of AI research to climbing a tree in order to reach the moon. While it is possible to climb a tree and report progress while doing so, the ultimate goal is unattainable. This analogy highlights an issue in the field of AI. It is potentially the case that the incremental improvements we are making will not lead to the desired outcome. This relates to Candie because although there has been much progress made in the field of machine translation, it does not address the fundamental principles of human cognition. As I mentioned in the second paragraph, in order to have success in AI, we need to have a fundamental understanding of the underlying concepts of human thought.