

ETHICS FOR SCIENCE AND FAITH



PURPOSE:

REVIEW HOW FAITH AND SCIENCE CAN
REINFORCE ONE ANOTHER VIA ETHICS

Four Approaches to relating faith and science

(1) Conflict with one another

- The universe is static versus evolving views
- A literal overall understanding of the bible versus a detailed interpretation

Four Approaches to relating faith and science

(2) Independent of one another

- Immediate, personal relationships versus detached analysis
- Way of life of shared stories, rituals and practices versus theory for prediction and control

Four Approaches to relating faith and science

(3) Dialogue with one another

- Science raises questions it cannot answer relating to order, beauty and complexity of the universe
- Faith raises questions on how to apply principles to specific, complex situations

Four Approaches to relating faith and science

(4) Integration into one another

-- Science and religion come together for a more complete, coherent world view

Reference: Ian Barbour, "Religion and Science"

BROADER AND DEEPER UNDERSTANDINGS

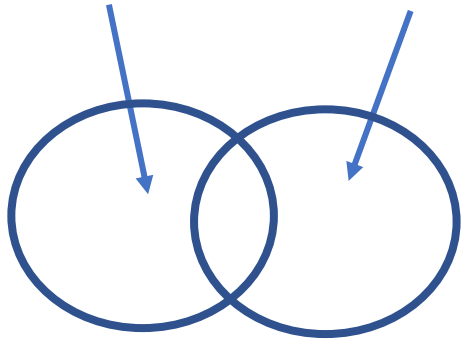
FAITH + SCIENCE → **BROADER** UNDERSTANDING OF
SCIENCE ISSUES

SCIENCE + FAITH → **DEEPER** UNDERSTANDING OF
FAITH ISSUES

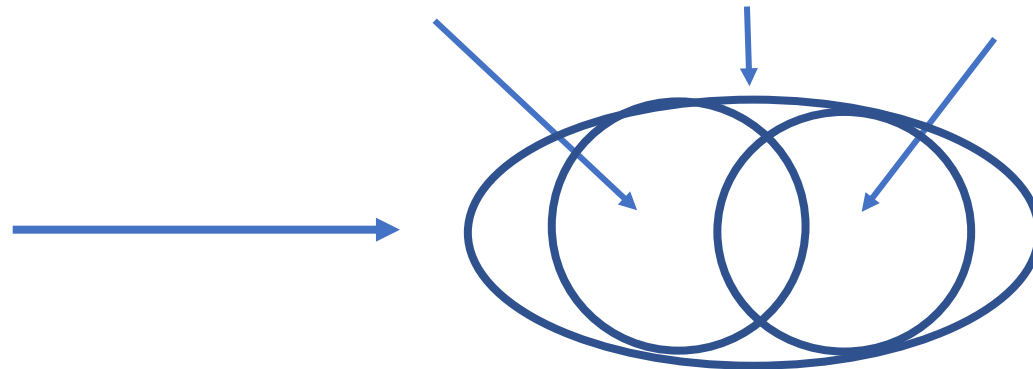
INTEGRATION WITH FAITH: BROADENS UNDERSTANDING IN SCIENCE

A BROADER RANGE OF UNDERSTANDING CAN OCCUR
WHEN ETHICAL QUESTIONS FROM FAITH ARE
CONSIDERED AS A PART OF SCIENCE RESEARCH

Faith with Ethics

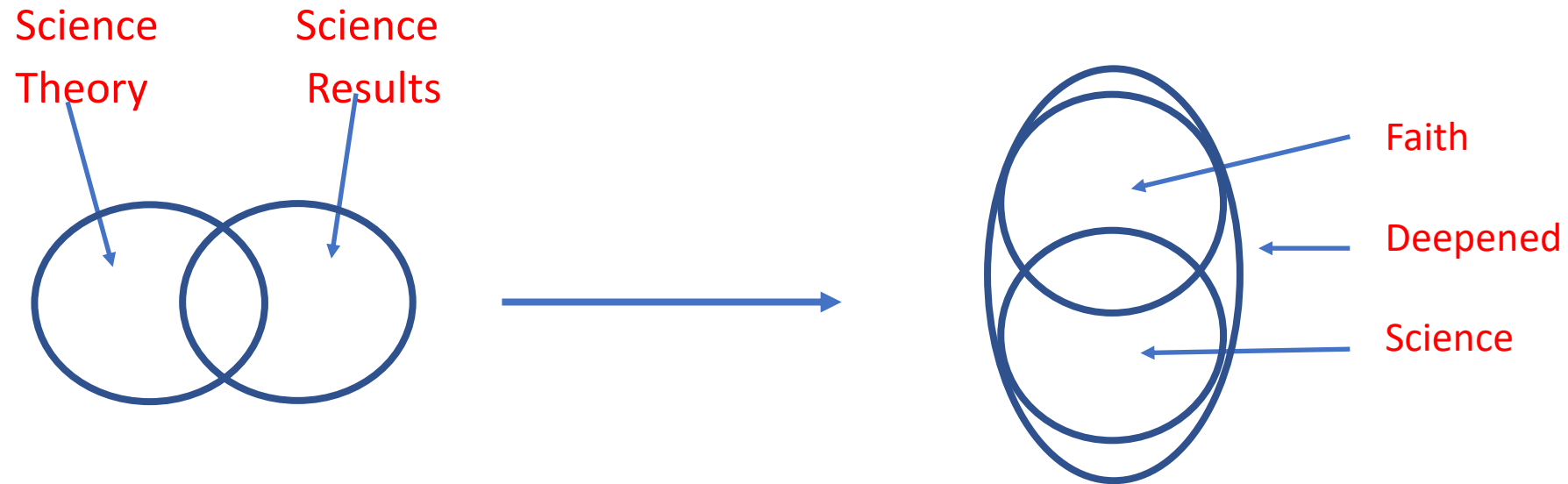


Science Broadened with Ethics

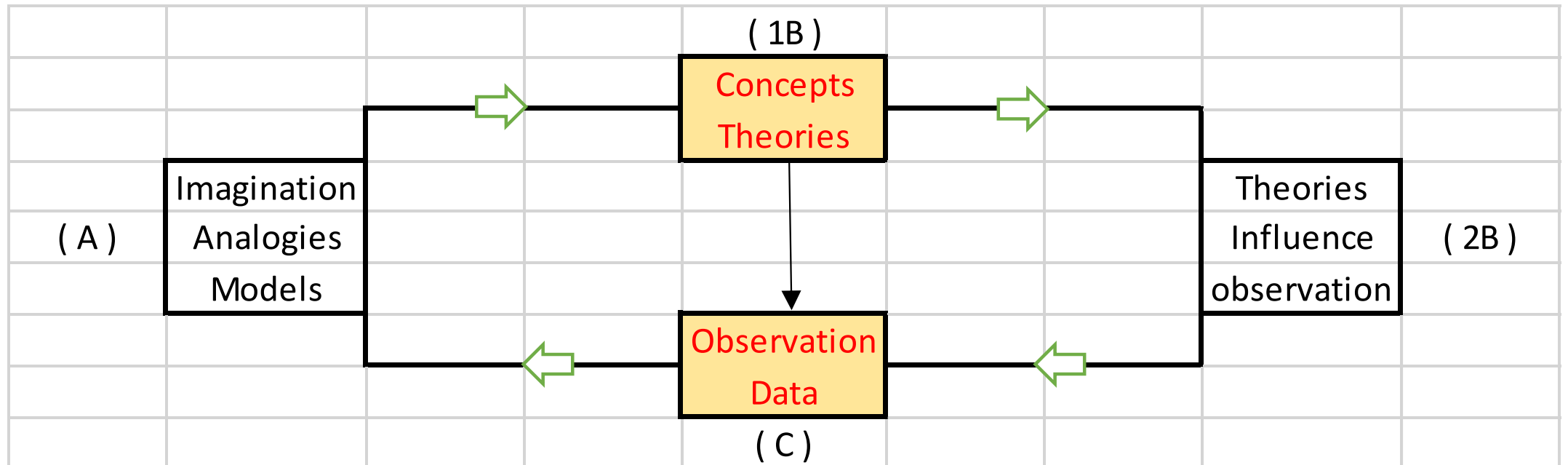


INTEGRATION WITH SCIENCE: DEEPENS UNDERSTANDING IN FAITH

A DEEPER UNDERSTANDING OF SPECIFIC ETHICAL ISSUES CAN
OCCUR WHEN SCIENCE PROVIDES OPERATIONAL EXAMPLES

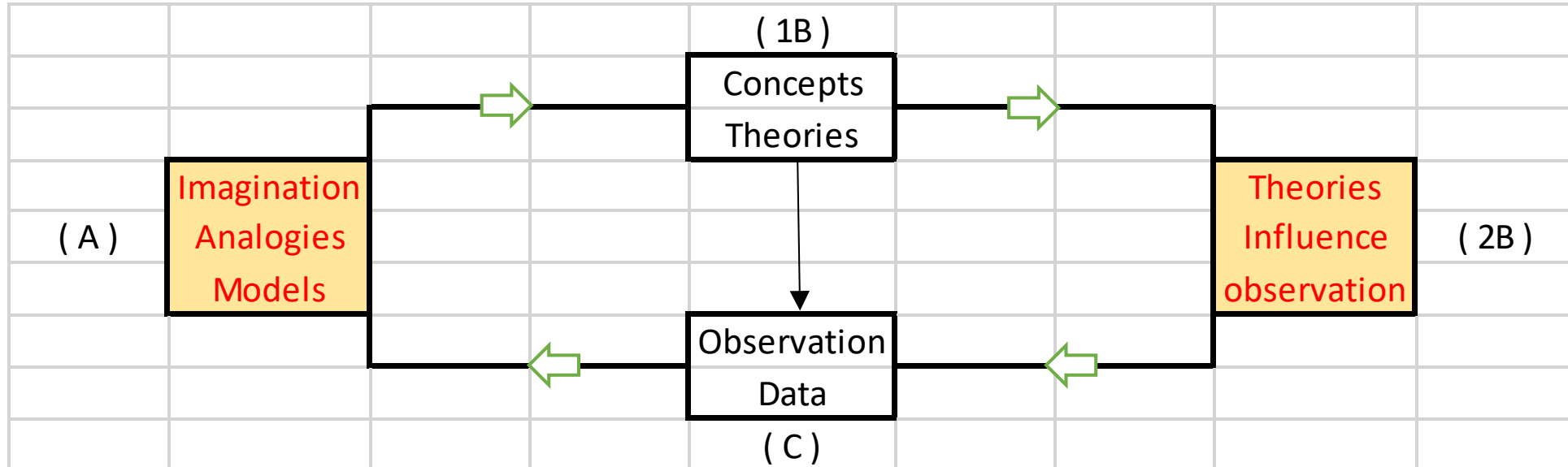


THE PROCESS OF SCIENCE INVOLVES FOUR STRUCTURES
HOWEVER THE FOCUS OFTEN IS ONLY ON TWO OF THEM





IMAGINATION, ANALOGIES AND MODELS INFLUENCE CONCEPTS AND THEORIES THE TYPE OF THEORY SELECTED INFLUENCES WHAT IS OBSERVED

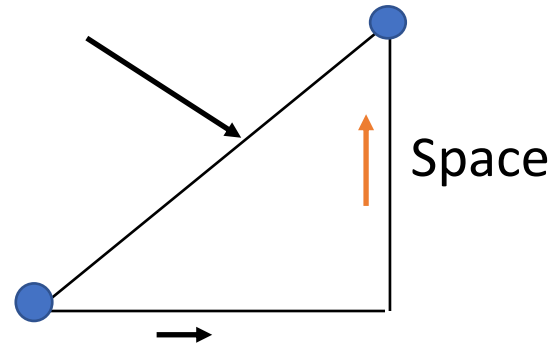


Reference: Ian Barbour, "Religion and Science"

EXAMPLE OF IMAGINATION

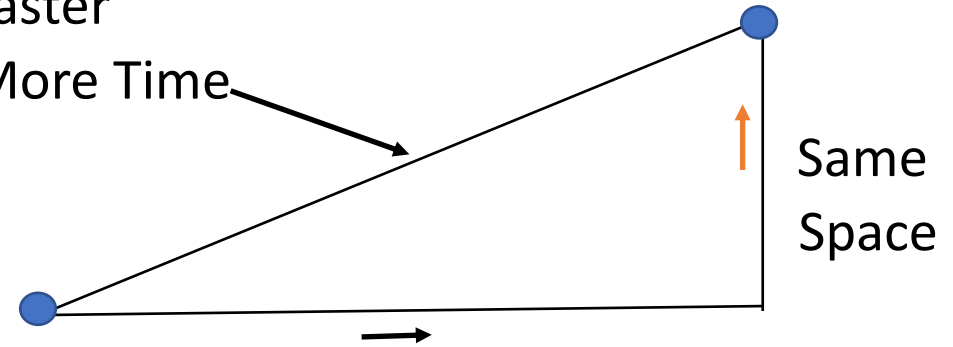
THE PYTHAGOREAN THEOREM ALSO PROVIDES A MODEL OF SPACE/TIME.

Slower
Less Time



Space/Distance

Faster
More Time



Space/Distance

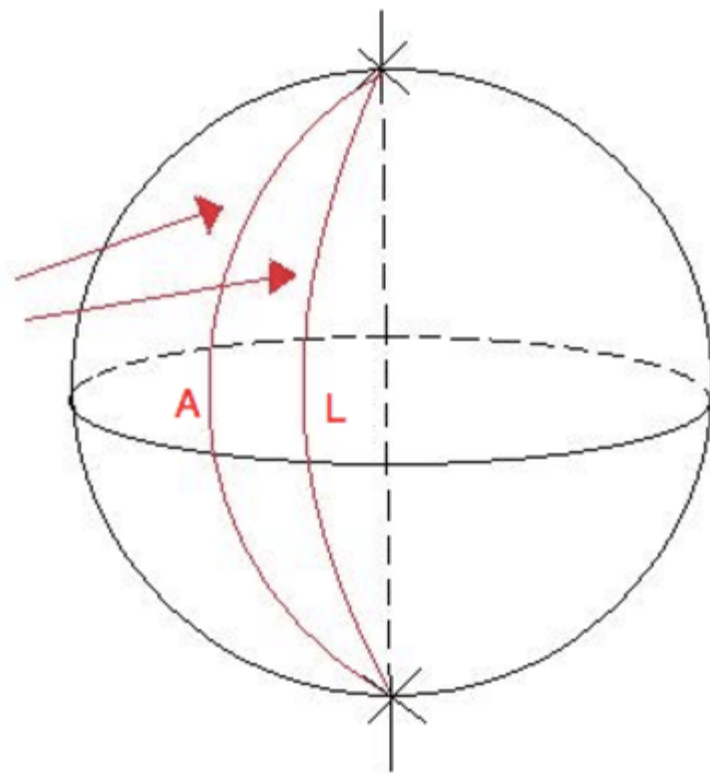
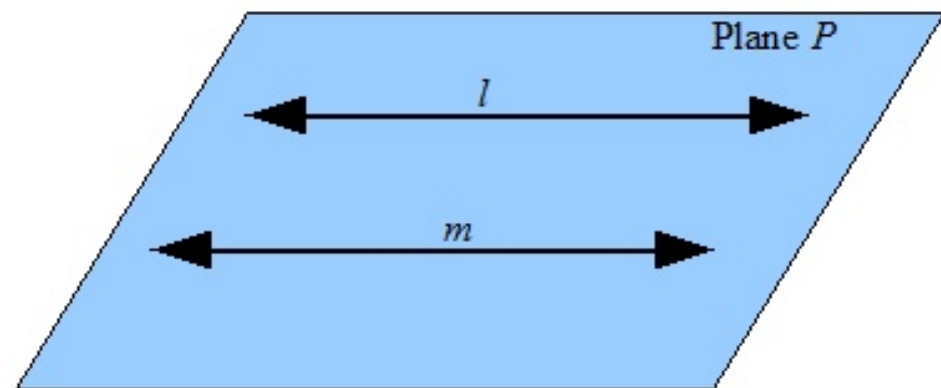
EINSTEIN COULD USE HIS IMAGINATION TO SHOW TIME SLOWS DOWN FOR AN OBJECT AS IT VELOCITY INCREASES TOWARD THE SPEED OF LIGHT

Reference: John A. Wheeler, "A Journey Into Gravity and Spacetime"

EXAMPLE OF THEORY INFLUENCING OBSERVATION

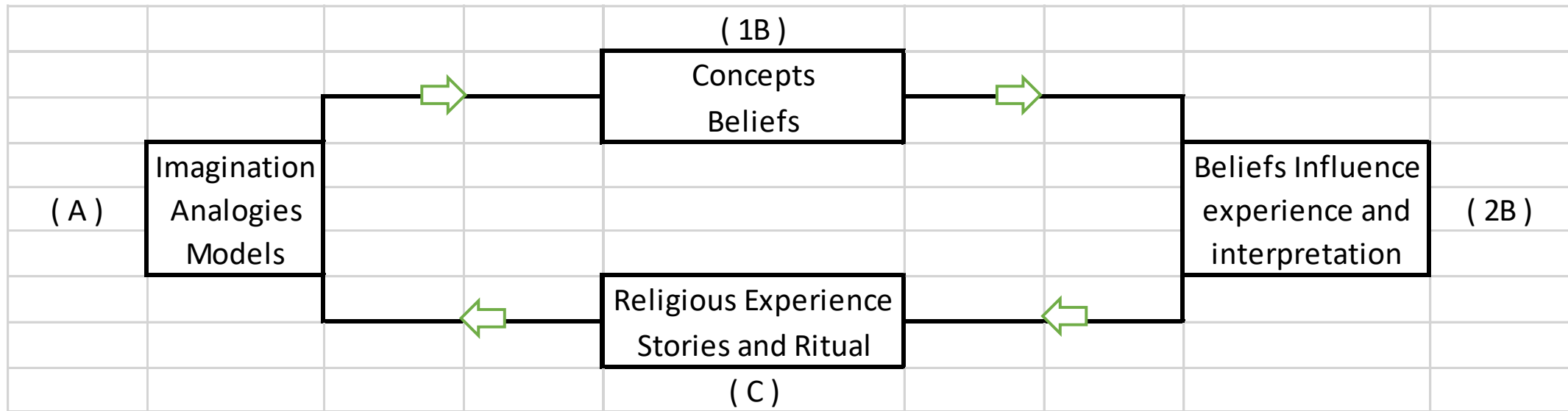
PARALLEL LINES NEVER INTERSECT WHEN **TWO DIMENSIONAL** PLANE
GEOMETRY IS USED

BUT PARALLEL LINES INTERSECT TWICE WHEN **THREE DIMENSIONAL,**
SPHERICAL GEOMETRY IS USED





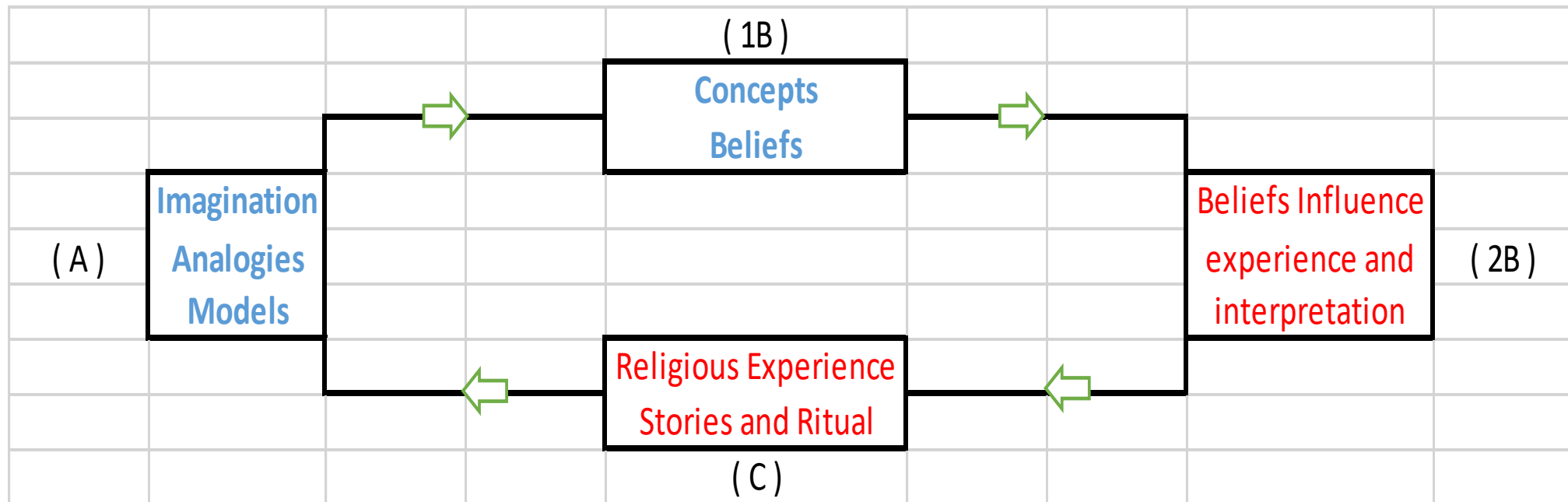
The Process of Faith Also Involves Four Structures





CREATIVE IMAGINATION, ANALOGIES AND MODELS LEAD TO FAITH CONCEPTS AND BELIEFS BEING CREATED

BELIEFS THEN INFLUENCE WHAT IS EXPERIENCED AND INTERPRETED.
STORIES AND RITUALS IN TURN ARE INFLUENCED



FAITH AND DEDUCTIVE LOGIC

THE PROCESS OF FAITH USES DEDUCTIVE THINKING TO EXPRESS THE
EXPERIENCES HAD BY PEOPLE

STORIES AND RITUALS PROVIDE A KIND OF DEDUCTIVE
INFORMATION TO FURTHER SHARE EXPERIENCES

SCIENCE AND INDUCTIVE LOGIC

SCIENCE ALSO STARTS WITH DEDUCTIVE LOGIC (IMAGINATION, ANALOGIES, MODELS) TO PROPOSE SOMETHING MAY BE TRUE

IT CONTINUES BY USING INDUCTIVE LOGIC (EXPERIMENTATION WITH DATA) TO EVALUATE IF A DEDUCTION IS CORRECT

EXAMPLE: BRINGING IT TOGETHER: CRISPR GENE EDITING

Modify genomes of living cells: The Science

- Allow existing genes to be removed and/or new ones added
- High precision, cheap and easily done
- Create new medicines, agriculture products and genetically modified organisms
- Treat genetically inherited diseases and mutations

CRISPR: HOW FAR TO GO?

FOR SCIENCE:

Immediate Changes for individuals or changes to **future** inheritable characteristics

- Cancer in a **single person**
- Or also in **whole populations**

CRISPR: HOW FAR TO GO?

FOR FAITH:

What do belief, experience, stories and ritual say?

- **Belief**— A person is more than the sum of parts. How many small changes result in a different person?
- **Story**— What makes a human? Do additions of human genes change a monkey into a human?

CRISPR: HOW FAR TO GO?

-- **Experience** – What may actually occur in applying science:

** **Bad**: Tuskegee Study of Untreated Syphilis for 40 years

** **Good**: Polio vaccine

** **Uncertain**: Covid infections today– Vaccinate older people who will be dying shortly anyway?

SOME OUTWARD
LOOKING ETHICS RELATE TO:

CODES,
PRECEPTS,
COMMENDS

Code of Hammurabi

- An eye for an eye
- A broken bone for a broken bone
- Pay one gold mina for the eye of a freeman
- Pay $\frac{1}{2}$ the price for the eye of a slave

FIVE PRECEPTS OF TAOISM

The first precept: No Killing

The second precept: No Stealing

The third precept: No Sexual Misconduct

The fourth precept: No False Speech

The fifth precept: No Taking of Intoxicants

SIX OF THE TEN COMMANDMENTS

Honor thy father and thy mother

Thou shalt not murder

Thou shalt not commit adultery

Thou shalt not steal

Thou shalt not bear false witness against thy
neighbor

Thou shalt not covet

SOME INWARD
LOOKING ETHICS RELATE TO:

Virtues

Compassion

Needs

ARISTOTLE'S FOUR MORAL VIRTUES

Moral Virtues are attitudes, and good habits that govern one's actions, passions, and conduct according to reason

Prudence

Justice

Fortitude

Temperance

OTHER INWARD LOOKING APPROACHES

Karen Armstrong, “Twelve Steps to a **Compassionate Life**”

1. Learn about compassion
2. Look at your own world
3. Compassion for yourself
4. Empathy
5. Mindfulness
6. Action
7. How little we know
8. How should we speak to one another?
9. Concern for everybody
10. Knowledge
11. Recognition
12. Love your enemies

OTHER INWARD LOOKING APPROACHES

Elaine Ecklund, “Why Science and Faith **Need Each Other**”

Curiosity

Doubt

Humility

Creativity

Healing

Awe

Shalom

Gratitude

Five of The Ten Commandments of Computer Ethics 1992

- Thou shalt not use a computer to **harm** other people.
- Thou shalt not use a computer to **steal**.
- Thou shalt not use a computer to bear **false witness**.
- Thou shalt think about the **social consequences** of the program you are writing or the system you are designing.
- Thou shalt always use a computer in ways that ensure consideration and **respect** for other humans

Reference: Barquin, Ramon C. "In Pursuit of 'Ten Commandments' for Computer Ethics"

WOULD CURRENT PROBLEMS WITH INTERNET
USAGE BE THE SAME IF COMPUTER ETHICS
WERE TAKEN SERIOUSLY?

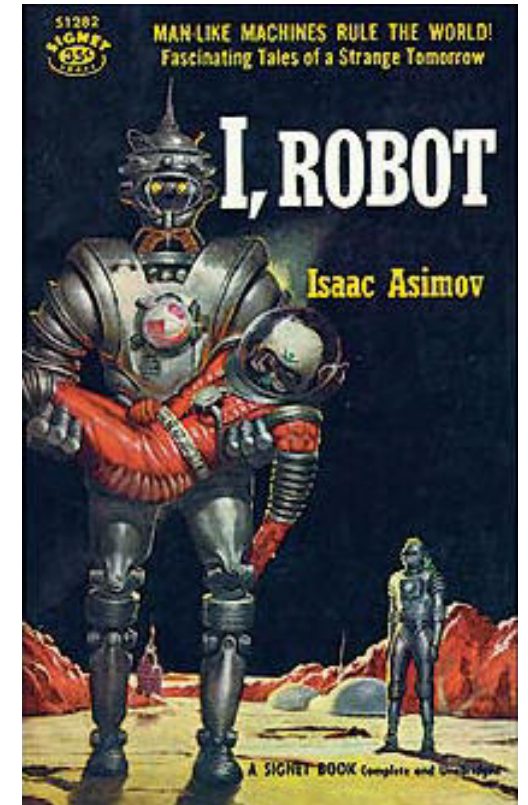
In Closing: The Laws of St. Asimov

Zeroth Law: A robot may not harm humanity, or, by inaction, allow humanity to come to harm.

First Law: A robot may not injure a human being or, through inaction, allow a human being to come to harm.

Second Law: A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.

Third Law: A robot must protect its own existence as long as such protection does not conflict with the First or Second Law



Some Questions

- Ethics is most directly important for **which kind of science?**
 - * Biology, chemistry, physics, sociology, psychology
- Ethics is most important for **which application area?**
 - * Medicine, business, chemical engineering, communication technology, natural world
- How can **science help faith** in today's world?
 - * Degree, kind of trustworthiness in biblical events
 - * How to use commandments

Some References

Ian G. Barbour, “Religion and Science”

John A. Wheeler, “A Journey Into Gravity and Spacetime”

Barquin, Ramon C. “In Pursuit of ‘Ten Commandments’ for Computer Ethics”

Karen Armstrong, “Twelve Steps to a Compassionate Life”

Elaine Ecklund, “Why Science and Faith Need Each Other”

John Haught, “Science and Religion: from Conflict to Conversation”

Francis Crick, “The Astonishing Hypothesis: The Scientific Search for the Soul”