

UNIT 4 SCHEDULE

WEEK 1

TUESDAY	LECTURE 1: FOUNDATIONS OF QUANTUM ROMANTICS Problem Set 4.1 assigned
THURSDAY	PROBLEM SESSION Problem Set 4.1 due

WEEK 2

TUESDAY	LECTURE 1 REVIEW LECTURE 2: TIME EVOLUTION IN QR Problem Set 4.1 peer corrections assigned Problem Set 4.2 assigned
THURSDAY	QUIZ 4.1 ON LECTURE 1 PROBLEM SESSION Problem Set 4.1 peer corrections due Problem Set 4.2 due

WEEK 3

TUESDAY	LECTURE 2 REVIEW LECTURE 3: ENTANGLEMENT IN QR Problem Set 4.2 peer corrections assigned Problem Set 4.3 assigned
THURSDAY	QUIZ 4.2 ON LECTURE 2 PROBLEM SESSION Problem Set 4.2 peer corrections due Problem Set 4.3 due

WEEK 4

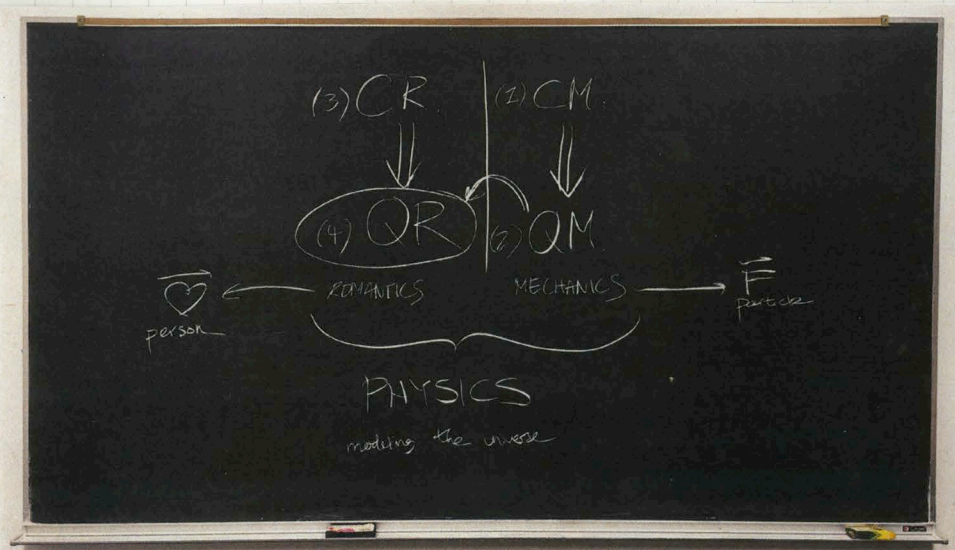
TUESDAY	UNIT 4 REVIEW Problem Set 4.3 peer corrections assigned
THURSDAY	UNIT 4 EXAM Problem Set 4.3 peer corrections due

LECTURE 1: FOUNDATIONS OF QUANTUM ROMANTICS

CONCEPTS, BASES, LAS (OPERATORS), PRINCIPLE PARADOXES

NOTES

I. INTRODUCTION.



QUANTUM ROMANTICS FOLLOWS AFTER CLASSICAL ROMANTICS,

QUANTUM MECHANICS FOLLOWS AFTER CLASSICAL MECHANICS.

ROMANTICS & MECHANICS ARE SUBFIELDS OF PHYSICS,

MODELING SPECIFIC BEHAVIORS OF THE UNIVERSE:

LOVE & DESIRE IN PERSONS, FORCE & MOTION IN PARTICLES.

QUANTUM ROMANTICS & QUANTUM MECHANICS SHARE MATHEMATICS,

WITH NOTABLE EXCEPTIONS.

NOTES.

II. CONCEPTUAL OVERVIEW.

QM

<p><u>SPIN</u></p> <p>(classical) $\vec{\mu}$</p> <p>$\hookrightarrow \mu_z = \mu \cos \theta$</p> <p>$\hookrightarrow (\mu_z, \mu)$</p> <p>ACTUAL: $\mu_z = \pm \frac{1}{2} \mu$</p> <p>$\downarrow$</p> <p>SPIN $\frac{1}{2}$</p> <p>(NEW TO QM)</p>	<p>POSITION & MOMENTUM</p> <p>(same as classical)</p> <p>$\vec{x} \neq \vec{p}$</p> <p>ACTUAL:</p> <p>\hookrightarrow DISCRETE, FINITE</p> <p>CANONICALLY CONJUGATE: $\Delta x \Delta p \geq \frac{\hbar}{2}$</p>
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2.1 QM REVIEW.

SPIN IS NEW (NOVEL), RELATED TO MAGNETIC MOMENT.

SPIN HAS **FINITE** POSSIBILITIES OF **DISCRETE** VALUES.

MAGNETIC MOMENT SHOULD HAVE **INFINITE** POSSIBILITIES

WITHIN A **CONTINUOUS** RANGE OF VALUES,

BUT IS **FINITE** & **DISCRETE** IN REALITY. HENCE, SPIN.

POSITION & MOMENTUM ARE (RE)NEW(ED).

THE SAME CONCEPTS NOW HAVE **FINITE** POSSIBILITIES OF **DISCRETE** VALUES.

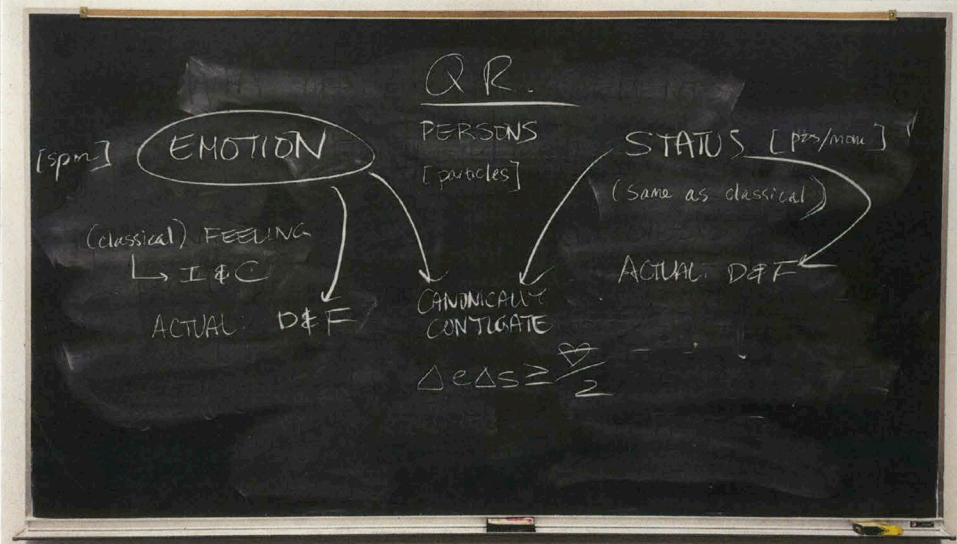
POSITION & MOMENTUM ARE CANONICALLY CONJUGATE:

SIMULTANEOUS KNOWLEDGE OF BOTH IS IMPOSSIBLE.

NOTES.

2.2 QM TO QR ANALOGY.

NOTES.



EMOTION IS NEW (NOVEL), RELATED TO FEELING.

EMOTION HAS **FINITE** POSSIBILITIES OF **DISCRETE** VALUES.

FEELING SHOULD HAVE **INFINITE** POSSIBILITIES

WITHIN A **CONTINUOUS** RANGE OF VALUES,

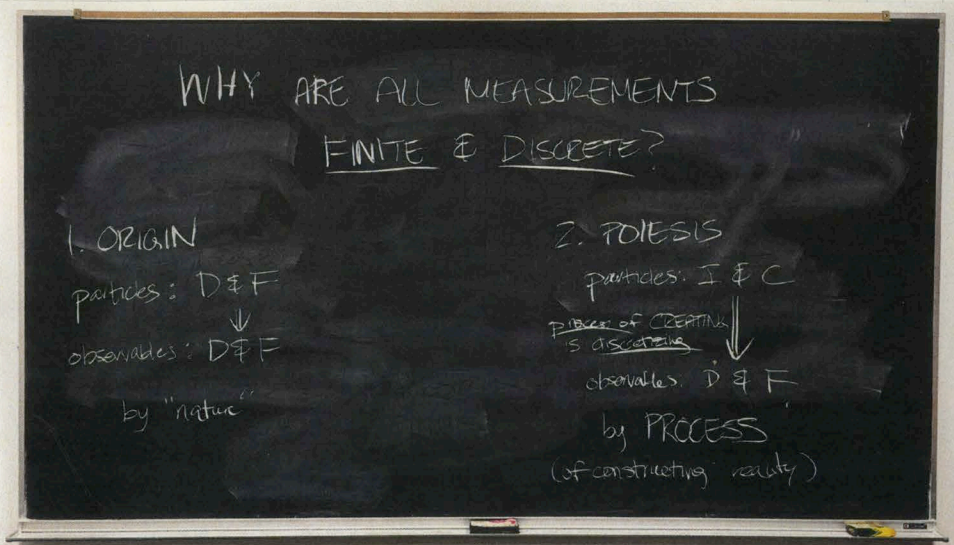
BUT IS **FINITE & DISCRETE** IN REALITY. HENCE, EMOTION.

STATUS IS (RE)NEW(ED).

THE SAME CONCEPT NOW HAS **FINITE** POSSIBILITIES OF **DISCRETE** VALUES.

EMOTION & STATUS ARE CANONICALLY CONJUGATE:

SIMULTANEOUS KNOWLEDGE OF BOTH IS IMPOSSIBLE.

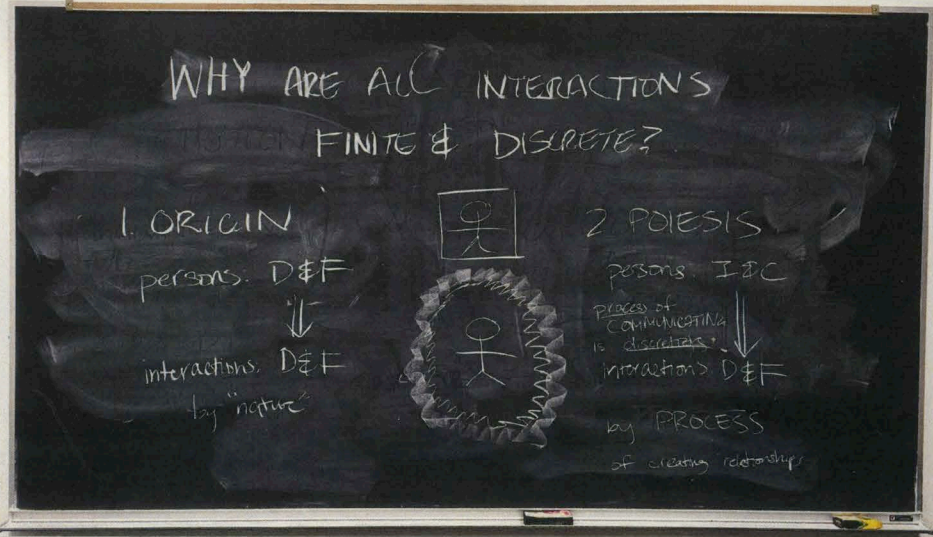


WHY IS REALITY FINITE & DISCRETE?

1. PARTICLES ARE FINITE & DISCRETE BY ORIGINAL NATURE.

2. PARTICLES EXIST IN AN INFINITE FIRMAMENT;

COMMUNICATION IS AN INHERENTLY DISCRETIZING PROCESS.



IS THE TOTALITY OF MY LIVED EXPERIENCE

A CONTINUOUS & INFINITE THING,

ONLY IMPERFECTLY EXPRESSIBLE

THROUGH DISCRETE & FINITE EXTERNALIZATIONS?

III. EMOT STATE BASES.

NOTES.

FOR ALL EMOT VALUES, LOVES ME & LOVES ME NOT

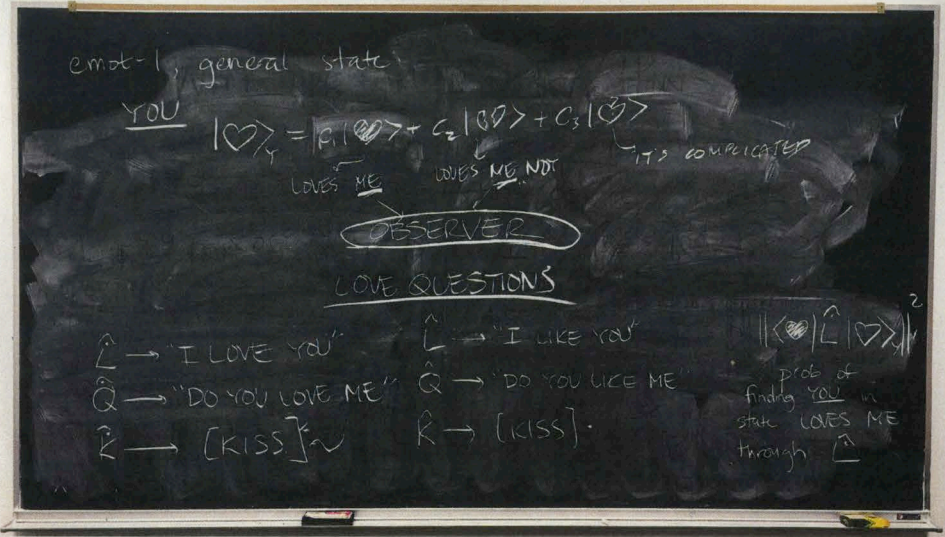
ALWAYS FORM TWO ORTHOGONAL DIMENSIONS OF POSSIBLE MEASUREMENT.

HIGHER EMOT VALUES HAVE MULTIPLE SHADES OF IT'S COMPLICATED,

SPLITTING INTO MULTIPLE ORTHOGONAL DIMENSIONS OF POSSIBLE MEASUREMENT.

EMOT VALUES CHANGE OVER TIME.

IV. LQS (OPERATORS IN QR).

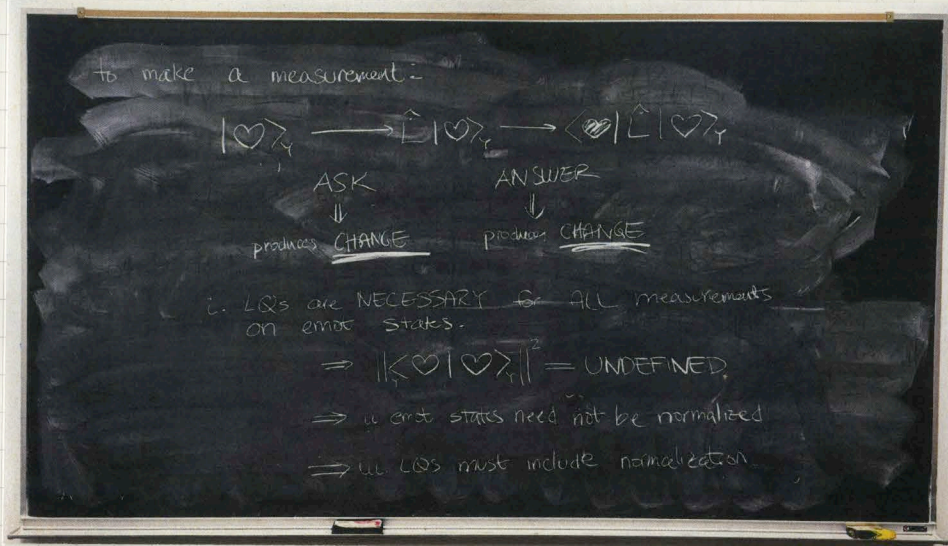


4.1 INTRODUCTION TO LQS.

THE ONE-PERSON STATE OF YOU INVOKES ME, THE OBSERVER.
 (THE CLASSICAL PARADOX OF EROS SEEPS INTO QUANTUM MATHEMATICS.)
 MEASUREMENTS OF YOU ARE MADE BY ME THROUGH LOVE QUESTIONS:
 INTERACTIONS THAT TELL ME ABOUT THE EMOT STATE OF YOU.
 I MODEL THE PROBABILITY OF FINDING YOU IN THE STATE LOVES ME
 AS MEASURED THROUGH THE LOVE QUESTION I LOVE YOU.

NOTES:

4.2 THE PRINCIPLE PARADOX OF INTERROGATIVE NECESSITY



MEASUREMENT MUST BE MADE THROUGH AN ASKING

WHICH PROVOKES AN ANSWERING. HENCE, INTERROGATIVE NECESSITY.

THE BEING ASKED, AND THE ANSWERING, PROVOKES CHANGE.

HENCE: PARADOX.

THE IDENTITY OPERATOR IS EXPERIMENTALLY MEANINGLESS.

NOTES.

4.3 THE PRINCIPLE PARADOX OF SUBJECTIVITY.

how to define operator of \hat{L} on $|\heartsuit\rangle$?

matrix mechanics:

$$\langle \heartsuit | \rightarrow (1 \ 0 \ 0)$$

$$|\heartsuit\rangle \rightarrow \begin{pmatrix} c_1 \\ c_2 \\ c_3 \end{pmatrix}$$

PP.S

$$L_{ME-YOU} |\heartsuit\rangle \neq L_{OTHER-YOU} |\heartsuit\rangle$$

ME-YOU OTHER-YOU

$$L_{ME-YOU} = \begin{pmatrix} \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle & \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle & \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle \\ \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle & \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle & \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle \\ \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle & \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle & \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle \end{pmatrix}$$

ME OTHER

$$L_{ME-YOU} = \langle \heartsuit | L_{ME-YOU} | \heartsuit \rangle$$

NOTES:

FOR EVERY YOU, THERE EXISTS A UNIQUE HILBERT-SOUL SPACE

OF EMOT STATE VECTORS OF YOU.

FOR EVERY ME - YOU PAIR

EVERY OBSERVER - OBSERVEE PAIR

EVERY LOVER - BELOVED PAIR

THERE EXISTS A UNIQUE OPERATOR SPACE

OF LOVE QUESTIONS BETWEEN ME & YOU.