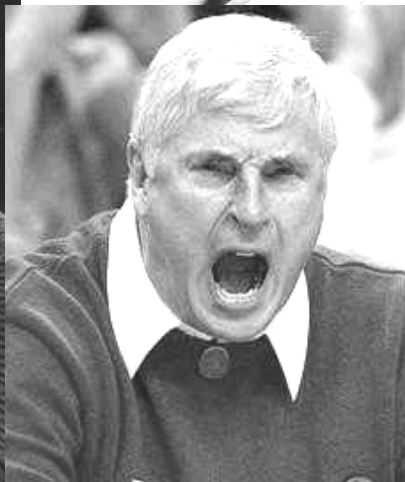
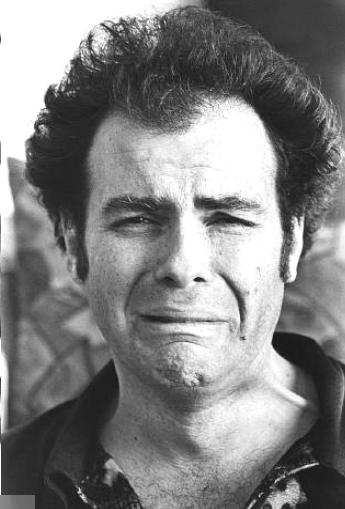


# Affective Emergence



**Gerald L. Clore**  
**University of Virginia**



# Moods & emotions are affective states

- “Affective” *goodness-badness*
- “States” *multiple systems reflecting same condition at same time*

**Emotions emerge when multiple  
systems represent the same  
evaluation simultaneously**

## **Failures of Affective Book Keeping**

**Where the same or similar experiences  
come from different sources**

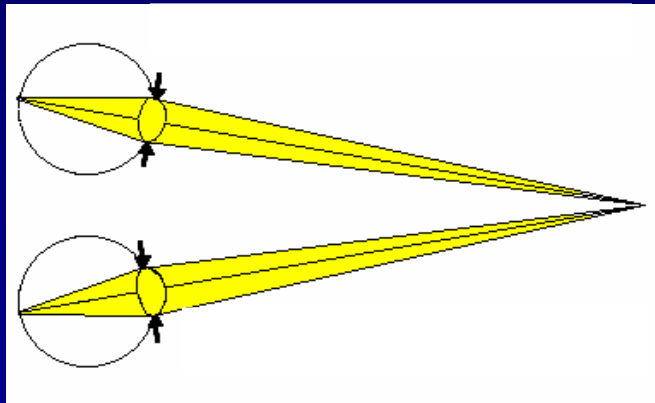
# Experiment

(Lun & Clore, 2006)

**Anxiety** from mood induction

**Anxiety** from scary story about flying

Estimates of flying risk



**Different but highly  
redundant images  
are presented by the  
two eyes.**

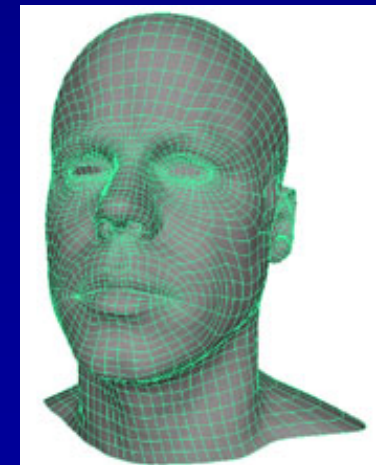




**Impossible to keep track of  
which image comes  
from which eye**

**So, rather than 2 separate  
images, we combine  
them into one**

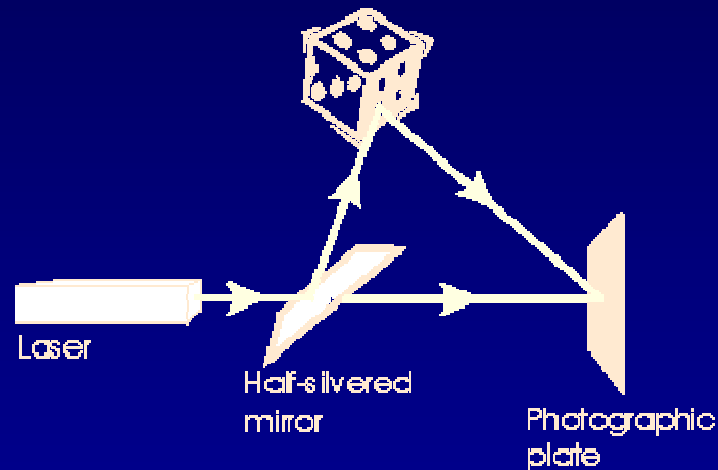
**But they are slightly different,  
so that a 3-dimensional  
image emerges**





## Visual accounting failure

As a result, we see objects in hologram-like reality.



A single object **emerges** “out there” when it is computationally simpler than keeping track of two highly redundant sensory streams.

# Affect & Evaluation

If we have two (or more) evaluative representations,

goodness or badness should also emerge as “out there” in object.

## OCC Theory

3 kinds of good:

Utilitarian, Moral, Aesthetic

## **Political leader**

**good policies – utilitarian good**

**admirable actions – moral good**

**handsome, articulate – aesthetic good**

## Falling in love

good for me – **utilitarian good**

admirable – **standard-based good**

beautiful, graceful – **aesthetic good**

**They seem unaccountably good.**

**unable to keep track of which parts  
of our fascination with them are due  
to which aspect of their goodness**

**Transcendently good**

**String quartet**



**Operatic duet**

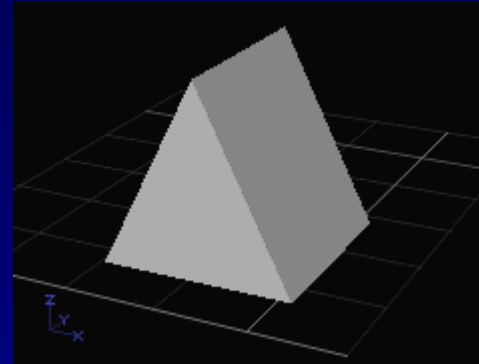


**Intimate conversation**



**In interpersonal situations, convergence  
may be experienced as separate entity.**

**Illusion?**



**As in vision, failures of accounting allow  
one to experience multiple facets of  
same thing at the same time**

# Believable agents





**My research concerns misattribution of affect.**

**Multiple sources of similar information can be powerful**

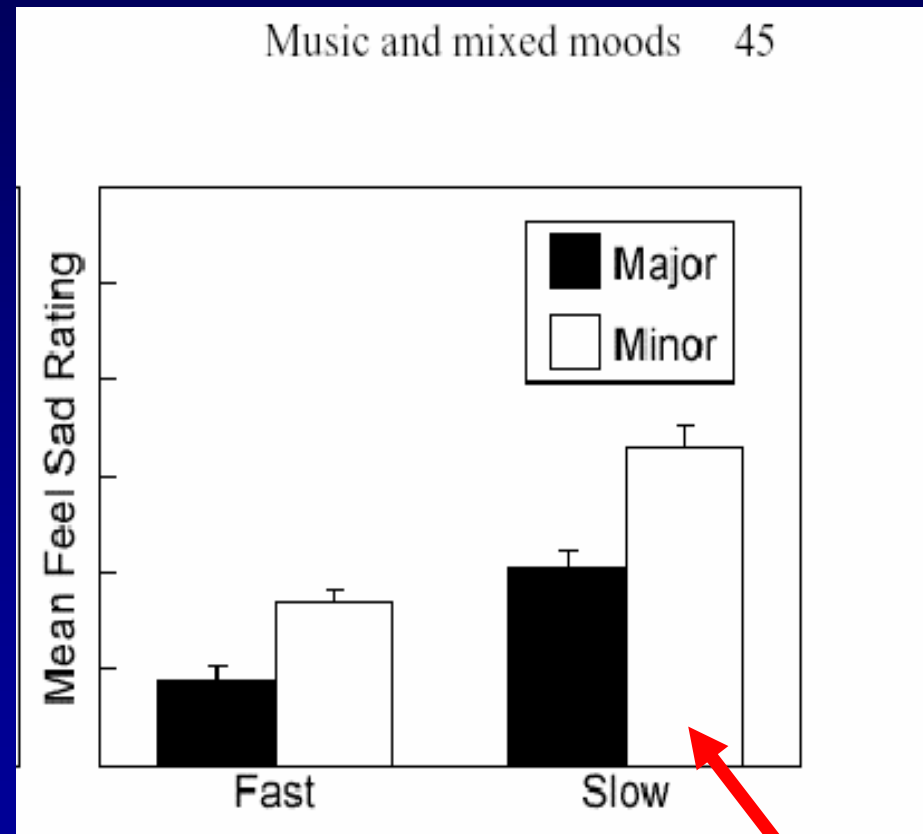
**because we are unable to do the affective accounting.**

# Music

(Hunter, Schellenberg, & Schimmack, 2006)

**Tempo:**  
**Fast vs. slow**

**Key:**  
**Major vs. minor**



# Poetry

**Poetry is effective when  
multiple modes of representing an  
attribute make it emerge “out there”**

# Research

In a series of studies, we examined affective metaphors

## Lightness vs. Darkness

Meier, Robinson, & Clore, 2004

### Words

Appeared in light or dark font

Categorize as “good” or “bad”

## 8 experiments

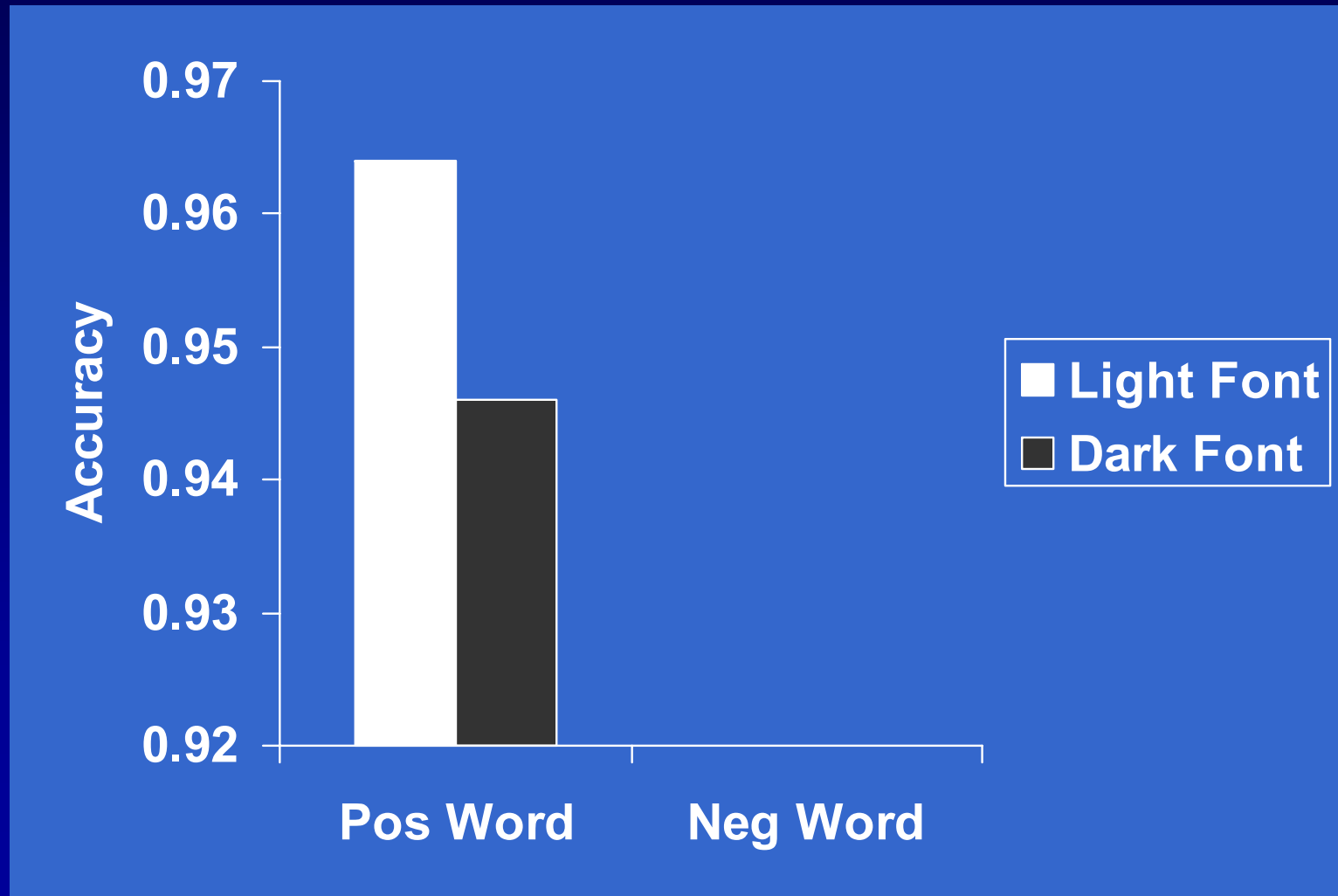
Positive & Negative English words

Printed in light or dark on gray

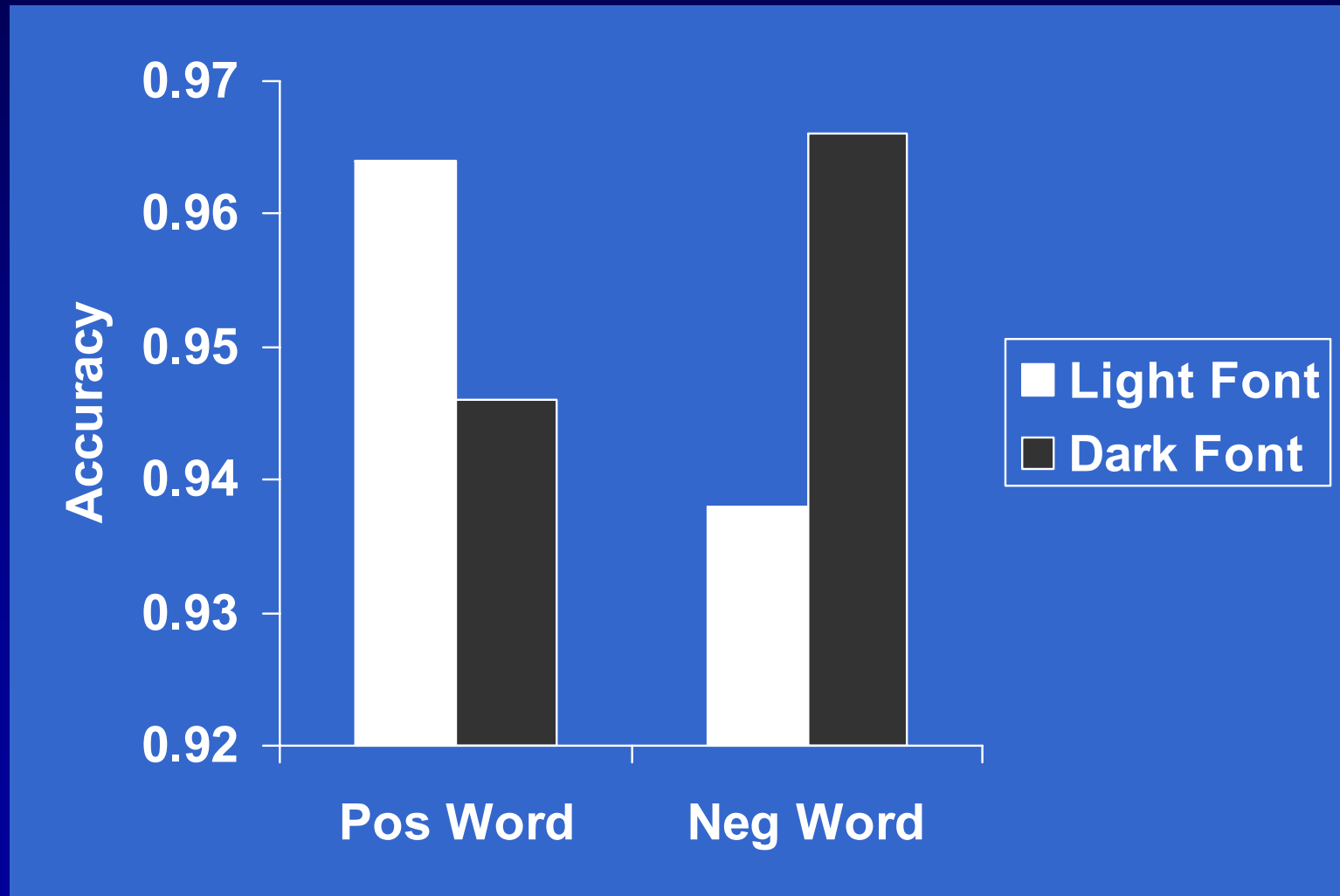
VICTORY

DANGER

# Affect and Brightness



# Affect and Brightness





**In Greek, Roman, & Christian traditions  
as well as in  
Buddhist  
Hindu  
Muslim**

**Darkness** is associated with ignorance,  
evil, & death

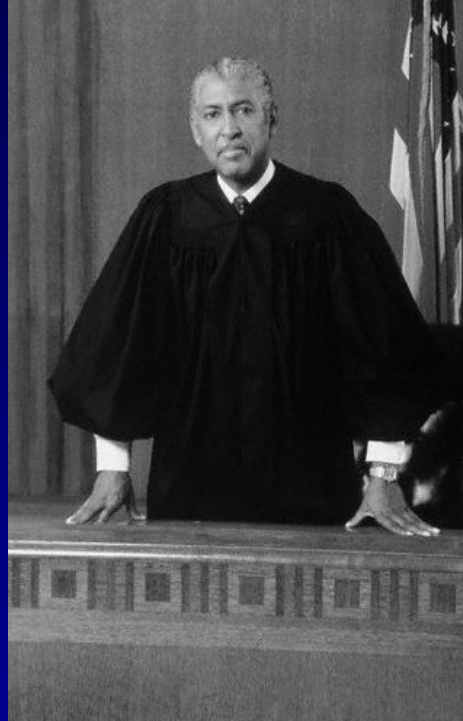
**Light** is associated with knowledge,  
goodness, & life

# Solidity



Experiencing **physical** solidity mis-  
attributed to make more compelling  
the idea of **financial** solidity

# Elevation



Experiencing **physical elevation**  
promotes the idea of  
**elevated judgment**





# Research

## Affect & Verticality

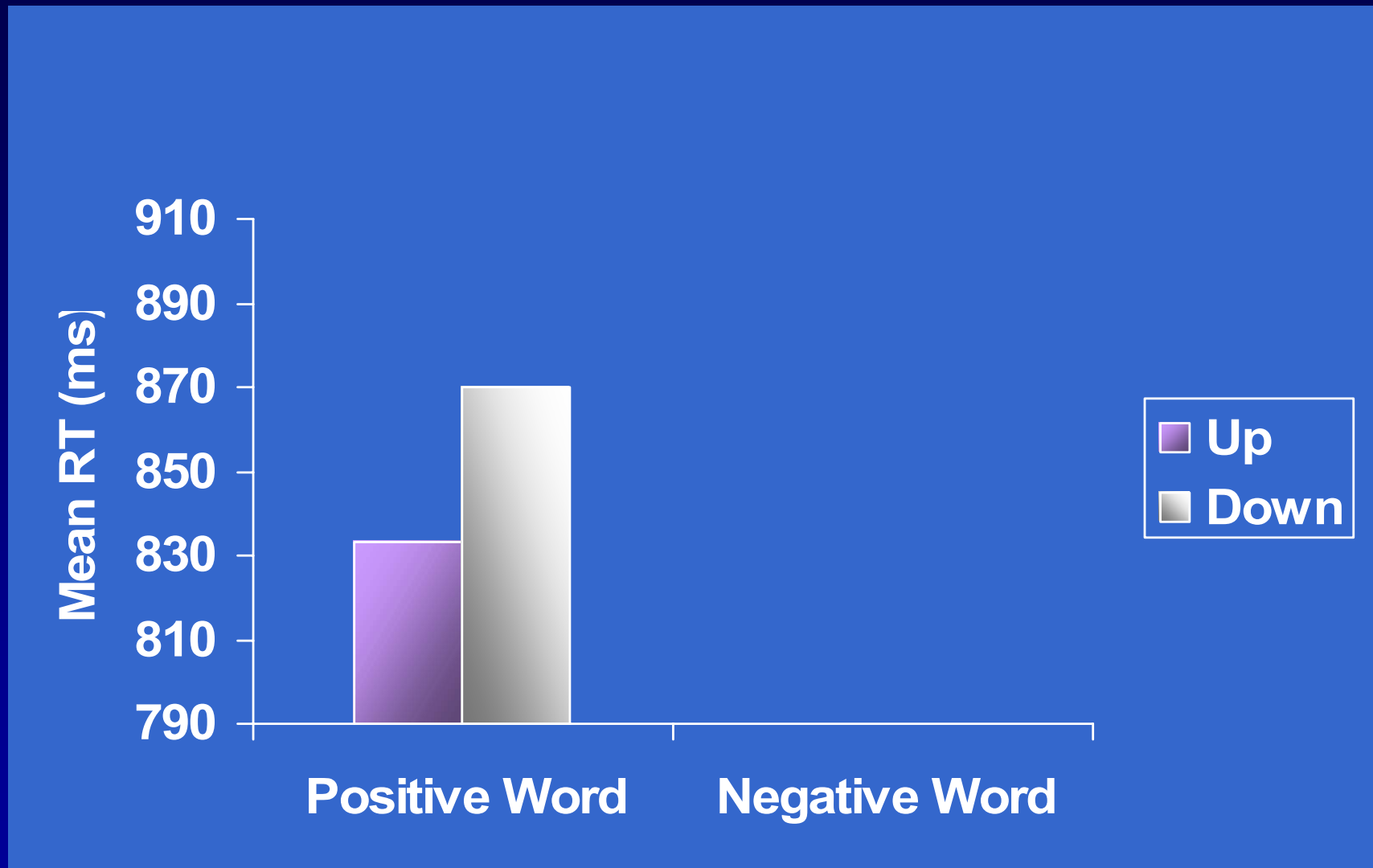
(Meier & Robinson, 2004)

### Words

**Appeared** up or down on screen

**Categorize** as “good” or “bad”

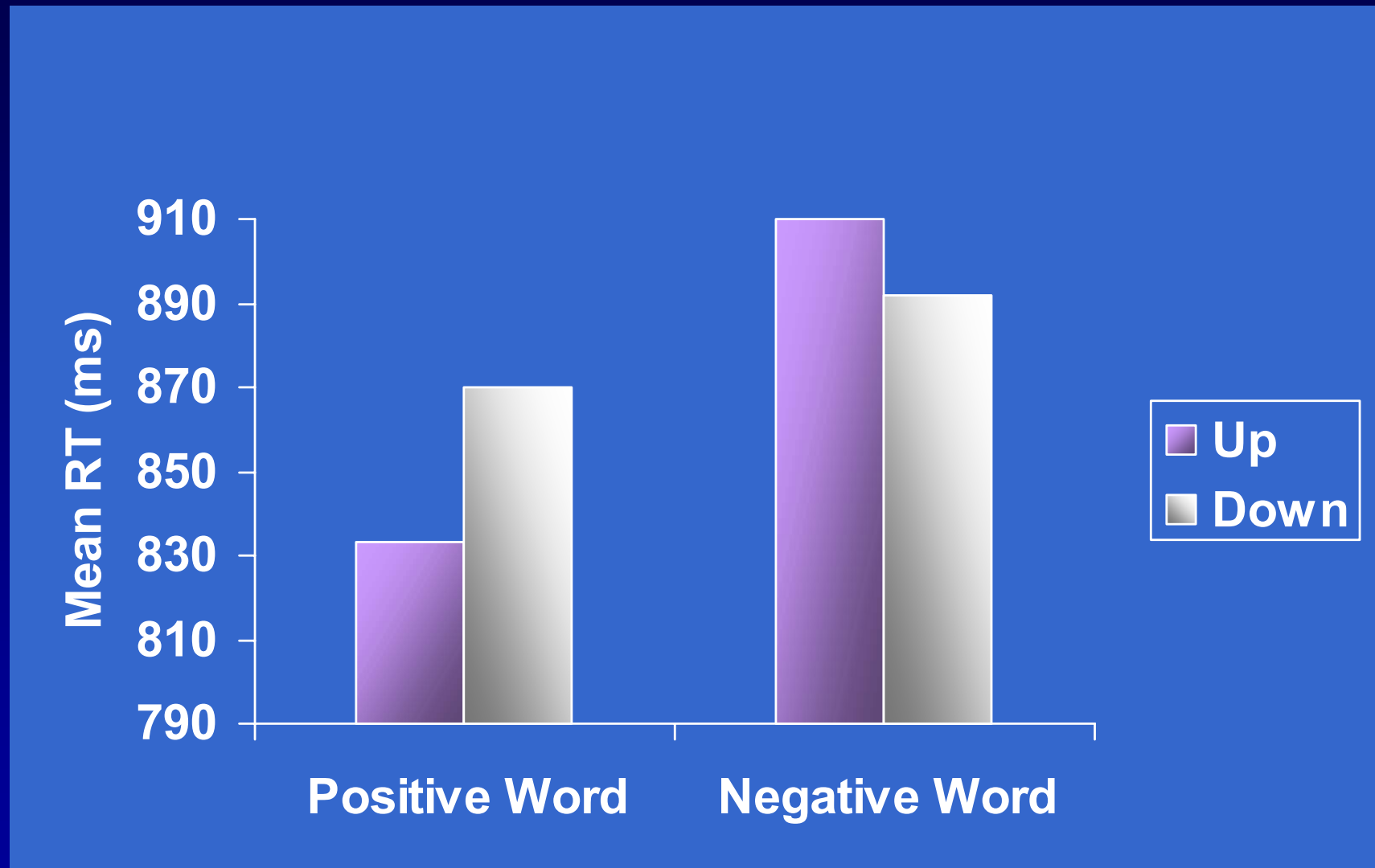
# Affect and Verticality



Interaction:  $F(1, 33) = 6.11, p = .019, \eta_p^2 = .16$



# Affect and Verticality



Interaction:  $F(1, 33) = 6.11, p = .019, \eta_p^2 = .16$

**Up-is-good principle**

**Is often seen in **Art****

## **Renaissance painters (1300-1500)**

### **Perspective**



**Advance over earlier flat representations.  
Realism draws viewer into scene**

**allowing religious paintings to elicit  
affective reactions -- adoration and awe**

**to converge with depictions to make  
them more compelling**



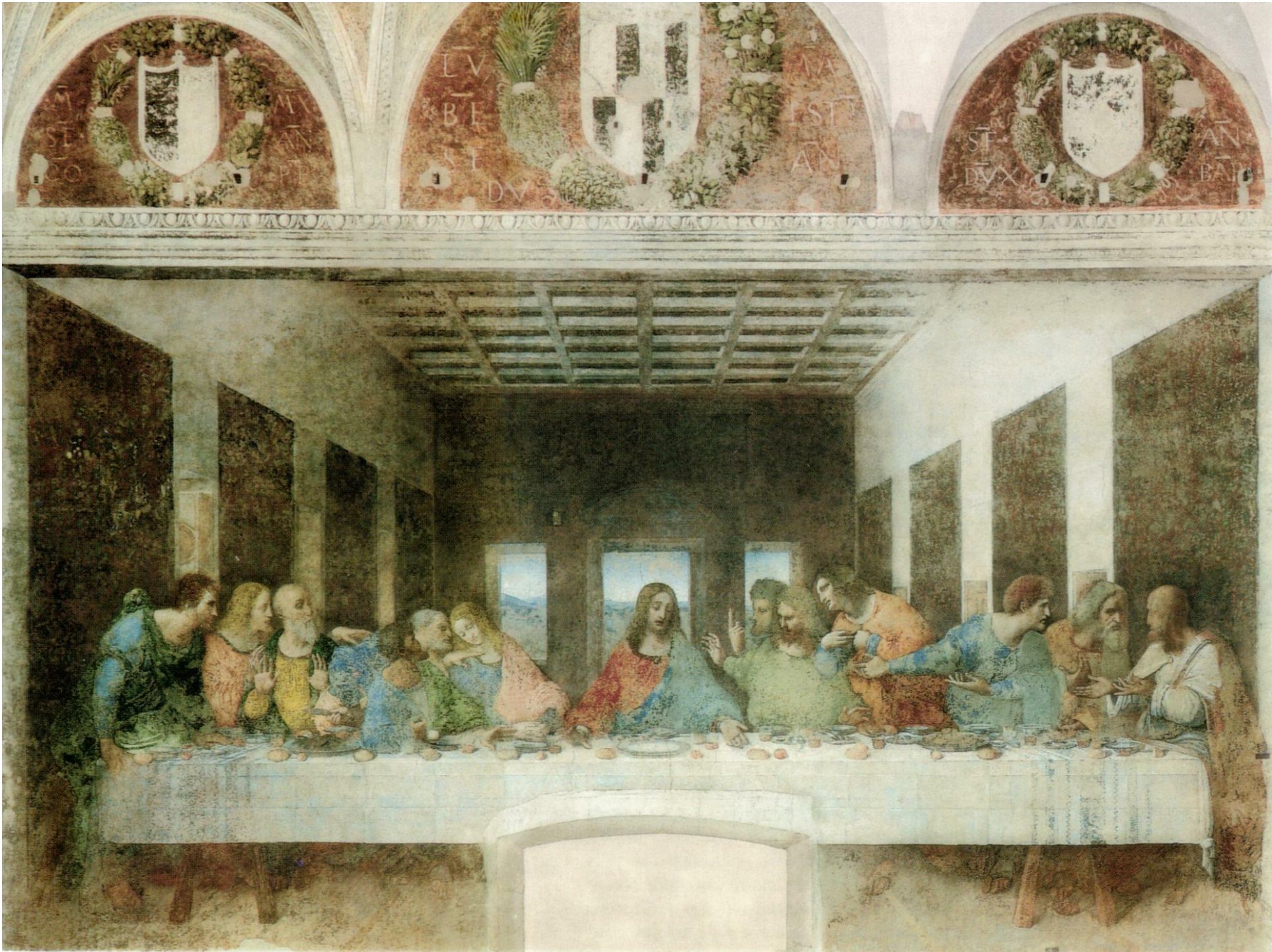




**An application of the good-is-up principle**

**Leonardo da Vinci's "Last Supper"**

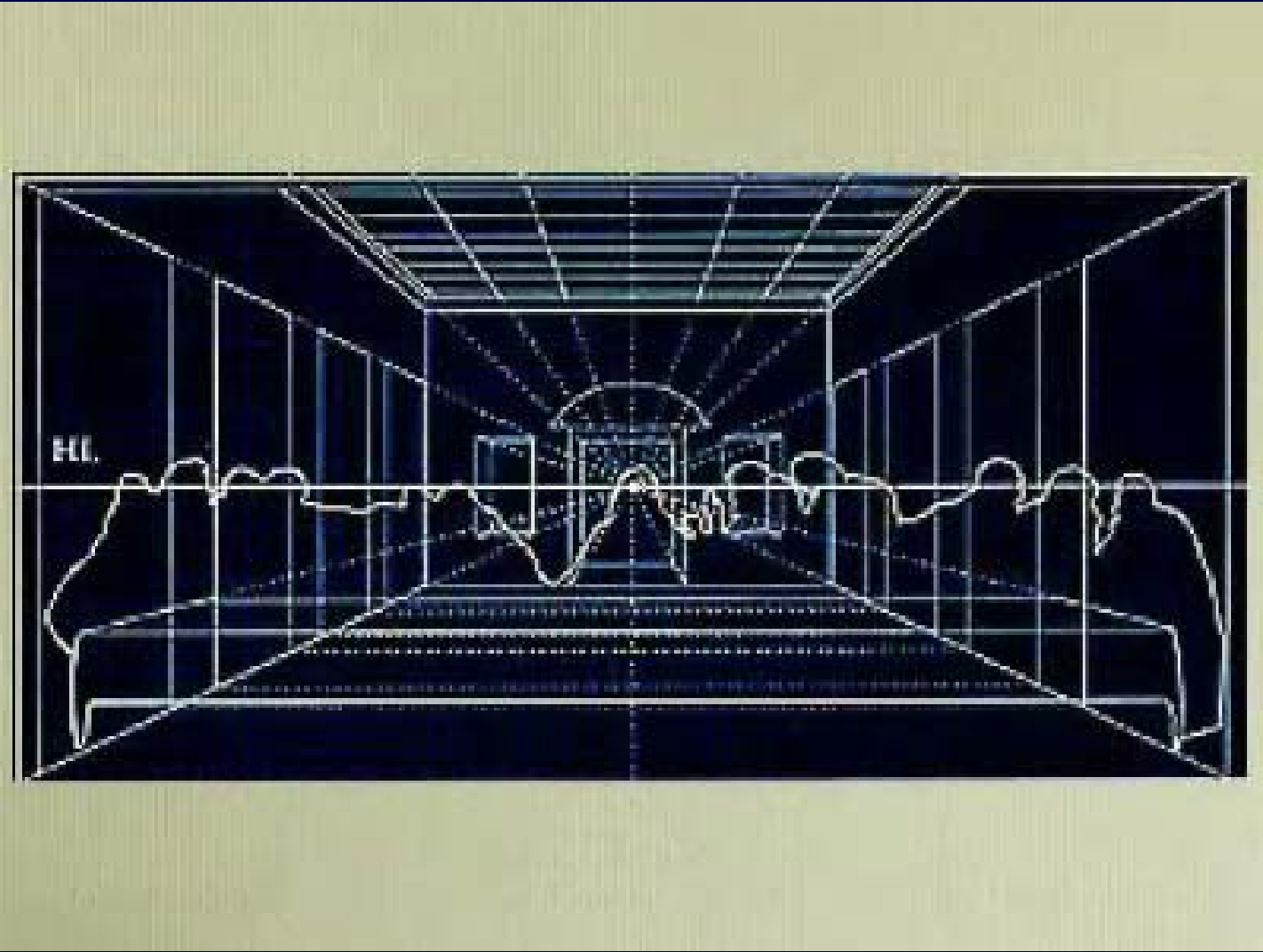


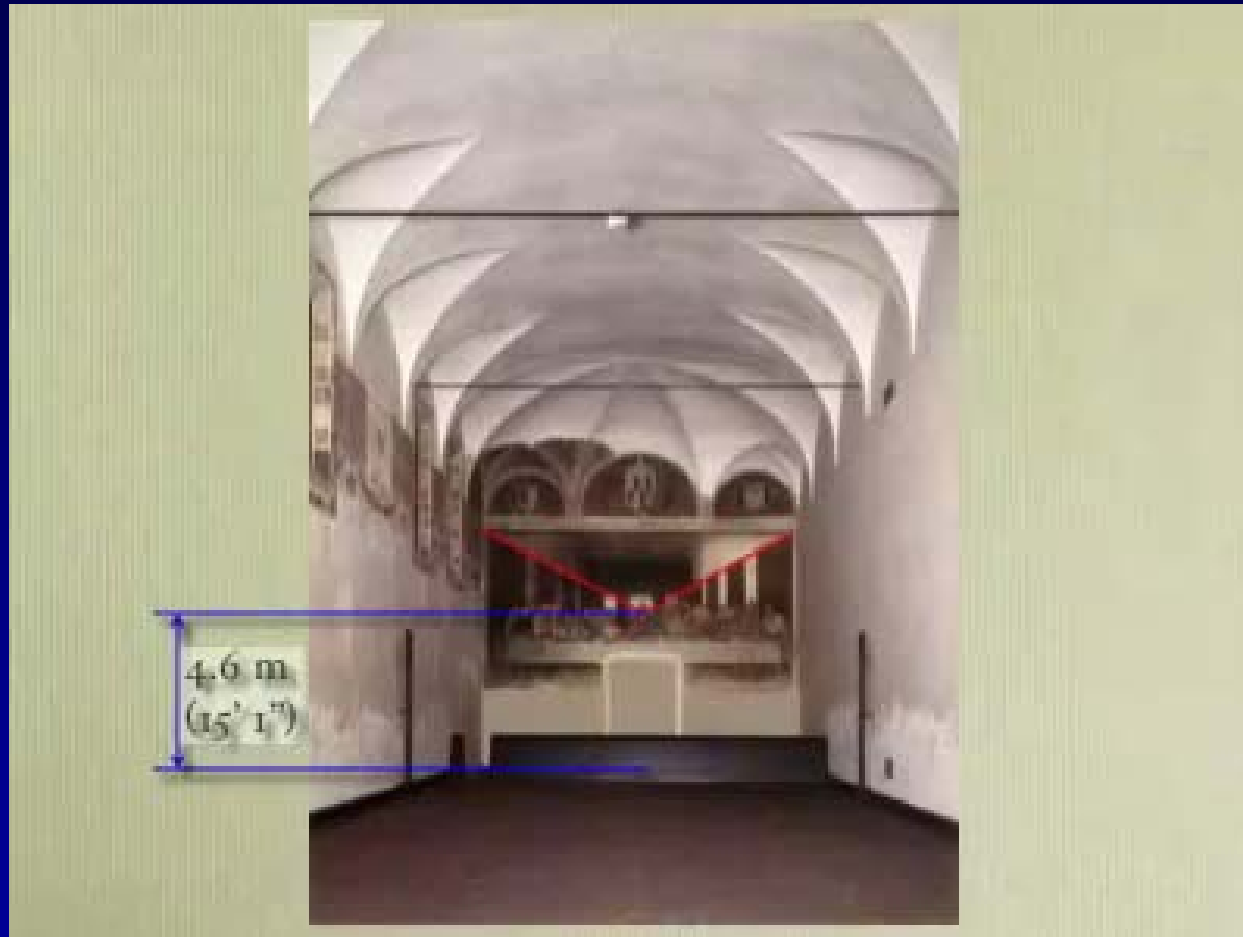




**DaVinci:** To be compelling, the viewers eye  
must be the center of projection

But in the “**Last Supper,**” Leonardo violated  
his own principle. Why?





4.6 m  
(15' 1")

**By making the center of projection 5 meters  
above viewers,  
they unconsciously adopt that  
elevated perspective.**

**Viewing the painting is literally, or at least  
perceptually, uplifting.**

*Kubovy <http://webexhibits.org/arrowintheeye/>*

# Believable agents









# **Why the Sunny Side is Up:**

*Automatic Association of  
Affect and Location*

**Meier & Robinson**

# Affective Realization



**Gerald L. Clore**  
**University of Virginia**

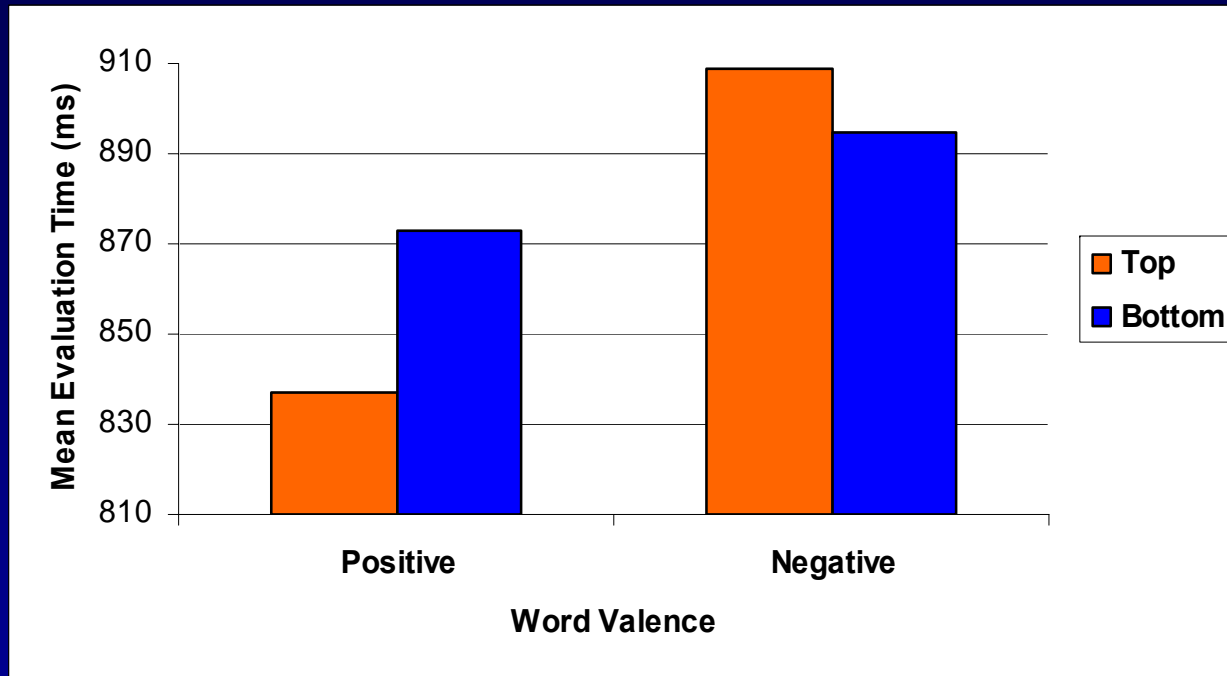
LOVE

+ + +

+ + +

+ + +

LIAR



## **Experiment 2:**

**Verbal Evaluations:** to eliminate response conflict, participants verbally evaluated the words (in the *middle* of the screen)

**Reaction Time:** Next participants indicated whether a “P” or a “Q” appeared on screen (as fast as possible).

**Letter appeared randomly Up or Down**

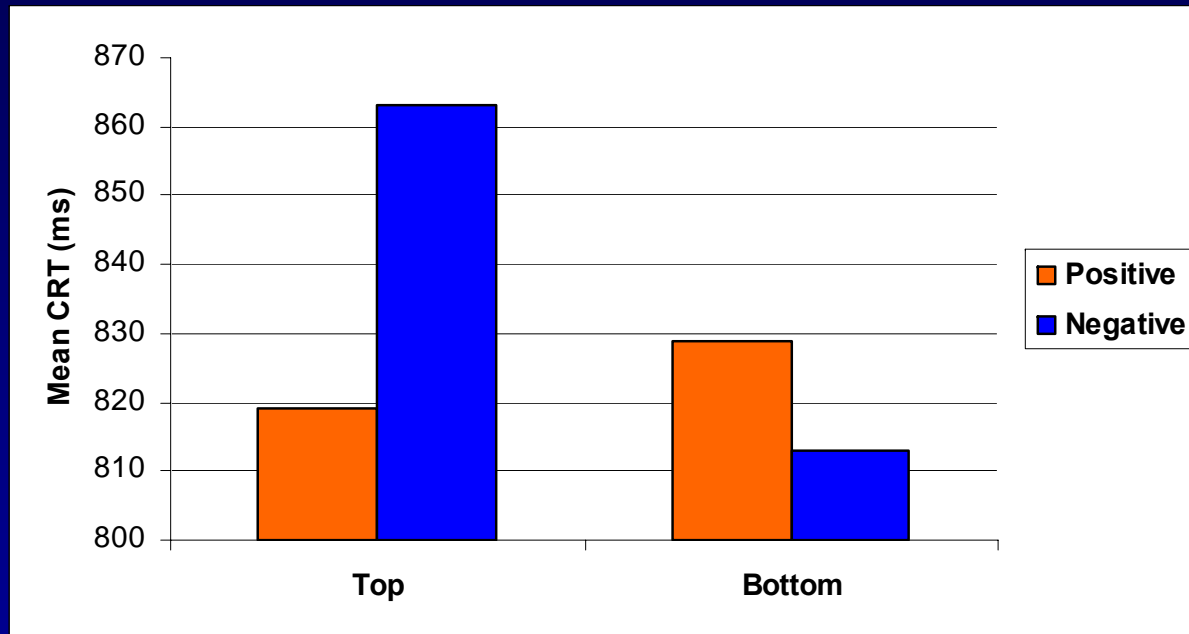
## **Prediction:**

**If positive words imply up, then immediately afterward, letters at top should be detected faster than at those at bottom**

p

LIQVE

q



Once more, effects of **congruence** between **evaluative cognitions & experienced affective cues**

Again, in lab, costs of incongruence easier to see than benefits of congruence

Finally, for real world evidence that congruence can augment affective beliefs...



# Suppose a person displays multiple kinds of goodness



**Enjoyable**

**goal**



**Virtuous**

**standard**



**Handsome**

**taste**

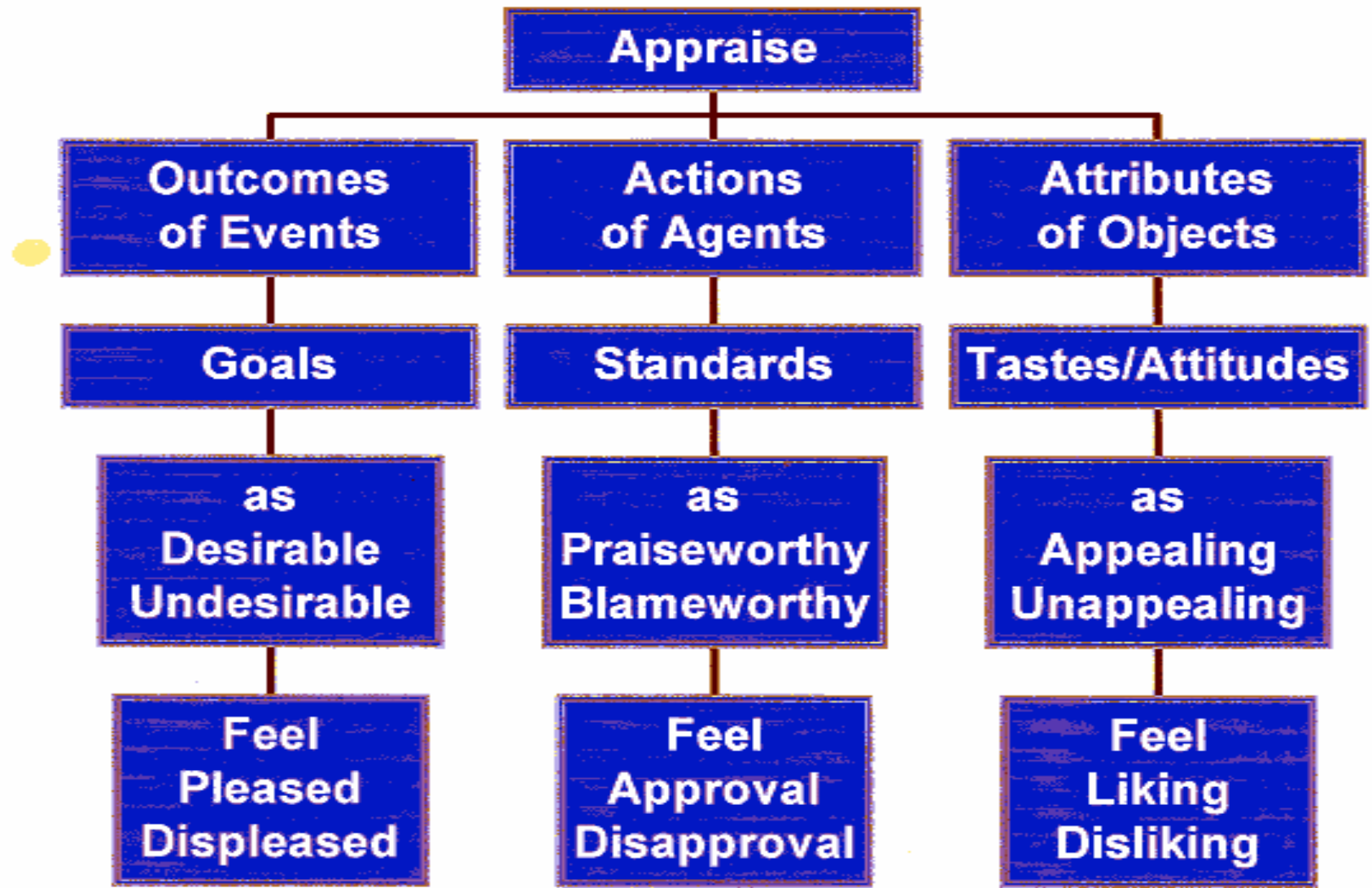


**Emotions are psychological states representing the goodness and badness of things**

**The things that can have value include:**  
events and their outcomes  
actions and their agency  
objects and their attributes

**And the sources of value:**

- **Goals:** Outcomes of events appraised as desirable  
→ pleased
- **Standards:** Actions of agents appraised as praiseworthy  
→ approve
- **Attitudes:** Attributes of objects appraised as appealing  
→ Liking



**Focus**

**EVENTS, AGENTS, OR OBJECTS**  
appraised in terms of

**goals**  
(for events)

**norms/standards**  
(for agents' actions)

**tastes/attitudes**  
(for objects)

**Value Source**

**desirability**

**praiseworthiness**

**appealingness**

**Appraisal**

**joy**  
**distress**  
  
**hope**  
**fear**  
  
**relief**  
**disappointment**  
**etc.**

**anger**  
**gratitude**  
  
**gratification**  
**remorse**  
  
**etc.**

**pride**  
**shame**  
  
**admiration**  
**reproach**  
  
**etc.**

**love**  
**hate**  
  
  
  
**etc.**

**Emotions**

**GOAL-BASED EMOTIONS**

**COMPOUND EMOTIONS**

**NORM-BASED EMOTIONS**

**TASTE-BASED EMOTIONS**

**Focus: Outcome of Events**

**Appraisal: Desirability of Events**

**Source of Value: Goals**

**Affective Reaction: Pleased / Displeased**

**Emotion: Happy-Sad, Relief-Disappointment,  
Hope-Fear**

**Focus: Actions of Agents**

**Appraisal: Praiseworthy/Blameworthiness of Action**

**Source of Value: Standards**

**Affective Reaction: Approve / Disapprove**

**Emotion: Pride-Shame, Admiration-Reproach**

**Focus: Attributes of Objects**

**Appraisal: Appeal / Unappealingness of Attributes**

**Source of Value: Attitudes, Tastes**

**Affective Reaction: Like / Dislike**

**Emotion: Love-Hate, Disgust**









**Conversely, depictions of perdition have viewers looking down on the damned**



LAQVA FREDA

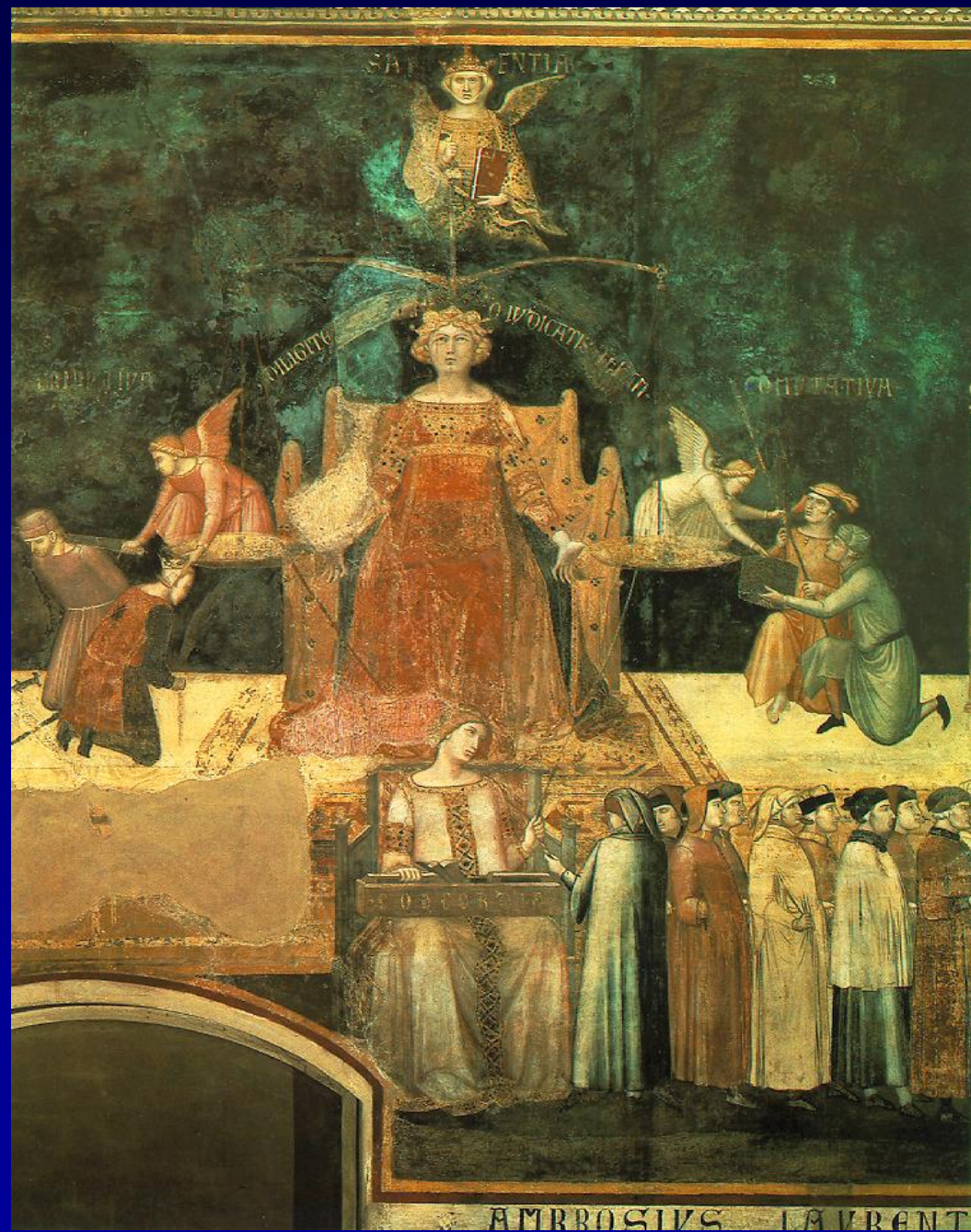












In summary, I have suggested that

**1. Affect-as-Evidence:**

Just as

***sensory experience*** serves as  
***evidence for descriptive beliefs,***

***affective experience*** serves as  
***evidence for evaluative beliefs***



## 2. Emotional Coherence:

- **performance:** *decision speed, memory accuracy, life satisfaction, & life outcomes depend on emotional coherence*
- **art:** *poetic, dramatic, and artistic works seek to elicit affective experience coherent with their cognitive message, the purpose of which is to provide affect-as-evidence*

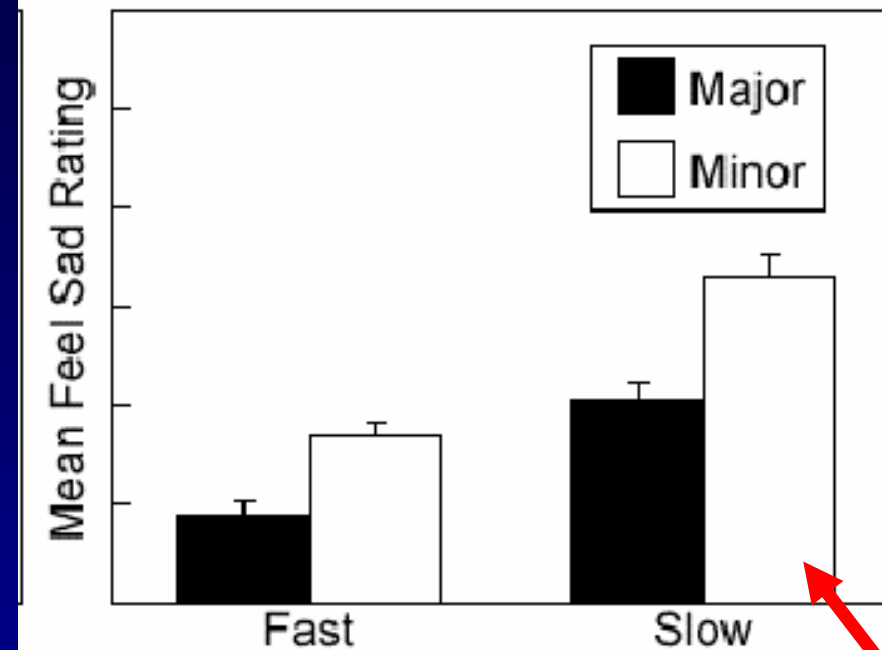
David Justin Karen Debbie Linda  
Centerbar Storbeck Gasper Kermer Isbell



Carol Sara Simone Janetta  
Gohm Algoe Schnall Lun



An interaction was observed for ratings of how sad the excerpts made listeners feel,  $F(1,48) = 8.46$ ,  $p < .01$ . Sad ratings were higher in response to excerpts in minor rather than major mode, both at fast and at slow tempi, both for sad feelings,  $t_s(48) = 5.22$  and  $7.61$ , respectively  $p < .0001$ .



The interaction indicates that the mode effect was stronger at slower tempi. In general, then, the joint effect of two consistent cues had a stronger impact on affective ratings than a simple additive combination of the two main effects. (Hunter, Schellenberg, & Schimmack, 2006).

**Damsio (1994) two neural streams of information as we run our fingers over a piece of velvet**

**One for the velvet**

**One for our skin**

**experience of our finger on the  
emerges from the two related  
streams because they are  
different but correlated**

# **EMOTIONAL COHERENCE**

**Agreement between multiple sources  
of affective information**

**Epistemic Interpretation**

**Affective experience validating or  
invalidating affective beliefs**

## Affect-as-Evidence

Evidence for **descriptive** beliefs depends on sensory information

But what about **affective** beliefs?

We can't see, hear, touch goodness or badness

Evidence is **self-generated** affective reaction

*smiling might validate a positive belief,  
but frowning would not*

**Unlike propositions, feelings do not  
need verification**

**Like sensations of external stimuli,  
affective feelings can be evidence  
for affective beliefs**

**Affect-as-Evidence hypothesis**

Clore and Gasper (2000).

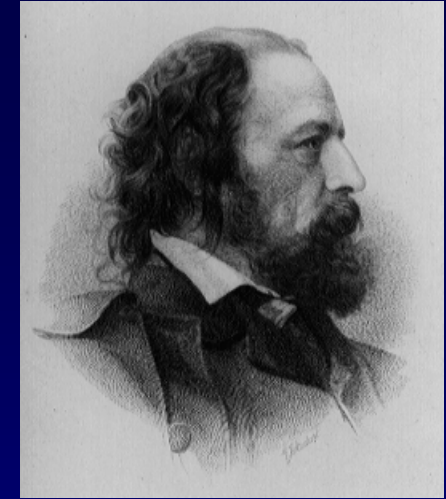


# Attribution of affect in Poetry

## The Eagle

**He clasps the crag with crooked hands:  
Close to the sun in lonely lands,  
Ringed with the azure world, he stands.**

**The wrinkled sea beneath him crawls;  
He watches from his mountain walls,  
And like a thunderbolt he falls.**



*Alfred, Lord Tennyson*

*(1809-1892)*

**The poet does not simply describe the eagle,  
he evokes a specific image of a proud,  
fierce, powerful, independent eagle,  
to create a visceral feeling of awe.**

**He says the eagle "...clasps the crag with crooked  
hands," so we feel the eagle's  
cold, hard, windy world.**

**Poetry is effective when multiple ways of  
representing an attribute make that attribute  
emerge**

**50 Positive words:** Active, Agile, Ambitious, Baby, Brave, Candy, Champion, Clean, Cordially, Devotion, Dream, Earnest, Ethical, Faith, Festival, Garden, Generous, Genius, Gentle, Gracious, Heaven, Hero, Justice, Kiss, Leisure, Love, Loyal, Mature, Mercy, Neat, Nurse, Polite, Power, Pretty, Prompt, Radiant, Reliable, Righteous, Satisfying, Sensible, Sincere, Sleep, Studious, Sweet, Talented, Trust, Truthful, Victory, Wise, and Witty.

**50 Negative words:** Aimless, Argue, Beggar, Bitter, Cancer, Cheat, Clumsy, Crime, Critical, Crooked, Crude, Cruel, Danger, Dead, Defeat, Delay, Devil, Diseased, Divorce, Enemy, Fickle, Foolish, Fraud, Greedy, Hostile, Insane, Insolent, Liar, Mediocre, Mosquito, Nasty, Neurotic, Obnoxious, Poison, Pompous, Profane, Rude, Sarcastic, Shallow, Sloppy, Sour, Spider, Steal, Stingy, Theft, Touchy, Ugly, Unfair, Vain, and Vulgar.

## **Tasks:**

**Evaluation: (Pos - Neg) Exp 1ab,2ab,3ab**

## **Instructions:**

**Respond as accurately as possible (Exp 1ab)**

## **Measures:**

**Reaction time**

**Accuracy**

## **Bible**

**Zoroaster wrote of the fight between good & evil  
as a fight between Light & Darkness**

**Plato likened Darkness to imprisonment, ignorance  
& Light to freedom, knowledge**

**Not only in West ...**

**Buddhist writings:**

**Truth is characterized as a light or a lamp**

**Hindu Upanishad:**

**Light is equated with truth & immortality,  
Darkness with delusion & death**

**Muslim Koran:**

**Allah is equated with light &  
his message as a lamp and a star**

**20 countries evaluative ratings associated  
light colors with good, dark with bad**

**(Adams & Osgood, 1973)**