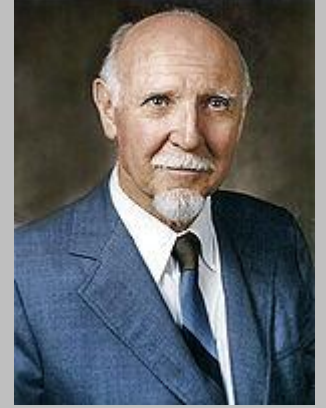



# Raymond B. Cattell(1905-1998)



- Raymond B. Cattell was a British-born American psychologist, considered to be one of the **world's leading personality theorists**.
  - Cattell was a prolific writer in the field of psychological measurement. Among his many books are **The Meaning and Measurement of Neuroticism and Anxiety (1961)**, **Handbook of Multivariate Experimental Psychology (1966)**, **Prediction of Achievement and Creativity (1968)**, and **Abilities: Their Structure, Growth, and Action (1971)**.
  - **Personality and Learning Theory**, 2 vol. (1979–80), is considered Cattell's most important work. In it he proposed a theory of human development that **integrates the intellectual, temperamental, and dynamic aspects of personality in the context of environmental and cultural influences**. He was able to synthesize in this work many of the **disparate hypotheses of both personality and learning theories**.
  - Cattell also undertook a series of empirical studies into the basic dimensions of other psychological domains: **intelligence, motivation, career assessment and vocational interests**.
  - Cattell theorized the existence of fluid and crystallized intelligence to explain human cognitive ability, investigated changes in **Gf and Gc over the lifespan**, and constructed the **Culture Fair Intelligence Test** to minimize the bias of written language and cultural background in intelligence testing.
- 
- A portrait of Raymond B. Cattell, a British-born American psychologist. He is shown from the chest up, wearing a dark suit, a white shirt, and a dark tie. He has short, dark hair and is looking slightly to the right of the camera.



- **-Correlation** : It may range from –1.00 to +1.00, where the sign indicates the direction & the # indicates the magnitude of the relationship.
- **Factor Analysis:** Factor analytic theories strive to summarize the relationships among a large number of variables into fewer, more general patterns.
- Wrote more than **500 articles and 43 books.**
- **DATA** : Cattell sought to systematically methodically describe personality.-**L-Data**, the L for Life Record: is obtained by gathering life history of person (personal records), such as **grade point average, driving history, letters of recommendation**, etc.
- Q-Data**, the Q for questionnaire data (16PF, etc.)
- T-Data/Experimental data** the T for test objective test data (reaction time, etc.)
- **R-technique** **or** nomothetic **or** studies groups
- **P-technique** **or** idiographic **or** studies individuals
- **R = f (P,S):** Personality = that which permits a prediction of what a person will do in a given situation

# Theoretical emphasis



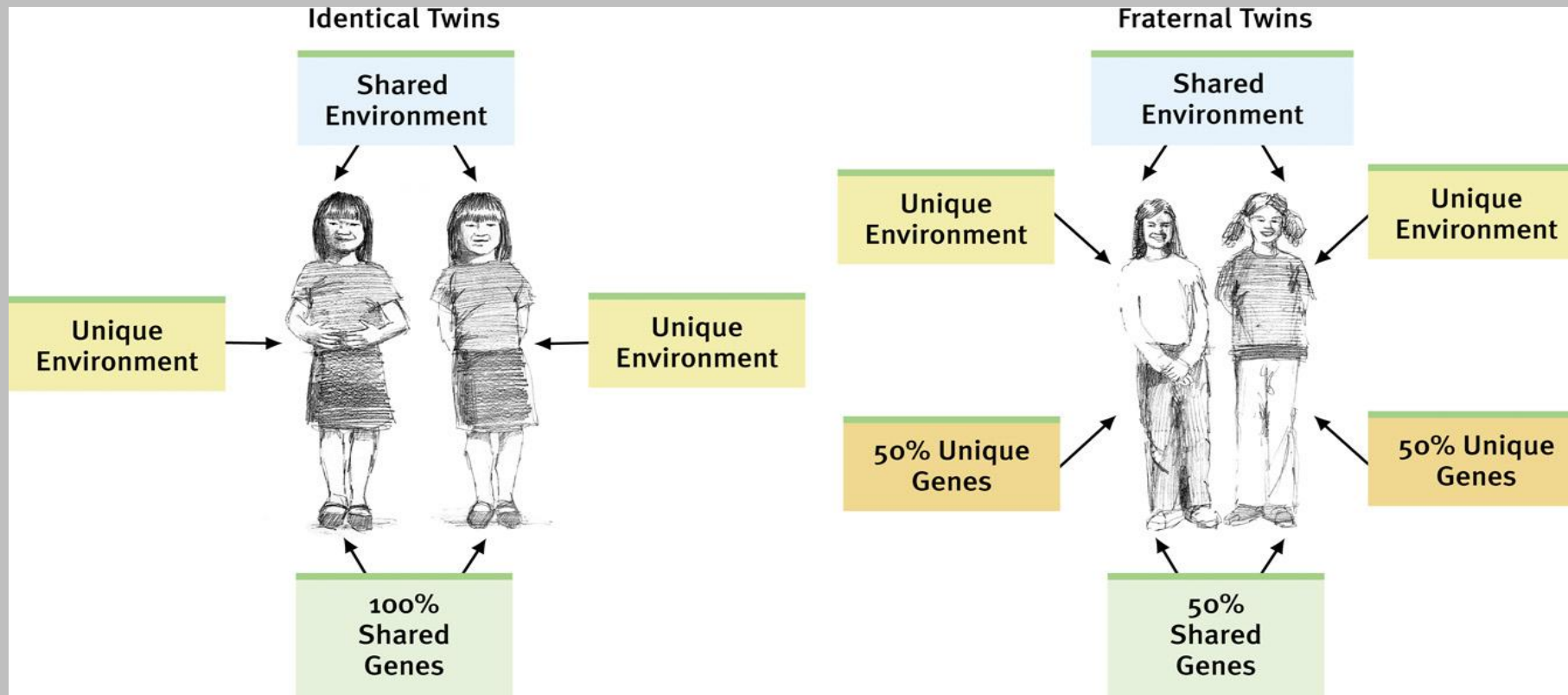
**An idiographic approach:** The uniqueness of the individual (Freud, Allport, Rogers, Kelly).

**A nomothetic approach:** The similarities that exist between people (Cattell, Eysenck).



- **Multiple abstract variance analysis (MAVA):** Statistical procedure used to determine the precise contributions of **genetic and environmental factors to the development of traits.**
- Cattell estimates that about **two-thirds of personality** is determined by environmental influences and **one-third by heredity.**

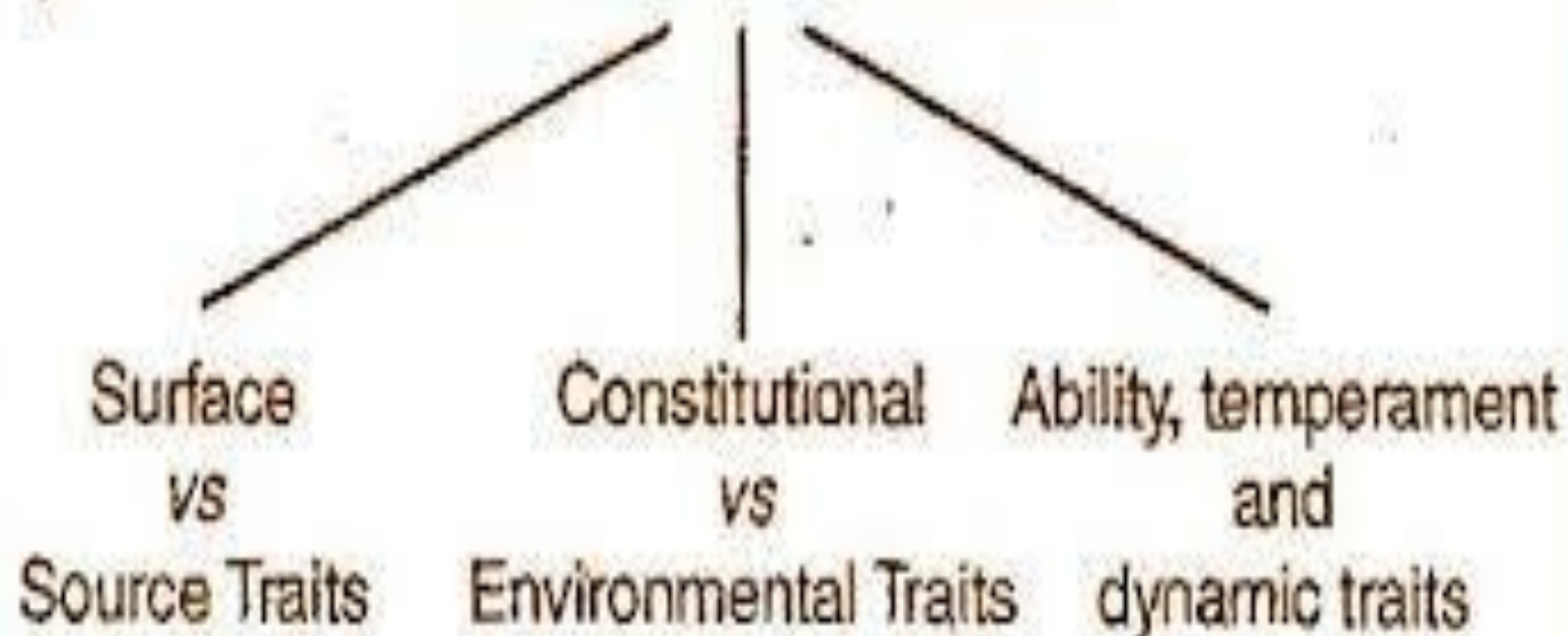
Twins and Procedures: Behavior geneticists' effects of shared and unique environments on total or partial genetic makeup.



Cattell determined that  $\frac{1}{3}$  personality is genetic and  $\frac{2}{3}$  is environment



## Classification of Traits



**TABLE 8.1** Ways of classifying traits

<i>Common traits</i>	Everyone shares common traits to some degree; for example, everyone has some measure of intelligence or of extraversion.
<i>Unique traits</i>	Each of us has unique traits that distinguish us as individuals; for example, a liking for politics or an interest in baseball.
<i>Ability traits</i>	Our skills and abilities determine how well we can work toward our goals.
<i>Temperament traits</i>	Our emotions and feelings (whether we are assertive, fretful, or easy-going, for example) help determine how we react to the people and situations in our environment.
<i>Dynamic traits</i>	The forces that underlie our motivations and drive our behavior.
<i>Surface traits</i>	Characteristics composed of any number of source traits, or behavioral elements; they may be unstable and impermanent, weakening or strengthening in response to different situations.
<i>Source traits</i>	Single, stable, permanent elements of our behavior.
<i>Constitutional traits</i>	Source traits that have biological origins, such as the behaviors that result from drinking too much alcohol.
<i>Environmental-mold traits</i>	Source traits that have environmental origins, such as the behaviors that result from the influence of our friends, work environment, or neighborhood.

- Personality = permits a prediction of what a person will do in a given situation

## Surface traits versus source traits

- Surface traits = clusters of overt behavior responses that appear to go together
- Source traits = underlying variable that determine surface manifestations
- Surface and Source Traits:
- Source Traits are core internal psychological structures that are the underlying cause of the observed inter-correlations among surface traits.

# Categories of Traits

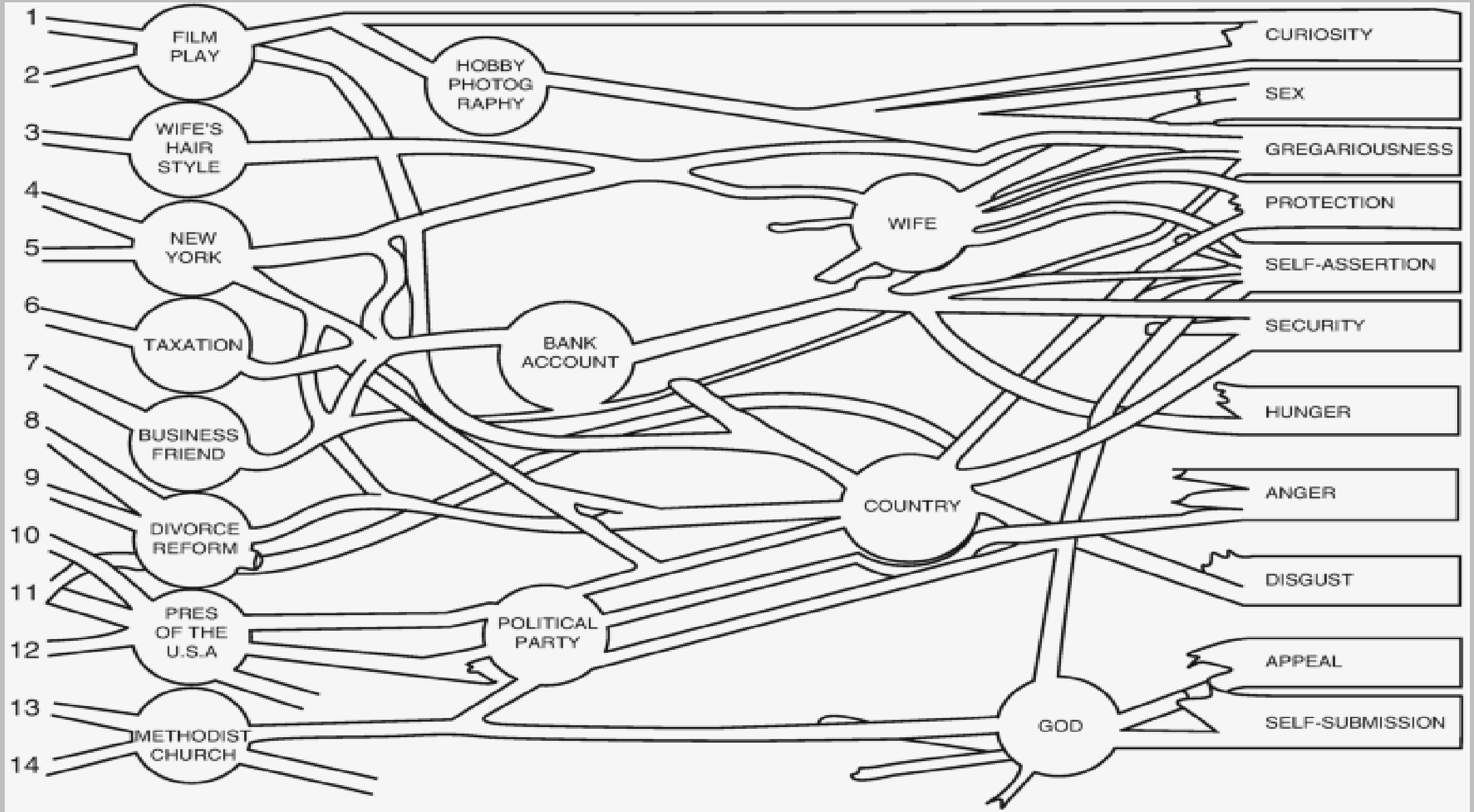
## Constitutional and Environmental-Mold Traits

- Ability Traits (**how well**), Temperament Traits (**how**) and Dynamic (motivational) Traits (**why**).
- **Ability Traits**- Fluid (65% inherited)& Crystallized intelligence (60% inherited) **Fluid intelligence**-the innate ability to learn.
- **Crystallized intelligence** -what has been learned from education.

## Motivational traits: Ergs and Meta ergs (**sentiments and attitudes**)

- **Ergs (innate motivation traits):Ergs** correspond roughly to **biologically based drives and sentiments** are acquired attitude structures.
- **Meta-ergs (learned, environmental origin) learned predisposition** to respond to a class of objects or events in a certain way. (career, sports, religion etc..) One type of Meta erg -- sentiment.





## Specification Equation

$$-R=f(P, S)$$

$$-P_j=s_j aA \dots + s_j tT \dots +s_j eE\dots+s_j mM \dots +s_j rR \dots+s_j sS$$

- $P_j$  = Performance in situation  $j$

- $A$  = Ability traits

- $T$  = Temperament traits

- $E$  = Ergic tensions present

- $M$  = Meta ergs (sentiments and attitudes)

- $R$  = Roles called for in the situations

- $S$  = Temporary bodily states such as fatigue, illness or anxiety

- $s_j$  = a weight or “loading,” indicating the importance of **each of foregoing influences in situation  $j$ .**

# Personality Factors (1)

Factor	Low score description	High score description
A - Warmth	Reserved tendencies - detached, critical, aloof, stiff	Outgoing- warm, easy-going, participating
B - Intellect	Less concrete thought process	More Intelligent, bright, abstract thinking
C - Emotional stability	Affected By Feelings, emotionally less stable, easily upset, changeable	Emotionally Stable, mature, calm
E - Aggressiveness	Humble, mild, easily led, docile, accommodating	Assertive, aggressive, stubborn, competitive
F - Liveliness	Sober, low-energy, serious	Happy-Go-Lucky, enthusiastic
G - Dutifulness	Disregards rules	Persistent, moralistic
H - Social Assertiveness	Shy - timid, threat-sensitive	Uninhibited, socially bold
I - Sensitivity	Tough-Minded, self-reliant, realistic	Tender-Minded, sensitive, clinging, overprotected

# Personality Factors (2)

Factor	Low score description	High score description
L - Paranoia	Trusting, accepting conditions	Suspicious, hard to fool, doesn't trust easily
M - Abstractness	Practical, "down-to-earth" mind-set	Imaginative, absent-minded
N - Introversion	Forthright, unpretentious, genuine	Polished, socially aware
O - Anxiety	Self-Assured, secure, complacent, serene	Apprehensive, insecure, worrying, troubled
Q1 - Open mindedness	Conservative, respecting traditional ideas	Experimenting, liberal, free-thinking
Q2 - Independence	Group-Dependent, a "joiner" and sound follower	Self-Sufficient, resourceful, trusts oneself
Q3 - Perfectionism	Undisciplined Self-Conflict - lax, follows own urges, careless of social rules	Controlled, exacting will power, socially precise, compulsive
Q4 - Tension	Relaxed, tranquil, un-frustrated, composed	Tense, frustrated, driven

# Cattell's factors

A	Warm/ reserved	L	Suspicious/ trusting
B	Intelligent	M	Imaginative/ practical
C	Unemotional/ emotional	N	Shrewd/ forthright
E	Assertive/ co-operative	O	Guilty/ self-assured
F	Cheerful/ sober	Q1	Radical/ conservative
G	Conscientious/ expedient	Q2	Self-sufficient/ affiliative
H	Socially bold/ shy	Q3	Controlled/ impulsive
I	Self-reliant/ sensitive	Q4	Tense/ tranquil

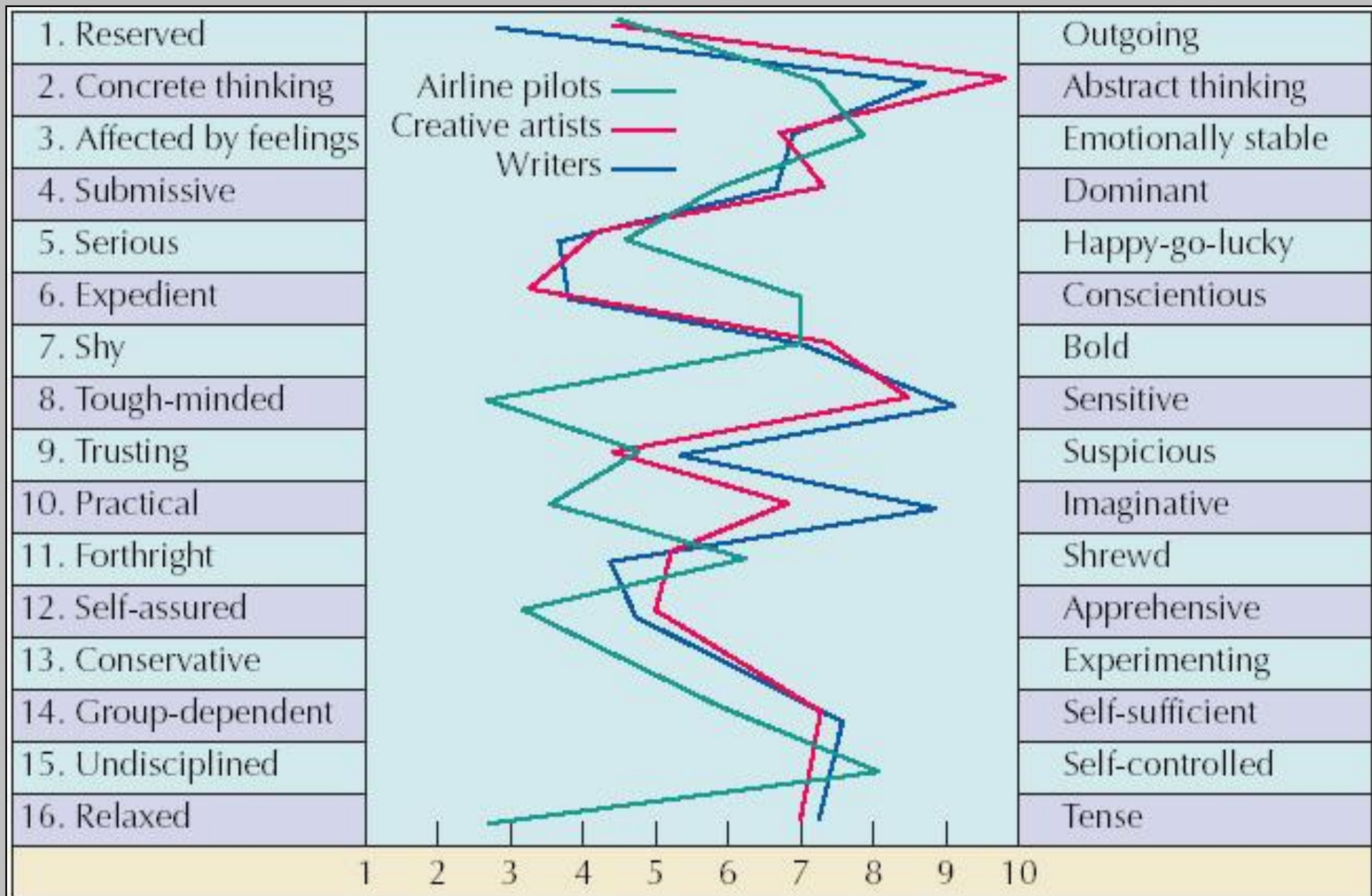


Primary Factors and Descriptors in Cattell's 16 Personality Factor Model (Adapted From Conn & Rieke, 1994).

Descriptors of Low Range	Primary Factor	Descriptors of High Range
<ul style="list-style-type: none"><li>✓ Reserve, impersonal, distant, cool, reserved, impersonal, detached, formal, aloof (Sizothymia)</li></ul>	Warmth	Warm, outgoing, attentive to others, kindly, easy going, participating, likes people (Affectothymia)
<ul style="list-style-type: none"><li>✓ Concrete thinking, lower general mental capacity, less intelligent, unable to handle abstract problems (Lower Scholastic Mental Capacity)</li></ul>	Reasoning	Abstract-thinking, more intelligent, bright, higher general mental capacity, fast learner (Higher Scholastic Mental Capacity)
<ul style="list-style-type: none"><li>✓ Reactive emotionally, changeable, affected by feelings, emotionally less stable, easily upset (Lower Ego Strength)</li></ul>	Emotional Stability	Emotionally stable, adaptive, mature, faces reality calm (Higher Ego Strength)
<ul style="list-style-type: none"><li>✓ Group-oriented, affiliative, a joiner and follower dependent (Group Adherence)</li></ul>	Self-Reliance	Self-reliant, solitary, resourceful, individualistic, self sufficient (Self-Sufficiency)
<ul style="list-style-type: none"><li>✓ Tolerated disorder, unexacting, flexible, undisciplined, lax, self-conflict, impulsive, careless of social rues, uncontrolled (Low Integration)</li></ul>	Perfectionism	Perfectionistic, organized, compulsive, self-disciplined, socially precise, exacting will power, control, self`s sentimental (High Self-Concept Control)
<ul style="list-style-type: none"><li>✓ Relaxed, placid, tranquil, torpid, patient, composed low drive (Low Ergic Tension)</li></ul>	Tension	Tense, high energy, impatient, driven, frustrated, over wrought, time driven. (High Ergic Tension)

<ul style="list-style-type: none"> <li>✓ Deferential, cooperative, avoids conflict, submissive, humble, obedient, easily led, docile, accommodating (Submissiveness)</li> <li>✓ Serious, restrained, prudent, taciturn, introspective, silent (Desurgency)</li> <li>✓ Expedient, nonconforming, disregards rules, self indulgent (Low Super Ego Strength)</li> <li>✓ Shy, threat-sensitive, timid, hesitant, intimidated (Threctia)</li> <li>✓ Utilitarian, objective, unsentimental, tough minded, self-reliant, no-nonsense, rough (Harria)</li> <li>✓ Trusting, unsuspecting, accepting, unconditional, easy (Alaxia)</li> <li>✓ Grounded, practical, prosaic, solution orientated, steady, conventional (Praxernia)</li> <li>✓ Forthright, genuine, artless, open, guileless, naive, unpretentious, involved (Artlessness)</li> <li>✓ Self-Assured, unworried, complacent, secure, free of guilt, confident, self satisfied (Untroubled)</li> <li>✓ Traditional, attached to familiar, conservative, respecting traditional ideas (Conservatism)</li> </ul>	<ul style="list-style-type: none"> <li><b>Dominance</b></li> <li><b>Liveliness</b></li> <li><b>Rule-Consciousness</b></li> <li><b>Social Boldness</b></li> <li><b>Sensitivity</b></li> <li><b>Vigilance</b></li> <li><b>Abstractedness</b></li> <li><b>Privateness</b></li> <li><b>Apprehension</b></li> <li><b>Openness to Change</b></li> </ul>	<ul style="list-style-type: none"> <li>Dominant, forceful, assertive, aggressive, competitive, stubborn, bossy (Dominance)</li> <li>Lively, animated, spontaneous, enthusiastic, happy go lucky, cheerful, expressive, impulsive (Surgency)</li> <li>Rule-conscious, dutiful, conscientious, conforming, moralistic, staid, rule bound (High Super Ego Strength)</li> <li>Socially bold, venturesome, thick skinned, uninhibited (Parmia)</li> <li>Sensitive, aesthetic, sentimental, tender minded, intuitive, refined (Premsia)</li> <li>Vigilant, suspicious, skeptical, distrustful, oppositional (Protension)</li> <li>Abstract, imaginative, absent minded, impractical, absorbed in ideas (Autia)</li> <li>Private, discreet, nondisclosing, shrewd, polished, worldly, astute, diplomatic (Shrewdness)</li> <li>Apprehensive, self doubting, worried, guilt prone, insecure, worrying, self blaming (Guilt Proneness)</li> <li>Open to change, experimental, liberal, analytical, critical, free thinking, flexibility (Radicalism)</li> </ul>
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# CATTELL'S INTELLIGENCE THEORY

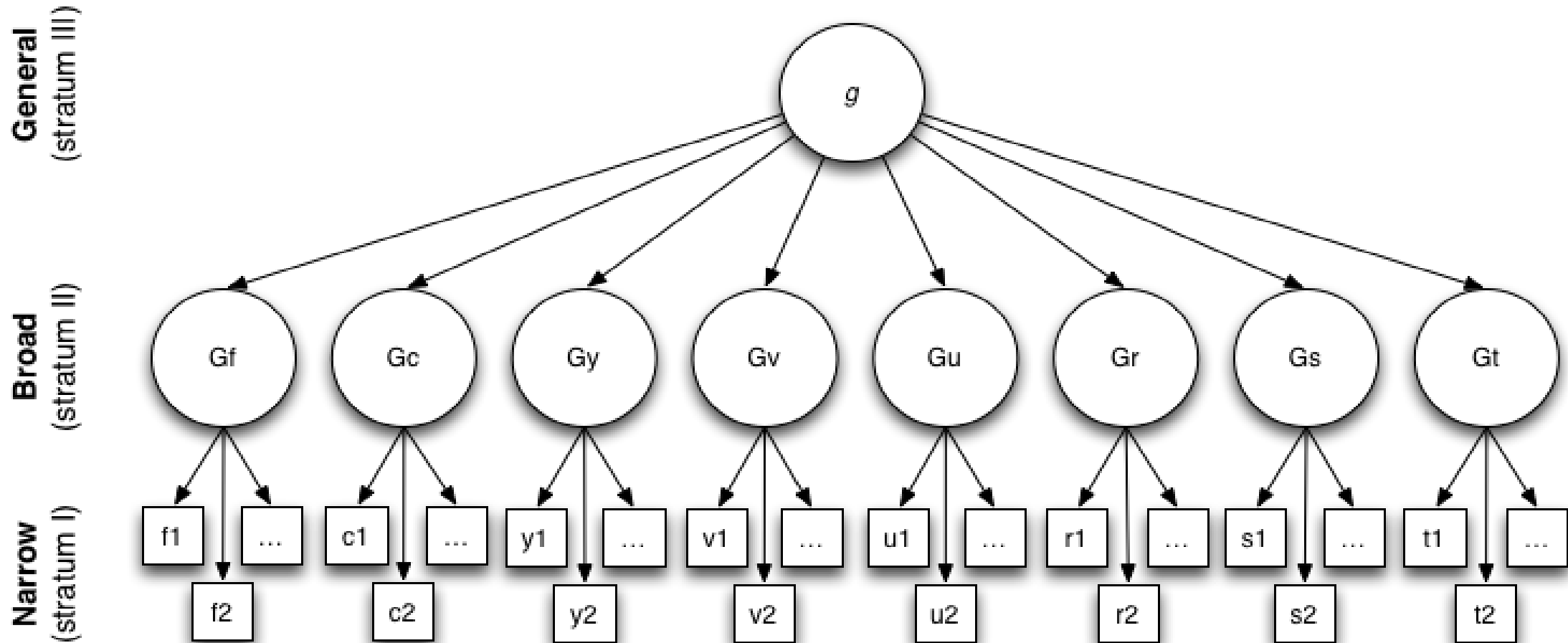


  
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Cattell believed that 80 of the variance in intelligence was the result of heredity the remaining 20 due to experience.



The **Cattell–Horn–Carroll theory** of intelligence is a synthesis of Cattell and Horn's Gf-Gc model of fluid and crystallized intelligence and Carroll's Three Stratum Hierarchy (Sternberg & Kauffman, 1998). Carroll's three-stratum theory presented three levels of cognition: narrow abilities (stratum I), broad abilities (stratum II) and general abilities (stratum III).



# Stages of Personality Development

Cattell proposed six stages in the development of personality covering the entire life span (see Table 8.3).

**TABLE 8.3** Cattell's stages of personality development

STAGE	AGE	DEVELOPMENT
Infancy	Birth to 6	Weaning; toilet training; formation of ego, superego, and social attitudes
Childhood	6–14	Independence from parents and identification with peers
Adolescence	14–23	Conflicts about independence, self-assertion, and sex
Maturity	23–50	Satisfaction with career, marriage, and family
Late maturity	50–65	Personality changes in response to physical and social circumstances
Old age	65+	Adjustment to loss of friends, career, and status

# Personality Development

- Learning
  - Classical Conditioning
  - Instrumental/ Operant Conditioning
  - Structured Learning: most important; changes in one's entire personality ; personality as resulting from interactions between personal attributes (traits) and the environment.
- Importance of Early Experience
- Heredity vs. Environment
- Multiple abstract variance analysis (MAVA)- Twins Studies
- Psychopathology and Psychotherapy (Eclectic with therapy methods)
- Syntality- Group traits: Syntality group: (e.g., national/ cultural) differences in personality e.g. extraversion and superego strength of U. S. students compared to British

# *Evaluation*

- \*Empirical Research

- \***Criticisms**

- Too subjective
- Behavior not as consistent as Cattell's theory suggests
- Too much emphasis on groups and averages

- \***Contributions**

- \* Scientific Rigor

- \* Applied Value