Evolution Approach to Compassion

Understanding, misunderstanding and therapeutic uses

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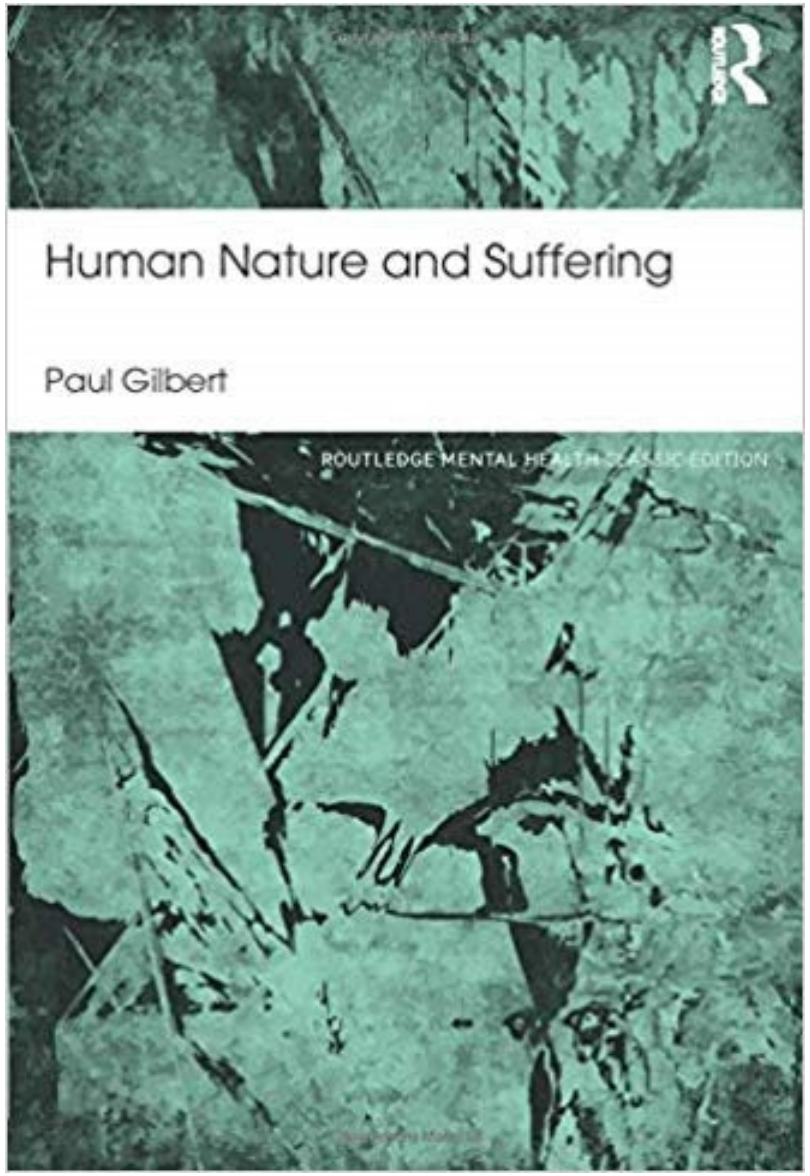
Historical Influences

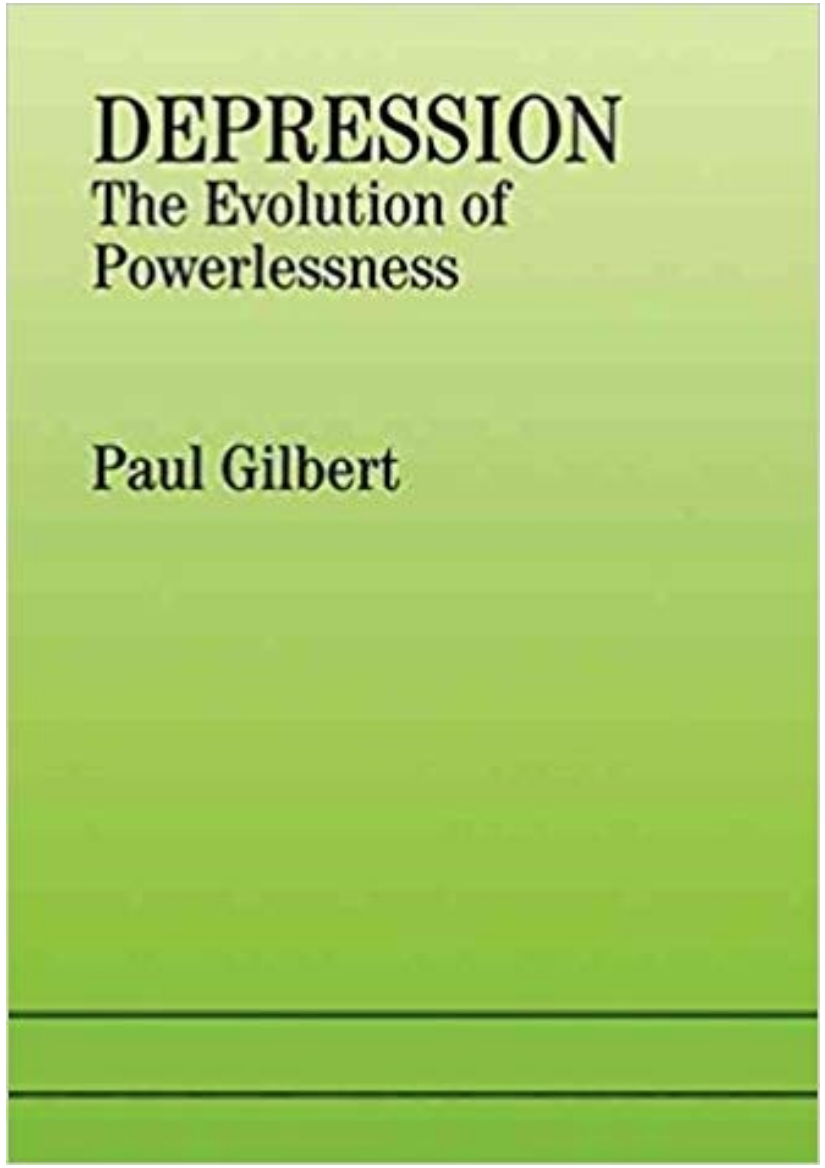
Depression:
From Psychology to
Brain state

Paul Gilbert

1984



1989



1992

Depression:
From Psychology to Brain State

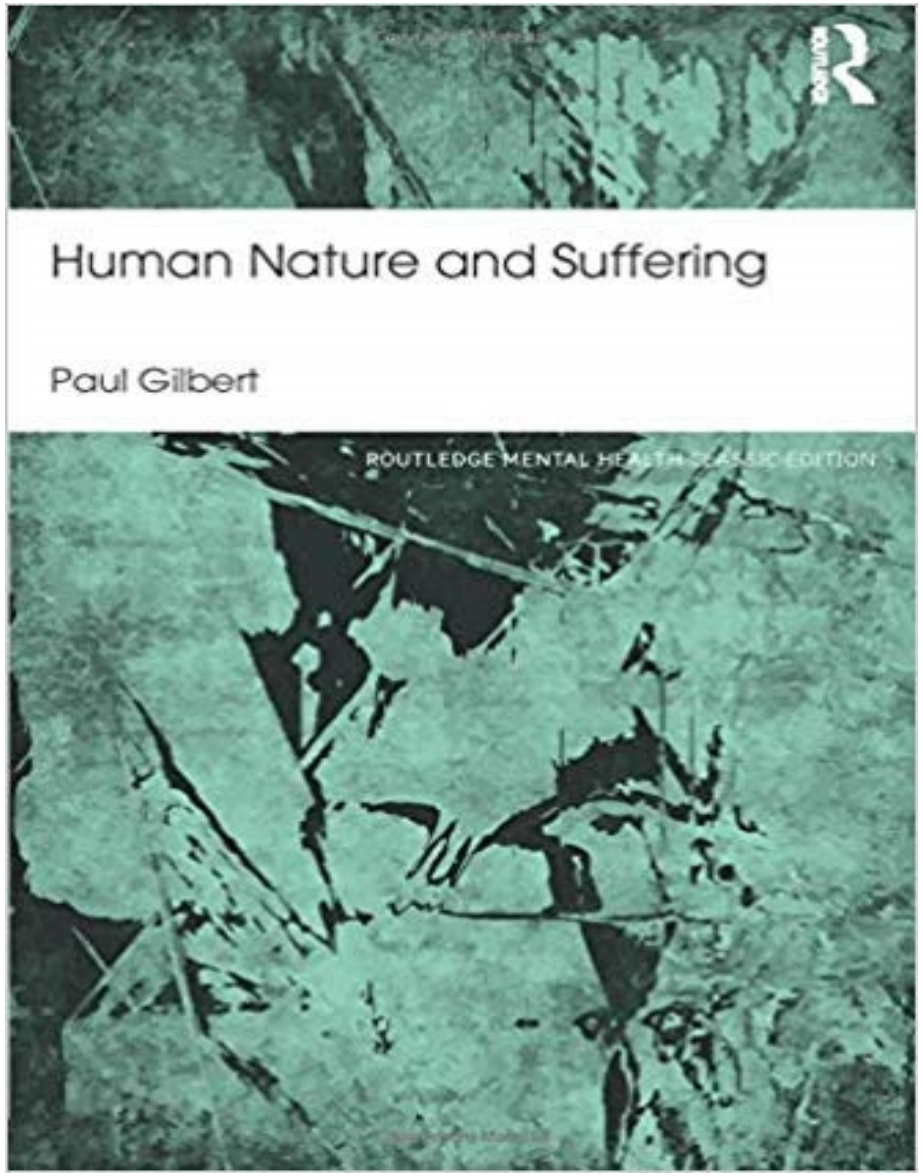
Paul Gilbert

1984

The ways social and psychological processes change physiologies and how psycho-social therapies need to address those changes

Brain State Theory

The need to be needed/valued/wanted

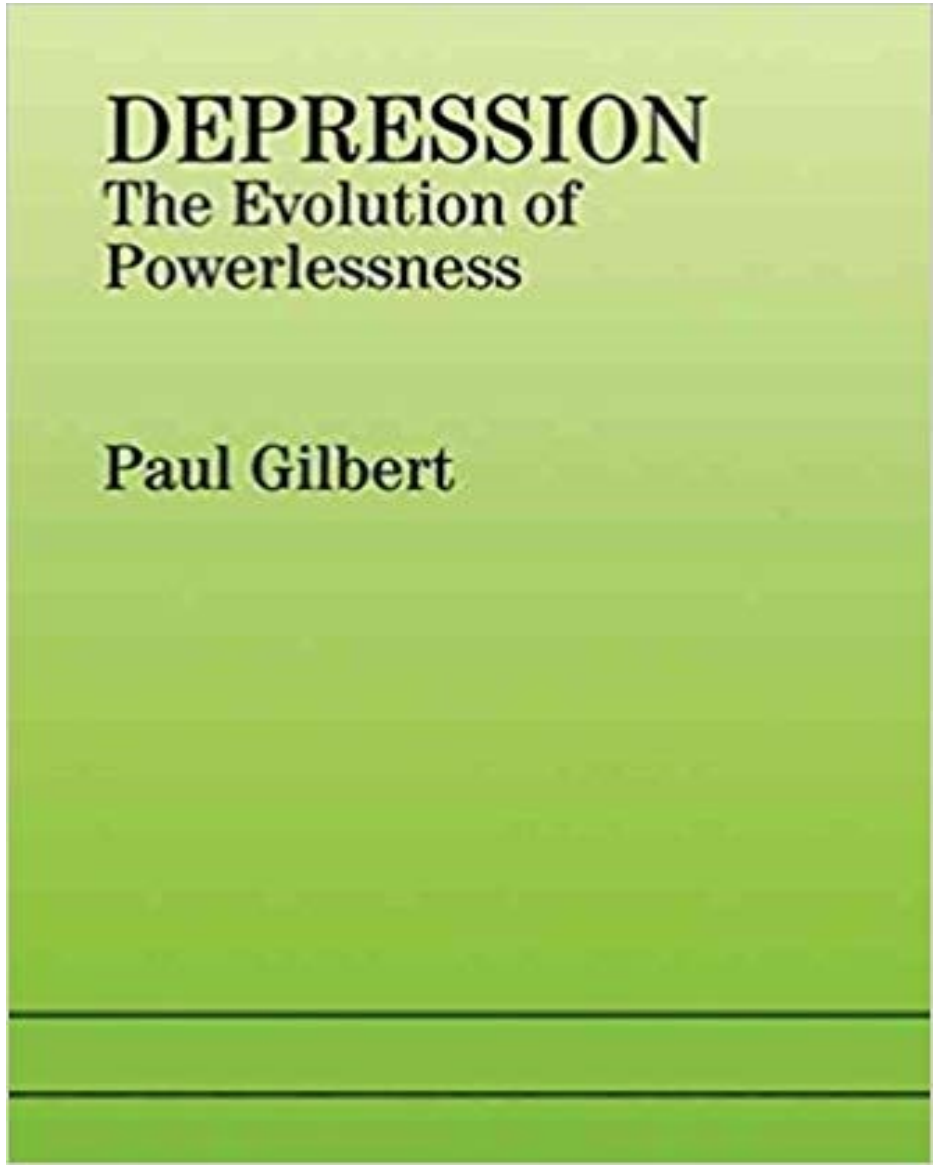


1989/2016

Basic Social Motives:

Care giving - Care seeking
Cooperating - Competing
Sexuality

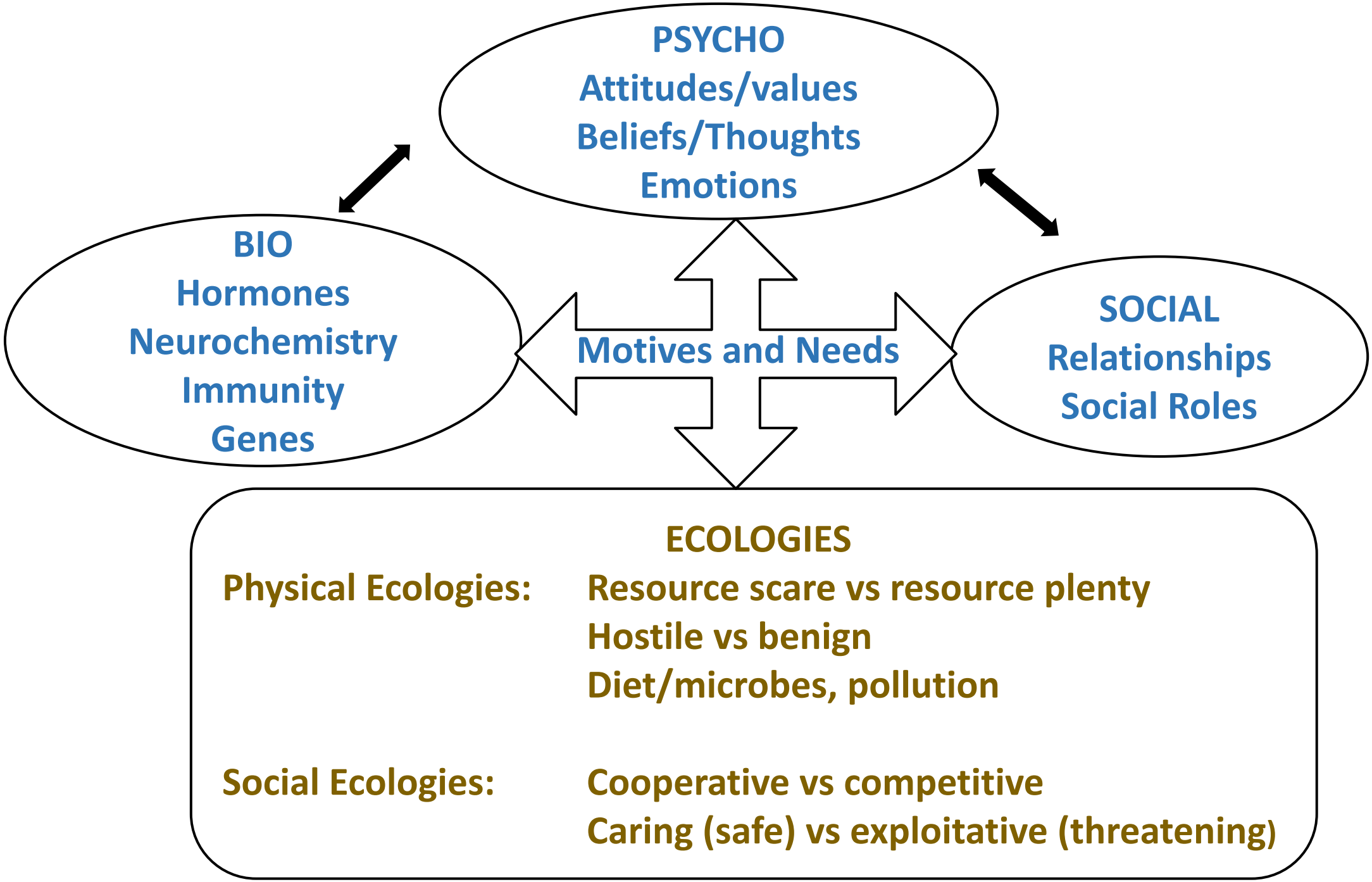
Safe	Unsafe -threat
Helpful	Unhelpful
Competent	Incompetent

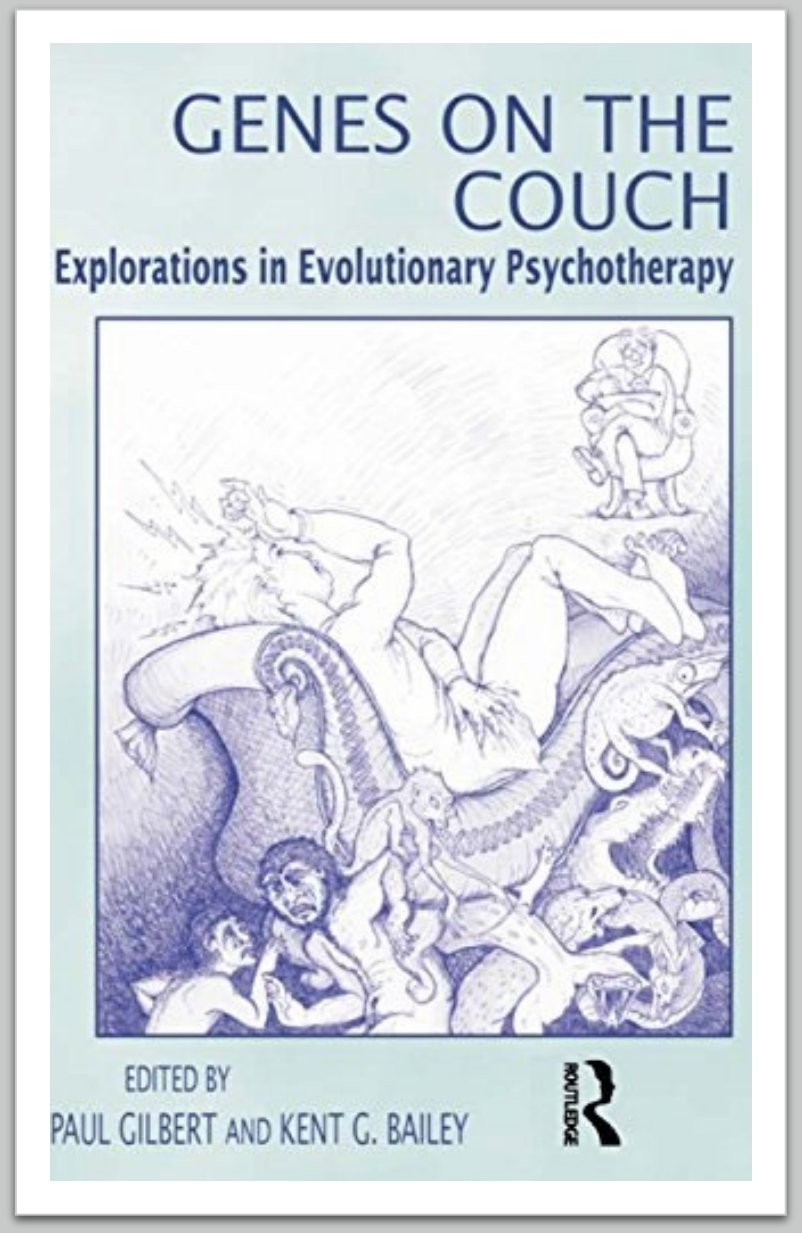


1992/2016

The thwarting of basic human needs and control of threat

Learned Helplessness
Social loss and disconnection
Social oppression
Social defeat
Entrapment


PSYCHO
Attitudes/values
Beliefs/Thoughts
Emotions
BIO
Hormones
Neurochemistry
Immunity
Genes
Motives and Needs
SOCIAL
Relationships
Social Roles
ECOLOGIES
Physical Ecologies:
Resource scare vs resource plenty
Hostile vs benign
Diet/microbes, pollution
Social Ecologies:
Cooperative vs competitive
Caring (safe) vs exploitative (threatening)



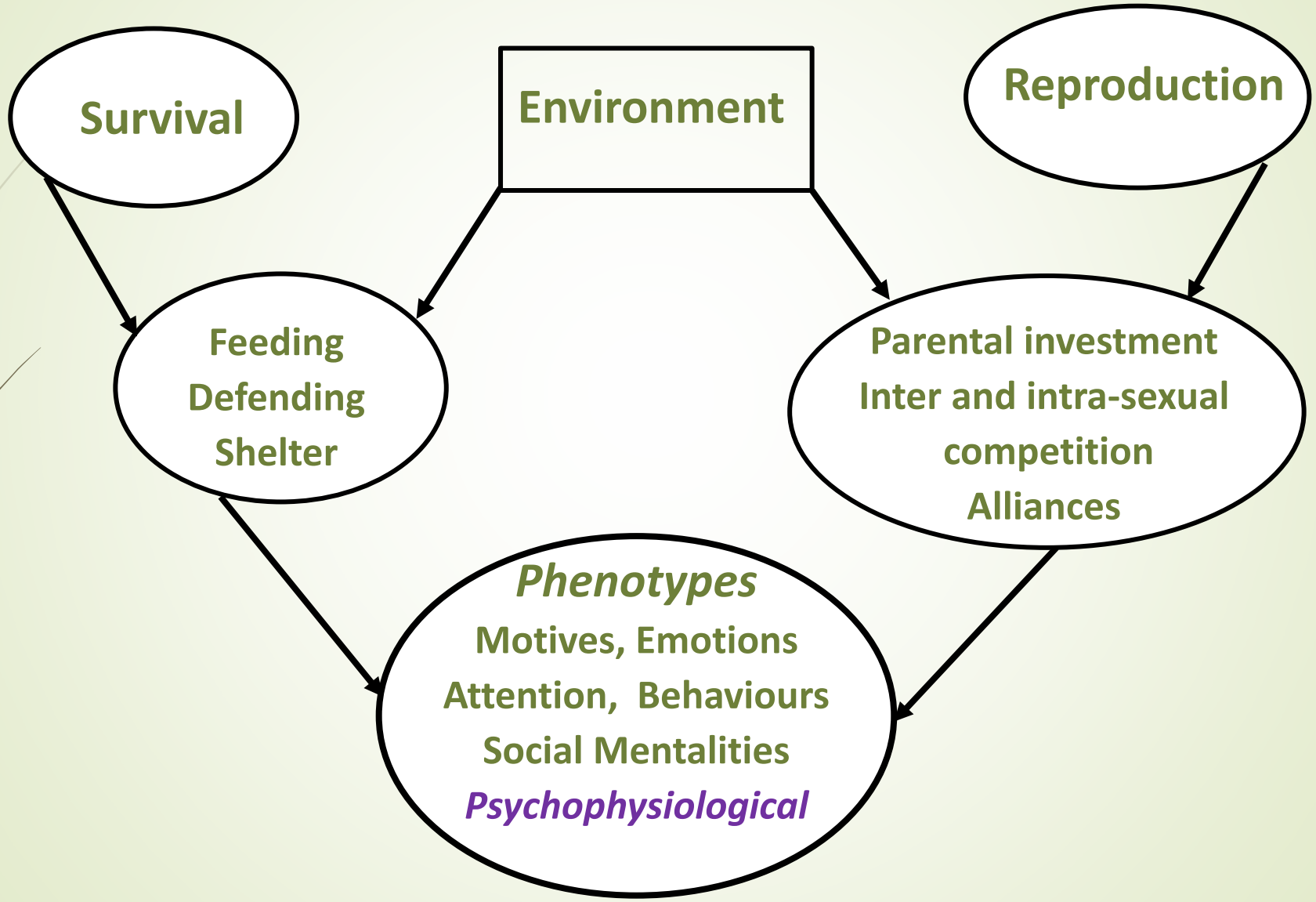
2000

- ***Our troubles arise from the fact we do not know what we are and cannot agree on what we want to be. The primary cause of this intellectual failure is ignorance of our origins. We did not arrive on this planet as aliens. Humanity is part of nature, a species that evolved among other species. The more closely we identify ourselves with the rest of life, the more quickly we will be able to discover the sources of human sensibility and acquire the knowledge on which an enduring ethic, a sense of preferred direction, can be built (Wilson, 1992: 332)***

As evolution informed and biopsychosocial therapists we need models of psychological processes that guide the formulation and therapeutic interventions

Evolved functions of the mind

Evolved Strategies, Phenotypes and Social Mentalities



Core, reciprocal interacting domains of functioning

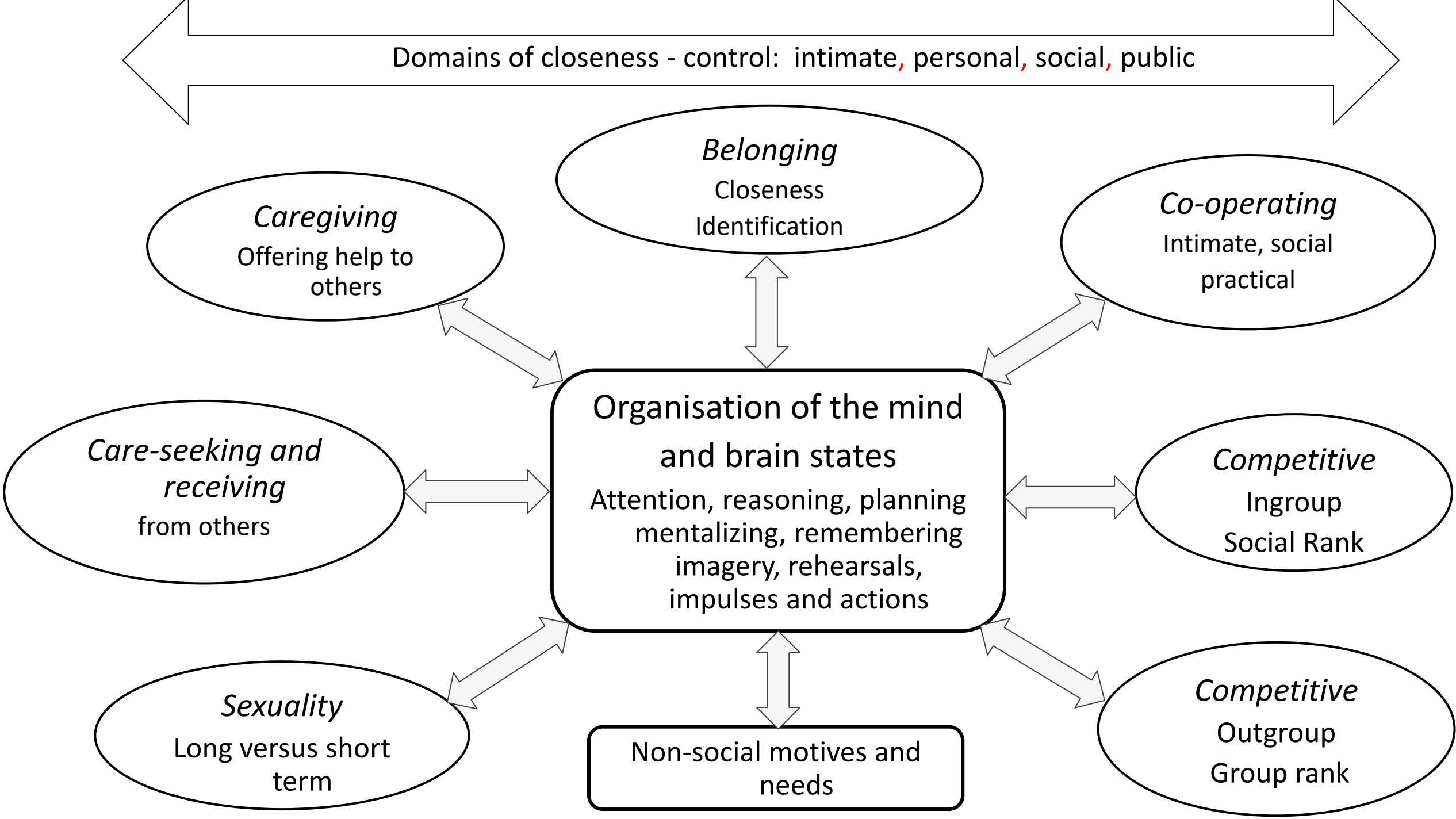
Motives
Life tasks and roles:
Harm avoidance,
Acquiring,
Rest and digest

Emotions
Serve and guide motives
Create body states for focusing, actions
social signals

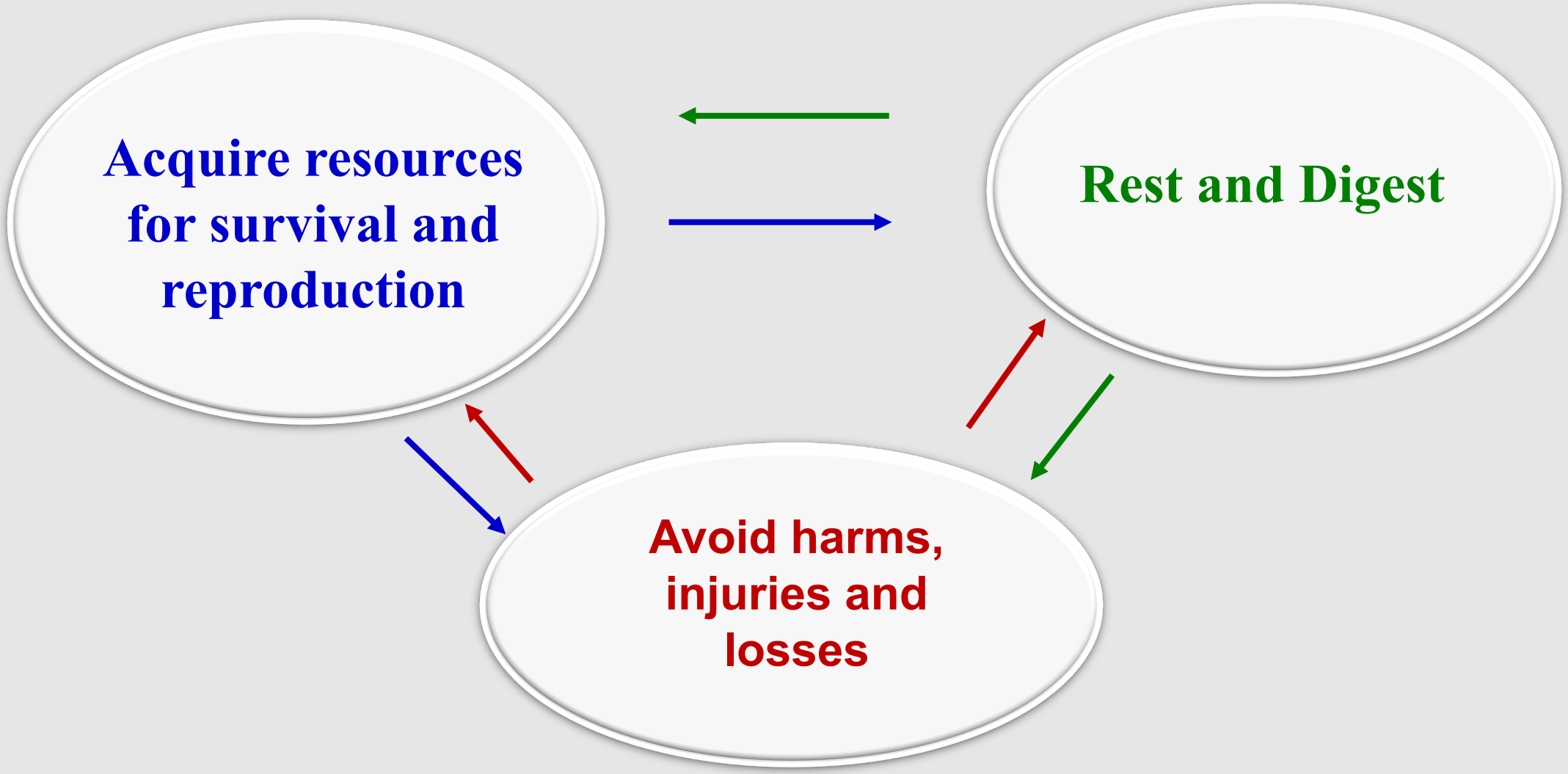
Competencies
Abilities to perform
Wings to fly, legs to walk
Cognitive
Reasoning, empathy, conscious of consciousness

All have facilitators and inhibitors
Multiple domains of intervention

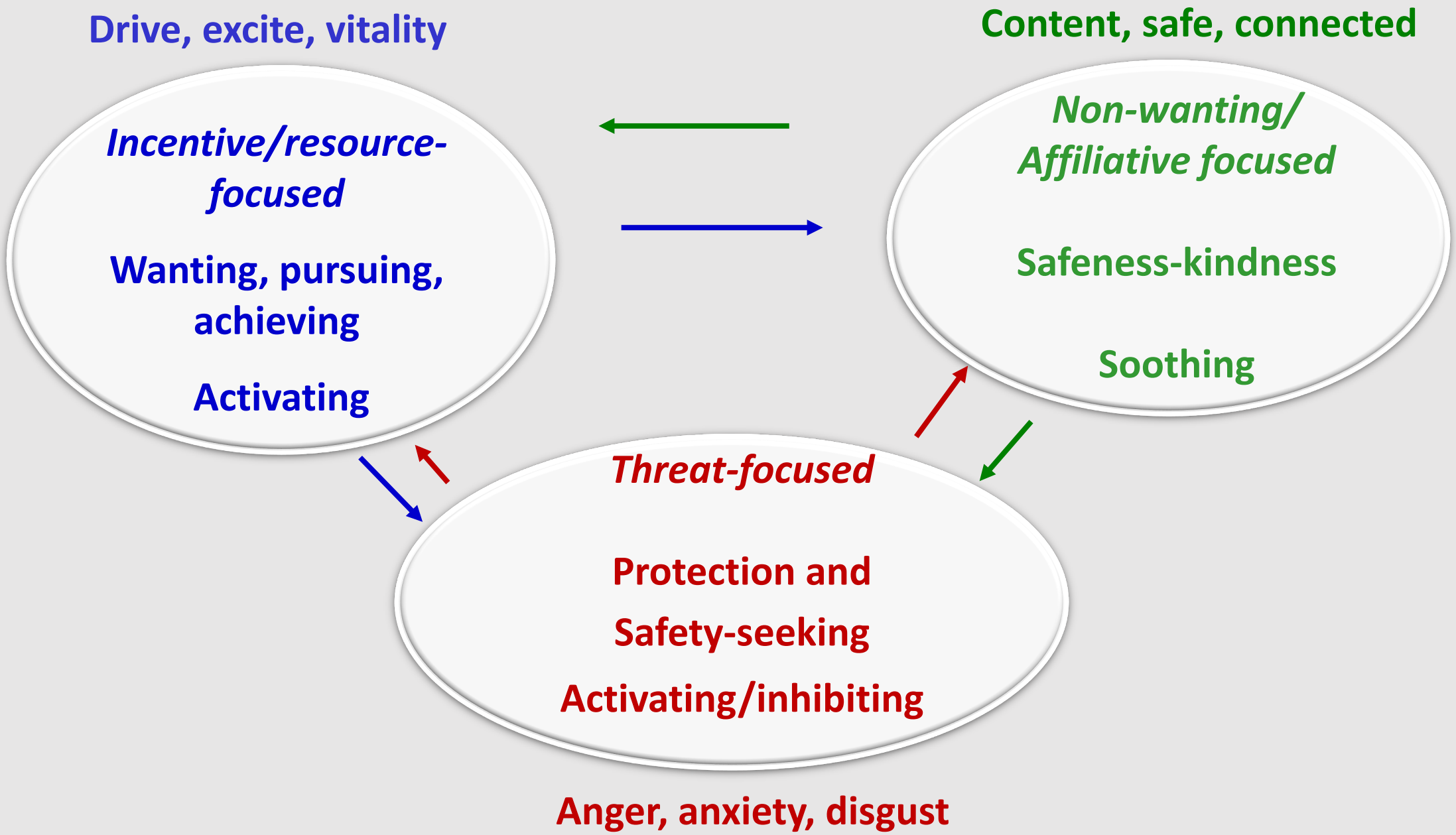
Outputs
Behaviours
Actions


Domains of closeness - control: intimate, personal, social, public
Belonging
Closeness
Identification
Caregiving
Offering help to others
Co-operating
Intimate, social practical
Organisation of the mind and brain states
Attention, reasoning, planning mentalizing, remembering imagery, rehearsals, impulses and actions
Care-seeking and receiving
from others
Competitive
Ingroup
Social Rank
Sexuality
Long versus short term
Non-social motives and needs
Competitive
Outgroup
Group rank

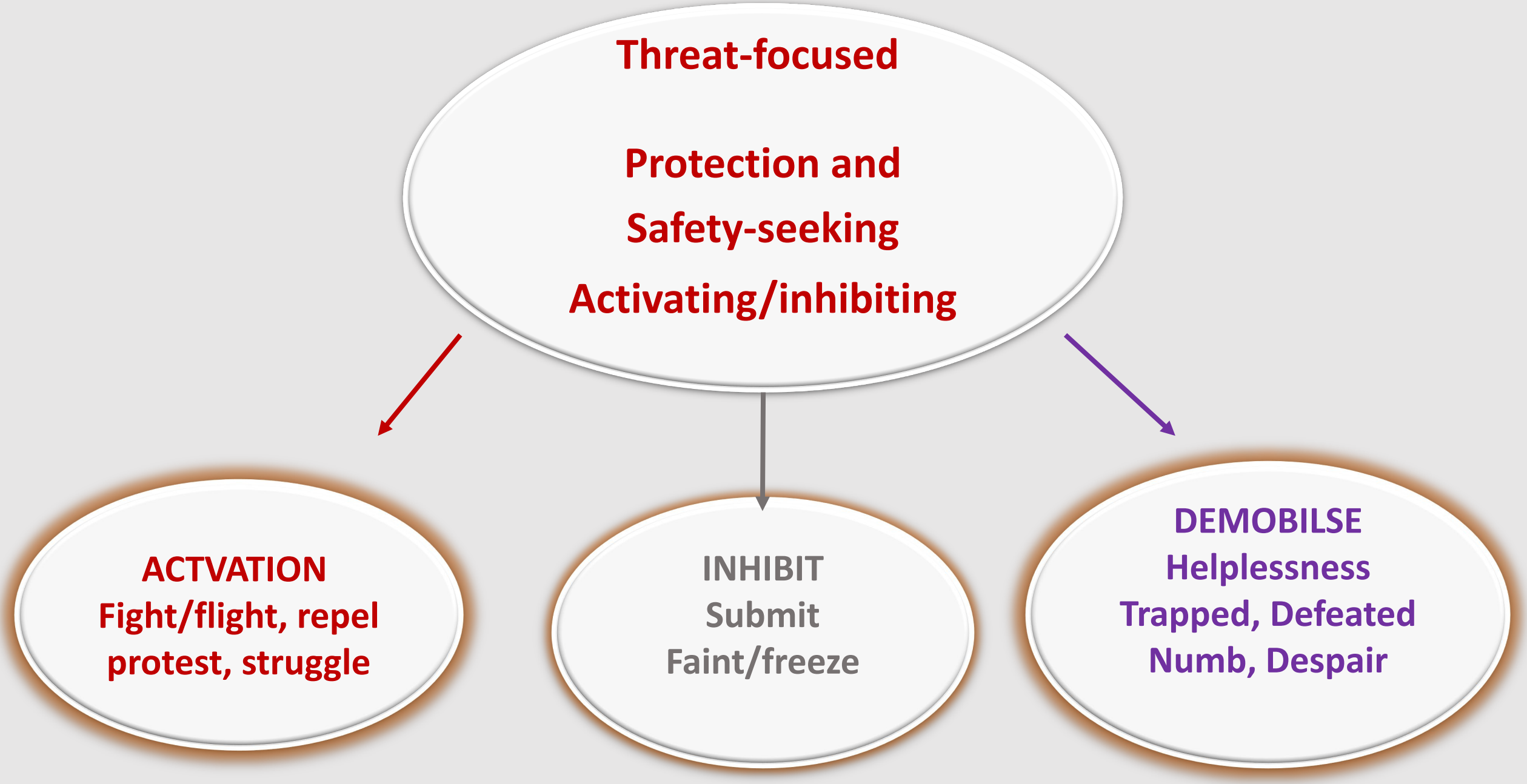
Three basic life tasks and motives



Emotions and life tasks and motives



Types of Threat Defence



Different trainings have different physiological effects
Singer & Engert 2019

Examples of New Brain Cognitive Competencies

No-Social Reasoning	*Social Reasoning*	*Consciousness of consciousness*
language/symbols thinking in time, predicting, imagining, conceptualising	mentalise role sensitivity, role responsiveness	subjective self-awareness, observer mind, knowing intentionality mindful

Defence mechanisms

Projection,
Avoidance
Denial,
Dissociation,

Old Brain Functions

Motives: harm-avoidance, food, sex, caring, status
Emotions: anger, anxiety, sadness, joy
Behaviours: fight, flight, shut down, courting, caring

Social Mentalities, Motives and Algorithms

Social mentalities are special social motives with specific processing systems
Social mentalities have to co-evolve relationships to co-regulate minds and bodies

For caregiving to evolve there needs to be evolution of a desire *to care* and in the recipient to *respond to caring*

THE Compassionate Mind FOUNDATION

Social mentality theory
Social mentalities have to co-evolve relationships to co-regulate minds and bodies

For sex to evolve there has to be mutual sending and receiving that co-regulates physiological states

Remember – most mammals live in groups

Our Minds Are Full of Motives

Animals compete for resources - food, sex, shelter - the usual things!

In order to stop constant injurious fighting, brains have evolved ways for animals to work out their social position and then live accordingly

This is the

competitive social mentality


if threatened by a more
powerful other
then submit

Social mentality theory
Social mentalities have to co-evolve relationships to co-regulate minds and bodies

Our minds have evolved to have both potentials

- ✓ to be a care giver and a care receiver
- ✓ to be a sexually attractive and the sexual responder
- ✓ to be an aggressor and to be subordinate

Evolved motives have stimulus-response algorithms (*if* A *then* do B)
Evolved with physiological 'wiring'
Our minds are full of algorithms

if **predator** ***then*** **activate arousal and run/hide**

if **food** ***then*** **approach salivate and eat-digest**

if **reproduction** ***then*** **approach and court**

if **(infant) distressed/needing** ***then*** **act to alleviate**

Defensive Strategies

Non Social
Learned helplessness
Seligman (1975. p.53-54)

When a traumatic event first occurs, it causes a heightened state of emotionality that can loosely be called fearful. This state continues until one of two things happens; if the subject learns that he can control the trauma, fear is reduced and may disappear altogether; or if the subject finally learns he cannot control the trauma, fear will decrease and be replaced by depression.

Activation

↓

Demobilisation

Social Behaviour More Complex

For attachment behaviour Bowlby (1969) highlighted

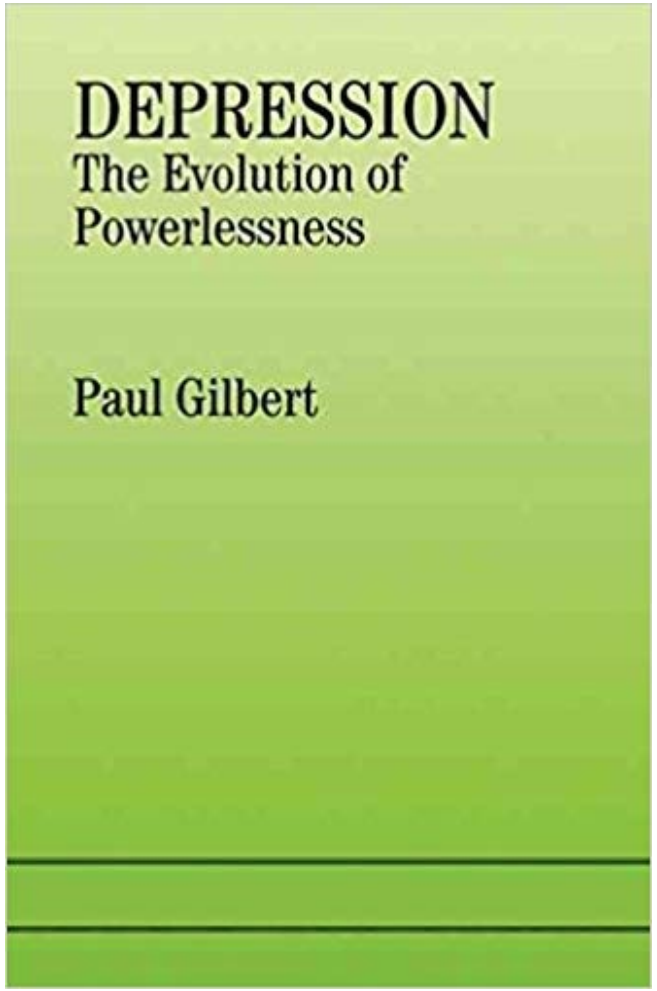
Protest and despair

Despair when care-seeking or protest is dangerous or fails

Social Behaviour More Complex

For competitive behaviour and dominant-subordinate hierarchies to evolve subordinates have to close down under threat

The involuntary subordinate strategy
The involuntary defeat strategy



Learned helplessness

Social Learned helplessness

- Attachment loss
- Social Disconnection
- Yearning

Consequences

Protest despair

Involuntary subordinate and defeat

- Loss of Social rank & status
- Shame
- Bully and Oppression

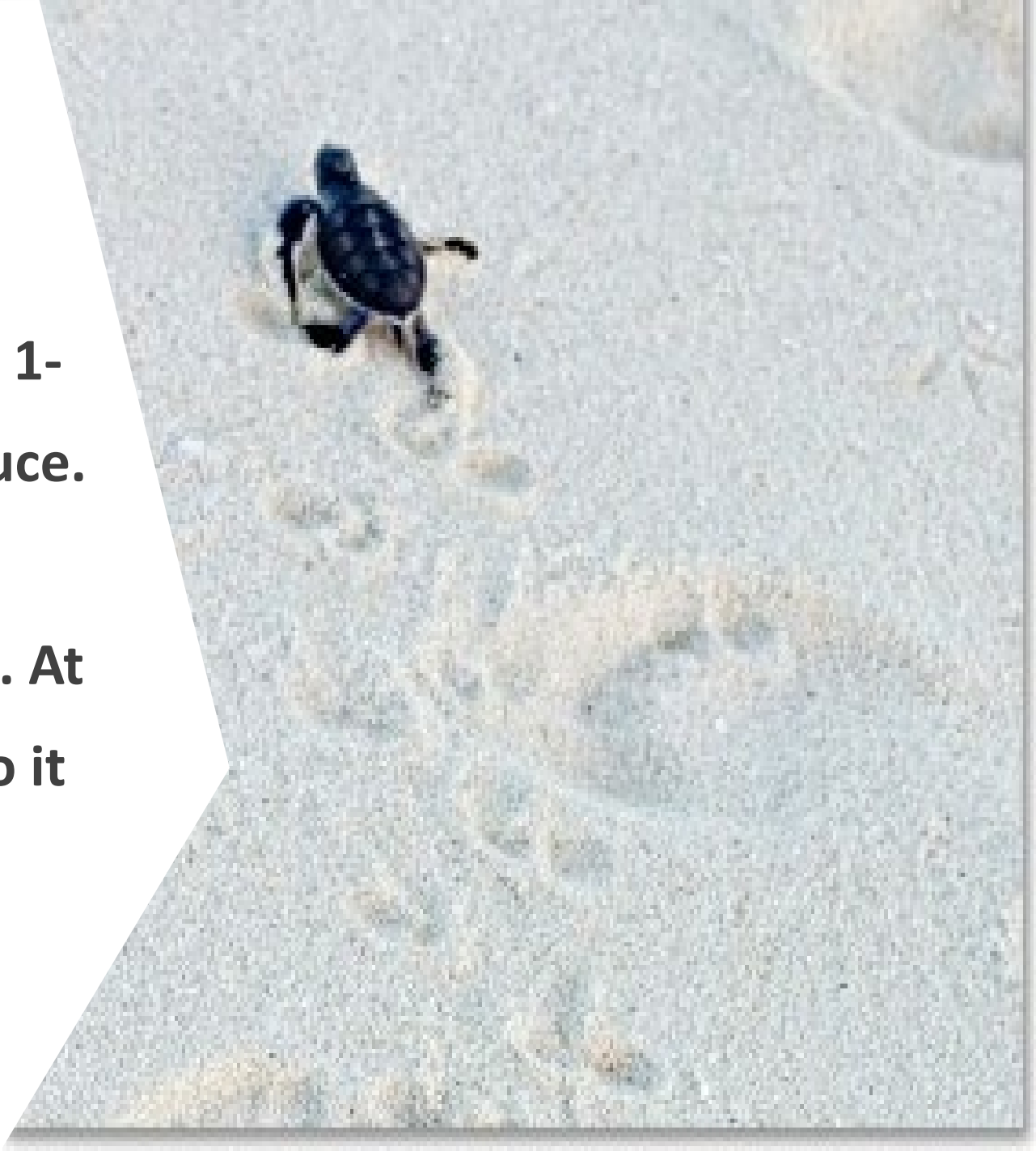
Evolutionary and social regulators of strategies underpinning brain state

Origins of the algorithms for compassion

How does care and compassion change threat processing?

Evolved Origins of Care-compassion

In species without attachment only 1-2% make it to adulthood to reproduce. Threats come from ecologies, food shortage, predation, injury, disease. At birth individuals must be able to ‘go it alone’, be mobile and disperse.



Caring has a long evolution history – first stage *protection*

algorithm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Some Features of Caring Motivation

The Mother is

- **Paying attention**
- **Feeding**
- **Providing**
- **Protecting - rescuing**
- **Temperature regulation**
- **Comforting - soothing**
- **Encouraging (learning and risk taking)**
- **Mentoring**
- **Playing**

Appropriate actions and feedback

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Different aspects of caring stimulate different physiological systems

The *if* A *then* do B algorithm for caring

Feature detectors linked to actions

The Mother is

- (A) Sensitive to the suffering/distress and needs of her infant and can (B) act to try to alleviate and prevent it

- The archetypal nature of maternal caring is the template for the evolution of all subsequent adaptations

- An array of evolved complex physiological systems to support this archetypal motivational process

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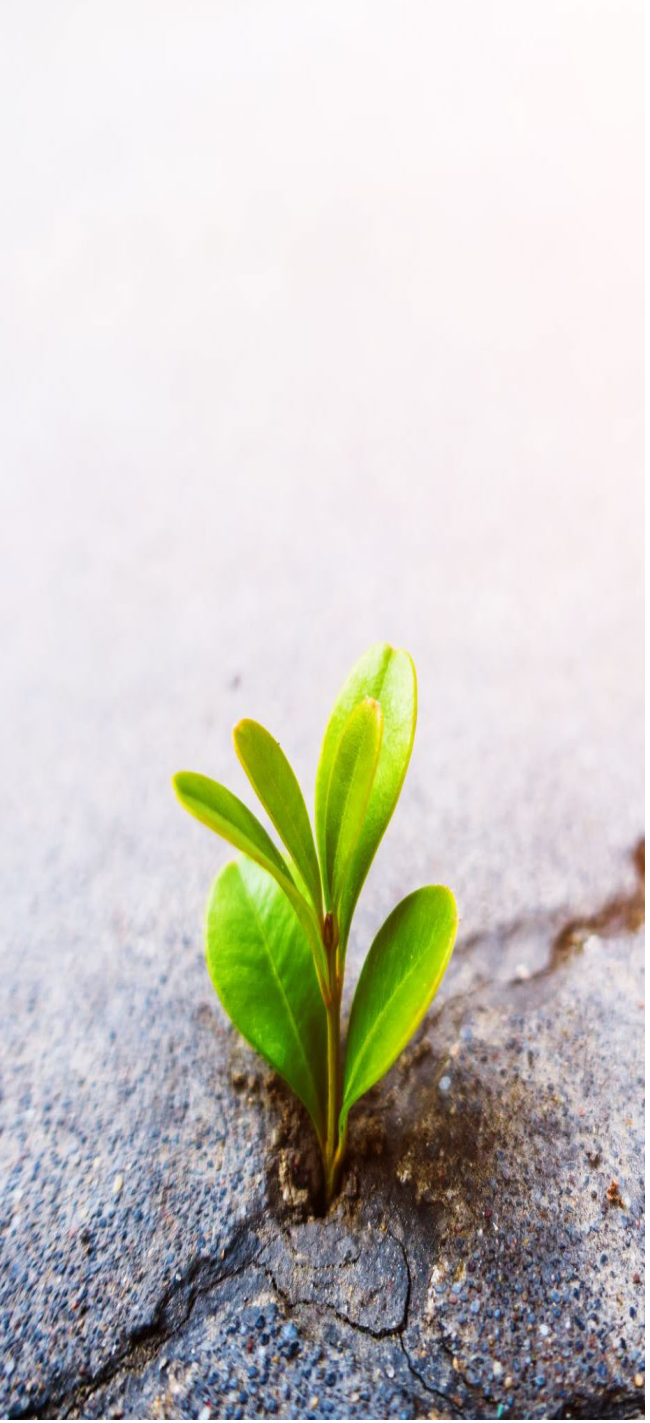
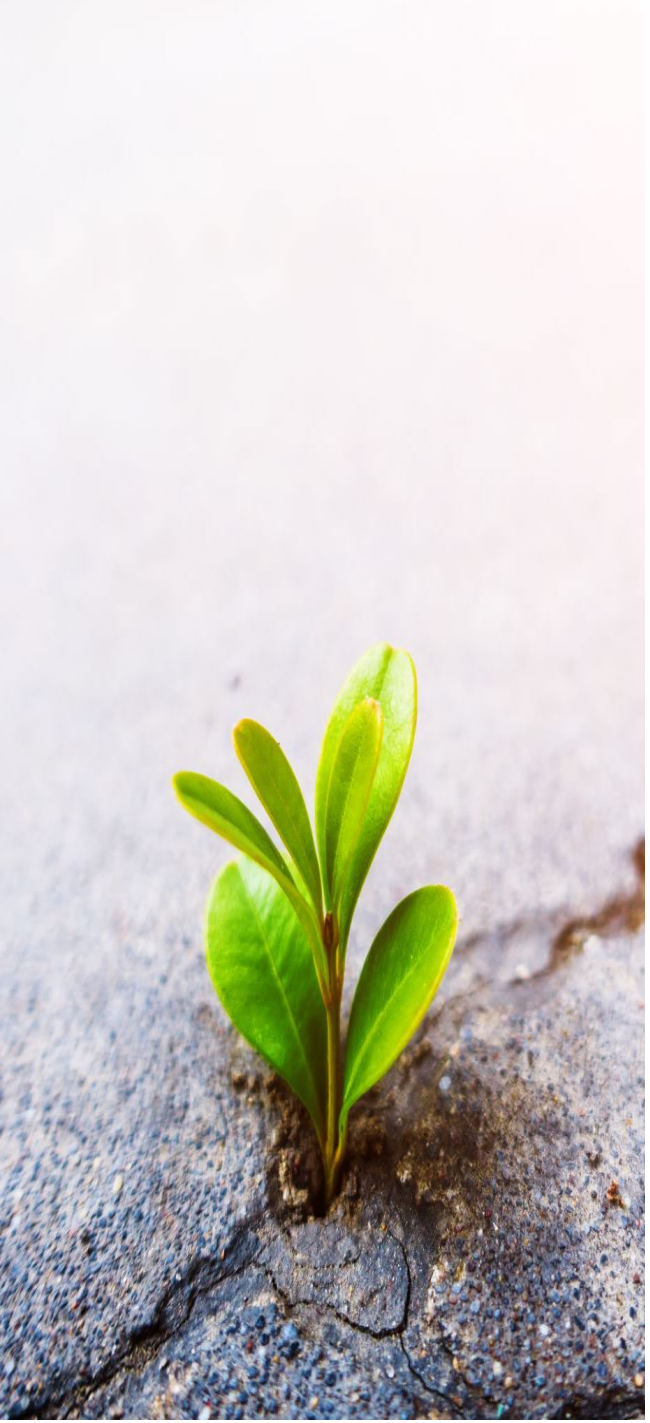


Compassion can be defined in many ways but in CFT the focus is (now) its basic algorithm

As a sensitivity to the suffering/distress of self and others with a commitment to try to alleviate and prevent it

- **Stimulus detection and engagement**
  - **To approach, understand and (how to) engage with suffering/distress - looking into its causes - COURAGE**
- **Taking action**
  - **To work to alleviate and prevent suffering/distress – work to acquire wisdom and skills - DEDICATION and WISDOM**

Each more complex than might at first seem



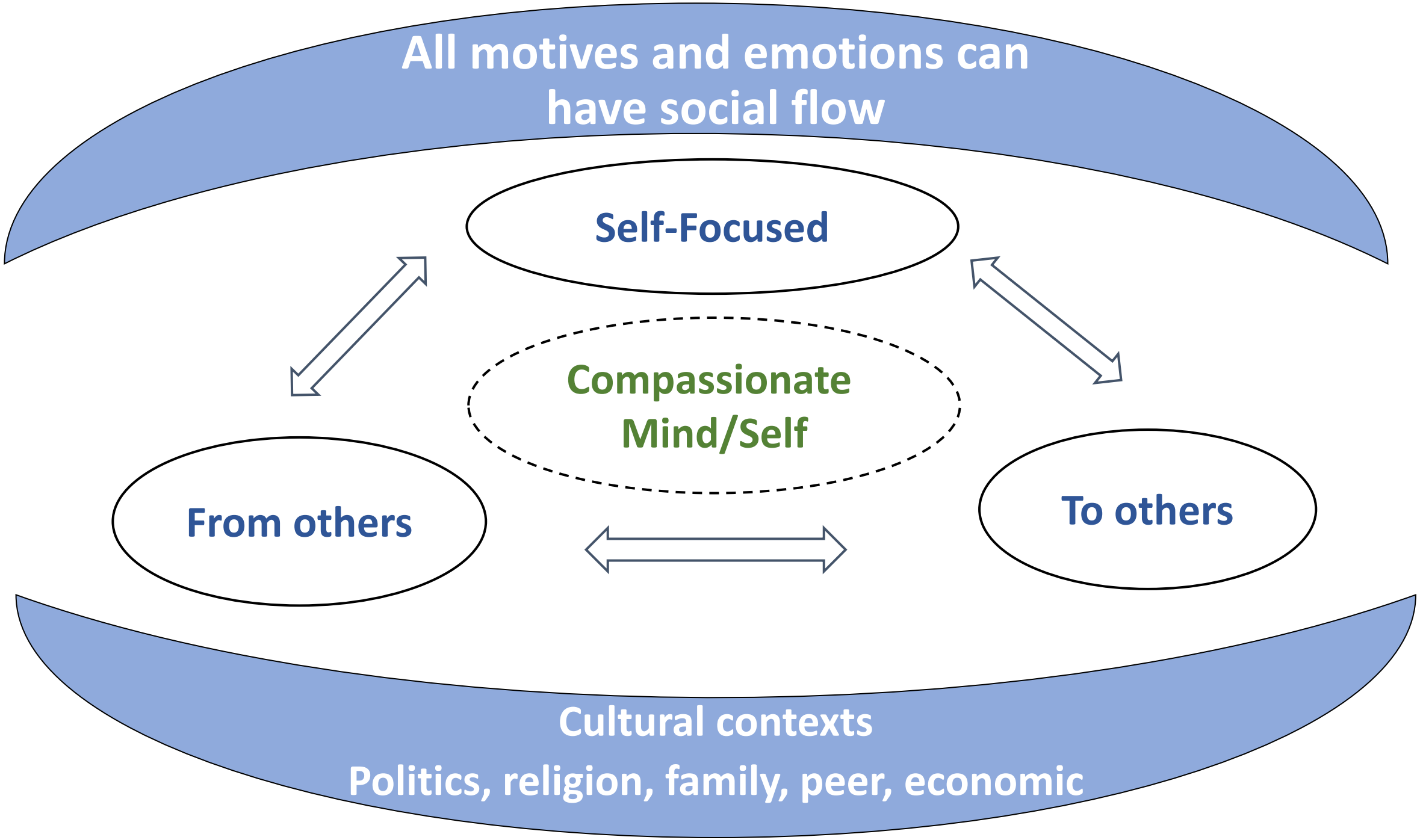
Compassion can be defined in many ways but in CFT the focus is (now) its basic algorithm

As a sensitivity to the suffering/distress of self and others with a commitment to try to alleviate and prevent it

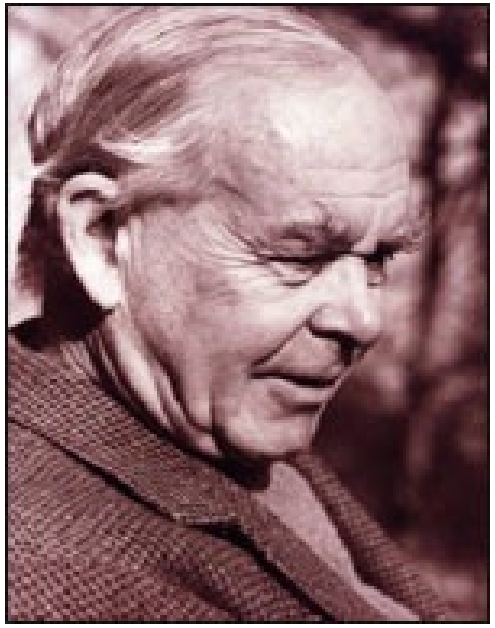
Is different from:

- Kindness
- Mindfulness
- Empathy
- Love

Ways of being compassionate


All motives and emotions can have social flow
Self-Focused
Compassionate Mind/Self
From others
To others
Cultural contexts
Politics, religion, family, peer, economic

The psychological functions of evolved caring



1907-1990

One of the most influential psychiatrists of the modern age

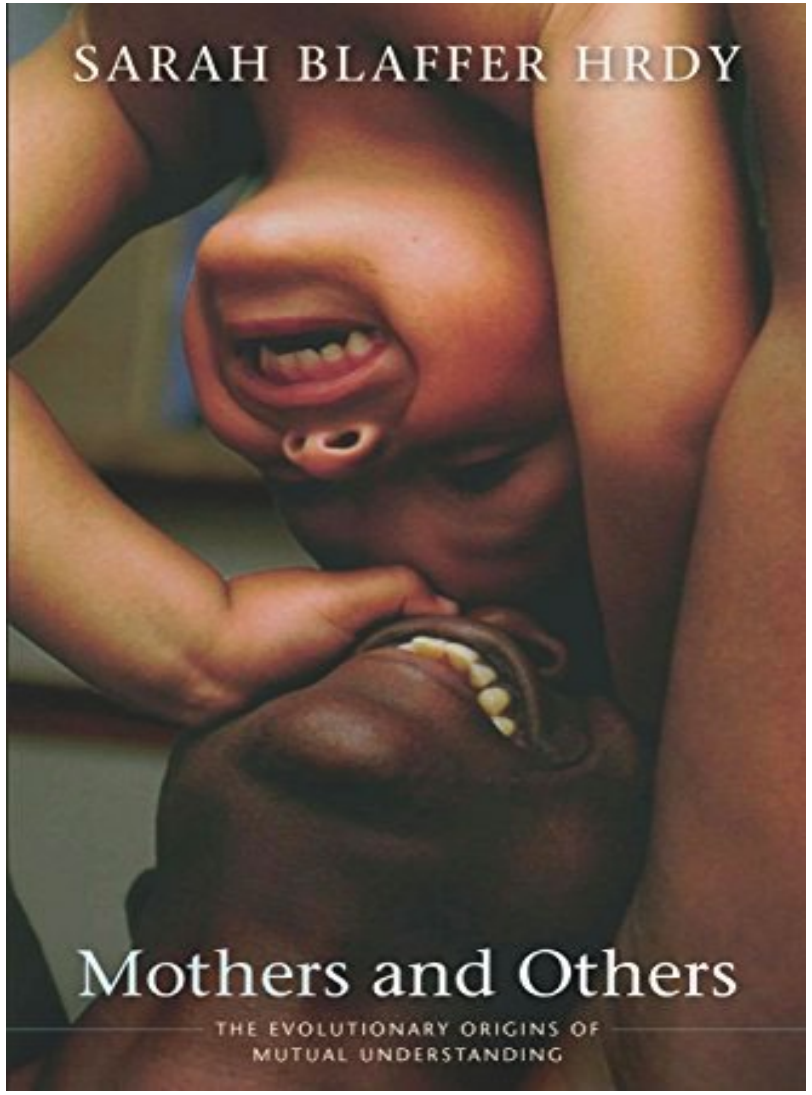
1913-1999

Developed the first classification of attachment style

- *Proximity seeking* – desire closeness, to be with
- *Secure base* – source of security and guidance to go out, explore and develop confidence
- *Safe haven* – source of comfort and emotion regulation
- Social signals are the drivers (social mentality)
- Lack of these in early life can seriously disrupt motivation, emotion and self regulation systems

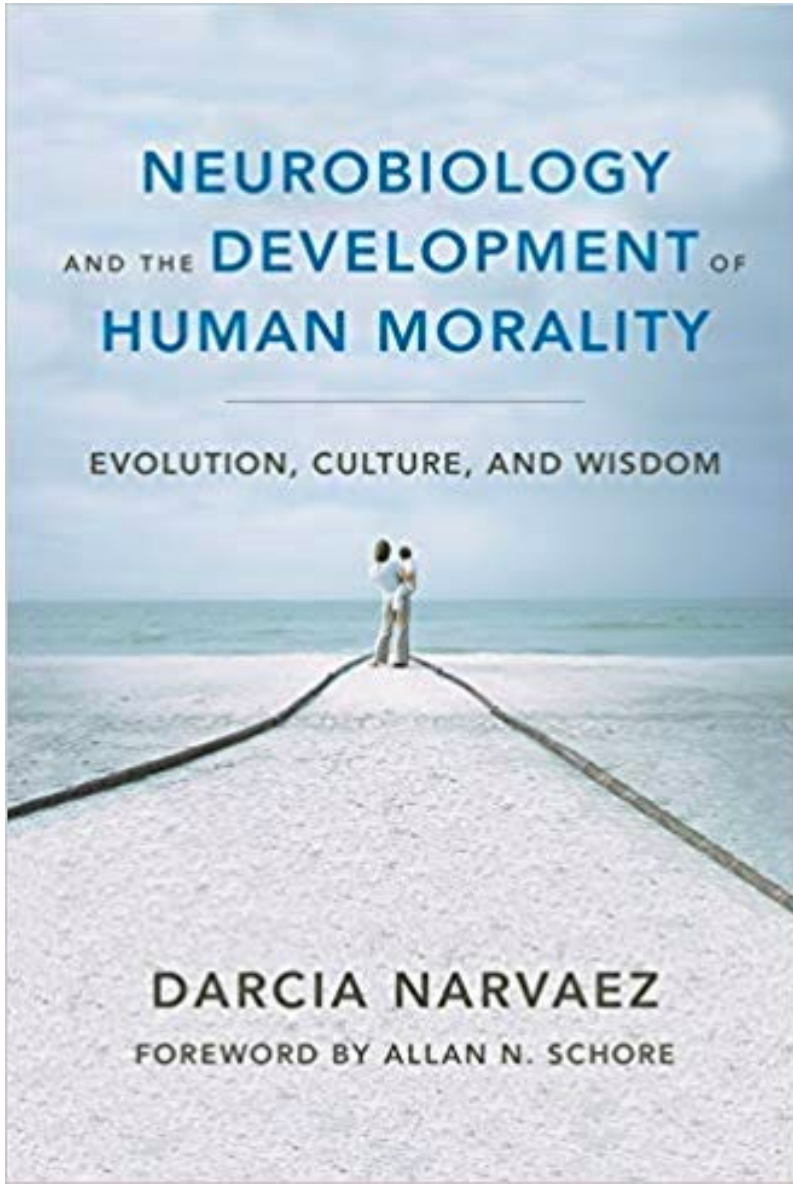
Secure base play is crucial to the mind

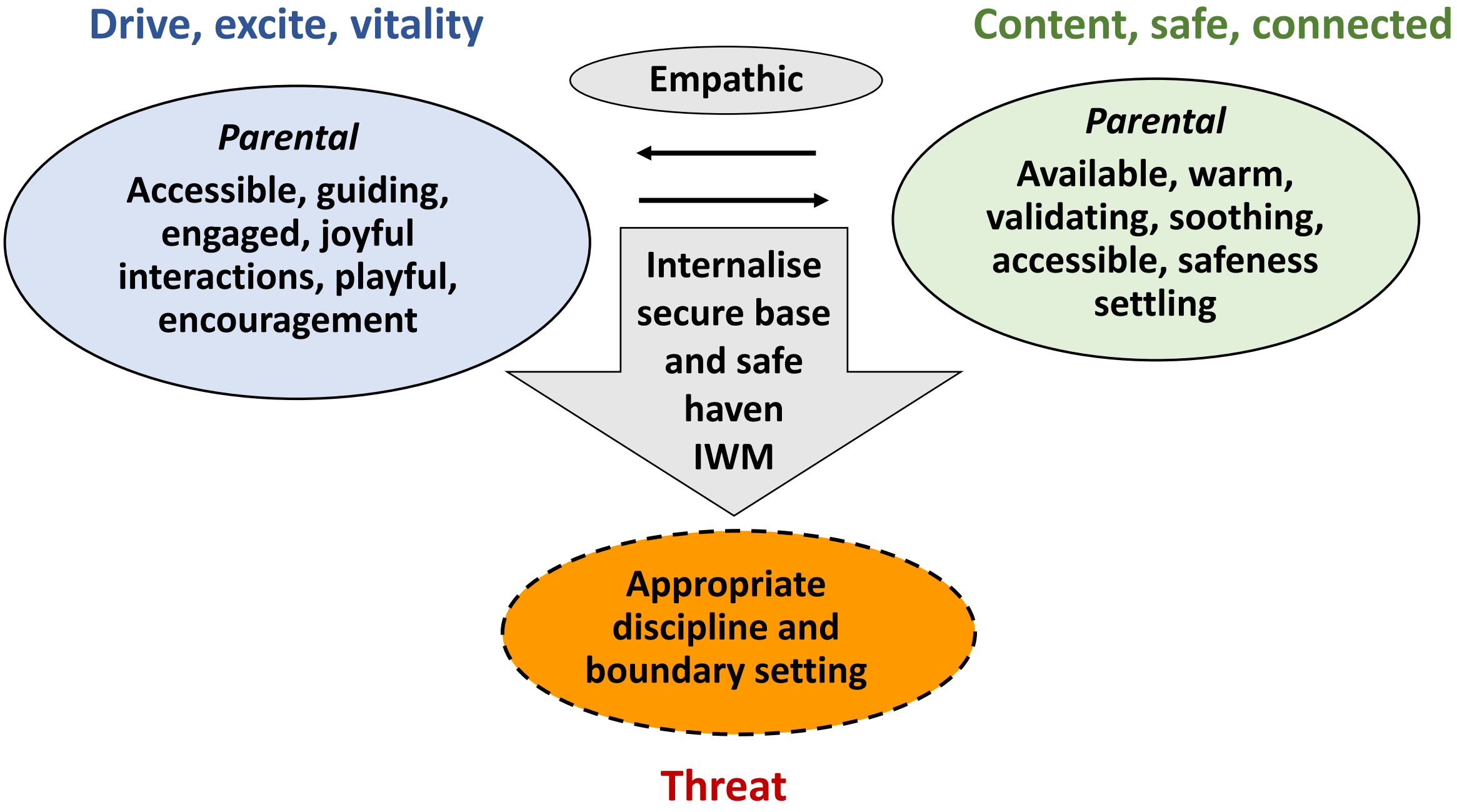
Beyond attachment and caring in the hunter-gather context

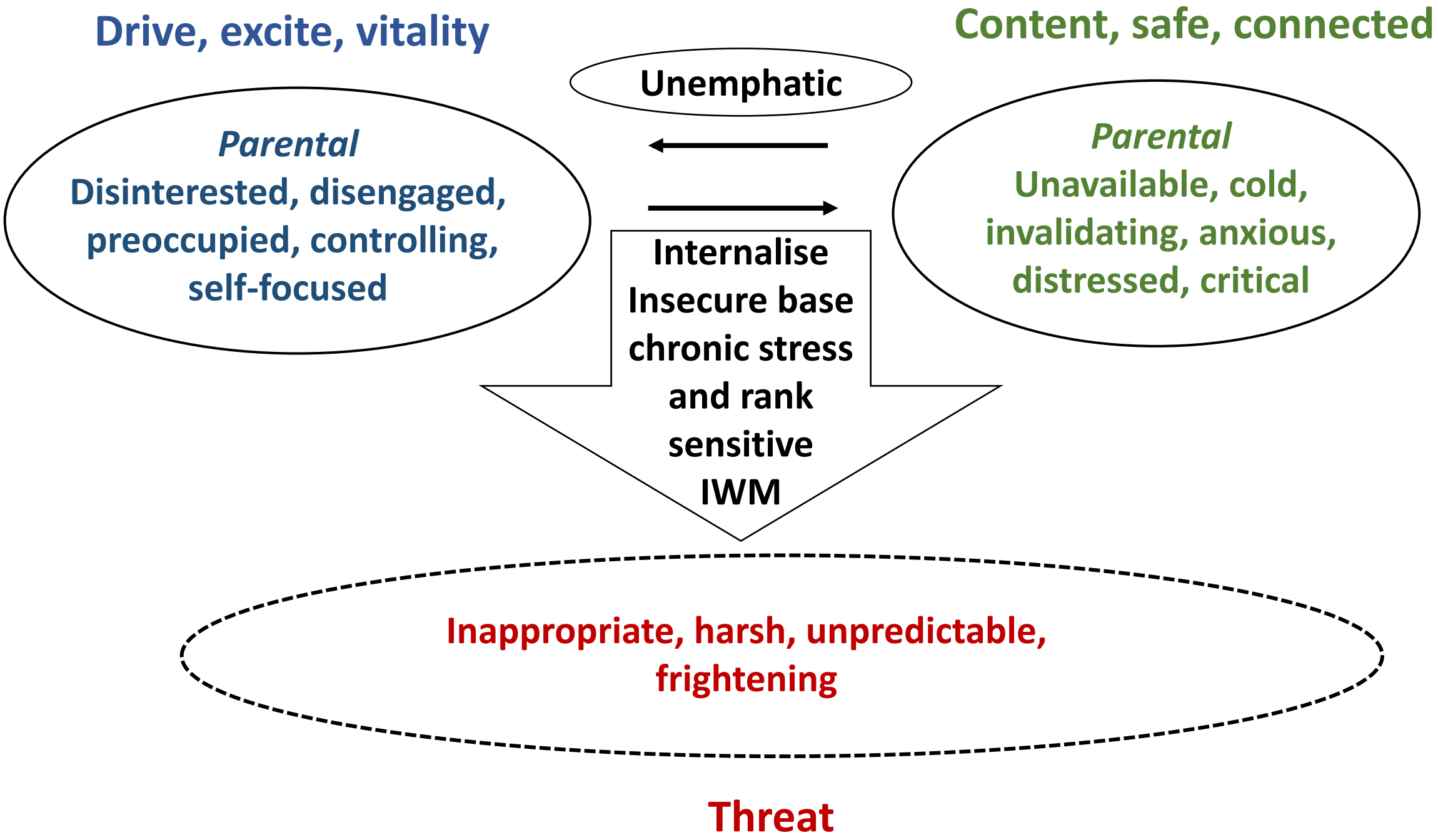


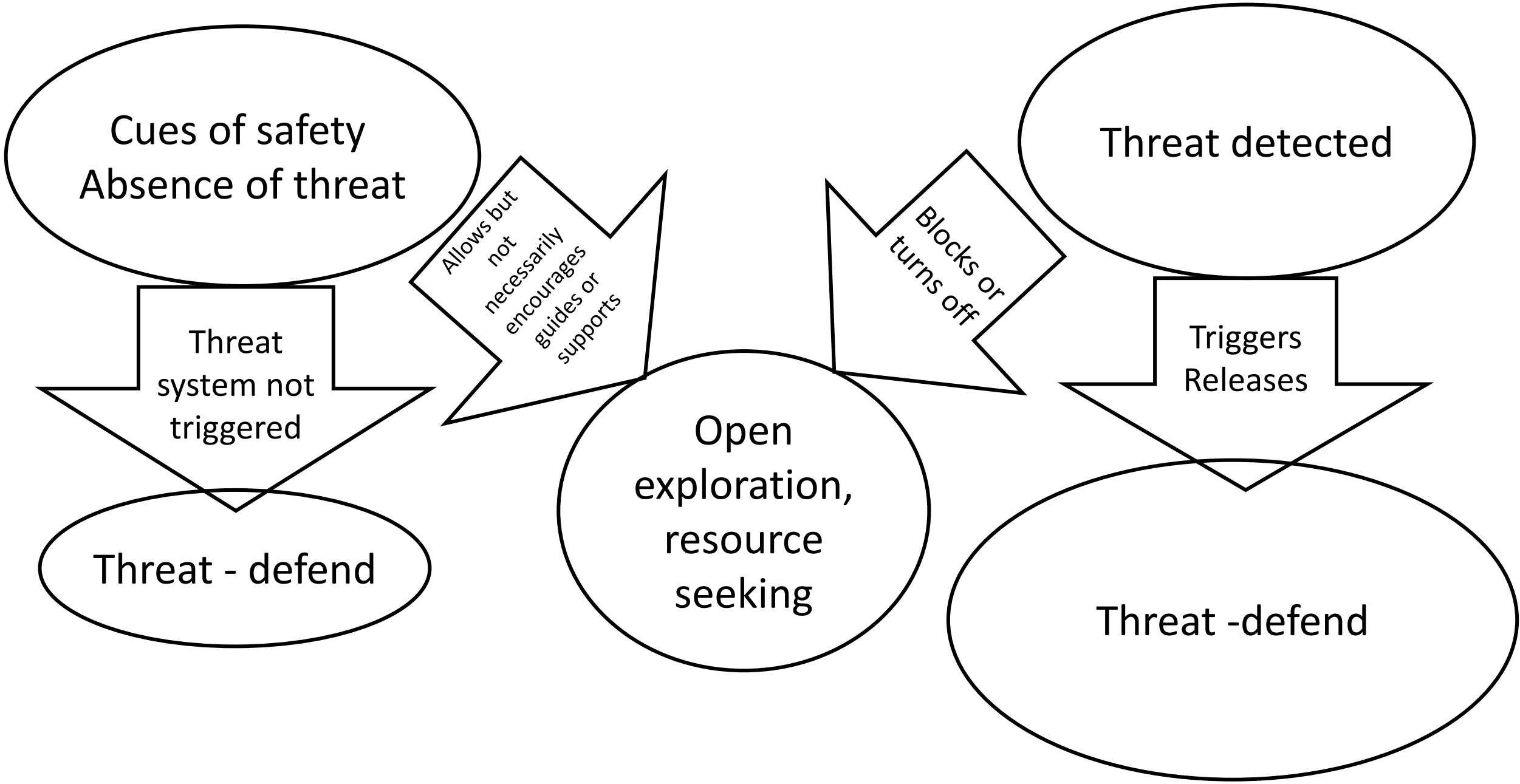
The evolution of the caring, mutually supportive community Supported human social intelligences

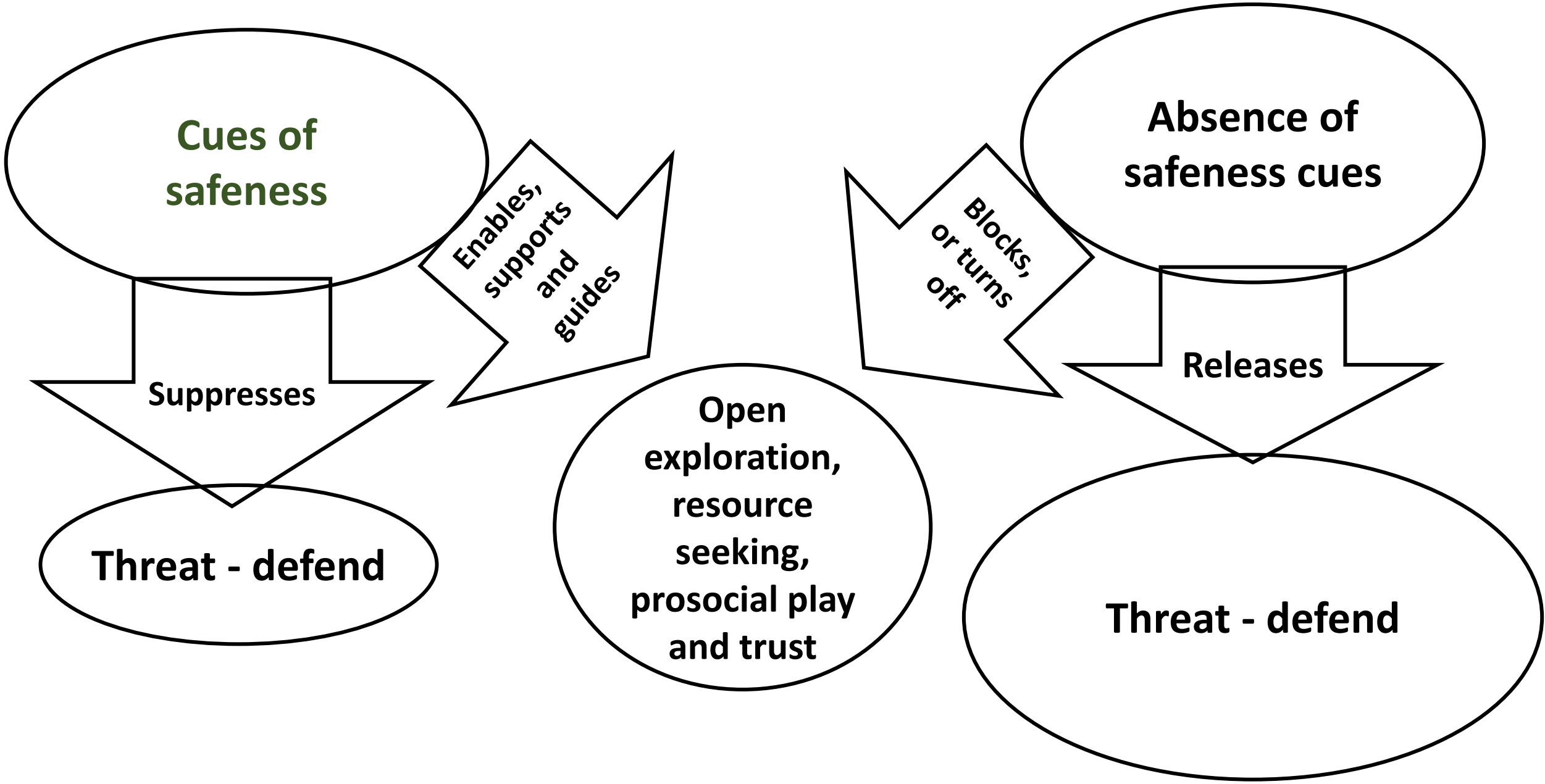
Caring and sharing psychology regulated by cultural and political processes




Drive, excite, vitality
Content, safe, connected
Empathic
Parental
Accessible, guiding, engaged, joyful interactions, playful, encouragement
Parental
Available, warm, validating, soothing, accessible, safeness settling
Internalise secure base and safe haven IWM
Appropriate discipline and boundary setting
Threat


Drive, excite, vitality
Content, safe, connected
Unemphatic
Parental
Disinterested, disengaged, preoccupied, controlling, self-focused
Parental
Unavailable, cold, invalidating, anxious, distressed, critical
Internalise Insecure base chronic stress and rank sensitive IWM
Inappropriate, harsh, unpredictable, frightening
Threat

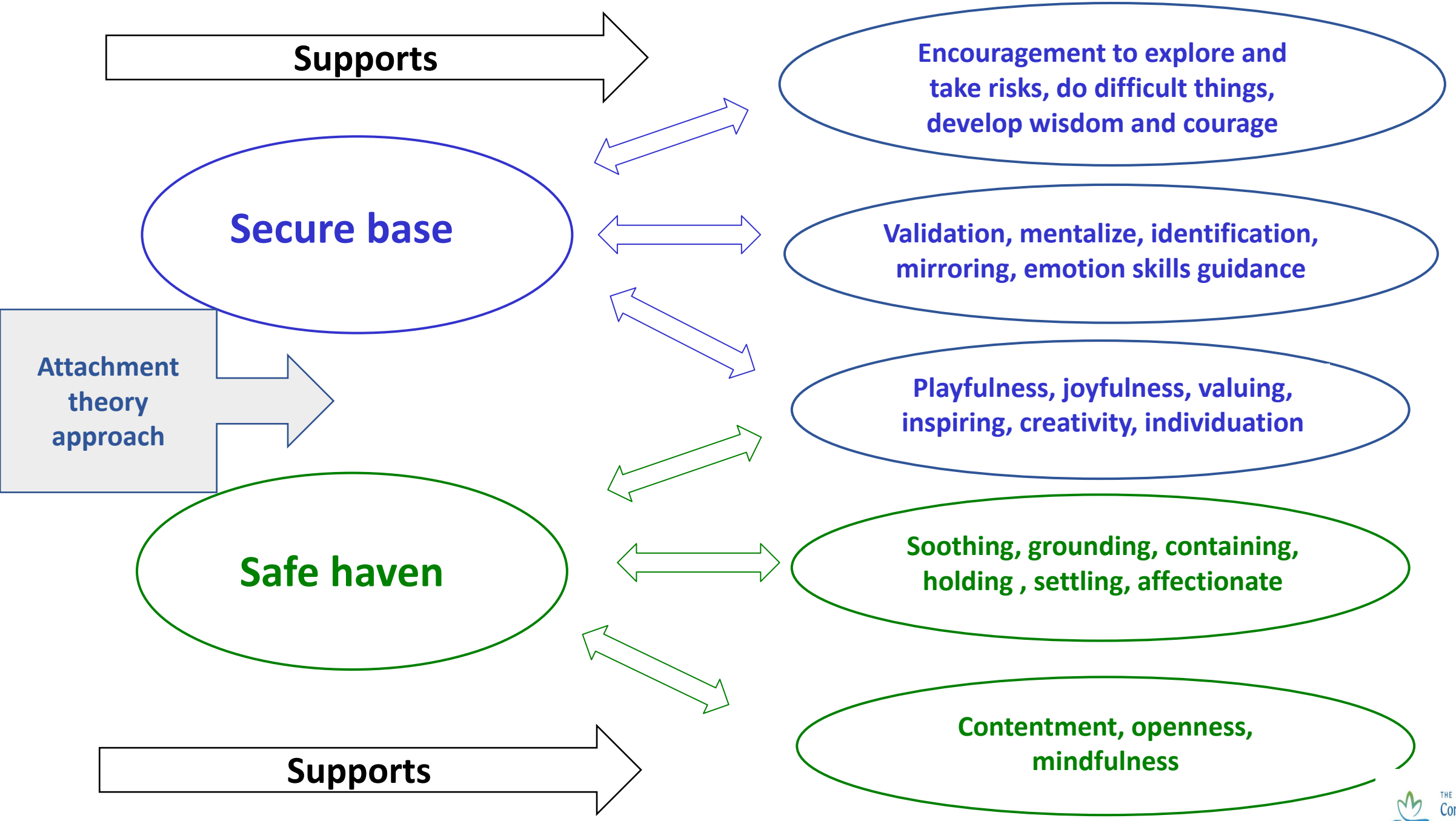

Cues of safety
Absence of threat
Threat system not triggered
Threat - defend
Allows but not necessarily encourages guides or supports
Open exploration, resource seeking
Blocks or turns off
Threat detected
Triggers Releases
Threat -defend

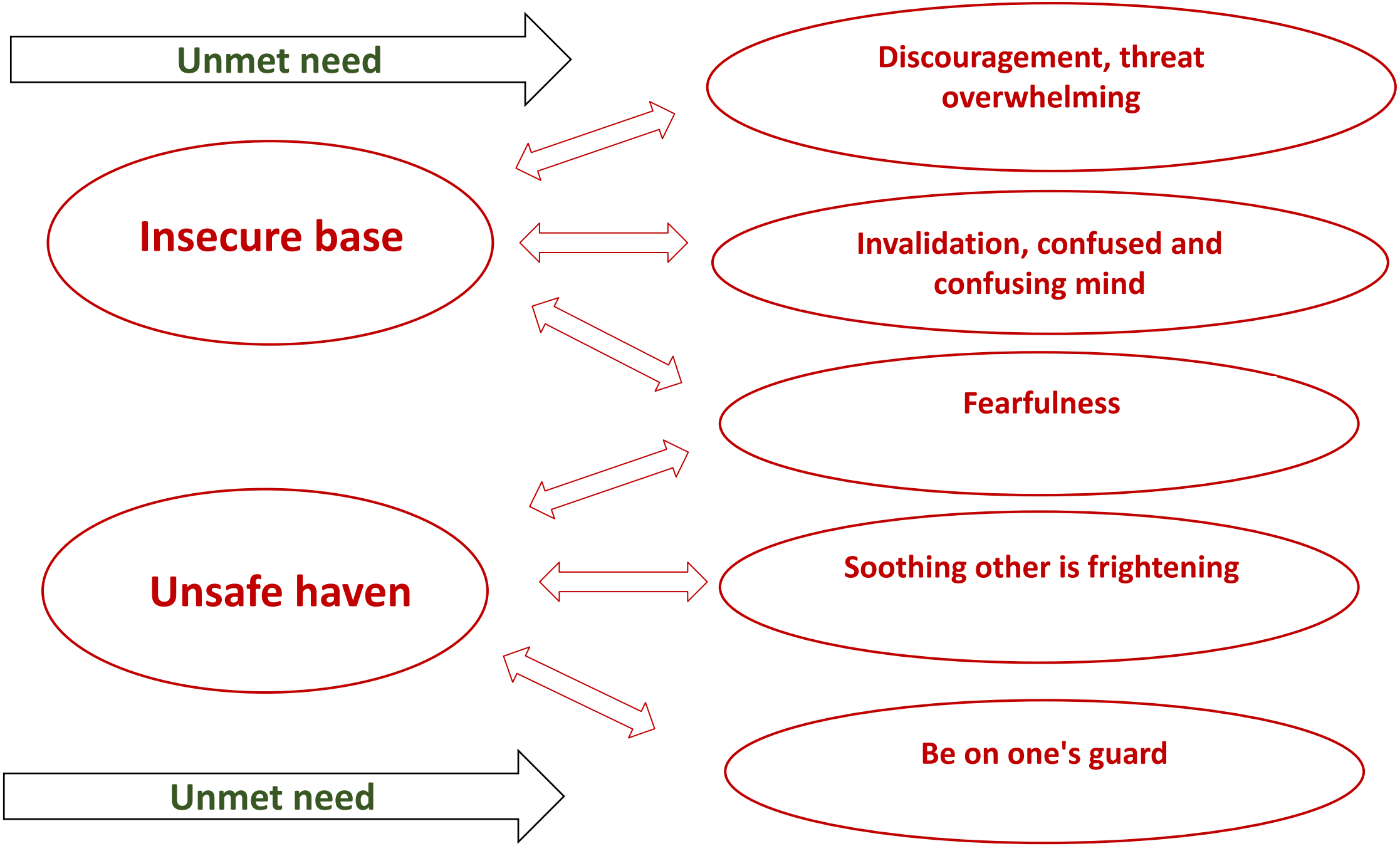

Cues of safeness
Suppresses
Threat - defend
Enables, supports and guides
Open exploration, resource seeking, prosocial play and trust
Blocks, or turns off
Absence of safeness cues
Releases
Threat - defend

Safety is for protection and harm avoidance

Safeness is for resting through to open exploration

Completely different functions and physiologies



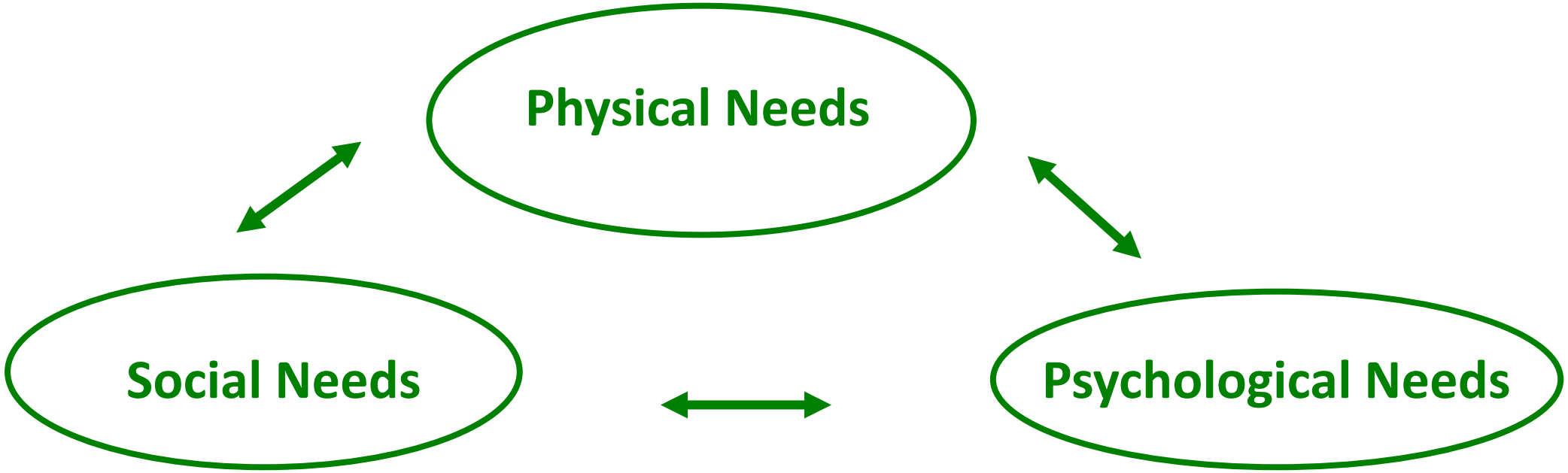

Unmet need
Discouragement, threat overwhelming
Insecure base
Invalidation, confused and confusing mind
Fearfulness
Unsafe haven
Soothing other is frightening
Be on one's guard
Unmet need

Compassion and Needs

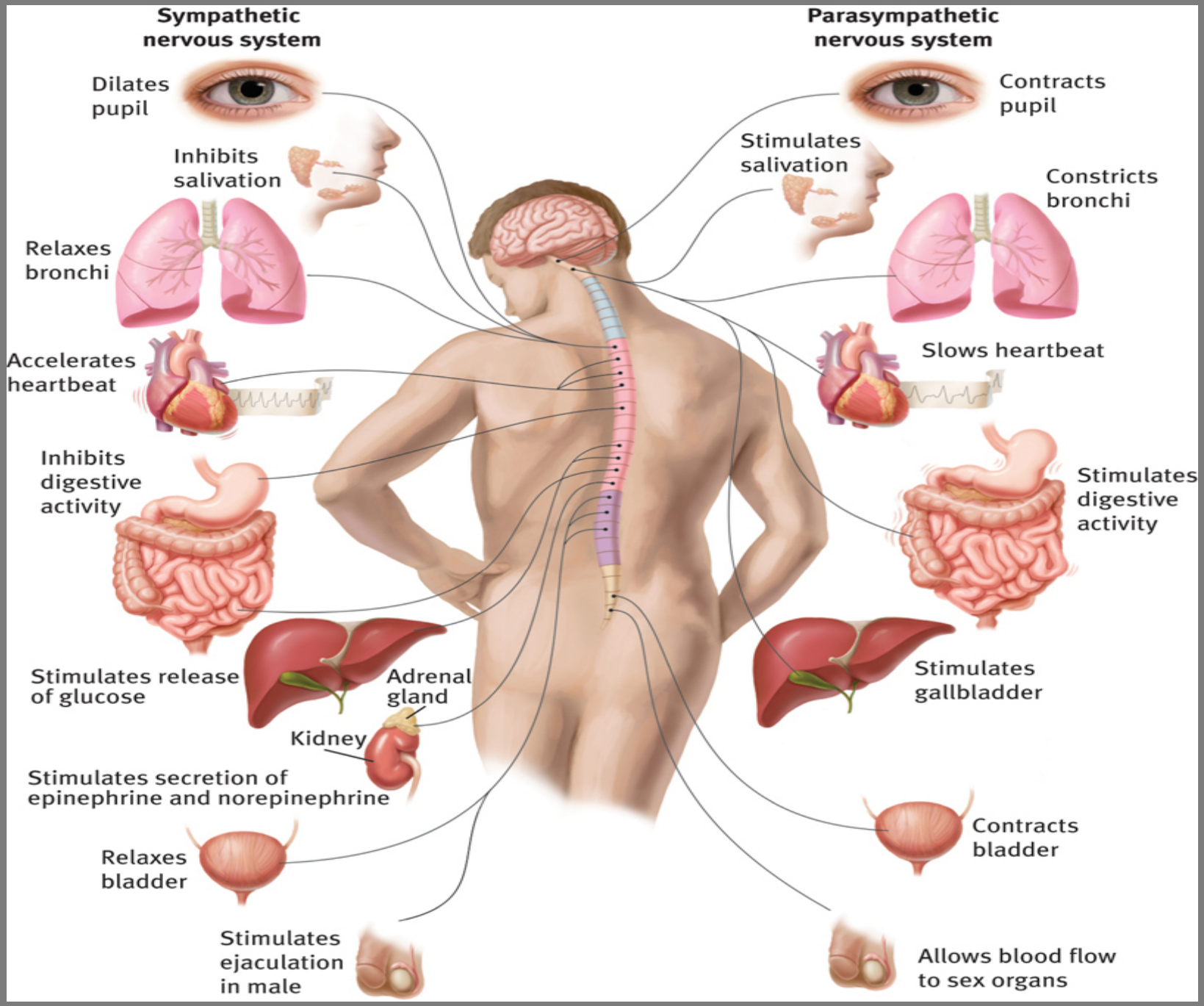
If needs are not met suffering soon follows

Anticipation reduces suffering

Insight plus motivation



Algorithms are Physiological



SNS Activation for threat and drive

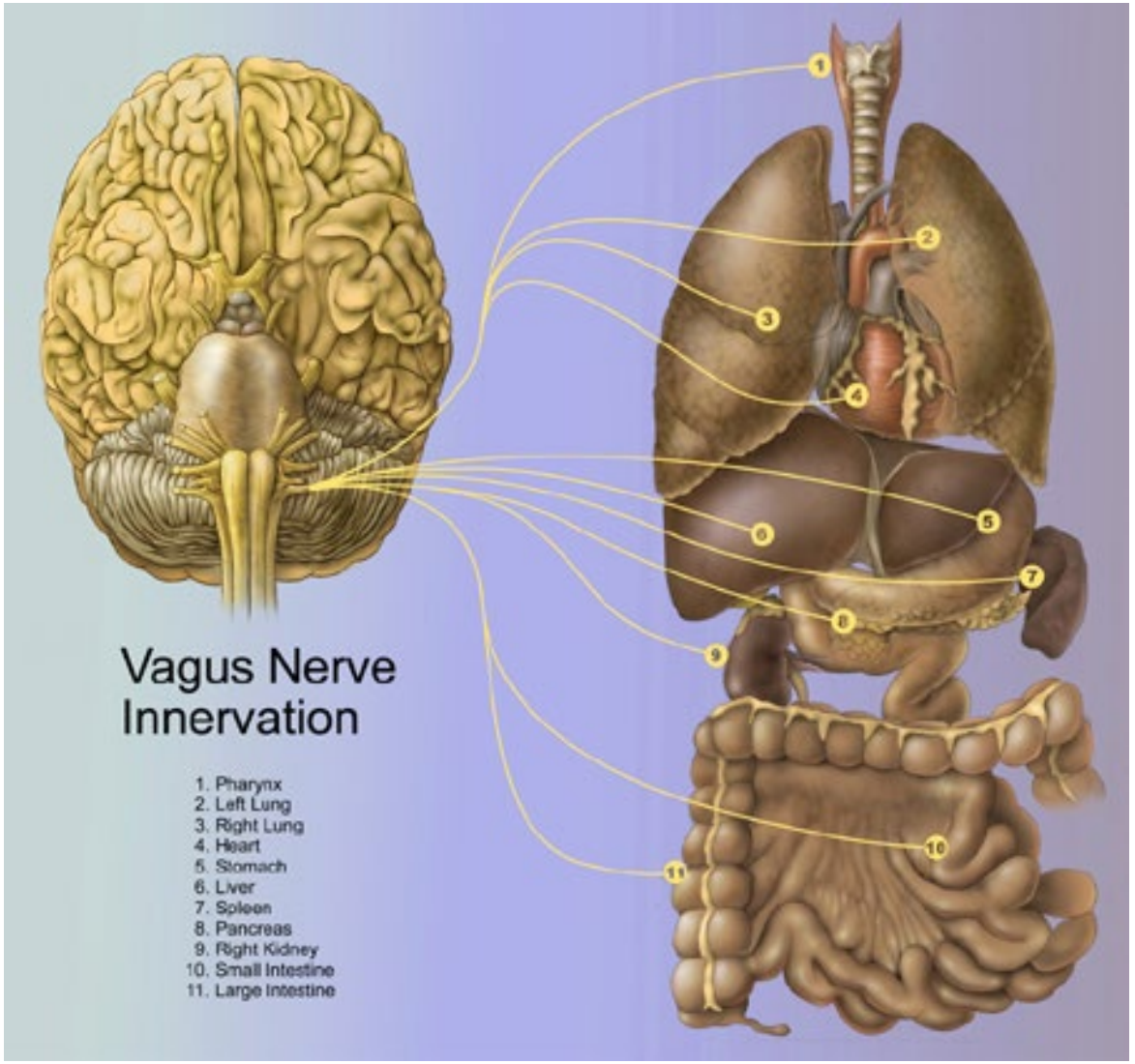
Appropriate balance

PNS Slowing settling rest and digest

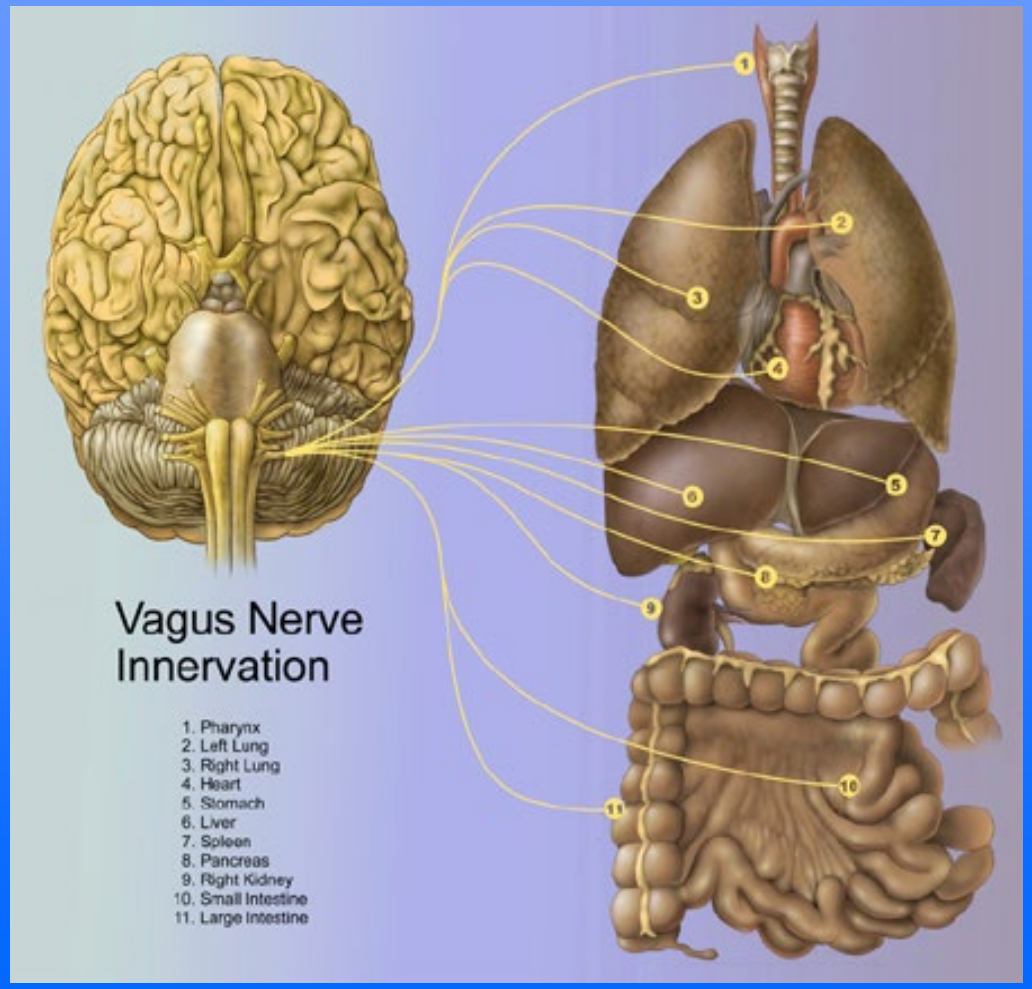
The Vagus Nerve

Safeness

Caring social connections and the parasympathetic system



Safeness -The Vagus Nerve



- Vagal tone predicts:
  - Calm behavioural states
  - Experiencing more positive emotional and social states
  - Lower blood pressure etc.
- Rate, depth and rhythm of the breath
- Mindfulness increases ‘vagal tone’
- Associated with affiliation, tend & befriend, voice tone and face
- Responsive to cues of safeness

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Oxytocin Pathways and the Evolution of Human Behavior

C. Sue Carter

Department of Psychiatry, University of North Carolina School of Medicine, Chapel Hill, North Carolina 27599; and Department of Psychology, Northeastern University, Boston, Massachusetts 02115; email: sue_carter@med.unc.edu

Oxytocin Nurture
Vasopressin Protect

?

Attachment and Affiliation

The evolution of attachment and affiliative behaviour created a range of neurophysiological and physiological structures (oxytocin, vagus nerve) that when activated organise the mind, help calm threat processing and promote prosociality and well-being

Compassion focused therapy stimulates and 'strengthens' these faculties and qualities of mind

Three very different threat regulating systems

Direct threat detection and action
Via

Amygdala
HPA
sympathetic arousal etc

Fight, flight freeze submit

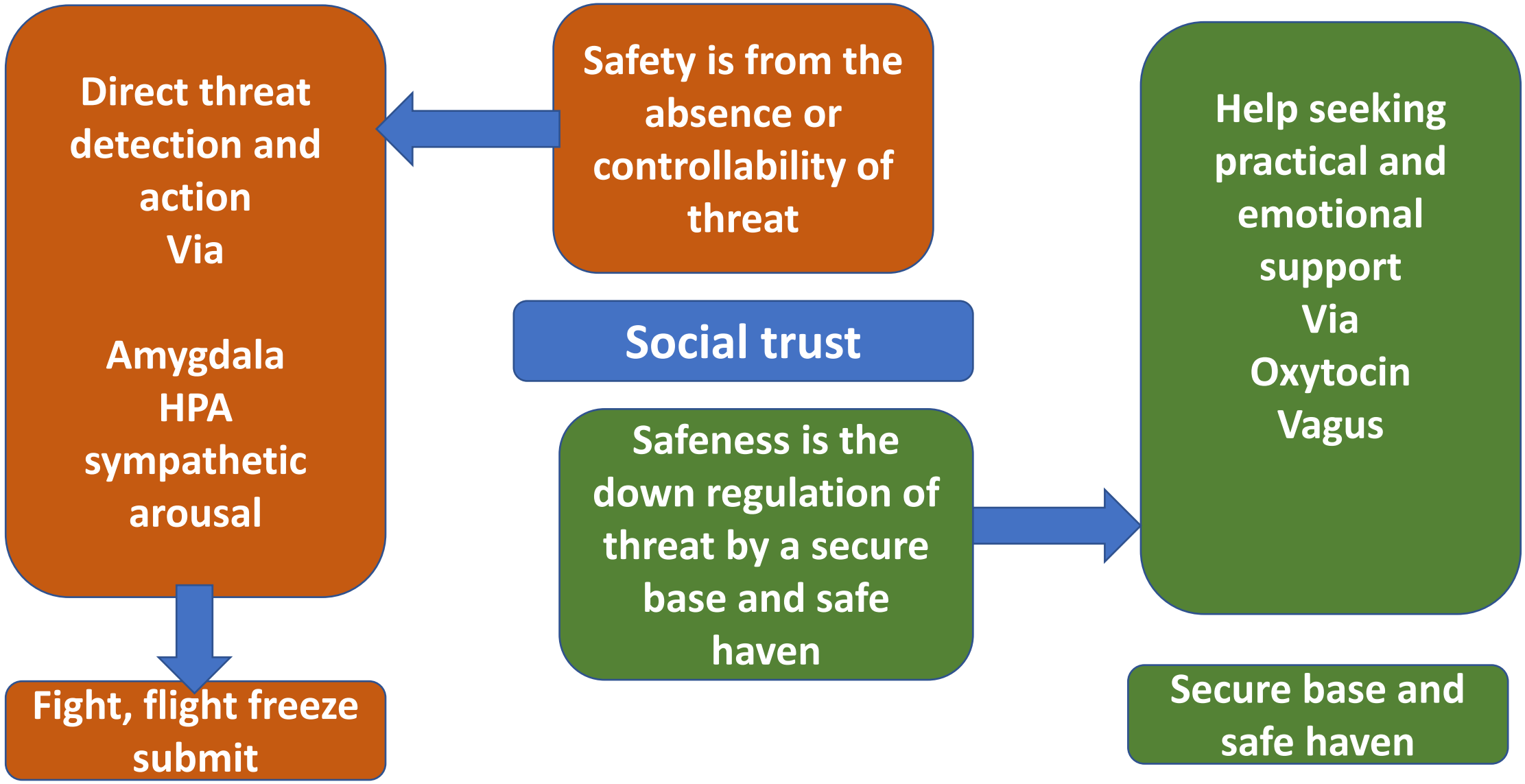
Acquire skills and resources to cope or prevent threat/harm

Engagement and practise

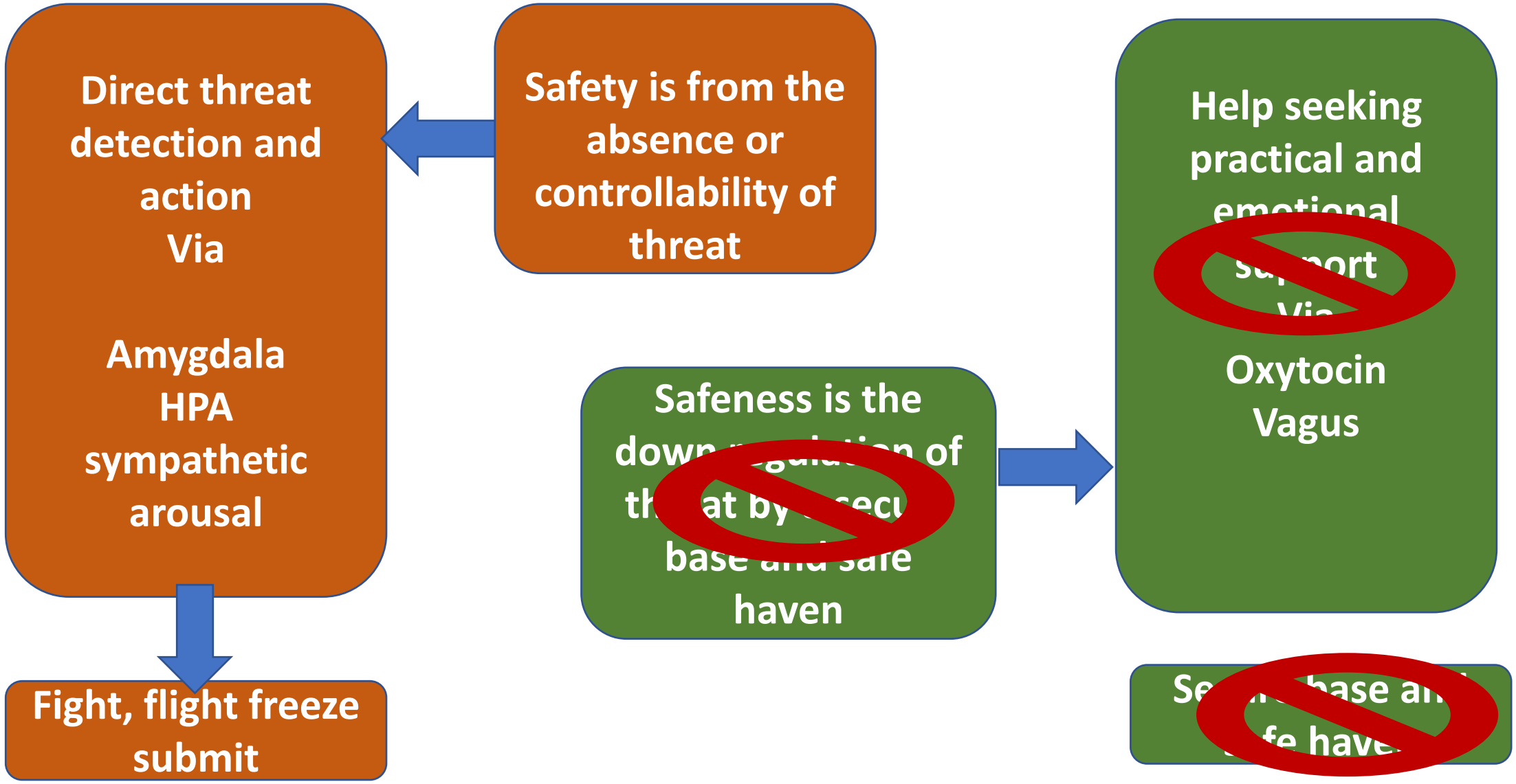
Help seeking practical and emotional support
Via
Oxytocin
Vagus etc

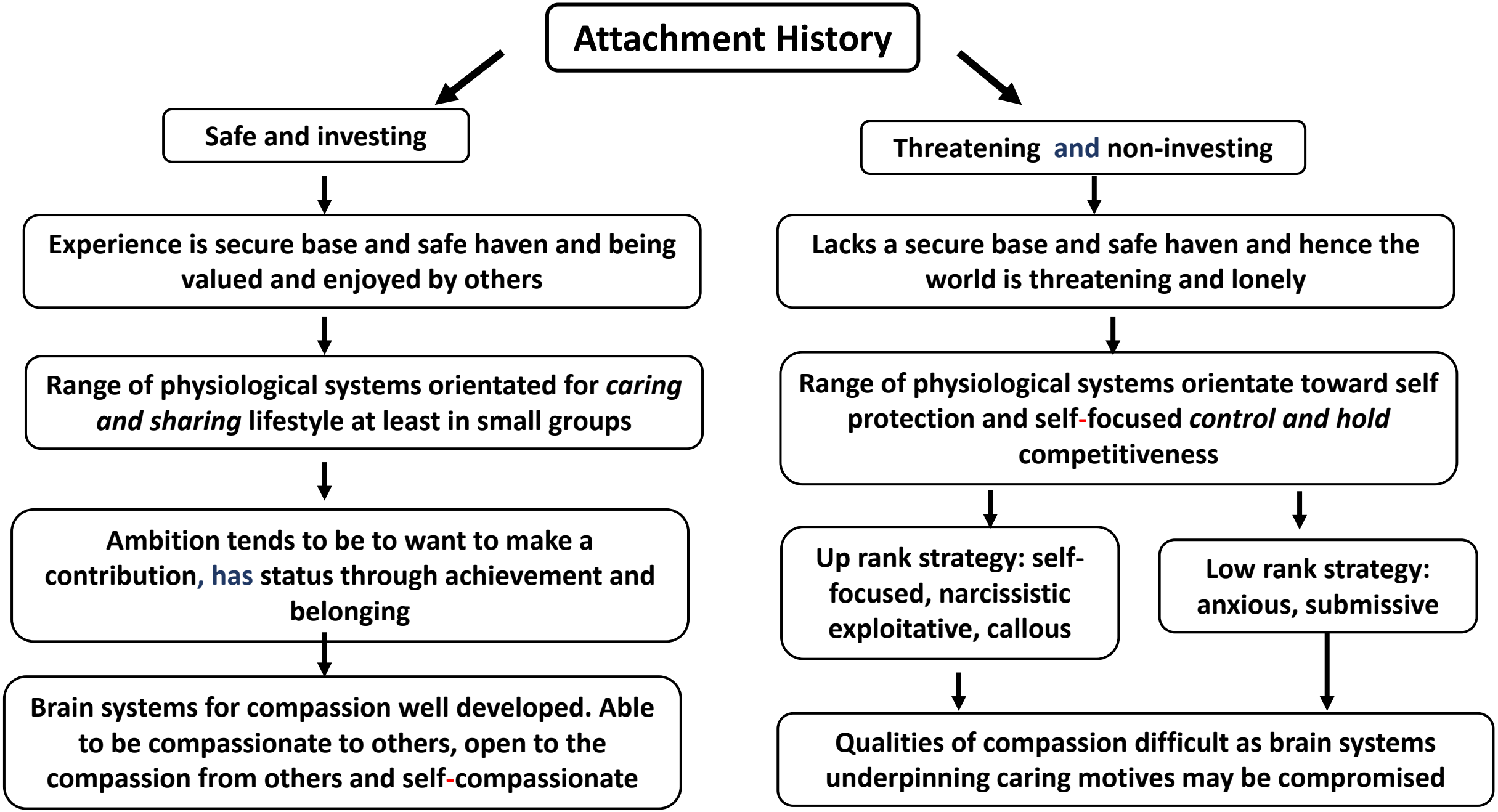
Secure base and safe haven

Three very different threat regulating systems



Three very different threat regulating systems




Attachment History
Safe and investing
Experience is secure base and safe haven and being valued and enjoyed by others
Range of physiological systems orientated for *caring and sharing* lifestyle at least in small groups
Ambition tends to be to want to make a contribution, has status through achievement and belonging
Brain systems for compassion well developed. Able to be compassionate to others, open to the compassion from others and self-compassionate
Threatening and non-investing
Lacks a secure base and safe haven and hence the world is threatening and lonely
Range of physiological systems orientate toward self protection and self-focused *control and hold* competitiveness
Up rank strategy: self-focused, narcissistic exploitative, callous
Low rank strategy: anxious, submissive
Qualities of compassion difficult as brain systems underpinning caring motives may be compromised

Competitive Mentality

Process

Down rank
Social comparison-inferior
External shame
Submissive
Striving
Angry Self- critical

Up rank
Social comparisons –superior- entitled
Humiliation
Aggressive
Striving
Other blaming/critical

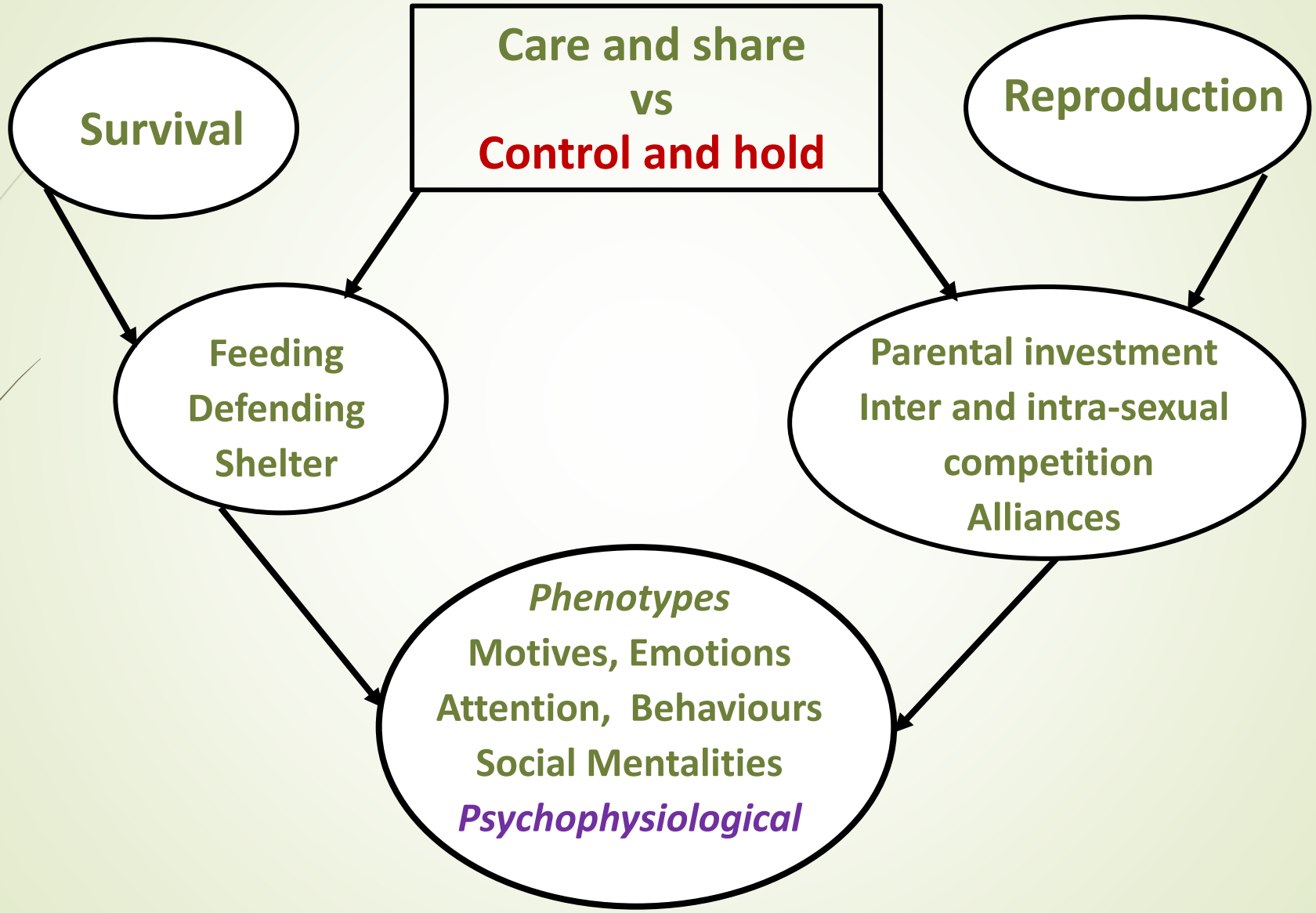
Examples of Measures
Social comparison
External shame
Self-criticism
Striving to avoid inferiority
Winning-losing/defeat

Caring Mentality

Process
Distress sensitivity
Desires/able to help
Distress tolerant
Soothing-active
Joy-guilt
Empathic
(Self)-reassuring

Examples of Measures
(flows of) caring-compassion
Fears of compassion
Empathy
Prosocial Behaviour to self and others
Social Safeness

Evolved Strategies, Phenotypes and Social Mentalities



Moving forward

- **Motivational systems are not passive but are seeking systems with some template like ‘lock and key’**

- **If you block up motive seeking systems this does not mean they simply disappear but they can become ‘diverted’ or suppressed/buried**

Genes, Brain and Behavior
Official publication of the International Behavioural and Neural Genetics Society

Genes, Brain and Behavior (2016) ***15:*** *155–168*

doi: 10.1111/gbb.12263

Review

The lasting impact of early-life adversity on individuals and their descendants: potential mechanisms and hope for intervention

C. S. M. Cowan[†,*], B. L. Callaghan[‡,1], J. M. Kan[†,1] and R. Richardson[†]

adult disorders emerging during childhood or adolescence (Jones 2013; Kessler *et al.* 2007; Lee *et al.* 2014). Further, certain factors within the home (such as parental mental

ANNUAL REVIEWS

Annual Review of Clinical Psychology

Social Safety Theory: A Biologically Based Evolutionary Perspective on Life Stress, Health, and Behavior

George M. Slavich

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The Journal of Child Psychology and Psychiatry

The Association for Child and Adolescent Mental Health

Journal of Child Psychology and Psychiatry **:* (2018), pp **–** doi:10.1111/jcpp.12918

Early warm-rewarding parenting moderates the genetic contributions to callous–unemotional traits in childhood

Jeffrey Henry,[1,2] Ginette Dionne,[1,2] Essi Viding,[3] Frank Vitaro,[4,7] Mara Brendgen,[5,7] Richard E. Tremblay,[6,7,8] and Michel Boivin[1,2,9]

[1]School of Psychology, Laval University, Quebec City, QC, Canada; [2]Research Unit on Children's Psychosocial Maladjustment, Quebec City, QC, Canada; [3]Division of Psychology and Language Sciences, University College London, London, UK; [4]Department of Psycho-Education, University of Montreal, Montreal, QC, Canada; [5]Department of Psychology, University of Quebec in Montreal, Montreal, QC, Canada; [6]Department of Psychology,

Context and early learning are orientating epigenetics and neuroplasticity to pursue specific resource distribution strategies

frontiers in Psychology

REVIEW
published: 10 February 2021
doi: 10.3389/fpsyg.2020.582090

Creating a Compassionate World: Addressing the Conflicts Between *Sharing and Caring* Versus *Controlling and Holding* Evolved Strategies

*Paul Gilbert**

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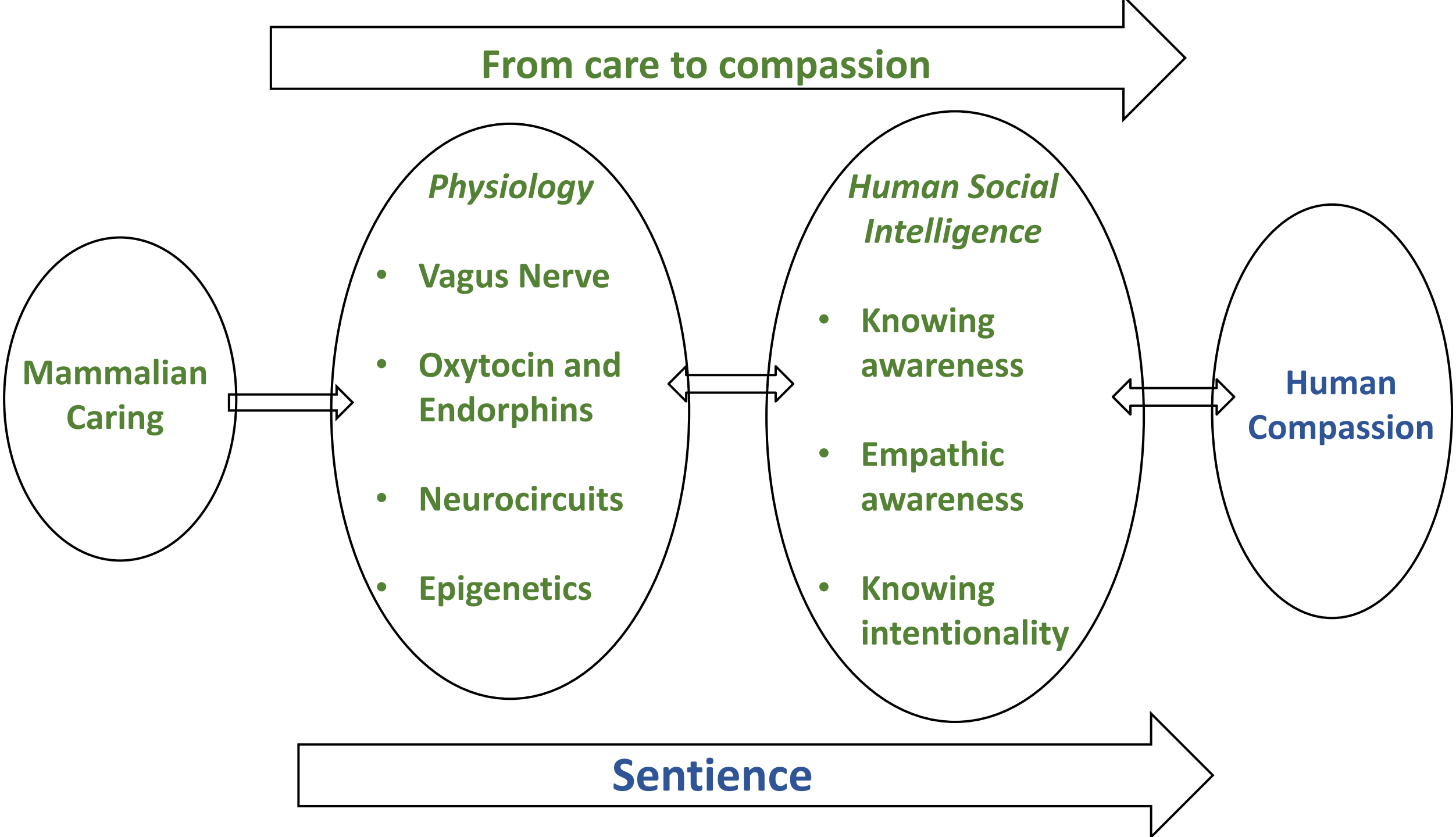
How does compassion differ from basic caring?

Compassion and Thinking Mind

- Caring now under the influence of powerful cognitive and reflective processes for insight and systematic understanding – Reciprocal feedback between cognition and motivations

- Crucial importance of frontal cortex and its sensitivity to threat, safeness and guiding motives


From care to compassion
Mammalian Caring
Physiology
Vagus Nerve
Oxytocin and Endorphins
Neurocircuits
Epigenetics
Human Social Intelligence
Knowing awareness
Empathic awareness
Knowing intentionality
Human Compassion
Sentience

All share a compassion motivation

ontiers
n Neuroscience

BRIEF RESEARCH REPORT
published: 12 March 2021
doi: 10.3389/fnins.2021.617443

Check for updates

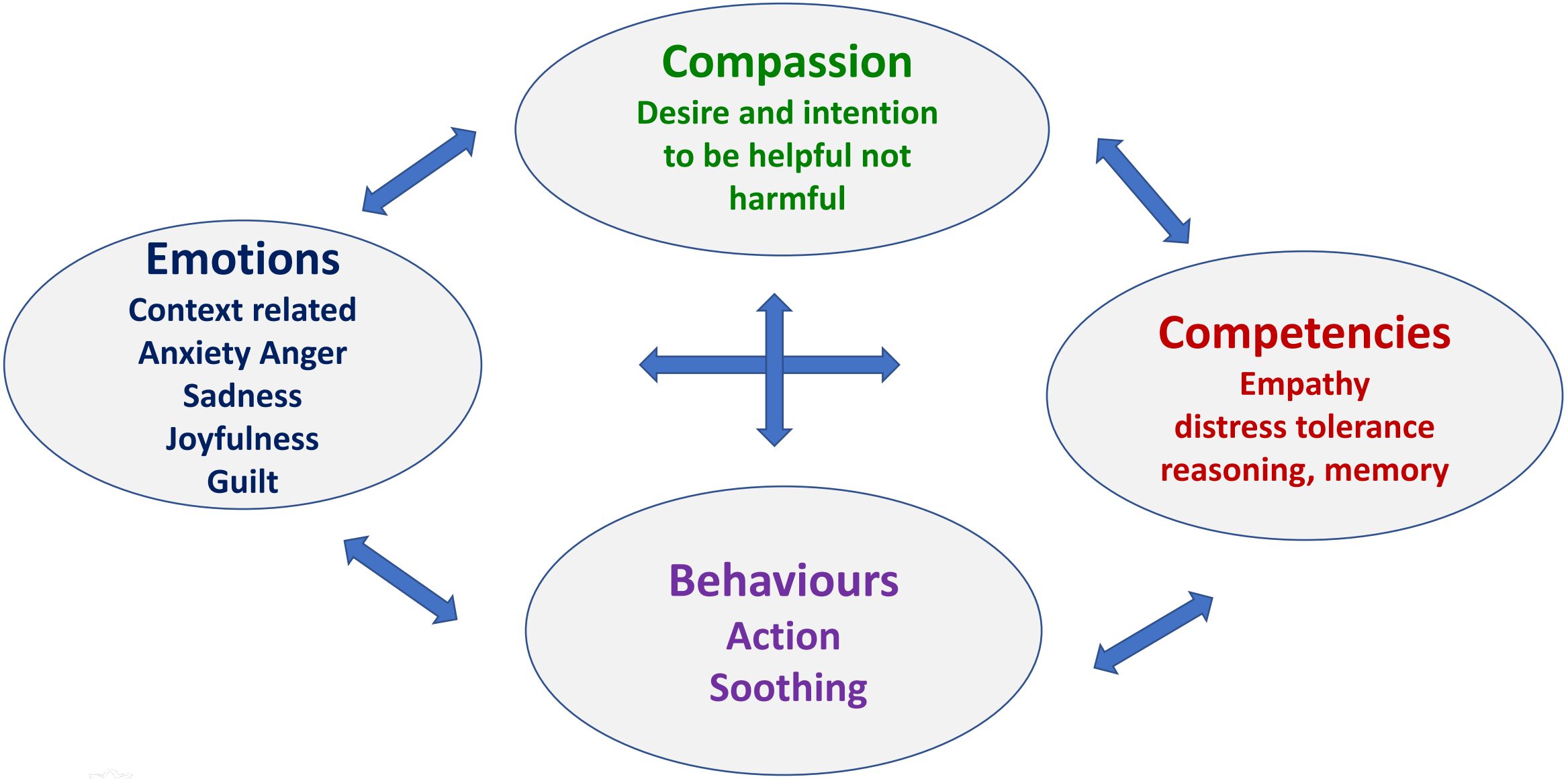
Compassion Is Not a Benzo: Distinctive Associations of Heart Rate Variability With Its Empathic and Action Components

Maria Di Bello[1], Cristina Ottaviani[1,2] and Nicola Petrocchi[3]*

[1] *Department of Psychology, Faculty of Medicine and Psychology, Sapienza University of Rome, Rome, Italy,* [2] *Functional Neuroimaging Laboratory, IRCCS Santa Lucia Foundation, Rome, Italy,* [3] *Department of Economics and Social Sciences, John Cabot University, Rome, Italy*

Recent studies have linked compassion with higher vagally mediated heart rate variability (vmHRV), a measure of parasympathetic activity, and meta-analytic evidence confirmed significant and positive associations. Compassion, however, is not to be confused

Ecological and social contexts impact on



Different trainings have different physiological effects
Singer & Engert 2019

Examples of New Brain Cognitive Competencies

No-Social Reasoning

language/symbols
thinking in time,
predicting,
imagining,
conceptualising

Social Reasoning

mentalise
role sensitivity,
role responsiveness

Consciousness of consciousness

subjective self-awareness,
observer mind,
knowing intentionality
Mindful

Defence mechanisms

Projection,
Avoidance
Denial,
Dissociation,

Competitive

Consider the following

- Impulsiveness
- Empathy
- Reasoning
- Rumination
- Mindfulness
- Self-judgment

Different trainings have different physiological effects
Singer & Engert 2019

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Projection,
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Denial,
Dissociation

Caring motive
Psychoeducation

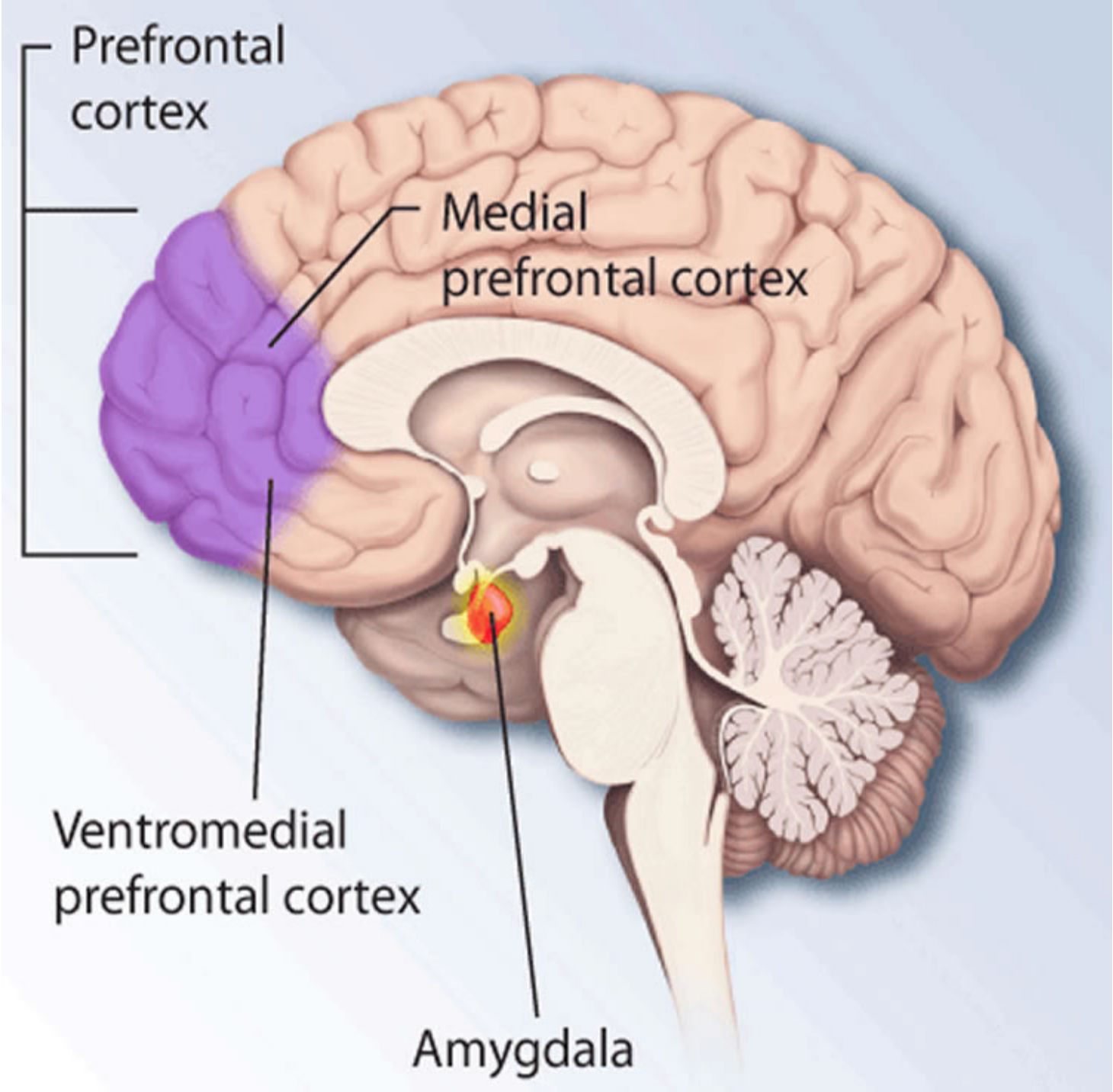
Compassion Training

Being *cared for* and Physiology

The evolution of caring brings major changes in physiological regulation –

***Relationships* are physiological regulators**

- **Gene expression**
- **Stress reactivity**
- **Immune system function**
- **Neurocircuits**
- **Illness and recovery**
- **Core values**
- **Self-identities**
- **Compassion and empathy**

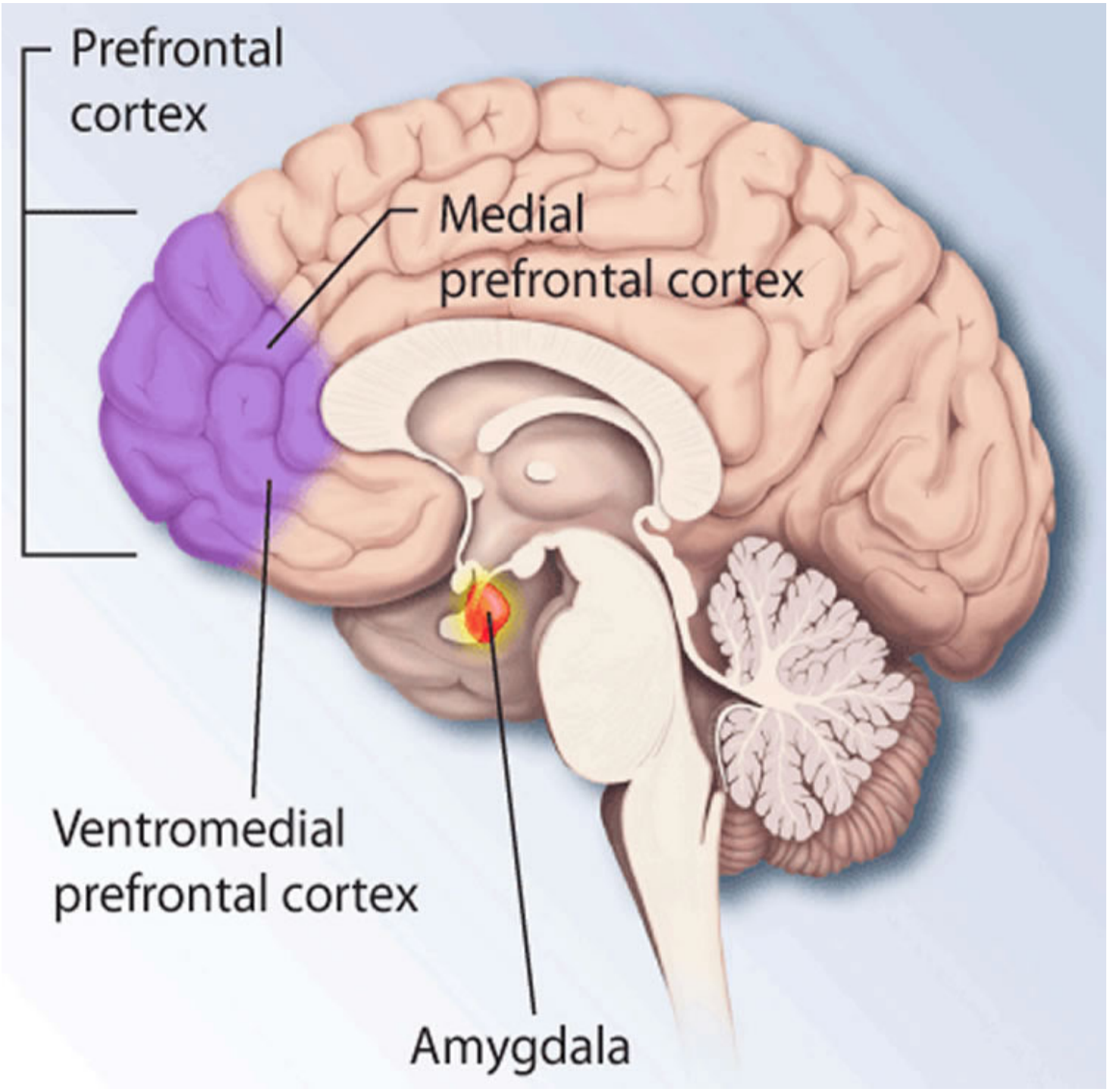


Caring behaviour overlaps reward areas in the brain

Vagus has major links to Frontal Cortex

Lovingkindness meditation reduces threat sensitivity in the amygdala

(Weng, H. Y., Lapate, R. C., Stodola, D. E., Rogers, G. M., & Davidson, R. J. (2018). Visual attention to suffering after compassion training is associated with decreased amygdala responses. *Frontiers in psychology*, *9*, 771.



There is a range of competencies associated with compassion such as:

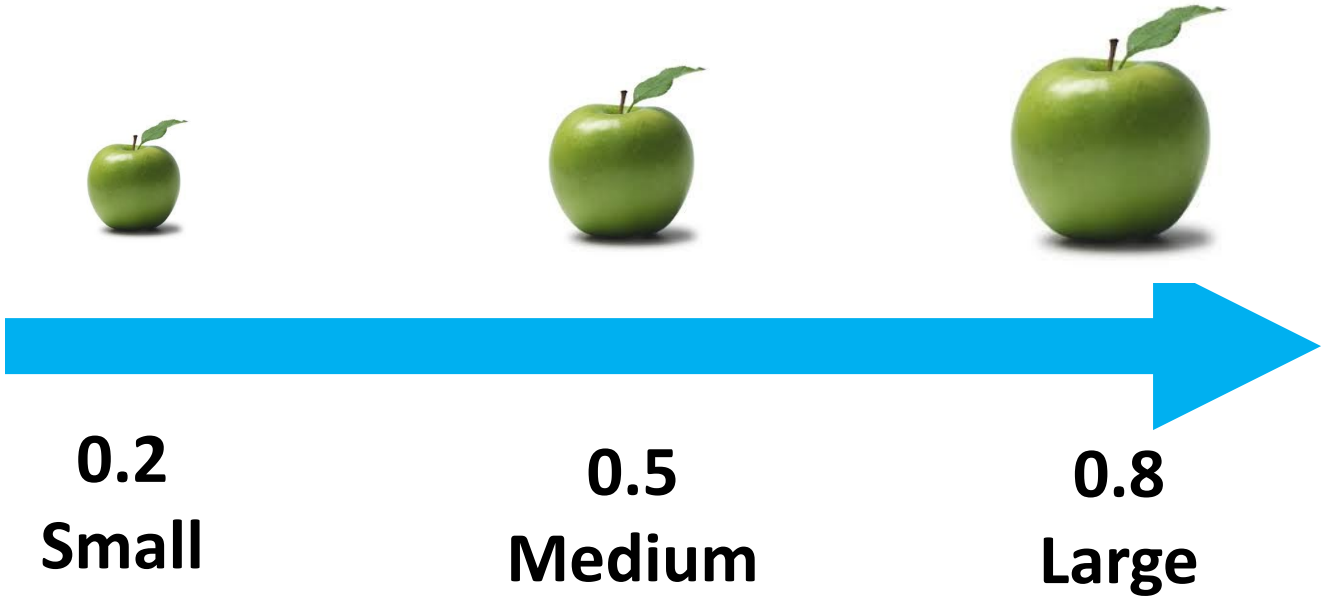
Empathy
Role sensitivity
Mindfulness
Mind awareness
Personal emotional regulation

Many of these operate through frontal cortex and are trainable

Summary

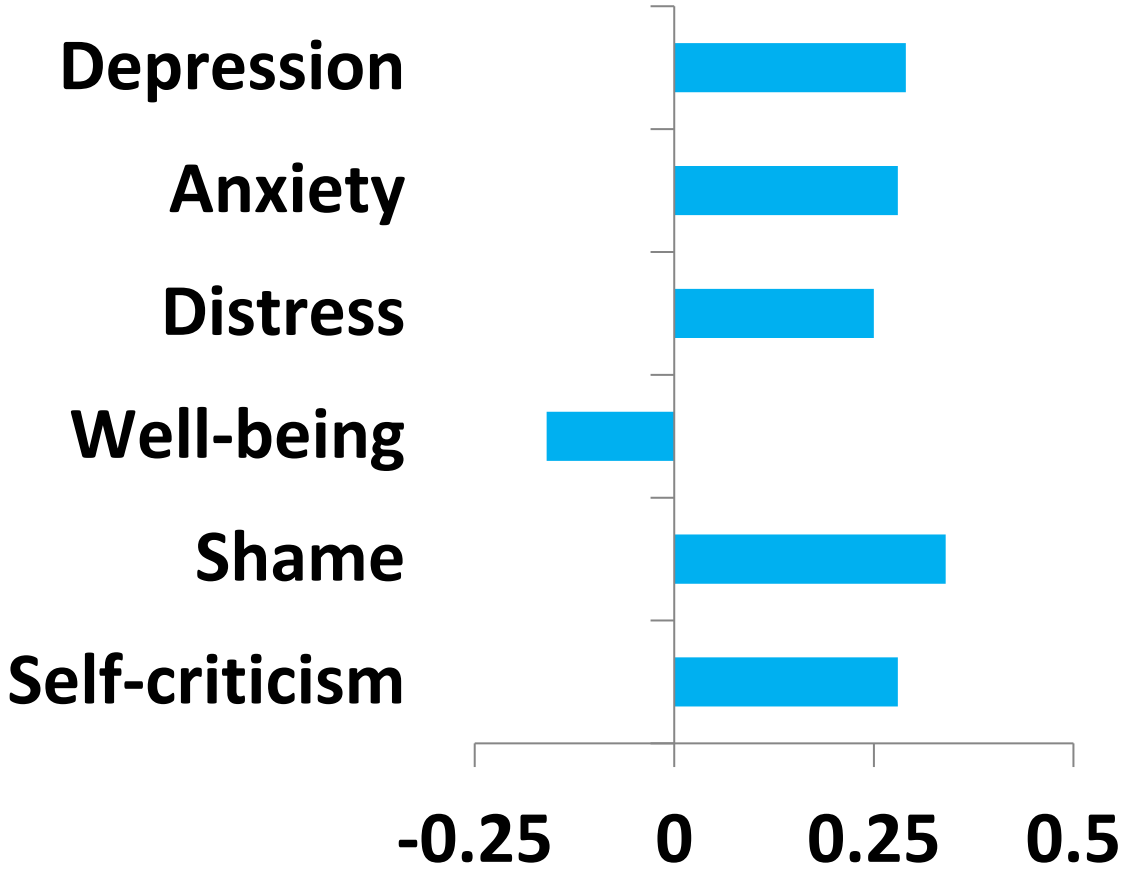
- **21 studies, from 154 samples included**
- **Studies across a 5-year period (2012-2017)**
- **5,233 participants data meta-analysed**
- **7 different countries (USA, UK, Canada, Australia, Portugal, Japan, and Scotland)**
- **13 were cross-sectional surveys; 8 pre-intervention correlations**
- **5 clinical sample, 16 non-clinical**
- **31% Male; 69% Female**
- **Average age: 30.45 years (range 18.64 years – 45 years; SD = 9.71)**

- *Thanks to James Kirby University of Queensland for providing the data*

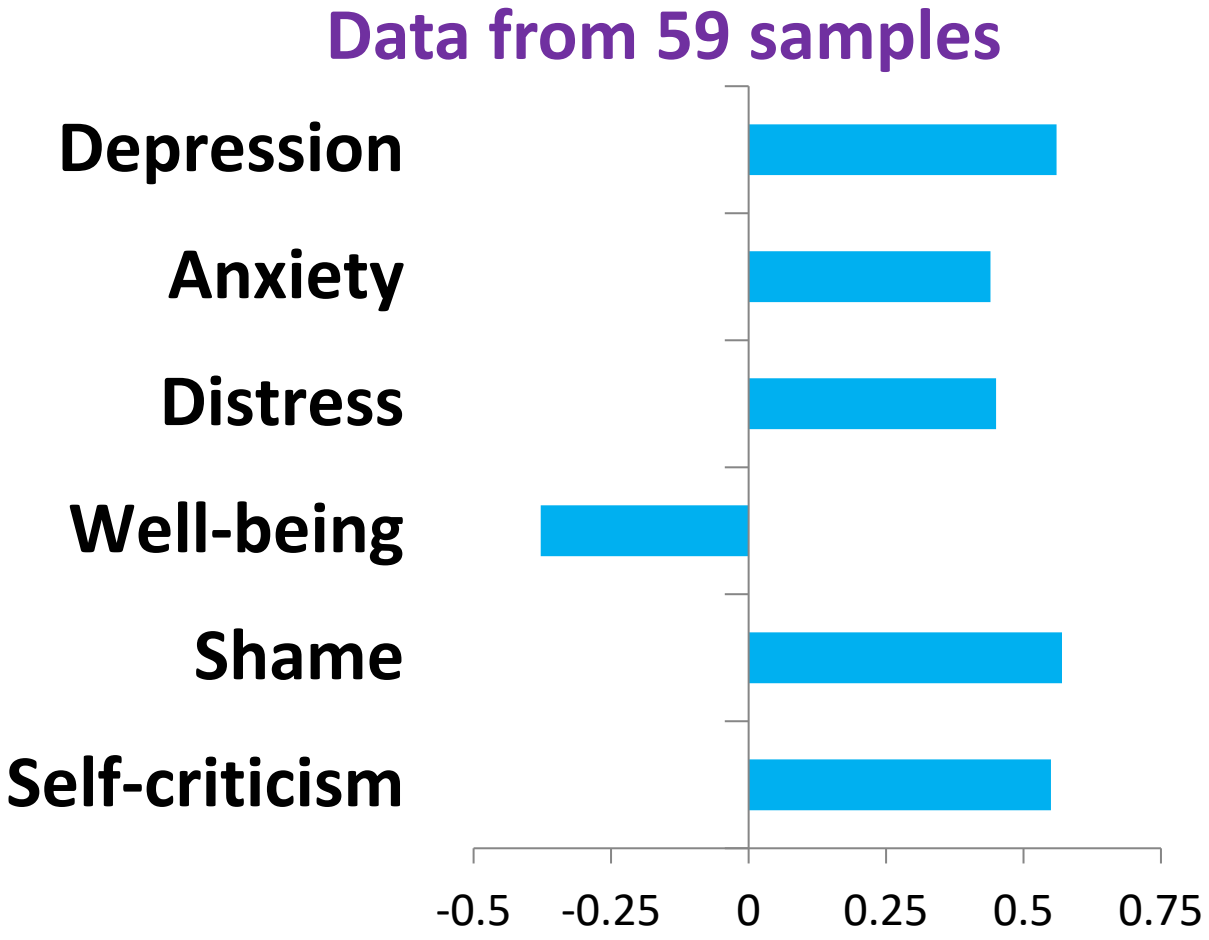

0.2
Small
0.5
Medium
0.8
Large

Fears of Compassion for Others & Mental Health Outcomes

Data from 38 samples

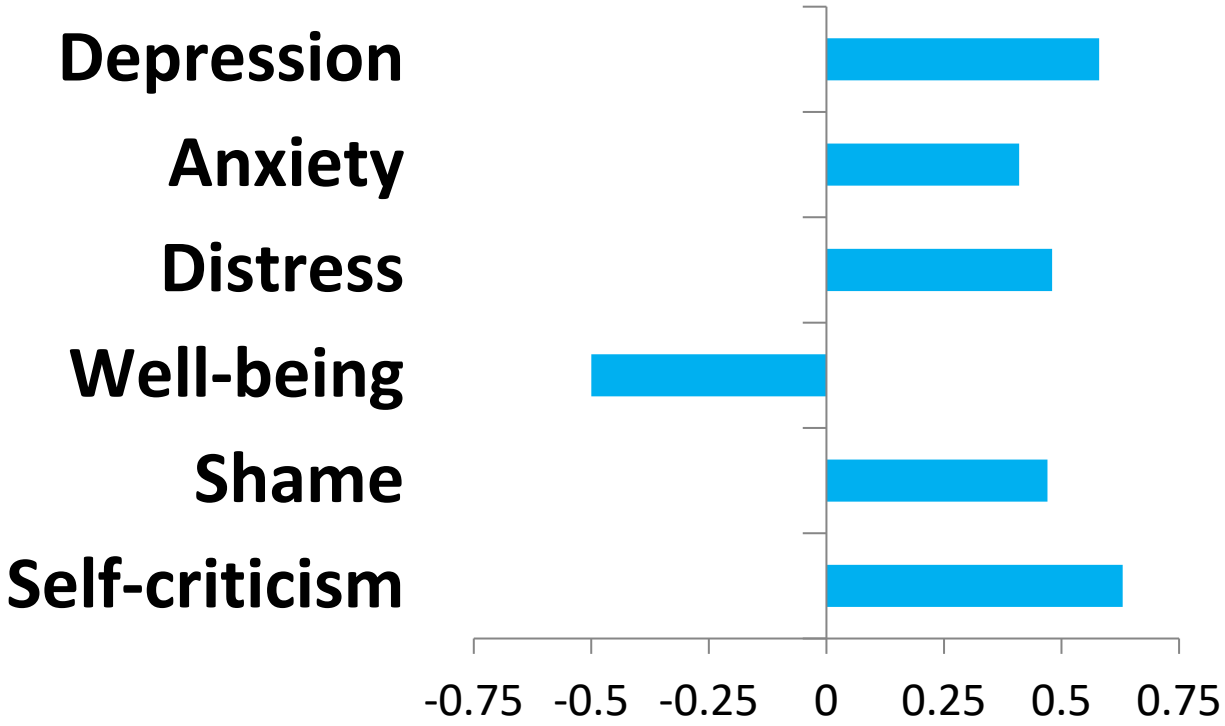


Fears of Compassion from Others & Mental Health Outcomes

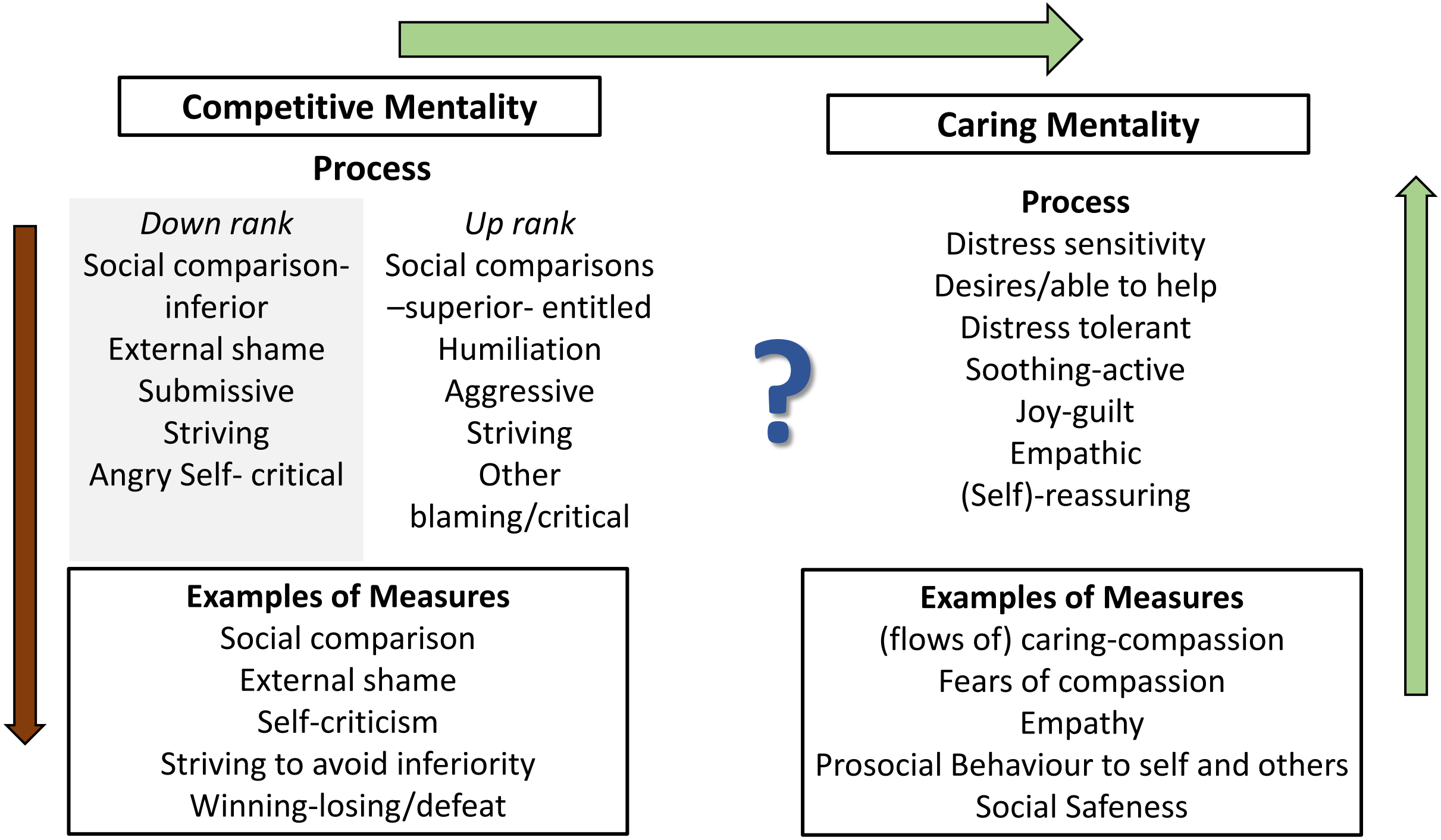


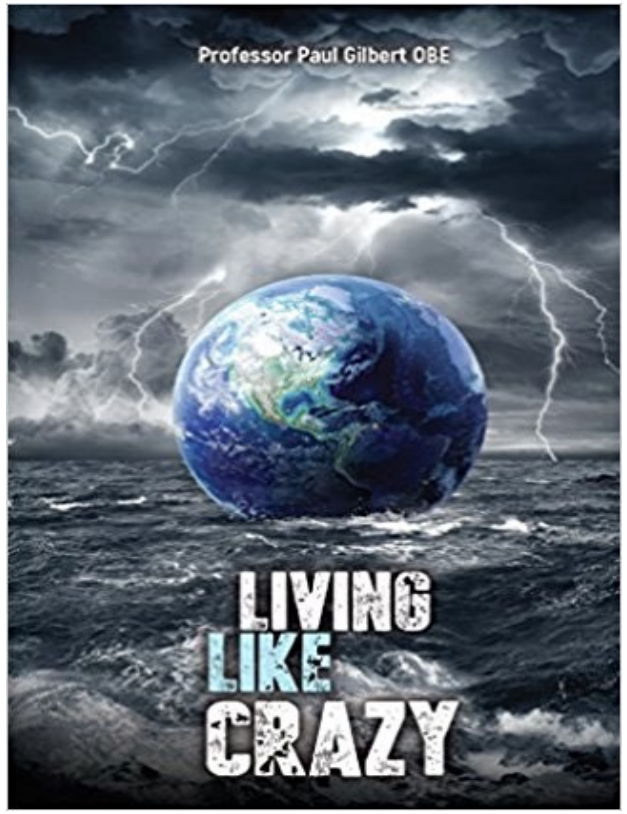
Fears of Compassion for Self & Mental Health Outcomes

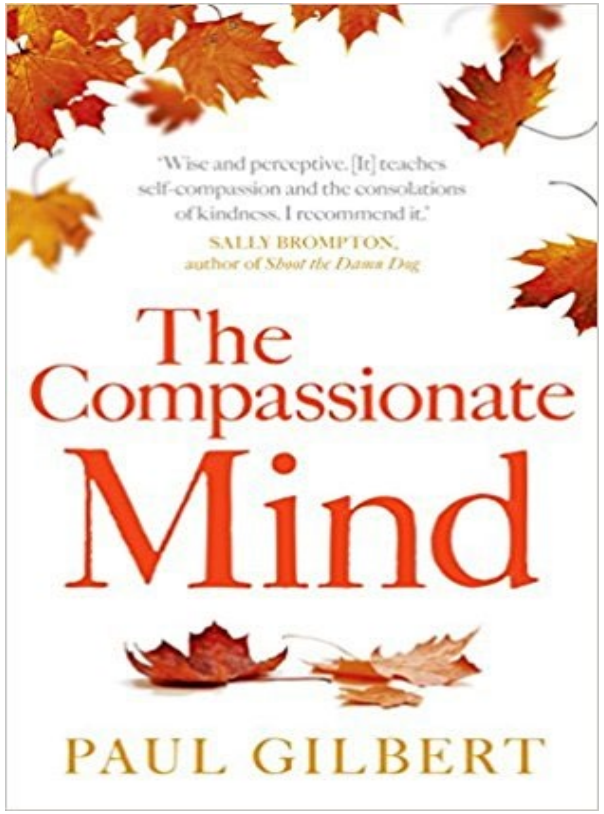
Data from 57 samples

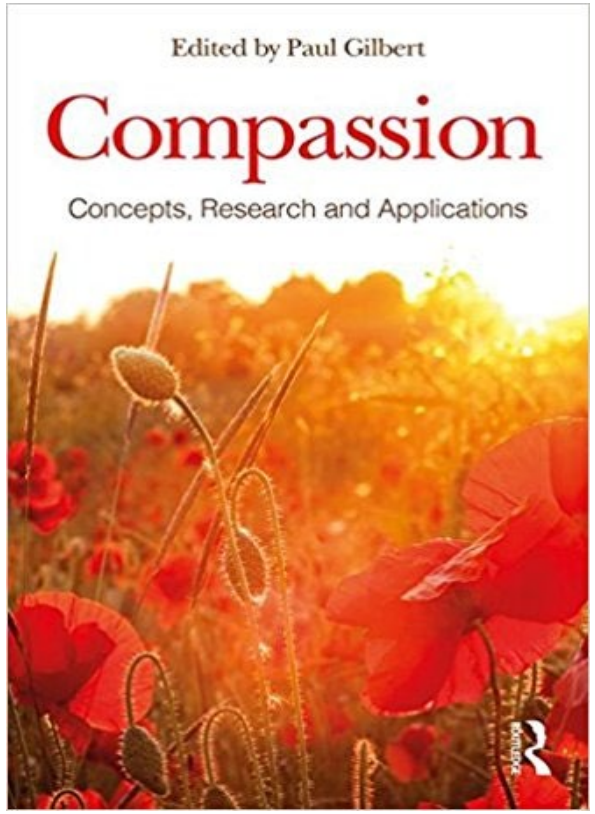


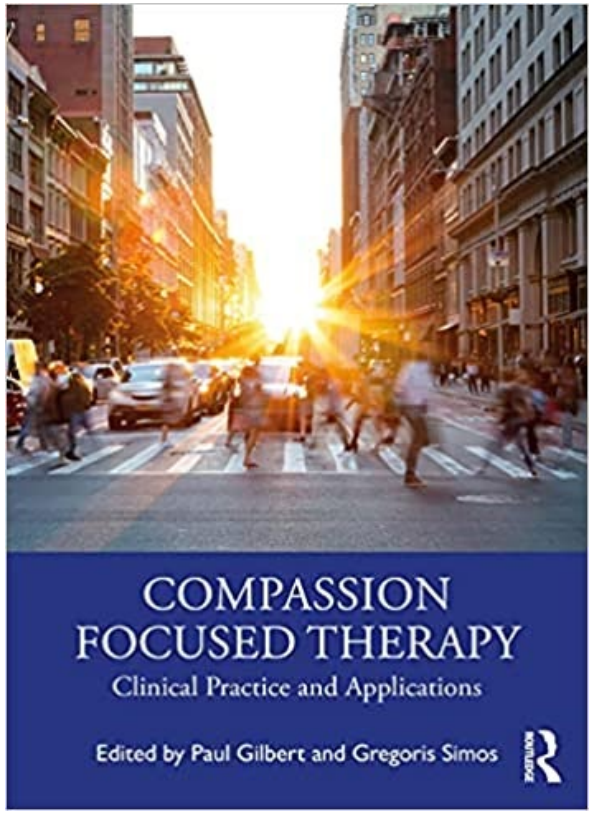
Therapeutic Challenges


Competitive Mentality
Process
Down rank
Social comparison-inferior
External shame
Submissive
Striving
Angry Self- critical
Up rank
Social comparisons –superior- entitled
Humiliation
Aggressive
Striving
Other blaming/critical
Examples of Measures
Social comparison
External shame
Self-criticism
Striving to avoid inferiority
Winning-losing/defeat
?
Caring Mentality
Process
Distress sensitivity
Desires/able to help
Distress tolerant
Soothing-active
Joy-guilt
Empathic
(Self)-reassuring
Examples of Measures
(flows of) caring-compassion
Fears of compassion
Empathy
Prosocial Behaviour to self and others
Social Safeness


Professor Paul Gilbert OBE
LIVING
LIKE
CRAZY


"Wise and perceptive. [It] teaches self-compassion and the consolations of kindness. I recommend it."
SALLY BROMPTON,
author of Shout the Dawn Day
The Compassionate Mind
PAUL GILBERT


Edited by Paul Gilbert
Compassion
Concepts, Research and Applications


COMPASSION FOCUSED THERAPY
Clinical Practice and Applications
Edited by Paul Gilbert and Gregoris Simos