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E. An abbreviation for 1. experimenter; 2. EXPERIMENTAL GROUP; 3. ENERGY; 4. E DIMENSION.

E. An abbreviation for ILLUMINANCE.

sE_R. Hull's abbreviation for REACTION POTENTIAL.

sE_R. Hull's abbreviation for GENERALIZED REACTION POTENTIAL.

sE_R. Hull's abbreviation for NET REACTION POTENTIAL.

sE_R. Hull's abbreviation for MOMENTARY REACTION POTENTIAL.

eardrum. The membrane separating the outer and middle ear, which transmits sound waves to the ossicles.

early infantile autism. A severe form of AUTISM beginning at birth or shortly afterwards. The term is misleading, for the syndrome usually persists into adulthood. It is characterized by extreme withdrawal from others, difficulties with language, motor tics and repetitious movements. About 10 per cent of sufferers exhibit abnormal talents in some sphere such as music, painting, or calculating. *See also* ASPERGER'S SYNDROME and KANNER'S SYNDROME.

early selection. In attention, the idea that unwanted messages are filtered out at an early stage of processing.

Easterbrook hypothesis. The (correct) hypothesis that arousal narrows the range of attention.

Ebbinghaus curve. A curve plotting the

amount of learned material retained against time, i.e. a curve of forgetting.

EBS. An abbreviation for ELECTRICAL BRAIN STIMULATION.

eccentric fixation. Fixation in which the image of the object fixated falls outside the foveola.

eccentricity. (Vision) The distance of a point on the retina from the centre of the fovea, usually measured as the visual angle out from the fovea.

eccentric projection. Locating a sensation in the outside world rather than in the sense organ stimulated, as in perception of objects.

echoencephalograph. A device for mapping the structure of the brain using ultrasonic waves.

echoic memory, echoic store. An auditory short-term memory in which all aspects of a heard sound are preserved; it takes a few seconds to decay. *Compare* ICONIC MEMORY and PRECATEGORICAL ACOUSTIC MEMORY.

echokinesis. A synonym for ECHOPRAXIA.

echolalia. Meaningless repetition of others' words or phrases, occurring in catatonic schizophrenia and sometimes through brain damage or deterioration.

echolocation. The ability to detect the direction, distance, and shape of objects by transmitting high-frequency sound, and monitoring its echo. This ability is possessed e.g. by bats and dolphins: it can be used to some extent by blind people, who listen to the echoes of their footsteps.

echopathy. Pathological imitation of others' movements and speech.

echophrasia. A synonym for ECHOLALIA.

echopraxia. Pathological imitation of others' movements and postures.

ecmnnesia. A rare synonym for RETROGRADE AMNESIA.

ecological niche. The role occupied by a species within an ecosystem, including all the means by which it survives (e.g. its eating habits, home, etc.).

ecological perception. Perception in a natural rather than laboratory environment. Brunswik believed that perception should be studied in a natural environment, and more recently Gibson held that ecologically important properties of the natural environment are 'picked up' directly from the optic array.

ecological validity. 1. The extent to which a result (or theory) applies not merely to a limited experimental situation or situations but to ordinary life. 2. As used by Brunswik and Gibson, the extent to which aspects of the proximal stimulus are directly correlated with the distal stimulus, and hence can be used to perceive it correctly.

ecology. (Biology) The study of the relationship between organisms and the environment they inhabit.

ecomania. Acting badly towards, or being morbidly preoccupied with, members of one's family.

economics. (Psychoanalysis) The ways in which a person preserves his PSYCHIC ENERGY.

ecosystem. A community of interacting species, and the environment they inhabit.

écouteur. A person who derives sexual pleasure from overhearing sexual activities in others or listening to accounts of such activities.

ecphoria. An obsolete term for establishing or recalling a memory.

ECS. An abbreviation for ELECTROCONVULSIVE SHOCK.

Ecstasy. *See* MDMA.

ECT. An abbreviation for ELECTROCONVULSIVE THERAPY.

ectoderm. The outer layer of cells of an embryo, from which skin, hair, glands, the nervous system, etc. are developed.

ectogenous. Outside the body.

ectomorphy. A body type (tall and skinny) in SHELDON'S CONSTITUTIONAL THEORY, said to be derived from the embryonic ectoderm and to be associated with CEREBROTONIA.

ectopic. Congenital displacement of a part of the body. *See also* HOMEOTIC MUTANT.

ectoplasm. 1. (Physiology) The outer layer of a cell. 2. (Parapsychology) A synonym for muslin, i.e. the substance exuded from the body of a medium, which may take on the shape of the dead.

ectosylvian gyrus. A gyrus of the temporal lobe that exists in carnivores (it has become part of the INSULA in primates). It is part of the auditory cortex and also contains visual association areas.

edema. An excess of fluid in any part of the body's tissue; edema in the brain occurring after a lesion may produce pressure which impairs the functioning of non-lesioned tissue.

edge detector. A cell in the visual cortex that responds maximally to a straight edge (dark on one side, light on the other) in a particular orientation and position on the retina. *See* FEATURE DETECTOR and *compare* BAR DETECTOR.

edge effect. The phenomenon that when a subject has to learn to identify each of a range of stimuli differing along a dimension, he performs better with stimuli towards the ends of the range than on those in the middle.

E dimension. A synonym for the EXTRAVERSION-INTROVERSION DIMENSION.

EDR. An abbreviation for ELECTRODERMAL RESPONSE.

educable mentally retarded (EMR). A mildly retarded person who is able to receive some formal education; the expression is usually applied to those with IQs between 55 and 69. *Compare* TRAINABLE MENTALLY RETARDED.

educational age. A measurement of the level of a child's educational attainment, expressed as the average age at which children reach the standard he has attained.

educationally subnormal (ESN). Unable to benefit from attendance at an ordinary school.

educational psychology. The systematic study of methods of teaching and learning, and of disorders that arise in schoolchildren (such as delinquency and truancy), and the application of such knowledge to improving methods of teaching and learning, and ameliorating disorders. This branch of psychology has few secure principles.

educational quotient (EQ). The ratio of educational age to chronological age.

education stage. Jung's expression for the stage at which the patient seems to be getting better.

eduction. The discovery by thought of new relationships or new concepts. *Compare* DEDUCTION and INDUCTION (1).

Edwards' Personal Preference Schedule. A personality inventory measuring the strength of a person's needs, e.g. those for achievement or affiliation.

EEG. An abbreviation for ELECTROENCEPHALOGRAPHY.

effect, law of. Thorndike's principle that a response is strengthened when it is followed by something pleasant and weakened when followed by something unpleasant. *See also* EMPIRICAL LAW OF EFFECT and STRONG LAW OF EFFECT.

effective habit strength ($s\bar{H}_R$). A synonym for GENERALIZED HABIT STRENGTH.

effective motive. The desire to gain control over the environment.

effective reaction potential ($s\bar{E}_R$). A synonym for GENERALIZED REACTION POTENTIAL.

effective stimulus. The stimulus that controls a response in a given situation.

effector. A muscle or gland.

effector nerve. A synonym for MOTOR NEURON.

effector organ. A synonym for EFFECTOR.

efferece copy. A copy of the motor output sent to a perceptual centre of the brain. It is transmitted by the COROLLARY DISCHARGE, and is used to null reafferent sensations caused by the motor movement.

efferent. Pertaining to any neural pathway or part thereof in which information is being conveyed outwards from any part of the nervous system towards the muscles or glands. *Contrast* AFFERENT.

efficacy. *See* SELF-EFFICACY.

effort. *See* LEAST EFFORT PRINCIPLE.

effort after meaning. The attempt to give meaning to material both in perception and memory (even when, as in the case of nonsense syllables, it has little meaning). Bartlett thought that it always occurs.

effort syndrome. A neurotic overreaction to exertion, accompanied by e.g. breathlessness, palpitations, and anxiety.

E-F scale. A subscale of the Minnesota Multiphasic Personality Inventory designed to measure social prejudice and authoritarian attitudes.

ego. (Psychoanalysis) The part of the mind that is in touch with reality and that mediates between the libidinous urges of the ID and the puritanical disapproval of the SUPEREGO; it represses direct knowledge of the naughty wishes of the id, while cleverly releasing them in the form of dreams, slips of the tongue, and works of art. *See* DEFENCE MECHANISM.

ego-alter theory. The innocuous hypothesis that a person's reactions to others are determined by how he sees himself in relation to them.

ego analysis. Analysis in which the focus is on discovering why some wishes are repressed and cannot be tolerated by the EGO; less attention is paid to conflicts in the ID than in ordinary psychoanalysis.

ego anxiety. (Psychoanalysis) Anxiety arising from a threat to the EGO.

ego boundary. A vague term signifying the boundary between a person's self and other people.

ego cathexis. A state in which most psychic energy is in the EGO and in which it controls the forces of the ID and SUPEREGO satisfactorily by channelling them to objects that will not arouse anxiety (e.g. by *SUBLIMATION*). *Compare* OBJECT CATHEXIS.

egocentre. The point on the body toward which all stimuli from a given modality are perceived to converge, i.e. the point to which their direction is referred. The **visual egocentre** is (according to different authorities) either the point midway between the eyes or the point of convergence of lines in visual space having the same subjective direction on each eye (which corresponds roughly to the centre of rotation of the head). The **auditory egocentre** is the centre of the head. It is disputed whether there are one or more **tactual egocentres**: there may be different ones for the different parts of the body.

egocentric bias. The tendency for people to think they have contributed more than they have to a joint task, e.g. a committee meeting etc.

egocentric judgement. A judgement of the tilt of an object relative to part of the body. **Oculocentric judgements** are made with respect to the eye (e.g. by setting a line parallel to the eye's vertical meridian), **head-centric judgements** with respect to the head (e.g. by facing an object), and **bodycentric judgements** with respect to the body (e.g. by setting a line parallel to the long axis of the body).

egocentric localization. The apparent direction and distance of objects in space with respect to the observer.

egocentric speech. Speech in which there is no intention to communicate with another person.

egocentrism. Piaget's expression for a phenomenon he thought he had observed, namely, that until about 7 years of age children talk and think entirely in terms of their own needs and viewpoints without taking other people into account.

ego control. Ability to control one's impulses, e.g. to delay gratification, inhibit aggression, give up smoking, and finish writing a dictionary on time. Probably not a unitary trait.

ego defence. (Psychoanalysis) The defence of the EGO against any threats, particularly inner ones from the SUPEREGO or ID. *Compare* DEFENCE MECHANISM.

ego development. (Psychoanalysis) The gradual formation of the EGO occurring through contact with the external world and the learning of self-control and independence.

ego dystonic. (Psychoanalysis) Pertaining to anything unacceptable or threatening to the EGO (e.g. repressed wishes in the ID). *Compare* EGO SYNTONIC.

ego-dystonic homosexuality. (DSM-III) Homosexuality in which the homosexual does not accept his proclivities but longs to become heterosexual. It is classified as a mental disorder by DSM-III.

ego eroticism. A synonym for *NARCISSISM*.

ego ideal. (Psychoanalysis) The standards someone consciously wishes to meet, which are according to Freud usually introjected from the parents. It is hard to separate the ego ideal from the SUPEREGO, but the standards embodied in the ego ideal are more modifiable and are chosen more consciously.

ego instincts. (Psychoanalysis) The non-sexual instincts, particularly those having to do with self-preservation.

egoistic suicide. Durkheim's expression for suicide undertaken through feelings of self-reproach, e.g. for being a failure in life. *Compare* ALTRUISTIC SUICIDE and ANOMIC SUICIDE.

ego libido. (Psychoanalysis) The wish to gratify one's own ego in an entirely self-centred way, as in the young child. *Contrast* OBJECT LIBIDO.

egomorphism. A synonym for PROJECTION.

ego neurosis. (Psychoanalysis) A neurosis in which the EGO is seriously disturbed, as in hysteria, fugue states, disorientation, and delirium.

egopathy. Aggressive behaviour towards others caused by a pathologically exaggerated sense of one's own importance.

ego psychology. (Psychoanalysis) Concentration, in therapy or theory, on the EGO and its role in controlling impulses and mastering the environment. Ego psychologists, e.g. Sullivan, emphasize that the ego can at least in part develop independently of the ID, and have also stressed the role of social relationships in its development.

ego resiliency. The ability to vary impulsiveness to meet the demands of the situation. Someone with too much EGO CONTROL tends to be inhibited and to lack spontaneity.

ego resistance. The tendency of the EGO to refuse to acknowledge repressed drives because of the anxiety they provoke, or to refuse to overcome neurosis because of its secondary gains.

ego strength. (Psychoanalysis) The extent to which the EGO can handle without disruption the demands of the ID and SUPEREGO and can reconcile them with the environment. An individual with a strong ego is strong-willed, patient, and can withstand frustration. According to many psychoanalysts he is also the most suitable case for treatment: he may not need it, but at least it won't upset him.

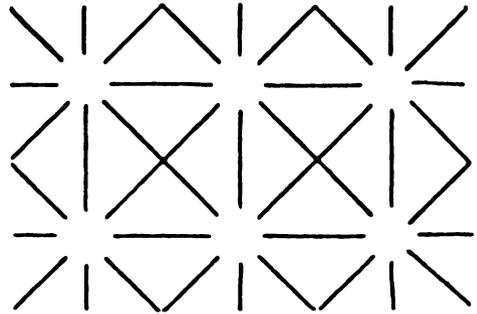
ego syntonic. Pertaining to ideas or wishes that are acceptable to the ego. *Contrast* EGO DYSTONIC.

ego-syntonic homosexuality. Homosexuality in which the homosexual accepts his proclivities.

ego theory. The philosophical theory that a person is an entity (a mind, soul, or spirit) that has experiences. The continuity of the person depends on the continuity of this entity. *Contrast* BUNDLE THEORY.

E group. An abbreviation for EXPERIMENTAL GROUP.

Ehrenstein illusion. 1. See the illustration below. Subjective bright circles appear at the ends of the lines, presumably caused by brightness contrast or, more likely, a KANIZSA CONTOUR. *Compare* HERMANN GRID. 2. The two geometric illusions invented by Ehrenstein that are variants on ORBISON FIGURES.



Ehrenstein illusion

eidonic memory. An alternative spelling for ICONIC MEMORY.

eidetic image. A vivid and detailed visual image of a scene corresponding exactly to the original perception; at one time it was thought to be common in children but many now doubt its existence. The expression is sometimes also used of vivid auditory images of the same type.

eidetiker. A person who has eidetic imagery.

Eigenwelt. (Existentialism) A person's attitude towards himself. *Contrast* MITWELT and UMWELT (2).

eighth cranial nerve. A synonym for VESTIBULOACOUSTIC NERVE.

eikon. An alternative spelling of **ICON**.

eikonometer. A set of vertical strings in a plane, used to detect the effect of aniseikonic lenses on depth vision.

Einstellung. An obsolete term for attitude or set, used particularly of expectations about the stimuli a person is about to receive.

eisotropophobia. A morbid fear of mirrors.

ejaculatio praecox. A synonym for **PREMATURE EJACULATION**.

ejaculatio retardata. Very delayed ejaculation caused by old age, anxiety, drugs, etc.

EKG. An abbreviation for **ELECTROCARDIOGRAM**.

elaborated code. Bernstein's expression for the way people from completely different backgrounds talk to one another – slowly, carefully, and taking nothing for granted. *Contrast* **RESTRICTED CODE**.

elaboration. 1. *See* **SECONDARY ELABORATION**. 2. Within **DOMAINS OF PROCESSING THEORY**, the extent to which information is processed in a given domain. 3. (Social psychology) The extent to which a person processes the arguments in a message and connects them with his existing knowledge.

elaboration-likelihood model. A model of persuasion postulating that when a message intended to sway a person's opinion is received, the amount of attitude change in either direction depends on how much **ELABORATION** (3) the person performs.

elaboration-likelihood model of persuasion. A theory postulating that the effectiveness of a persuasive message increases the more the receiver thinks about (elaborates) its contents.

elaborative rehearsal. Keeping an item in short-term memory while carrying out deeper processes on it, for example, examining its meaning or associating it with other terms, a procedure thought to facilitate its strength in long-term memory. *Contrast* **MAINTENANCE REHEARSAL**.

élan vital. The 'life force' which Bergson thought drove all living things.

elation effect. (Animal learning) The enhancement of responding when large rewards are substituted for small ones in **BEHAVIOUR CONTRAST**.

elective mutism. A childhood disorder in which the child refuses to speak although it could if it would.

Electra complex. (Psychoanalysis) The postulated desire of a daughter to sleep with her father, accompanied by jealousy and hatred of the mother for removing the daughter's penis. *Compare* **OEDIPUS COMPLEX**.

electrical brain stimulation (EBS). Any weak and localized electrical stimulation of part of the brain. It may be undertaken to investigate its behavioural or mental consequences or to discover what other brain sites are affected by the stimulation.

electrical self-stimulation of the brain (ESSB). The performance of a response by an animal because it is rewarded by a small shock to a part of the brain. *See also* **PLEASURE CENTRE**.

electrical stimulation of the brain (ESB). A synonym for **ELECTRICAL BRAIN STIMULATION**.

electrical synapse. A **SYNAPSE** operating by the conduction of an electrical charge. *See* **GAP JUNCTION** and **TIGHT JUNCTION**.

electrocardiogram. A record of the electrical activity of the heart, sometimes used as a component of a lie detector.

electroconvulsive shock (ECS). A train of brief shocks given to the head that are sufficient to induce a convulsion and loss of consciousness. The technique is used experimentally to investigate retrograde amnesia in animals, and therapeutically in people as **ELECTROCONVULSIVE THERAPY**.

electroconvulsive therapy (ECT). The treatment of mental illness by applying a train of brief shocks to the head, thus producing convulsions; several such treatments are usually given over a period of about ten

days. The treatment is nowadays given under a general anaesthetic and a muscle relaxant to minimize the convulsions. The efficacy of the treatment for some cases of severe depression is reasonably well proven.

electroculograph (EOG). An alternative spelling for ELECTRO-OCULOGRAPH.

electroculography (EOG). Measuring eye movements by recording their electrical activity.

electrode. An electrical conductor through which current enters or leaves an electrolyte; electrodes are used both to produce and to record current flow in parts of the nervous system.

electrodermal response. A synonym for GALVANIC SKIN RESPONSE.

electroencephalography (EEG). Recording the gross electrical activity of the brain through electrodes attached to the skull. *See* ALPHA WAVES, BETA WAVES, DELTA WAVES and THETA WAVES.

electrolysis. The conduction of electricity through a solution, producing a chemical reaction.

electrolyte. 1. A liquid or gel containing free ions that can therefore conduct electricity. 2. Molecules, such as sodium chloride, that produce free ions when dissolved.

electrolytic lesion. The destruction of specific neural tissue by passing an electric current between two inserted electrodes.

electromagnetic senses. The senses that respond to electrical or magnetic fields. E.g. sharks can detect prey by changes in the electrical field, and pigeons can navigate by their sensitivity to the earth's magnetic field.

electromagnetic spectrum. The range of wavelengths of electromagnetic waves, running from very short to very long wavelengths; it includes cosmic rays, X-rays, ultraviolet rays, light, infrared, and radio waves.

electromyography (EMG). Recording the electrical activity of muscles.

electroconvulsion. Electroconvulsive therapy in which the strength and duration of shock are adjusted so that they cause the initial tonic (rigid) but not the clonic (spastic) phase of the convulsion; loss of consciousness results.

electron microscope. A device in which a beam of electrons is focused on an object to yield very high magnifications; it can resolve detail down to a few ångström units.

electro-oculograph. A device for recording eye movements by monitoring the electrical potential of the eye muscles.

electrophobia. A morbid fear of electricity.

electrophoresis. A method of separating molecules of different kinds from one another, by placing them in solution on a medium (e.g. blotting paper) while applying an electric current.

electrophysiology. The study of the role of electricity in animal tissue, particularly in the nervous system.

electroretinogram (ERG). A recording of the gross electrical activity of the retina.

electroshock therapy. A synonym for ELECTROCONVULSIVE THERAPY.

electrotonus. 1. The passive spread of a graded potential over the membrane of a dendrite or of a cell body, particularly when stimulated electrically. 2. Köhler's term for the hypothetical spread of electrical excitation in the brain as in a volume conductor, a notion to which no-one now subscribes. He used it to explain figural aftereffects. *See* SATIATION.

elementarism. A synonym for ATOMISM.

element movement. *See* TERNUS PHENOMENON.

elevated maze. A maze whose paths are raised off the ground and have no sides.

elevator illusion. A form of OCULOGRAVIC ILLUSION in which the subject is centrifugally rotated at an increasing velocity, thus producing a Coriolis force; his head is kept normal to the resultant of gravitational force and the Coriolis force. Instead of experienc-

ing his body as tilted, he feels it rising, and hence sees a stationary point of light in darkness as rising.

eleventh cranial nerve. A synonym for ACCESSORY NERVE.

alexithymia. Impairment in the use of emotional terms, caused by brain damage.

El Greco fallacy. The fallacy (which can be generalized) that the reason why El Greco exaggerated the ratio of height to width in his paintings of people was that he was aniseikonic. It is a fallacy because even had he been aniseikonic he would have seen a normal portrait of a person in the same way as he saw real people; therefore aniseikonia cannot account for the distortion in his paintings.

elimination by aspects. (Decision theory) A model in which the different aspects of possible outcomes are ranked in importance; all choices leading to outcomes not having the most important aspect are eliminated. If more than one option remains, the second most important aspect is examined in the same way, and so on until only one option remains.

ellipsis. (Linguistics) The omission of a phrase, e.g. 'Yes, you can' (what it is that you can do is implied by the context).

elucidation. (Psychoanalysis) The second stage of Jung's therapy, in which the analyst concentrates on interpreting the patient's unconscious.

emancipatory knowledge. (Sociology) Knowledge of the distortions to one's attitudes and beliefs that can occur through relationships, particularly those in which one person is dominant; such knowledge is supposed to free the person from the alleged distortions.

embedded figure. A pattern forming part of a more complex figure that may be hard to find; embedded figures are used in experiments on perception and in testing visual abilities. They are also used as a test of FIELD DEPENDENCE: field-dependent people have more difficulty finding the figure than field-independent ones.

embedding. (Linguistics) In generative grammar, placing in the surface structure one sentence within another, e.g. 'John, who was very strong, overcame James'. In early transformational grammar the surface sentence derives from two sentences at deep structure level ('John overcame James' and 'John was very strong').

embolalia. A speech disorder in which meaningless material is inserted in sentences.

embolism. The blockage of blood flow by an obstruction in a blood vessel.

embryo. The organism in its first phase (in man the first eight weeks after conception), after which the embryo becomes a fetus.

embryogenesis. The development of the embryo.

emergency theory. The hypothesis that emotions prepare the organism for sudden effort.

emergence. A phenotype, especially an unusual one, caused by the non-additive effects of a rare combination of genes.

emergent property. A property possessed by a system that is not possessed by its parts. It need not be a mystical notion, if one can understand how the new property arises. Thus although it is unhelpful to describe the mind as an emergent property of the brain, physiological drives are emergent properties of complex neural mechanisms of which we have a basic understanding.

emetophobia. A morbid fear of vomiting.

EMG. An abbreviation for ELECTROMYOGRAPH.

emic. Pertaining to concepts or beliefs not found in all cultures. *Contrast* ETIC.

emitted behaviour. Responses occurring spontaneously, governed more by internal factors than by external stimuli and not occurring as the result of reinforcement. *See also* OPERANT CONDITIONING.

Emmert's law. The law that an afterimage increases in apparent size in direct proportion to the distance from the observer of the surface on which it is projected. In fact the perceived size is proportional to the *apparent* distance of the surface.

emmetropia. Normal vision with no refractive errors. More technically, the condition in which, when the lens is completely relaxed, the eye's focus is at infinity.

emotion. Characteristically, any feeling accompanied by autonomic arousal, and by a predisposition to behave in a certain way (but is 'serenity' not an emotion?). It is a term that is impossible to define and about which no two psychologists agree.

emotional deprivation. The condition of being brought up without receiving emotional responses (particularly favourable ones like love) from others; it is used particularly of a child brought up without parental affection.

emotional inoculation. The process whereby a person forewarned of a future stressful event prepares himself for it, e.g. by rehearsing how to cope or by self-desensitization, thus improving his ability to deal with it.

emotional release. A synonym for CATHARSIS.

emotion-focused coping. Reducing stress without directly dealing with the stressful situation, e.g. by the use of DEFENCE MECHANISMS. *Contrast* PROBLEM-FOCUSED COPING.

emotion specificity hypothesis. The hypothesis that in psychosomatic disorders a given emotion always causes the same physical disorder.

empathy. The capacity to participate in another's feelings and experiences and to understand them. Showing empathy is thought by most psychotherapists to be a good thing; showing sympathy is a bad thing.

empathy theory. (Vision) Lipp's explanation of the geometrical illusions which postulates that the observer empathizes with the figure. E.g. since it takes more effort to move vertically upward than horizontally, a vertical

line of the same length as a horizontal one is seen as longer.

empirical. Based directly on facts or observations rather than on inferences, theories or intuitions.

empirical equation. An equation derived *ad hoc* to fit a given body of data, as opposed to an equation derived from a theory. *Contrast* RATIONAL EQUATION.

empirical horopter. The HOROPTER as determined by empirical methods (see e.g. NONIUS METHOD). It is much flatter than the VIETH-MULLER CIRCLE; it passes through (or near) the fixation point, but does not pass through the nodal points of the lenses. At near distances it is slightly convex; with increases in fixation distance it tends to become a straight line or even a line concave to the observer. Its shape suggests that CORRESPONDING POINTS are more widely spaced in the nasal hemisphere than in the temporal.

empirical law of effect. The tautological law proposed by Thorndike that when a response is followed by a satisfying state of affairs, it is more likely to occur again. Unlike the STRONG LAW OF EFFECT, this law does not state that learning occurs only if reinforcement is given.

empirical rational strategy. (Social psychology) The attempt to make people change their habits or attitudes by providing evidence and appealing to their reason.

empirical validity. The extent to which a test can be empirically shown to measure what it purports to measure.

empiricism. 1. The philosophical hypothesis (put forward by Locke) that there are no innate ideas and that the contents of the mind are acquired entirely from information supplied through the senses. *Contrast* NATIVISM. 2. The doctrine that science (and some other studies like history) should be based on the systematic collection of data.

empty-chair technique. A GESTALT THERAPY technique in which the client talks to a person (e.g. his wife) imagined to be in an empty chair, and then sits in the chair himself pretending to be the other person.

empty word. A word without meaning that is introduced to make a sentence grammatical, e.g. the 'it' in 'It's snowing'.

EMR. An abbreviation for EDUCABLE MENTALLY RETARDED.

enactive. Pertaining to the infant's attempt to gain control of its environment.

enantiodromia. Jung's term for the opposition between different tendencies or aspects of a person (e.g. having both introversive and extraversive tendencies).

enantiomorph. The mirror-image version of a 3-D shape; the left and right hands are enantiomorphs.

encapsulated nerve ending. The receptive part of a receptor in skin or muscle (e.g. a Pacinian corpuscle) that is sheathed by a membrane. *Contrast* FREE NERVE ENDING.

encéphale isolé. A preparation in which the brain is transected just above its junction with the spinal cord.

encephalin. An alternative spelling of ENKEPHALIN.

encephalitis. Inflammation of the brain, caused e.g. by a virus.

encephalization. The progressive taking over by the brain in the course of evolution of functions previously carried out by ganglia below the brain.

encephalography. The study and practice of recording the location and shape of structures in the brain without opening up the skull. *See* ELECTROENCEPHALOGRAPHY, PNEUMOENCEPHALOGRAPHY, and RADIOISOTOPIC ENCEPHALOGRAPHY.

encephalon. The anatomical name for the brain.

encoding. The transduction of a message into another form. E.g. a word may be encoded acoustically or by an image of whatever it represents.

encoding specificity hypothesis. The principle that retrieval depends on the same or similar

stimuli being present as those that were present and encoded during learning.

encounter group. A group in which people (usually strangers) meet to air their frustrations and problems. Emotional confrontations, sometimes violent, are produced. Some think encounter groups promote sensitivity and personal growth; others think they merely increase selfishness.

enculturation. A synonym for ACCULTURATION.

end brain. A synonym for TELEENCEPHALON.

end brush. A cluster of very small ramifying branches at the end of an axon.

end bulb of Krause. *See* KRAUSE END BULB.

end button, end foot. Synonyms for SYNAPTIC BUTTON.

end inhibition. A feature of the receptive fields of HYPERCOMPLEX CELLS and some complex cells, namely that if the optimal stimulus (a bar or an edge in a certain orientation) continues beyond a certain point in the receptive field, the firing rate is reduced.

endocathexis, endocathection. Withdrawal from the outer world and concentration exclusively on one's own thoughts.

endocochlear potential. The resting potential between the endolymph of the scala media and the perilymph of the scala tympani (+80 millivolts) or scala vestibuli (+75 millivolts) with the perilymph being positive.

endocrine gland. Any gland whose products are secreted directly into the bloodstream, rather than (as with an EXOCRINE GLAND) passing down a duct. The secretions of the endocrine glands (HORMONES) play a major role in regulating the activity of the body and nervous system. Some examples are the ADRENAL GLANDS, the PITUITARY, and the THYROID.

endocrinology. The study of hormones and other internal secretions, and of their effects.

endoderm. The innermost of the three layers of cells in the embryo; it gives rise to the inner organs of the body (lungs, liver, etc.).

endogamy. (Anthropology) The practice of always marrying within one's own social group. *Contrast* EXOGAMY.

endogenous. Arising wholly from within an organism.

endogenous depression. A depression occurring without sufficient external cause. The distinction between endogenous depression and REACTIVE DEPRESSION is disputed.

endolymph. The fluid in the semicircular canals and cochlea.

endolymphatic potential. A synonym for ENDOCOCHLEAR POTENTIAL.

endomorph. A body type (rounded, fleshy) in SHELDON'S CONSTITUTIONAL THEORY thought to be derived from the embryonic endoderm; it is said to be associated with VISCEROTONIA.

endophasia. Inner speech.

endophora. The use of a word or expression to refer to another word or expression in the discourse, i.e. ANAPHORA OR CATAPHORA. *Contrast* EXOPHORA.

endoplasmic reticulum. A network of membranes found in nerve cells and many other cells, to which (in the case of rough endoplasmic reticulum) ribosomes are attached, and on which proteins and peptides are synthesized.

endopsychic. Pertaining to the contents of the mind.

end organ. The terminal part of a somesthetic receptor (e.g. the ending of a skin receptor).

endorphins. A class of OPIOID PEPTIDES containing many amino acids. β -endorphin contains 31 amino acids; other endorphins (e.g. α -endorphin, γ -endorphin, and neendorphin) are composed of large or small fragments of β -endorphin.

end plate. The flattened end of a motor neuron, which is the part that is in contact with the muscle.

end plate potential (EPP). The depolarization of a muscle membrane caused by release of acetylcholine from the motor nerve end plate.

end pleasure. (Psychoanalysis) The pleasure achieved when a drive is reduced, used particularly of an orgasm.

end spurt. Improved performance occurring as the end of a task draws near.

end-stopped receptive fields. A visual RECEPTIVE-FIELD that responds to the presence of a bar or edge in a certain orientation but which reduces or stops firing if the stimulus is extended beyond a certain point in the receptive field.

end test. A synonym for POST-TEST.

enelicomorphism. The ascription of adult characteristics to children. *Contrast* PAEDOMORPHISM.

energetics. An old-fashioned term for the study of the physiological mechanisms of arousal, including their psychological correlates.

energostatic control. The internal control of eating by monitoring the number of calories consumed.

energy (E). The capacity of a body or any other system (e.g. electromagnetic waves) to perform work. It is measured in JOULES, DYNES, OR ERGS.

engram. The physical change in the brain that underlies memory.

enkephalin. A class of OPIOID PEPTIDES that contains five amino acids; it includes **met-enkephalin** and **leu-enkephalin**.

enlarged semantic halo. A form of semantic dissociation in which the meaning of words is overgeneralized, thus making language vague and ambiguous, but still coherent.

enlightenment effects. Providing a subject with an account stated in general terms of the sort of error he may make in taking a decision. He is then asked to take the decision (but usually remains unenlightened).

enosophobia. A morbid fear of sin.

entailment (→). Strictly a synonym for LOGICAL IMPLICATION, but often used more broadly as a synonym for IMPLICATION in general.

entelechy. (Philosophy) 1. Anything actualized. 2. The soul. 3. A synonym for VITALISM.

enteric nervous system. A proposed third division of the AUTONOMIC NERVOUS SYSTEM (in addition to the sympathetic and parasympathetic systems). It serves the gut and differs from the other two divisions in several ways, e.g. its morphology is more like that of the central nervous system.

enteroception. An alternative spelling of INTEROCEPTION.

enthymeme. Any argument (including syllogistic deduction) in which a premise is unstated because it is obvious.

entomophobia. A morbid fear of insects.

entoptic. Pertaining to perceptual images arising from within the eye e.g. MUSCAE VOLITANTES or sensations like DARK LIGHT.

entorhinal cortex. Brodmann's area 28 (*see* Appendix 4), which lies proximal to the RHINAL SULCUS and next to the HIPPOCAMPUS. It is palaeocortex and is implicated in the control of aggression.

entrainment. The adjustment of an internal rhythm (e.g. circadian rhythm) to synchronize with an external cycle (e.g. light and dark).

entrance pupil. The virtual image of the pupil formed by the cornea; it determines the number of rays entering the eye from a given point and is 13 per cent larger than the EXIT PUPIL.

entrapment. Becoming increasingly involved in an activity to justify previous involvement. *Compare* SUNK COSTS.

entropy. 1. (Information theory, in which the abbreviation H is used). The average amount of information conveyed by the occurrence of any one of a set of independent events; it is calculated by summing the information conveyed by each event ($\log_2 \frac{1}{p}$) multiplied by the probability of that event, i.e.

$$H = \sum p_i \log_2 \frac{1}{p_i},$$

where P_i is the probability of the i th signal occurring. A more complex formula is needed to deal with the case where there are sequential dependencies between events (as in written or spoken English). 2. (Psychoanalysis) Loss of the ability to switch mental energy from one object or goal to another, i.e. set habits. 3. (Social psychology) The mental energy that is invested in set patterns and hence cannot be used to change the state of a society, thus potentially leading to the society's decline.

enucleation. The removal of a bodily organ from the tissue surrounding it.

enuresis. Involuntary urination.

envelope. The curve obtained by connecting all the peaks and all the troughs of a waveform or oscillating time series.

envelope delay. A difference in the time of arrival at the two ears of the abrupt onset of a sound, or of an abrupt change in its envelope. It is a cue for AUDITORY LOCALIZATION.

environmental assessment. The evaluation of the effects of the environment on a mentally disordered person, e.g. how far it disturbs or supports him; it is undertaken to discover whether the environment, and hence the mental disorder, could be improved.

environmental demand. A synonym for DEMAND CHARACTERISTICS.

environmentalism. A synonym for EMPIRICISM (1).

environmental psychology. The study of the interaction between people and their environment, usually undertaken with a view to improving it.

enzymes. Protein molecules that act as catalysts by promoting chemical reactions without being changed themselves.

EOG. An abbreviation for ELECTROCULOGRAPH and ELECTROCULOGRAPHY.

eonism. The adoption of the female role by a male.

esophobia. A morbid fear of dawn and sunrise.

EP. An abbreviation for EVOKED POTENTIAL.

ependyma. The membrane lining the ventricles of the brain and the central canal in the spinal cord.

ephapse. An ELECTRICAL SYNAPSE consisting of the juxtaposition of the pre- and postsynaptic cells' membranes with a very small gap (e.g. 20 nm) between them. This synapse is common on the smaller branches of dendrites and axons.

EPI. An abbreviation for EPINEPHRINE.

epicritic. Pertaining to the ability of some skin receptors to respond to fine differences in pressures or temperature, a term first used in this way by Head. *Contrast* PROTOPATHIC.

epidemiology. The study of the distribution of diseases in a population, and of the factors that predispose to them (e.g. nutrition, age, or sex).

epidermis. The outer layer of the skin. On the surface it contains dead cells that are progressively sloughed off, with layers of live cells underneath.

epigenesis. 1. (Biology) The ontogenetic development of a new structure, brought about by an interaction between the genes and the environment. 2. Piaget's term for the development of new structures of thought in the developing child.

epilepsy. A sudden and brief clouding or loss of consciousness, often accompanied by tonic and clonic seizures, which can be caused by heavy synchronous discharges of neurons in a part of the brain. *See also* GRAND MAL and PETIT MAL.

epileptic equivalent. A synonym for MASKED EPILEPSY.

epileptogenic focus. The area in an epileptic's brain in which the neurons sometimes discharge abnormally, thus causing epilepsy.

epinephrine (EPI). A CATECHOLAMINE hormone secreted by the adrenal medulla, particularly when the organism is under stress. It stimulates the sympathetic system and is also a CNS neurotransmitter or neuromodulator. The adjective is ADRENERGIC.

epinosis. The gaining of indirect advantage from illness (e.g. absence from work, not having to face responsibility), thought to be a factor in prolonging mental illness.

epiphenomenalism. The hypothesis that consciousness is a by-product of the brain and has no causal effect on behaviour.

epiphysis. A synonym for PINEAL GLAND.

epipolar constraint. The fact that from information about the position and rotation of each eye it is possible to infer for a line imaged on one eye its CORRESPONDING POINTS on the other eye. This constraint is needed for the solution of the CORRESPONDENCE PROBLEM.

episcotister. A rotating disc with a wedge cut out. It was used to reduce light intensity when rotated fast and to measure flicker fusion frequency when rotated at slower rates.

episodic amnesia. Inability to remember certain episodes (often significant ones), but with the rest of the memory intact.

episodic memory. The hypothetical part of the memory that stores personal experiences (as opposed to the part storing general information that is remembered independently of the circumstances under which it was learned). *Contrast* PROCEDURAL MEMORY and SEMANTIC MEMORY.

epistasis. (Genetics) Any non-linear change in the effect of a gene on the phenotype caused by the presence of a particular gene at another locus.

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epistemic response. Exploration occurring entirely within the mind by manipulating its contents.

epistemology. (Philosophy) The study of the nature of knowledge.

epithalamus. A small area of the brain above the thalamus that contains the pineal gland.

epithelium. A thin tissue that continuously coats internal and external surfaces of an organism, including skin and the linings of the respiratory and alimentary tracts.

EPP. An abbreviation for END PLATE POTENTIAL.

EPQ. An abbreviation for the EYSENCK PERSONALITY QUESTIONNAIRE.

EPSP. An abbreviation for EXCITATORY POST-SYNAPTIC POTENTIAL.

EQ. An abbreviation for EDUCATIONAL QUOTIENT.

equal and unequal cases, method of. An example of the method of constant stimuli in which a difference threshold is determined by presenting on each trial two stimuli which the subject has to judge as equal or not equal. *See* CONSTANT STIMULI, METHOD OF.

equal-appearing intervals method. 1. Any psychophysical scaling method in which subjects have to adjust the intervals between stimuli until they all appear equal (or to pick stimuli that appear to be separated by equal intervals), thus obtaining an INTERVAL SCALE, e.g. METHOD OF BISECTION. 2. A synonym for THURSTON SCALE.

equal interval scale. A synonym for INTERVAL SCALE.

equality, law of. The Gestalt principle that perceptual elements that are the same as one another tend to be grouped together.

equal loudness contour. A synonym for ISOPHONIC CONTOUR.

equally noticeable difference. A synonym for JUST NOTICEABLE DIFFERENCE.

equal sense differences method. A synonym for EQUAL-APPEARING INTERVALS METHOD.

equated scores. Scores from different tests that have been converted so that they can legitimately be compared, e.g. by expressing them as units of standard deviations from the mean.

equation, method of. A synonym for AVERAGE ERROR, METHOD OF.

equifinality. The end-point of the movements of a limb when it can be reached by several different trajectories.

equilibration. Piaget's term for the process whereby a child achieves a balance between taking in new information and modifying existing concepts to accommodate it. *See also* ACCOMMODATION and ASSIMILATION.

equilibratory sense. A synonym for VESTIBULAR SENSE.

equilibrium hypothesis. The hypothesis that when two people are together there is an optimal physical distance between them that will depend on their situation or relationship, and that if this distance is too big (or too small) they will compensate by increasing (or decreasing) eye contact.

equilibrium potential. The voltage across the nerve cell membrane at which no net transfer of ions occurs, i.e. the RESTING POTENTIAL.

equilibrium sense. A synonym for VESTIBULAR SENSE.

equinophobia. A morbid fear of horses.

equipotentiality. Lashley's term for the capacity of one part of the brain to take over the function of another that has been lesioned, a capacity that he greatly exaggerated.

equity theory. (Social psychology) 1. The hypothesis that people will be satisfied, particularly in their place of work, if they see their own treatment as fair in relation to that received by others, taking into account such factors as pay, hours of work, qualifications

needed, intrinsic interest of job, etc. 2. The theory that people expect to get gains out of a relationship that are proportional to what they put into it (e.g. effort, intelligence, etc.).

equivalence. See RESPONSE EQUIVALENCE and STIMULUS EQUIVALENCE.

equivalence coefficient. The correlation between two equivalent forms of the same test, which if high suggests the test is reliable.

equivalence test. A synonym for TRANSFER TEST.

equivalent background brightness. The intensity of a background light that produces a rise in the brightness threshold at the fovea that is the same as that produced by a glowing light (e.g. a car light). It is a way of quantifying glare.

equivalent forms. Different forms of the same test designed so that the same individual will have the same score on each.

equivalent processing assumption. The assumption that where an array of stimuli are briefly presented the subject will process information at the same rate and in the same way per unit time (e.g. during the first and last 50 msec of a 250 msec presentation). The assumption is only likely to be fulfilled if the subject does not know in advance on any trial the length of the presentation.

equivalent rectangular bandwidth (ERB). A measure of the sharpness of an auditory filter, being the frequency range of a rectangular filter that has the same peak value as the original filter and that passes the same total power of white noise.

equivalent stimulus. A stimulus to which exactly the same response is made as to another stimulus to which the response has already been learned.

ERB. An abbreviation for EQUIVALENT RECTANGULAR BANDWIDTH.

erectile dysfunction. DSM-III's euphemism for IMPOTENCE.

eremophobia, eremiophobia. A morbid fear of oneself or of being alone.

erentrophobia. A morbid fear of blushing.

erethism. An obsolete term for abnormally high sensitivity or irritability in any part of the body.

ERG. An abbreviation for ELECTRORETINOGRAM.

erg. A measure of energy or work; one erg equals 10^{-7} joule.

ergasia. Meyer's term for all the mental and physical activities taking place in a person.

ergasiophobia. 1. A morbid fear of moving, often with the illusion that one's movements will have disastrous effects on the world. 2. A morbid fear of working, common among students.

ergodic. Pertaining to a stochastic process in which any sequence has the same statistical properties as any other.

ergograph. Any device for measuring the amount of work done by a muscle.

ergonomics. The study of the factors that affect efficiency at work, and the application of this knowledge to improving efficiency and satisfaction at work. Factors studied include the design of machines and other artifacts (e.g. chairs), room size and colour, temperature, diurnal rhythms, etc. Ergonomics now includes the study of environmental effects on human efficiency and satisfaction outside the place of work, e.g. in the home, in aircraft, etc.

ergot. A fungus which produces several psychotropic drugs, including LSD and ADRENERGIC BLOCKING AGENTS.

ergotrophic process. Hess's outmoded expression for the neural processes underlying anabolic activity, e.g. sleep or rest. *Contrast* TROPHOTROPHIC PROCESS.

Erhard Seminar Training. See EST (3).

Erikson's psychosocial development stages. These are set out in the following table.

erogenous zone. Any part of the body that can give rise to sexual pleasure when stimulated.

Stage	Approx. age	Psychosocial crisis	Optimal outcome
I Oral-sensory	1	Trust vs Mistrust	Trust and optimism
II Muscular anal	2	Autonomy vs Shame, Doubt	Sense of control over oneself and the environment
III Locomotor-Genital	3-5	Initiative vs Guilt	Goal-directedness and purpose
IV Latency	5-12	Industry vs Inferiority	Competence
V Puberty and adolescence	13-18	Identity vs Role confusion	Reintegration of past with present and future goals, fidelity
VI Early adulthood	19-22	Intimacy vs Isolation	Commitment, sharing, closeness and love
VII Young and middle age	23-45	Generativity vs Self-absorption	Productivity and concern about larger issues
VIII Mature adult	46-	Integrity vs Despair	Wisdom, satisfaction with one's past life

Eros. Freud's term for the instinct for life both of the individual and of the species; it combats THANATOS. In Freud's thinking it replaced LIBIDO, to which it is similar.

erotic type. In Freudian theory a personality type in which the libido expresses itself mainly in the ID and the person is interested in loving and being loved; it is said to be associated with hysteria. *See* LIBIDINAL TYPE.

erotogenic zone. A synonym for EROGENOUS ZONE.

erotomania. 1. Abnormally strong heterosexual lust. 2. A person's belief (usually false) that many others are violently sexually attracted to him or her.

ERP. An abbreviation for EVENT-RELATED POTENTIAL.

error of estimate. 1. The error that occurs in regression analysis when estimating the value of the dependent variable from given values of the independent variables. 2. The margin of error to be expected in predicting performance on a criterion task from a test score due to imperfect validity of the test.

error of refraction. *See* REFRACTIVE ERROR.

error variance, error term. The variance in the dependent variable due to uncontrolled factors in an experiment, such as individual

differences between subjects. Virtually every statistic in analysis of variance is computed as the ratio of the variance due to the experimental manipulation to that due to the error variance. It is also called **residual variance**, as it is variance that cannot be accounted for in terms of systematic or controlled factors.

erythrolabe. A quaint name for the visual pigment of the long wavelength cone, not yet identified chemically.

erythrophobia. A morbid fear of redness, particularly of blood; or of activities associated with redness, such as blushing.

erythroptasia. Vision in which everything appears to have a reddish tinge; it can be induced by prolonged exposure to very bright light.

Esalen. A place in California where people could stay to take part in encounter groups or in the personal growth movement; many well-known psychotherapists and even some experimental psychologists have attended.

ESB. An abbreviation for electrical stimulation of the brain. *See* ELECTRICAL BRAIN STIMULATION.

E scale. An attitude scale used to measure ETHNOCENTRISM.

escape learning. Learning to make a response that reduces the duration of an aversive stimulus; in escape learning the organism receives the aversive stimulus on every trial, whereas in AVOIDANCE LEARNING it can avoid it altogether.

escape mechanism. Any device (e.g. hysteria, amnesia, denial) used to avoid confronting a threatening situation. *Compare* DEFENCE MECHANISM.

ESN. An abbreviation for EDUCATIONALLY SUBNORMAL.

esophoria. A PHORIA marked by the occluded eye pointing too far inward.

esotropia. A form of STRABISMUS in which one eye (the squinting eye) consistently points more inward than the other.

ESP. An abbreviation for EXTRASENSORY PERCEPTION.

ESSB. An abbreviation for ELECTRICAL SELF-STIMULATION OF THE BRAIN.

essential. (Medicine) Pertaining to an abnormal condition of whose causes doctors are ignorant.

essential amino acid. An AMINO ACID not synthesized within the body, which must therefore be contained in the diet.

EST. 1. (Psychology) An abbreviation for ELECTROSHOCK THERAPY. 2. (Linguistics) An abbreviation for EXTENDED STANDARD THEORY. 3. (Psychotherapy) An acronym for ERHARD SEMINAR TRAINING, which is a form of personal growth or sensitivity training in which several hundred people gather for several hours to be harangued, abused, and deprived (of food, water, toilet facilities, etc.): its outcome is uncertain.

esthesiometer. An alternative spelling for AESTHESIOMETER.

estrus. An alternative spelling for OESTRUS.

etherial odour. One of the six so-called primary odours of the ODOUR PRISM, reminiscent of the smell of ether or fruit. It is also one of the four odours of the ODOUR SQUARE.

ethics. The philosophical study of moral concepts.

ethnic. Pertaining to a comparatively large group of people, who tend to have the same laws, customs, and language, and to be of the same race.

ethnocentrism. The belief that one's own ethnic group is superior to others, usually accompanied by prejudice towards members of other groups.

ethnogenics. The attempt by sociologists to understand the belief systems that underlie the interaction between people. In short, ETHNOMETHODOLOGY by another name.

ethnography. The branch of anthropology that studies primarily a single community,

usually by the investigator becoming a member of that community for several years.

ethnolinguistics. The study of natural languages in so far as they relate to the customs and behaviour of the society of the native speakers.

ethnology. The branch of anthropology that studies the culture of peoples, races, or ethnic groups from a comparative viewpoint.

ethnomethodology. (Sociology) Garfinkel's term for the study of how everyday conclusions and decisions are reached. The investigator listens to, and often records, the conversations of the group under study. The only discernible methodology is the use of a tape recorder and occasionally some common sense in interpreting what is going on. Ethnomethodologists commonly spend years in an institution, but their conclusions are rarely surprising.

ethnopsychology. The study of the comparative psychology of different ethnic groups.

ethnoscience. The systematic attempt to specify the rules operating in a society (most of which are below the level of conscious awareness) and to understand the functioning of the society in terms of these rules.

ethogram. (Ethology) A record of the behaviour of an animal in the wild over a period of time, with the behaviour classified by its type (e.g. preening, aggressive display, etc.).

ethology. The study of animal behaviour, particularly innate behaviour, laying emphasis on animals' interaction with the natural environment and on the evolutionary processes that have led to the behaviour. Traditionally ethologists have tended to explain behaviour by its function, psychologists by the mechanisms underlying it, but this distinction has long been eroded. Moreover ethologists may nowadays try to confirm their hypotheses by laboratory experiments. *Contrast* ANIMAL PSYCHOLOGY.

etic. Pertaining to concepts or beliefs found in all cultures. *Contrast* EMIC.

etiology. An alternative spelling of AETIOLOGY.

EU. An abbreviation for EXPECTED UTILITY.

euchromatopsia. Good colour vision. *See also* COMBINATIVE EUCHROMATOPSIA.

Euclidean metric. (Psychology) The distance metric that applies to similarity judgements between items varying along two (or more) dimensions which conforms (for two dimensions) to the equation $\sqrt{A^2+B^2}$ where *A* and *B* represent the differences between the items on each dimension. The result is found with INTEGRAL STIMULUS DIMENSIONS. *Contrast* CITY-BLOCK METRIC.

eugenics. The attempt to improve the characteristics of a population (particularly a human one) by systematically controlled breeding. *Contrast* DYSGENIC.

Euler circle. A method of expressing the class inclusion relationship between different sets, in which each set is represented by a circle. 'All *A* are *B*' would be represented by having a circle *A* entirely contained in *B*. 'Some *A* are *B*' would be represented by having circle *A* overlapping with circle *B*. With sufficient care Euler circles can be used to assist in the validation of syllogisms.

euomorphy. The bodily type of someone of normal build.

euphoria. A feeling of well-being or happiness. *Contrast* CACOPHORIA.

euryomorphy. In Eysenck's body-build typology, a heavy, stocky build.

eupareunia. Coitus with a satisfactory orgasm.

euryplasty. The body build of someone with a short, thickset body.

eusociability. The characteristic of a society or species in which the organisms work harmoniously together for the good of the society (e.g. a hive of honeybees).

Eustachian tube. A tube running between the middle ear and the throat, whose function is to equalize pressure on either side of the eardrum.

eustress. Stress that is beneficial to the organism.

euthenics. The attempt to promote human welfare and happiness by improving the environment.

euthymia. A pleasant and contented state of mind.

evaluation apprehension. The stress that a person may undergo if he is observed performing a task by others. Depending on the circumstances, the stress may either improve or impair his performance.

evaluation function. A synonym for EXPECTED VALUE.

evaluation research. Any research that systematically examines the effects of a system (e.g. of a business management) or of any procedure in business, education, medicine, etc., usually in the hope of making improvements.

evaluative premise. *See* SYLLOGISTIC MODEL OF ATTITUDE ORGANIZATION.

event-processing theories. (Animal learning) A set of disparate theories constructed to explain why the contiguity of the US and CS can under certain circumstances fail to result in conditioning. *Compare* BLOCKING (1) and OVERSHADOWING.

event-related potential (ERP). A synonym for EVOKED POTENTIAL.

event sampling. Recording how often one type of behaviour is followed by another where the types of behaviour to be recorded have been chosen in advance.

eviration. A man's pathological belief that he has been turned into a woman.

evocative interaction. The phenomenon that different people evoke different responses from others and that these different responses may in turn shape their own personalities. *Compare* PROACTIVE INTERACTION and REACTIVE INTERACTION.

evoked potential (EP), evoked response. The series of brain waves that follows the pre-

sentation of a brief stimulus, such as a light or a tone, and that can be recorded by the ELECTROENCEPHALOGRAPH.

evolutionarily stable strategy (ESS). An expression introduced by Maynard Smith for any EVOLUTIONARY STRATEGY that remains invariant because a departure from it by an individual would reduce its evolutionary fitness. Such strategies can be of three kinds. **Pure strategies** are those adopted by all members of the species. In **mixed strategies** each member of the species adopts two or more strategies (e.g. fight on 50 per cent of confrontations with another member of the species, flee on 50 per cent). In **polymorphous strategies**, different members of the species adopt different pure strategies but the overall strategy is stable if the proportion adopting each optimizes the fitness of the individuals adopting each. Thus there may be an optimum ratio of animals who fight to those who flee. Clearly if all but one fled, the aggressor would have a great advantage. But if all but one fought, the one who did not fight might have an advantage since he would not be damaged in fights. Depending on the payoffs for winning and losing fights, the stable proportion of fighters and fleers will lie somewhere in between.

evolutionary drift. A gradual change in the genes of a species caused not by adaptation to the environment but by random mutations that happen to be propagated.

evolutionary strategy. Any behaviour pattern or physical trait that appears in an individual member of a species and that is genetically determined as a result of its survival value, particularly where alternative behaviour patterns or traits can be envisaged. Different members of a species may adopt different strategies, e.g. some males may flee on encountering another male (**dove strategy**), others may fight (**hawk strategy**). Again, some male ruffs have the strategy of defending a territory and competing for females, others have no territory but sneak on to another bird's territory to copulate with the female while the owner is otherwise engaged. For a classification of strategies, see EVOLUTIONARILY STABLE STRATEGY.

exafference. A change in stimulation resulting from a change in the environment rather

than from a movement of the organism. *Contrast* REAFFERENCE.

exchange theory. A theory of interpersonal interaction that maintains it is based on the exchange of rewards between the participants and that each is trying to maximize his gains and minimize his losses. *Compare* RELATIVE DEPRIVATION.

excitation. 1. (Neurophysiology) The firing of a nerve cell or group of cells or the depolarization of the postsynaptic membrane which increases the likelihood of the cell firing. 2. (Experimental psychology) The process that underlies the tendency to produce a response; it is opposed by INHIBITION (1).

excitation transfer. The transfer of autonomic arousal from one situation (e.g. running) to another (e.g. sex).

excitation transfer theory. The principle that aggression may be increased by other causes of arousal, e.g. by humid and hot weather.

excitatory postsynaptic potential (EPSP). The reduced potential difference across the membrane of the postsynaptic cell, caused at excitatory synapses by the firing of the presynaptic cell; if the depolarization is sufficiently great, the postsynaptic cell will fire.

excitatory potential (sE_R). A term from Hull's first theory. It is roughly equivalent to GENERALIZED REACTION POTENTIAL in his later theory. *See* HULLIAN THEORY.

excitatory synapse. A synapse transmission across which increases the likelihood of the postsynaptic cell firing.

excitement phase. *See* SEXUAL RESPONSE CYCLE.

exclusion anxiety. Anxiety caused by the possibility of being rejected by a group to which one belongs.

exclusive disjunction. *See* DISJUNCTION.

executive. (Computing) The part of a computer that executes instructions, determining to which instruction to proceed, etc. In psychology the term is used by analogy to

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refer to that part of working memory that operates on the data temporarily stored there. *See* CENTRAL EXECUTIVE SYSTEM.

exemplar theory. The hypothesis that classes are represented in the mind by typical examples or prototypes rather than by a formal list of properties defining the class.

exercise, law of. Thorndike's principle that 'other things being equal' repetition of a response increases the probability that it will be made in future.

exhaustion stage. *See* GENERAL ADAPTATION SYNDROME.

exhaustive search. A search through memory (particularly immediate memory) in which all possible items are examined: the search continues even after the item sought has been found. *Contrast* SELF-TERMINATING SEARCH.

exhibitionism. 1. The public exposure of a person's genitals in front of someone else, usually a member of the opposite sex, an act which is often compulsive. Exhibitionism is much more frequent in men than in women. 2. A tendency to show-off (usually frowned upon by therapists).

existential anxiety. (Existentialism) General anxiety caused by realizing that one cannot escape responsibility for one's actions through BAD FAITH or by the inability to find a meaning to life.

existentialism. A philosophical movement in which Kierkegaard and Sartre were prominent. Existentialists believe that we make ourselves what we are by our own choices and actions. They think that man can be free only if he finds his authentic inner self and acts on its dictates. They are, however, unclear both about how to find the inner self and what to do about it when it is discovered.

existential neurosis. A neurosis in which the person can see no meaning in life.

existential psychology. A movement started by Titchener in which people's inner thoughts were examined; the expression is

now largely synonymous with HUMANISTIC PSYCHOLOGY.

existential psychotherapy. The attempt to help patients by exploring their current emotions, values, and feelings, and attempting to help them to discover the meaning of their lives. The therapist encourages clients to seek novelty rather than sticking to their previous ways, in the hope that this will encourage growth rather than stagnation. Unlike psychoanalysts, existential therapists take seriously what the patient says rather than explaining it away in terms of disguised wish-fulfilment.

existential quantifier. *See* QUANTIFIER.

exit pupil. The image of the pupil formed by the lens. *Compare* ENTRANCE PUPIL.

exocathexis. The tendency to be concerned with external rather than internal matters.

exocentric motion. The perception of motion based on seeing one thing move relative to another rather than relative to the observer.

exocrine gland. Any gland which, unlike an ENDOCRINE GLAND, secretes its products through a duct, e.g. sweat glands.

exocytosis. The emptying of the contents of a synaptic vessel into the synaptic cleft.

exogamy. (Anthropology) The practice of marrying outside one's own group, e.g. marrying a member of another tribe.

exogenous depression. A synonym for REACTIVE DEPRESSION.

exophora. (Linguistics) Any expression that refers directly (deictically) to something in the external world (e.g. 'there', 'that', 'my'). *Contrast* ENDOPHORA.

exophoria. A PHORIA marked by the occluded eye pointing too far outwards.

exotropia. A form of STRABISMUS, in which one eye (the squinting eye) points consistently further out than the other, thus preventing BINOCULAR FUSION. The condition often arises in childhood and unless treated may produce AMBLYOPIA in one eye.

expansion. See NODE EXPANSION.

expansive delusions. A synonym for DELUSIONS OF GRANDEUR.

expectancy theory. Any theory of learning (such as Tolman's) that holds that animals pursue goals by having expectancies about the consequences of a given act in the presence of a given stimulus, as opposed to theories containing only stimulus-response links.

expectancy value models. (Social psychology) Theories that assume that a person's decisions depend on taking into account both the value and the probability of each outcome for each course of action.

expectancy wave. A synonym for CONTINGENT NEGATIVE VARIATION.

expected payoff. (Game theory) The mean gain or loss that will be made over a period of time if a consistent strategy is pursued.

expected utility (EU). The desirability of a given option given the UTILITY (u) and the probability (p) of occurrence of the outcome: it is $p \cdot u$. Compare EXPECTED VALUE.

expected value. 1. (Statistics) The mean value of a random variable in repeated sampling. It is not necessarily the most frequently occurring value nor even a possible value. If a variable takes the values 0 and 1 with equal probability, the expected value is 0.5. 2. The benefit (or cost) of a probabilistic OUTCOME of a decision expressed as its value multiplied by the probability of it occurring. When the value is expressed as a UTILITY, the expression EXPECTED UTILITY is usually used.

experiential group. An ENCOUNTER GROUP with the emphasis on the participants sharing one another's feelings.

experimental analysis of behaviour. The use (usually in animal learning) of the techniques and principles advocated by Skinner, e.g. concentrating on response rate as a dependent variable, abjuring statistics, studying operant rather than classical conditioning, etc.: the expression has acquired a surprisingly narrow connotation.

experimental condition. A condition in which some treatment is administered to subjects in order to discover whether it alters their behaviour as compared with that of a CONTROL GROUP; e.g. to discover whether PARTIAL REINFORCEMENT affects rats' running speed, some subjects might be run under partial reinforcement (experimental condition), and others under continuous reinforcement (control condition). There may be more than one experimental condition in an experiment.

experimental control. A synonym for CONTROL GROUP.

experimental extinction. A synonym for EXTINCTION (1).

experimental group. The group run or tested under the EXPERIMENTAL CONDITION. The expression is sometimes used to mean any group in an experiment including the CONTROL GROUP.

experimental neurosis. A state of disturbance in animals, usually induced either by making a discrimination problem too hard for them to master, or by giving uncontrollable shocks.

experimental psychology. Originally, any approach to psychology that was based on the results of experiments, but the meaning is now somewhat different. Although many experimental psychologists still employ experiments, experimental psychology now tends to mean the study of those psychological processes in the individual that are or appear to be amenable to rigorous (scientific) explanation. Such processes include perception, language, learning, memory, cognition, and motor skills, and it is these topics that will be found in the many current journals of experimental psychology.

experimental realism. The attempt to design experiments, particularly in social psychology, in which the subjects' interactions, emotions, and responses will be natural and not influenced by the artificial situation created in most experiments.

experimental scenario. (Social psychology) The setting in which an experiment is conducted and the COVER STORY offered, both usually designed to make the subject believe that he is in a realistic situation.

160 experimental variable

experimental variable. A synonym for INDEPENDENT VARIABLE.

experimenter bias. Distortion of the results of an experiment, caused by the experimenter (consciously or not) making mistakes in recording or analysing the data because of his own attitudes.

experimenter-expectancy effect. Distortion of the results of an experiment caused by the experimenter (consciously or not) inducing expectations in the subjects about the right way to respond, e.g. by looking pleased when they do one thing and annoyed when they do another.

expert system. (AI) Any program to solve an applied problem normally solved only by human experts (e.g. medical diagnosis). Such programs are based on systematically incorporating the experts' knowledge, usually in the form of decision rules, which are often probabilistic.

expiatory punishment. The concept of punishment held, according to Piaget, by children under 8 years old. They feel the severity of punishment should depend only on the severity of the effects of the crime and should not take into account e.g. the motive of the wrong-doer.

explicit learning, explicit memory. Learning in which what is learned can be consciously recalled. *Contrast* IMPLICIT LEARNING.

explicit naming, principle of. Marr's principle that as entities (e.g. lines, edges) are recovered from a sensory input they should be labelled so that they can subsequently be correctly accessed.

exploratory drive. The drive that leads all higher animals to explore and to learn to manipulate their environment even in the absence of other drives, and indeed often in their presence at the expense of fulfilling them.

explosive disorder. Any disorder in which a person indulges in serious and gratuitous violence against other persons or property.

exponent. The power to which another number (the BASE) is to be raised. If positive it

is the number of times the base is to be multiplied by itself; if negative it is the reciprocal of that number. When the exponent is a fraction it denotes a root of the base, e.g. $16^{\frac{1}{2}} = 4$.

exponential curve, exponential function. A curve that can be fitted by the formula $x = a.b^y$ where a and b are constants and x and y are variables. It shows an accelerated rate of increase as the variable y increases. When x is positive, it rises more steeply than a POWER FUNCTION.

exposure deafness. Impairment of hearing, either temporary or permanent, caused by loud sounds.

exposure therapy. A behaviour therapy technique in which obsessive-compulsive patients are exposed to the stimuli that trigger compulsions, for a period sufficiently long for their anxiety to begin to decrease.

expressed emotion. (Psychiatry) An expression used particularly of the families or households of schizophrenics; it is hypothesized that schizophrenics are less likely to suffer schizophrenic episodes if they live in a family where emotions (both good and bad ones) are not strongly expressed than in one in which they are (**high expressed emotion**).

expression. (Genetics) Short for GENE EXPRESSION.

expressionism factor. The aspects of a work of art that reflect the artist's emotions.

expressive. A SPEECH ACT in which the speaker expresses his feelings (e.g. by apologizing, reproving, or welcoming).

expressive aphasia. Aphasia in which the ability to speak or write is more severely damaged than the ability to comprehend. *Compare* BROCA'S APHASIA, with which expressive aphasia is virtually synonymous.

expressive therapy. Psychotherapy that encourages the patient freely to give vent to his thoughts and feelings, e.g. through psychodrama.

extended family. A family that includes members other than just the parents and children (e.g. grandparents, cousins, etc.). *Contrast* NUCLEAR FAMILY.

extended source. Any source of illumination not small enough to be treated as a POINT SOURCE.

extended standard theory (EST). A type of generative grammar developed in the 1970s. It is based on Chomsky's STANDARD THEORY, but allows some aspects of the surface structure such as stress and intonation direct access to the semantic rules.

extension. A synonym for DENOTATION.

extensor. A muscle whose contractions straighten a joint. *Contrast* FLEXOR.

external aim. *See* AIM.

external auditory canal, external auditory meatus. Synonyms for AUDITORY CANAL.

external capsule. A layer of white fibres in the basal ganglia that separates the claustrum from the putamen.

external force of organization. A force postulated by the Gestaltists, deriving from the external stimulus, which limits the extent to which the INTERNAL FORCE OF COHESION can form a stable and cohesive percept.

external granular layer. *See* GRANULAR LAYER.

external hair cells. *See* AUDITORY RECEPTORS.

external hunger hypothesis. The hypothesis that obese people do not govern eating by internal signals of hunger but through external stimuli associated with food.

external inhibition. Pavlov's expression for the process underlying the reduction in the strength of a conditioned response when a strong stimulus is presented together with the conditioned stimulus. *Contrast* INTERNAL INHIBITION.

externalization. 1. (Developmental psychology) The formation of a distinction between the self and the external world in childhood. 2. (Attribution theory) The attribution of the

cause of an action to an external factor rather than to something within the person. 3. (Drive) The process by which a drive comes to be conditioned to external stimuli. 4. (Psychoanalysis) A synonym for PROJECTION (1).

externalizing disorder. A disorder, like delinquency, that is manifested to others.

external pyramidal layer. *See* PYRAMIDAL LAYER.

external rectus. An EXTRAOCULAR MUSCLE that rotates the eye outwards.

externals. *See* LOCUS OF CONTROL.

external validity. A synonym for CRITERION VALIDITY.

exteroception. Any sensory system that responds to stimuli emanating from outside the body (e.g. auditory hair cells or skin receptors). *Contrast* INTEROCEPTION.

extinction. 1. The reduction in the strength of a response that occurs when the stimulus controlling it is repeatedly presented without a reinforcer being given, or the process that gives rise to this reduction. *Contrast* HABITUATION. 2. A synonym for SENSORY SUPPRESSION.

extinction, law of. Pavlov's law that if a conditioned reflex is elicited by a conditioned stimulus without reinforcement, the conditioned reflex is weakened.

extinction stage. *See* GENERAL ADAPTATION SYNDROME.

extinction to simultaneous stimulation. (Neuropsychology) The failure to perceive a visual or tactile stimulus projected to a damaged hemisphere when a stimulus is presented contralaterally, if the stimulus to the damaged hemisphere would have been perceived when presented on its own. It is one form of UNILATERAL NEGLECT.

extirpation. The surgical removal of a bodily structure.

extorsion. A rotation of the eye in which the top of the cornea rotates outwards towards the temples. *Compare* INTORSION.

extracellular fluid. Any fluid in the body outside the cells, e.g. the fluid in the spinal column. It is formed from plasma with the larger molecules filtered out. In discussions of thirst, the term is used to mean the extracellular fluid in which cells are bathed. The fluid has the same tonicity as blood, and if it is hypertonic, water passes into it from the cells. *See* OSMORECEPTORS.

extracellular thirst. A synonym for VOLUMETRIC THIRST.

extraception. The tendency to be governed by objective or external events. *Contrast* INTROCEPTION.

extra cost error. The mistake of not proceeding with a beneficial course of action that has a cost, because some cost has already been wasted. E.g. someone who has lost his theatre ticket may refuse to buy another one because he thinks he is paying twice, but the fact that he has already lost a ticket is irrelevant.

extradimensional shift. The change in reinforcement contingency that occurs when an organism is first trained to discriminate along one dimension (e.g. colour), with a second dimension either irrelevant or not present, and is then trained to discriminate along the second dimension (e.g. shape). *Contrast* INTRADIMENSIONAL SHIFT.

extrafusil fibres. The contractile fibres contained in muscle, consisting of longitudinally arranged filaments some made up of MYOSIN, some of ACTIN. When an extrafusil fibre is stimulated (always by a single motor neuron), the actin filaments slide and increase their overlap with the parallel myosin filaments, thus causing the muscle to contract. The muscle is striated since it contains light bands (**I bands**) where there is only myosin, and dark bands (**A bands**) where myosin and actin overlap. The I bands contain a third dark band (**Z band**) where myosin fibres connect with one another. *Compare* INTRAFUSIL FIBRES.

extrajection. A synonym for PROJECTION.

extraocular muscles. The muscles lying outside the eyeball that change the direction of gaze. There are three pairs, with the mem-

bers of each pair working in opposition to one another. The pairs are: SUPERIOR RECTUS and INFERIOR RECTUS; SUPERIOR OBLIQUE and INFERIOR OBLIQUE; LATERAL RECTUS and MEDIAL RECTUS. *See also* ABDUCTION, ADDUCTION, and TORSION. *Compare* INTRINSIC EYE MUSCLES.

extraocular nerves. The third (oculomotor), fourth (trochlear), and sixth (abducens) CRANIAL NERVES. They act together to control the extraocular muscles.

extrapolation. Inferring a value or values for points on a dimension from the obtained values of points on a limited range of the dimension. *Compare* INTERPOLATION.

extrapunitive. An alternative spelling of EXTROPUNITIVE.

extrapyramidal motor system. The basal ganglia and associated nuclei and their projections to e.g. the spinal cord and parts of the reticular system. Together with the PYRAMIDAL SYSTEM and CEREBELLUM it plays a major part in motor control. Damage to the system can cause PARKINSON'S DISEASE, CHOREA, ATHETOSIS, and HEMIBALLISMUS.

extrapyramidal syndrome. A neurological syndrome caused by damage to the EXTRAPYRAMIDAL MOTOR SYSTEM; the symptoms may include tremor, rigidity, restlessness, and difficulty in making voluntary movements.

extrasensory perception (ESP). (Parapsychology) The alleged acquisition of knowledge about the world without the use of the senses.

extraspectral hue. A hue such as purple, produced by a mixture of blue and red light; such mixtures produce highly saturated colours which complete the gap in the colour circle between the spectral hues violet and red.

extrastriate cortex. Visual areas excluding, but near to, the STRIATE CORTEX, particularly Brodmann's areas 18 and 19 in the occipital lobe, and areas 20 and 21 in the temporal lobe; *see* Appendix 3.

extraversion, extroversion. A constellation of personality traits, proposed by Jung and sponsored by Eysenck, marked mainly by interest in the outside world, but including

confidence, sociability, etc. Eysenck believes that extraverts are slow to condition and therefore need a high level of stimulation. *Contrast* INTROVERSION.

extraversion–introversion dimension. A personality dimension based on factor analyses of personality tests, particularly as assessed by the MAUDSLEY PERSONALITY INVENTORY and the EYSENCK PERSONALITY QUESTIONNAIRE. On this dimension the extravert is sociable, assertive, sensation-seeking, and dominant; the introvert is the opposite.

extrinsic eye muscles. A synonym for EXTRAOCULAR MUSCLES.

extrinsic motivation. Motivation that depends on pursuing an external goal (e.g. money, food, avoidance of shock) rather than on doing something (e.g. studying) for its own sake. *Contrast* INTRINSIC MOTIVATION.

extrinsic noise. NOISE (1) arising from outside a system or organism, e.g. quantum fluctuations on the retina.

extrinsic surface property. (Computer vision) Any property of a surface, such as luminance, slant or motion relative to an observer, that changes with viewing or lighting conditions. *Contrast* INTRINSIC SURFACE PROPERTY.

extropunitive. Directing aggression outwards rather than blaming oneself, e.g. after being frustrated. *Contrast* IMPUNITIVE and INTRO-PUNITIVE.

extroversion. An incorrect but commonly used spelling of EXTRAVERSION.

eye contact. Looking another person in the eye, usually measured as the total duration of such contact over a period of time.

eye dominance. The tendency for one eye (usually the right) to be used rather than the other. The dominant eye often has greater acuity than the non-dominant one. Where BINOCULAR DISPARITY occurs, the object tends to be seen in the direction yielded by the dominant eye. In BINOCULAR RIVALRY, the pattern projected to the non-dominant eye is more likely to be suppressed than that projected to the dominant eye.

eye–head system. A system operating after the IMAGE–RETINAL SYSTEM that computes the motion of a stimulus, taking into account the motion of the eyes relative to the head.

eye movement. Any movement of the eyeball, including OPTOKINETIC NYSTAGMUS, PHYSIOLOGICAL NYSTAGMUS, SACCADDES, SMOOTH FOLLOWING MOVEMENTS, TORSION and VERGENCE.

eye muscles. *See* CILIARY MUSCLE and EXTRAOCULAR MUSCLES.

eye span. A synonym for READING SPAN.

eye–voice span. The mean number of letters or words between the word being fixated and the word being spoken when reading aloud.

Eysenck Personality Questionnaire (EPQ). A questionnaire designed to measure three main factors – extraversion–introversion, neuroticism, and psychoticism.