GLOSSARY

ablative case: A declension on a noun, in languages such as Latin and Finnish, that denotes active motion away from some object.

accommodation: In Piagetian psychology, the act of altering one's mental representation of the external world to make it consistent with new information (cf. *assimilation*).

acquired knowledge: Implicit knowledge of language that a learner gains subconsciously, merely through interactions with the environment (see *learned knowledge*).

affective filter: Emotive factors like motivation, introversion/extroversion, anxiety, and so forth, that can either facilitate or impede language acquisition.

aphasia: Partial or total language loss due to injury or disease.

***Ardipithecus*:** A very early (ca. 4.4 million BCE) genus of hominid with chimpanzee-like bone structure but bipedal posture.

assimilation: In Piagetian psychology, the act of incorporating new information into one's mental representation of the external world.

***Australopithecus*:** A genus of hominid (ca. 5 million to 3 million BCE) with mostly ape-like traits, except for its bipedal posture.

behaviorism: A theory of psychology, originating in the work of B. F. Skinner and others, that seeks to explain the behavior of sentient organisms in terms of positive and negative reinforcement of actions.

Broca's Aphasia: A speech deficit that results from insult to the inferior frontal gyrus of the frontal lobe of the cortex in the left hemisphere and is commonly characterized by agrammatism or "non-fluent" speech.

communicative competence: The expression, interpretation, and negotiation of meaning.

connectionism: An approach to cognitive psychology and artificial intelligence that purports to explain behavior in term of interconnected networks of information.

constituent: A string of words having a grammatical structure.

constructivism: An approach to psychology that studies the way in which a learner makes sense of the external world by actively creating mental representations of that world rather than passively absorbing information.

corpus callosum: The ensemble of commissural fibers connecting the left and right cerebral hemispheres of the brain.

Critical Period Hypothesis (CPH): The claim that there is a period of time, running roughly from ages three through adolescence, during which the human brain is optimally prepared to acquire a language.

dative case: A declension on a noun that denotes the recipient of some action, corresponding to the indirect object in English.

declarative memory: That part of memory that stores factual information, as opposed to *procedural memory* (see below).

deep structure: In early versions of transformational grammar, the structure from which surface structures are derived by means of transformational rules.

descriptive adequacy: In theoretical linguistics, the extent to which a formal theory specifies rules that define all and only grammatically correct utterances of a language (see *explanatory adequacy*).

discrepant loss: When an L1 and an L2 are lost to an unequal degree relative to premorbid fluency (cf. *parallel loss*).

displaced constituent: Any part of speech in a well-formed constituent that appears in a position other than the one normally specified by phrase structure rules (e.g., the *what* in "What did he tell you?").

domain-relevant: A kind of knowledge that is useful in a certain cognitive domain. For example, the ability to count may be useful in buying vegetables or in keeping track of time (see *domain-specific*).

domain-specific: A kind of knowledge that is useful only in a certain, narrowly defined cognitive domain. For example, knowledge of how to decline nouns in Latin cannot be generalized to other types of cognition (see *domain-relevant*).

encephalization quotient: A means of estimating the intelligence of an animal by calculating the ratio of the brain weight to the brain weight of the average animal of its size. The formula for mammals is $EQ = \text{brain weight}/0.12(\text{body weight})^{0.66}$.

environment of evolutionary adaptation: The environment in which an organism came to have its traits by means of natural selection.

equipotentiality: In applied linguistics, the observation that a child's brain is adept at learning all human languages with equal facility. Equipotentiality does not hold for adult second languages.

evolutionary psychology (EP): The investigation of how natural selection structures functional cognitive traits.

exaptation: When a trait that evolved to serve one function subsequently evolves to serve some other function.

experiential: Knowledge originating in experience rather than from an innate disposition.

explanatory adequacy: In theoretical linguistics, the means of selecting from many descriptively adequate theories (cf. *descriptive adequacy*) the one that best accounts for the facts concerning the acquisition of linguistic knowledge.

explicit knowledge: As opposed to *tacit knowledge* (cf. below), knowledge that is formal and conscious.

fMRI: Functional Magnetic Resonance Imaging; the use of magnetic resonance imaging to measure blood flow related to neural activity.

fossilization: The process by which incorrect or "non-native" grammar rules become fixed in the mind of a language learner due to lack of corrective feedback.

generative grammar: A formal theory of syntax, pioneered by Noam Chomsky, that specifies the set of rules and principles that defines the set of possible human languages.

genitive case: In grammar, the declension on a noun that indicates possession.

grammaticality judgment tasks: In applied linguistics and psycholinguistics, an experimental task that requires a subject to declare if a certain string of words is grammatically well-formed or not.

head: In formal syntax, the word in a grammatical constituent that plays the same grammatical role as the phrasal constituent of which it is a part (e.g., the main verb in a verb phrase is the phrase's grammatical head).

hemispherectomy: The surgical removal or disabling of one hemisphere of the brain, generally performed to treat severe, intractable seizures due to epilepsy or other illnesses.

hippocampus: In humans and other mammals, part of the limbic system of the brain associated with memory and spatial orientation.

***Homo erectus*:** A species of hominid of the genus *Homo* (ca. 1.5 million to 500,000 BCE) characterized by a flat, thick skull and large occipital and brow ridges.

***Homo habilis*:** A species of hominid of the genus *Homo* (ca. 2.5 million to 1.8 million BCE) and believed to be among the first tool makers in the *Homo* lineage.

***Homo neanderthalensis*:** A recent but extinct hominid of the genus *Homo* (ca. 150,000–30,000 BCE) characterized by a brow ridge that is smaller than its antecedents, a thinner skull, large nose, and protruding midface.

***Homo rudolfensis*:** A species of hominid of the genus *Homo* (ca. 2.4 million–1.6 million BCE) characterized by a face that is larger and flatter than its antecedents, a robust jaw, and large, narrow molars.

***Homo sapiens*:** Modern humans.

in situ: A Latin expression meaning "in its natural or original position or place."

intelligent design (ID): The claim that certain aspects of the universe are so complex in design as to exclude the possibility of random generation and could therefore have only been the consequence of intelligence.

intracarotid amobarbital test: Also known as the Wada Test, a medical procedure in which an anesthetic is injected into the carotid artery by means of a catheter. The purpose of the procedure is to anesthetize parts of the brain as a means of assessing cognitive functions.

irreducible complexity: An argument used by *intelligent design* advocates (cf. above) that certain biological structures are too complex to have evolved from simpler structures, or to have arisen naturally through random mutation.

language attrition: The loss or degradation of proficiency in a language due to lack of sustained exposure to or use of the language.

language deprivation: A social pathology in which a child is not exposed to linguistic input during his or her formative years.

larynx: An organ, situated below the point where the pharynx divides into the trachea and the esophagus, that contains the vocal folds and therefore plays a crucial role in human speech.

learned knowledge: As opposed to acquired knowledge (cf. above), a kind of knowledge that comes about through conscious, directed study.

minimalism: A "bold speculation" of Chomsky's that languages can be defined as the variation of values on certain universal parameters, such that no language-specific rules are required in the grammar of a language.

Monitor Hypothesis: In Krashen's account of language acquisition, the act of relying on one's formal learned knowledge of grammar to monitor and correct one's utterances.

monophyletic: Describes a group whose members all share a common ancestor (cf. *polyphyletic*).

morphology: The study of words and the formation of words from smaller parts like prefixes, suffixes, inflections, and so forth.

nativism: The theory that certain kinds of behaviors are innately specified.

natura non facit saltum: In Latin, "nature makes no leap." The observation that evolution is a slow and gradual process.

Neanderthal: See *Homo neanderthalensis*.

neurolinguistics: The study of those parts of the brain that are involved in language acquisition and processing.

nominative case: A declension on a noun that denotes the least marked or base form. In some languages, it is used to denote agency.

ontogeny: The individual development of an organism from its earliest to its mature or stable form (cf. *phylogeny*).

operant conditioning: The manipulation of positive and negative consequences as a means of modifying behavior.

Oral Proficiency Interview: A standardized testing procedure for quantifying the functional speaking ability of an individual.

parallel loss: When an L1 and an L2 are lost to more or less equal degrees, relative to what is sometimes called pre-morbid fluency (cf. *discrepant loss*).

***Paranthropus robustus*:** A hominid (ca. 2 million to 1.2 million BCE) characterized by large dorsal crests and jaws.

parse: To assign a grammatical structure to a string of words by identifying its constituents.

PET scan: Positron Emission Tomography, a medical imaging technique in which a radioactive substance is injected into a patient and then monitored by a scanner.

pharynx: That part of the alimentary canal situated between the supralaryngeal vocal tract and the esophagus, and containing the *larynx* (cf. above).

phatic: A linguistic function intended to perform a social task rather than to convey information (e.g., *please, thank you, you're welcome*).

phrase structure rule: A formal means of defining constituency in a language, a phrase structure rule consists of an operator (→) with exactly one label to the left and one or more to the right (e.g., S → NP VP is understood as "a sentence may consist of a noun phrase and a verb phrase").

phylogeny: The history of development and evolution of a species (cf. *ontogeny*).

plasticity: The ability of the immature brain to establish functional traits in particular regions. As people grow older and cognitive functions become fixed in particular parts of the brain, we say that the brain is losing plasticity.

polyphyletic: Describes a group whose members do not share a common ancestor (cf. *monophyletic*).

poverty of stimulus: The argument claiming that the grammar of a language is disproportionately complex with respect to information obtainable from the environment, to such a degree as to exclude experience as the sole causal factor for language acquisition.

procedural memory: Denotes generally subconscious or implicit knowledge of how to accomplish certain tasks.

proto-language: A hypothetical, archaic language from which all present languages are descendant.

saltationist hypothesis: Also known as the late hypothesis. The claim that language originated late in the phylogenetic development of modern humans, perhaps around the Upper Paleolithic Period, ca. 40,000 BCE (cf. *early hypothesis*).

Standard Social Sciences Model: A term used by evolutionary psychologists to describe the cultural determinist perspective, popular during the latter half of the twentieth century, that argued strongly against innate knowledge.

stasis: In learning theory the final or steady state of a learner, characterized by little or no change.

stenosis: The abnormal narrowing or constricting of a blood vessel.

super selective amytal test: The highly localized anesthetization of a narrowly delimited portion of the brain, performed via a catheter guided through the carotid artery, in order to assess the loci of language or other cognitive functions.

supralaryngeal vocal tract (SVT): That portion of the vocal tract lying above the larynx.

surface structure: In transformational grammars, structures that are derived from deep structures via the application of transformational rules.

Sylvian fissure: A cleft or fissure of the cerebral hemisphere that divides the temporal from the parietal and frontal lobes.

syntax: The formal grammatical properties of a language. Syntax is commonly referred to as the "grammar" of a language. The syntax of a language consists of a finite set of rules that define an infinite set of phrases.

tabula rasa: Literally, "blank slate." The belief that the brain is functionally formless and devoid of information at birth, and that all knowledge subsequently comes from one's environment.

tacit knowledge: As opposed to *explicit knowledge* (cf. above), knowledge that a person is not consciously aware of.

Turing Test: A test of a machine's ability for independent thought. A Turing Test, named after British mathematician Alan Turing, is based on the assumption that if a human cannot distinguish a computer's performance from a human's on some task, then the computer must be endowed with intelligence.

unification grammar: Any of a number of formal grammar theories that reject transformational rules and instead define constituency by means of set unification.

Universal Grammar (UG): The study of that which all human languages have in common. Just as *generative grammar* sets out to specify a set of rules and principles that define all and only possible sentences of a language, UG sets out to specify a set of principles that define all and only possible human languages. Those principles constitute linguistic knowledge that is innate.

Upper Paleolithic Period: The third and final phase of the Paleolithic Period (i.e., the "Stone Age," ca. 40,000 to 10,000 BCE) marked by the appearance of advanced culture and evidence of abstract thinking among humans.

Wernicke's Aphasia: A speech deficit that results from insult to an area located in the left temporal lobe, posterior to the primary auditory complex. Wernicke's Aphasia is commonly characterized by paraphasia, or "semantically aberrant" speech.

Williams Syndrome: A rare condition that affects children and whose symptoms include moderate mental retardation, abnormal facial features like prominent lips and gaping mouth, low nasal bridge, and dental problems. People with Williams Syndrome commonly experience maturational delays and other cognitive impairments, notably with motor skills and spatial perception. On the other hand, they are frequently far superior to others in their age cohort in terms of their linguistic abilities.