Modality Markers
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Modality

Modality may refer to:

Education
- Multimedia learning

Humanities
- In law: the basis of legal argumentation in United States constitutional law
- In theology: Modality (theology): the organization and structure of the church, as distinct from sodality or parachurch organizations
- In music, the subject concerning certain diatonic scales known as musical modes (e.g., Ionian)
- In sociology, Modalities (sociology) is a concept in Anthony Giddens structuration theory

Linguistics
- Modality (semiotics), the channel by which signs are transmitted (oral, gesture, written)
- Linguistic modality, covering expressions of how the world might be and should be. This includes expressions of necessity, permissibility and probability, and negations of these

Medicine
- Sensory modality or Stimulus modality, a type of physical phenomenon that one can sense, such as temperature and sound
- In psychotherapy, a method of therapeutic approach
- In medical imaging, any of the various types of equipment or probes used to acquire images of the body, such as radiography, ultrasound and magnetic resonance imaging

Science and technology
- Transportation modality, a mode of transport
- modal logic, a form of logic which distinguishes between (logically) "necessary truths" and "contingent truths". Related topics include possibility, impossibility, actuality, and related predicates
- modality (human-computer interaction), a path of communication between the human and the computer, such as vision or touch

Other uses
- In advance fee fraud (Nigerian 419 Scams), the method of funds transfers. Often used as a key-word in scam baiting
- Modal realism, a view that all possible worlds are as real as the actual world
- Modalities (trade negotiations), the formulas, targets, or specific measures used to accomplish objectives in trade negotiations
Marker (linguistics)

In linguistics, a marker is a free or bound morpheme that indicates the grammatical function of the marked word, phrase, or sentence. In analytic languages and agglutinative languages, markers are generally easily distinguished. In fusional languages and polysynthetic languages, this is often not the case. For example: in Latin -- a highly fusional language -- the word *amo* ("I love") is marked by suffix *-o* for indicative mood, active voice, first person, singular, present tense. Analytic languages tend to have a relatively limited number of markers.

Markers should be distinguished from the linguistic concept of markedness. An unmarked form is the basic "neutral" form of a word, typically used as its dictionary lemma, such as: -- in English -- for nouns the singular (e.g. *cat* versus *cats*), and for verbs the infinitive (e.g. *to eat* versus *eats*, *ate* and *eaten*). Unmarked forms (e.g. the nominative case in many languages) tend to be less likely to have markers, but this is not true for all languages (compare Latin). Conversely, a marked form may happen to have a zero affix, like the genitive plural of some nouns in Russian. In some languages, the same forms of a marker have more than one function, such as when used in different cases or declensions (for example -*is* in Latin).

Examples

- English: the suffix *-s* in *dogs* is a plural marker.
- Latin: the suffix *-is* in *flaminis* is a case marker, specifically a genitive marker.
- Spanish: the word *hay* in *hay muchos libros en la biblioteca* is an existential marker.
- Japanese: the Japanese particle が (ga) as in 「誰が学生ですか。」 ['Who's the student?'] is a subject marker.
- Korean: the Korean particle 은/는 (eun, neun) is a topic marker, also known as a contrast particle.

Markedness

Markedness is a specific kind of asymmetry relationship between elements of linguistic or conceptual structure. In a marked-unmarked relation, one term of an opposition is the broader, dominant one. The dominant term is known as the 'unmarked' term and the other, secondary one is the 'marked' term.

In linguistics, markedness ranges over phonological, grammatical, and semantic oppositions, defining them in terms of 'marked' and 'unmarked' oppositions like honest (unmarked) vs. dishonest (marked).

In the social sciences more broadly, markedness is used to distinguish two meanings of the same term, where one is common usage (unmarked sense) and the other is specialized to a cultural context (marked sense).

Marked and unmarked word pairs

In terms of lexical opposites, marked form is a non-basic, often one with inflectional or derivational endings. Thus, a morphologically negative word form is marked as opposed to a positive one: happy/unhappy, honest/dishonest, fair/unfair, clean/unclean and so forth. Similarly, unaffixed masculine or singular forms are taken to be unmarked in contrast to affixed feminine or plural forms: lion/lioness, host/hostess, automobile/automobiles, child/children. An unmarked form is also a default form. For example, the unmarked lion can refer to a male or female, while lioness is marked because it can refer only to females.

The default nature allows unmarked lexical forms to be identified even when the opposites are not morphologically related. In the pairs old/young, big/little, happy/sad, clean/dirty, the first term of each pair is taken as unmarked because it occurs generally in questions. For example, English speakers typically ask how old (big, happy, clean) something or someone is. To use the marked term presupposes youth, smallness, unhappiness, or dirtiness.
Background in the Prague School

While the idea of linguistic asymmetry predated the actual coining of the terms 'marked' and 'unmarked' the modern concept of markedness originated in the Prague School structuralism of Roman Jakobson and Nikolai Trubetzkoy as a means of characterizing binary oppositions.\[1\] Both sound and meaning were analyzed into systems of binary distinctive features. As Edwin Battistella explains “Binarism suggests symmetry and equivalence in linguistic analysis; markedness adds the idea of hierarchy.”\[2\] Trubetzkoy and Jakobson analyzed phonological oppositions such as nasal versus non-nasal as defined as the presence versus the absence of nasality; the presence of the feature, nasality, was marked; its absence, non-nasality, was unmarked. For Jakobson and Trubtzkoy, binary phonological features formed part of a universal feature alphabet applicable to all languages. In his 1932 article 'Structure of the Russian Verb,' Jakobson extended the concept to grammatical meanings in which the marked element ‘announces the existence of [some meaning] A’ while the unmarked element ‘does not announce the existence of A, i.e., does not state whether A is present or not’.\[3\] Forty years later, Jakobson described language by saying that “every single constituent of a linguistic system is built on an opposition of two logical contradictories: the presence of an attribute (‘markedness’) in contraposition to its absence (‘unmarkedness’).”\[4\] In his 1941 Child Language, Aphasia, and Universals of Language, Jakobson also suggested that phonological markedness played a role in language acquisition and loss. Drawing on existing studies of acquisition and aphasia, Jakobson suggested a mirror image relationship determined by a universal feature hierarchy of marked and unmarked oppositions. Today many still see Jakobson’s theory of phonological acquisition as identifying useful tendencies.\[5\]

Jakobsonian tradition

The work of Cornelius van Schooneveld, Edna Andrews, Rodney Sangster, Yishai Tobin and others on ‘semantic invariance’ (different general meanings reflected in the contextual specific meanings of features) has further developed the semantic analysis of grammatical items in terms of marked and unmarked features. Other semiotically-oriented work has investigated the isomorphism of form and meaning with less emphasis on invariance, including the efforts of Henning Andersen, Michael Shapiro, and Edwin Battistella. Shapiro and Andrews have especially made connections between the semiotic of C. S. Peirce and markedness, treating it as “as species of interpretant” in Peirce’s sign-object-interpretant triad.

Functional linguists such as Thomas Givón have suggested that markedness is related to cognitive complexity—in terms of attention, mental effort or processing time.\[6\] And linguistic ‘naturalists’ view markedness relations in terms of the ways in which extralinguistic principles of perceptibility and psychological efficiency determine what is natural in language. Linguist Willi Mayerthaler, for example, defines unmarked categories as those ‘in agreement with the typical attributes of the speaker.’\[7\]

Cultural markedness

Since a main component of markedness is the information content and information value of an element,\[8\] some studies have taken markedness as an encoding of that which is unusual or informative. Conceptual familiarity with cultural norms provided by familiar categories creates a ground against which marked categories provide a figure, opening the way for markedness to be applied to cultural and social categorization.

As early as the 1930s Jakobson had already suggested applying markedness to all oppositions, explicitly mentioning such pairs as life/death, liberty/bondage, sin/virtue, and holiday/working day. Linda Waugh extended this to oppositions like male/female, white/black, sighted/blind, hearing/deaf, heterosexual/homosexual, right/left, fertility/barrenness, clothed/nude, and spoken language/written language.\[9\] Battistella expanded this with the demonstration of how cultures align markedness values to create cohesive symbol systems, illustrating with examples based on Joseph Needham’s work.\[10\] Other work has applied markedness to styletics, music, myth.\[11\]
Local markedness and markedness reversals

Markedness depends on context. What is more marked in some general contexts may be less marked in other local contexts. Thus, "ant" is less marked than "ants" on the morphological level, but on the semantic (and frequency) levels it may be more marked since ants are more often encountered many at once than one at a time. Often a more general markedness relation may be reversed in a particular context. Thus, voicelessness of consonants is typically unmarked. But between vowels or in the neighborhood of voiced consonants, voicing may be the expected or unmarked value.

Reversal is reflected in certain Frisian words' plural and singular forms:\[12\]: In Frisian, nouns with irregular singular-plural stem variations are undergoing regularization. Usually this means that the plural is reformed to be a regular form of the singular:

- **OLD PARADIGM:** "koal" (coal), "kwallen" (coals) → **REGULARIZED FORMS:** "Koal" (coal), "Koalen" (coals).

However, a number of words instead reform the singular by extending the form of the plural:

- **OLD PARADIGM:** "earm" (arm), "jermen" (arms) → **REGULARIZED FORMS:** "jerm" (arm), "jermen" (arms)

The common denominator of the nouns that regularize the singular to match the plural is that they are terms that more often occur in pairs or in groups; they are said to be semantically, (but not morphologically) locally unmarked in the plural.

Universals and frequency

Joseph Greenberg's 1966 book *Language Universals* was an influential application of markedness to typological linguistics and a break from the tradition of Jakobson and Trubetzkoy. Greenberg took frequency to be the primary determining factor of markedness in grammar and suggested that unmarked categories could be determined by 'the frequency of association of things in the real world.'

Greenberg also applied frequency cross-linguistically, suggesting that unmarked categories would be those that are unmarked in a wide number of languages. However, critics have argued that frequency is problematic because categories that are cross-linguistically infrequent may have a high distribution in a particular language.\[13\]

Universals have also been connected to implicational laws. This entails that a category is taken as marked if every language that has the marked category also has the unmarked one but not vice versa.

Diagnostics

Markedness has been extended and reshaped over the past century and reflects a range of loosely connected theoretical approaches. From emerging in the analysis of binary oppositions, it has become a global semiotic principle, a means of encoding naturalness and language universals, and a terminology for studying defaults and preferences in language acquisition. What connects various approaches is a concern for the evaluation of linguistic structure, though the details of how markedness is determined and what its implications and diagnostics are varies widely. Other approaches to universal markedness relations focus on functional economic and iconic motivations, tying recurring symmetries to properties of communication channels and communication events. Croft (1990), for example, notes that asymmetries among linguistic elements may be explainable in terms economy of form, in terms of iconism between the structure of language and conceptualization of the world.
Markedness in generative grammar

Markedness entered generative linguistic theory through Chomsky and Halle’s The Sound Pattern of English. For Chomsky and Halle, phonological features went beyond a universal phonetic vocabulary to encompass an ‘evaluation metric,’ a means of selecting the most highly-valued adequate grammar. In The Sound Pattern of English, the value of a grammar was the inverse of the number of features required in that grammar. However, Chomsky and Halle realized that their initial approach to phonological features made implausible rules and segment inventories as highly valued as natural ones. The unmarked value of a feature was cost-free with respect to the evaluation metric, while the marked feature values were counted by the metric. Segment inventories could also be evaluated according to the number of marked features. However, the use of phonological markedness as part of the evaluation metric was never able to fully account for the fact that some features are more likely than others or for the fact that phonological systems must have a certain minimal complexity and symmetry.[14]

In generative syntax, markedness as feature-evaluation did not receive the same attention that it did in phonology. Chomsky came to view unmarked properties as an innate preference structure based first in constraints and later in parameters of universal grammar. In their 1977 article ‘Filters and Control,’ Chomsky and Howard Lasnik extended this to view markedness as part of a theory of ‘core grammar:’

> We will assume that [Universal Grammar] in not an ‘undifferentiated’ system, but rather incorporates something analogous to a ‘theory of markedness’. Specifically, there is a theory of core grammar with highly restricted options, limited expressive power, and a few parameters. Systems that fall within core grammar constitute ‘the unmarked case’; we may think of them as optimal in terms of the evaluation metric. An actual language is determined by fixing the parameters of core grammar and then adding rules or conditions, using much richer resources, ... These added properties of grammars we may think of as the syntactic analogue of irregular verbs.[15]

A few years later Chomsky would describe it this way:

> The distinction between core and periphery leaves us with three notions of markedness: core versus periphery, internal to the core, and internal to the periphery. The second has to do with the way parameters are set in the absence of evidence. As for the third, there are, no doubt, significant regularities even in departures from the core principles (for example, in irregular verb morphology in English), and it may be that peripheral constructions are related to the core in systematic ways, say by relaxing certain conditions of core grammar.[16]

Some generative researchers have applied markedness to second language acquisition theory, treating it as an inherent learning hierarchy which reflects the sequence in which constructions are acquired, the difficulty of acquiring certain constructions, and the transferability of rules across languages. More recently, Optimality Theory approaches emerging in the 1990s have incorporated markedness in the ranking of constraints.[17]

References

Social semiotics

Social semiotics is a branch of the field of semiotics which investigates human signifying practices in specific social and cultural circumstances, and which tries to explain meaning-making as a social practice. Semiotics, as originally defined by Ferdinand de Saussure, is "the science of the life of signs in society". Social semiotics expands on Saussure's founding insights by exploring the implications of the fact that the "codes" of language and communication are formed by social processes. The crucial implication here is that meanings and semiotic systems are shaped by relations of power, and that as power shifts in society, our languages and other systems of socially accepted meanings can and do change.

Social semiotics is thus the study of the social dimensions of meaning, and of the power of human processes of signification and interpretation (known as semiosis) in shaping individuals and societies. Social semiotics focuses on social meaning-making practices of all types, whether visual, verbal or aural in nature (Thibault, 1991). These different systems for meaning-making, or possible "channels" (e.g. speech, writing, images) are known as semiotic modes. Semiotic modes can include visual, verbal, written, gestural and musical resources for communication. They also include various "multimodal" ensembles of any of these modes (Kress and van Leeuwen, 2001).

Social semiotics can include the study of how people design and interpret meanings, the study of texts, and the study of how semiotic systems are shaped by social interests and ideologies, and how they are adapted as society changes (Hodge and Kress, 1988). Structuralist semiotics in the tradition of Ferdinand de Saussure focused primarily on theorising unchanging semiotic systems or structures (termed langue by de Saussure). In contrast, social semiotics tries to account for the variability of semiotic practices termed parole. This altered focus shows how individual creativity, changing historical circumstances, and new social identities and projects can all change patterns of usage and design (Hodge and Kress, 1988). From a social semiotic perspective, rather than being fixed into unchanging
"codes", signs are considered to be resources which people use and adapt (or "design") to make meaning. In these respects, social semiotics was influenced by, and shares many of the preoccupations of pragmatics and sociolinguistics and has much in common with cultural studies and critical discourse analysis.

The main task of social semiotics is to develop analytical and theoretical frameworks which can explain meaning-making in a social context (Thibault, 1991).

MAK Halliday and the social semiotic in language

Linguistic theorist, Michael Halliday, introduced the term 'social semiotics' into linguistics, when he used the phrase in the title of his book, *Language as Social Semiotic*. This work argues against the traditional separation between language and society, and exemplifies the start of a 'semiotic' approach, which broadens the narrow focus on written language in linguistics (1978). For Halliday, languages evolve as systems of "meaning potential" (Halliday, 1978:39) or as sets of resources which influence what the speaker can do with language, in a particular social context. For example, for Halliday, the grammar of the English language is a system organised for the following three purposes (areas or "metafunctions"):

- Facilitating certain kinds of social and interpersonal interactions (interpersonal),
- Representing ideas about the world (ideational), and
- Connecting these ideas and interactions into meaningful texts and making them relevant to their context (textual)(1978:112).

Any sentence in English is composed like a musical composition, with one strand of its meaning coming from each of the three semiotic areas or metafunctions. Bob Hodge, in the *Semiotics Encyclopedia Online* [1], suggests that the following points sum up the major premises of Halliday's social semiotics:

1. 'Language is a social fact' (1978:1)
2. ‘We shall not come to understand the nature of language if we pursue only the kinds of question about language that are formulated by linguists’ (1978:3)
3. 'Language is as it is because of the functions it has evolved to serve in people's lives' (1978:4).
4. There are three functions, or 'metafunctions', of language: ideational ('about something'), interpersonal ('doing something') and textual ('the speaker's text-forming potential')(1978:112).
5. Language is constituted as 'a discrete network of options' (1978:113)

Social semiotics and critical linguistics

Robert Hodge and Gunther Kress's *Social Semiotics* (1988) focused on the uses of semiotic systems in social practice. They explain that the social power of texts in society depends on interpretation: "Each producer of a message relies on its recipients for it to function as intended." (1988:4) This process of interpretation (semiosis) situates individual texts within discourses, the exchanges of interpretative communities. The work of interpretation can contest the power of hegemonic discourses. Hodge and Kress give the example of feminist activists defacing a sexist advertising billboard, and spray-painting it with a new, feminist message.

"Text is only a trace of discourses, frozen and preserved, more or less reliable or misleading. Yet discourse disappears too rapidly, surrounding a flow of texts." (1988:8)

Hodge and Kress built on a range of traditions from linguistics (including Noam Chomsky, Halliday, Benjamin Lee Whorf and sociolinguistics), but the major impetus for their work is the critical perspective on ideology and society that originates with Marx.

Hodge and Kress build a notion of semiosis as a dynamic process, where meaning is not determined by rigid structures, or predefined cultural codes. They argue that Ferdinand de Saussure's structuralist semiotics avoided addressing questions about creativity, movement, and change in language, possibly in reaction to the diachronic linguistic traditions of his time (the focus on the historical development from Indo-European). This created a
"problematic" legacy, with linguistic change relegated to the "contents of Saussure’s rubbish bin" (1988:16-17).

Instead, Hodge and Kress propose to account for change in semiosis through the work of Charles Sanders Peirce. Meaning is a process, in their interpretation of Peirce. They refer to Peirce's triadic model of semiosis, which depicts the “action” of a sign as a limitless process of infinite semiosis, where one "interpretant" (or idea linked to a sign) generates another. The flow of these infinite processes of interpretation are constrained in Peirce's model, they claim, by the material world (the "object"), and cultural rules of thought, or "habit". (1988:20)

Social semiotics revisits De Saussure's doctrine of the "arbitrariness of the linguistic sign". This notion rests on the argument that the signifier only has an arbitrary relationship to the signified) — in other words, that there is nothing about the sound or appearance of (verbal) signifiers (as, for example, the words "dog" or "chien") — to suggest what they signify. Hodge and Kress point out that questions of the referent become more complicated when semiotics moves beyond verbal language. On the one hand, there is the need to account for the continuum of relationships between the referent and the representation. Here, they draw on Pierce's differentiation between iconic signification (e.g. a colour photograph of smoke, where the signifier recreates the perceptual experience of the signified), indexical signification (e.g. a column of smoke, where there is a causal relationship between the physical signifier and the fire it might signify), and symbolic signification (e.g. the word "smoke", where the arbitrary link between signifier and signified is maintained by social convention).

Social semiotics also addresses the question of how societies and cultures maintain or shift these conventional bonds between signifier and signified. De Saussure was unwilling to answer this question, Hodge and Kress claim. This leaves the socially determinist implication that meanings and interpretations are dictated from above, by "the whims of an inscrutably powerful collective being, Society." For Hodge and Kress, social semiotics must respond to the question and explain how the social shaping of meanings works in practice (1988:22).

Social semiotics and multimodality
Social semiotics is currently extending this general framework beyond its linguistic origins to account for the growing importance of sound and visual images, and how modes of communication are combined in both traditional and digital media (semiotics of social networking) (see, for example, Kress and van Leeuwen, 1996), thus approaching semiotics of culture (Randviir 2004). Theorists such as Gunther Kress and Theo van Leeuwen have built on Halliday's framework by providing new "grammars" for other semiotic modes. Like language, these grammars are seen as socially formed and changeable sets of available "resources" for making meaning, which are also shaped by the semiotic metafunctions originally identified by Halliday. The visual and aural modes have received particular attention. Accounting for multimodality (communication in and across a range of semiotic modes - verbal, visual, and aural) is considered a particularly important ongoing project, given the importance of the visual mode in contemporary communication.

References and Links

Thematic relation

In a number of theories of linguistics, thematic relations is a term used to express the role that a noun phrase plays with respect to the action or state described by a sentence's verb. For example, in the sentence "Susan ate an apple", Susan is the doer of the eating, so she is an agent; the apple is the item that is eaten, so it is a patient. While most modern linguistic theories make reference to such relations in one form or another, the general term, as well as the terms for specific relations, varies; 'participant role', 'semantic role', and 'deep case' have been used analogously to 'thematic role'.

Major thematic relations

Here is a list of the major thematic relations.

- **Agent**: deliberately performs the action (e.g., *Bill ate his soup quietly*).
- **Experiencer**: the entity that receives sensory or emotional input (e.g. The smell of lilies filled Jennifer's nostrils. Susan heard the song. I ran.).
- **Theme**: undergoes the action but does not change its state (e.g., We believe in many gods. I have two children. I put the book on the table. He gave the gun to the police officer.) (Sometimes used interchangeably with patient.)
- **Patient**: undergoes the action and changes its state (e.g., The falling rocks crushed the car.). (Sometimes used interchangeably with theme.)
- **Instrument**: used to carry out the action (e.g., Jamie cut the ribbon with a pair of scissors.).
- **Force or Natural Cause**: mindlessly performs the action (e.g., An avalanche destroyed the ancient temple.).
- **Location**: where the action occurs (e.g., Johnny and Linda played carelessly in the park.).
- **Direction or Goal**: where the action is directed towards (e.g., The caravan continued on toward the distant oasis. He walked to school.).
- **Recipient**: a special kind of goal associated with verbs expressing a change in ownership, possession. (E.g., I sent John the letter. He gave the book to her.)
- **Source or Origin**: where the action originated (e.g., The rocket was launched from Central Command. She walked away from him.).
- **Time**: the time at which the action occurs (e.g., The rocket was launched yesterday.).
- **Beneficiary**: the entity for whose benefit the action occurs (e.g., I baked Reggie a cake. He built a car for me. I fight for the king.).
- **Manner**: the way in which an action is carried out (e.g., With great urgency, Tabatha phoned 911.).
- **Purpose**: the reason for which an action is performed (e.g., Tabatha phoned 911 right away in order to get some help.).
- **Cause**: what caused the action to occur in the first place; not for what, rather because of what (e.g., Since Clyde was hungry, he ate the cake.).

There are no clear boundaries between these relations. For example, in "the hammer broke the window", some linguists treat hammer as an agent, some others as instrument, while some others treat it as a special role different from these.
**Relationship of case to thematic relations**

In many languages, such as Finnish and Hungarian and Turkish, thematic relations may be reflected in the case-marking on the noun. For instance, Hungarian has an instrumental case ending, (-val/-vel) which explicitly marks the instrument of a sentence. Languages like English often mark such thematic relations with prepositions.

**Conflicting terminologies**

The term "thematic relation" is frequently confused with theta role. Many linguists (particularly generative grammarians) use the terms interchangeably. This is because theta roles are typically named by the most prominent thematic relation that they are associated with. To make matters more confusing, depending upon which theoretical approach one assumes, the grammatical relations of subject and object, etc., are often closely tied to the semantic relations. For example, in the typological tradition agents/actors are tied closely to the notion of subject (S). Here is a way to distinguish these ideas, when they are used distinctly:

- **Thematic relations** are purely semantic descriptions of the way in which the entities described by the noun phrase are functioning with respect to the meaning of the action described by the verb. A noun may bear more than one thematic relation. Almost every noun phrase bears at least one thematic relation (the exception are expletives). Thematic relations on a noun are identical in sentences that are paraphrases of one another.
- **Theta roles** are syntactic structures reflecting positions in the argument structure of the verb they are associated with. A noun may only bear one theta role. Only arguments bear theta roles. Adjuncts do not bear theta roles.
- **Grammatical relations** express the surface position (in languages like English) or case (in languages like Latin) that a noun phrase bears in the sentence.

Thematic relations concern the nature of the relationship between the meaning of the verb and the meaning of the noun. Theta roles are about the number of arguments that a verb requires (which is a purely syntactic notion). Theta roles are a syntactic relation that refers to the semantic thematic relations.

For example, take the sentence "Reggie gave the kibble to Fergus on Friday."

- Thematic relations: "Reggie" is doing the action so is the agent, but he is also the source of the kibble (note Reggie bears two thematic relations!); "the kibble" is the entity acted upon so it is the patient; Fergus is the direction/goal or recipient of the giving. Friday represents the time of the action.
- theta roles: The verb "give" requires three arguments (see valency). In generative grammar, this is encoded in terms of the number and type of theta roles the verb takes. The theta role is named by the most prominent thematic relation associated with it. So the three required arguments bear the theta roles (confusingly!) named the agent (Reggie) the patient (or theme) (the kibble), and goal/recipient (Fergus). "On Friday" does not receive a theta role from the verb, because it is an adjunct. Note that "Reggie" bears two thematic relations (Agent and Source), but only one theta role (the argument slot associated with these thematic relations).
- grammatical relations: The subject (S) of this sentence is "Reggie", the object (O) is "the kibble", the indirect object is "to Fergus", and "on Friday" is an oblique.

**References**

Thematic relation

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References


**Linguistic modality**

In linguistics, **modality** is what allows speakers to evaluate a proposition relative to a set of other propositions. In standard formal approaches to modality, an utterance expressing modality can always roughly be paraphrased to fit the following template:

(1) According to [a set of rules, wishes, beliefs,...] it is [necessary, possible] that [the main proposition] is the case.

The set of propositions which forms the basis of evaluation is called the **modal base**. The result of the evaluation is called the **modal force**. For example the utterance in (2) expresses that, according to what the speaker has observed, it is necessary to conclude that John has a rather high income:

(2) John must be earning a lot of money.

The modal base is here the knowledge of the speaker, the modal force is necessity. By contrast, (3) could be paraphrased as 'Given his abilities, the strength of his teeth, etc., it is possible for John to open a beer bottle with his teeth'. Here, the modal base is defined by a subset of John's abilities, the modal force is possibility.

(3) John can open a beer bottle with his teeth.

A more elaborate account of formal semantic approaches to modality is given in section 1.

Cross-linguistically, modality can be expressed by a variety of means, such as auxiliary verbs as in the examples (2) and (3), verbal morphology (mood) or adverbs. An overview of the various modal expressions across languages is given below in section 2.

Typological approaches to modality usually favour a slightly wider definition of modality and also include meanings which do not fit the template in (1) exactly. Section 3 provides an overview over the range of meanings commonly associated with modality.
Semantic accounts
Semantic approaches dealing with modality are traditionally based on the principles of modal logic. Both work with the notion that propositions can be mapped to sets of possible worlds, that is, a proposition can be defined as the set of worlds in which that proposition is true. For example, the proposition ‘the earth is flat’ corresponds to the set of possible worlds in which the earth is in fact flat.

In this framework, modal expressions such as must and can are then analyzed as quantifiers over a set of possible worlds. This set of worlds is given by the modal base and is said to be the set of accessible worlds: For example, in sentence (2) above, the modal base is the knowledge the speaker has in the actual world. Therefore, the set of accessible worlds is defined by the information the speaker has about John. Assume for example that the speaker knows that John just bought a new luxury car and has rented a huge apartment. The speaker also knows that John is an honest person with a humble family background and doesn’t play the lottery. The set of accessible worlds is then the set of worlds in which all these propositions which the speaker knows about John are true.

The notions of necessity and possibility are then defined along the following lines: A proposition $p$ follows necessarily from the set of accessible worlds, if all accessible worlds are part of $p$ (that is, if $p$ is true in all of these worlds). Applied to the example in (2) this would mean that in all the worlds which are defined by the speaker's knowledge about John, it is the case that John earns a lot of money (assuming there is no other explanation for John’s wealth).

In a similar way a proposition $p$ is possible according to the set of accessible worlds (i.e. the modal base), if some of these worlds are part of $p$.

For further reading, see for example Kratzer 1991, Kaufmann et al. 2006 and Portner 2009.

Ways of expressing modality
Verbal Morphology
In many languages modal categories are expressed by verbal morphology. If these verbal markers of modality are obligatory in a language, they are called mood markers. Well-known examples of moods in some European languages are referred to as subjunctive, conditional and indicative as illustrated below with examples from French, all three with the verb avoir ‘to have’. As in most Standard European languages, the shape of the verb conveys not only information about modality, but also about other categories such as person and number of the subject.

(4) Je doute que vous ayez raison.
1s doubt that 2p have.2p.subjonctif right
'I doubt that you're right.'

(5) Si c'était vrai on l'aurait vu à CNN
If this-was true one it-have.3s.conditional seen on CNN
'If this was true you would have seen it on CNN.'
An example for a non-European language with a similar encoding of modality is Manam. Here, a verb is prefixed by a morpheme which encodes number and person of the subject. These prefixes come in two versions, one realis version and one irrealis version. Which one is chosen depends on whether the verb refers to an actual past or present event (realis), or merely to a possible or imagined event (irrealis) (see Elliott 2000).

**Auxiliaries**

Modal auxiliary verbs, such as the English words may, can, must, ought, will, shall, need, dare, might, could, would, and should, are often used to express modality, especially in the Germanic languages.

**Lexical expression**

Verbs such as "want" can be used to express modality lexically, as can adverbs.

**Other**

Complementizers (e.g. Russian) and conjunctions (e.g. Central Pomo, see Mithun 1995) can be used to convey modality.

**Modal Categories**

Many different kinds of modal interpretations have been observed and studied, resulting in a variety of typologies. What follows below is one of the many ways that modality has been classified. Only broad categories have been distinguished below: the reader is referred to the main articles and the references for more detailed discussions.

**Realism vs. Irrealism**

The closely related realis, declarative, and evidential moods refer to situations that actually exist, are claimed to exist, or are inferred to exist. In contrast, irrealis moods refer to situations that are not known to exist. Two common irrealis moods are the conditional mood, stating what would happen under a certain condition or conditions (expressed periphrastically in English as would + main verb), and the subjunctive mood, stating the speaker's preferences for what should occur (such as he leave in the English I demand that he leave) or hypotheticals (such as English If I were to go,....).

Counterfactuals refer to things that are contrary to the actual situation. In English, counterfactuals are expressed in "if"-clauses by using a tense form that normally refers to a time prior to the time actually semantically referred to in the if-clause. For example, If I knew that, I wouldn't have to ask contains the counterfactual If I knew, which refers to the present tense despite the form of the verb, and which denies the proposition "I know that". This contrasts with the construction If I know that,...., which is not a counterfactual because it means that maybe I know it and maybe I don't (or maybe I will know it, and maybe I will not).Likewise, If I had known that, I would have gone there contains the counterfactual If I had known, denying the proposition that I knew; despite the pluperfect verbal construction, the time referred to is the past, not the past-of-the-past.
Epistemic vs. deontic modality

Epistemic modals are used to indicate the possibility or necessity of some piece of knowledge. In the epistemic use, modals can be interpreted as indicating inference or some other process of reasoning involved in coming to the conclusion stated in the sentence containing the modal. However, epistemic modals do not necessarily require inference, reasoning, or evidence. One effect of using an epistemic modal (as opposed to not using one) is a general weakening of the speaker's commitment to the truth of the sentence containing the modal. However, it is disputed whether the function of modals is to indicate this weakening of commitment, or whether the weakening is a by-product of some other aspect of the modal's meaning.

Examples of the expression of epistemic modality in English are: he might be there (low probability, substantial doubt), He may be there (possibility), He should be there by now (high probability), and He must be there by now (very high probability, little doubt).

In contrast, deontic modality is concerned with possibility and necessity in terms of freedom to act (including ability, permission, and duty). English examples include She can go (ability), You may go (permission), You should go (obligation), and You must go (strong obligation). In English as in many other languages, some of the same words are used for deontic modality as for epistemic modality.

References

External links
- Modality and Evidentiality (http://www.hku.hk/linguist/program/semantics6.html)

Bibliography
Linguistic modality


Epistemic modality

Epistemic modality is a sub-type of linguistic modality that deals with a speaker's evaluation/judgment of, degree of confidence in, or belief of the knowledge upon which a proposition is based. In other words, epistemic modality refers to the way speakers communicate their doubts, certainties, and guesses — their "modes of knowing". More technically, epistemic modality may be defined "...as (the linguistic expression of) an evaluation of the chances that a certain hypothetical state of affairs under consideration (or some aspect of it) will occur, is occurring, or has occurred in a possible world which serves as the universe of interpretation for the evaluation process... In other words, epistemic modality concerns an estimation of the likelihood that (some aspect of) a certain state of affairs is/has been/will be true (or false) in the context of the possible world under consideration. And this estimation of likelihood is situated on a scale going from certainty that the state of affairs applies, via a neutral or agnostic stance towards its occurrence, to certainty that it does not apply, with intermediary positions on the positive and the negative sides of the scale".[1]

Being a sub-type of linguistic modality, epistemic modality can in its turn be classified into a number of sub-types according to various criteria. An original classification of epistemic modality based on the conception of alienated knowledge is given in the work of V. A. Yatsko,[2]

Realisation in speech

- (a) grammatically: through
  - modal verbs (e.g., English: may, might, must; German: sollen),
  - particular grammatical moods on verbs, the epistemic moods, or
  - a specific grammatical element, such as an affix (Tuyuca: -hīyi "reasonable to assume") or particle; or
- (b) non-grammatically (often lexically): through
  - adverbials (e.g., English: perhaps, possibly), or
  - through a certain intonational pattern.
Epistemic modality and evidentiality

Some linguists consider evidentiality (the indication of the source of the information upon which a proposition is based) to be a type of epistemic modality, and oppose it to judgement modality as epistemic modality based on the speaker's own judgement. An English example follows:

I doubt that it rained yesterday. (judgement epistemic: judgement of information source)

I heard that it rained yesterday. (evidential: identification of information source)

However, other linguists feel that evidentiality is distinct from and not necessarily related to modality. Some languages mark evidentiality separately from epistemic modality.

Notes

References
External links

- Modality and Evidentiality (http://www.hku.hk/linguist/program/semantics6.html)

Modality (semiotics)

In semiotics, a modality is a particular way in which the information is to be encoded for presentation to humans, i.e. to the type of sign and to the status of reality ascribed to or claimed by a sign, text or genre. It is more closely associated with the semiotics of Charles Peirce (1839-1914) than Saussure (1857-1913) because meaning is conceived as an effect of a set of signs. In the Peircean model, a reference is made to an object when the sign (or representamen) is interpreted recursively by another sign (which becomes its interpretant), a conception of meaning that does in fact imply a classification of sign types.

Discussion of sign-type

The psychology of perception seems to suggest the existence of a common cognitive system which treats all or most sensorily conveyed meanings in the same way. If all signs must also be objects of perception, there is every reason to believe that their modality will determine at least part of their nature. Thus, the sensory modalities will be visual, auditory, tactile, olfactory, gustatory, kinesthetic, etc. A list of sign types would include: writing, symbol, index, image, map, graph, diagram, etc. Some combinations of signs can be multi-modal, i.e. different types of signs grouped together for effect. But the distinction between a medium and a modality should be clarified:

- text is a medium for presenting the modality of natural language;
- image is both a medium and a modality;
- music is a modality for the auditory media.

So, the modality refers to a certain type of information and/or the representation format in which information is stored. The medium is the means whereby this information is delivered to the senses of the interpreter. Natural language is the primary modality, having many invariant properties across the auditory media as spoken language, the visual media as written language, the tactile media as Braille, and kinetic media as sign language. When meaning is conveyed by spoken language, it is converted into sound waves broadcast by the speaker and received by another's ears. Yet this stimulus cannot be divorced from the visual evidence of the speaker's manner and gestures, and the general awareness of the physical location and its possible connotative significance. Similarly, meaning that is contained in a visual form cannot be divorced from the iconicity and implications of the form. If handwritten, is the writing neat or does it evidence emotion in its style. What type of paper is used, what colour ink, what kind of
writing instrument: all such questions are relevant to an interpretation of the significance of what is represented. But images are distinguishable from natural language. For Roland Barthes (1915-80), language functions with relatively determinate meanings whereas images "say" nothing. Nevertheless, there is a rhetoric for arranging the parts which are to signify, and an emerging, if not yet generally accepted, syntax that articulates their parts and binds them into an effective whole.

References


**Stimulus modality**

Stimulus modality also sensory modality is one aspect of a stimulus. There are many modalities: temperature, taste, pressure. The type and location of the sensory receptor activated by a stimulus plays the primary role in coding the stimulus modality.

**Classes**

- Cutaneous sensation

**Figure of speech**

A figure of speech is the use of a word or words diverging from its usual meaning. It can also be a special repetition, arrangement or omission of words with literal meaning, or a phrase with a specialized meaning not based on the literal meaning of the words in it, as in idiom, metaphor, simile, hyperbole, or personification. Figures of speech often provide emphasis, freshness of expression, or clarity. However, clarity may also suffer from their use, as any figure of speech introduces an ambiguity between literal and figurative interpretation. A figure of speech is sometimes called a rhetorical figure or a locution.

Not all theories of meaning have a concept of "literal language" (see literal and figurative language). Under theories that do not, figure of speech is not an entirely coherent concept.

Rhetoric originated as the study of the ways in which a source text can be transformed to suit the goals of the person reusing the material. For this goal, classical rhetoric detected four fundamental operations[^1] that can be used to transform a sentence or a larger portion of a text: expansion, abridgement, switching, and transferring.
The four fundamental operations

The four fundamental operations, or categories of change, governing the formation of all figures of speech are:[1]

- addition (adiectio), also called repetition/expansion/superabundance
- omission (detractio), also called subtraction/abridgement/lack
- transposition (transmutatio), also called transferring
- permutation (immutatio), also called switching/interchange/substitution/transmutation

These four operations were detected by classical rhetoricians, and still serve to encompass the various figures of speech. Originally these were called, in Latin, the four operations of quadripartita ratio. The ancient surviving text mentioning them, although not recognizing them as the four fundamental principles, is the Rhetorica ad Herennium, of unknown authorship, where they are called πλεονασμός (addition), ἔνδεια (omission), μετάθεσις (transposition) and ἐναλλαγή (permutation).[2] Quintillian then mentioned them in Institutio Oratoria.[3] Philo of Alexandria also listed them as addition (πρόσθεσις), subtraction (ἀφαίρεσις), transposition (μετάθεσις), and transmutation (ἀλλοίωσις).[4]

Examples

The figure of speech comes in many varieties. The aim is to use the language inventively to accentuate the effect of what is being said. A few examples follow:

- "Round the rugged rocks the ragged rascal ran" is an example of alliteration, where the consonant r is used repeatedly. Whereas, "Sister Suzy sewing socks for soldiers" is a particular form of alliteration called sibilance, because it repeats the letter s. Both are commonly used in poetry.
- "She would run up the stairs and then a new set of curtains" is a variety of zeugma called a syllepsis. Run up refers to ascending and also to manufacturing. The effect is enhanced by the momentary suggestion, through a pun, that she might be climbing up the curtains. The ellipsis or omission of the second use of the verb makes the reader think harder about what is being said.
- "Military Intelligence is an oxymoron" is the use of direct sarcasm to suggest that the military would have no intelligence. This might be considered to be a satire and a terse aphorism. "But he's a soldier, so he has to be an Einstein" is the use of sarcasm through irony for the same effect. The use of hyperbole by using the word Einstein calls attention to the ironic intent. An Einstein is an example of synecdoche, as it uses a particular name to represent a class of people: geniuses.
- "I had butterflies in my stomach" is a metaphor, referring to my nervousness feeling as if there were flying insects in my stomach. To say "it was like having some butterflies in my stomach" would be a simile, because it uses the word like which is missing in the metaphor.

Categories of figures of speech

Scholars of classical Western rhetoric have divided figures of speech into two main categories: schemes and tropes. Schemes (from the Greek schēma, form or shape) are figures of speech that change the ordinary or expected pattern of words. For example, the phrase, "John, my best friend" uses the scheme known as apposition. Tropes (from the Greek tropein, to turn) change the general meaning of words. An example of a trope is irony, which is the use of words to convey the opposite of their usual meaning ("For Brutus is an honorable man; / So are they all, all honorable men").

During the Renaissance, scholars meticulously enumerated and classified figures of speech. Henry Peacham, for example, in his The Garden of Elocution (1577), enumerated 184 different figures of speech. Professor Robert DiYanni, in his book "Literature - Reading Fiction, Poetry, Drama and the Essay" [5] wrote: "Rhetoricians have catalogued more than 250 different figures of speech, expressions or ways of using words in a nonliteral sense.".
For simplicity, this article divides the figures between schemes and tropes, but does not further sub-classify them (e.g., "Figures of Disorder"). Within each category, words are listed alphabetically. Most entries link to a page that provides greater detail and relevant examples, but a short definition is placed here for convenience. Some of those listed may be considered rhetorical devices, which are similar in many ways.

**Schemes**

- **accumulation**: Summary of previous arguments in a forceful manner
- **adnomination**: Repetition of a word with a change in letter or sound
- **alliteration**: Series of words that begin with the same consonant or sound alike
- **adynaton**: hyperbole taken to such extreme lengths as to suggest a complete impossibility.
- **anacoluthon**: Change in the syntax within a sentence
- **anadiplosis**: Repetition of a word at the end of a clause at the beginning of another
- **anaphora**: Repetition of the same word or group of words at the beginning of successive clauses
- **anastrophe**: Inversion of the usual word order
- **anticlimax**: Arrangement of words in order of decreasing importance
- **antimetabole**: Repetition of words in successive clauses, in reverse order
- **antistrophe**: Repetition of the same word or phrase at the end of successive clauses (see epistrophe)
- **antithesis**: Juxtaposition of opposing or contrasting ideas
- **aphorismus**: Statement that calls into question the definition of a word
- **apostrophe**: Directing the attention away from the audience and to a personified abstraction
- **apposition**: Placing of two elements side by side, in which the second defines the first
- **assonance**: Repetition of vowel sounds, most commonly within a short passage of verse
- **asteismus**: Facetious or mocking answer that plays on a word
- **asyndeton**: Omission of conjunctions between related clauses
- **cataphora**: Co-reference of one expression with another expression which follows it (example: If you need one, there's a towel in the top drawer.)
- **classification (literature & grammar)**: Linking a proper noun and a common noun with an article
- **chiasmus**: Word order in one clause is inverted in the other (inverted parallelism).
- **climax**: Arrangement of words in order of increasing importance
- **commoratio**: Repetition of an idea, re-worded
- **consonance**: Repetition of consonant sounds, most commonly within a short passage of verse
- **dystmesis**: A synonym for tmesis
- **ellipsis**: Omission of words
- **enallage**: Substitution of forms that are grammatically different, but have the same meaning
- **enjambment**: Breaking of a syntactic unit (a phrase, clause, or sentence) by the end of a line or between two verses
- **enthymeme**: Informal method of presenting a syllogism
- **epanalepsis**: Repetition of the initial word or words of a clause or sentence at the end of the clause or sentence
- **epistrophe**: Repetition of the same word or group of words at the end of successive clauses. The counterpart of anaphora (also known as antistrophe)
- **euphony**: Opposite of cacophony - i.e. pleasant sounding
- **hendiadys**: Use of two nouns to express an idea when the normal structure would be a noun and a modifier
- **hendiatris**: Use of three nouns to express one idea
- **homeoptoton**: in a flexive language the use the first and last words of a sentence in the same forms
- **homographs**: Words that are identical in spelling but different in origin and meaning
• homonyms: Words that are identical with each other in pronunciation and spelling, but differing in origin and meaning
• homophones: Words that are identical with each other in pronunciation but differing in origin and meaning
• hypallage: Changing the order of words so that they are associated with words normally associated with others
• hyperbaton: Schemes featuring unusual or inverted word order
• hyperbole: Exaggeration of a statement
• hysteron proteron: The inversion of the usual temporal or causal order between two elements
• isocolon: Use of parallel structures of the same length in successive clauses
• internal rhyme: Using two or more rhyming words in the same sentence
• kenning: A metonymic compound where the terms together form a sort of anecdote
• merism: Referring to a whole by enumerating some of its parts
• non sequitur: Statement that bears no relationship to the context preceding
• onomatopoeia: Word that imitates a real sound (e.g. tick-tock or boom)
• paradiastole: Repetition of the disjunctive pair "neither" and "nor"
• parallelism: The use of similar structures in two or more clauses
• paraprosdokian: Unexpected ending or truncation of a clause
• parenthesis: Insertion of a clause or sentence in a place where it interrupts the natural flow of the sentence
• paroemion: Resolute alliteration in which every word in a sentence or phrase begins with the same letter
• parenthesia: Speaking openly or boldly, or apologizing for doing so (declaring to do so)
• perissologia: The fault of wordiness
• pleonasm: Use of superfluous or redundant words
• polyptoton: Repetition of words derived from the same root
• polysyndeton: Repetition of conjunctions
• pun: When a word or phrase is used in two different senses
• sibilance: Repetition of letter 's', it is a form of alliteration
• sine dicendo: A statement that is so obvious it need not be stated, and if stated, it seems almost pointless (e.g. 'It's always in the last place you look'.)
• superlative: Declaring something the best within its class i.e. the ugliest, the most precious
• spoonerism: Interchanging of (usually initial) letters of words with amusing effect
• symphysis: Simultaneous use of anaphora and epistrophe: the repetition of the same word or group of words at the beginning and the end of successive clauses
• synchysis: Interlocked word order
• synesis: Agreement of words according to the sense, and not the grammatical form
• synizesis: Pronunciation of two juxtaposed vowels or diphthongs as a single sound
• synonymia: Use of two or more synonyms in the same clause or sentence
• tautology: Redundancy due to superfluous qualification; saying the same thing twice
• tmesis: Division of the elements of a compound word
• zeugma: The using of one verb for two actions
Tropes

- allegory: Extended metaphor in which a story is told to illustrate an important attribute of the subject
- alliteration: Repetition of the first consonant sound in a phrase.
- allusion: Indirect reference to another work of literature or art
- anacoenosis: Posing a question to an audience, often with the implication that it shares a common interest with the speaker
- antanaclasis: A form of pun in which a word is repeated in two different senses
- antithemia: Substitution of one part of speech for another, often turning a noun into a verb
- anthropomorphism: Ascribing human characteristics to something that is not human, such as an animal or a god (see zoomorphism)
- antimetabole: Repetition of words in successive clauses, but in transposed grammatical order
- antiphrasis: Word or words used contradictory to their usual meaning, often with irony
- antonomasia: Substitution of a phrase for a proper name or vice versa
- aphorism: Tersely phrased statement of a truth or opinion, an adage
- apophasis: Invoking an idea by denying its invocation
- apostrophe: Addressing a thing, an abstraction or a person not present
- archaism: Use of an obsolete, archaic, word (a word used in olden language, e.g. Shakespeare's language)
- auxesis: Form of hyperbole, in which a more important sounding word is used in place of a more descriptive term
- catachresis: Mixed metaphor (sometimes used by design and sometimes a rhetorical fault)
- circumlocution: "Talking around" a topic by substituting or adding words, as in euphemism or periphrasis
- commiseration: Evoking pity in the audience
- correctio: Linguistic device used for correcting one's mistakes, a form of which is epanorthosis
- denominatio: Another word for metonymy
- double negative: Grammar construction that can be used as an expression and it is the repetition of negative words
- dysphemism: Substitution of a harsher, more offensive, or more disagreeable term for another. Opposite of euphemism
- epanorthosis: Immediate and emphatic self-correction, often following a slip of the tongue
- enumeratio: A form of amplification in which a subject is divided, detailing parts, causes, effects, or consequences to make a point more forcibly
- epanados: Repetition in a sentence with a reversal of words. Example: The Sabbath was made for man, not man for the Sabbath
- erotema: Synonym for rhetorical question
- euphemism: Substitution of a less offensive or more agreeable term for another
- exclamation: An emphatic parenthetic addition that is complete in itself. Exclamation differs from interjection in that it usually involves an emotional response.
- hermeneia: Repetition for the purpose of interpreting what has already been said
- hyperbaton: Words that naturally belong together are separated from each other for emphasis or effect
- hyperbole: Use of exaggerated terms for emphasis
- hypocatastasis: An implication or declaration of resemblance that does not directly name both terms
- hypophora: Answering one's own rhetorical question at length
- hysteron proteron: Reversal of anticipated order of events; a form of hyperbaton
- innuendo: Having a hidden meaning in a sentence that makes sense whether it is detected or not
- inversion: A reversal of normal word order, especially the placement of a verb ahead of the subject (subject-verb inversion).
- invocation: Apostrophe to a god or muse
- irony: Use of word in a way that conveys a meaning opposite to its usual meaning
- kataphora: Repetition of a cohesive device at the end
• litotes: Emphasizing the magnitude of a statement by denying its opposite
• malapropism: Using a word through confusion with a word that sounds similar
• meiosis: Use of understatement, usually to diminish the importance of something
• merism: Statement of opposites to indicate reality
• metalepsis: Referring to something through reference to another thing to which it is remotely related
• metaphor: Stating one entity is another for the purpose of comparing them in quality
• metonymy: Substitution of an associated word to suggest what is really meant
• neologism: The use of a word or term that has recently been created, or has been in use for a short time. Opposite of archaism
• onomatopoeia: Words that sound like their meaning
• oxymoron: Using two terms together, that normally contradict each other
• parable: Extended metaphor told as an anecdote to illustrate or teach a moral lesson
• paradox: Use of apparently contradictory ideas to point out some underlying truth
• paralipsis: Extenuating a vice in order to flatter or soothe
• parapoem: Phrase in which the latter part causes a rethinking or reframing of the beginning
• parallel irony: An ironic juxtaposition of sentences or situations (informal)
• paralipsis: Drawing attention to something while pretending to pass it over
• paranomasia: A form of pun, in which words similar in sound but with different meanings are used
• pathetic fallacy: Using a word that refers to a human action on something non-human
• periphrasis: Using several words instead of few
• personification/prosopopoeia/anthropomorphism: Attributing or applying human qualities to inanimate objects, animals, or natural phenomena
• praeteritio: Another word for paralipsis
• procatalepsis: Refuting anticipated objections as part of the main argument
• prolepsis: Another word for procatalepsis
• proslepsis: Extreme form of paralipsis in which the speaker provides great detail while feigning to pass over a topic
• proverb: Succinct or pithy expression of what is commonly observed and believed to be true
• pun: Play on words that will have two meanings
• repetition: Repeated usage of word(s)/group of words in the same sentence to create a poetic/rhythmic effect
• rhetorical question: Asking a question as a way of asserting something. Or asking a question not for the sake of getting an answer but for asserting something (or as in a poem for creating a poetic effect)
• satire: Use of irony, sarcasm, ridicule, or the like, in exposing, denouncing, or deriding vice, folly, etc. A literary composition, in verse or prose, in which human folly and vice are held up to scorn, derision, or ridicule. A literary genre comprising such compositions
• simile: Comparison between two things using like or as
• snowclone: Quoted or misquoted cliché or phrasal template
• superlative: Saying that something is the best of something or has the most of some quality, e.g. the ugliest, the most precious etc.
• syllepsis: Form of pun, in which a single word is used to modify two other words, with which it normally would have differing meanings
• syncatabasis (condescension, accommodation): adaptation of style to the level of the audience
• synecdoche: Form of metonymy, in which a part stands for the whole
• synesthesia: Description of one kind of sense impression by using words that normally describe another.
• tautology: Needless repetition of the same sense in different words Example: The children gathered in a round circle
• transferred epithet: Placing of an adjective with what appears to be the incorrect noun
Figure of speech

- truism: a self-evident statement
- tricolon diminuens: Combination of three elements, each decreasing in size
- tricolon crescens: Combination of three elements, each increasing in size
- zeugma: A figure of speech related to syllepsis, but different in that the word used as a modifier is not compatible with one of the two words it modifies
- zoomorphism: Applying animal characteristics to humans or gods

References
[1] Jansen (2008), quote from the summary:
Using these formulas, a pupil could render the same subject or theme in a myriad of ways. For the mature author, this principle offered a set of tools to rework source texts into a new creation. In short, the quadripartita ratio offered the student or author a ready-made framework, whether for changing words or the transformation of entire texts. Since it concerned relatively mechanical procedures of adaptation that for the most part could be learned, the techniques concerned could be taught at school at a relatively early age, for example in the improvement of pupils’ own writing.


Optimality theory

Optimality theory (frequently abbreviated OT) is a linguistic model proposing that the observed forms of language arise from the interaction between conflicting constraints. OT models grammars as systems that provide mappings from inputs to outputs; typically, the inputs are conceived of as underlying representations, and the outputs as their surface realizations. There are three basic components of the theory:

1. GEN takes an input, and generates the list of possible outputs, or candidates,
2. CON provides the criteria, in the form of strictly ordered violable constraints, used to decide between candidates, and
3. EVAL chooses the optimal candidate based on the constraints, and this candidate is the output.

Optimality theory assumes that these components are universal. Differences in grammars reflect different rankings of the universal constraint set, CON. Part of language acquisition can then be described as the process of adjusting the ranking of these constraints.

Optimality theory was originally proposed by the linguists Alan Prince and Paul Smolensky in 1993, and later expanded by Prince and John J. McCarthy. Although much of the interest in optimality theory has been associated with its use in phonology, the area to which optimality theory was first applied, the theory is also applicable to other subfields of linguistics (e.g. syntax and semantics).

Optimality theory is usually considered a development of generative grammar, which shares its focus on the investigation of universal principles, linguistic typology and language acquisition.

Optimality theory is often called a connectionist theory of language, because it has its roots in neural network research, though the relationship is now largely of historical interest. It arose in part as a successor to the theory of Harmonic Grammar, developed in 1990 by Géraldine Legendre, Yoshiro Miyata and Paul Smolensky.
Input and GEN: the candidate set

Optimality theory supposes that there are no language-specific restrictions on the input. This is called richness of the base. Every grammar can handle every possible input. For example, a language without complex clusters must be able to deal with an input such as /flask/. Languages without complex clusters differ on how they will resolve this problem; some will epenthesize (e.g. [falasak], or [falasaka] if all codas are banned) and some will delete (e.g. [fas], [fak], [fas], [lak]). Given any input, GEN generates an infinite number of candidates, or possible realizations of that input. A language's grammar (its ranking of constraints) determines which of the infinite candidates will be assessed as optimal by EVAL.

CON: the constraint set

In optimality theory, every constraint is universal. CON is the same in every language. There are two basic types of constraints. Faithfulness constraints require that the observed surface form (the output) match the underlying or lexical form (the input) in some particular way; that is, these constraints require identity between input and output forms. Markedness constraints impose requirements on the structural well-formedness of the output. Each plays a crucial role in the theory. Faithfulness constraints prevent every input from being realized as some unmarked form, and markedness constraints motivate changes from the underlying form.

The universal nature of CON makes some immediate predictions about language typology. If grammars differ only by having different rankings of CON, then the set of possible human languages is determined by the constraints that exist. Optimality theory predicts that there cannot be more grammars than there are permutations of the ranking of CON. The number of possible rankings is equal to the factorial of the total number of constraints, thus giving rise to the term Factorial Typology. However, it may not be possible to distinguish all of these potential grammars, since not every constraint is guaranteed to have an observable effect in every language. Two languages could generate the same range of input-output mappings, but differ in the relative ranking of two constraints which do not conflict with each other.

EVAL: definition of optimality

Given two candidates, A and B, A is better than B on a constraint if A incurs fewer violations than B. Candidate A is better than B on an entire constraint hierarchy if A incurs fewer violations of the highest-ranked constraint distinguishing A and B. A is optimal in its candidate set if it is better on the constraint hierarchy than all other candidates. For example, given constraints C1, C2, and C3, where C1 dominates C2, which dominates C3 (C1 >> C2 >> C3), A is optimal if it does better than B on the highest ranking constraint which assigns them a different number of violations. If A and B tie on C1, but A does better than B on C2, A is optimal, even if A has 100 more violations of C3 than B. This comparison is often illustrated with a tableau. The pointing finger marks the optimal candidate, and each cell displays an asterisk for each violation for a given candidate and constraint. Once a candidate does worse than another candidate on the highest ranking constraint distinguishing them, it incurs a crucial violation (marked in the tableau by an exclamation mark). Once a candidate incurs a crucial violation, there is no way for it to be optimal, even if it outperforms the other candidates on the rest of CON.
A violation tableau

<table>
<thead>
<tr>
<th></th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>*</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>B</td>
<td>*</td>
<td>**</td>
<td>!</td>
</tr>
</tbody>
</table>

Constraints are ranked in a hierarchy of strict domination. The strictness of strict domination means that a candidate who violates only a high-ranked constraint does worse on the hierarchy than one that doesn’t, even if the second candidate fared worse on every other lower-ranked constraint. This also means that constraints are violable; the winning candidate need not satisfy all constraints. Within a language, a constraint may be ranked high enough that it is always obeyed; it may be ranked low enough that it has no observable effects; or, it may have some intermediate ranking. The term the emergence of the unmarked describes situations in which a markedness constraint has an intermediate ranking, so that it is violated in some forms, but nonetheless has observable effects when higher-ranked constraints are irrelevant.

An early example proposed by McCarthy & Prince (1994) is the constraint NoCoda, which prohibits syllables from ending in consonants. In Balangao, NoCoda is not ranked high enough to be always obeyed, as witnessed in roots like *taynan (faithfulness to the input prevents deletion of the final /n/). But, in the reduplicated form ma-tayna-taynan ‘repeatedly be left behind’, the final /n/ is not copied. Under McCarthy & Prince’s analysis, this is because faithfulness to the input does not apply to reduplicated material, and NoCoda is thus free to prefer ma-tayna-taynan over hypothetical ma-taynan-taynan (which has an additional violation of NoCoda).

Constraints are also violable; the winning candidate need not satisfy all constraints, as long as for any rival candidate that does better than the winner on some constraint, there is a higher ranked constraint on which the winner does better than that rival.

Some optimality theorists prefer the use of comparative tableaux, as described in Prince (2002). Comparative tableaux display the same information as the classic or “flyspeck” tableaux, but the information is presented in such a way that it highlights the most crucial information. For instance, the tableau above would be rendered in the following way.

Comparative tableau

<table>
<thead>
<tr>
<th></th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - B</td>
<td>e</td>
<td>W</td>
<td>L</td>
</tr>
</tbody>
</table>

Each row in a comparative tableau represents a winner-loser pair, rather than an individual candidate. In the cells where the constraints assess the winner-loser pairs, there is a W if the constraint in that column prefers the winner, an L if the constraint prefers the loser, and an e if the constraint does not differentiate between the pair. Presenting the data in this way makes it easier to make generalizations. For instance, in order to have a consistent ranking some W must dominate all L’s. Brasoveanu and Prince (2005) describe a process known as fusion and the various ways of presenting data in a comparative tableau in order to achieve the necessary and sufficient conditions for a given argument.
**Example**

As a simplified example, consider the manifestation of the English plural:

/ˈkæt/ + /z/ → [ˈkæts] (cats) (also smirks, hits, crepes)

/ˈdɒɡ/ + /z/ → [ˈdɒgz] (dogs) (also wugs, clubs, moms)

/ˈdɪʃ/ + /z/ → [ˈdɪʃɨz] (dishes) (also classes, glasses, bushes)

Also consider the following constraint set, in descending order of domination (M: markedness, F: faithfulness):

M: *SS - Sibilant-Sibilant clusters are ungrammatical: one violation for every pair of adjacent sibilants in the output.

M: Agree(Voi) - Agree in specification of [voi]: one violation for every pair of adjacent obstruents in the output which disagree in voicing.

F: Max - Maximize all input segments in the output: one violation for each segment in the input that doesn’t appear in the output (This constraint prevents deletion).

F: Dep - Output segments are dependent on having an input correspondent: one violation for each segment in the output that doesn’t appear in the input (This constraint prevents insertion).

F: Ident(Voi) - Maintain the identity of the [voi] specification: one violation for each segment that differs in voicing between the input and output.

<table>
<thead>
<tr>
<th>dish + z</th>
<th>*SS</th>
<th>Agree</th>
<th>Max</th>
<th>Dep</th>
<th>Ident</th>
</tr>
</thead>
<tbody>
<tr>
<td>dishiz</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dishis</td>
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<td>dishz</td>
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<td>dish</td>
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<td>!</td>
</tr>
<tr>
<td>dishes</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>dog + z</th>
<th>*SS</th>
<th>Agree</th>
<th>Max</th>
<th>Dep</th>
<th>Ident</th>
</tr>
</thead>
<tbody>
<tr>
<td>dogiz</td>
<td>*</td>
<td>!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dogis</td>
<td></td>
<td>!</td>
<td>!</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>dog</td>
<td></td>
<td>!</td>
<td>!</td>
<td></td>
<td>!</td>
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<tr>
<td>dogs</td>
<td>*</td>
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</tbody>
</table>
No matter how the constraints are re-ordered, the ‘is’ allomorph will always lose to ‘iz’. This is called harmonic bounding. The violations incurred by the candidate ‘dogiz’ are a subset of the violations incurred by ‘dogis’; specifically, if you epenthesize a vowel, changing the voicing of the morpheme is gratuitous violation of constraints. In the ‘dog + z’ tableau, there is a candidate ‘dogz’ which incurs no violations whatsoever. Within the constraint set of the problem, ‘dogz’ harmonically bounds all other possible candidates. This shows that a candidate does not need to be a winner in order to harmonically bound another candidate.

The tableaux from above are repeated below using the comparative tableaux format.

<table>
<thead>
<tr>
<th>cat + z &gt; cats</th>
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</thead>
<tbody>
<tr>
<td>cat + z</td>
</tr>
<tr>
<td>catiz</td>
</tr>
<tr>
<td>cats</td>
</tr>
<tr>
<td>catz</td>
</tr>
<tr>
<td>cat</td>
</tr>
<tr>
<td>– cats</td>
</tr>
</tbody>
</table>

From the above tableau for cat + z, it can be observed that any ranking of these constraints will produce the observed output catz. Because there are no loser-preferring comparisons, catz wins under any ranking of these constraints; this means that no ranking can be established on the basis of this input.

<table>
<thead>
<tr>
<th>dog + z &gt; dogz</th>
</tr>
</thead>
<tbody>
<tr>
<td>dog + z</td>
</tr>
<tr>
<td>dogz – dogiz</td>
</tr>
<tr>
<td>dogz – dogis</td>
</tr>
<tr>
<td>dogz – dog</td>
</tr>
<tr>
<td>dogz – dogs</td>
</tr>
</tbody>
</table>

From the above tableau for dog + z, it can be observed that any ranking of these constraints will produce the observed output dogz. Because there are no loser-preferring comparisons, dogz wins under any ranking of these constraints; this means that no ranking can be established on the basis of this input.

<table>
<thead>
<tr>
<th>cat + z &gt; cats</th>
</tr>
</thead>
<tbody>
<tr>
<td>cat + z</td>
</tr>
<tr>
<td>cats – catiz</td>
</tr>
<tr>
<td>cats – catis</td>
</tr>
<tr>
<td>cats – catz</td>
</tr>
<tr>
<td>cats – cat</td>
</tr>
</tbody>
</table>

The tableau for cat + z contains rows with a single W and a single L. This shows that Agree, Max, and Dep must all dominate Ident; however, no ranking can be established between those constraints on the basis of this input. Based on this tableau, the following ranking has been established:

Agree, Max, Dep >> Ident
This tableau shows that several more rankings are necessary in order to predict the desired outcome. The first row says nothing; there is no loser-prefering comparison in the first row. The second row reveals that either *SS or Agree must dominate Dep, based on the comparison between fishiz and fishz. The third row shows that Max must dominate Dep. The final row shows that either *SS or Ident must dominate Dep. From the cat + z tableau, it was established that Dep dominates Ident; this means that *SS must dominate Dep.

So far, the following rankings have been shown to be necessary:

*SS, Max >> Dep >> Ident

While it is possible that Agree can dominate Dep, it is not necessary; the ranking given above is sufficient for the observed for fishiz to emerge.

When the rankings from the tableaux are combined, the following ranking summary can be given:

*SS, Max >> Agree, Dep >> Ident

or

*SS, Max, Agree >> Dep >> Ident

There are two possible places to put Agree when writing out rankings linearly; neither is truly accurate. The first implies that *SS and Max must dominate Agree, and the second implies that Agree must dominate Dep. Neither of these are truthful, which is a failing of writing out rankings in a linear fashion like this. These sorts of problems are the reason why most linguists utilize a lattice graph to represent necessary and sufficient rankings, as shown below.

A diagram that represents necessary rankings of constraints in this style is a Hasse diagram.

**Criticism**

Optimality theory has attracted substantial amounts of criticism, most of which is directed at its application to phonology (rather than syntax or other fields).[1][2][3][4][5]

Many criticisms of optimality theory are, according to its proponents, based on fundamental misunderstanding of how it works. A well-known example of this is Noam Chomsky's widely-repeated assertion that optimality theory would predict every lexical input to be reduced to a single optimal syllable (e.g. every word is realized as [ba]).[6] In fact, under the premises of Optimality Theory universal neutralization of this type would only be predicted if there were no faithfulness constraints (see McCarthy 1997). In a sense, the diametrically opposite kind of criticism comes from Morris Halle: "... the existence of phonology in every language shows that Faithfulness is at best an ineffective principle that might well be done without."[7] By "phonology," Halle clearly means disparity between inputs and outputs of a phonological system. Optimality theory would fail to predict such deviations from an underlying form.
only if there were no markedness constraints\[^8\]. In OT, input-output disparity is normally understood as the result of markedness constraints being ranked over faithfulness constraints (M >> F).

Another objection to optimality theory is the claim that it is not technically a theory, in that it does not make falsifiable predictions. The source of this issue is terminology: the term "theory" is used differently here than in physics, chemistry, and other sciences. Specific instantiations of optimality theory may make falsifiable predictions, in the same way that specific proposals within other linguistic frameworks can. What predictions are made, and whether they are testable, depends on the specifics of individual proposals (most commonly, this is a matter of the definitions of the constraints used in an analysis). Thus, optimality theory as a framework is best described as a scientific paradigm.

Yet another objection to optimality theory is the claim that it cannot account for phonological opacity (see Idsardi 2000, e.g.). In derivational phonology effects may be seen that are inexplicable at the surface level but which are explainable through "opaque" rule ordering; but in optimality theory, which has no intermediate levels for rules to operate on, these effects are difficult to explain.

For example, in Québécois French high front vowels triggered affrication of /t/, (e.g. /tipik/ → [tʰpɪk]) but the loss of high vowels (visible at the surface level) leaves the affrication with no apparent source. Derivational phonology can explain this by saying that vowel syncope (the loss of the vowel) "counterbled" affrication - that is, instead of vowel syncope occurring and "bleeding" (i.e. preventing) affrication, we say that affrication applies before vowel syncope, so that the high vowel is removed and the environment destroyed which had triggered affrication. Such counterbleeding rule orderings are therefore termed opaque (instead of transparent), because their effects are not visible at the surface level.

The opacity of such phenomena finds no straightforward explanation in optimality theory, since intermediate forms are not accessible (constraints refer only to the surface form and/or the underlying form). There have however been a number of proposals designed to account for it; but most of these proposals significantly alter optimality theory's basic architecture, and therefore tend to be highly controversial. Frequently, such alterations add new types of constraints (which are not universal faithfulness or markedness constraints), or change the properties of GEN (such as allowing for serial derivations) or EVAL. Some well-known examples of these include John J. McCarthy's sympathy theory and candidate chains theory, and there are many others.

A relevant issue is the existence of circular chain shifts, i.e. cases where input /X/ maps to output [Y], but input /Y/ maps to output [X]. Many versions of optimality theory predict this to be impossible (see Moreton 2004, Prince 2007). It is not certain whether patterns of this sort occur in natural languages.

Optimality theory is also criticized as being an impossible model of speech production/perception: computing and comparing an infinite number of possible candidates would take an infinitely long time to process. Idsardi (2006) argues this position, though other linguists dispute this claim on the grounds that Idsardi makes unreasonable assumptions about the constraint set and candidates, and that more moderate instantiations of optimality theory do not present such big computational problems (see Kornai (2006) and Heinz, Kobele, and Riggle (2009)). Another common rebuttal to this criticism of optimality theory is that the framework is purely representational. In this view, optimality theory is taken to be a model of linguistic competence and is therefore not intended to explain the specifics of linguistic performance.\[^9\] \[^10\]

### Theories within optimality theory

In practice, implementations of optimality theory often assume other related theories, such as Syllable theory, Moraic theory, or Feature Geometry. Completely distinct from these, there are sub-theories which have been proposed entirely within optimality theory, such as positional faithfulness theory, correspondence theory (McCarty & Prince 1995), sympathy theory, and a number of theories of learnability, most notably by Bruce Tesar. There are also a range of theories specifically about optimality theory. These are concerned with issues like the possible formulations of constraints, and constraint interactions other than strict domination.
Use outside of phonology

Optimality Theory is most commonly associated with the field of Phonology, but has also been applied to other areas of linguistics. Jane Grimshaw, Geraldine Legendre and Joan Bresnan are well known for developing instantiations of OT within syntax.\cite{11} \cite{12} Optimality theoretic approaches are also relatively prominent in morphology (and the morphology-phonology interface in particular)\cite{13} \cite{14}.

References

\cite{1} Chomsky (1995)
\cite{2} Dresher (1996)
\cite{3} Halle (1995)
\cite{4} Idsardi (2000)
\cite{5} Idsardi (2006)
\cite{6} Chomsky (1995)
\cite{7} Halle (1995)
\cite{8} Prince (2007), pp. 22-24
\cite{12} Legendre, Grimshaw & Vikner (2001)
\cite{13} Trommer (2001)
\cite{14} Wolf (2008)


External links
• Rutgers University Optimality Archive (http://roa.rutgers.edu/)
• Optimality Theory and the Three Laws of Robotics (http://ling.auf.net/lingBuzz/000985)
• OT Syntax: an interview with Jane Grimshaw (http://www.revel.inf.br/site2007/_pdf/11/entrevistas/revel_10_interview_grimshaw.pdf)
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