

Operational Linguistics (OL)

by: Giorgio Marchetti

An overview of Operational Linguistics

Operational Linguistics (also called Attentional Semantics) is a linguistic theory based on a theory of the mind, Operational Methodology (also called Operational Awareness, Third Cybernetics or Logonics), which was originally put forward in the 60's by an Italian scholar, Silvio Ceccato (1914-1997).

Main publications:

Theory of knowledge/Operational Methodology:

- Un tecnico tra I filosofi. Come non filosofare (1966)

Linguistics:

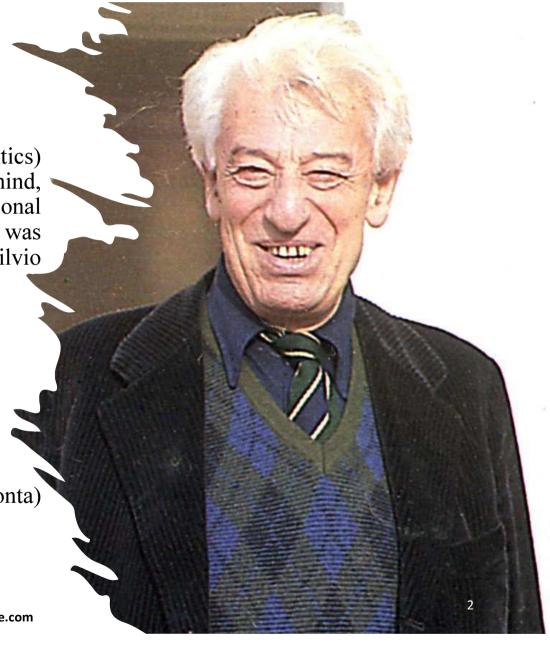
- Corso di linguistica operativa (ed.) (1969)
- Linguaggio consapevolezza pensiero (with B. Zonta) (1980)

Aesthetics:

- La fabbrica del bello (1987)

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Operational Methodology

The main tenets of Operational Methodology are that:

- The mind is neither a copy of the external world (realism, materialism) nor a copy of the spirit (idealism). On the contrary, the mind actively constructs its own objects (i.e., perceptions, thoughts, ideas, the meanings of words, values, attitudes, etc.). As such, Operational Methodology can be considered as a kind of Constructivism.
- The objects produced by the mind can be analyzed in terms of more basic mental (or cognitive) operations, among which, attention plays a key role.

Important: the number and type of these basic operations is defined by the researcher, and can always be modified, extended, etc. according to the most recent empirical findings and the researcher's own specific goals. Consequently, analyses can always be improved.

Operational Methodology according to Benedetti & Marchetti

Even though Ceccato has never explicitly denied the existence of a reality independent of the mind, in his work he has always deliberately disregarded it, dealing only with mental activity.

Most of Ceccato's students and collaborators have followed this approach. A notable example is represented by Ernst von Glasersfeld, who put forward a theory that he named Radical Constructivism.

On the contrary, Giulio Benedetti and Giorgio Marchetti, whose approach may be defined as a moderate kind of Constructivism, explicitly acknowledge the importance of an independent reality, and try to account for it within the theoretical framework of Operational Methodology (*)

(*) The complete bibliographies of Benedetti and Marchetti are available at http://www.mind-consciousness-language.com/curriculum.htm

The importance of language from the Operational Methodology viewpoint



Language, because of its extended usage, flexibility and usefulness, can be considered as one of the main products of the mind. Its easy accessibility and inter-subjectively controllable nature make it a privileged means to study mental activity.



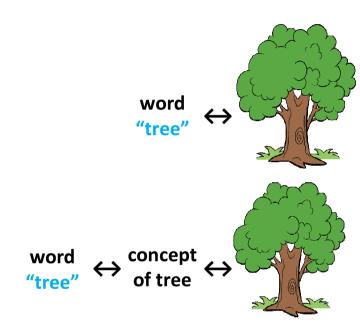
This explains why Ceccato and his followers have so extensively analyzed language, developing a dedicated research discipline to this aim: Operational Linguistics (OL).

OL and the other theories of language

Generally speaking, traditional theories of language can be grouped into:

- 1) Objectivist: those for which language "mirrors" the entities of the world (objects, properties, relations and events);
- 2) Cognitivist objectivist: those for which language "mirrors" the concepts (or ideas, image, etc.) that represent the entities of the word.

OL differs from both. For OL, language is the product of the operations performed by the mind.





The main advantages of OL over the other theories of language

- OL allows for analyzing linguistic units (morphemes, words, etc.) that do not refer to anything in the real world, such as prepositions, conjunctions, determiners, case markers, etc. (relators, grammatical words). This is impossible for Objectivist theories of language.
- OL allows for positively analyzing the meaning of linguistic units avoiding:
 - circular definitions ("to begin=to start", "not=used to form the negative") and
 - the polysemy fallacy (the proliferation of the number of distinct senses associated with a certain word).

This is impossible for Cognitivist objectivist theories of language, included most versions of Cognitive Linguistics, which, by positing that the core meaning of many (mostly grammatical) words is spatial, tend to derive their additional meaning via a metaphorical redescription.

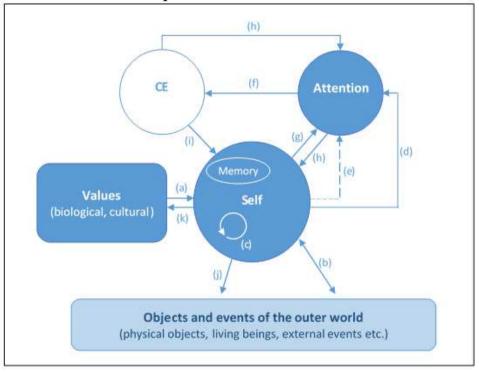
The conscious experience (CE) of linguistic meaning: A cognitive model.

by: Giorgio Marchetti

The cognitive architecture necessary to produce conscious experience (CE)

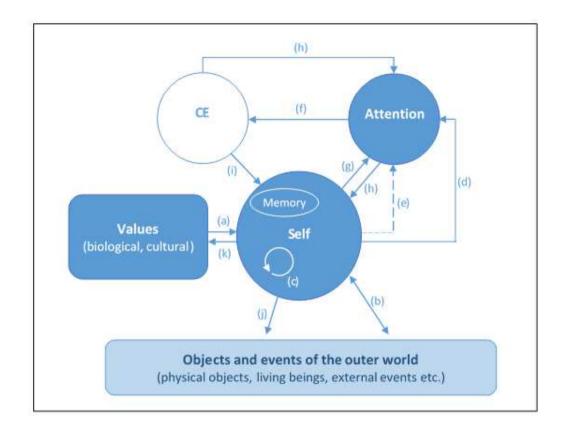
The self: The self-comprises the person's body and mind (excluding attention). It is primarily expressed via the central and peripheral nervous systems, which map the person's body, his environment, and his interactions with the environment. (a) The self-works on the person's biological (e.g., homeostasis) and culturally acquired values. (b) The interactions between the self and the outer world (via e.g., extero- and proprioceptive organs), (c) the inner processes of the self (e.g., routines automatically triggered by unconscious perception or by CE) and the memory system (long term memory, working memory, procedural memory, etc.) provide the content for attentional processing and (d) instructions that pilot attention. (e) The self can also indirectly (dashed arrowed line) affect attention (e.g., when variations of the physical conditions of the body occur).

CE=Conscious Experience



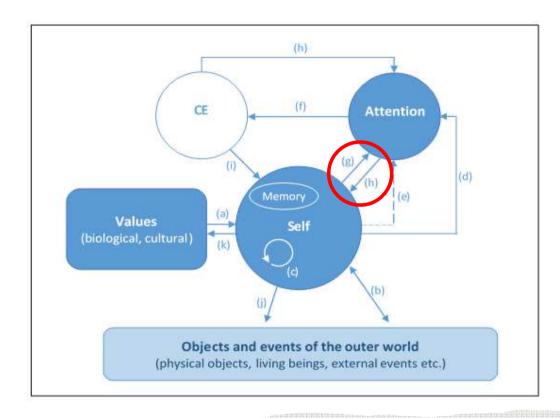
The cognitive architecture necessary to produce conscious experience (CE)

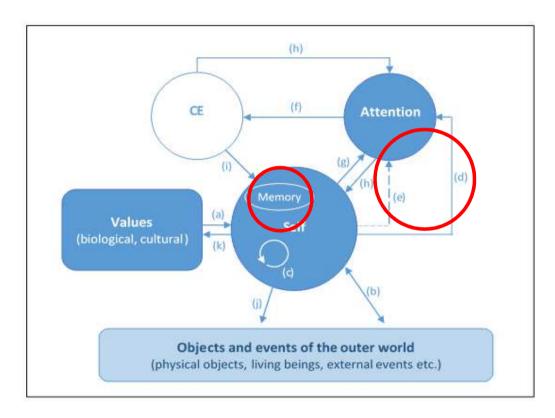
- Attention: (f) Attentional processing produces CE. Attention can be piloted by (g) stimuli and (d) instructions provided by the self as well as by (h) goals defined by CE.
- Conscious experience: CE (i) engenders temporary or permanent modifications of the self (via the memory system), (h) pilots attention, triggers (j) intentional actions and (c) unconscious processing (e.g., comparison of stimuli), and (k) induces modifications of cultural values.



Four main classes of CEs can be identified on the basis of the joint operations of attention and the self that are necessary and sufficient to produce them:

(1) CEs that are determined by the direct application of attention to the contents provided by the self (arrowed lines g and h): sensations, perceptions, images and memories produced by applying attention on the exteroceptive organs, proprioceptive organs or memory. Important subsets of this class are CEs of space and time





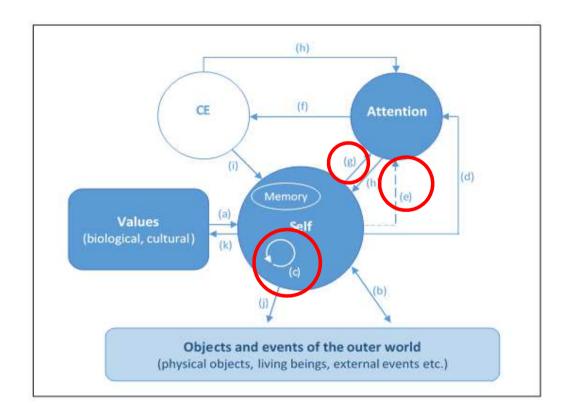
- (2) CEs determined by the indirect or direct action on attention by the self. They can be produced by:
- By the interoceptive system and the internal milieu (arrowed line e): pain, pleasure, thirst, hunger, emotions, moods, etc. These CEs have a pervasive effect on the self and the physical substrate of the body, even when no attention is applied to them.
- By inherited and acquired automatisms, schemas, frames and unconscious procedures that help us perform sequences of actions such as walking and running or complex activities such as driving, playing games, doing specific work and achieving goals (memory and arrowed line d).

(3) CEs resulting from the unconscious operations, performed by the self, on earlier CEs (inner processes c), such as when we perform mathematical operations, evaluate an object or event according to some criteria, compare objects along a certain dimension, find what is common to two or more objects, combine two or more things, relate one thing to another, imagine how a given situation will evolve, think about a possible solution, think of someone.

The activity performed by the self can be symbolized as follows:

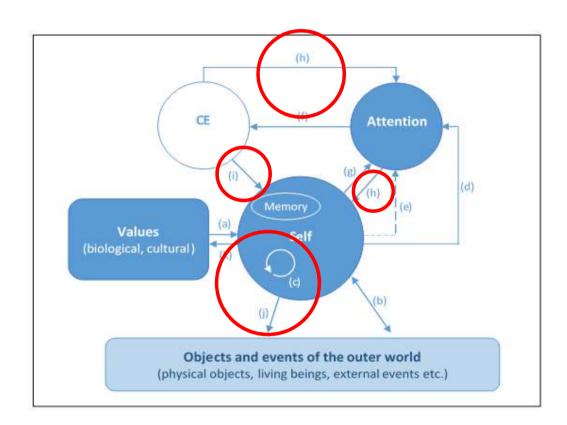
$$op \rightarrow CE \Rightarrow CE1$$

CE1 represents the CE that arises as a consequence (=>) of the operation (op) unconsciously performed on (\rightarrow) an earlier CE.



(4) Higher-order CEs resulting from the working of reflective self-consciousness (arrowed lines h, f, i, c, j and k), such as decisions, volitions, intentions, plans, interests, necessities, possibilities and so on.

Reflective self-consciousness emerges as a progressive and permanent modification of the self (arrowed line i).





A classification of the parts of speech based on the classification of CEs

Basic linguistic meanings can be distinguished according to whether they refer to:

- (1) Exteroceptive sensations (e.g., colours, sounds, tastes, smells), proprioceptive sensations (motion, demonstratives), sensations related to space and time; physical objects, beings and events;
- (2a) Interoceptive sensations (e.g., thirst, hunger, tiredness, pain, pleasure); psychological states (emotions, feelings and moods);
- (2b) Complex activities such as driving and playing games, which, in order to be performed, require learnt schemas, frames, and automatisms; culturally acquired psychological and mental states, such as motivations, expectations, interests and aspirations;



A classification of the parts of speech based on the classification of CEs

- (3) Activities involving thought, which are expressed by relators: conjunctions, prepositions, pronouns, articles, auxiliary verbs, comparatives, quantifiers, adverbs of negation and affirmation, logical and mathematical operators, affixes, the noun-adjective construction, the subject-predicate and verb-direct object constructions, word-order, copulas; and by verbs expressing mental activity.
- (4) Meta-mental activities, usually identified by modal verbs (e.g., may, can, must, need, shall, will) and verbs expressing intention, interest, etc. (e.g., to want, to choose, to plan, to intend).

The peculiarity of the CE of linguistic meaning

The conscious experience (CE) of linguistic meaning differs from other kinds of conscious experiences (perception, images, emotions, dream, etc.) in that:

- The former are qualitatively empty compared to the qualitative richness and complexity of the latter (colour, taste, size, etc.): in order to understand the meaning of a linguistic unit, it is not necessary to experience it by means of some concrete sensory modality;
- Linguistic meanings do not refer or apply to just one thing, occurrence or event, but to a whole set of things, occurrences or events.

A new view of linguistic meaning



Where does the peculiarity of the CE of linguistic meaning come from?



Linguistic meanings isolate, condense, immobilize and reduce the manifold, multiple and ever-flowing CEs of our life in a stable, decontextualized and shared form: they codify the set of cognitive operations that must be performed in order to produce a given CE.



When users use language, either to produce or to understand sentences, speech, and written texts, they perform the cognitive operations conveyed by the meanings of words and sentences.



By performing these cognitive operations, users consciously experience the linguistic meanings expressed by words and sentences.



In this light, linguistic meanings are to be considered as a specific kind of *instruction*: an instruction for the construction of the relevant CEs.

Prepositions

by: Giorgio Marchetti



Prepositions according to objectivist linguistics:

Some prepositions (typically the more abstract ones such as *of*, *with* and *for*) have no meaning at all. They acquire a meaning from the context where they are used.

Problem: If prepositions really had a "non-independent" meaning and acquired a full meaning only from the other words with which they occur, the following sentences would be indistinguishable as to their meanings, given that the co-occurring words remain unchanged:

- A glass for water.
- A glass of water.
- A glass under water.
- A glass with water

Prepositions according to cognitivist objectivist linguistics: polysemy fallacy

Tyler and Evans identify 27 (!) distinct senses of the preposition in. The preposition in can refer to:

- (**Primary sense, proto-scene**) a spatial relation in which a Trajector (TR) is located within a Landmark (LM) which has three salient structural elements, an interior, a boundary and an exterior and the functional element of containment;
- (In situ sense) a TR that *remains* in a particular location for an extended period (*He stayed in for the evening*);
- (The state sense) the emotional state experienced by the TR in a specific LM (She is in love);
- (**The activity sense**) the activity performed in a bounded LM (*He works in stocks and shares*);
- and so on....

Reference: Tyler A. and Evans V. (2003) The Semantics of English Prepositions. Cambridge: CUP

Problem: Why should one of the most frequently used words in English (ranked between the 5th and the 7th) have so many meanings? Is it not much more likely that a word is so frequently used just because it has one very general meaning?

An OL definition of prepositions

Prepositions are relators. Relators are used to mentally assemble two or more elements (words, numbers, musical notes, etc.) in order to produce a new element that differs from both the combined elements and the relator: the meaning of "black hole" differs from both the individual meanings of "black", "hole" and what keeps them together; the meaning of "speak in English" differs from both the individual meanings of "speak", "English" and "in".

Prepositions produce the Prepositional Assembling (PA) by assembling two elements: X and Z (variously termed: initial and final semanteme, first and second correlatum, trajectory and landmark, locatum and locator, etc.).

Prepositions differs from other relators in the way they assemble elements. Prepositions *make the second element of the PA, Z, determine* (to be understood in a very general sense: delimit, define, specify, identify, modify, characterize, constrain) *the first element of the PA, X, according to the specific instructions each preposition provides.*

Comparison with coordinating conjunctions

Examples: in "Wine of Italy", "Italy" determines "wine", as instructed by the preposition "of", by assigning an Italian origin to the wine as opposed to another origin (which allows one to identify the wine as a specific instance or kind of wine). Likewise, in "to hit with a hammer", "a hammer" determines "to hit", as instructed by the preposition "with", by characterizing the act of hitting according to the property of the tool used to perform it.

On the contrary, the elements assembled by coordinating conjunctions *remain independent of each other*. Let's consider the conjunction "and". In "I eat apples and pears", neither the first element (apples) determines the second one (pears) nor vice versa: the kind of apples that I eat does not depend on the pears (and vice versa).



Preposition of

The preposition of instructs one to identify X, on the basis of Z, as a member of a certain domain, by differentiating it from other (different or similar) members of the same domain(*)

(*) A domain is a representational field, organized around one or more quality dimensions, that differs from other representational fields, and allows one to order entities and distinguish them based on the position that they occupy in the field. Typical examples of domains are space and time, but equally important are "typological" domains, which contains objects, events and qualities that can be ordered, classified, etc., such as animals, cars and colors.

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Preposition of

Two possible interpretations:

• Sean doesn't like the smell of garlic

• Sean does not like the smell of garlic, even though he likes its taste (or color, or form, etc.);

• Sean prefers the smell of other vegetables (or food) to that of garlic.

The identification of "smell" occurs thanks to the fact that "smell" is associated with "garlic" and garlic occupies a position in the domain that differs from the positions occupied by the others representatives of the domain.

The first interpretation is made possible by considering garlic as a domain of its own, made up of as different members (or parts/elements) as "smell", "color", "form", etc. In this domain, "smell" is identified thanks to the fact that it occupies a position which differs from the positions occupied by "color", "form", etc. (in the sense that smell is not the same characteristic as color or form).

The second interpretation is made possible by considering garlic as a representative of the domain "vegetables" (or "food"), which is made up of as different representatives as "garlic", "onion", "tomato", etc. In this domain, "garlic" occupies a position which differs from the positions occupied by "onion", "tomato", etc. (in the sense that garlic is not the same vegetable as onion or tomato).

Preposition of

The OL analysis of the preposition of holds for the various kinds of relations that the preposition contributes to build

Relation/usage as defined by OALD (Oxford Advanced Learner's Dictionary) sb=somebody, sth=something	Example from OALD	Z allows for identifying X by specifying the domain that makes it possible to differentiate X from other:
Belonging to sth	The handle of the umbrella	objects (e.g., shovel)/parts of the umbrella (e.g., ribs)
Belonging to sb	That house of theirs in the country	owners (e.g., yours)/properties of the owners (e.g., land)
Relating to sb's role, status or position	The responsibilities of a nurse	employees (e.g., doctor)/characteristics of the nurse (e.g., availability)
Originating from a background or living in a place	The miners of Wales	place (e.g., Northumberland)/workers of Wales (e.g., farmers)
Created by sb	The paintings of Monet	painters (e.g., Picasso)/artworks of Monet (e.g., sculptures)
Concerning or showing sb/sth	A picture of the Pope	portrayed people (e.g., a king)/objects belonging or referring to the Pope (e.g., ring)
About sb/sth	He told us of his travels	things he did (e.g., his work)/receivers of the message (e.g., Anna)
Indicating the material used to make sth	A dress of blue silk	material or color (e.g., red)/products made with blue silk (e.g., bag)
Indicating what is measured, counted or contained	2 kilos of potatoes	vegetables (e.g., onions)/quantity or measure (e.g., 5 kilos)
Indicating the size, level, or extent of sth	A diameter of 5 cms	sizes (e.g., 3 cms)/dimensions measuring 5 cms (e.g., length)
Showing the relationship between part and the whole of sth	A member of the football team	teams (e.g., baseball)/people related to the team (e.g., fan)
After some, many, a few and between a numeral or superlative adjective and a pronoun or determiner	Some of his friends	people (e.g., parents)/amounts of friends (e.g., few)
Showing distance in space or time	A town 5 miles north of Derby	towns (e.g., York)/distances from Derby (e.g., 2 miles)
When saying a date	The first of May	months (e.g., June)/days of the month (e.g., last day)
Frequently happening at a specified time	They used to visit me of a Sunday	days (e.g., Monday)/people who were visited (e.g., her)
Introducing the object of the action expressed by the preceding noun	The forging of a banknote	objects (e.g., blade)/kinds of actions that can be performed on a banknote (e.g., surface treatment)
Introducing the subject of the action expressed by the preceding noun	Have the support of the voters	people (e.g., fans)/kinds of actions that voters can perform (e.g., attention)
So that sb no longer has or suffers from sth	Relieved of responsibility	functions (e.g., command)/kinds of actions implied by responsibility (e.g., lightened)
Indicating a cause	Proud of being captain	causes (e.g., rich)/effects (e.g., ashamed)
In relation to/concerning sth	The result of the debate	activities (e.g., meeting)/features or phases of the debate (e.g., beginning)
Used before a noun/phrase that specifies what the preceding noun refers to	The city of Dublin	towns (e.g., York)/characteristics of Dublin (e.g., river)
Introducing a phrase that describes a preceding noun	A coat of many colours	features (e.g., layers)/objects that colors can help describe (e.g., umbrella)
Used between two nouns, the first of which describes the second	Where's that fool of a receptionist?	people (e.g., pianist)/qualities of the receptionist (e.g., genius)
Used to show whose behavior is being described by it is/was + adjective	It was kind of you to offer	people (e.g., her)/kinds of behaviors that the subject could perform (e.g., silly)

Preposition in

The preposition *in* instructs one *to mentally assign X some part of the space delimited and occupied by Z.*

The space can be of various kinds (spatial, temporal or typological) and dimensions. The kind and the dimension of the space are determined by Z, not by *in* (contrary to what some polysemantic analyses hold).

Relation/usage as	Example from	X is assigned some part of the space
defined by OALD	OALD	delimited and occupied by (Z):
sb=somebody, sth=something		
At a point within the area or space of sth	The highest mountain in the world	a geographical space
Within the shape of sth; enclosed by	Lying in bed	a place
Indicating movement into sth	He dipped his pen in the ink	a type of substance
During a period of time	In March	a period
After a special length of time	Return in a few minutes	a period
For a period of time	It's the first letter I've had in 10 days	a period
Wearing sth	Be in uniform	a type of dress
Indicating physical surroundings/circumstances	Go out in the rain	a certain atmospheric circumstance
Indicating the state or condition of sth/sb	I'm in love!	a psychological state
Indicating sb's occupation	He's in the army	a certain occupation
Indicating what sb is doing or what is happening at a particular time	In attempting to save the child from drowning, she nearly lost her own	a certain event
	life	
Involved in sth; taking part in sth	Be in a play	a type of activity
Forming the whole or part of sth; contained within sth	There are 31 days in May	a period
Indicating form, shape, arrangement or quantities	A novel in three parts; roll it up in a ball	a type of arrangement, form
Indicating the medium, means, material used	Speak in English; pay in cash	a type of medium, means
With reference to sth; with regard to sth	A country rich in minerals	a certain state/condition
Used to introduce the name of a person who has a particular	We have lost a first-rate teacher in Jim Parker	a certain person
characteristic		
Indicating a rate or proportion	One in ten said they prefer their old brand of margarine	a quantity

Preposition to

The preposition to instructs one to mentally develop the construction of X by using Z as the end point of the construction developmental process of X.

Develop means that X can be further operated on as specified by, or with reference to, Z. Z shows both the direction that the development of the construction of X must take, the final limit of such a development, and the extent of the development.

Relation/usage as defined by OALD sb=somebody, sth=something	Example from OALD	Z indicates the extent/final limit of the construction developmental process of X by specifying:
In the direction of sth	Walk to the office	the place where the walking activity ends
Situated in a specified direction from sth	Pisa lies to the west of Florence	a reference point that helps delimit/define the position of Pisa
Towards a condition, state or quality; reaching a particular state	He tore the letter to pieces	the final state that the letter reaches
As far as sth; reaching sth	The garden extends to the river bank	where the garden ends
Indicating the end of a range	Count from 1 to 10	when counting ends
Until and including a moment in time	From Monday to Friday	the end of the period
Before the start of sth	Only 8 more days to my birthday	the end of a waiting time
Before an exact hour on the clock	Ten to two	when a given time will be finally reached
Used to introduce the indirect object of certain verbs or phrases	He gave it to her sister	the final recipient of the process of giving
Of or belonging to sth/sb; for sth/sb	The solution to a problem	the final beneficiary of the solution
Directed towards or concerning sth/sb	His claim to the throne	the ultimate goal of the claim
Indicating a relationship with sb	She is married to an Italian	the person representing the final connection point implied by the process of marriage
Used to introduce the second element of a comparison or ratio	I prefer walking to climbing	a term of reference that helps delimit a person's preferences
Making a certain value or quantity	There are 2,54 cms to the inch	the reference point to be reached
Indicating a rate	This car does 30 miles to the gallon	a reference point that helps delimit/define the speed of the car
Indicating a possible range or an appropriate value	20 to 30 years of age	the end of the range of years
In honour of sth/sb	Drink to sb's health	the final beneficiary of the act of drinking
Close enough to be touching sth/sb	Dance cheek to cheek	the final connection point that has been reached
While sth else is happening or being done	She left the stage to prolonged applause	the event used as a reference point to delimit the final course of the action of leaving
Used after verbs of motion (come, go) with the intention of giving sth	Come to our aid	the final beneficiary of the action of coming
Used after words describing feelings towards sb/sth	She is devoted to her family	the final beneficiary of her feeling of devotion
Indicating sb's reaction to sth causing sth	To my surprise the Labour Party won the election	what the result of the election finally implies for a person
Used after verbs of perception (eg. seem, appear), in the opinion of sb; from sb's	It feels like velvet to me	the term of reference used to define the colour
point of view		
Satisfying sb/sth	Her new hairstyle isn't really to my liking	how far a certain hairstyle is from somebody's standard

Preposition for

The preposition for instructs one to mentally assign the final (spatial, temporal or typological) destination defined by Z to X.

Final indicates that the cognitive process underlying the production of the preposition *for* is a two stages-process by means of which X, the destination of which is not specified initially, is finally assigned the destination defined by Z. Compared to the preposition *to*, which makes one experience the development process of X in a continuous way to the point defined by Z, the preposition *for* leaves unspecified the process leading to the final destination, in the sense that one is not required to explicitly trace the process. Because of this, *for* is neutral about whether X ever in fact moves to, reaches and comes in contact with Z

Relation/usage as	Example from	The initial stage (defined by X) of the process	The final stage (defined by Z) of the process
defined by OALD	OALD	entailed by for	entailed by for indicates:
sb=somebody, sth=something		indicates:	
Indicating the person intended to receive or benefit from sth	There's a letter for you	That a letter was received	The final recipient of the letter is the interlocutor
In order to help or benefit sb/sth	Take some aspirin for your headache	That aspirins are available	Which disease an aspirin can alleviate
As an employee of sb	She works for a publisher	That she works	Who finally benefits from her work
Indicating purpose or function	It's a machine for slicing bread	That there is a machine	The function of the machine
Indicating destination or target	Leave for home	That she/he is not at home	Her/his final destination
Indicating reason or cause; because of sth; on account of sth	He didn't answer for fear of hurting her	That he did not answer (usually he answers)	The reason why he didn't answer
With regard to/concerning sb/sth	Anxious for sb's safety	That someone is anxious	The reason why one is anxious
In defense or support of sb/sth	We are campaigning for a bypass round the town	That they are campaigning	The reason why they are campaigning
As a representative of sb/sth	I am speaking for everyone in the department	That she/he speaks	The people who benefits from what she/he does
Meaning sth	What's the "S" for in A. S. Hornby?	That "S" can stands for many things	The specific name for which "S" stands
In order to obtain sth	Go to a friend for advice	That one goes to a friend	The reason why one goes to a friend
As the price, reward or penalty that sth carries	Buy a book for £3	That one has bought a book	The amount of money that has been finally replaced
			by a book
As the replacement of sth else	Exchange one's car for a new one	That one has an old car	By what the old car can be finally replaced
In return of sth; in the specified ratio	There is one bad apple for every 3 good ones	That there are bad apples in a bunch of apples	The dimension of the bunch of apples to which the statistic applies
Considering what can be expected from sb/sth	It's quite warm for January	That there is an unexpected temperature	The reason why the temperature is unexpected
(After a comparative adjective) following sth	You'll feel all the better for a good night's sleep	That one can feel better	The condition in which this applies
Indicating a length of time	I'm going away for a few days	The speaker is leaving	How long the speaker is leaving
Indicating that sth is intended to happen at the specified time	A reservation for the first week of June	A reservation	To which period the reservation applies
Indicating the occasion when sth happens	I'm warning you for the last time - stop talking!	That the speaker uses to warn the interlocutor	That this applies no longer after this time
Indicating a distance	The road went on for miles and miles	That the road continues	How much the roads goes on
Used after an adjective and before a noun or pronoun + infinitive	It's impossible for me to leave my family	That there is an option to leave the family	That this option does not apply to the speaker
Used after a noun and before a noun or pronoun + infinitive	There's no need for you to go	What a situation usually requires one to do	That this does not apply to the interlocutor
Used after too + adjective or adjective + enough	The box is too heavy for me to lift	An heavy box	Who cannot lift the box
Used before a noun or pronoun + infinitive to show purpose or design	Letters for the manager to sign	That letters are on the desk	Who has to finally sign the letters
Used after more with than	Nothing could be more pleasant than for them both to get	That in a life, one can have very pleasant feelings	That this applies to them when they marry
	married		

Preposition with

The preposition with instructs one to mentally link the construction of X to the construction of Z, so that the construction of the former cannot occur without the construction of the latter.

The use of *with* specifically requires that the construction of X is made dependent on the concurrent construction of Z. However, the constructions of X and Z do not merge into one sole construction: rather, the two constructions proceed in parallel in a coordinate way, which ensures their partial independence.

Relation/usage as defined by OALD sb=somebody, sth=something	Example from OALD	Z characterizes / qualifies X by defining:
In the company or presence of sb/sth	I went on holiday with a friend	the person who accompanied the speaker
In the care, charge or possession of sth	I left a message for you with your secretary	who takes care of the message
Having or carrying sth	A girl with red hairs	the girl's distinctive feature
Indicating the tool or instrument used	Feed the baby with a spoon	the instrument used to perform the activity
Indicating the material or item used	Fill the bowl with water	the material used to perform the activity
Agreeing with or supporting sb/sth	Are you with us on this issue?	who supports (or does not support) the speaker
In opposition to sth; against sth	Fight with sb	the opponent in the fight
Because of sth; on account of sth	Tremble with fear	the reason motivating the feeling
Indicating the manner, circumstances or conditions in which sth is done	She sleeps with the window open	the conditions in which the activity takes place
or takes place		
In the same direction as sth	Sail with the wind	the conditions in which the activity takes place
Because of and at the same rate as sth	Skill comes with practice	the manner in which the skill is acquired
In regard to, towards or concerning sb/sth	Angry with the children	who the object of the feeling is
In the case of sb/sth; as regards sb/sth	It's a very busy time with us at the moment	the conditions for which the busy state holds
And also sth; including sth	The meal with wine came to £15 each	the additional component of the meal
Being an employee or a client of an organization	He is with ICI now	the society for which he works
Indicating separation from sb/sth	I could never part with this ring	The object from which the speaker will never separate
Considering one fact in relation to another	She won't be able to help us with all her family commitments	the reason hindering the possibility of helping
In spite of sth; despite sth	With all her faults I still love her	the conditions in which the feeling still holds
Used in exclamations	Down with the Tories!	what the speaker is against