

## TREE ANATOMY AS A COGNITIVE MODEL\*

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The comparative study of lexical semantics reveals the existence of a variety of widespread conventionalized if not universal cognitive paths that contribute to a more or less loose structuring of vocabulary. The study of this structuring may shed light upon so-called naive or common sense linguistic thought. Knowledge of it would obviously make the understanding of relations between words in the lexicon easier.

The word stock of numerous languages throughout the world, just like the mythology of many peoples, bears witness to the importance of several fundamental cognitive models for the expansion of terminologies as well as for the advancement of abstract thought. Alongside kinship (more precisely family) organization, human (and to some modest extent animal) anatomy, or atmospheric phenomena, it is the tree (or plant) anatomy model that cannot be overlooked in this connexion. Tree as a cognitively useful idea has been known throughout human history, as witnessed, and A. Demandt illustrates this with numerous examples; Johann Gottfried Herder, Wilhelm von Humboldt, L. von Ranke, Theodor E. Mommsen and others compare mankind to a tree (Demandt 1978: 107–109).

In mythology – and languages seem closely linked to it since their beginnings – things that grow from the earth, bloom and bring forth seeds, which happens in more or less regular cycles, invariably arrest the attention of the naive observers. And thus the plants and trees supply them not only with fruits but also with insight into the working of nature and existence in general. In New Zealand cosmogony it was the tree (personified as the god of the forest Tane) that was active in raising the sky from the earth, and throughout Europe (just as elsewhere) the tree may symbolize life, the succession of generations, or even the structure of the whole world including heaven, earth, and Hades.

Tree anatomy as one of the cardinal cognitive models is generally believed to be ubiquitous but this assumption so far seems to have rested upon rhapsodic impressions, and perhaps the time has come to pass from speculative conjectures to convincing evidence, which can only happen through collecting and evaluating pertinent data from various languages.

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This paper introduces findings from several genetically and typologically very different and geographically very distant languages, namely, English (Hais – Hodek 1984–1985), Japanese (Masuda 1985), Indonesian (Echols – Shadily 1961; Korigodskiy 1990), as well as Maori (Williams 1957) and Hawaiian (Pukui – Elbert 1957). Their comparison leads to interesting if not surprising conclusions.

The semantic field labelled *tree anatomy* includes the following basic terms: *root, stem (trunk), bark, branch (twig), leaf, flower, seed, fruit, tree top*.

## ROOT

In English it is applied to natural objects (*r. of a hill, of the sea, of water*); to human anatomy (*r. of nose, tongue, hair, nerve*); to family history and cultural identity; to man-made objects (*r. of thread, gem, dam*); to abstracts (*root* in mathematics, linguistics, astrology, music, philosophy – in the sense of cause, origin, essence).

In Japanese *root* (*ne*) is extended to include natural and spatial meaning (base of a hill, lower part); to human anatomy (nucleus of a boil); to abstracts – in the sense of source, foundation, origin, essence).

The Indonesian *akar* “root” may be applied to anatomy (*r. of legs* “behind, bottom”) and to abstracts – especially in the meaning of cause.

In Maori *take, puutake* or *more* (the latter meaning “taproot”) may be applied to the lowest part of a spatial configuration (e.g. “bottom of a pit”), to what moves the whole community (e.g. “chief”, “head of a subtribe”), in Hawaiian to the very beginning of a family (“womb”, “ancestral root”), and, finally, to abstracts (cause, reason, source, foundation).

Now it has turned out that the most mythological application is that one viewing the rise of a family line as akin to vegetable growth (cf. Hawaiian *a’a* “womb”, “offspring” or Maori *puutake* “ancestor”); applications based upon spatial configuration (in the sense of the lowest part of something (either in human body, in nature or in artefacts) are quite widespread and even more so are applications to the causal domain.

The idea of root as the lowest part of the plant body inevitably interferes with the spatial notion of “below”. The latter is invariably associated with a negative evaluation (being a position of weakness, disease, defeat, and death) while the notion of root is regarded positively since it marks the starting point of an upward movement of growth in space and time. The collision with the spatial domain and, more specifically, with the negative value of “below”, however, may occasionally endow some metaphorical extensions or root with somewhat mysterious or enigmatic overtones. In the case of a genealogical tree the root as the lowest position corresponds with the past while its branches obviously strive in the direction of the future. We tend to view the chief as someone in a position of power, that is, above. However, among the Maori, the chief may be equated with the root because he is, in addition to other things, the eldest in rank and thus linked to the past of the tribe more than anybody else.

## TRUNK

Trunk in English is the bulkiest overground part of the tree, the visible continuation of its roots. Its applications in the various domains of human or animal anatomy, of man-made objects (*trunk* of a mill; of a road; of long-distance communication and various technical parts) share the property of being the most voluminous part of a whole, its support.

Indonesian *batang*, *pokok*, or *tunggul* also find applications in genealogy (meaning lineage, dynasty), in the terrain configuration (*batangan* main stream of a river), in meteorology (*pokok hujan* rain cloud) or even in the temporal domain (*batangan hari* “noon”).

In Polynesian, the temporal meaning is likewise present (cf. Hawaiian *kumu* beginning) or refers to the body without head (Maori *tumu*). In Hawaiian, *kumu* “trunk” takes over some functions of the term *a’a* “root”.

## BRANCH, TWIG, BOUGH

Lexemes with the meaning branch, twig, bough display very similar applications in various conceptual domains. The common denominator of most of these applications may be characterized as “subordinate part of a whole linked to the rest”, whether it is a branch road (Japanese *edamichi*, Indonesian *cabang jalan* crossroads), a branch of a river (Japanese *edagawa*, *cabang sungai* fork of a river, Maori *kaapeka* branch of a river), or a branch of a mountain range, of a story (Japanese *edabanashi*), of science, or whether it is employed in the terminology of kinship (cf. Maori *kore kaupekapeka* childless, literally “without branches” or *kaawai* pedigree, lineage, Hawaiian *laalaa ’ole* a childless person, literally “without branches” versus *laalaa ola* person with offspring, literally “living branch”). In modern languages, the use of branch for branch offices of various institutions is a near-universal.

Lexical metaphors such as Japanese *edazuno* antlers (literally “branch-shaped horns”), Japanese *edaniku* leg of meat, Hawaiian *laalaa* barb of a hook, Maori *manga* snare for birds are based upon external similarity. Hawaiian *manamana* (reduplication of *mana* branch) means finger, which may be viewed analogically both as an appendage of hand and as an object of similar shape.

## LEAF

The true function of leaves is obviously inaccessible to naive linguistic philosophy and their common sense definition makes use chiefly of their flat shape, light weight, location at the end of twigs, mobility in the wind. This is obvious when evaluating metaphorical applications of the leaves in all investigated languages, cf. English *leaf of the door* or *of window*, *of tin*, *of a board*, Indonesian *daun dayung* oar (literally “leaf of a paddle”) or *daun telinga* auricle (leaf of the ear), Maori *rau* leaf as well as blade of a weapon, Hawaiian *lau* leaf or tip of tongue, etc.

## FLOWER

Flowers are the most strikingly attractive constituents of trees and are accordingly employed in lexical (not to speak of poetic) metaphors. It is their transient beauty, colour and fragrance that make them desirable for metaphorization. Perhaps that is why the “flower” metaphors are relatively frequent in most languages. The metaphorical basis of flower as a rule includes decorativeness: English *flowers of speech*, Japanese *hanabi* fireworks (literally “flower fire”), Indonesian *bunga api* or *kembang api* fireworks (literally “flowers of fire”), Indonesian *bunga bibir* flattery (literally “flowers of lips”); climax of growth: English *flower*, Japanese *hana* flower; anything or anybody remarkable: Japanese *hanagata* star actor, popular person, Indonesian *bunga tanah* humus (literally “flower of the soil”); something done just for the pleasure of it: Japanese *hanazumó* amateur wrestling; what is the most precious: Indonesian *bunga desa* village beauty (literally “flower of the village”), *bunga modal* capital interest (literally “flower of the capital”), Indonesian *bunga uang* money interest (literally “flower of money”), Indonesian *kembang gula* candy, sweets (literally “flower of sugar”), and perversely Indonesian *bunga tahi* dirty words (literally “flowers of dirt”). Flower is often used as a near-synonym of woman or of anything typically feminine: English *flowers* menstruation, Japanese *hana* geisha’s spirit, Indonesian *bunga latar* or *kembang latar* prostitute (literally “prostrate flower”), Indonesian *bunga desa* village beauty (literally “village flower”), Indonesian *bunga raya* prostitute (literally “Chinese rose”), Indonesian *kesuma* beautiful woman, Hawaiian *pua* girl (literally “flower”). Superficial similarity is responsible for metaphors as Japanese *hanagóri* flowers frozen in ice, Maori *puawai* grey hair, Maori *pua* foam of the sea.

## FRUIT

The meaning of metaphorical extensions of “fruit” fixes mainly the fact that fruit is the final product of one whole vegetative cycle, at least from the viewpoint of the consumers. It may apply to fruits of work, business, to results in most of the investigated languages. In Indonesian the semantic scope of metaphorical fruits is wider as illustrated by *buah bibir* subject of conversation (literally “fruit of the mouth”), *buah hati* sweetheart (literally “fruit of the heart”) or *buah tangan* a gift brought back from visiting (literally “fruit of the hand”). In Maori, *hua* fruit may refer to progeny and, on the other hand, also to waxing of the moon or to the full moon. The latter meaning is perhaps not motivated only by the similarity of round shape to prototypical fruits but also by the process of ripening, to some extent paralleled by the growing moon.

The meanings easy-going person, gay person, loose girl recorded in English are semantically not transparent and no explanation of their motivation is known to me.

## SEED

While fruits may be regarded by the consumers as the very *raison d'être* of many trees, the goal of the whole vegetative annual cycle lies in producing seeds which mark at the same time the beginning of the next cycle. It is therefore far from surprising that the seeds symbolize concentrated vital force and promise of future life. These meanings are inherent in English where the lexeme *seed* includes such meanings as source, kernel, origin, inoculation, etc., in the Japanese word *tane* (a breed, a strain, a stock, news, dope, food for thought, a cause, a source), in Indonesian words *bibit* and *biji* (cause, origin, prospective, future), in Maori *kano* (colour, sort, kind, stock, descent) and *kanokano* (relative living among a distant tribe) or in Hawaiian *'ano* (progeny, offspring). Due to its causal connotations seed overlaps, at least to some extent, with another word from this semantic field, i.e., with root.

“Seed” metaphors based on superficial similarity are fairly rare, cf. English *seed* bubble in glass or Indonesian *biji mata* eyeball, pupil of the eye. Interestingly enough, both Japanese *tane* and Maori *kano* may refer to kind, species, variety.

Other kinds of tree metaphor occur occasionally; among them it is the tree top that seems to be fairly frequent, c.f. Maori *taauru* metaphorized as head or source of a stream, Maori *koouru* the first puff of a breeze. Likewise the equivalents of bud, budding may be found useful when speaking of offspring, descendants, children, cf. Maori *miha* young fronds of a fern > distant descendant; calf of a whale; Maori *parito* centre shoot of endogenous plants > offspring, Hawaiian *liko* leaf bud; newly opened leaf, to bud > a child, esp. of a chief; youth.

Both in Maori and Hawaiian *wana* to bud, shoot, young shoot, seedlings may be applied to mean ray of the sun, just like Maori *tara* with the basic meaning of thorn (in these instances the similarity in appearance seems to play a role). The latter, however, displays a wider semantic scale including shafts of light, horn of the moon, and even courage or membrum virile.

The metaphorical route of Maori *teetee* young shoot, frond of a plant or fern is more complicated. The similarity of appearance has led to the meaning figurehead of a canoe which again, due to its ornamentality and anterior location, could secondarily be metaphorized as chief.

Quite a few authors reject the idea of similarity as the basis of metaphorization and maintain instead that similarity of two objects or phenomena is created by the particular metaphor. Perhaps this may be true in (especially modern) poetry. However, in lexical metaphors, similarity (perhaps presented as identity) of one kind or another is obviously present, being based upon salient features of the interrelated objects and thus may be akin to simile.

The main lines of metaphorical modelling are (1) external, superficial similarity (similarity of shape), (2) similarity of spatial configuration, (3) similarity of temporal configuration (rare), (4) functional similarity.

Tree anatomy is, however, no static model. It includes several chronologically ordered phases. This inherent dynamism makes the tree a welcome model for expressing the phenomena of growth, prosperity, bloom, ripening, bringing

fruits and finally losing its vigour with the falling leaves in a variety of notional domains. Perhaps the winter tree with its bare branches, without leaves and flowers, when its vital force is sleeping, might be labelled as the zero phase. It is superseded by the phase of awakening signs of life, when the young leaves are budding and flowers start developing. Subsequently the season of ripe fruits sets in, followed by the phase of mature seeds that are ready to put initiate the foundations of a new cycle, where the idea of eternal return certainly cannot be ignored.

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