Plant names: a cognitive approach

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Abstract

The paper aims at revealing the general features of folk and scientific botanical denominative models with succinct insights into the sources of naming. After the brief presentation of the properties featured by the two systems of naming, the schematic description of the sources of naming is used to reveal the continuities and discontinuities between the denominative models as well as the cognitive focus implied in the process of naming. The theoretical assumptions are supported with lexical evidence drawn from various dictionaries, encyclopedias and books on Romanian and English plants and plant names.

The analysis of the relationship between scientific and folk taxonomies has been given relatively scarce consideration, even if the topic is considered of great importance in cognitive linguistics, as revealed by various notorious researchers, namely Lakoff's findings on «idealized cognitive models» (ICMs), in Lakoff, 1987, Ungerer & Schmid's considerations on «cultural models», in Ungerer & Schmid, 1996 or Kövecses's comments on the distinction between folk models and scientific theories, in Kövecses, 2004.

The present research aims at revealing the most inclusive features of the scientific and folk classifications and tries to enforce the idea that the denominative models revealed by plant names, both expert and naïve, should be understood in terms of continuity and reciprocality rather than opposition. It has been stated (Ungerer & Schmid, 1996: 45ff) that the scientific classification of plants, originally developed in the eighteenth century by the Swedish botanist Carl von Linné and subsequently refined, has presently reached a degree of formalization that aims at being exhaustive, objective and universal, whereas the folk plant terminology is considered to be rather limited, subjective and culturally bounded. The revolutionary work carried out by Berlin et al. already showed the intricacies of the naïve plant naming system (Berlin, Breedlove & Raven, 1973). An even greater amount of research on the rules of naming has been devoted to outlining the denominative properties of the scientific botanical taxonomy, as shown by various international codes of botanical nomenclature.

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In the long standing tradition of attributing and interpreting plant names it has often been pointed out that the folk plant terminology predates the scientific classification and naming and, consequently, acts as the basis on which the expert model is built. In this respect, the relationship between the folk plant terminology and the scientific taxonomy might be interpreted in terms of reciprocality: whereas the folk terminology favored the development of the scientific taxonomy and, as such, provided plant names that were adopted in scientific nomenclature, the success and the prestige of the scientific taxonomy played a crucial role in the dissemination of certain plant names that entered folk terminology. In other words, when comparing the two taxonomies, one can find elements of the folk plant terminology that were, at a certain moment, adopted by the scientific taxonomy, on the one hand, and scientific plant names that came to be part of the folk terminology, on the other. An illustrating example of the first type of continuity is the Latin word *allium* (garlic) which is both the etymon for rom. *ai* (reg.), fr. *ail*, sp. *ajo*, port. *alho*, it. *aglio* and the scientific name of the plant species belonging to the genus *Allium*. An adequate example illustrating the second type of continuity is the word *belladonna* (*Atropa belladonna*), originally a sixteenth century Italian botanical term which was later adopted as the scientific name of the plant and, as such, penetrated many European folk terminologies: rom. *beladonă*, fr. *belladone*, engl. *belladonna*, germ. *Belladonna* etc. Such examples and many others reveal the intricate relationship between reality and naming and reflect the need to investigate how plant names, both common and scientific, came into being and what are the sources of naming.

How does a plant name come into being ? In 1753, the father of modern scientific taxonomy in natural sciences, Carl von Linné (lat. Carolus Linnaeus, 1707-1778) suggested what has ultimately become the scientific emblem of the sunflower, *Helianthus annuus*. The Latin-based scientific equivalent of many folk plant names, such as engl. *sunflower*, germ. *die Sonnenblume*, rom. *floarea-soarelui*, fr. *tournesol*, sp. *girasol*, port. *girassol*, it. *girasole* etc., is undoubtedly inspired by the denominative folk pattern, in the sense that the lexical constituents of the scientific name, gr. *helios* (sun) + gr. *anthos* (flower), reflect the same prominent features of the plant: the beautiful flower and the plant's ability to follow the sun's movement across the sky during the day. It must also be shown that, unlike the folk name, the scientific nomenclature enforces the fact that the name does not correspond to a specific individual plant, but to an entire genus of similar plants, comprising more than fifty species valued as food crops or ornamental plants.

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The linguistic description of the plant names, both folk and scientific, reveals the existence of two semantic frames: 1) a "narrative" frame generated by means of a verb or a lexical descriptor of verbal origin determined by a noun, represented by the formative model *[turn] + [sun]* and 2) a "descriptive" frame generated by means of two nouns, represented by the formative models *[sun] + [flower]* or *[flower] + [sun]*. The "narrative" frame reflects the property called heliotropism. The "descriptive" frame mirrors the similarity between the shape and the color of the plant's flower and the similar attributes of the Sun. This analogy also reflects the importance of gestalts in categorization and naming.

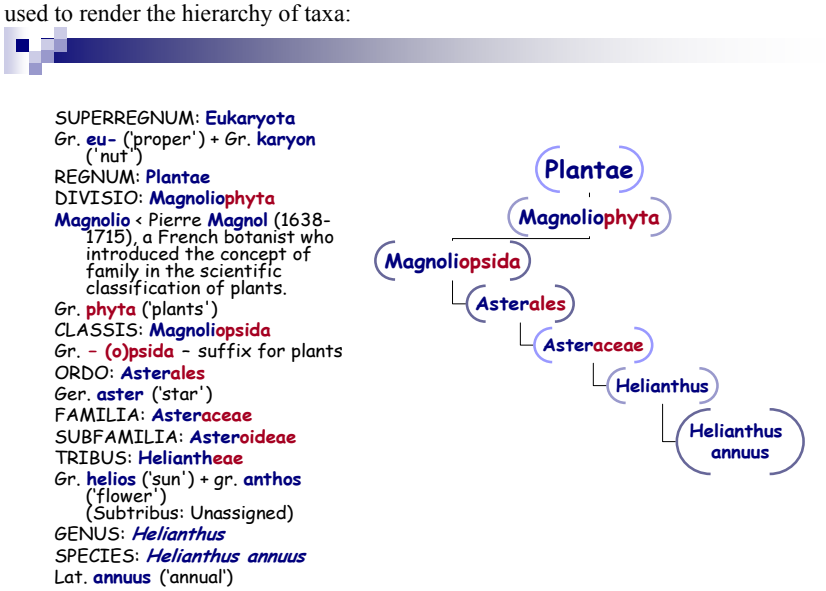
Bearing in mind that the sunflower is native to North America, the two semantic frames can also be traced in the languages of various indigenous Mexican groups (cf. Lentz et al. 2008: 6235): a) the Seri, Otome and Zoque groups are linguistically oriented towards the "narrative" frame: the plant 'watches the sun/ looks at the sun (god)' whereas b) other groups, such as Tepehuan and Popoluca: '(big) sun', Nahua: 'shield flower' and Raramuri: 'seed flower' are linguistically oriented towards the "descriptive" frame: the plant resembles the sun.

The conclusion that springs into the mind of the researcher is that European denominative models could be nothing but "copies" of the native North American models. The acclimatization of the plant to the Old World was paralleled by the calquing of the precolumbian folk frames of naming. The sunflower example also uncovers how intricate and profound is the relationship between cultural borrowings and linguistic loans and emphasizes the empirical, historical and cultural roots of plant naming, regardless of perspective, naïve or expert.

At the same time there are remarkable differences that need to be considered in order to observe the features of the folk and scientific denominative models. It is a known fact that the current botanical taxonomy usually includes seven taxonomic ranks (levels): 1. kingdom (*regnum*), 2. division or phylum (divisio, *phylum*), 3. class (*classis*), 4. order (*ordo*), 5. family (*familia*), 6. genus (*genus*), and 7. species (*species*). The need for hierarchical and nomenclatural precision legitimates the existence of secondary ranks of taxa: tribe (*tribus*), between family and genus, section (*sectio*) and series (*series*), between genus and species, and variety (*varietas*) and form (*forma*), below species. (cf. *International Code of Botanical Nomenclature*, Vienna, 2005). Each taxonomic rank is linguistically expressed by means of highly specialized linguistic constituents used to outline the systematics and conventionality of naming, as shown below:

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Figure 1: The relationship between taxonomic ranks and linguistic constituents used to render the hierarchy of taxa:



Features of the scientific denominative model

The taxonomic hierarchy shows that *systematicity* is one of the denominative features used to distinguish the scientific from the folk model. According to Linné (Rom. ed. 1999: 89), the systematic description represents the foundation of scientific classification: "The first step of wisdom is to know ourselves; then the objects which we can differentiate the one from the other and know them by placing them in a classification and by properly naming them; thus, the classification that we make and the names that we give will form the basis of our science. (…) The one who studies the nature (the naturalist) is the one who correctly distinguishes the parts that form the nature and correctly names them according to their number and shape, to their placement and proportions among parts." Describing and naming, notes the Swedish scientist, must be done correctly, that is in accordance to the essence of the reality that the scientist researches. From this perspective, Nybakken (1959: 15) asserts that, in the scientific models in natural sciences, naming is done according to a naming scheme (*binary nomenclature*) and to a classifying scheme (*taxonomy*), and Stearn (1985: 16) comments that the scientific plant names represent "stipulative definitions", which are deliberate and arbitrary denominative choices given

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to certain realities. The systematicity of the scientific botanical names reflects their *arbitrariness*, meaning that scientific plant names are conventional and developed according to a scheme of naming. At the same time, scientific plant names are given by a specific individual, and this marker of individuality is usually specified.

The nomenclatural specificity is another feature of the expert models showing that each area of scientific research has specific denominative needs (Nybakken, 1959). For instance, if botanical names are binary structures, in which the former term shows the gender, and the latter, the species [*Leontopodium alpinum*[1] → lat. *Leontopodium* < gr. leonto-podion 'lion's foot' (Gledhill, 2008: 234) + lat. Alpinus, -a, -um 'which grows in the Alps or the in alpine area of some mountains' (Stearne, 1985: 383)], the scientific model in chemistry mainly consists of compound words whose constituents refer to primary substances and their combinations [*hexachlorocyclohexane*, insecticide made of chlorine and hydrogenated benzene].

The denominative precision is an essential feature of the expert models. According to this, a scientific term will suggest, as clearly as possible, the properties of the concept or of the thing it stands for. Nybakken (1959: 16) shows that, in botanics, the great number of genders and their overlapping occasionally led to the emergence of scientific denominations based on anagrams [*Muilla* < *Allium*]. The denomination formed by anagram is motivated by the fact that the plant species belonging to the gender Muilla, though included in the family of the lily, have similar flowers to those of the gender Allium, this being the cognitive basis of the anagram. Otherwise, the denominative precision is, according to Linné (Rom. ed., 1999: 108), a fundamental condition in the formation of a botanical term: "The technical terms that are chosen need to be clear, to avoid confusions and errors." The naturalist even recommends that the gender names should reflect the essential characteristics of the plants, so that there must not be common denominations with those from zoology and mineralogy and there should not be botanical names borrowed from medicine (mainly from anatomy or pathology). Likewise, in forming the binary nomenclature, Linné (Rom. ed. 1999: 108 ff) rejects *hybrid names* (for instance, compounds with Greek and Latin terms to form a gender name), *paronomastic names* (similarly sounding denominative structures), *names that do not come from Latin or Greek, names of saints* (but he accepts the borrowing of deity names) and

[1] Some of the French folk names of the edelweiss reflect the link with the scientific name: *pied-de-lion*, *patte-de-lion*. The scientific name was given, in 1822, by the French naturalist Alexandre Henri Gabriel de Cassini. The German word edelweiss is inspired by the delicate, "noble" white colour of the flower.

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names of famous people (with the exception of poets, royalty and botanists). Regarding names of species, the scholar recommends to avoid names referring to the *size* of the plant*, the place of growth, the colour, the smell, the taste, the use*, that is the "*misleading*" features (the term belongs to Linné) on which the ethnobotanical names are usually based.

Terminological stability is considered, even since the 18th century[2], maybe earlier, a condition without which scientific nomenclature could not have been differentiated from the folk one. Nybakken (1959: 23) asserts that, once formed, a scientific term cannot be changed either in form or in content, whereas Stearn (1985: 282 ff) notes that in the current *International Code of Botanical Nomenclature* some of Linné's recommendations have become prescriptions while others were rejected.

Economy and euphony are features that Nybakken (1959: 20-21) considers relevant for any scientific terminology. Otherwise, these traits have been suggested by the father of modern taxonomy, who claims that in botanical nomenclature one should avoid "gender names longer than 12 letters (nomina sesquipedalis), as well as disgraceful names." (Linné, Rom. ed, 1999: 109).

Last, but not least, an essential property of the scientific plant names must be the *transparency* of names, as they easily need to be "deciphered" by specialists. The rules for making up a scientific plant name are stipulated in various codes of botanical nomenclature.

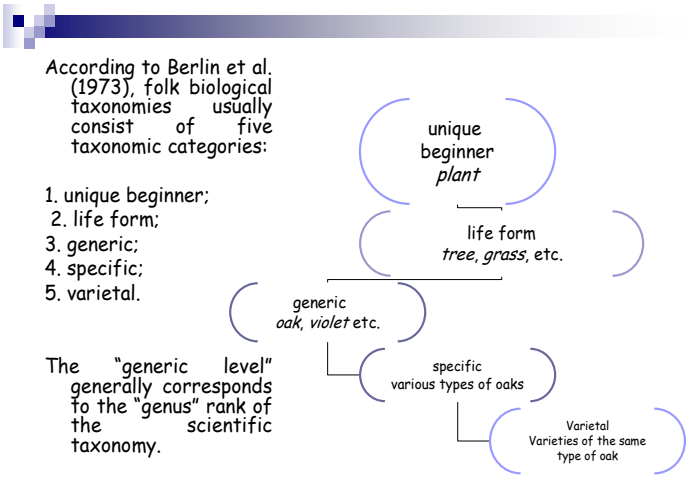
Features of the folk denominative model

According to Berlin, Breedlove & Raven, 1973, the ethnobotanical classification usually consists of five ranks, as shown in Figure 2:

Figure 2: Taxonomic ranks in ethnobotanical classification:

[2] "The gender name must be unique within the same gender group. The gender name must be designated as durable before creating the name of the species. (…) It is not allowed to change gender names that are appropriate, even if we may find better ones." (Linné, Rom . ed., 1999: 108-109).

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The *unique beginner* is the most inclusive taxon and it is rarely named. *Life form* taxa are expressed by what Berlin et al. consider to be primary lexemes, i.e. words that express classes of plants. The *generic* level generally corresponds to the "genus" rank of the scientific taxonomy. Generic taxa "are the basic building blocks of all folk taxonomies. They represent the most commonly referred to groupings of organisms in the natural environment, are the most salient psychologically and are likely to be among the first taxa learned by the child" (Berlin, Breedlove & Raven, 1973: 216). Furthermore, "both specific and varietal taxa are linguistically recognized in that they are most commonly labelled by secondary (versus primary, for life forms and generics) lexemes. Examples of specific taxa are the classes named by secondary lexemes *blue spruce*, *white fir*, *post oak*. Examples of varietal taxa are the classes labelled by the names *baby lima bean* and *butter lima bean*" (Berlin, Breedlove & Raven, 1973: 216).

Such a hierarchy could stem from a number of properties that act as markers of the folk plant naming system.

The most important feature of the folk model is the *empirical dimension*, according to which plant naming is based on the observable properties of the botanical entities (see, for example, Bejan, 1991): 1) the general aspect of the plant or of one of its parts: *ghimpoasă*[3] (Arcticum

[3] Rom. *ghimpoasă* < Rom. *ghimpe* (thistle) + suf. –oasă.

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lappa); 2) the colour of the plant or of one of its parts: *roşcovan*[4] (Lactarius deliciosus); 3) the taste or the smell of the plant or of one of its parts: *amăruţă*[5] (Picris hieracioides); *puturoasă*[6] (Diplotaxis tenuifolia); 4) the "behaviour" of the plant: *adormite*[7] (Pulsatilla vulgaris); 5) the properties of the sap: *lăptuci*[8] (Lactarius deliciosus); 6) the use of the plant, with the following subtypes: a) medicinal: *holeră*[9] (Xantium spinosum); b) magic: *ursitoare*[10] (Chelidonium majus); c) ornamental: *bucuria-casei*[11] (Begonia sanguinea); d) practical: *măturişcă*[12] (Artemisia annua); 7) the place: a) of growth: *orzoaică de baltă*[13] (Vallisneria spiralis); b) of origin: *tutun leşesc*[14] (Nicotiana rustica); 8) the time of growth and blooming, with the following subtypes: a) the moment of the day: *zorele*[15] (Convolvulus arvensis); b) the season: *primăveriţă*[16] (Galanthus nivalis); c) the holidays: *crăciunele*[17] (Euphorbia pulcherrima). The empirical dimension of folk naming outlines that names are attributed by virtue of tradition. The traditionalism of the ethnobotanical naming system indicates that plant names are not deliberately and consciously chosen. They exist in a certain linguistic community due to the compelling

[4] As an adjective, the Romanian word *roşcovan* is roughly the equivalent of the English terms *rufous*, *reddish*.
[5] Rom. *amăruţă* < Rom. *amar* (bitter) + suf. –uţă.
[6] As an adjective, the Romanian word *puturoasă* is roughly the feminine equivalent of the English term *stinky*.
[7] Rom. *adormite* is the participle form of the verb *a adormi* (*to fall asleep*).
[8] Rom. *lăptuci* is the plural form of *laptucă* (*lettuce*).
[9] Rom. *holeră* is both the name of a disease (*cholera*) and of a plant probably used to cure some of effects of the disease (*spiny cocklebur*). The Romanian name could also be interpreted as a metaphor that reveals the unpleasant aspect of the plant.
[10] Rom. *ursitoare* usually designate the mythological beings that decide the fate of man. The English equivalent plant name is *tetterwort* (Europe) or *bloodroot* (America).
[11] Literally „the joy of the house", *blood-red begonia*.
[12] Rom. *măturişcă* < Rom. *măturǎ* (*broom*) + suf. -*işcă*. The English plant name is *sweet wormwood*.
[13] The Romanian name points out that the plant looks like barley and lives in aquatic environments. The common English name is *eelgrass*.
[14] Literally, „*Polish tobacco*".
[15] The Romanian common name suggests that the flowers open at dawn. The English name is *bindweed*.
[16] The Romanian folk name reveals that the flower appears in spring. The English common name is *snowdrop*.
[17] The Romanian common name indicates that the plant reaches maturity around Christmas time (Rom. *Crăciun*).

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force of tradition. A common name is empowered by collectivity, not by individuals, as it happens in the case of the scientific denominative model.

Another property of the naïve model is *the denominative variability*. The same plant has names that differ from one region to another. The territorial variation of ethnobotanical names is marked both phonetically and morphologically. The denominative variability is due to a complex number of linguistic and extralinguistic factors but the fact that speakers from various regions do not make clear-cut denominative distinctions between rather similar plants and the fact that the same botanical entity has received different names along history are, perhaps, cognitively relevant.

The denominative imprecision is, to a certain extent, the consequence of the denominative variability and it enforces the idea that one and the same name is used to make reference to different plants or that the same plant bears more than one folk name. For instance, the Romanian word *arginţică*[18] acts as the name for plants like Dryas octopetala, Lithospermum arvense and Potentilla anserina of which the first two have flowers with similar shape and colour whereas the third has golden flowers and silver-like leaves when reaching maturity. Nevertheless, the need to distinguish between similar plants reflects the so-called *denominative specialisation* of certain word-formation constituents. Plants with flowers of similar shapes and colours, such as Aster tripolium, Consolida regalis and Centaurea cyanus have Romanian folk names formed on the basis of the same lexical root but with different diminutival suffixes: albăstr*ică* (Aster tripolium) – albăstr*ioară* (Consolida regalis) - albăstr*iţă*[19] (Centaurea cyanus). The specialized use of certain suffixes to form plant names is more productive in the case of medicinal plant names formed by means of progressive derivation from the names of the diseases that the plants were believed to provoke or cure: bolând*ariţă* (Datura stramonium, *devil's trumpet*), brânc*ariţă* (Salicornia herbacea, *glasswort*), negel*ariţă* (Chelidonium majus, tetterwort) etc.

A very important feature of the naive model is the *vague denomination.* Unlike the denominative imprecision which reflects the oscillations in the use and dissemination of folk plant names, the vague denomination points out the relatively limited knowledge offered by the senses in the process of making essential differences among botanical realities in all given situations. The vague denomination is prominent mainly in compound names including generic Romanian ethnobotanical terms like *buruiană 'weed', iarbă 'grass', floare 'flower'*, to which different qualifiers or nominals underlining certain specific plant properties are added. According to the dictionary coordinated

[18] Rom. *arginţică* < Rom. *argint* (*silver*) + suf. *–ică*.
[19] Rom. *albăstrică*, *albăstrioară*, *albăstriţă* < Rom. *albastru* (*blue*) + suf. *–ică*, *-ioară*, *-iţă*.

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by Al. Borza (1968), in Romanian language the model [*buruiană 'weed'* + qualifier/nominal] forms around 200 names, the model [*floare 'flower'* + qualifier/nominal] is evidenced by roughly 150 terms and the model [*grass* + qualifier/nominal] is the most productive with over 400 compounds. The high productivity of the pattern [*generic ethnobotanical term* + *qualifier*/*nominal*] calls attention to a less researched aspect, namely the fact that the generic terms reflect the "gender" and the nominals individualize "the species", as in the expert binomial model. This similitude demonstrates that the denominative features empirically achieved, though lacking the rigor and the precision of the scientific ones, highlight the speakers' horizon of knowledge and his understanding and categorization of the elements of the world. Following Berlin, Breedlove & Raven 1973, one can argue that primary lexemes like *tree*, *grass*, *weed flower* and the like are used to develop *secondary lexemes*. Consequently, formative patterns such as [qualifier/nominal + primary lexeme], for English, or [primary lexeme + qualifier/nominal], for other languages, are highly productive.

The *cultural specificity* of the naïve models must be mentioned, since many plant names linguistically reflect practices, beliefs and human behaviors specific to a certain culture. For instance, most European common plant names mirror the existence of two cultural layers, pre-Christian and Christian, with different importance and poise in the collective linguistic imaginary. The cultural specificity also reveals that folk plant names are relatively *opaque*, in the sense that they cannot be explained in terms of precise and well established denominative rules, as those displayed by the scientific naming system.

Sources of naming

A thorough investigation of the sources of naming would reveal that the names of plants, either common, or scientific, can be interpreted in terms of the relationship between source domains and a target domain. The source domains provide the cognitive foundations and denominative resources that enable a name to become a plant name. Analogy plays a crucial role in linking the source domain with the target domain. The cognitive mechanisms that lay at the foundation of the naming process emphasize that name giving, regardless of the denominative model taken into consideration, is a complex phenomenon aimed at uncovering the most prominent aspects of a certain plant.

Most plant names stem from the analogical mapping established between the source (a being, an object, a phenomenological peculiarity etc.) and the target. For instance, if a plant looks similarly to a living being, the name of the insect also becomes the name or part of the name of the plant: *butterfly-flower*, *three birds* etc.

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Other botanical names owe their naissance to the part-whole relationship, in the sense that a certain aspect of the reality pertaining to the source domain comes to express the whole pertaining to the target domain.

This part-whole mapping between the two domains becomes obvious when a plant with flowers or leaves resembling a human or an animal body part gets its name by means of the term referring to the respective body part. The term designating a part of something belonging to the source domain is used to label the whole belonging to the target domain: *hand-leaved violet*, *lion's foot* etc.

Sometimes, naming is performed on the basis of possession (owner – entity owned: *St. George's herb*, *lady's ear drops*, *devil's spoons*), containment (container – contained: *cup and saucer*) or origin (a relationship that might be described in terms of profile, i.e. a moving entity and base, i.e. a fixed entity: *star of Persia*, *star of Bethleem*).

A first glance inventory of source domains must include conceptual fields like: 1. body-parts: *hand- leaved violet*[20] (Viola palmata); 2. perceptions (taste, smell, touch): s*kunk cabbage*[21] (Symplocarpus foetidus), *bitternut hickory*[22] (Carya cordiformis); 3. living beings (animals, birds, insects): *three birds*[23] (Triphora trianthophora); *butterfly-flower*[24] (Asclepia tuberosa); 4. other plants: *poison oak*[25] (Toxicodendron quercifolium): 5. man made goods and instruments (clothes, jewelry, domestic objects, weapons): *monk's hood*[26] (Aconitum napellus); *lady's ear drops*[27] (Fuchsia

[20] Both names, common and scientific, express the most prominent aspects of the plant: the colour of the flowers and the palm-like shape of the leaves.

[21] The common name indicates that the plant looks like a cabbage and has a very unpleasant smell, whereas the scientific name focuses on the fact that the plant has, at a certain stage in its development, the general appearance of a fruit (*carpus* from Symplocarpus is of Greek origin and means *fruit*) and a pungent smell (*foetidus*).

[22] The common name shows that the tree bears very bitter, inedible nuts, whereas the scientific name shows that tree bears nuts (*carya* is the Greek word for *nut*) and has heart-shaped leaves (*cordiformis*).

[23] The common name is motivated by the fact that the plant has three delicate whitish flowers vaguely resembling small birds. In a similar vein, the scientific name indicates that the plant bears three flowers (trianthophora).

[24] The folk name outlines that the plant had a vivid and rich inflorescence preferred by butterflies, whereas the scientific denomination links the plant with the mythical Greek god of healing, Asclepios, while showing that this species has bulbous roots.

[25] The folk name attests that the plant is poisonous and shares similar aspects with the oak-tree. Similarly, the scientific name expresses the fact that the tree-like poisonous plant (*Toxicodendron*) has oak-like leaves (*quercifolium*).

[26] While the common name obviously describes the shape and colour of the flowers, the scientific name states that the plant belongs to the genus Aconitum

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magellanica); 6. human relationships: *five sisters*[28] (Lysimachia quadrifolia); 7. ethnical origin and / or imagology: *Indian chief*[29] (Dodecatheon meadia); 8. fabulous beings or Christian icons: *mandrake*[30] (Mandragora autumnalis); *St. George's herb*[31] (Valeriana officinalis); 9. celestial bodies: this category includes a wide variety of common and scientific plant names made up with lexical constituents meaning *star*, *sun*, *moon*; 10. time and space: a great number of plant names encode information about the time they reach maturity, or begin the process of growth, while many others focus on the origin or habitat.

A distinctive property of the scientific denominative model is the use of proper names as source domain to create binary nomenclatures in the target domain. Such proper names are usually related to: 1. ancient

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(the Latinised name of the Greek village Akonai, from Theophrastus' time (3rd century BC, where the plant is thought to be discovered), and the name of the species suggests that the root look like a small turnip.

[27] The beautiful common name praises the delicate shape of the plant's flowers, whereas the scientific name says nothing about the plant's general appearance or properties because is made up of two proper names: *Fuchsia* < Leonhard Fuchs (1501-1566), a famous Professor of botany at the University of Tübingen and *magellanica* < Fernando Magellan (1480-1521), the famous Portuguese explorer.

[28] The folk name counts for the number of the pointed yellow petals, while the scientific name point to the name of the legendary discoverer, the Thracian king Lysimachos (3rd century BC) and indicates that the plant's leaves are disposed four by four (quadrifolia).

[29] The common name suggests that the shape of the flowers resemble the profile of an Indian leader bearing feather ornaments on the head. The scientific name is equally imaginative in that it focuses on the number of the flowers (dodecatheon, "twelve gods", a name given by the famous ancient naturalist Plinius); the name of the species comes from a proper name: meadia < Richard Mead (1673-1754), an English physician.

[30] The common name of this well-known plant is based on the misunderstanding of the Greek word *mandragora* that entered, via Latin and Middle Dutch, in English and came to be split in two man and drake (dragora), due to the shape of the roots (resembling human foots) and the magical powers attributed to the plant. The scientific name shows that one of the species reaches maturity in autumn (autumnalis).

[31] The Christian iconic figures, Jesus, the Virgin Mary and the saints contribute to the formation of a large number of common plant names, which reflect specific cultural beliefs and values. One might go as far as to state that there are two lexical strata of plant names: folk name coming from the pre-Christian period (prior to the first few centuries AD) and folk names pertaining to the Christian period. The scientific name Valeriana officinalis enforce the idea that the plant has healing properties. (*Valeriana* roughly means health and *officinalis* equals apothecary).

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mythology: *Asclepias tuberosa* < Asclepios, the Greek god of medicine; 2. name of the legendary discoverer: *Gentiana asclepiadea* < the Ilyrian king Gentius; 3. name of the scientist who discovered the plant(s) or who had remarkable contributions in various fields of sciences: *Plumeria jamaicensis* < Charles Plumier (1646–1704), French botanist and writer on tropical American plants; 4. names of famous people: *Fuchsia magellanica*.

Conclusions and further research

In the attempt to uncover the source domains on which the process of plant naming is based, the most important finding is that, despite its formal precision and systematic standardization, the scientific botanical denominative model is, in its most intimate semantic architecture, as imprecise, vague and culturally oriented as the folk denominative models.

The scientific botanical denominative model is universal, conventional and standardized only by hierarchy and form of naming, since its main function it to identify classes and varieties, not to synthesize with sharpness and accuracy the distinctive properties of plants. By content, it seems to share the same profound links between language, thought and culture as the corresponding ethnobotanical predecessors. The circumstantial lack of denominative rigor which contradicts the ideal of a clear and objective description assumed and professed by botanists is mainly due to the pervasive influence of the folk models, on one hand, and to the limits of the encyclopedic knowledge that a certain scientist possesses, on the other hand.

The denominative sources similar to the two botanical taxonomies, naïve and expert, are mainly due to the fact that Greek and Latin terminologies used to make up the scientific nomenclature are ultimately conventional formalizations of long standing traditional models. From this point of view, the scientific botanical nomenclature reveals the existence of *single layered compounds* (lexical builders from one language), *double layered compounds* (lexical builders from two languages) and *multiple layered compounds* (lexical builders from three or more languages).

Another important finding which might be taken into account is that the empiricism of both models relies on direct observation and classification of plants. Both the commoner and the scientist are interested to observe the relevant aspects regarding a plant, only the method of description is different. While the commoner is concerned with giving names that usually show something about the relationship between the man and the surrounding universe, the scientist is interested in ordering

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and ranking, by means of common and distinctive features, the world of plants. Nevertheless, both denominative systems reflect the limits of human understanding of the natural world and point out that plant naming is a very complex historical process that cannot disregard the essential fact that any plant name is not to be confounded with the entity it stands for, but a cognitive and linguistic interpretation of the corresponding entity.

Within the framework of cognitive semantics and lexicology, the analysis of plant names, both common and scientific, could be analyzed with the methodological approach of the blending theory, since most botanical names are linguistic compounds that illustrate various types of conceptual integration.

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