Three types of zoological common names and their formation-processes

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Abstract

Known biological species have a standard international scientific name, and many species also have more or less fixed common names in one or more languages. We can identify three groups of common names in terms of their form and formation-processes, here called *folk, collector,* and *popularizing*. The folk names have long been studied in detail. The collector names have attracted little attention although they show an interesting variety of formation processes and cross-linguistic contrasts reveal interesting social differences. The popularizing names are the most mechanically formed, but the naming patterns reflect interesting aspects of their origin in a nineteenth-century liberal project, in particular nationalism. In this study I examine these types of name and naming process. Comparisons are made among English, French, German, and Swedish, elucidating the formation processes and the differences in word-formation traditions, entomological history, and society they may reflect.

Keywords: terminology, biology, butterflies, vernacular names, history of science, English, French, German, Swedish

Introduction

Known biological species have a standard, if frequently adjusted, international scientific name. Many species (or genera or families) also have more or less fixed common, vernacular or trivial names in one or (usually) more languages. Thus the common butterfly called Nässelfjäril [nettle butterfly[1]] in Swedish has the scientific name *Aglais urticae* and is called Petite Tortue [small tortoise], or Vanesse de l'ortie [nettle Vanessa] in French, Kleiner Fuchs [small chestnut horse] in German, and

[1] Following biological usage, scientific names are given in italics with the genus capitalized. Vernacular names in all languages are given in normal print with the first word or all words capitalized. Some English names are provided with Swedish glosses in single inverted commas for the convenience of readers familiar with Swedish butterfly names. Where non-English names are translated literally into English, square brackets and no capitals are used.

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Small Tortoiseshell in English. There are obviously relationships of meaning and form across languages, but also striking differences.
Creating a research space in this area is not an easy task. First of all, it is hard to show the topic's importance, since bugs and butterflies have a long history of symbolizing the trivial. Secondly, there is no coherent body of research to add to, and hence no gap to fill. The disparate literature on the topic falls into at least four mutually unaware categories:

- Proposals for new or improved names by biologists (for example Scudder 1877, Murphy and Ehrlich 1983, Duckworth and Pine 2003), usually designed for popularization, that is to provide an accessible nomenclature for non-professionals that mirrors the scientific system and its underlying concepts.
- Histories of the development of the names by language historians or antiquarian-minded natural historians (for French Cordier's extensive blog, eg. Cordier 2014a, for English Salmon 2000 and Gabb 1988). The first group are simply examining the vocabulary of an earlier period, and hence the knowledge and conceptual framework of the period. The second are essentially studying the history of science from a linguistic angle, though Cordier uses the specific term *zoonymie,* saying that it is a branch of onomastics.
- Synchronic views of name types by linguists with reference to metaphor and metonymy, (such as Singnoi 2011, Ureña 2012 and Persson 2000). These are part of the general revival of interest in metaphor studies and investigate the domain of biological names to pursue goals of understanding cognition and language.
- And, probably the largest group, ethnobiological studies by lingustic anthropologists (Casagrande 2004), often concerned to show that indigenous classification systems mirror the international scientific system and hence 'species' or 'genus' is a semantic universal.

Terminologists do not seem to have tackled the area but terminology is relevant because there is a strong tradition struggling to make the names into terms which meet the prescriptive demands of terminology.
The aim in this study is to use the criteria and concepts that have arisen from these fields to produce a linguistically and biologically (or terminologically) motivated model of vernacular biological names, and to test it on a sample of names – those of most of the butterflies found in the UK. The model's applicability is tested by looking at names in four languages. English, French, German, and Swedish.

In several of these research traditions a distinction is made or proposed in this research, between two types of vernacular names: folk and learned, distinct if not always clearly distinguishable (cf Singnoi

2011). Our concern is with learned names, but folk names are of interest because they show the social rootedness of names.

Folk names

Folk names are old words coined by people who actually worked with species of economic, medical, or agricultural importance, the type of names investigated by ethno-biologists and possibly language historians. Creatures which are the focus of activity and have high utility value have long had folk names at the species level. Given the proverbial non-utility of butterflies, folk-names are not of interest here, except in so far as they illustrate the way different discourse communities use different names because they have different purposes. Wells (1958) gives a variety of fishermen's names for fish and *Chef's resources* (2015) gives several different market names for many fish, different from both the fishermen's names and the standard vernacular names.

The only current English folk name for butterflies is Cabbage White, referring to any one of three species which are indeed of economic or practical importance for gardeners. However the name Painted Lady for *Cynthia cardui* 'tistelfjäril' [thistle butterfly] was recorded by Charles du Bois in 1692 according to Salmon (2000) and seems likely to have a folk origin too.

Formal types of learned names

Learned names have been devised since the Renaissance by educated observers whose interest in the species was independent of their practical uses. Species of butterflies and moths, dragonflies, and most other insects only have learned names, if they have vernacular names at all.
Butterfly names can consist of one semantic element, whch may be represented by one or more words (Peacock, Ringlet, Painted Lady, Camberwell Beauty) (compare Singnoi 2010). However, most (like Green Hairstreak) consist of two elements: what Duckworth and Pine (2003) call a group name, sometimes corresponding to the genus or the family and often vaguely suggesting some characteristic, and one or more modifiers identifying the particular species by appearance, habits, abundance, or location. Singnoi (2011) uses the terms 'core'and 'modifier'. The head, core or group name is usually one word but can be

two, as in the case of the fairly numerous species of Clouded Yellows 'höfjärilar', where Clouded has to be taken as part of the group name, since there are no European plain Yellows.

The names themselves can be classified by the criterion of systematicity and their elements by that of descriptiveness. Systematicity is conformity to the standard taxonomy or via some other pattern, relating the referent to other species. Alternatively the name may be unsystematic, not placing its referent in relation to other species. Descriptiveness is the extent to which the element gives information about the referent. First, an element may be arbitrary or motivated. If motivated, it may also be descriptive. If descriptive, it can be literal or metaphorical.

The last distinction is not simple, although this is not the place to discuss the theory of metaphor. Singnoi (2011) classifies Thai plant name elements by the relation of the meaning of the plant name to the features of the plant. She uses the categories 'proper name' 'metonymy' and 'metaphor', treating any element non-metaphorically referring to an aspect of the plant as metonymous. English exampes would be *gentian, meadowsweet,* and *harebell* respectively. However, any description is only of a part or aspect of an organism, and metaphor is usually based on a part or aspect (Radden 2003) of the source and target, so I have decided not to use 'metonymy' but merely consider whether the aspect referred to in the name is described literally or metaphorically

Table 1 shows and exemplifies these distinctions. The systematic names consist of a modifier and a group term. Group names may refer to appearance (White, Brown, Blue) or behaviour (Skipper). The reference to appearance may be concealed in word-formation as in Fritillary from Latin fritillus 'dicebox', understood as 'chessboard', referring to the chequered wings. They may or may not correspond to biological taxonomic groupings: various unrelated butterflies are grouped as Arguses and the uniquely English grouping of Admirals (Red, White, Poplar) has no taxonomic coherence. The unsystematic names do not categorize their referents, they merely label them.

The first element of Sooty Copper is descriptive because the butterfly is blackish but metaphorical, since it does not actually have soot on it. The name Sooty Copper is systematic and taxonomically (and terminologically) appropriate, since all and only Coppers are members of the genus *Lycaena.* The first element of Marbled White can probably be

treated as metaphorical too, and the name is systematic, since there are other Whites with different patterns. However this name is not taxonomically appropriate, since although the butterfly is white, it is not a member of the Pieridae family like other Whites. The unsystematic name Peacock is descriptive because the butterfly has a large 'eye' on its wing like the marks on a peacock's tail, and is metaphorical.

Table 1. A model for describing the vernacular biological names of butterflies

	+Motivated (refers to the element in ital.)			-Motivated (element in ital.)
	+Descriptive		-Descriptive	
	+Metaphorical	-Metaphorical		
+Systematic +Taxonomically compatible (whole name)	(*Sooty* Copper)	Large Blue Lulworth Skipper	Adonis Blue Arran Brown *Bath* White *Berger's* Clouded Yellow	*Thor's* Fritillary
+Systematic -Taxonomically compatible (whole name)	*?Marbled* White Scotch *Argus* Red *Admiral*	-	-	Duke of Burgundy *Fritillary*
-Systematic (whole name)	*Peacock*	*Orange Tip*	*Camberwell Beauty*	*Duke of Burgundy*

The elements listed as descriptive but not metaphorical can refer to a number of different aspects of the insect. The most common are appearance (e.g Silver-spotted), supposed or actual larval food plant (e.g. the folk name Cabbage White), habitat (Heath, Wood), and size (Large, Small) or a location (Lulworth) where it is frequent in England. Metaphorical descriptive names often refer to appearance (Peacock), and sometimes to behaviour (Gatekeeper) or size (Emperor).

The elements listed as motivated but not descriptive refer to a beautiful mythical figure (Adonis), a place where the butterfly was supposedly first seen but may not be particularly, or at all, frequent

(Arran Brown[2]), or the naturalist who first identified it (Glanville Fritillary).

The fourth column lists names which are not motivated, that is arbitrary. Three Northern European butterfly names illustrate how a name can be systematic but arbitrary: Frejya's Fritillary *Boloria freija* 'Frejas pärlemorfjäril', Frigga's Fritillary *Boloria frigga* 'Friggas pärlemorfjäril', and Thor's Fritillary *Boloria thore* 'Bäckpärlemorfjäril'.The English names and two of the Swedish are based on the scientific names and the modifiers have been give on the same principle as warships or railway engines are named. A class of proper names is chosen and member names are assigned arbitrarily to members of the class to be named. The modifier is arbitrary but the name is systematic, in that only butterflies of the genus *Boloria* are named after Germanic deities, and the head of the phrase refers to a recognizable group of genera. Many scientific names were coined by Linnaeus on this principle.

Popularizing and collectors' name types and naming communities:

Many systematic-descriptive names have been devised, often quite recently, by biologists who know the scientific names and want to popularize the field. They normally meet the prescriptive demands for terms, in that each form corresponds to a well-defined concept in the theory constituted by biological nomenclature.

The English names in use for dragonflies in Britain are examples. They were first formulated (publicly) by Longfield 1937 but quite drastically revised by Hammond 1977 (both cited in Corbet and Brooks 2008). The names are systematic and the elements descriptive: all members of the *Sympetrum* genus, for example, are Darters (vaguely related to their hunting techniques) and modifiers give aspects of appearance to distinguish species: Black Darter, Ruddy Darter, etc. The aim of this typical popularizing set of names has been to find vernacular names which meet terminological requirements by mirroring the biological classification and provide a helpful characterization of the insect's appearance, habits, abundance, or location.

[2] The Arran Brown has probably never lived in Britain, but has, perhaps mistakenly, been recorded once or twice, first on Arran.

However popularizing names do not always use descriptive elements. A nineteenth-century set of vernacular dragonfly names, found by Gabb and first published by him in 1988, used systematic arbitrary rather than descriptive group names, calling groups Fay, Elf, Sylph, Fairy, Sphinx and Nymph rather than Bluet, Darter or Hawker (inspired perhaps by νύμφη, said to be the Greek word for dragonfly). While these appear odd in an insular British context, it has been quite common in France and in the former British Empire for authorities to assign even vernacular names on an arbitrary-systematic or descriptive-unsystematic basis, and, as noted above, many of Linnaeus' scientific names are on this basis.

For at least a century and a half biologists have complained that vernacular names are necessary for popularization, but existing forms are not fit for their purpose, either because they are unsystematic, or, worse, because they are wrongly systematic. Thus Scudder (1877:2) says "In our own country [the US] all the common birds and flowers have [….] received such names, and it is my belief that the study of butterflies would be far more popular, if they also had common names." but continues (3), when proposing to call *Megisto eurytus* The Little Wood Satyr, "Gosse named it the dusky Argus, but it is not an Argus". Similarly, over a century later, Duckworth and Pine (2003:152-3) say "When non-biologists need to refer unambiguously to a given species, many tend to feel more comfortable using their own language." However, they say, (154) their aim is to make English names more informative and useful in the future. "There is no reason for authors of [vernacular-name] checklists merely to follow. They can and should lead." Like Scudder on *M. eurytus*, they object to existing names as misleading (159) "Among Indochinese mammals, 'Large Indian Civet' *Viverra zibetha* and 'Small Indian Civet' *Viverricula indica* are not close relatives, one large and one small".

Thus we have biologists seeking to impose standardized term-like names which reflect true systematic relationships, as shown in international scientific names and thus guide lay people to a correct understanding. But where do the unruly 'wrong' names they complain of come from and who coined them? Cordier (2014a) and Salmon (2000) show that at least for butterflies the answer is clear: most names were invented in the very late seventeenth century, and in the eighteenth and early nineteenth centuries, by collectors. They either predate or are

independent of the Linnean names; the coiners of the English names were concerned to identify their finds but not necessarily to classify them scientifically.

Table 2. Some names used by Petiver (1695)

The Brimstone Butterfly
The small white Butterfly
The small Heath Butterfly
(Oculus pavonis dict) The Peacock's eye
(Papilio testudinarius major) The greater Tortoise-shell Butterfly
(Papilio testudinarius minor) The lesser Tortoise-shell Butterfly
The little Blew-Argus
The greater silver-streaked Fritillary
The Painted-Lady
The Admiral

The colours of dragonflies fade when they die, so they are unsatisfactory objects for collectors. By contrast, pinned butterflies and moths retain their colours and patterns for hundreds of years and thus provide excellent material for discussion, admiration, and general gloating. Consquently dragonfly names are recent coinages while butterfly names go back to the beginning of collection and enthusiasm. A substantial number were invented in English by Petiver (1695 and later publications). Table 2 (adapted from Cordier 2014a) shows some names devised by Petiver which are still in use. As well as being older than most popularizing names, they also more varied. Some were unsystematic and undescriptive, though motivated (Painted Lady, Admiral) while others were highly descriptive and systematic, like Greater Silver-streaked Fritillary.

According to Cordier (2014a) names like Painted Lady and Admiral whose equivalents occur in other European languages (Belle-Dame, Amiral) originated in England. Peacock is an exception that can be traced back to the early seventeenth century in Dutch and somewhat later in German.

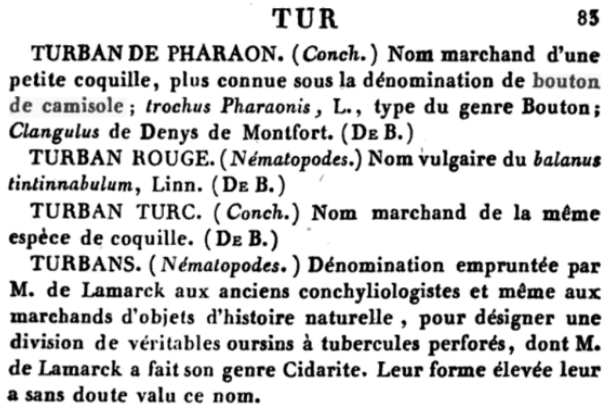
The relationship of systematic to unsystematic names

Unsystematic descriptive names do not necessarily antedate systematic descriptive popularizing ones. The most collectable of living things are sea-shells and as such they have long had vernacular names. An extremely revealing source here is de Roissy (1802), who gives names for each species of up to three types. Each species has an entry with a heading giving names and scientific synonyms, followed by a descriptive text. In the heading the species has an international scientific name such as *Monodonta pharaonis*, based on Lamark and Linnaeus, and a French popularizing name, highly systematically in two parts with a group name corresponding to the genus and a modifier defining the species, such as *Monodonte Bouton.* But for many species we are also told in the heading what they are called *vulgairement* and these are unsystematic collectors' names, in this case *le bouton de camisole.* This work shows that the distinction between popularizing, collectors', and folk names has long existed and that scientists have been proposing not only new vernacular names where none exist but also reformed ones alongside those used by lay experts for at least two centuries. It does not appear that de Roissy's French names were adopted, perhaps because his genus *Monodonta* did not survive. The shell is still called Bouton de Camisole today.

A further discourse community once involved in the naming is suggested by the entries in volume 56 of the *Dictionnaire de Sciences Naturelles* (1828) shown in Figure 1. Some vernacular names are ascribed to naturalists (*nom vulgaire*), others to dealers (*nom marchand*), and *le bouton de camisole* is identified as the naturalist's name for what the dealers call *turban de pharaon* (now in the genus *Trochus)*. Dealers want an attractive name that emphasizes the uniqueness of their wares. In lepidoptery they were influential in nineteeth-century Britain, but now sell only exotic species, not West European insects of the type discussed here.

While in these examples multiple names used by different communities seem to be accepted, nowadays terminologically unsuitable naturalists' names are sites of struggle.The traditional name of *Hamearis Lucina*, 'gulvivefjäril' [primrose butterfly] – the Duke of Burgundy Fritillary – is such a case. It is so called because it looks like a fritillary, with the typical chequerboard pattern of these genera. In fact it belongs to a completely different family, of which it is the only European representative. Collectors only want a label but biologists want names to

be terms reflecting the real taxonomy. In this case the biologists seem to have won a partial victory and the insect is now sometimes simply called Duke of Burgundy. An unsystematic and non-descriptive[3] name is replacing one which, although partially descriptive (to anyone who knows what a fritillary looks like), committed the terminological crime of suggesting a wrong concept. But this is a rare example of a possible victory for the purists. Murphy and Ehrlich (1983) denounce many such deviances from taxonomic logic, most of which seem to continue unrepressed.



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TURBAN DE PHARAON. (*Conch.*) Nom marchand d'une petite coquille, plus connue sous la dénomination de bouton de camisole ; *trochus Pharaonis*, L., type du genre Bouton; *Clangulus* de Denys de Montfort. (DE B.)

TURBAN ROUGE. (*Nématopodes.*) Nom vulgaire du *balanus tintinnabulum*, Linn. (DE B.)

TURBAN TURC. (*Conch.*) Nom marchand de la même espèce de coquille. (DE B.)

TURBANS. (*Nématopodes.*) Dénomination empruntée par M. de Lamarck aux anciens conchyliologistes et même aux marchands d'objets d'histoire naturelle, pour désigner une division de véritables oursins à tubercules perforés, dont M. de Lamarck a fait son genre Cidarite. Leur forme élevée leur a sans doute valu ce nom.

Figure 1. Extract from *Dictionnaire de Sciences Naturelles* illustrating names given by different communities

There is a powerful and knowledgeable community behind traditional names. The present-day descendants of the lay expert collectors are on-line gurus. If a picture of an insect appears on http://www.wildaboutbritain.co.uk/ it will be identified within a few hours and if it is a butterfly or macromoth the identifier will give its English name. This community both uses vernacular names and has strong conservative and nationalistic views on them. The biologists obviously have trouble imposing their will on them.

[3] Cordier considers that when Moses Harris invented the name in 1776 he had in mind Burgundian court dress, and thus that the name is metaphorically descriptive like Fritillary.

A cross-linguistic sample of butterfly names

To test or exemplify the model just developed, I selected butterfly names in four languages: English, French, German and Swedish. I took a list of 59 butterflies which occur or have occurred in the British Isles, all of which also occur in France and Germany and looked at their names in English, French and German. Most of them also occur in Sweden. The total number of names examined in the different languages varied slightly because of confusion in the lists around Wood Whites, of which several cryptic species have recently been discovered.

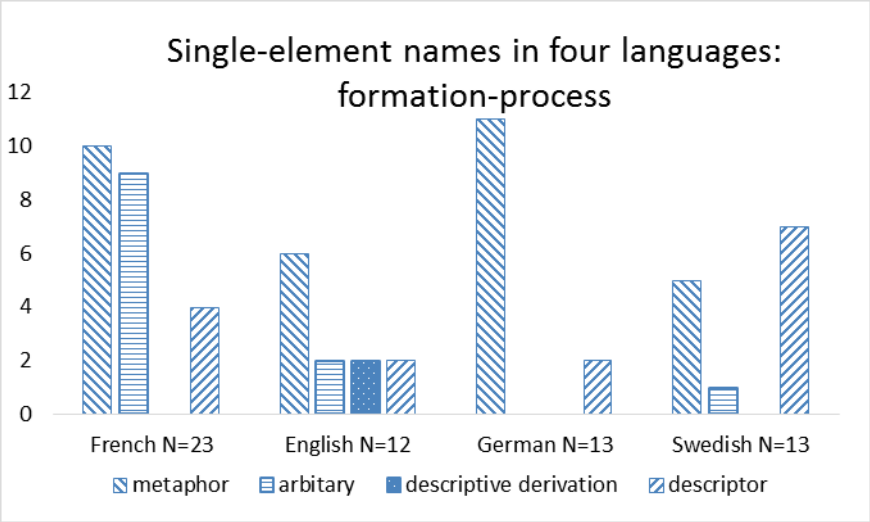

Figure 2. Formation process of single-element butterfly names in four languages

Figure 2 shows the relations between names counted as having just one distinctive element and their referents. There were similar numbers of single-element names in the Swedish (13), German (13) and English (12) samples but substantially more in French (23). Figure 2 shows that this is because French has both many metaphorical and many arbitrary names. Among the metaphors, Robert-le-Diable for the ragged-winged *Polygonia c-album* Comma 'vinbärsfuks' and Tabac d'Espagne for *Argynnis paphia*, the Silver-washed Fritillary 'silverstreckad pärlemorfjäril' stand out. The arbitrary names are classical borrowings in the spirit of Linnaeus, like Tircis for *Pararge aegeria*, the Speckled

Wood ‘kvickgräsfjäril’ and Myrtil for *Maniola jurtina* the Meadow Brown ‘slattergräsfjäril’. In German metaphors predominate among the single-element names: *Maniola jurtina* is Grosses Ochsenauge and *Argynnis paphia* is, appropriately, Kaisermantel. Swedish has an unusually high proportion of single-element names which are literal descriptors because of more prosaic forms giving the supposed or actual larval food plant like Nässilfjäril (Small Tortoiseshell) and Aspfjäril [poplar butterfly] for *Limenitis camilla*, the White Admiral. English has two single-element names which are descriptive derived forms: Grayling and Ringlet.

Some names have spread: Painted Lady and Belle-Dame; English (Red) Admiral and German and Swedish Amiral; French Aurore and Swedish and German Aurora; French Citron, German Zitronenfalter, and Swedish Citronfjäril (for *Gonepterix rhamni,* the Brimstone [sulphur] butterfly). The continental languages have vernacular words that cover all Lepidoptera (*papillon, Falter, fjäril*) while English lacks a superordinate to (typically night-flying) *moth* and (day-flying) *butterfly*. Consequently the butterfly that has to be called Paon du Jour and Tagpfauenauge [day peacock] in French and German to distinguish it from the night-flying Peacock Moth can just be called Peacock Butterfly in English.

The two-element names can be compared in terms of the systematicity of the groups formed or in terms of what is described by the modifiers. Table 3 shows what vernacular group names correspond to taxonomic groups in the four languages.

Table 3 shows the relations between the vernacular group names and the taxonomy. The group names merge taxonomic categories in slightly different ways. For example Swedish distinguishes Hesperiinae and Pyrginae, which the other languages merge, and English merges Heliconiinae and Melitainae, which are distinct in other langues. No language has a vernacular group name for the large, common and brightly coloured Nymphalinae, and only Swedish has a consistent group name for the Satyrinae. One counter-taxonomic category exists in both English and French: Argus for butterflies in several different families or subfamilies. English is alone in also having the counter-taxonomic Admiral category (Red Admiral, White Admiral, Poplar Admiral) and the anomalous grouping of the one European member of the Riodinae (Duke of Burgundy) with the Fritillaries and of one member of the

Satyrinae with the Whites. Most of the group names are literally descriptive, often via compounding or derivation. Argus and the names for the Heliconiinae and Melitainae are metaphorical, and several French group names are adaptations of the scientific names or otherwise arbitrary in terms of modern French.

Table 3. Vernacular group names in four languages compared with biological taxonomic groupings

Latin name of taxon	English	French	German	Swedish
Hesperiinae	Skipper	Hesperie	Dickkopffalter	smygare
Pyrginae	Skipper	Hesperie	Dickkopffalter	visslare
Polyommatini	Blue (Argus)	Azuré (Argus)	Bläuling	blåvinge
Lycaenini	Copper	Cuivré (Argus)	Feuerfalter	guldvinge
Theclini	Hairstreak	Thécla (Argus)	Zipfelfalter	Snabbvinge
Riodininae	(Fritillary)	–	–	–
Colias	Clouded Yellow	–	Gelbling	höfjäril
Pieridae	White	Piéride	Weissling	vitvinge*
Heliconiinae	Fritillary	Nacré	Perlmutterfalter	pärlemorfjäril
Melitaeinae	Fritillary	Melitée	Scheckenfalter	nätfjäril
Nymaphalinae	(Admiral, Tortoiseshell, etc)	(Tortue,etc)	(Fuchs, etc)	(fuks, etc.)
Limenitinae	Admiral	Sylvain	Eisvogel	–
Apaturinae	Emperor	Mars changeant	Schillerfalter	Skimmerfjäril
Satyrinae	Brown (White, Argus)	(Moiré, arbitrary)	(Waldteufel, Waldvogel, Ochsenauge etc)	gräsfjäril
Coenonymphini (a subgroup of Satyrinae)	Heath	Fadet	Wiesenvögelchen	gräsfjäril

Table 4 shows the (first) modifiers of these group names in the four languages, classified by their referents. Almost all the German and Swedish modifiers are descriptive in some way, while in English especially there are motivated modifiers (Glanville Fritillary first observed by Lady Glanville, Queen of Spain Fritillary, etc) which are not

descriptive. In the continental languages a substantial proportion of the modifiers give a plant name which is or was formerly supposed to be the larval food plant, but there are no such modifiers in the English sample. In German, French and English it is more frequent for two similar insects to be distinguished by size; in Swedish habitat or food plant is used as the distinguisher. (Thus the pair Small Tortoiseshell, Large Tortoiseshell are Petite Tortue and Grande Tortue, Kleiner Fuchs and Grosser Fuchs, but Nässelfjäril and Körsbärsfuks [Cherry Chestnut-horse"] in Swedish.)

Table 4. Modifiers of selected butterfly names in four languages, by aspect of referent invoked

		% of modifiers in each reference category				
	N	Appearance	Larval food plant	habitat	size	Non-descriptive
French	36	17	42	6	22	14
English	47	36	0	17	21	28
German	45	29	31	7	27	7
Swedish	39	26	31	28	8	8

Discussion

So the English names focus more on appearance than the others and are less well adapted to the demands of terminology, favouring appearance over taxonomy in several cases. Larval food plants are not used as modifiers but non-descriptive items of various kinds are rather frequent. The French names are less transparent than the others, being more likely to be arbitrary, metaphorical or unsystematic and to use obsolete colour terms like *moiré.* In French, too, there are some untaxonomic categories. The German and Swedish names do not come into conflict with taxonomy, but the German ones are more inclined than the Swedish to create small subcategories within taxonomic groups, frequently with metaphorical reference to birds. The Swedish modifiers are the most descriptive and prosaic, with few metaphors, and very frequent reference to larval food plants even when the name is not systematic (as illustrated for the Tortoiseshells).

These tendencies are not merely historical. Two species of butterflies have been identified in Western Europe in the last seventy years. *Colias alfacarensis*, was distinguished from the Clouded Yellow in 1948 (by

Lucien Berger) and was given the motivated and systematic but not descriptive name Berger's Clouded Yellow in English. In French it was called Fluoré, descriptive but not systematic, and in German and Swedish the names are descriptive and systematic: Hufeisenklee-Gelbling and Kronillhöfjäril (giving the larval food plant, as in the scientific name). *Leptidea reali*, was distinguished from the Wood White in 1988 It is called Real's Wood White in English and La Piéride de Réal in French - motivated but not descriptive names. In Swedish the name is systematic and descriptive descriptive: Ängsvitvinge [meadow white] as opposed to Skogsvitvinge [wood white]. No widespread German name seems to have been given.

Part of the explanation for the pattern might be that English and French names were coined by collectors or connoisseurs and German and Swedish ones by scientists popularizing their field. I have as yet no evidence as to the coining of German and Swedish names, and the history of the names in English and French suggests a partly different or complementary explanation.

Many of the modern English names were formulated late in the seventeenth century or early in the eighteenth, by naturalists who simply did not know the food plants or usual habitats of the insects they saw. They gave names on the basis of appearance or where the insect was first observed. The names they gave were entrenched early and have survived partly because enthusiasts are attached to names which they have learned with some difficulty and which are marks of their identity and group membership. These names also established a naming tradition maintained in the recent names for the Wood Whites and Clouded Yellows.

The French names are formulated in accordance with the generally rather opaque pattern of word-formation in French, and in particular with a uniquely French preference for attractive over systematic names shared by popularizing experts. The relatively recent name Fluoré for Berger's Clouded Yellow shows that this is a living tradition, not a historic remnant. Similarly, Cordier (2013b) credits G. Chr. Luquet with coining the beautiful and descriptive but unsystematic metaphorical name Collier de Corail [coral necklace] for the Brown Argus *Aricia agestes* 'rödfläckig blåvinge' as late as 1986.

Thus it seems that these two sets of names maintain traditions going back several hundred years. In English the tradition goes back to a time

before naturalists knew the food plants of the species and appearance was all that was available. In French the word-formation tradition is tolerant of lack of transparency and the naming tradition seems to have been rather conscious of the competition between the scientific and the popular and aimed at the picturesque rather than the instructive.
In the absence of work like Cordier's and Salmon's on early German and Swedish vernacular names, one can only speculate that either scientific biologists have had more influence over names, or that a tradition of more descriptive names was set up earlier, particularly in Swedish. While the naming systems look broadly independent of one another, it would be interesting to know more about the direction of influence in particular cases.

It can be concluded that the categories developed in the first half of this paper are at least capable of describing the differences between sets of vernacular names in illuminating ways, and that differences between sets of well-entrenched vernacular names like those for butterflies are due as much to traditions of naming as to the dominant community of namers. Vernacular names, once formed, are well enough entrenched to resist the efforts of terminologists.

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