HOW CAN A BLACK HORSE HAVE BROWN FUR?
A STUDY ON CATEGORISATION IN EQUINE COAT COLOUR NAMES IN HUNGARIAN

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Abstract

Hungarian equine coat colour-related terminology is a largely unresearched subject. Its unique situation as a rapidly developing jargon results in multiple nomenclatural systems used simultaneously in the specialised literature. The analysis of the nomenclatural systems' inner structure suggests the usage of two differing methods of categorisation, one based on the visual properties of the subject, the other based on non-visual genetic factors of the described animal.

The paper reviews the colour categories' main traits that influence their categorisation process and compares them with the Hungarian equine coat colours' characteristics. The comparison reveals that Hungarian equine coat colour terms are in many ways similar to the conventional colour terms, but due to their differences they create a separate colour-motivated class of specialised terms.

The analytic part focuses on the different methods of categorisation present in the various nomenclatural systems in the equine coat colour related literature. It defines their main features and the underlying cause of their existence. It explores the division of the nomenclatural systems in accordance with their categorisation process and provides a detailed description of the traits of both traditional and modern nomenclatural systems discussing them on the basis of specific examples.

The further part of the analysis explores the semantic relationship between the conventional colours and the equine coat colours in the context of equine coat colour terms sharing their forms with Basic Colour Terms.

The research material consists of a database of Hungarian equine coat colour-related terms, gathered from a variety of zootechnical, sport and hobby literature and commonly available internet sources on the topic. The nomenclatural systems presented in the sources are visualised in the form of diagrams, illustrating the meaning of individual terms and the systems' internal hierarchies.

The presented findings showcase the complexity of the specialised colour-motivated terms and their difference from the conventional colour terms. They present how external, non-linguistic factors like the development of the natural sciences may influence the relatively hermetic colour-motivated terminology.

Keywords: colour terms, equine coat colours, semantics, categorisation, Basic Color Terms, terminology, specialised language

1. Introduction

The problem of colour categorisation is a prevalent topic for cognitive linguistics. The relationship of Basic Colour Terms to each other, and their definition have been a subject of an academic discussion for a long time (Goddard 1998: 115–117). However, while the basic level of categorisation is often the most important one (Taylor 1989: 50), the variety and complexity of colour terms extends far beyond that of the Basic Colour Terms. The traits of colour itself are a matter of discussion – scholars have pointed out that visual attributes integral to colour sensory experience are omitted by most colorimetric models (Conklin 1979: 933). In some languages, factors like luminescence or glossiness are also vital for the categorisation of colour (Taylor 1989: 4). No matter how

ubiquitous colour terms are, due to the nature of the phenomenon, the colours themselves are notably hard to define without examples.

One of the strategies of conveying colour terms' meaning is using their visual prototypical examples from the real world (Goddard 1998: 127–131). From this standpoint, it is interesting that many examples from the natural world, especially the animal world, display complex colour combinations and patterns. Their visual qualities can be difficult to describe using only Basic Colour Terms or colour terms in general, and often demand an approximation to the most similar colour term or a specialised terminology in order to describe the visual effect properly. The last solution is especially prevalent in the case of domesticated animals, which are bred to display specific traits.

Such specialised terms, while describing purely visual qualities related to colour, are distinct from what is usually considered a colour term, as they are not universally applicable. Coat colour terms are **context-specific** terms describing colour-related qualities of living beings (Goddard 1998: 112). They can possess similar morphology and perform a similar function as colour terms. However, instead of describing a singular colour or restricted colour range, they denote complex colour and pattern combinations.

In this paper I am going to use equine coat colours in Hungarian as an example to delve into the topic of colour categorisation and explore the boundaries of what could be considered to be a colour term. Hungarian equine colour terms belong to a language for specific purpose (LSP) which was not previously studied from a linguistic perspective. In this continuously developing jargon numerous nomenclatural conventions are in simultaneous use, providing examples of varied approaches to colour identification and the definition of animal coat colour.

The aim of this paper is to analyse the unique perspective on the colour categorisation and the semantic structure of coat colour related terminology provided by research on this uncharted territory. The theoretical section discusses the nature and properties of colour and the importance of Basic Color Terms, as well as the sources used to gather the research material: Hungarian equine coat colour terms. The following analytical section describes equine coat colour terms in the context of regular coat colour terms' characteristics and the unique problematics of their categorisation. The main part of the analysis concerns various models of categorisation present in the Hungarian equine coat colour terminology and the usage of Basic Colour Terms in equine coat colour terms.

The included analysis showcases the influence of the development of the natural sciences on colour terminology related to the zootechnical field and the variety of semantic relations between Basic Colour Terms and equine coat colours of the same form.

2. Theoretical basis and research method

As I will discuss colour related terms, it is important to properly define colour and explore its basic qualities, how it will be described and what attributes it can have. In the following section I introduce the concept of colour and colour term, discuss Basic Colour Terms in Hungarian and delve deeper into the problem of colour identification.

2.1. Colours and colour terms

As I mentioned earlier, colour is a phenomenon that is very difficult to define without using particular examples. This problem stems from the perception of colour being a fundamental human experience, which strongly depends on the human body's capabilities. The role of embodiment in describing colour makes colour terms a prominent subject of research in cognitive linguistics. The present paper describes the vocabulary which depends on human perception and interpretation of the physical phenomenon. Therefore, what I understand as *colour* is what colorimetricists call a **colour response** (Agoston 1979: 13–14). What is important about this distinction is that it includes both **chromatic** and **achromatic** colours (Agoston 1979: 10). The second group, especially *black* and *grey* are not considered to be colours according to physics, because they cannot be assigned a

specific light wavelength. They are nonetheless perceived as colours by human beings and are described with colour terms.

A **colour term** is the name associated with a specific colour and a name of a specific category of colour. While colours can be considered universal, each language has its own colour terms.

As colours can be considered categories, they can belong to a specific categorisation level. Those which belong to the basic level are Basic Colour Terms.

2.2. Basic Colour Terms

The term Basic Colour Term (BCT) was coined in 1969 by Brent Berlin and Paul Kay. Their hypothesis was that the human nervous system has an innate tendency to treat certain colours as stronger visual stimuli than others. This leads to recognising the colour categories as centred around **focal colours**, which act as their most easily recognisable, prototypical examples (Taylor 1989: 9–13). This view stood in opposition to an earlier hypothesis, which deemed all examples of a colour belonging to a certain category as its equally good representatives (Taylor 1989: 7). Colour categories focused on the focal colours were described as Basic Colour Terms and constitute the basic level of categorisation among colours.

To be considered a Basic Colour Term, a colour term was supposed to fulfil the following criteria:

- monolexemic and its meaning cannot be predictable on the basis of the meaning of its parts,
- denotes colour spectrum not included in any other colour term,
- universal – its application cannot be restricted to a set class of cognates,
- psychologically salient – it often occurs at the beginning of lists of colour terms, it displays stability of reference across informants and occurrence in idiolect of all informants.

The authors listed four more supporting criteria, helping to determine whether or not the term which would not fulfil the main criteria should be considered a BCT (Berlin–Kay 1969: 6–7).

However, as Biggam (2012: 22–24) states, these criteria are not universally applicable. Depending on the morphological structure of the researched language some of them may not be considered valid solutions to determine the BCT status of a colour term. They are supposed to be used as guidelines, not laws and ideally the researcher should possess knowledge of the language extensive enough to identify the BCTs while choosing appropriate guidelines and taking into account the role researched terms are fulfilling in the language.

Such issues are also evident in Hungarian, which is the language I focus on. According to Berlin and Kay, Hungarian has twelve Basic Colour Terms: fejér (sic!), fekete, piros, vörös, zöld, sárga, kék, barna, lila, rózsaszín, narancs, and szürke (respectively white, black, light red, dark red, green, yellow, blue, brown, purple, pink, orange and grey) (Berlin–Kay 1969: 95).

However, it is clear that some of Berlin and Kay's criteria may not apply to Hungarian BCTs. In the case of *vörös* (Eng. *dark red*), *narancs* (Eng. *orange*) and *rózsaszín* (Eng. *pink*), the unpredictability rule does not fully apply, as the etymology of *narancs* comes from a fruit of the same name, *rózsaszín* comes from *rózsa* (Eng. *rose*) and *vörös* is an adjective derived from *vér* (Eng. *blood*).

Apart from that a common alternative form of *narancs* is *narancssárga*. It is a complex word containing *sárga* (Eng. *yellow*), which is a different colour term as a described word and *narancs* (Eng. *orange*) as its descriptor. *Narancssárga* could be considered to break the rule that requires a BCT's signification not to be included in the scope of another colour term (Berlin–Kay 1969: 6).

However, Biggam (2012: 31) argues that the rule of unpredictability does not apply to situations where the connection between the prototypical object and the colour name weakens to the point of homonymy. In such case, *narancs* and *rózsaszín* could retain their BCT status. This guideline's interpretation includes *vörös* as a BCT, however another guideline motivates its possible

exclusion − namely, it has been found to be largely unproductive and not universally applicable (Benczes−Tóth-Czifra 2016).

Individual BCTs' status and their role in the language is not only instrumental to the interpretation of many other colour names, but also interesting from the point of view of equine coat colours. Among those terms in Hungarian, four (*fekete* 'black', *sárga* 'chestnut'/literally, 'yellow', *fehér* 'white' and *szürke* 'grey') share their form with BCTs.

Additional research on BCTs and focal colours (Taylor 1989: 10-12) shows that the colour terms and the process of colour categorisation are closely related to human colour perception, although the scope of specific colour terms is not defined by human physiology − resulting in colour terms' meaning differing greatly in different languages.

As BCTs represent the basic level of categorisation, they are also the terms that provide a frame of reference for more specific colour shades. They can also be used as a metonymic reference point when describing a similar colour. However, to determine colours' similarity to one another, we need a way to describe colours in accordance with their objective properties or traits. That is where some methods of description used in colorimetry can prove to be useful tools.

2.3. Describing colours − colour traits

One of the most well-known characteristics of colour is its continuity. In the case of light as a physical phenomenon, light frequencies which, when reflected, result in the appearance of a particular colour create a continuous spectrum of rainbow. A particular chromatic colour can thus be described as a result of a reflection of a particular wavelength.

However, as I assumed the definition of colour as a colour response, we will be interested in a method of description that includes ACHROMATIC colours as well. Black, white and grey are not included in the definition of colour as a physical phenomenon and are not visible on a rainbow.

In the HSL model (w1), which I use as a tool for colour description in this paper, colour is broken down into three components: hue, saturation and lightness. **Hue** describes the chromatic aspect of the colour or its place on a colour wheel. **Saturation** describes the degree of chromaticity of a colour, with completely saturated hues as one extreme, and achromatic colours as the other. **Lightness** describes the value, with 0% meaning the darkest possible colour, and 100% signifying the lightest possible colour (Agoston 1979: 10−12).

Some scholars point out, however, that colours can have different qualities unrelated to these characteristics. Some languages differentiate between colours on the basis of their glossiness (Taylor 1989: 4). The colorimetry includes another relevant parameter: **brilliance**, which refers to how likely the colour is to reflect onto surrounding surfaces. In this case, one end of the spectrum is nonreflective greyness, and the other − fluorescence (Agoston 1979: 13). While brilliance may have no bearing on mammals' coat colours, it is important to note that there is a variety of colour traits that may extend beyond what we traditionally consider the defining qualities of colour. Some of them, like glossiness, are reflected in the categorisation of equine coat colours and their shades.

2.4. The role of visual example and colour description

As colour terms name basic visual experience, it is hardly possible to explain the meaning of a particular colour without using an example. The values provided by the colorimetric models provide constant results in acquiring a particular colour, as a set of values will always relate to the exact same shade. However, colour terms, especially those of a basic level, would be hard, if not impossible, to describe using only colorimetric values as a reference. Colour terms as categories tend to have fuzzy boundaries, so applying a fixed scope of values would not reflect their actual meaning. Furthermore, digital values are usually unhelpful when trying to describe a colour to a human.

In the case of shades, one could generally use other colours as a point of reference. One could also attempt to describe a Basic Colour Term this way, but it poses a significantly bigger challenge. A quick survey of dictionaries reveals that apart from reference to other colours, the most common

way to describe a colour is to provide an example. Online Merriam-Webster dictionary defines the colour red as: *a colour whose hue resembles that of blood or of the ruby or is that of the long-wave extreme of the visible spectrum* (w2).

The Hungarian monolingual dictionary *Magyar értelmező szótár* (Bárczi–Országh: 1962) defines *piros* as*: a vörös színhez közel eső, de a vörösnél élénkebb és világosabb, kellemes színárnyalatú. Piros alma; piros ajak; piros bársony* ('red: close to the colour marked by *vörös*, but more lively and lighter, of a more pleasant shade. Red apple; red lips; red velvet'). Using an example is also a way in which colour terms are acquired (Goddard 1998: 126–127). The direct relationship between visual stimulus and categorisation as a specific colour has interesting implications, some of which are described by optical sciences and colour theory.

When talking about colour perception, it is important to differentiate between surface colour and the colour that is perceived (Agoston 1979: 10). **Surface colour** is the colour of an object when seen under neutral, white light. **Perceived colour** is the colour an object is when taking into account such conditions as temperature and direction of light, surrounding objects' colours and bounced light. When identifying the colour of an object, we usually rely on perceived colour.

Due to this fact and colour terms' fuzziness, colour interpretation is an extremely subjective matter. The human mind can recognise different light sources and can correctly identify the local colour (phenomenon known as colour constancy) (Agoston 1979: 10). However, there are several factors that may influence this process and in result, have bearing on the way real world objects' colours are named.

The first such factor is **contrast effect** – an object placed next to an object of similar colour will have its differentiating trait magnified (w3).

Simultaneous contrast effect is evident in a similar phenomenon which occurs when an object is placed on a contrasting background. In this case, the object's perceived colour becomes closer to the complementary colour (or the opposite colour on the colour wheel) (Agoston 1979: 5).

2.5. The research method – used sources and database

As a basis of my research I use a database of Hungarian equine coat colour terms (Szymanowska 2021).

The entries in the database are equine coat-colour related terms gathered from varied sources: specialised and hobby literature on the topic of equine sports, animal husbandry and zootechnics, internet sites of breeders, pedigrees, as well as sites regarding equine coat colour genetics. The gathered terms are divided into five semantic groups: coat colours (*színek*), markings (*jegyek*), characteristics (*tulajdonságok*), patterns (*mintázatok*) and superordinate terms (*csoportosítás*). Apart from the entry type, additional criteria according to which the entry is described include represented part of speech, entry's origin (traditional, modern, archaic or regional), proposed Polish and English translations, source of the particular entry and a quote from the source material providing context of use. In this paper, I showcase the analysed nomenclatural systems in forms of diagrams, to provide context on the included coat colours and the relationship between the categories.

3. Analysis

In the following section I characterise the coat colour terms in Hungarian language and the related issues of categorisation. I outline the similarities and differences between conventional colours and equine coat colours. Next, I delve into the issues of differing ways of categorisation found in equine coat colour literature. I describe the features of the traditional and modern nomenclatural systems and their differing ways of categorisation and discuss the consequences of differing nomenclatural models' coexistence in the jargon. The last part of the analysis concerns the semantic relationship between the equine coat colour terms and the BCTs.

3.1. Equine coat colours versus conventional colours: similarities and differences

Having outlined the main characteristics of colours and colour terms, let us compare them with coat colours and coat colour terms.

There are many similarities between these groups of terms. Coat colour terms, similarly to other colour terms, describe a visual, colour-related aspect of a described object. They also have similar morphology, with many examples of shades – the hyponymous terms – morphologically based on their basic level hyperonyms. In Hungarian, coat colour shades are often formed as endocentric compounds, with the basic coat colour serving as the head of the compound:

1a) sötétsárga,
sötét ('dark') + sárga ('chestnut')

1b) hollófekete,
 holló ('raven') + fekete ('black')

1c) rozsdafakó
rozsda ('rust') + fakó ('dun').

This similarity to the expression of regular colour shade is not exclusive to Hungarian. In Polish some of the vocabulary on equine coat colour shades also bears similarity in morphological structure to the names of regular colours' shades, with descriptors of lightness or saturation acting as a second part of the compound (e.g. *ciemnogniady* 'dark bay', *ciemnoniebieski* 'dark blue', *brudnokasztanowaty* 'liver chestnut', *brudnożółty* 'dirty yellow'). Similarly in English – while coat colour shades are not expressed by closed compounds, the terms often indicate level of lightness (e.g. *dark bay, light chestnut*).

However, there are also characteristic differences between the two types of terms. The most evident one is that coat colour terms do not describe colours, or colour ranges per se – they describe specific sets of characteristics. For example bay (*pej*), as a colour, cannot be described in colorimetric terms, nor linked to any particular shade of colour, because it describes not only brown fur of the horse, but also a specific colour of manes, skin, hooves and eyes. The horse is only bay when it has brown fur in combination with black manes, grey skin, dark points and often lighter fur on the muzzle. Also, as Biggam (2012: 45) notes, the coat colour is applicable regardless of the occurrence of white markings. In some contexts, this can also be observed in case of white patterns.
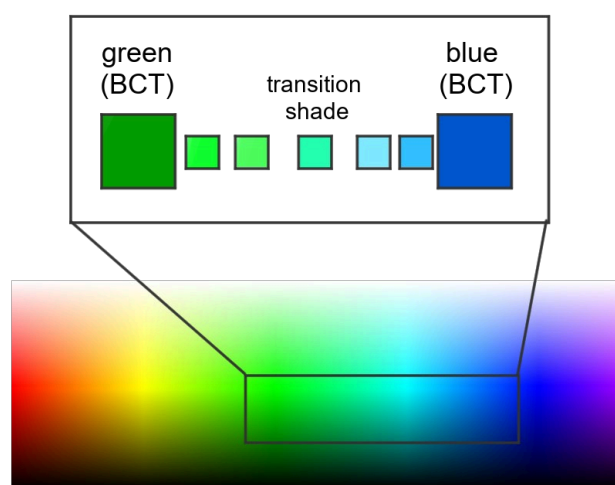

Figure 1. The basic color terms create a fluid spectrum.

Figure 2. The colour range of shades of *chestnut*, *bay* and *black* equine coat colours.
Note the overlapping shades and lack of continuity.

Coat colour terms cannot be linked to a set colour range also due to the fact that in several cases the main body colour overlaps with a different coat colour. In a different fashion to conventional colours, which create a continuous spectrum, with specific colours' ranges bordering each other and sometimes overlapping slightly, coat colours can display an almost complete overlap, meaning it is not possible to differentiate between them on the basis of the main body colour alone.

Coat colour terms also include terms related to specific traits and patterns – whether they work as an addition denoting a specific quality of a phenotype (e.g. *almázott – dappled, szíjált – with a dorsal stripe*) or as an individual name terminologically equal to a coat colour term (*tarka – pinto, párductarka – spotted/appaloosa*). While it can be argued that these terms constitute a separate class, especially pattern terms are used on a par with other coat colour terms. In compound terms they can serve as a main term for a coat colour, with an underlying coat colour used as a descriptor:

2a) feketetarka
fekete (black) + *tarka* (pinto) = piebald

2b) pejpárductarka
pej (bay) + *párductarka* (spotted/appaloosa) = bay appaloosa

3.1.2. The status of coat colour terms as colour terms

Biggam (2012: 44-48) provides an interesting point of view about the coat colour terms' status as colour terms. She describes coat colour terms as sub-sets, defined as "collections of two or more words, some of which are used exclusively, or very nearly so, of one particular subject" (Biggam 2022: 44-45). The equine coat colour terms are treated on par with hair colour names, and used as an example of a culturally significant sub-set of colour terms. The description puts emphasis on

the unconventional use of BCTs, which may be included in sub-sets, albeit used with a context-specific meaning that may diverge from their conventional use.

I would argue that the wider classification of equine coat colour terms as a sort of colour terms would be problematic. Contrary to blonde and other terms describing colour of hair, coat colour of animals often denotes not a singular shade but a certain combination of colours. Colours such as *bay* (*pej*) or *palomino* (*izabellafakó* – Eng. *izabella dun*) would not be separate categories without the colour of manes differing from the colour of the body. Certain shades of *palomino* could not be differentiated from *cremello* if the colour of the skin and eyes would not be taken into account. The coat colours, even in traditional nomenclatural systems are entire visual schemes. Also, the mixed colours and patterns, such as *roan* (hun. *deres*) or *pinto* (hun. *tarka*) are technically coat colour names, and they do not denote colour combination but the way they are combined. While the connection between BCTs and the coat colours of the same form is often perceptible, I do not consider them to be colour terms.

The divergence between these two types of terms becomes more evident in the case of modern coat colour terms.

As evident in the example of *szürke* 'grey' as an equine coat colour name, the meaning can apply to an animal that over time completely changes the colour of its fur. Apart from the fact that the coat colours can describe specific patterns which change over time, the modern understanding inadvertently links equine coat colour terms to a particular genetic combination.

Under this paradigm, a horse whose visual traits make it look like either faded black or a very dark chestnut may be misidentified by the onlooker – but as these two colours differ in terms of genetics, only one of these terms is essentially correct. This approach changes a coat colours' category properties – if it is understood as an objectively unchangeable property of a particular animal, it is a natural phenomenon, characterised by binary membership and clear boundaries. If visual traits are only treated as symptoms of a combination of alleles a certain animal possesses, then it cannot be chestnut to a certain degree. In the following section I delve into what I consider to be traditional and modern equine coat colour terms and I provide examples of Hungarian nomenclature systems using both of these types.

3.2. Traditional and new terms – different ways of categorisation

One of the most interesting features of Hungarian equine coat colour terminology is the variety of terms and the presence of multiple nomenclatural systems. In the following section I explore the possible reasons for this situation, and describe the nomenclatural systems' division into two types differing in terms of the process of categorisation.

3.2.1. The current situation of Hungarian equine coat colour jargon

While recorded archaic and regional forms of equine coat colour terms prove their cultural significance and long-time use, the Hungarian equine coat colour-related jargon is anything but static. Recent advancements in equine coat colour genetics as well as the popularity of uncommon and rare coat colours has led to the identification of numerous new coat colours. They were previously considered variations of existing coats, which was common for silver coats and so-called false dun (w4), or they are modifiers which are considered to be caused by new mutations that previously did not occur at all, e.g. *sunshine* (Holl et al. 2019.) and *mushroom* (Tanaka et al. 2019). In many cases, coat colour genetics called for a revised categorisation of equine coat colours, creating new groups of coat colours which did not have a separate name in Hungarian. Apart from this gap in nomenclature, nowadays the specialised literature is often published in English. The exchange of knowledge via the Internet and the import of studs of foreign breeds all bear influence on the native equine coat colour jargon. The influence is visible in the specialised texts, showcasing a variety of borrowings and calques.

What is important is that in the majority of written sources the terms are presented in the context of other terms – many of them are intended to be guides presenting a complete system allowing for identification of a specific horses' coat colour. In this aspect, most of these nomenclatural systems, despite being comprised of colour-motivated terms, act similarly to regular colours. Often three levels of categorisation can be recognised, with independent coat colour terms (e.g. *sárga* 'chestnut', *fakó* 'dun', *fekete* 'black') acting as the basic level. Shades of a particular coat colour (e.g. *világossárga* 'light chestnut', *aranysárga* 'golden chestnut', *májsárga* 'liver chestnut') are equivalent to the detailed level of categorisation. The terms dividing coats into larger groups (e.g. *alapszínek, hígított színek, kevert színek, mintázatok*) (Eng. *basic colours, diluted colors, mixed colours, patterns,* respectively) represent the superordinate level.

When we interpret the whole nomenclatural systems, it is clear that for some coat colour terms the scope of their meaning differs between sources. The written sources vary in the way the coat colours are grouped together, introducing different superordinate terms. The basis of how the terms are grouped is connected to what can be considered as the basis of their categorisation.

3.2.2. Traditional terms – main characteristics

Let us take a look at the nomenclatural system presented by the web article *Történelmi lószínelnevezéseink* (w5). The article's text is originally attributed to Péter Kun, as a part of his book, *Szelek szárnyán – A sztyeppei nomádok lovaskultúrája* (Kun 2005). It is worth noting that despite the article's title, the author does not treat the majority of terms as archaic, but rather as correct due to being supported by tradition.
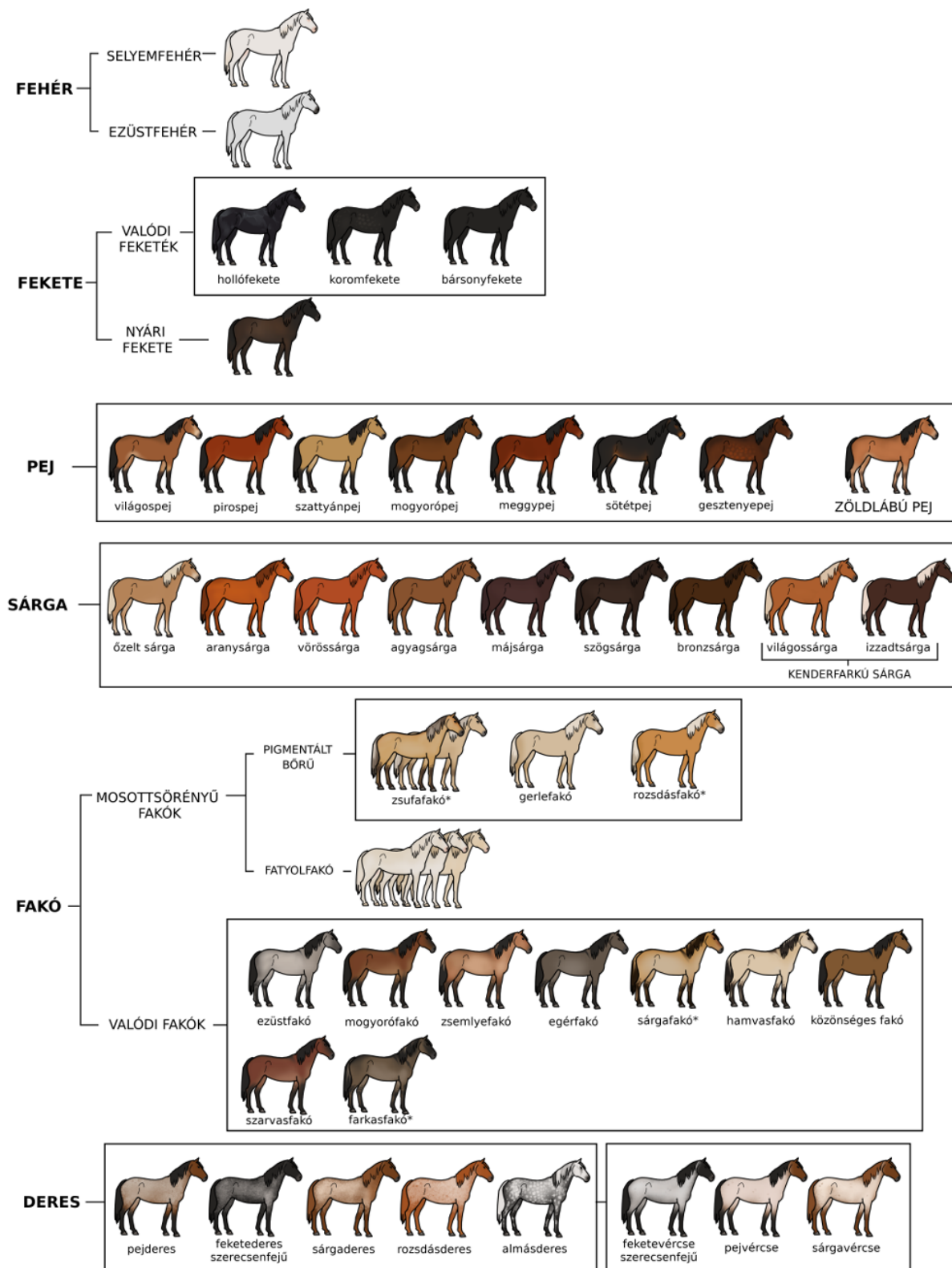
Figure 3. The classification of equine coat colours
in an internet article *Történelmi lószínelnevezéseink.* (w5)

What is noticeable is the lack of superordinate terms – the basic coat colour terms are not divided into larger groups. White patterns such as pinto patterns and appaloosa patterns also seem to be omitted. However, we can see a vast number of shades connected to each of the basic coat colours. The description focuses on colours and traits exhibited by the coat colours, and the genetically unrelated coats might become bundled together under one term, which is then divided to account for the difference in displayed traits.

Such is the case of *fehér*, which contains both completely greyed-out grey horses (as *ezüstfehér* 'silver-white') and dominant white horses whose fur is white at birth, with unpigmented eyes and skin (*selyemfehér* 'silk-white'). Perhaps the most notable example of a genetically diverse category is *fakó*, which contains both dun (*valódi fakó* 'true dun') and cream (*mosottsörényű fakó* 'washed-out-maned dun') diluted coats. Different genetic background and differing traits make the description of what makes a horse *fakó* somewhat unclear. In fact, the only trait those two groups have in common is their eponymical less saturated coat colour which visually separates it from other coat colours. Every other identifier, such as the colour of mane, the appearance of dorsal stripe and even the possibility of lack of pigment in the skin differs for cream and dun. In a similar fashion, *fehér* 'white' covers examples of horses on the basis of purely visual similarity – the white fur colour. *Deres* 'roan' also perpetuates this rule, as one of the examples, *almásderes* 'dappled roan', is a grey horse during one of the stages of greying. It is classified together with genetically roan horses, because like them it exhibits a mix of coloured and white hair on its body. The creators of this term clearly were not ignorant about the *almásderes* ('dappled roan') horses' temporary status as a shade of *deres* ('roan'). The grey horses are of dark colour at birth and in a span of a few years their coat gradually whitens until it becomes white. Grey is an extremely popular coat colour, as it is determined by a dominant allele, which makes the characteristic traits always visible. The greying process is thus notably easy to observe, so the cause of the categorisation of *almásderes* 'dappled roan' cannot be confusion, but more probably the conscious connection between the visual effects of the mixed color of *deres* 'roan' and the mixed fur of *almásderes* 'dappled roan'.

The example makes it clear that under this mode of categorisation, the coat colour of a horse is not considered to be its permanent trait, but is to be identified in its current state. The main factor which motivated the coat colour categorisation is the visual similarity of the colour coats, and although many horses' fur change colours depending on the season, the ample vocabulary related to shades helps describe the coat colour more precisely.

It is important to note that not all traits of the discussed system are common among other traditional systems showcasing a similar process of categorisation – the earliest source in this research, *Ló és tenyésztése* (Kovácsy–Monostori 1905) proposes several superordinate terms and discusses white patterns. However, treating visual colour traits' combination as the basis of categorisation is a common quality of these systems.

I have called such term sets **traditional nomenclatural systems** (comprised of traditional coat colour terms). While less genetically accurate, they have the merit of being more intuitive and easier to use. The basic level of coat colour terms is limited and easy to remember. The main distinguishing features of traditionally understood coat colours are relatively easy to notice in comparison to the modern coat colours.

3.2.3. Modern terms – main characteristics

In comparison, as showcased by a series of articles by Krisztina Juhászné Timár (w6), modern systems of categorisation can be more complex, with many more terms considered to be basic level categories.

A L A P S Z Í N E K

SÁRGA
eeaa, eeAa, eeAA

PEJ
EeAa, EeAA, EEAA, EEAa

FEKETE
EEaa, Eeaa

NON-FADING BLACK

középsárga   májsárga   vörössárga

aranypej   középpej   meggypej

hollófekete/   koromfekete   bársonyfekete
bogárfekete

sötétsárga   aranysárga

pirospej   gesztenyepej

PANGARE FAKTOR

FADING BLACK
(nyári fekete)

*FLAXEN
(MOSOTT
SÖRÉNY)*

kendersörényű   (kendersörényű)   pangare
sárga   világossárga   sárgán

pangare pej   VADPEJ /   SÖTÉTPEJ
színen   ZÖLDLÁBÚ PEJ

H Í G Í T O T T   S Z Í N E K

FAKÓ (DUN)
D/D , D/nd1, D/nd2

SÁRGAFAKÓ
(RED DUN)

PEJFAKÓ
(BAY DUN)

EGÉRFAKÓ
(MOUSE DUN, GRULLO)

KRÉM
színek

HETEROZIGOTÁK Cr/n

PALOMINO (IZABELLAFAKÓ)

BUCKSKIN (ZSUFAFAKÓ)

SMOKEY BLACK

palomino   világos   sötét/chocolate
palomino   palomino

buckskin   buttermilk   brownskin
(zsufafakó)   buckskin   sötét zsufafakó
   (világos zsufafakó)

*SOOTY
FAKTOR*

sooty palomino   sooty buckskin

HOMOZIGOTÁK Cr/Cr

CREMELLO

PERLINO

SMOKEY CREAM

EZÜST (SILVER)
Z/Z , Z/z

SILVER BAY

SILVER (DAPPLE) BLACK

CREAM-PEARL
színek Cr/prl

PALOMINO PEARL

BUCKSKIN PEARL

SMOKEY BLACK PEARL

**GYÖNGY
(PEARL)
Cprl**

PEARL SZÍNEK

SÁRGA PEARL?

PEJ PEARL?

FEKETE PEARL?

**PEZSGŐ
(CHAMPAGNE)
Ch/Ch, Ch/n**

GOLD CHAMPAGNE

**AMBER
CHAMPAGNE**
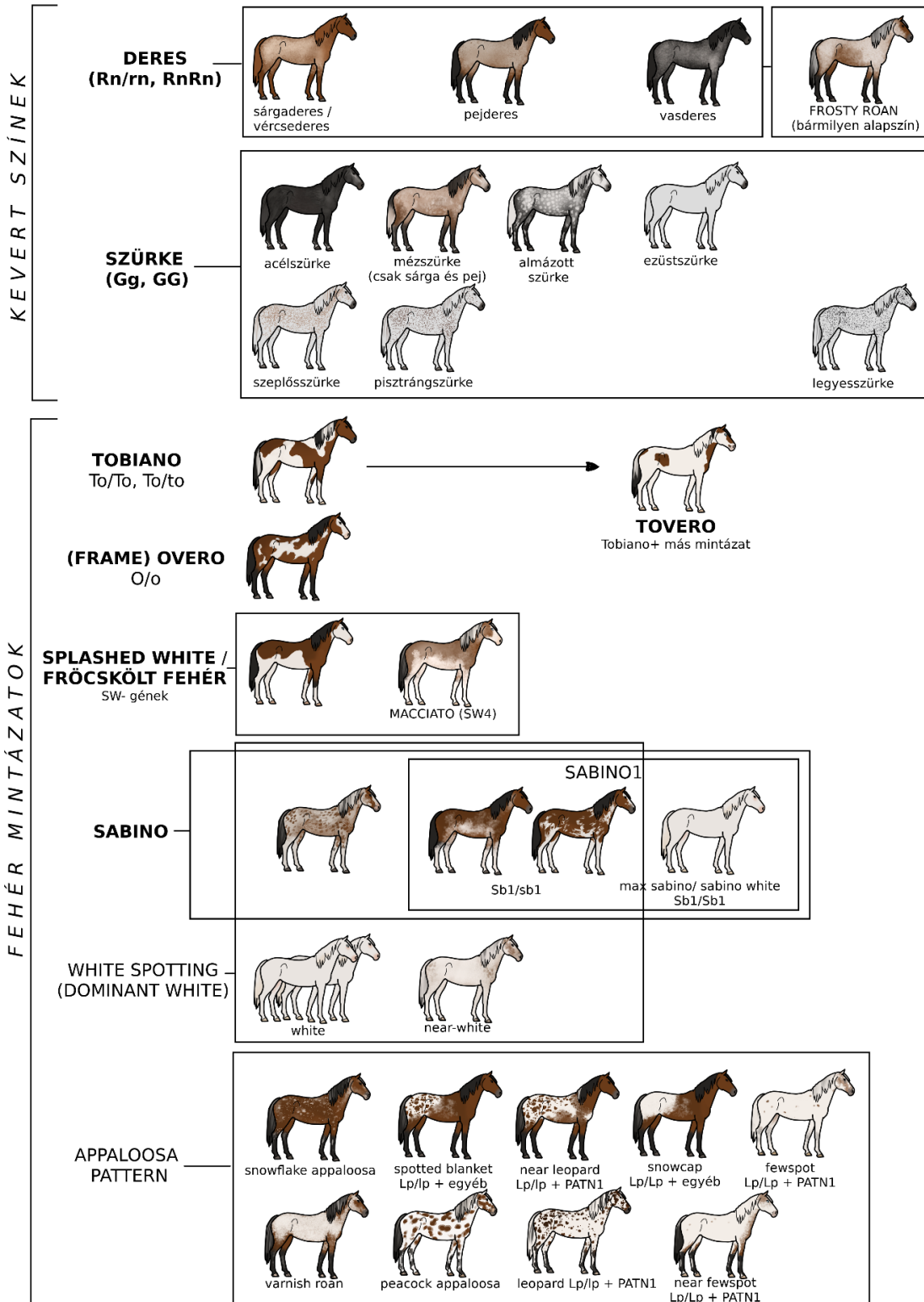
**SABLE
CHAMPAGNE**

CLASSIC CHAMPAGNE

Figure 4. The classification of equine coat colours and patterns
in a series of blog articles by Krisztina Juhászné Timár (w6)

What is noticeable is the smaller number of shades, but also some of the coats which are treated as shades in the traditional nomenclatural systems are here considered to be separate coat colours. The terms describing them are considered basic level terms. Good example of such a shift are cream coat colours (*krém színek* 'cream colours') which before comprised of shade names (*hamvasfakó* 'ashen dun', *ezüstfakó* 'silvery dun', *gerlefakó* 'mourning dove dun', etc.). In the modern systems their variations (*palomino/izabellafakó* 'palomino/Isabella-dun', *buckskin/zsufafakó* 'buckskin/straw-dun' and *smokey black*) are treated as independent coat colour terms, possessing their own distinct shades.

Numerous superordinate terms are in use – apart from those dividing coat colours into large groups, like *alapszínek* 'basic [coat] colours', *hígított színek* 'diluted colours', *kevert színek* 'mixed colours' and *mintázatok* 'patterns', smaller groups are also present and the coat colours are often grouped by their genetic proximity. If a specific gene defines the appearance of a set of traits, the coat colours caused by said gene will be grouped together (as in the case of *ezüst* 'silver', *pearl* or *champagne*).

Thus, the primary trait that defines the coat colour according to the **modern nomenclatural system** is the genotype. It remains the same throughout the animals' whole life, and as an unchangeable property it exists outside of the realm of interpretation. Modern coat colour terms' scope is in this way more specific than the general description of a combination of visual traits. As modern coat colour terms are linked to genotypes, they effectively describe phenotypes. Phenotype in this context is meant as the set of traits caused by an individual genotype and its expression exhibited by a particular specimen. What is important is that while it is unusual, the modern terms are applicable even when the gene's influence is not visible, as evidenced by the usage of *kriptikus frame overo* 'cryptic frame overo' in a description of a photo used in an article on equine coat colour genetics (w7). Under the modern paradigm, a horse's coat may be misidentified by the onlooker (some coat colours, like *smokey black* are extremely hard to identify), but the factual membership to the category does not change because of its perception.

The identification of equine coat colour in a modern sense is less connected to the perception of colour, and more to recognising secondary traits which allow one to discern between horses of similar colour, but different genetic makeup.

The upside of this type of system is its precision and usefulness in predicting the possible coat colour of an offspring of a particular horse. The significant downside, however, is that it is less intuitive and the coat identification process is significantly more demanding.

### 3.3. The implications and consequences of parallel nomenclatural systems

The aforementioned shift influences the properties of coat colours as categories. The traditional systems' more flexible approach shows coat colours, and by extension coat colour terms as similar to colour terms - heavily influenced by the notion of personal perception. The example of dappled grey described as *almásderes* 'dappled roan' and grey and white named *fehér 'white'* shows that finding the degree of the familial similarity in the visual aspects of the animals is of great importance to these nomenclatural systems. Contrary to this, in the case of modern systems, familial similarity of visual traits may not be the most important factor in categorising a horse as an example of a specific coat colour. Visual traits are considered helpful in identification, but can also be deemed misleading, as many visually similar coats are genetically different and thus are a different coat colour (e.g. *dark palomino* and *silver dapple black*). The approach to coat colour as a direct result of a specific part of a genotype that can be objectively verified, moves coat colours farther from conventional colours.

Knowledge of the origins of colours and patterns being a biological trait also proves that coat colour categories are natural categories characterised by binary membership (Taylor 1989: 45). It is not possible for an animal to have a specific genetic combination to some degree, either it has the specific alleles or it has different ones. It could be argued that even in many traditional nomenclatural systems the presented categories have clear boundaries and a binary membership,

although the existence of numerous shades and varieties which sometimes differ greatly from the most prototypical example suggests that the borders of traditional categories can be considered to be more relaxed. Something bearing only a degree of similarity to bay but not fitting any other category could be classified as bay as well – as evidenced by *mosott sörényű pej 'washed-out-maned bay'* (Bodó–Hecker 1992: 77).

However, the claim about clear boundaries in traditional systems should be carefully examined, because it does not apply to all of them. *Ló és tenyésztése* (Kovácsy–Monostori 1905: 178–179) provides an interesting insight into the evolution of the concept of a coat colour as a category.
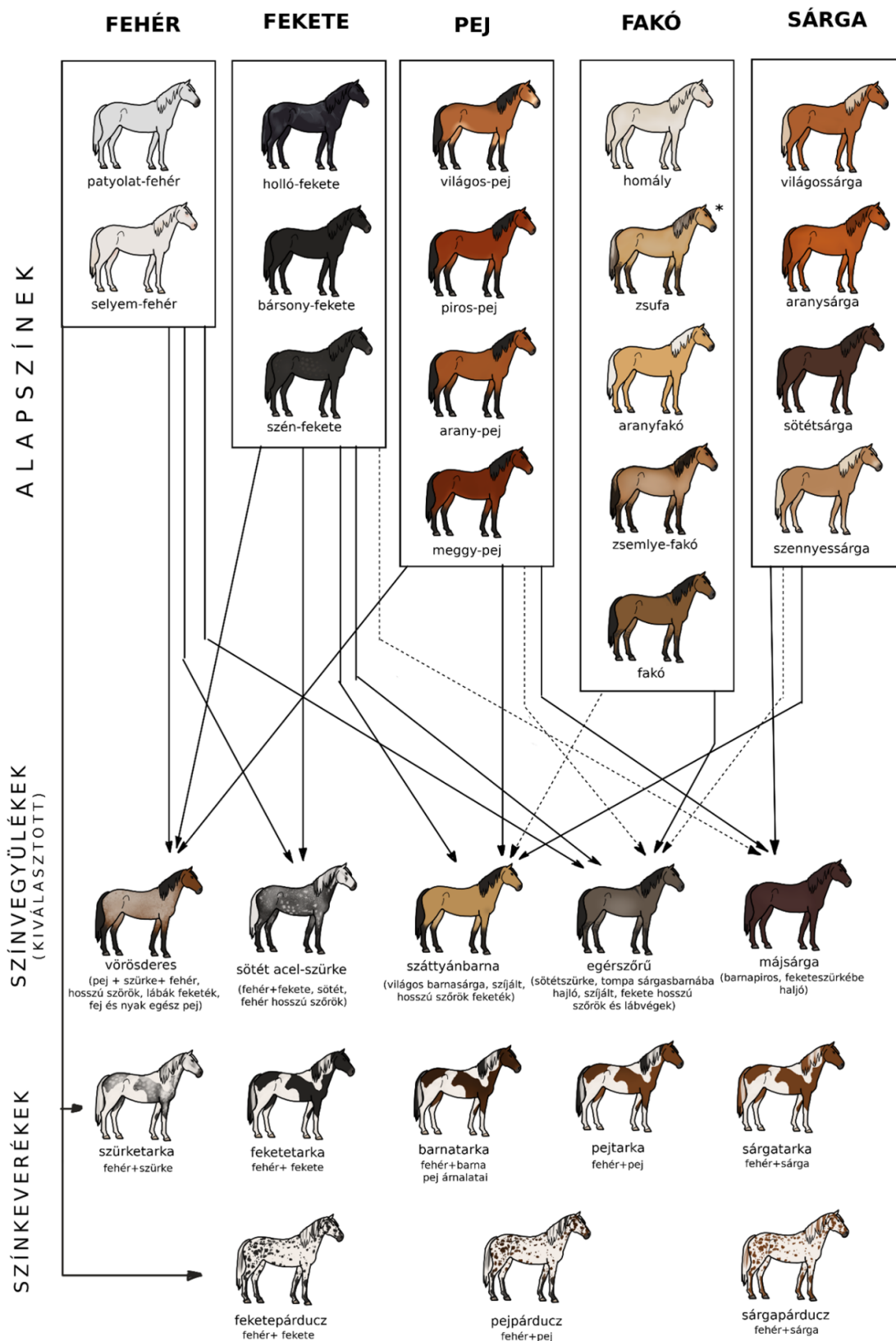
Figure 5. The nomenclatural system in *Ló és tenyése* (Kovácsy−Monostori 1905).
The visualisations marked with an asterisk are hypothetical.

This system introduced a separate superordinate level category of *színvegyülékek* 'colour mixtures' and both the name and the description of individual terms suggests that they were supposed to possess mixed traits of the basic coat colours. However, none of the researched texts replicates this approach, so it can be considered outdated.

The important consequence of the rapid change in the basis of categorisation is that both traditional, modern systems and the systems connecting the two types' traits (e.g. *Lótenyésztők kézikönyve* by Bodó and Hecker) coexist in the specialist literature. The concurrent nomenclatural systems whose categorisation is motivated by different factors cause the lack of clarity surrounding certain terms' meaning.

A good example is *fakó*, which in traditional systems encompasses both dun and cream coat colour families. In modern systems and publications focused on equine coat colour genetics, *fakó's* meaning is limited to the dun coat colours, which makes it the precise equivalent of English *dun*.
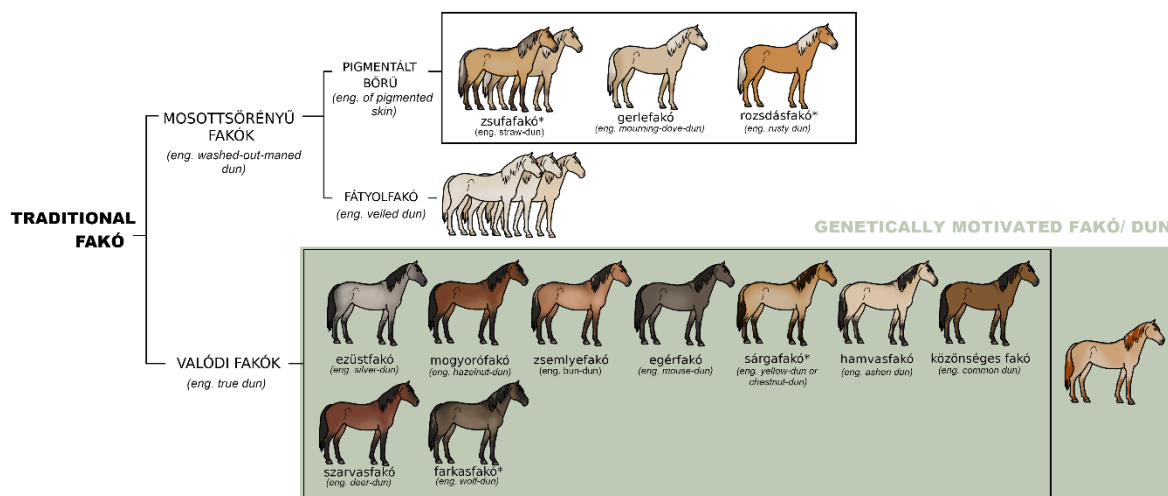
Figure 6. The difference between the traditional and modern meaning scope of *fakó*.

This is an example of a traditional term being integrated into the new nomenclatural system. In fact, the evidence that there was previously no other term reserved only for dun horses is that the authors describing some traditional naming systems were careful to specify which *fakó* are considered **true ones** (*valódi fakó*).

Apart from a traditional term adaptation, the appearance of entirely new categories prompted a variety of different solutions when it comes to term formations. One such solution is the direct borrowing of English terms. As most scientific publications, including those on equine coat colour genetics, are available in English, this solidifies the meaning of the borrowed terms, directly linking them to the same terms in the international discourse. These terms are nonetheless foreign in their form, fitting uneasily into an already established LSP with a long tradition. An alternative solution is provided by the table in an article on Hungarian Wikipedia, titled *A ló jegyei* 'The features of horses' (w8).
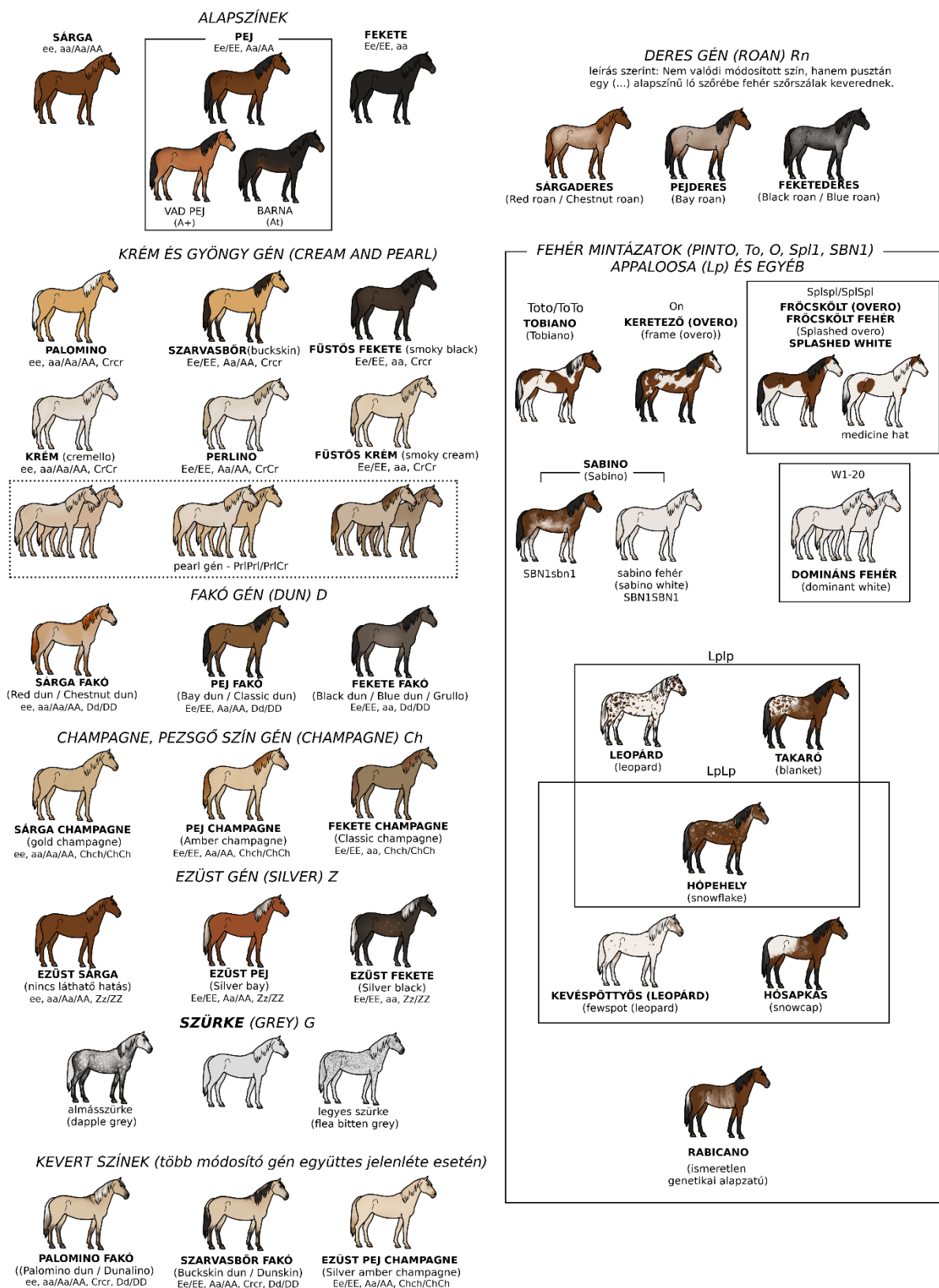
Figure 7. The nomenclatural system in the Wikipedia article A ló jegyei (w8)

The author chose to use numerous calques, such as *szarvasbőr* 'deerskin' for *buckskin*, *pezsgő* 'champagne' directly based on *champagne* and *ezüst* 'silver' in place of *silver*. The version of terms fits in between native Hungarian themes more seamlessly, although it is clear that in some cases the calque from English and the consistent, three-fold approach to the variations in each genetic family resulted in replacing the existing native term (e.g. *fekete fakó* 'black dun' instead of *egérfakó* 'mouse dun', *barna* 'brown' instead of *sötétpej* 'dark bay'). Considering the long tradition the native coat colour terms have in Hungarian, such a choice can be deemed questionable. Firstly, it is yet unknown whether or not the new terms would be adopted by the LSP users – and modifying the existing terms whose meaning has not changed due to the shift in the paradigm makes the adoption of the new terms less likely. Secondly, while keeping an LSP communicative and up-to-date is important, in the case of changing the already existing terms there may be a valid concern about erasing a part of cultural heritage.

3.4. BCTs in equine coat colour categorisation

Despite the vast differences between the coat colour terms and regular colour terms, four basic coat colour terms still share forms with BCTs. The BCTs focality and their role as a basic level category makes their usage as a reference point understandable when it comes to colour-related terminology, despite the fact that the occurrence of such references in equine coat colour jargons differs between languages. Considering only the basic level equine coat colour terms, BCT references are more common in Hungarian terminology than in its English (w9) or Polish equivalents (Stachurska et al. 2017: 5-10). Let us take a closer look at Hungarian equine coat colour terms' relationship with BCTs.

Szürke is a unique equine coat colour, characteristic of some breeds popular in Hungary, such as Shagya arabian and Lipizzaner. Such horses are born in any possible coat colour (but usually with a dark coat) and with time they grey out (*kiszürkül*) to become a horse with a completely white fur. They retain dark skin, eyes and hooves. The change is gradual, and the transient stages of greying have their own terms describing them, such as *acélszürke* 'steel-grey', *daruszürke* 'crane-grey', *almázott szürke* 'dappled grey', *mézszürke* 'honey grey' and *ezüstszürke* 'silver-grey'.

1.

2.

3.

4.

5.

6.

Figure 8. The stages of greying. 1. a foal (start of the greying process), 2. *acélszürke*, 3-4. *almázott szürke*, 5. *ezüstszürke*, 6. *pisztrángszürke* 'trout-grey'

In some cases, after the greying process is finished, the cells which originally stopped producing the pigments in the horse hair start working again in small clusters, resulting in a *fleabitten grey* look. In Hungarian this stage of grey coat has three terms, depending on the colour of spots: *szeplősszürke* 'freckled-grey', *pisztrángszürke* 'trout-grey' and *legyesszürke* 'fly-grey'.

Szürke has an interesting relationship with its related BCT. At some stages of the greying process the colour may appear grey but in fact, the fur of a greying horse consists of a mix of dark and white (unpigmented) hair which visually merge into a greyish colour over distance.

With its most characteristic, almost prototypical form, *ezüstszürke* 'silver-grey', having white fur, the relationship between *szürke* as an equine coat colour and a BCT extends beyond a specific use of BCT – it is polysemic in nature, as while the two have a noticeable connection, the meaning of *szürke* as equine coat colour extends beyond the scope of *szürke* as a BCT.

It is worth noting that the connection of all stages of greying to *szürke* seem to be relatively new, as in the researched traditional sources *ezüstszürke* 'silver-grey' used to be *ezüstfehér* 'silver-white'.

Figure 9. A difference in colour between a grey horse (modern *ezüstszürke* 'silver-grey', traditional *ezüstfehér* 'silver-white' or *patyolat-fehér* 'sheet-white') and dominant white horse modern *fehér* 'white' or *domináns fehér* 'dominant white', traditional *selyemfehér* 'silk-white').

The change in the scope of meaning of *fehér* 'white' illustrates the shift in the basis of categorisation well. In the traditional nomenclatural systems it used to denote both the entirely greyed-out grey horse (as *ezüstfehér* 'silver-white' or *patyolat-fehér* 'sheet-white') and a so-called dominant white horse, whose fur is white from birth. In the modern system, only a way rarer *dominant white* horse (whose genetics include one of the W1-W20 alleles) (w10) can be called *fehér*, to avoid confusion when it comes to both coat colours' lack of genetic affiliation. Greyed-out horses are included as a shade of *szürke* 'grey'.

In the case of *fekete* 'black', the colour of most horses' fur does not significantly divert from the conventional meaning of the colour term. However, both the matter of black coat colour's shades as well as the matter of seasonal changes of the coat colour make it an atypical case. Despite black being very constrained to specific lightness as a colour, in the Hungarian LSP horses can be of several shades of black. The difference between *hollófekete* 'raven-black', *bogárfekete* 'beetle-black', *bársonyfekete* 'velvet-black' and *koromfekete* 'soot-black' lies in the presence and underlying colour of a shine. Despite *fekete* as a coat colour term not being a colour term, it is a similar case to the situations where glossiness is treated as a trait differentiating between colours. A somewhat controversial shade is *nyárifekete* 'summer-black' – according to some sources it is a name for black horses whose fur fades to brown in summer due to sun exposure (Juhászné Timár 2017). According to another interpretation, it is actually a name for a shade of bay (Bodó–Hecker 1998: 77).

Regardless of the precise meaning of *nyárifekete*, it is undoubtedly true that some horses change their colours dramatically over the course of seasons. In the case of *black* horses, their sun-bleached fur may make them visually similar to bay horses or dark chestnuts. Nonetheless,

even when their fur is largely brown, their genotype does not change, so they are technically *fekete* 'black' despite their fur not being black.

Figure 10. 1.,2. Faded black horses; 3. Non-fading black horse

Apart from *fekete* 'black', *fehér* 'white' and *szürke* 'grey', using BCTs as a point of reference in equine coat colours seems to happen most often to BCTs from the warm colours' spectrum. Hungarian equine coat colour vocabulary lacks references to blue which are found in English jargon in *blue dun* and *blue roan*. In their case, reference to blue might be motivated by the relatively low saturation in relation to other coat colours. The presence of such a sharp contrast to most other coat colours could involve simultaneous contrast effect due to which the coat colour may appear blueish. In the case of the Hungarian term for wild dun, *zöldlábú pej* 'green-legged bay', the low saturation factor is absent. The reason for the reference to *zöld* 'green' is yet unknown.

Figure 11. 1. *Blue roan* (left) and *blue dun* (right). In Hungarian *vasderes 'iron-roan'* and *egérfakó* 'mouse-dun', respectively. 2. Wild bay phenotype, one of the terms for it in Hungarian is *zöldlábú pej* 'green-legged bay'

The most notable example of an equine colour using the name of a BCT may be *sárga* 'yellow'/ 'chestnut'. Unfortunately, the reason why *sárga* is used as a name for one of the basic coat colours, chestnut, remains unclear. In this case, however, optical illusions such as contrast effect and simultaneous contrast effect can be reliably ruled out as a main reason for the usage of *sárga* as a name for chestnut. The contrast effect happens when the parameters of colour seem altered in contrast with another object. In the case of chestnut, for this effect to appear, the chestnut would have to be significantly closer to yellow in hue than the other coats, and as Figure 2 shows, this is not the case. The chestnut coat is also hardly the outlier in terms of saturation. The more likely explanation would be that the original meaning of *sárga*, which has since been adopted as a name for coat colour, has changed over time. However the confirmation of this hypotheses would require separate etymological studies.

Figure 12. The examples of *vörössárga* 'red-chestnut' and *pirospej* 'red-bay'.

The case of *sárga* is especially interesting when it comes to BCT references, as the colour of human and animal hair similar to a rich *chestnut* is *vörös* 'red'. That being said, *vörös* 'dark red' and *piros* 'light red' are also used in equine coat colour language, as a point of reference in coat colour shades such as *vörössárga* 'red-chestnut' and *pirospej* 'red-bay'. Interestingly, despite *vörös* being more connected to colours of living beings, *Magyar Értelmező Szótár* (Bárczi–Országh: 1962) cites *piros* and not *vörös* as a regional term for a light bay horse.

4. Conclusion

A direct consequence of a rapid development of scientific background concerning the Hungarian equine coat colour-related vocabulary is the creation of new nomenclatural systems while the traditional alternatives are still in use. One of the outcomes is the unclear semantics of certain coat colour terms. The example of Hungarian equine coat colour-related LSP shows that the application of the results of scientific development may result in a changed perspective on a subject matter. As a result, the basis of categorisation can change, influencing the traits represented by the coat colours as categories. The modern coat colours are categories of clear boundaries and binary membership. While the prevalence of these traits can be to a degree discussed when it comes to categories presented by the traditional naming systems, the objective verifiability caused by the direct link between the genotype and a coat colour is a new trait of coat colour categories. It not only serves as a main criterion of the categorisation process in the modern systems, it also sets the modern coat colour terms further apart from regular colour terms.

Despite becoming more distinct from regular colour terms, Hungarian equine coat colour terms maintain a relationship with BCTs. In addition to the four BCTs which share the form with basic coat colours, BCTs can serve as a point of reference in terms for shade. The number of shade terms for individual coat colours seems to decrease in the modern nomenclatural systems. Despite the influence of foreign terms, references to cold BCTs are not as frequent as in the English equine coat colour LSP.

While an optical illusion can interrupt the identification process and skew human perception, there are not many cases in which the usage of BCTs for coat colour could be motivated by a large degree of colour approximation or an optical illusion. The only noticeable case is the use of *szürke* 'grey', where the mixture of pigmented and unpigmented hair is considered grey due to them being indistinguishable over distance. Most of the terms which share their form with BCTs maintain a polysemic relation with them.

Despite many arguments suggesting that equine coat colour terms are a different class of colour-motivated terms than the regular colour terms, from many perspectives they show similarities. On top of the basic coat colour names based on BCTs, the vocabulary also contains names focused on the visual properties of colours, like *fakó* and several terms for shade differentiated by a less conventional property of colour, namely glossiness.

The analysis of the Hungarian equine coat colour-related LSP has shown that the nature of terms and their designated categories can prove to be more complex than expected. It also proves that when reviewing specialised terms, taking into account the context of a specific term in a wider perspective can be invaluable.

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Illustrations

Figure 1. own work

Figure 2. (left to right, top to bottom)

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    Author: AIAC Interactive Agency Source: Pixabay (https://pixabay.com/pl/photos/ko%C5%84-horse-zwierz%C4%99-wy%C5%9Bcig-d%C5%BCokej-198885/ access: 28.06.2021 06:08)

    Author: No-Longer-Here Source: Pixabay (https://pixabay.com/pl/photos/ko%c5%84-pi%c4%99kny-zwierz%c4%85t-zatoka-brown-220453/ access: 28.06.2021 06:08)

    Author: Ilona Krijgsman Source: Pixabay (https://pixabay.com/pl/photos/konie-mi%c5%82o%c5%9b%c4%87-sweet-1040952/ access: 28.06.2021 06:08)

    Author: Dorota Kudyba Source: Pixabay (https://pixabay.com/pl/photos/ko%c5%84-ko%c5%84ski-g%c5%82owy-portret-3812093/ access: 28.06.2021 06:08)

    Author: Anthony Source: Pexels (https://www.pexels.com/pl-pl/zdjecie/czarne-i-brazowe-konie-w-poblizu-drzew-133621/ access: 28.06.2021 06:08)

    Author: Uli Ebner Source: Pixabay (https://pixabay.com/hu/photos/fekete-erd%C5%91-l%C3%B3-fodr%C3%A1sz-2073377/ access: 28.06.2021 06:08)

    Author:kristen17 Source: Pixabay (https://www.youtube.com/watch?v=JzPUBTR4L_4 access: 28.06.2021 06:08)

Figure 3. own work

Figure 4. own work

Figure 5. own work

Figure 6. own work
Figure 7. own work
Figure 8.
1. MemoryCatcher, CC0, via Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Li-pizzaner_2013.jpg)
2. own archive,
3. own archive,
4. Author: jLasWilson: Source: Pixabay (https://pixabay.com/pl/photos/ko%c5%84-pole-drzewo-white-zwierz%c4%85t-1342233/ access: 28.06.2021 07:45]
5. Author: Engin Akyurt Source: Pixabay (https://pixabay.com/pl/photos/bia%c5%82a-ko%c5%84-portret-pi%c4%99kna-ogier-2650648/ access: 30.09.2023)
6. Author: Digwen Source: Pixabay (https://pixabay.com/pl/photos/ple%c5%9b%c5%84-klacz-3387162/ access: 30.09.2023 07:45)
Figure 9. (left to right)
Author: Engin Akyurt Source: Pixabay (https://pixabay.com/pl/photos/bia%c5%82a-ko%c5%84-portret-pi%c4%99kna-ogier-2650648/ access: 30.09.2023)
Haase B, Brooks SA, Schlumbaum A, Azor PJ, Bailey E, et al., CC BY-SA 2.5 <https://creativecommons.org/licenses/by-sa/2.5>, via Wikimedia Commons (https://commons.wikimedia.org/wiki/File:DominantWhiteHorsesD.jpg)
Figure 10.
1. Heather Moreton, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Dales_Pony_Mare_-_Gulliver%27s_Mistral_owned_by_Baroque_Farm.jpg access: 30.09.2023)
2. Dagur Brynjólfsson, CC BY-SA 2.0 <https://creativecommons.org/licenses/by-sa/2.0>, via Wikimedia Commons (https://commons.wikimedia.org/wiki/File:643_Svalur_fr%C3%A1_Bl%C3%B6nduhl%C3%AD%C3%B0.jpg access: 30.09.2023)
3. Tommy lieven at Hungarian Wikipedia, Public domain, via Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Noniusz_mezohegyes.jpg access: 30.09.2023)
Figure 11.
1.Barry, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Blue_Roan_New_Forest_with_foal.jpg access: 30.09.2023)
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3.Aljabakphoto, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Wild_horses,_%C5%A0ar_Mountains.jpg access: 30.09.2023)
Figure 12.
Author: EvitaS Source: Pixabay (https://pixabay.com/pl/photos/andaluzyjczyk%c3%b3w-ogier-pre-4960449/ access: 30.09.2023)
Author:Katrina S Source: Pixabay (https://pixabay.com/pl/photos/ko%c5%84-%c5%9bl%c4%85ski-ko%c5%84-%c5%9bl%c4%85ski-%c5%9bl%c4%85zak-2460066/ access: 30.09.2023)