Product-specific colour meanings: A semiotic approach

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The purpose of this study is to contribute to the existing research in the field of packaging and marketing, and shed more light on the product-specific colour meanings. Colour can impart meanings and plays a significant role in impacting consumers' thoughts, feelings, perceptions, and behaviours. Semiotic theories have been developed in different fields, such as language and philosophy, and could provide a basis for understanding colour meanings. However, surprisingly few attempts have been made to use the semiotic concept to describe colour meanings. The current study establishes that a colour meaning framework can be derived in order to provide an understanding of what types of colour meanings are communicated in some product contexts. Existing colour strategies and semiotic theories are integrated. The implications for marketers, designers and researchers are discussed.

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Introduction

There is a long history of fierce debate about the properties and importance of colour in different fields such as philosophy, psychology and art. Most notably Newton and Goethe clashed over the ontology of colour and later there was tension regarding the nature of colour primaries between proponents of trichromatic and opponent-colours theories. More recently, there has been debate over colour symbolism [1-2], the psychological effects of colour [3], and its relationships in elementary forms [4]. Of these, colour symbolism is of particular commercial significance and marketing research acknowledges that colour helps product and brand position [5]. For example, colour can serve to differentiate a brand from its competitors in warehouse supermarkets and online stores that offer similar products, displays, and shopping experiences [6] and this differentiability can play a role in creating and sustaining corporate identities [7-8]. Furthermore, colour is a powerful visual cue for attracting consumers' attention [9] and influencing purchasing decisions [10]. Digital technologies make it easier to use colour creatively in products [6]. Although colour is only one attribute of products and product packaging and does not work in isolation, marketing research emphasises the significance of colour as a communicator of product and corporate messaging [11].

Colour can convey messages concerning a product's attributes, such as quality. One study reported, for example, that blue packaging is perceived as expensive, whilst a transparent packaging is often perceived as low quality [5]. The colour of packaging has also been recognised as an important element in consumers' food choices, often reflecting their expectations of flavour, healthfulness and texture. For example, research has found that orange and dark cream-coloured cups enhance the perception of drinking chocolate's flavour [12], green nutrition labels on the front of a package influence the perception of a product's healthfulness [13], and dessert products in yellow packaging are perceived as soft and creamy [10].

Colour also conveys brand and corporate meanings. Brand meanings are related to consumers' perception of a brand, which is often called the 'brand image' [14]. These meanings are formed based upon what consumers associate with a brand [15-16]. McDonald's simple and strong colours are perceived as dynamic and energetic, whereas Laura Ashley's delicate colours are considered elegant [5]. Some colours become associated with the brand, allowing consumers to recall the specific brand spontaneously; for example, Campbell's red and Progresso's blue [17]. Furthermore, colour assists in establishing and maintaining a company's corporate image [6]. Green often stands for reliable and secure, and it is used by organisations in financial and higher education sectors [18]. To secure a competitive advantage in today's market, companies invest heavily in the visual elements of branding, such as logos, symbols, packaging, and the environment in which the brand appears [19]. Research indicates that, when exposed to a variety of products, consumers depend heavily on product externalities, such as packaging [20]. Moreover, it is reported that in-store stimuli, such as packaging, can increase the probability of an unintended purchase by up to 93% [21]. These facts have brought the visual aspects of packaging to our attention, as these are the aspects that consumers interact with when evaluating a product in a shop [22]. Therefore, packaging design has become a critical element of product and brand communication, to inform and persuade consumers at the point of sale [23].

Despite the importance of packaging, formal studies about colour meanings conveyed in a product category are rare. Fields such as language and philosophy have developed semiotic theories to explain what a sign is. Colour can be considered as a sign that conveys certain physical or psychological properties, yet surprisingly few attempts have been made to use this semiotic concept to describe or study colour meanings [1]. In order, in part, to begin to address this gap in the literature, our paper develops a colour meaning framework by integrating existing colour strategies with the concept of colour semiotics.

The paper is structured as follows. First, a review of prior research on existing colour strategies is presented. Second, a review of prior research on colour semiotics is provided. Third, we establish a colour meaning framework in order to provide an understanding of what messages are communicated by the colour of a product. Both existing colour strategies and semiotic theories are incorporated in this section. Lastly, we discuss implications for marketers, designers and researchers.

Existing colour strategies

In 2007 Caivano and Lopez introduced four colour strategies [18]; following a generic colour code, acting against it (transgression), localising it, and developing marketing-related adaptations. These four strategies are briefly discussed in the following sections.

Generic colour code

A generic colour code strategy refers to using colours that are commonly employed by different products within the same product category (such as hand wash, toilet tissue, etc.) [18]. For example, in the category of milk cartons in the UK, red is used for skimmed milk, green is for semi-skimmed milk, and blue is for whole milk (note that such generic colour codes sometimes vary between different geographical locations). In the washing-up liquid category, a yellow colour is used to indicate a lemon odour, light green indicates apple, red indicates cherry, and orange indicates orange, as shown in Figure 1. This strategy is powerful because people tend to remember these representative colours for familiar every-day objects [24] and our brains use the retained association as shortcuts [12,25]. This strategy can make it easy for shoppers to locate the specific products that they need or want.

Figure 1: Generic colour for milk (left) and washing-up liquid (right) packaging.

The use of a dominant colour in a product category sometimes contributes to the success of one particular brand [19] and also often prompts other brands to follow the packaging colour of the market-leading product. One of the most frequently cited examples is Coca-Cola. The use of red has become synonymous with high-energy soft drinks and competitors, such as Sainsbury's cola and Virgin cola, have copied the use of red for their products (see Figure 2).

Figure 2: Red established by Coca-Cola to indicate a high-energy soft drink.

Generic colour codes are observed in bank logos. Green and blue colours are often related to the ideas of stability and truth in Europe [22] and consequently many banks and financial institutions have sought to take advantage of this association by using these colours in their logos (Figure 3). Note, however, that in Asia red is a commonly seen colour in bank logos which relates to the association of red with good luck in this geographical region.

Figure 3: Generic colour use in bank logos of Europe.

However, sometimes generic colour codes established for one product category can negatively affect another (related) category. In 2006, Nestlé Smarties, which is a popular sugar-coated chocolate brand, changed its previous blue coating to a white one because of consumers' concern over the effect of chemical dyes on children's health. However, white is an established generic colour code for the related category of medicinal tablets, as shown in Figure 4. More than 20 Facebook groups (that included almost 2,000 members) requested a return to the blue sweets [26]. White Smarties were subsequently replaced by blue Smarties (where the colour was created using a natural blue dye derived from seaweed) in the UK in 2008.

Figure 4: Nestlé Smarties blue (left) and white (right).

Another example of the use of a generic colour code performing poorly in the marketplace is Coca-Cola's redesigned white can. In 2011, Coca-Cola launched white cans with silver polar bears to replace their trademark red cans (see Figure 5). This was a temporary change to support the World Wildlife Fund in protecting the polar bear. The white cans were unique and visually appealing. However, the colour change confused consumers due to their similar colour to Diet Coke [27]. This is an example of Coca-Cola breaking an established generic colour code (red for normal coke and white for diet coke) and experiencing an unsuccessful outcome.

Figure 5: Red design established by Coca-Cola (left) and the redesign using a white can (right).

Colour differentiation

A colour differentiation strategy involves the use of different colours than those commonly employed in existing product categories. Differentiation can be defined as creating a unique value for the intended audience [28] and product differentiation is a very well established marketing strategy. In the mid-1920s, General Motors successfully differentiated itself from the competitors (which typically only used the colour black) by introducing a variety of brightly coloured models [29].

A second example where breaking with generic codes can be successful can be found in high-value products such as cosmetics and fragrances. In this product category, breaking an established generic colour code and using a unique colour to represent the brand (to stand out from competitors) can be a successful strategy. Figure 6 shows the Clarins' red and white brand colour in contrast with beauty brands such as Chanel, Bobbi Brown and Jo Malone which use the more generic (and safe) black.

Figure 6: Generic colour (left) and transgression colour (right) in the beauty brand category.

Heinz's green ketchup packaging is a further example of the success of using unexpected colours. Although Heinz is one of the food brands that consider brand colour as an integral visual marketing tool and its brand colours have been largely unchanged – the iconic turquoise of Heinz's baked beans tin for example – Heinz launched green-coloured tomato ketchup packaging for children in 2000 (Figure 7). There were many concerns that children would not like the green colour as they would associate it with vegetables, and green ketchup could also be rejected by adults because green is an inappropriate colour choice for the sauce [30]. However, the customers' response to green ketchup was positive and Heinz announced 23 million dollars in additional profits due to the success of its green ketchup sales [31].

Figure 7: Generic colour (left) and novel colour (right) in the ketchup category.

However, despite the phenomenal short-term success of green ketchup, over time sales dwindled and the product was removed. The generic colour code of red for ketchup is extremely powerful and the green colour was successful in the short-term (with its shock/surprise effect and the connotation with fun); however, once the novelty of the surprise wore off the power of the established generic colour code won.

Although red and yellow are generic colour codes in the fast-food industry, McDonald's (one of the market leaders) introduced a green logo in Germany in 2009 (Figure 8). The aim for this radical colour makeover was to build up a more eco-friendly image in Europe. A new colour scheme for a brand can signify a bold move in business philosophy, target audience, and strategy, as it is often necessary to change every colour scheme for a restaurant or the packaging that is associated with a brand's appearance. The colour change of German McDonald's brought significant growth with the opening of 42 new restaurants that year [32].

Figure 8: Generic colours and McDonald's transgression colour (far right) in the fast food category.

However, sometimes having a colour that is different than the norm causes confusion [33]. For example, Golden Wonder first launched cheese and onion flavoured potato crisps in green packaging and salt and vinegar crisps in blue packaging in the 1960s. Generally, in the UK, crisps in a blue packet have become strongly associated with salt and vinegar flavour, whilst a green packet suggests cheese and onion flavouring. However, Walkers, which is one of the biggest crisp brands in the UK, decided to change the generic colour codes into a green packet for salt and vinegar and a blue packet for cheese and onion in the 1980s (note that there is some controversy over whether Walkers did change colours of whether they have always been different to the other brands). Recently, Golden Wonder claimed that the use of different colours between the brands confuses consumers and requested all manufacturers use the same coloured packaging for both crisp flavours [34].

Figure 9: Generic colours and Walkers' transgression colour (far right) in the crisp category of cheese and onion flavours.

Cultural adaption

Culture-related colour strategy is associated with colour changes when brand or corporate colours are exposed to different cultures or countries [18]. This happens because colour can convey different meanings in various cultural contexts [35]. For instance, red has been thought to symbolise masculinity, fear, and anger in western culture but much more positive ideas (including love and happiness) in Asian culture [5]. This contrast of ideas sometimes leads to colour change in order to convey appropriate messages to consumers in different cultures and markets.

A culturally inappropriate use of colour was made by United Airlines in 2010 [36]. The airline started a new first-class service between Asia and USA and gave white carnations to passengers upon boarding. Unfortunately, white flowers represent death and misfortune in China and many other Asian countries. The airline quickly switched to red carnations, which convey more positive meanings in many cultures. Other companies have changed colours to enable acceptance in specific cultural contexts. For example, the Brazilian company Petrobras includes green and yellow in a clear representation of the Brazilian flag's colours [18]. When the company was introduced in Argentina, they changed the corporate colours from yellow and green to yellow and blue in order to downplay their Brazilian image and integrate a familiar image into a new cultural context involving blue, which appears in the flags of both Brazil and Argentina, as shown in Figure 10.

Figure 10: The Brazilian oil company Petrobras (left) and Petrobras in Argentina (right).

Marketing-related appropriation

Marketing-related colour strategy is associated with giving up a corporate colour and replacing it with other colours to generate positive meanings when an organisation is exposed to different commercial, national, and political environment. The use of a consistent corporate (or brand) visual identity has been stressed in order to deliver a uniform message [37]. Although changing a representative brand colour is a big move used to initiate marketing-related objectives, companies sometimes have to relinquish their colours. Traditionally, football teams adopt particular colours to distinguish themselves from others. The colour choice is generally based on the popularity of the colour, and football fans tend to link certain qualities to colours and the nature of a football team [38]. For instance, as the colour black is generally perceived as powerful [5], football fans may think that the team members with black uniforms are also bold and powerful. Chelsea's football shirt colours for the 2011-2012 season are one example of how their sponsor's corporate colour had to change in the context of soccer [39]. In the case of Chelsea's football shirts, Samsung adopted yellow and black for the team along with their trademark colour blue due to the influence of the yellow logo colour worn by Chelsea. Thus, it is significant to find a confluence between the football team's original colour and the sponsor's corporate colour.

Figure 11: Chelsea FC's shirt for the 2011-2012 season.

Colour semiotics

Colour is a type of physical (or visual) stimulus, and in a semiotic sense, it functions as a sign [1]. A sign approximates something else and has meaning for people [1]. Semiotics is the study of signs, and two primary traditions in contemporary semiotics are associated with the Swiss linguist Ferdinand de Saussure (1857-1913) and the American philosopher Charles Sanders Peirce (1839-1914). Saussure approached semiology as a science that investigates the role of signs, which influence the formation of social meanings. Peirce, on the other hand, used the term 'semiotic', which refers to a 'formal doctrine of signs' [40]. Although Peirce and Saussure were both concerned with the fundamental definition of the sign, in recent times the term semiotics has widely been used as an umbrella term to accommodate the whole field. Saussure's theories were a starting point for analysing signs. He defined a sign as being composed of a signifier (form) and the signified (its meaning). The signifier is the form which a sign takes, while the signified is the meaning conveyed by a sign. Figure 12 shows a linguistic example provided by Chandler (2002); the term 'open' is a sign consisting of the following:

- A signifier (form): the word 'open'
- A signified concept (meaning): that the shop is open for business.

When applying Saussure's model to colour as a visual sign, a specific colour (e.g. black) is a signifier, and colour meaning is the signified concept, such as seriousness or modernity for the black [41], as shown in Figure 13. Thus, the colour meaning includes the connotations that are related to certain colours.

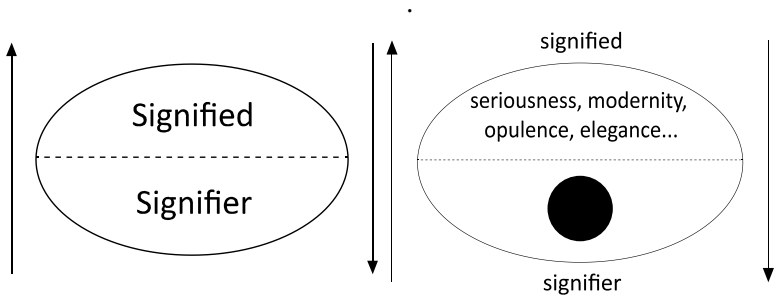

Figure 12 (left): Saussure's model of the sign [40 p15].
Figure 13 (right): Various meanings of black in different contexts.

More specifically, Peirce offered three taxonomies of signs to explain what is presented by a sign, while Saussure did not suggest a typology of signs. Peirce's three elements are icon, index, and symbol [40], as shown in Figure 14. An iconic sign is related to the resemblance between a sign and an object. An indexical sign is linked with a signal, clue, or a symptom that denotes a physical connection between a sign and an object. For instance, a grey sky is a signal that rain may follow. A symbolic sign refers to arbitrariness and conventionality between a sign and an object. As an example, the roman numeral II is an icon (since it literally indicates two) whereas the modern signs of two and 2 to indicate the same number are index signs since they indicate two only by convention.

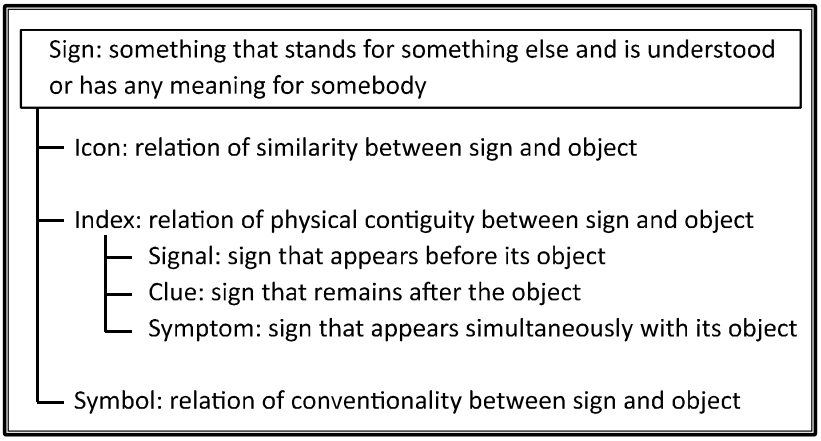

Figure 14: Three types of signs provided by Peirce [1 p391].

Caivano applied Peirce's semiotic theory to colour and introduced three levels of colour meanings that colours can represent [1]. Figure 15 presents an example of iconic, indexical, and symbolic associations for the colour green. Colour as an iconic sign is related to the similarity to the original substance colour. Thus, the colour green is an iconic representation of green grass. Colour as an indexical sign is related to the congruity between colour and object. A green colour is commonly associated with nature [41] and can be an index of naturalness—the more natural the colour of green is, the more natural it looks. The representation of colour is related to the original substance colour or may even be arbitrary. Colour as a symbolic sign is linked to arbitrariness in its meaning. The

symbolic associations of the colour green are related to arbitrary meanings, such as security or reliability [22], which have no relations physically with the colour but instead are articulated socially or culturally.

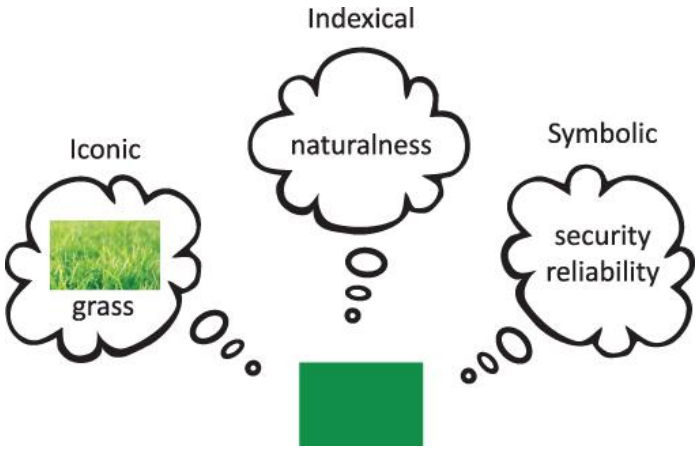

Figure 15: An example of colour associations for the colour green.

Colour meaning framework

Our study focuses on perceived colour meanings in relation to a product category. Based on the existing colour strategies and semiotic theories, we develop a theoretical basis and propose a framework that incorporates the four existing colour strategies with Saussure's and Peirce's semiotic theories.

Existing colour strategies

There are four existing colour strategies: generic colours, differentiated colours, the adaptation of colours in different cultures, and marketing-related colours. Generic colours refer to the use of predominant colours associated with a product category; for example, the use of blue for whole milk. Differentiated colours are adopted to make a specific product's packaging stand out within the product's category. Heinz's green ketchup is a good example of differentiated colour use. Likewise, a brand's trademark colours also exemplify how differentiated colours can draw the consumer's attention in a competitive market environment. Adapting colours in different cultures and marketing-related colour use are associated with colour change, or relinquishing brand colours when brand or corporate colours are exposed to different cultures, countries, or markets.

Colour in semiotics

Caivano applied Peirce's semiotic theory to colour and developed three levels of colour: iconic, indexical, and symbolic [1]. When applying colour semiotics to colour strategies, it should be recognised that some colour meanings are perceived within the context of individual product category. Figures 16-18 present examples of how iconic, indexical, and symbolic colour representations work in packaging colour. The products in these examples are everyday products that can be found in the supermarkets.

Iconic colour: original substance colour

Iconic colours are similar to the original substance colour, as is the case with orange, red and yellow colours from fire, sun and heat [1]. Thus, it is apparent that the yellow colour of a lemon-scented washing-up liquid is derived from the lemon, which is the original substance.

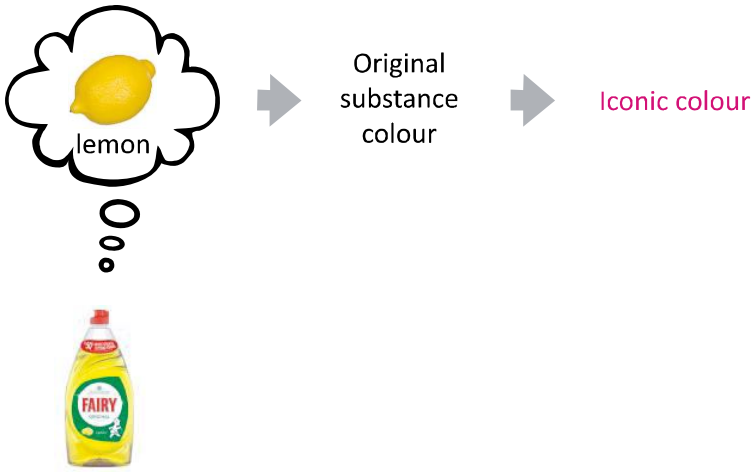

Figure 16: An example of the relationship between original substance colour and an iconic colour in semiotic theory.

Indexical colour: original substance or arbitrary colour

Indexical colours are characterised by incongruity between the colour and the object. Caivano draws on the example of a person's yellowish skin colour as an indexical connection [1]. People might associate more illness when the extent of the yellow colour is associated with the person's skin colour—the more yellowish the person's skin is, the more painful he looks. Similarly, an orange colour may offer a clue to consumers about how fresh an orange is—indexical colour. In other words, consumers might associate more freshness when the extent of the orange colour is associated with the original orange colour. Thus, the indexical colour is related to either the original substance colour or an arbitrary colour.

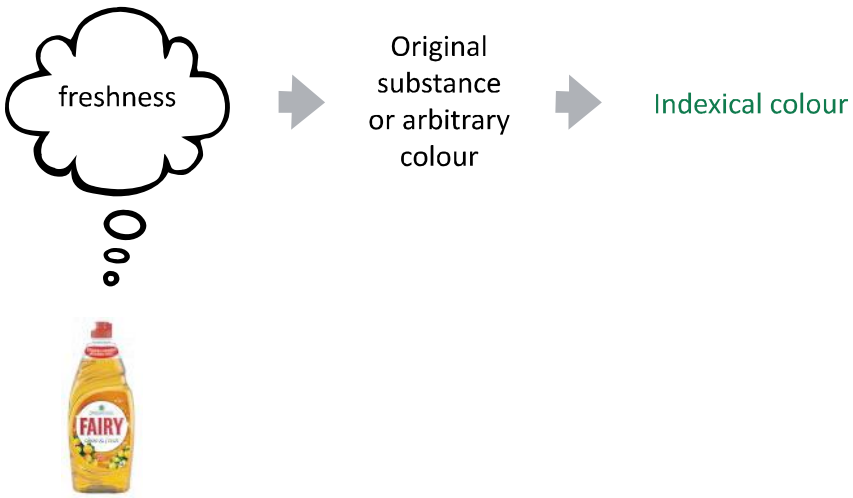

Figure 17: An example of the relationship between original substance colour or arbitrary colour and an indexical colour in semiotic theory.

Symbolic colour: arbitrary colour

Colour as a symbolic sign is related to the arbitrariness in its meaning. For example, traffic lights imply a distinct meaning for each colour: go for green, wait for yellow, and stop for red [1]. Similarly, there is no natural connection between the colours of milk packaging and the milk type. Arbitrary colours are used: red for skimmed milk, green for semi-skimmed milk, and blue for whole milk, as mentioned earlier.

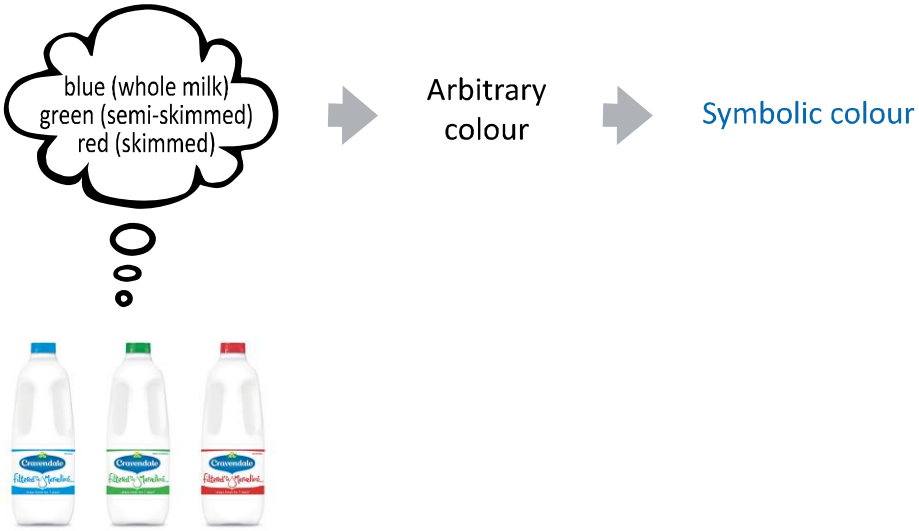

Figure 18: An example of the relationship between arbitrary colour and symbolic colour in semiotic theory.

Four categories of colour communicated in a product category

Figure 19 shows how we used the existing colour strategies and the semiotic theories to develop the colour meaning framework. The framework is composed of two parts: the product part (left) and the consumer part (right).

In the product part, colour is one of many signifiers. Other signifiers include the shape, material and texture of a product. The use of the existing colour strategies is codified, interpenetrated and influenced by consumers [1]. However, from a broad standpoint, culture and marketing-related colour strategies can be a part of a generic colour code strategy or a colour differentiation strategy that generates familiar or differentiated images through the use of colour in different cultural or commercial environments. In a design context, the three types of colour semiotics can be summarised into two characteristics: (1) colour associations derived from the original substance colour, as with all iconic colours and some indexical colours; or (2) colour associations arbitrarily derived, as with other indexical colours and all symbolic colours.

In the consumer part, product-specific colour meanings are signified in relation to the four categories of colours. They are *original substance colour (iconic or indexical colour)*, *arbitrary colour (symbolic or indexical colour)*, *generic colour*, and *differentiated colour*. Figure 20 proposes the final illustrative version of the colour meaning framework.

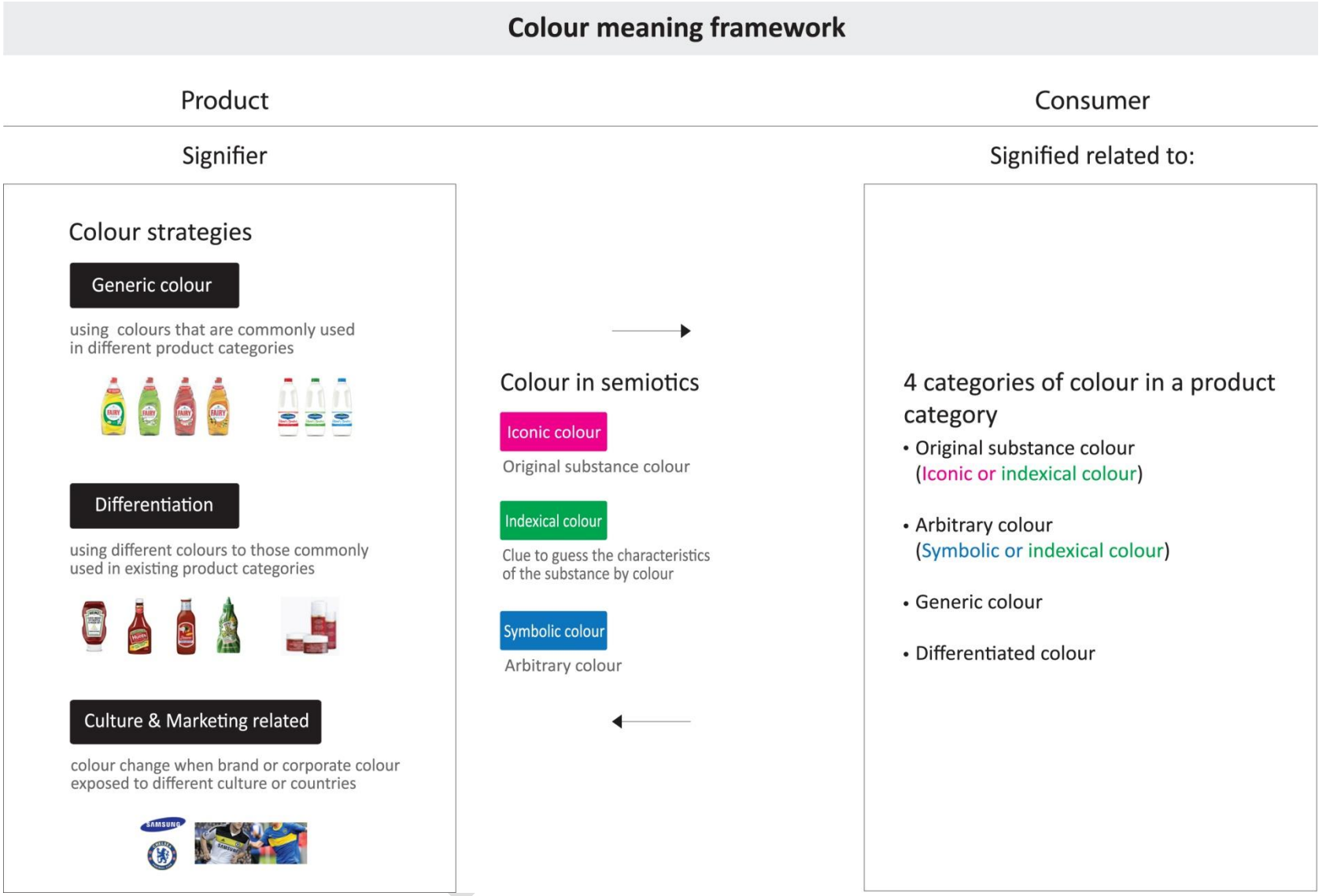

Figure 19: Transitory process of colour meaning framework development integrating practice and semiotic theory.

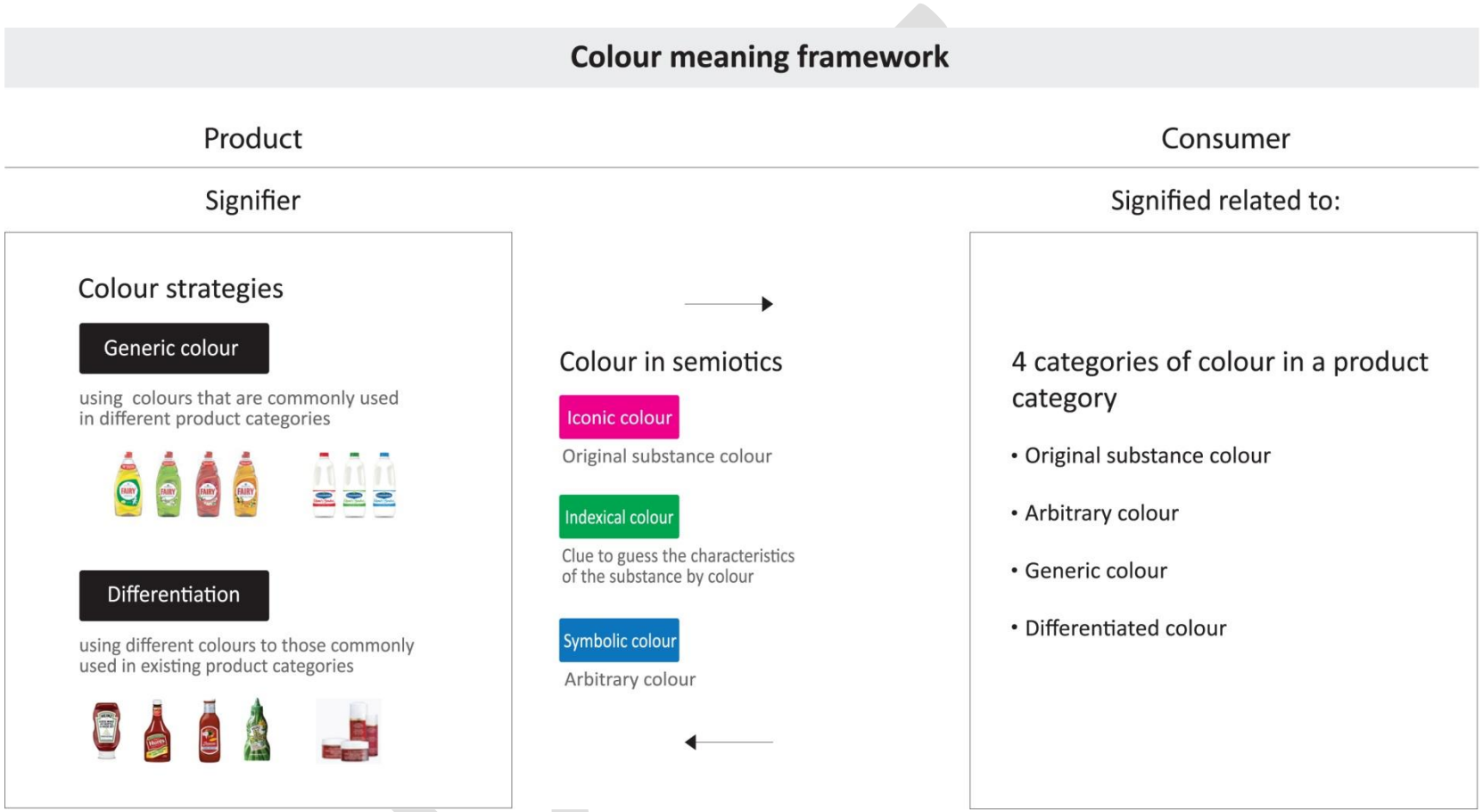

Figure 20: The final illustrative version of the colour meaning framework.

Conclusions

In this paper, a colour meaning framework was established by integrating existing colour strategies and semiotic theories. The framework is a synthesis of the study supported and tested against both secondary and primary research. Moreover, based on the illustrative version of the colour meaning framework, a succinct version of a colour meaning framework in Figure 21 is proposed.

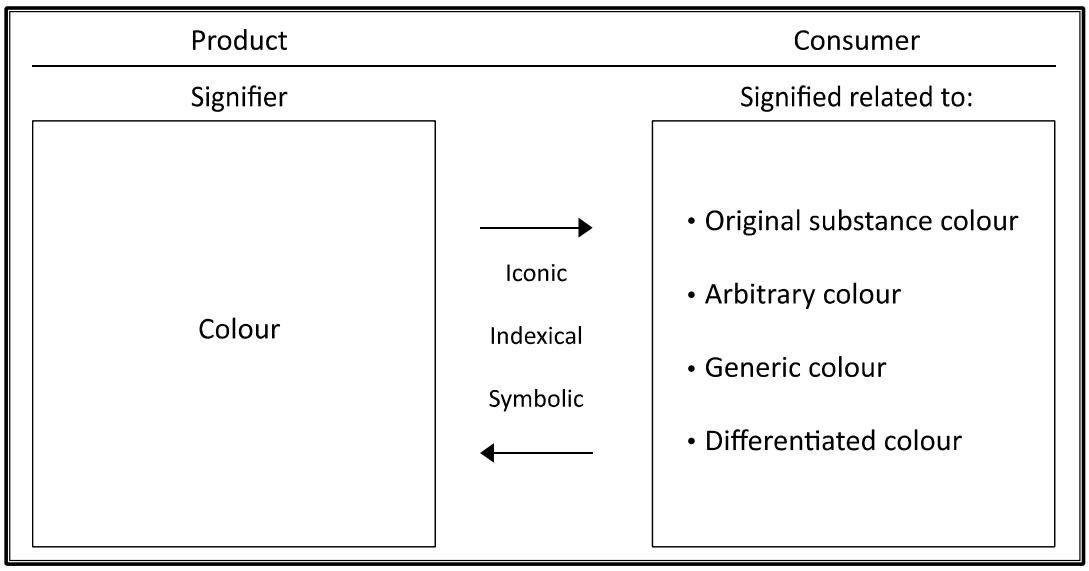

Figure 21: The succinct version of the colour meaning framework.

To illustrate how the framework can be used to classify and describe colour meanings within a product category, Figure 22 shows how a two-dimensional feature space can be constructed from the four colour-meaning categories for crisps. Twenty products (representing five brands) were collected and analysed. A generic colour code is observed across various brands: red for original version, blue for salt and vinegar flavour, light green for sour cream, green for cheese and onion, yellow for cheese, pink for sweet chilli and brown for chicken. The colour uses of red for original, blue for salt and vinegar, and light green for sour cream are arbitrary while yellow, pink, green and brown colours are related to original substance colours of cheese, chilli, spring onion and chicken. In terms of differentiated colour use, as mentioned previously, Walkers sells a blue packaging product for cheese and onion flavour to stand out from competitors while other brand sells green packaging for the same flavour. The contribution of the concise framework supports understanding of colour design practice in an analytic way, which was applied and tested by carrying out a product-specific case study (See Figure 22). No such framework existed prior to this research. Although marketers have long used colour to communicate brand meanings with consumers, and constantly need new tools to deal with colour tasks more effectively and efficiently, it is argued that past studies provide them few guidelines [42]. Moreover, design process includes various strategies, resources, and tools [43]. Given that a considerable range of information is sourced and used throughout the design process, it appears that the efficiency and effectiveness of the design process and its strategy rely predominantly on what information designers and brand managers use. Thus, the developed framework could help marketers

and design professionals to understand the processes of what colour meanings are encoded and decoded by product colour, which is fundamental to understanding how colour affects consumer decision making.

Figure 22: Colour analysis for the current crisps products available in the UK.

Finally, this work frames the use of colour in branding, packaging and product design in the context of semiotics. Colour meaning is often subsumed within the extensive work that has been carried in colour emotion [44-45]. Colours clearly can affect us emotionally [46] (for example, we may feel happier in one colour environment than in a different one) and the visceral nature of colour is part of what makes colour such an important driver for many consumer actions. Nevertheless, it is important to recognise that in many cases there is an information aspect to the effect of colour in addition to, or sometimes instead of, an emotional aspect.

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