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The relationship between color cycles in home furnishings and apparel, 1969–2009

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Abstract

Fashion is visible in many product categories; color can be an important component in consumers' product selection decisions. The current phenomenon of fast fashion suggests color cycles have shortened and overlapped between product categories, however no current research has explored the length or speed of color cycles in the current consumer-centric market. Three research questions concerning apparel and home furnishing furnishings were proposed, what (1) parallel color cycles or trends can be identified; (2) are the comparative lengths of color cycles in apparel and home furnishings; and (3) colors exhibited evidence of a time lag between 1969-2009. Content analysis was applied to colors seen in two interiors and two apparel magazines. Few parallel or sequential trends were observed between apparel and home furnishings. Overall, this research showed that color cycles in these consumer product sectors are complex phenomena that deserve more research.

Keywords: Color, Cycles, Forecasting, Home furnishings, Trends

Introduction

Color is an influential factor in consumers' product selection decisions and has been studied from this perspective for decades (Garber and Hyatt 2003; Middlestadt 1990). It attracts attention and communicates to consumers through brand logos, store lighting, advertising, and packaging (Labrecque et al. 2013). Colors linked to brand identification may have longevity, but product colors are prone to change or potentially cycle over time (Hope and Walch 1990). Typically, forecasts are made based on previous trends and interpretation of the economic, cultural, and social settings of the time (Stansfield and Whitfield 2005). Apparel product developers see color as a crucial aspect of fashion line planning; they report relying on customer and sales information, their own experience, and professional services to inform decisions (Noh and Ulrich 2013). Along with apparel and accessories, color forecasts are regularly used for interior spaces, cars, and even personal technologies. While these forecasts are an integral part in making color decisions, often retailers and designers choose to play it safe to ensure sales of basic or classic products (e.g. the little black dress) (King 2012).

Historic evidence of shifting patterns in dominant color trends demonstrates that the many possible variations in hue, value, and saturation make color a very mutable component of fashion change. Although the concept of fashion change was long considered

only in relation to costume, we know now that fashion-driven change has the ability to touch all of consumers' aesthetic choices (Sproles 1981). Fashion is visually observed as styling characteristics that are popular in a particular time frame, or as a set of trends that have been accepted by an audience when competing choices exist (Brannon 2010). History suggests that fashion change is inevitable. The tricky part for designers, product developers, and merchandisers is forecasting what consumers will choose. In the past, color forecasters have suggested that color trends begin in fashion apparel and eventually spread to other product categories, including home appliances, home interior design products, home exterior products, and automobiles, after 2–3 years (Verlodt 1994). This implies that color trends for different products may cycle at different rates but follow a similar pattern. Becker (2016) noted that patterns may shift due to volatile business environments. For example, in the 1980s, automobile color trends strongly reflected fashion color trends but that did not continue into the 1990s because of the industry's financial difficulties.

To address the absence of empirical research and to support forecasters' assumptions of cycles and socioeconomic and cultural influences, Stansfield and Whitfield (2005) investigated changing color palettes in products for the home during the 20th century. They found changing patterns, but mentioned the concept of fashion only as a post-World War II product of marketing and consumerism. Although there is a body of literature on cyclical fashion change in dress and appearance that documents evidence of cycles or patterned trends, none incorporates the color component. Linton (1994) observed that color cycles in apparel fashion were shorter (lasting approximately 2 years) than in interiors (7–12 years). Even if those observations 2 decades ago were based on empirical research, today's shortened product development times in apparel, exemplified by fast fashion goods (Miller 2006), imply that older assumptions about patterns of change may not be as relevant today. The quickened pace of fast fashion demonstrates the trickle-across theory of fashion diffusion, meaning that new fashions spread horizontally, simultaneously affecting consumers who lead and follow in new fashion adoption (Brannon 2010). In an era of rapid communication, this could translate to rapid diffusion across product categories. Given the importance of product colors, scarcity of empirical research into cyclical changes in color, and connections drawn between what we wear (apparel) and our personal living space (home interiors), the purpose of the research reported here was to explore, through documentation and comparison, color cycles in apparel and residential interiors. Additionally, the research sought to analyze the behavior of individual hues in apparel and home furnishings.

Literature review

Trends, cycles, and color

The terms trend and cycle are sometimes used interchangeably, but Brannon (2010) differentiated trends as fashions that are one directional (having increasing or decreasing visibility or usage) and cycles as fashions that rise and fall in acceptance; cycling implies reoccurrence. Sproles (1981) noted that fashion cycles are the most distinctive product life cycle and suggested that they could be observed in two different time frames—(1) long, continuous rising and falling patterns crossing many years and marking the evolution of one style to the next, or (2) short runs of acceptance of particular styles in brief

periods of time. Whether long or short, a fashion cycle is conceptually presented as a bell curve graphic (Brannon 2010; Sproles 1981) to mark an introduction, rise, summit or plateau, and decline. Graphically, the prototypical cycle's beginning and end depict a minimal presence of the item or characteristic rather than a complete absence (see, for example, Brannon 2010: 113).

In apparel, color preferences and personal attributes have had some study (Radeloff 1991; Lind 1993). The broader patterns of changing color palettes have only been the subject of limited research in interior design. Oberascher (1994) investigated interior living space colors between 1972 and 1992 and concluded that cyclical behavior was exhibited. He described a seven stage pattern; each stage was characterized in some way by chromatic or achromatic degree (hues versus white to black), value (lightness to darkness), and/or intensity (muted to saturated hues). The final phase was characterized by one hue, purple. Phases spanned 2–4 years.

Oberascher's (1994) research documented what he believed to be one full cycle with seven stages. Based on previous German studies, he thought repetition of such cycles to be probable but not precisely predictive. Applying Sproles' (1981) differentiation of short and long cycles, each of the seven stages could be viewed as its own short cycle. Stansfield and Whitfield (2005) argued that Oberascher's 20-year study period was too short to conclude a cyclical pattern. Their research used a wide range of primary sources to explore for patterns in residential interior colors over 100 years organized into decades. They concluded that predominant hues varied from decade to decade, showing variability in value and saturation. Although there were repetitions of hue domination, Stansfield and Whitfield (2005) concluded that no regular, repeating cyclical pattern was evidenced. More frequent changes were observed in the second half of the century. They also noted interior products becoming more fashion-oriented, but did not find interiors directly influenced by apparel fashions.

Fashion cycle theory and research

The process of fashion change is a continuous evolution without a destination. New fashions are rarely a sudden or extreme change from the preceding style (Young 1937). Fashion theory considers the motives that prod consumers into revising their tastes and preferences (Robinson 1958). Once style characteristics have receded and become the past, they may become fodder to inspire a new trend and cycle back into acceptability (Brannon 2010). Fashion cycle theory developed around the idea of long and recurring cyclical patterns in women's clothing (Kroeber 1919; Richardson and Kroeber 1940; Young 1937). The concept of stylistic comings and goings contributed the analogy to a pendulum swinging between an extreme, moderation, and another extreme (Robinson 1958).

Kroeber's (1919) seminal study was the first systematic research to attempt identification of apparel fashion cycles, which he chose as a surrogate for broader cultural patterns. Kroeber (1919) found that length and width proportions in dress designs changed slowly and regularly. Young (1937) explored his theory with a different, more qualitative method applied to women's dresses. She concluded that just three central fashion silhouettes had sequentially succeeded one another approximately every 30 years over the

previous two centuries, and hypothesized that this pattern resulted from there needing to be adequate time to pass for the oldest look to appear new again.

A methodological and time span expansion of Kroeber's 1919 study (Richardson and Kroeber 1940) concluded that fashion's swing from one extreme to another took 50 years. Richardson and Kroeber (1940) noted two types of design change in dresses—short term details that differentiated year-to-year variations, and foundational characteristics that exhibited minimal annual change. Forty years later, Lowe and Lowe (1982) built a mathematical model of stylistic change based on Richardson and Kroeber's (1940) data. Despite finding some analytical flaws, they supported Richardson and Kroeber's (1940) major points concerning fashion change in women's dress. Applying new analyses, Lowe and Lowe (1982) concluded that what had appeared to be random change in fashion was not random; rather, it incorporated patterns. They conceptualized styles as an equilibrium system that structurally changes based on movement from one equilibrium point to another.

Postulating that fashion change transcended product type, Robinson (1958, 1976) ventured away from women's attire to study stylistically patterned change, offering observational evidence of shifts in automobiles, home appliances, and architecture (1958). Robinson emphasized the inevitability of fashion change. His 1976 study of men's facial hair over 100 years demonstrated patterns that nearly paralleled Kroeber's (1919) dress findings.

Fashion cycle studies, commonly of women's clothing, completed over the last 3 decades have applied methodologies similar to and diverging from Kroeber's benchmark. Using content analysis, Belleau (1987) found three of six dress characteristics to show cyclical movement over 120 years. Balkwell and Ho (1992) duplicated Kroeber's (1919) and Richardson and Kroeber's (1940) methods to compare cyclical variations between US and Taiwanese dress. They and Curran (1999), who used European magazines from 1954 to 1990, found that skirt lengths exhibited the clearest patterns. Applying different methods, Docherty and Hann (1993, 2000) concluded there was little if any evidence of trends in skirt length data for a comparable period.

Aside from Robinson's (1976) study, very few researchers have examined stylistic changes in non-apparel products. Ulrich and Lee (2008) studied 50 years of floor covering variations and concluded, based on analysis of graphed incidence patterns, that there were both one-directional trends and short and long term cycles observed as 'normal' or bell shaped curves, as well as flattened or 'classic style' (Brannon 2010) curves. In sum, most of the fashion cycle literature going back nearly a century makes the case for patterned, if not cyclical, stylistic change. This, together with the dearth of empirical research into patterned behavior in product colors, contributed to the development of the following research questions for the period 1969–2009:

1. What parallel color cycles or trends in apparel and home furnishings can be identified?
2. What were the comparative lengths of color cycles in apparel and home furnishings between 1969–2009?
3. What colors exhibited evidence of a time lag in the patterns of color change in apparel and home furnishings?

Methods

Color variations are described using the terms hue, saturation, and value (Hope and Walch 1990). Hue is the identity of a color group, e.g., red, which also has a variety of named variations, e.g., salmon, fuchsia, and maroon. Saturation refers to the intensity or clarity of a color, and value is any version's lightness to darkness. For this research, content analysis was used to identify dominant colors (yellow, orange, red, purple, blue, green, brown, gray, black, and white) found in pictures of apparel and home furnishings in two fashion magazines and two home decorating magazines. (Although white, black, and gray are not considered hues, they were for the purpose of this study). Although value and saturation are important components of color fashion change, incorporating them in addition to hue in directly comparing two product categories was judged to be too complex to be fruitful. Additionally, Stansfield and Whitfield (2005) found that dominant hues did differ from decade to decade.

Content analysis of visual evidence in publications for the consumer market has been the common methodology applied to studies of stylistic change. Examples include apparel fashion magazines (e.g., Balkwell and Ho 1992; Belleau 1987; Docherty and Hann 1993, 2000), interior magazines (Ulrich and Lee 2008), newspapers (Robinson 1976), and mail order catalogs (Curran 1999). *Better Homes and Gardens*, *Architectural Digest*, *Cosmopolitan* and *Vogue*, were chosen for this research for the following reasons: (a) they had an established presence in the consumer marketplace based on length of time in circulation, readership profile and distribution; (b) *Architectural Digest* and *Vogue* were linked to more fashion-forward or high end consumers, and *Better Homes and Gardens* and *Cosmopolitan* targeted a broader mass market audience; and (c) all four were consistently available primary sources. The period 1969–2009 was identified because it incorporated Oberascher's (1994) color research, and nearly all magazine issues were available for viewing in the same library space. Time periods in cycle research have ranged from 20 years (Balkwell and Hann 1992; Oberascher 1994), to 36–50 years (Curran 1999; Docherty and Hann 1993; Ulrich and Lee 2008), and to more than 100 years, sometimes of necessity using variable sources (Belleau 1987; Richardson and Kroeber 1940; Robinson 1976; Stansfield and Whitfield 2005; Young 1937). Thus, a 40-year span fit with patterns in the literature.

Data were collected by assigning magazine pictures to one of the ten hues, identified using the Pantone color system. The range of Pantone numbers designated for each hue and criteria for picture selection was specified by the primary researcher in consultation with four apparel and interior design faculty. Each member independently viewed nine home furnishings and apparel pictures from the selected magazines and identified that either the picture did not have a clearly dominant color or what the dominant color was. Discussion of the pictures' characteristics led to refinement and finalization of the criteria for choosing pictures from the interior magazines:

1. Interior pictures had to represent a living space, defined as a living room, dining room, great room, family room, bedroom or kitchen; be at least one-fourth of the page; and clearly represent one prominently dominant color.
2. Apparel pictures had to include a fully clothed body form; accessories-only pictures were excluded.

Table 1 Color assignments for hues from pantone color system

Color	Index range
Yellow	1–11
Orange	12–56
Red	57–88
Purple	89–124
Blue	125–165
Green	166–224
Brown	225–230
Gray	231–239
Black	240–243
White	244–246

3. A color was considered to be dominant if at least one of the following conditions was met: (a) the color family was represented in at least 50 percent of the items being evaluated in the picture (excluding metal accessories); and/or (b) was used the most consistently throughout the interior space.[1]

The group then discussed each picture to ensure that data collection by the primary researcher would proceed with consistency in interpretation. During data collection, Pantone color cards were used to assign colors. Specifications for selecting color ranges were developed by the researcher and then presented to four faculty members who were specialists in the area of apparel design and merchandising and interior design. The Pantone color system was used to identify the hues. The color system is numbered and contains seven different variations on each index; these may represent a different saturation or value of the color. Under each color there is a six-digit number. The first two digits represent the lightness of the color; the second two represent the hue, and the last two are the chroma of the color. The researcher tentatively divided all Pantone color index cards into the 10 color families. The advisory committee viewed and discussed the range of cards specified for each color. Some adjustments to the dividing lines between colors were arrived at through discussion by the committee except for blue and green. The color cards were shown to two additional design faculty, and the decision of the majority of the six faculty was accepted. Table 1 shows the range of Pantone color index cards assigned to a particular color.

Picture sampling was purposive. September and April issues were targeted because they represent seasonal change, and September issues in fashion magazines have more advertisements than in any other issue. A minimum of 20 and maximum of 32 pictures per product category per year were selected. The first eight pictures matching criteria in each of the issues were selected for analysis. No fewer than five were chosen if eight appropriate pictures were not available.[2] Data were collected from 80 issues each of

[1] One example of a home interior that exhibited a dominant color was an observed kitchen (Architectural Digest 1989). The cabinets, appliances, countertops, flooring, and walls were all white, but the barstools and dishes were not white.

[2] Although early issues of *Better Homes and Gardens* and *Cosmopolitan* had many black and white photographs, the choice of color pictures was adequate to meet research criteria.

Vogue, *Better Homes and Gardens*, and *Architectural Digest* and 75 issues of *Cosmopolitan*; 2260 pictures were chosen. Fifty-one percent were from *Cosmopolitan* and *Vogue* and 49 percent from *Better Homes and Gardens* and *Architectural Digest*. All available issues were viewed in the same library room with consistent lighting except for 26 years of *Cosmopolitan*, which were viewed at a different library due to unavailability at the main library.

Frequencies were calculated for each color family for each year for apparel and home furnishings. Because numbers of apparel and home interior pictures collected each year were not precisely equal, the counted numbers of each color family were converted into percentages of the total number of pictures viewed for each year. The actual incidence of pictures (frequency and relative percentage) by color and product category was calculated and ranked according to the percentage incidence. Incidence percentages were graphed for each color with one line for home furnishings (HF) and one for apparel (AP) to facilitate visual analysis and comparison.

Results and discussions

In the description of the findings, the terms 'incidence' and 'level' is used to indicate high and low points in observations of images in which the given color was dominant. The overall color incidences showed more differences than similarities between HF and AP. When ranked from first to tenth according to percentage of overall incidence, the only parallel ranking between HF and AP was for blue, which was third in overall incidence for each. The rankings and percentage of overall incidence (presented as HF/AP) were:

1. brown (25%)/black (19%).
2. white (20%)/red (17%).
3. blue (12%)/blue (14%).
4. green (11%)/brown (13%).
5. yellow (10%)/purple (10%).
6. red (9%)/white (10%).
7. black/(4%)green (5%).
8. orange (3%)/gray (4%).
9. purple (3%)/yellow (4%).
10. gray (3%)/orange (3%).

Figures 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 respectively display the graphed results for each of the colors.

In comparing HF and AP graphed patterns for all of the colors, few parallel trends or cycles were exhibited (RQ1). A graphed pattern was considered to be a cycle if there was a visible rise and fall beginning and ending at the 0–5% level; within said cycle, there could be some fluctuations and more than a single peak. A 5% level was specified because it represented a count of at least one; in theoretical fashion cycle depictions, the beginning and end show slightly above zero (Brannon 2010). The clearest examples of parallel or nearly parallel completed cycles were seen for orange (1979–1981, 1990–1992, 1995–1997), red (1978–1980, 1994–1996), blue (1994–1997), brown (1989–1991), and white (1974–1977). These were short (2–3 years) in duration. A trend was identified

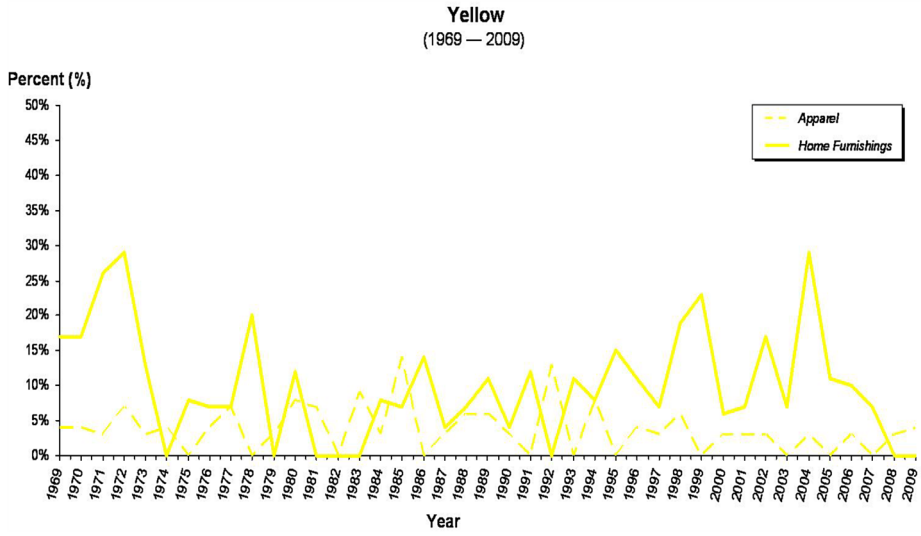

Fig. 1 Yellow: incidences of yellow in home furnishings and apparel

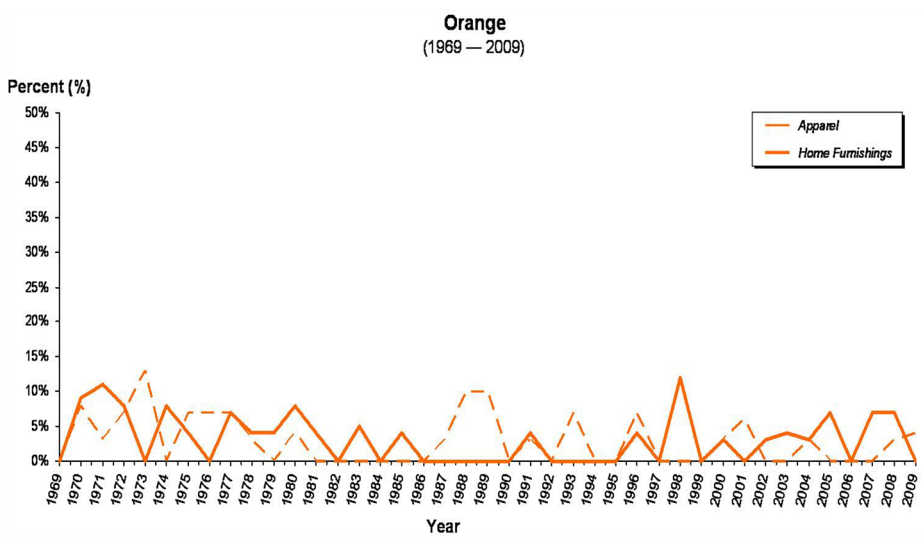

Fig. 2 Orange: incidences of orange in home furnishings and apparel

as rising or falling directional change (Brannon 2010). Most colors periodically showed similar upward or downward trending patterns or related but not identical peaks of incidence in HF and AP. However, all colors also exhibited instances of opposing trends or opposite peaks and lows between HF and AP. Some colors (e.g. orange, purple, and gray) had periods when they were observed in HF but not at all in AP, or vice versa. Black in AP trended higher with rising peak heights through the 40 years while it was not observed as consistently or as much in HF.

Overall, cycle lengths ranged from 2 to 27 years (RQ2). In HF and AP, colors with relatively higher total incidences exhibited longer cycles. White had the longest cycles in HF (27 years) and AP (at least 24 years). In HF, yellow (15 years) and brown (at least

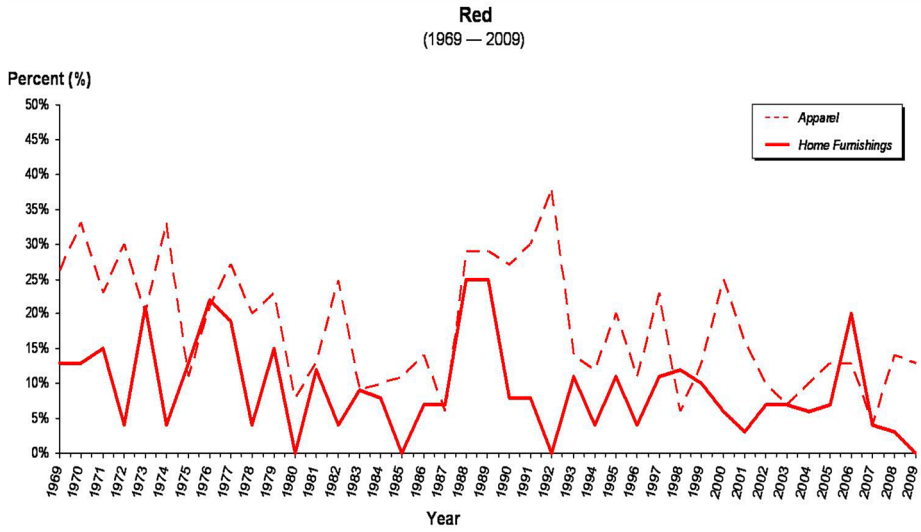

Fig. 3 Red: incidences of red in home furnishings and apparel

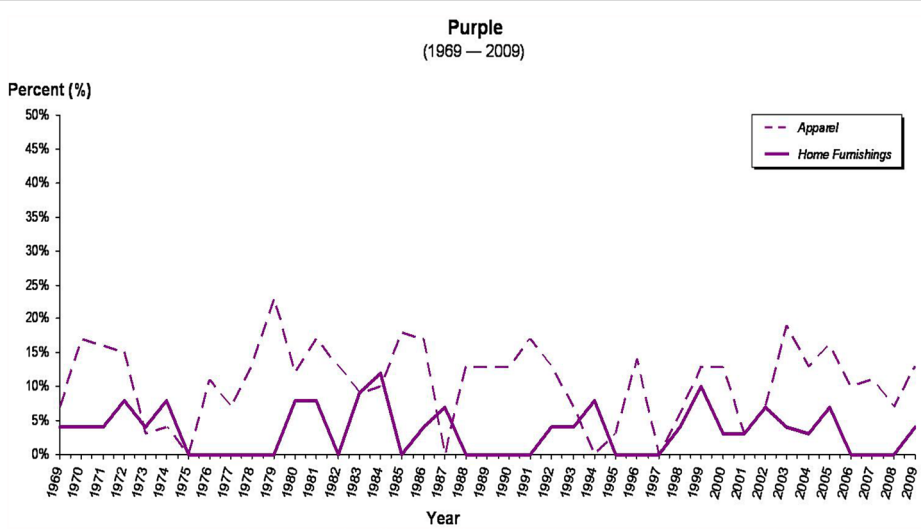

Fig. 4 Purple: incidences of purple in home furnishings and apparel

25 years) were the next longest cycles; in AP, red (38 years), purple (12 years), and black (at least 19 years) were the next longest. Lower incidence colors had the shortest cycle lengths. Gray (HF) and orange (AP) cycles did not exceed 5 years and often were just 2 years. In both HF and AP, cycle lengths varied within each color; blue and green each had a mix of short, medium, and long cycles. The ranges of cycle lengths in each category by color follow. (A^+ sign indicates that a cycle apparently began before 1969 or was not finished in 2009.)

Yellow: HF (2–15 years), AP (2–6^+ years).
Orange: HF (2–6 years), AP (2–5 years).
Red: HF (2–8 years), AP (until 2007 remained above 5% level and up to 35–40%).

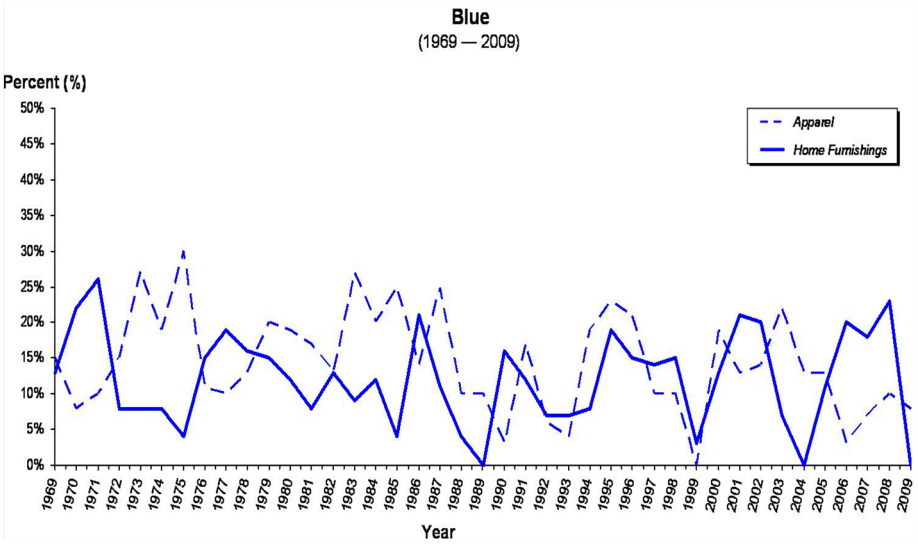

Fig. 5 Blue: incidences of blue in home furnishings and apparel

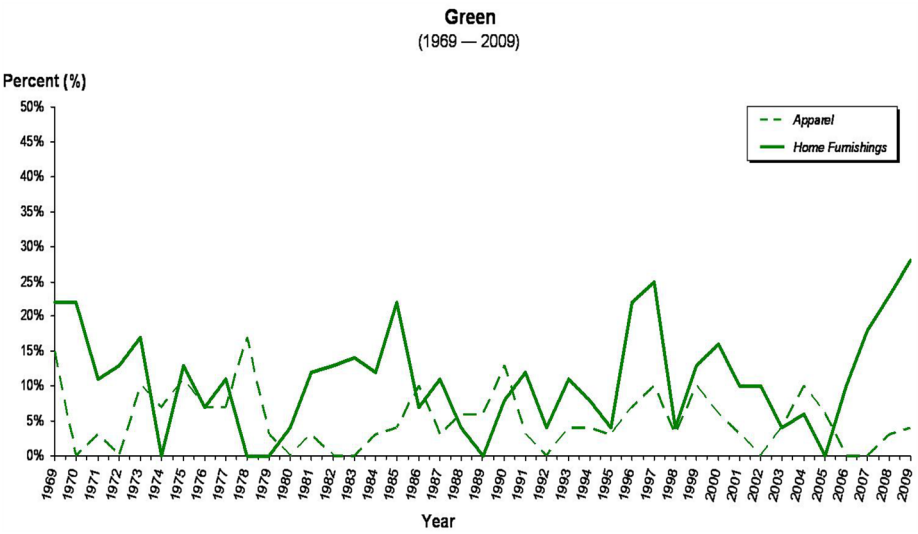

Fig. 6 Green: incidences of green in home furnishings and apparel

Purple: HF (1^{+}–6^{+} years), AP (3–12 years).
Blue: HF (4–10 years), AP (3^{+}–21^{+} years).
Green: HF (2–10 years), AP (1^{+}–10 years).
Brown: HF (5^{+}–25^{+} years), AP (2–10^{+} years).
Gray: HF (1^{+}–5 years), AP (2–4 years).
Black: HF (1^{+}–6) years), AP (3^{+}–19^{+} years).
White: HF (2^{+}–27 years), AP (5^{+}–24^{+} years).

No clear, overall pattern of change in color cycle lengths was found for the period. HF cycles lengthened in yellow, purple, and brown; no HF colors appeared to trend towards

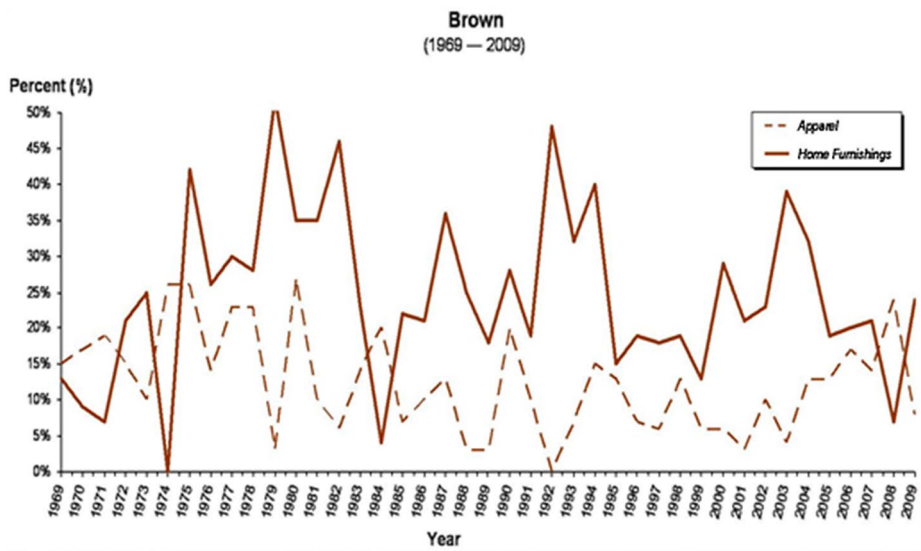

Fig. 7 Brown: Incidences of brown in home furnishings and apparel

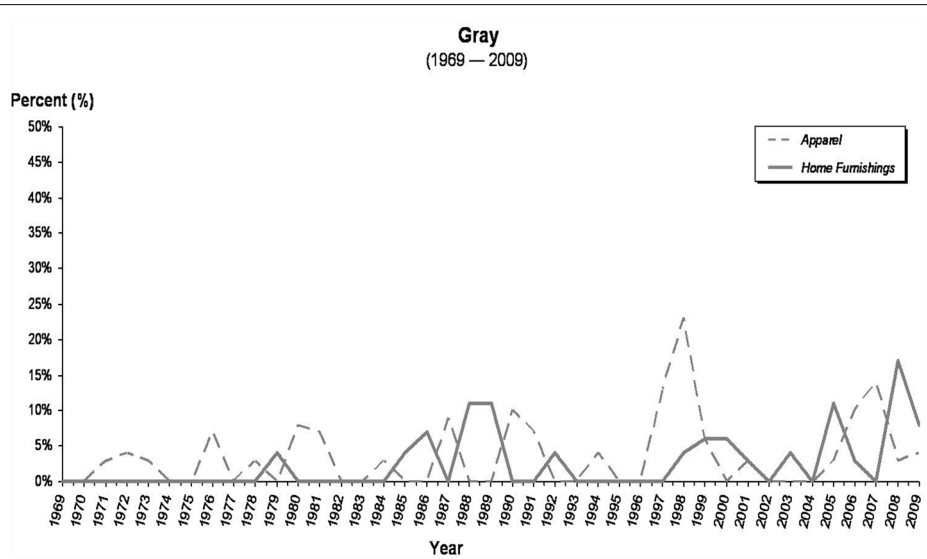

Fig. 8 Gray: incidences of gray in home furnishings and apparel

shorter cycles. AP cycles lengthened in black but shortened in orange, and blue. Orange in HF and red in AP stayed relatively the same in cycle lengths. In all other cases, cycle lengths fluctuated.

To assess the graphs for time lags between HF and AP (RQ3), the timing of the rise of cycles was compared, and a lag could be observed for most colors. The cycles or trends in colors that had a notably higher incidence in one category often appeared to be the precursors for cycles in the other category. AP seemed to lead HF cycles for red, purple, and black, and HF cycles appeared to predate AP for brown, white, and green. However, AP blue and gray cycles, as well as HF orange cycles, seemed to be precursors for the opposite category even though incidences were not different, and yellow showed no

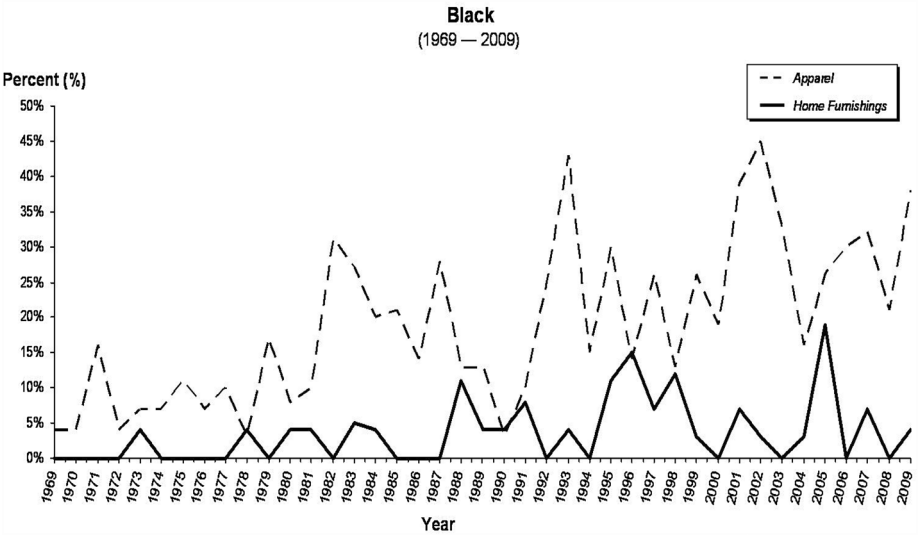

Fig. 9 Black: incidences of black in home furnishings and apparel

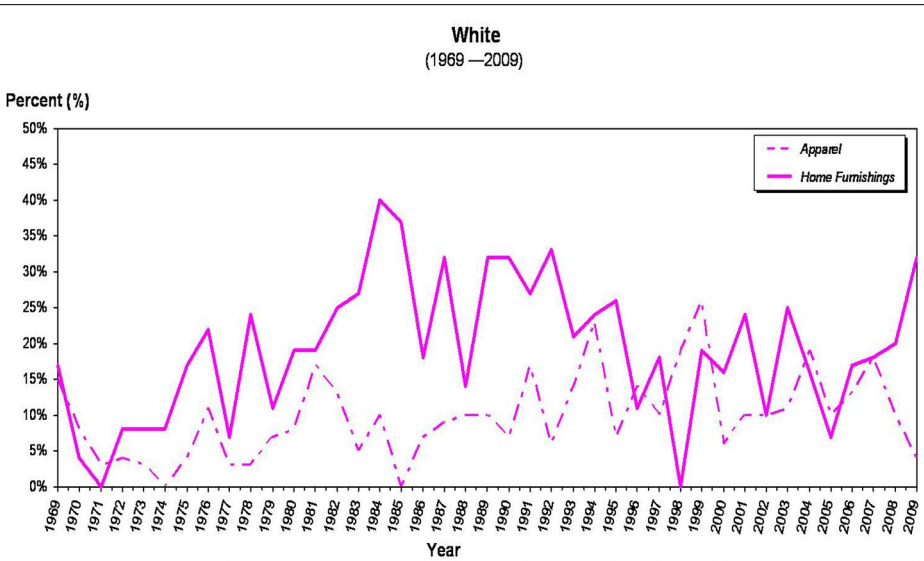

Fig. 10 White: incidences of white home furnishings and apparel

pattern one way or the other. Thus, for all but one color, time lags were suggested, but there was a nearly even split between which product category led the other.

Conclusions and implications

Historically, scholars have researched fashion cycles (mostly in women's clothing) in terms of their existence and styles' recurrence (Belleau 1987; Kroeber 1919; Lowe and Lowe 1982; Richardson and Kroeber 1940; Robinson 1976; Young 1937) and comparatively between countries (Balkwell and Ho 1992; Curran 1999). Because of practicing forecasters' assumptions about the influence of colors in one product category on another (A Source 1985; Becker 2016; Linton 1994; Verlodt 1994) and the dearth of

empirical research on fashion change in color (Stansfield and Whitfield 2005), this study compared the relative lengths, patterns, and timing of cycles or trends in HF and AP colors in terms of 10 hues (regardless of saturation or value).

Results confirmed and added to the literature on the existence of measurable color cycles in AP and HF. Using the broad perspective of hue, a wide range in cycle lengths was observed and led to the authors' concluding differentiation of three length categories: short (4 years or less), medium (5–9 years), and long (10 or more years). Thus, excluding cycles that appeared to start before 1969 or end after 2009, 70 short, 28 medium, and 11 long cycles were identified. The range of cycle lengths was similar for HF and AP, contradicting Linton's (1994) assertion that AP cycles were shorter than HF. The time frames were similar to those found by Ulrich and Lee (2008), who reported bell-shaped cyclical patterns ranging from 7 to 21 years for different floor covering types and some shorter cycles existing within longer term trends. Our study also observed short cycles within the long cycles of some colors (e.g. red in HF and black in AP). Although conclusions on the lengths of cycles in this study cannot be broadly generalized, results added new specificity to the conceptual descriptions of short to long cycles by Brannon (2010), Sproles (1981), and Sproles and Burns (1994).

Depending on the particular color, over the course of the 40-year study period, cycle lengths increased, decreased, remained relatively consistent, or fluctuated in length. Table 2 provides key highlights of findings in AP and HF by color. A single decreasing or increasing trend across all colors could not be concluded. Thus, the idea that fashion is generally moving faster now than in the past, as illustrated by the fast fashion phenomenon (Miller 2006), was not consistently substantiated for color across our findings. Perhaps that could be shown for color fashions if the perspective on color was expanded to study more than 10 hue families, such as looking at secondary and tertiary hues, as well as variations in value and saturation. The short cycles within long ones may have reflected such variations. However, the finding that cycle lengths trended longer for some colors (yellow, purple, brown in HF and black in AP) suggests that the rhythm of fashion change is not as predictable as early cycle researchers concluded (Kroeber 1919; Young 1937) and may not be as perfectly inevitable as Robinson (1958) avowed. At any time, fashion change is subject to varied influences (Nystrom 1928) and may demonstrate unpredictable changes as a result of this influence. Becker (2016), a practicing forecaster, recently noted that many factors can interrupt color trend predictions, causing them to be neither linear nor cyclical. Although our research did not explore possible influencing factors, results coincide with Nystrom's and Becker's observations in that actual color adoption in HF and AP did not follow consistent and related linear or cyclical paths.

Based on his own and previous research, Oberascher (1994) concluded that colors used in architecture and interior spaces did evolve in a cyclical pattern characterized by hue, saturation, value, and combinations thereof. The methodological specifications of the study reported here, which were governed by the goal of comparing two product categories using 10 hues, predetermined that findings could not be compared to his described recurring patterns. The comparative intent and 40-year period dictated that a research question on recurrence not be asked. However, visual observation of graphed patterns hints at recurrent cycles, particularly for colors with relatively more short to

Table 2 Findings highlighted by color for apparel and home furnishings

Color	Highlights
Yellow	Observed more frequent cycles in HF than AP Multiple periods of disappearance in AP and HF Short cycles in AP and medium cycles in HF (longer cycles toward the end of the period)
Orange	Similar observations for AP and HF Multiple short cycles and a few medium length cycles Sometimes exhibited behavior similar to a fad with clear cyclical patterns
Red	Only two observed cycles in AP, dropped below 5% only once Sometimes exhibited behavior similar to a classic in AP Short and medium length cycles observed in HF
Purple	Observed cyclical behavior in AP and HF Frequent periods of disappearance in HF Cycle lengths increased over time in HF but decreased in AP Data suggested cycles occur first in AP then HF
Blue	Similar observations in AP and HF, ranked 3rd in incidences for both Similar cycle length ranges—short, medium, long Few periods of disappearance in both categories
Green	Observed almost twice as many incidences in HF Frequent instances of disappearance in AP Observed a time lag between AP and HF, data suggested cycles occur first in HF then AP
Brown	Highest incidence of all HF colors Sometimes exhibited behavior similar to a classic in AP and HF Cycles were more frequent and shorter in AP Data suggested cycles occur first in HF then AP
Grey	Similar observations in AP and HF Exhibited cyclical behavior for both with frequent periods of disappearance Sometimes exhibited behavior similar to a fad with clear cyclical patterns Data suggested cycles occurred first in HF then AP
Black	Highest incidence of all AP colors Frequent periods of disappearance and low incidence in HF Exhibited behavior similar to a classic in AP
White	Few periods of disappearance in AP and HF Exhibited behavior similar to a classic in AP and HF Data displayed some parallel patterns

medium cycle lengths, suggesting a possible contradiction of Stansfield and Whitfield's (2005) conclusion that there was no evidence of regularly repeating cycles in color.

In HF and AP, colors having the highest overall incidence were the ones that tended towards the longest and therefore fewest completed cycles. Colors with shorter cycles typically had more of them. HF brown, AP red and black, and HF and AP blue and white all had long cycles or lengthy fluctuating continuity; their patterned behavior could exemplify classic fashions (Brannon 2010). Ulrich and Lee (2008) found one category of rug surface (average height cut pile) could be characterized as a classic in comparison to other surfaces that showed cyclical or trending patterns (shag, looped styling). Colors with overall lower incidences (e.g., orange, gray) had more frequent periods of disappearance. Although colors are not generally cited as examples of fads, the short cyclical patterns and gaps in appearance of orange and gray marked them as something similar to that.

Some colors' cycles demonstrated a mixed pattern of bouncing back and forth between short and medium lengths. Short cycles might follow long ones, suggesting that product developers might have been ready to move away from a color before consumers were, or that there was a brief interlude until a different version of the color was featured again. This could be explored in future research by studying more color variations. Had there

not been the goal of directly comparing HF and AP, the jagged peaks and valleys of the graphed patterns could have been reduced by plotting 3 year averages (Richardson and Kroeber 1940; Ulrich and Lee 2008), achieving a smoother sense of cycles' shapes and lengths.

Overall, there was little evidence of clearly parallel patterns of change between HF and AP colors. The data as a whole also did not conclusively support the idea of a time lag between a color cycle starting in apparel and then moving to home furnishings (A Source 1985; Verlodt 1994), or vice versa. The case to be made for the appearance of a color in one category subsequently influencing its appearance in the opposite category was best implied for colors demonstrating much higher incidence in one product category than the other. Little clear or consistent evidence of a time lag in patterns between categories could be observed for half of the colors (yellow, orange, blue, gray and white).

Although we did not seek to identify different colors as being dominant in HF or AP, findings clearly showed that for some of the colors. Blue was the only color with similar incidence in both, suggesting equal importance in HF and AP. Orange and gray had low incidence for both categories. Color preference in both what one wears and one's home environment could illustrate Nystrom's (1928) concept of a dominating ideal held by large numbers of people and therefore influencing fashion. Certain colors could be perceived by a majority as what they want to wear on their bodies while others are what they want to view in their spaces. Based on the data (see Table 2), it can be inferred that consumers perceive black and red more as AP colors and brown and white more as HF colors.

Those wishing to understand, interpret, and apply color cycles in apparel and home furnishing products as well as those interested in exploring fashion cycle theory can take something from this research. The implication for the design and selection of products is that the length of cycles is not necessarily the same or similar with different colors or between home furnishings and apparel. Some colors seemed clearly more fashion-driven because they had shorter cycles and could disappear entirely for consecutive years. Other colors seemed to be classics because of their constant or near constant presence. The literature on fashion color cycles was expanded with a clear conclusion that they are not simple phenomena. With different colors having a greater or lesser presence and shorter or longer cycles in apparel and home furnishings, and the study limited to 10 hue families, enough parallel or similar patterns of change were not discerned to support substantive forecasting guides. However, the key findings by color highlighted in Table 2 could be insightful for product developers.

Researchers interested in the crucial component of product color could move ahead by studying the color cycles of, for example, smaller categories of products for the home such as kitchen tools, accessories, and household linens in relation to home furnishings or in comparison to clothing accessories. Although the scholarly literature on fashion cycles is already dominated by women's dress, a potentially insightful additional study of women's apparel in relation to color cycles would be to see if Oberascher's (1994) cycle stages can be observed. As consumers we sense cycles of color availability, so helping forecasters make more informed decisions concerning color is worthy of additional research for the very practical reasons of satisfying consumers, reducing markdowns, and helping businesses' bottom lines. As mass customization of products becomes more

likely (Kim and Johnson 2009), research into how consumers make aesthetic decisions on color when designing products to be customized could also yield insights for product planners. Like most studies before ours, we found cyclical patterns, just not neatly regular ones. Thus we contend that this area of research should garner more empirical examination.

Authors' contributions
OJ completed data analysis and wrote the manuscript. PU helped construct theoretical framework and edited the manuscript. Both authors read and approved the final manuscript.

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The authors declare that they have no competing interests.

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