Tell Mozan Ceramics: Munsell Colours

Laerke Recht

Introduction

Buff, red, grey – these are common descriptions of pottery in archaeology.[1] Colour is usually part of the recording of ceramic data, but these data are rarely used for more than the most general characterisation of pottery. Despite hesitations concerning the subjective nature of these observations and other factors involved in colour notation, is has been shown that the data can lead the way to broader interpretations, and careful recording with a standardised system such as the Munsell colour charts may reduce the effects of personal perception. A sample of colour notations of pottery from Tell Mozan, Syria, is presented here as an example of the possibilities; it is hoped that this study will provide comparative data for other sites in the region.

The analysis and use of colours in ceramic studies and archaeology

Colour has recently received some attention in archaeology, with studies focussing on such varied materials as copper, mineral paints, shells, quartz, amber, ochre, and the soil itself (see papers in JONES AND MACGREGOR 2002, and CLELAND AND STEARS 2004; BIGGAM *ET AL*. 2011 also offer fascinating non-archaeological discussions of the significance of colour in society). These papers suggest how colour can have technological, symbolic and ideological characteristics and thereby reveal insight into social structures, regional interactions, and advances or ideals in technology and production. Certain colours may be valued more highly than others, or signify something very specific – they may constitute references that we are able, in some cases, to interpret and understand through careful analysis.

In ceramics, colour is often a standard part of recording in the field and post-excavation procedures. Pottery sheets include information concerning archaeological context, shape, size, ware, temper and decoration/surface treatment, and they usually have a section for colour. This is sometimes based on a personal evaluation, providing a general colour category. Although this is not without value, the use of a system like the Munsell Soil Color Charts provides a level of standardisation beyond personal colour schemata. This is not to say that systems such as Munsell are without problems: the recording of colours is still dependent on a variety of factors, including the person recording, light conditions, time of day and the nature of the pottery itself (see FRANKEL 1980 and 1994 for a detailed discussion of the pitfalls and possibilities of colour recording, including the results of a practical experiment). Even so, using standardised charts, systematic recording can be facilitated, and through this, conclusions concerning the pottery (or any other terracotta objects), can be made, and comparisons between sites made possible.

[1] I am grateful to Marilyn Kelly-Buccellati, Giorgio Buccellati and Rick Hauser for help and suggestions for this paper. I also wish to thank the anonymous reviewers for their kind and useful comments.

Published pottery specific studies usually also contain notation on colour, either using the Munsell charts or a system that is deemed most appropriate to a specific site. Studies from the region of Mozan giving Munsell notations as part of the pottery catalogue include QUENET AND RISTVET 2012 (Tell Leilan), OATES *ET AL.* 2001 (Tell Brak), IAMONI 2012 (Qatna) and FALB 2009 (various regional sites). Elsewhere, descriptions of pottery has a colour reference such as 'buff', 'grey', 'red' (e.g. KÜHNE 1976, Tell Chuera; NIEUWENHUYSE 2007; POSTGATE *ET AL.* 1997, Tell al Rimah); these may in some cases be based on a colour sample representing typical colours from the specific site (as at Tell Sabi Abyad, AKKERMANS 1989; DUISTERMAAT 2008), which unfortunately makes them difficult to apply to assemblages from other sites. Systems as these have the advantage of being less labour-intensive, especially when dealing with very large volumes of material; the disadvantage is that they are harder to directly compare to material from other sites. The main use of colour data in pottery studies is for descriptive purposes, but it may have the potential for broader quantitative use, especially with more comparative data becoming available, and in conjunction with the core pottery analysis.

Colour of ceramics – what can it tell us?
The colour of pottery is determined by two main factors. One is the composition of the clay used and the type and level of inclusions such as organic matter, iron or mica. The other is the manner of firing: temperature, atmosphere (level of oxidation) and duration (RICE 1987: 333). SHEPARD (1985: 102-113) also offers an excellent overview of the possibilities and limitations of colour analysis. There may also be secondary factors that have coloured the clay during post-firing processes, which should be separately described from the colour of the fabric when the Munsell reading is carried out.

Colour of pottery is in some cases a conscious choice, i.e. certain types of clay, tempering and firing techniques are chosen in order to gain a certain colour or range of colours. Reasons for such conscious choices must lie within the cultural ideology of the society producing the ceramics, but may not always be discernible without further information and context. FRANKEL (1994) offers a good example of the possibilities of colour notation analysis using specific assemblages from Cyprus, arguing for the implications concerning island-wide organisation of production and social interaction; the value demonstrated increases with comparative data from nearby sites.

Procedure used at Tell Mozan

The data presented here comes from the site of Tell Mozan in northeastern Syria. Tell Mozan (ancient Urkesh) was the seat of the Hurrian King Tupkish, and to date, the excavations have identified a Royal Palace, a temple with an extensive terrace, a plaza and an outer city (BUCCELLATI AND KELLY-BUCCELLATI 1997 and 2001; KELLY-BUCCELLATI 2005; project website www.urkesh.org). The remains date back to the Late Chalcolithic, and continue into the Middle Assyrian period. All areas of the site have yielded large amounts of pottery sherds, and preliminary recording is done in the field. For a sample of the sherds, Munsell notations were also taken. They were almost all read by the same two people (Marilyn Kelly-Buccellati and Ibrahim Khellu,

under the guidance of the former, and regularly correlated to ensure similarity in the reading) each season, in daylight in the shade, using the Munsell Soil Color Charts, 1994 Revised Edition (including the Gley 1 and 2 sheets).[2]

The Munsell colour charts are based on a three-dimensional system, where the colour variation is in hue, value and chroma. Hue is the actual colour – red, yellow, green and so on. Value is how light or dark the colour is, and chroma is the intensity or saturation of the colour (Figure 3.1 shows how these are arranged on a soil colour chart; see also the Munsell Company website for an in-depth explanation: http://munsell.com/about-munsell-color/how-color-notation-works).

The sample totals 6102 sherds, which come from 16 units across the site; A1, A5, A6, A7, A8, A9, A10, A12, A13, A14, A15, A16, A18, J1, J3 and OD50. The sherds for which Munsell colours were recorded only represent a small percentage of the total number of sherds from each unit. For most of these units, the ceramics are still being analysed, and consequently we do not have total numbers of sherds. However, Unit A16 may give an idea of the volume of sherds under examination from the site, as these total over 60,000.[3] Figure 1 shows that, of these, we have Munsell recordings for 846. Other than being diagnostic, the sherds chosen for this type of colour analysis were arbitrary, aiming only for a representative sample – that is, ensuring that sherds from all major wares, shapes and units were included.

The colour of interior and exterior surfaces was identified. In some instances, only one or the other is recorded, and in these cases, that is almost certainly because the colour was judged the same on both surfaces, but this has not been included as such in the analysis. Temper and paint colour were noted in only a few instances, and do not represent a sample large enough for statistical analysis.

The majority of the results presented here are assembled into the colour names (rather than numbers) of the Munsell charts. This is partly because there are too many numbers to present in a meaningful manner,[4] and partly because the variation represented within a colour name is a good way of recognising the possible subjective element of recording colour – that is, where one person reads 5Y 8/2, another may read 5Y 8/3, both of which are termed pale yellow; this is a difference which is not essential for the final analysis of the material.

[2] Another type of colour recording occurs during photography. The sherds from Mozan were photographed with an IFRAO scale (International Federation of Rock Art Organisations), which includes a colour scale that allows for colour calibration and digital re-constitution at any point (see www.cesmap.it/ifrao/scale.html).

[3] This number includes all types of sherds. Only diagnostic sherds are included as part of the sample here, and of these there are 15,791 to date from Unit A16.

[4] There are 322 colour fields in the 1994 Revised Edition used, 169 of which are represented in the sample here. There are 63 colour names; 50 of these are represented in the Mozan sample.

Statistics from Tell Mozan

Exterior colours
The exterior colour was measured on a total of 5632 sherds from across the units. If placed into the Munsell colour name categories (figure 2.1), we can note a clear main cluster in pale yellow (44.26%) and very pale brown (18.20%). A secondary cluster appears in pink (10.17%), and third tier clusters in shades of grey (light grey 3.62%, grey 2.22%) and reddish-yellow (4.03%). If the recordings are placed into overlaid sheets of the Munsell charts (figure 3.1), the dominance of Munsell shades of a light colour becomes clear, i.e. a high value and lower end chroma number, 8/2, 8/3, 7/3 and 7/4. These patterns do not differ significantly when looking at the units separately (figures 2.2-2.17 and 3.2-3.17).

Although colour alone is only one indicator of firing techniques and conditions, the predominant light buff colours may suggest an above average level of oxidation and/or the presence of organic matter in the clay. Figures in the higher levels of chroma and value indicate greater oxidation and/or less organic matter in the clay used (RICE 1987: 343-345, SHEPARD 1985: 103-106).Tthe majority of sherds from Mozan have a high value (7 or 8), and a low to medium chroma (2 to 4). The sherds in shades of grey suggest incomplete oxidation or possibly firing in a reduced atmosphere. A few of the sherds may have been overfired, but these are represented in very small numbers.

A large percentage of the sherds fall within three closely related colour categories (72.63%) and four very similar chroma/value categories (72.36%), indicating highly standardised production of pottery at Mozan, across the site and chronologically. Colour analysis thus supports the presence of production being mainly in the hands of specialised workshops. Many of the sherds in shades of grey belong to specific wares, Gray Ware and Metallic Ware (see below), which are typical for the region. The limited spectre of 'typical' colours may also suggest attempts on behalf of the potters to deliberately attain a specific colour or range of colours (SHEPARD 1985: 112).

Relating exterior and interior colours
The vast majority of the sherds (80%) have the same colour on both interior and exterior surfaces (figure 4.1). Another 7% have the same chroma and value, but different hues. Of the sherds where the exterior is lighter in colour than the interior (i.e. have a higher value), or the exterior is darker than the interior (i.e. have a lower value), very few display significant variation. The relations are shown in figures 4.2-4.5.

The similarity between interior and exterior colours supports the analysis suggested by the exterior colours only, giving the impression of a site-wide standard firing technique. The few cases where there is greater different between interior and exterior colours are most likely misfired. Those with a much lighter colour on the exterior than the interior may have been subjected to an oxidised atmosphere on the outside, and a reduced atmosphere on the inside (e.g. pale yellow to dark grey or light grey to very dark brown). Those with a much darker exterior than interior suggest a much less common reduced atmosphere (e.g. black exterior to pale yellow interior or very dark grey to very pale brown). These examples are, however, very few in number.
Relating shape to colour

The pattern seen on the exterior and interior surfaces is repeated within specific shapes of vessels. The main shapes from the site, bowls, pots, jars and cups, all have similar levels of each colour – see figures 5.1-5.4. A slight deviation may be noticed in the higher percentage of grey and light grey and a lower percentage of pale yellow and very pale brown among the pots. The relatively low number of pots included in the analysis may partly account for this. The similarity of colour across different shapes demonstrates that the same firing techniques were in use for all shapes, and in turn that the same type of clay was used.

Ware type and colour
Colour is often used as one of the criteria for defining a specific type of pottery. This is also clear in the charts presented here (figures 6.1-6.9). Wares such as Gray Ware and Metallic Ware both have a preponderance of shades of grey, as would be expected. Some of the more common wares at the site, like Chaff Tempered, Fine Chaff Tempered, Red-Orange Calcite Tempered and Fine Red-Orange Calcite Tempered have a majority of pale yellow and very pale brown sherds, conforming to the overall picture from the site, and suggesting that a specific colour is not a defining characteristic of these types of wares, although pale yellow and very pale brown predominate.

Pottery and other fired clay objects from Tell Mozan
Objects other than pottery made of fired clay found at Tell Mozan include miniature wheels, discs, sealings and seal impressions, sling balls, plaques and human and animal figurines. The animal figurines constitute a fairly good sample of Munsell recordings (including the meticulous analysis found in HAUSER 2007[5]).

The colours of the animal figurines also do not display a large variation, and as with the pottery, figurines of very pale brown predominate (figures 7.1-7.2, compare figures 2.1 and 3.1). The second main cluster has shifted slightly, from pale yellow to pink, and from 7/3-7/4 to 7/2-7/3 in value and chroma. The uniformity of the colours lend credence to the idea that there were workshops producing figurines (Hauser 2007: 46); the slight shift in clustering may suggest that such workshops were separate from pottery workshops, but using the same technologies and raw materials.

Conclusion

The sample of notations of pottery colour presented here display a remarkable homogeneity. The colours most commonly observed occur within a limited range of hue, chroma and value, and this is the case both for exterior and interior surfaces. These features of the assemblage suggest a consistent standard of production over a long period of time, and a fairly high level of control of firing conditions. The standardisation lends support to the existence of pottery workshops, and comparison with other artefacts may indicate related, but to some degree separate workshops.

Although data is often collected concerning colour, it is rarely used for specialised analytical purposes. The current discussion and supporting statistical material demon-

[5] The Munsell colours for these figurines were taken by Rick Hauser (and compared against those taken by Claudia Wettstein) during daylight but out of direct sunlight. Some of the readings were also correlated to those taken for the pottery while in the field.

strates the merit of including a colour notation in the recording of pottery, and of making use of this information in the final analysis. When a standardised system is used, we have the added option of being able to compare data between sites in more depth. As seen elsewhere, comparisons could aid our understanding of production techniques and organisation, and more broadly of the interaction between sites (movement of both craftspeople and the pottery).

References

Akkermans, Peter M.M.G. 1989. *Excavations at Tell Sabi Abyad: prehistoric investigations in the Balikh Valley, northern Syria*. Oxford: BAR.

Biggam, Carole *et al*. (eds). 2011. *New directions in colour studies*. Amsterdam / Philadelphia: John Benjamins Publishing Company.

Buccellati, Giorgio and Marilyn Kelly-Buccellati. 1997. "Mozan, Tell", in Eric M. Meyers (ed), *The Oxford encyclopedia of the ancient Near East* 4, pp. 60-63.

Buccellati, Giorgio and Marilyn Kelly-Buccellati. 2001. "City of myth: in search of Hurrian Urkesh", in *Odyssey,* May-June, pp. 16-27.

Cleland, Liza and Karen Stears (eds). 2004. *Colour in the ancient Mediterranean world*. Oxford: Archaeopress.

Duistermaat, Kim. 2008. *The pots and potters of Assyria: technology and organisation of production, ceramic sequence and vessel function at Late Bronze Age Tell Sabi Abyad, Syria*. Turnhout: Brepols.

Falb, Christian. 2009. *Untersuchungen an Keramikwaren des dritten Jahrtausends v. Chr. aus Nordsyrien*. Münster: Ugarit-Verlag.

Frankel, David. 1980. "Munsell colour notation in ceramic description: an experiment", in *Australian Archaeology* 10, pp. 33-37.

Frankel, David. 1994. "Color variation on prehistoric Cypriot Red Polished pottery", in *Journal of Field Archaeology* 21.2, pp. 205-219.

Hauser, Rick. 2007. *Reading figurines: animal representation in terra cotta from Royal Building AK at Urkesh (Tell Mozan)*. Malibu: Undena Publications.

Iamoni, Marco. 2012. *The late MBA and LBA pottery horizons at Qatna: innovation and conservation in the ceramic tradition of a regional capital and the implications for second millennium Syrian chronology.* Udine: Forum.

Jones, Andrew and Gavin MacGregor (eds). 2002. *Colouring the past: the significance of colour in archaeological research*. Oxford: Berg.

Kelly-Buccellati, Marilyn. 2005. "Urkesh and the North: recent discoveries", in David I. Owen and Gernot Wilhelm (eds), *General studies and excavations at Nuzi 11/1* (Maryland: CDL Press), pp. 29-40

Kühne, Hartmut. 1976. *Die Keramik vom Tell Chuēra und ihre Beziehungen zu Funden aus Syrien-Palästina, der Türkei und dem Iraq*. Berlin: Gebr. Mann.

Munsell Color. 1994. *Munsell Soil Color Charts, 1994 Revised edition*. New Windsor, NY.

Nieuwenhuyse, Olivier. 2007. *Plain and painted pottery: the rise of Neolithic ceramic styles on the Syrian and northern Mesopotamian plains.* Turnhout: Brepols.

Oates, David *et al.* 2001. *Excavations at Tell Brak. Vol. 2: Nagar in the third millennium BC.* London: British School of Archaeology in Iraq.

Postgate, Carolyn *et al*. 1997. *The excavations at Tell al Rimah: the pottery*. Warminster: British School of Archaeology in Iraq.

Quenet, Philippe and Lauren Ristvet. 2012. "Late third millennium ceramics from the Akkadian administrative building (AAB), Tell Leilan, Syria", in *Studia Chaburensia* 3, pp. 193-215.

Rice, Prudence M. 1987. *Pottery analysis*. Chicago: University of Chicago Press.

Shepard, Anna O. 1985. *Ceramics for the archaeologist*. Washington, D.C.: Carnegie Institution of Washington.

Websites

http://munsell.com/about-munsell-color/how-color-notation-works
Visited 7 Oct 2013

www.cesmap.it/ifrao/scale.html
Visited 9 Apr 2014

www.urkesh.org
Visited 7 Oct 2013

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Notes to the figures

Figures 2.1-2-17; 5.1-5.4; 6.1-6.9; 7.1
These figures accumulate the data into the colour names used in the Munsell Soil Color Charts (1994 Revised Edition). Only the colours represented in the Mozan material are depicted. Each field consists of the colour name with the individual Munsell colours that are represented within the colour name, to convey an estimate of the spectre involved. With this, it becomes possible to see the similarities between certain shades of, for example, pink and very pale brown. This spectre was made in RGB and is an approximation of the actual Munsell colours. Above the colour spectre, the number of sherds in each field is displayed, and above this, the percentage, which has been given the equivalent in saturation as the percentage itself. Where a field is 'faded', it is because there are no sherds in that colour, but the field is kept in order to show that the colour occurs elsewhere in the data.

Figures 3.1-3.17; 7.2
These figures show a template Munsell Soil Chart, with the accumulation of value and chroma (but without hue). Each field records the number of sherds and the percentage, again shaded by the saturation equivalent to the percentage.

Figures 4.2-4.5
Here each field also shows the colour range for each colour name. For each unit, the top colour represents the exterior of the sherd, and the number of sherds with this colour. The number after the arrow is the number of sherds with the same colour on the interior. The lower part shows the interior colours of the sherds where the colour is not the same as the exterior, with the number of each. Thus, we have five sherds that are greyish brown on the exterior; three of these have the same colour on the interior; one is dark grey; and one is brown.

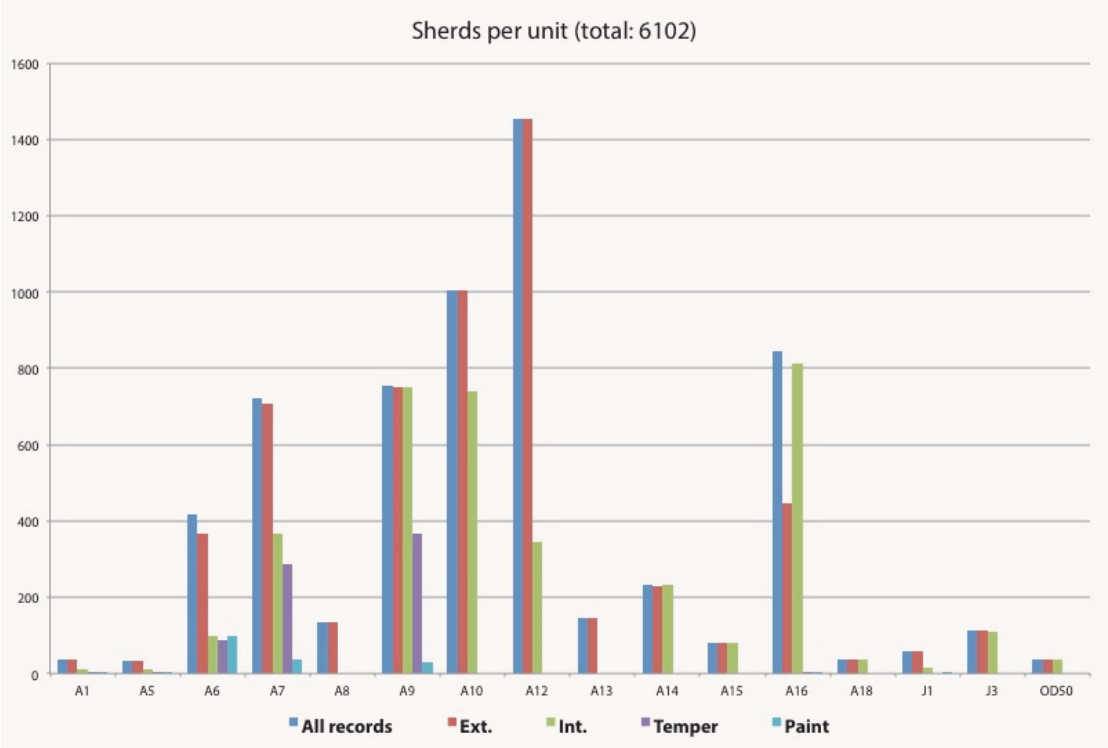


Figure 1

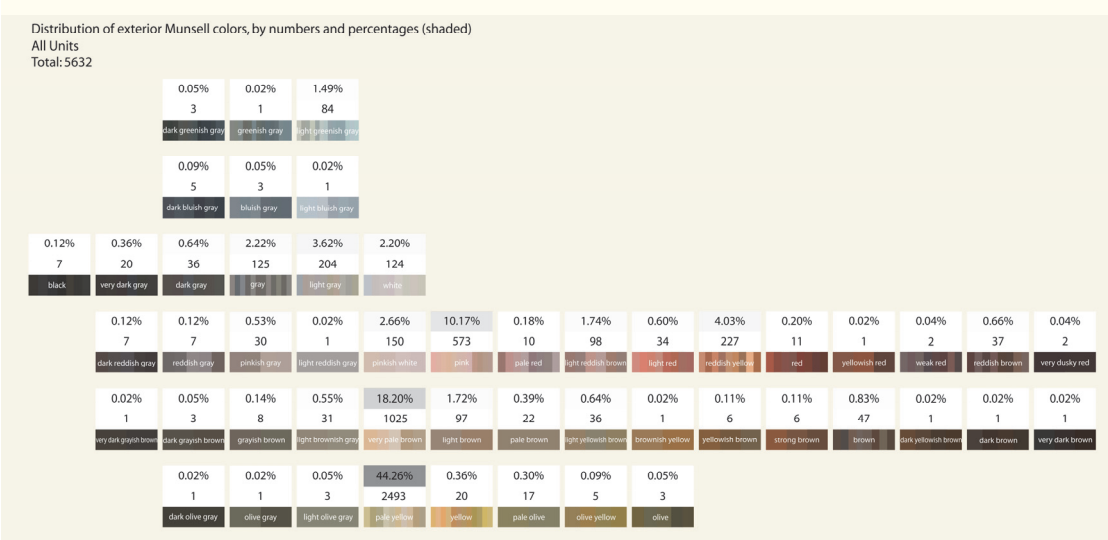
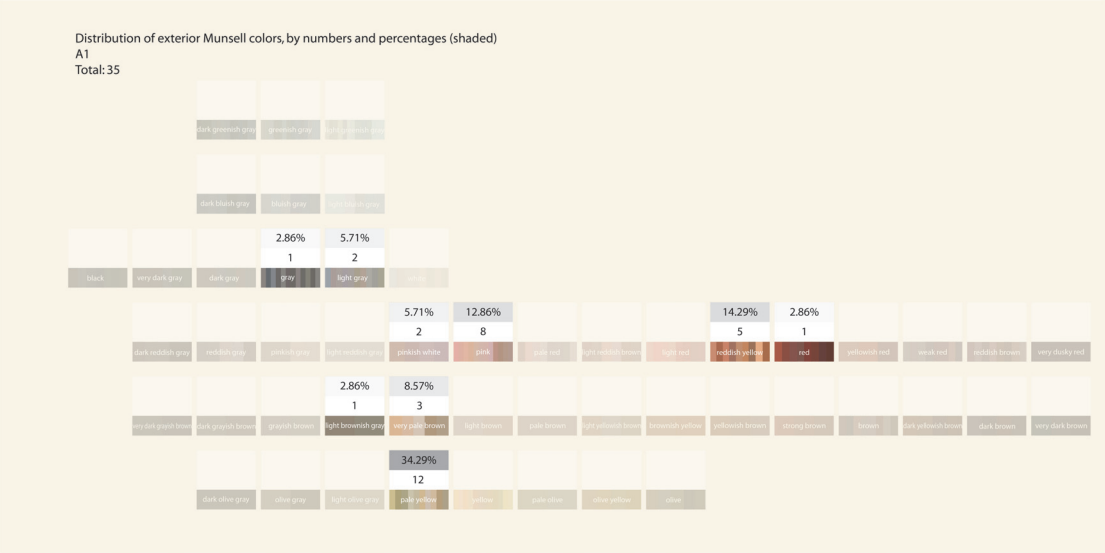


Figure 2.1



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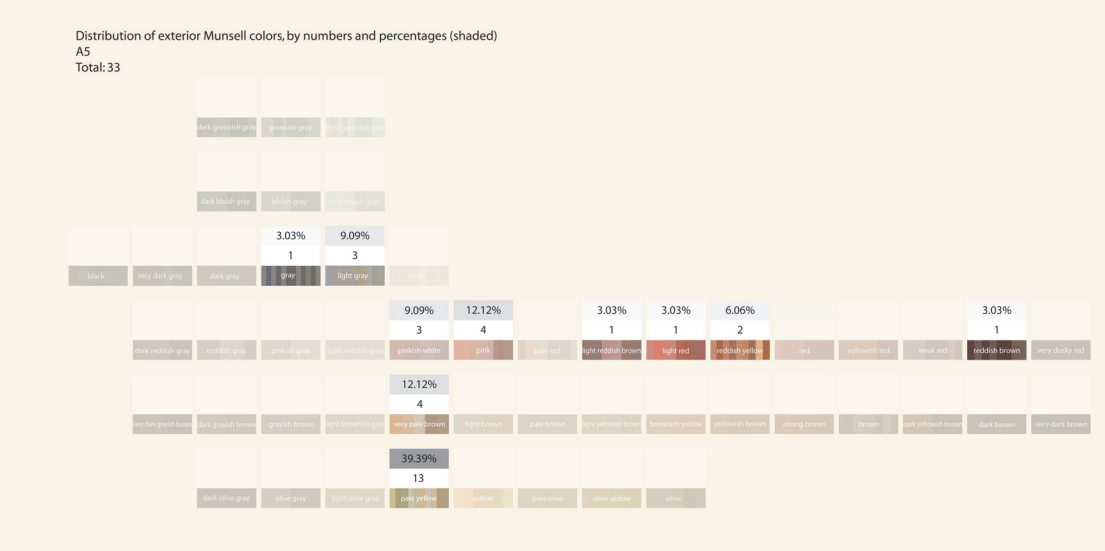

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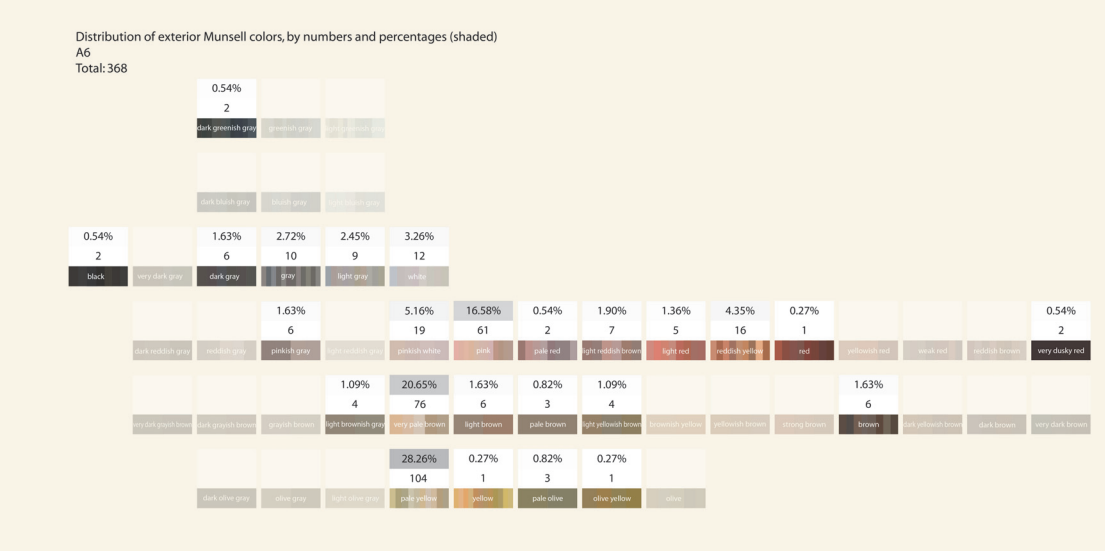

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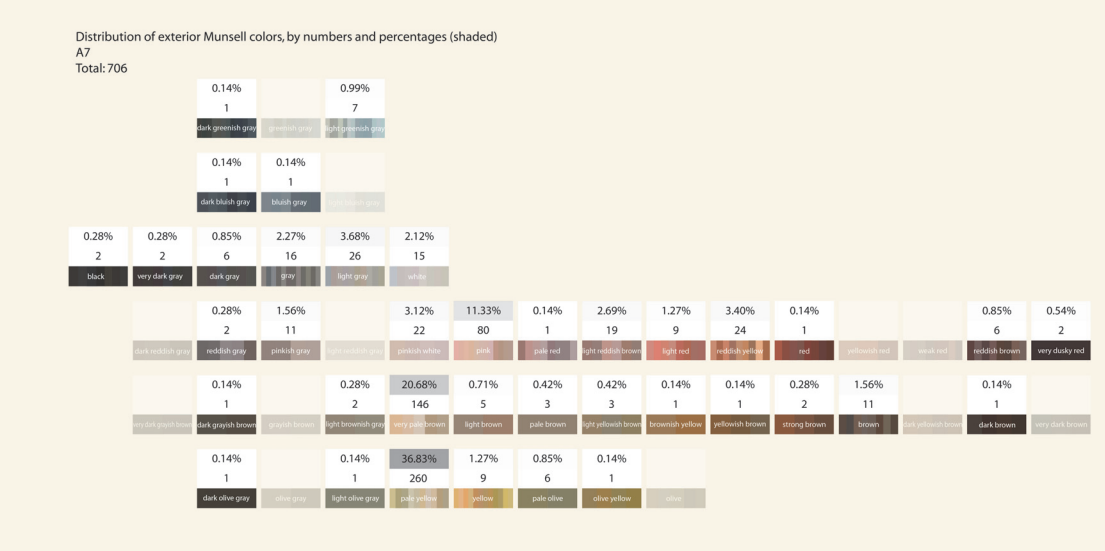

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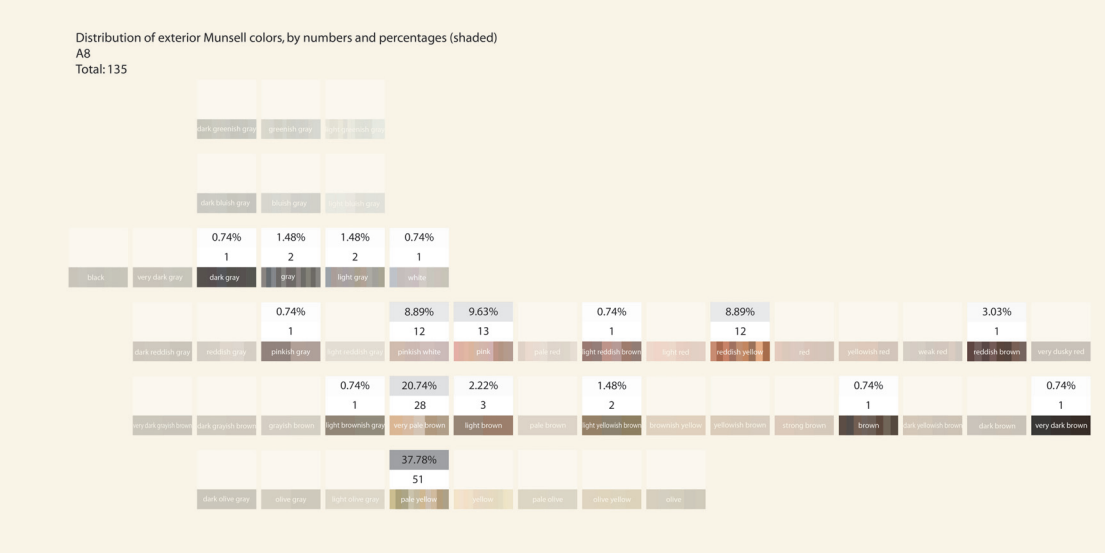

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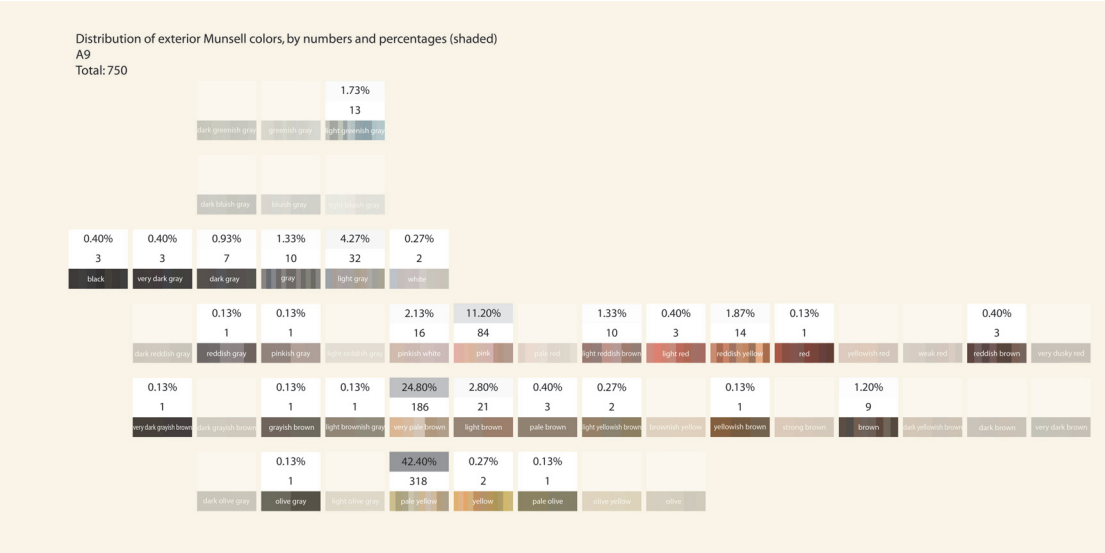

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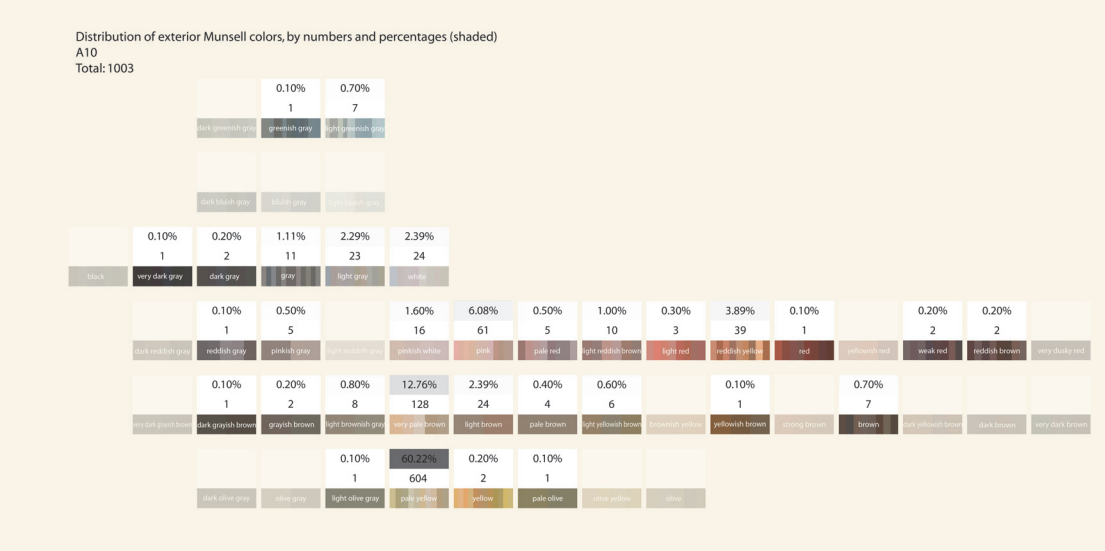

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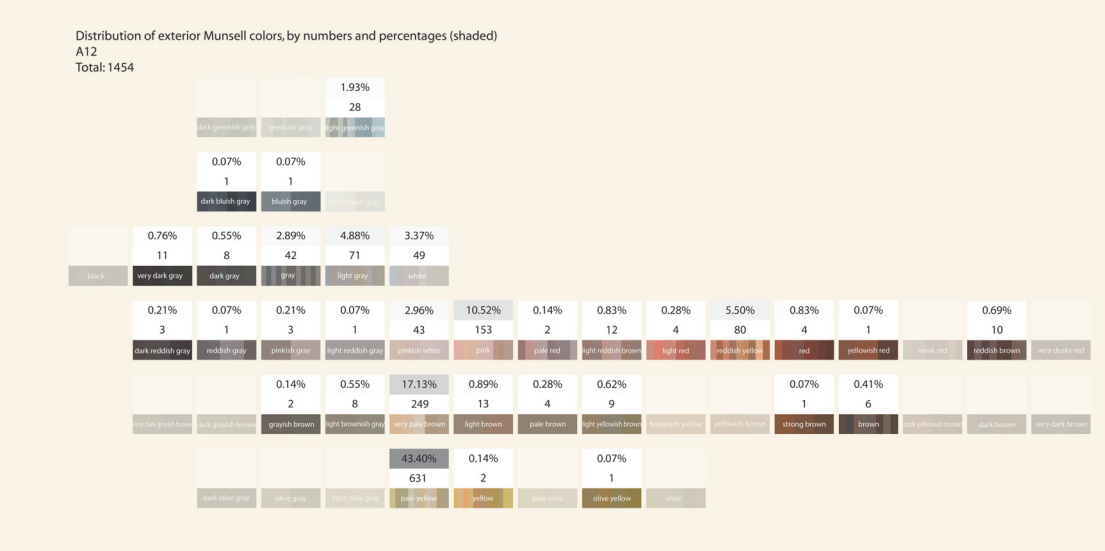

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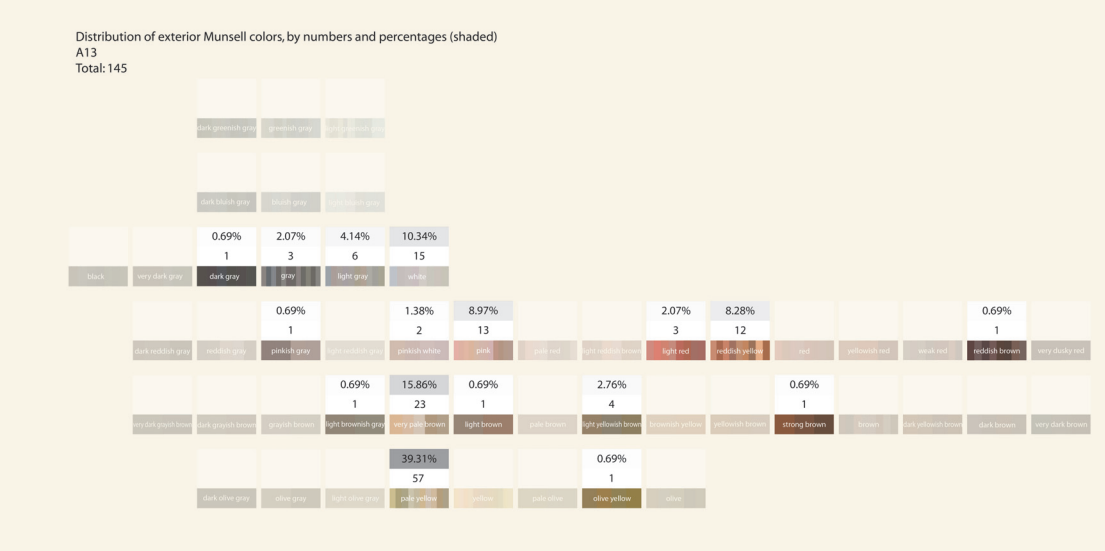

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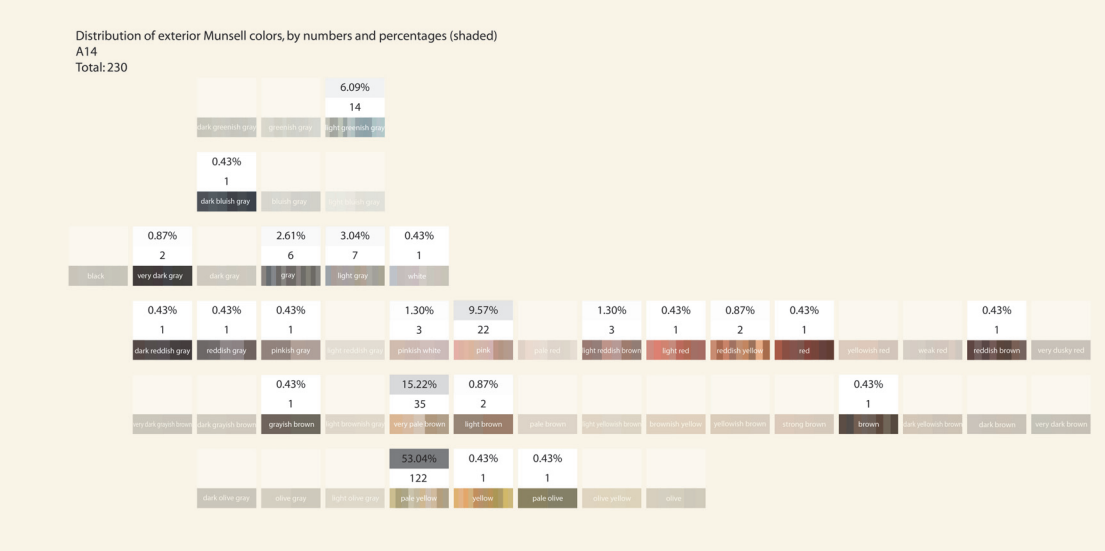

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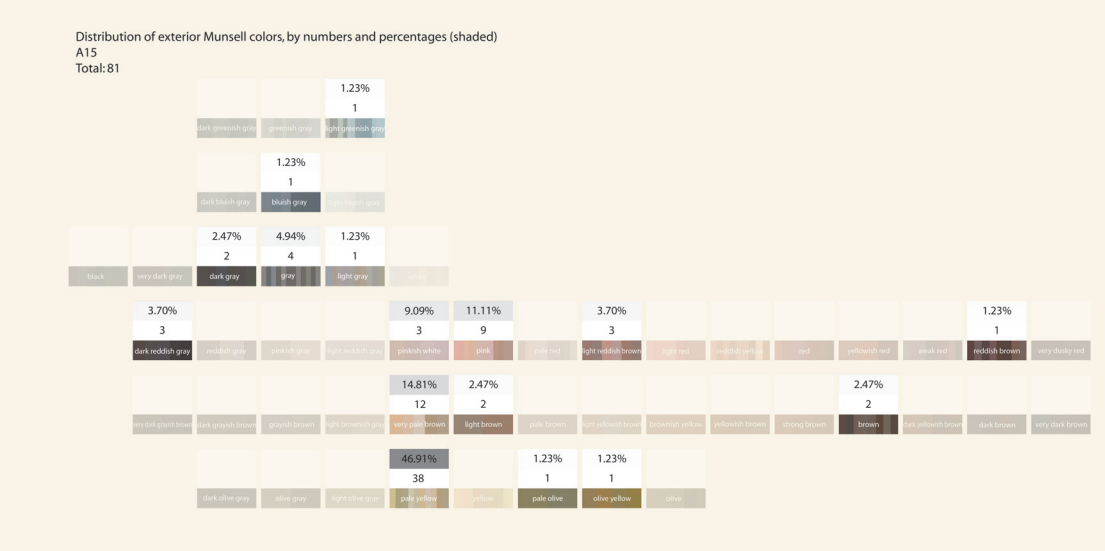

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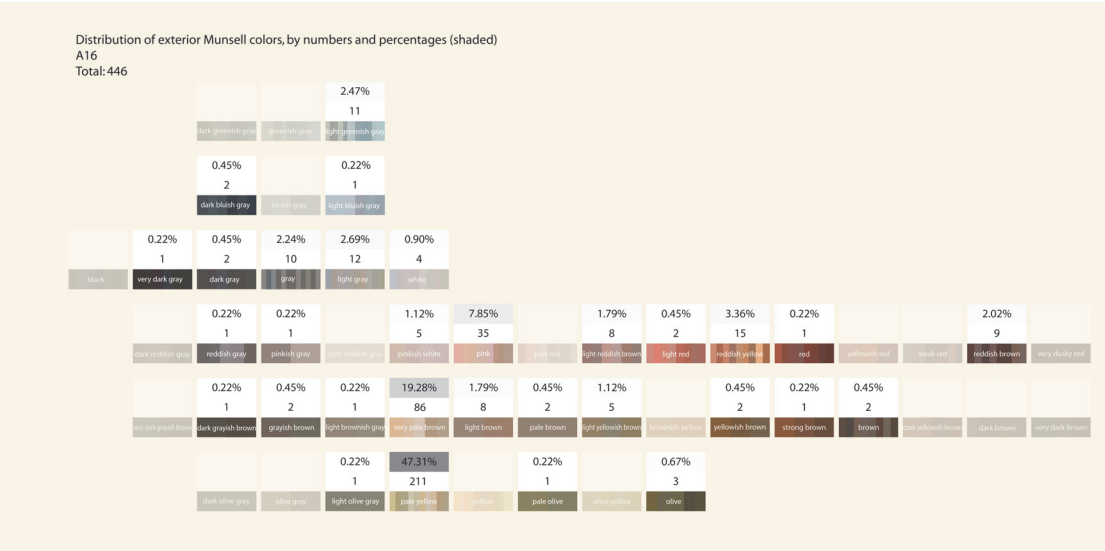
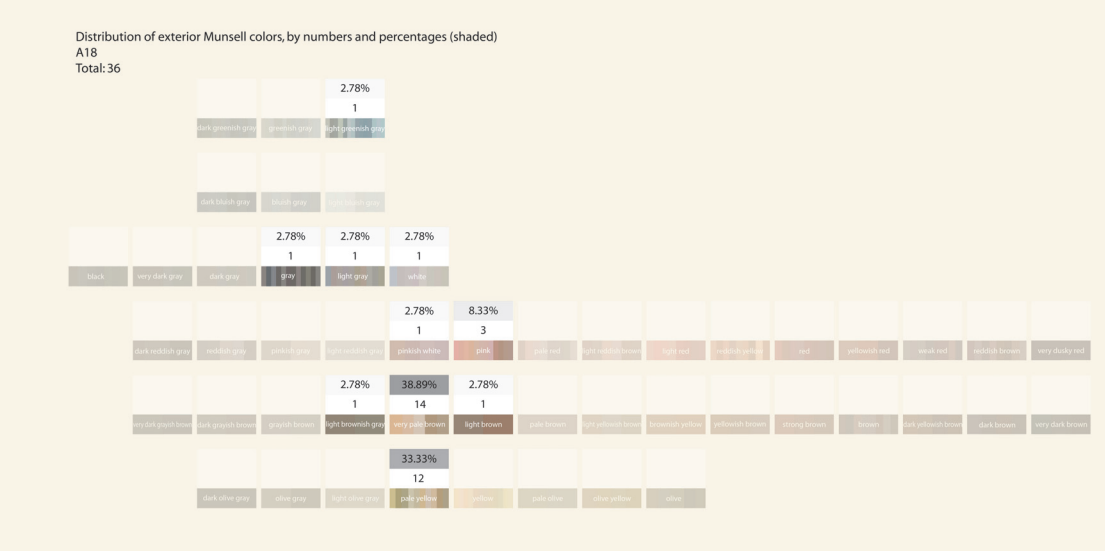


Figure 2.13



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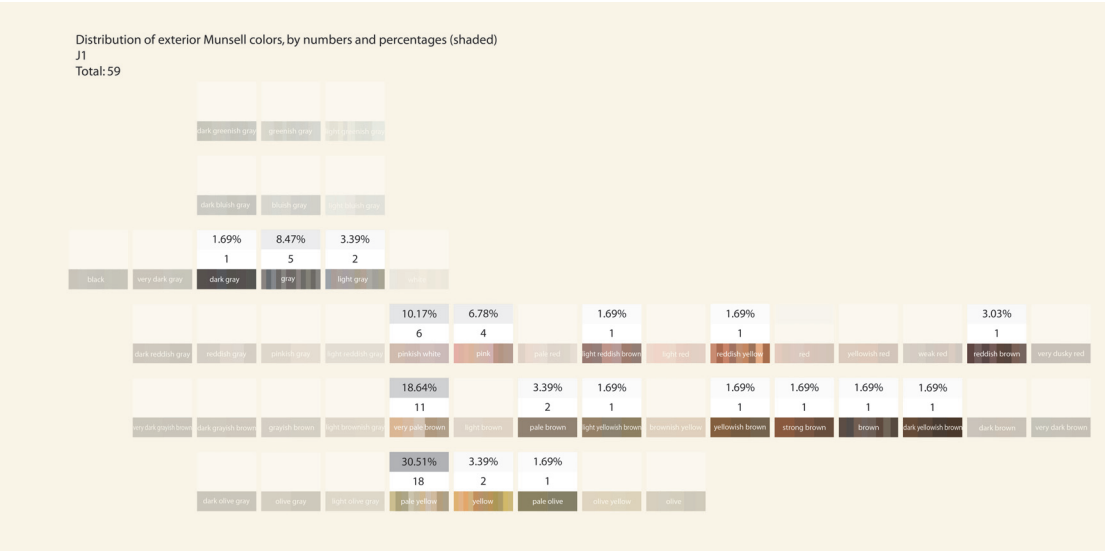

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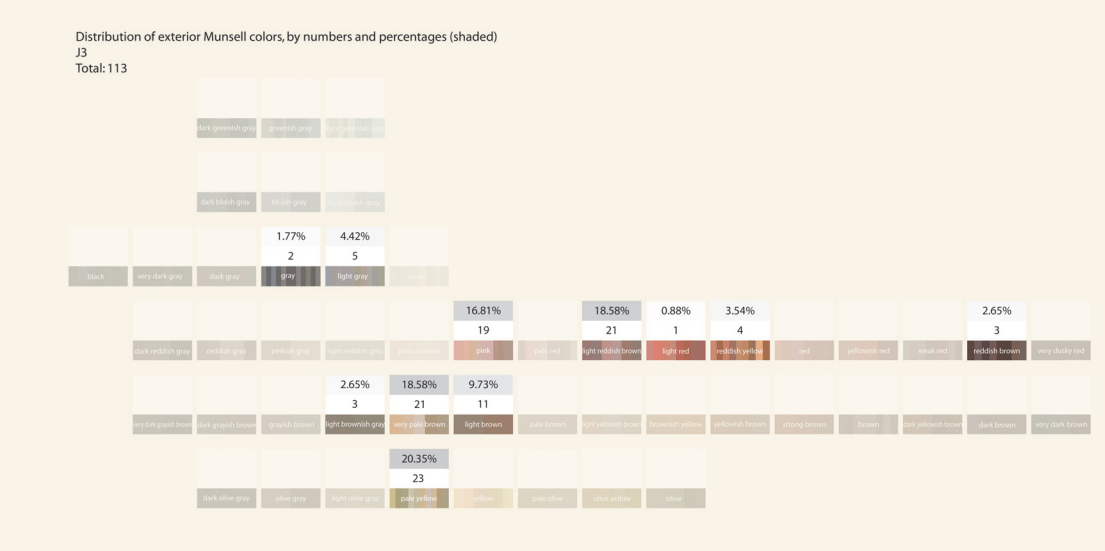

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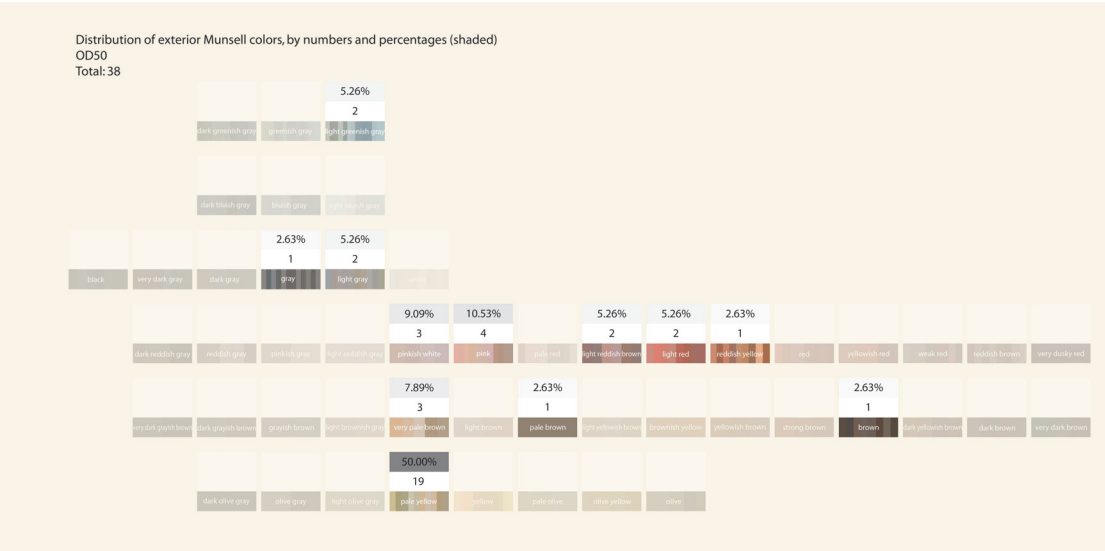

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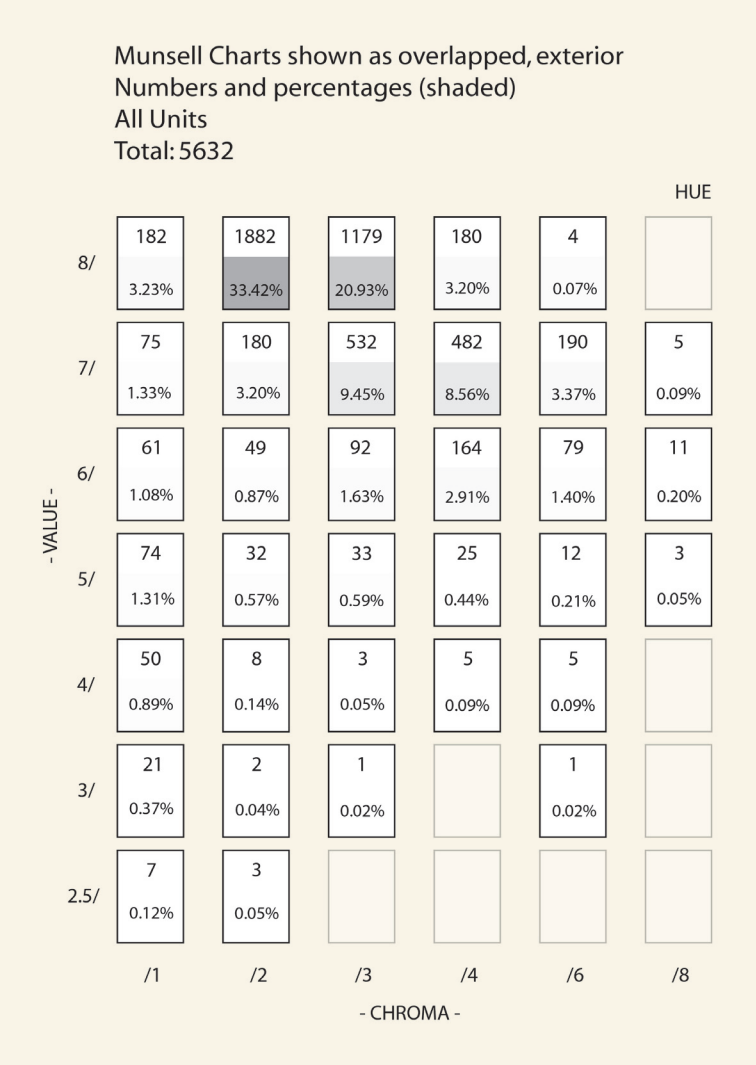
Munsell Charts shown as overlapped, exterior
Numbers and percentages (shaded)
All Units
Total: 5632
HUE
8/
182 3.23%
1882 33.42%
1179 20.93%
180 3.20%
4 0.07%
7/
75 1.33%
180 3.20%
532 9.45%
482 8.56%
190 3.37%
5 0.09%
6/
61 1.08%
49 0.87%
92 1.63%
164 2.91%
79 1.40%
11 0.20%
5/
74 1.31%
32 0.57%
33 0.59%
25 0.44%
12 0.21%
3 0.05%
4/
50 0.89%
8 0.14%
3 0.05%
5 0.09%
5 0.09%
3/
21 0.37%
2 0.04%
1 0.02%
1 0.02%
2.5/
7 0.12%
3 0.05%
- VALUE -
/1
/2
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/4
/6
/8
- CHROMA -

Figure 3.1

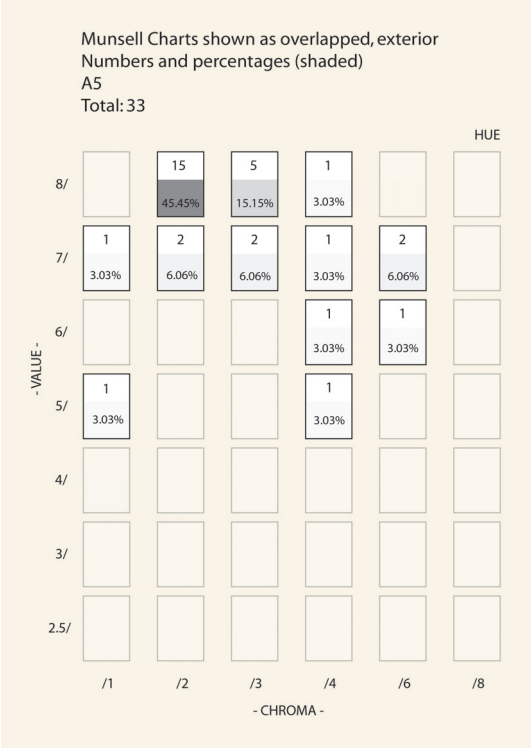

Figure 3.2

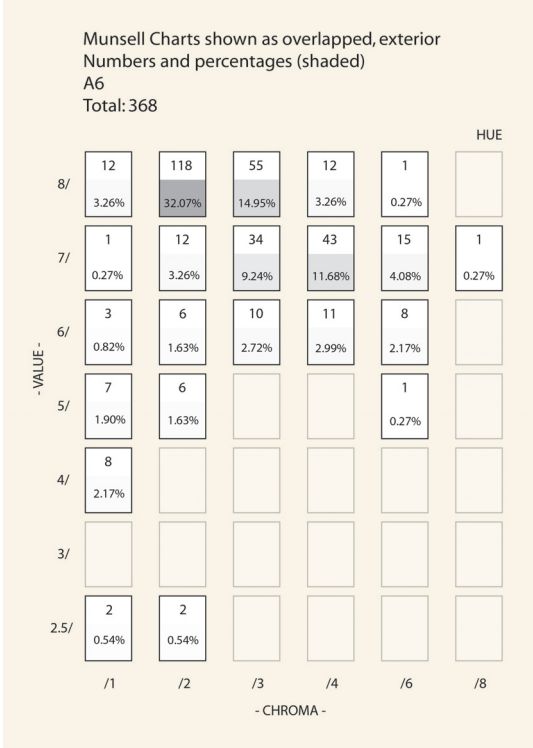

Figure 3.3

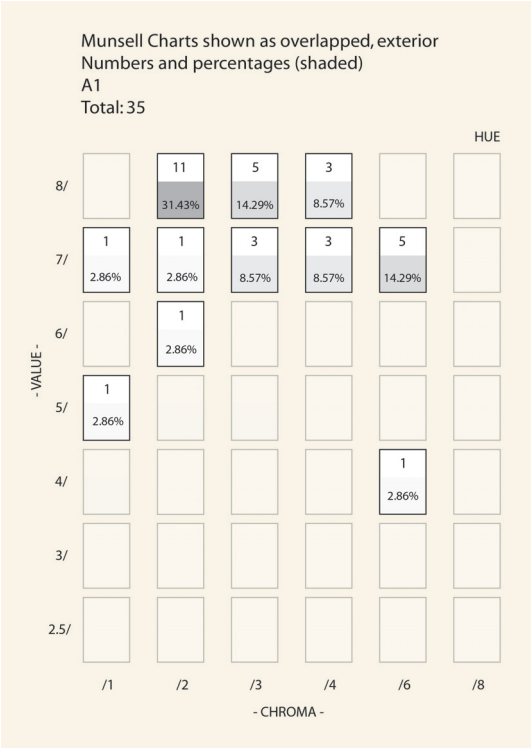

Figure 3.4

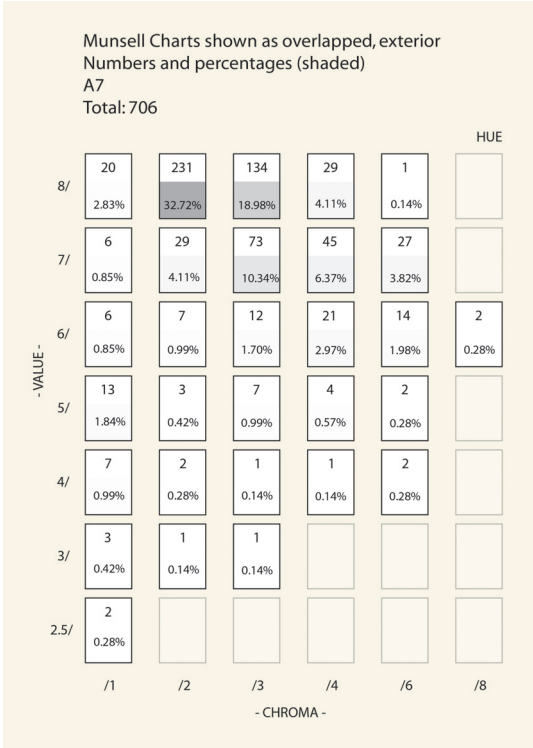

Figure 3.5

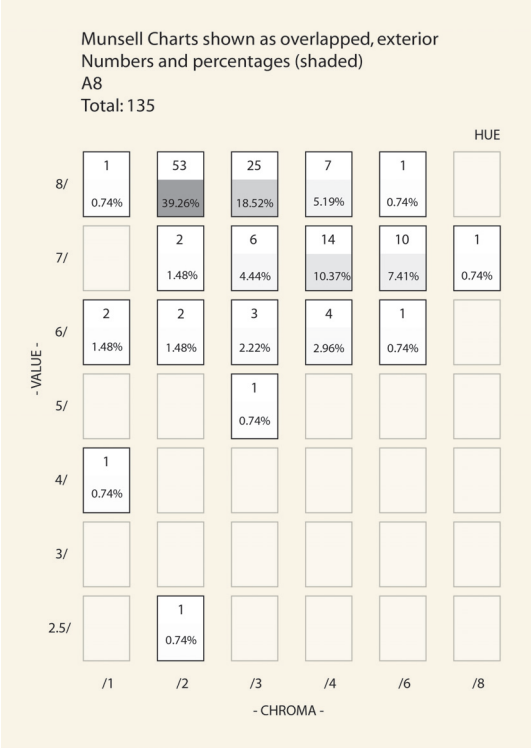

Figure 3.6

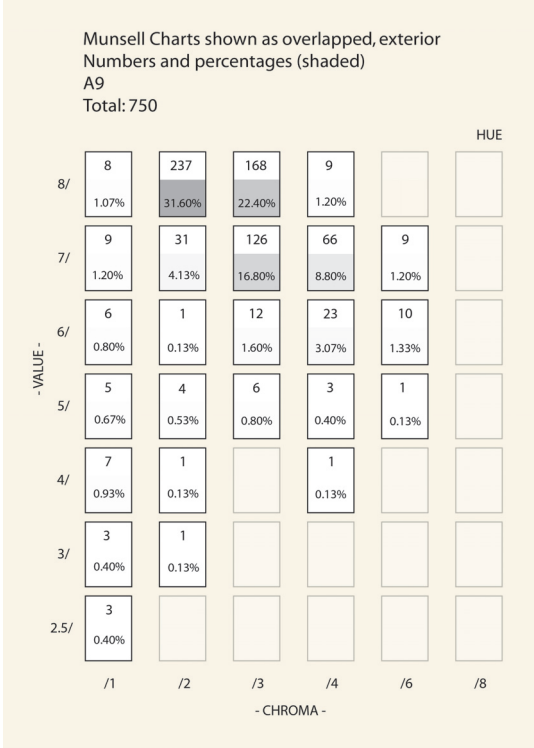

Figure 3.7

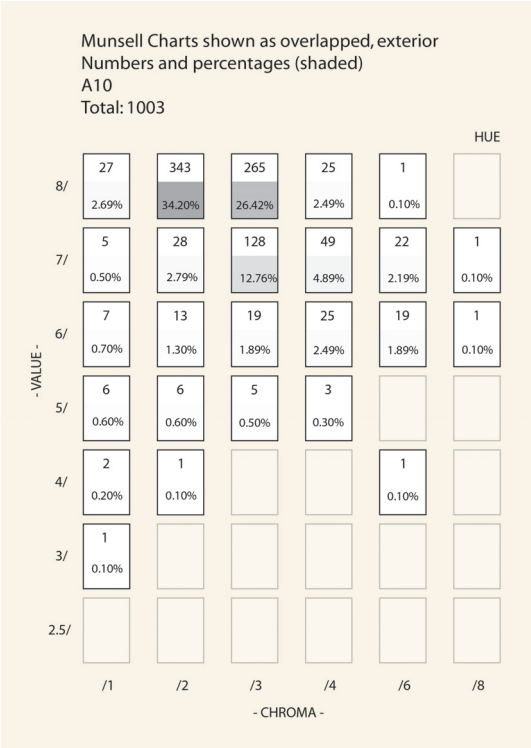

Figure 3.8

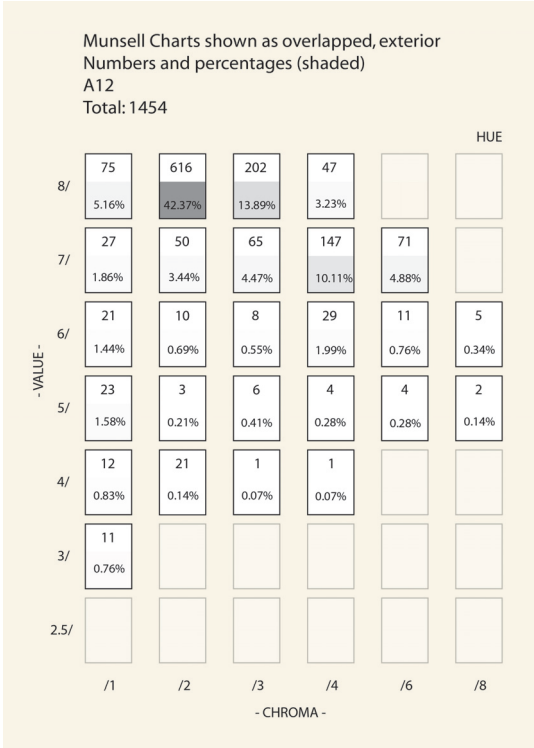

Figure 3.9

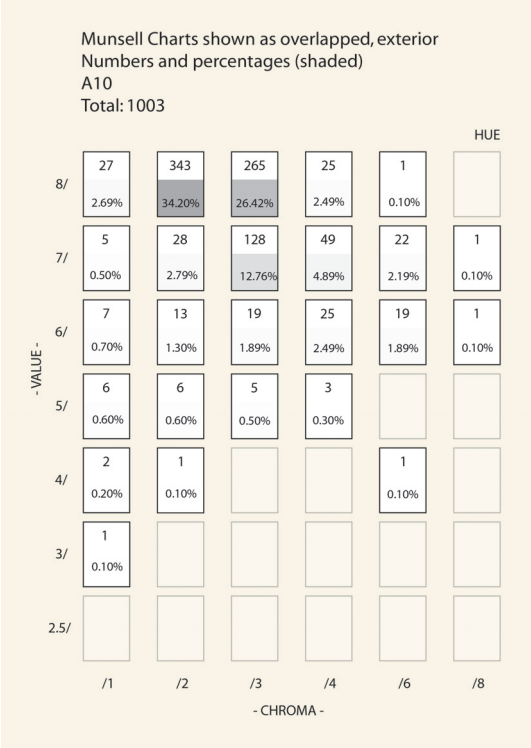

Figure 3.10

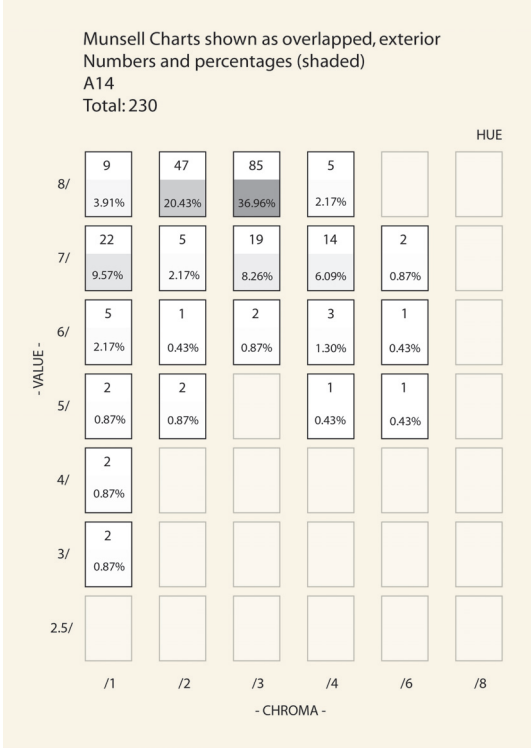

Figure 3.11

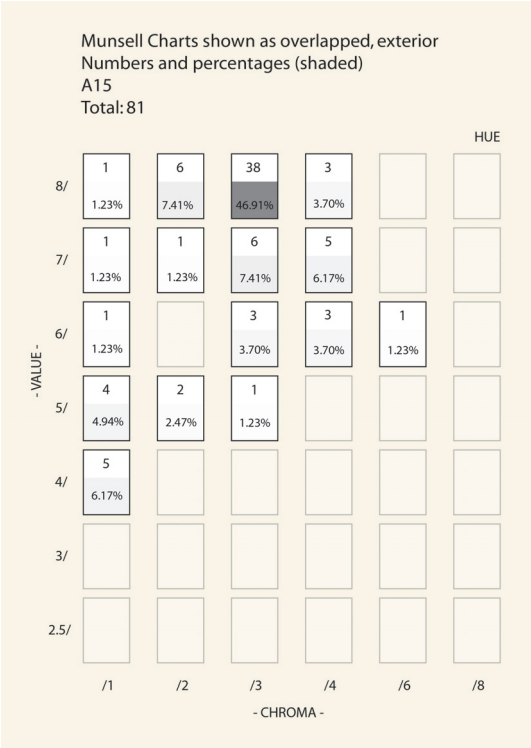

Figure 3.12

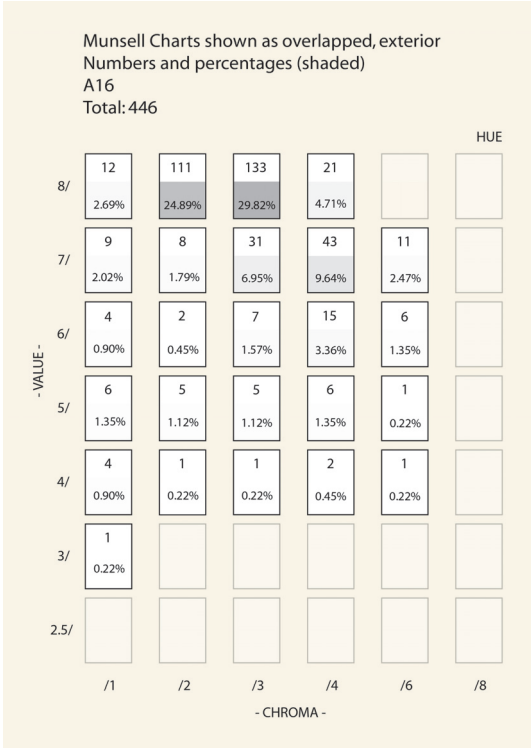

Figure 3.13

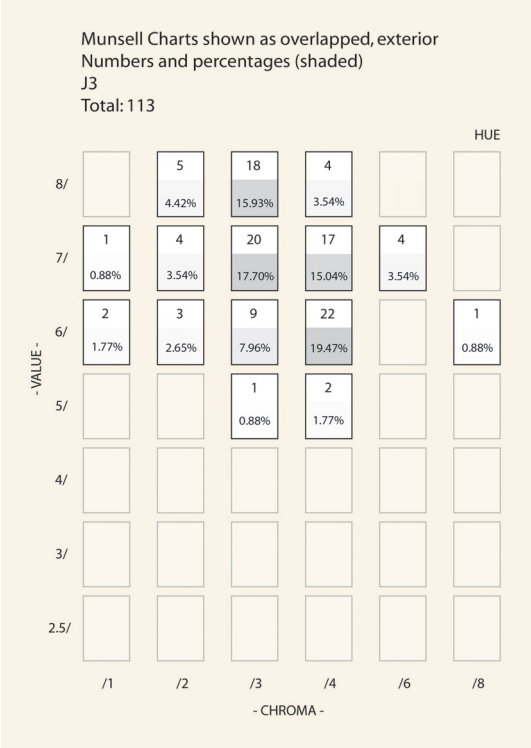

Figure 3.14

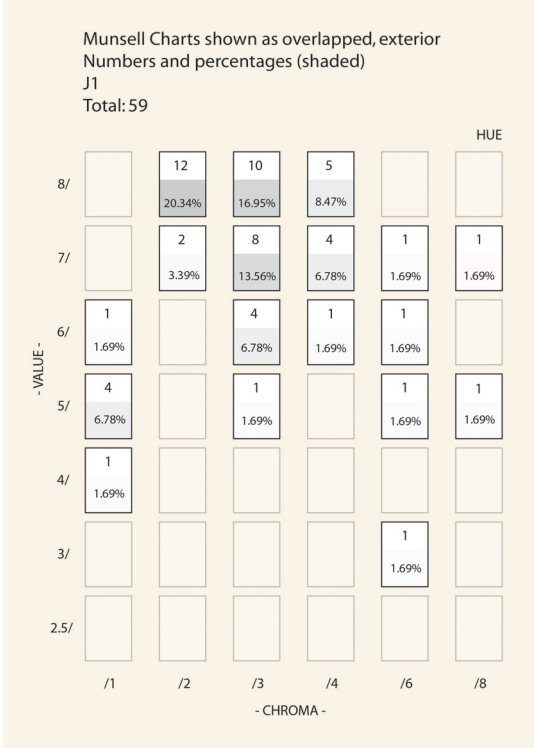

Figure 3.15

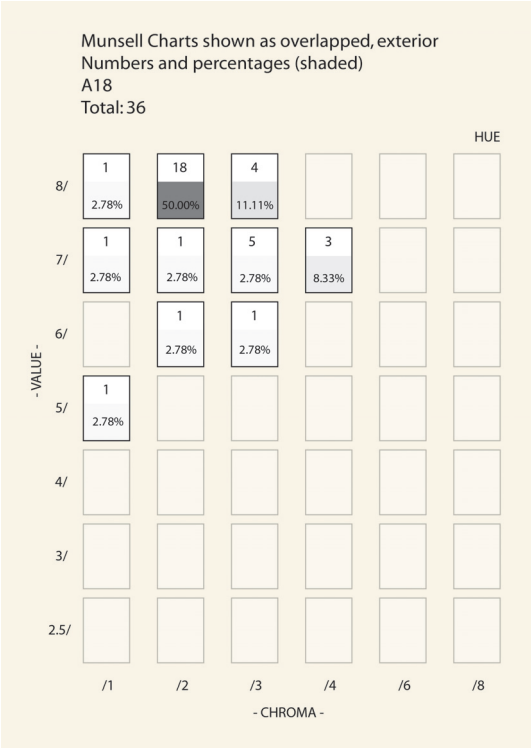

Figure 3.16

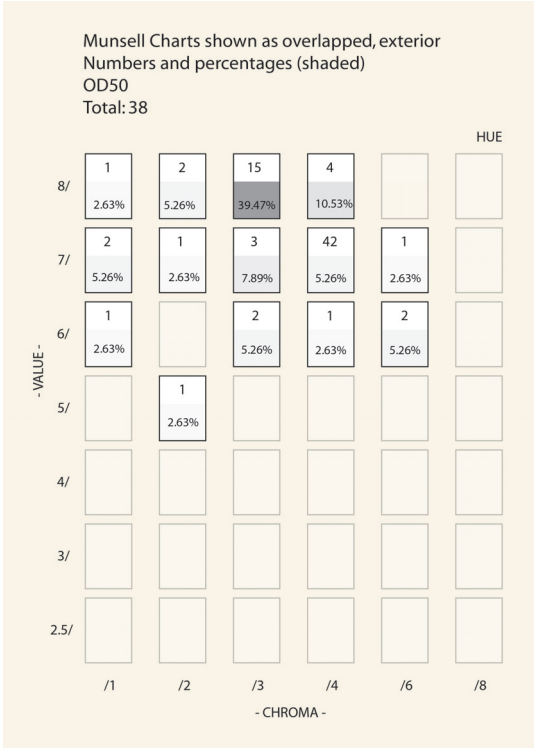

Figure 3.17

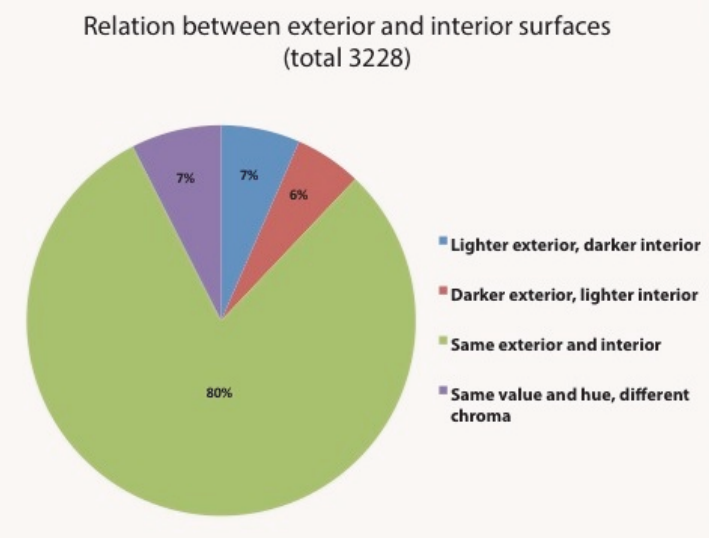

Figure 4.1

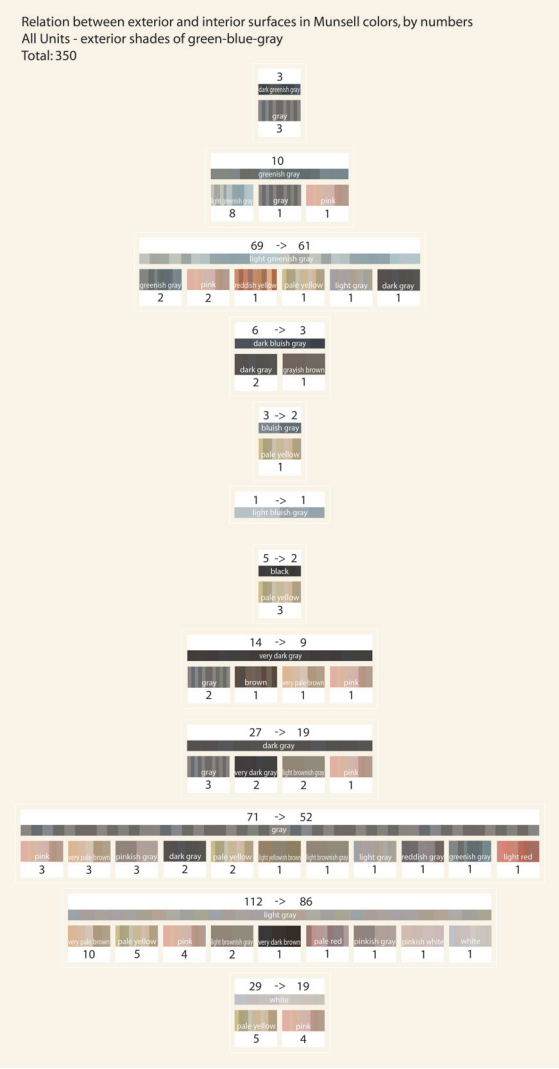

Figure 4.2

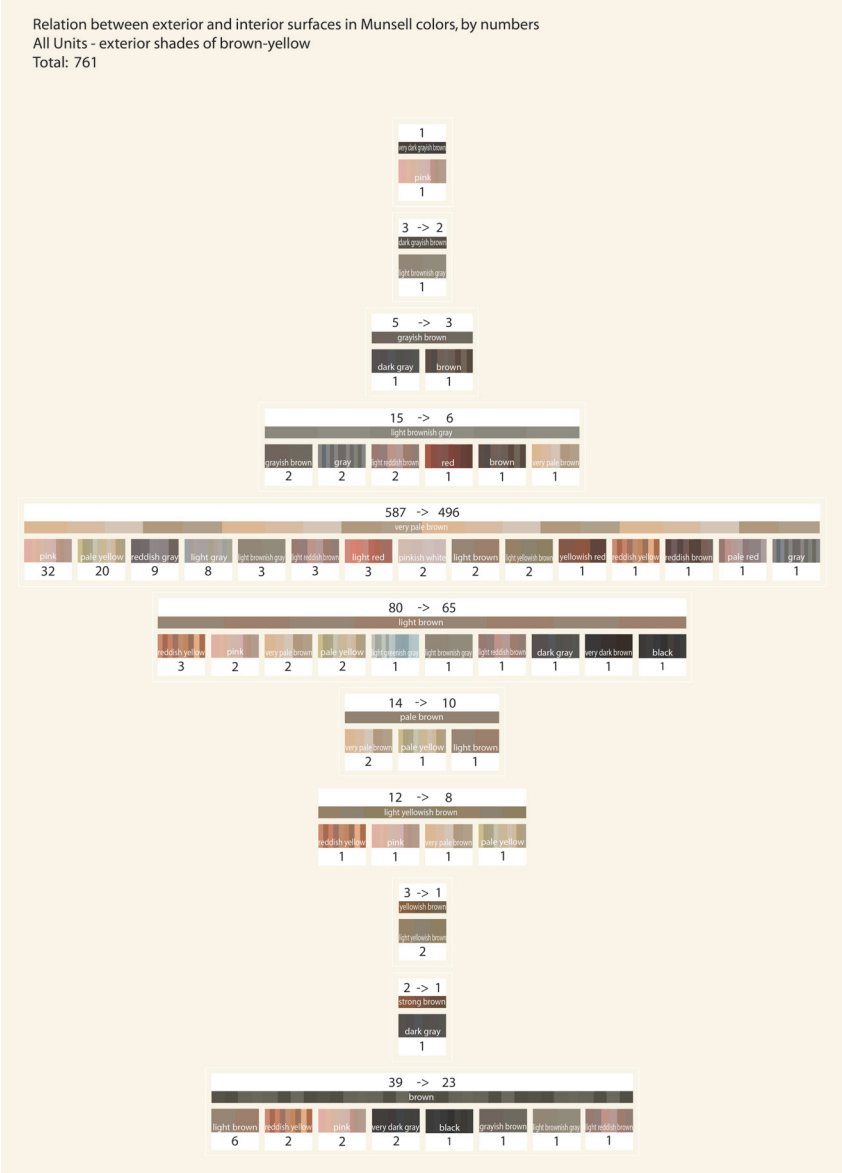
Relation between exterior and interior surfaces in Munsell colors, by numbers
All Units - exterior shades of brown-yellow
Total: 761
1
pink
1
3 -> 2
dark grayish brown
light brownish gray
1
5 -> 3
grayish brown
dark gray
brown
1
1
15 -> 6
light brownish gray
grayish brown
gray
red
brown
2
2
1
1
587 -> 496
very pale brown
pink
pale yellow
reddish gray
light gray
light brownish gray
light reddish brown
light red
pinkish white
light brown
light yellowish brown
yellowish red
reddish yellow
reddish brown
pale red
gray
32
20
9
8
3
3
3
2
2
2
1
1
1
1
1
80 -> 65
light brown
dark gray
very dark brown
black
3
2
2
2
1
1
1
1
1
1
14 -> 10
pale brown
very pale brown
pale yellow
light brown
2
1
1
12 -> 8
light yellowish brown
reddish yellow
pink
very pale brown
pale yellow
1
1
1
1
3 -> 1
yellowish brown
light yellowish brown
2
2 -> 1
strong brown
dark gray
1
39 -> 23
brown
light brown
reddish yellow
pink
very dark gray
black
grayish brown
light brownish gray
light reddish brown
6
2
2
2
1
1
1
1

Figure 4.3

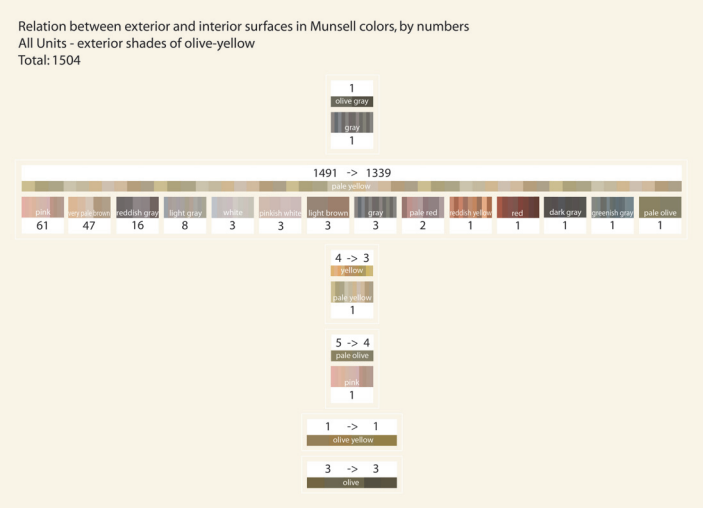
Relation between exterior and interior surfaces in Munsell colors, by numbers
All Units - exterior shades of olive-yellow
Total: 1504
1
olive gray
gray
1
1491 -> 1339
pale yellow
pink
61
47
16
8
3
3
3
3
2
1
1
1
1
1
4 -> 3
yellow
pale yellow
1
5 -> 4
pale olive
pink
1
1 -> 1
olive yellow
3 -> 3
olive

Figure 4.4

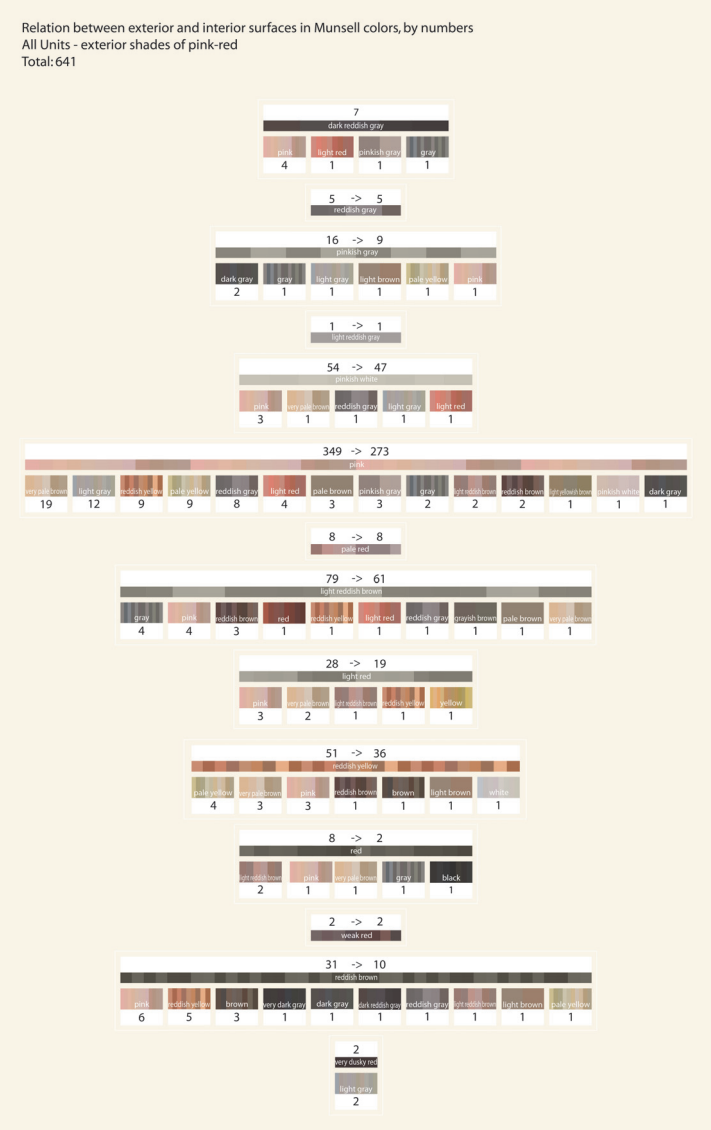
Relation between exterior and interior surfaces in Munsell colors, by numbers
All Units - exterior shades of pink-red
Total: 641
7
dark reddish gray
pink 4
light red 1
pinkish gray 1
gray 1
5 -> 5
reddish gray
16 -> 9
pinkish gray
dark gray 2
gray 1
light gray 1
light brown 1
pale yellow 1
pink 1
1 -> 1
light reddish gray
54 -> 47
pinkish white
pink 3
very pale brown 1
reddish gray 1
light gray 1
light red 1
349 -> 273
pink
19
12
9
9
8
4
3
3
2
2
2
1
1
1
8 -> 8
pale red
79 -> 61
light reddish brown
gray 4
pink 4
reddish brown 3
red 1
reddish yellow 1
light red 1
reddish gray 1
grayish brown 1
pale brown 1
very pale brown 1
28 -> 19
light red
pink 3
very pale brown 2
light reddish brown 1
reddish yellow 1
yellow 1
51 -> 36
reddish yellow
pale yellow 4
very pale brown 3
pink 3
reddish brown 1
brown 1
light brown 1
white 1
8 -> 2
red
light reddish brown 2
pink 1
very pale brown 1
gray 1
black 1
2 -> 2
weak red
31 -> 10
reddish brown
pink 6
reddish yellow 5
brown 3
very dark gray 1
dark gray 1
dark reddish gray 1
reddish gray 1
light reddish brown 1
light brown 1
pale yellow 1
2
very dusky red
light gray
2

Figure 4.5

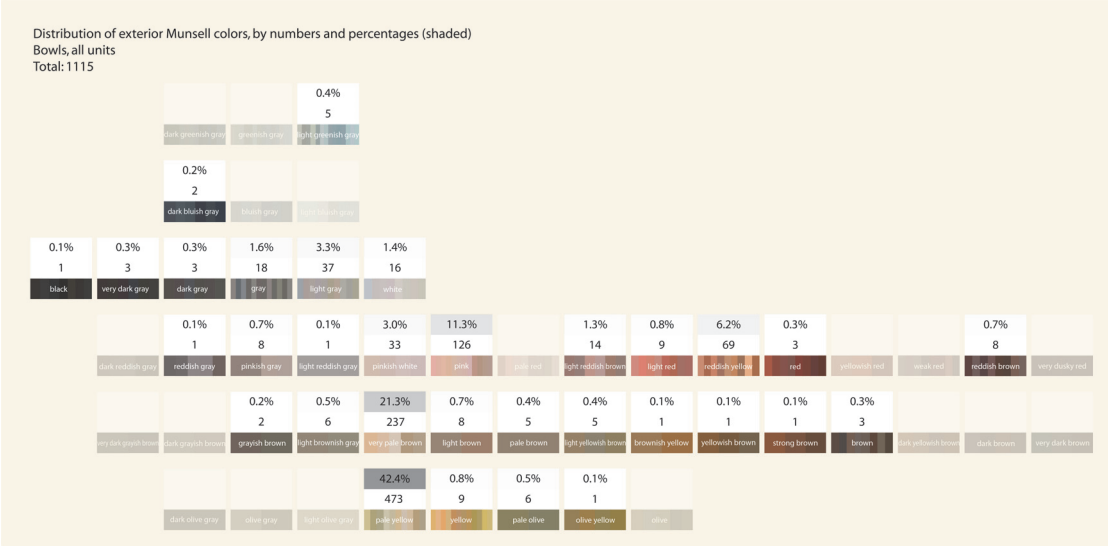

Figure 5.1

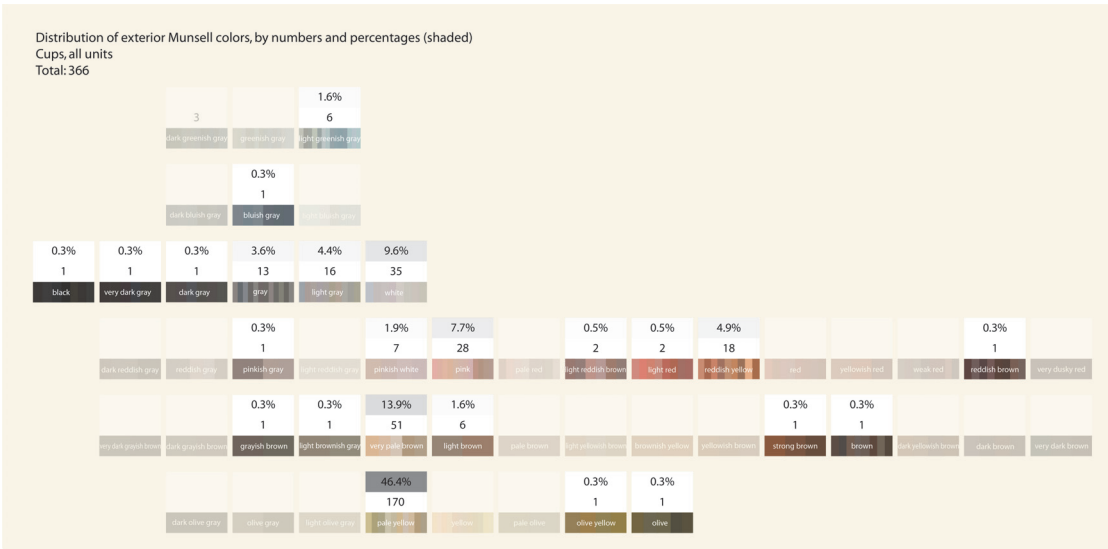

Figure 5.2

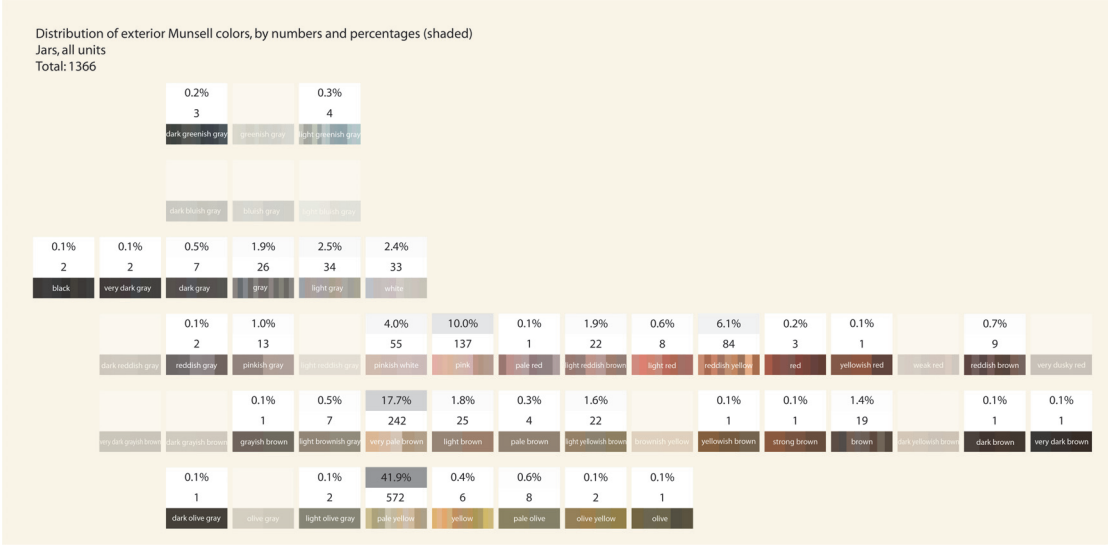

Figure 5.3

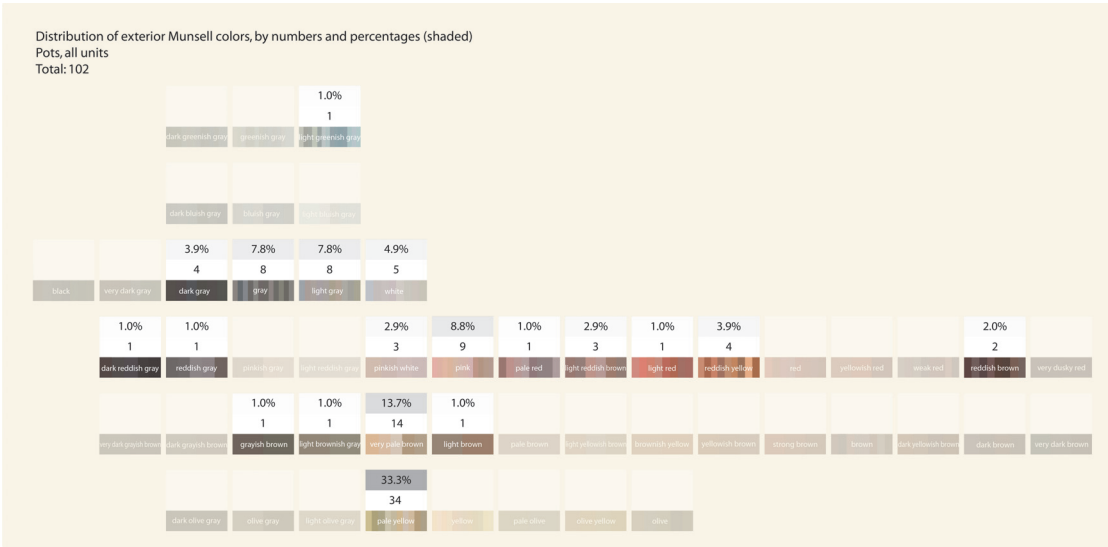

Figure 5.4

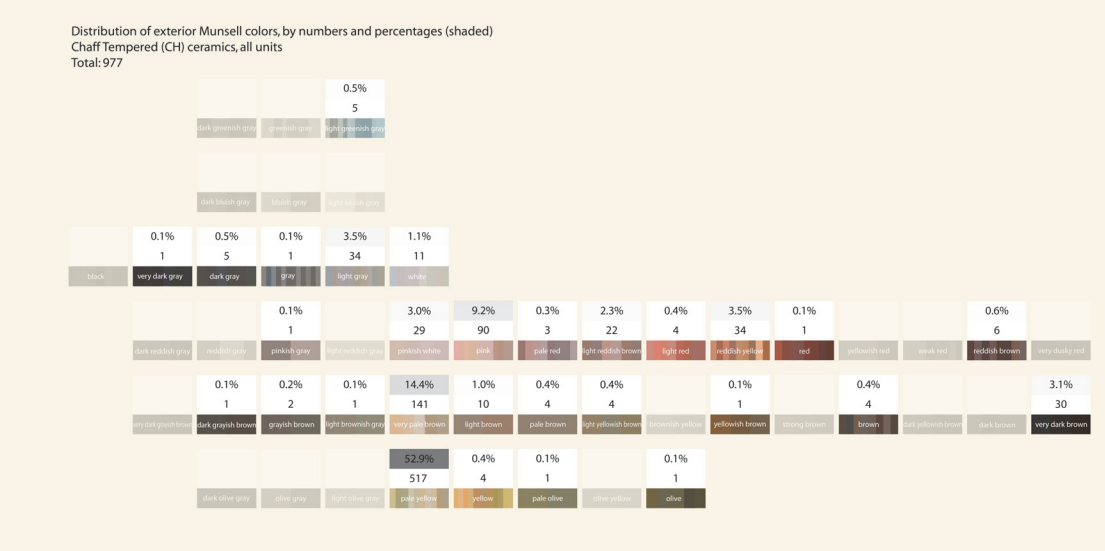

Figure 6.1

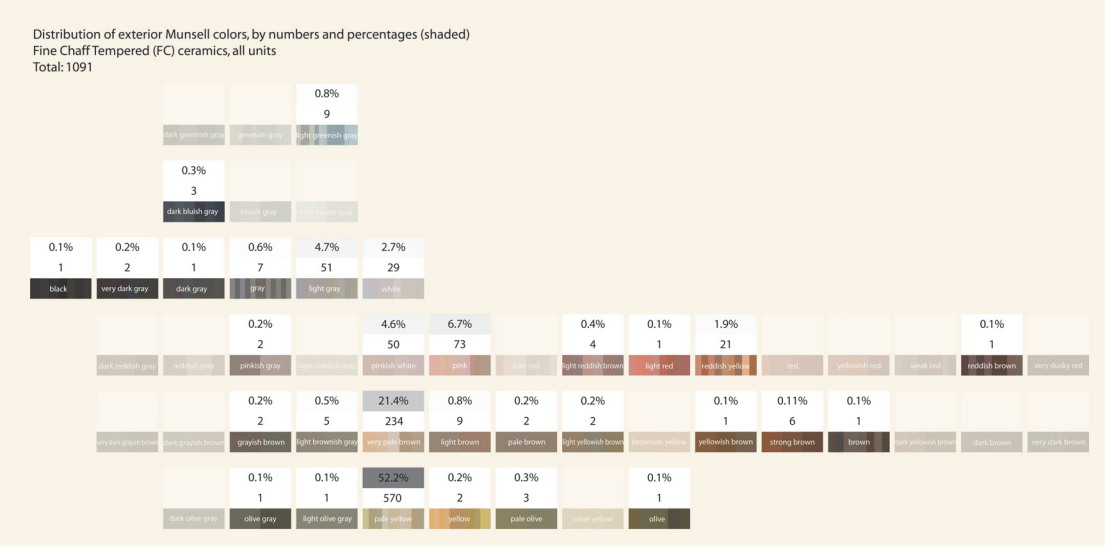

Figure 6.2

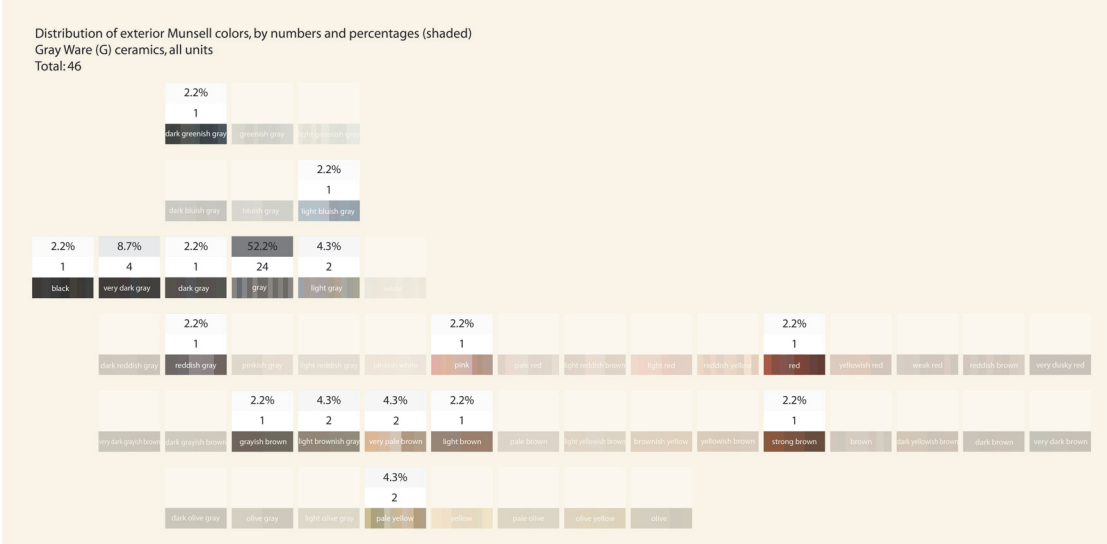

Figure 6.3

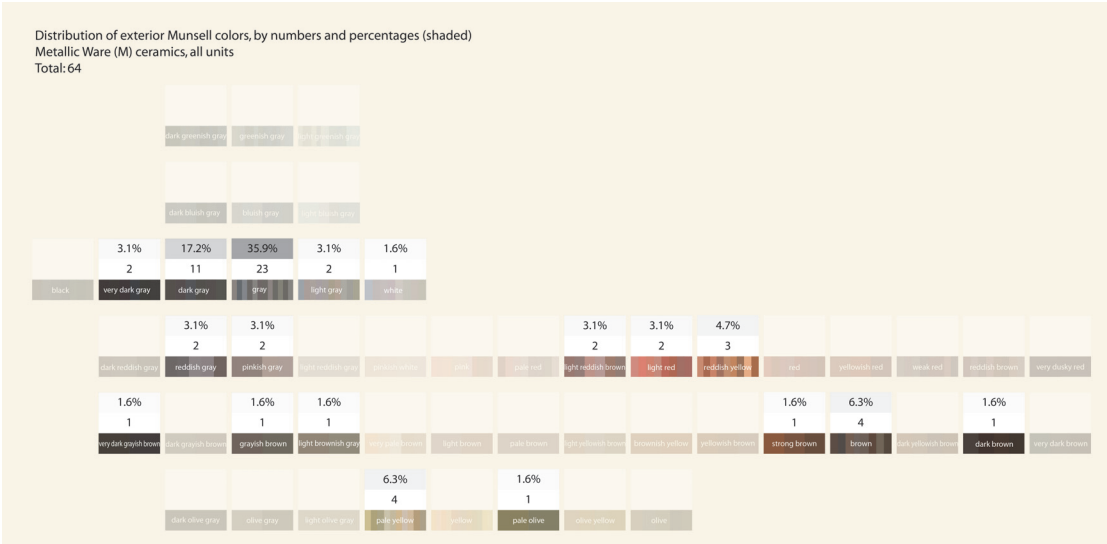

Figure 6.4

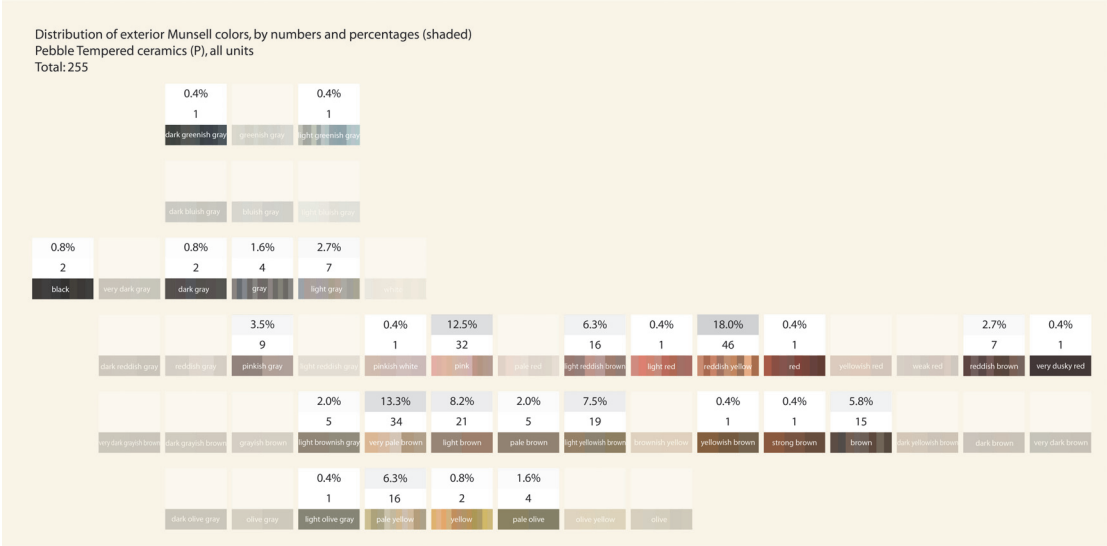

Figure 6.5

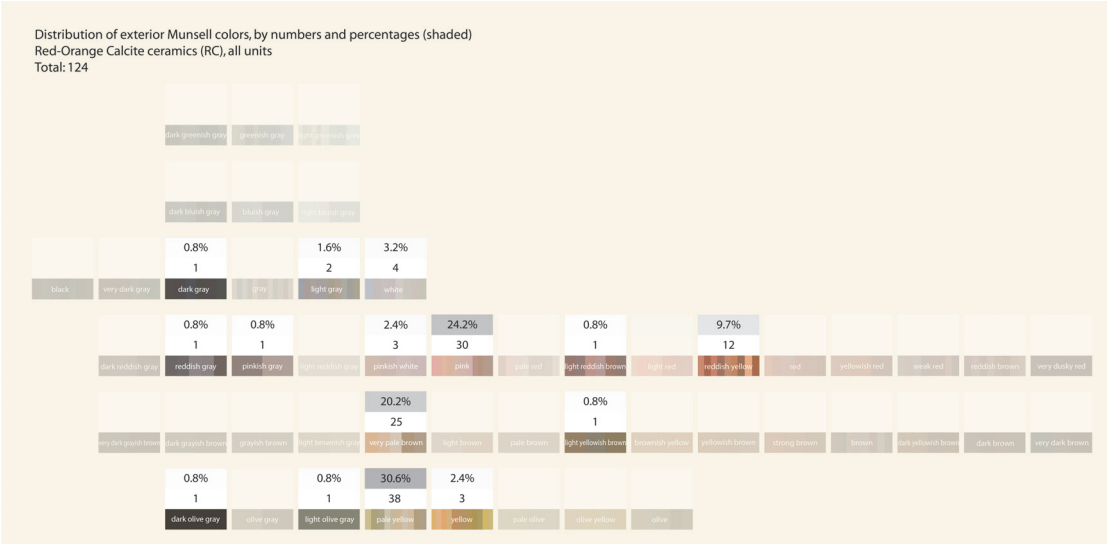

Figure 6.6

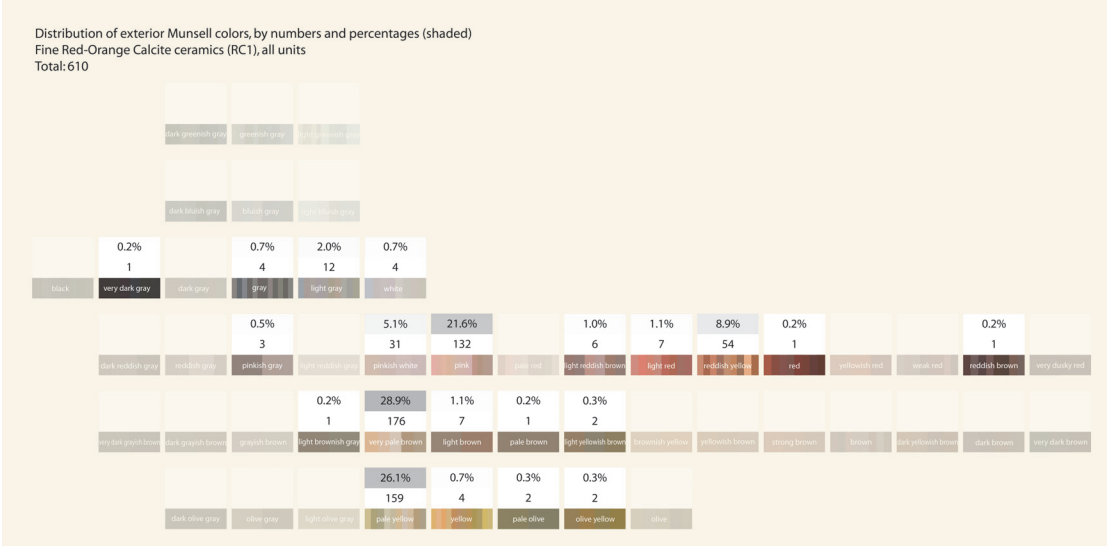

Figure 6.7

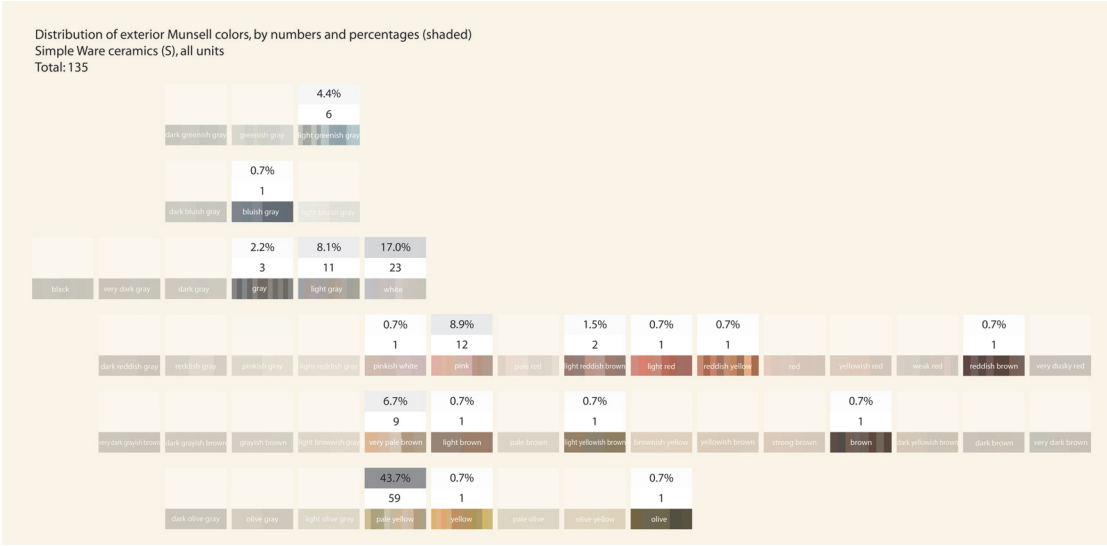

Figure 6.8

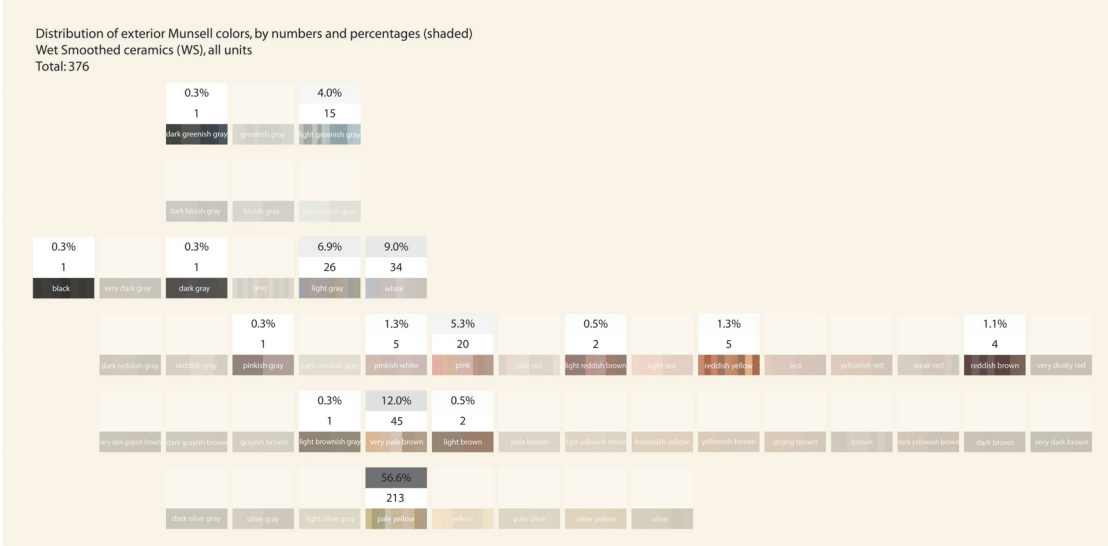
Distribution of exterior Munsell colors, by numbers and percentages (shaded)
Wet Smoothed ceramics (WS), all units
Total: 376
0.3%
1
dark greenish gray
4.0%
15
light greenish gray
dark bluish gray
bluish gray
0.3%
1
black
0.3%
1
dark gray
6.9%
26
light gray
9.0%
34
white
0.3%
1
pinkish gray
1.3%
5
pinkish white
5.3%
20
pink
0.5%
2
light reddish brown
1.3%
5
reddish yellow
1.1%
4
reddish brown
0.3%
1
light brownish gray
12.0%
45
very pale brown
0.5%
2
light brown
56.6%
213
pale yellow

Figure 6.9

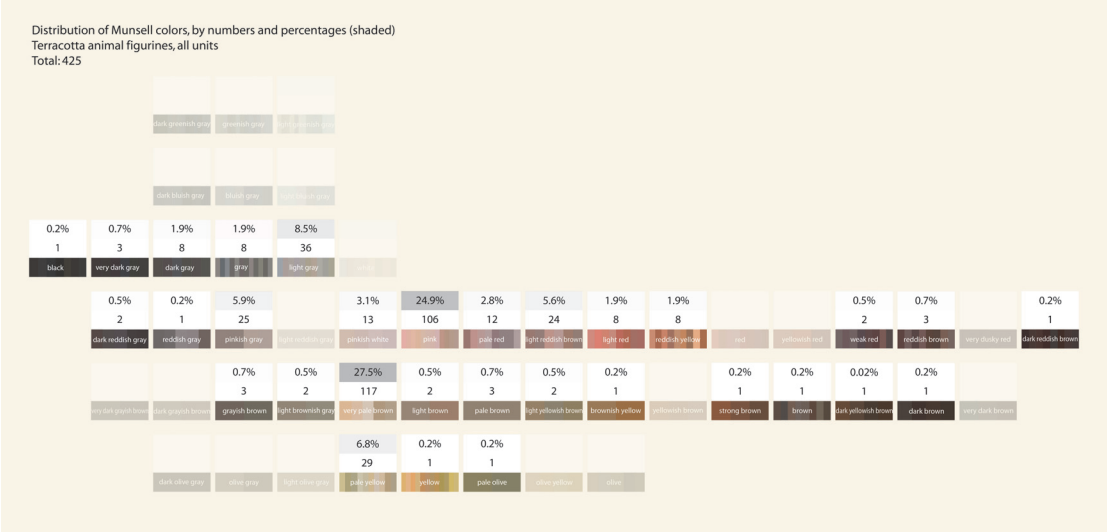

Figure 7.1

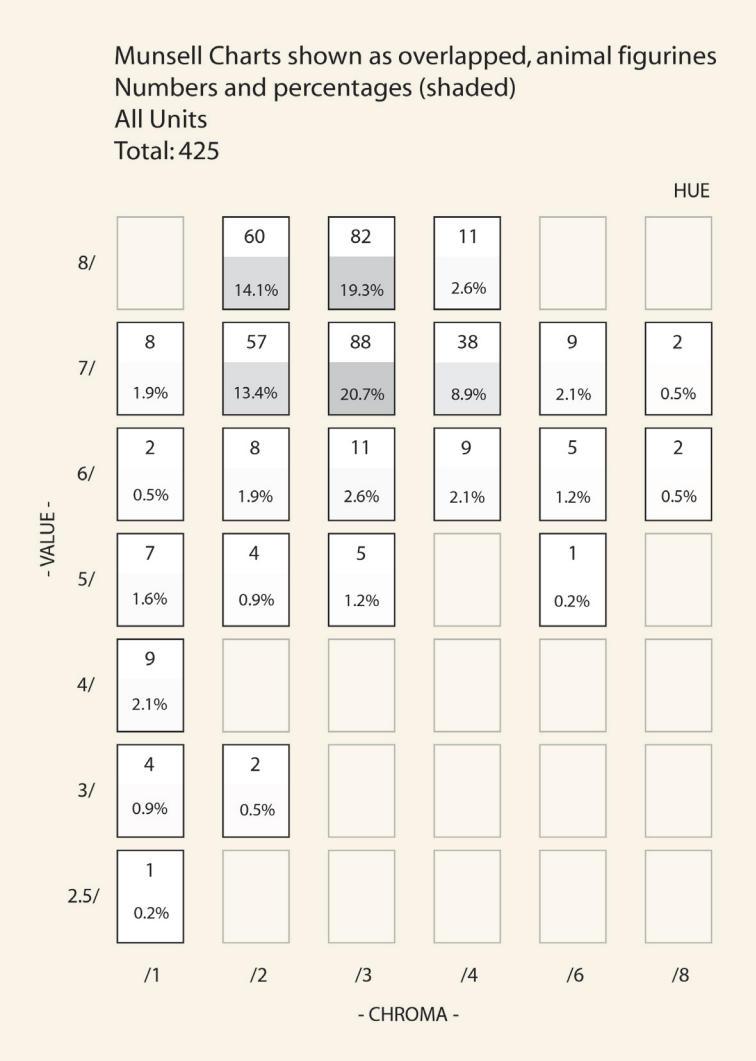

Figure 7.2